AMF® REECE

Better Ideas, Better Made

MODEL ATLAS Mark IV

AUTOMATIC BELT-LOOP SETTER FOR JEANS

PARTS AND SERVICE MANUAL

MACHINE SERIAL No:

PART NUMBER 97.5000.0.000

This manual is valid from the machine Serial No.: U AMIV0001

02 / 2022

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LIMITED WARRANTY ON NEW AMF REECE EQUIPMENT

Warranty provisions:

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

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

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

Exclusions:

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

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

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

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

WHAT TO DO IF THERE IS A QUESTION REGARDING WARRANTY

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

Prostejov, Czech Republic
Phone: (+420) 582-309-275
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

Thank you for buying our electronic belt-loop setter Atlas Mark IV. This sewing machine is intended for sewing belt-loops on jeans, casual trousers, and other style trousers. It has been designed and manufactured to be reliable and easy to operate. Special attention has been paid to ensure ease, effectiveness and safety for machine operators and servicemen.

Safety mechanisms protect both, operators and the machine, and respect valid safety and hygiene provisions for usual technological usage of the machine. Those safety mechanisms include electrical plug, operation switch (circuit breaker) and covers ensuring safety operation of the machine only if they are fitted onto the machine correctly.

There are information labels on the machine to point out additional danger. Do not remove or damage those labels. Mentioned warnings cannot cover all safety aspects and therefore it is very important for the operator to read this manual carefully and understand it well before he/she starts operating the machine. It will also eliminate errors during machine installation and its operation. Do not put the machine into operation unless you have read all the manuals supplied with the machine and have understood each function and procedure.

We recommend that servicemen from AMF Reece supervise the installation of the machine and initial training of your mechanics and operators. The most effective method ensuring safety of operators working on the machine is a strict safety program including instructions for safety operation. Operators and servicemen should wear safety glasses.

A - INTRODUCTION

2. SAFETY INSTRUCTIONS

This manual includes four categories of safety instructions:

DANGER! Overlooking instructions may endanger operator's life.

WARNING! Overlooking instructions may cause severe injury of the operator or damage the machine.

CAUTION! Overlooking instructions may damage the machine or cause injury of the operator.

NOTE! Ignoring procedures may cause functional problems with the machine.

2.1. GENERAL SAFETY INSTRUCTIONS

Before plugging the machine into electricity, make sure that all covers are fitted. Do not put the machine into electricity if any cover is removed.

Remember the position of the STOP button, so that you can use it at any time.

Check that electric cables are not damaged. Bare cable could cause an injury. Repair damaged covers or replace them with new ones.

Do not touch rotating and moving parts at any circumstances.

Do not put your fingers into the sewing needle area at any circumstances.

Before changing the needle, switch off the main switch.

Always unplug the machine from the electricity before machine maintenance and cleaning.

If you are not going to work on the machine, disconnect the power supply with the main switch.

Do not modify the machine in any way that could endanger its safety.

Keep in mind, that improper handling or wrong maintenance can make each part of the machine dangerous. It is very important that whoever works with the machine – operate it or do the maintenance – is acquainted with information in this brochure and parts catalogue.

Do not miss out doing regular maintenance in accordance with the operational manual.

If the electricity power supply breaks down, switch off the machine with the main switch.

Do not remove, damage, modify or paint safety labels, but keep them clean. In case they are not legible or not in place, order a new label and place it onto the original spot.

If you have long hair, bind them in the way it cannot be caught and trapped by the driving mechanism.

Buttons (hooks) on the sleeves always keep on, to avoid the danger of wrapping loose clothing to the drive mechanism.

Do not work on the machine impaired or intoxicated.

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A - INTRODUCTION

2.2. DELIVERY SAFETY INSTRUCTIONS

⚠ When unwrapping the machine, follow the marks and symbols on the box and wrapping.

⚠ Visible damages of the consignment caused during shipment must be reported to the freight forwarder immediately. Check the content of the consignment with the order and inform the manufacturer on any discrepancies. Later claims will not be accepted!

2.3. INSTALLATION AND MAINTENANCE SAFETY INSTRUCTION

⚠ The machine is fitted with a filter to suppress noise according to the standards (EMC - ČSN 50081-1 and 50081-2). In case there is a circuit breaker connected in the power system, it must be the type for devices with stray current and with high resistance to surge current in the operational conductor (i.e., “S” type).

⚠ If there is a need to remove any of the safety covers, switch off the main switch, and possibly unplug the machine from the electricity.

⚠ It is strictly forbidden to connect any connector while the machine is switched on and under voltage! Electrical parts and motors may get damaged.

⚠ Make sure that electricity supply and its dimensioning and protection provide stable electricity supply necessary for reliable machine performance.

2.4. DAILY OPERATION SAFETY INSTRUCTIONS FOR OPERATOR

⚠ Do not connect the machine onto power supply, if any of the safety covers is removed.

⚠ Check there are no bare electrical cables that could cause injury.

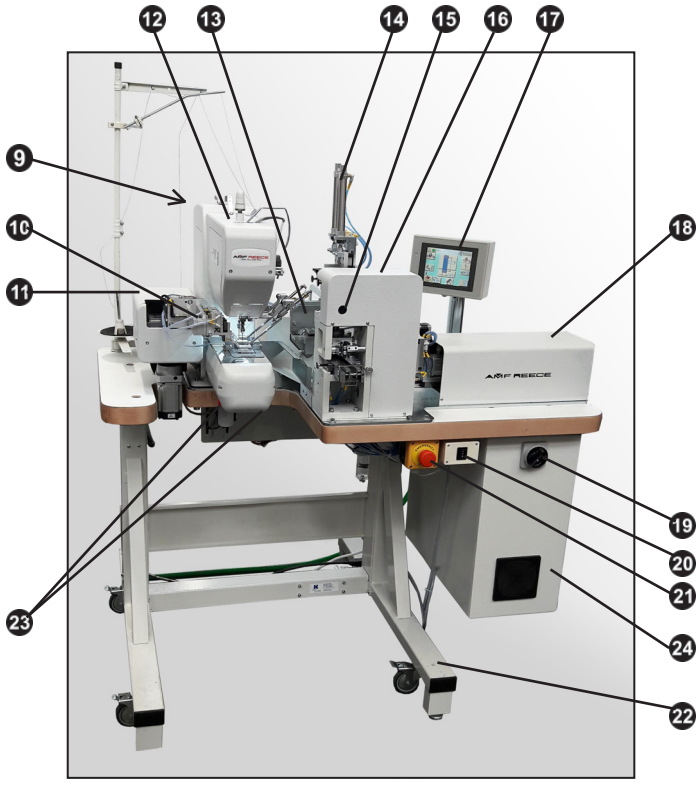
⚠ If you are not sure about proper operational procedure, it is necessary to call a mechanic.

⚠ The user has to ensure the lightning of minimum 750 Luxes.

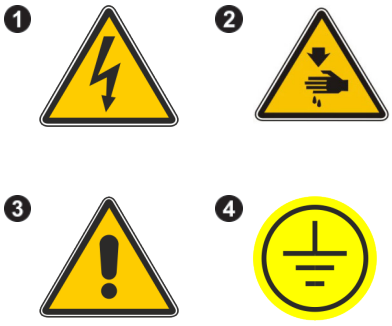
A - INTRODUCTION

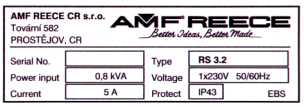
3. SAFETY LABELS AND ARRANGEMENT

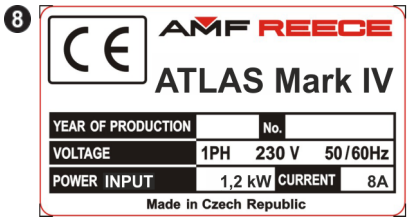
1. Electricity injury warning
2. Danger - possible injury
3. Injury warning
4. Electrical grounding
5. Manufacturer information label
6. Control box label
7. Warning
8. Standard machine label
9. Rotation direction
10. Loop clamping
11. Axis X-Y drive
12. Sewing head
13. Feeding axis Y base
14. Belt-loop alignment system
15. Loop preparation
16. Cutting
17. Touch screen panel
18. Feeding axis X base
19. Main power switch
20. Machine stand height control
21. EMERGENCY STOP button
22. Machine stand
23. Start buttons
24. Control box



SAFETY DEVICE AND LABELS







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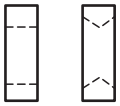
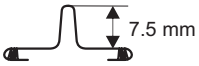
A - INTRODUCTION

TECHNICAL CONDITIONS

Description	Parameters
Application	Electronic automatic belt-loop setter
Stitch type	301 lock-stitch
Sewing speed	max. 2,700 rpm
Needle-bar stroke	40 mm
Lift of the presser foot	20 mm
Belt-Loop	
Sewing style	
Belt-loop length (tack spacing)	35 — 100 mm — fully automatic machine adaptation
Belt-loop width	10 — 30 mm
Belt-loop prolongation	 up to 7.5 mm
Tack max. sewing area X-Y	30 x 15 mm
Memory	99 patterns
Cycle mode	20 cycle modes; 1 cycle mode = 10 belt-loops
Thread trimming	Automatic
Thread catching	Automatic
Recommended threads	#30 - #100
Needle system	134
Control panel	Color touch screen display
Sewing light	LED diodes
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 head	494 mm (height) x 321 mm (width) x 626 mm (depth)
Machine weight	~ 240 kg
Overall of machine dimension	1,200 (width) x 800 (depth) x 1,232 — 1,332 (height) sitting version 1,200 (width) x 800 (depth) x 1,317 — 1,607 (height) standing version
Table height	960 — 1,250
Electrical requirements	230V/TN-S 1F+N+PE - 50/60Hz
Line circuit breaker	Min. 10A "C" Characteristic (EN60947-2)

A - INTRODUCTION

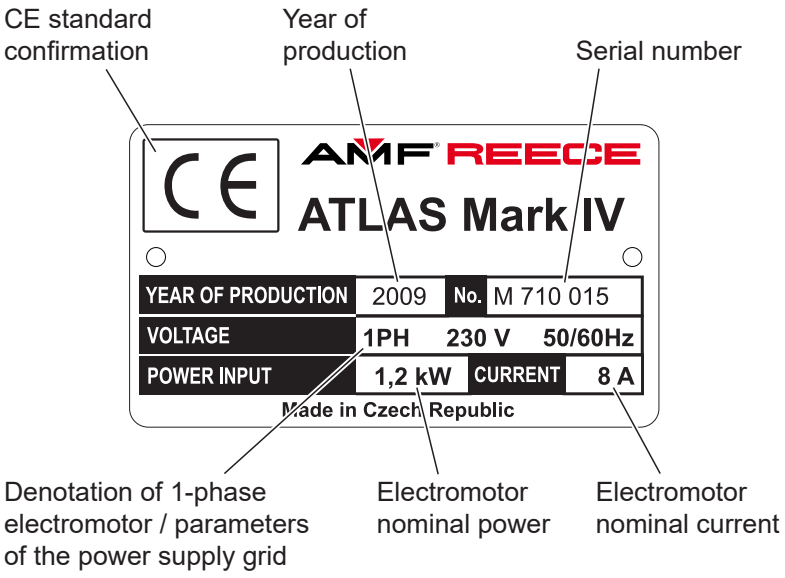
4. COLOURED MARKING

SCREW TOP LINKS	**YELLOW MARKS**	1. Loosing and following disassembly of this link causes distincive intervention to the mechanism adjustment, was done when assembled and sewed off at the factory. 2. After such an intervention to the mechanism, new adjustment completely checked as well.
	BLUE MARKS	Screws and nuts are secured against loosening with glue "LOCTITE"
LUBRICATION LOCATIONS	**RED MARKS**	⚠ **CAUTION!** *Lubrication regime adherance is necessary for protection of the reliable long-term machine operation.*

5. INFORMATION NECESSARY FOR A CLAIM

5.1. In case of a claim communicate the data from the serial number plate – serial number and the year of production.

5.2. Describe the defect, enclose with a photo whenever applicable.



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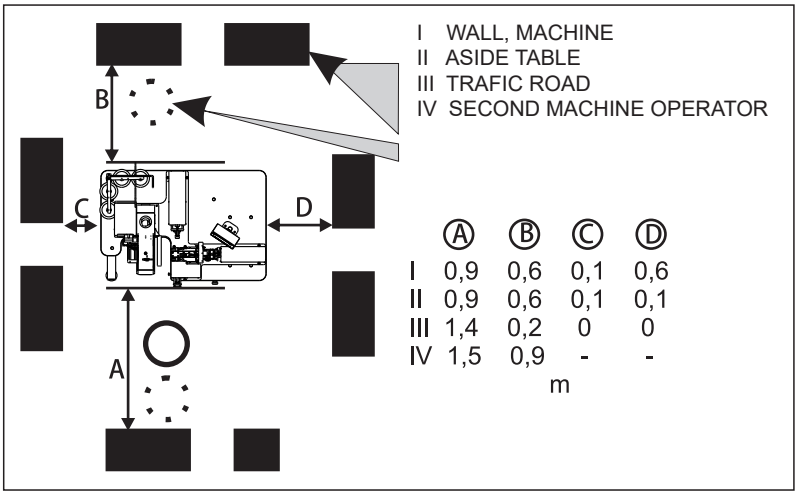
B - MACHINE ASSEMBLY

1. INSTRUCTIONS FOR OPERATOR



	Ⓐ	Ⓑ	Ⓒ	Ⓓ
I	0,9	0,6	0,1	0,6
II	0,9	0,6	0,1	0,1
III	1,4	0,2	0	0
IV	1,5	0,9	-	-

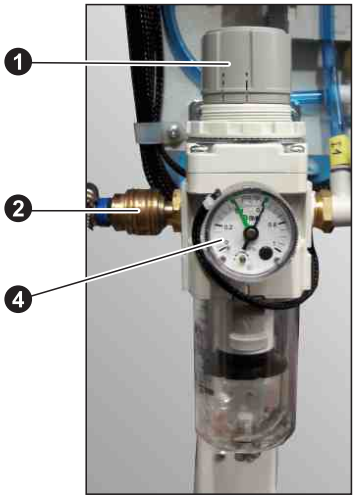
m

B - MACHINE ASSEMBLY

2. CONNECTING THE MACHINE TO THE DISTRIBUTION OF ELECTRICITY AND AIR

2.1. The socket of the safety coupler ❷ ensures easy connection of a compressed air. On a regular basis we recommend to use the socket 25 KE AK 13. (order no. FESTO 151 776 designation KD -1/4, order no. RECTUS 38044). The input pressure must be higher by at least 1 bar (0,1Mpa) than the output pressure adjusted on the controller ❸ using the knob ❶. Alternatively, it is possible to use a different connection of air inlet. In this case the manufacturer recommends to complement the air connection with a manual closure so that it is possible to stop the air supply.

2.2. After connecting the air, check the set pressure on the controller ❸. It must be min. 0.55 MPa. The correction can be carried out by pushing out the closure ❶. Increase the set pressure by turning clockwise, decrease it by turning anticlockwise. Push the closure ❶ in again.



2.3. The electric power supply needs to be of 230V. The electricity distribution socket for the supply fork must meet the requirements of the norm IEC 364-4-41, it must have a 10A „C“ fuse according to EN 60947-2 (event. 16A „B“ fuse). No other appliances can be connected to the circuit of the fused socket.

NOTE!
⚠ The machine is fitted with a filter for the reason of interference elimination according to EMC-ČSN EN 50081-1 and 50081-2. In case there is a current protector connected to the supply network you must use the type designed for devices with stray current and with high resistance to surge current in the operating wire (e.g. type „S“).

2.4. The provided warranty does not cover the LED diodes of the machine´s sewing light.

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C - PROPER APPLICATION

TURNING ON THE MACHINE - ESTABLISHMENT OF HOME POSITION

NOTE!
Refer to section D for the comprehensive description of machine control through its display.

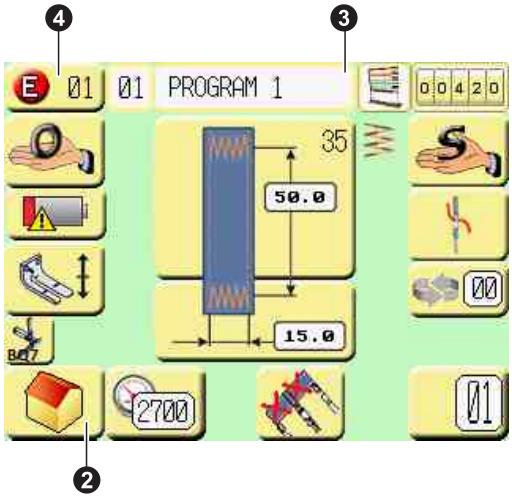
1.1. Before the first machine startup it is necessary to remove the preserving oil and grease all respective places as stated in chapter F 3.

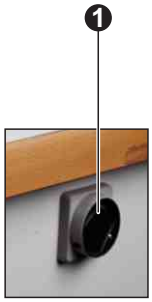
1.2. Turn on the machine by rotating the main switch ❶ clockwise to position I ON.

1.3. Display is activated and backlit. Initial screen appears, wait for appearing the main screen ❸.

1.4. If error E01 appears in field ❹, press the home button ❷. In case of another error notification, proceed according to instructions in section 3 “Troubleshooting” of this manual.

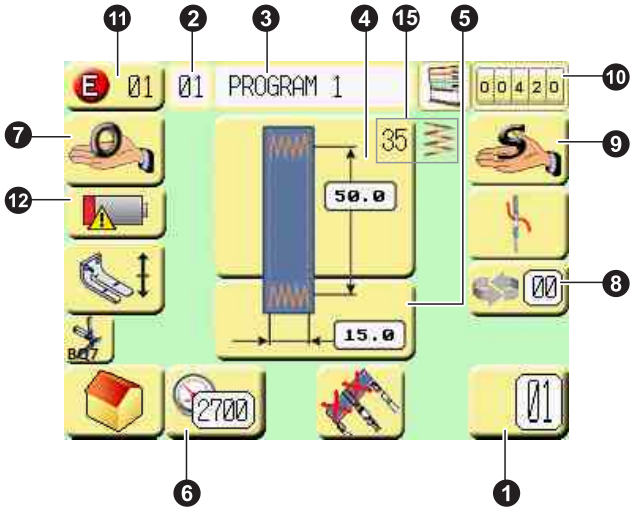
1.5. Machine is ready for sewing when there is a green label in field ❹. (For display description refer to D 1).





D - MACHINE FUNCTION CONTROL

Main Screen



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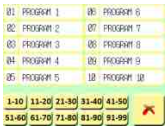
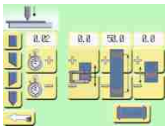
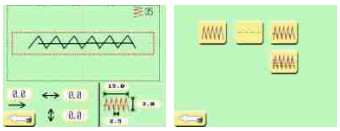
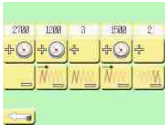
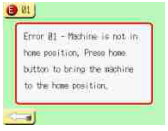
D - MACHINE FUNCTION CONTROL

Button/ icon	Current/ following screen	Screen name/ icon name	Parameter setting	Chapter
❶ 		Belt-Loop Programme selection screen	Programme selection by number	D 2.1.
❷ 		List of programs screen	Programme selection	D 2.1.
❸		Alphanumeric keyboard	Belt-Loop program names	D 2.2.
❹ 		Belt-Loop sewing parameters screen	Belt-loop cutting shape Holding time of knife Belt-loop length Position of sewing pattern	D 2.3.1.
❺ 		Sewing pattern type screen	Shift of the pattern in X-axis Shift of the pattern in Y-axis Sewing pattern length Bite of the sewing pattern	D 2.3.3.
❻ 		Sewing speed adjustment screen	Sewing speed Sewing start speed Number of initial stitches sewn with start speed Sewing end speed Number of final stitches sewn with end speed	D 2.3.4.
❼ 		Operator function screen	Buttons for: Cut the belt-loop Belt-loop clamping mechanism moves to the front Belt-loop clamping mechanism moves to the back Terminate the bobbin exchange mode.	D 4.1.
❽ 		Cycling program screen	Cycling program from 1 to 10 Belt-loop program in chosen cycling program	D 3.2.
❾ 		Service menu screen	Setting machine parameters/ for trained service mechanics only	E 1
❿ 		Productivity screen	Counter mode Total machine productivity	D 4.2.
⓫ 		Error mesages screen	Error number Error description Instructions to eliminate errors	D 4.3.
⓬ 		Battery discharge screen	Information about discharged battery	D 4.4.

D - MACHINE FUNCTION CONTROL

COMMONLY USED BUTTONS AND ICONS

Bellow mentioned buttons and icons are routinely seen on display screens. They are not described in following chapters. Please study carefully their meanings before initioal programming.

Button	Name of the button	Description
	Machine home position	Pressing the buton the machine gets to home position, it means the machine is ready to start sewing a buttonhole.
	Machine moving	Machine is moving and is not possible to make any adjustments.
	Threading	By pressing this button the machine gets to the threading mode — you can thread the machine easily in this mode.
	Back	Pressing the button saves data and gets you back to the previous screen.
	Cancel	Pressing the button gets you back to the previous screen without any change of parameters.
	Delete	Pressing the button deletes all written letters.
	Delete letter	Pressing the button deletes the last written letter.
	Save	Pressing the button saves set parameters and gets you back to the previous screen.
	Feeder cancel	The feeder goes to the initial position by pressing the button. Please remove the belt-loop.
	Belt-loop Clamping	By pressing the button belt-loop clamps go down.
	Belt-loop Joint Sensor	Information about belt-loop joint sensor state.
	Number of Stitches	Count of stitches in actual program.

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D - MACHINE FUNCTION CONTROL

1. TOUCH-SCREEN PANEL

CAUTION!
- Machine sewing parameters and machine functions are controlled through the touch-screen panel. For better comprehension, please read the section D carefully before setting the parameters on the panel.
- **ATLAS Mark IV** machine software allows sewing of variable belt-loop length without mechanical adjustment of the needle-bar and looper.
- Machine programming procedure is described step-by-step: from program name setting to individual sewing parameters.

1.1. Before First Programming

CAUTION!
- Before the first sewing, make sure you understand proper setting from the machine panel: belt-loop bar-tack sewing pattern, change of the sewing speed and using of the cycle-mode.
- After turning the machine on, the panel is protected from incompetent setting of the sewing parameters. A password for touch-screen buttons activation shall be entered before programming. Password entering procedure is described in chapter E 1.1.1.
- Pay attention to enter the parameters properly, as described in chapter D 2. In case of wrongly set parameters, the needle-bars, material, needles or another part of the machine can be damaged!

2. PROGRAMMING

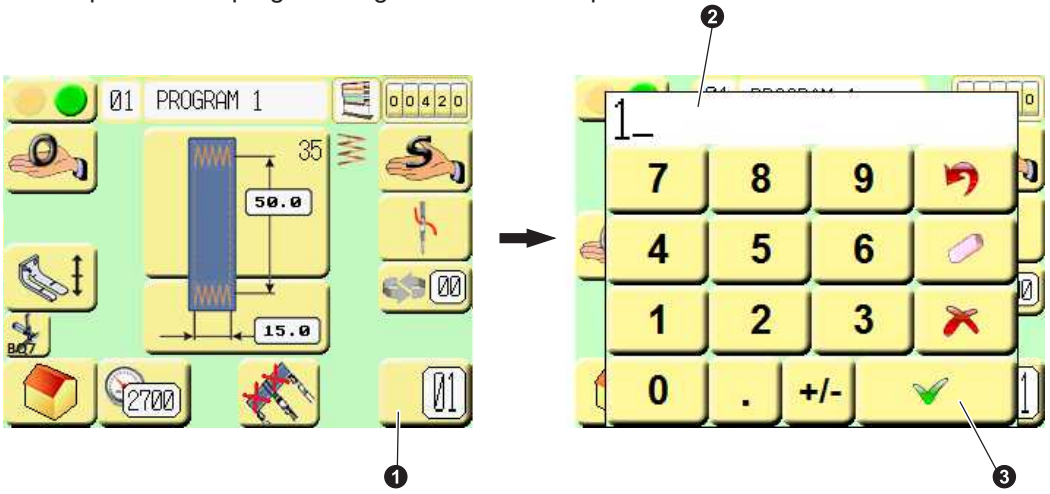
2.1. Belt-Loop Program Number Selection

Before setting the machine parameters, select a program number using either of the two procedures described in this chapter. The adjusted parameters are then permanently and automatically stored during the entire programming process. If you want to modify a program which is already stored in the machine memory, select the program number first in the very same way.

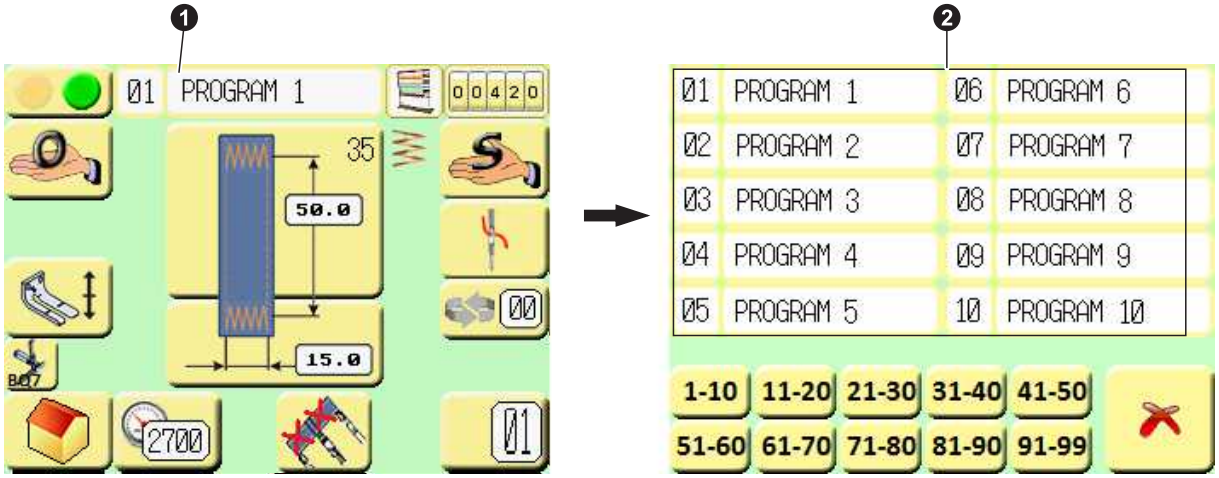
NOTE!
It is necessary to select a program number before the first belt-loop sewing parameters programming described in chapter D 2.2 and further.

Up to 99 various belt-loop sewing programs can be stored in the machine memory. Programs 1 to 99 can be programmed arbitrarily. Factory setting can be restored by using Master Reset.

Program number selection – first option:
Press button ❶ on the Main Screen. A numerical keyboard will appear. Select the desired program number in the range of 1 - 99. The selected number will appear on top of the keyboard ❷. Enter the setting by using button ❸ and begin with individual parameters programming described in chapter D 2.2 and further.



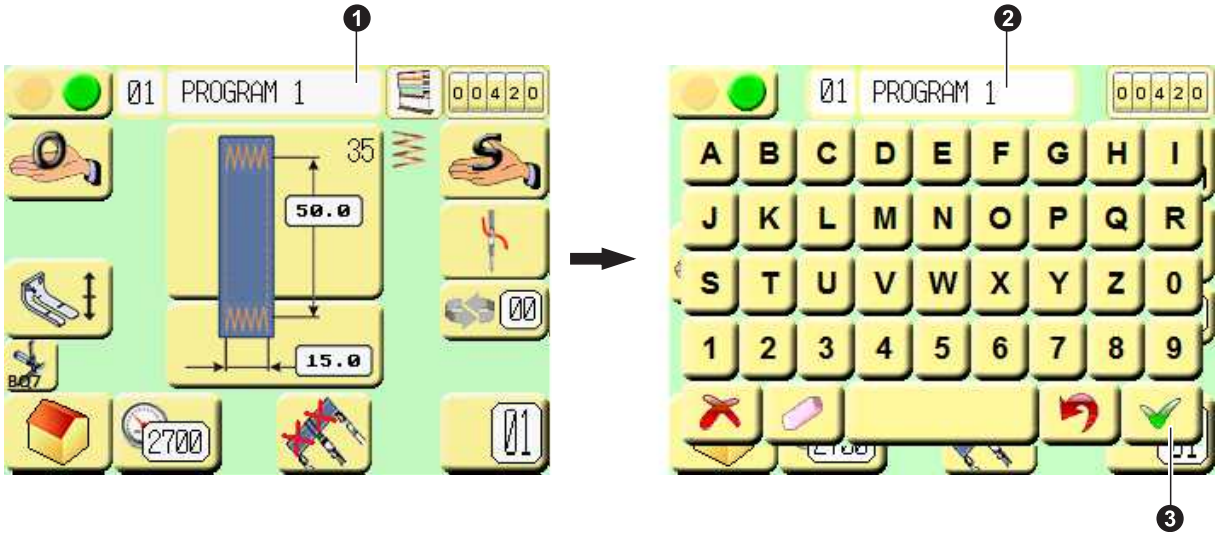
Program number selection – second option:
Press button ❶ on the Main Screen. Program List Screen appears. Select the desired program from the list of stored programs ❷. Press the desired program number or name to select that program and return to the Main Screen.



2.2. Program Name Selection

For better orientation among the belt-loop programs, one can assign a name to each program. The program name shall be composed of up to 14 alphanumeric characters.

Procedure:
Press button ❶ on the Main Screen. The keyboard will appear. Type the desired program number, you will see this name on top of the screen ❷.
Store the name by pressing button ❸.



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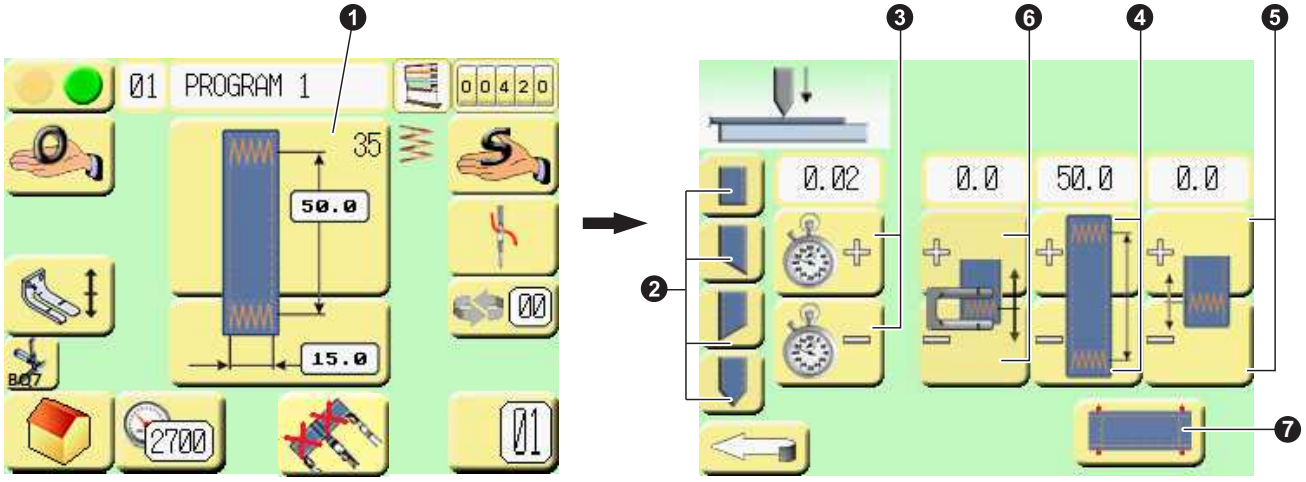
D - MACHINE FUNCTION CONTROL

2.3. Belt-Loop Parameters Setting

Belt-Loop Parameters Setting Screens allow selection of the sewn pattern and respective parameters. Before belt-loop sewing it is necessary to set its length, sewn pattern, cutting parameters, and sewing speed.

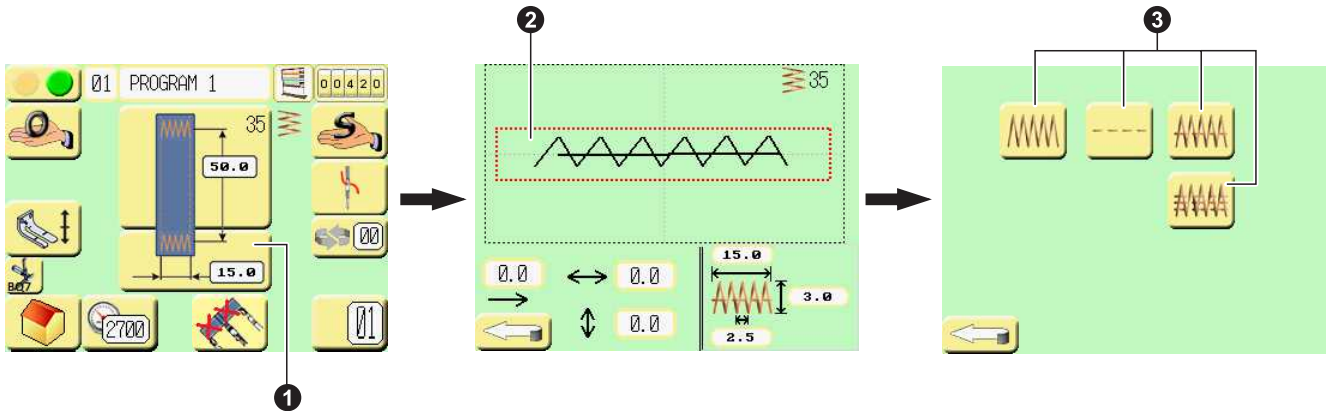
2.3.1. Belt-Loop Sewing Parameters

Press button ❶ on the main screen. The Belt-Loop Setting Parameters Screen will appear.
The belt-loop cutting shape can be selected by pressing a button ❷: straight, left- or right-skewed, or X-shape cutting.
Press button ❸ and set the cutting knife low-position holding time in the range of 0.0 – 0.8 s.
Press button ❹ and set the belt-loop length in the range of 35 – 100 mm.
Press button ❺ and set the position of belt-loop pattern in Y axis in the range of ± 4.0 mm.
Press button ❻ and set the position of belt-loop pattern within the belt-loop clamps in the range of ± 2.0 mm.
Press button ❼ and activate/deactivate belt-loop alignment system.



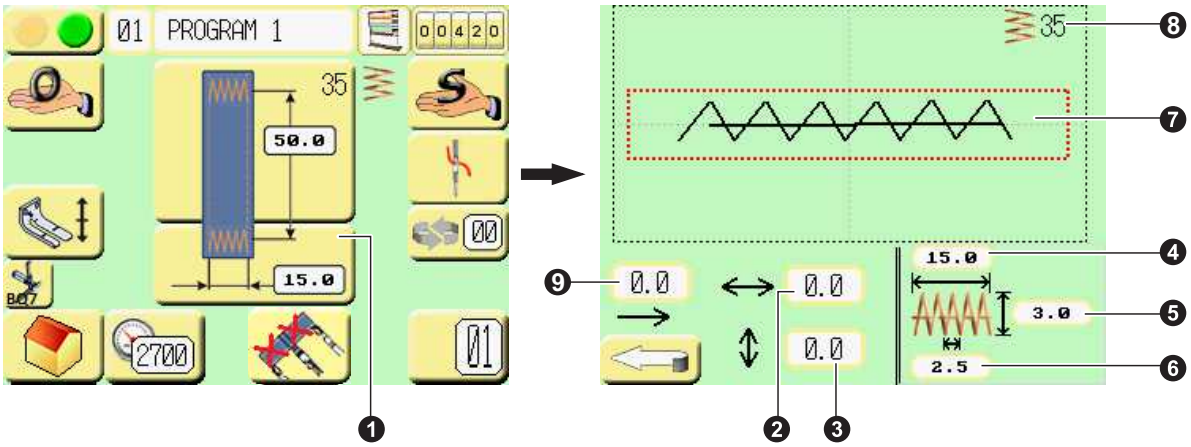
2.3.2. Sewing Pattern Type

Press button ❶ on the Main Screen. Sewing Pattern Parameters Screen appears.
Press the sewing pattern scheme ❷ on the Sewing Pattern Parameters Screen. The Sewing Pattern Type Selection Screen appears.
Select the desired pattern by using buttons ❸.



2.3.3. Sewing Pattern Parameters Screen

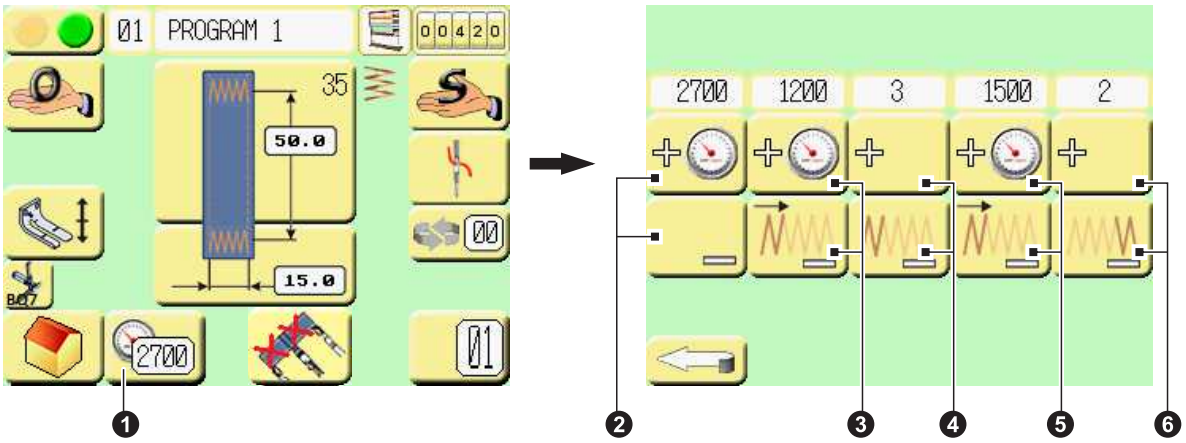
Press button ❶ on the Main Screen. Sewing Pattern Parameters Screen appears.
By parameter ❷ adjust shift of the pattern in X-axis in the range of +/- 15 mm.
By parameter ❸ adjust shift of the pattern in Y-axis in the range of +/- 15 mm.
By parameter ❹ adjust the sewing pattern length in the range of 0 – 30 mm.
By parameter ❺ adjust bite (width) of the sewing pattern in the range of 0 – 10 mm.
By parameter ❻ adjust the stitch density in the range of 0 – 30 mm.
The scheme of the sewing pattern according to the adjusted parameters is depicted in the area ❼.
❽ shows information about count of stitches in the pattern.
By parameter ❾ adjust shift of the belt-loop in X-axis in the range of - 2.0 mm + 12.0 mm.



2.3.4. Sewing Speed Adjustment

The sewing speed can be adjusted in the range from 1 to 3000 rotation per minute. Different speeds can be set for individual sewing sections.

Press button ❶ on the Main Screen. Sewing Speed Adjustment Screen will appear.
Press button ❷ to set the sewing speed in the range of 1 – 3000 rot/min.
Press button ❸ to set the sewing start speed in the range of 1 – 3000 rot/min.
Press button ❹ to set the number of initial stitches sewn with speed set by ❸ (from 0 to 6 stitches).
Press button ❺ to set the sewing end speed in the range of 1 – 3000 rot/min.
Press button ❻ to set the number of final stitches sewn with speed set by ❺ (from 0 to 6 stitches).



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D - MACHINE FUNCTION CONTROL

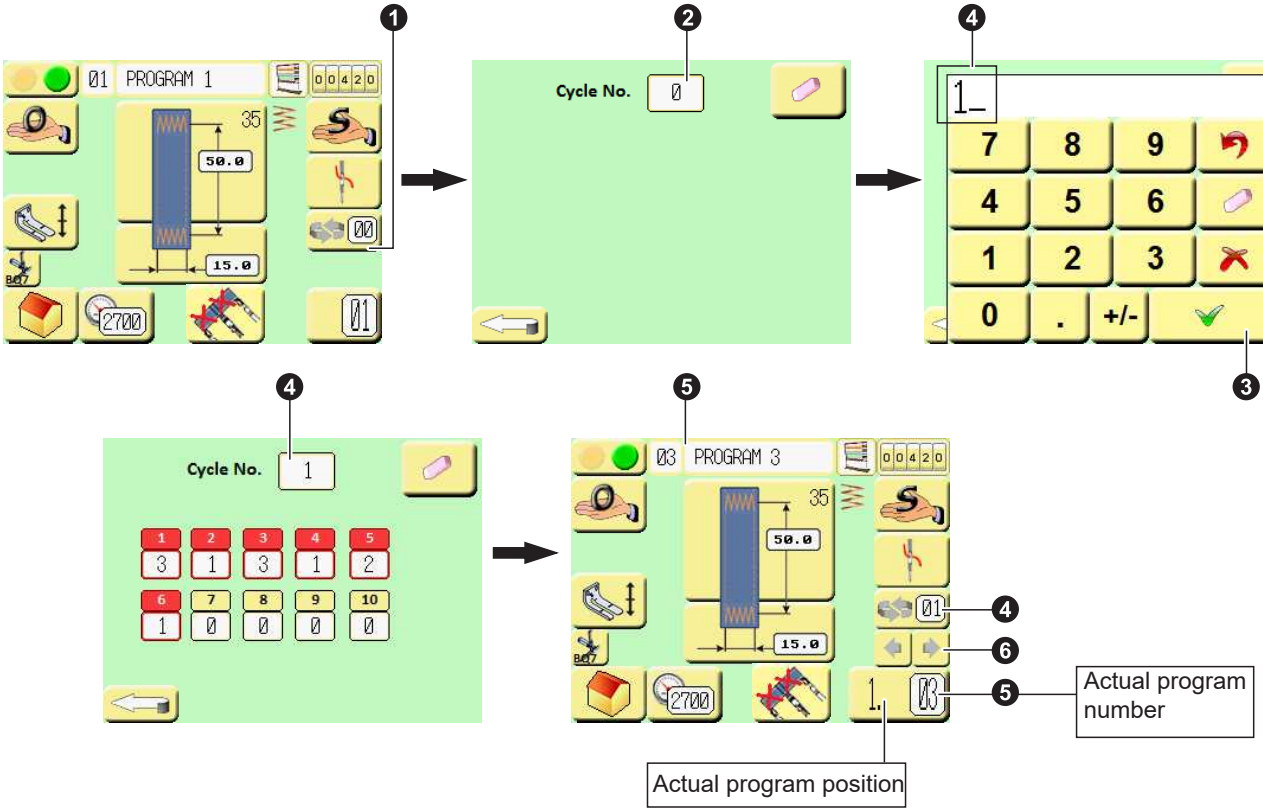
3. CYCLE MODE

Cycle mode allows sewing of various types and number of belt-loops in a repetitive sewing cycle.
There can be up to 20 different cycle programs. Sequence of up to 10 belt-loop programs can be stored in a single cycle program.

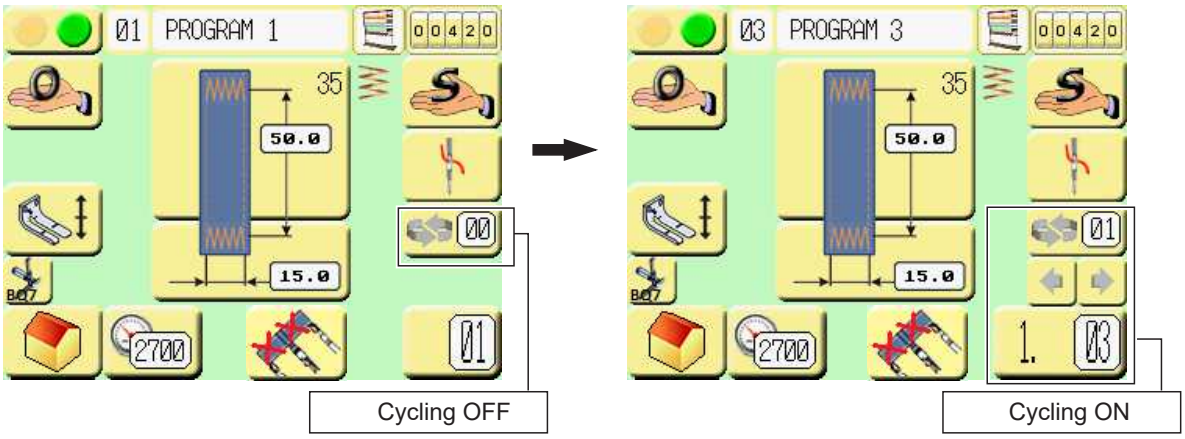
3.1. Cycle Program Number Selection

Press button ❶ on the Main Screen. Cycle Program Screen appears.
Press button ❷. Numeric keyboard appears. Select the cycle program number in the range of 1 – 20. The selected cycle program number will appear on top of the screen ❹. Enter the selection by pressing button ❸. and return to the previous screen. Field ❹ shows the cycle program number on both this screen and Main Screen.
In case that 0 is selected as the cycle number, the cycle mode is deactivated.
The current belt-loop program number is depicted on the Main Screen in the field ❺.
One can shift between individual program positions inside the cycle using button ❻.

For returning to the Main Screen use button  .



Note:
Turning the cycle mode on/off is indicated on the right side of the screen:

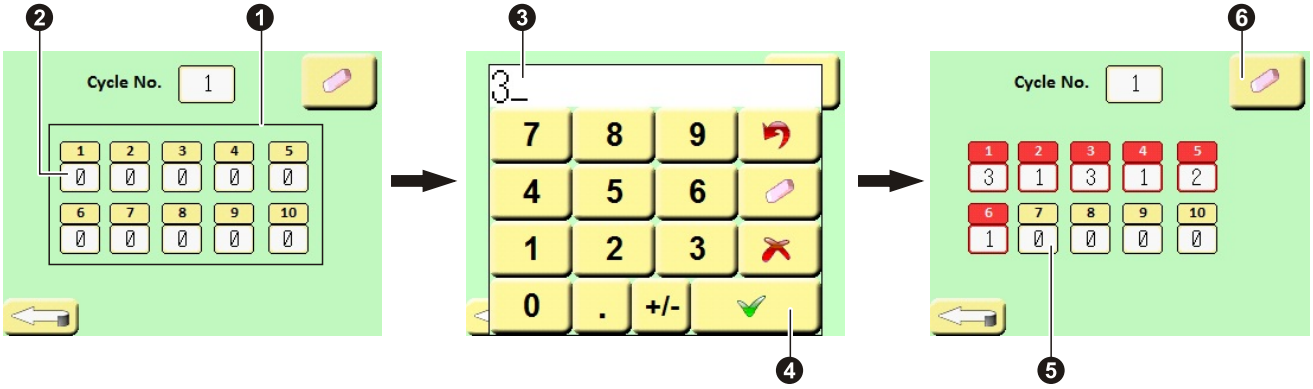


3.2. Selection of Belt-Loop Programs in Cycle Mode

Cycle mode positions 1 – 10 ❶ can be occupied by individual belt-loop programs.

Note:
Cycle program can only work with preset belt-loop programs.

Procedure:
Press button ❷ and the numeric keyboard appears.
Select the requested belt-loop program for cycle position „1“. The selected program number appears on top of the numeric keyboard ❸.
Press button ❹ to store the program number and return to the previous screen.
Follow the same procedure for setting the belt-loop programs to next cycle positions which will be sewn one after each other in the cycle program.
To erase all the chosen belt-loop programs within the cycle program press ❻.
End of the cycle program is indicated by the first „0“ – position ❺.

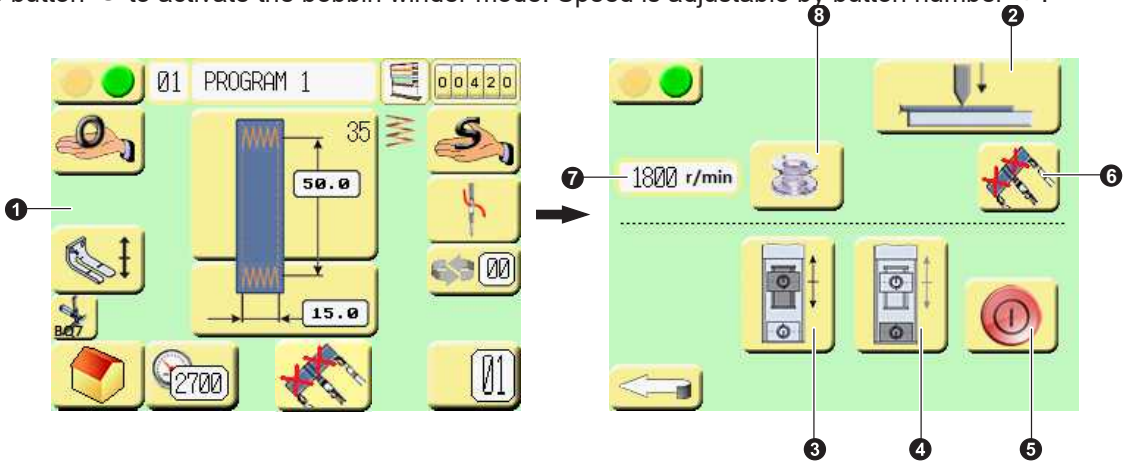


4. COMPLEMENTARY FUNCTIONS

4.1. Operator Functions

Press button ❶ on the Main Screen. The Operator Functions screen appears.
Press button ❷ to cut the belt-loop.

The bottom thread bobbin exchange mode is activated by buttons ❸ or ❹.
By pressing the button ❸ othe belt-loop clamping mechanism moves to the front. Bobbin of the back (moveable) looper can be exchanged now.
By pressing the button ❹ the belt-loop clamping mechanism moves to the back. Bobbin of the front (fixed) looper can be exchanged.
Press the button ❺ to terminate the bobbin exchange mode.
Press the button ❻ to cancel the actual belt-loop prepared in the feeder.
Press the button ❽ to activate the bobbin winder mode. Speed is adjustable by button number ❼.



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D - MACHINE FUNCTION CONTROL

4.2. Productivity Counter

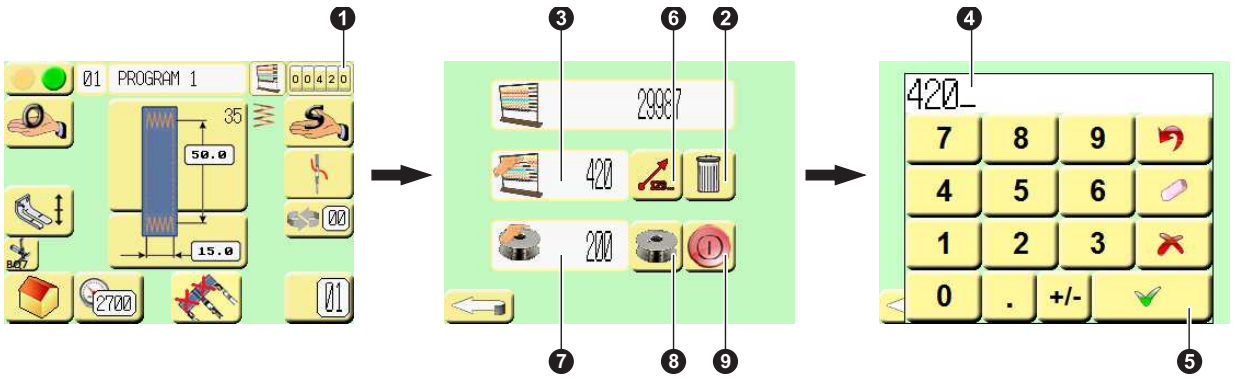
Machine productivity, i.e., number of the sewn belt-loops, can be watched using two types of counters:

- Daily counter of the sewn belt-loops – can be used to watch a production batch, number of the sewn belt-loops per shift, etc. Can be set arbitrary in the range of 0 – 30,000.
- Total counter of the sewn belt-loops – serves to observe the total number of the belt-loops sewn on the machine and thus can help to understand the current machine wear-out. This counter is not editable.

4.2.1. Daily Counter Setting

Procedure:

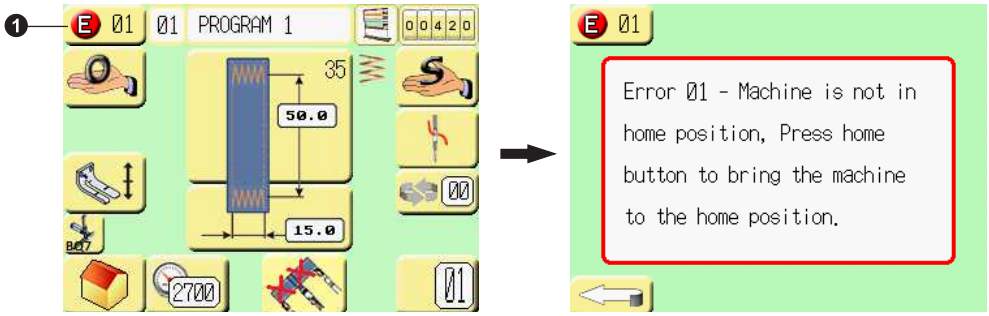
Press the button ❶ on the Main Screen and the Productivity Counter Screen appears.
Press the button ❷ to erase the daily counter.
Press the button ❸ and the numeric keyboard appears. You can set the counter value in the range of 0 – 30,000. This entered value will appear on top of the keyboard ❹.
Press the button ❺ for storing the value and returning to the main screen.
Press the button ❻ to choose the type of the counter: ascending  or descending  .
Press the button ❼ to set initial value for bobbin counter.
Press the button ❽ to activate/deactivate bobbin counter function.
Press the button ❾ to reset bobbin counter value.



4.3. Error Message

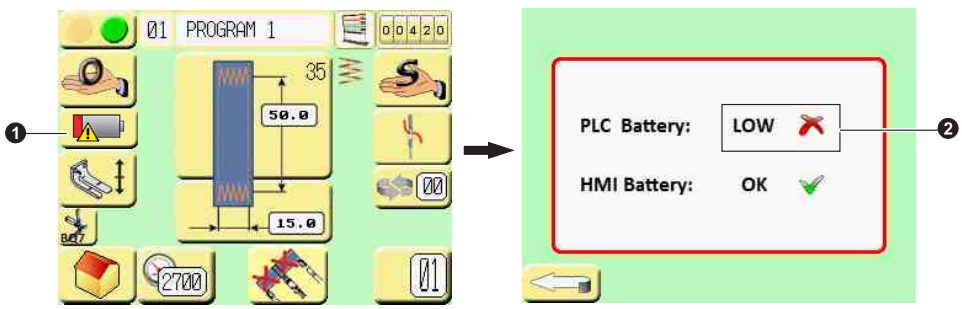
In case of a machine error, the error notification ❶ appears on the Main Screen.

Press button ❶ and the Error Message Screen appears. This screen describes the error, indicates the error number and description of its removing.



4.4. Battery Discharge

In case of the PLC of display battery discharge, the flashing icon ❶ appears on the Main Screen. Press button ❶. and the Battery Status Screen appears describing the current battery state. If the actual status is “LOW” ❷, it is necessary to check the battery connection and/or exchange it to a new one. The battery must be exchanged within 4 days to avoid data loss.



E - STANDARD MACHINE ADJUSTMENT

WARNING!
Any adjustments shall be performed only after turning the machine off by the main switch.
Unqualified actions can damage electrical devices and/or mechanisms of the machine.

CAUTION!
Always adhere to the safety rules of your company.
It is advisable to remove the needle for the adjustment procedures non-related to sewing.

1. DISPLAY SERVICE MENU

Display service menu is intended for advanced sewing mechanisms adjustment and testing. It shall be used by a skilled service engineer only. For higher security the service menu is divided into several levels according to the requested expertise and frequency of usage. Each level is protected by a passport, refer to chapter E 1.1.

CAUTION!
In case of an unqualified action the machine can be damaged, the warranty lost, and/or the operator injured.

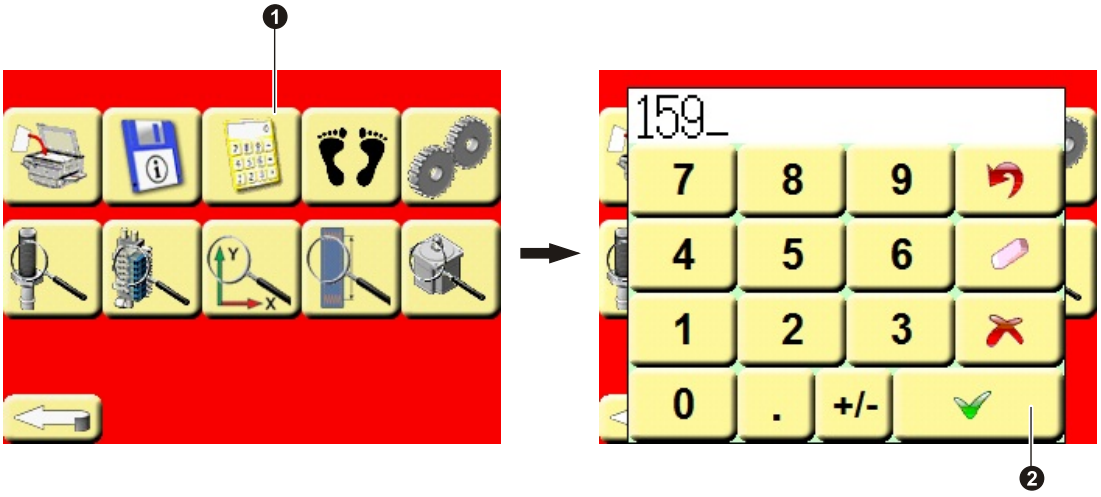
NOTE:
Description of the service menu control procedures always starts from the Service Menu Screen.

1.1. Password Entering

All the belt-loop sewing parameters are protected by the password of level II. Consequently, the belt-loop parameters can be viewed but cannot be changed. Level II password is requested for the change.

Display service menu is protected from unqualified parameters change by security passwords. It is split into three levels according to severity and frequency of usage.

Procedure:
Press button ❶ on the Service Menu Screen. Numerical keyboard appears.
Enter the code for the respective level, refer to chapter E 1.1.1.
Validate by pressing the button ❷.



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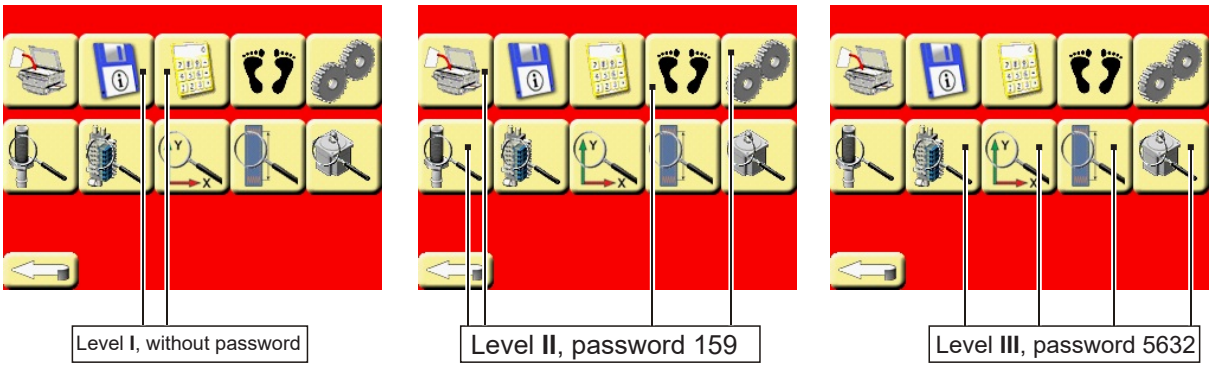
E - STANDARD MACHINE ADJUSTMENT

1.1.1. Protection Levels and Respective Passwords

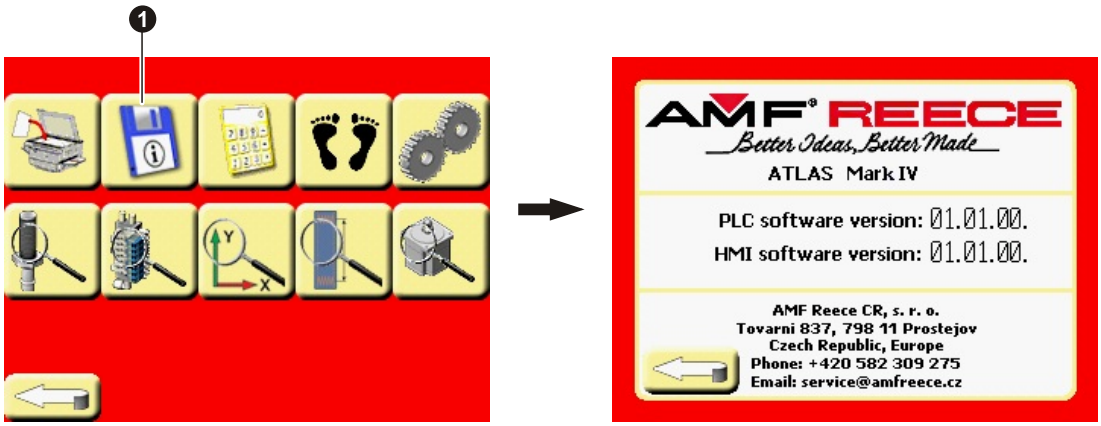
On the screens below there is an overview of protection level of individual service menu buttons together with the respective passwords.

Note:
After entering a password, all the buttons of respective level are activated including all the buttons of lower levels. E.g., after entering the password of protection level III, all the buttons of level I and II are also activated.



1.2. Information Screen

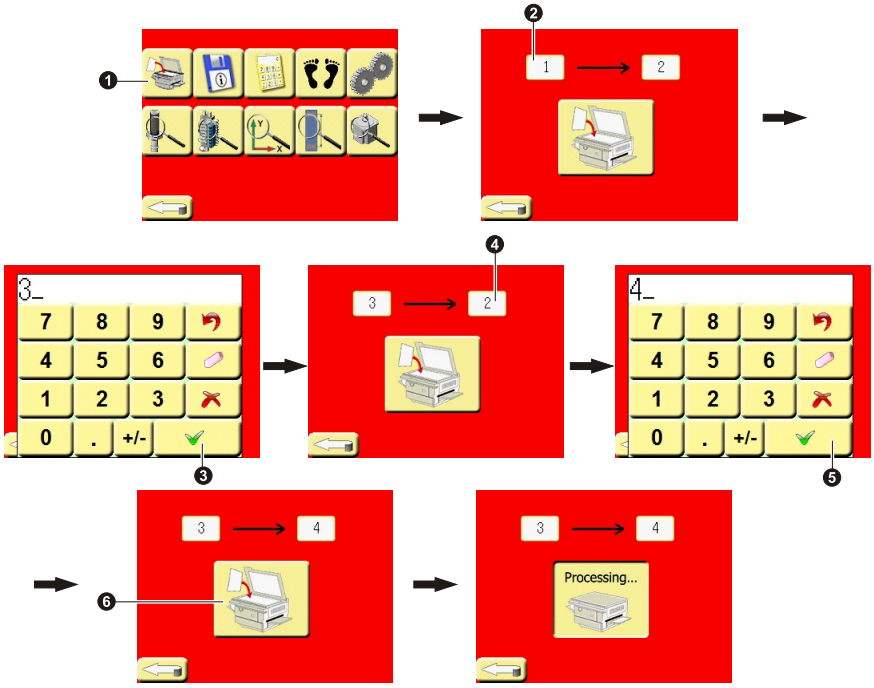
This screen informs about the firmware installed on the machine and supplier contact details. You can reach the Information Screen by pressing the button ❶ from Service Menu Screen.



1.3. Belt-Loop Program Copy

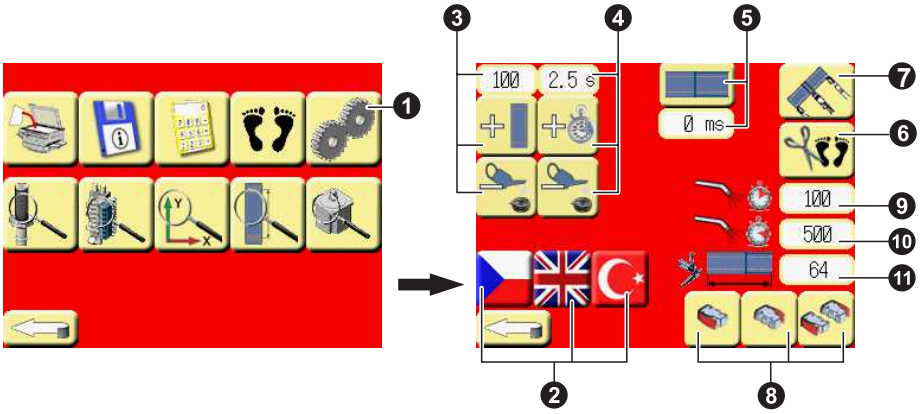
Program Copy Screen enables fast and easy copying of one belt-loop program parameters to another.

Procedure:
Press button ❶ non the Service Menu Screen. The Program Copy Screen appears. After pressing the button ❷ the numeric keyboard appears. Enter the number of source program you want to copy from and press button ❸. Press the button ❹. and another numeric keyboard appears. Enter the number of destination program you want to copy to and press button ❺. After pressing the button ❻ the desired program will be copied.



1.4. Machine Parameters Setting

Machine Parameters Setting Screen contains the language setting, thread catcher settings and trimming step-by-step operation activation.
To enter the Machine Parameters Setting Screen, press the button ❶. from the Service Menu Screen. Machine Parameters Setting Screen is protected by protection level II – refer to chapter E 1.1.



❷ **Language selection -** By pressing either of the buttons ❷ select the display language, mainly used on the Error Message Screen. One can select English, Czech or Turkish language.
❸ Sewing hook lubrication count - Using the buttons ❸ set number of cycles after those the sewing hooks are lubricated. It can be set in the range 1-999.
❹ Sewing hook lubrication time - Using the buttons ❹ set the sewing hooks lubrication time in the range 0 - 50 s.
❺ Type of the belt-loop - By pressing the button ❺ the belt-loop type can be selected:
a) standard endless belt-loop
b) individual belt-loops connected by auxiliary material
❻ **Trimming step-by-step operation activation -** By pressing the button ❻ activate the trimming sequence step-by-step operation. If this button is activated, the trimming at the end of belt-loop sewing is operated as step-by-step; press the start-buttons to get to the next step.
❼ **Belt-loop feeder activation** – By pressing the button ❼ the belt-loop feeder is activated. If the feeder is activated, the icon appears on the Main Screen.
❽ Start button - By pressing the buttons ❽ can be selected either left, right or both buttons as start button.
❾ Blowing delay - Using the buttons ❾ set the blowing delay during belt-loop cutting in the range from 0 - 1000 ms.
❿ Blowing time - Using the buttons ❿ set the active blowing time during belt-loop cutting in the range from 0 - 1000 ms.
⓫ Length of the cut belt-loop - By pressing the button ⓫ set the length of belt-loop that is cut off in range 64 - 100. (valid only when option b) from point ❺ is selected).

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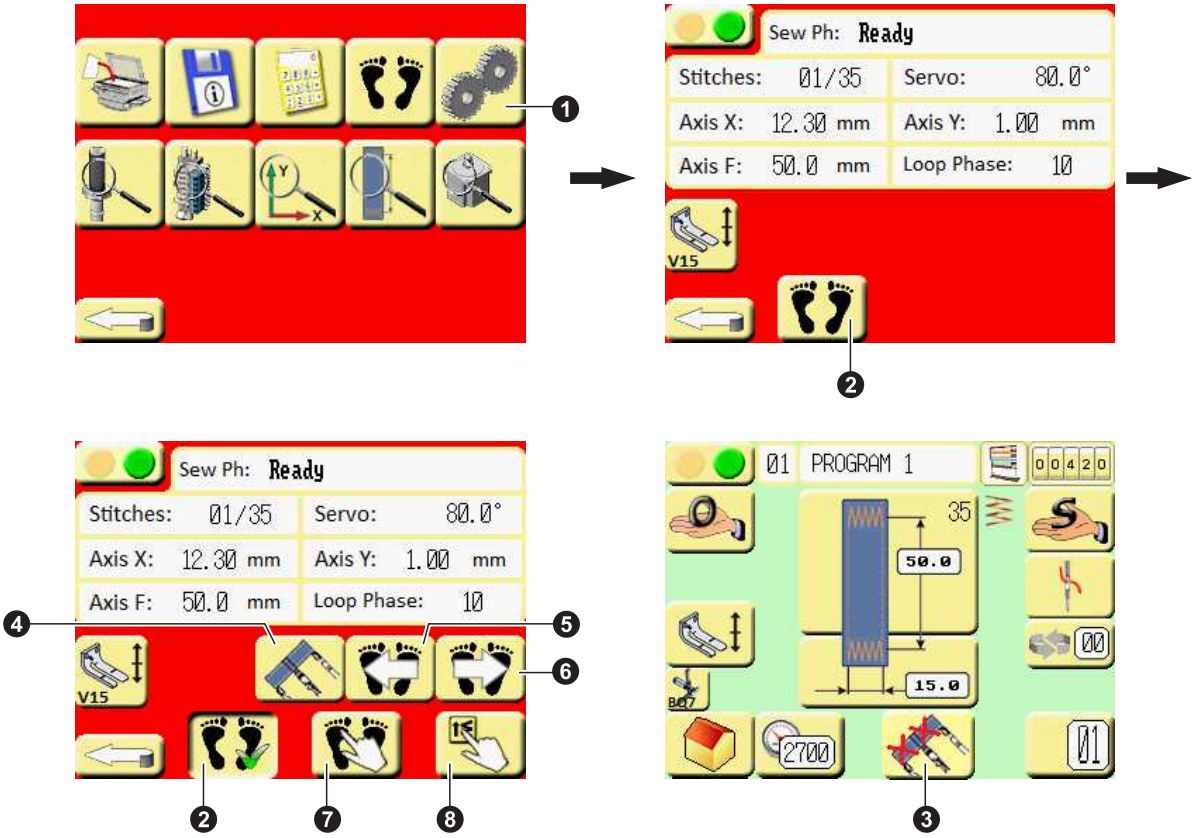
E - STANDARD MACHINE ADJUSTMENT

1.5. Step-By-Step Sewing

The step-by-step sewing function allows watching the entire sewing process as it is split into individual phases and steps. The current positions of all motors and the current phase of the sewing cycle or belt-loop feeding cycle are displayed there on the display.

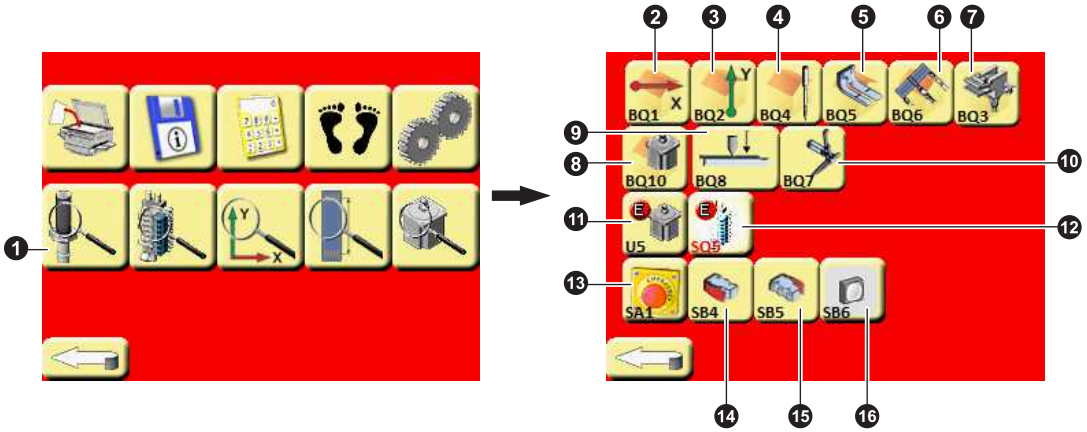
Enter the Step-By-Step Sewing Screen by pressing the button ❶ from the Main Screen. Jogging Screen is protected by protection level II – refer to chapter E 1.1.
Activate the step-by-step function by pressing the button ❷.
If the belt-loop feeding is activated ❸ the step-by-step operation of belt-loop feeding can be selected by button ❹. After activation of the step-by-step belt-loop feeding, the buttons ❺ and ❻ will appear – you can use these buttons for step forward ❻ or backward ❺. Once the belt-loop is fed completely, use the button ❼ to proceed to the next step of the entire sewing cycle. By pressing the button ❽ you proceed to the next stitch of the bar-tack sewing, so the bedplate moves to the next position. To finish the step-by-step mode use the button ❷ or finalize the sewing cycle.

Note: If the belt-loop feeding is deactivated from the Main Screen, a simple sewing process without the belt-loop feeding will run.



1.6. Inputs Test

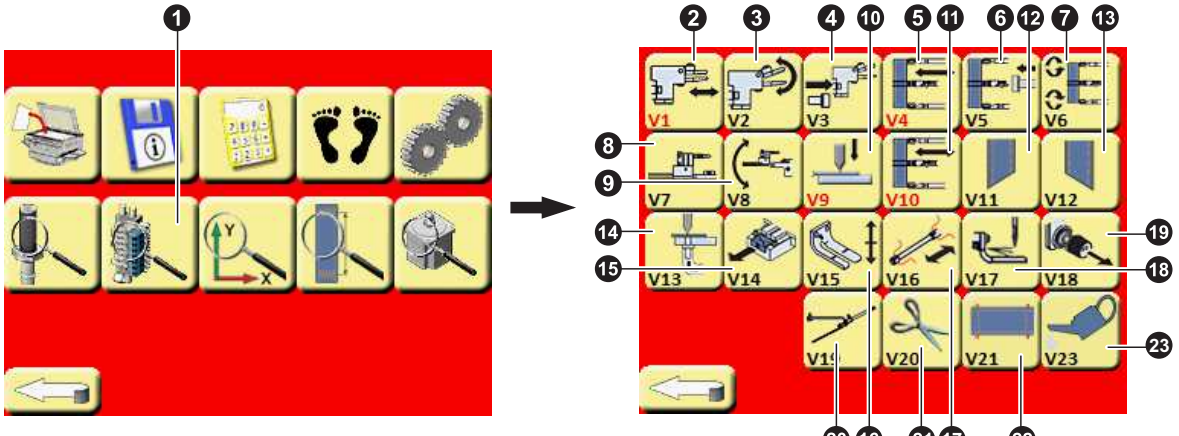
Inputs Test Screen provides check-up of the machine sensors, buttons, switches, pedals, etc. Enter the Inputs Test Screen by pressing the button ❶ on the Service Menu Screen. Inputs Test Screen is protected by protection level II – refer to chapter E 1.1.



❷ BQ1 – Axis X home position
❸ BQ2 – Axis Y home position
❹ BQ4 – Belt-loop length: needle-bar home position
❺ BQ5 – Belt-loop length: clamping feet home position
❻ BQ6 – Belt-loop length: feeding X-axis home position
❼ BQ3 – Belt-loop length: feeding Y-axis home position
❽ BQ10 – Sewing servo home position
❾ BQ8 – Cutting sensor
❿ BQ7 – Belt-loop joint detector
⓫ U5 – Servo-driver error
⓬ SQ5 – Low air pressure
⓭ SA1 – Emergency stop
⓮ SB4 – Sewing start button left
⓯ SB5 – Sewing start button right
⓰ SB6 – Load belt-loop button

1.7. Outputs Tests

Output Tests Screen provides check-up of all machine vales including the respective sensors. Enter the Output Tests Screen by pressing the button ❶ on the Service Menu Screen. Output Tests Screen is protected by protection level III – refer to chapter E 1.1.



❷ V1 - Feeding Y-axis: clamp movement
❸ V2 - Feeding Y-axis: clamp opening
❹ V3 - Feeding Y-axis: middle position stop
❺ V4 - Feeding X-axis: 100 mm quick movement
❻ V5 - Feeding X-axis: 35 mm movement
❼ V6 - Feeding X-axis: forks rotation
❽ V7 - Feeding X-axis: belt-loop holder
❾ V8 - Feeding X-axis: belt-loop lifting
❿ V9 - Belt-loop cutting
⓫ V10 - Feeding X-axis: 100 mm movement
⓬ V11 - Cutting knife rotation to the right
⓭ V12 - Cutting knife rotation to the left
⓮ V13 - Blowing during cutting
⓯ V14 - Cutting steel pull out
⓰ V15 - Belt-loop clamping
⓱ V16 - Thread draw-off
⓲ V17 - Needle cooling
⓳ V18 - Thread tension
⓴ V19 - Thread catcher
㉑ V20 - Thread trimming
㉒ V21 - Belt-loop alignment system
㉓ V23 - Sewing-hook lubrication

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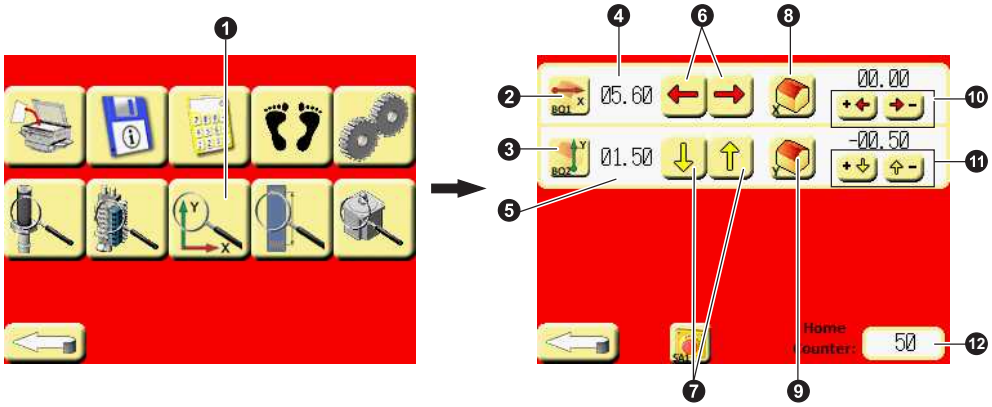
1.8. Sewing-Head Motors Test

Sewing-Head Motors Test Screen allows testing and setting of the X – Y sewing motion stepper-motors. Enter the Sewing-Head Motors Test Screen by pressing the button ❶ on the Service Menu Screen. Sewing-Head Motors Test Screen is protected by protection level III – refer to chapter E 1.1.

❷ BQ1 – Axis X home position sensor
❸ BQ2 – Axis Y home position sensor
❹ Axis X current position information
❺ Axis Y current position information
❻ Axis X movement test arrows
❼ Axis Y movement test arrows
❽ Axis X home position establishment
❾ Axis Y home position establishment
❿ Axis X home position correction – range +/- 2 mm
⓫ Axis Y home position correction – range +/- 2 mm
⓬ Count of sewing cycles after that X, Y axis motors goes to home position.

Note: You have to re-establish the home position before a home position change takes effect.

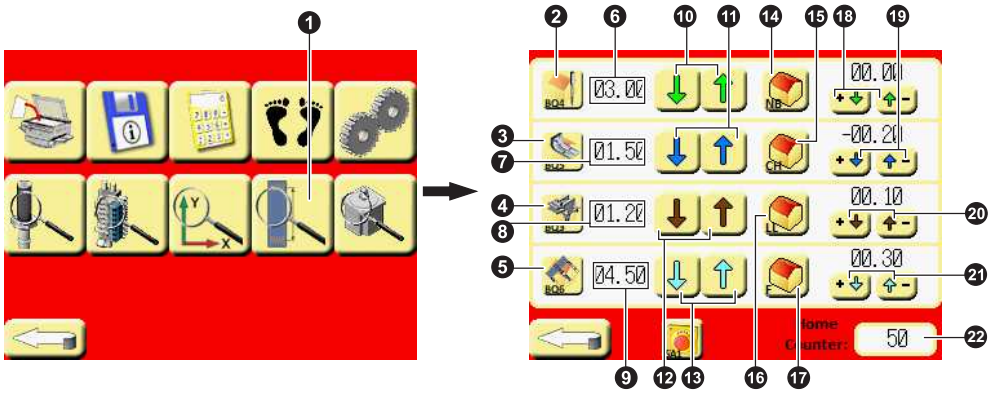


1.9. Belt-Loop Length Adjustment Motors Test

Belt-Loop Length Adjustment Motors Test Screen allows testing and setting of the stepper-motors for the belt-loop length adjustment. Enter the Belt-Loop Length Adjustment Motors Test Screen by pressing the button ❶ on the Service Menu Screen. Belt-Loop Length Adjustment Motors Test Screen is protected by protection level III – refer to chapter E 1.1.

❷ BQ4 – Needle-bar movement home position sensor
❸ BQ5 – Clamping feet movement home position sensor
❹ BQ3 – Feeding Y-axis movement home position sensor
❺ BQ6 – Feeding X-axis movement home position sensor
❻ Needle-bar movement current position information
❼ Clamping feet movement current position information
❽ Feeding Y-axis movement current position information
❾ Feeding X-axis movement current position information
❿ Needle-bar movement test arrows
⓫ Clamping feet movement test arrows
⓬ Feeding Y-axis movement test arrows
⓭ Feeding X-axis movement test arrows
⓮ Needle-bar movement home position establishment
⓯ Clamping feet movement home position establishment
⓰ Feeding Y-axis movement home position establishment
⓱ Feeding X-axis movement home position establishment
⓲ Needle-bar home position correction – range ± 2 mm
⓳ Clamping feet home position correction – range ± 2 mm
⓴ Feeding Y-axis home position correction – range ± 5 mm
㉑ Feeding X-axis home position correction – range ± 5 mm
㉒ Count of sewing cycles after that belt-loop length adjustment motors goes to home position.

Note: You have to re-establish the home position before a home position change takes effect.



1.10. Sewing Drive Test

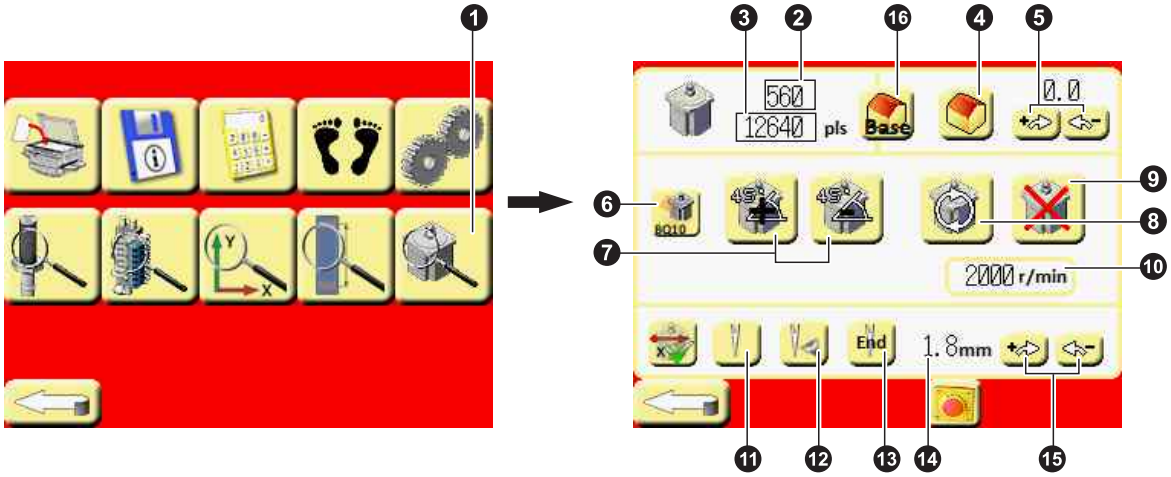
Sewing Drive Test Screen allows testing and setting of the sewing drive and setting of the sewing timing. To enter the Sewing Drive Test Screen press the button ❶ on the Service Menu Screen. Sewing Drive Test Screen is protected by protection level III – refer to chapter E 1.1.

❷ Information about the current servo-motor position from the servo encoder; 1 revolution = 720 half-degrees
❸ Information about the current servo-motor position from the PLC output; 1 revolution = 1440 pulses
❹ Servo-motor first home position (take-up lever up position) establishment
❺ Servo-motor first home position (take-up lever up position) correction – range ± 15º
❻ Servo-motor home position sensor
❼ Buttons for rotation of the servo-motor 45 º clockwise / counter-clockwise
❽ Start of the continuous servo running – the servo-motor runs at the speed set in parameter ❿.
❾ Servo-motor activation / deactivation
⓰ Servo-motor second home position (up dead-point) establishment

Note: You have to re-establish the home position by pressing the button ⓰ before a home position change takes effect.

Sewing timing setting:

Set the requested timing (position of the needle when the loop is caught by the looper) by buttons ⓯. The timing value is depicted in the field ⓮.
By pressing the button ⓫ the needle goes into the lowest position. By pressing ⓬ the needle gets to the point of timing. By pressing ⓭ the needle goes into the home position.



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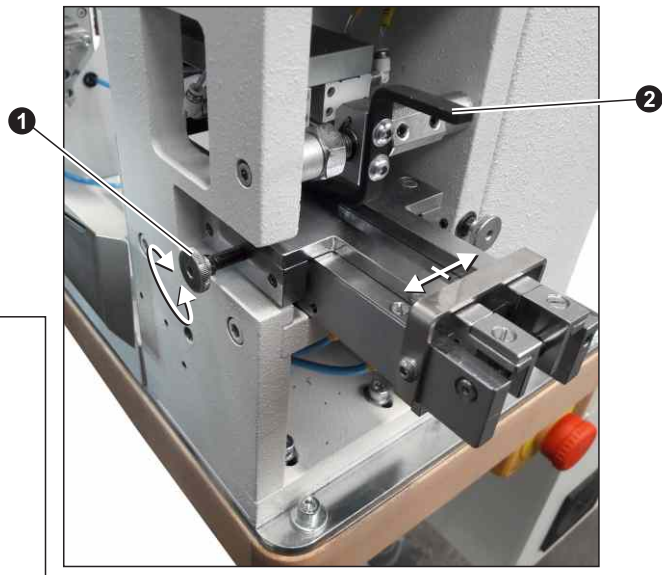
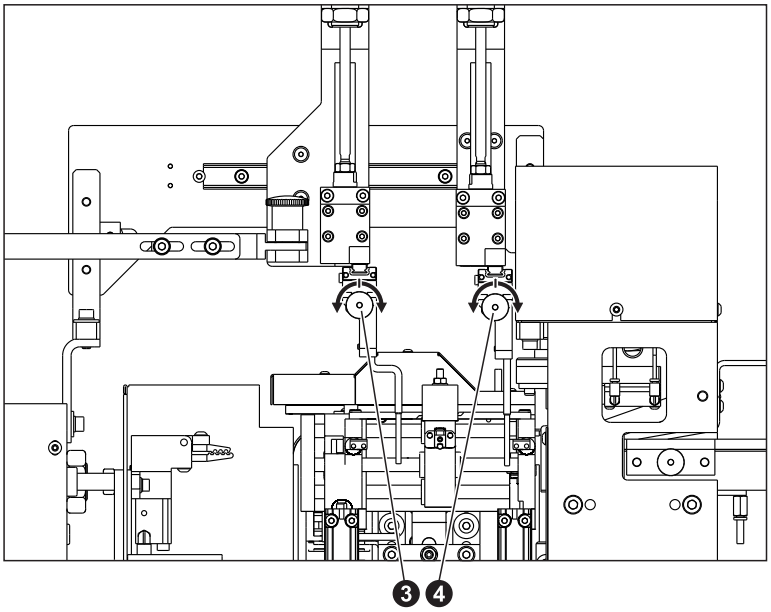
2. BASIC USER ADJUSTMENTS

2.1. Belt-Loop Width

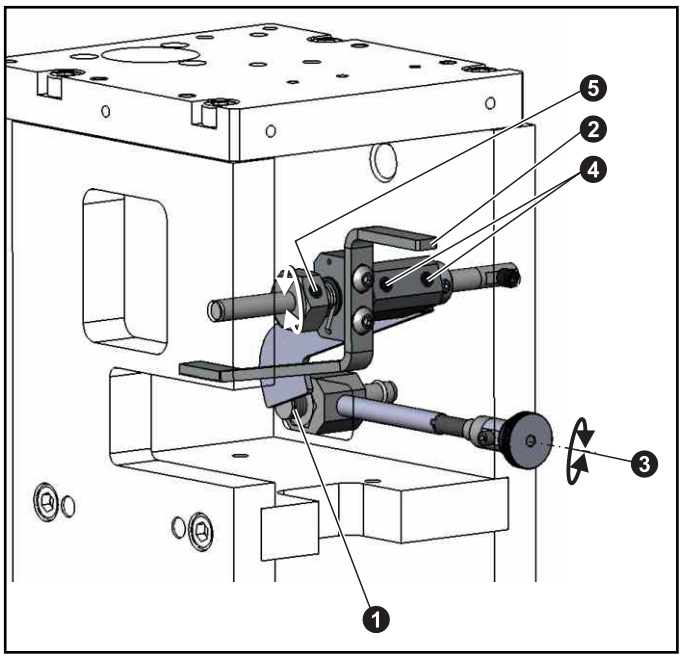
Using the knob ❶ adjust the endless belt-loop guide according to the belt-loop width. The endless belt-loop needs to slide easily through the guide including belt-loop splices. To load the endless belt-loop press the belt-loop pressing lever ❷ which allows passing the belt-loop.
If the belt-loop alignment system is installed on the machine, adjust the alignment guides according to the belt-loop width using the knobs ❸ and ❹.





2.2. Endless Belt-Loop Splice Detector

Machine contains belt-loop splice detector as standard. This detector is formed by the sensor ❶ and the plate connected with the endless belt-loop pressing lever ❷. Normally, when there is a single belt-loop the sensor should be covered by the plate and light up. When the splice is detected the plate moves up, sensor should not be covered and should turn dark.



Using the knob ❶ adjust the front-back position of the sensor:

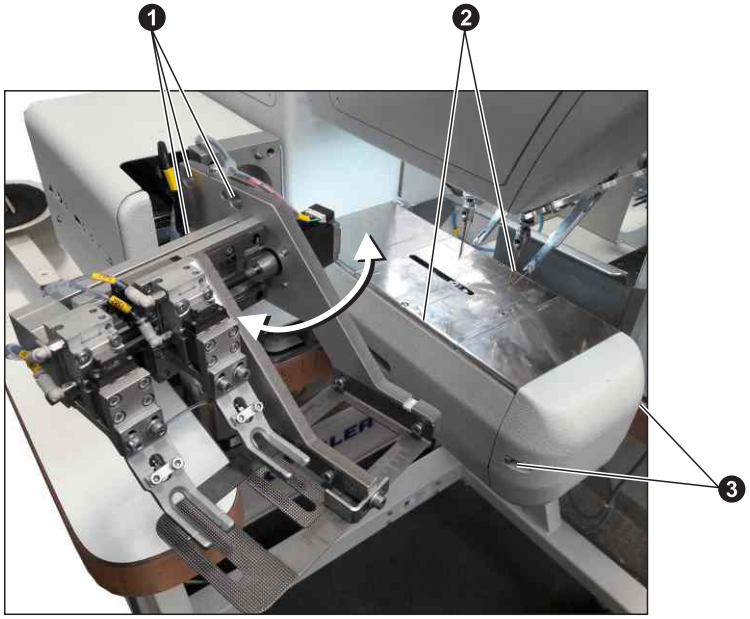
- Move the sensor forth – turning the knob ❶ clockwise – if splice is not detected, i.e., the sensor still lights up even when detecting the splice
- Move the sensor back – turning the knob ❶ anticlockwise – if splice is detected continuously, i.e., the sensor is always dark even for single belt-loop
- If the sensor adjustment range is not sufficient, move the sensor to the middle of its slot and make necessary adjustment of the detection plate position after loosening the screws ❹.
- Check at least first five splices proper detection before relying on the splice detection system.

To adjust the pressure of the pressing lever ❷ loosen the screw ❺ and move the nut in the depicted direction as necessary.

3. SEWING MECHANISMS ADJUSTMENT

To access the sewing area, move the bedplate to the left, remove the 4 screws ❶ and open the belt-loop clamping mechanism as depicted by the arrow in the picture. Pay attention not to damage the needles! Then remove two screws ❷ and you can access the sewing area.

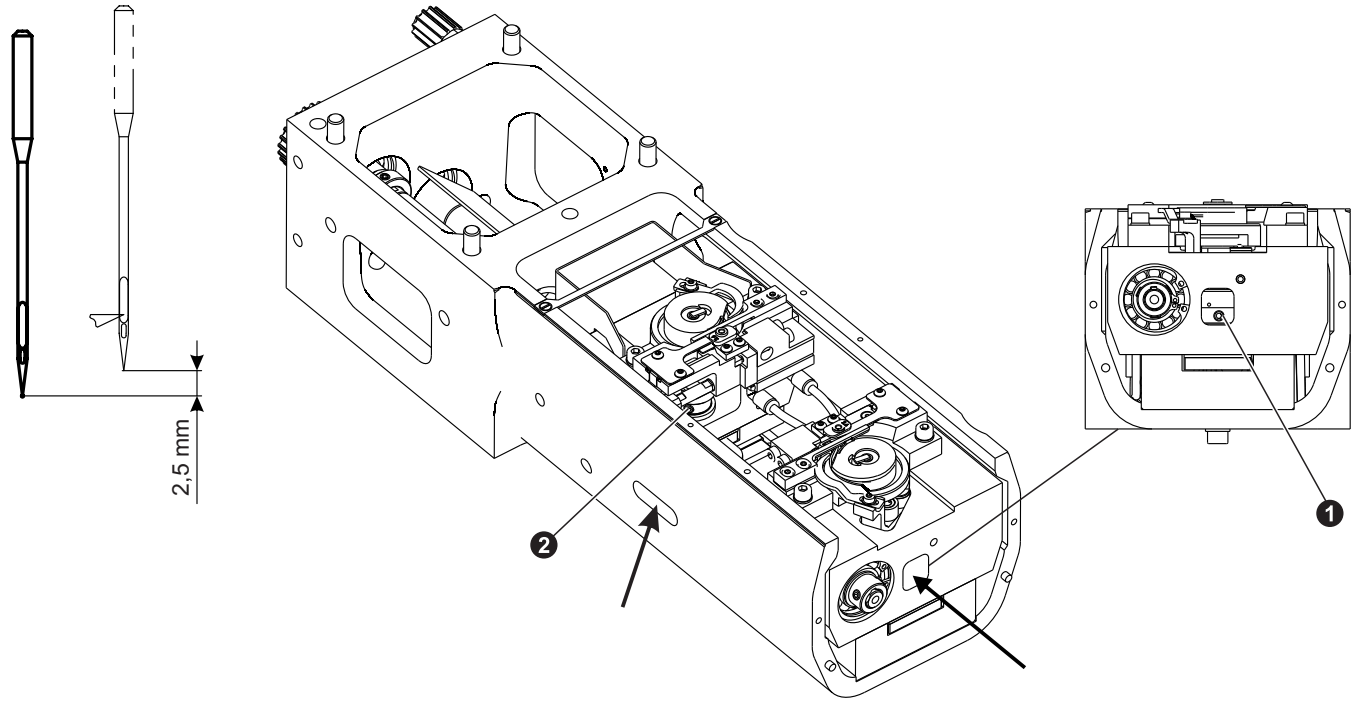
You can also remove the front base cover after loosening the screws ❸.



3.1. Needle-Hook Relationship

3.1.1. Hook Timing

Move the rear hook to the back position to gain access to the rear hook holding screws. Adjust both front and rear hook timing (i.e., the position when the hook catches the thread loop, measured as a difference from the bottom position) after loosening the screws ❶ and ❷ to the basic level of 2.5 mm – refer to the illustrative figure.



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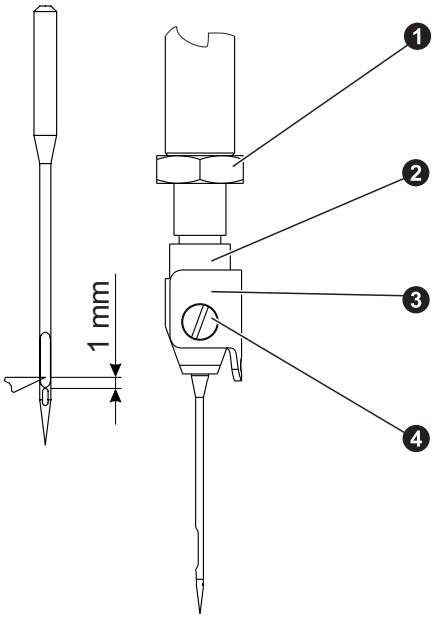
3.1.2. Needle-Bar Height

After adjusting the hook timing (refer to the previous section) adjust the needle-bar height of both needles. Rotate the hand-wheel until the hook point is in the middle of the needle. Basic adjustment is when the top of the needle eye is 1 mm under the hook point. Refer to the illustrative figure. To adjust the needle-bar height, loosen the nut ❶ and move the needle-holder ❷ up / down. If you need to move the needle-holder a half rotation only, exchange the thread-guide ❸ and needle holding screw ❹ to the opposite side.

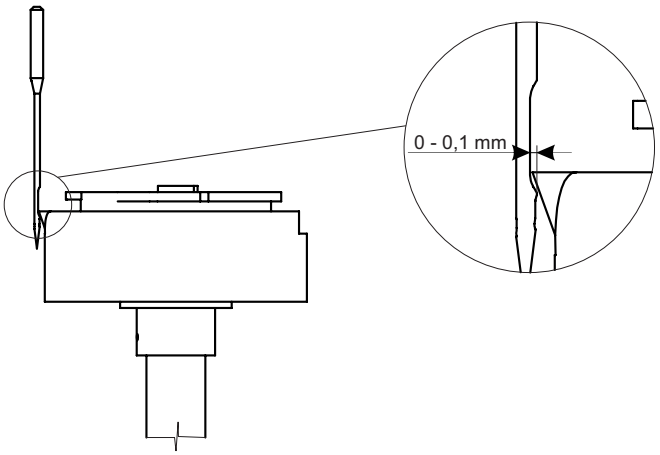


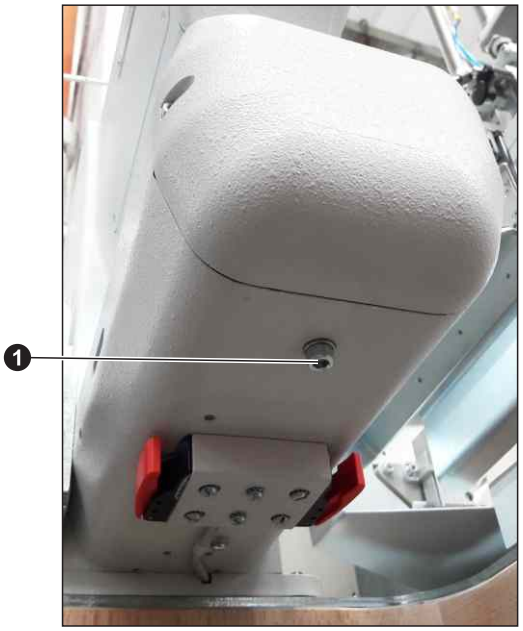
3.1.3. Needle to Hook Clearance

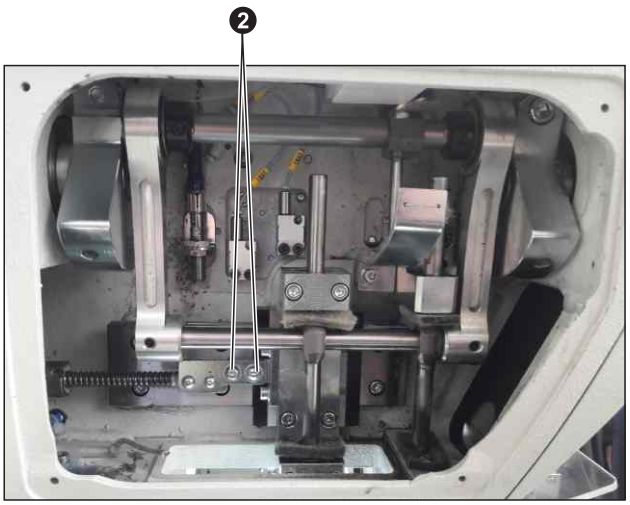
Adjust clearance of both needles to hooks to be 0 – 0.1 mm – refer to the illustrative figure.

Adjust the clearance of front needle to hook by loosening the screw ❶ and moving the front hook front & back.

Adjust the clearance of rear needle to hook by loosening two screws ❷ and moving the rear needle-bar front & back.



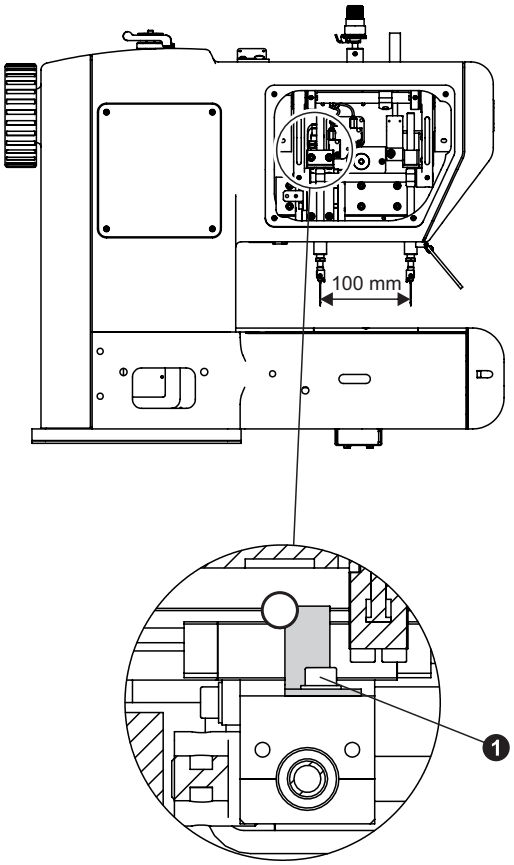


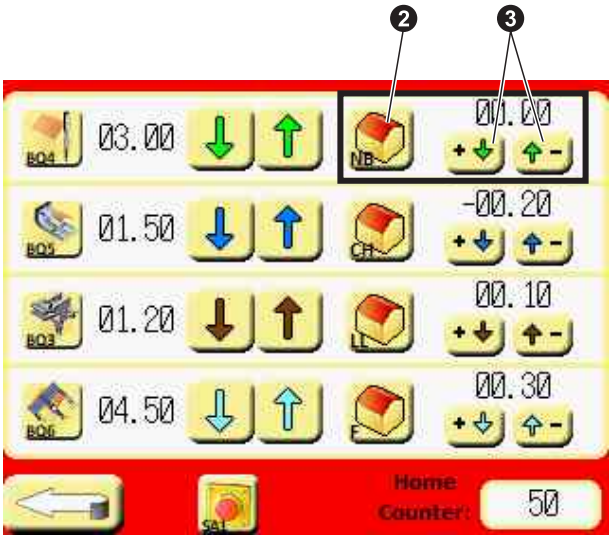


3.1.4. Front and Rear (Moveable) Needle Distance

Adjust the distance between the front and rear needle in home position to 100mm. Reach the Belt-Loop Length Adjustment Motors Test screen on the machine display (refer to section E1.9).

- For bigger position changes loosen the screw ❶ and move the plate as necessary. Press home button ❷ after each change of the plate position.
- For smaller changes use the corrections ❸.





3.1.5. Hook Guard

Adjust the hook guard ❶ so that it just touches the needle in its closest position (approx. 2 mm before the hook reaches the needle). Use the screw ❷ for easy adjustment of the guard. Check the guard does not bend the needle in any position!

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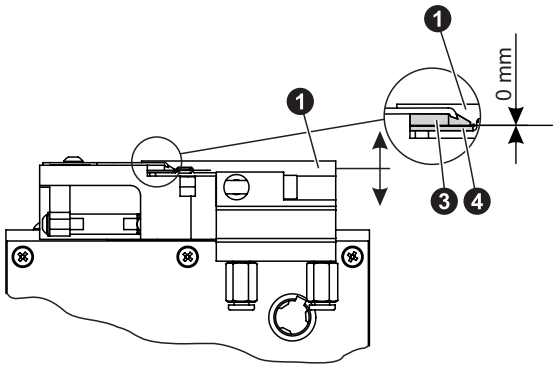
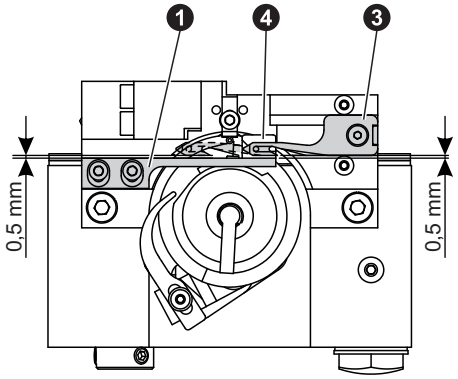
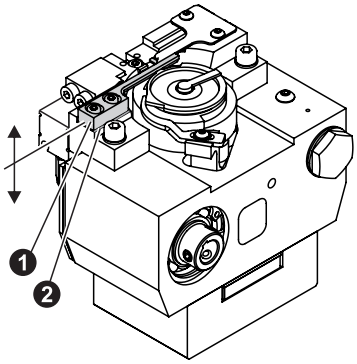
3.2. Trimming Block Related Mechanisms

3.2.1. Bobbin Case Basket Retainer

The basket retainer ❶ is supplied with insertable spacers ❷ (extra spacers will be found in the accessory kit) which are used to increase or decrease the clearance between the movable knife ❸ and the paddle portion ❹ of the thread retainer. Initially the bobbin thread used should be inserted in this space. With knife retracted, there should be very slight resistance to the thread being pulled through. Run the machine several times while checking the bobbin thread is held each time after sewing; if not held each time add 0.1mm to insertable spacers, if held too much remove 0.1mm from spacers.





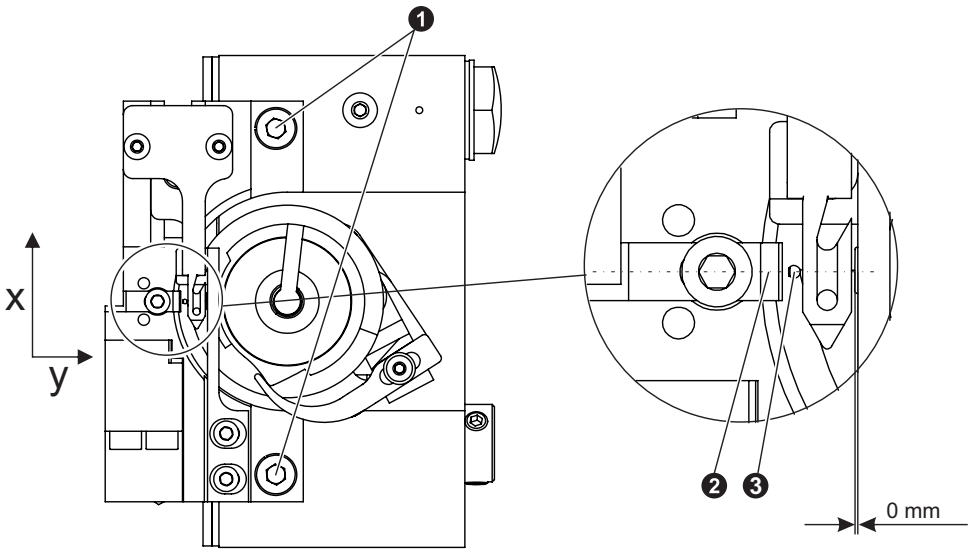


3.2.2. Trimming Block Position

Loosen the screws ❶ and move the trimming block in X and Y direction.

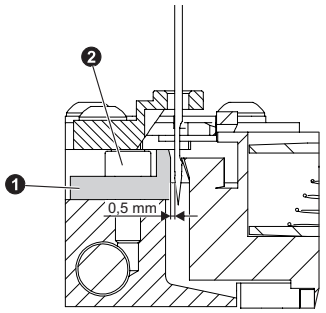
- In X-direction the needle ❸ should be in the middle of the loop guard ❷ (expressed by the dot-and-dash line in the picture)

- In Y-direction the bobbin case basket retainer should be aligned with the edge of position finger on bobbin case basket - refer to the picture below.



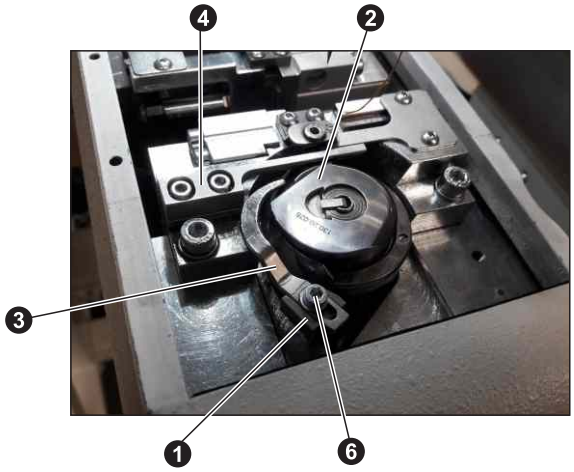
3.2.3. Loop Guard

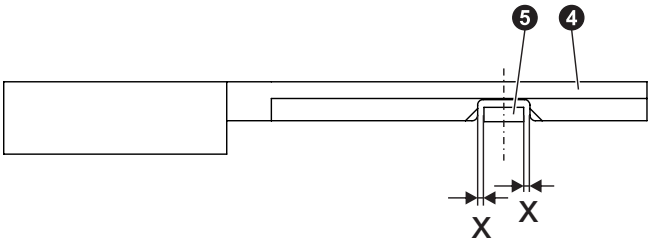
The loop guard ❶ should be located 0.5 mm from the needle. After loosening the screw ❷ move the loop guard as necessary.



3.2.4. Bobbin Case Basket Opener

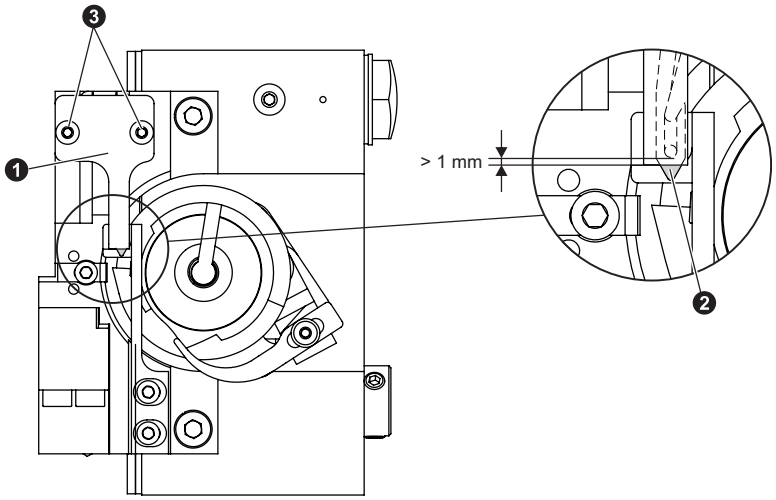
Turn the hand-wheel and stop when the basket opener holder ❶ is the longest distance away from the throat plate. At this time make sure that the gap between the bobbin case basket ❷ and the opener finger ❸ is approximately 0.25 mm; alternatively if you move the basket ❷ clockwise to touch the opener finger ❸, the basket positioning finger ❺should be in the middle of the slot in the basket retainer ❹ – refer to the illustrative figure. If the gap is not appropriate, loosen the opener set screw ❺ and adjust the position of the opener finger.





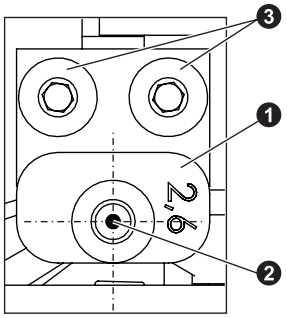
3.2.5. Fixed Trimming Knife

Edge of the fixed knife ❶ should overlap the moveable knife ❷ blade by 1 mm or more – refer to the illustrative figure. Use two screws ❸ to make this adjustment.



3.2.6. Throat-Plate Position

Turn the hand-wheel until the tip of the needle reach the level of the throat-plate. Place the throat-plate ❶ with the middle of its hole to be aligned with the needle ❷ – refer to the illustrative figure. Use two screws ❸ to make this adjustment.



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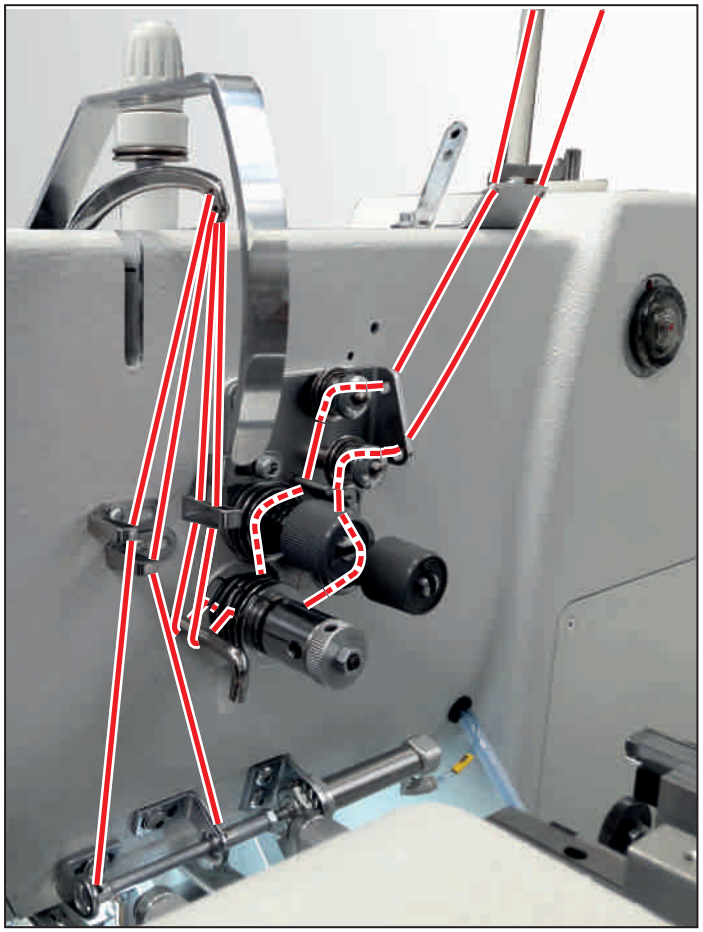
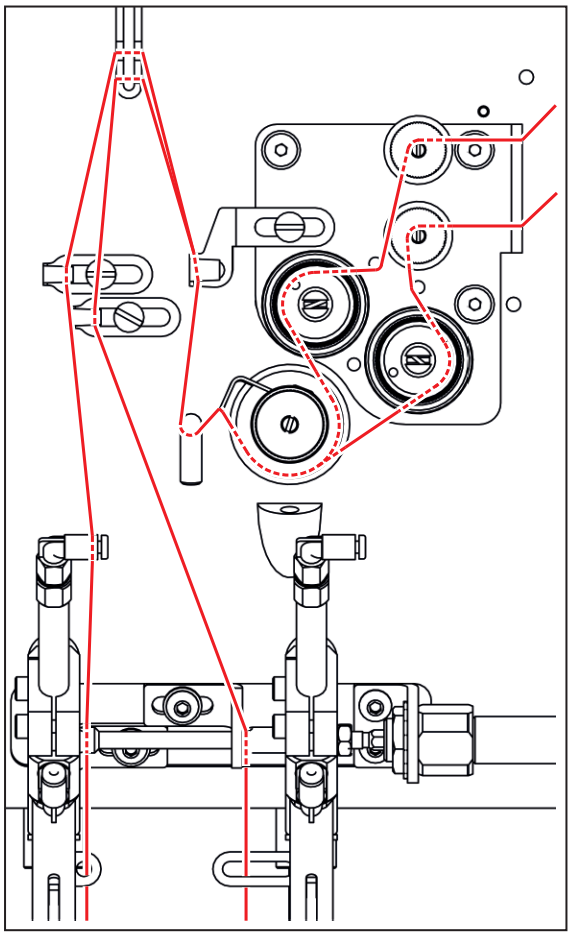
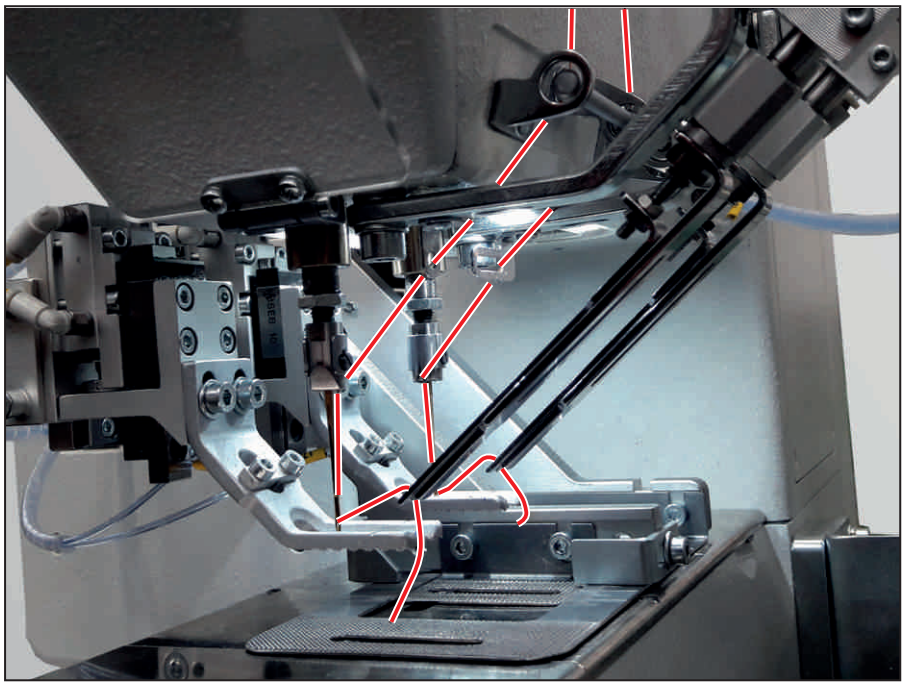
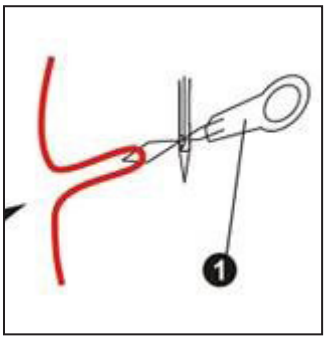
3.3. THREADING UPPER THREAD

For threading see pictures below. To make threading easier use threading tool 1 which is part of the machine accessories. Threader ❶ can be ordered (order no 12.0008.6.200).

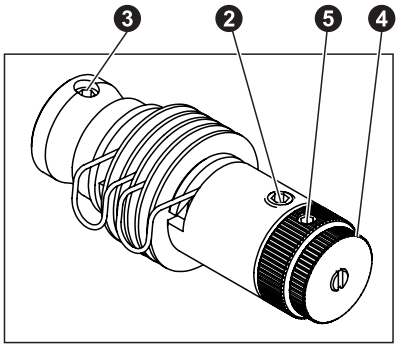








3.4. Thread Tension Take-Up Springs



Use the screw ❶ to remove the thread tension take-up springs device from the machine head. During the subsequent adjustment keep the axial position of all the device parts, otherwise the springs can be released from their fixing slots and you may need to reassembly the device.

Use the screw ❷ to adjust the stiffness of the right spring (for rear needle). Use the screw ❸ to adjust the stiffness of the left spring (for front needle). Loosen slightly the nut ❹ and use the screw ❺ to adjust the basic position of the right spring (mostly align with the left spring basic position).

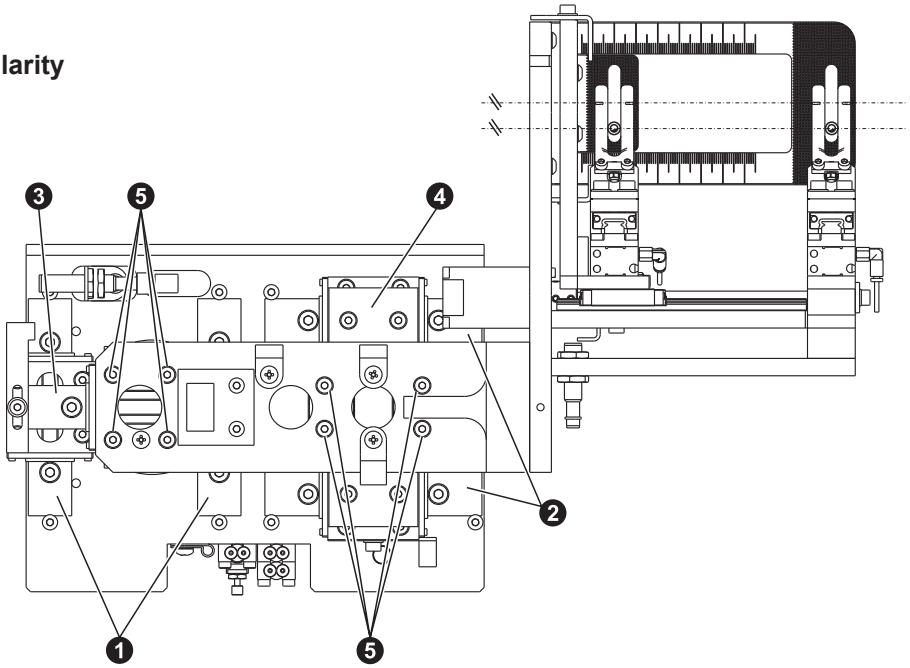
In the end, install the device back to the machine head; by turning the device in the machine head you determine the step size of the thread tension take-up springs; tighten the screw ❶.

3.5. X-Y Material Feeding

3.5.1. Linear-Guides Rectangularity

Turn the machine off, disconnect connectors of both feeding X- and Y-axis motors (under the table top) and check if the feeding mechanism moves freely in both X and Y axis. If not, align all the linear guides properly. First, linear guides ❶ and ❷ need to be parallel. Secondly, all the linear guides from ❶ to ❹ need to be rectangular.

Check the axis of feeding plates is parallel to the axis of both throat-plates – refer to the illustrative figure. Correct the parallelism after loosening eight screws ❺.



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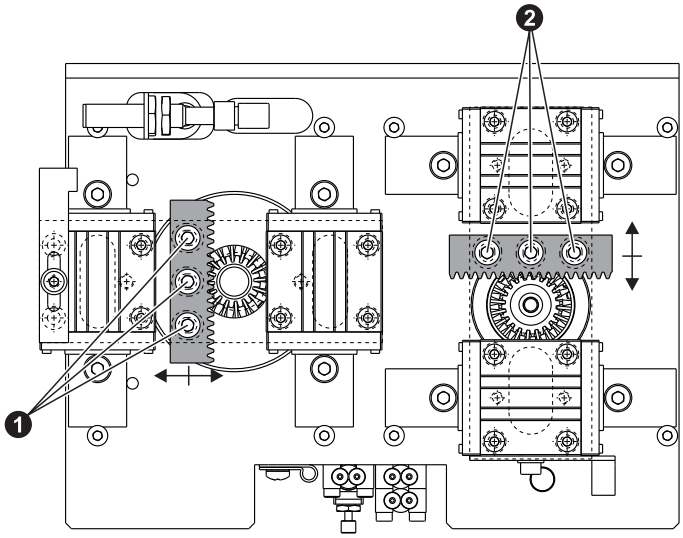
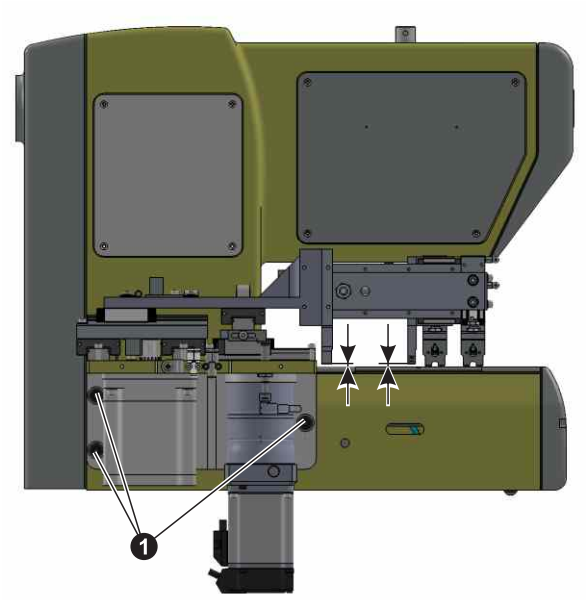
3.5.2. X- and Y-Axis Teeth-Rack Play

For this adjustment you need to remove the top two linear guides to get to the state as depicted in the picture. Then use the screws ❶ and ❷ to eliminate the play between the tooth-wheel and rack. Install the removed parts back and perform the adjustment according to the previous section.



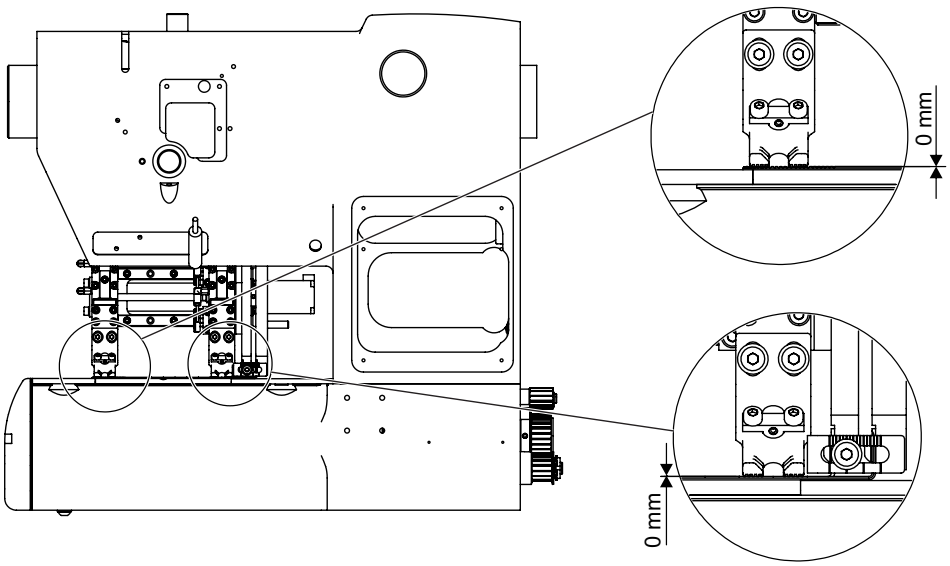
3.5.3. X-Y Feeding Horizontal Position



Check the feeding mechanism is installed correctly in horizontal position. Remove the feed-plates, adjust the shortest belt-loop length and measure the distance between the machine base and feeding arms as per the picture – if these distances do not match, adjust the horizontal position using the screws ❶.

3.5.4. Feed-Plate Height

Install both front and rear feed-plate to touch the machine base – refer to the enclosed picture.

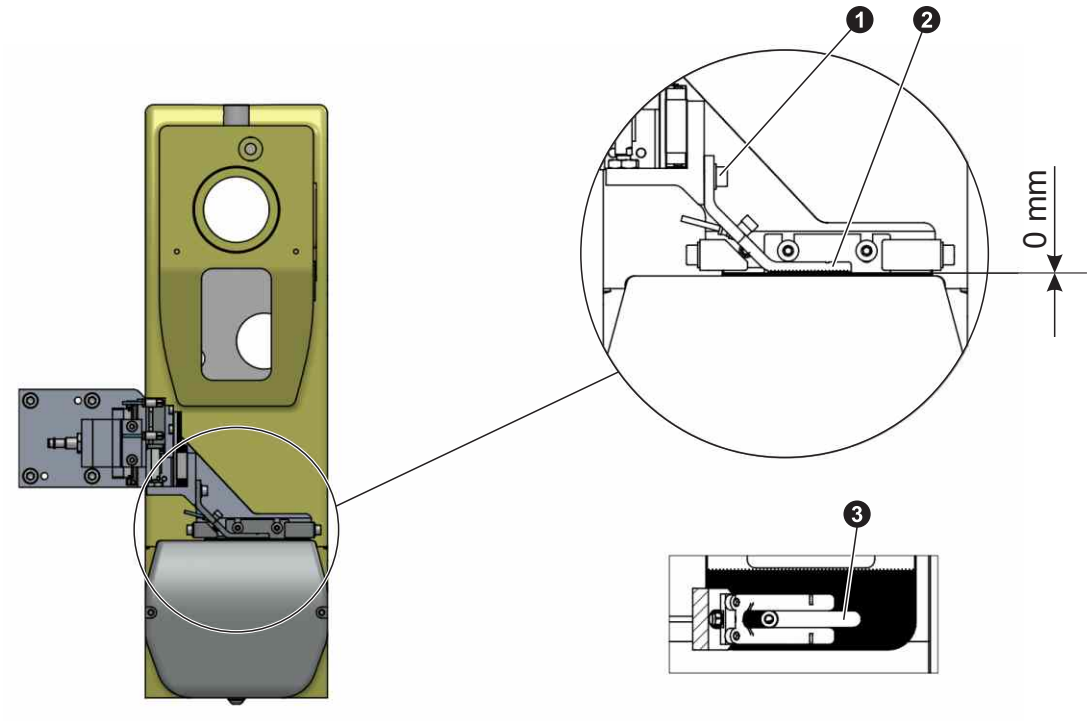


3.5.5. Presser-Feet Position

Use the screws ❶ to adjust the position of the presser-feet ❷:

- Vertical position: Check the presser-feet touch the feed-plates in their whole area when the feet are in bottom position. When the presser-feet are in top position check the tip of the needle is higher than the presser-feet level; if the tip is lower, you can adjust the presser-feet lower if desired.

- Horizontal position: Check the feet are well aligned with the slot ❸ in the feed-plates.



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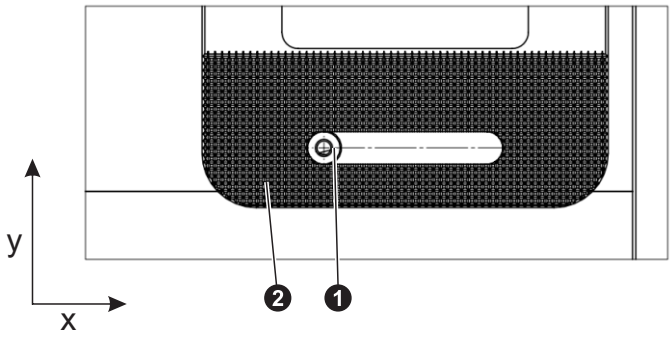
3.5.6. X-Axis and Y-Axis Home Position

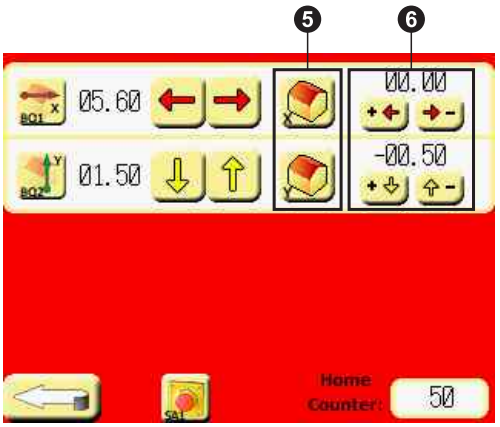
Adjust the X- and Y-home position of the feeding. Refer to the picture: the throat-plate ❶ should be in the beginning of the slot of front feed-plate ❷ in X-axis and in the middle of the slot in Y-axis.

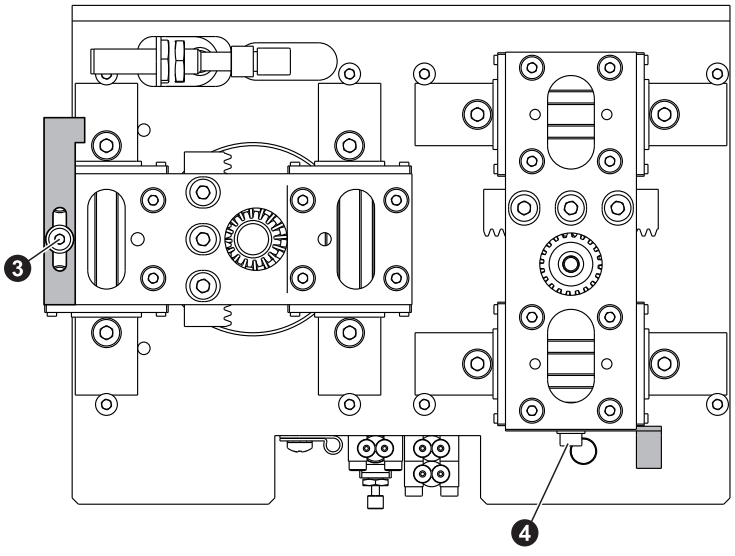
Reach the Sewing-Head Motors Test screen on the machine display (refer to section E1.8).

- For bigger position changes loosen the screw ❸ or ❹ for X- or Y-axis respectively and move the plate as necessary. Press the respective home button ❺ after each change of the plate position.

- For smaller changes use the corrections ❻.





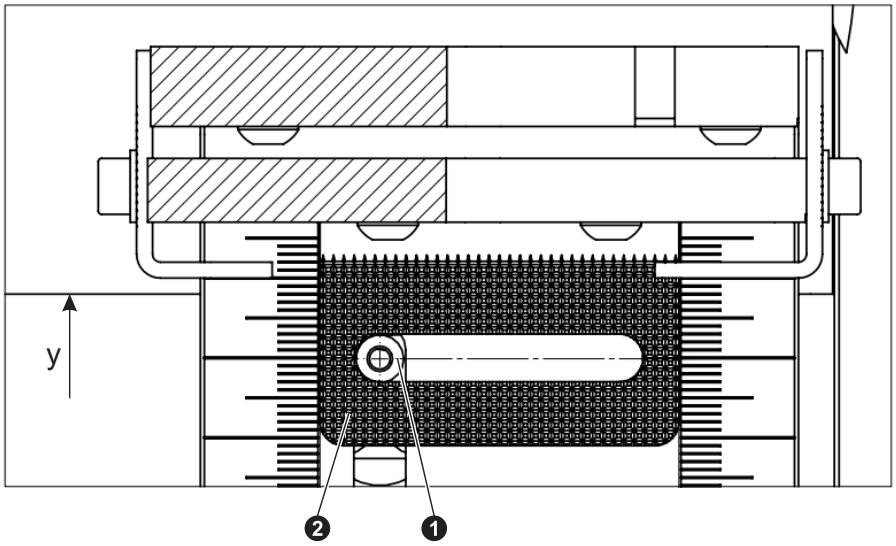


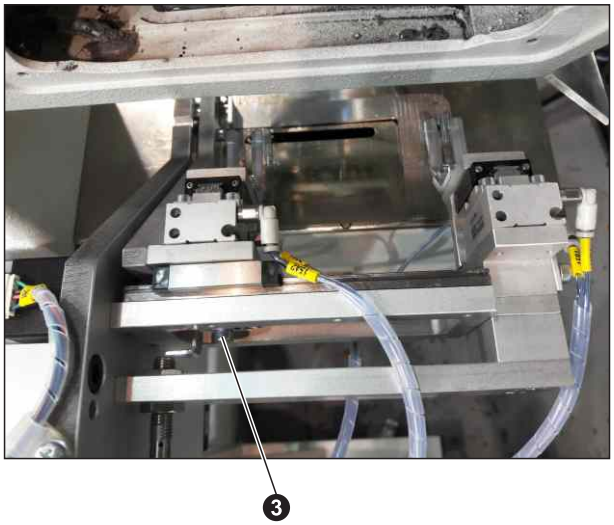
3.5.7. Rear (Moveable) Presser-Foot Block Position

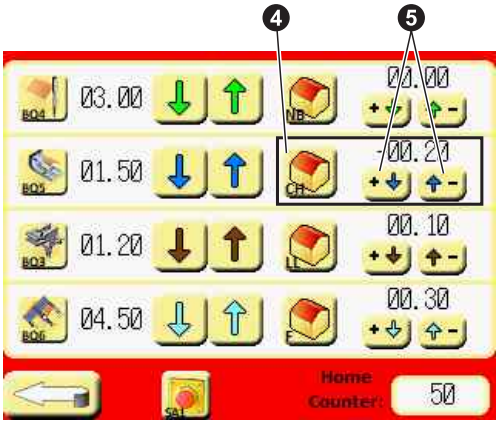
Adjust the home position of the rear (moveable) presser-foot. Refer to the picture: the throat-plate ❶ should be in the middle of the slot of rear (moveable) feed-plate ❷ in Y-axis.

Adjust the shortest belt-loop length. Reach the Belt-Loop Length Adjustment Motors Test screen on the machine display (refer to section E1.9).

- For bigger position changes loosen the screw ❸ and move the plate as necessary. Press home button ❹ after each change of the plate position.
- For smaller changes use the corrections ❺.







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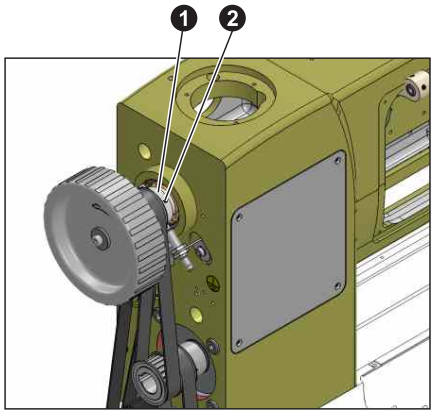
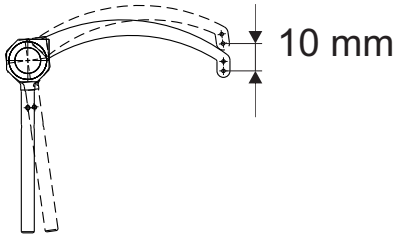
3.6. Sewing Drive Adjustment

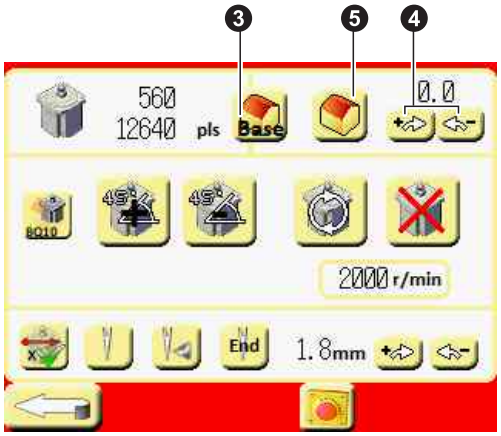
Reach the Sewing Drive Test screen on the machine display (refer to section E1.10).

Sewing servo-motor home position is in the top dead-point of the needle-bars. Adjust this home position by rotating the ring ❶ after loosening the screw ❷. Press the first home button ❸ after each change of this position.

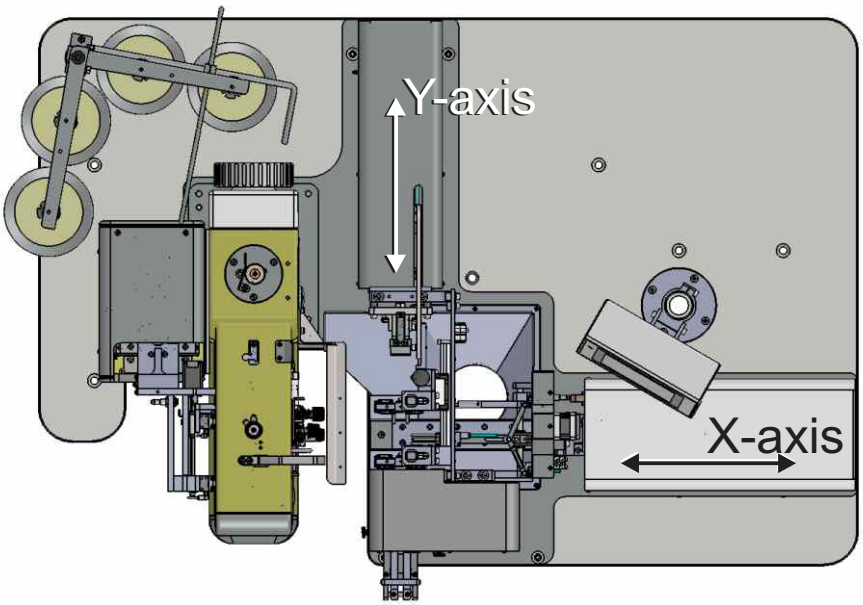
After this adjustment of sewing servo-motor home position you can adjust the take-up lever home position using the home-position correction buttons ❹. Press the second home button ❺ to bring the take-up lever to its home position. Take-up lever home position should be approximately 10 mm before its top dead-point; pay attention that adjusting the take-up lever home position higher results in lower home position of the needles.







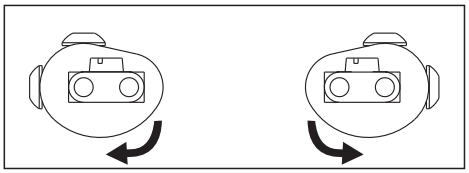
4. BELT-LOOP FEEDING MECHANISMS ADJUSTMENT



4.1. Belt-Loop Feeding X-Axis

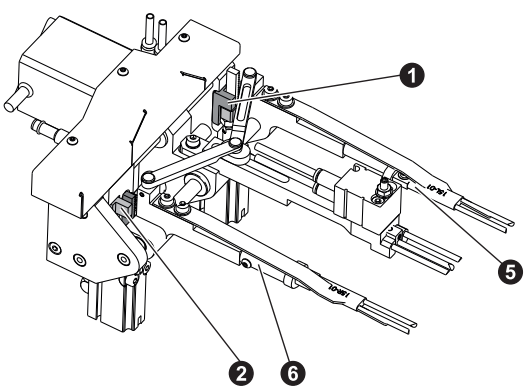
4.1.1. Folding Forks Rotation

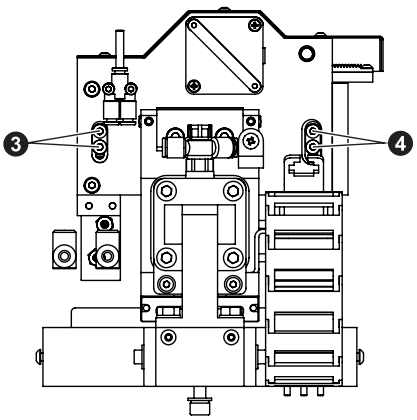
The folding forks should be located vertically when in basic position and horizontally when in rotated position – refer to the illustrative figure. Thus they need to pass 270 degrees angle during rotation.



To adjust the angle folding forks pass (270 degrees), loosen the screws ❸ and ❹ for the fixed and moveable folding fork respectively and move the stop ❶ and ❷ up & down as necessary.

To adjust the position of the folding forks use the screws ❺ and ❻ for the fixed and moveable folding fork respectively.





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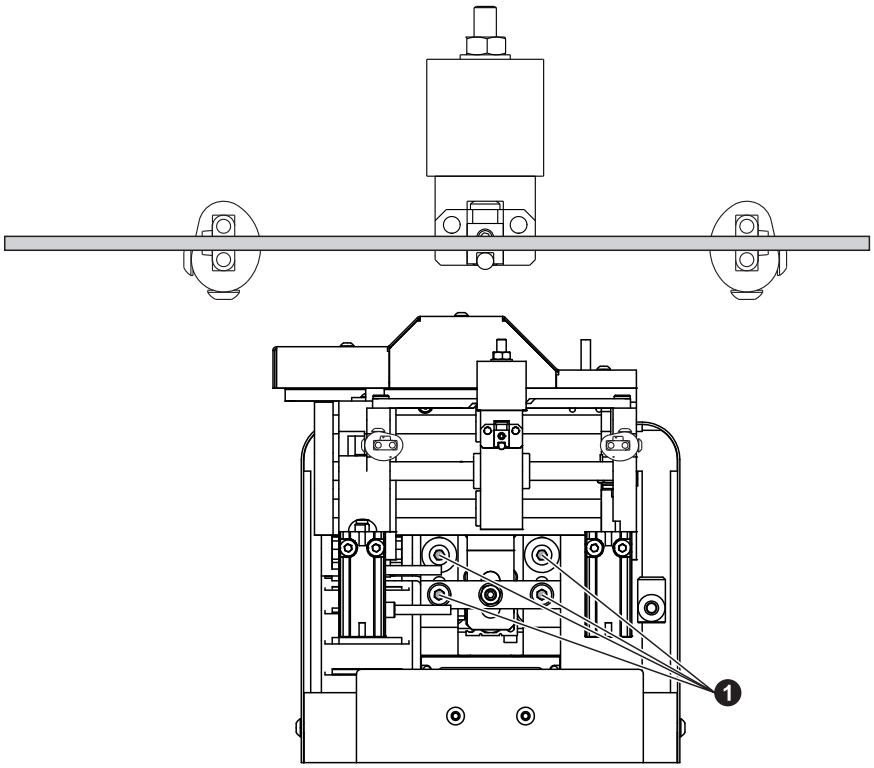
4.1.2. X-Axis Height

Belt-loop feeding X-axis need to be in the right height so that it reliably takes the belt-loop, i.e., the belt-loop shall be in the middle of both folding forks – refer to the illustrative figure.

Adjust the maximum belt-loop length. Use the step-by-step sewing mode (refer to section E1.5) and reach the state when the belt-loop feeding Y-axis clamp pulls out the belt-loop. Use the four screws ❶; you can temporarily remove the safety cover to make this adjustment easier.



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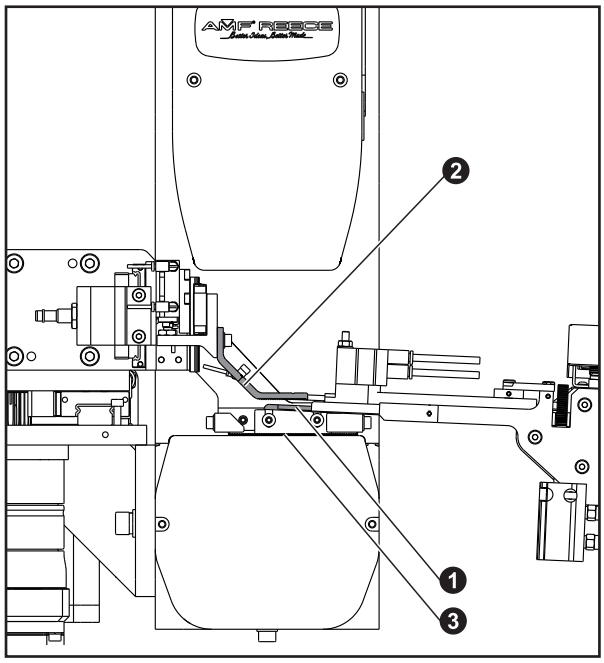
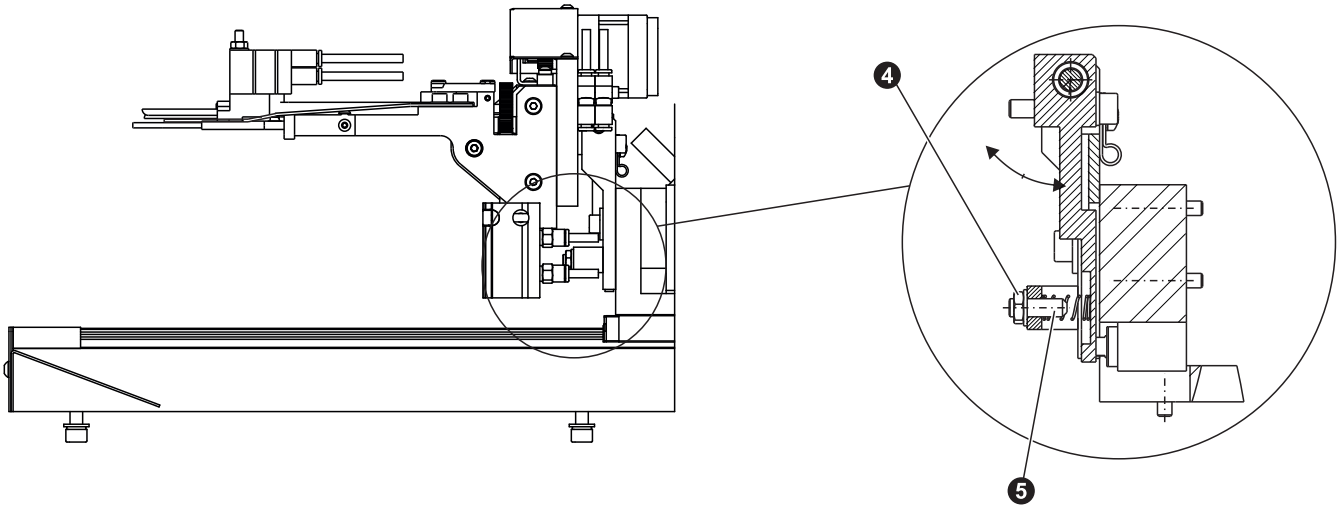
4.1.3. X-Axis Lifting

Use the step-by-step sewing mode (refer to section E1.5) and reach the state when the belt-loop is under the presser-feet ❷ and still lifted up – as per the picture. In this state, there should be enough space between the folding forks ❶ and presser-feet ❷ so that the belt-loop is not displaced during feeding – if there is not enough space, adjust the lift-up position higher. Also there should be enough space between the folding forks ❶ and the machine base ❸ to fit the trousers in.



To move the belt-loop feeding X-axis lift-up position up or down, loosen the nut ❹ and adjust the position of the screw-stop ❺ as necessary.



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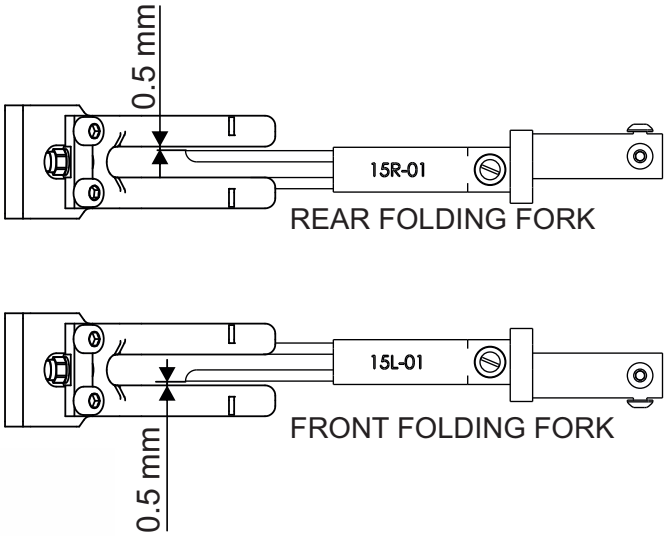
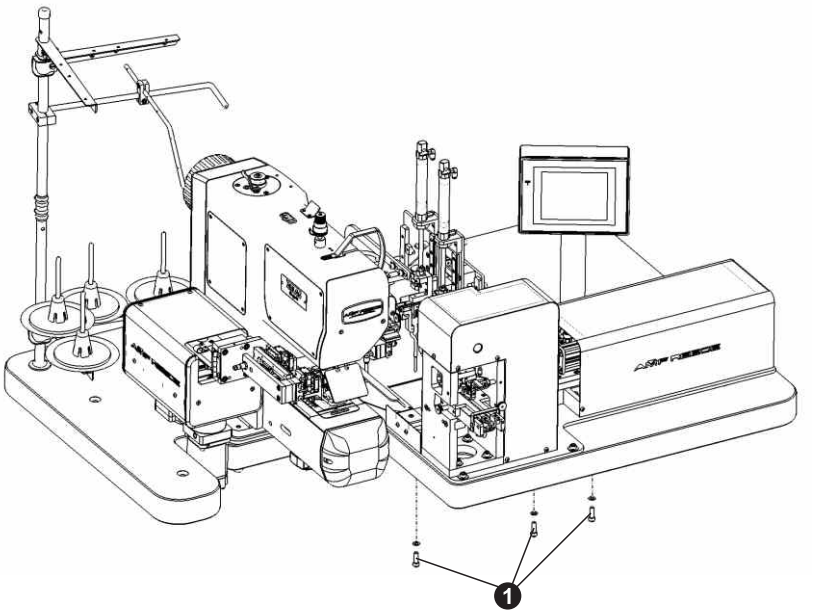
4.1.4. Front Folding Fork Position

Use the step-by-step sewing mode (refer to section E1.5) and reach the state when the belt-loop is under the presser-feet. Now the front (fixed) folding fork should be 0.5 mm from the inner edge of the presser-foot – refer to the illustrative figure. Use the screws ❶ to reach this mutual position of the belt-loop feeding X-axis and machine sewing head.





4.1.5. Rear (Moveable)Folding Fork Position

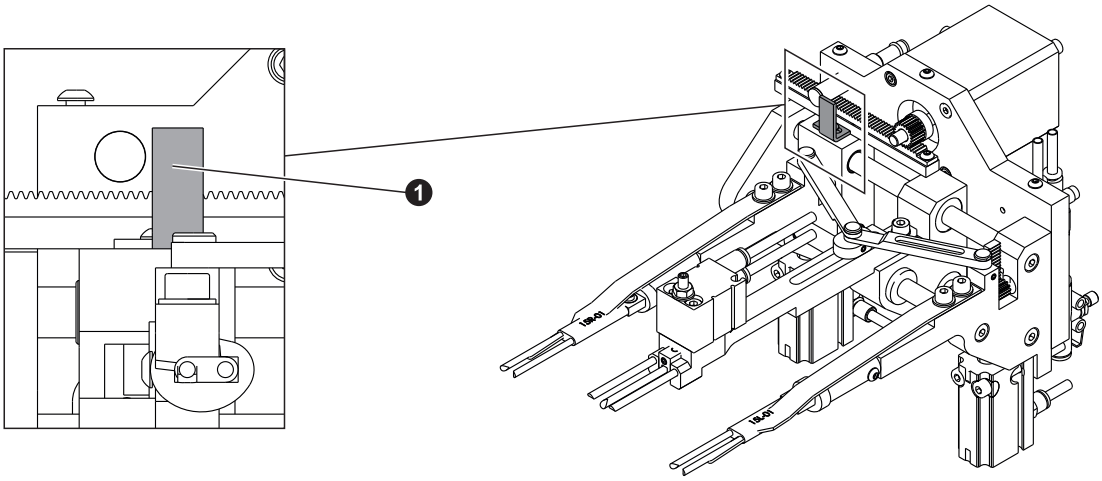
Again move the belt-loop under the presser-feet and refer to the illustrative figure from the previous subsection. The rear (moveable) folding fork should also be 0.5 mm from the inner edge of the presser-foot.

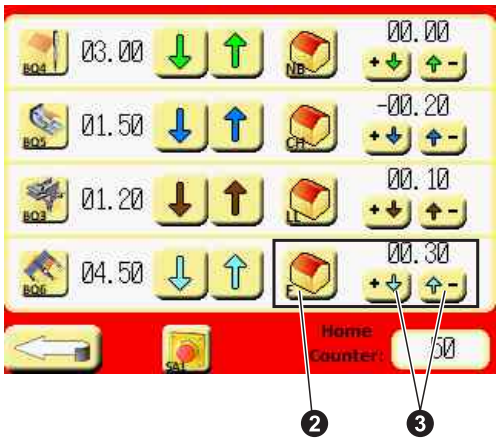
Reach the Belt-Loop Length Adjustment Motors Test screen on the machine display (refer to section E1.9).

- For bigger position changes adjust the position of the plate ❶ as necessary. Press home button ❷ after each change of the plate position.

- For smaller changes use the corrections ❸.

In the end, check both bar-tacks are symmetrically sewn on the belt-loop (in terms bar-tack distance from the belt-loop edge) and make eventual readjustment.





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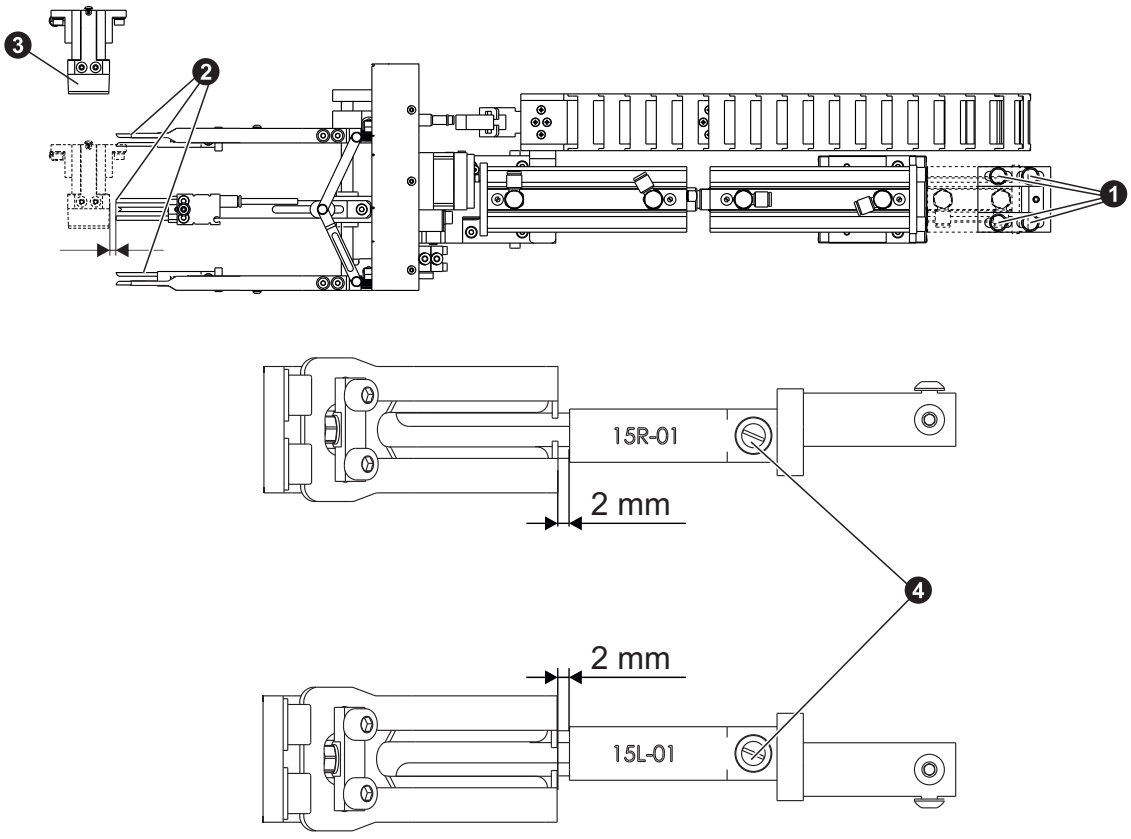
4.1.6. X-Axis X-Position

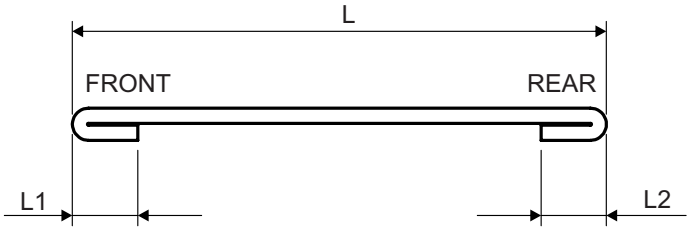
Again move the belt-loop under the presser-feet and check the belt-loop feeding X-axis X-position: there should be a 2 mm gap between the presser-feet and folding forks holder – refer to the illustrative figure. Use the four screws ❶ to adjust this distance.

Consequently, check that the belt-loop folding and holding fingers ❷ do not collide with the belt-loop feeding Y-axis pull-out clamp ❸ in its whole range. To check this collision, turn the compressed-air off, keep the feeding X-axis in its basic position and move the Y-axis clamp ❸ manually in its whole range. If necessary, readjust the belt-loop feeding X-axis X-position or pull the folding fingers in using the screws ❹.

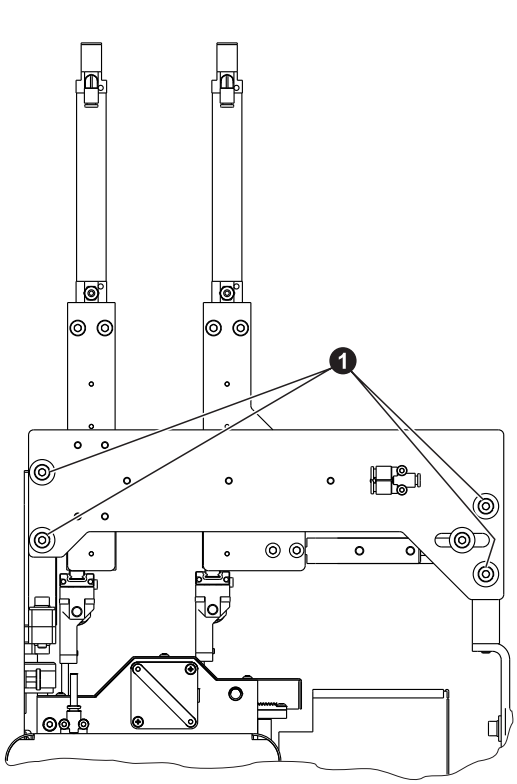


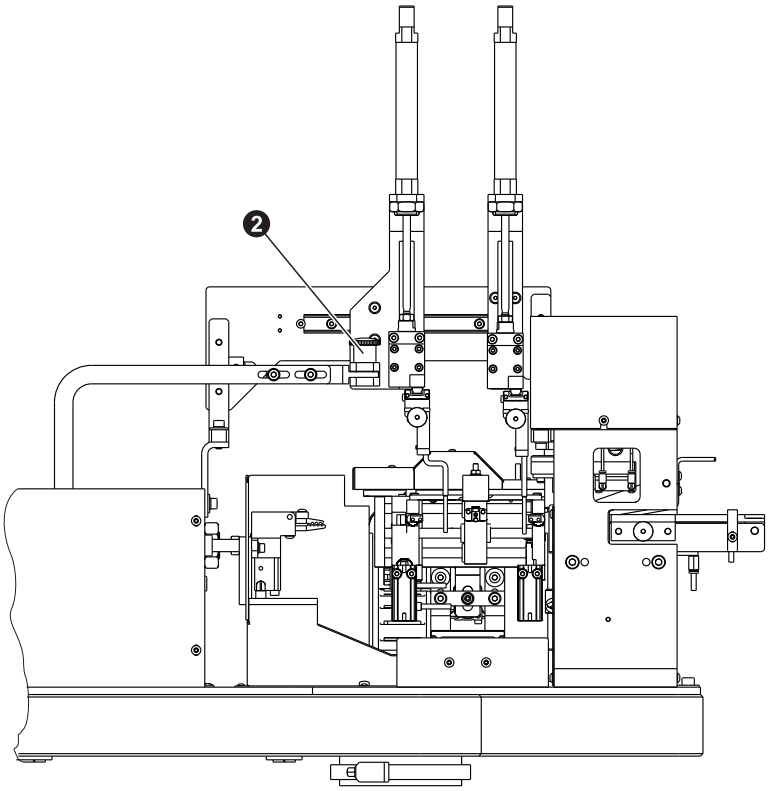
4.2. Belt-Loop Feeding Y-Axis

This chapter mainly regards proper belt-loop margins length (L1 and L2) adjustment:



Before making this adjustment, remove the belt-loop alignment system using the screws ❶ and latch ❷.





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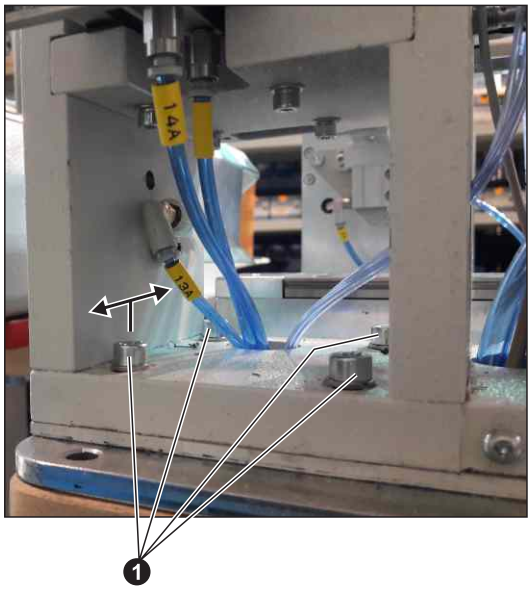
4.2.1. Front Belt-Loop Margin Length (L1)

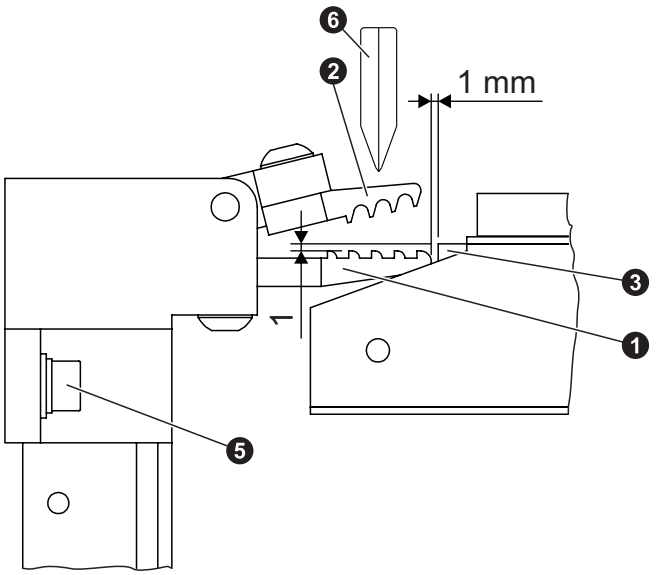
To adjust the length of the front belt-loop margin (L1), loose the four screws ❶ and move the cutting block front & back as necessary. Keep the left side edge of the cutting block parallel to the base plate of the machine. Perform the pull-out clamp adjustment according to the next section.

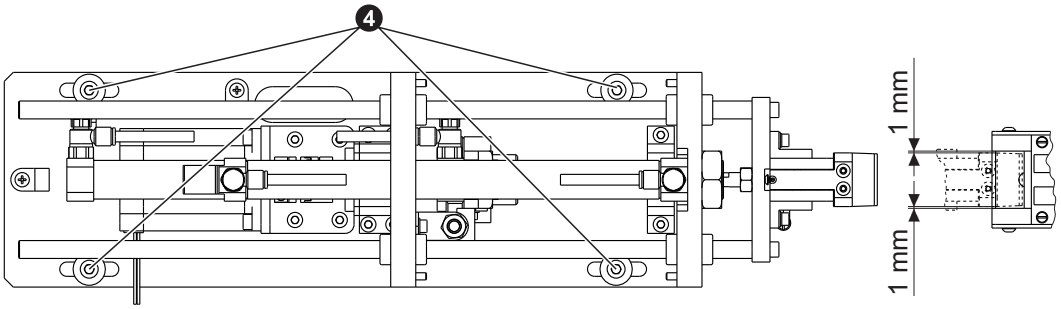


4.2.2. Pull-Out Clamp Alignment Position Adjustment

Adjust the feeding Y-axis pull-out clamp according to the illustrative figure. Use the step-by-step sewing mode (refer to section E1.5) and reach the state when the belt-loop feeding Y-axis clamp is pushed out.

- Horizontal position: There should be a gap of approx. 1 mm between the clamp ❶ and cutting steel. Use the four screws ❹ to move the feeding Y-axis block front & back. Check there is a symmetrical approx. 1 mm gap between the clamp and cutting block from both left and right sides.
- Vertical position: Level of the bottom part of pull-out clamp ❶ should be approx. 1 mm under the level of the cutting steel ❸. Use the screws ❺ to move the clamp up & down. Pay attention to avoid collision of the pull-out clamp top part ❷ with the cutting knife ❻!

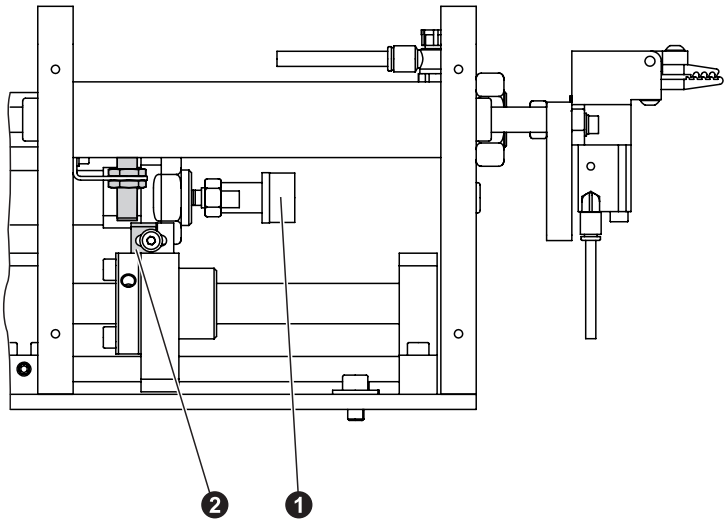


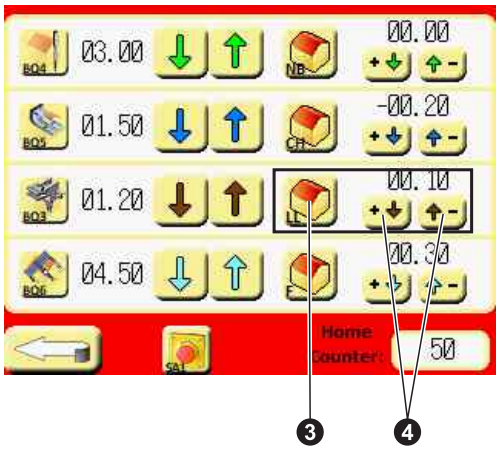


4.2.3. Rear Belt-Loop Margin Length (L2)

Rear belt-loop margin length is defined by the position of the feeding Y-axis stop ❶. Reach the Belt-Loop Length Adjustment Motors Test screen on the machine display (refer to section E1.9).

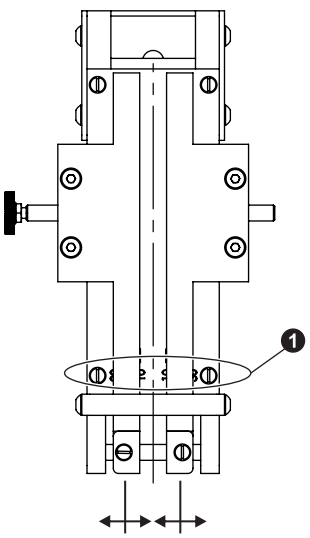
- For bigger position changes adjust the position of the plate ❷ as necessary. Press home button ❸ after each change of the plate position.
- For smaller changes use the corrections ❹.

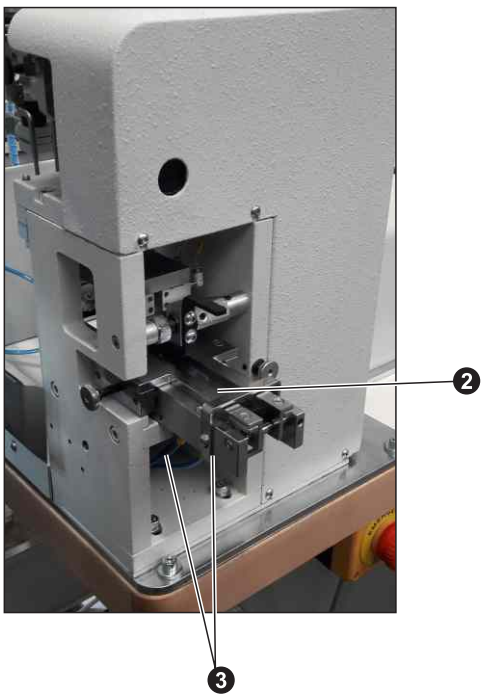


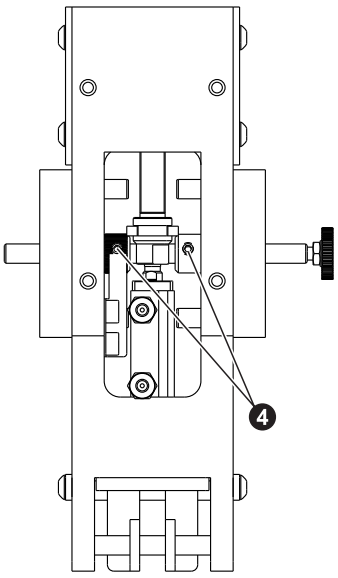


4.2.4. Endless Belt-Loop Guide Adjustment

Both left and right endless belt-loop guides should be located symmetrically so that they both point to the same number on the belt-loop width scale ❶. Remove the whole guiding block ❷ using the four screws ❸ from below, loose the screws ❹ and move whole guiding left & right as necessary.







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4.3. Belt-Loop Alignment System

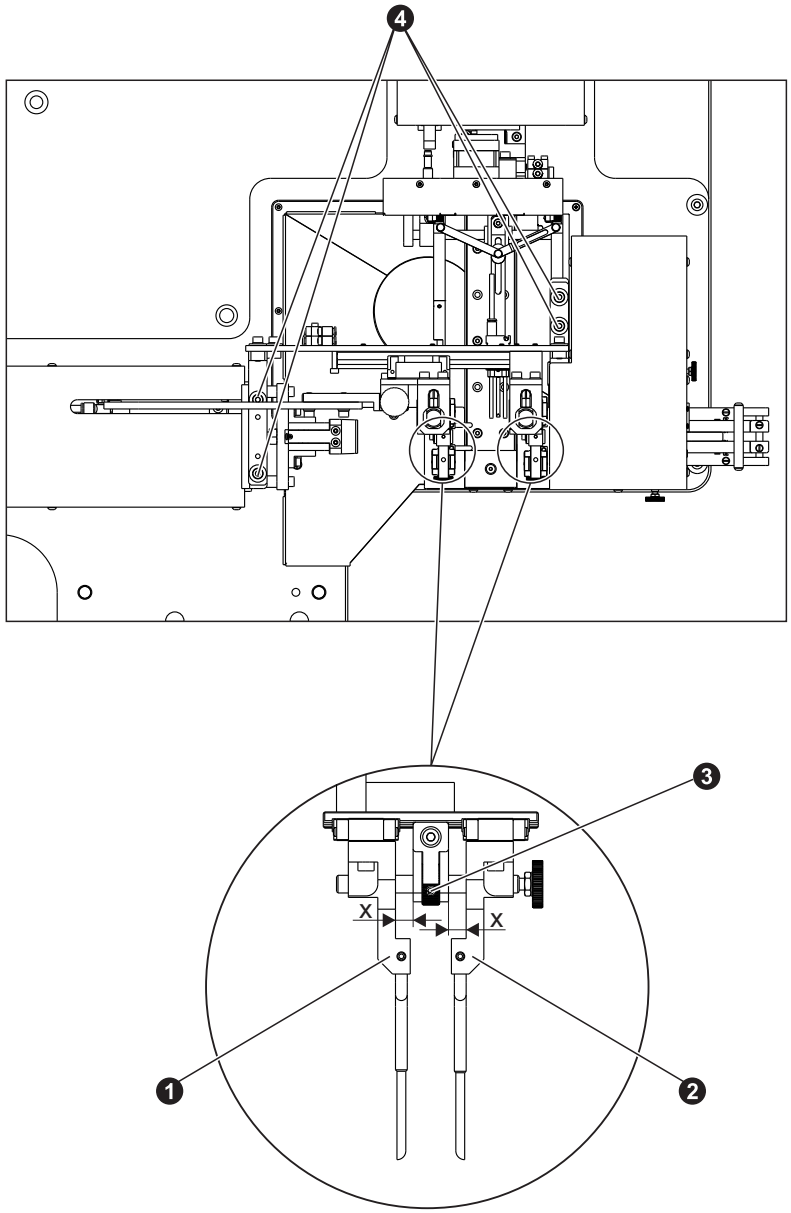
4.3.1. Alignment with Belt-Loop

Make sure the alignment system is well aligned with the belt-loop. Adjust the maximum belt-loop length. Use the step-by-step sewing mode (refer to section E1.5) and reach the state when the belt-loop feeding Y-axis clamp pulls out the belt-loop.

For both front and rear alignment fork check that both left ❶ and right ❷ slider are located symmetrically from the middle – refer to the illustrative figure. Correct the symmetry using the screw ❸.

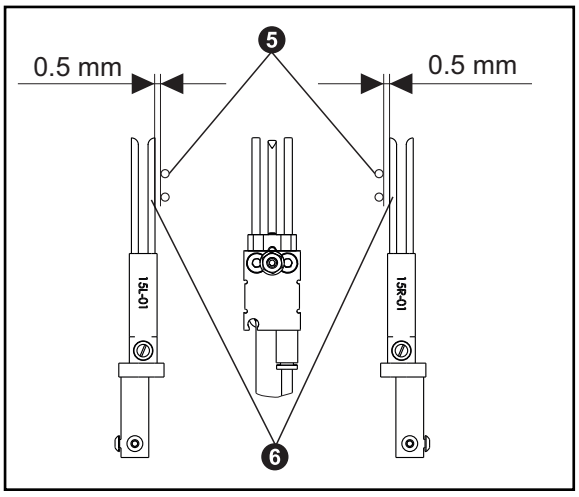
Loosen the four screws ❹ and align the alignment system with the belt-loop.

Sew a few belt-loops (5 to 10) and check the bar-tacks are correctly placed on the belt-loop. In case the belt-loop needs to be slightly rotated, you can use the screws ❹ to perform this small correction.



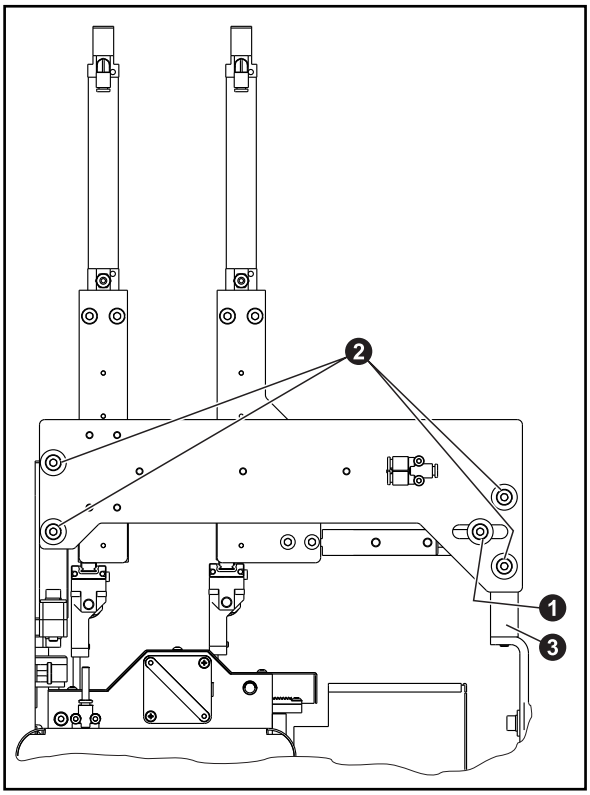
4.3.2. Alignment Forks Position

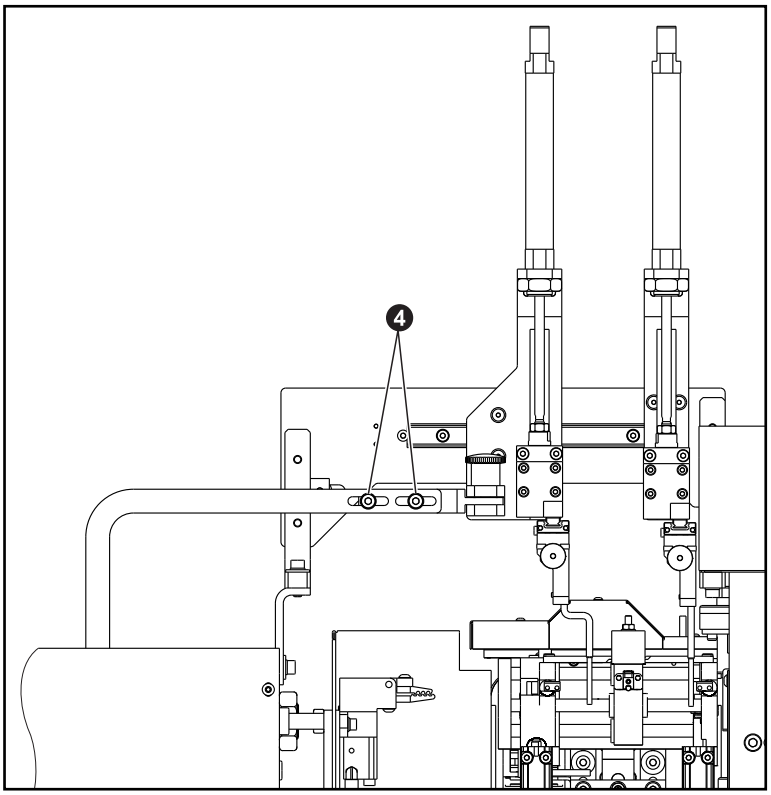
Both front and rear alignment fork ❺ should be placed very close to the folding fork ❻ – refer to the illustrative figure. Use the step-by-step sewing mode (refer to section E1.5) and reach the state when the belt-loop is just folded and alignment system forks are still active (down).



To adjust the front alignment fork position, release the stop ❶ and use the four screws ❷ to move the front alignment fork front & back. Then push the stop to the holder ❸ and tighten it (this stop serves for easy subsequent disassembly of the whole alignment system).

To adjust the rear alignment fork use the screws ❹.





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F - MACHINE MAINTENANCE

WARNING!
- Check the condition of electric cables regularly! Make sure they are not damaged!
- Check that there are no damages on the safety covers. Change damaged covers for good ones or order them!
- Do not put fingers into the area of sewing needle or cutting mechanism under any circumstances!
- Do not modify the machine in any way that could limit safety components!

CAUTION!
- Do not miss out doing regular maintenance.
- If there is power system breakdown, switch off the main power switch.
- Do not remove, modify or remove safety labels.
- Do not work on the machine intoxicated or impaired.
- Make sure that lighting equipment for the working area does not exceed 750 Lux.

1. Machine Cleaning and Maintenance

CAUTION!
Before you start the maintenance or cleaning, switch off the power supply and disconnect the air supply from the machine!

1.1. Daily Cleaning and Checking

To ensure machine long life and reliability, it is important to apply below mentioned steps on daily bases after work shift.

1.1.1. Sewing mechanism cleaning

Clean all moveable mechanism (linear guides, teeth-wheels and racks, bushings, etc.) using compressed air.

F - MACHINE MAINTENANCE

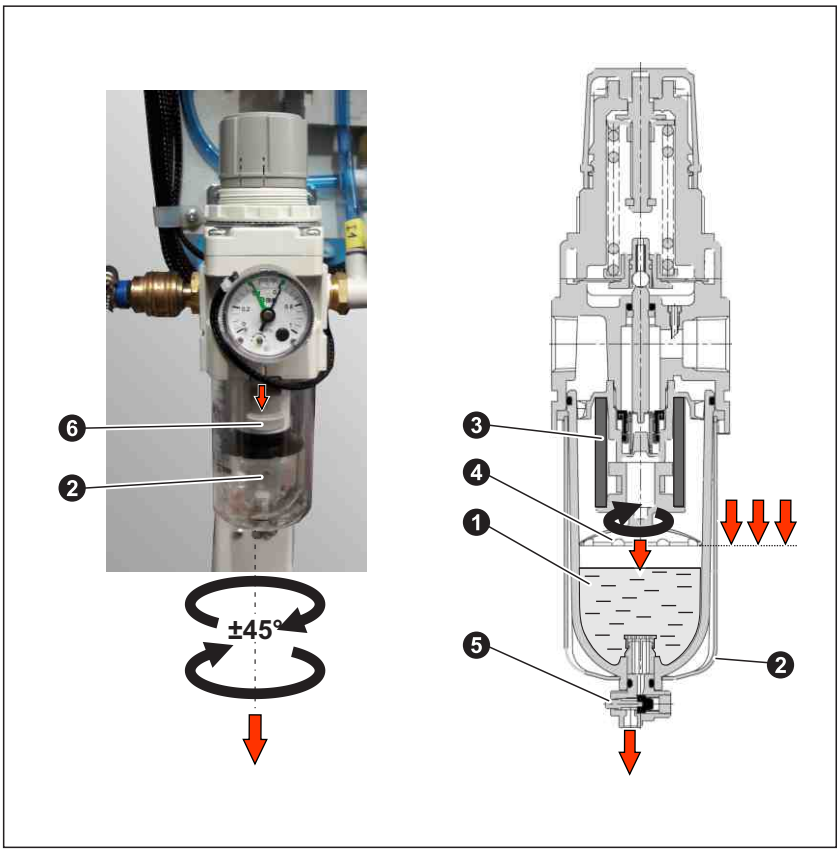
1.1.2. Filter unit cleaning and maintenance

a) Connect the machine to the air supply.
b) Check the level of condensation ❶ in the reservoir ❷. The liquid level must not get more than 10 mm under the filter sleeve ❸. The height is marked by the lowest nut ferrel ❹.
c) Press drain valve ❺ and drain condensation out ❶.
d) Disconnect air supply.

In case of airflow decline, replace the filter sleeve ❸. Filter sleeve must be changed after two years of machine operation at the latest or every time the pressure drops down to 0,1MPa.

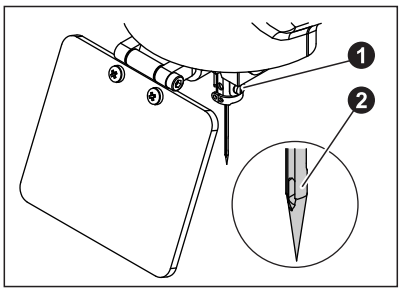
How to exchange filter sleeve:

c) Push latch ❻ in the direction of the arrow and turn reservoir ❷ of 45° any side you like.
d) Pull reservoir ❷ out in the direction of the arrow.
e) Loosen nut ❹ by turning it counter-clockwise.
f) Remove filter sleeve ❸ and put new one.
g) Put filter together.



1.1.3. Needle check

a) Loosen screw ❶ and take needle out ❷.
b) Check that needle tip is not damaged
c) Roll the needle on the flat board to see whether the needle is not bent
d) Replace the needle with a new one if damaged or bent!
e) After checking put the needle ❷ back into machine.



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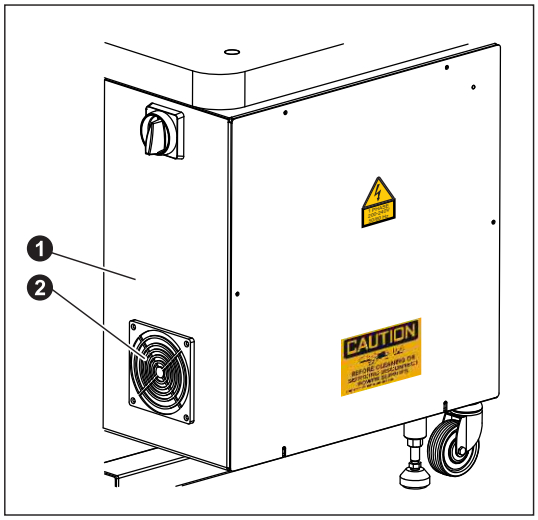
F - MACHINE MAINTENANCE

1.2. Cleaning and Checking as Needed

Apply instructions bellow as needed with regard to machine production workload.

1.2.1. Control box

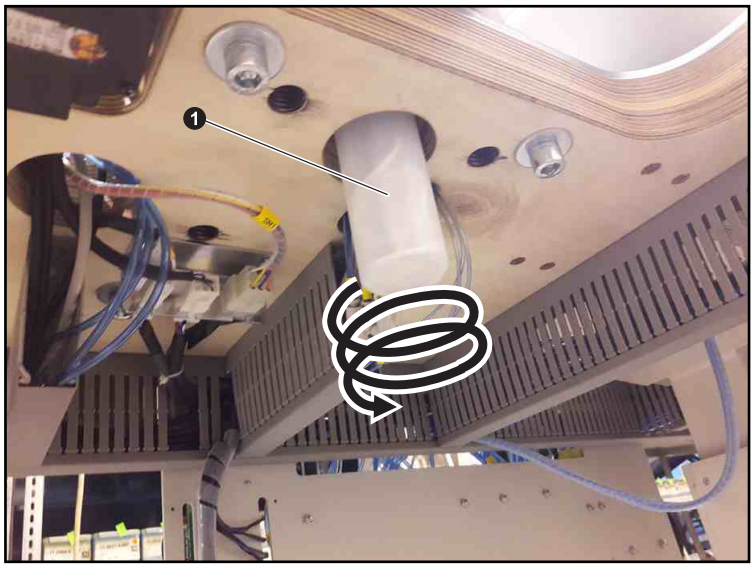
Use vacuum cleaner to clean control box ❶ filter sleeves ❷.



1.2.2. Draining lubrication oil out

Check the oil tank ❶ under the machine. If it is full, remove the tank by turning it clockwise and empty it out. Put the tank back onto its place.

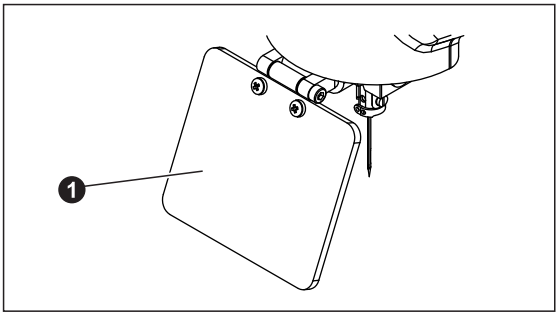
NOTE!
Disposal of the used oil must correspond with ecological standards!



1.2.3. Eye safety cover

Clean the eye safety covers ❶ with wet cloth.

NOTE!
Do not use any aggressive cleaning solutions, i.e. paraffin oil, etc.! They may create color stains on the safety cover and cause bad transparence.



1.2.4. Battery replacement

a) If the display shows the error message  in service menu - see chapter **E**, it is necessary to check the battery connection, or to replace the battery.

b) Battery lifetime is guaranteed for 5 years at the temperature of 25°C. Higher temperatures significantly reduce the lifetime of the battery (at 55°C it is only 1.5 years).

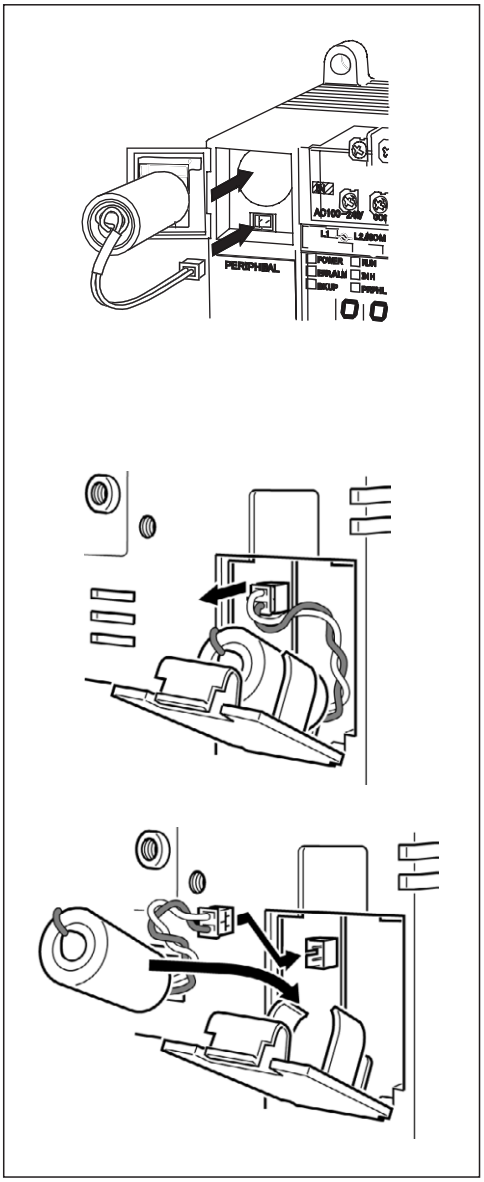
c) In order not to lose data, it is important to replace battery within 5 days from the first indication. This period can be prolonged if the machine stays switched on.

When replacing the battery, make sure you do the following:

a) Never shorten the connector from the battery in the PLC. Never charge the battery. Never break the battery. All these may cause the battery loses its lifetime, it may set fire or damage the battery cover and fail the guarantee.

b) Never use a battery that fell down or got hit in another way. Replace the battery only when the power supply is disconnected. When the battery is disconnected, the data keep saved for 5 minutes. After this period the data may get lost. The battery can be replaced by an instructed mechanic only. If the machine is not in operation for longer time, the lifetime of the battery shortens.

Note!
The error message showed on the display will be automatically deleted when a new battery is placed in.



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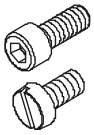
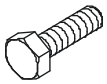
F - MACHINE MAINTENANCE

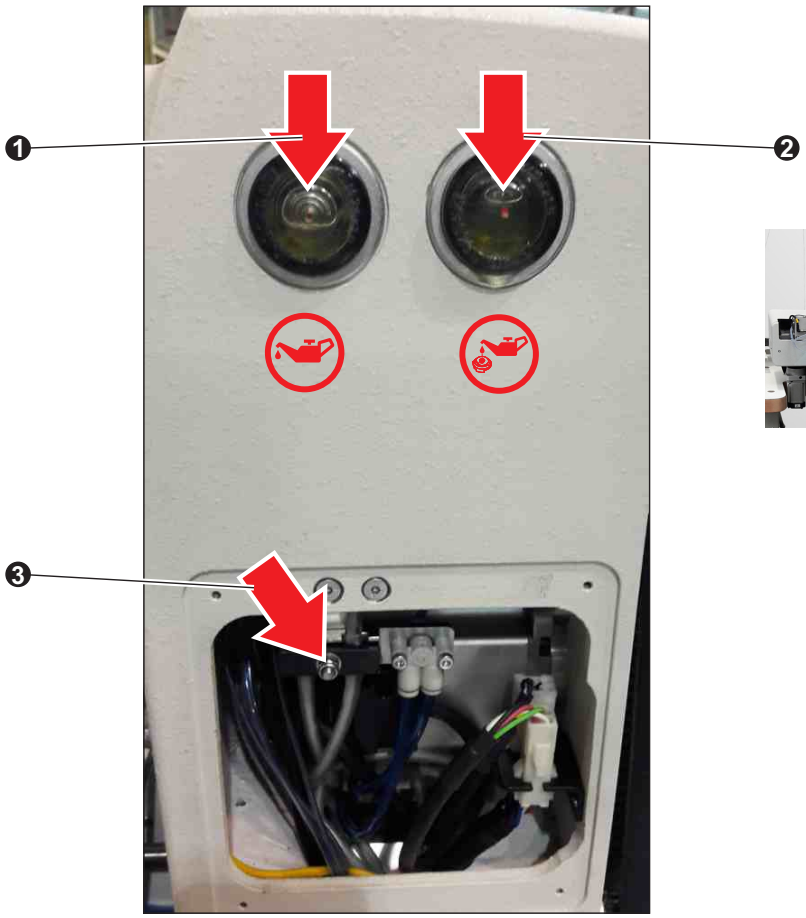
2. Maintenance List

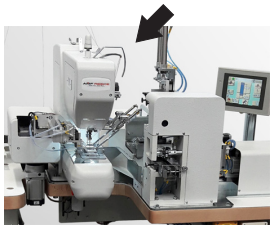
Maintenance list		
Once a day	**10 hours**	Clean sewing mechanism area
		Clean frame area
		Check cutting knife edge
		Check level of condensate in regulator filter
Once a week	**80 hours**	Lubricate the places from chapter F 2.1.
Once a month	**300 hours**	Check sewing mechanism drive play
		Check filth in filter sleeves in control box
		Check tank and waste oil
		Lubricate the places from chapter F 2.2.
		Check screw joints tightness (keep values below)

Recommended values for screws freeze (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

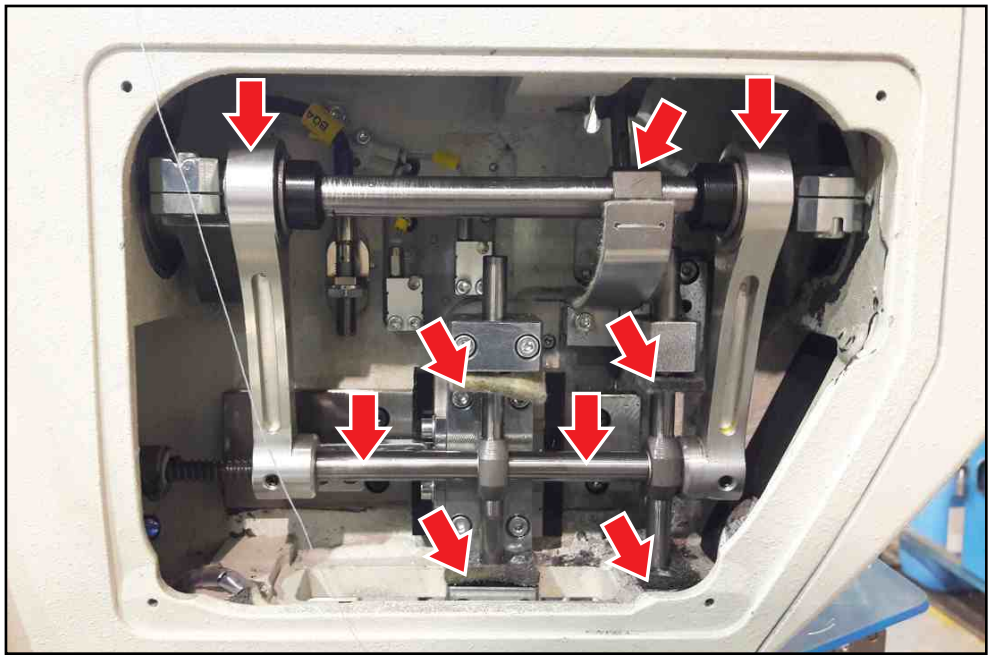
2.1. Places to be Lubricated by Oil Weekly

Use mineral oil to avoid garment to get dirty.





Oil reservoir ❶ stores oil for wick-lubrication of take-up lever, hook openers and hook gears. Amount of oil being supplied to the hook openers and gears can be regulated by tightening the nut ❸.
Reservoir ❷ stores oil for lubrication of hook - this reservoir is connected to the cups underneath the hook and oil is supplied at particular intervals. This interval can be set in machine settings - refer to chapter E 1.4.



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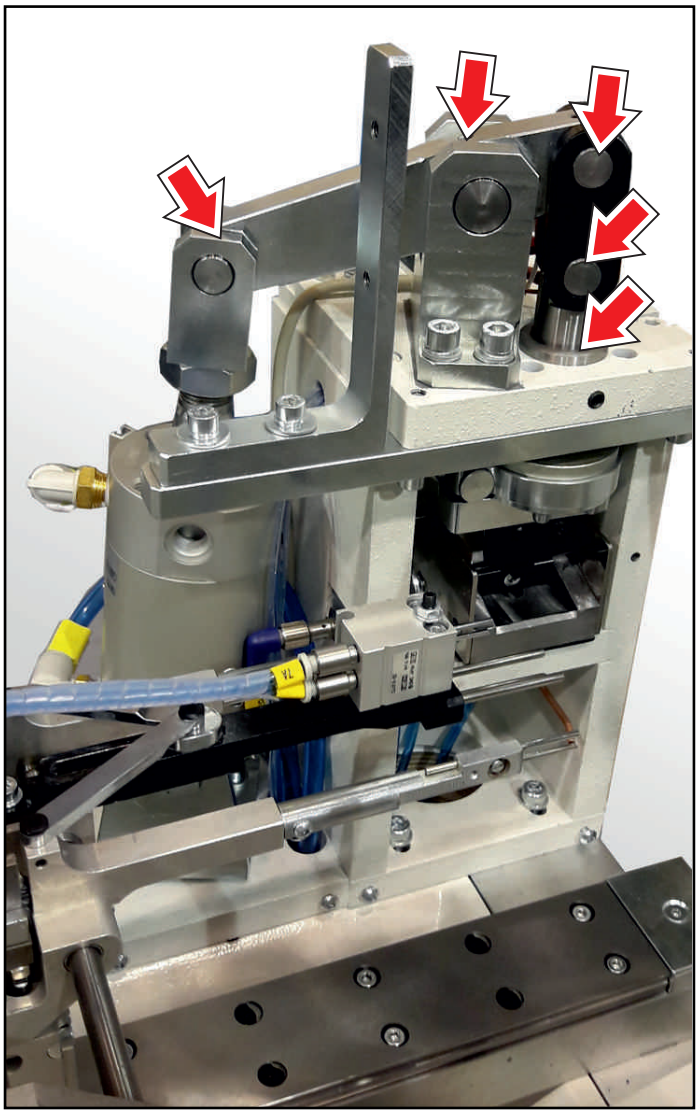
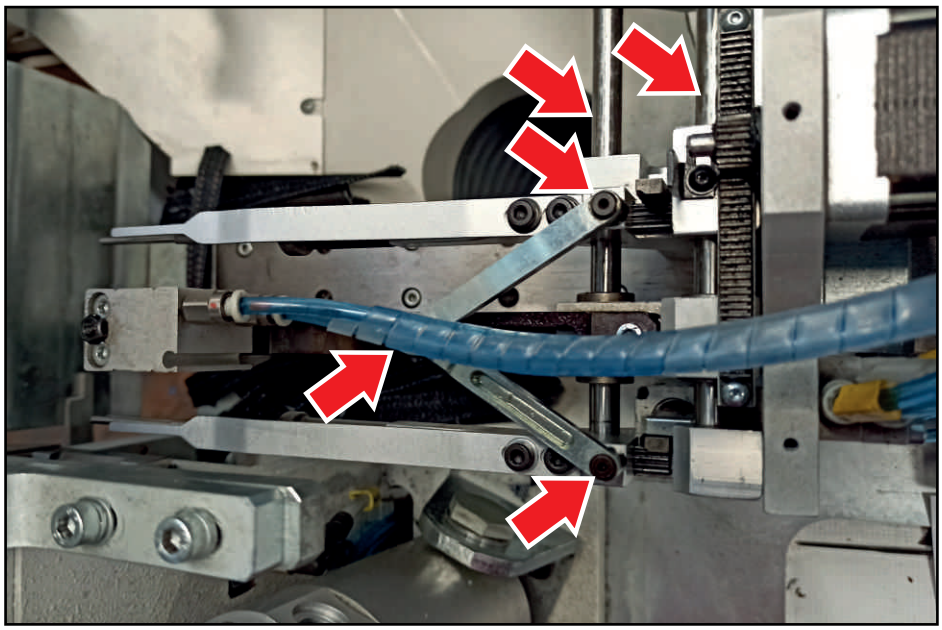
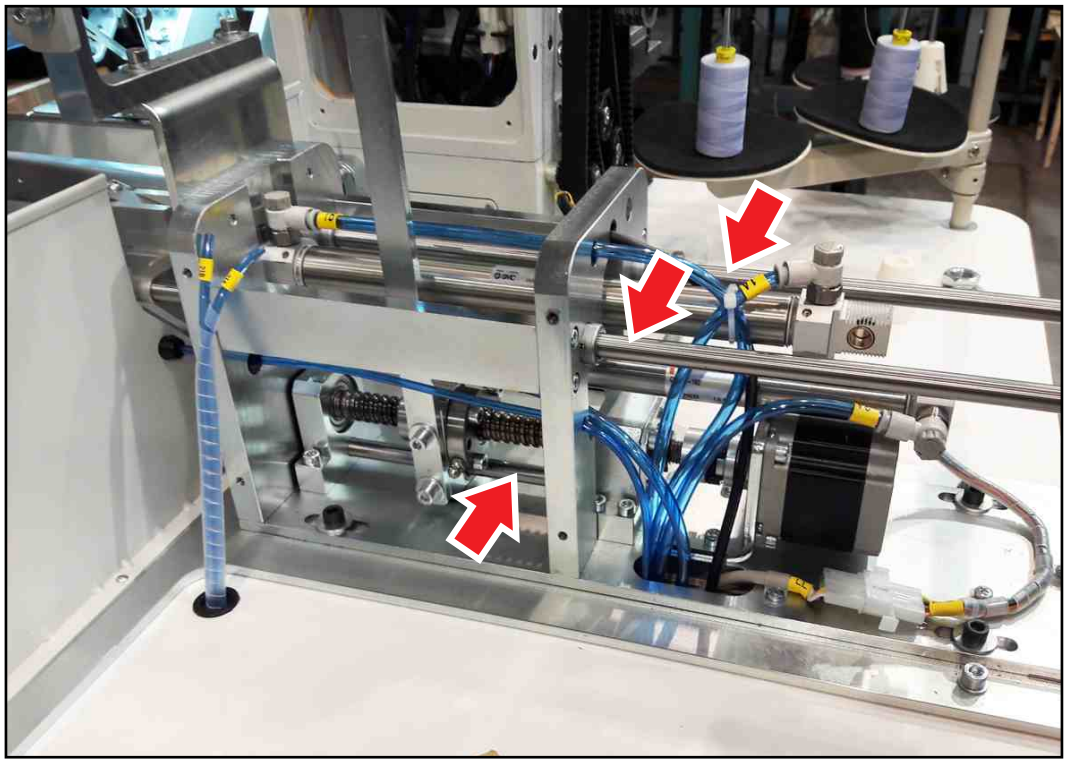
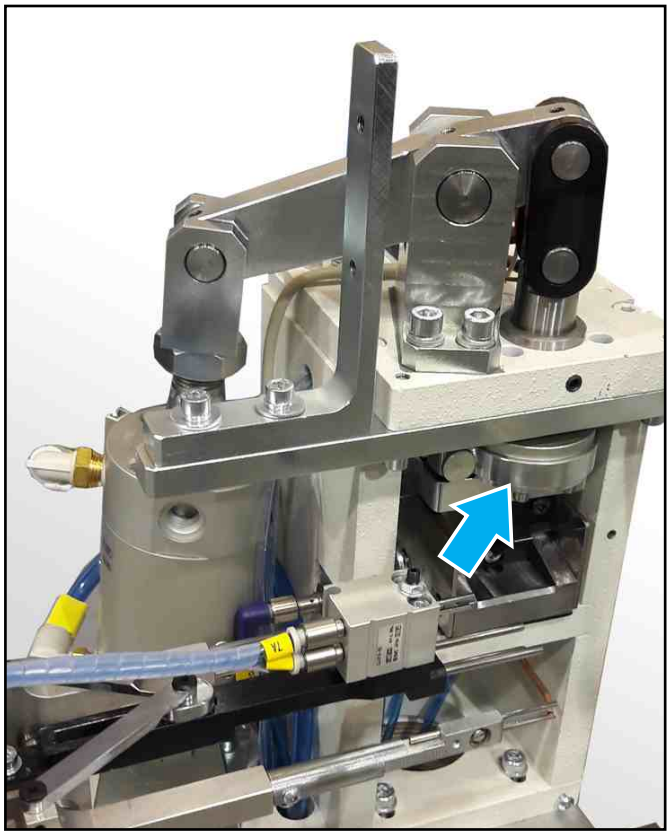
F - MACHINE MAINTENANCE







2.2. Places to be Lubricated by Grease Monthly



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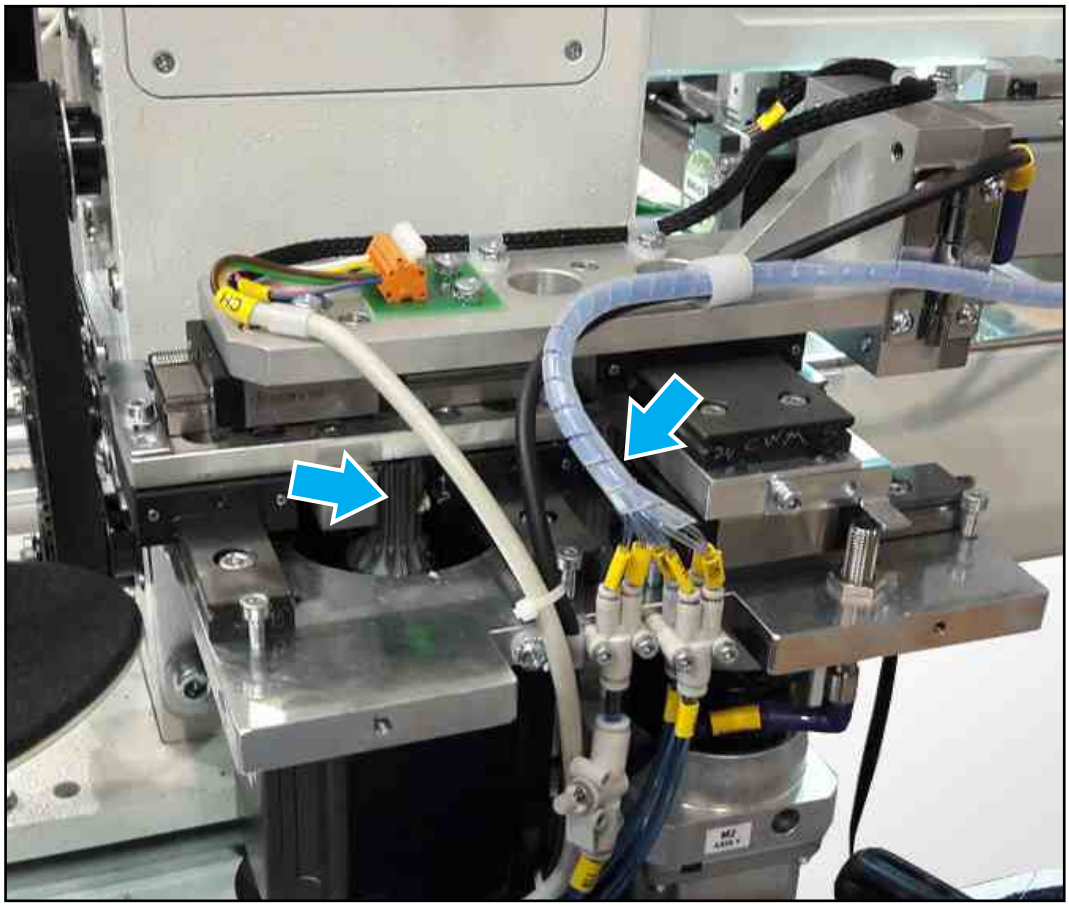
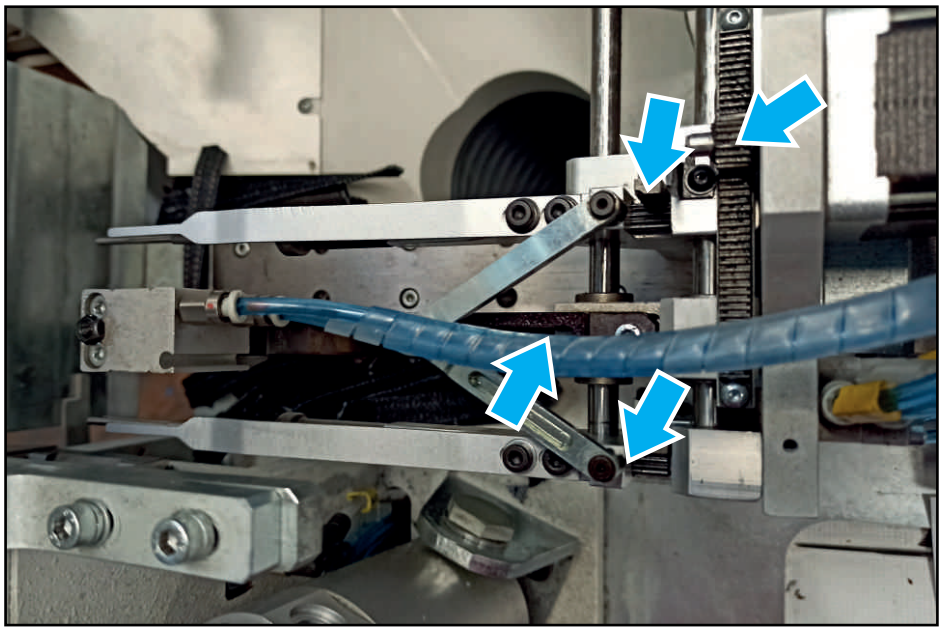
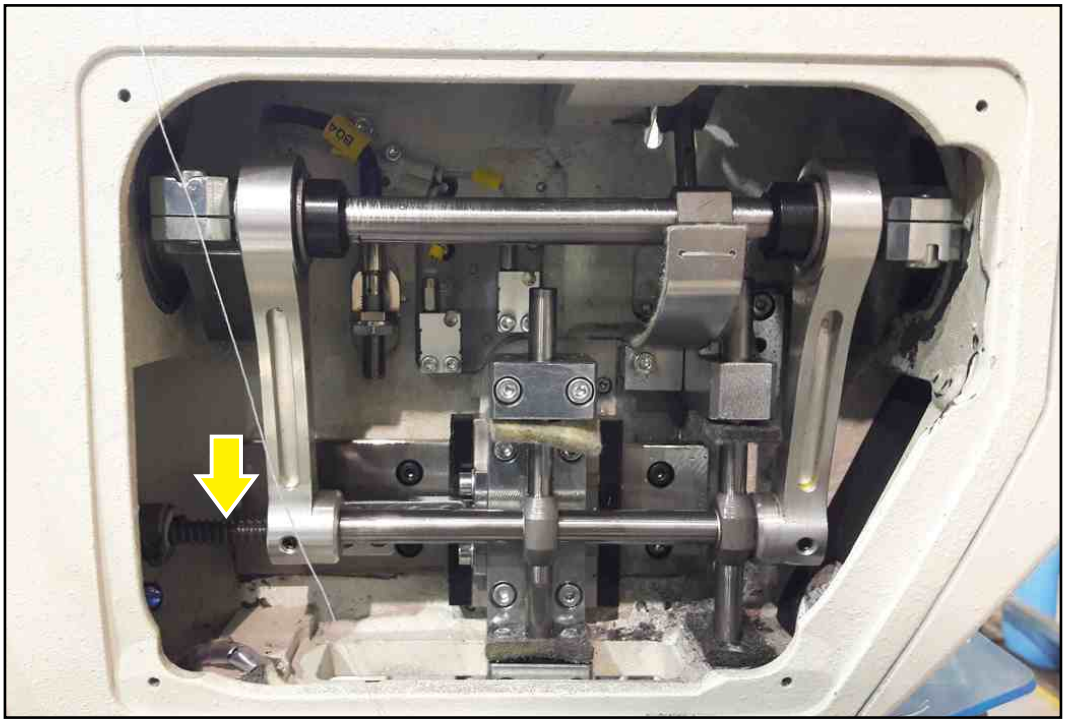




2.3. Ball-Screw Lubrication

These ball-screws shall be lubricated with a lubricant which does NOT contain MoS2 or graphite. Either oil or grease can be used:

- we recommend oils of class CL in accordance with DIN 51517, part 2
- we recommend grease based on mineral oil, class K2K, DIN 51825; greasing should occur after each 200 – 600 running hours



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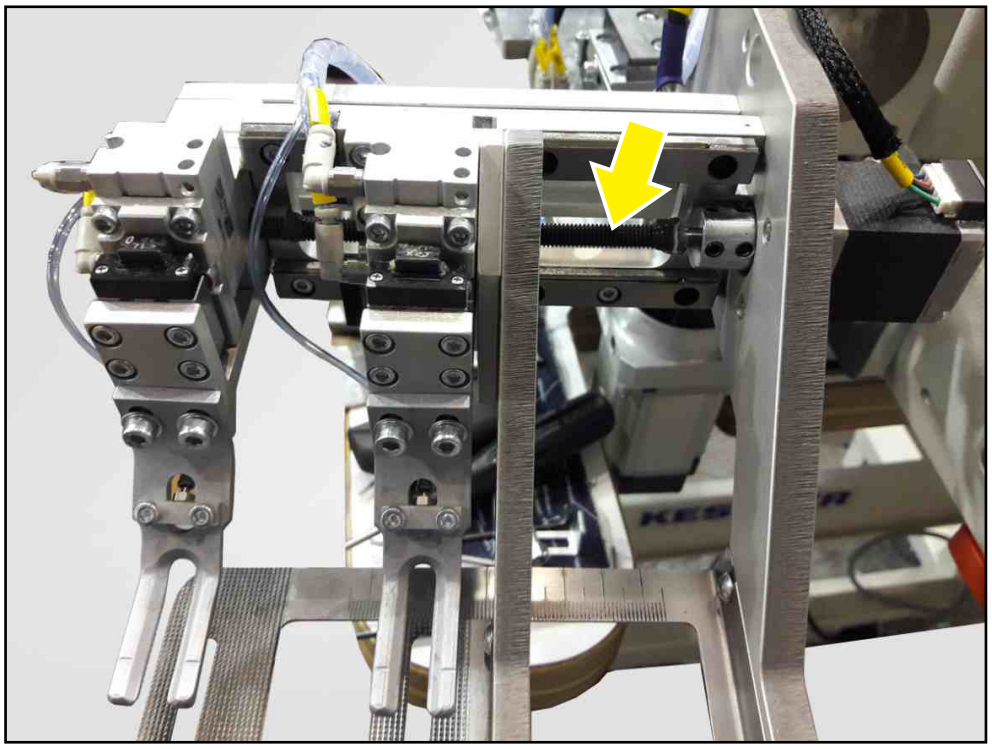
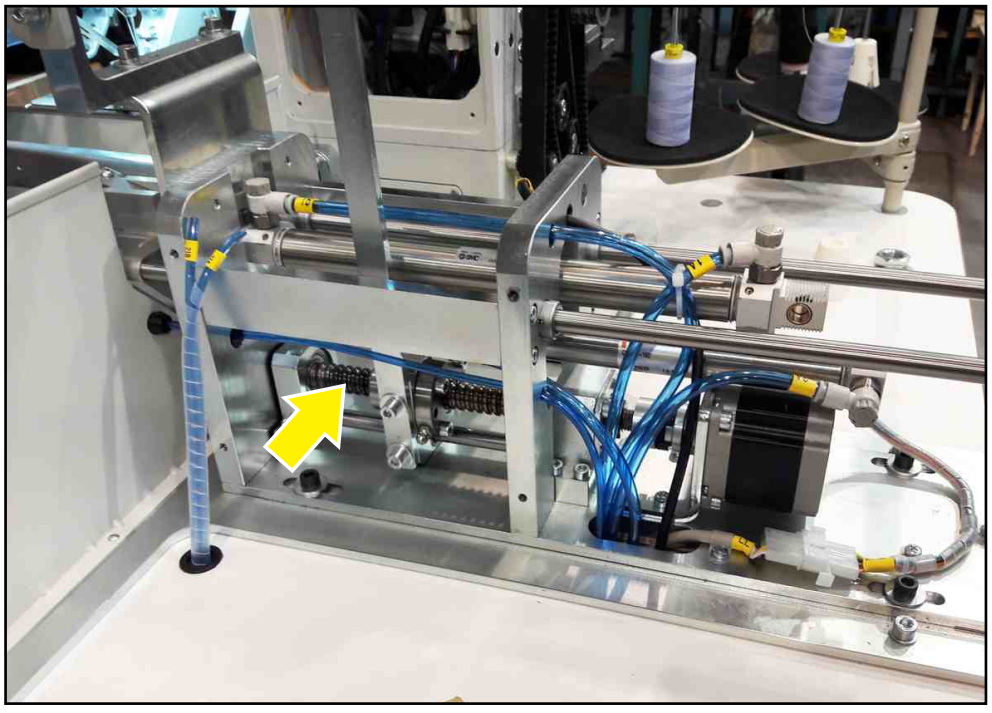
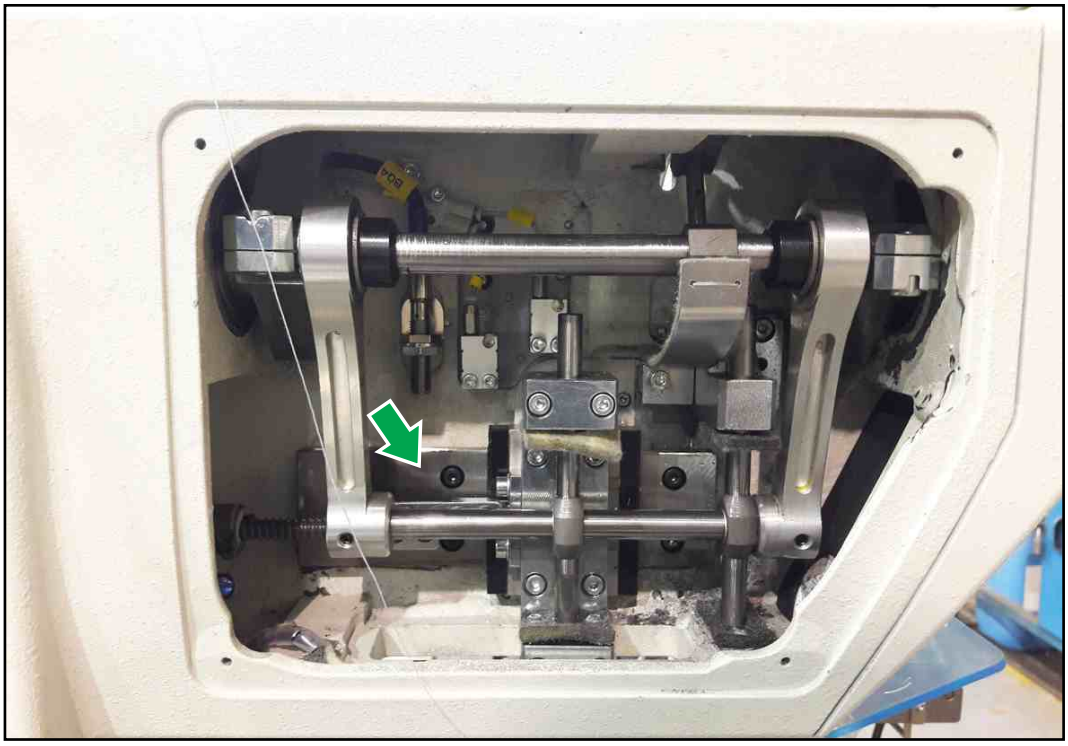




2.4. Linear Guide Lubrication

The linear guides shall be lubricated with lithium type grease. When dusts are adhered on the surface during operations, wash it with clean white kerosene and re-lubricate. Greasing should occur after each 200 – 600 running hours.



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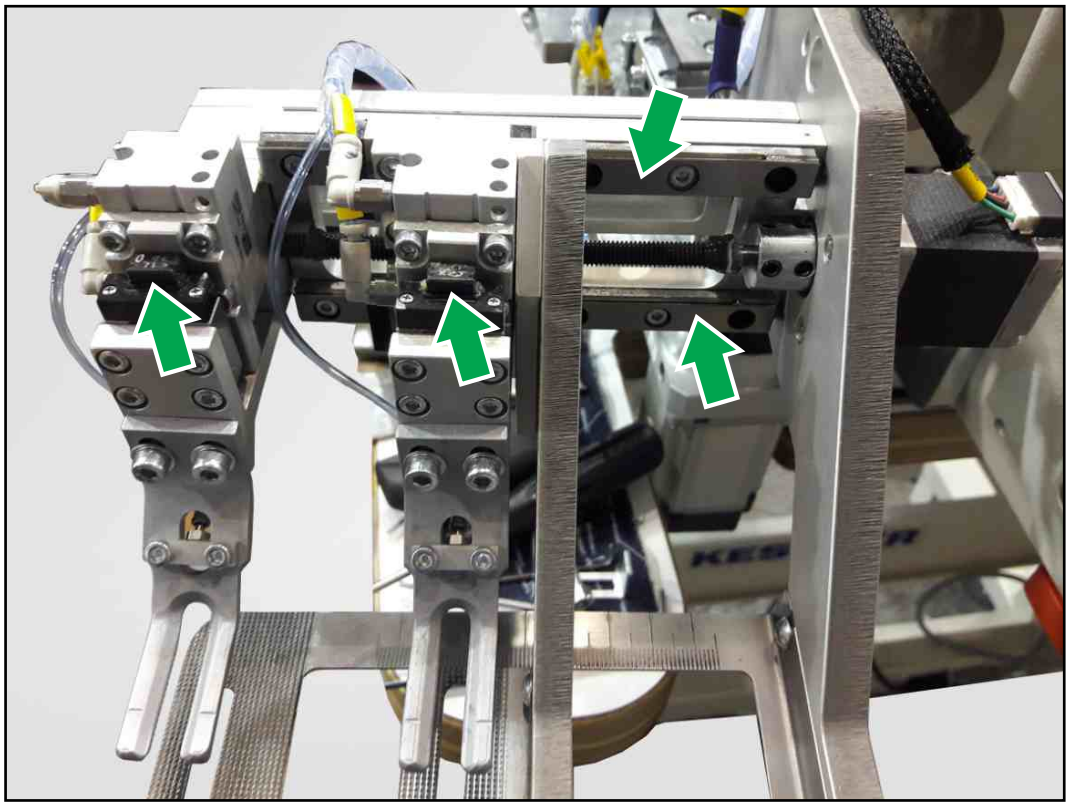

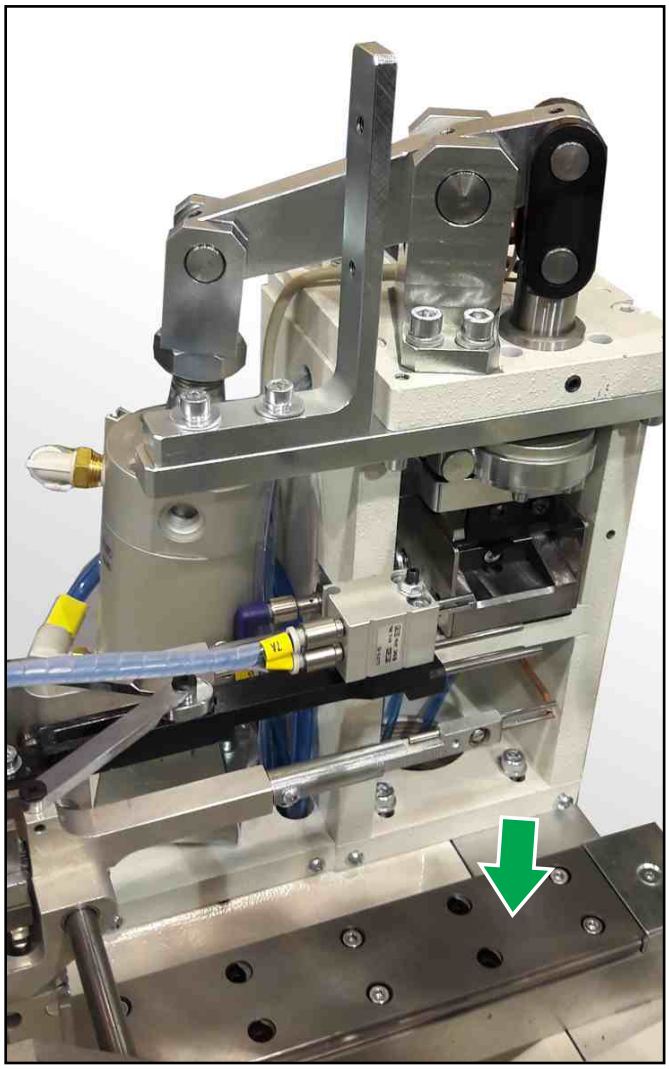

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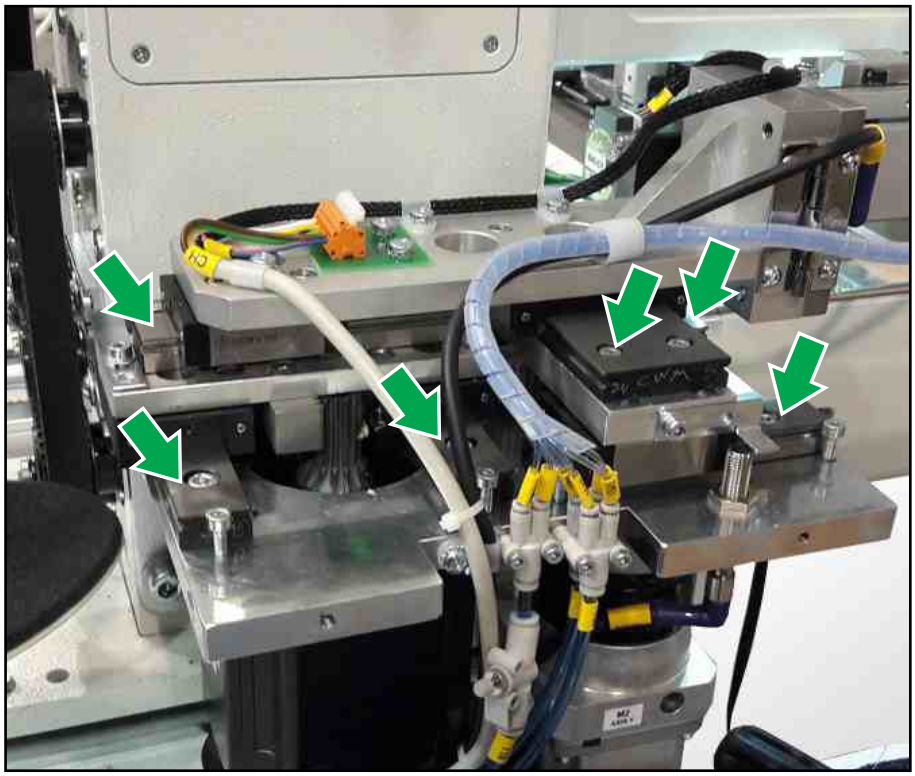

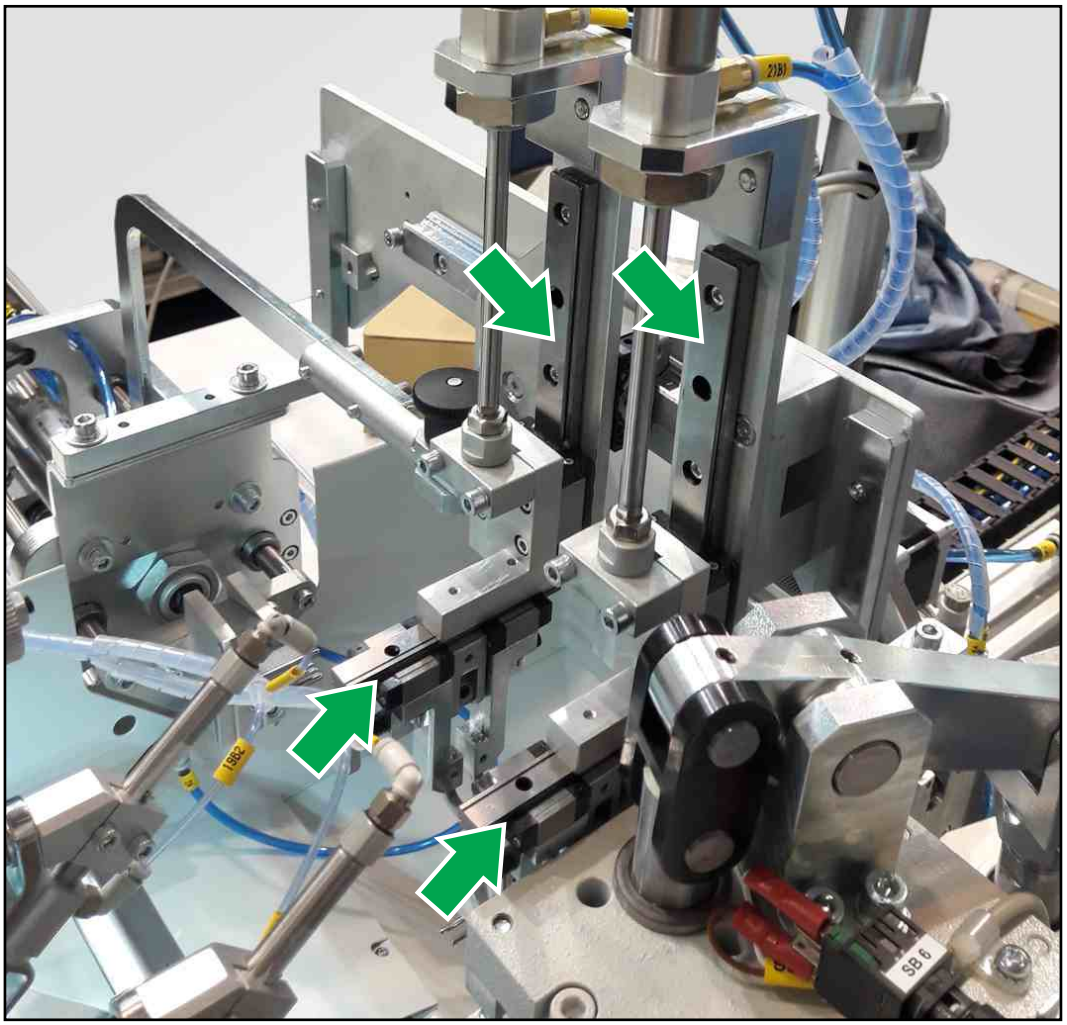

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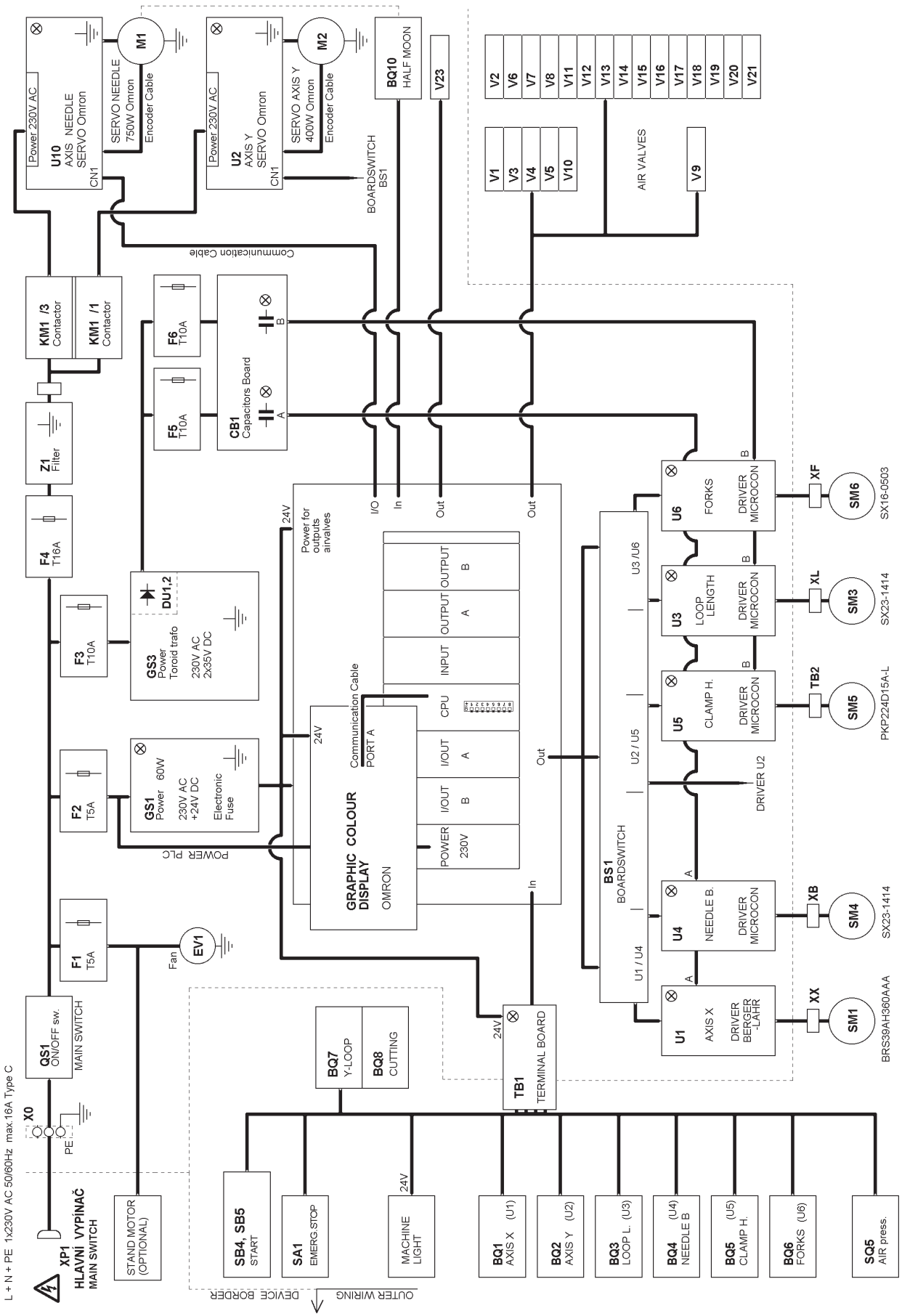
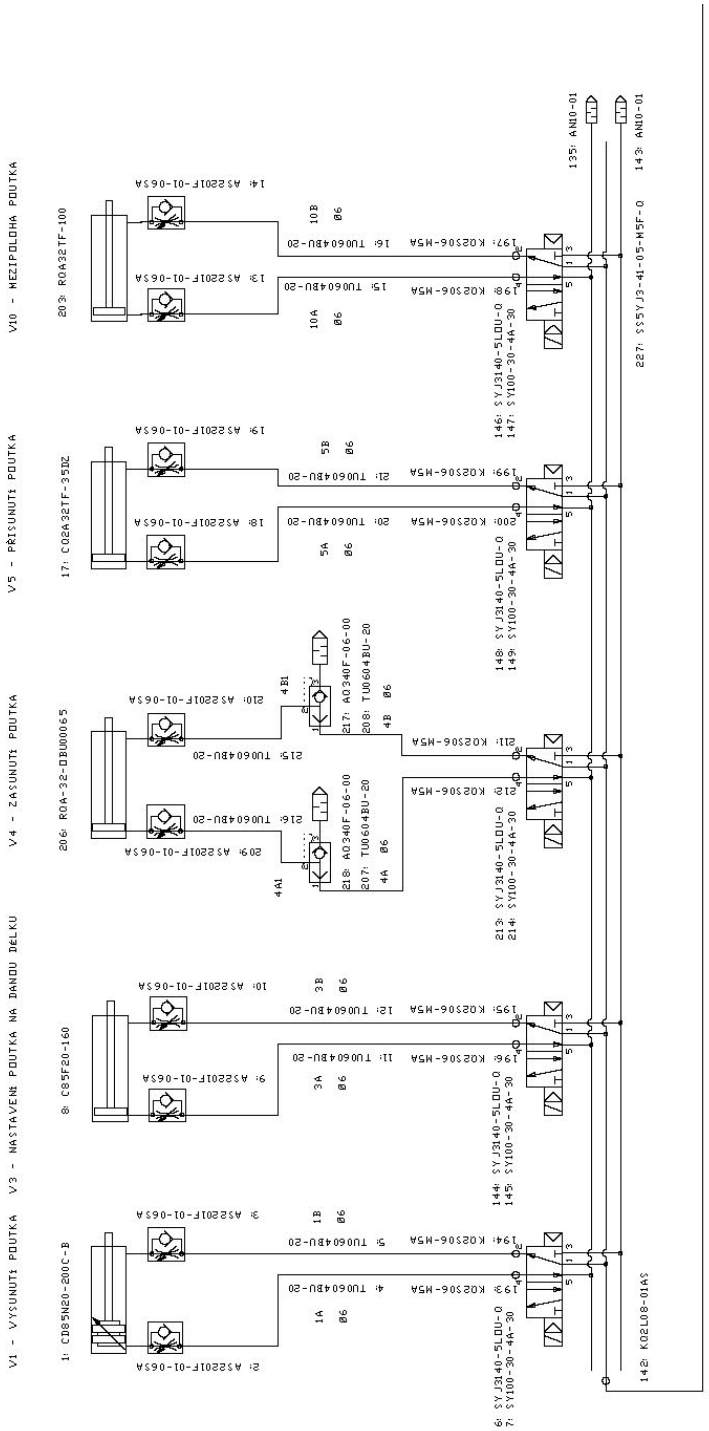
G - DOCUMENTATION

1. ELECTRICAL DIAGRAM



2. PNEUMATIC DIAGRAM

Pneumatika - ATLAS IV - OBN00943 Part 1



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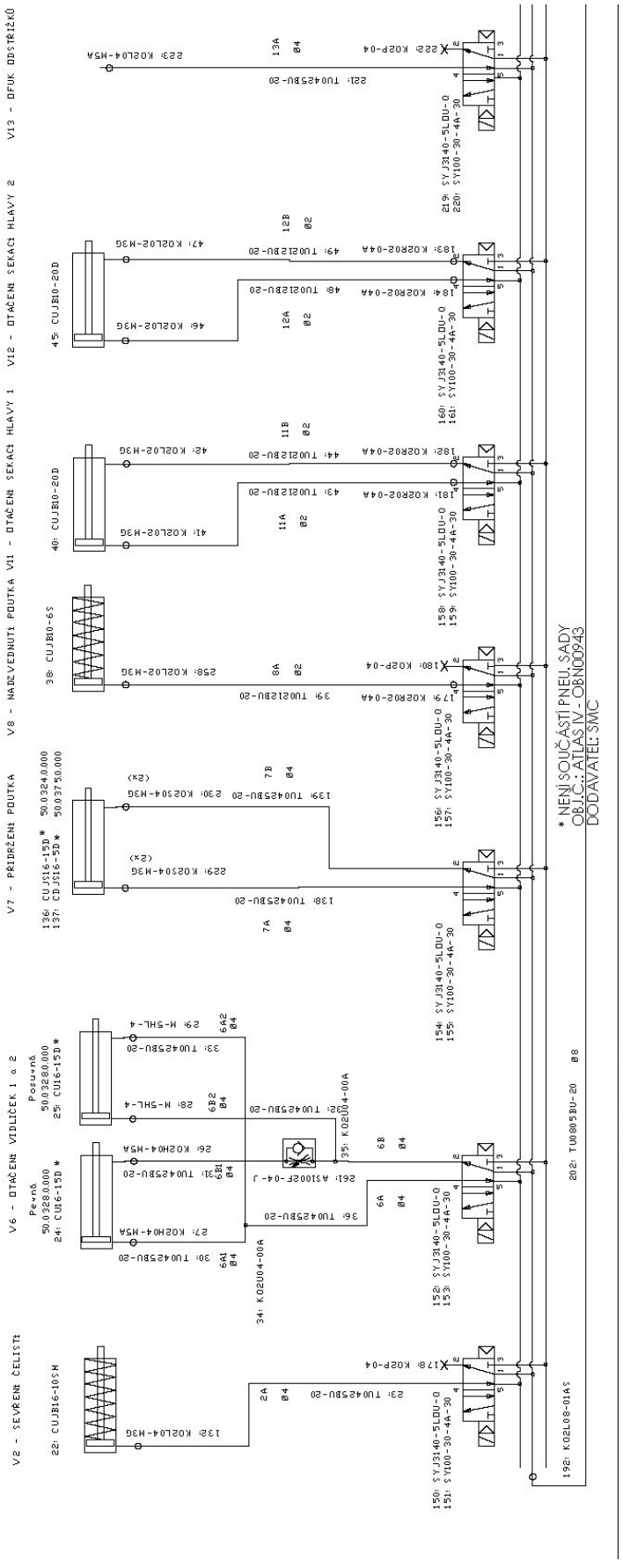
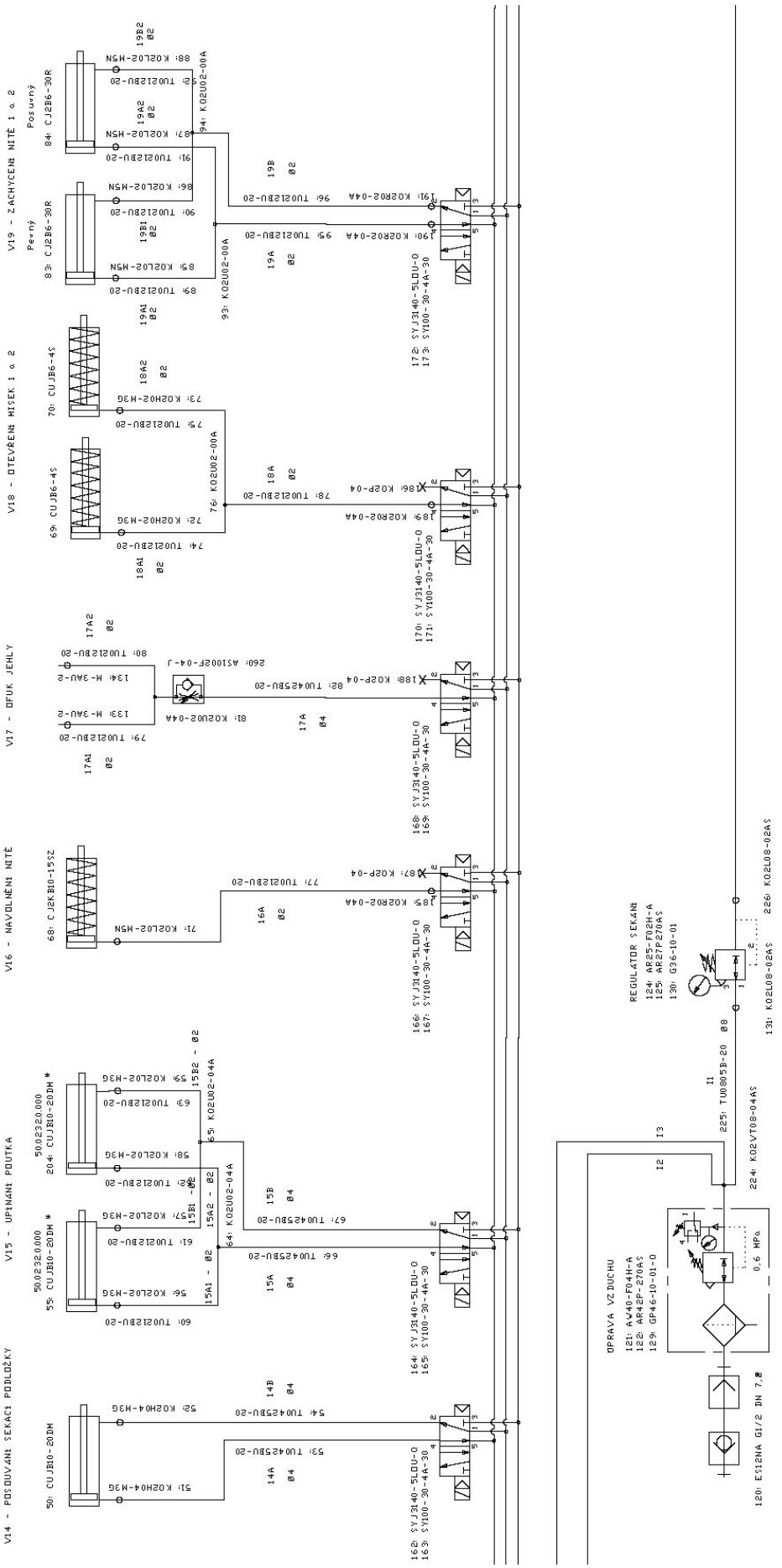
Pneumatika - ATLAS IV - OBN00943 Part 2



Pneumatika - ATLAS IV - OBN00943 Part 3



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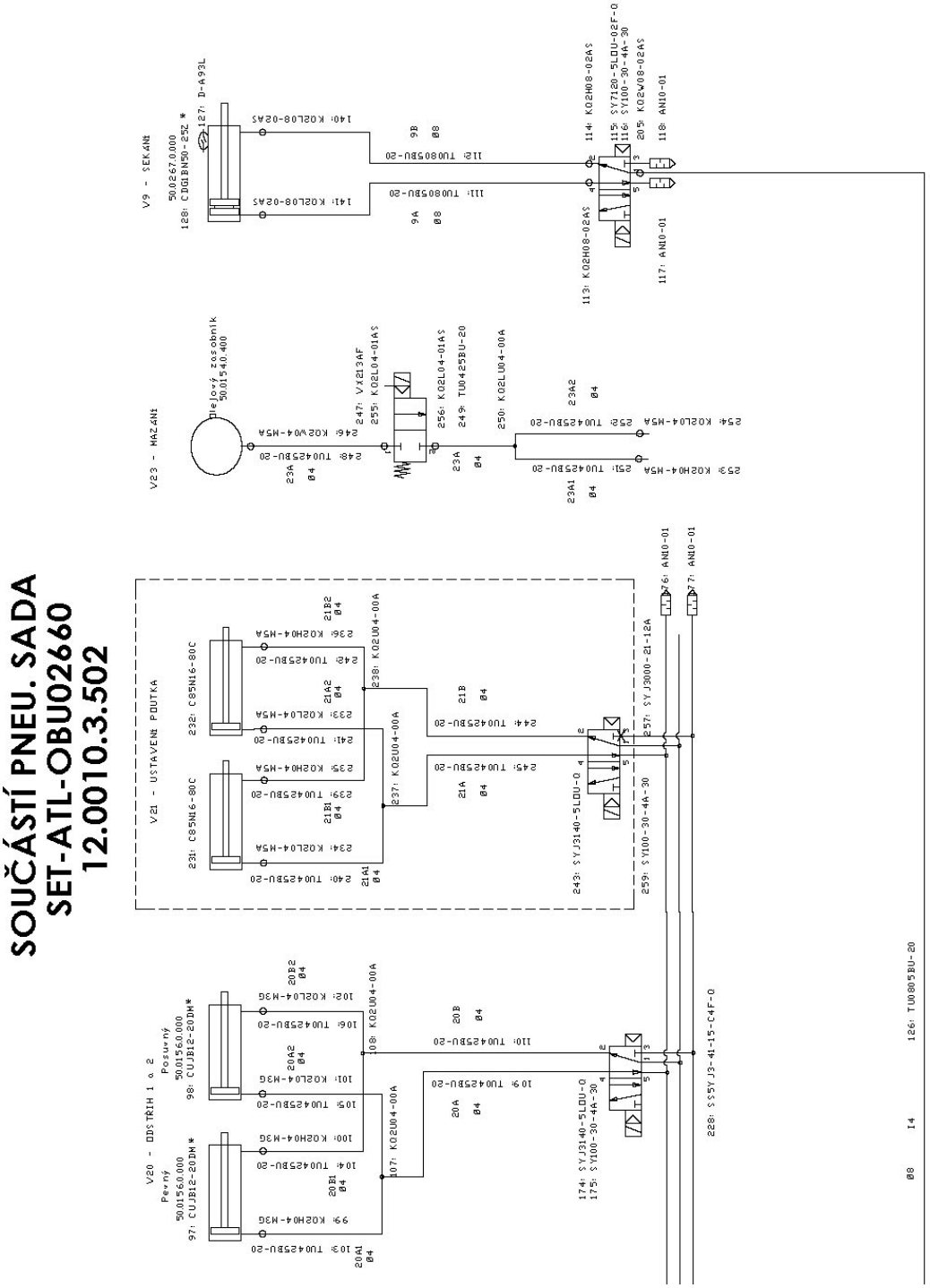
Pneumatika - ATLAS IV - OBN00943 Part 4



TROUBLESHOOTING

Error Nr.	Description
Error 01	Machine is not in home position, Press home button to bring the machine to the home position.
Error 03	Loader is not in ome position. Press home button
Error 04	Low air pressure. Air pressure is bellow 4.0 bar. Check the air supply.
Error 05	Cutting lever error during cutting. Check BQ8 sensor and the air supply.
Error 06	Cutting lever is not home. Check BQ8 sensor and air supply.
Error 07	Needle bar and belt loop clamp are moving to sewing position Wait please.
Error 08	Stepper motors in loader are moving to sewing position. Wait please.
Error 09	Upper thread mode. Press button at main screen to leave this mode
Error 10	Lower thread mode. Press End button to leave this mode.
Error 11	Ran out lower thread. Exchange lower thread bobbin, please.
Error 12	F axis timeout positioning error. Check F axis home senzor BQ6 and stepper motor.
Error 13	LL axis timeout positioning error. Check LL axis home senzor BQ3 and stepper motor.
Error 14	Servo timeout positioning error. Check servo driver.
Error 15	X axis timeout positioning error. Check X axis home senzor BQ1 and stepper motor.
Error 16	Y axis timeout positioning error. Check Y axis home senzor BQ2 and stepper motor.
Error 17	NB axis timeout positioning error. Check NB axis home senzor BQ4 and stepper motor.
Error 18	CH axis timeout positioning error. Check CH axis home senzor BQ5 and stepper motor.
Error 20	Servomotor error. Check error message on servodriver display.
Error 25	Recovered time for servodriver. Wait please (max. 4 s)
Error 31	Software in PLC and HMI are not compatible.
Error 33	Clamps are down. Press clamps up button or Home button.
Error 40	Service mode Press and release the Emergency stop button and press home button.
Error 99	Emergency stop button. Release the Emergency stop button.