



MODEL S-4002 ISBH+I

ELECTRONIC BUTTON STITCHER MACHINE

PARTS AND SERVICE MANUAL

MACHINE SERIAL No:

PART NUMBER **97.2486.5.001**



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:

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Tovární 837/9c
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Czech Republic
e-mail: info@amfreece-cars.cz

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A - INTRODUCTION

1. BASIC INFORMATION

The sewing machine S-4002 is designed and produced to be very reliable. Important design goals have been to provide a safe machine that is simple and inexpensive to maintain.

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

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

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

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

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

There are four categories of safety instructions in this manual:

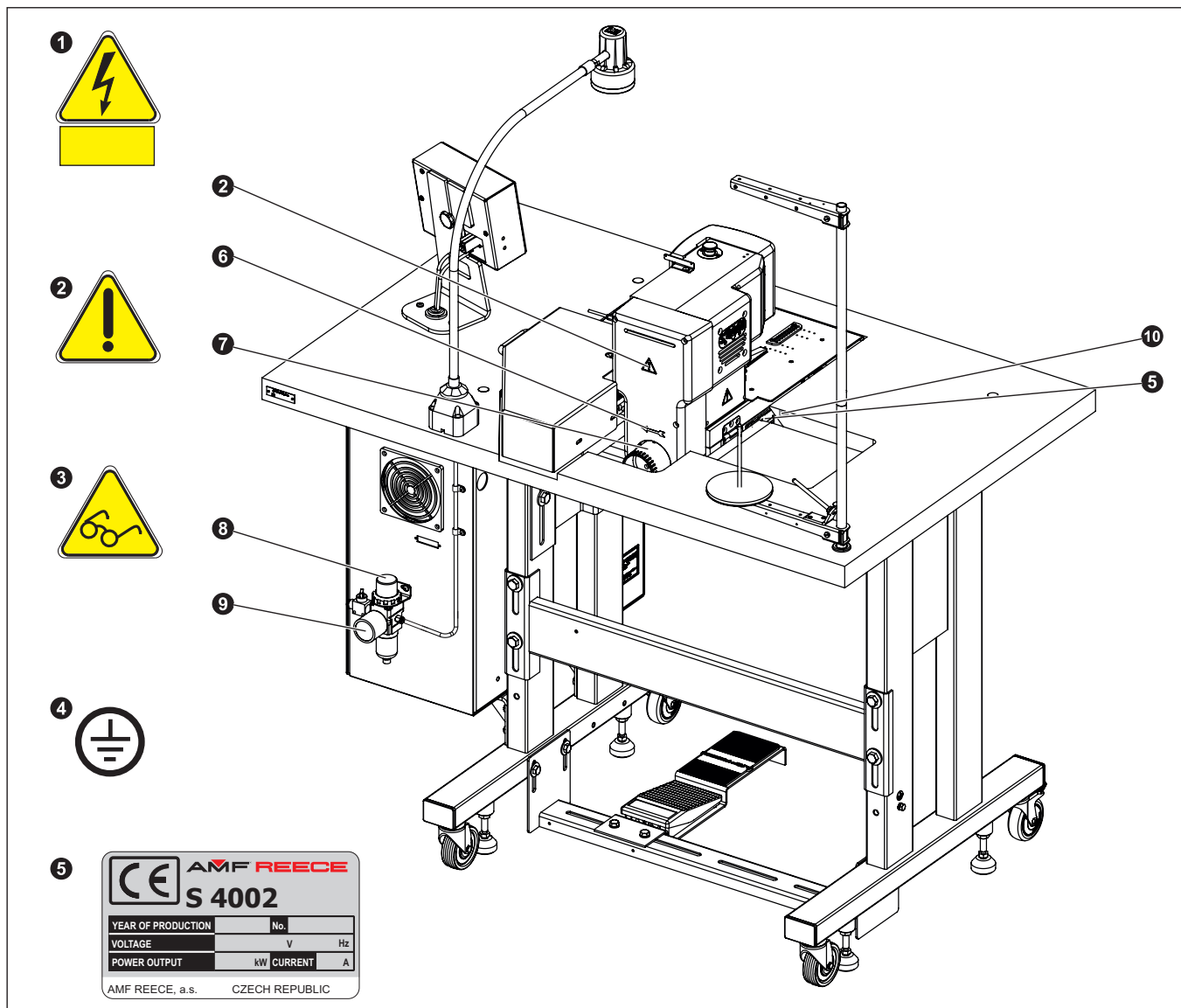
- DANGER!** Ignoring instructions may endanger operator's life.
- CAUTION!** Ignoring instructions may cause a serious injury of the operator or damage the machine.
- WARNING!** Ignoring instructions may cause damage on the machine or injury of the operator.
- NOTICE!** Breaking procedures may cause functional problems of the machine.

We recommend that servicemen from AMF Reece supervise the installation of the machines 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

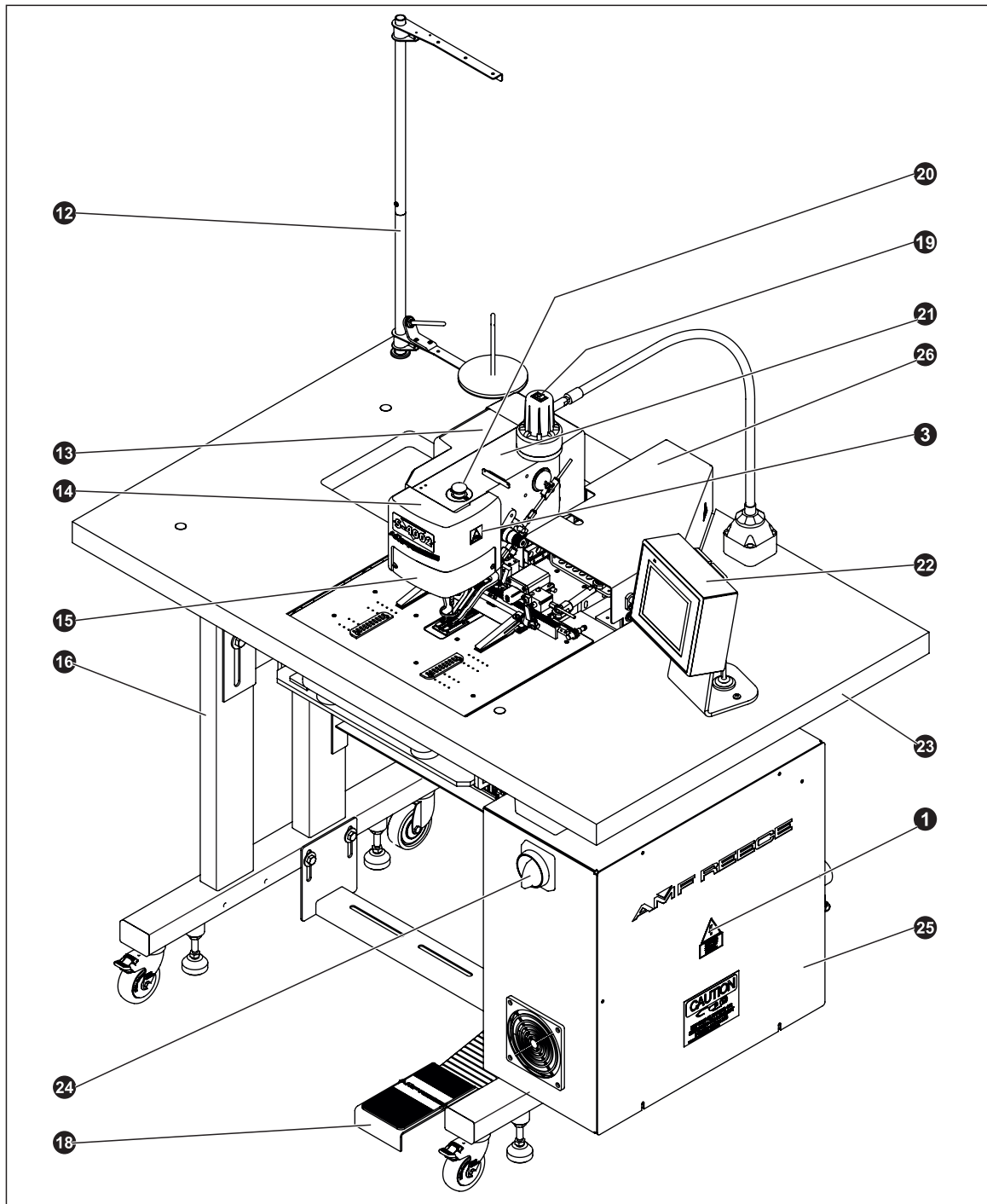
2. SAFETY DEVICE AND LABELS



- 1 Warning
- 2 Covers removed, possible injury
- 3 Warning when opening cover eyes injury danger
- 4 Grounding
- 5 Standard label
- 6 Rotation direction
- 7 Hand wheel
- 8 Air pressure regulator
- 9 Manometer with pressure sensor
- 10 Label TÜV SÜD
- 12 Thread stand
- 13 Head cover
- 14 Needle bar cover

A - INTRODUCTION

3. GENERAL MACHINE PARTS DESCRIPTIONS



- 15 Eye guard
- 16 Stand
- 18 Foot pedal
- 19 Halogen lamp Button
- 20 Emergency Stop Button
- 21 Machine head

- 22 Control panel
- 23 Table top
- 24 Main Switch
- 25 Control box
- 26 Indexer

A - INTRODUCTION

4. TECHNICAL CONDITIONS

Machine type	S-4002 ISBH+I
Description	Electronic controller chain-stitch straight buttonhole machine for sewing imitation buttonholes on jacket sleeve. With the automatic indexer, preset programs automatically control the sewing of multiple buttonholes either straight or on an angle.
Sewing speed	1500-3800 stitches/min (750 - 1900 rev/min of the drive shaft)
Buttonhole length	5 - 25 mm (1/5" - 1")
Stitch density	0,3 - 5 mm
Type of the buttonhole	Single thread chain stitch without center cutting
Machine clamp foot height	12.7 mm (1/2")
Maximum work thickness	to 3 mm (1/8")
Bite range	1.7 - 2.3 (1/16" - 3/32")
Distance between the first and the second row of stitches	0 - 3.5 mm
Recommended thread	Thread size 80, 100, 120
Needle system	Needle 750 SC 90/14 (it is possible to order 80/12; 70/10)
Lubrication	Semi-automatic
Operating Conditions	According to IEC 364-3, IEC 364-5-51 temperature from +5°C to 40°C, relative air humidity from 30 to 80 %
Air Requirements	5.5 bar (80 psi)
Dimensions Head and Table	1150 mm (L) x 700 mm (W) x 710 mm (H)
Dimensions Packed Weight	1300 (L) x 770 (W) x 1150 (H) 200 kg Gross
Machine db level	Laeg = 74dB; LWA = 87dB; LpC, peak = 103dB
Electrical Requirements	1NPE~60Hz 230V/TN-S (according to EN 60204-1)
	1NPE~50Hz 230V/TN-S (according to EN 60204-1)
Line Circuit Breaker	10A characteristic C (according to EN 60947-2)
	16A characteristic B (according to EN 60947-2)
Indexer number of buttonholes	1 — 8
Distance between buttonholes	4 — 100 mm
Max. indexer feeding	100 mm for 0°, decreases for higher angle
Angle Adjustable	0° - 30°

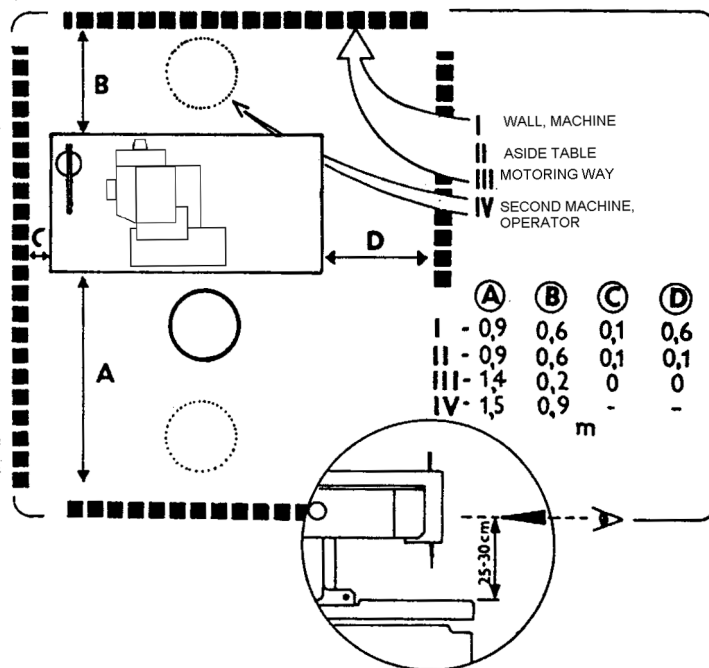
A - INTRODUCTION

5. INSTRUCTIONS FOR OPERATOR SAFETY AND MAINTENANCE

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

DANGER!

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



WARNING!

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

CAUTION!

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

A - INTRODUCTION

CAUTION: LASER RADIATION

DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS

Read carefully the supplemental rules described below before setting up laser system.



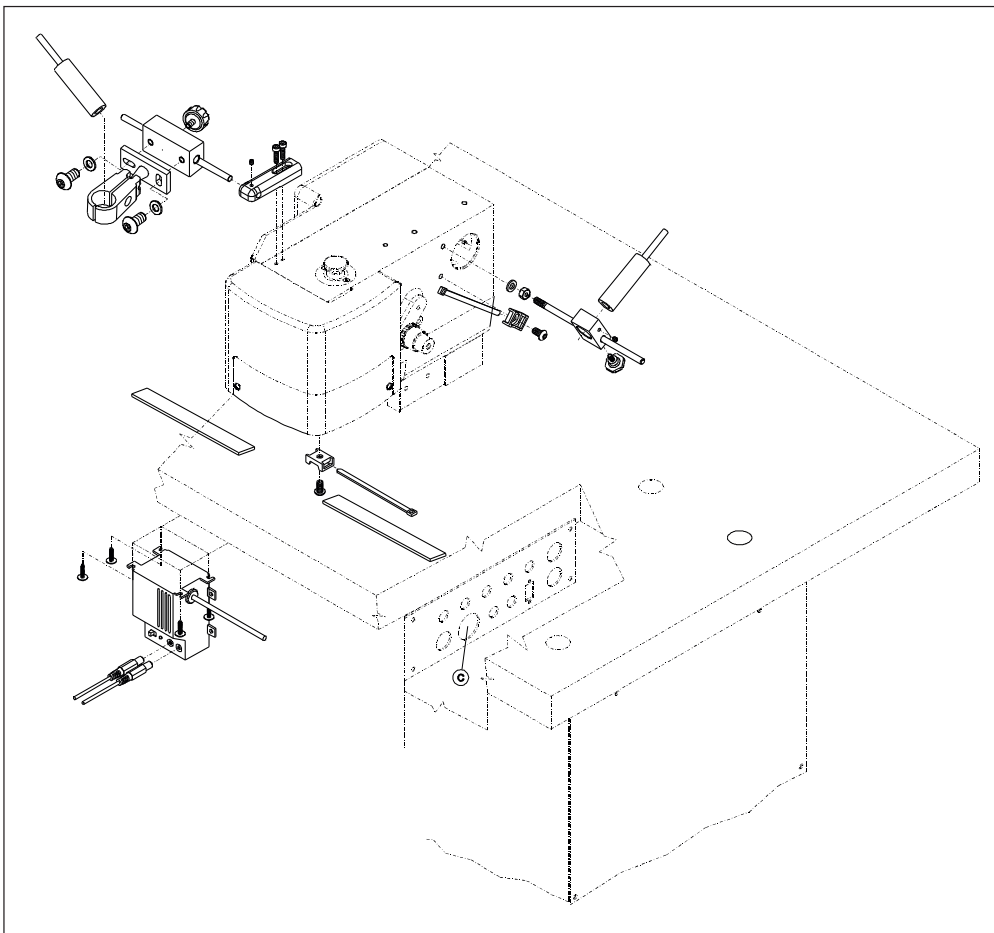
C.C. E.A. laser product has been designed and manufactured specifically for the work place and for use in working conditions.

It complies to the existing work safety regulation included in directive 73/23 and subsequent 93/68. It has been made following to the International Standart CE/EN 60825.

Use C.C.E.A. laser system belong Class II. To this class emit low-power beam $\leq 1\text{mW}$ to be seen into the visible spectrum. They are not considered dangerous if just the laser beam will be accidentally (fraction of second) pointed at the eyes. The palpebral reflection would not allow a length of exposure higher than 0,25 seconds. It is absolutely necessary wearing specific safety glasses (with declared wavelength and filter), when eyes are directly and lasting exposed at the laser radiation. Our Lasers are followings: 650 nm.

LABELLING:

The label showing the laser class must be permanently attached so as to be clearly visible and readable when the system is working, for maintenance and other needs. Labels must be seen without a direct exposure at the laser radiation.



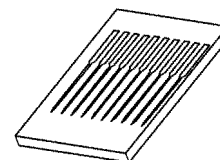
A - INTRODUCTION

6. SPECIAL ACCESSORIES

- machine device, which is not included in the standard equipment of the machine and a customer can order it

Needles 750 SC 80/12, 70/10

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

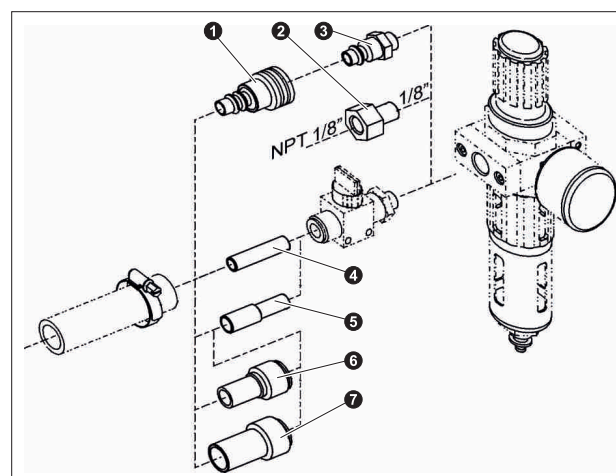


Connector Ø 8 ①

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

Pneumatic Adapter ②

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



Connector ③

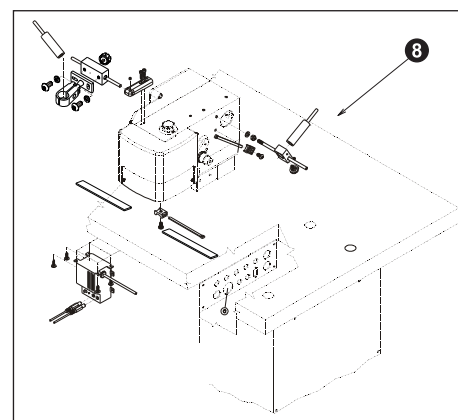
Adapter ① shall be ordered together with ③.

Connectors

- ④ 12.0008.3.464 Ø 8
for connection to the tube with inner Ø 8 mm
- ⑤ 12.0008.3.466 Ø 10
for connection to the tube with inner Ø 10 mm
- ⑥ 12.0008.3.467 Ø 12
for connection to the tube with inner Ø 12 mm*
- ⑦ 12.0008.3.465 Ø 16
for connection to the tube with inner Ø 16 mm*

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

Laser light kit ⑧ 03.5519.0.022

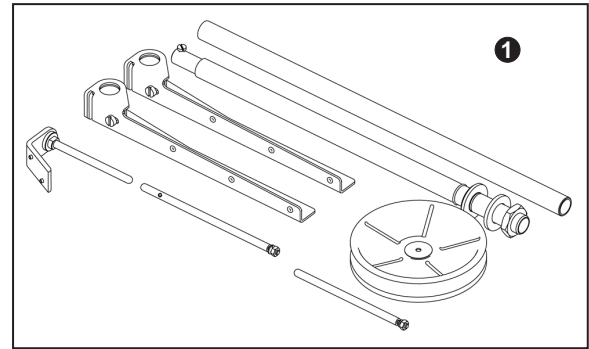


B - MACHINE INSTALLATION

1. CONTENT OF THE SHIPPING BOX

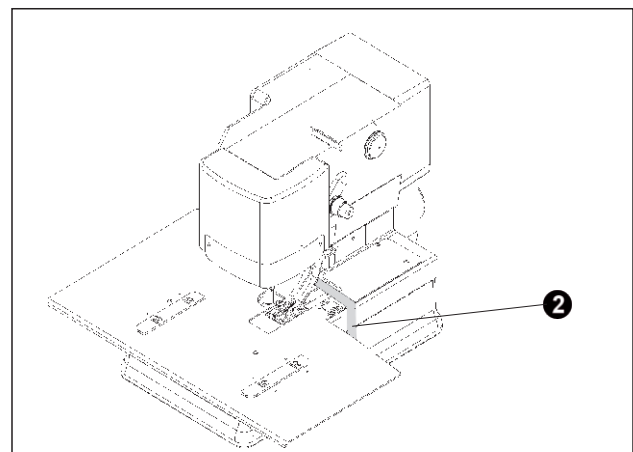
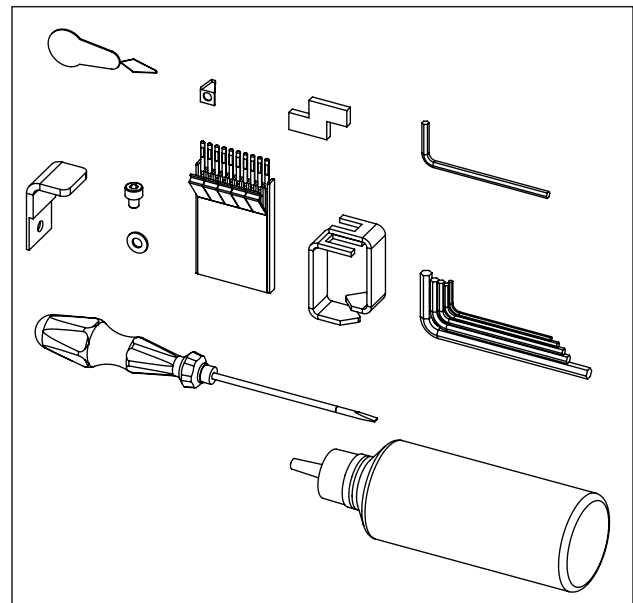
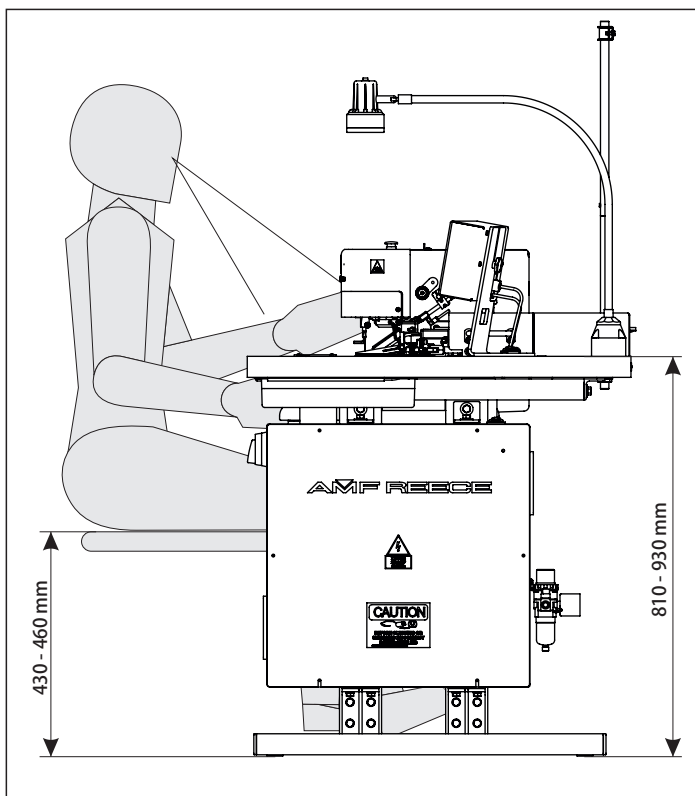
1. The shipment contains one box.
2. There is a carton with accessories, service manual with parts section and thread stand **1** in the box.
3. During unpacking the shipment, follow the labels which are on a cover.

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



2. ACCESSORIES

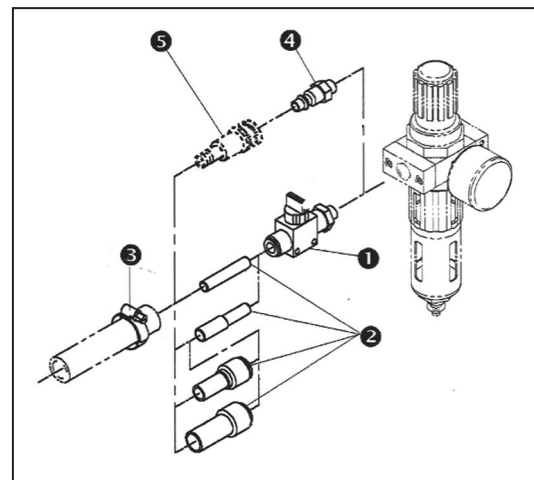
A package of accessories is supplied with this machine, please refer to page **3-50** for detailed descriptions. The height of the working area is standardly set in range 830 - 850 mm from the manufacturer. When using this height of the working area, recommended height of the operator seat is in range 430 - 460 mm. The height of the table can be set in range 810 - 930 mm by screws **3**. Remove the shipping strap **2** after unpacking the machine, the use of this strap is recommended anytime the machine is transported.



B - MACHINE INSTALLATION

3. POWER AND AIR CONNECTION

1. The machine is equipped with a hand valve **1**. If a customer needs to use a quick coupler **4**, he must order connector **5**. A variety of connectors **2** can be used separately or in combination to adapt to the available input supply hose. It depends on type of the tube which is used by a customer. These connectors are not included in the accessories. A tubing clamp **3** is provided.

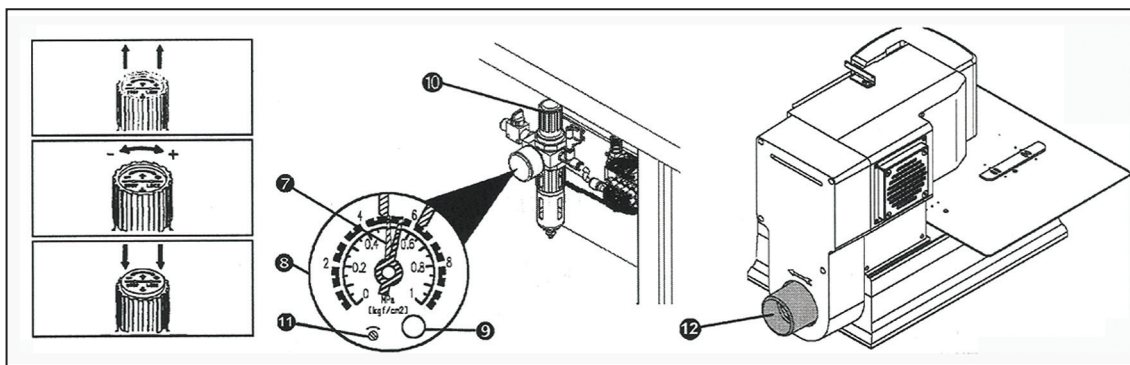


NOTE:

Parts **1**, **2**, **5**, **6** are included in Extra Parts - see 3-63.

2. After air connection check the set air pressure on the dial of the regulator. It should be in range 0.5 - 0.6 MPa. The green pointer **7** indicates the lowest working air pressure 0.5 MPa, which is set from the manufacturer on the regulator **8**. If the air pressure is lower than 0.5 Mpa after connecting the machine to the power supply „Low Pressure“ message appears on the control panel display. To adjust the working pressure, loosen the regulator cap lock **10** and turn the regulator cap clockwise to increase the pressure. Push the regulator cap **10** down.
3. Power supply must be 208 to 230 volts 1 phase, 50 or 60 hertz. Receptacle plug must meet requirements of IEC standard 364-4-41, its circuit breaker must be minimal 10A with characteristic C according to the EN 60947-2 (or 16A with characteristic B). No other devices must not be connected to the circuit breaker of the socket.

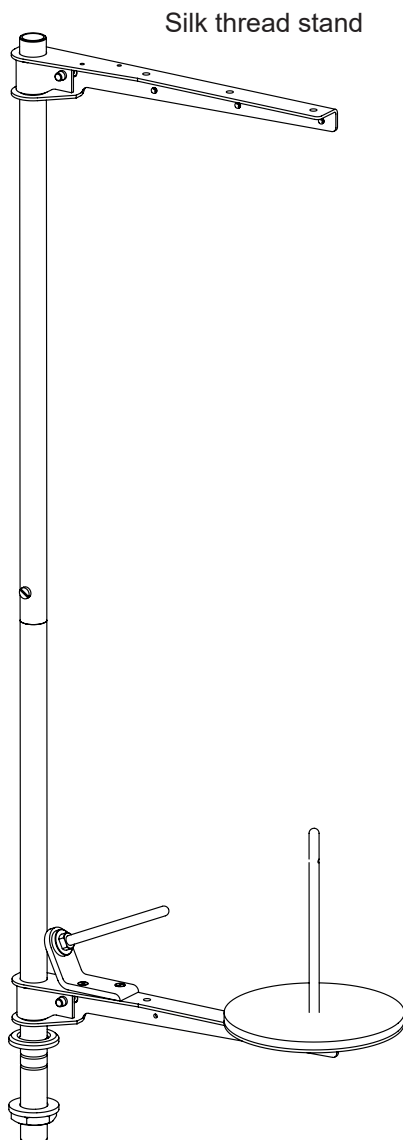
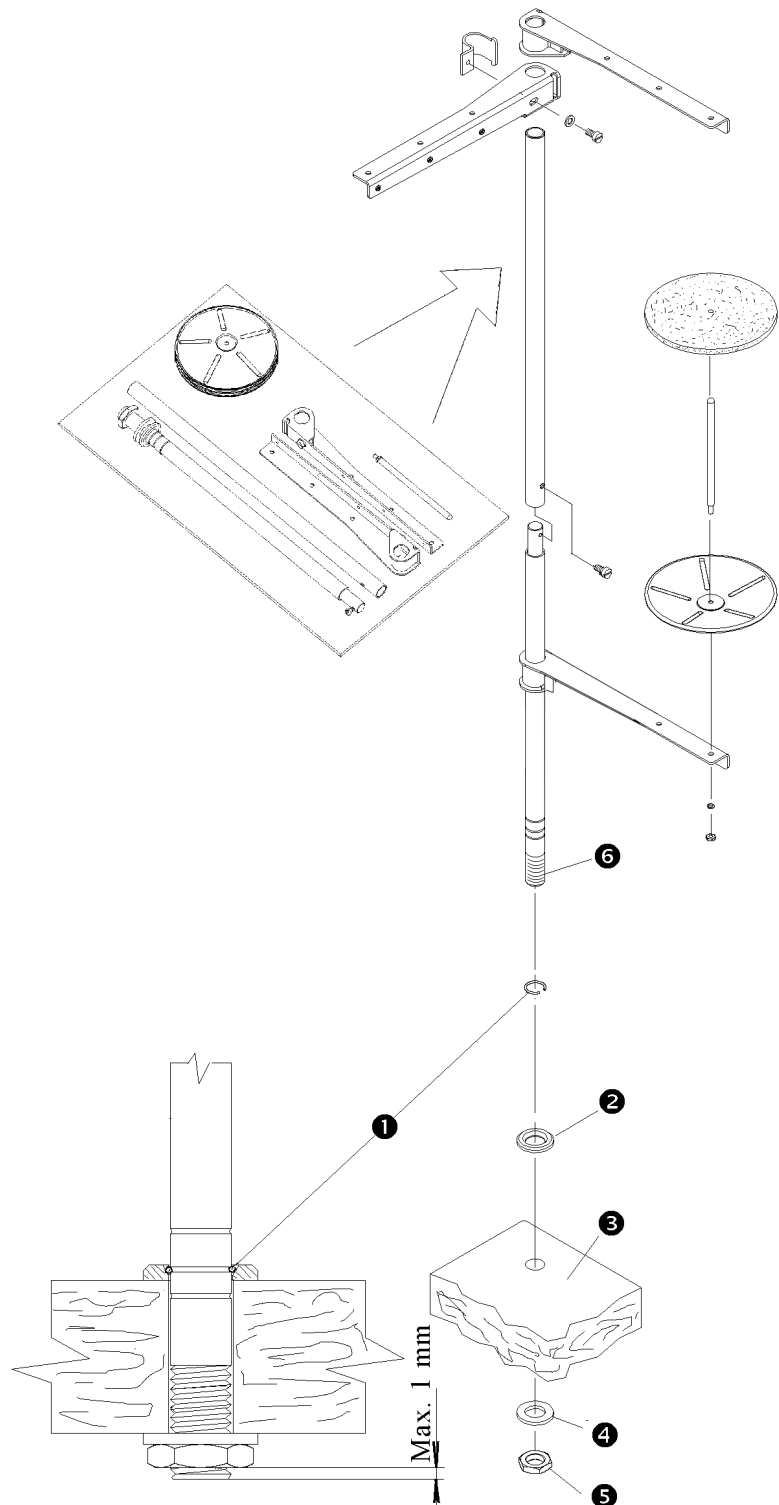
The machine is equipped with a filters which contain capacitors which generate an high frequency leakage current. In order to prevent nuisance tripping, residual current protection device must be protected against these high frequency currents: this is the case for industrial residual current device (example „S“ type).



B - MACHINE INSTALLATION

4. THREAD STAND INSTALLATION

1. Put the thread stand together according to the drawing.
2. Position of the locking ring **1** allows assembly of the thread stand for various thickness of the table top. Threaded end of the post **6** must not extend more than 1 mm (1/32) through the locking nut **5**.
3. Insert the washer **2** and the post into the hole provided in the right rear of the table top **3**. Insert the washer **4** and tighten the nut **5**.

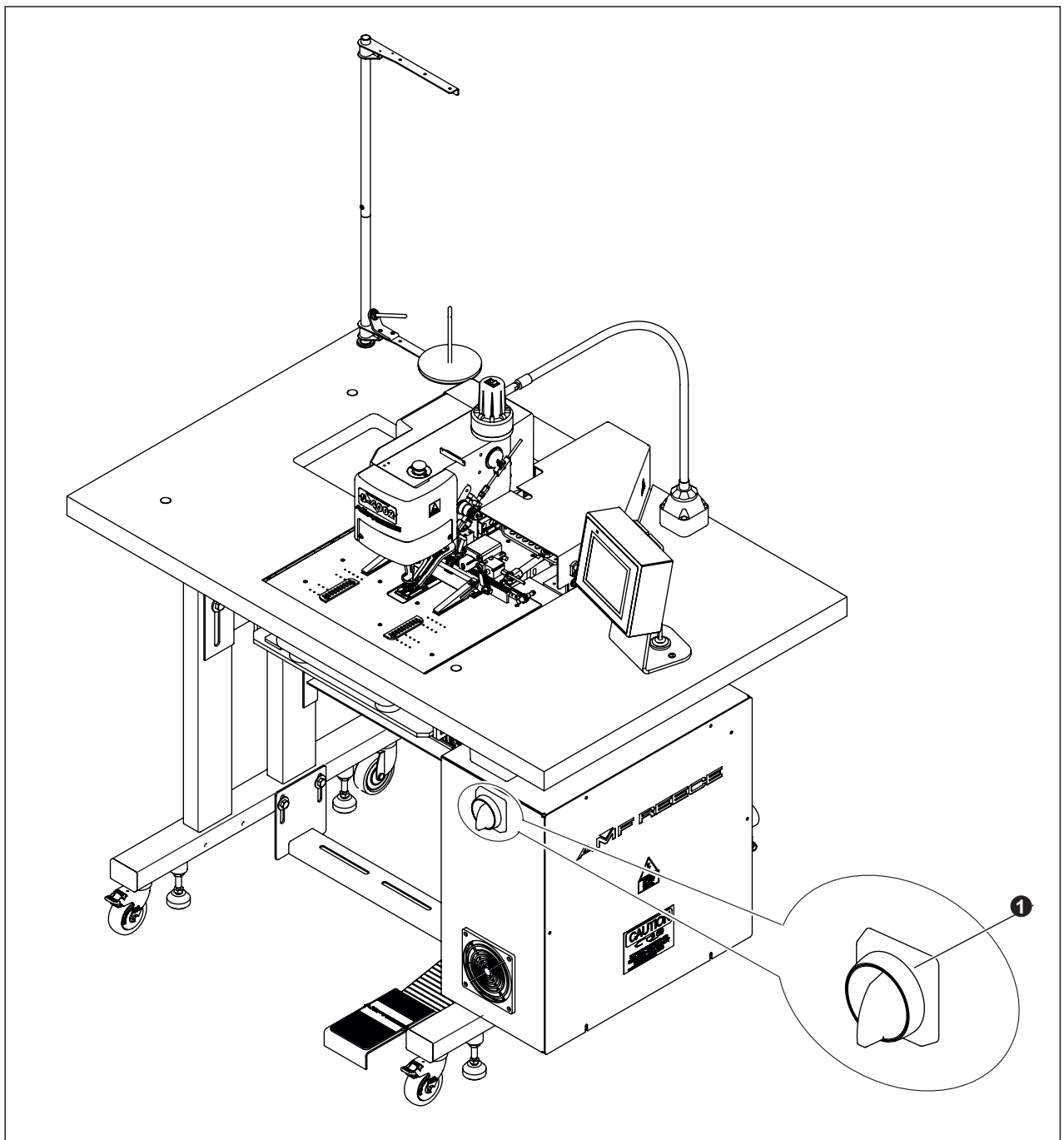


C - CORRECT USAGE

1. POWER UP / HOME POSITION



1. Turn the main power switch on **1** by turning clockwise to the I position.
2. The machine is ready for operation when the control panel display lights, the Ready message appears on the display.
3. The machine must be in the home position before starting to sew.



C - CORRECT USAGE

2. NEEDLE INSTALLATION

WARNING! Before performing this adjustment, switch the main machine power off to prevent accidental starting of the machine. Disconnect the air supply and dissipate any stored energy.

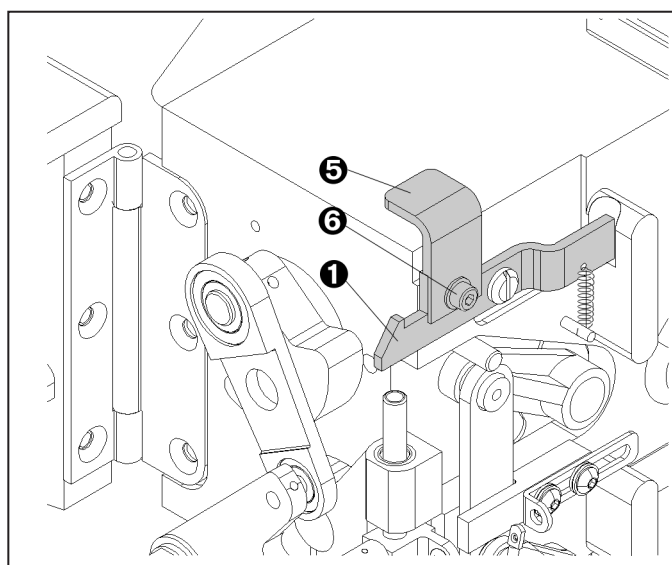
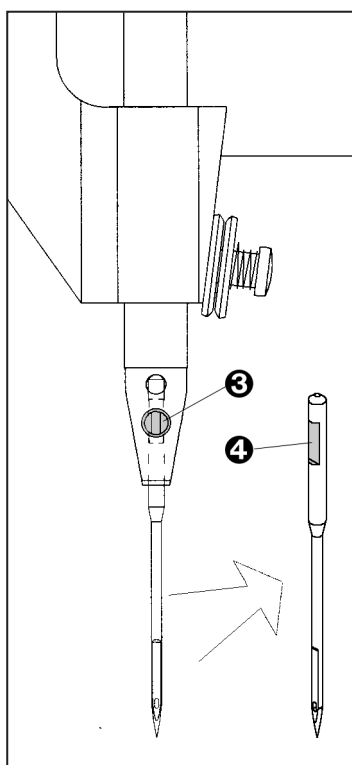
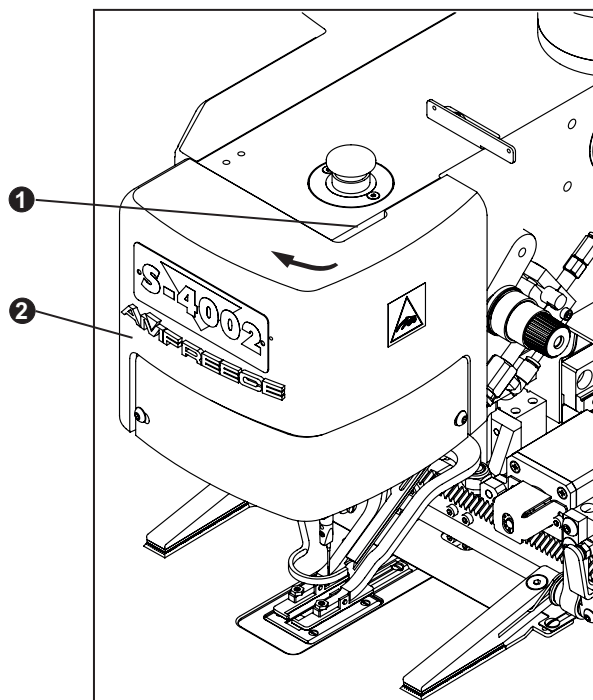
Use needles ordering number 02.0750.2.110 (750SC 90/14) only - see accessories.

It is also possible to use needles ordering number 02.0750.2.100 (750 SC 80/12), 02.0750.2.109 (750 SC 70/10) for sewing the thin materials - these needles are not included in the standard machine equipment.

2.1. Using the screwdriver push the latch **1** and open the needle bar cover **2**.

Note: The accessories contain the lever **5** (ordering number 22.0213.0.000) and screw (ordering number 08.6000.4.005) with washer (08.6850.4.000) **6**, which is possible to fit to the latch. It allows opening of the cover without using the tool.

1. Loosen the screw **3** and remove the needle.
2. Insert the new needle so that the long thread groove **4** is in the rear and the spot for the clamping screw **3** is in line. Do not install a bent or broken needle. Roll the needle on a flat surface to check for straightness.
3. Tighten the screw **3** well.

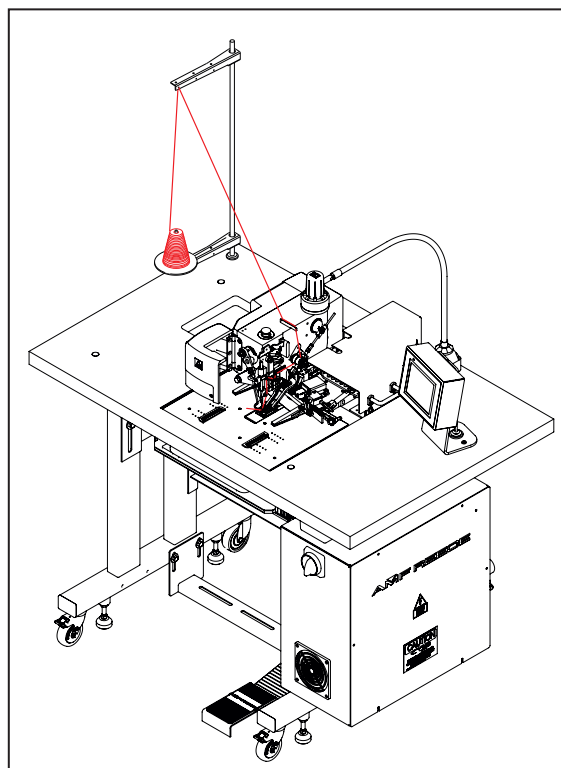
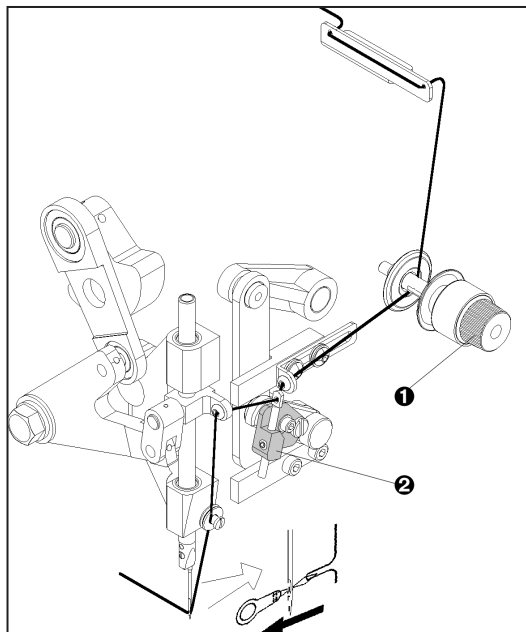


C - CORRECT USAGE

3. THREADING

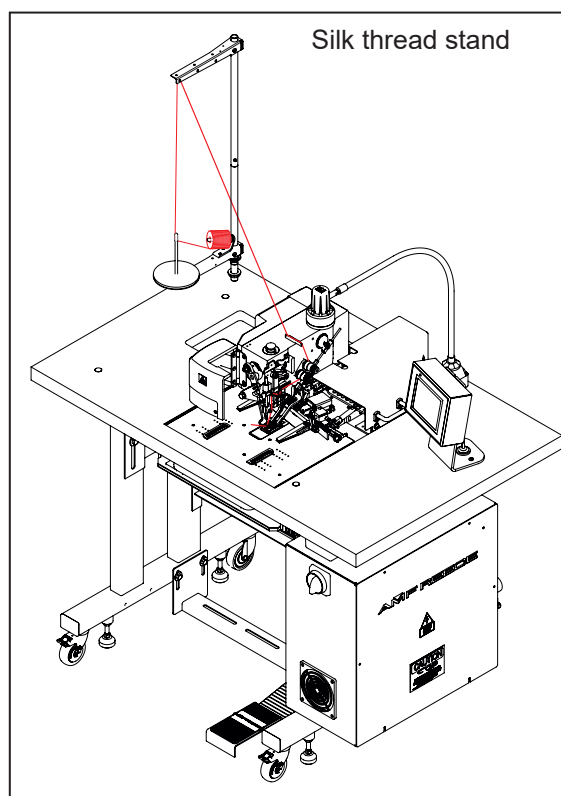
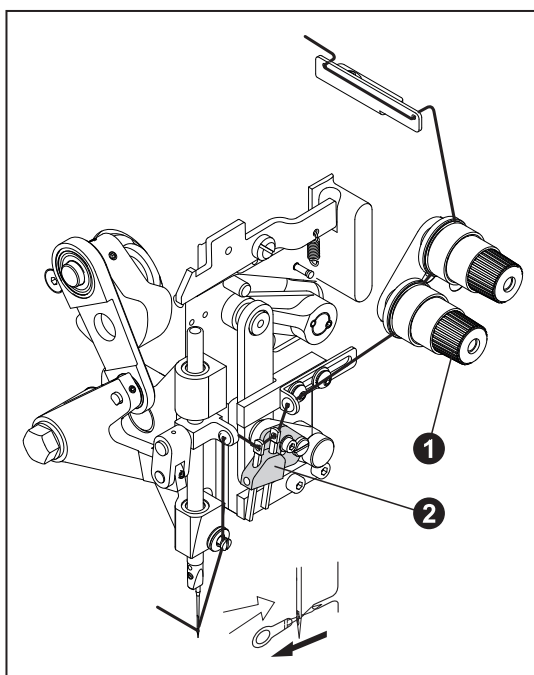
WARNING! Switch the main machine power off to prevent accidental starting of the machine. Disconnect the air supply and dissipate any stored energy.

When threading, see the pictures below. Change the thread tension by nut **1** according to the sewing conditions. To increase the thread draw off (for example sewing on the thin fabrics) there is an arm **2** installed on the thread draw off lever.



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

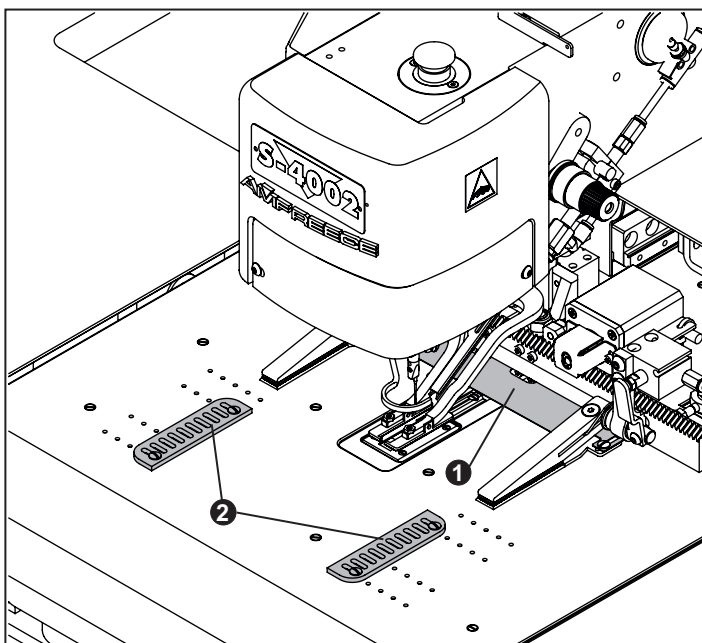
- clamping of the material
- bartack quality
- thread tension
- type of thread (size, etc.)
- sewing width
- sewn material (thickness, density)



D - MACHINE CONTROLS

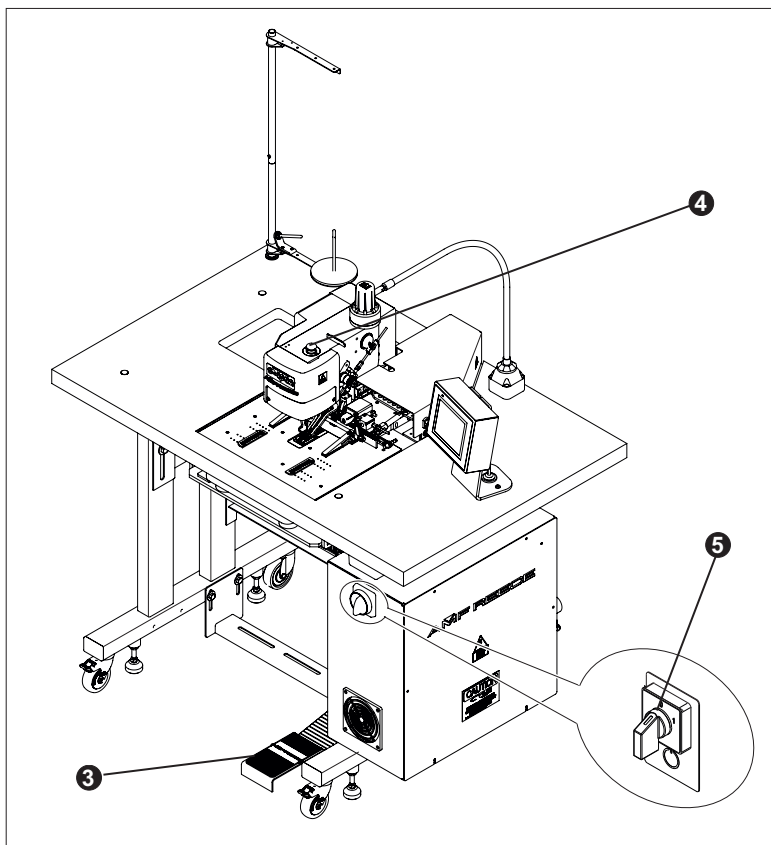
1. BUTTONHOLE SEWING PROCEDURE

1. Bring the machine to the home position according to the section C1.
After this setting, the machine will sew with the indexer according to the parameters set in the program.
2. Be certain that the machine is threaded correctly according to the section C3 and insert the sewn work under the clamp feet. To place a buttonhole, use the adjustable front stop **1** and side gages **2**.
Note: There are no side stoppers **2** on machines with positioning laser lights.
3. When the foot pedal **3** is pressed to the first position, the sewn work is clamped by the head clamp feet.
(Releasing the foot treadle will raise the clamp feet).
Note: It is possible to set the control so that both the clamping and the sew start are simultaneous - refer to chapter D5.5.



4. When the foot pedal is pressed to its second position, the sewing is started with or without indexer. When the buttonhole is sewn and the thread is trimmed, the machine goes to the home position and clamp feet raise.
5. When the clamp feet are up, it is possible to move the sewn work for sewing the second buttonhole - but only for sewing without indexer.
The machine automatically sews the buttonholes according to the set program - *sewing with indexer*.

D - MACHINE CONTROLS



6. a) Sewing without indexer

Machine can be stopped in any place of the cycle by pressing the Emergency Stop button ④.

b) Sewing with indexer

If it is necessary to interrupt the cycle during the sewing with indexer (example: needle breakage, thread breakage):

1) Press the foot pedal ③ to the first position, the machine stops in the home position after buttonhole is finished.

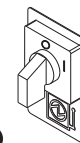


2) Indexer clamp feet stay down. By the [] and [] buttons you can shift indexer clamp feet to the desired position and finish sewing by pressing the foot pedal ③ to the second position.

3) If it is necessary to interrupt the cycle because of the operator safety:



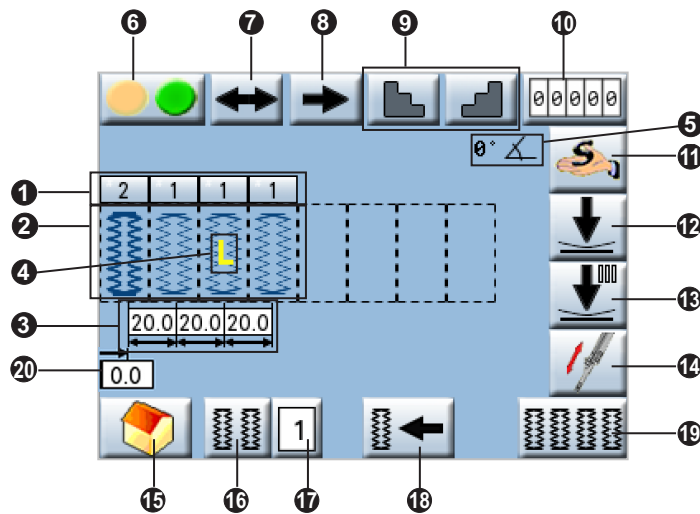
press Emergency Stop Button ④ .



7. When the work is done, switch the machine off by turning the main switch ⑤ to the 0 position, then stop the air supply by closing the valve which is behind the regulator.

D - MACHINE CONTROLS

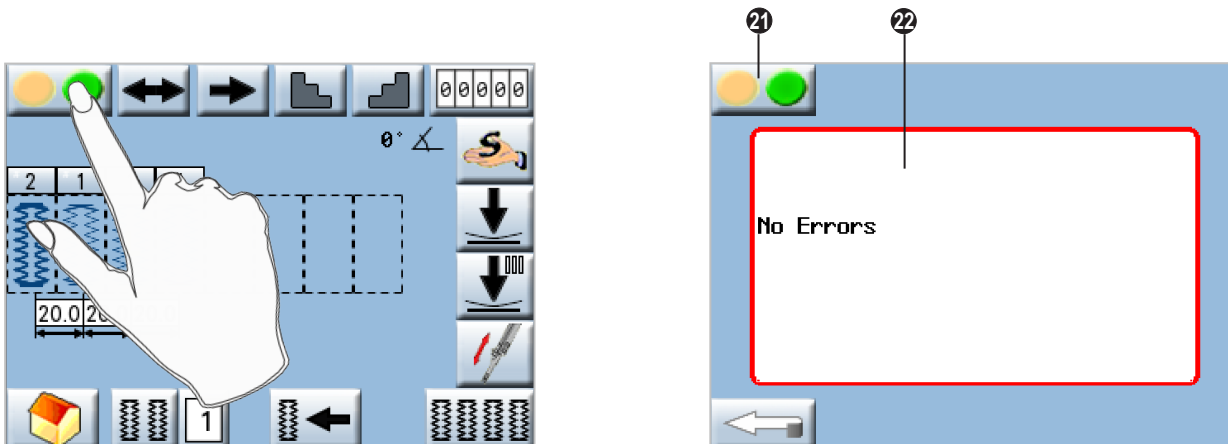
2. OPERATOR CONTROL PANEL PUSH BUTTONS AND SWITCHES



- ① Buttonhole programs selected in the indexter sequence
- ② Graphic illustration of the adjusted sequence of buttonholes. The buttonholes are displayed in the way and direction how they will be sewn. The currently sewn buttonhole is highlighted by bold icon.
- ③ Distance between individual buttonholes
- ④ This symbol indicates indexter cycle interruption at the particular buttonhole. This feature is mainly useful for thread color exchange.
- ⑤ Indication of indexter sewing angle
- ⑥ Machine status / error number signalization. Press the button to switch to the Error Explanation Screen.
- ⑦ Activation of automatic exchange between left & right sleeve
- ⑧ Sleeve selection (sewing from left or right side)

- ⑨ Step forward / backward in the indexter sequence
- ⑩ Daily counter signalization. Press the button to switch to the Counter Screen.
- ⑪ Press this button to switch to the Service menu (refer to Chapter D5)
- ⑫ Sewing head clamps activation
- ⑬ Indexter clamps activation
- ⑭ Thread pick-up activation
- ⑮ Home position establishment
- ⑯ Press this button to switch to the Indexter Parameters Screen (refer to Chapter D4).
- ⑰ Indexter cycle program number selection / indication
- ⑱ Press this button to switch to the Buttonhole Parameters Screen (refer to Chapter D3).
- ⑲ Indexter activation / deactivation
- ⑳ First buttonhole offset

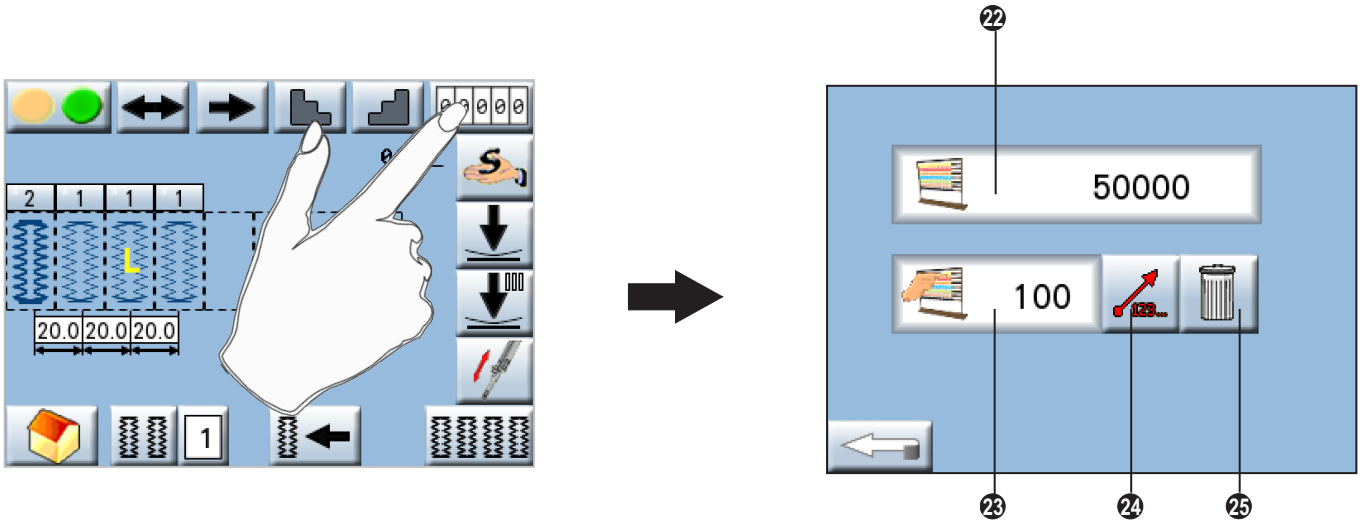
By pressing the button ⑥ you switch to the Error Explanation Screen:



- ⑲ Error number
- ⑳ Error explanation

D - MACHINE CONTROLS

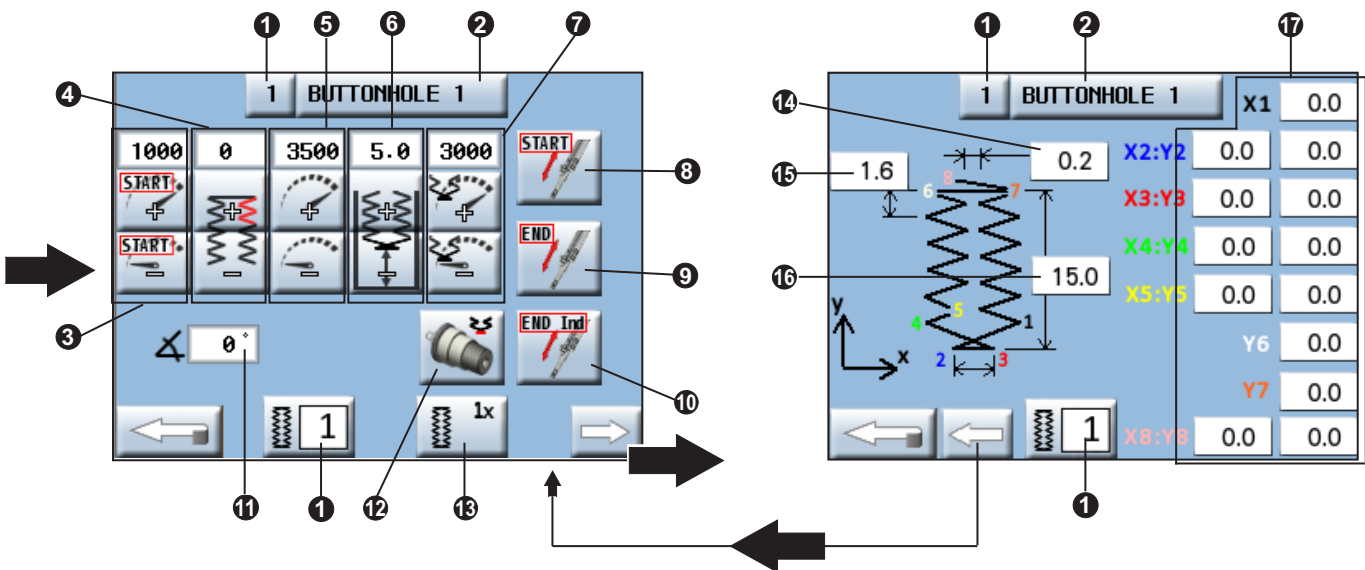
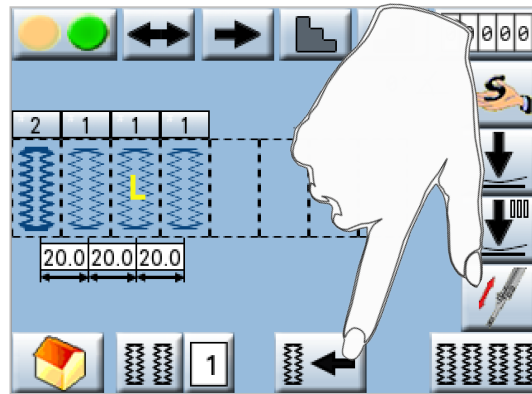
By pressing the button ⑩ you switch to the Counter Screen:



- ② Total counter of buttonholes sewn on the machine
- ③ Daily buttonhole counter
- ④ Daily counter counting direction (ascending or descending)
- ⑤ Daily counter reset

D - MACHINE CONTROLS

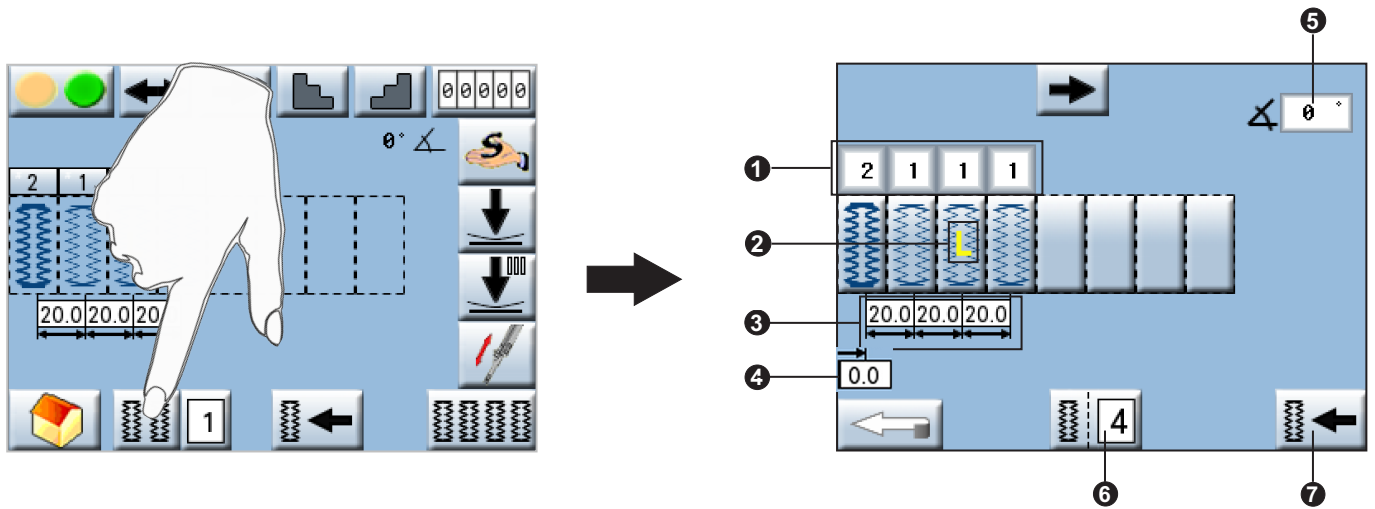
3. BUTTONHOLE PARAMETERS SCREEN



- ① Buttonhole program number selection / indication
- ② Buttonhole name
- ③ Initial slow sewing speed
- ④ Number of stitches being sewn at initial slow sewing speed
- ⑤ Sewing speed
- ⑥ Position of the buttonhole (shifts buttonhole closer / further from the sleeve edge)
- ⑦ Bracket sewing speed adjustment (use this setting to reduce the speed in bracket, if adjusted speed is too high due to the stitch length, it will be automatically reduced)
- ⑧ Activation of thread pick-up opening at the beginning of buttonhole sewing to release the thread
- ⑨ Activation of thread pick-up at the end of buttonhole sewing
- ⑩ Activation of thread pick-up at the end of indexer cycle
- ⑪ Angle of the buttonhole. This option is valid when individual buttonhole angle setting mode is selected – refer to Chapter D5.5.
- ⑫ Secondary thread tension activation in bracket (if enabled, bracket is sewn with higher thread tension) - for silk-thread version only
- ⑬ Single or double buttonhole sewing
- ⑭ Cutting space adjustment
- ⑮ Stitch length adjustment
- ⑯ Buttonhole length adjustment
- ⑰ Buttonhole bracket & end stitches X-Y position correction; use this setting to shift position of individual stitches from basic buttonhole shape; stitches numbers are marked in the buttonhole picture

D - MACHINE CONTROLS

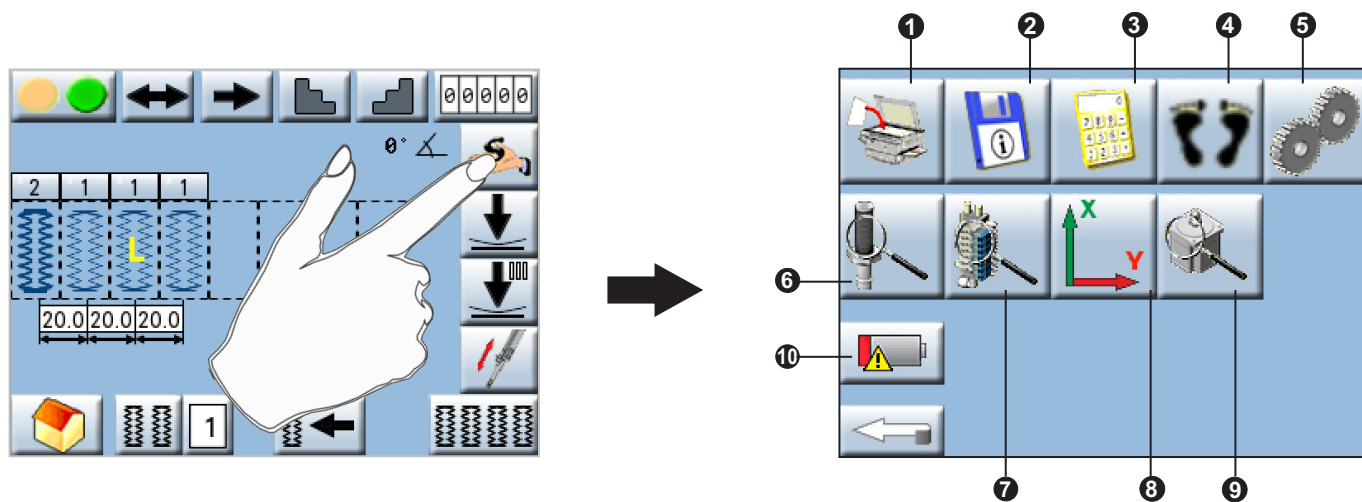
4. INDEXER PARAMETERS SCREEN



- ① Selection of buttonhole program numbers in the indexer sequence
- ② This symbol indicates indexer cycle interruption at the particular buttonhole. Press the buttonhole icon to activate cycle interruption at that buttonhole. This feature is mainly useful for thread color exchange.
- ③ Adjustment of distance between individual buttonholes
- ④ First buttonhole offset
- ⑤ Indexer sewing angle adjustment
- ⑥ Adjustment of the number of buttonholes in the indexer cycle
- ⑦ Press this button to switch to the Buttonhole Parameters Screen.

D - MACHINE CONTROLS

5. SERVICE MENU



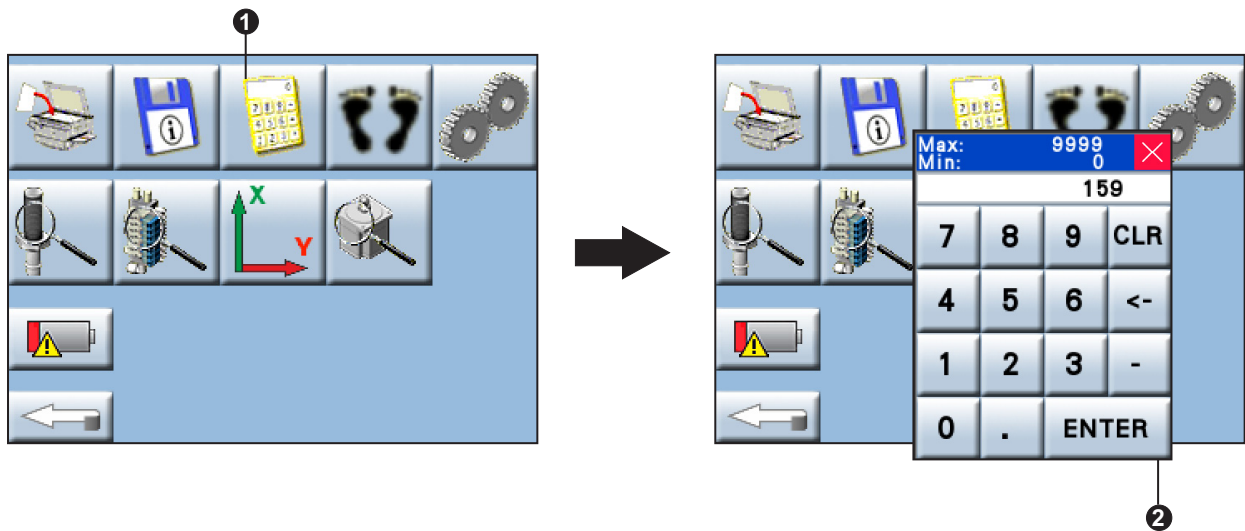
- ❶ Switch to Program Copy Screen (refer to Chapter D5.2)
- ❷ Switch to Software Information Screen (refer to Chapter D5.3)
- ❸ Password Entering (refer to Chapter D5.1)
- ❹ Switch to Buttonhole Step-by-Step Sewing Screen (refer to Chapter D5.4)
- ❺ Switch to Machine Parameters Screen (refer to Chapter D5.5)
- ❻ Switch to Sensors Test Screen (refer to Chapter D5.6)
- ❼ Switch to Valves Test Screen (refer to Chapter D5.7)
- ❽ Switch to X-Y Motors Adjustment Screen (refer to Chapter D5.8)
- ❾ Switch to Sewing Motor Adjustment Screen (refer to Chapter D5.9)
- ❿ Indication of PLC controller battery low status / Switch to Battery Status Screen (refer to Chapter D5.10)

D - MACHINE CONTROLS

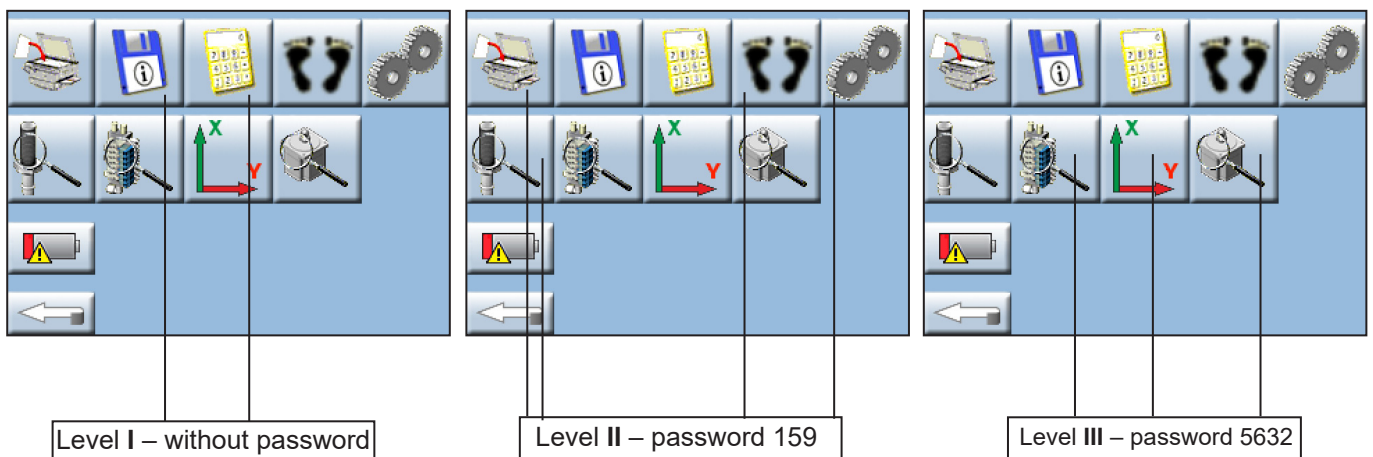
5.1. Password Submitting Screen

All the buttonhole parameters are protected by the password of level II. Consequently, the buttonhole parameters can be viewed but cannot be changed. Level II password is requested for the change. Service menu is protected from unqualified parameters change by security passwords. It is split into three levels according to severity and frequency of usage.

Press button **1** on the Service Menu Screen. Numerical keyboard appears. Enter the code for the respective level. Validate it by pressing the button **2**.

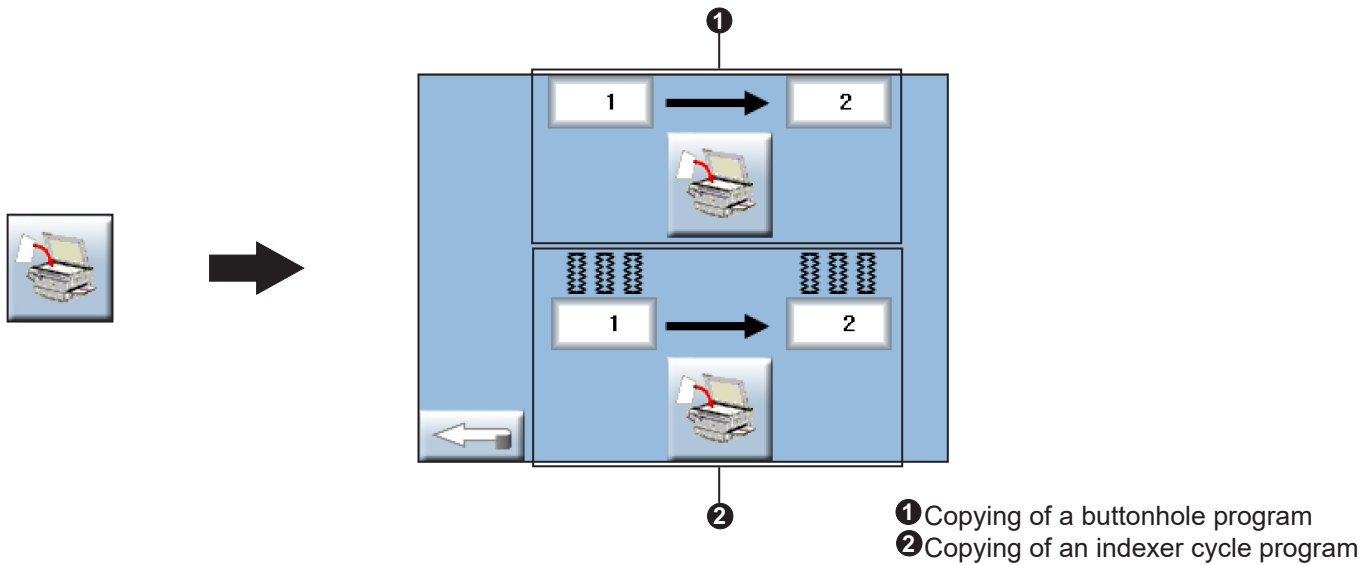


On the screens below there is an overview of protection level of individual service menu buttons together with the respective passwords. After entering a password, all the buttons of respective level are activated including all the buttons of lower levels. E.g., after entering the password of protection level III, all the buttons of level I and II are also activated.



D - MACHINE CONTROLS

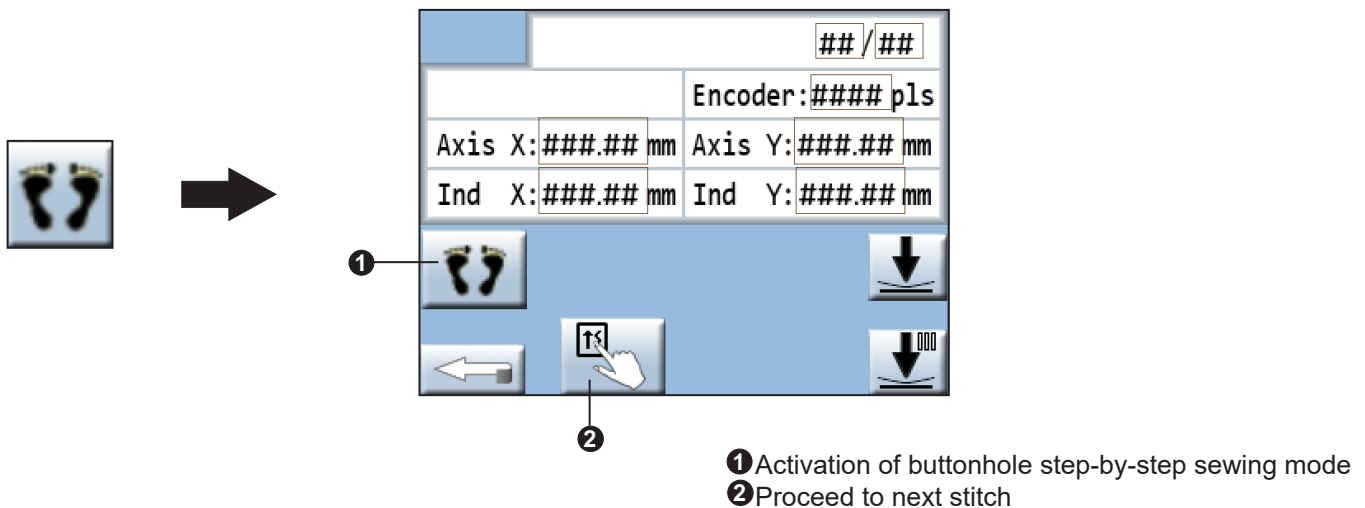
5.2. Program Copy Screen



5.3. Software Information Screen



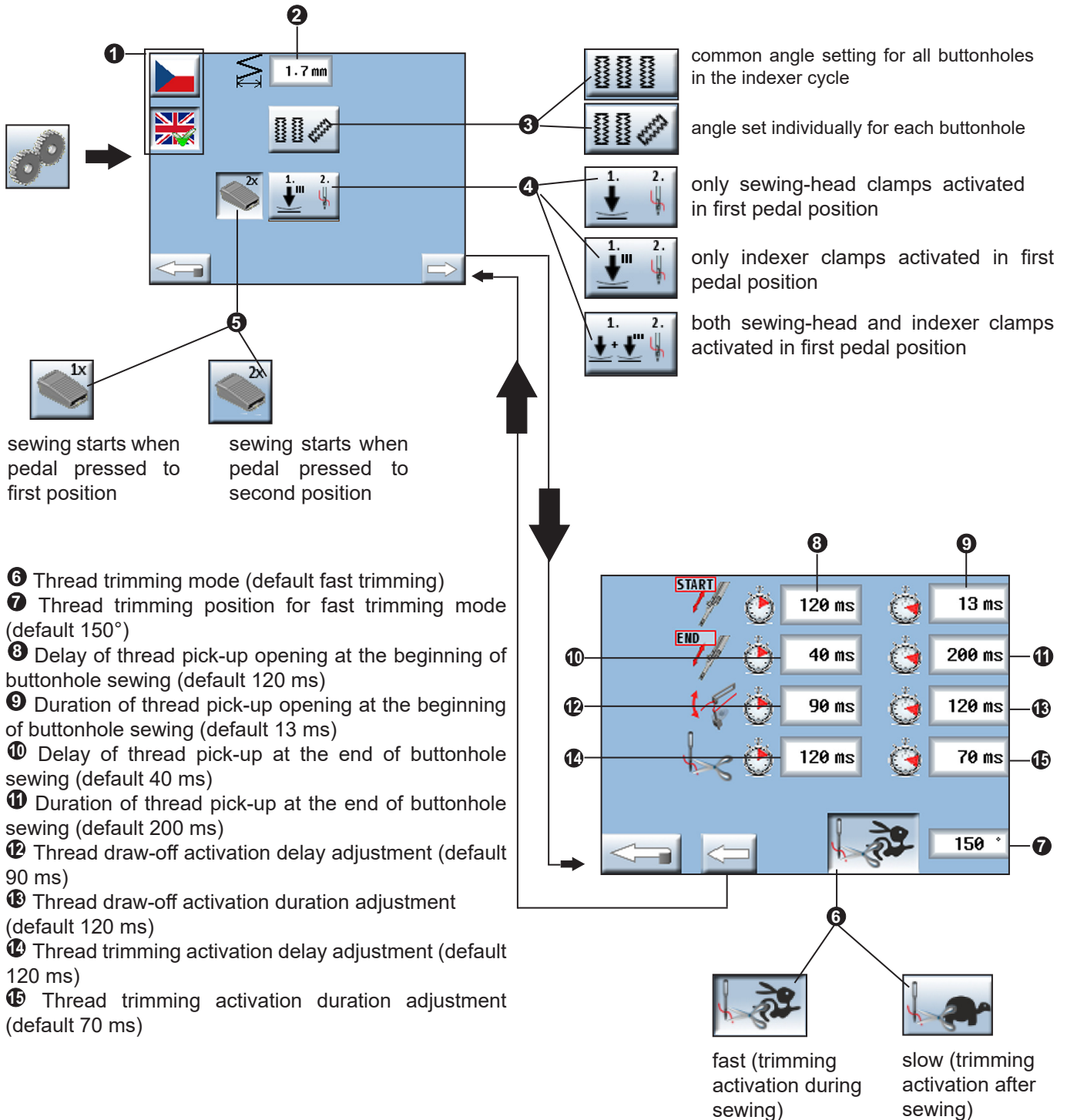
5.4. Buttonhole Step-by-Step Sewing Screen



D - MACHINE CONTROLS

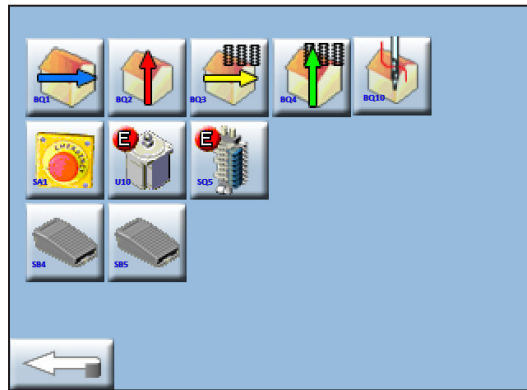
5.5. Machine Parameters Screen

- ❶ Language selection
- ❷ Mechanical bite adjustment – **this value must be set according to the adjusted mechanical bite of the sewing head**
- ❸ Buttonhole angle setting mode
- ❹ Foot-pedal control setting – clamps control when pedal pressed to first position
- ❺ Foot-pedal control setting – sewing start

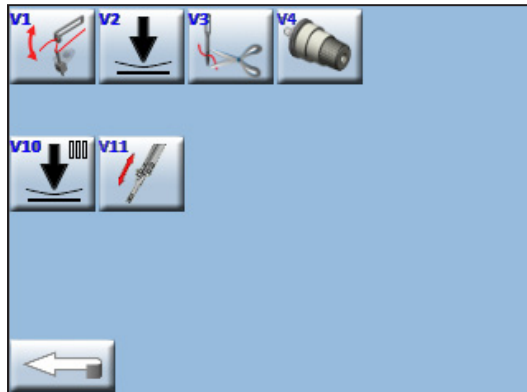


D - MACHINE CONTROLS

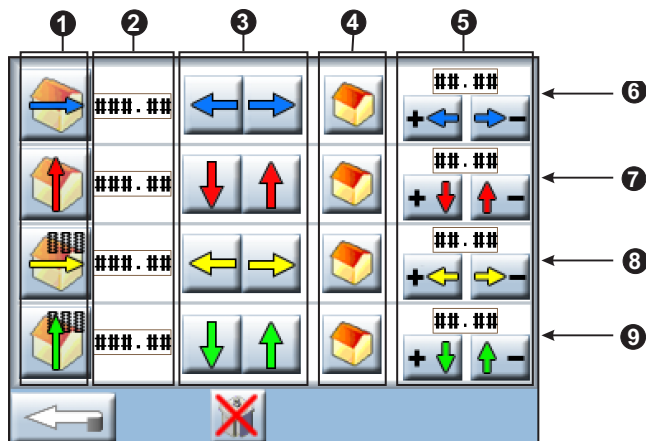
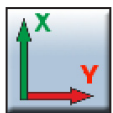
5.6. Sensors Test Screen



5.7. Valves Test Screen



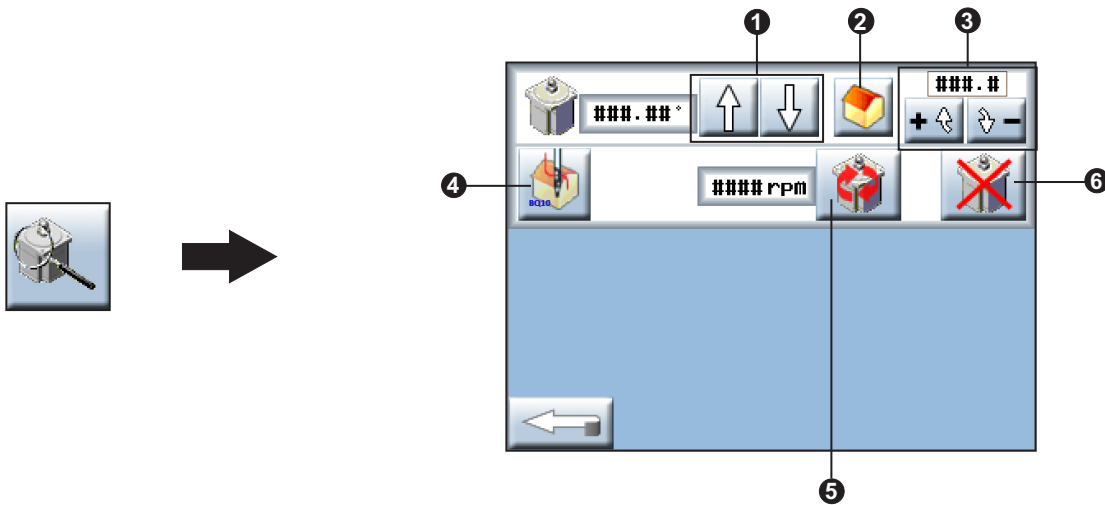
5.8. X-Y Motors Adjustment Screen



- ① Axis home position sensor
- ② Axis current position
- ③ Axis movement test
- ④ Axis home position establishment
- ⑤ Axis home position electronic correction
- ⑥ Axis X row
- ⑦ Axis Y row
- ⑧ Indexer axis X row
- ⑨ Indexer axis Y row

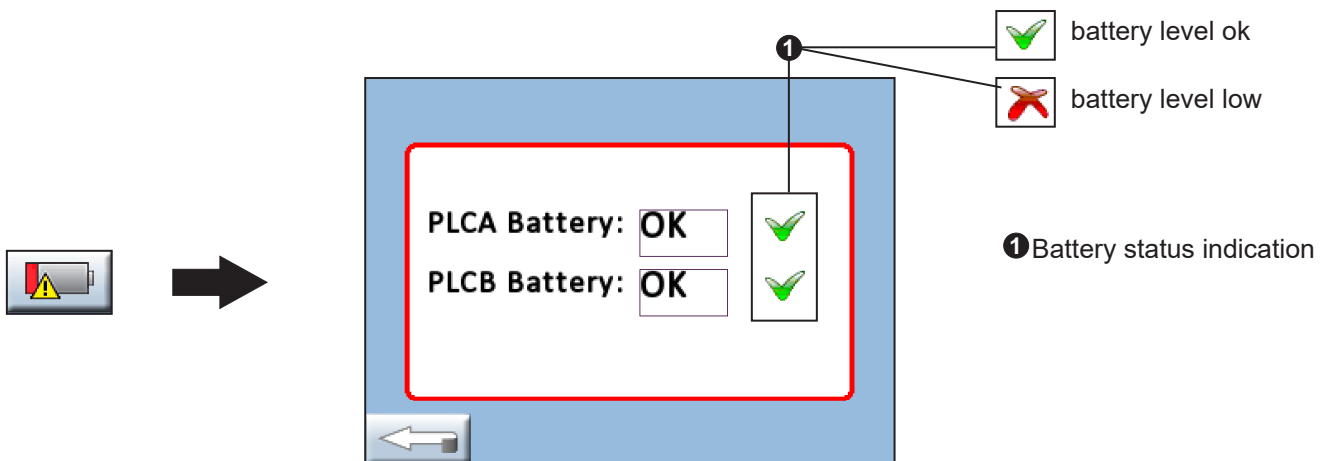
D - MACHINE CONTROLS

5.9. Sewing Motor Adjustment Screen



- ❶ Sewing motor movement test
- ❷ Sewing motor home position establishment
- ❸ Sewing motor home position electronic correction
- ❹ Sewing motor home position sensor status
- ❺ Sewing motor continual run
- ❻ Sewing motor enable / disable

5.10. Battery Status Screen

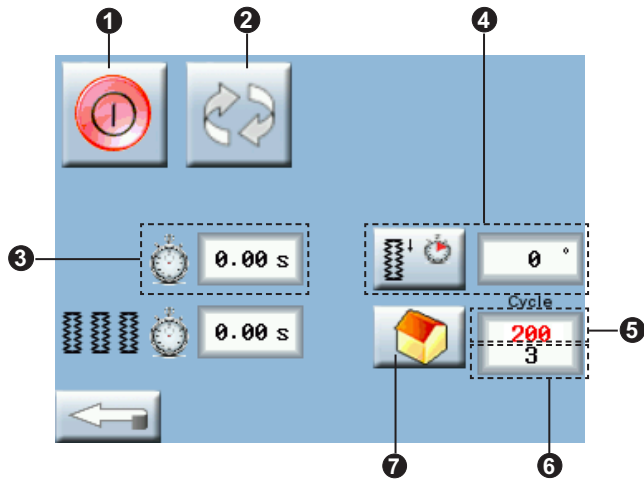


- ❶ Battery status indication

D - MACHINE CONTROLS

5.11. Automatic Home Position

This machine is equipped with automatic home position of stepper motor axes. This operation is factory set to 200 buttonholes.



- ❶ Master reset (factory set)
- ❷ Machine cycling (testing, running - in)
- ❸ Time of last sewing
- ❹ Time change of synchronization of the movement of needle bar and Y-axis clamping mechanism
- ❺ The number of tack after which an automatic home position occurs
- ❻ The current number of tacks since the last automatic position
- ❼ Home button

During this operation, appears on the screen:

Warning!
Auto Home
Please wait!

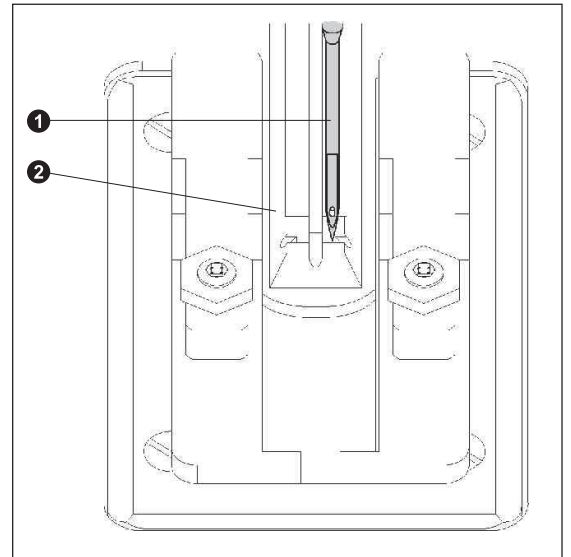


CAUTION: During this operation the operator must take care of safety and do not put his hands in the sewing area!

E - STANDARD MACHINE ADJUSTMENT

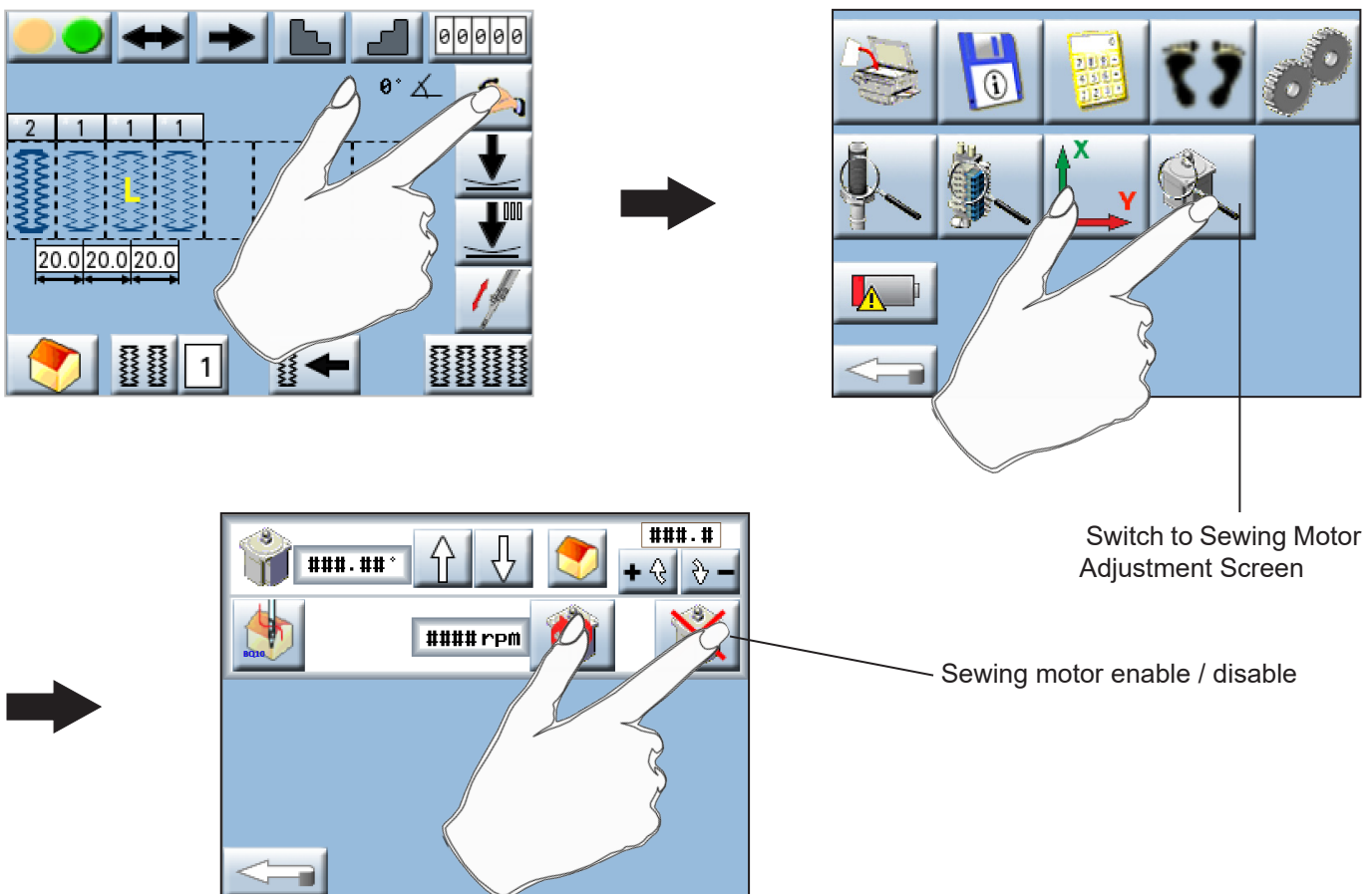
1. MACHINE HOME POSITION

1. The needle bar is in the upper position. The needle **1** descends to the right side of the throat plate slot **2** during the first stitch. The marks **8** on the handwheel and cover casting are aligned.



2. MACHINE ADJUSTMENT BASICS

1. Before making mechanical adjustment disable the sewing motor:



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

E - STANDARD MACHINE ADJUSTMENT

3. NEEDLE BAR

3.1. Needle Bar Crank Position

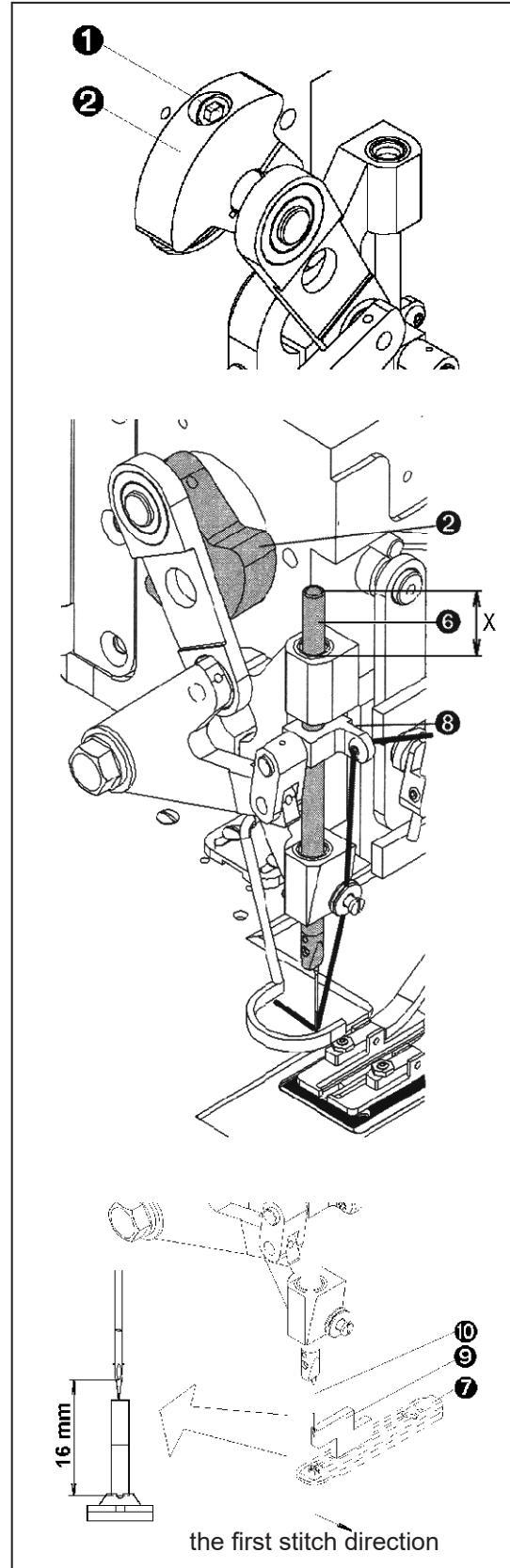
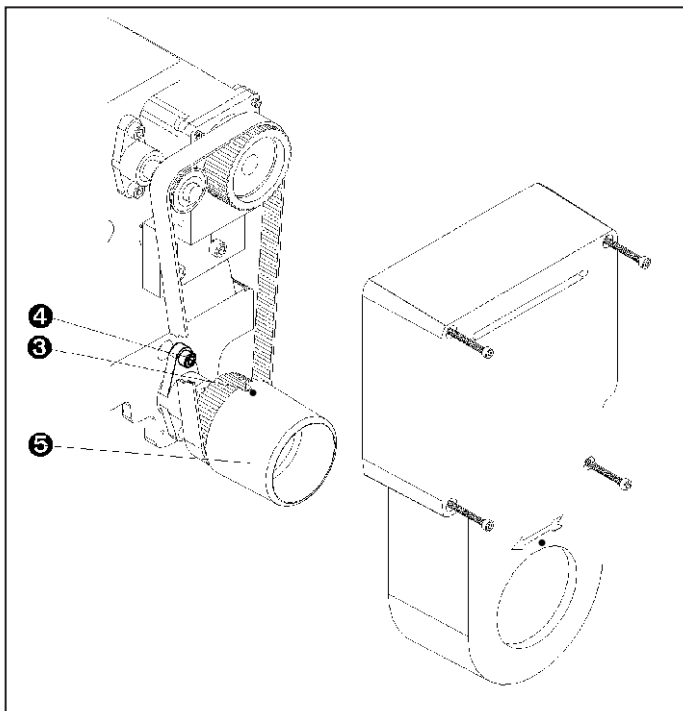
Turn the hand wheel **5** until the mark **3** is at 12 o'clock. The needle bar need to be in the top position. If the needle bar is not in the indicated position turn the hand wheel **5** and loosen lightly the screw **1** in the needle bar crank **2**, hold the hand wheel and turn the crank in the direction to obtain the condition. Check again and tighten the screw **1** when the position is reached.

NOTE: The needle bar should be in the top dead centre position when the mark **3** is at 12 o'clock. To check, turn the hand wheel clockwise and counter-clockwise. The needle bar **6** must move downward in either direction. The needle shall make its first stroke into the right side of the throat plate.

3.2. The Needle Bar Height Adjustment

Adjust the needle bar **6** height to 16 mm (5/8") from the surface of the throat plate **7** to the lower edge of the needle eye. Use height gauge **9**. Loosen the set screw **8** and move the needle bar up or down as necessary.

NOTE: Alternatively, check distance **X** at the top death point=16.8 mm and bottom death point=10.2 mm.



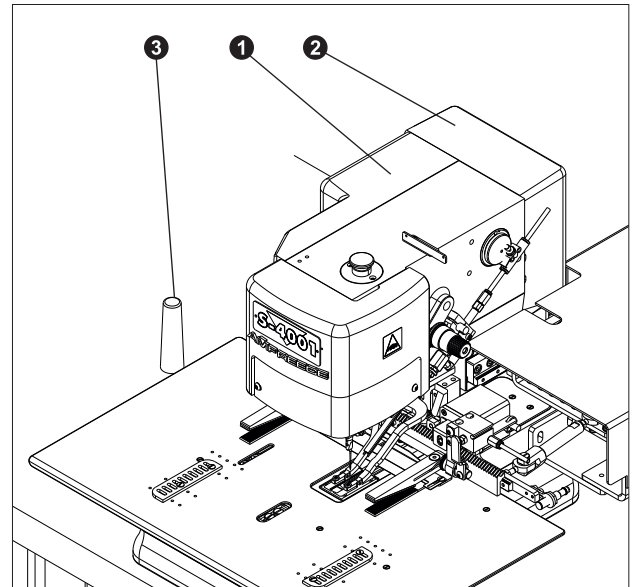
E - STANDARD MACHINE ADJUSTMENT

4. BITE

Before the bite adjustment, remove the pulley cover **2** and the head cover **1**.

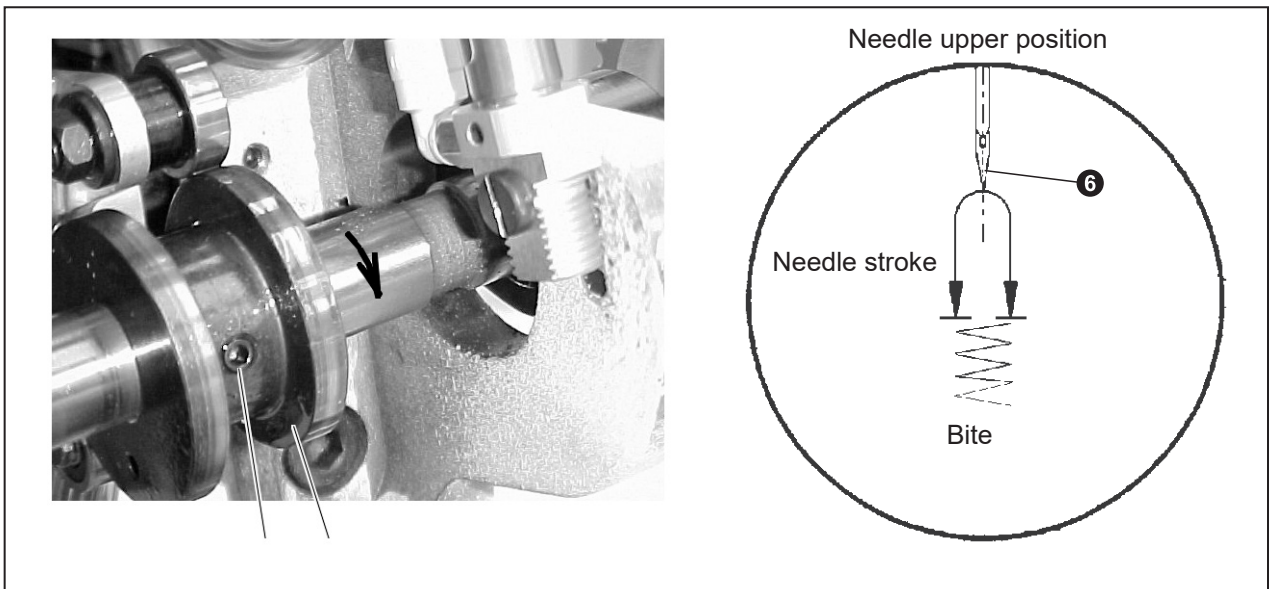
4.1. Bite Cam Adjustment

1. Check if the machine is in the home position.
2. Tilt the machine on the rest wood pin **3**. If the adjustment is correct, the second cam locking screw **4** (counter clockwise of the bite cam **5** - view from the front of the machine) must be roughly perpendicular to the bedplate casting.
3. Adjust the position of the bite cam so that the needle bite motion occurs equally with the needle out of the work piece on the up and down stroke.



NOTE: There must be no bite movement before the needle **6** neither comes out of the garment nor after it has descended into the garment - see illustration.

4. Tighten both locking screws **4** securely.

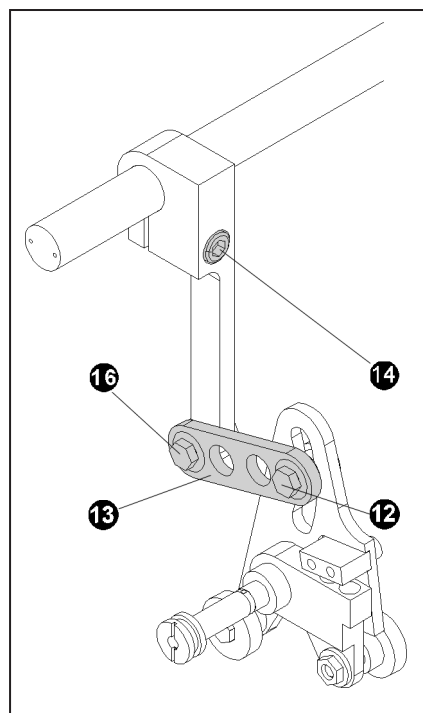


E - STANDARD MACHINE ADJUSTMENT

4.2. Bite Width Adjustment

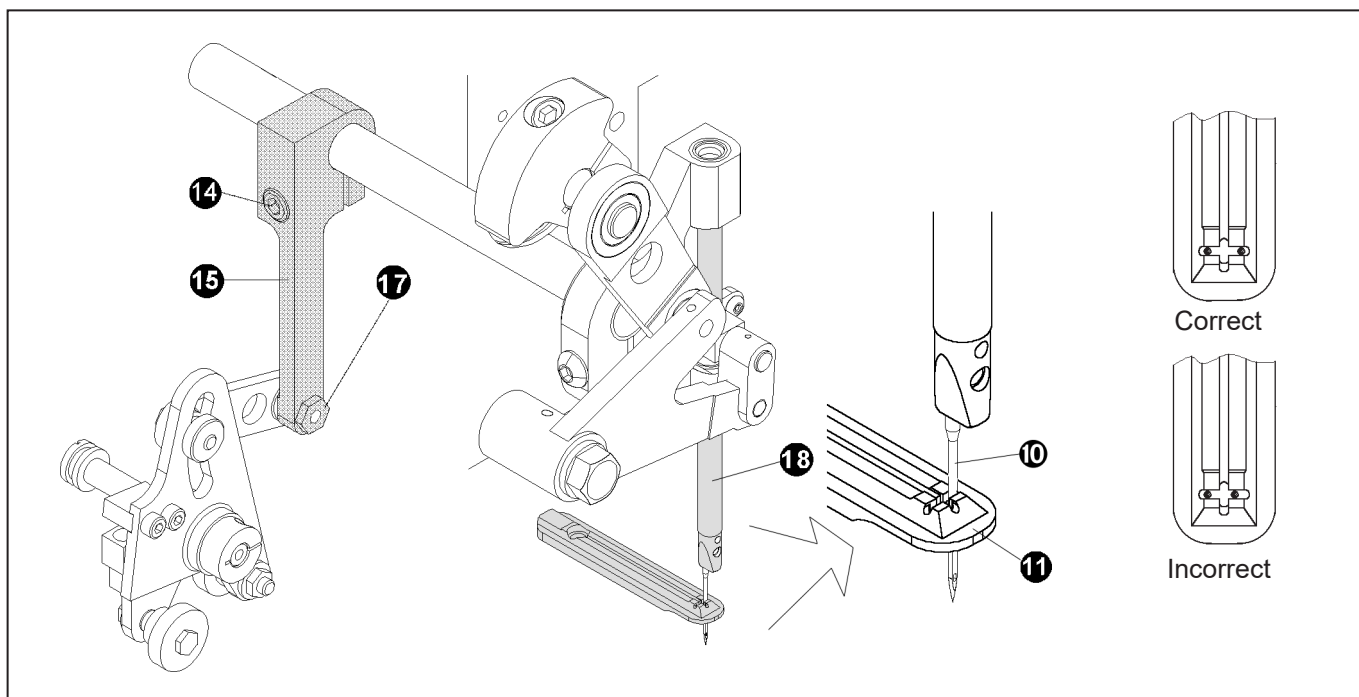
To adjust the bite width, first remove the head cover. The S-4002 is fitted with a regular bite throat plate **11**, that allows a bite range of 1.5 mm (1/16") to 2.3 mm (3/32").

1. loosen the adjusting screw **12**
2. to increase the bite width, raise the bite lever **13**
3. to decrease the bite width, lower the bite lever **13**
4. tighten the adjusting screw **12**



4.3. Centering the Bite Over the Throat Plate

1. with the machine in the home position - loosen the clamping screw **14** on the bite lever **15**
2. for rough adjustment, using the hand wheel, rotate the needle bar to its full down position and move the needle **10** to the right side of the throat plate slot **11**. Turn the hand wheel to the second needle down stroke and compare the needle position on the left side of the throat plate. Continue adjustment until the needle is roughly of equal distance from the right and left sides.
3. tighten the clamping screw **14**
4. for finite adjustment loosen the screw **16** and rotate the eccentric nut **17**. Tighten the locking screw **16**.



E - STANDARD MACHINE ADJUSTMENT

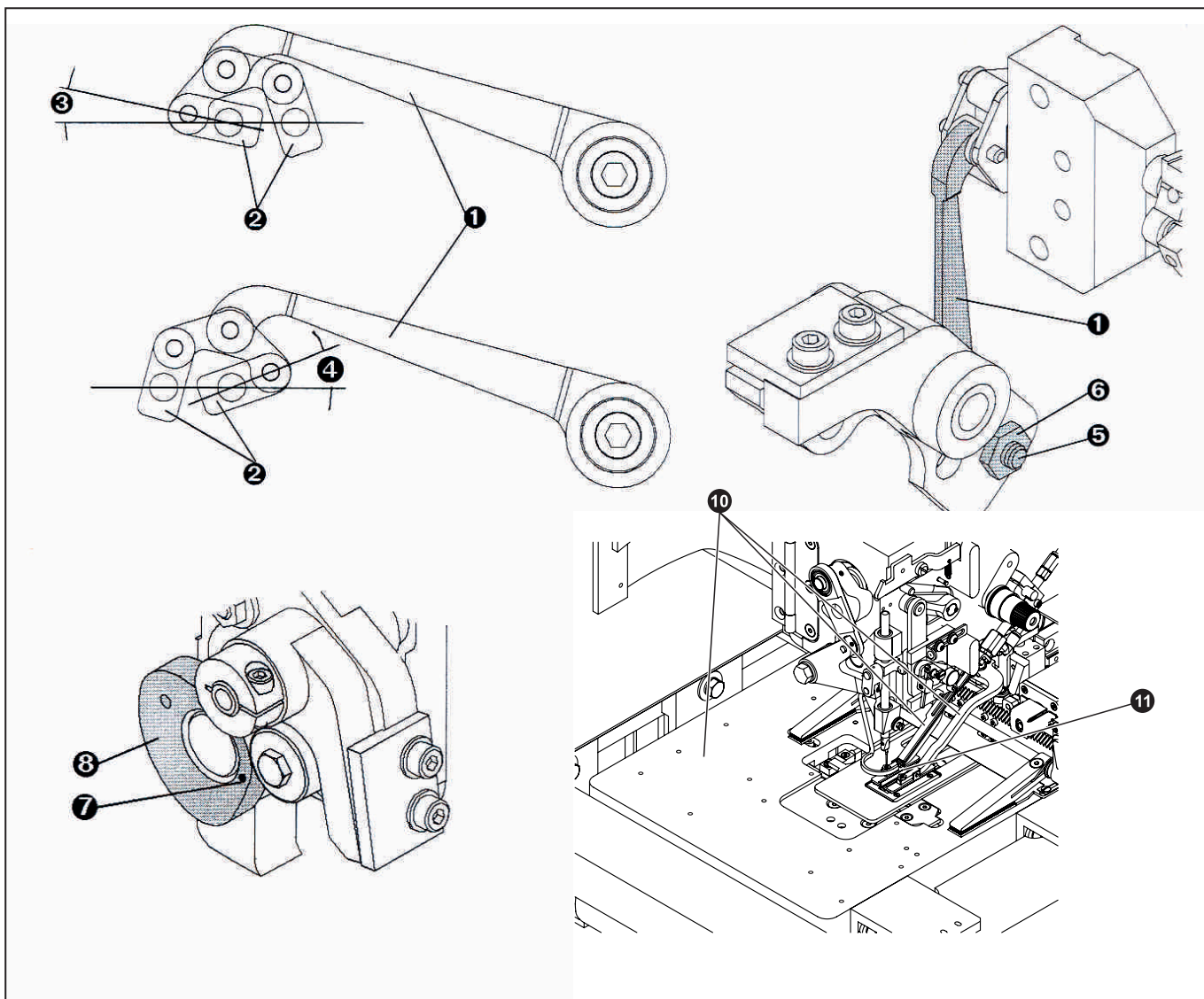
5. LOOPER ADJUSTMENT

Before making the loopers adjustment, follow the below described points:

1. Turn the hand wheel and observe the position of the connecting link **1** at both ends of the looper link arm travel **2**. Angle **A** must equal angle **B**.
2. If incorrect - loosen the hex mounting screw **5** and rotate the eccentric adjusting nut **6** as needed.
3. Tighten the hex mounting screw **5**.

NOTE: The eccentricity also slightly influences the loopers stroke - see the arrows in the picture below. Check the marking of the eccentric situated on the back hex nut - while balancing the eccentric on top the stroke is longer, at bottom it is shorter. Longer stroke means smaller angles (A) and (B), thus the loopers turn more.

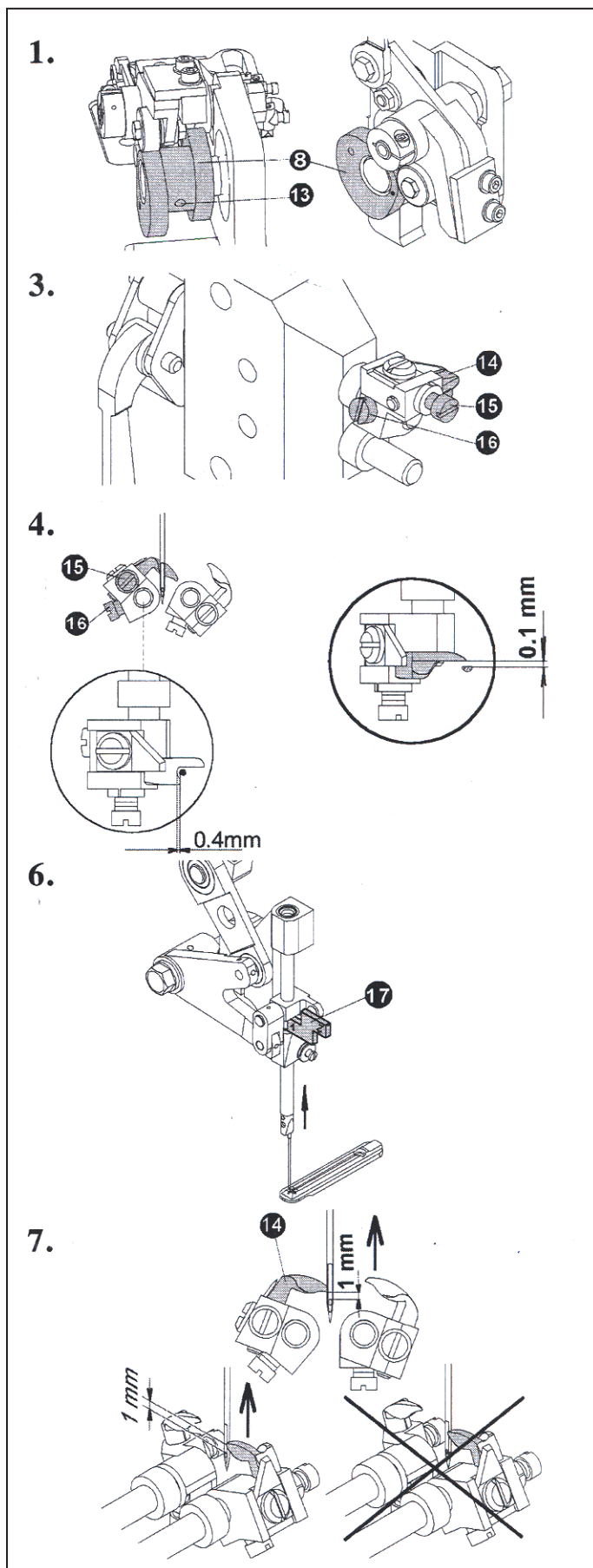
4. Turn the hand wheel and bring the needle bar to the upper position.
5. Check the needle is straight; better use a new needle to set the new timing.
6. Tilt the machine head on the rest pin and check if the mark **7** on the looper cam **8** is visible from the front of the machine (as in the picture). If not, remove the cam and install it correctly.
7. Remove the cover plate, disconnect the main air supply and the tubes from the clamp foot cylinder and remove the clamping assembly **10** from the machine, remove the throat plate **11**, trimming hook cover and trimming hook. Dismantle the loopers with holders.



E - STANDARD MACHINE ADJUSTMENT

The first looper adjustment

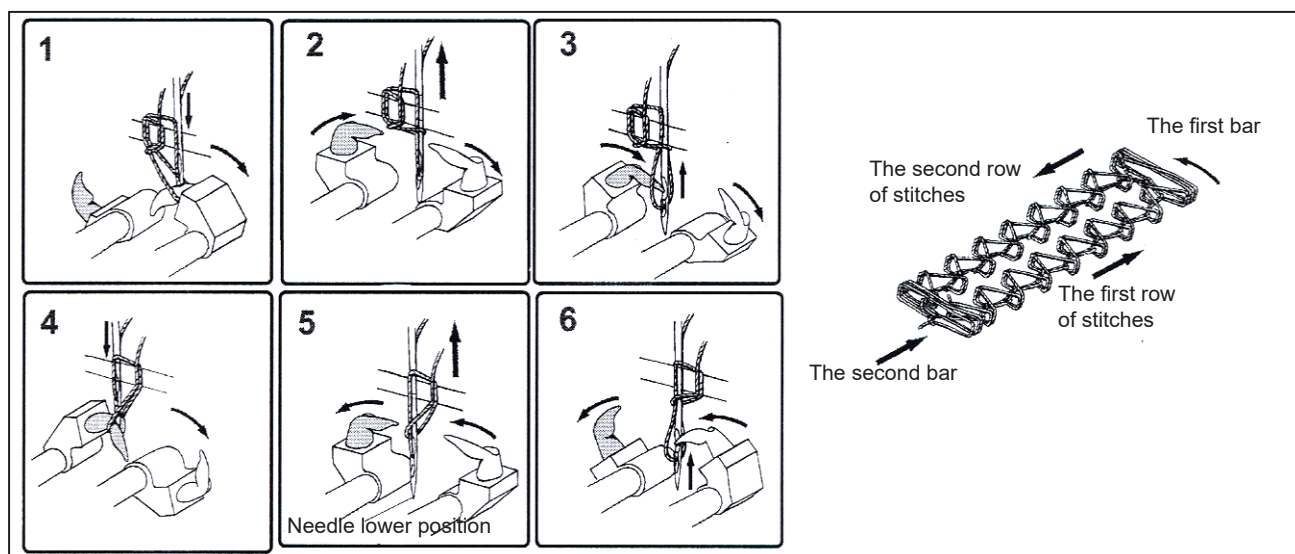
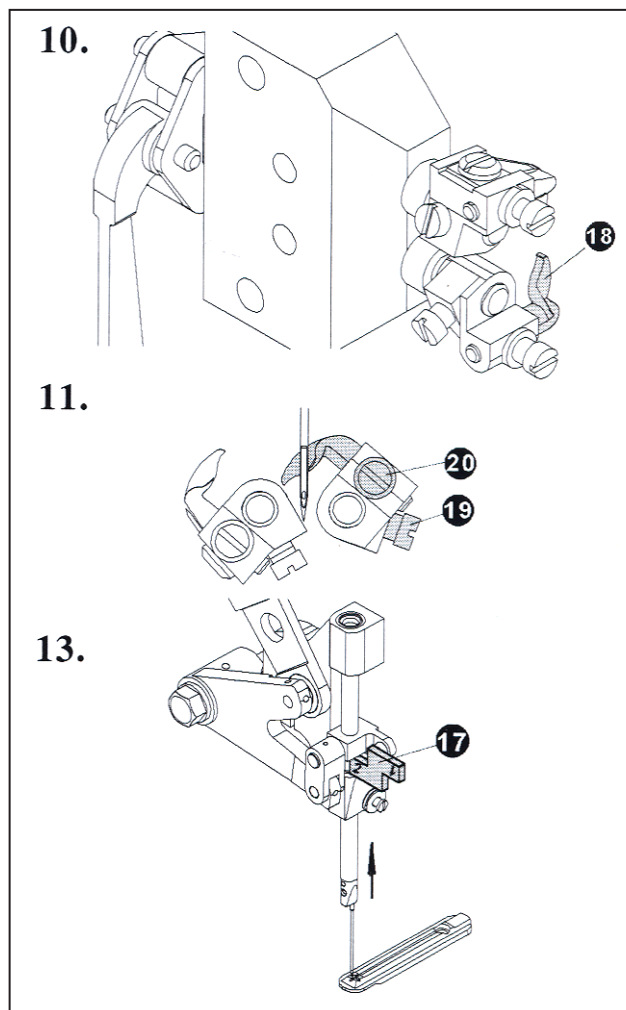
1. Bring the machine to the home position and loosen the screws 13 of the looper cam 8 and adjust the looper cam to the lowest position.
2. Loosen the looper set screw 15 and turn the looper to be perpendicular to the hole in the looper holder.
3. Install the holder with the first looper 14 on the shaft.
4. Loosen the looper holder screw 16 and move the holder so that the needle passes the looper in the center of the looper recess. There must be clearance 0,4 mm between the needle and the looper recess. Tighten the looper holder screw 16.
5. Loosen the looper screw 15 and turn the looper 14 to the needle to obtain the distance 0,1 mm between the needle and the looper tip.
6. Turn the hand wheel counter clockwise and insert the gauge 17 with 1 mark (wider side of the gauge) between the needle bar holder and the needle bar clamp when the needle returns to the home position from the lower position.
7. Check to determine if the tip of the looper is at the centerline of the needle 1 mm above the needles eye.
8. If incorrect - loosen the looper cam screw 13 by the wrench and hold it. Turn the hand wheel (counter clockwise - if the looper tip is higher than 1 mm; clockwise - if less than 1 mm). Tighten both looper cam screws 13 securely.
9. If it is necessary to adjust the looper cam again, check the clearance 0,4 mm between the needle and the looper recess.



E - STANDARD MACHINE ADJUSTMENT

The second looper adjustment

10. Insert the second looper **18** on the looper shaft.
11. Loosen the looper holder screw **19** and move the holder so that the needle passes the center of the looper recess. There must be clearance 0,4 mm between the needle and the looper recess. Tighten the looper holder screw.
12. Loosen the looper screw **20** and turn the looper **18** to the needle to obtain the distance 0,1 mm between the needle and the looper tip.
13. Turn the handwheel counter clockwise, insert gage **17** with mark 2 (narrower side of the gage) between the needle bar holder and needle bar clamp.
14. Check if the looper tip crosses the axis of the needle 1 mm above the needle eye.
15. If it is necessary to adjust the looper cam again, check the first looper adjustment.



E - STANDARD MACHINE ADJUSTMENT

6. THREAD DRAW-OFF

6.1. Adjustment of the Draw-Off Lever Position

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

1. Loosen the screw ⑥.
2. The piston ⑦ of the cylinder ⑧ is in the home position (retracted). Move the lever ⑨ to the pin ⑩ with minimal clearance 0.1 mm. Tighten the screw ⑥.
3. Check the correct clearance adjustment by switching the valve ⑪ of the draw-off cylinder (YV1).

6.2. The Thread end Adjustment

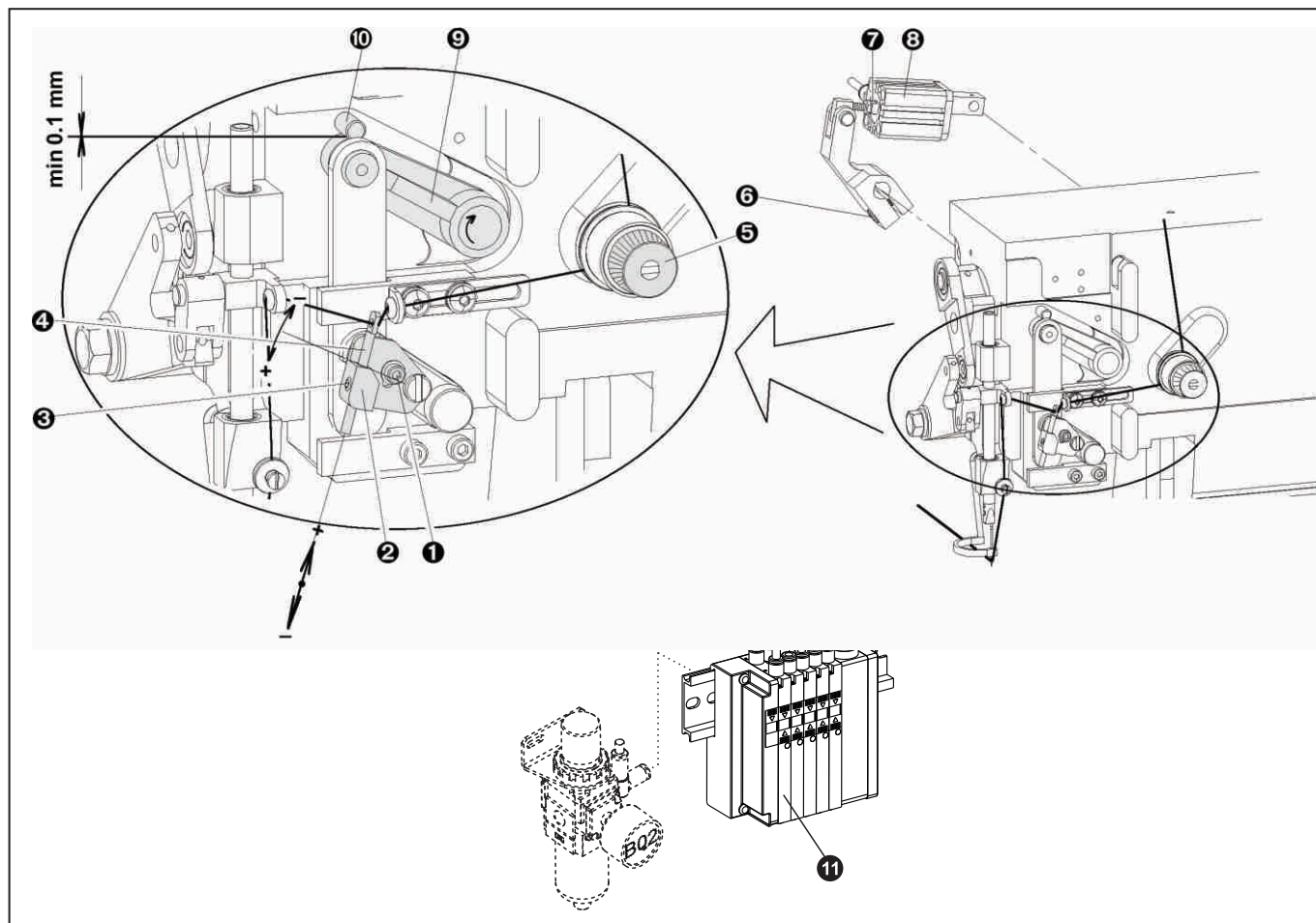
If the first stitches are missing or the buttonhole is not sewn, follow the below mentioned steps:

1. Loosen the screw ①.
2. Turn the draw-off lever ② counter clockwise to increase the thread tail length; turn the draw-off lever clockwise to decrease the thread tail length.

6.3. Locking the Stitches

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

1. Loosen the screw ③.
2. Move the thread take-up ④ to increase the size of the needle loop.



E - STANDARD MACHINE ADJUSTMENT

7. THREAD TENSION

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

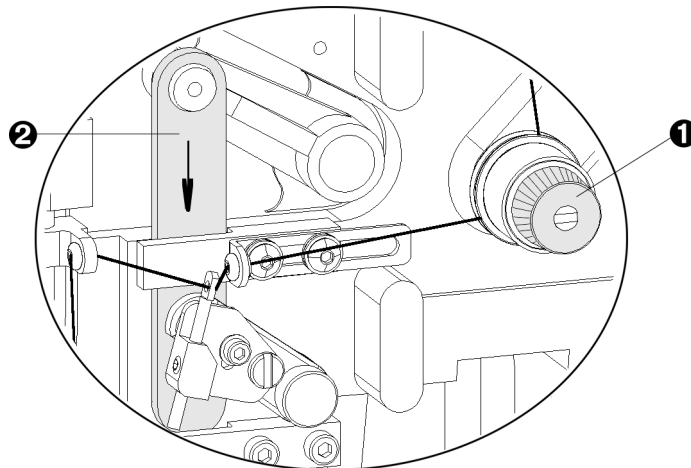
- By turning the tension knob **1** clockwise, the thread tension increases.
- By turning the tension knob **1** anti-clockwise, the thread tension decreases.

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

7.1. Adjustment of the Tension Discs Opening

The opening of the tension discs is performed when the second bar is sewn. When the tension discs are opened, it is possible:

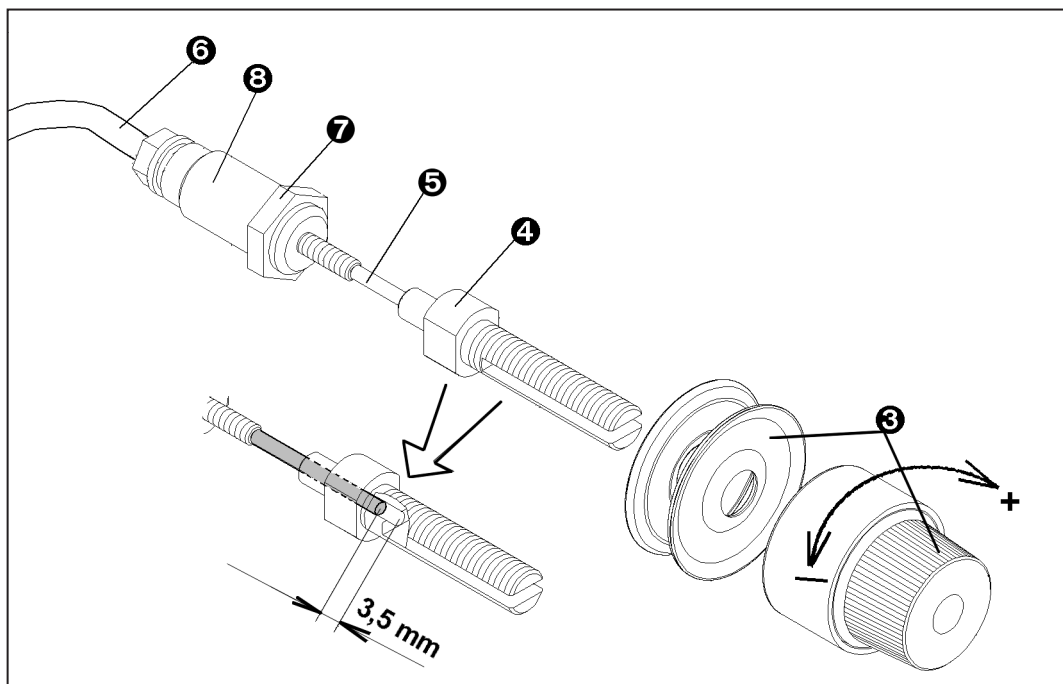
1. To pull the thread from the spool when the draw-off lever **2** receives the impulse for operation.
2. By decreasing or increasing of the air flow it is possible to regulate the tightening of the last stitch of the buttonhole.



E - STANDARD MACHINE ADJUSTMENT

7.2. The Correct Position of the Tension Mechanism

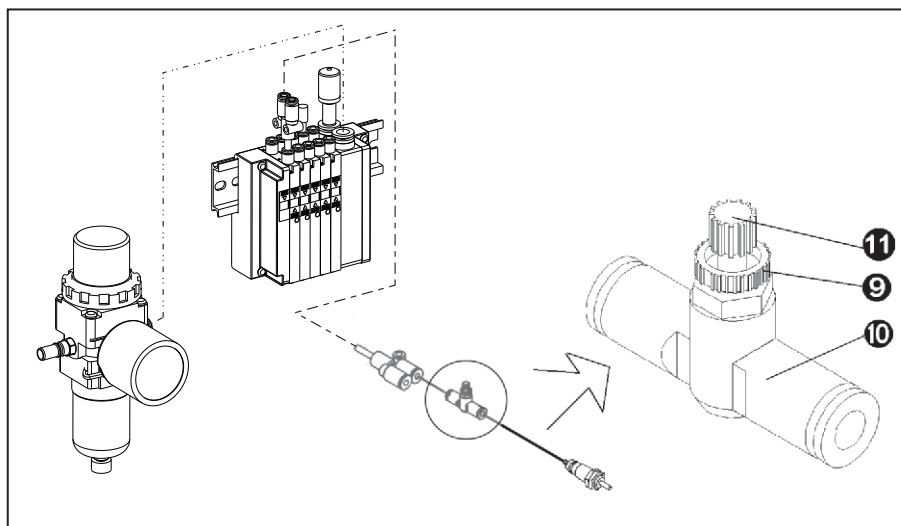
1. Remove the tension assembly **3** from the shaft **4**.
2. Check if the distance between the stud slot edge and the pin **5** is 3.5 mm. If incorrect, it is necessary to adjust the position on the pin.
3. Remove the pulley cover and the head cover to obtain a good access for this adjustment. Switch off the air supply.
4. Disconnect the air tube **6** from the cylinder.
5. Loosen the nut **7** and turn the cylinder **8** as necessary. Turning clockwise the pin is extended. Tighten the nut **7** when the correct measurement is obtained.
6. Connect the air tube **6** to the cylinder, open the air supply and install the covers.



7.3. Regulation of the Tension Discs Opening

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

1. Loosen the locking nut **9** on the speed controller **10**.
2. To obtain better tightening of the last stitch, tighten screw **11** and lock the nut **9** securely.



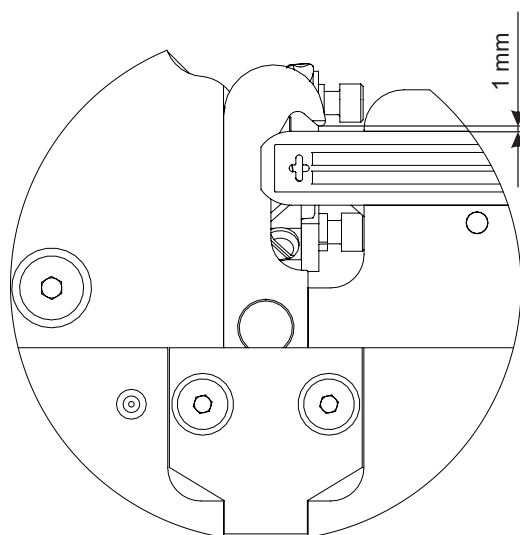
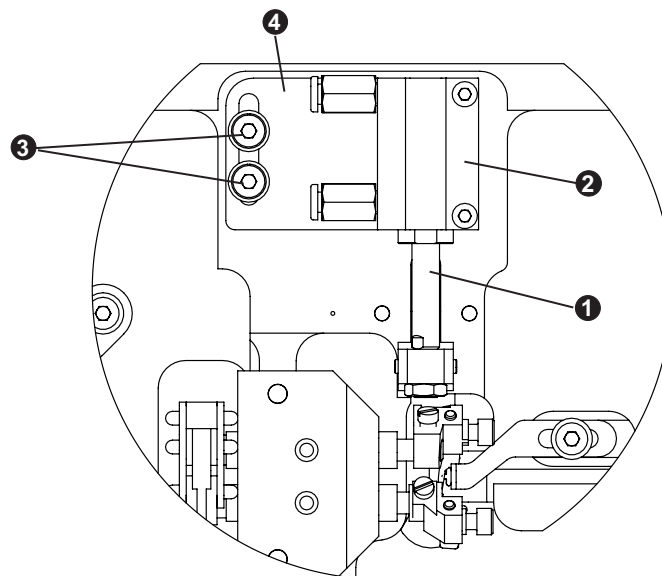
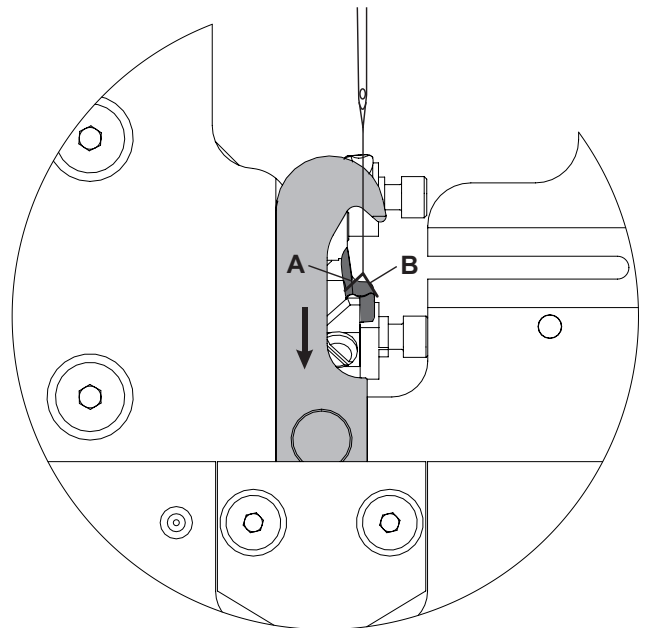
E - STANDARD MACHINE ADJUSTMENT

8. THREAD TRIMMING

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

The Trimming Hook ① Adjustment

1. Push the piston ① of the trimming cylinder ② to the maximal position and loosen the screws ③ on the holder ④.
2. Set the clearance 1.0 mm between the throat plate and the point of the trimming hook.
3. Tighten the screws ③ on the holder ④.




E - STANDARD MACHINE ADJUSTMENT

9. MACHINE HEAD CLAMP-FEET ADJUSTMENT

9.1. Clamp Height Adjustment

Make sure the air-supply is switched on and the clamp-feet are in up position. If the clamp-feet are not in up position,


push the  button from the machine touch-screen panel.


1. Loosen the nut **1**.
2. Turning the piston-rod **2** clockwise the clamp-feet **3** get closer to the clamping mat **4**, turning it anticlockwise they get further. Default setting is 9 mm.
3. Tighten the nut **1**.

NOTICE:

After the adjustment the clamp-feet should be not be higher than the needle tip when the machine is in home position.

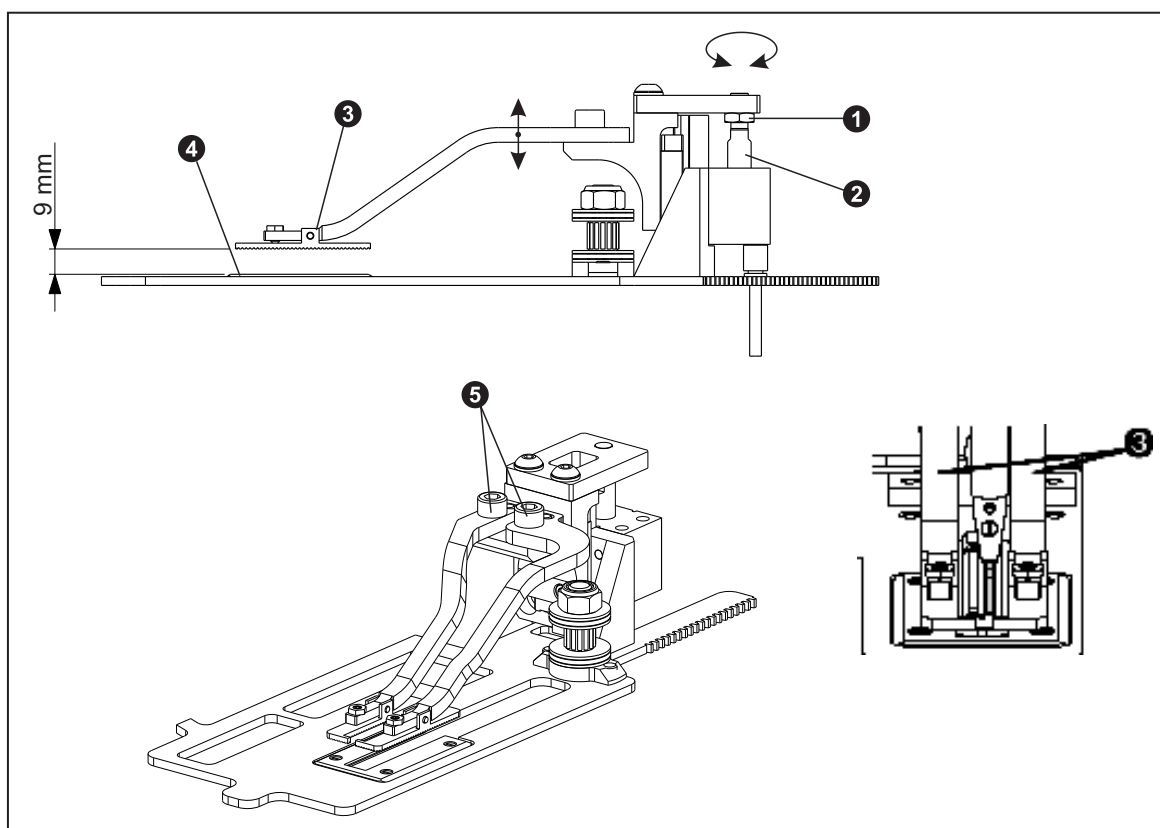
9.2. Adjustment of the Distance Between the Clamp-Feet

Check the clamp-feet are in down position, if they are not push the  button from the machine touch-screen panel.

1. Turn the hand-wheel slowly to be sure the needle does not hit the clamp-feet **3**.
If the needle does hit the clamp-feet:
2. Push the  button to rise the clamp-feet.
3. Loosen the screws **5**, move the clamp-feet arm further from the needle and tighten the screws **5** afterwards.
4. Check the correct adjustment as per the point a).

NOTICE:



During this adjustment keep the minimum distance between the needle and clamp-feet. Too large distance can cause skip-stitches when sewing thin or elastic fabric.



E - STANDARD MACHINE ADJUSTMENT

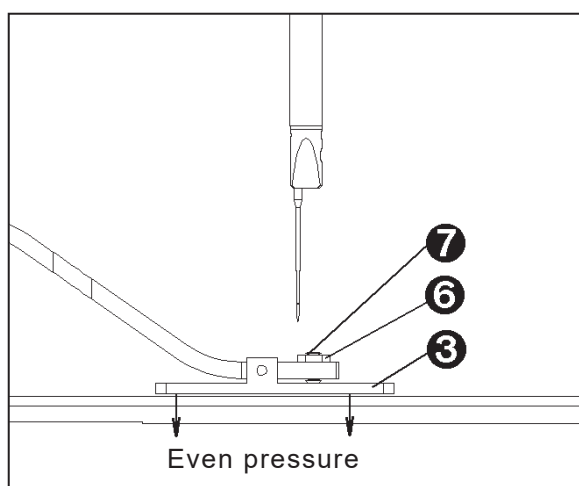
9.3. Clamp-Foot Pressure Adjustment

The whole length of the clamp-foot must hold the garment evenly with same pressure; if this is not the case, it is necessary to readjust the correct pressure of clamp-foot ③.

- a) Rise the clamp-foot by pressing the button .
- b) Loosen the nut ⑥.
- c) Turn the screw ⑦ clockwise to reach higher pressure of the clamp-foot ③ in its front part, turning it anticlockwise you reach higher pressure in its back part.
- d) Tighten the nut ⑥.
- e) Insert a piece of fabric under the clamp-foot ③ and push the  button to hold it.
- f) Check the fabric is evenly held by the clamp-foot ③ in whole length.

NOTICE:

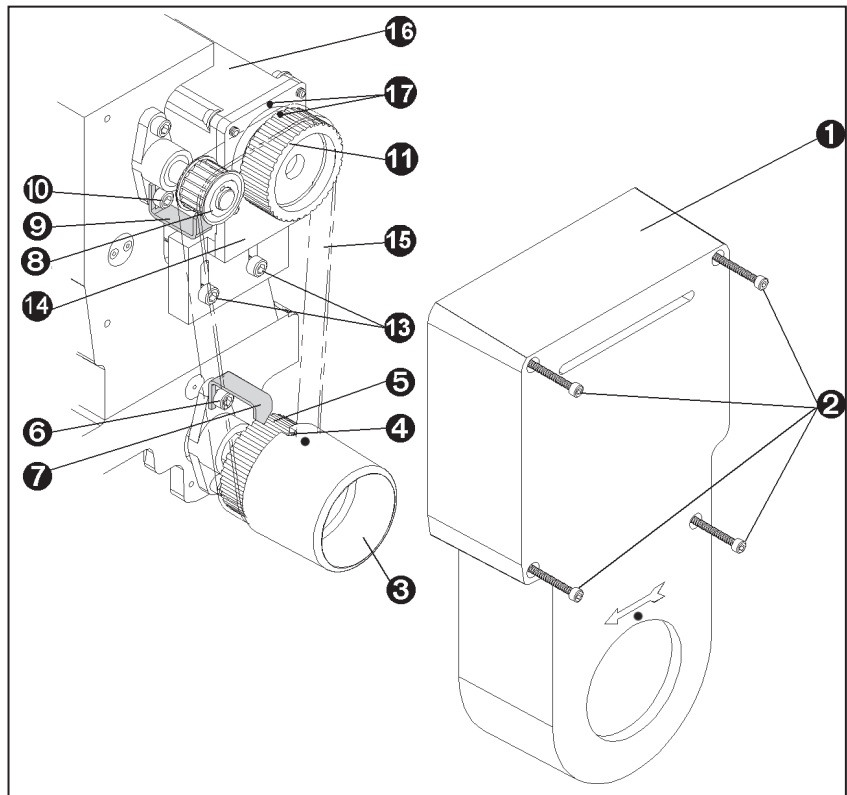
Wrong pressure adjustment can cause skip-stitches during sewing.



E - STANDARD MACHINE ADJUSTMENT

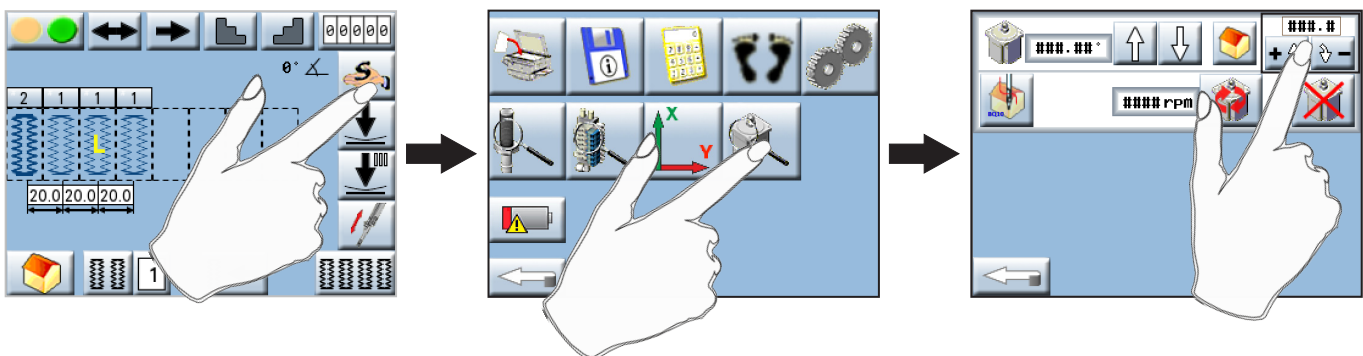
10. CHANGING THE DRIVE BELT

1. Remove the pulley cover **1** after loosening the M4 screws **2**.
2. By turning the handwheel **3** adjust the position of the shaft so that the screw **4** on the pulley **5** is level with screw **6** on the bearing carrier lower shaft.
3. Lock the position by the holder 24.0030.0.000 **7**, which is included in the accessories. Using the screw **6** fix the holder to the bearing holder upper screw.
4. Turn the pulley **8** of the needle bar shaft, until the needle bar reaches the upper position.
5. Lock the position by the holder 24.0024.0.000 **9**, which is included in the accessories. Using the screw **10** fix the holder to the bearing carrier lower mounting screw.
6. Rotate the motor pulley **11** until the marks **17** on the motor pulley and the motor bracket are aligned.
7. Loosen the screws **13** on the motor bracket **14** and move the motor with the machine bracket down to fit the belt.
8. Fit the belt **15** on the shaft pulleys **5**, **8** and motor pulley **11**. To tighten the belt **15**, move the motor bracket **14** with motor **16** up. Tighten the screws **13** to lock the motor bracket. Be sure the marks **17** are aligned.
9. Remove the pulley holders **7**, **9**.
10. Press the pedal to check the adjustment. The needle bar must be in the upper position.
11. Small changes of the needle bar adjustment are possible in the program parameters:



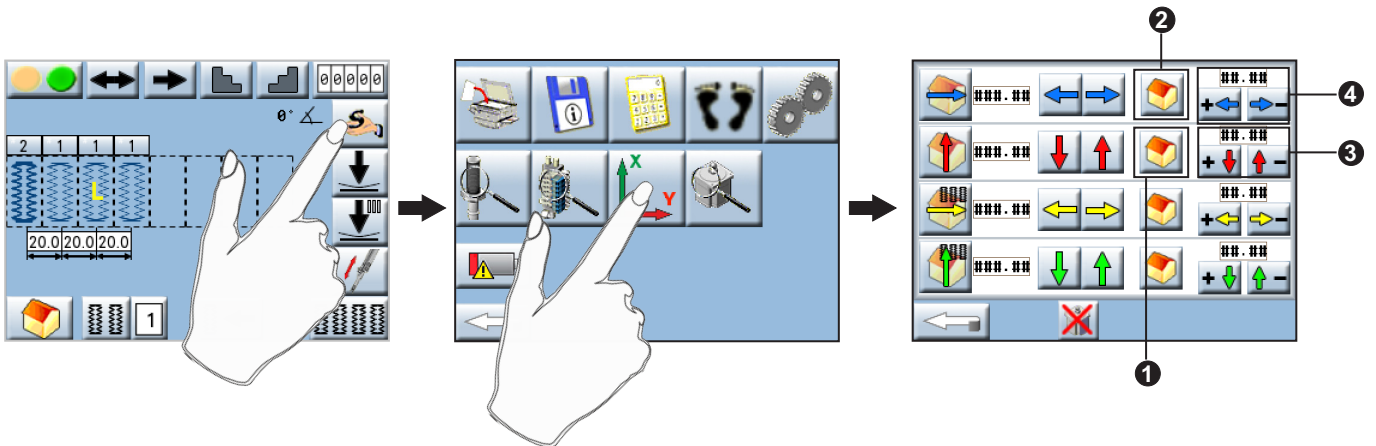
Needle bar did not reach the upper position.

To obtain the correct position of the needle bar, change this value:



E - STANDARD MACHINE ADJUSTMENT

11. STEPPER - MOTORS HOME POSITION ADJUSTMENT

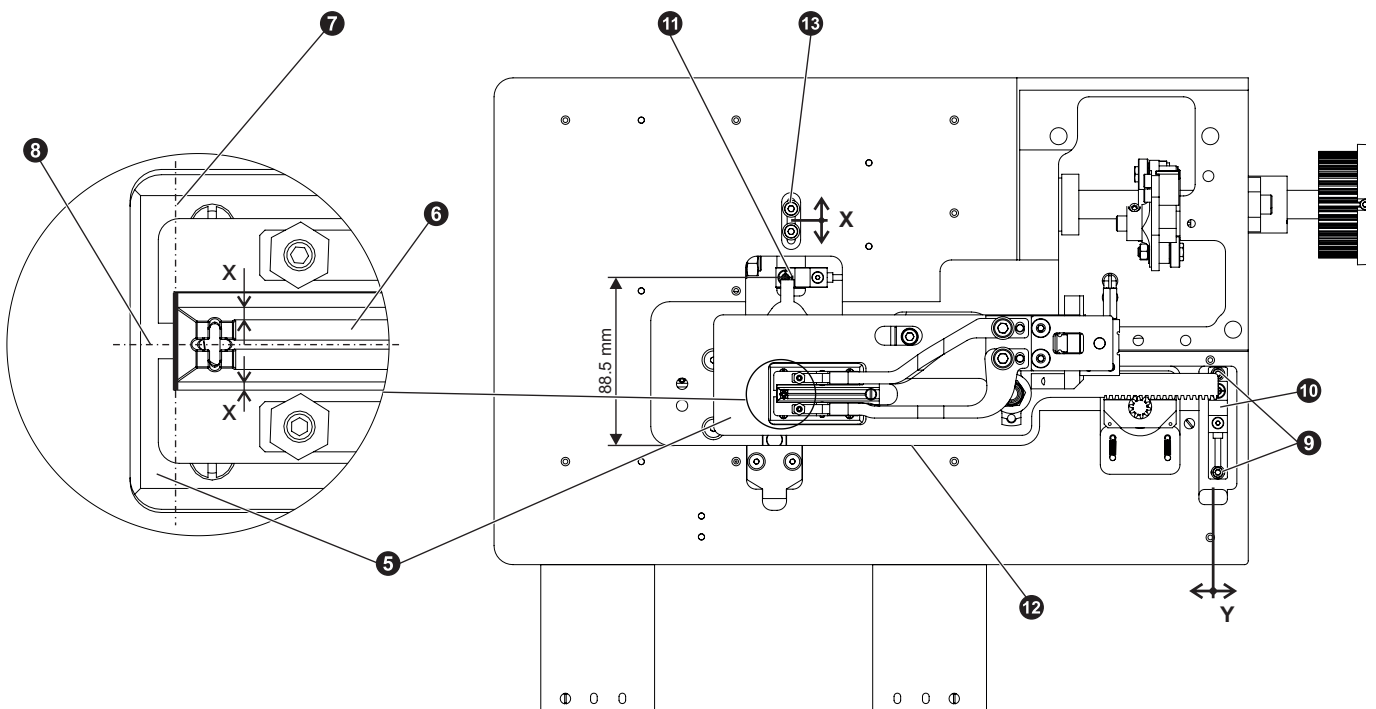


11.1. Bedplate Y-Axis

1. Remove the cover-plate.
2. Press Y-axis home button **1** – now check that the bedplate **5** front inner edge is in one line with the throat-plate **6** front edge as per the picture – line **7**.
3. If this is not the case, loosen the screws **9** and move the sensor **10** as necessary. Press home button **1** again and recheck.
4. You can use Y-axis home position software correction **3** for fine adjustment.

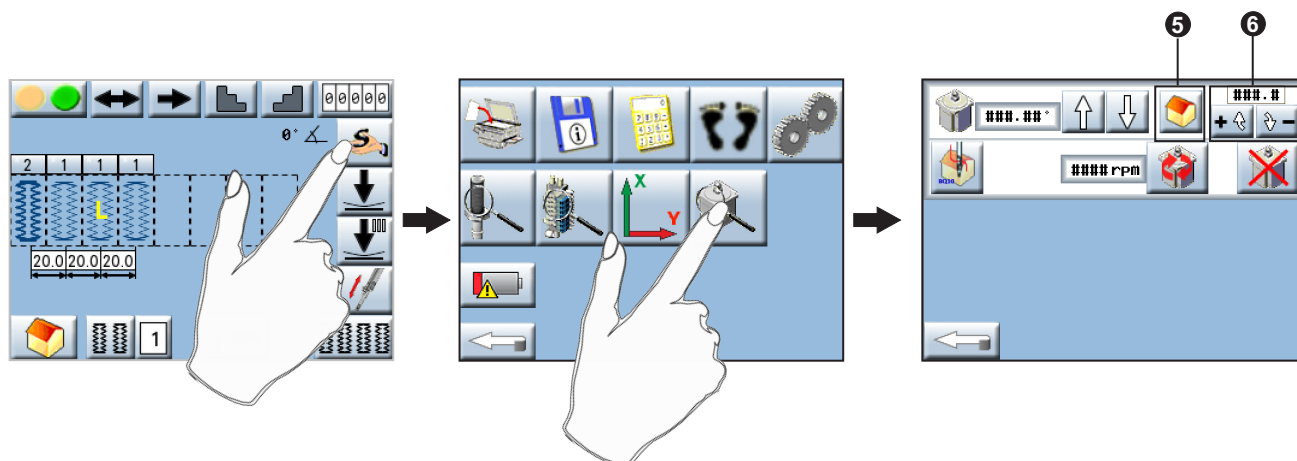
11.2. Bedplate X-Axis

1. Set initial distance of 89 mm between the sensor **11** centre and case edge **12** – refer to the picture below. To move the sensor, loosen the screws **13**.
2. Now press X-axis home button **2** and check the bedplate **5** slot centre is in one line with the throat-plate **6** centre as per the picture – line **8**. If this is not the case, readjust the sensor position and use home button **2** again.
3. You can use X-axis home position software correction **4** for fine adjustment.

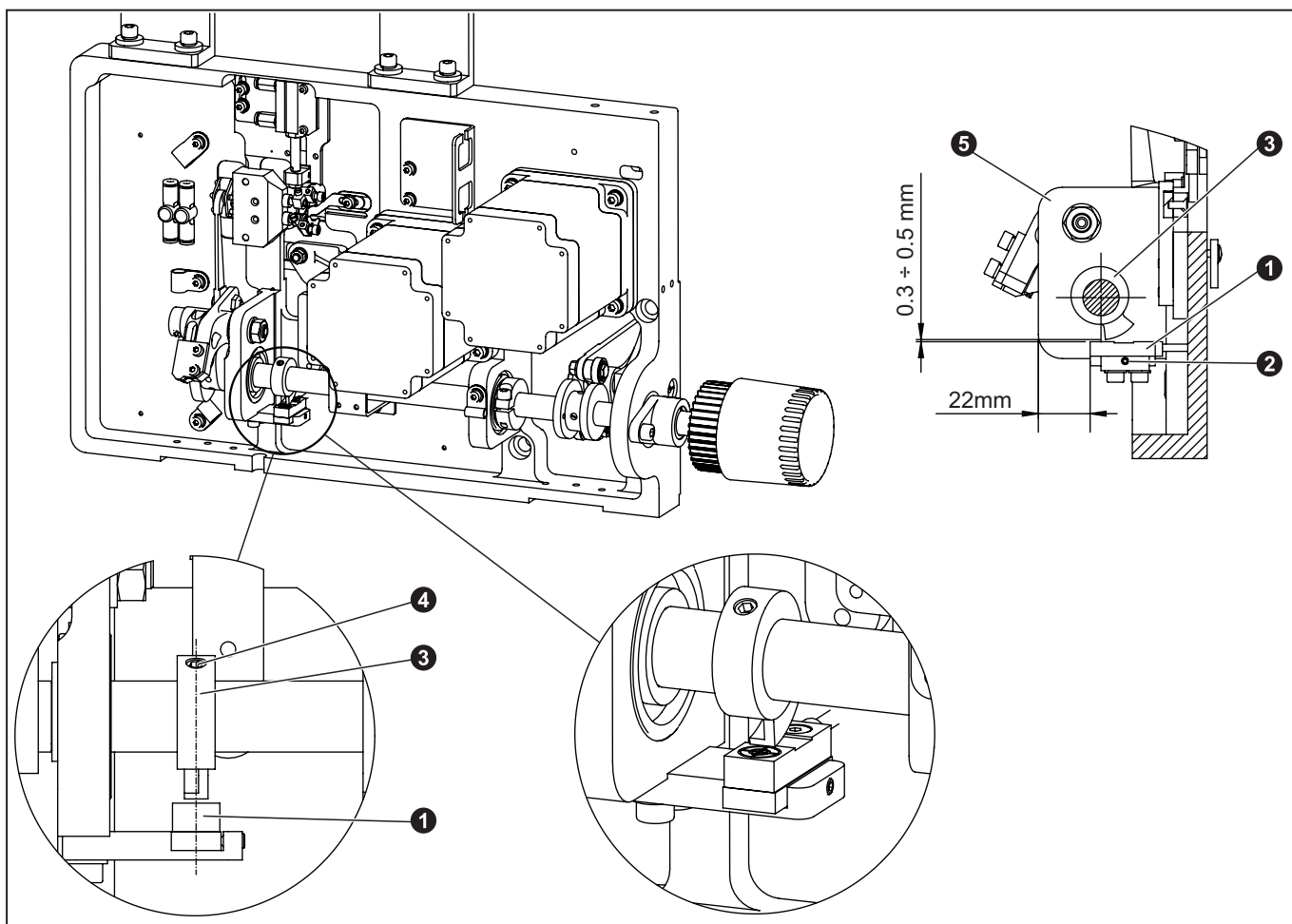


E - STANDARD MACHINE ADJUSTMENT

11.3. Sewing-Motor Home Position Adjustment



1. Check the distance of the sensor **1** from the machine case edge to be 22 mm – refer to the picture below. For adjustment loosen the screw **2**; maintain the distance 0.3 – 0.5 mm between the sensor **1** and ring **3**.
2. Press sewing-motor home button **5**. Check the needle-bar is now in the topmost position.
3. If this is not the case, loosen the screw **4** and adjust the ring **3** accordingly. Keep the ring **3** centre in one line with the sensor **1** center (as per the below picture).
4. You can use servo-motor home position software correction **6** for fine adjustment.



F - INDEXER

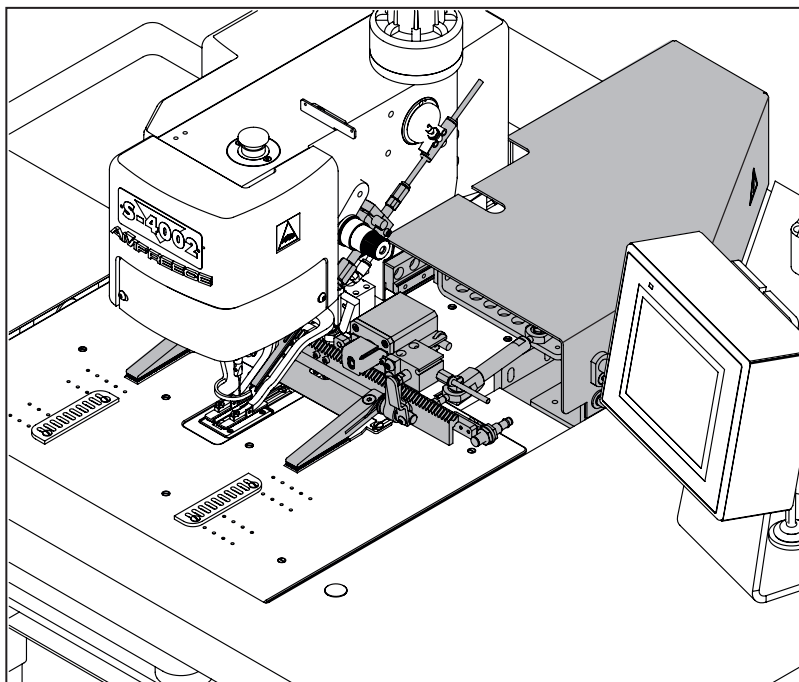
1. INTRODUCTION

Indexer is a device capable of automatic sewing of a batch of imitation buttonholes on jacket sleeve with defined number of buttonholes, their spacing and angle. Indexer is composed of the clamping mechanism, Y-axis drive, thread pick-up and covers. Accurate indexer positioning is ensured by stepper motors and position sensors.

Indexer range:

Number of buttonholes: 1 - 8

Angle: 0° - 30°, adjustable with 1° resolution



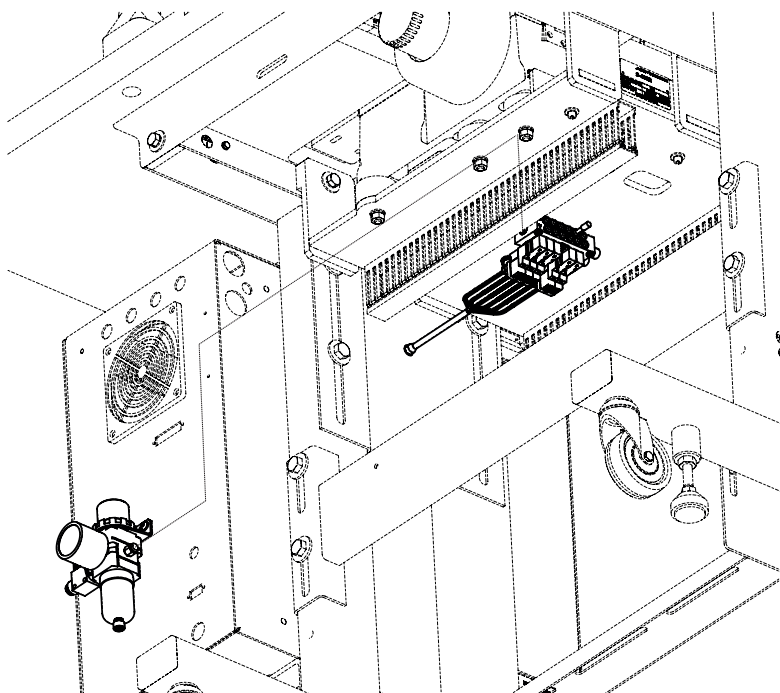
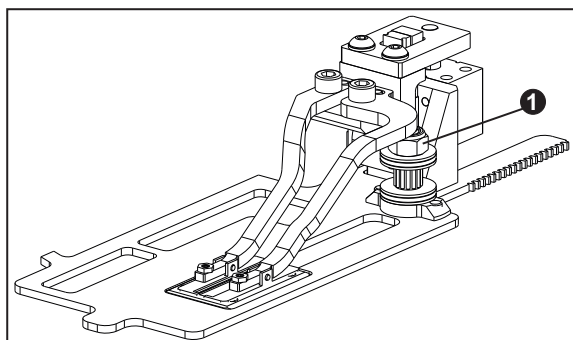
2. SEWING HEAD AND INDEXER CONNECTION

Indexer drive is mechanically connected with the sewing head which allows its easy tilting without the need to uninstall anything.

The indexer clamp-feet are mounted on the sewing head feeding mechanism and locked by the nut **1**.

Thread pick-up mechanism is mounted on the sewing head.

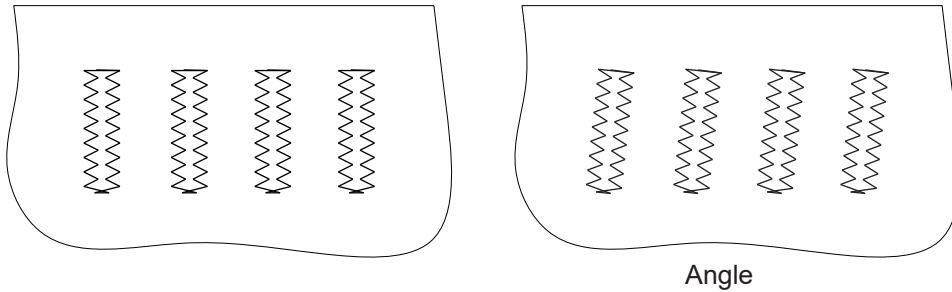
Pneumatic clamping and thread pick-up cylinders are connected to the valves YV10 and YV11, which are a part of the sewing-head valve block and located under the wooden table-top.



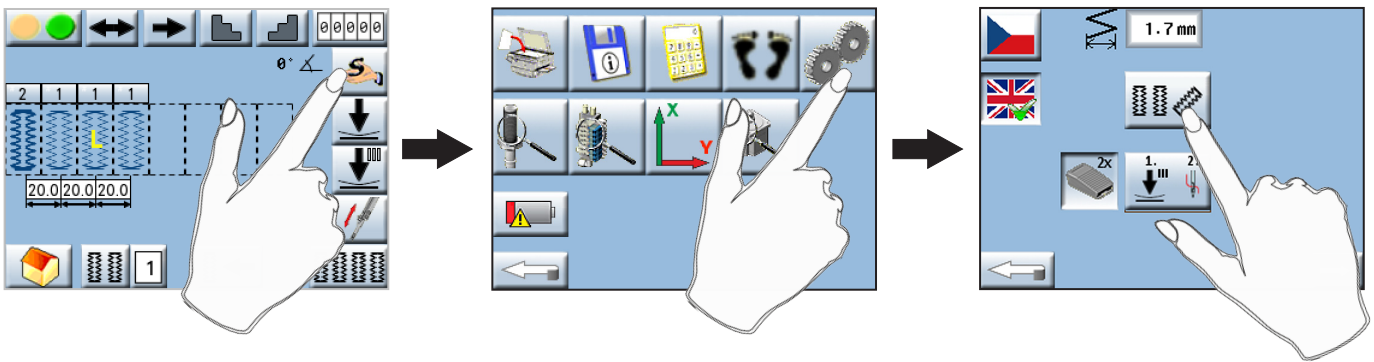
F - INDEXER

3. INDEXER FUNCTION

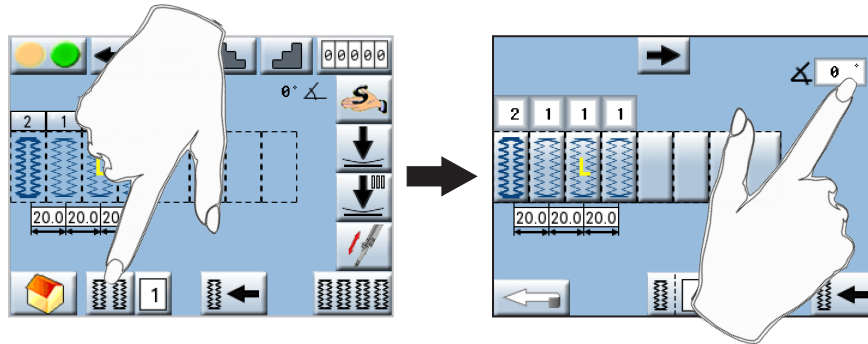
Indexer allows sewing of buttonholes with straight or angle clamp-feet movement.
All indexer parameters are adjustable from the touch-screen control panel.



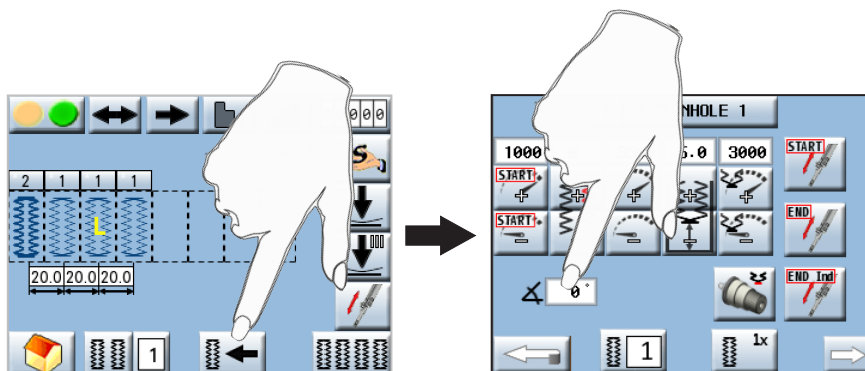
Angle can be set common for all buttonholes at once or individually for each buttonhole.



a)  **Common Angle for All Buttonholes**






b)  **Individual Angle for Each Buttonhole**

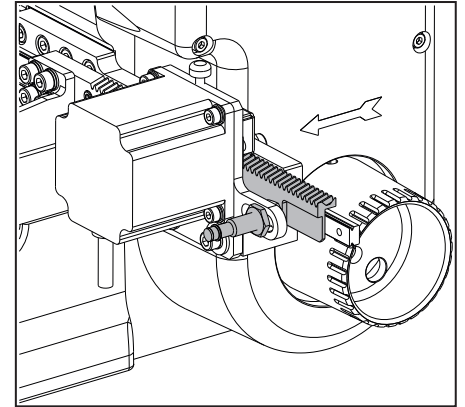


F - INDEXER



4. HOME POSITION ADJUSTMENT

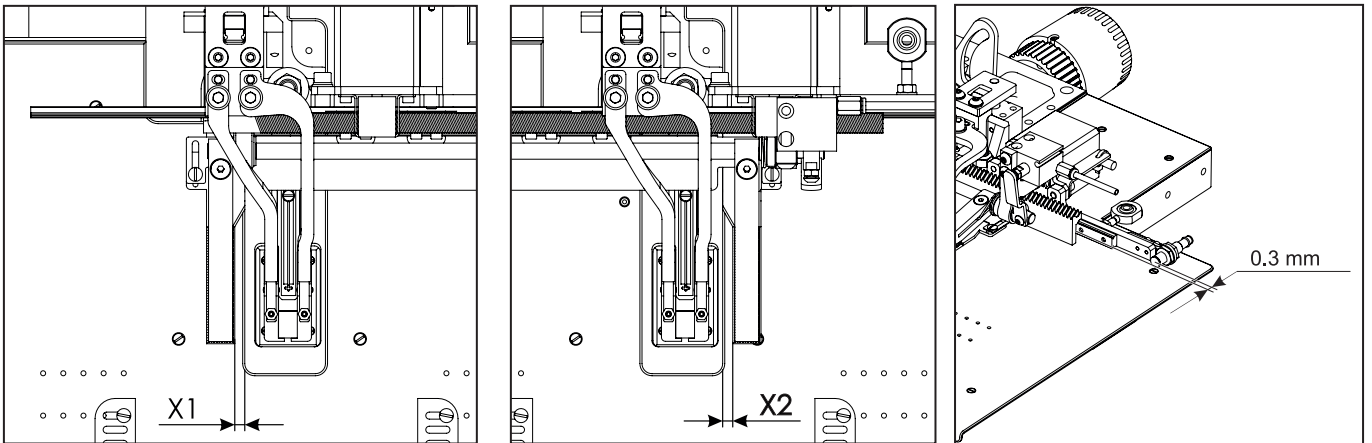
4.1. Indexer Clamp-feet Adjustment – Axis Y

1. Activate the indexer from the touch-screen panel by pressing the button .
2. By pressing the buttons  move the indexer clamp-feet to the rightmost position (left indexer foot is close to the sewing head clamp-feet), adjust the angle to 0°.
3. Check the indexer clamp-foot is parallel to the edge of the slot in the stainless cover-plate. If it is not the case, do the following:
 - remove the indexer cover
 - loose the sensor nut and move the sensor to the desired position, tighten the nut again; check the clearance between the sensor and the plate it detects to be approx. 0.3 mm
 - by pressing the button  check the correct adjustment
 - mount the indexer cover again



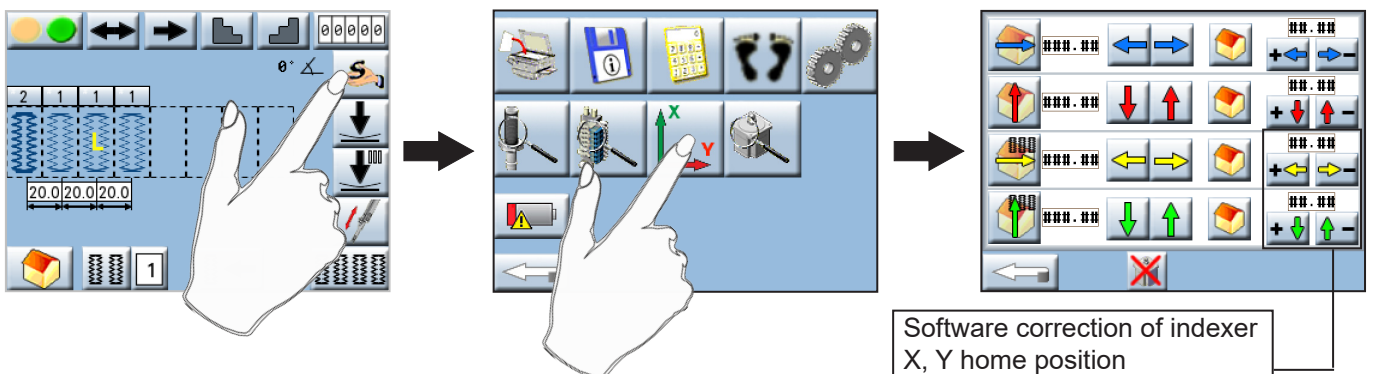
4.2. Indexer Clamp-feet Adjustment – Axis X

1. By pressing the buttons  check the distances X1, X2 between the indexer clamp-feet and edge of the slot in the stainless cover-plate are equal. If this is not the case, do the following:
 - loosen the sensor nut and move the sensor to the desired position, loosen the nut again; check the clearance between the sensor and the plate it detects to be approx. 0.3 mm
 - by pressing the button  check the correct adjustment



NOTICE:


Fine position changes can be adjusted from the machine touch-screen panel:



Software correction of indexer X, Y home position

F - INDEXER

5. THE INDEXER CLAMPING FEED PRESSURE ADJUSTMENT

1. First place the material under the left clamping feed.
2. Press the button  on display. Pull the clamped material and check if the material is held well.
3. Do the same with the right clamping feed.
4. If the pressure is not the same on both clamping feed, follow the below mentioned steps:

The left clamping feed holds the material more than the right one

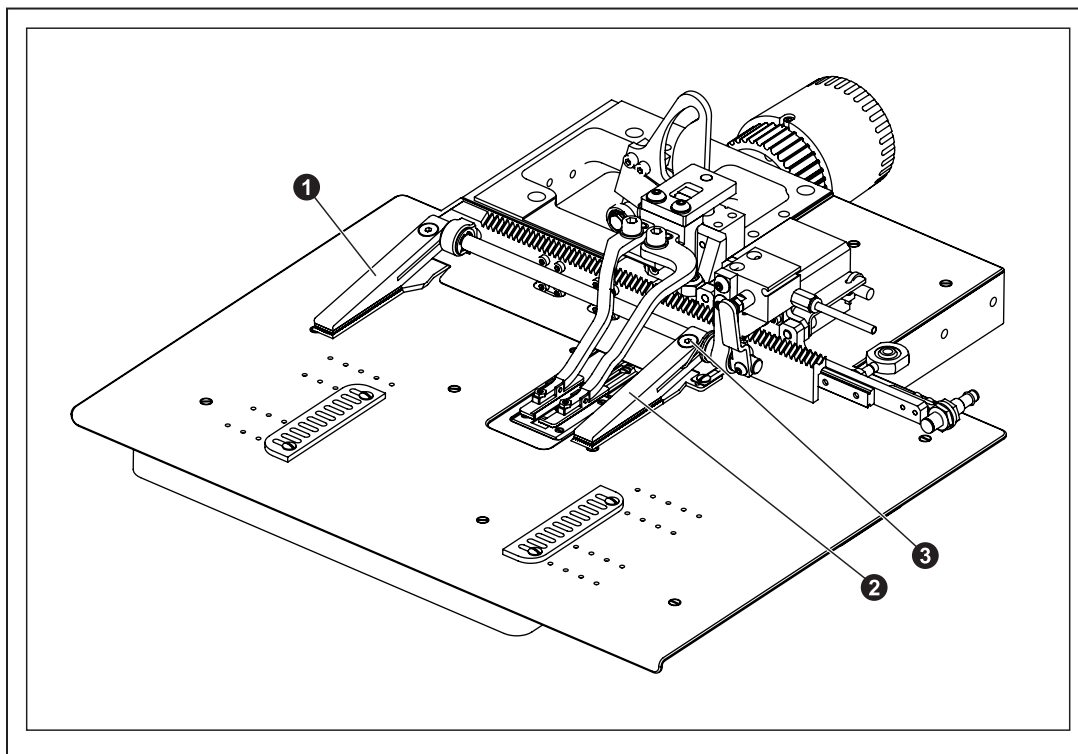
- a) Press the left clamping feed **1** by hand down to the clamp mat.
- b) Move the right clamping feed **2** closer to the clamp mat by loosening the screw **3** on the right clamping feed.
- c) Tighten the screw **3** and release the left clamping feed by hand **1**.

The left clamp foot holds the material less than the right one

- a) Press the left clamping feed by hand down to the clamp mat.
- b) Move the right clamping feed back from the clamp mat by loosening the screw on the right clamping feed.
- c) Tighten the screw and release the left clamping feed by hand.

Check the correction of the adjustment according to the points 1-4.

NOTE: Since the clamp cylinder is closer to the right clamping feed, it is necessary to set the stronger pressure on the left clamping feed.

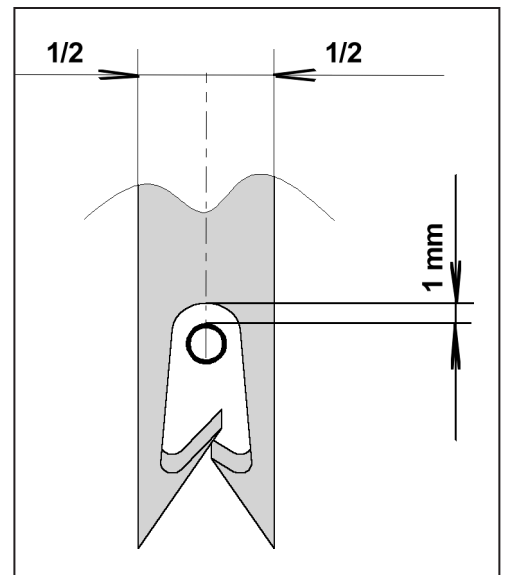
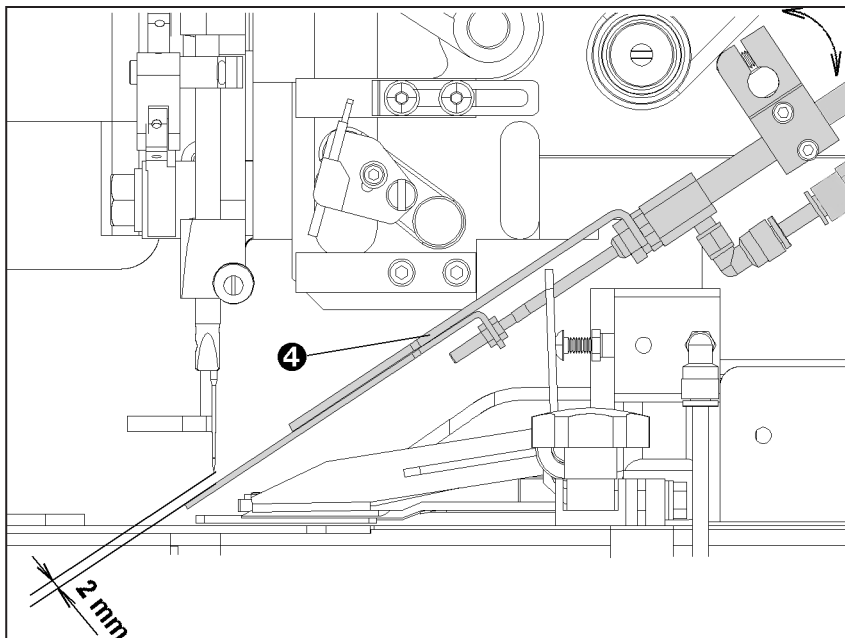
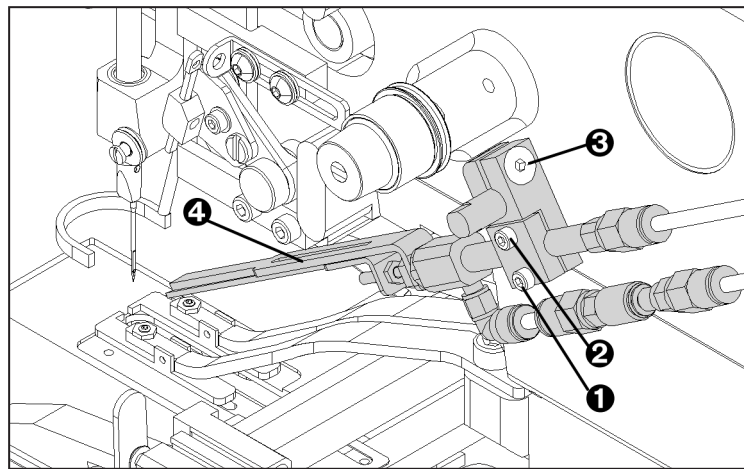


F - INDEXER

6. THREAD PICK-UP ADJUSTMENT

If the thread is not caught and held after trimming it is necessary to adjust the thread pick-up.

1. The machine must be in the home position.
2. Disconnect the air tubes of the thread puller.
3. Loosen the screws ①, ②, ③.
4. Manually extend the cylinder ④.
5. Adjust the thread puller position to obtain the distance 2 mm between the needle tip and the thread puller and at the same time to have the needle in the centre of the thread puller slot. Tighten the screw ③.
6. Move the thread puller assembly so that the distance between the needle and the end of the slot is approximately 1 mm. Tighten the screws ①, ②.
7. Connect the thread puller air tubes and check the adjustment.



G - MAINTENANCE

Warning:

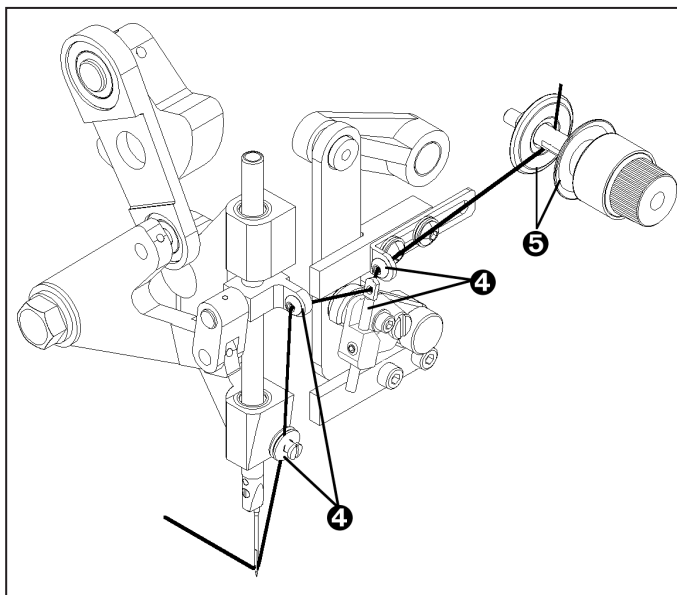
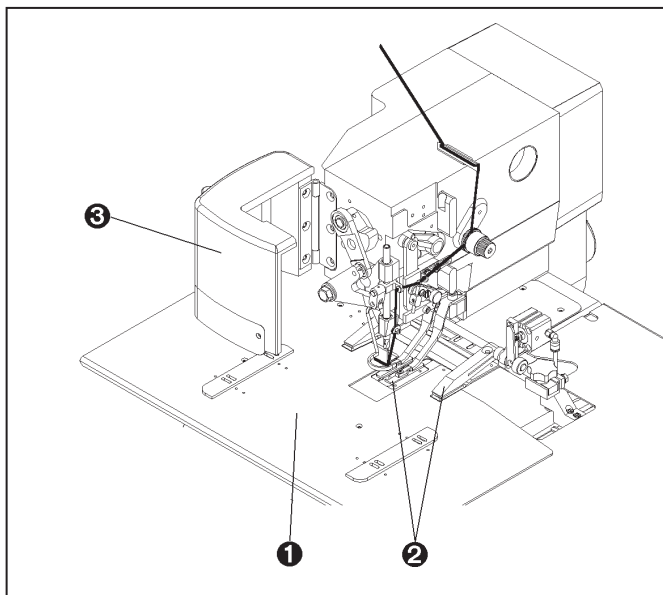
- Check for damage to electrical cables
- Check safety covers for damage and replace if needed immediately
- Keep your hands out of the sewing area
- Do not modify the machine in any way, which could eliminate safety parts
- Do not attach external lights or other devices to the machine's electrical system

Caution:

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

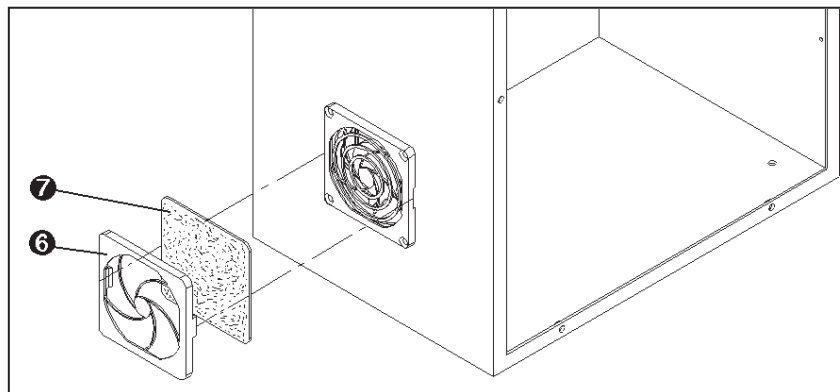
1. MACHINE CLEANING AND MAINTENANCE

1. Switch the power off and disconnect air supply.
2. For cleaning and oiling, remove the cover **1** and take out the clamp feet mechanism **2**. Clean the clamping area from the fabric and thread lint.
3. Open the needle bar cover **3** and clean the thread lint from the guides **4** and thread tension **5**.
4. Clean the thread lints and fabric from the sewing area - throat plate, loopers.
5. Lubricate the machine according to the section G 4.



G - MAINTENANCE

6. Remove the filter cover **6** with cleaning pad **7**. Remove the dust from the cleaning pad or in case of considerable dirt, wash it using a mild detergent.
Perform the same cleaning on the rear fan.
7. The filter and regulator maintenance
Bowl assembly - polycarbonate bowls may be damaged and possibly fail if exposed to synthetic oils, thinner solvents, trichlorethylene, kerosene and other aromatic hydrocarbons. Clean only with a neutral detergent.
Auto drain - Drain line length should be shorter than 5 m. Be sure not to have any upward turns in the drain line which would prevent drainage.



If the unit has no function it is necessary to:

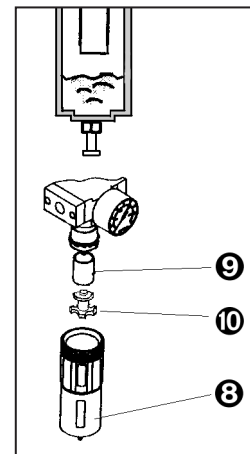
- a) check if the supplied pressure is higher than the set pressure of the regulator
- b) check if the valve assembly is clean
- c) check the membrane or spring because of damage
- d) check if the air flow direction is correct

Change of the filter element

Conditions

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

- a) unscrew the polycarbonate bowl **8**
- b) take the filter element out **9** with baffle **10**
- c) change old filter element with new one
- d) fit the baffle **10** into new filter element **9** and place them both back
- e) place the polycarbonate bowl back



8. Check the mechanisms especially in the sewing area by sight.
9. When the maintenance and checking are finished, insert the clamp feet mechanism to the machine.

G - MAINTENANCE

2. PERIODIC MAINTENANCE

once a day (8 hours of operation)




- cleaning of the sewing mechanism area and inner frame of the machine
- lubrication of mechanisms - see section G4.

once a week (40 hours of operation)

- visual check - external and internal mechanisms
- fill oil into reservoir with oil level indicator, or sooner if required

once a month (160 hours of operation)

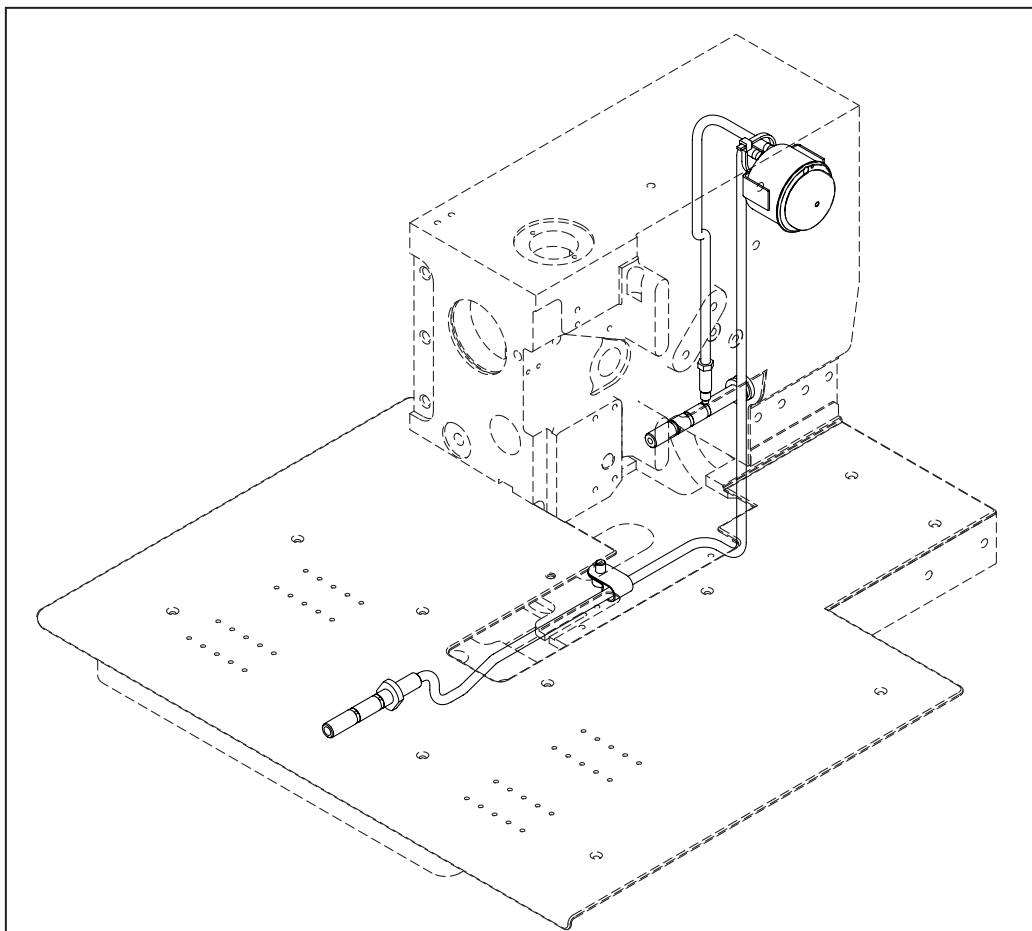
- check of the clearance in sewing mechanism drive
- check of the screw connections tightening (obtain values below)
- check of condensate in regulator
- check of dirty of cleaning pads in control box

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

3. LUBRICATION DIAGRAM

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

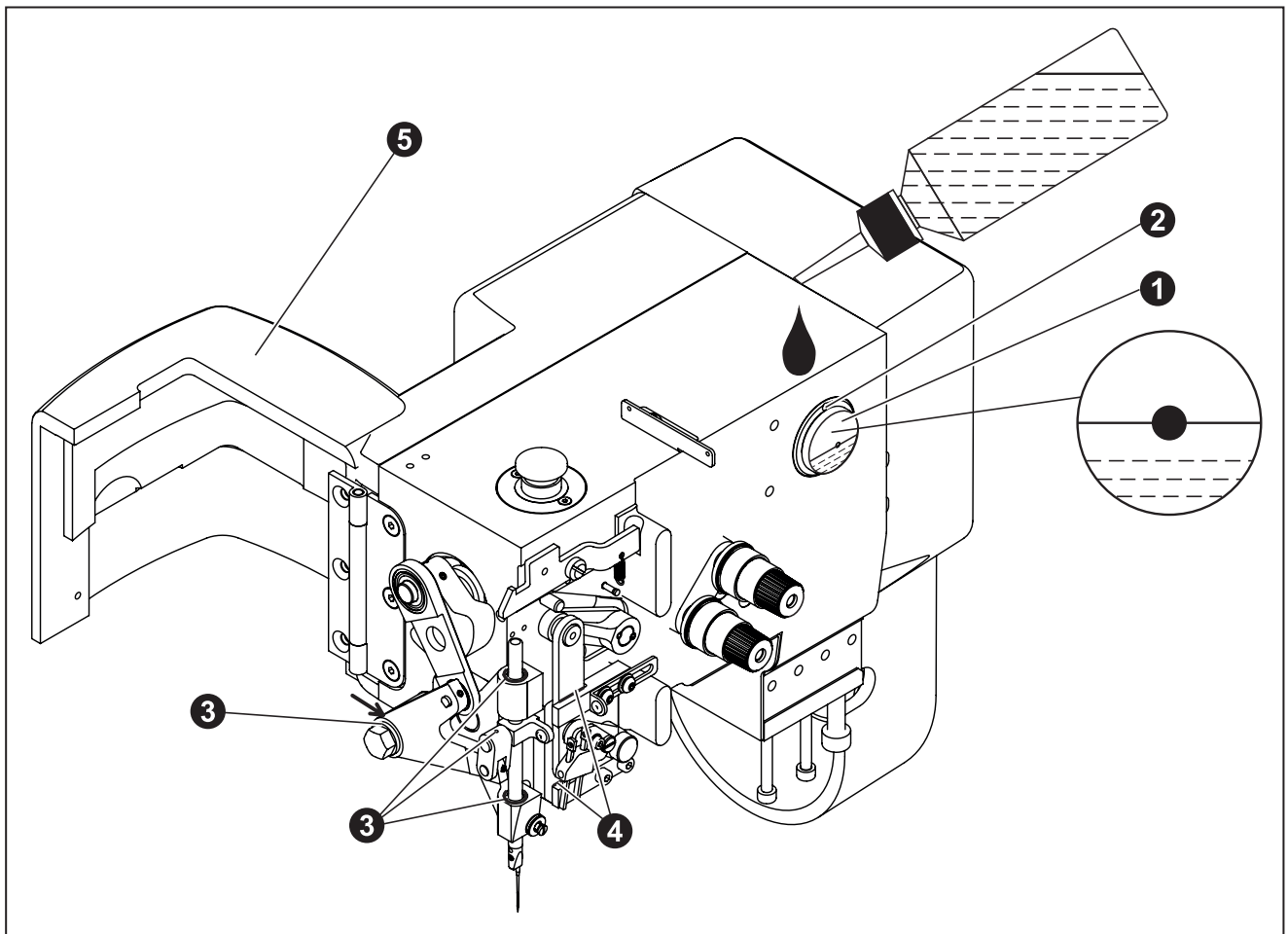
Circuit I - with the oil supply in oil indicator for lubrication of the bite and looper levers. In case of replacement of any part of distribution, it is possible to order the tube kits and wicks. To connect the tubes - see picture.



G - MAINTENANCE

4. MACHINE LUBRICATION

1. It is necessary to lubricate the places shown below before the machine is switched on for the first time or after a long idle period. Use oil ESSO TERESSO 32 or similar quality.
2. The amount of oil in the reservoir **1** is indicated by the red mark. Too much oil may cause its overflowing from the base area.
3. The reservoir is fitted through the hole **2** in front of the gage.
4. The points for lubrication of the needle bar mechanism **3** and draw-off mechanism **4** are shown in the illustration below (after opening the needle bar cover **5**). Lubricate the main cam worm gear through the hole **6**. Lubricate all of these points every 8 hours.



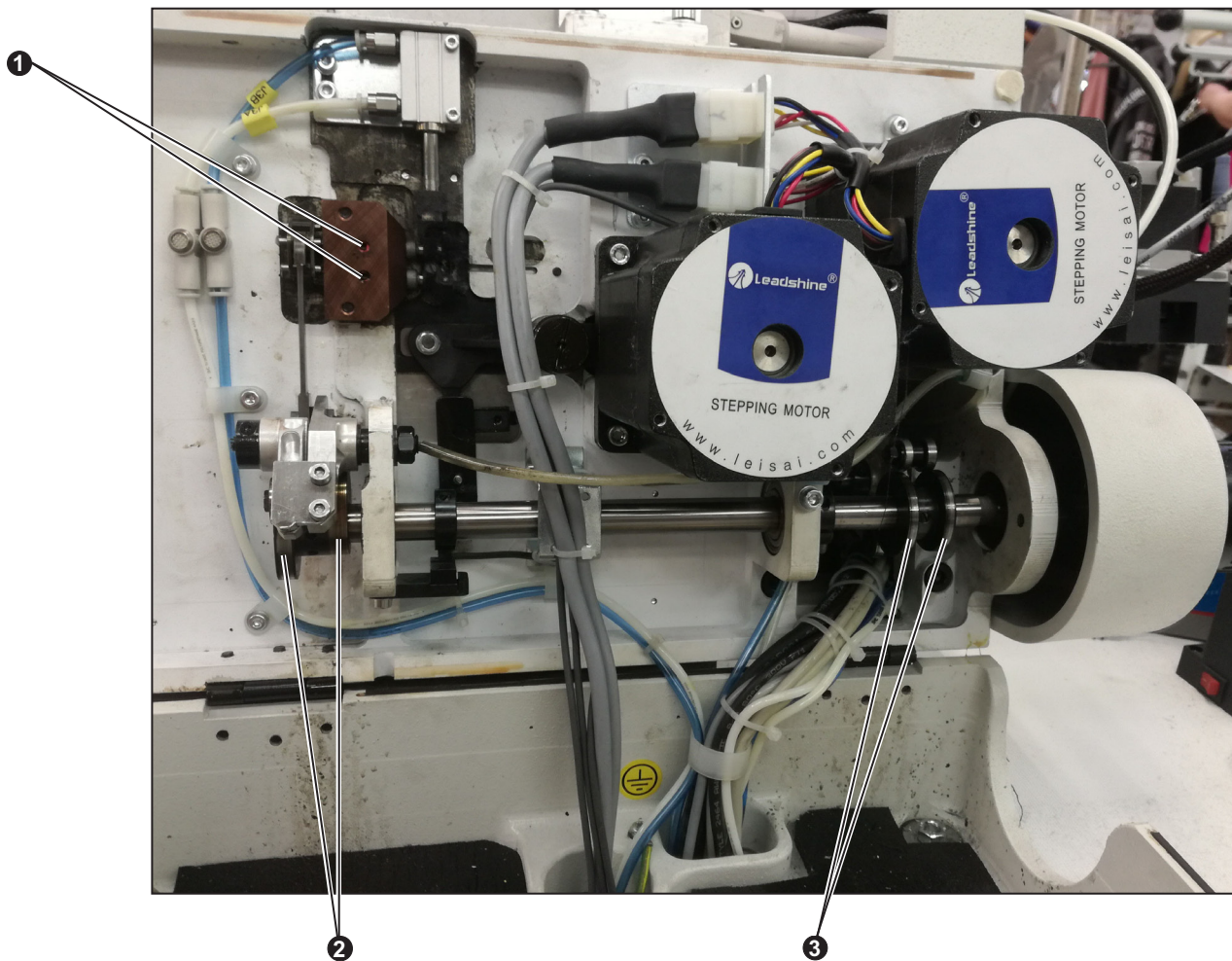
G - MAINTENANCE

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

- ① looper shafts
- ② looper cam surfaces
- ③ bite cam surfaces

Tilt the sewing head back into the sewing position.

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



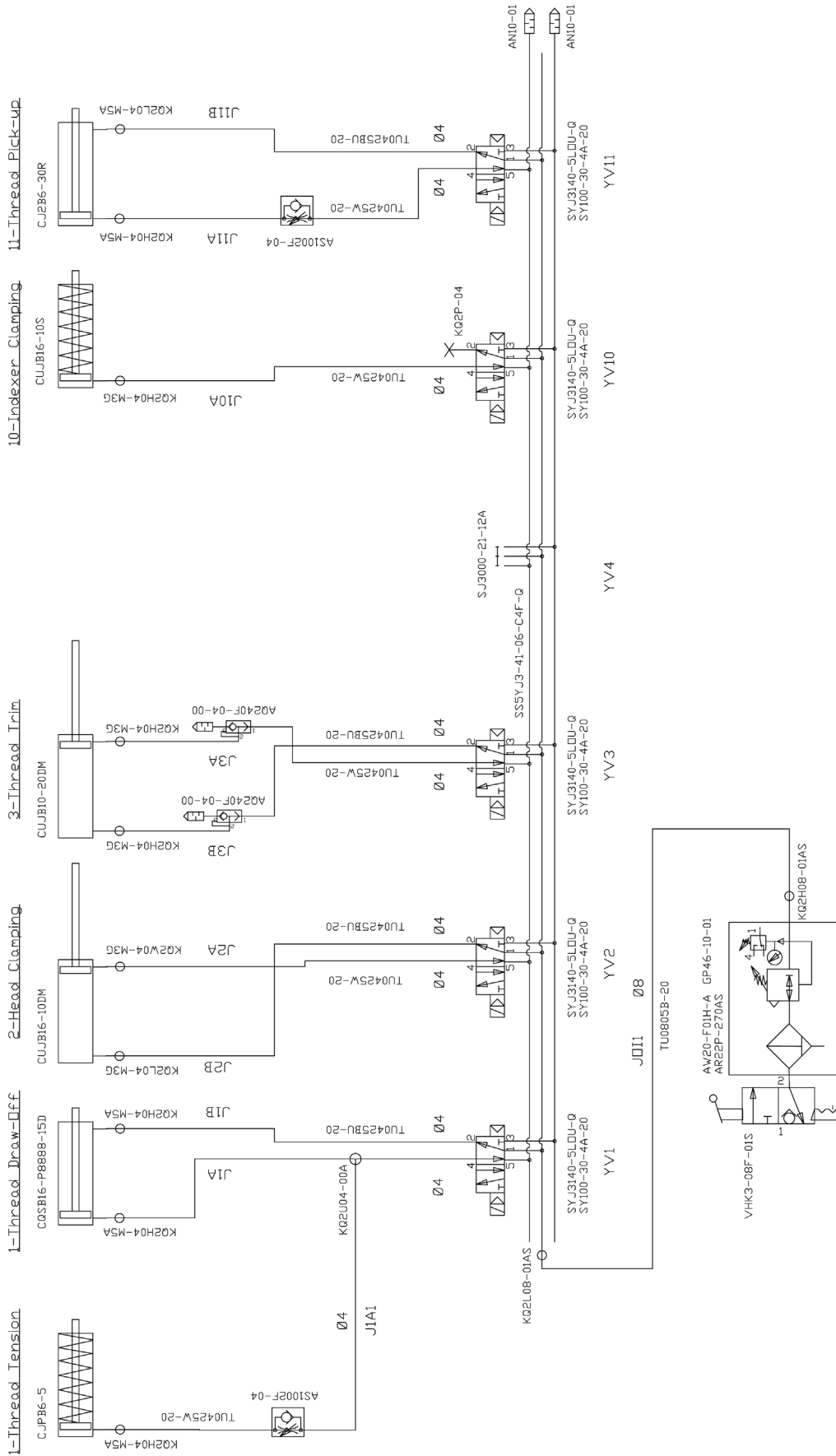
G - MAINTENANCE

5. MACHINE DISPOSAL

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

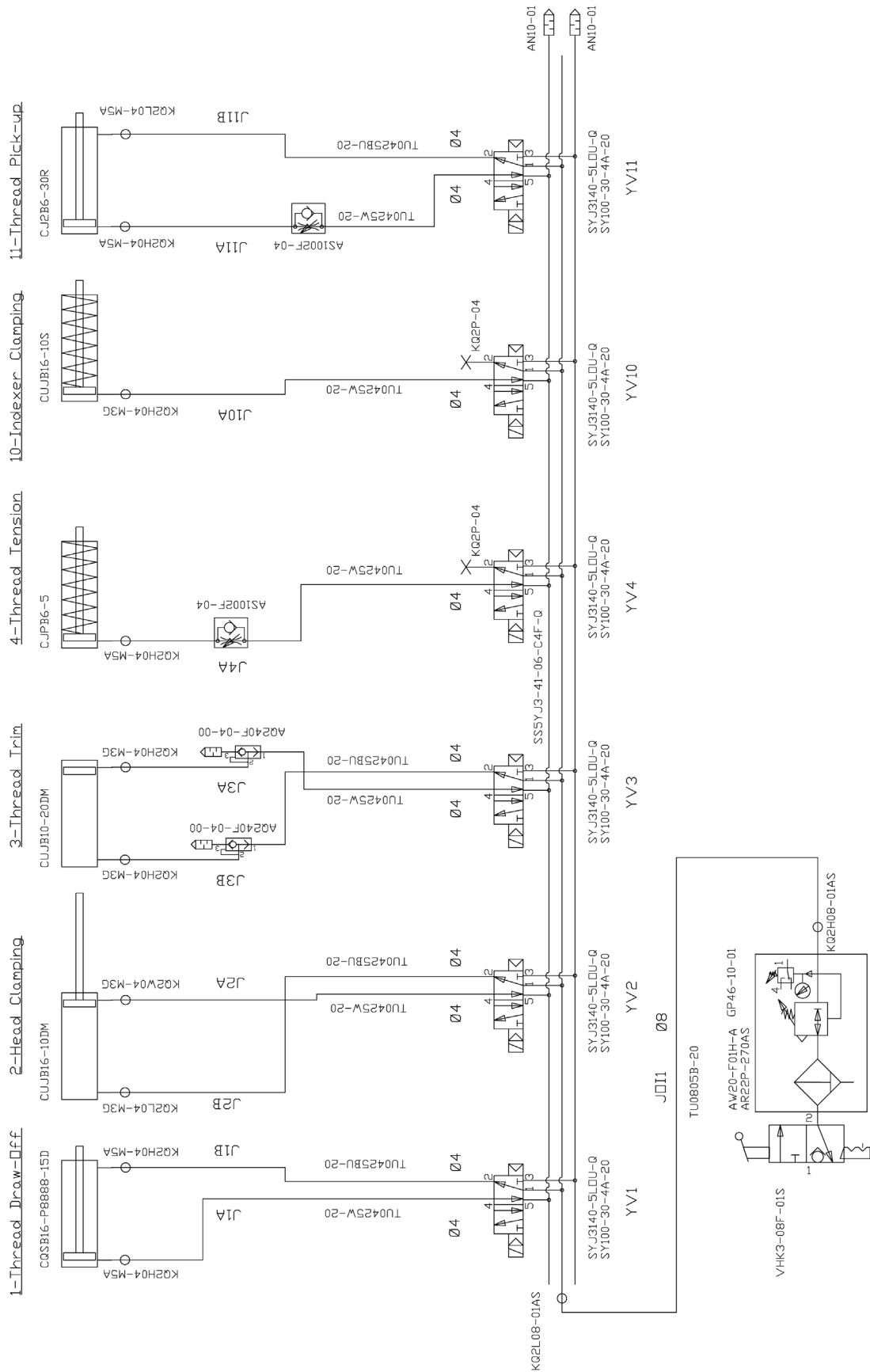
H - PNEUMATIC DIAGRAM

S-4002 ISBH+I 30° SM

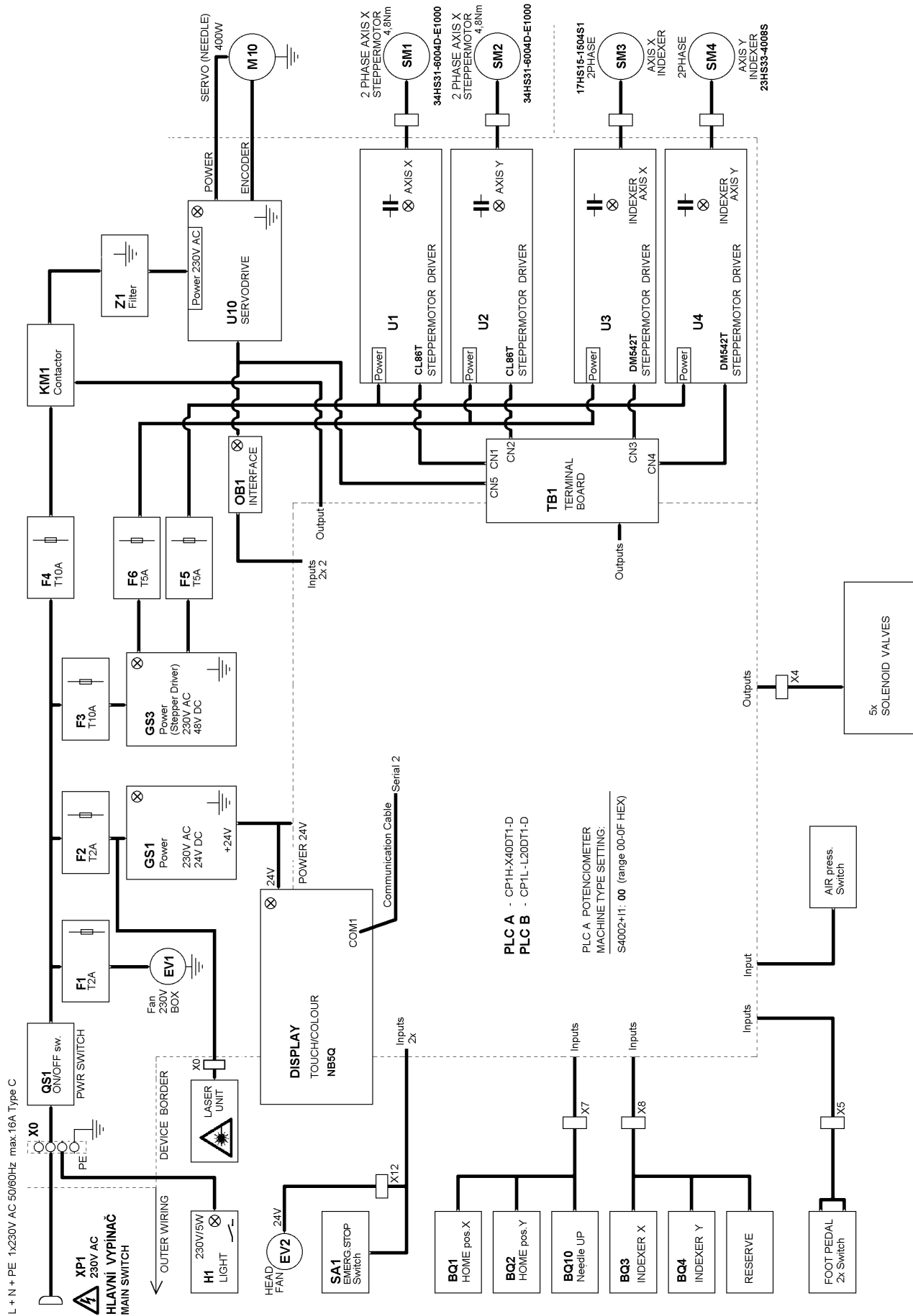


H - PNEUMATIC DIAGRAM

S-4002 ISBH+I 30° SM SILK



I - ELECTRICAL DIAGRAM



TROUBLESHOOTING

1. MECHANICAL FAULTS.....	2-2
2. INDEXER FAULTS.....	2-4
3. ELECTRICAL FAULTS.....	2-5
4. ERROR MESSAGES OF THE CONTROL PANEL.....	2-7
5. ERROR MESSAGES OF THE SERVO.....	2-8
6. MOTOR INTERFACE.....	2-10

TROUBLESHOOTING

1. MECHANICAL FAULTS

FAULT	POSSIBLE CAUSE	PROBABLE SOLUTION
Thread breakage	Needle, looper, throat plate damaged	Change damaged parts
	Incorrect needle and sewing mechanism adjustment	Check the adjustment of the mechanisms
	Thread tension is too tight	Adjust correct tension
	Incorrect threading	See section C3 for checking.
	Thread guides polished incorrectly	Polish
	Poor thread quality	Replace thread
	Thread is too heavy for selected needle and throat plate	Use recommended thread sizes - see section A4
Machine fails to sew	Needle, looper, throat plate damaged	Change damaged parts
	Incorrectly adjusted needle bar height	See section E3 for checking
	Incorrectly adjusted clearance between needle and throat plate	See section E4 for checking
	Incorrect loopers timing	See section E5 for checking
Stitch skip at the beginning of sewing	Needle, looper, throat plate damaged	Change damaged parts
	Needle thread end is too short	See section E6.2
	Incorrectly adjusted needle bar height	See section E3
	Incorrectly adjusted clearance between needle and throat plate	See section E4
	Incorrect loopers timing	See section E5
	Incorrectly adjusted clamp feet pressure	See section E9
Stitch skip during sewing	Needle, looper, throat plate damaged	Change damaged parts
	Incorrectly adjusted needle bar height	See section E3
	Incorrectly adjusted clearance between needle and throat plate	See section E4
	Incorrect loopers timing	See section E5
	Incorrect thread tension adjustment	Adjust the tension correctly see section E7
	Incorrect threading	See section C3
	Thread loops are too small	See section E6.3
	Incorrectly adjusted clamp feet pressure	See section E9
	The clamp feet are adjusted too far from the sewing	See section E9

TROUBLESHOOTING

FAULT	POSSIBLE CAUSE	PROBABLE SOLUTION
Thread not trimmed at the end of the cycle	Trimming knife damaged	Replace knife
	Wrong adjustment of pulling hook	See section E8
	Throttle valve regulating tension disc is too loose.	See section E7
	Incorrect loopers timing	See section E5
Sewing motor turns, machine does not sew	Belt broken or loose	See section E10 for changing
Zero pressure on regulator	Shut off valve closed	Open shut off valve
Low air pressure	Filter element dirty	Change the filter element
	Air fitting or tubing obstruction	Check supply lines




TROUBLESHOOTING

2. INDEXER FAULTS

FAULT	POSSIBLE CAUSE	PROBABLE SOLUTION
Thread pick up does not catch the thread (breaks needle)	Thread puller position adjusted incorrectly	See section F6 for adjustment
	Thread Pick-up delay set incorrectly	Change Thread Pick-up delay parameter in indexer menu
	Incorrect setting of Thread Pick-up timing	Change Thread Pick-up time parameter in indexer menu
	Thread Pick-up parameter is not activated	Activate the Thread Pick up parameter in indexer menu
	Valve 11 does not switch on	Check or replace
Sewn buttholes vary in spacing	Indexer clamp feet do not have the same pressure	See section F5
The machine sews in one spot, no movement of material	Indexer clamp feet are not closed	Valve 10 does not switch on, check or replace
	Low air pressure	Check main supply and manual shut-off valve

TROUBLESHOOTING

3. ELECTRICAL FAULTS

FAULT	POSSIBLE CAUSE	PROBABLE SOLUTION
 When switch in position I, neither the work light, display or the cooling fan operate	No power supply	Check main power supply or voltage in the socket
	Fuse F1 failure	Replace fuse PN 12.0008.4.665 T2A
	Power switch QS1 damaged	Replace the switch 12.0010.4.200
	Power GS1 failure	Replace the power 12.0010.4.168
 When switch in position I, display does not operate	Cable from the display disconnected	Check the display connection
	Display or its control damaged	Replace display PN 06.8024.0.603
When sewing operation started, motor does not operate. Contactor KM1 switched on.	Fuse F2 damaged	Replace fuse 12.0008.4.664 T10A
	Contactor KM1 damaged	Replace contactor 12.0008.4.833
	Filter Z1 damaged	Replace filter 12.0010.4.251
	Servodriver U10 error	Call AMF Reece service or replace servodriver U10 06.8024.0.605
	Error in sewing motor circuit	Switch the machine off for 1 minute, or restart it, alternatively call AMF Reece service
When sewing operation started, motor fails to operate. Contactor KM1 switched off.	Make sure the machine is ready for operation	Press key in the display  (see section D1, point 6)
	Contactor KM1 damaged	Replace contactor 12.0008.4.833
	Check the Emergency Stop button	Replace button 12.0010.4.191
	Control unit PLC error	Replace the control unit PLC 06.8024.0.601
The needle does not stop in the upper position	Position of the sensor BQ10 incorrectly adjusted	Adjust according to section E17
	Sensor BQ10 failure	Replace the sensor 12.0008.4.181
	Check the servo amplifier and servo	To set the servo amplifier - call AMF Reece service, alternatively replace motor (page 2-9) and servo amplifier (page 2-9)
When sewing operation started, air valves do no operate. The air pressure correct.	Fork is not fitted properly into connector X4	Check the connector X4 connection
	Control unit PLC error	Transformer 12.0010.4.007.
No light on CB1 board	Fuse F3 burnt.	Replace fuse 12.0008.4.664. T10A
	Power GS2 failure.	Replace power supply 12.0010.4.255.
	Fuse F5/F6 burnt.	Replace fuse 12.0008.4.664. T10A
No LED shines on driver U1, U3	Fuse F5 burnt	Replace fuse F5 T10A 12.0008.4.664
No LED shines on driver U2, U4	Fuse F6 burnt	Replace fuse F6 T10A 12.0008.4.664
Foot pedal not work	Test pedal input - refer to chapter D5.6	Check the connector X5
		Change pedal 06.8800.0.001

TROUBLESHOOTING

FAULT	POSSIBLE CAUSE	PROBABLE SOLUTION
Axis X motor not establishes home position	Axis X motor failure	Test motor Axis X - refer to chapter D5.8
	Sensor BQ1 failure	Test sensor BQ1
Axis Y motor not establishes home position	Axis Y motor failure	Test motor Axis Y - refer to chapter D5.8
	Sensor BQ2 failure	Test sensor BQ2
Indexer Axis X motor not establishes home position	Indexer Axis X motor failure	Test motor Indexer Axis X - refer to chapter D5.8
	Sensor BQ3 failure	Test sensor BQ3
Indexer Axis Y motor not establishes home position	Indexer Axis Y motor failure	Test motor Indexer Axis Y - refer to chapter D5.8
	Sensor BQ4 failure	Test sensor BQ4

TROUBLESHOOTING

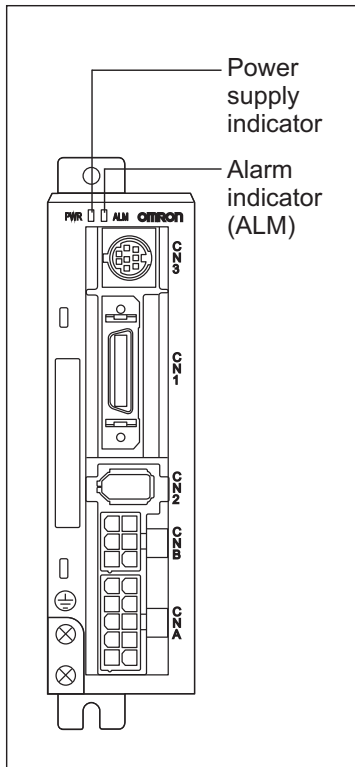
4. ERROR MESSAGES OF THE CONTROL PANEL

Error Nr.	DESCRIPTION
Error 01	Machine is not in home position. Press home button to bring the machine to the home position.
Error 04	Low air pressure. Air pressure is below 4.0 bar. Check the air supply.
Error 12	X axis timeout positioning error. Check X axis home sensor, stepper motor, driver and X axis mechanism.
Error 13	Y axis timeout positioning error. Check Y axis home sensor, stepper motor, driver and Y axis mechanism.
Error 14	Indexer X axis timeout positioning error. Check Indexer X axis home sensor, stepper motor, driver and Indexer X axis mechanism.
Error 15	Indexer Y axis timeout positioning error. Check Indexer Y axis home sensor, stepper motor, driver and Indexer Y axis mechanism.
Error 16	Servo timeout positioning error. Check servo-driver, sensor and sewing mechanisms.
Error 20	Servomotor error. Check error message on servo-driver display.
Error 25	Servo-driver recovery time. Wait please
Error 30	Communication Error between PLCA and PLCB. Check communication cable between PLCA and PLCB.
Error 31	Software in PLC and HMI are not compatible.
Error 40	Service mode.
Error 60	Total indexer length setting error.
Error 61	Buttonhole length / depth / angle setting error.
Error 99	Emergency stop button pressed. Release the Emergency stop button.

TROUBLESHOOTING

5. ERROR MESSAGES OF THE SERVO

The following messages can be seen on the servo, which is placed inside the control box. In order to eliminate these messages, switch off the machine for 1 minute. Then switch the machine on again. The error message should not appear on the display. If the message appears - call AMF Reece service.



PWR - Power supply indication:

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

ALM - Default indication (Alarm indicator):
in case default appears, the indicator is switched on.

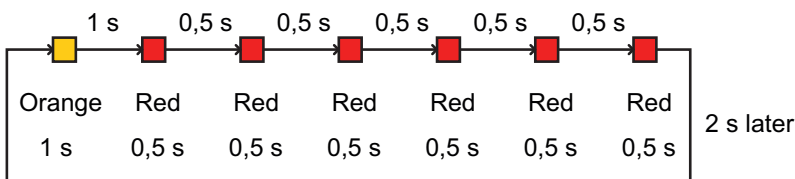
Alarm indicator on the Servo Drive

The alarm LED indicator on the front of the Servo Drive lights up if an error is detected. The indicator shows the alarm code by the number of orange and red flashes.

Example:

When an overload alarm (alarm code 16) has occurred and the Unit has stopped the indicator will flash in orange and 6 times in red.

Orange 10s digit, Red: 1s digit



TROUBLESHOOTING

Alarm code	Error detection function	Detection details and cause of error	Alarm reset possible
11	Power supply undervoltage	The DC voltage of the main circuit fell below the specified value while the RUN Command Input was ON	Yes
12	Overvoltage	The DC voltage of the main circuit is abnormally high	Yes
14	Overcurrent	Overcurrent flowed to the IGBT. Servomotor power line ground fault or short circuit	No
15	Built-in resistor overheat	The resistor in the Servo Drive is abnormally overheating	No
16	Overload	Operation was performed with torque significantly exceeding the rated level for several seconds to several tens of seconds.	Yes
18	Regeneration overload	The regeneration energy exceeded the processing capacity of the regeneration resistor.	No
21	Encoder disconnection detected	The encoder wiring is disconnected.	No
23	Encoder data error	Data from the encoder is abnormal.	No
24	Deviation counter overflow	The number of accumulated pulses in the deviation counter exceeded the setting in the Deviation Counter Overflow Level (Pn63)	Yes
26	Overspeed	The servomotor exceeded the maximum number of rotations. If the torque function was used, the Servomotor's rotation speed exceeded the settings in the Overspeed Detection Level Setting (Pn70 and Pn73)	Yes
27	Electronic gear setting error	The section in Electronic Gear Ratio Numerator 1 (Pn46) or Electronic Gear Ratio Numerator 2 (Pn47) is appropriate.	Yes
29	Deviation counter overflow	The number of accumulated pulses for the deviation counter exceeded 134,217,728.	Yes
34	Overrun limit error	The servomotor exceeded the allowable operating range set in the Overrun Limit Setting (Pn26).	Yes
36	Parameter error	Data in the parameter saving area was corrupted when data was read from the FEPRM at power ON.	No
37	Parameter corruption	The checksum didn't match when data was read from the FEPRM at power ON.	No
38	Drive prohibit input error	The forward drive prohibit and reverse drive prohibit inputs are both turned OFF.	Yes
48	Encoder phase Z error	A phase-Z pulse was not detected regularly	No
49	Encoder CS signal error	A logic error of the CS signal was detected	No
95	Encoder CS signal error	The combination of the Servomotor and Servo Drive is not appropriate. The encoder was not connected when the power supply was turned ON.	No
96	LSI setting error	Excessive noise caused the LSI setting not to be completed properly.	No
Others	Other errors	The servo Drive's self-diagnosis function detected an error in the Servo Drive.	No

TROUBLESHOOTING

6. MOTOR INTERFACE

The following interface is in between the PLC and individual motor drivers:

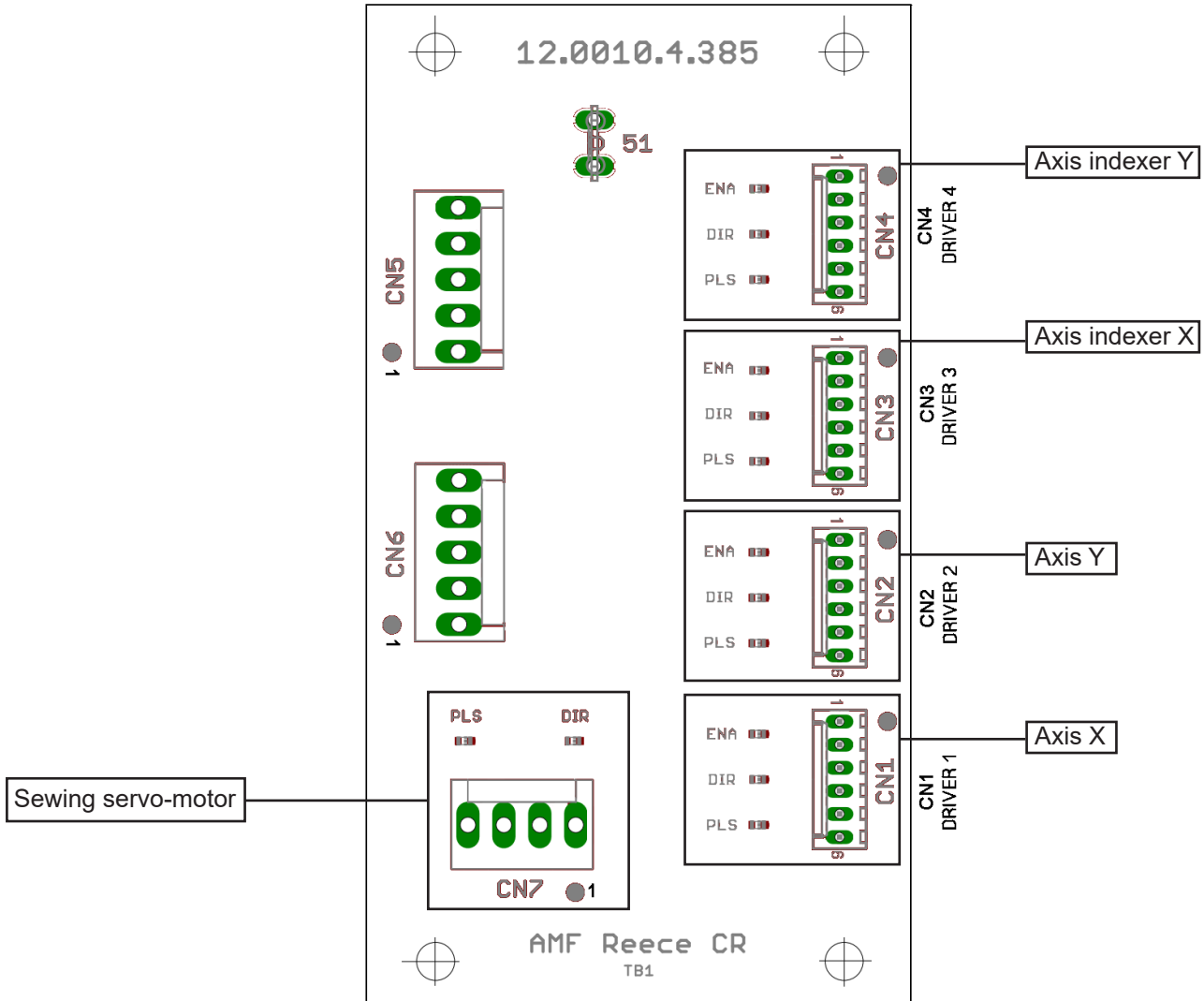
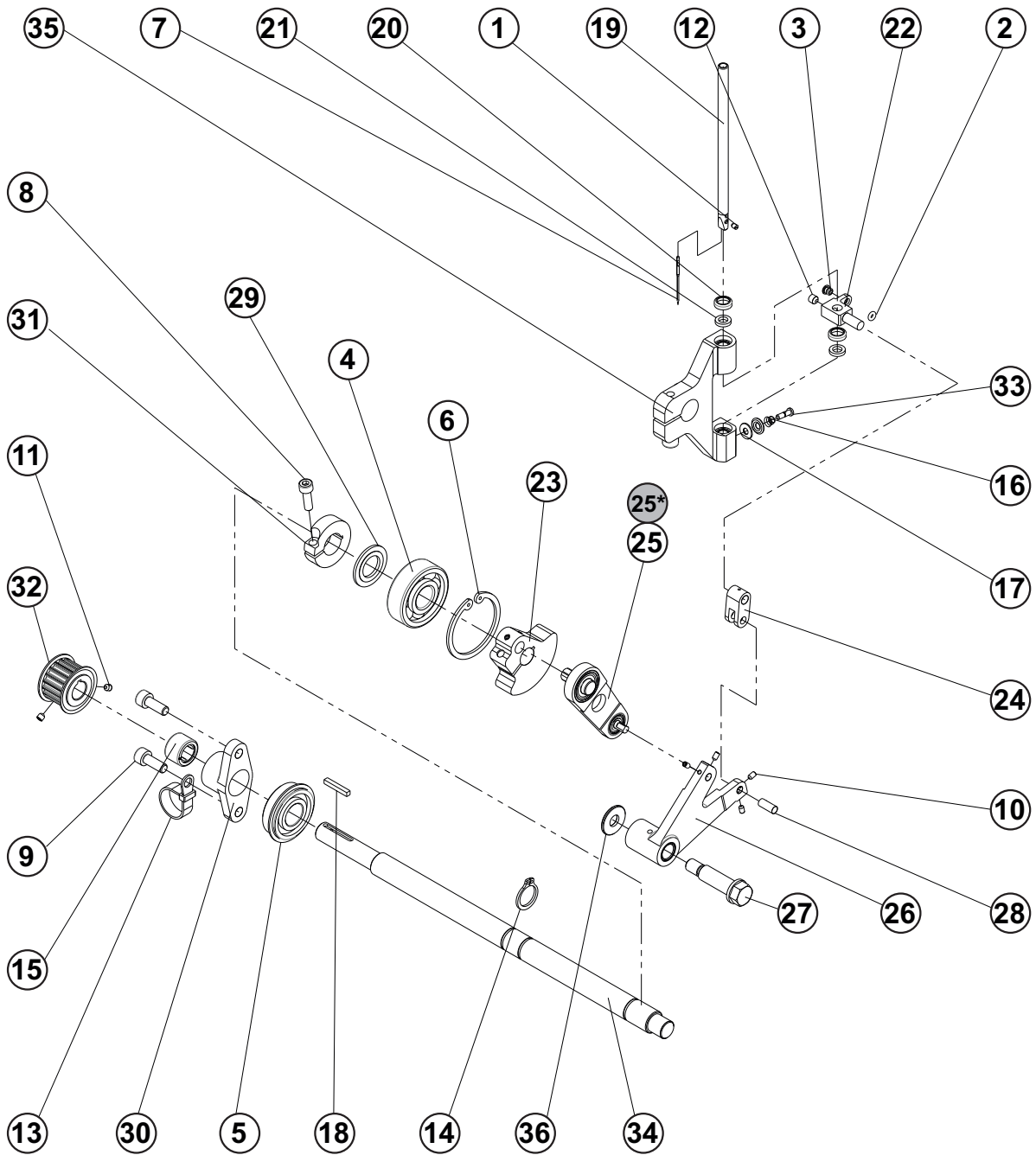


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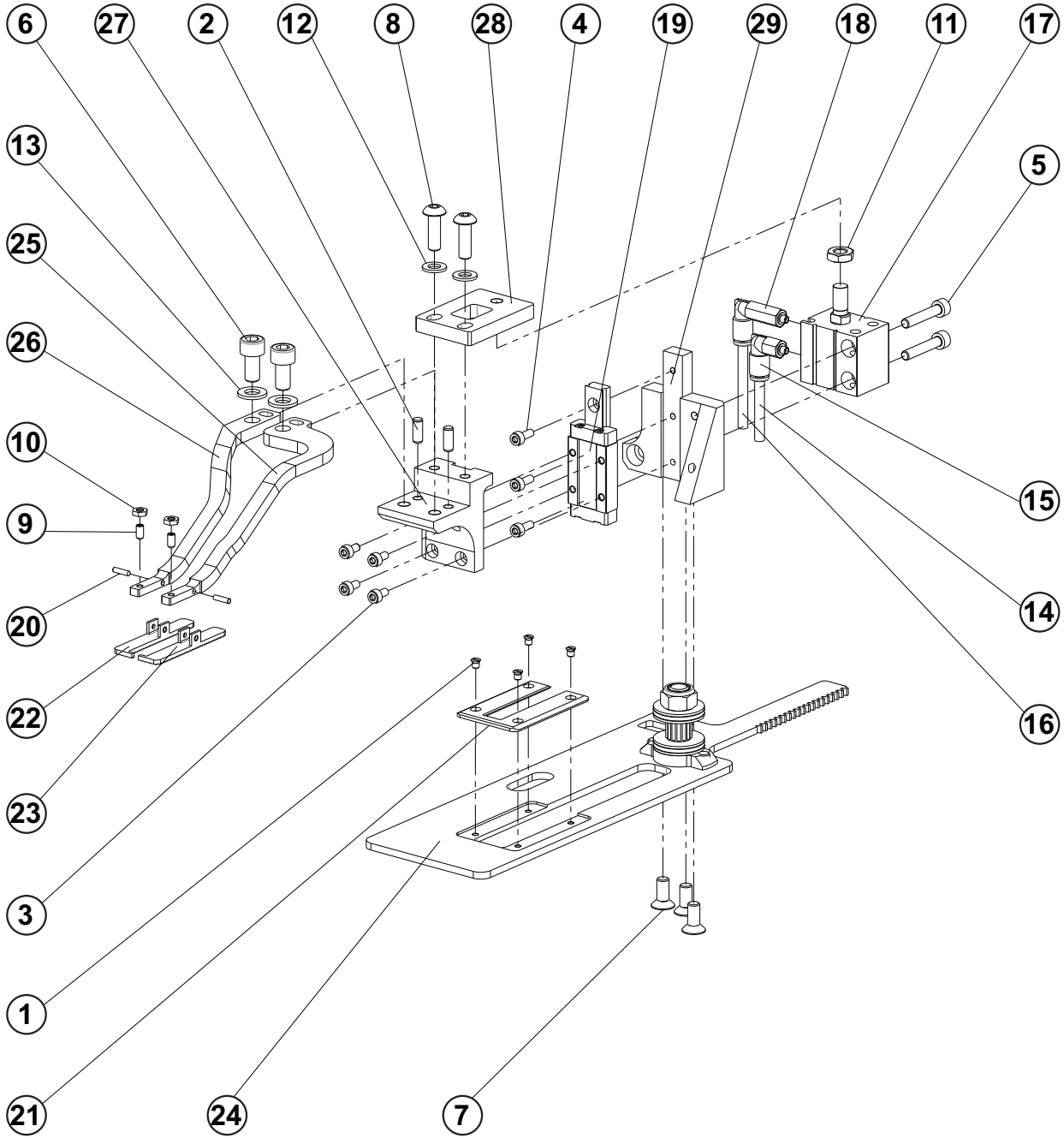
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NEEDLE BAR



 SILK VERSION

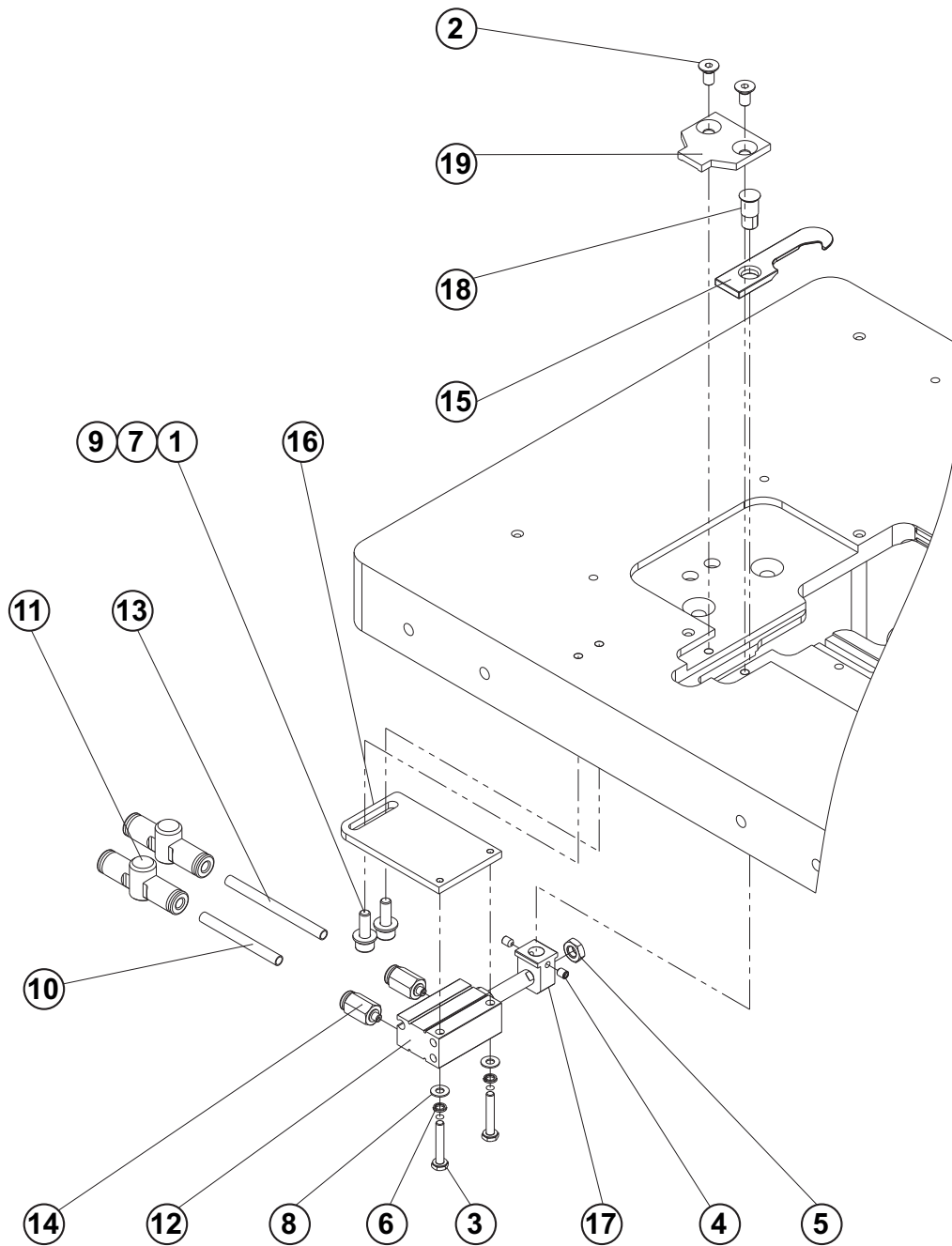
CLAMPING



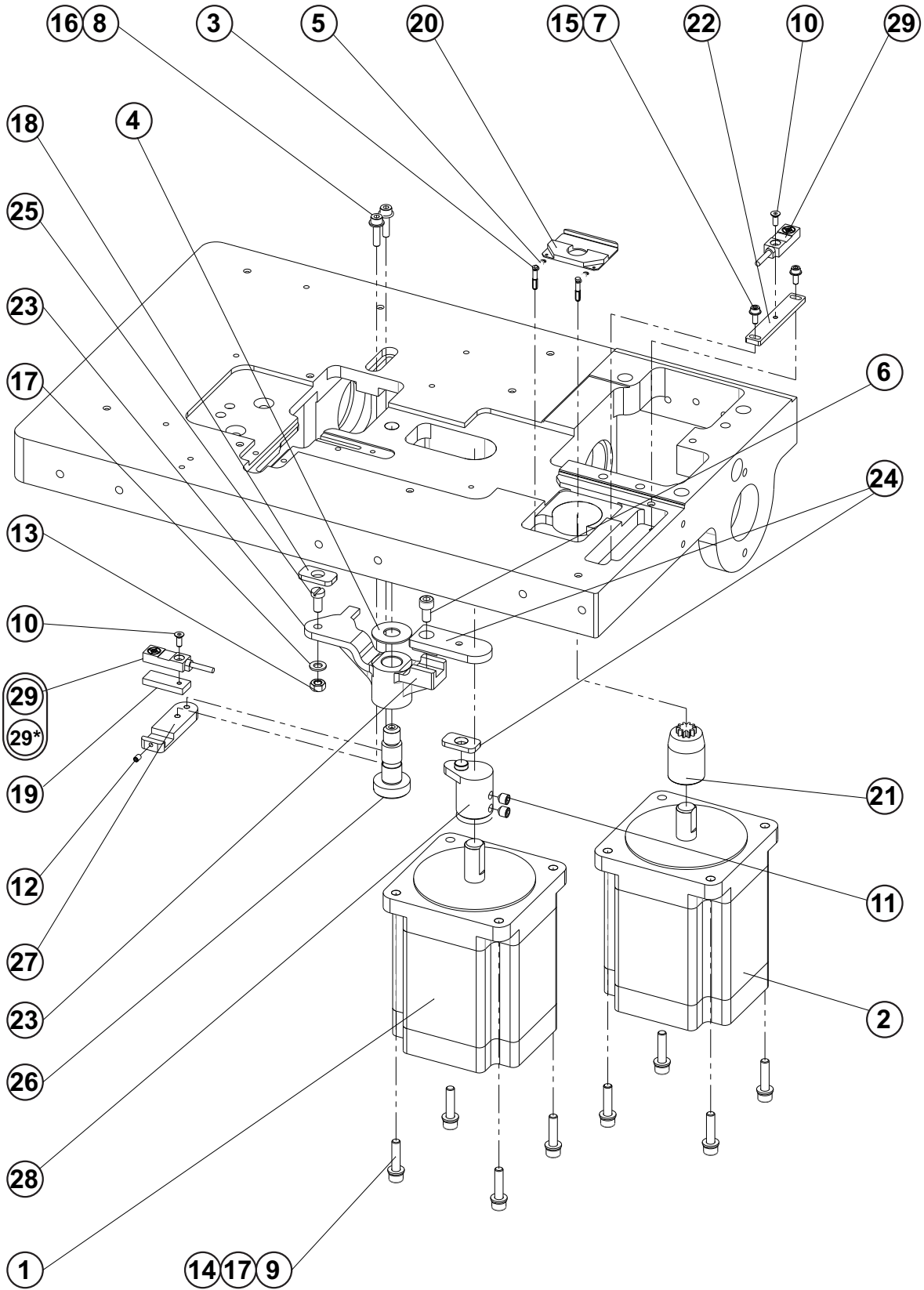
CLAMPING

DET	PART NUMBER	DESCRIPTION	QTY.
1	01.2376.0.000	SCREW-FLAT HEAD	4
2	07.6045.0.046	PIN 4-10	2
3	08.6002.3.006	SCREW M3-6	4
4	08.6002.3.008	SCREW M3-8	3
5	08.6002.4.022	SCREW M4-22	2
6	08.6002.6.012	SCREW M6-12	2
7	08.6100.5.012	SCREW M5-12	3
8	08.6202.5.016	SCREW M5-16	2
9	08.6402.3.006	SCREW M3-6	2
10	08.6712.3.000	NUT M3	2
11	08.6712.6.000	NUT M6	1
12	08.6852.5.000	WASHER 5,3	2
13	08.6852.6.000	WASHER 6,4	2
14	12.0008.3.416	AIR TUBE- J2B	-
15	12.0010.3.036	CONNECTOR	1
16	12.0010.3.080	AIR TUBE- J2A	-
17	12.0010.3.194	CYLINDER	1
18	12.0010.3.195	CONNECTOR	1
19	12.2070.1.019	LINEAR GUIDE	1
20	17.0031.0.460	PIN 2x8	2
21	22.0164.0.000	CLAMPING MAT	1
22	22.0223.0.000	LEFT FOOT	1
23	22.0224.0.000	RIGHT FOOT	1
24	24.3028.2.000	CLAMPING PLATE	1
25	24.3094.0.000	CLAMP ARM RIGHT	1
26	24.3095.0.000	CLAMP ARM LEFT	1
27	24.3096.0.000	CLAMP ARM BRACKET	1
28	24.3097.0.000	HOLDER	1
29	24.3098.0.000	BRACKET	1

THREAD TRIMMER



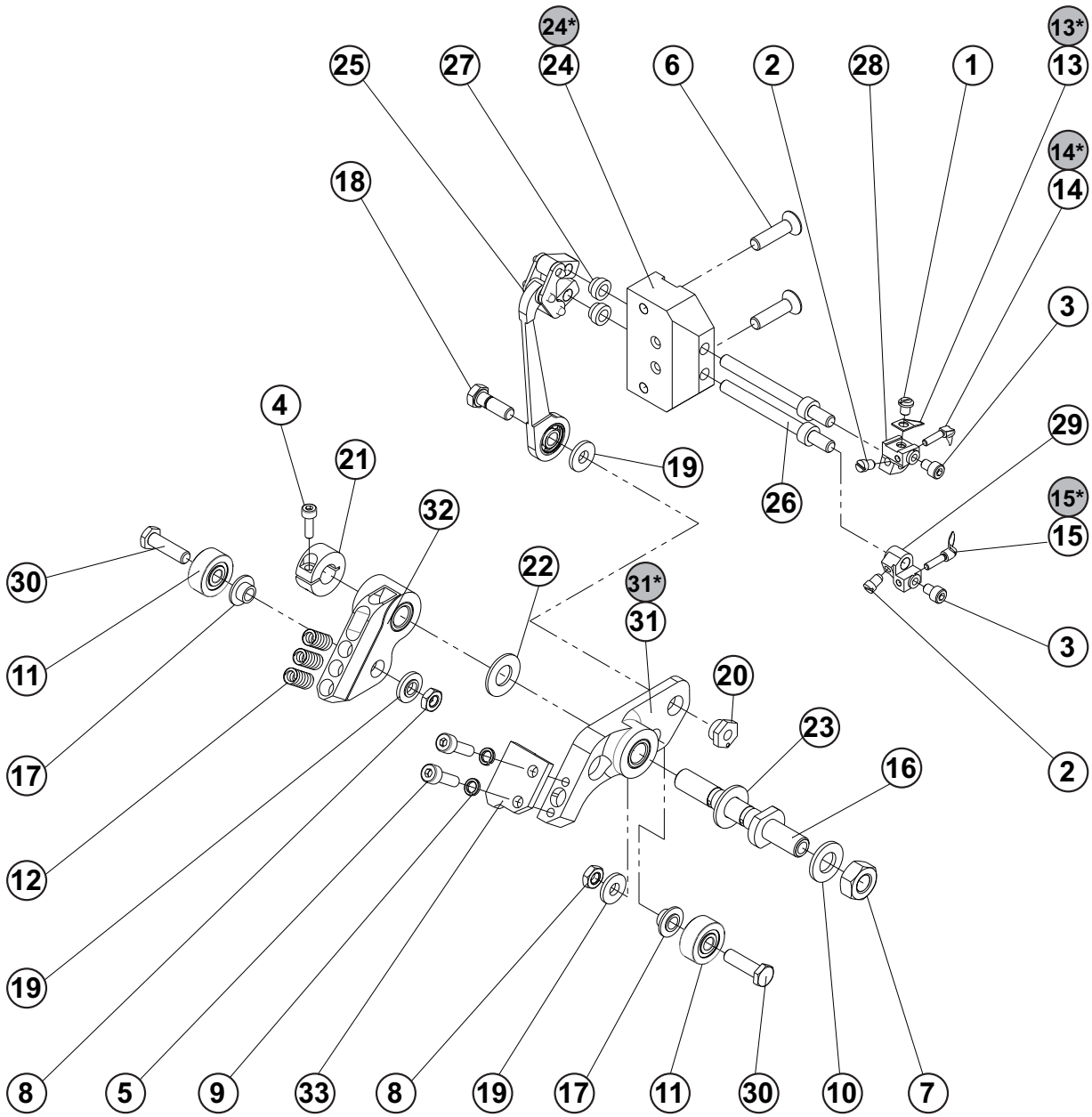
FEED MECHANISM



FEED MECHANISM

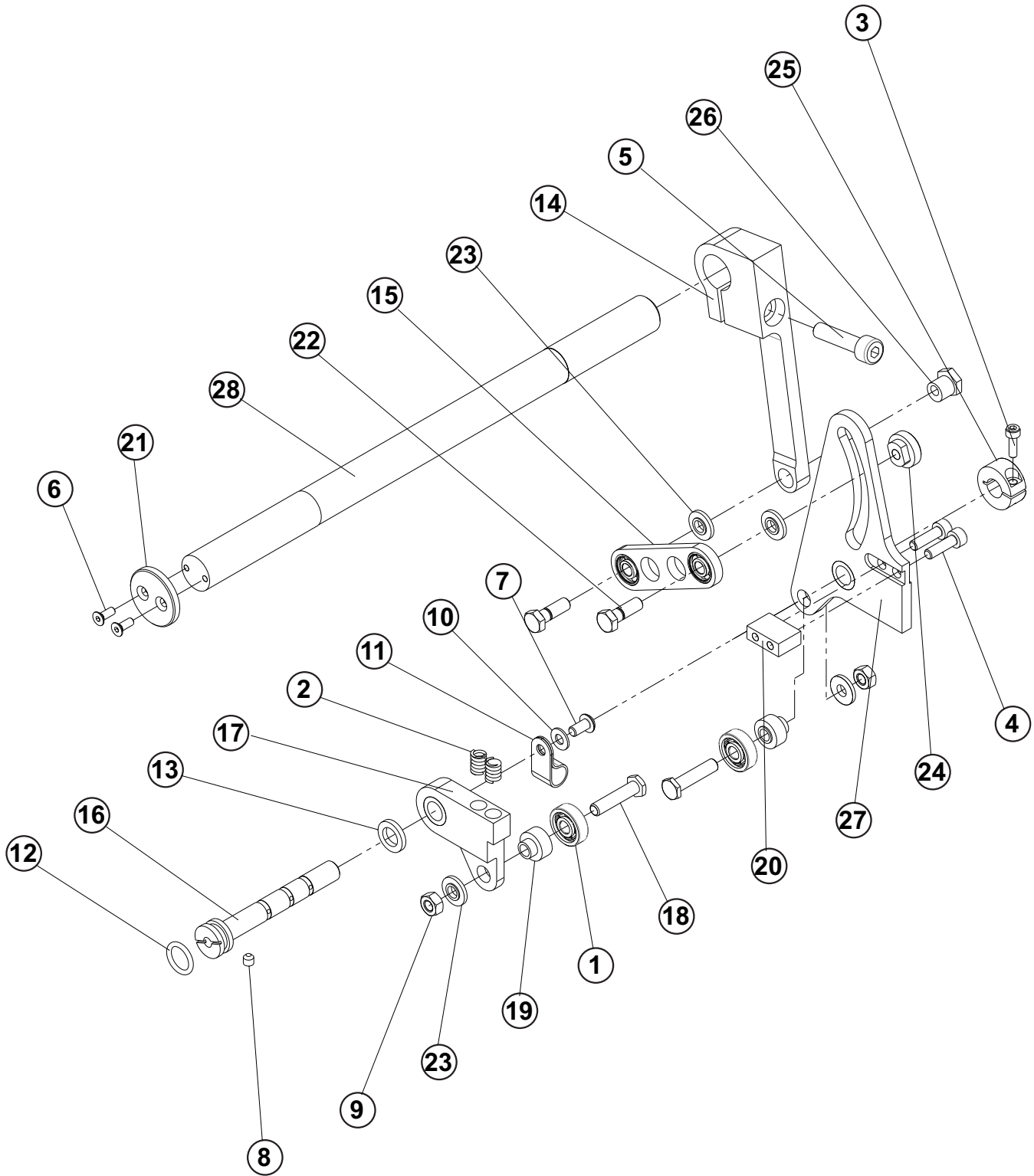
DET	PART NUMBER	DESCRIPTION	QTY.
01	24.0203.0.000	SME MOTOR "X" AXIS	1
02	24.0204.0.000	SME MOTOR "Y" AXIS	1
03	07.6045.0.037	PIN 3-16	2
04	07.6321.0.001	BEARING PLATE	1
05	07.6440.0.033	SPRING	2
06	08.6000.5.010	SCREW M5-10	1
07	08.6002.3.008	SCREW M3-8	2
08	08.6002.4.016	SCREW M4-16	2
09	08.6002.5.022	SCREW M5-22	8
10	08.6102.3.008	SCREW M3-8	2
11	08.6400.6.006	SCREW M6-6	2
12	08.6402.3.005	SCREW M3-5	1
13	08.6702.5.000	NUT M5	1
14	08.6802.5.000	SPRING WASHER M5	8
15	08.6852.3.000	WASHER M3	2
16	08.6852.4.000	WASHER M4	2
17	08.6852.5.000	WASHER 5,3	9
18	22.2631.0.000	CLAMP PLATE SLIDESTONE	1
19	24.0027.0.000	SENSOR MOUNTING PLATE	1
20	24.0061.2.000	M*RETAINER, CLAMP PLATE	1
21	24.0178.1.000	GEAR	1
22	24.0181.0.000	HOME SENSOR BRACKET	1
23	24.0182.0.000	BARRING LEVER	1
24	24.0183.0.000	GUIDE BRACKET-"X" AXIS	1
25	24.0184.0.000	SLIDESTONE RETAINING SCREW	1
26	24.0185.0.000	STUD	1
27	24.0186.0.000	SENZOR BRACKET-X AXIS	1
28	24.0187.1.000	ECCENTRIC LEVER-X AXIS 9mm	1
29	06.2400.0.657	SENSOR ASSEMBLY	1

LOOPER MECHANISM



* SILK VERSION

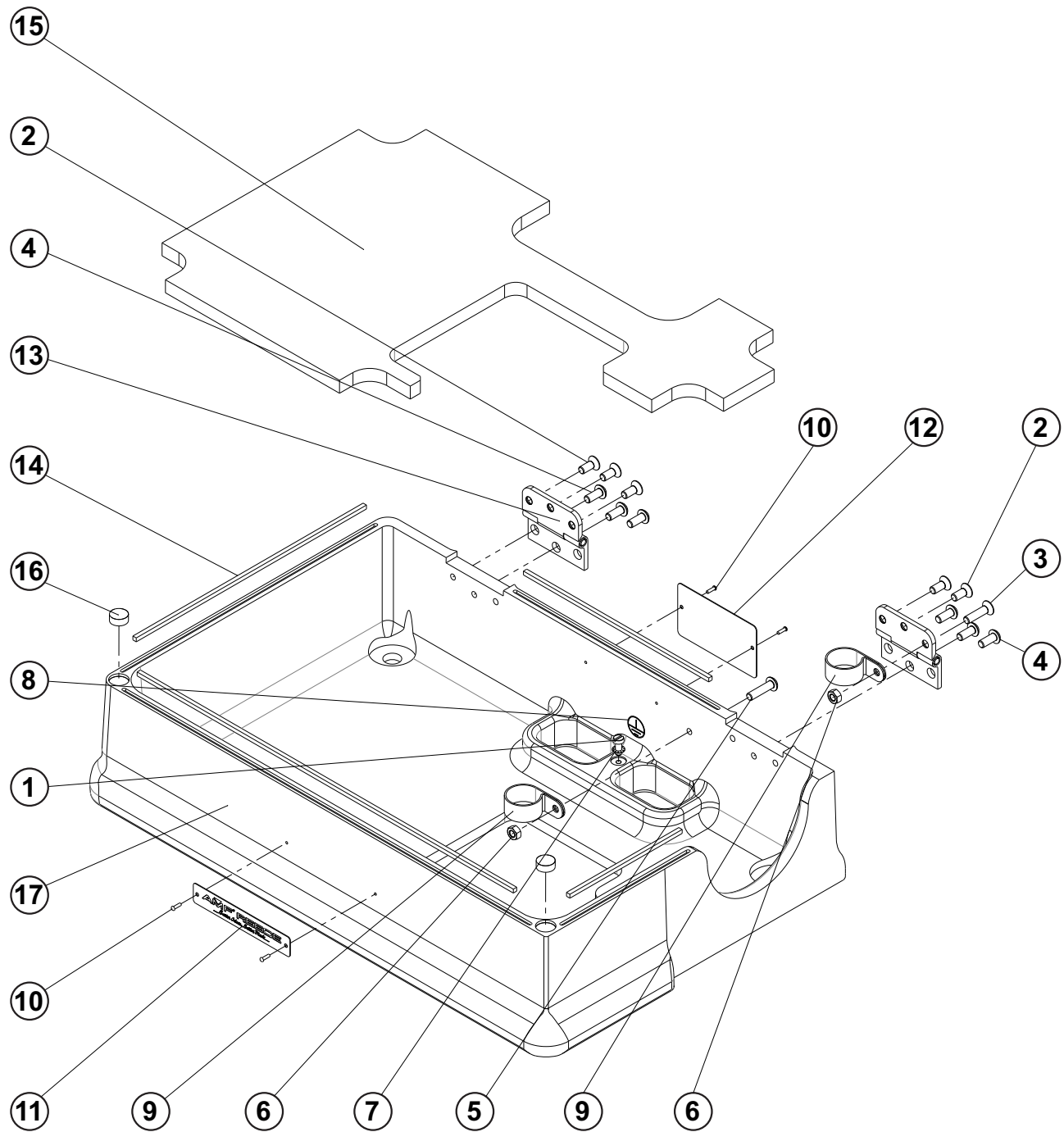
BITE MECHANISM



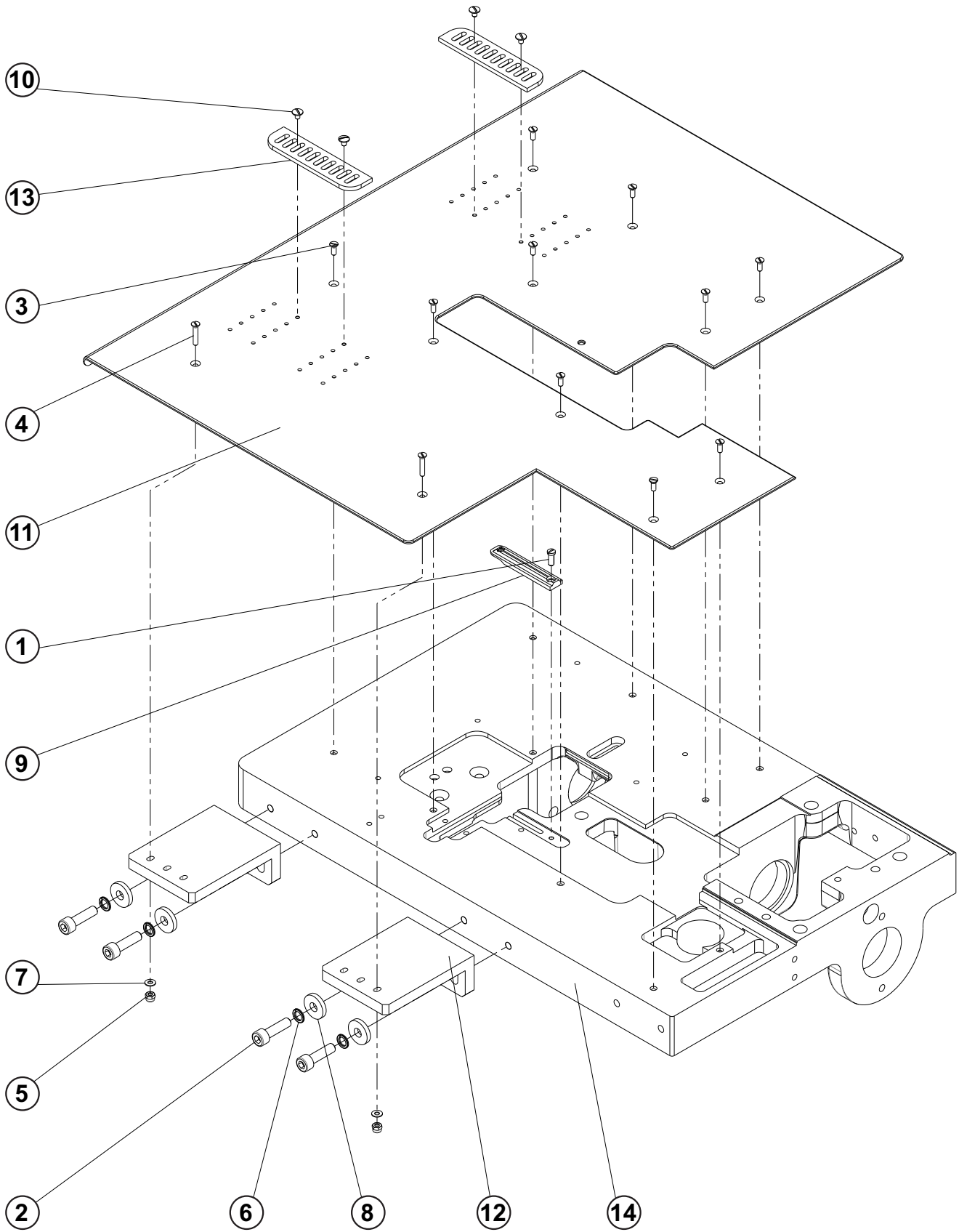
BITE MECHANISM

DET	PART NUMBER	DESCRIPTION	QTY.
01	07.6321.0.025	BEARING	2
02	07.6440.0.028	SPRING	2
03	08.6000.3.010	SCREW M3-10	1
04	08.6000.4.014	SCREW M4-14	2
05	08.6000.6.025	SCREW M6-25	1
06	08.6100.3.008	SCREW M3-8	2
07	08.6200.4.008	SCREW M4-8	1
08	08.6400.4.004	SCREW M4-4	1
09	08.6700.5.000	NUT M5	2
10	08.6850.4.000	WASHER M4	1
11	12.0008.4.280	CLAMP CABLE	1
12	12.0008.6.800	O-RING 10x2	1
13	17.0019.1.062	WASHER	1
14	22.0008.0.000	BITE LEVER	1
15	22.0009.0.050	BITE ADJUSTING LINK ASSY.	1
16	22.0020.0.000	BITE PIVOT SHAFT	1
17	22.0027.0.000	RIGHT CAM FOLLOWER	1
18	22.0028.0.000	SCREW, BITE FOLLOWER	2
19	22.0029.0.000	BITE FOLLOWER BEARING SPACER	2
20	22.0030.0.000	BITE FOLLOWER SPRING RETAINER	1
21	22.0063.0.000	BITE SHAFT RETAINER	1
22	22.0064.0.000	BITE SHOULDER SCREW	2
23	22.0100.0.000	SHOULDER WASHER	4
24	22.0110.0.000	SHOULDER NUT M5	1
25	22.0183.0.000	RING	1
26	22.0214.0.000	ECENTRIC NUT M5	1
27	24.0033.0.000	LEFT CAM FOLLOWER	1
28	24.0055.0.000	BITE SHAFT	1

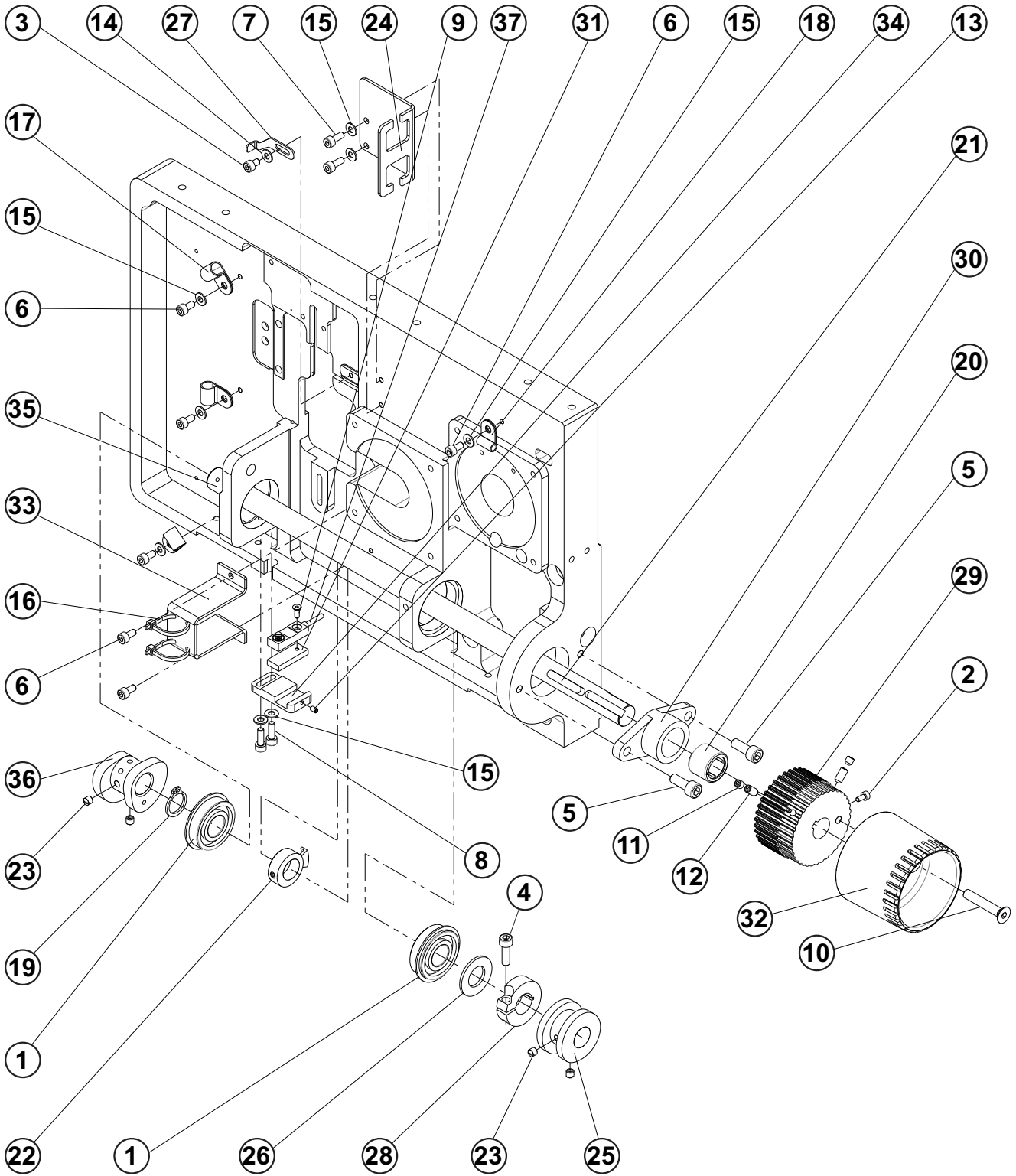
BASE



BEDPLATE TOP



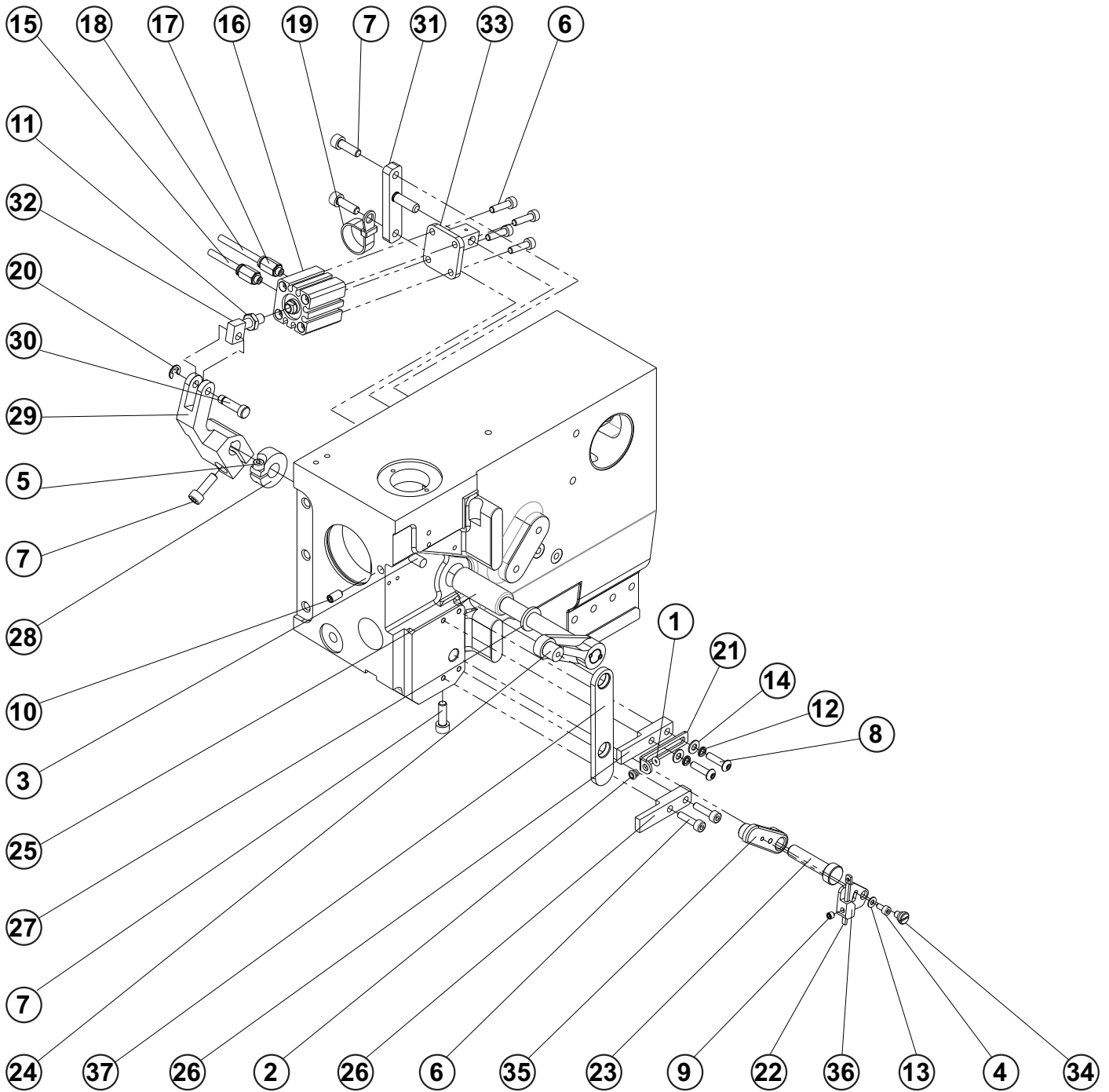
BEDPLATE BOTTOM



BEDPLATE BOTTOM

DET	PART NUMBER	DESCRIPTION	QTY.
01	01.7805.0.000	BEARING	2
02	08.6000.3.006	SCREW M3-6	1
03	08.6000.4.006	SCREW M4-6	1
04	08.6000.5.016	SCREW M5-16	1
05	08.6000.6.016	SCREW M6-16	2
06	08.6002.4.008	SCREW M4-8	6
07	08.6002.4.010	SCREW M4-10	2
08	08.6002.4.012	SCREW M4-12	2
09	08.6100.3.008	SCREW M3-8	1
10	08.6100.6.035	SCREW M6-35	1
11	08.6400.5.005	SCREW M5-5	2
12	08.6400.5.010	SCREW M5-10	2
13	08.6402.3.005	SCREW M3-5	1
14	08.6850.4.000	WASHER M4	1
15	08.6852.4.000	WASHER M4	8
16	12.0008.3.023	TY-WRAP	2
17	12.0008.4.225	CLAMP	3
18	12.0008.4.277	CLAMP	1
19	12.1045.2.001	RETAINING RING 15	1
20	12.2050.0.005	BEARING	1
21	12.4030.0.002	KEY 5h9x5x30	1
22	15.4410.0.400	SENSOR RING	1
23	17.0011.1.149	SCREW M5x0,5-5	4
24	19.0082.3.464	HOLDER	1
25	22.0006.0.000	BITE CAM	1
26	22.0545.0.000	WASHER	1
27	22.3219.0.000	NEEDLE GUARD	1
28	24.0002.0.000	CLAMP COLLAR	1
29	24.0018.0.000	MAIN SHAFT DRIVE PULLEY	1
30	24.0019.0.000	BEARING CARRIER LOWER SHAFT	1
31	24.0027.0.000	SENSOR MOUNTING PLATE	1
32	24.0051.0.066	HAND WHEEL	1
33	24.0192.0.000	CABLE HOLDER	1
34	24.0193.0.000	SENZOR BRACKET-N.B.POS.	1
35	24.1000.0.000	MAIN SHAFT	1
36	24.2400.0.000	LOOPER CAM	1
37	06.2400.0.657	SENSOR ASSEMBLY	1

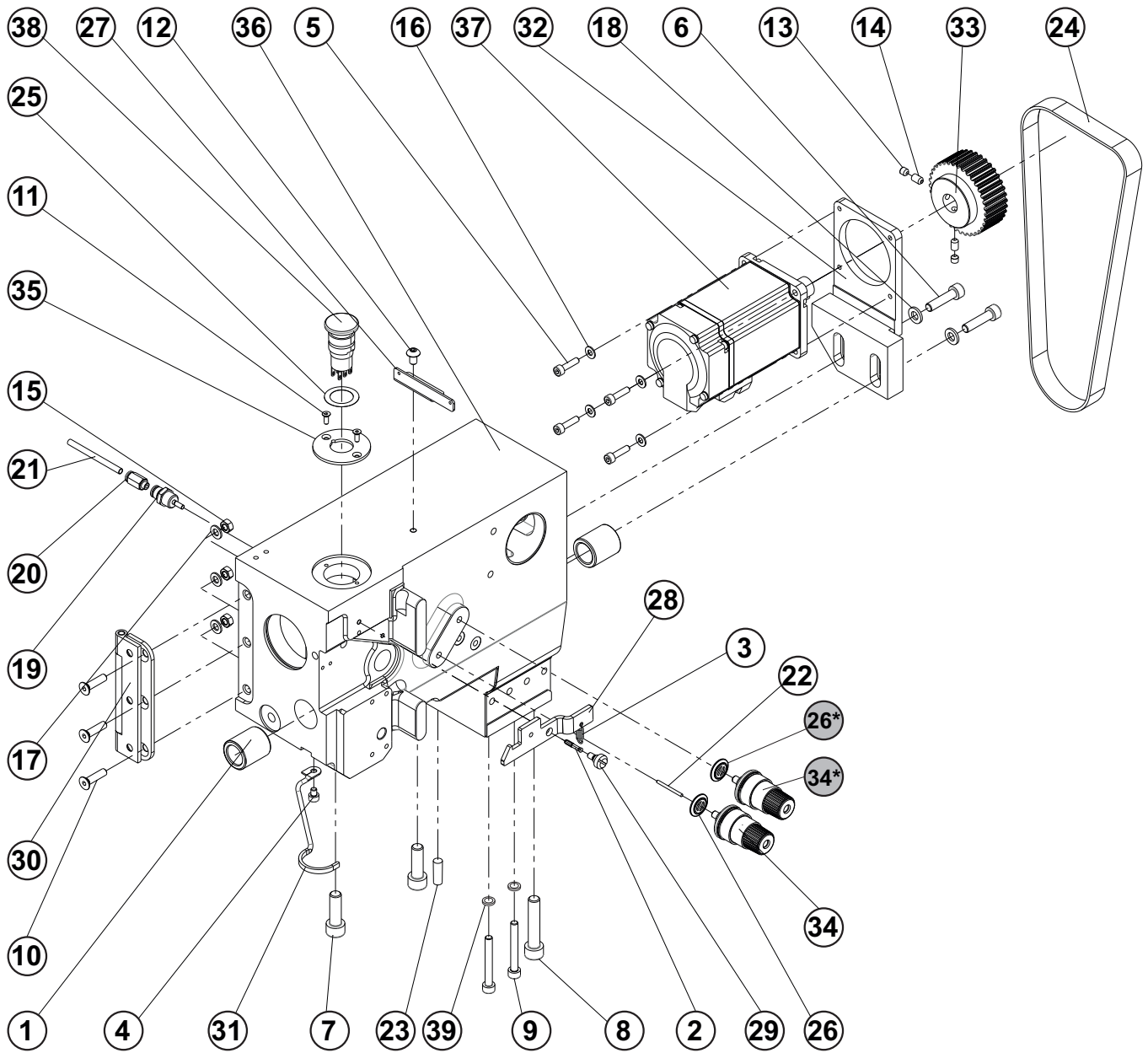
THREAD DRAW-OFF



THREAD DRAW-OFF

DET	PART NUMBER	DESCRIPTION	QTY.
01	01.6551.0.000	O-RING 1,78x2.57	1
02	01.7447.1.000	GUIDE	1
03	07.6045.0.053	PIN 6m6X20	1
04	08.6000.3.006	SCREW M3-6	1
05	08.6000.4.010	SCREW M4-10	1
06	08.6000.4.016	SCREW M4-16	6
07	08.6000.5.016	SCREW M5-16	4
08	08.6200.4.016	SCREW M4-16	2
09	08.6400.4.004	SCREW M4-4	1
10	08.6400.5.010	SCREW M5-10	1
11	08.6710.6.000	NUT M6	1
12	08.6800.4.000	WASHER 4	2
13	08.6850.3.000	WASHER 3,2	1
14	08.6850.4.000	WASHER M4	2
15	12.0008.3.416	AIR TUBE- J1B	-
16	12.0008.3.433	CYLINDER	1
17	12.0010.3.027	CONNECTOR	2
18	12.0010.3.080	AIR TUBE- J1A	-
19	12.0010.4.013	CABEL BINDER 200x7,8	1
20	12.1045.0.004	RETAINING RING 4	1
21	22.0046.0.000	HREAD GUIDE BRACKET	1
22	22.0091.0.000	HREAD TAKE-UP	1
23	22.0161.0.000	PIVOT ECCENTRIC	1
24	22.1415.0.050	KNIFE	1
25	22.1422.0.000	KNIFE SHAFT BUSHING	1
26	22.1436.0.000	RETAINER DRIVE PLATE	2
27	24.0009.0.000	WASHER	1
28	24.0010.0.000	CLAMP COLLAR 10H7	1
29	24.0011.0.000	KNIFE DRIVE LEVER	1
30	24.0014.0.000	PIVOT	1
31	24.0016.0.000	CYLINDER PIVOT STUD ASSEMBLY	1
32	24.0037.0.000	DRAW BAR CYLINDER	1
33	24.0039.1.000	ENSION RELEASE BRACKET	1
34	24.0061.0.000	HREAD TAKE-UP SHOULDER SCREW	1
35	24.0062.0.000	KNIFE GUIDE LINK	1
36	24.0063.0.000	HREAD TAKE-UP	1
37	24.1430.1.000	DRIVE PLATE	1

HEAD



* SILK VERSION

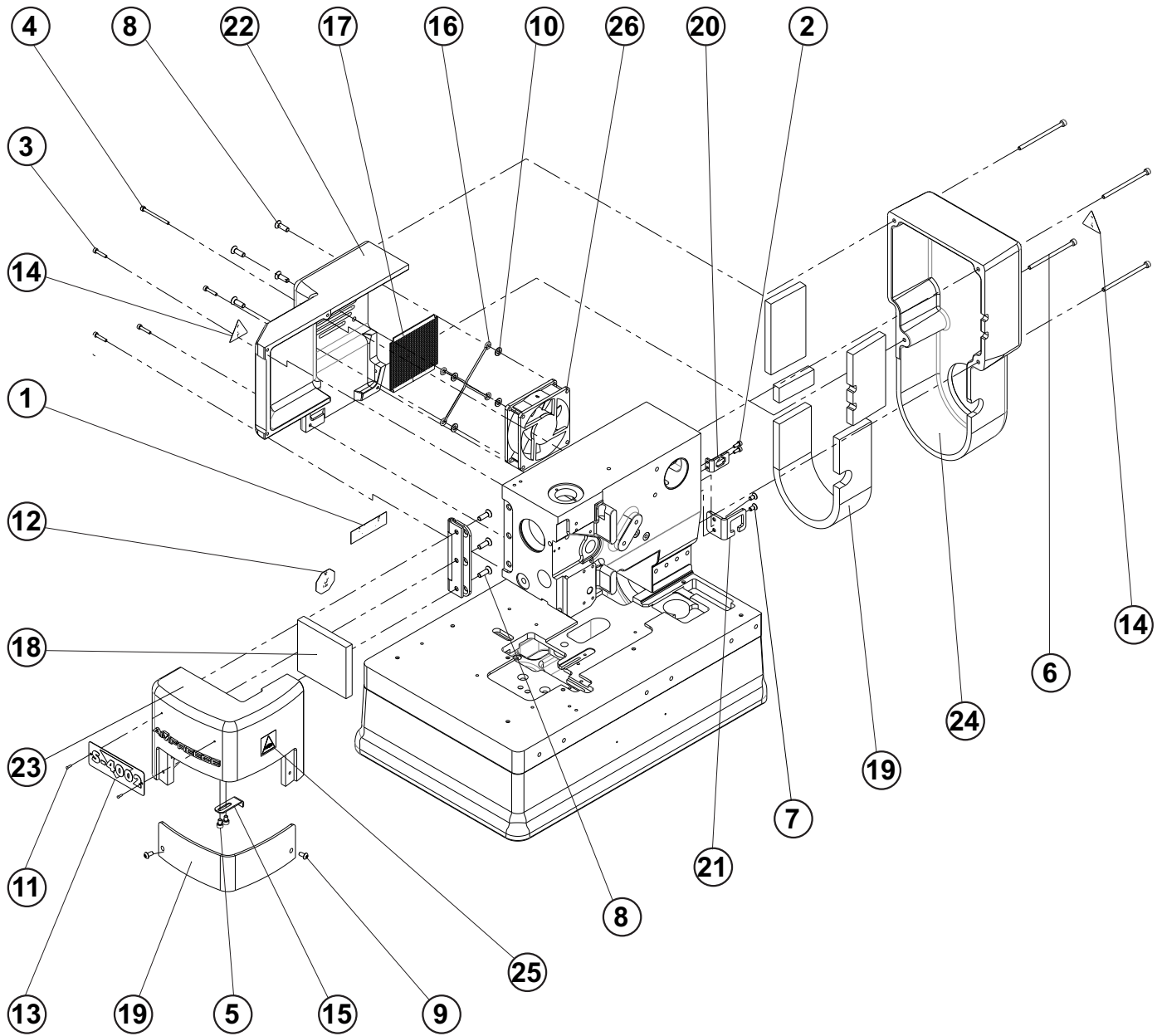
HEAD

DET	PART NUMBER	DESCRIPTION	QTY.
01	01.7806.0.000	BUSHING	2
02	07.6045.0.037	PIN 3-16	1
03	07.6440.0.051	SPRING	1
04	08.6000.4.005	SCREW M4-5	1
05	08.6000.4.016	SCREW M4-16	4
06	08.6000.6.025	SCREW M6-25	2
07	08.6000.8.025	SCREW M8-25	2
08	08.6000.8.040	SCREW M8-40	1
09	08.6002.5.040	SCREW M5-40	2
10	08.6100.5.020	SCREW M5-20	3
11	08.6102.3.008	SCREW M3-8	2
12	08.6200.5.008	SCREW M5-8	1
13	08.6400.5.005	SCREW M5-5	2
14	08.6400.5.008	SCREW M5-8	2
15	08.6700.5.000	NUT M5	3
16	08.6850.4.000	WASHER M4	4
17	08.6850.5.000	WASHER 5,3	3
18	08.6850.6.000	WASHER 6,4	2
19	12.0008.3.413	CYLINDER	1
20	12.0010.3.027	CONNECTOR	1
21	12.0010.3.080	AIR TUBE- J1A1	-
22	12.1010.2.003	PIN 2m6-24	1
23	12.1011.0.001	PIN 6-20	1
24	12.5050.2.009	BELT	1
25	12.8000.0.047	LABEL, EMERGENCY STOP	1
26	17.0082.8.082	TENSION DISC	1
26*	17.0082.8.082	TENSION DISC	1
27	22.0054.0.000	UPPER THREAD GUIDE	1
28	22.0058.0.000	SEWING HEAD LATCH	1
29	22.0062.0.000	SCREW M4-3	1
30	22.6002.0.000	HEAD HINGE ASSY.	1
31	24.0044.0.000	NEEDLE GUARD	1
32	24.0106.1.000	MOTOR BRACKET	1
33	24.0108.0.000	MOTOR PULLEY - MITSUBISHI	1
34	24.0119.0.050	TENSION DISC ASSY.	1
34*	24.0119.0.050	TENSION DISC ASSY.	1
35	24.0148.0.000	COVER, EMERGENCY STOP	1
36	24.6000.2.000	HEAD	1
37	12.0010.4.177	SERVOMOTOR OMRON	1
38	12.0010.4.191	EMERGENCY STOP	1
39	08.6887.5.000	WASHER 5	2

*

SILK VERSION

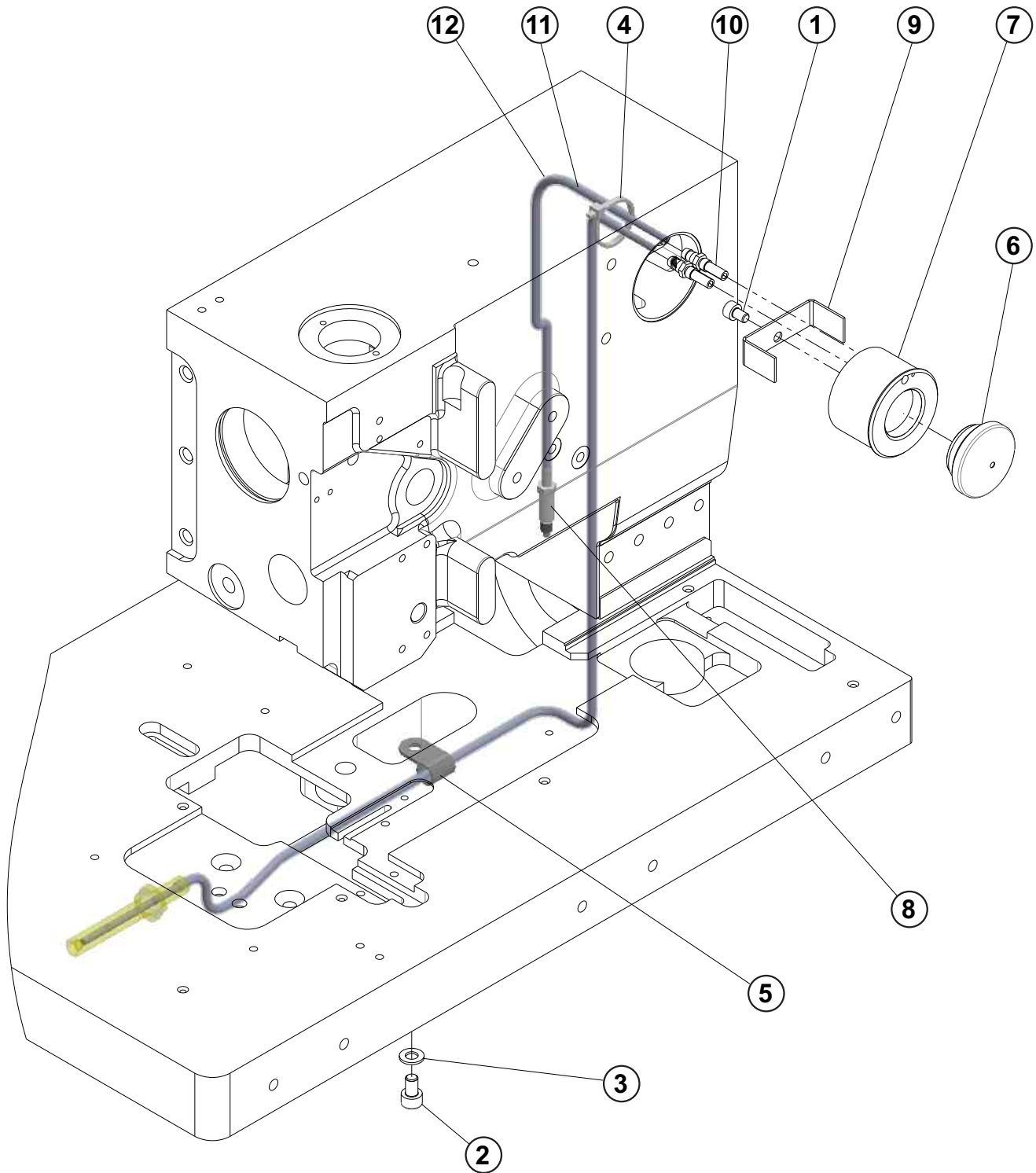
COVERS



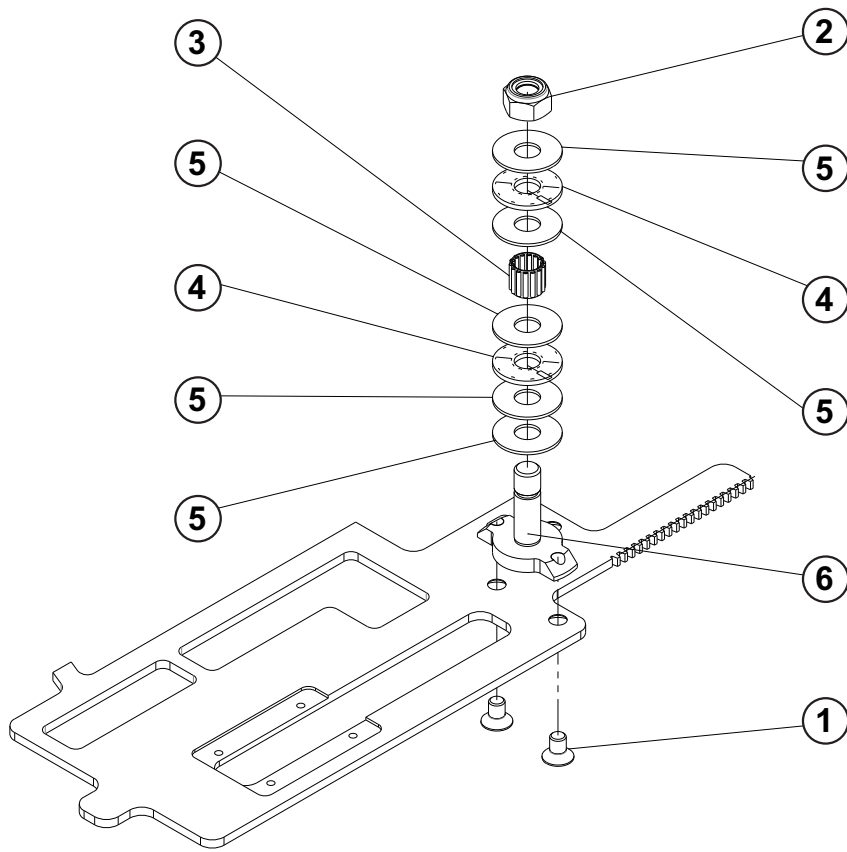
COVERS

DET	PART NUMBER	DESCRIPTION	QTY.
01	05.1394.0.000	LABEL	1
02	08.6000.3.008	SCREW M3-8	2
03	08.6000.3.016	SCREW M3-16	4
04	08.6000.3.040	SCREW M3-40	1
05	08.6000.4.006	SCREW M4-6	2
06	08.6000.4.070	SCREW M4-70	4
07	08.6100.4.008	SCREW M4-8	2
08	08.6100.5.016	SCREW M5-16	7
09	08.6200.4.008	SCREW M4-8	2
10	08.6850.5.000	WASHER 5,3	4
11	12.1016.0.002	NAIL	2
12	12.8000.0.438	LABEL - GUALITY	1
13	12.8000.1.061	LABEL S-4002	1
14	17.0097.5.174	LABEL- WARNING	2
15	22.0057.0.000	COVER LATCH	1
16	24.0067.0.000	FAN RACK	1
17	24.0068.0.000	NET	1
18	24.0112.0.000	COVER SOUND DEADENER	1
19	24.0154.0.000	EYE SHIELD	1
20	24.3102.0.000	CABLE HOLDER	1
21	24.3103.0.000	CABLE HOLDER	1
22	24.6001.4.000	HEAD COVER	1
23	24.6003.0.000	NEEDLE BAR COVER	1
24	24.6004.2.001	PULLEY COVER	1
25	27513603	LABEL CAUTION	1
26	24.0059.9.069	FAN	1

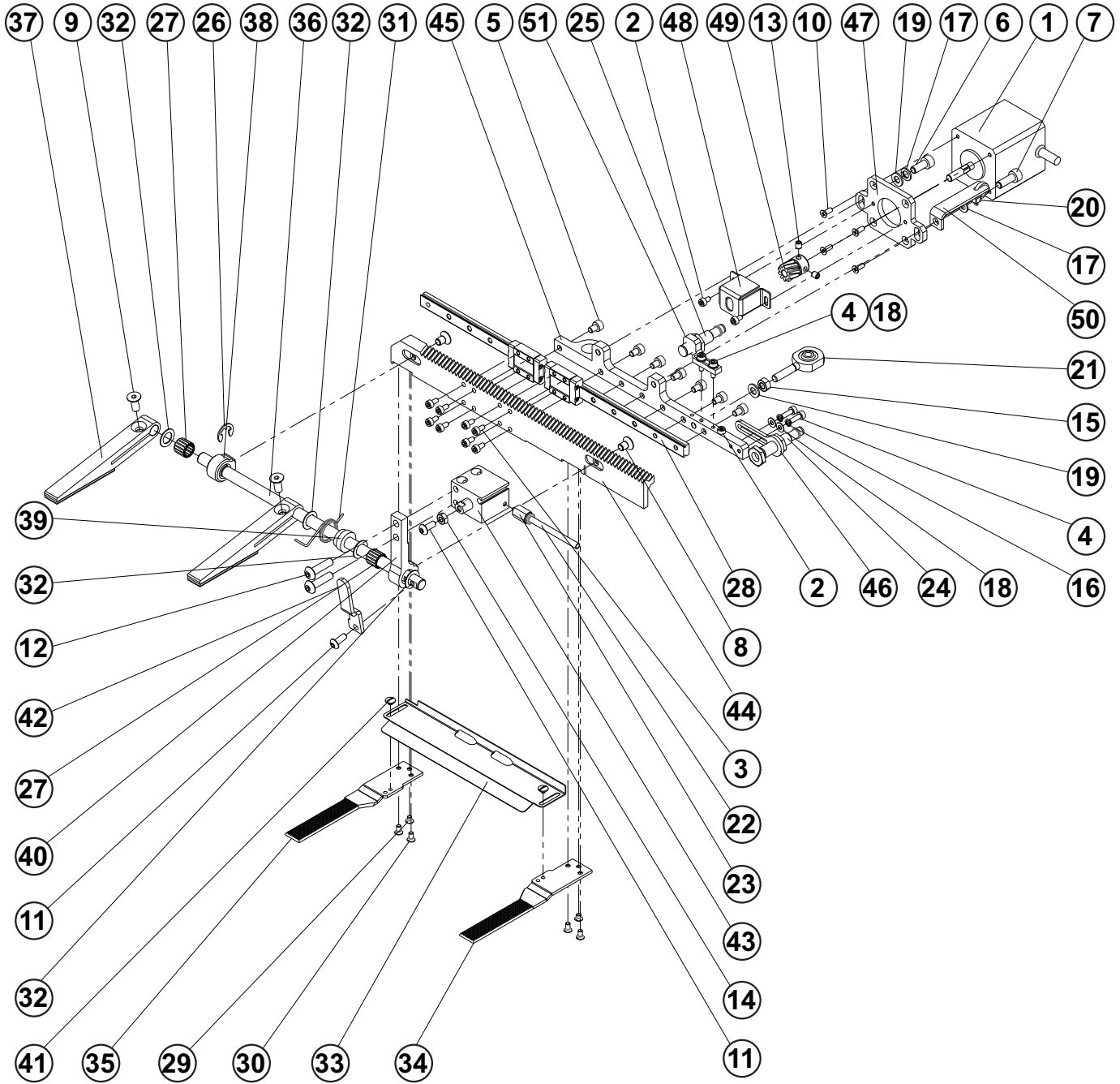
LUBRICATION



INDEXER CLAMPING BRACKET



INDEXER CLAMPING 30°

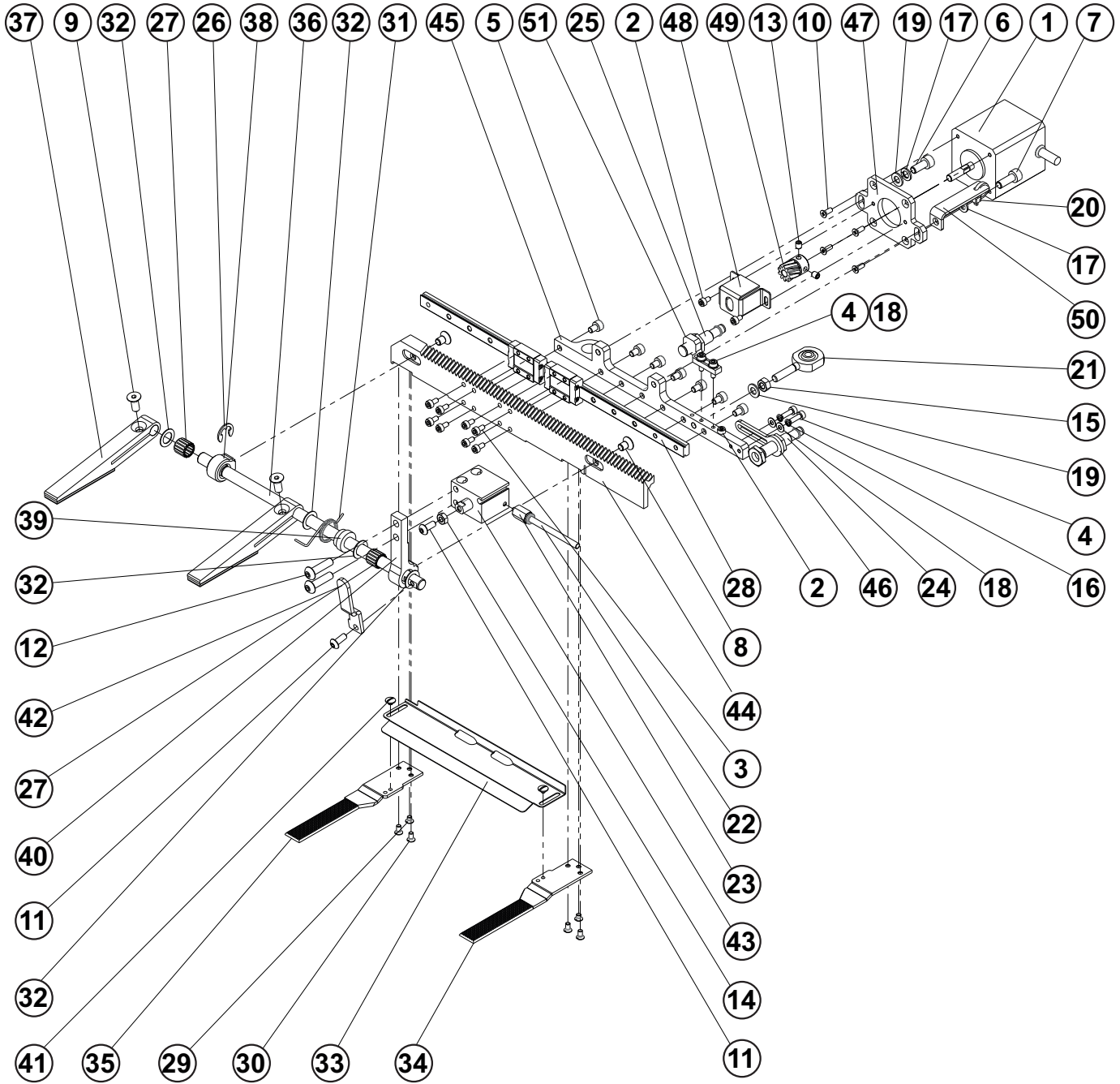


INDEXER CLAMPING 30°

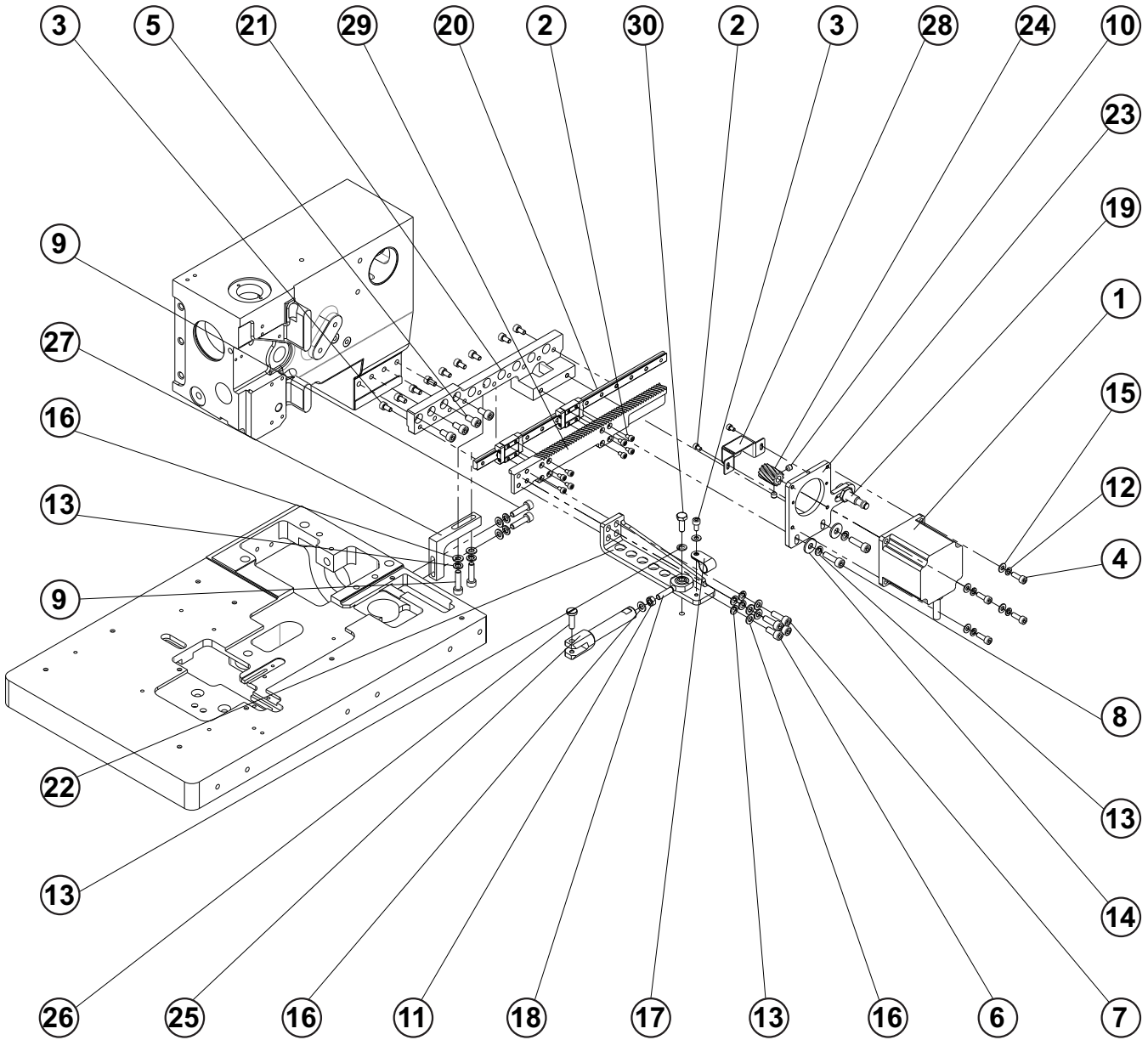
DET	PART NUMBER	DESCRIPTION	QTY.
01	06.2400.0.653	STEPPER MOTOR SM3 ASSY.	1
02	08.6002.3.005	SCREW M3-5	3
03	08.6002.3.006	SCREW M3-6	8
04	08.6002.3.010	SCREW M3-10	4
05	08.6002.4.006	SCREW M4-6	7
06	08.6002.5.012	SCREW M5-12	1
07	08.6002.5.014	SCREW M5-14	1
08	08.6102.5.008	SCREW M5-8	2
09	08.6102.5.012	SCREW M5-12	2
10	08.6132.3.008	SCREW M3-8	4
11	08.6202.4.010	SCREW M4-10	2
12	08.6202.5.020	SCREW M5-20	2
13	08.6402.4.005	SCREW M4-5	2
14	08.6702.4.000	NUT M4	1
15	08.6702.5.000	NUT M5	1
16	08.6802.3.000	SPRING WASHER M3	2
17	08.6802.5.000	SPRING WASHER M5	2
18	08.6852.3.000	WASHER M3	4
19	08.6852.5.000	WASHER 5,3	2
20	12.0008.3.023	TY-WRAP	1
21	12.0008.6.531	BALL JOINT SAKB 5 F (SKF)	1
22	12.0010.3.080	AIR TUBE- J11A	1
23	12.0010.3.119	CONNECTOR	1
24	12.0010.4.093	SENSOR	1
25	12.0010.4.408	SENSOR	1
26	12.1045.0.007	RETAINER RING 7	1
27	12.2050.0.007	NEEDLE BEARING K8x11x10TN	2
28	12.2070.1.057	LINEAR GUIDE SE2B10-255-MC (MISUMI)	1
29	15.1431.0.100	SCREW M3-4	2
30	15.1436.0.100	SCREW M3-6	4
31	24.4010.0.000	SPRING	1
32	24.4068.0.005	WASHER	4
33	24.4110.1.000	MATERIAL GUIDE	1
34	24.4111.2.000	INDEXER CLAMPING MAT-RIGHT	1
35	24.4112.2.000	INDEXER CLAMPING MAT-LEFT	1
36	24.4113.0.000	INDEXER SHAFT	1
37	24.4114.0.000	INDEXER CLAMP FOOT	2
38	24.4115.0.000	INDEXER SHAFT HOLDER	1
39	24.4116.0.000	BUSHING	1
40	24.4117.0.000	CYLINDER BRACKET	1
41	24.4118.0.000	SCREW M3x0,35-2,5	2
42	24.4119.0.000	LEVER	1
43	24.4120.0.000	CYLINDER CUJB16	1
44	24.4121.0.000	INDEXER CLAMP RACK	1
45	24.4122.0.000	LINEAR GUIDE HOLDER	1



INDEXER CLAMPING 30°



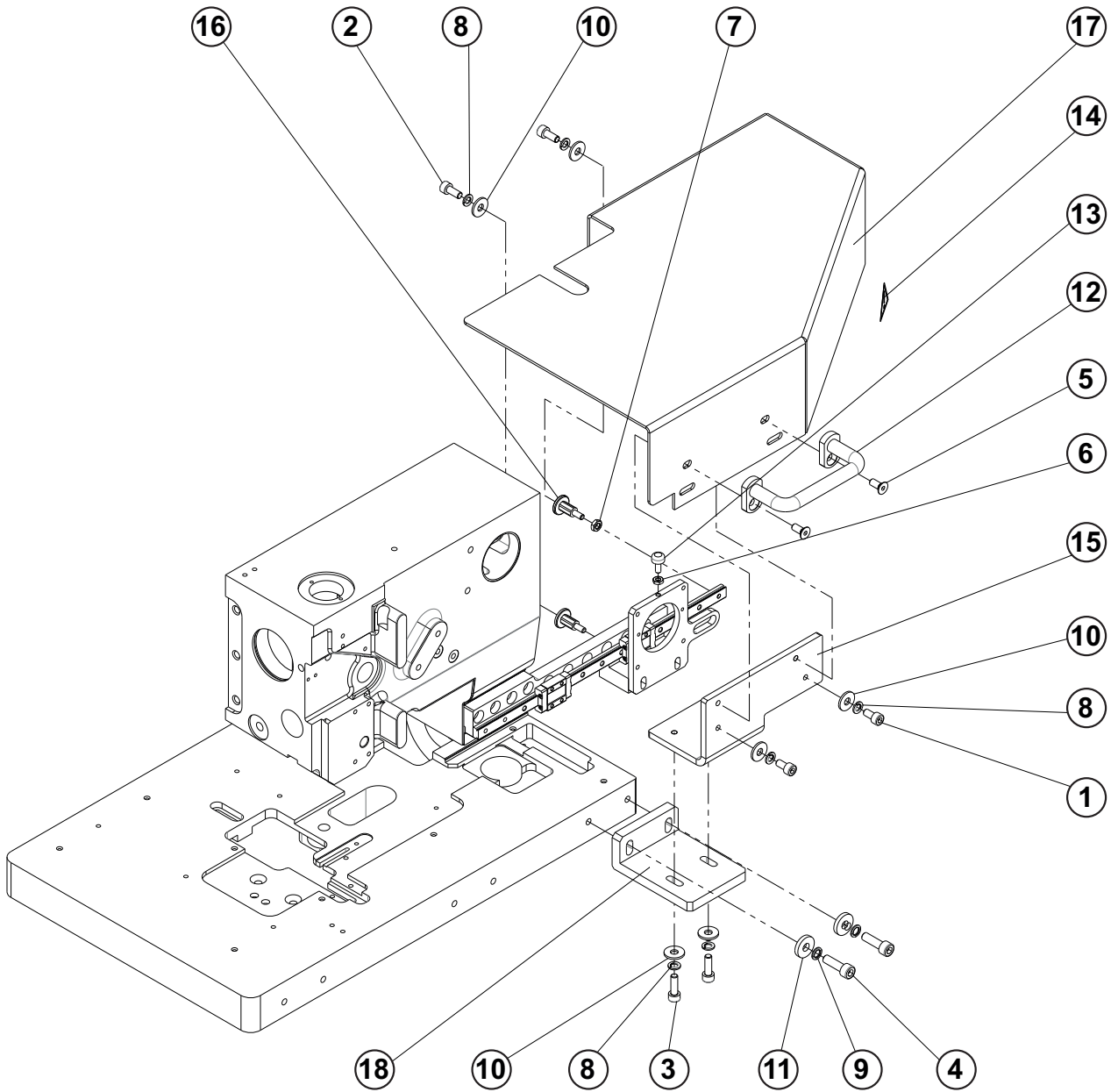
Y - AXIS INDEXER



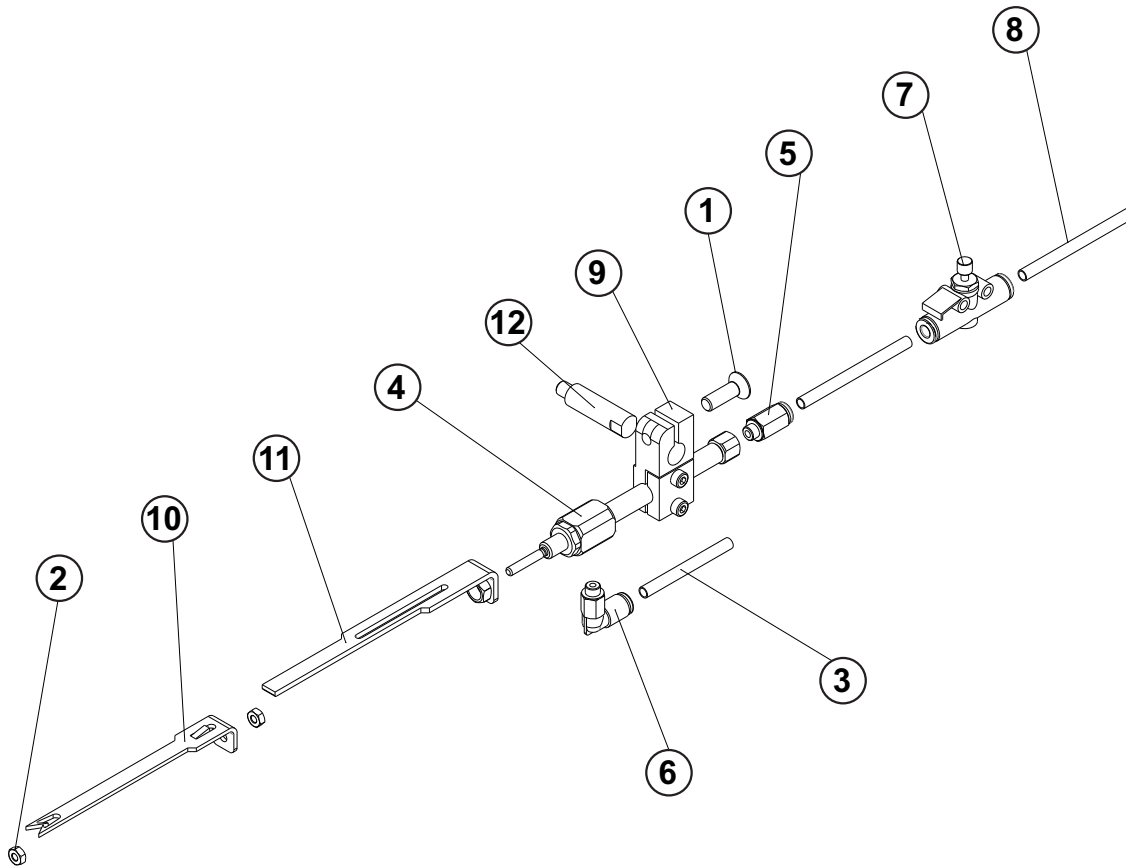
Y - AXIS INDEXER

DET	PART NUMBER	DESCRIPTION	QTY.
01	06.2400.2.958	MOTOR - INDEXER	1
02	08.6002.3.005	SCREW M3-5	10
03	08.6002.4.008	SCREW M4-8	10
04	08.6002.4.012	SCREW M4-12	4
05	08.6002.5.010	SCREW M5-10	4
06	08.6002.5.012	SCREW M5-12	2
07	08.6002.5.016	SCREW M5-16	2
08	08.6002.5.018	SCREW M5-18	2
09	08.6002.5.020	SCREW M5-20	4
10	08.6402.5.005	SCREW M5-5	2
11	08.6702.5.000	NUT M5	1
12	08.6802.4.000	SPRING WASHER M4	4
13	08.6802.5.000	SPRING WASHER M5	11
14	08.6842.5.000	WASHER 5	2
15	08.6852.4.000	WASHER M4	5
16	08.6852.5.000	WASHER 5,3	9
17	12.0008.4.089	CLAMP CABLE	1
18	12.0008.6.531	BALL JOINT	1
19	12.0010.4.093	SENSOR	1
20	12.2070.1.057	LINEAR GUIDE	1
21	24.4129.0.000	LINEAR GUIDE BRACKET-Y AXIS	1
22	24.4131.0.000	BRACKET	1
23	24.4132.0.000	MOTOR HOLDER-Y AXIS	1
24	24.4133.0.000	MOTOR GEAR 12z-20° RIGHT	1
25	24.4135.0.000	CONNECTING LEVER	1
26	24.4136.0.000	STUD	1
27	24.4137.0.000	HOLDER	1
28	24.4138.0.000	COVER GEAR	1
29	24.4146.0.000	RACK - Y AXIS	1
30	24.4147.0.000	STUD	1

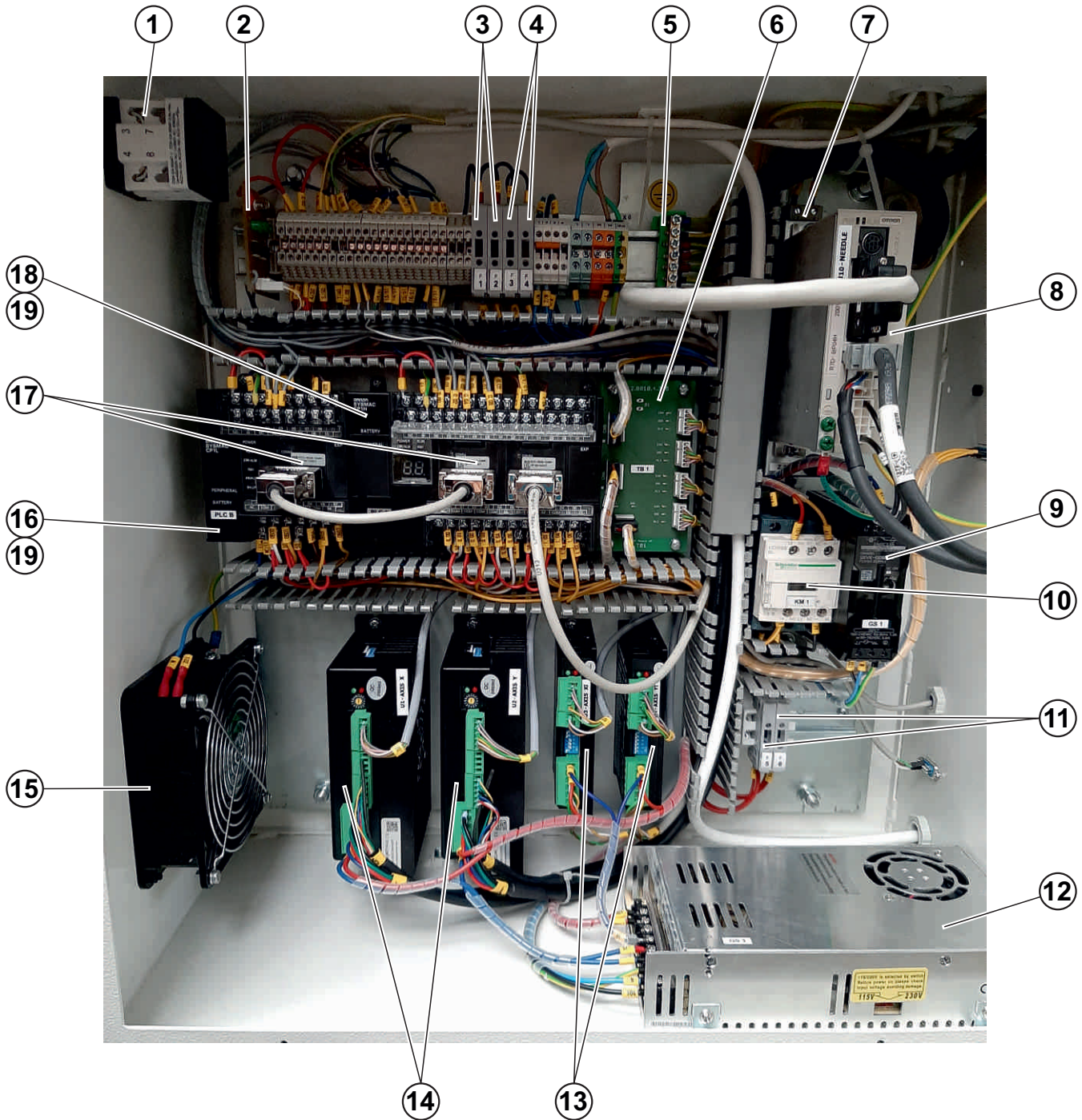
INDEXER COVER



THREAD PICK-UP



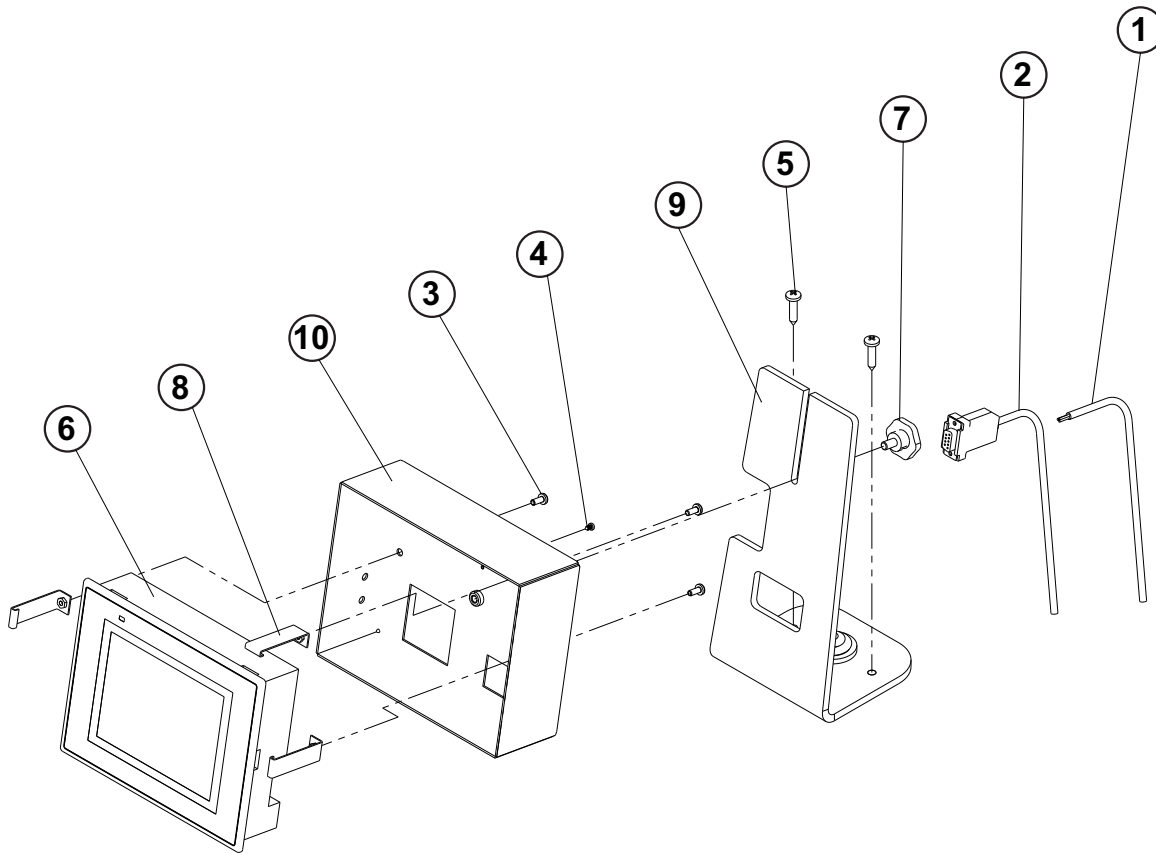
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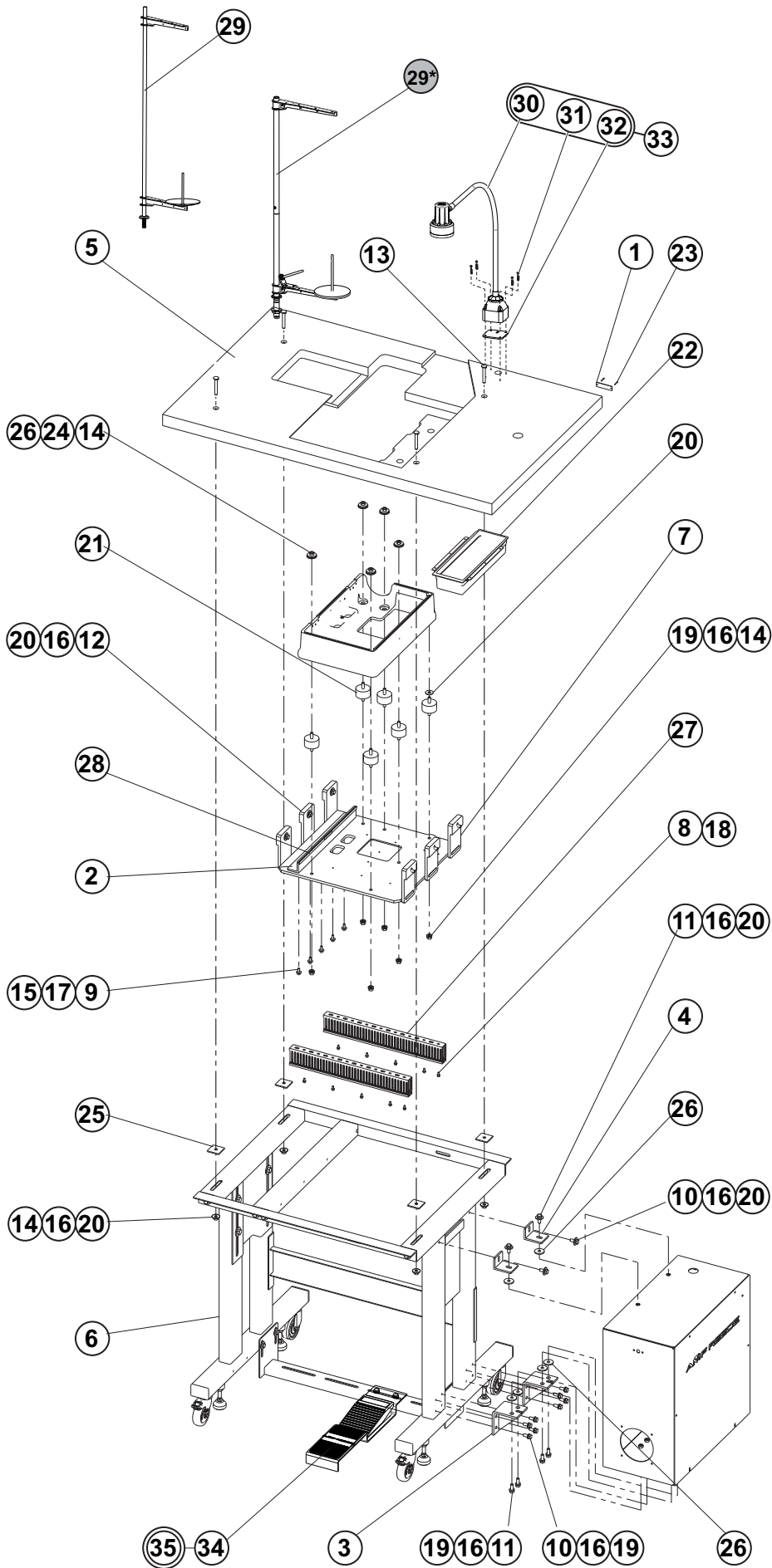
ELECTRICAL

DET	PART NUMBER	DESCRIPTION	QTY.
01	12.0010.4.200	MAIN POWER SWITCH (QS1)	1
02	12.0010.4.285	INTERFACE OB1 (OB1)	1
03	12.0008.4.665	FUSE - T2A (F1,F2)	2
04	12.0008.4.664	FUSE - T10A (F3,F4)	2
05	12.0008.4.050	BRIDGE GND	1
06	12.0010.4.385	BOARD TERMINAL (TB1)	1
07	12.0010.4.251	FILTER R7A (Z1)	1
08	06.8024.0.605	SERVODRIVE 400W (U10)	1
09	12.0010.4.168	POWER 24V DC (GS1)	1
10	12.0008.4.833	CONTACTOR 24V (KM1)	1
11	12.0008.4.664	FUSE - T10A (F5,F6)	2
12	12.0010.4.503	POWER SUPPLY (GS3)	1
13	12.0010.4.500	DRIVER	2
14	12.0010.4.505	DRIVER	2
15	12.0008.4.682	FAN 230V AC (EV1)	1
16	06.8024.0.602	PLC CP1L (PLC B)	1
17	12.0010.4.067	PORT RS232	3
18	06.8024.0.601	PLC CP1H (PLC A)	1
19	12.0010.4.163	BATTERY PLC	2

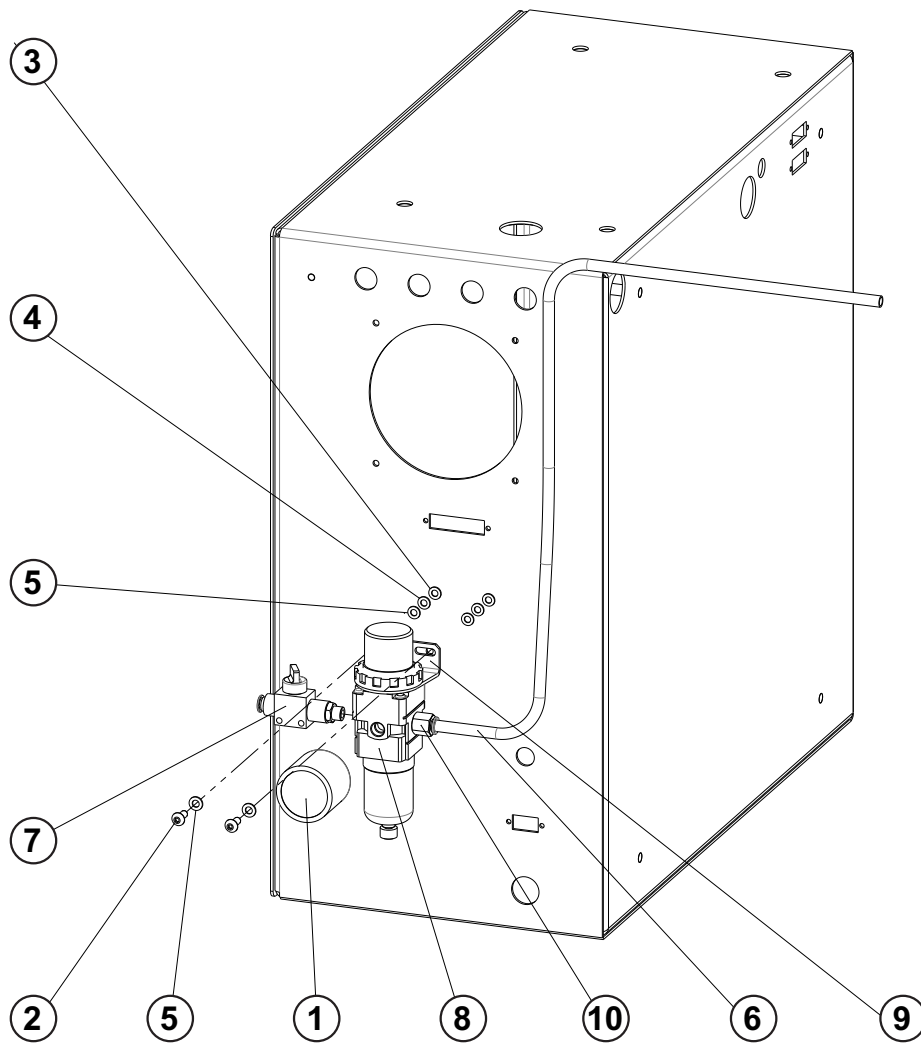
PANEL KIT



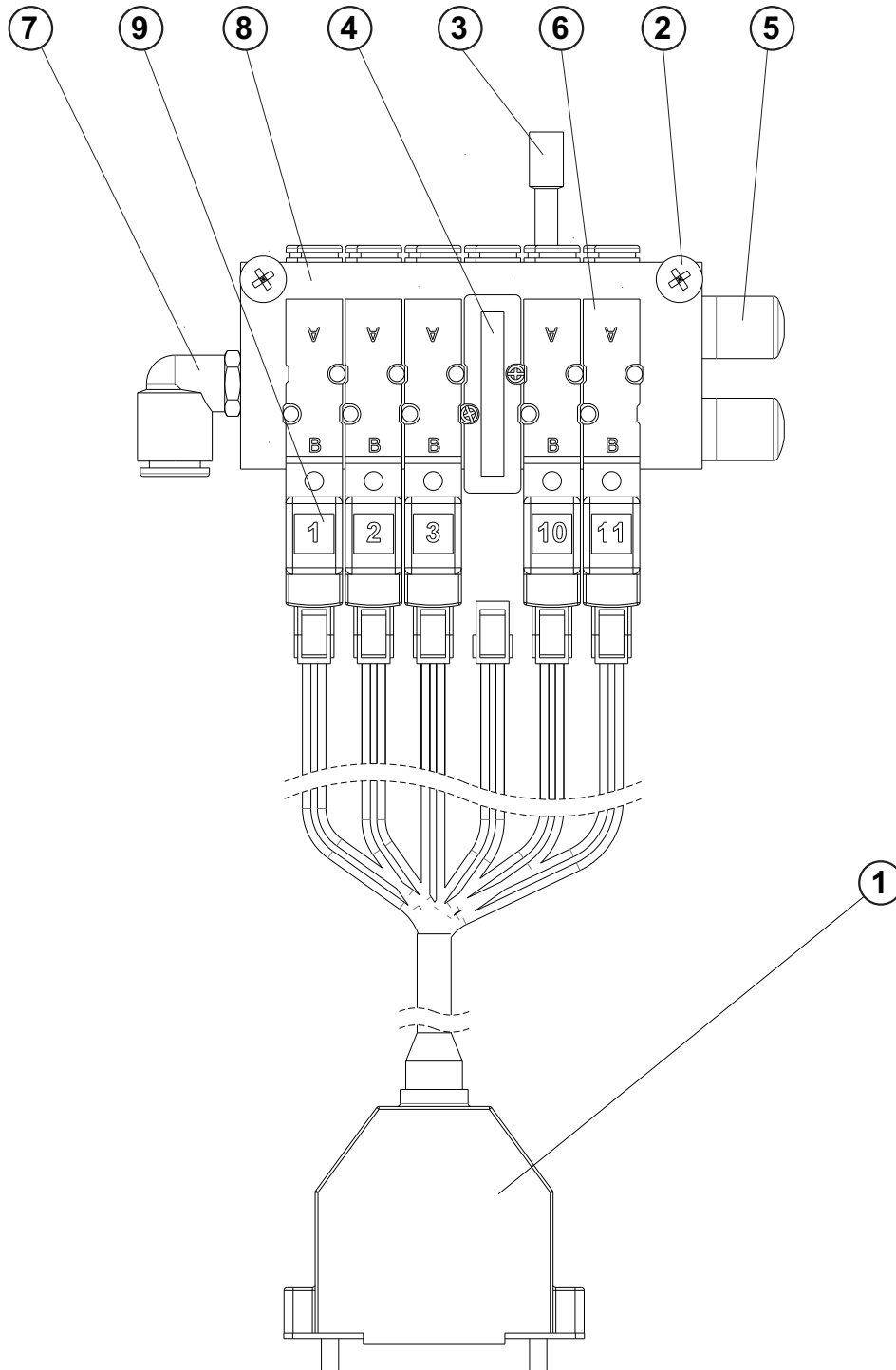
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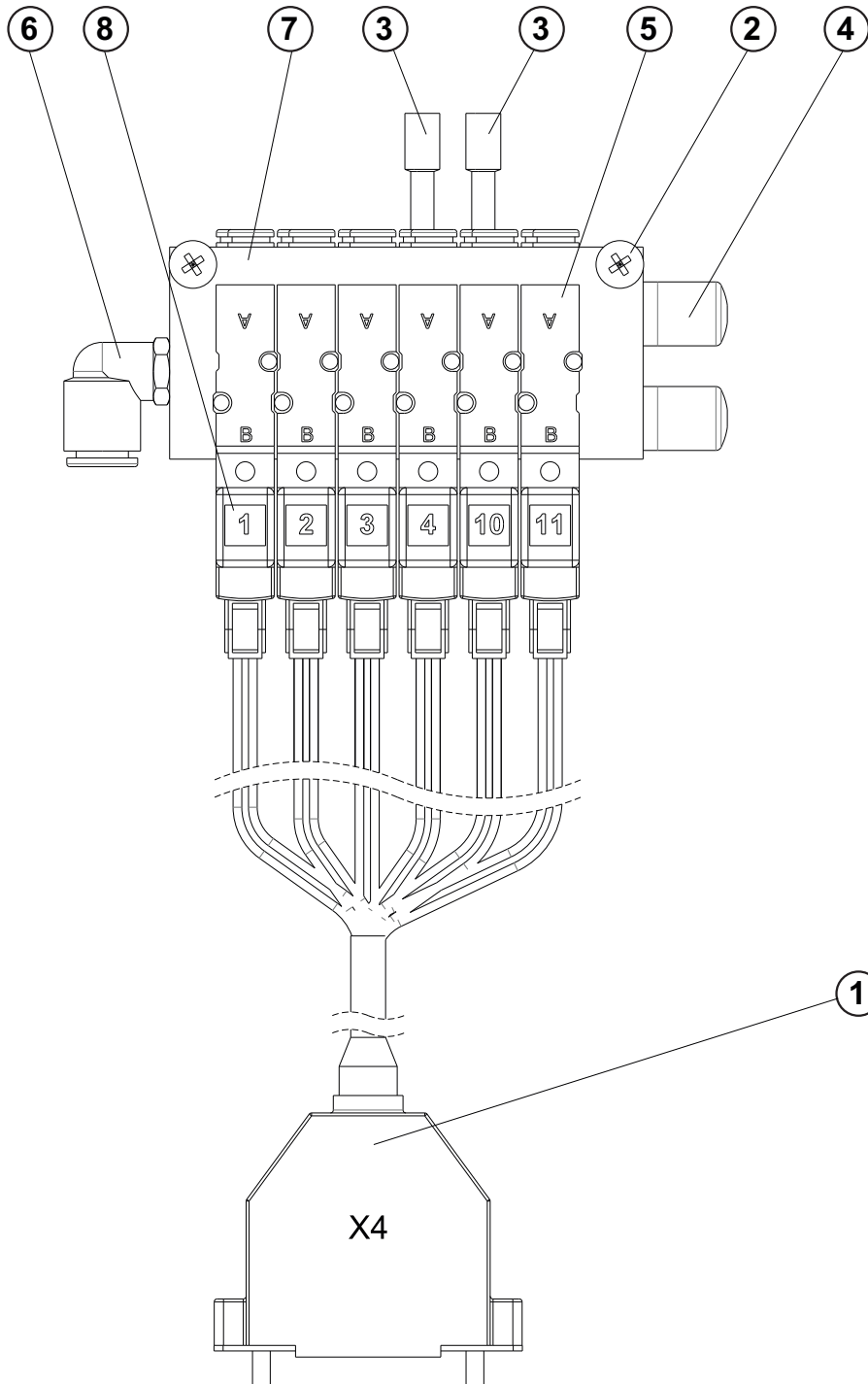
FILTER REGULATOR



VALVE BLOCK



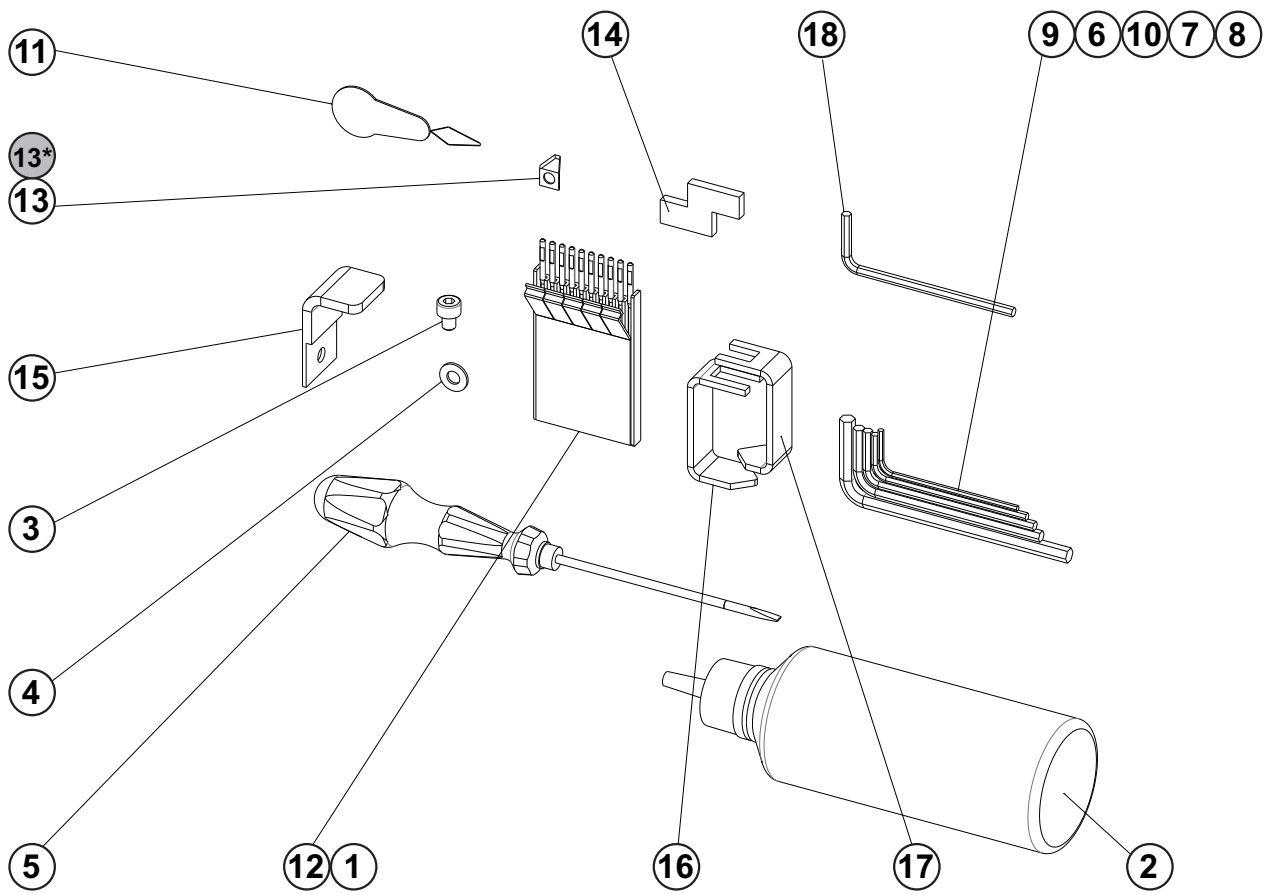
VALVE BLOCK - SILK



VALVE BLOCK - SILK

DET	PART NUMBER	DESCRIPTION	QTY.
01	06.2400.0.640	CABLE ASSY. X4	1
02	08.6663.4.038	SCREW 4,2-38	2
03	12.0008.3.426	PLUG	2
04	12.0010.3.099	SILENCER	2
05	12.0010.3.105	5/2 VALVE	6
06	12.0010.3.106	CONNECTOR	1
07	12.0010.3.107	MANIFOLD PLATE	1
08	12.8000.0.446	LABELS - VALVES	1

ACCESSORIES



 SILK VERSION

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22979047	3-53	18	1	07.6045.0.053	3-21	3	1	08.6002.4.010	3-45	8	10
27513603	3-25	25	1	07.6321.0.001	3-9	4	1	08.6002.4.012	3-7	1	2
01.1382.0.000	3-11	1	1	07.6321.0.025	3-13	1	2	08.6002.4.012	3-19	8	2
01.1397.0.000	3-11	2	2	07.6440.0.028	3-13	2	2	08.6002.4.012	3-35	4	4
01.2084.0.000	3-17	01	1	07.6440.0.033	3-9	5	2	08.6002.4.016	3-9	8	2
01.2193.0.000	3-3	1	1	07.6440.0.051	3-23	3	1	08.6002.4.022	3-5	5	2
01.2376.0.000	3-5	1	4	08.6000.3.006	3-19	2	1	08.6002.5.008	3-27	2	1
01.6551.0.000	3-3	2	1	08.6000.3.006	3-21	4	1	08.6002.5.010	3-35	5	4
01.6551.0.000	3-21	1	1	08.6000.3.008	3-25	2	2	08.6002.5.010	3-37	1	2
01.7447.1.000	3-3	3	1	08.6000.3.010	3-11	4	1	08.6002.5.012	3-31	6	1
01.7447.1.000	3-21	2	1	08.6000.3.010	3-13	3	1	08.6002.5.012	3-35	6	2
01.7804.0.000	3-3	4	1	08.6000.3.016	3-25	3	4	08.6002.5.012	3-37	2	2
01.7805.0.000	3-3	5	1	08.6000.3.040	3-25	4	1	08.6002.5.014	3-31	7	1
01.7805.0.000	3-19	1	2	08.6000.4.005	3-23	4	1	08.6002.5.016	3-35	7	2
01.7806.0.000	3-23	1	2	08.6000.4.005	3-53	3	1	08.6002.5.016	3-37	3	2
01.7809.0.000	3-3	6	1	08.6000.4.006	3-19	3	1	08.6002.5.016	3-45	9	5
02.0750.2.110	3-3	7	1	08.6000.4.006	3-25	5	2	08.6002.5.018	3-35	8	2
02.0750.2.110	3-53	1	10	08.6000.4.006	3-27	1	1	08.6002.5.020	3-35	9	4
04.1416.1.003	3-45	1	1	08.6000.4.010	3-21	5	1	08.6002.5.022	3-9	9	8
04.9024.0.362	3-45	2	1	08.6000.4.014	3-11	5	2	08.6002.5.040	3-23	9	2
04.9024.0.363	3-45	3	2	08.6000.4.014	3-13	4	2	08.6002.6.012	3-5	6	2
04.9024.0.364	3-45	4	2	08.6000.4.016	3-21	6	6	08.6002.6.020	3-37	4	2
04.9024.0.907	3-45	5	1	08.6000.4.016	3-23	5	4	08.6002.6.022	3-17	02	4
04.9024.0.951	3-45	32	(1)	08.6000.4.070	3-25	6	4	08.6012.4.010	3-15	1	1
04.9024.1.000	3-45	6	1	08.6000.5.010	3-9	6	1	08.6032.4.010	3-43	3	3
04.9024.1.345	3-45	7	1	08.6000.5.016	3-3	8	1	08.6100.3.008	3-13	6	2
05.1322.0.000	3-53	2	1	08.6000.5.016	3-19	4	1	08.6100.3.008	3-19	9	1
05.1394.0.000	3-25	1	1	08.6000.5.016	3-21	7	4	08.6100.4.008	3-25	7	2
06.2400.0.619	3-43	1	1	08.6000.6.016	3-3	9	2	08.6100.5.008	3-29	1	2
06.2400.0.620	3-43	2	1	08.6000.6.016	3-19	5	2	08.6100.5.012	3-5	7	3
06.2400.0.621	3-45	33	1	08.6000.6.025	3-13	5	1	08.6100.5.012	3-15	2	5
06.2400.0.640	3-49	1	1	08.6000.6.025	3-23	6	2	08.6100.5.016	3-25	8	7
06.2400.0.640	3-51	1	1	08.6000.8.025	3-23	7	2	08.6100.5.020	3-11	6	2
06.2400.0.653	3-31	1	1	08.6000.8.040	3-23	8	1	08.6100.5.020	3-15	3	1
06.2400.0.657	3-9	29	1	08.6002.3.005	3-31	2	3	08.6100.5.020	3-23	10	3
06.2400.0.657	3-19	37	1	08.6002.3.005	3-35	2	10	08.6100.6.035	3-19	10	1
06.2400.2.958	3-35	1	1	08.6002.3.006	3-5	3	4	08.6102.3.008	3-9	10	2
06.7300.0.027	3-47	1	1	08.6002.3.006	3-31	3	8	08.6102.3.008	3-23	11	2
06.8024.0.601	3-41	18	1	08.6002.3.008	3-5	4	3	08.6102.4.008	3-7	2	2
06.8024.0.602	3-41	16	1	08.6002.3.008	3-9	7	2	08.6102.5.008	3-31	8	2
06.8024.0.605	3-41	8	1	08.6002.3.010	3-31	4	4	08.6102.5.012	3-31	9	2
06.8800.0.001	3-45	35	(1)	08.6002.4.006	3-31	5	7	08.6102.5.012	3-37	5	2
07.6045.0.037	3-9	3	2	08.6002.4.008	3-19	6	6	08.6102.5.016	3-39	1	1
07.6045.0.037	3-23	2	1	08.6002.4.008	3-35	3	10	08.6112.3.008	3-17	03	10
07.6045.0.046	3-5	2	2	08.6002.4.010	3-19	7	2	08.6112.3.016	3-17	04	2

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08.6200.4.008	3-13	7	1	08.6702.5.000	3-47	3	2	08.6852.4.000	3-9	16	2
08.6200.4.008	3-25	9	2	08.6702.8.000	3-45	14	15	08.6852.4.000	3-19	15	8
08.6200.4.016	3-21	8	2	08.6710.5.000	3-11	8	2	08.6852.4.000	3-35	15	5
08.6200.5.008	3-23	12	1	08.6710.6.000	3-21	11	1	08.6852.4.000	3-45	18	10
08.6200.5.012	3-15	4	6	08.6712.3.000	3-5	10	2	08.6852.5.000	3-5	12	2
08.6200.5.020	3-15	5	1	08.6712.4.000	3-37	6	1	08.6852.5.000	3-9	17	9
08.6202.4.010	3-31	11	2	08.6712.5.000	3-7	5	1	08.6852.5.000	3-27	3	1
08.6202.5.012	3-47	2	2	08.6712.5.000	3-37	7	1	08.6852.5.000	3-31	19	2
08.6202.5.016	3-5	8	2	08.6712.6.000	3-5	11	1	08.6852.5.000	3-35	16	9
08.6202.5.020	3-31	12	2	08.6733.3.000	3-17	5	2	08.6852.5.000	3-47	5	4
08.6312.3.018	3-7	3	2	08.6733.8.000	3-29	2	1	08.6852.6.000	3-5	13	2
08.6312.8.020	3-45	10	10	08.6800.4.000	3-11	9	2	08.6852.8.000	3-45	19	18
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08.6312.8.035	3-45	12	6	08.6802.3.000	3-7	6	2	08.6887.5.000	3-23	39	2
08.6400.3.005	3-3	10	4	08.6802.3.000	3-31	16	2	08.6892.6.000	3-17	08	4
08.6400.4.004	3-3	11	2	08.6802.4.000	3-7	7	2	08.6892.6.000	3-37	11	2
08.6400.4.004	3-13	8	1	08.6802.4.000	3-35	12	4	08.6962.4.025	3-45	31	(1)
08.6400.4.004	3-21	9	1	08.6802.5.000	3-9	14	8	12.0008.3.023	3-19	16	2
08.6400.5.005	3-3	12	1	08.6802.5.000	3-31	17	2	12.0008.3.023	3-27	4	1
08.6400.5.005	3-19	11	2	08.6802.5.000	3-35	13	11	12.0008.3.023	3-31	20	1
08.6400.5.005	3-23	13	2	08.6802.5.000	3-37	8	6	12.0008.3.413	3-23	19	1
08.6400.5.008	3-23	14	2	08.6802.5.000	3-45	15	5	12.0008.3.415	3-47	6	□
08.6400.5.010	3-19	12	2	08.6802.5.000	3-47	4	2	12.0008.3.416	3-5	14	□
08.6400.5.010	3-21	10	1	08.6802.6.000	3-17	06	4	12.0008.3.416	3-7	10	0
08.6400.6.006	3-9	11	2	08.6802.6.000	3-37	9	2	12.0008.3.416	3-21	15	□
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