



# MODEL EBS Mark II

## ELETRONIC BUTTON STITCHER MACHINE

### PARTS AND SERVICE MANUAL

MACHINE SERIAL No:

PART NUMBER **97.7100.0.002**





## 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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# TABLE OF CONTENTS

## **A - INTRODUCTION**

1. BASIC INFORMATION.....	1-1
2. SAFETY INSTRUCTIONS.....	1-2
2.1. GENERAL SAFETY INSTRUCTIONS.....	1-2
2.2. DELIVERY SAFETY INSTRUCTIONS.....	1-3
2.3. INSTALLATION AND MAINTENANCE SAFETY INSTRUCTION.....	1-3
2.4. DAILY OPERATION SAFETY INSTRUCTIONS FOR OPERATOR.....	1-3
3. SAFETY LABELS AND ARRANGEMENT.....	1-4
4. TERMINOLOGY OF MACHINE PARTS .....	1-5
5. SEWING.....	1-6
6. TECHNICAL CONDITIONS.....	1-7
7. COLOURED MARKING.....	1-8
8. INFORMATION NECESSARY FOR A CLAIM .....	1-8
9. BASIC INFORMATION ABOUT THE MACHINE.....	1-9
10. SPECIAL EQUIPMENT.....	1-10

## **B - MACHINE INSTALLATION**

1. PACKAGE CONTENT.....	1-11
2. UNPACKING AND POSITIONING THE MACHINE.....	1-11
3. LOWER - LEVEL DESK ASSEMBLY.....	1-12
4. THREAD STAND INSTALLATION.....	1-12
5. CONNECTING THE MACHINE HEAD WITH THE CONTROL CABINET.....	1-13
6. CONNECTING THE MACHINE TO THE DISTRIBUTION OF ELECTRICITY AND AIR.....	1-14

## **C - CORRECT USAGE**

1. TURNING ON THE MACHINE - ESTABLISHMENT OF HOME POSITION.....	1-15
2. NEEDLE REPLACEMENT.....	1-16
3. THREADING .....	1-17
4. BUTTON SEWING ADJUSTMENT.....	1-18
4.1. PREPARING FOR FIRST SEWING.....	1-18
4.2. ADJUSTMENT OF BUTTONS WITH HOLES.....	1-19
4.3. ADJUSTMENT OF SHANK BUTTONS.....	1-20
4.4. FURTHERSEWING ADJUSTMENT.....	1-21
5. BUTTON SEWING PROCEDURE.....	1-22

## **D - MACHINE CONTROLS**

1. MAIN MENU INTRODUCTION .....	1-23
1.1. MAIN MENU DISPLAY OVERVIEW.....	1-26
2. BUTTON PROGRAM SETTING.....	1-27
2.1. BUTTON PROGRAM .....	1-27
2.2. CUSTOMIZED PROGRAM NAME .....	1-28
2.3. BUTTON STYLE.....	1-29
2.4. BUTTON PARAMETERS.....	1-29
2.4.1. 2, 3, 4- HOLE BUTTONS.....	1-30
2.4.2. SHANKBUTTON.....	1-31
2.5. NECK PARAMETERS.....	1-32
2.6. STITCH STYLE ADJUSTMENT (SHOW, BLIND, STANDARD STITCH).....	1-33
2.7. LOCKING STITCH ADJUSTMENT.....	1-33
2.8. THREAD TENSION ADJUSTMENT.....	1-34
2.9. SEWING SPEED ADJUSTMENT.....	1-34
3. CYCLE MODE DESCRIPTION.....	1-35
3.1. STANDARD CYCLE MODE.....	1-35
3.1.1. PROGRAMMING THE STANDARD CYCLE MODE.....	1-35
3.2. PROMPT CYCLE MODE.....	1-36
3.2.1. PROGRAMMING THE PROMPT CYCLE MODE.....	1-36
4. COMPLEMENTARY FUNCTIONS.....	1-37
4.1. COUNTERS OF SEWN BUTTONS.....	1-37
4.1.1. SETTING DAILY PRODUCTION COUNTER.....	1-37
4.2. ERROR MESSAGES.....	1-37

## TABLE OF CONTENTS

---

### E - STANDARD MACHINE

1. SERVICE MENU DESCRIPTION.....	1-38
1.1. SERVICE MENU DISPLAY OVERVIEW.....	1-38
1.2. PASSWORDS SUBMITTING.....	1-40
1.2.1. PASSWORD LEVELS.....	1-40
1.3. PROGRAM COPY.....	1-41
1.4. SOFTWARE INFORMATION.....	1-41
1.5. MACHINE PARAMETERS.....	1-42
1.6. JOGGING .....	1-44
1.6.1. JOGGING SCREEN DESCRIPTION.....	1-44
1.7. SENSOR TESTS.....	1-45
1.8. VALVE TESTS.....	1-46
1.9. SEWING - MOTOR ADJUSTMENT.....	1-46
1.10. X-Y MOVEMENT MOTORS ADJUSTMENT.....	1-47
1.11. OTHER MOTORS ADJUSTMENT.....	1-48
2. PNEUMATIC CYLINDERS ADJUSTMENT.....	1-49
2.1. CHUCK ROTATION ADJUSTMENT.....	1-49
2.2. V - SHAPE CYLINDER ADJUSTMENT.....	1-50
2.3. AUXILIARY FABRIC HOLDER ADJUSTMENT.....	1-50
2.4. THREADING DEVICE ADJUSTMENT.....	1-50
2.5. EYE GUARD ADJUSTMENT.....	1-51
2.6. THREAD TRIMMING ADJUSTMENT.....	1-51
2.7. 5-THREAD DRAW-OFF SYSTEM.....	1-51
2.8. THREAD BRAKE ADJUSTMENT.....	1-52
2.9. AIR PRESSURE REGULATORS ADJUSTMENT.....	1-52
3. HEIGHT ADJUSTMENT OF NEEDLE BARS .....	1-53
4. ADJUSTING THE NEEDLE RELEASE.....	1-54
5. ADJUSTING THE MACHINE 'S SENSOR SHUTTERS.....	1-54
6. LOOPER ADJUSTMENT.....	1-57
7. ADJUSTING THE Y BEDPLATE POSITION.....	1-58
8. ADJUSTING THE X, Y BUTTON POSITION.....	1-58
9. ADJUSTING THE X PUCKER-PIN POSITION.....	1-58
10. ADJUSTING THE CHUCK HEIGHT.....	1-59
11. ADJUSTING THE BUTTON FEEDER.....	1-59
12. ADJUSTING THE CLAMPING LEVER OF THE THREAD TENSION.....	1-60
13. ADJUSTING THE TONGUE POSITION.....	1-61

### F - MAINTENANCE

1. CLEANING AND MAINTENANCE OF THE MACHINE.....	1-62
2. PERIODIC MAINTENANCE.....	1-65
3. MACHINE GREASING.....	1-66
4. MACHINE DISPOSAL.....	1-67

### G - DOCUMENTATION

1. AIR DISTRIBUTION - PNEUMATIC SCHEMES.....	1-68
2. ELECTRICAL CIRCUIT SCHEMES.....	1-69

## **A - INTRODUCTION**

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### **1. BASIC INFORMATION**

Thank you for buying our electronic EBS Mark II. This sewing machine is intended for sewing buttons on outwear. It has been designed and manufactured to be reliable and easy to operate. Special attention has been paid to ensure ease, effectiveness and safety for machine operators and servicemen.

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

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


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


## A - INTRODUCTION


### 2. SAFETY INSTRUCTIONS

This manual includes four categories of safety instructions:


**DANGER!**  Overlooking instructions may endanger operator's life.


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


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


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


#### 2.1. GENERAL SAFETY INSTRUCTIONS


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


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


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


 Do not touch rotating and moving parts at any circumstances.


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


 Before changing the needle, switch off the main switch.


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


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


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


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


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

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

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

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



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

 Do not work on the machine impaired or intoxicated.







## A - INTRODUCTION





### 2.2. DELIVERY SAFETY INSTRUCTIONS

-  When unwrapping the machine, follow the marks and symbols on the box and wrapping.
-  Visible damages of the consignment caused during shipment must be reported to the freight forwarder immediately. Check the content of the consignment with the order and inform the manufacturer on any discrepancies. Later claims will not be accepted!

### 2.3. INSTALLATION AND MAINTENANCE SAFETY INSTRUCTION

-  The machine is fitted with a filter to suppress noise according to the standards (EMC - ÈSN 50081-1 and 50081-2). In case there is a circuit breaker connected in the power system, it must be the type for devices with stray current and with high resistance to surge current in the operational conductor (i.e., "S" type).
-  If there is a need to remove any of the safety covers, switch off the main switch, and possibly unplug the machine from the electricity.
-  It is strictly forbidden to connect any connector while the machine is switched on and under voltage! Electrical parts and motors may get damaged.
-  Make sure that electricity supply and its dimensioning and protection provide stable electricity supply necessary for reliable machine performance.


### 2.4. DAILY OPERATION SAFETY INSTRUCTIONS FOR OPERATOR


-  Do not connect the machine onto power supply, if any of the safety covers is removed.
-  Check there are no bare electrical cables that could cause injury.
-  If you are not sure about proper operational procedure, it is necessary to call a mechanic.
-  The user has to ensure the lightning of minimum 750 Luxes.


## A - INTRODUCTION


### 3. SAFETY LABELS AND ARRANGEMENT


- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>❶ Electricity injury warning</li> <li>❷ Danger - possible injury</li> <li>❸ Injury warning</li> <li>❹ Wear eye protection</li> <li>❺ Grounding</li> <li>❻ Rotation direction</li> <li>❼ Warning</li> <li>❽ Start button</li> <li>❾ Removable upper needle bar cover</li> </ul> | <ul style="list-style-type: none"> <li>❿ Eye guard cover</li> <li>⓫ Lower looper cover</li> <li>⓬ Main machine cover</li> <li>⓭ EMERGENCY STOP button</li> <li>⓮ Main power switch</li> <li>⓯ Standard machine label</li> <li>⓰ Manufacturer information label</li> <li>⓱ Production monitored / type tested</li> <li>⓲ Control box label</li> </ul> |
|---|--|





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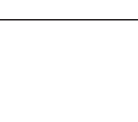
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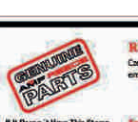
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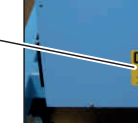
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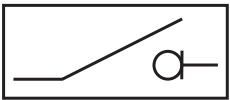
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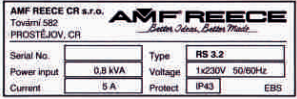
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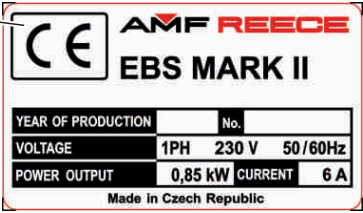
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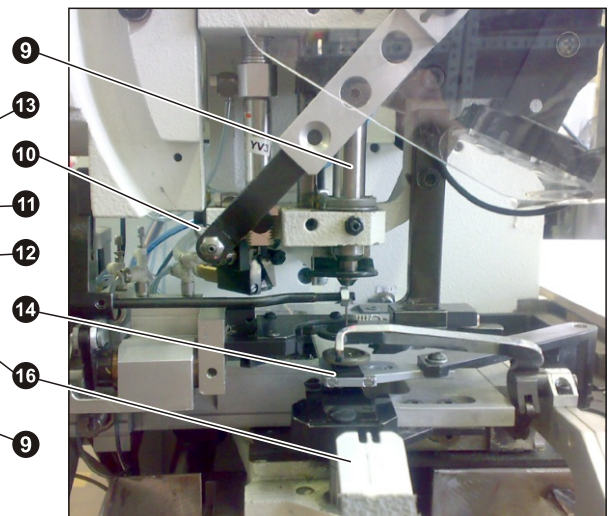
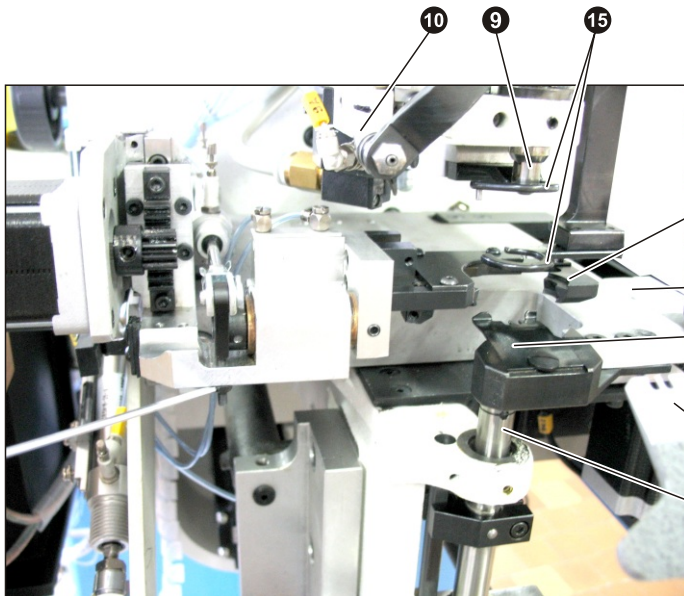
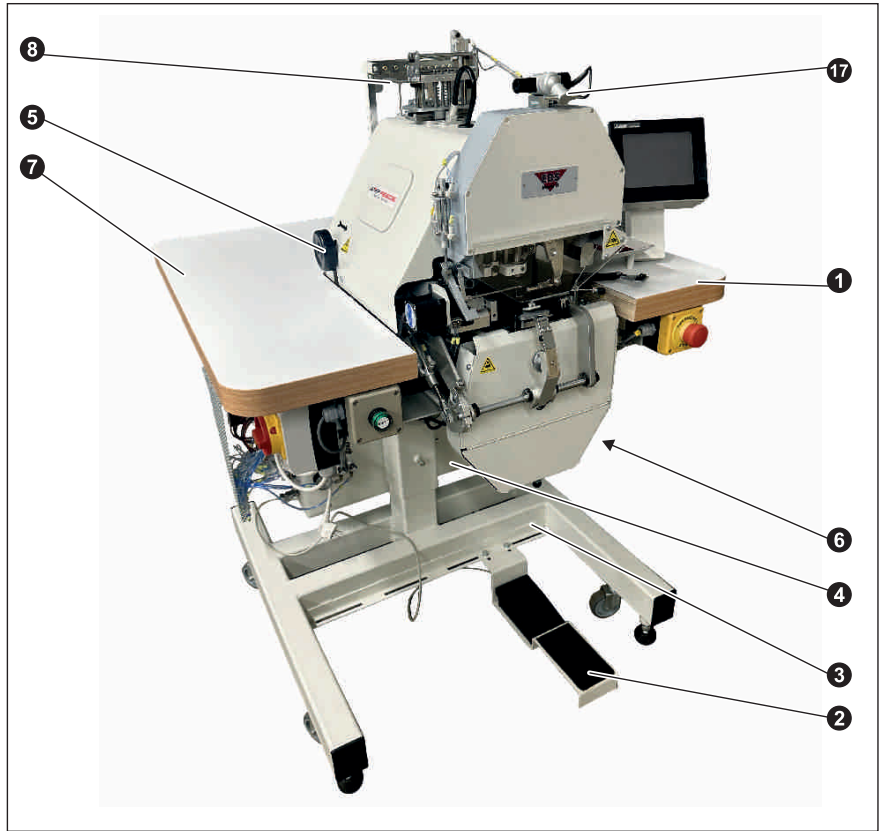
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## A - INTRODUCTION

### 4. TERMINOLOGY OF MACHINE PARTS

- ① Lower - level desk
- ② Foot pedal
- ③ Stand
- ④ Electro box
- ⑤ Hand wheel
- ⑥ Sewing motor
- ⑦ Table
- ⑧ Thread stand
- ⑨ Needle bar (upper/lower)
- ⑩ Upper looper
- ⑪ Bedplate
- ⑫ Pucker pin
- ⑬ Button chuck
- ⑭ Button feeder
- ⑮ Thread tension mechanism
- ⑯ Tongue
- ⑰ Marking light

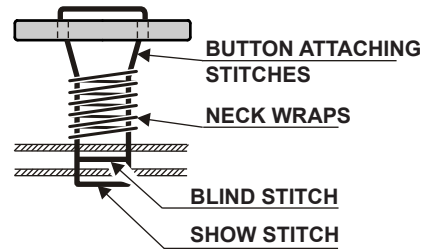


## A - INTRODUCTION

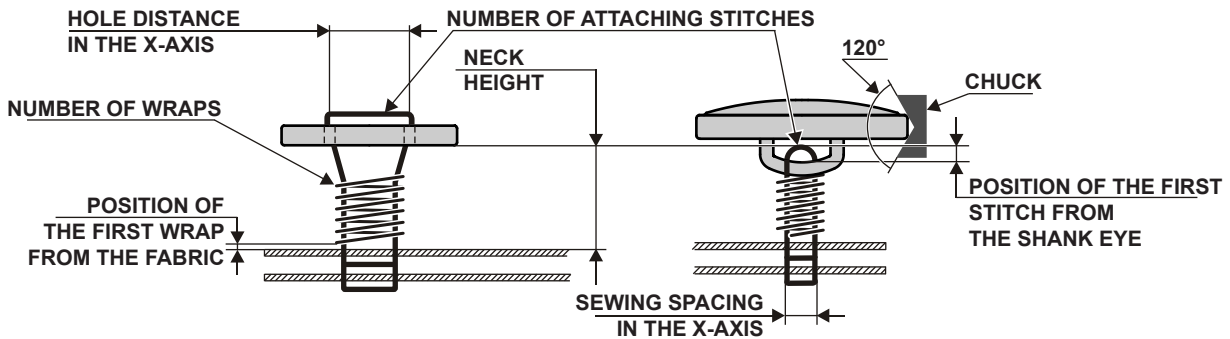
### 5. SEWING

Standard sewing sequence:

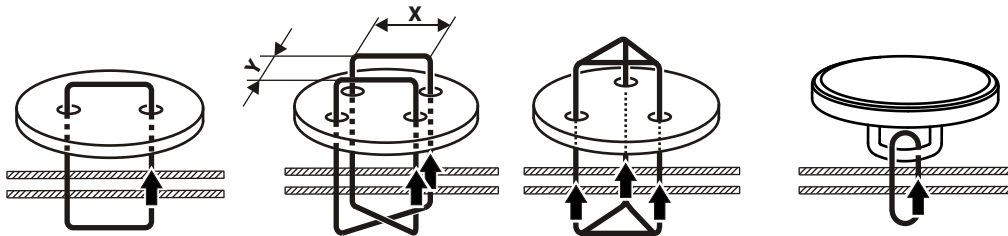
1. Initial locking stitches
2. Button attaching
3. Show stitch
4. Neck wrapping
5. Final locking stitches



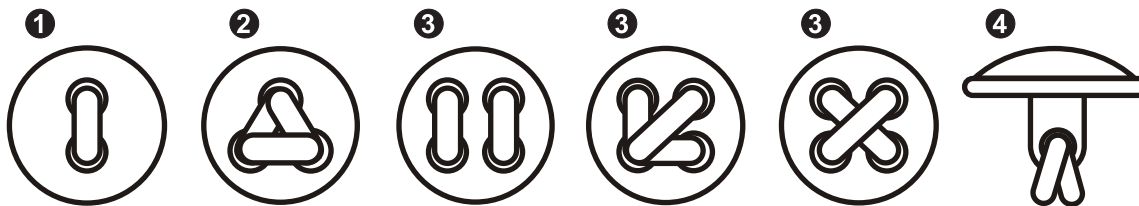
Sewing parameters:



Sewing depiction:



Button types and sewing styles:

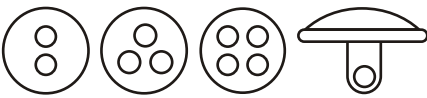

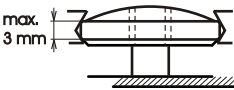
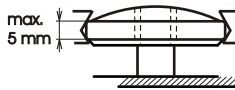
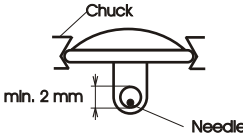

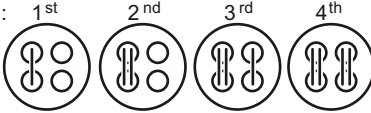
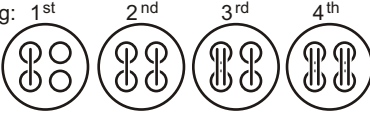



All buttons are sewn with hand stitching:

- |                   |                   |
|-------------------|-------------------|
| ① 2 - hole button | ③ 4 - hole button |
| ② 3 - hole button | ④ Shank button    |

## A - INTRODUCTION

### 6. TECHNICAL CONDITIONS

Description	Parameters
Application	Electronic button sewing and wrapping machine
Stitch type	Hand stitching with a floating needle
Sewing speed	100 - 200 rpm; adjustable in increments of 5 rpm
Button type	
Sewing style	
Button parameters	14 - 26mm
Button height	<p>Chuck No. 1: </p> <p>Chuck No. 2: </p> <p></p>
Hole distance	<p></p> <p>Axis X: 2.6 - 6 mm</p> <p>Axis Y: 2.6 - 6 mm</p>
Neck height	0 - 8 mm
Number of attaching stitches	1 - 14
Number of neck wraps	0 - 30
No. of initial, final locking stitches	0 - 3, 0 - 6
Stitch depth in fabric	0 - 3 mm
Stitch options	<p>Overlapping: </p> <p>Alternating: </p>
Memory	99 patterns
Automatic cycle mode	20 cycle modes; 1 cycle mode = 20 different button patterns
Manual cycle mode	20 cycle modes; 1 cycle mode = 2 different button patterns selected by the pedal
Thread length	max. 550 mm
Thread trimming 	Pneumatic
Threading	Pneumatic
Thread tension	Electronically adjustable, 20 steps
Recommended threads	Polyester thread 30, 40, 50, 70, Rice waxed thread size 3, 4, 5
Needle system	AMF REECE 2000A-38 (100 Nm)
Control panel	Colored touch screen display
Marking light	LED diode
Sewing light	LED diodes
Button feeding	Semiautomatic; different button holders according to button type
Operating condition	According to IEC 364-3, IEC 364-5-51; temperature from +5°C to +40°C, relative air humidity from 30 to 80%
Air pressure	0,55 Mpa = 80 psi
Machine noise level	78 dB
Machine head	510 mm (height) x 420 mm (width) x 620 mm (depth)
Machine head weight	40 kg
Machine weight	156 kg
Overall of machine dimension	Adjustable 800 - 1050 mm (height) x 850 mm (width) x 850 mm (depth)
Electrical requirements	230V/TN-S 1F+N+PE - 50/60Hz
Line circuit breaker	Min. 10A "C" Characteristic (EN60947-2)

## A - INTRODUCTION

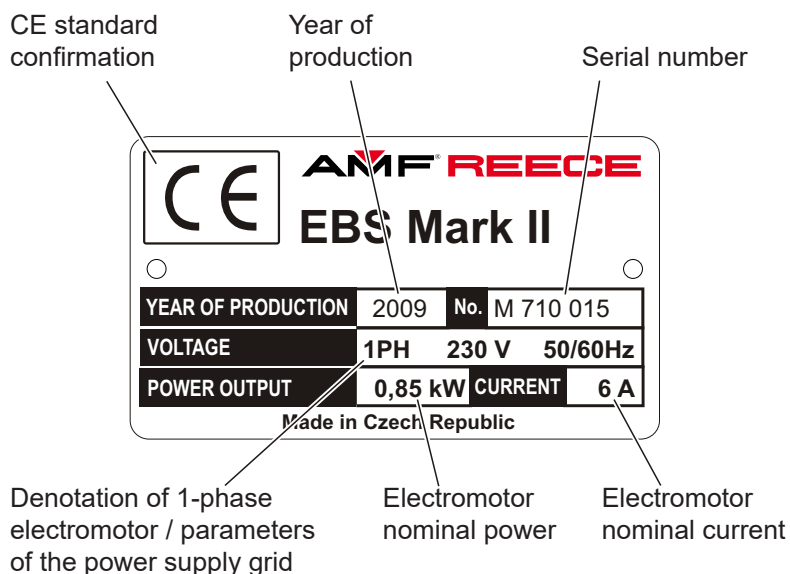
### 7. COLOURED MARKING

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

### 8. INFORMATION NECESSARY FOR A CLAIM

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

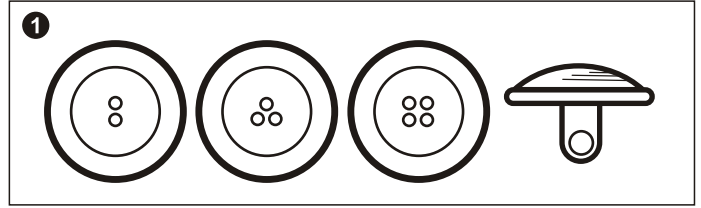
8.2. Describe the defect, enclose with a photo whenever applicable.



## A - INTRODUCTION

### 9. BASIC INFORMATION ABOUT THE MACHINE

9.1. EBS MARK II machine is intended for sewing of two-, three-, four-hole, and shank-buttons ❶ to outwear garment using a hand-stitch imitation technology. One can adjust the number of button attaching stitches, button-hole stitches sequencing, number of neck-wraps, and number of initial and final locking stitches. Automatic thread trimming feature is also available. All



these operations are carried out in a single sewing cycle. Chapter **A6** - Technical Conditions refers the threads recommended for the machine.

9.2. There are two sewing styles:

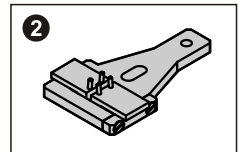
a) standard sewing style



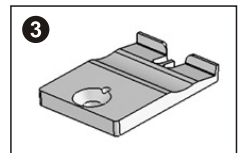
b) “V” -shape sewing style



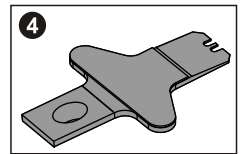
“V” -shape sewing style allows very small distance of the stitches in fabric and subsequent reduced puckering of the fabric.



9.3. Machine is delivered with replaceable button holders ❷, corresponding pucker-pins ❸, and tongues ❹ – refer to **Table A** (next page). Flexible, automatically adjustable pins of the button holder allow one loader to comprehend various button sizes; thus it is not necessary to change the holder with each change of the button size as usually. Two types of button-chuck ❺, covering a wide range of applications, are also contained as standard accessory.

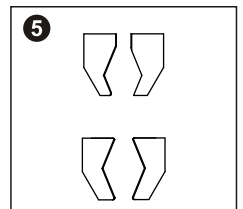


9.4. Machine stand (chapter **B2**) allows adjusting the height of the table with a safe fixing of the position.



9.5. Machine on the stand can be moved and fit in place because of the wheels with adjusting screws – refer to **B2**. Lower-level desk can be adjusted in horizontal direction according to the operator’s needs.

9.6. Button loader, pucker-pin, and tongue shall be selected based on the description given in **table A**.



9.7. Machine can be ordered in the following two configurations:

a) 5-threads

b) 5-threads, “V”-shape

5-threads threading system is mainly suitable for unit production, where the thread is changed often. The system enables quick exchange of threads.

9.8. Thread draw-off is intended for better unwinding of the thread from a bobbin. It is mainly convenient for threads with recovery or wax-threads.

9.9. Workspace is illuminated with LED-lights.

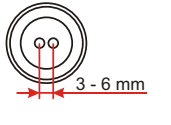
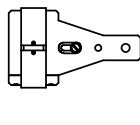
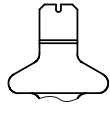
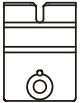
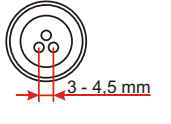
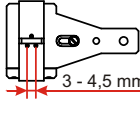
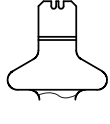
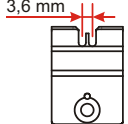
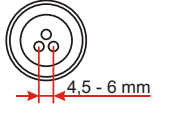
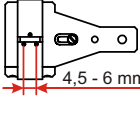
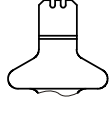
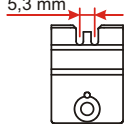
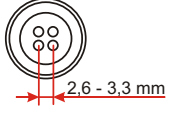
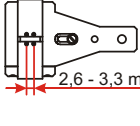
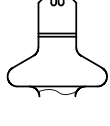
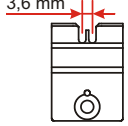
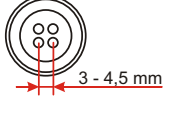
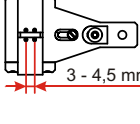
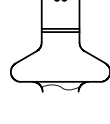
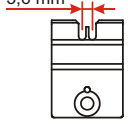
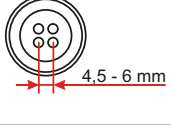
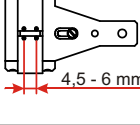
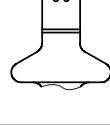
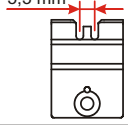
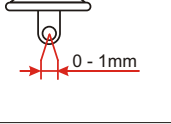
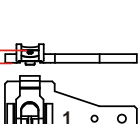
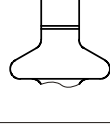

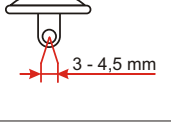
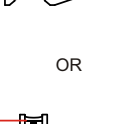
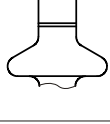
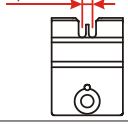
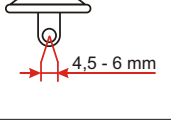
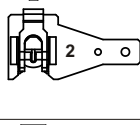
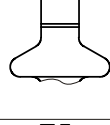
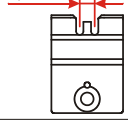
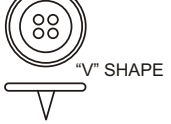
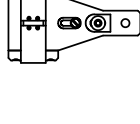
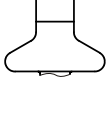
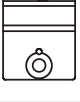
9.10. The machine complies with the CE standard.

## A - INTRODUCTION

Table A

9.11. There are information labels glued on the machine - refer to **A3** - drawing attention on additional hazards. Do not remove or damage the labels. If any label is damaged, order a new one. Nevertheless, the referred arrangements cannot cover all the safety aspects and thus it is essential for both the operator and technician to understand this manual before operating the machine. Mistakes made during the machine installation and operation will be eliminated this way. Do not try to run the machine before reading all the manuals supplied with the machine and understanding each function and practice.

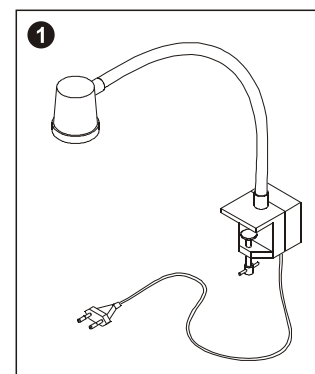
9.12. We recommend an AMF Reece qualified service engineer to supervise the machine installation and initial training of your technicians and operators.

Button type/dimension	Button holder	Tongue	Pucker pin
 3 - 6 mm			
 3 - 4.5 mm	 3 - 4.5 mm		 3,6 mm
 4,5 - 6 mm	 4,5 - 6 mm		 5,3 mm
 2,6 - 3,3 mm	 2,6 - 3,3 mm		 3,6 mm
 3 - 4,5 mm	 3 - 4,5 mm		 3,6 mm
 4,5 - 6 mm	 4,5 - 6 mm		 5,3 mm
 0 - 1 mm	 5		
 3 - 4,5 mm	 1		 3,6 mm
 4,5 - 6 mm	 2		 5,3 mm
 "V" SHAPE			

## 10. SPECIAL EQUIPMENT

### 10.1. Work light ①

- standard light can be ordered separately, order number 12.0010.4.390



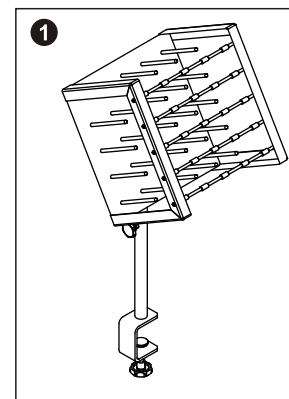


## B - MACHINE INSTALLATION


### 1. PACKAGE CONTENT

The package includes the following, if not stated otherwise in the order:

- the composite machine on a base with electric installation
- a cardboard with accessories
- a thread stand **1**
- parts and service manual



#### CAUTION!

 The visible damages of the package must be immediately reported to the carrier. Check the content of the package with the order and immediately report the possible defects to the manufacturer - later complaints will not be accepted!

### 2. UNPACKING AND POSITIONING THE MACHINE

2.1. When unpacking the machine, it is necessary to follow the signs on the package.

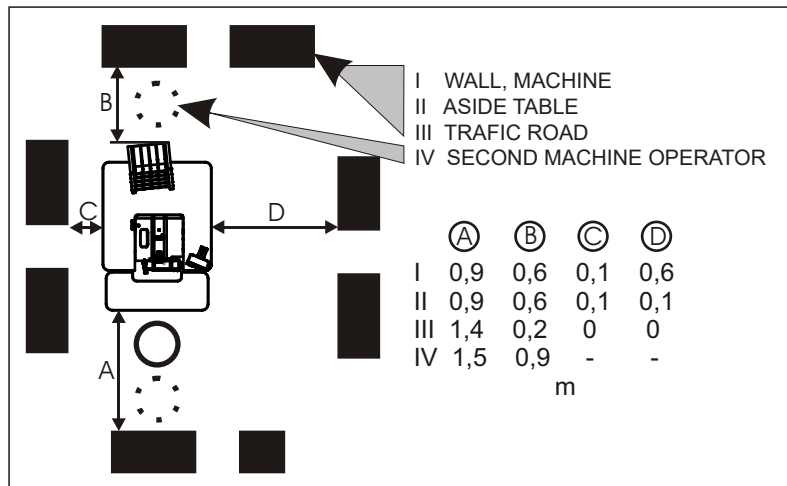
2.2. After unpacking the machine, install it into the designated place. The machine is delivered with the table adjusted for working in a sitting position. The recommended height of the lower-level desk from the floor is 870 mm. For changing the height or the machine loose the screw **4** and use the hand crank **2** from the accessories. If you need to raise the desk, turn it anticlockwise. Tighten well the screw **4** afterwards!

2.3. The supports **3** are used to ensure the stability during sewing. Loose their nut, screw them down to the floor. Tighten the nut again.

2.4. Before moving the machine to another place raise the supports **3** after loosening their nuts so as the stand leans against the movable wheels **5** and the supports do not hamper in movements.



## B - MACHINE INSTALLATION

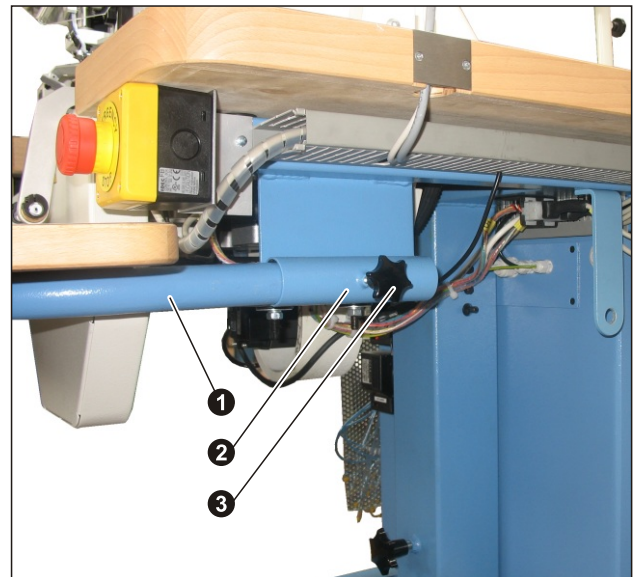


### 3. LOWER - LEVEL DESK ASSEMBLY

3.1. Attach the lower - level desk **1** to the tubes **2** of the machine frame and push forward as desired.

3.2. Press the emergency stop button and check fully a free movement of the bedplate!

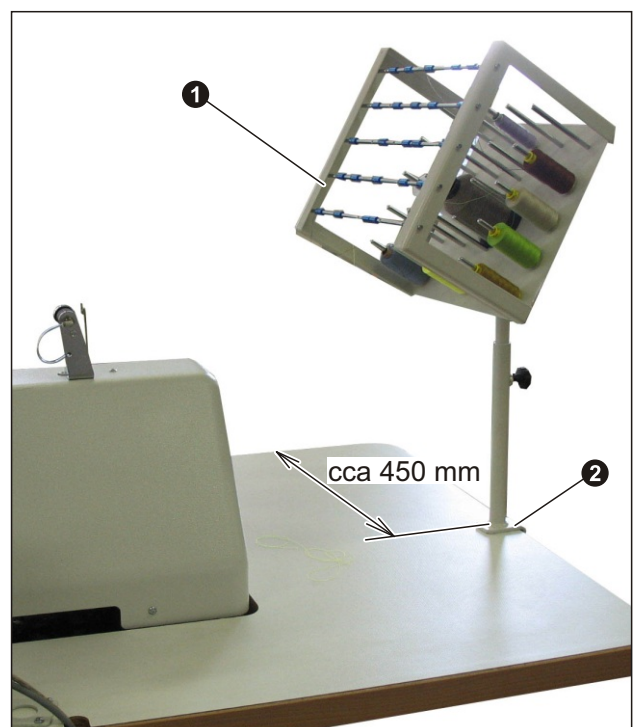
3.3. When the desired position is reached, tighten the screws **3** for fixing the workspace.



### 4. THREAD STAND INSTALLATION

4.1. Attach the thread stand **1** with its accessories according to the figure.

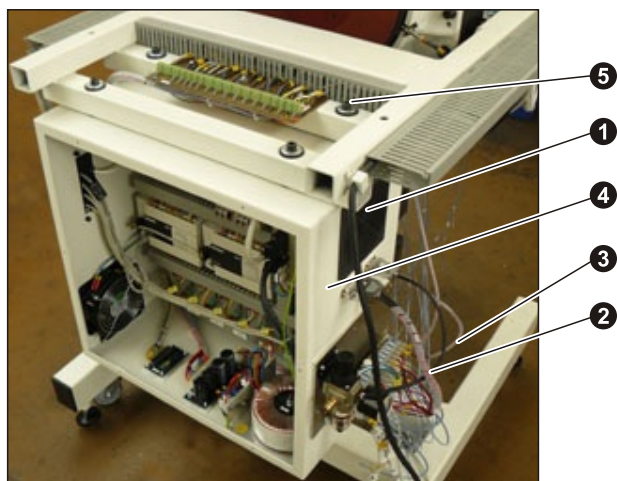
4.2. The appropriate position when tightening its clamps **2** is on the back side of the stand app.450 mm from left.



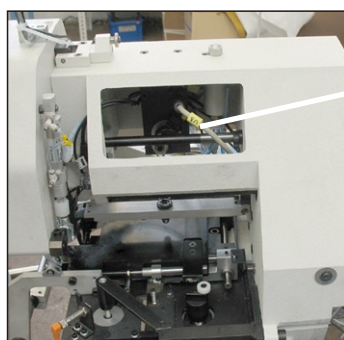
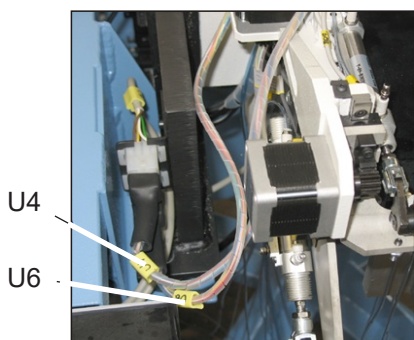
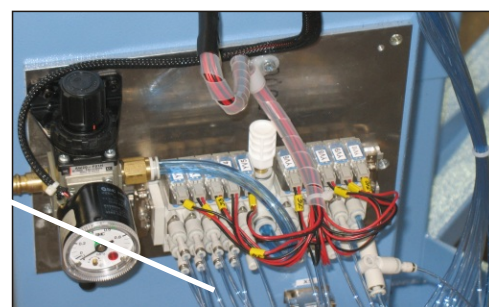
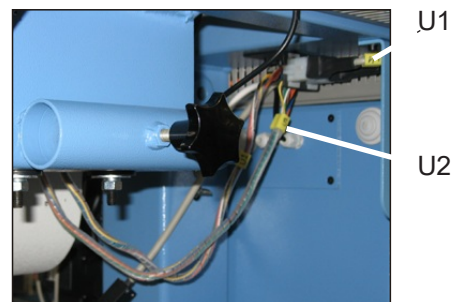
## B - MACHINE INSTALLATION

### 5. CONNECTING THE MACHINE HEAD WITH THE CONTROL CABINET

The machine is delivered from the manufacturer as completely engaged. The control cabinet **1** of the base includes the electronics necessary for controlling the machine **4**, attached unit for the modification of compressed air **2**, and the valves **3** used to control the pneumatic cylinders of individual mechanisms.

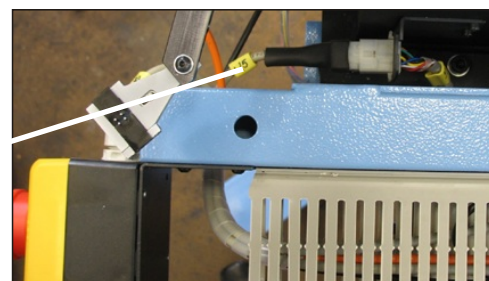


J1A/B-J13A/B .



U3

U5



In case of eventual demounting and mounting, the following should be joined:

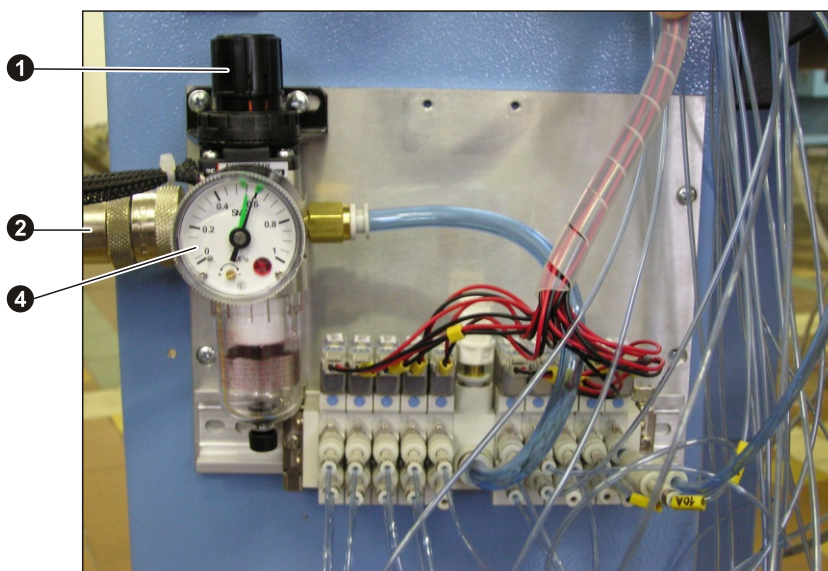
- blue pneumatic hoses **J1A/B — J13A/B** with electromagnetic valves of the same designation - hoses **A** to the upper screws, **B** into the lower screws
- two cables into of the servomotor - encoder/power
- the cable harnesses of stepping motors with cables of the same designation from the cabinet in corresponding supports **U1... U6**
- connecting the LED sewing light + the marking light to the transformers on the cabinet
- the sensor cables **BQ 1...BQ 12** connected (see **5**) to the terminal under the table

## B - MACHINE INSTALLATION

### 6. CONNECTING THE MACHINE TO THE DISTRIBUTION OF ELECTRICITY AND AIR

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

6.2. After connecting the air check the set pressure on the controller **4**. It must be min. 0,55 MPa. The correction can be carried out by pushing out the closure **2**. Increase the set pressure by turning clockwise, decrease it by turning anticlockwise. Push the closure **2** in again.



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

#### NOTE!


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

6.4. The provided warranty does not cover the LED diodes of the machine's sewing light.

## C - CORRECT USAGE

### 1. TURNING ON THE MACHINE - ESTABLISHMENT OF HOME POSITION

**NOTE!**


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

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

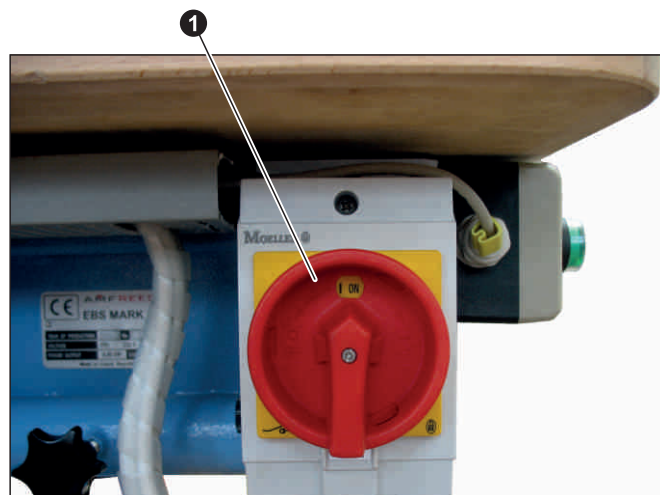
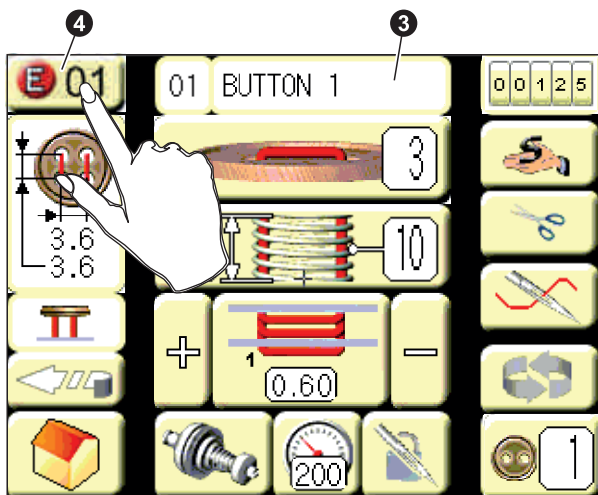
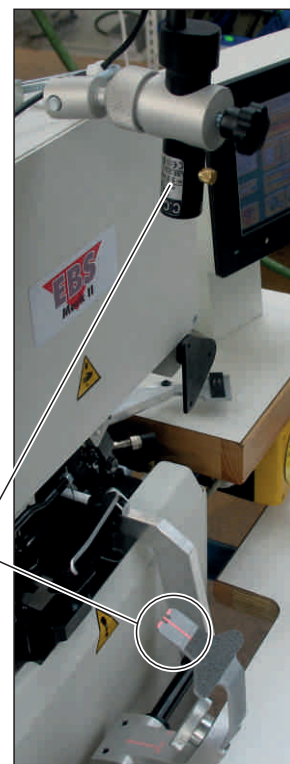
1.2. Turn on the machine by rotating the main switch **1** clockwise to position **I ON**.

1.3. Display is activated and backlit. Initial screen appears, wait for appearing the main screen **3**.

1.4. Switch **5** serves for lighting up the positioning cross **2**.

1.5. If error notification **E02** appears in field **4**, machine drive is not in home position. Rotate the hand-wheel until **E01** appears in field **4**. Then press the button . In case of another error notification proceed according to instructions in section **3 "Troubleshooting"** of this manual.

1.6. Machine is ready for sewing when there is a green label in field **4**. (For display description refer to **D 1**).



## C - CORRECT USAGE

### 2. NEEDLE REPLACEMENT

#### NOTE!

⚠ Use only AMF Reece 2000A - 38....needles ( for 30...70 thick threads). Turn off the electric power supply before every handling by using the stop button. The error message **E 99** appears on the display.

2.1. Check if the upper looper **1** is not in the area of the upper needle bar cover **2**, then release the cover through the hole in the cover I, use a stick (screwdriver), the releasing button is on the left from the passing wires and the tubes of the pneumatic cylinder **3**. Lift up the cover **2** to the position where fixed by the latch **4**.

#### WARNING!

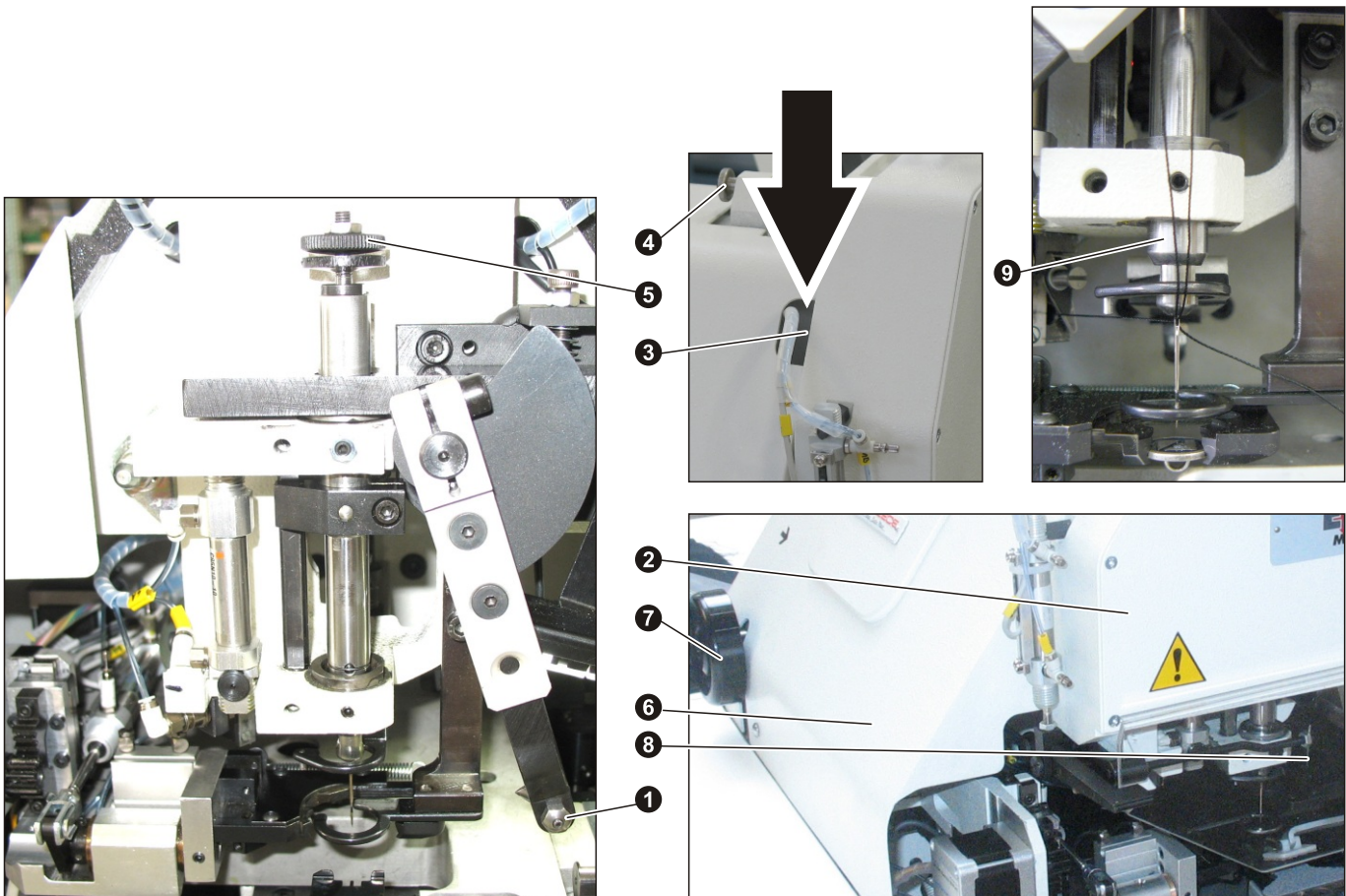
⚠ When the cover is open there is a risk of injury caused by the threading hook **8** which is located in the area of the lifted cover.

2.2. Lift up the needle bar entry **9** by pulling the nut **5** of the needle bar **9**. Put the needle into the needle bar **9**, with the needle eye facing the operator.

2.3 Needle bar presses the needle after you release the nut **5**. Check proper holding of the needle by pulling it.

2.4 By turning the handwheel **7** carry out two handovers of the needle between the upper and the lower needle bar and stop in the position when needle bar cover **2** can be closed.

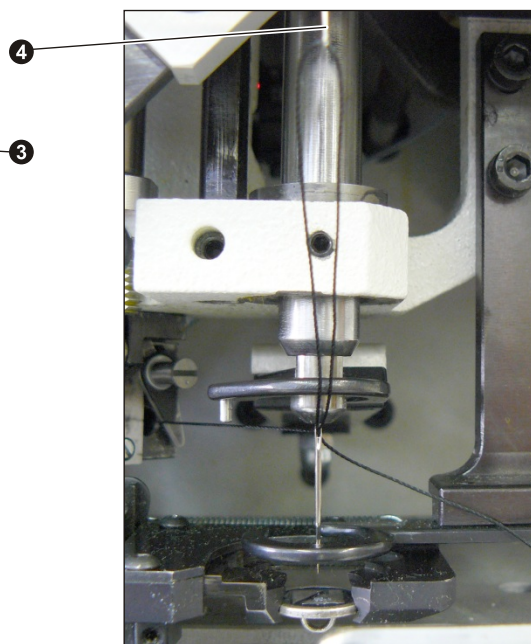
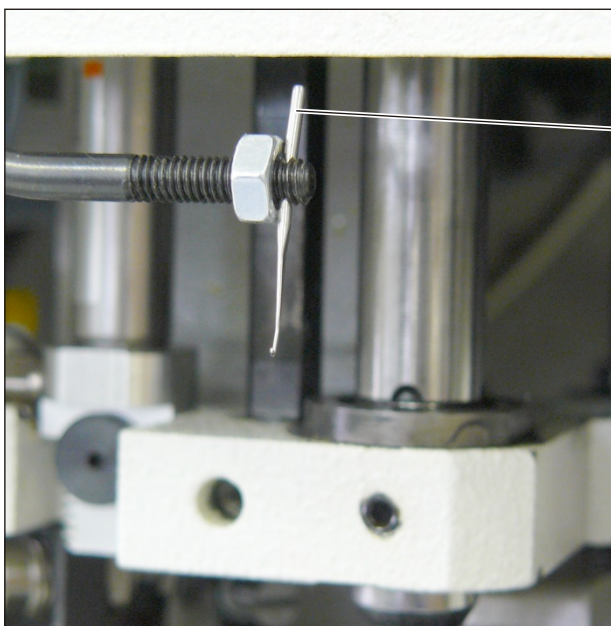
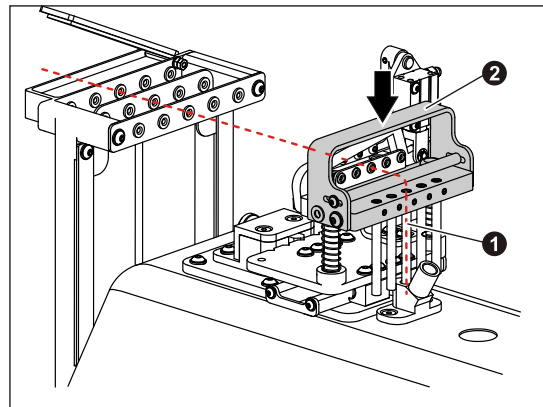
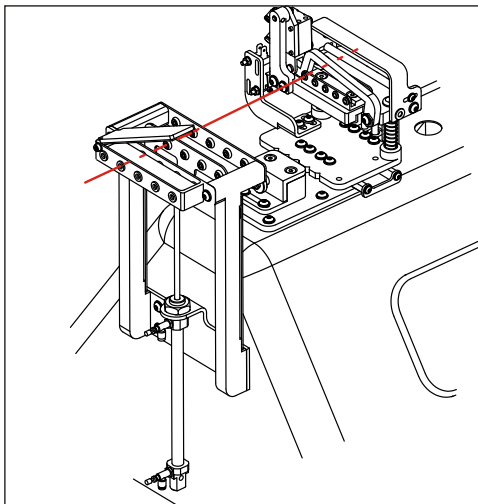
2.5. Close the needle bar cover **2** by pulling the hand nut **4** and press it in the lower position so as it is fixed by the fuse **3**.




## C - CORRECT USAGE

### 3. THREADING

3.1. Lead the thread from the stand according to the pictures below and insert it into the tube **1** up to the bottom end of the tube. By pressing **2** activate the air threading system and the thread is led close to the needle.





3.2. Activate the symbol of threading  on the main screen. The thread gets in the area of the needle.

3.3. After loading the fabric (refer to chapter C5), the threading hook **3** is in the needle. Lead the thread under the threading hook **3**.

3.4. The threading into the needle is carried out automatically **4** if you step on the foot pedal. The operator pulls out the the length of the thread necessary for one sewing cycle.

#### NOTE!

 The thread length is dependent on the chosen programme - the chosen type of button, the number of stitches, the neck height and the number of neck wrappings affect it.

 If the hook damages the thread, it is necessary to cut off the damaged thread in the place where it was damaged.

## C - CORRECT USAGE

### 4. BUTTON SEWING ADJUSTMENT

Before the first sewing of any new button, the machine needs to be properly adjusted based on the properties of this button and demanded sewing parameters. It is worthy to store this setting in one of the button programs (refer to chapter **D 2**) so that it can be subsequently reused. This chapter describes the sequence of button sewing adjustment: the initial operations are described in chapter **4.1.**, adjustment of buttons with holes is then described in chapter **4.2.**, whereas shank buttons are described in chapter **4.3**. Chapter **4.4.** describes further sewing adjustment for both buttons with holes and shank buttons.

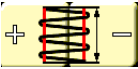
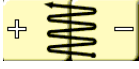

#### 4.1. PREPARING FOR FIRST SEWING


Once the machine is in Home Position (refer to chapter **C 1**) it can be prepared for sewing. The procedure is the following:

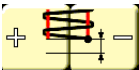
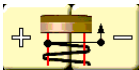
4.1.1. Set the main sewing parameters:


a) Type of the button and stitching method you want to sew on the Button Style screen.

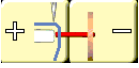
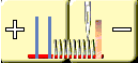
b) Number of button attaching stitches by icons  on the Button Parameters screen.

c) Neck height by icons  and number of neck wraps by icons  on the Neck Parameters screen. If the icon  appears on the same screen, the adjusted neck height is not enough to perform neck wrapping due to a possible mechanical collision. Increase the neck height


until  icon appears; later on, you can again decrease the height in case you are able to extend the scope of wrapping in Y-direction using



settings  and  (refer to chapter **C 4.2.**).


d) Stitch style (show or blind stitches) by one of the icons  on the Stitch Style adjustment screen.

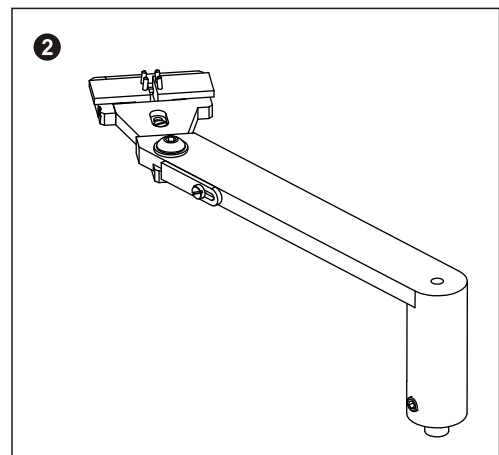
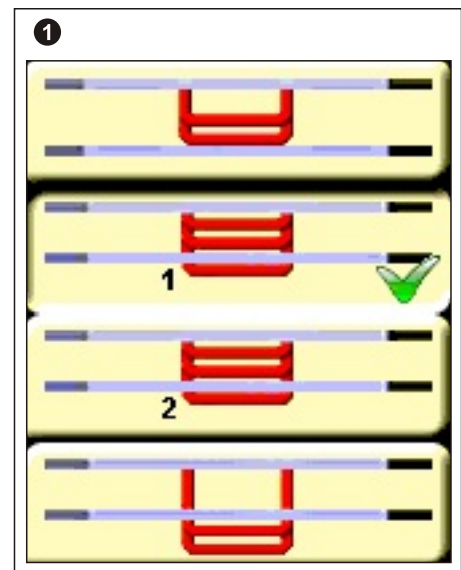
e) Number of initial locking stitches by  and final locking stitches by  on the Locking Stitch adjustment screen.

4.1.2. Put the button on the button holder .

4.1.3 Press icon  on the Button Parameters screen to perform first half of the button feeding phase - the button is brought inside the button chuck. Now adjust vertical position of the button chuck by icons

 or  for shanks; you can close / open the chuck


by using the icon .



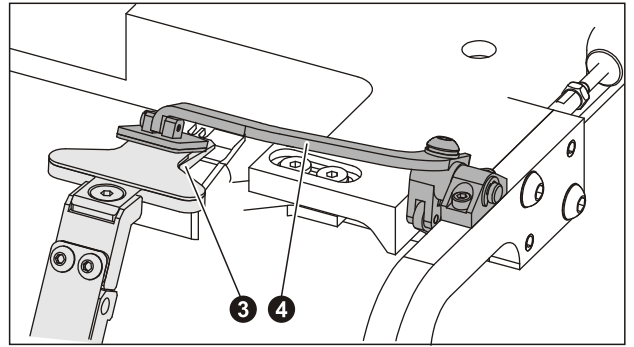


## C - CORRECT USAGE



Right position is established once the button doesn't move while being caught by the chuck. In that case finish the button


feeding cycle by second pressing of the icon .

4.1.4. Press the tongue **3** (without a fabric) up to the position where it is hold automatically. Press the machine pedal – the auxiliary fabric holder **4** will go down. Together with this action, the thread is blown into the sewing area. Do not thread the thread at this time.





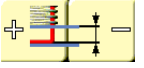
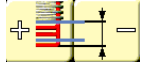
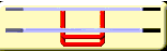
### NOTE!



 Automatic activation of the fabric holder can be enabled  in the machine parameters screen - refer to chapter **E 1.5**.

4.1.5. Go to the Jogging screen and activate jogging by pressing  - refer to chapter **E 1.6**. for details on jogging of the button sewing, which shall be studied before proceeding to the next steps in this chapter.

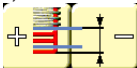
## 4.2. ADJUSTMENT OF BUTTONS WITH HOLES

4.2.1. Measure the spacing of button holes in X and Y direction and enter it by using icons  and  respectively on Button Parameters screen. Mostly, the same value will be measured for spacing in X and Y direction.

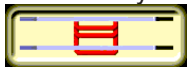
4.2.2. Machine is in the beginning of Jogging mode and "Begin Lock 1/5"(for 2 initial locking stitches as an example) is displayed in the Current sewing phase field of the Jogging screen. First initial locking stitch is being sewn and position of the stitch depth can be adjusted by icons  in standard case or  if all show stitches option  has been selected on the Stitch Style adjustment screen.

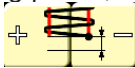
4.2.3. Button attaching phase starts right after the initial locking stitches and "Button" is displayed in the Current sewing phase field. In this phase adjust the button holes Spacing by icons  and  on the Button Parameters screen so that the needle goes into the center of all buttonholes.

## C - CORRECT USAGE

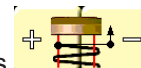
4.2.4. In "Show Stitch" phase, the visible stitch is sewn - you can adjust sewing depth while the 2nd stitch is sewn ("Show Stitch 2/3") by icons  on the Stitch Style adjustment screen. Avoid collision with the pucker-pin.


This applies only for 1 or 2 show stitch option



4.2.5. Next phase is the neck wrapping phase, which is maintained from the Neck Parameters screens. Adjust the Y-position of the first wrap using icons  - "Neck Wrap 1/17" displayed in the Current sewing phase field (for 8 neck wraps as an example); avoid collision with the pucker-pin!

Then proceed to the last wrap ("Neck Wrap 17/17") and adjust Y-position of the last wrap using icons

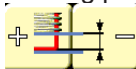

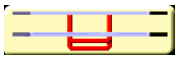


; avoid collision with the button! You can use icons  to adjust the wrapping width - if the distance from button attaching threads is not enough or even any thread was not caught by wrapping, extend the width.


4.2.6. Finish the jogging till the last final locking ("End Lock") stitch.



### 4.3. ADJUSTMENT OF SHANK BUTTONS

4.3.1. Adjust the desired stitch spacing in fabric by icons  on the Shank Button Parameters screen.



4.3.2. Machine is in the beginning of Jogging mode and "Begin Lock 1/5" (for 2 initial locking stitches as an example) is displayed in the Current sewing phase field. First initial locking stitch is being sewn and position of the stitch depth can be adjusted by icons  in standard case or  if all show stitches option  has been selected on the Stitch Style adjustment screen.

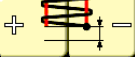

4.3.3. Button attaching phase starts right after the initial locking stitches and "Button" is displayed in the Current sewing phase field. In the second stitch of this phase ("Button 2/16" for 4 button attaching stitches as an example)

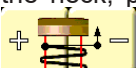
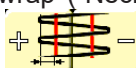
adjust the position of the needle from shank eye by icons  on the Shank Button Parameters screen. Set this parameter in the way that the needle does not collide with the eye of the shank button - minimum distance from the eye is 0.2 mm; also pay attention to avoid collision of the needle-bar with the shank button.

4.3.4. In "Show Stitch" phase, the visible stitch is sewn - you can adjust its sewing depth while the 2nd stitch is sewn ("Show Stitch 2/3") by icons  on the Stitch Style Adjustment screen. This applies only for 1 or 2 show stitch option .

## C - CORRECT USAGE

4.3.5. Next phase is the neck wrapping phase, which is maintained from the Neck Parameters screen. Pay attention to avoid collision with the shank eye for entire neck wrapping! First select the shape of neck wrapping  or 









. Adjust the Y-position of the first wrap using icons  - "Neck Wrap 1/17" displayed in the Current sewing phase field (for 8 neck wraps as an example); avoid collision with the pucker-pin! If you use the  option, check the position of the 2nd stitch ("Neck Wrap 2/17") as well.

Normally, all neck wraps are sewn on the same position for shank buttons; if you like to distribute the wraps across the neck, proceed to the last wrap ("Neck Wrap 17/17") and adjust the Y-position of the last wrap using icons . You can use icons  to adjust the wrapping width - extending the width can help in avoiding collision with the shank eye.

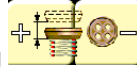
4.3.6. Finish the jogging till the last final locking ("End Lock") stitch.

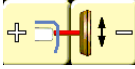
### 4.4. FURTHERSEWING ADJUSTMENT

You are now done with the basic sewing adjustment. Further sewing adjustments described in this chapter help to obtain optimal sewing results according to your requirements. Start by setting lower sewing speeds on the Sewing Speed Adjustment screen and low values of thread tension on the Thread Tension Adjustment screen. You can try to sew the first button and based on the result, adjust the following parameters:

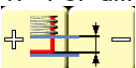
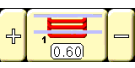
4.4.1. Sewing tension shall be adjusted for individual sewing phases. Basically, small values are recommended for initial locking stitches and show stitch   to avoid fabric puckering, medium values for button attaching,   high values for neck wrapping   to get a firm neck, and similarly for final locking stitches  

4.4.2. Sewing speed is again adjustable in different sewing phases and is related to the thread tension - the higher sewing speed results in higher tension. It is recommended to set smaller speeds for potentially dangerous situations (e.g., sewing close to the button or pucker-pin is adjusted).

4.4.3. For buttons with holes only, an unintended fabric puckering can be suppressed by adjusting the button position during button attaching  - higher position means looser button attaching threads and consequent reduced puckering.

4.4.4. By icons  you can optimally adjust the button position during neck wrapping for both buttons with holes and shank buttons.

There are a few parameters which may need to be refined in case of different fabric or threads usage. No password is required (password level I) for adjusting these parameters:

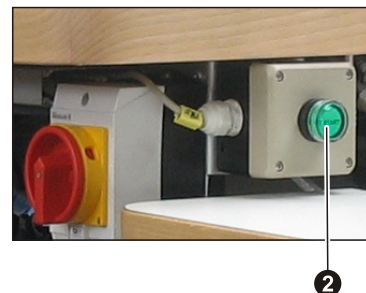
1. For different fabric thickness, it may be necessary to readjust the stitch depth - this can be done by icons  or directly from the main screen .


2. For various used threads the setting of thread tension may differ and can be necessary to readjust when the thread is changed.

## C - CORRECT USAGE

## 5. BUTTON SEWING PROCEDURE

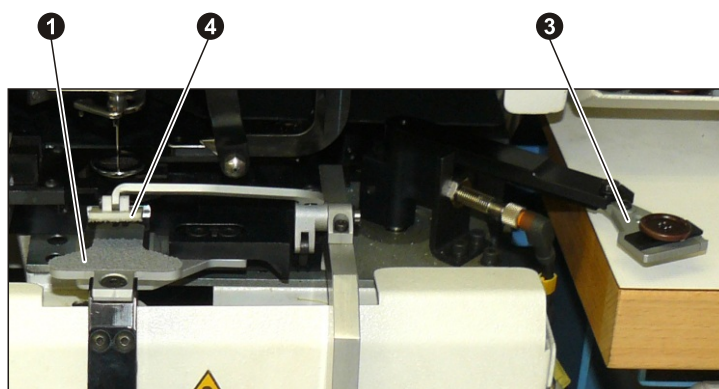
5.1. Set the machine to its basic position for sewing according to chapter C1 of this part and check that the needle is in the upper needle bar.

**WARNING!**

 Check the display parameters are in accordance to the chosen button.

5.2. Put the button on the appropriate holder **3**. Press the foot pedal so as the button is automatically loaded into the chuck under the needle bar.

5.3. Place the sewn piece on the tongue **1**. The cross of the marking light must overlap the sign marking correct position of the button on the sewed piece. The piece must be evenly aligned and must freely encircle the tongue.




5.4. Push the tongue into the machine up to the place where the machine fastens the piece. Carry out a second check of the piece surface evenness.

5.5. Press the foot pedal so as the machine press the sewed piece by the auxiliary holder **4**; at the same time, the necessary thread end is blown for threading.


5.6. Thread according to chapter C3.


5.7. The thread must lie freely on the sewed piece. From now on it is possible to put the second button into the holder.

5.8. Before sewing, you can quickly enable/disable sewing of the show stitch by pressing the foot pedal - this is signalized on the screen.

5.9. Press the button **2** and hold it for approximately 0.5 sec. until the thread is loaded. The machine sews the button and trims the thread - the next button is loaded into the chuck if automatic button feeding  is activated on the machine parameters screen.

**NOTE!**

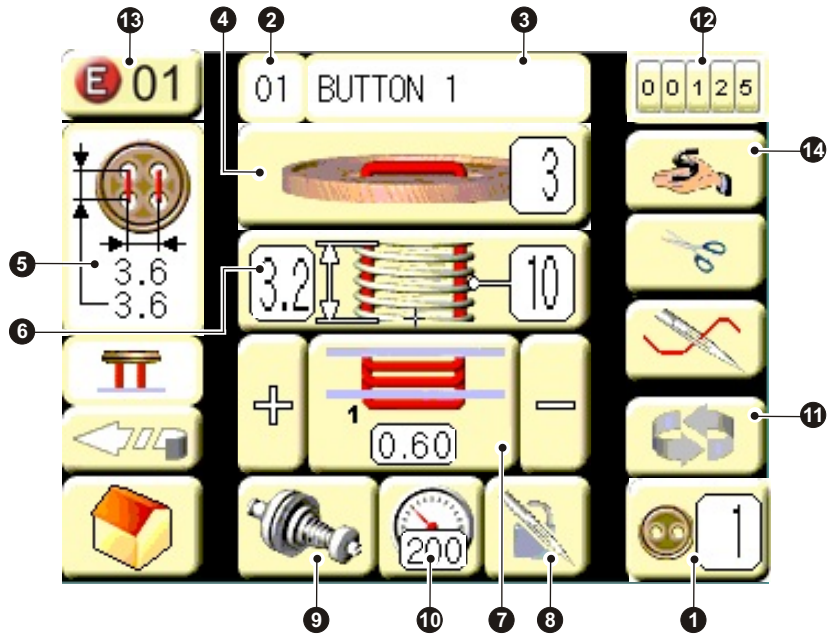
 Trimming can be disabled by holding the button **2** during the time of trimming.

 Automatic button feeding can be disabled by holding the foot pedal.

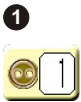


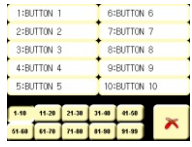


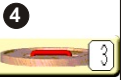

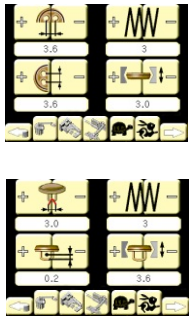
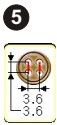
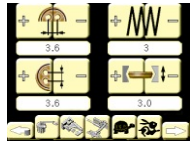
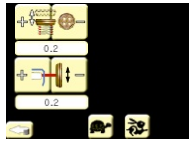

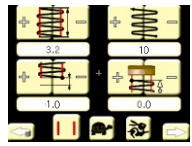
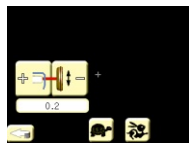
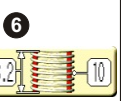
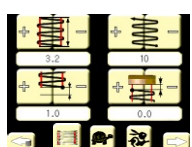
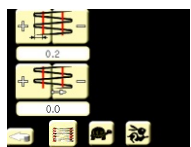
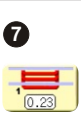
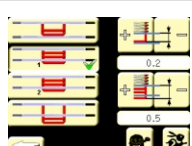
## D - MACHINE CONTROLS

### 1. MAIN MENU INTRODUCTION


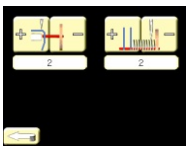

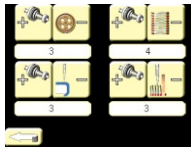

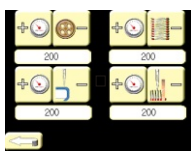


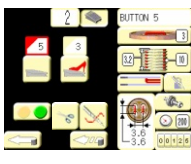
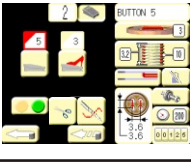
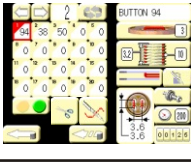
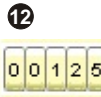




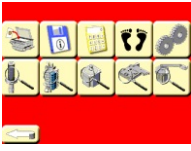
A colored touch screen display GOT 1000 is used to control individual machine functions. For easy use of the display and better orientation please read carefully the section **D-Machine controls** before programming the sewing parameters.



**D - MACHINE CONTROLS**

Button	Current screen	Screen name	Set parameters	Next screen	Chapter
		Button programme selection	- Button programme selection by number		D2.1
		Button programmes overview screen	- Button programme selection by name		D2.1
 BUTTON 1		Button programme name	- Button programme name setting		D2.2
		Button Style screen	- Button type and sewing style - Stitching method		D2.3
		Button Parameters screen	- Hole spacing - Number of stitches - Chuck position		D2.4
		Shank Button Parameter screen	- Stitch spacing in fabric - Number of stitches - Correction of needle stitch in shank - eye - Chuck position		D2.4
		Neck Parameter screen	- Neck height - Number of wraps - First wrap position - Final wrap position		D2.5
		Stitch Style Adjustment screen	- Selection of all blind-/ one show-/ two show-/ all show-stitches - Depth of blind stitch - Depth of show stitch		D2.6




**D - MACHINE CONTROLS**

Button	Current screen	Screen name	Set parameters	Next screen	Chapter
		Locking Stitch Adjustment screen	<ul style="list-style-type: none"> <li>- Number of initial locking stitches</li> <li>- Number of final locking stitches</li> </ul>		D2.7
		Thread Tension Adjustment screen	<ul style="list-style-type: none"> <li>- Button stitching tension</li> <li>- Neck wrapping tension</li> <li>- Initial locking stitches and show stitch tension</li> <li>- Final locking stitches tension</li> </ul>		D2.8
		Sewing Speed Adjustment screen	<ul style="list-style-type: none"> <li>- Button stitching speed</li> <li>- Neck wrapping speed</li> <li>- Initial and final locking stitches sewing speed</li> </ul>		D2.9
		Standard cycle mode screen	<ul style="list-style-type: none"> <li>- Selection of 1-20 button programmes to standard cycle mode</li> </ul>		D3.1
		Prompt cycle mode screen	<ul style="list-style-type: none"> <li>- Selection of 2 button programmes to prompt cycle mode</li> </ul>		D3.2
		Production counter screen	<ul style="list-style-type: none"> <li>- Machine total and daily (number of sewn buttons) production counter</li> <li>- Daily counter mode selection</li> </ul>		D4.1
		Error message screen	<ul style="list-style-type: none"> <li>- Error number</li> <li>- Error description</li> <li>- Suggestion of respective solution</li> </ul>		D4.2
		Service menu screen	Machine parameters setting intended to trained service mechanics		E1

## D - MACHINE CONTROLS

### 1.1. MAIN MENU DISPLAY OVERVIEW

Please see below brief overview of used displays for easy orientation and programming.

Button	Name of the icon	Description
	Home position	Pressing the button brings machine into home position, i. e., Machine is ready for button and material feeding
	Machine is ready	Machine is ready for operation
	Machine in progress	Machine in progress, impossible to make any settings
	Step back	Pressing the button returns the machine to previous operation
	Back	Press the button to return to previous screen
	Cancel	Press the button to return to previous screen without changing any parameters
	Delete	Press the button to delete all typed characters
	Delete character	Press the button to delete last typed character
	Save	Press the button to save set parameters and return to previous screen
	Parameter value setting	By pressing the button + or - adjust values of particular sewing parameter
	Step forward	Press the button to enter the next screen
	Indication of selection	Indication of selected sewing parameter
	Thread trimming	Press the button to trim the thread
	Threading	By pressing the button the pneumatic threading system is activated
	Small step	Small step in jogging
	Big step	Big step in jogging
	V - shape function	Signalization of V-shape sewing activation



## D - MACHINE CONTROLS

### 2. BUTTON PROGRAM SETTING

#### 2.1. BUTTON PROGRAM

**NOTE!**

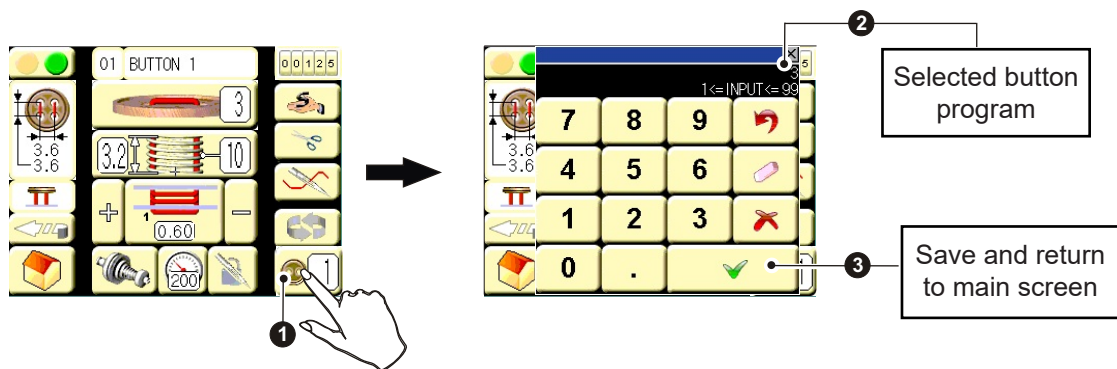
- ⚠ Before setting any button parameters described in sections **D 2.2.-2.9.**
  - a button program has to be selected
  - password **level II** has to be entered - refer to chapter **E 1.2.**

The machine has 99 different button programs. Programs 1 to 94 are available and can be programmed by operator. Programs 95 to 99 are default factory settings and can not be changed.

To set new button program, press icon **1** on the main screen to enter numerical keyboard. Type the required program number within range 1 to 94. The typed number appears on the top of the numerical keyboard screen, see point **2**. Save the setting and return to main screen by pressing icon **3**.

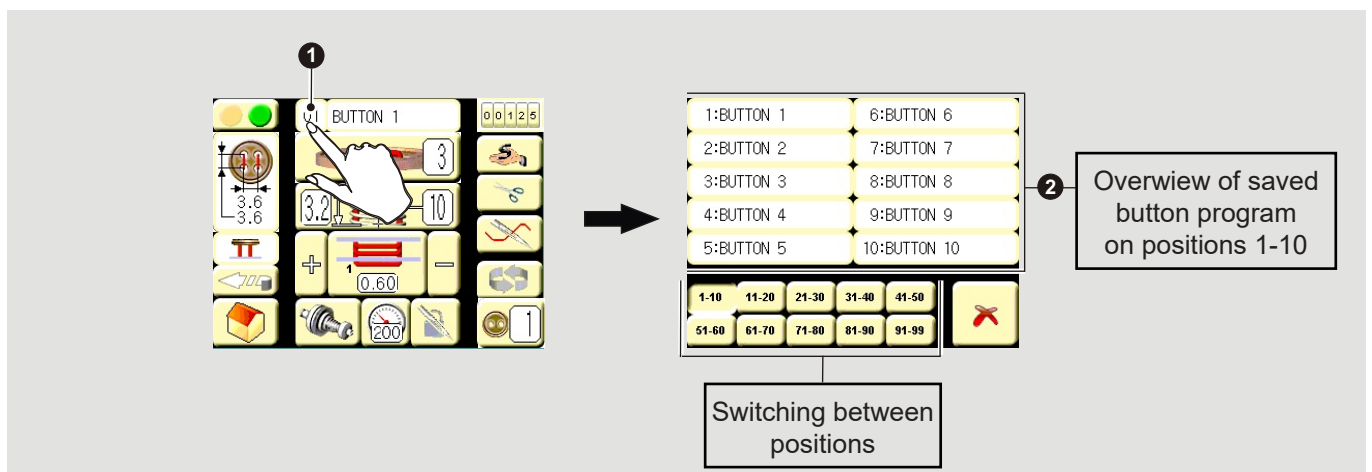
Once the button program is selected, start programming the button parameters according to chapter **D 2.2. -2.9.** All set button parameters are automatically saved under the selected button program.

When you need to return to an already programmed button program, follow the same steps for setting a button program as described above.



**NOTE!**

- ⚠ Alternatively, you can use the following method:

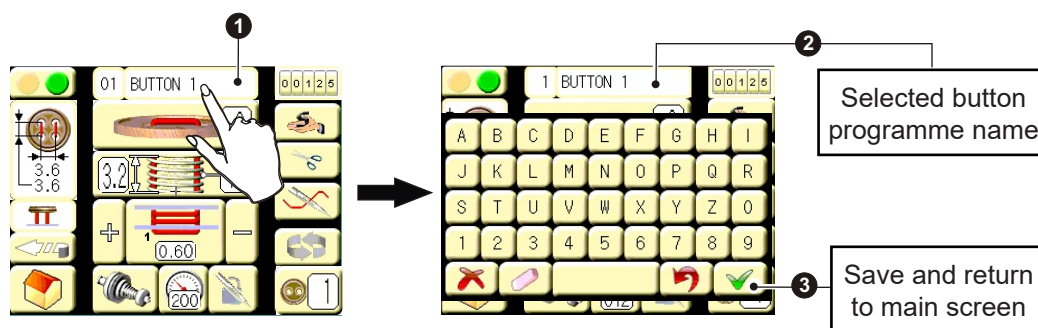


## D - MACHINE CONTROLS


### 2.2. CUSTOMIZED PROGRAM NAME

A customized program name can be assigned to each button program. This can be used especially for better orientation within the programs. The program name is a combination of up to 15 alphabetic and numeric characters. To set the program name, press icon **1** on the main screen to enter the alpha-numerical keyboard. Type the specific program name (max. combination of 15 alpha-numeric characters). Typed characters appear on top of the main screen, see point **2**. Save the setting and return to main screen by pressing icon **3**.

Follow the below steps in sections **D 2.3.** - **D 2.9.** to set the button sewing style and further parameters.



#### CAUTION!

 Please ensure that correct kit (button holder, pucker-pin, tongue) is installed according to the button style selected in the program. Please refer to **Table A** in **Chapter A9** of this manual for detailed description.

## D - MACHINE CONTROLS

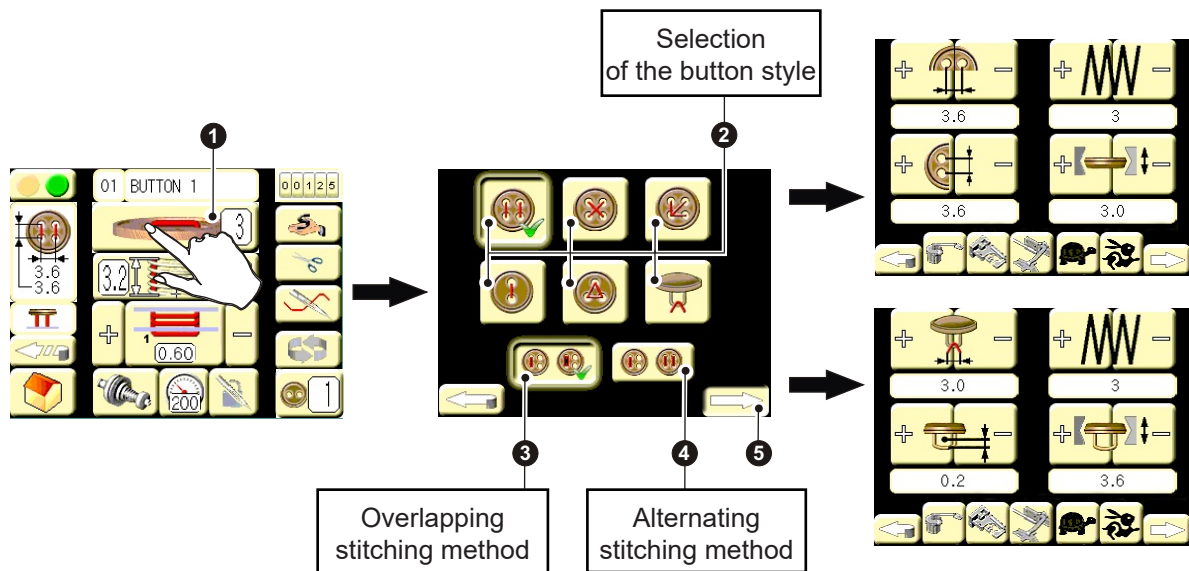
### 2.3. BUTTON STYLE

Press icon **1** on the main screen to enter button style screen. You can set the following parameters:

a) Press one of the icons under point **2** to select required button style.

b) When sewing 3, 4-hole or shank button it is necessary to select the stitching method by icons **3** or **4**. Press icon **3** to select overlapping stitching method (machine first sews all stitches on the left pair of holes and then all stitches on the right pair of holes). Press icon **4** to select alternating stitching method (machine alternately sews right and left pair of holes).

Press icon **5** to enter button parameter screen to program additional parameters of the selected button. For further explanation refer to chapter **D 2.4.1.** for 2, 3, 4 - hole button and **D 2.4.2.** for shank button.



### 2.4. BUTTON PARAMETERS

After selecting the required button style (see chapter **D 2.3.**) continue with button parameter settings.

Press icon **1** on the button style screen to enter the first button parameters screen; alternatively, you can go directly from the main screen by pressing the icon **2**.

## D - MACHINE CONTROLS

### 2.4.1. 2, 3, 4 - HOLE BUTTONS

For buttons with holes you can set the following parameters:

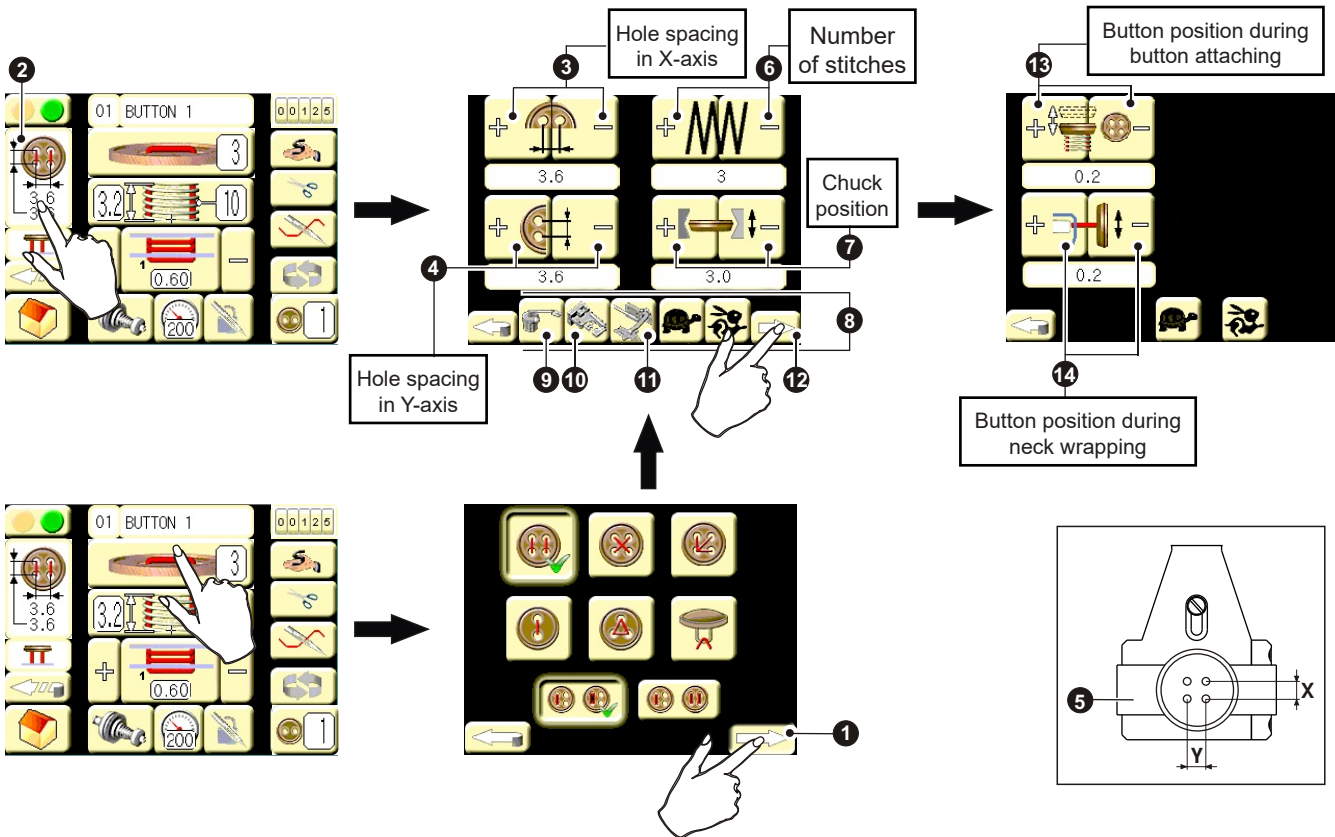
- Use icons **3** to set the holes spacing in X-axis and icon **4** in Y-axis. Refer to picture **5** for a detailed explanation of X-and Y-direction, when the button is placed on the button holder. The hole spacing range is 2.6 - 6 mm.
- Use icons **6** to set the number of button attaching stitches according to definition in chapter **A5** within range 1-14 stitches.
- Use icons **7** to adjust the vertical position of button chuck during button feeding - this setting depends on height of the button.

Icons in section **8** only appear if password **level II** is submitted (refer to chapter **E 1.2.1.**). These icons help in setting the right chuck position **7** and exchange of the button holder (refer to chapter **A 9**). The following functions are available:

- By pressing icon **9**, one half of button feeding cycle is performed.
- By pressing icon **10** the button chuck is opened / closed.
- Use icon **11** to open / close the fabric holder.

Press icon **12** to shift to the second button parameters screen. You can set the following parameters:

- Use icons **13** to adjust the button position during button attaching. The higher the button is during attaching, the looser the thread remains - consequently, the fabric is less disturbed after the neck wrapping.
- Use icons **14** to adjust the button position during neck wrapping. This setting can be used to achieve an optimal position of the button against the fabric.



## D - MACHINE CONTROLS

### 2.4.2. SHANK BUTTON

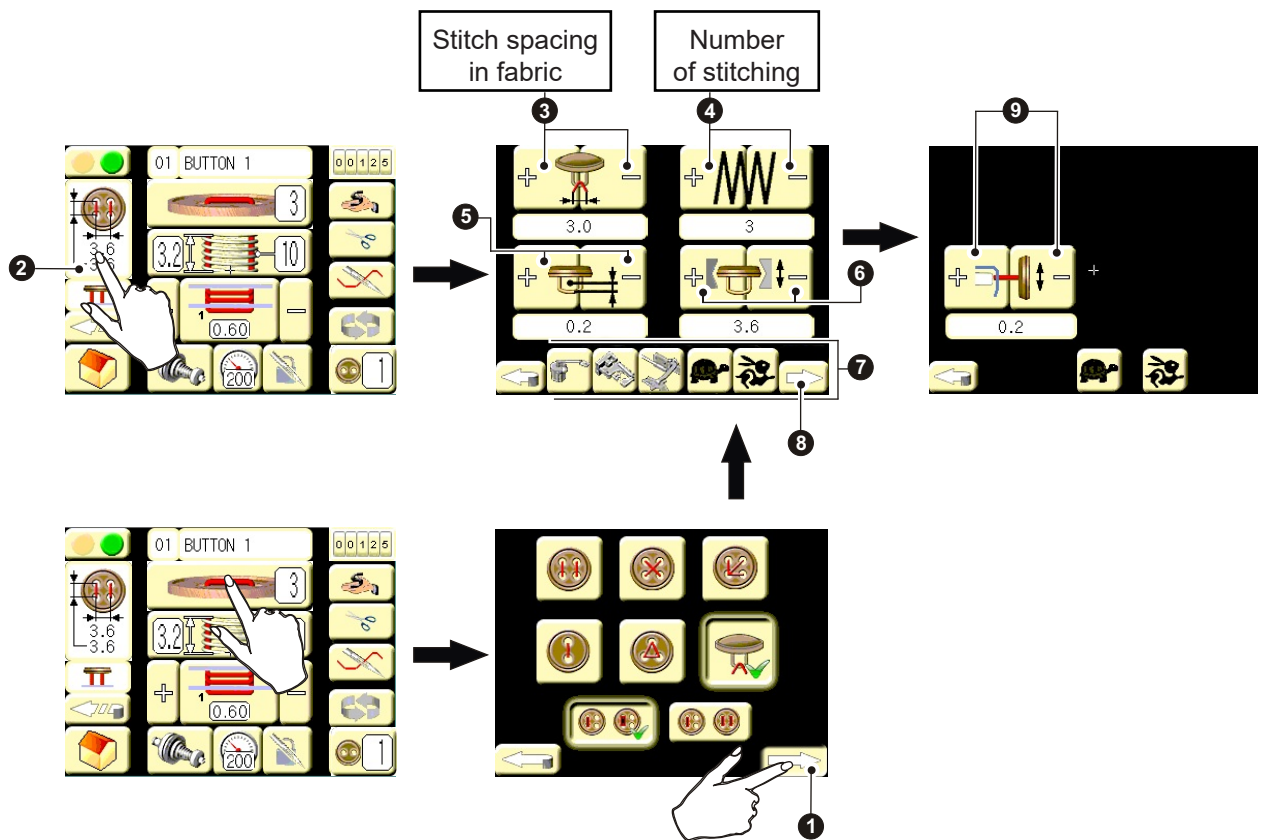
For shank buttons you can set the following parameters:

- a) Use icons **3** to set stitch spacing in fabric within range 0 - 6 mm. When 0 mm spacing is set, stitches are sewn into one place.
- b) Use icons **4** to set the number of button attaching stitches according to the definition in section **A 5**. within range 1 - 14 stitches.
- c) Use icons **5** to adjust the position of the needle from the shank eye during button attaching.
- d) Use icons **6** to adjust the vertical position of button chuck during button feeding - this setting depends on height of the button.

Icons in section **7** only appear if password level II is submitted (refer to chapter **E 1.2.1.**). These icons have the same meaning as for the buttons with holes - refer to chapter **2.4.1.**

Press icon **8** to shift to the second button parameters screen. You can set the following parameter:

Use icons **9** to adjust the button position during entire sewing. This setting can be used to achieve an optimal position of the button against the fabric.





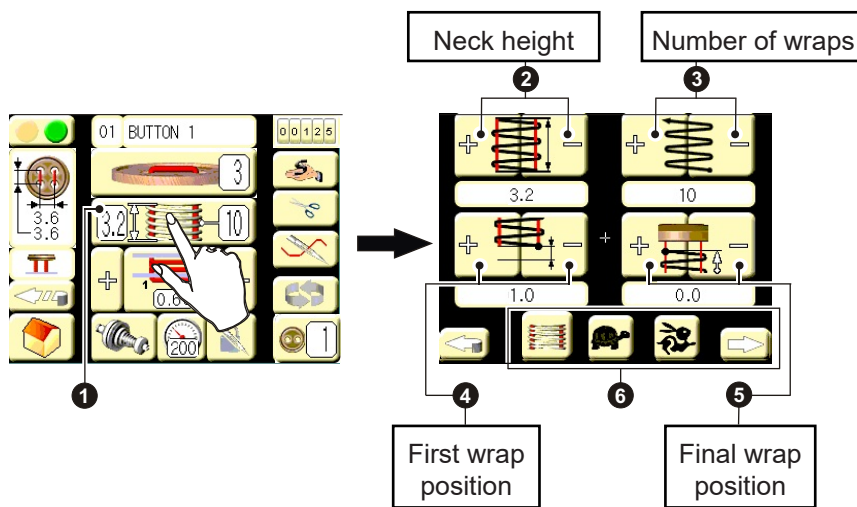
## D - MACHINE CONTROLS

### 2.5. NECK PARAMETERS



Press icon **1** on the main screen to enter neck parameters screen. You can set the following parameters:

- Use icons **2** to set neck height within range 0-8 mm for buttons with holes and 0-7 mm for shank buttons. This range can vary according to setting of other parameters.
- Use icons **3** to set the number of neck wraps within range 0-30 wraps. When 0 wraps is set wrapping is not performed.
- Use icons **4** to set the position of the wrap closest to the fabric within range 0-3 mm.
- Use icons **5** to set the position of the wrap closest to the button within range 0-2 mm.

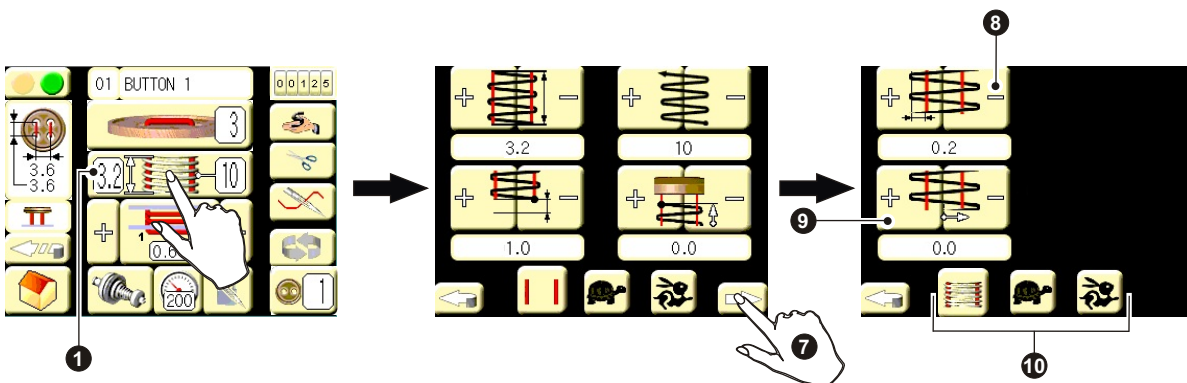
For some combinations of setting of parameters **2**, **4**, and **5** wrapping cannot be performed due to a possible mechanical collision - this fact is depicted by icon  in field **6** and icon  on the main screen.



Press icon **7** to shift to the second neck parameters screen. You can set the following parameter:

- Use icons **8** to adjust the neck wrapping width. Thinner wraps ensure tighter wrapping, but pay attention to maintain enough width so that all the button attaching threads are wrapped.
- Use icons **9** to shift the neck wrapping stitches together with the final locking stitch left - right.
- For shank buttons only, you can select between:
  - 0-shape wrapping  or
  - 8-shape wrapping  (additional needle pass through the middle of the neck).

Icons in section **10** only appear if password **level II** is submitted (refer to chapter **E 1.2.1.**).



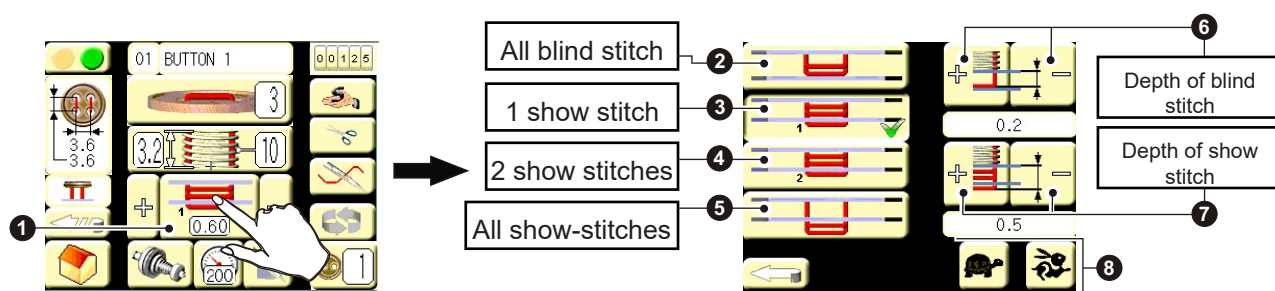
## D - MACHINE CONTROLS

### 2.6. STITCH STYLE ADJUSTMENT (SHOW, BLIND, STANDARD STITCH)

Press icon **1** on the main screen to enter stitch style screen. You can set the following parameters:

- Press icon **2**, **3**, **4** or **5** to select the stitching style - all blind stitches (stitches inside the garment), 1 or 2 show stitches, all show stitches.
- Depending on the previous selection, appropriate icons of stitch depth **6**, **7** are displayed. Use icons **6** to set stitch depth of blind stitch within range 0-3 mm from garment facing. Press icon **7** to set stitch depth for show stitch within the range 0-3 mm – this depth is set as an increment of the blind stitch depth.

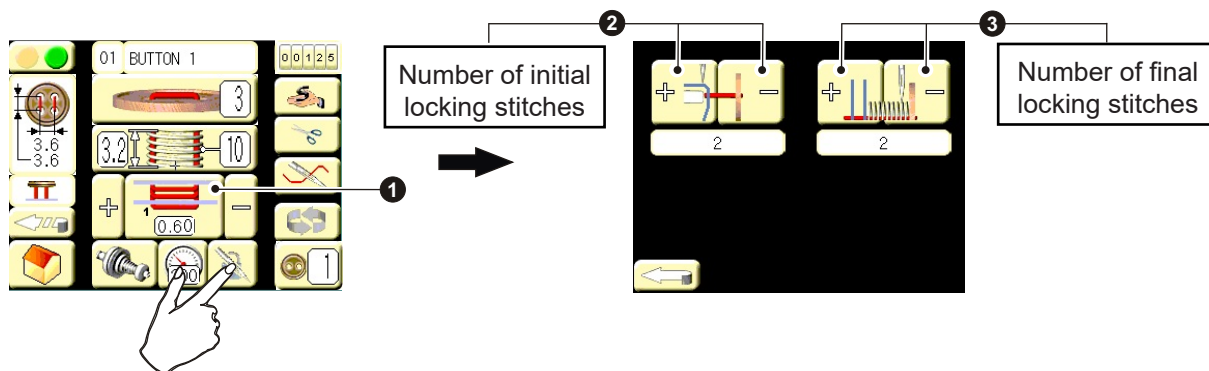
Icons in section **8** only appear if password **level II** is submitted (refer to chapter **E 1.2.1**).



### 2.7. LOCKING STITCH ADJUSTMENT

Press icon **1** on the main screen to enter locking stitch adjustment screen. You can set the following parameters:

- Use icons **2** to set number of initial locking stitches sewn to fabric before button attaching. The stitches number range is 0-3 stitches.
- Use icons **3** to set number of final locking stitches sewn through the wrapped button neck in case of buttons with holes. In case of shank buttons the final locking stitches are sewn to the fabric as the initial locking stitches. The stitches number range is 0-6 stitches.



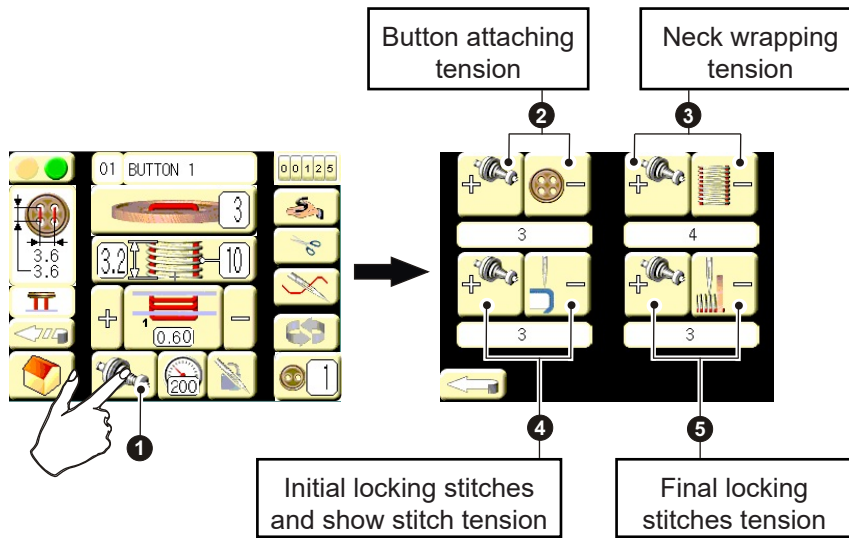
## D - MACHINE CONTROLS

### 2.8. THREAD TENSION ADJUSTMENT

The thread tension can be separately programmed for four different sewing phases-button attaching, neck wrapping, show stitch and locking stitches.

Press icon **1** on the main screen to enter the thread tension parameter screen. You can set the following:

- Press icon **2** to set thread tension for button attaching within the range 1-20.
- Press icon **3** to set thread tension for neck wrapping within the range 1-20.
- Press icon **4** to set thread tension for initial locking stitch and show stitch within the range 1-20.
- Press icon **5** to set thread tension for final locking stitches the range 1-20.

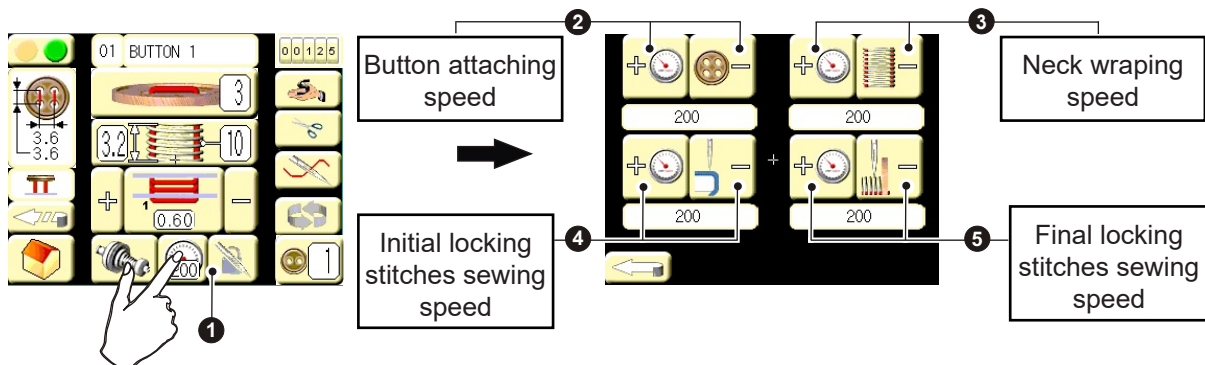


### 2.9. SEWING SPEED ADJUSTMENT

The sewing speed can also be separately programmed for four different sewing phases.

Press icon **1** on the main screen to enter the sewing speed parameter screen. You can set the following:

- Press icon **2** to set sewing speed for button attaching within the range 100-200 spm with the increments of 5 spm.
- Press icon **3** to set sewing speed for neck wrapping within the range 100-200 spm in the increments of 5 spm.
- Press icon **4** to set sewing speed of initial locking stitches within the range 100-200 spm in the increments of 5 spm.
- Press icon **5** to set sewing speed of final locking stitches within the range 100-200 spm in the increments of 5 spm.





## D - MACHINE CONTROLS

### 3. CYCLE MODE DESCRIPTION


Cycle mode function enables sewing of different button programs with different setting in one repeating sewing cycle. Two different cycle modes are available - standard and prompt.

Please note that all settings are described starting from the main (standard) cycle mode screen. To enter the cycle mode screen see chapter **D 1.2**.

#### 3.1. STANDARD CYCLE MODE

The standard cycle mode can accommodate up to 20 different button programs to be sewn in one cycle mode program. Machine has memory of 20 different standard cycle mode programs.

##### 3.1.1. PROGRAMMING THE STANDARD CYCLE MODE


In case the standard cycle mode screen is not visible, the prompt cycle mode screen is on and it is necessary to press icon  to switch the machine to the standard cycle mode program. Once the standard cycle mode screen comes up (see the figure below), you can start programming the cycle sewing.

Press icon **1** on the standard cycle mode screen to enter numerical keyboard and select the cycle mode program number within the range 1 to 20.

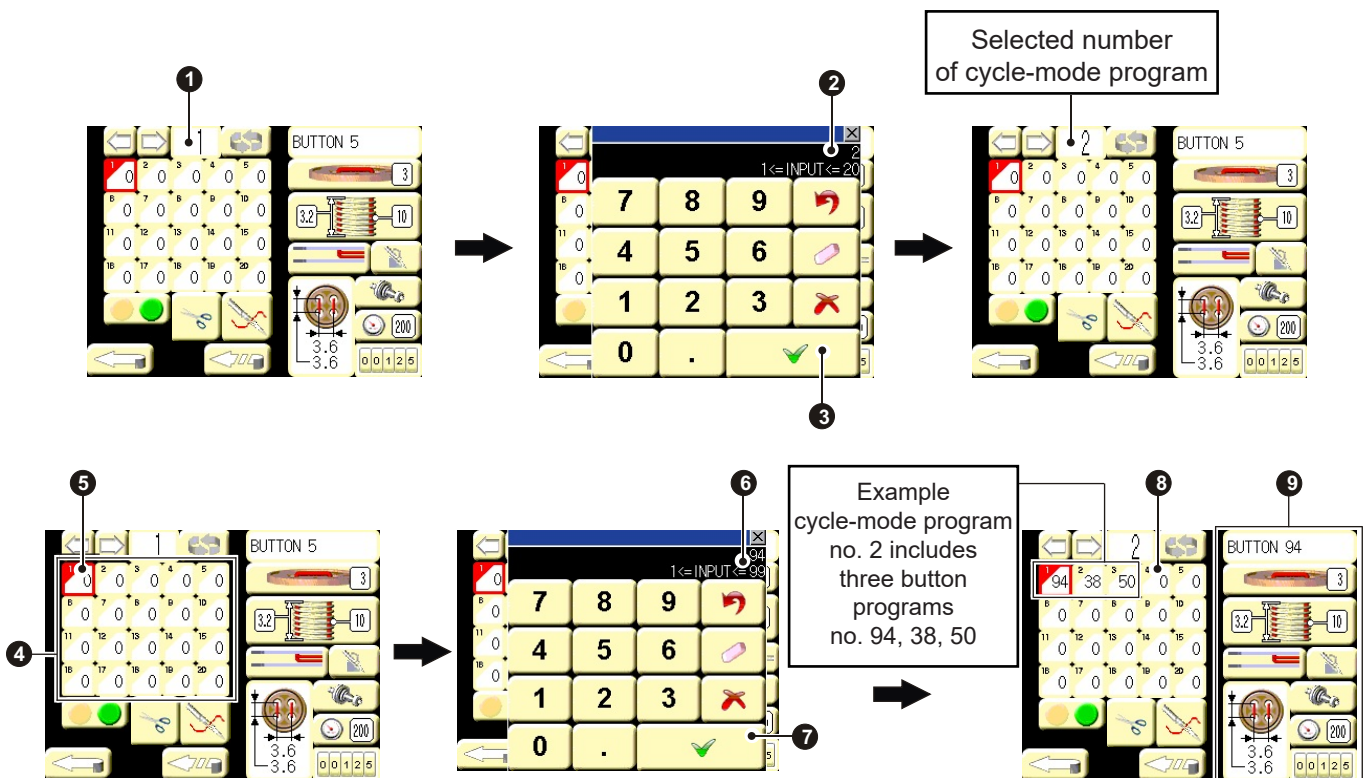
Under the selected cycle mode program, enter required button program for position 1-20. Press required position (1-20), see point **4** to enter numerical keyboard and type particular number of button program (1-94) that you have saved in the machine memory before. See chapter **D 2.1**. Note that the cycle mode can work only with pre-programmed button programs.

The end of the cycle program is defined by entering number "0" in the position following upon the last entered button program, see point **8**. This means that the cycle mode is finished and the sewing starts from the beginning.

**NOTE!**

 The currently sewn button program / position is highlighted in red - see point **5**.

Icons under point **9** are used for quick setting and adjustment of the parameters of the currently sewn button and have the same functions as icons used on the main screen, see chapter **D 1**.




## D - MACHINE CONTROLS

### 3.2. PROMPT CYCLE MODE

The prompt cycle mode is designed only for 2 different button programs from which you can be selected the sewn button program by pressing or not-pressing the machine pedal before sewing. Machine has memory of 20 different prompt cycle mode programs.

#### 3.2.1. PROGRAMMING THE PROMPT CYCLE MODE

To enter the prompt cycle mode screen press icon  on the standard cycle mode screen.

Press icon **1** on the prompt cycle mode screen to enter numerical keyboard and select the cycle mode program number within the range 1 to 20.




Under the selected cycle mode program, enter required button programs for position 1, see point **4** and position 2, see point **5**. Press required position, to enter numerical keyboard and type particular number of button program (1-94), see chapter **D 2.1**. Note that the cycle mode can work only with pre-programmed button programs.

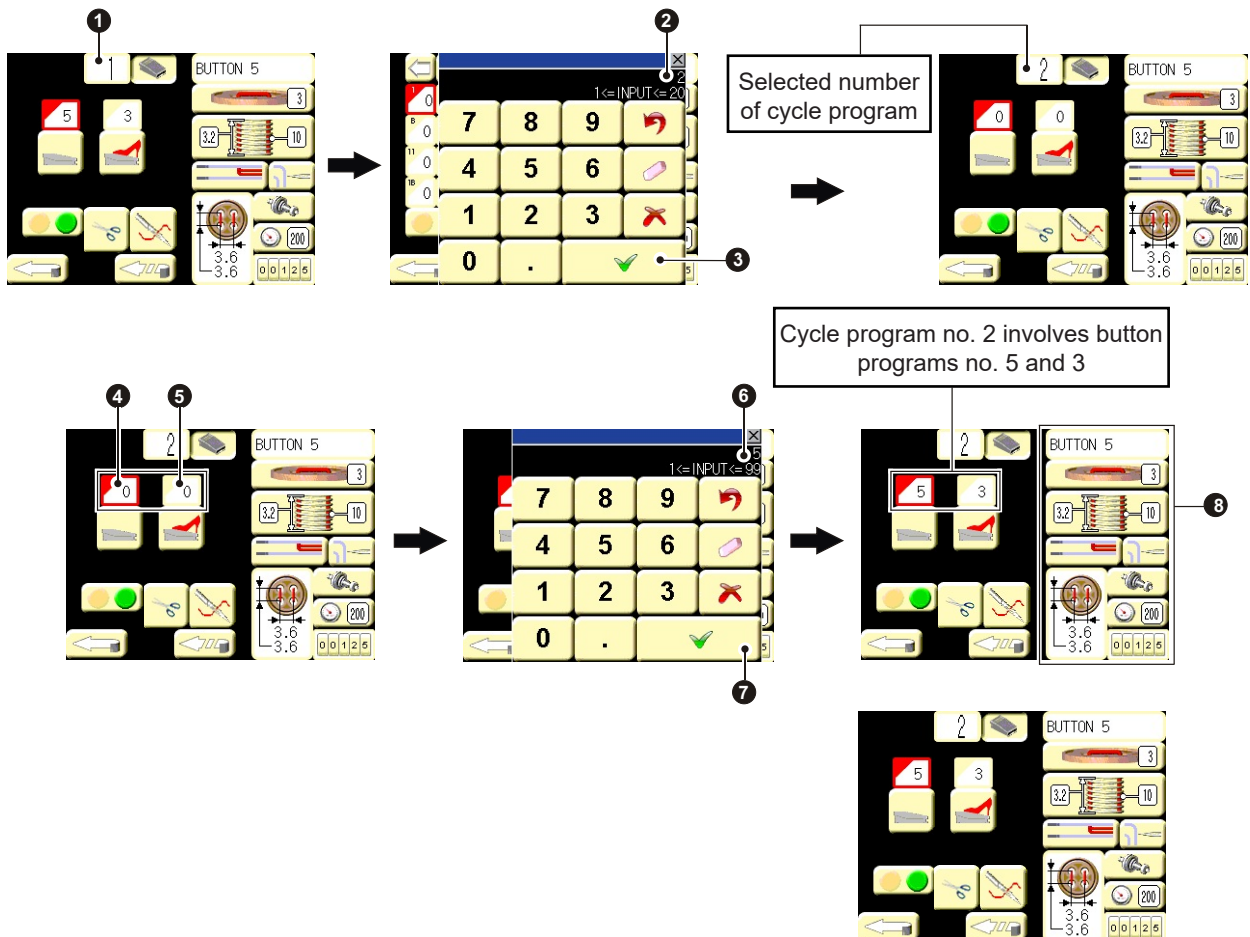
Bring machine to the position ready for sewing (green light is on), see chapter **C 5**.

If you want to sew the button program selected in the position 1 (see point **4**), press the start button without pressing the machine pedal.

If you want to sew the button program selected in the position 2 (see point **5**), press the machine pedal to switch the machine to this program and keep the pedal pressed while pressing the start button.

**NOTE!**

-  The currently sewn button program / position is highlighted in red - see point **4**.
-  Icons under point **9** are used for quick setting and adjustment of the parameters of the currently sewn button and have the same functions as icons used on the main screen, see chapter **D 1**.
-  While the machine is not in the position ready for sewing (green light is not on), the icons **4** and **5** can be used for switching between the programs and quick checking of the adjusted parameters.





## D - MACHINE CONTROLS

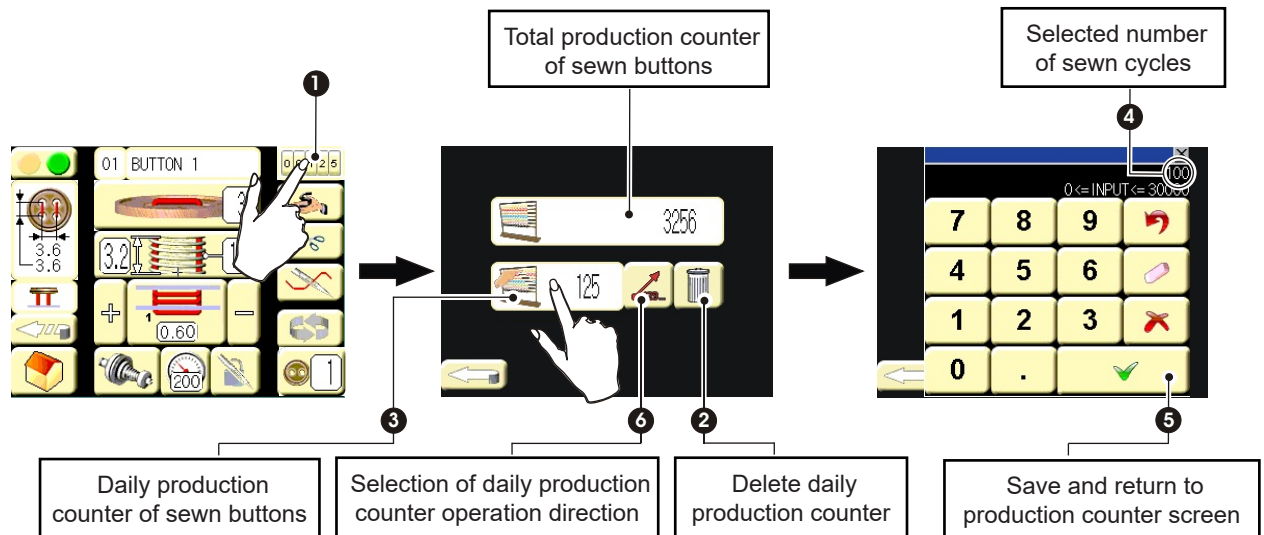
### 4. COMPLEMENTARY FUNCTIONS

#### 4.1. COUNTERS OF SEWN BUTTONS


The machine has two different counters - daily counter and total production counter. The daily counter can be used as a shift or batch production counter of sewn buttons and can be deleted when needed. The daily production counter can be ascending or descending and can be preset within the range 0-30 000. The total production counter counts overall button production and indicates the machine's wear out. This counter can not be deleted.

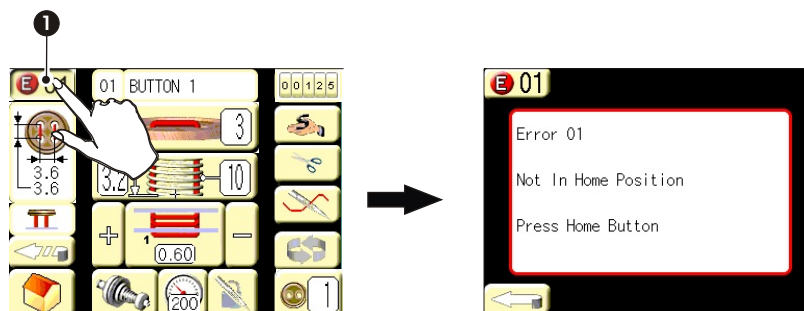
##### 4.1.1. SETTING DAILY PRODUCTION COUNTER

Press icon **1** on the main screen to enter counter screen. Press icon **2** to delete the daily production counter or icon **3** to preset the daily production counter. In case icon **3** is pressed, the numerical keyboard appears on top of counter screen. Enter required number of sewn buttons within range 0-30 000. Typed number appears on the top of numerical keyboard screen, see point **4**. Press icon **5** to save all settings and return to the counter screen. The production can be counted in ascending  or descending  form. Press icon **6** to select this form of operation for daily production counter.



#### 4.2. ERROR MESSAGES

In case of a machine fault occurrence, the error message  appears on the main screen. Press icon **1** on the main screen to enter the error description screen. The error description screen indicates the error number (first line), error description (second line) and recommended solution of the occurred fault (third line). Please refer to section **3 Trouble shooting** of this manual for detailed description of error messages.



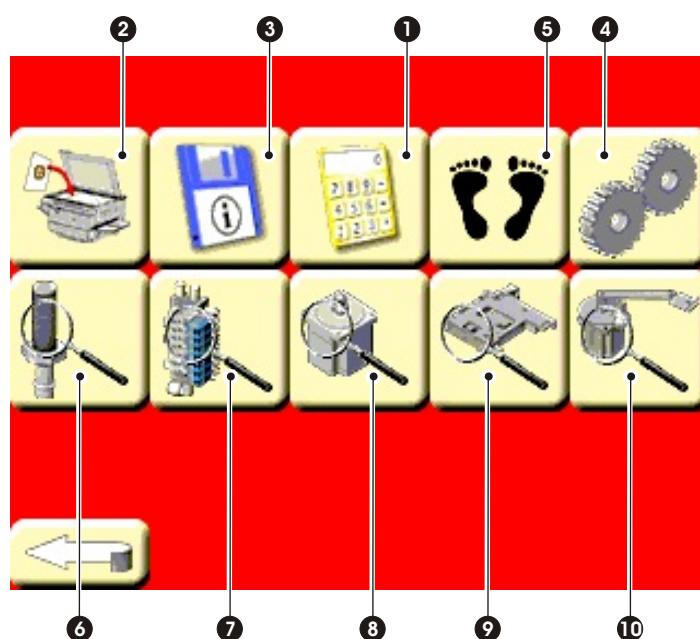
## E - STANDARD MACHINE

### 1. SERVICE MENU DESCRIPTION


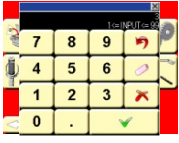

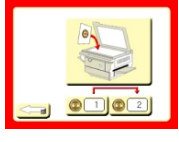
















#### 1.1. SERVICE MENU DISPLAY OVERVIEW

Please see below a brief overview of service menu displays. The service menu shall be operated by a trained service mechanic and is divided into several levels depending on required qualification and frequency of access. Each level is protected by specific password, please see chapter **E 1.2.1.** for details.

Please note that all settings are described step by step **starting from the service menu screen.** To enter the service menu screen see chapter **D 1.**



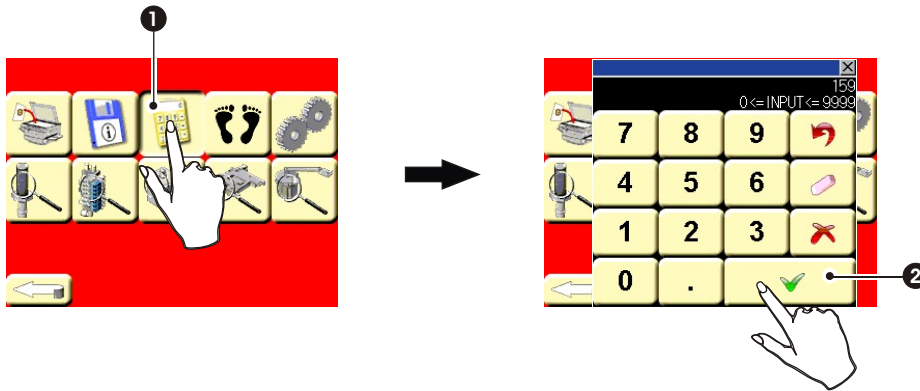
## E - STANDARD MACHINE

Button	Current screen	Screen name	Set parameters	Chapter
		Password submitting screen	- Setting of password for accessing advanced setting	E1.2.
		Program copy screen	- Copying of button programs	E1.3.
		Software information screen	- Machine software version	E1.4.
		Machine parameters screen	- Language selection - Automatic functions activation - Automatic functions timing - Button feeding speed - Machine accessories selection	E1.5.
		Jogging screen	- Jogging activation, small, large step - Machine current positions	E1.6.
		Sensor tests screen	- Sensors signal indication	E1.7.
		Valve tests screen	- Testing all cylinder valves including cylinder sensors	E1.8.
		Sewing motor adjustment screen	- Sewing motor testing and activation - Loopers adjustment	E1.9.
		X-Y movement motors	- Testing and adjustment of bedplate X, Y - movement and chuck horizontal movement	E1.10.
		Remaining motors adjustment screen	- Testing and adjustment of chuck vertical movement, button feeding and thread tension	E1.11.

## E - STANDARD MACHINE

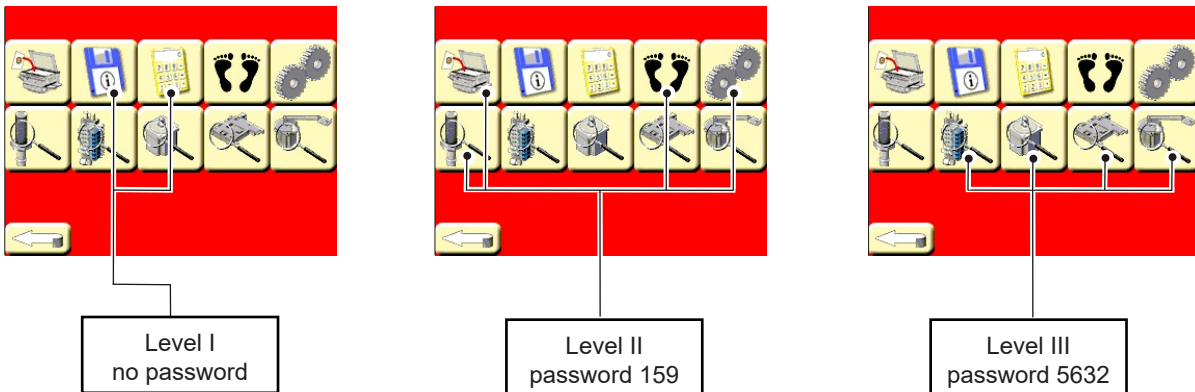
### 1.2. PASSWORD SUBMITTING

The service menu has 3 different setting levels. **Level II** and **III** are protected by passwords, see section **E 1.2.1**. To submit the password press icon **1** on the service menu screen to enter numeric keyboard. Type the appropriate numeric code and press icon **2** to save all settings.



#### 1.2.1. PASSWORD LEVELS

Please see below a brief overview of service menu setting levels including relevant passwords.



Once the password is submitted all service functions protected by this specific password are activated. This means, for example, when password **level II** is submitted, all functions from **level II**, are available.

In case password **level III** is submitted, the service functions protected by password **level II** are available without submitting password **level II**.

## E - STANDARD MACHINE

### 1.3. PROGRAM COPY

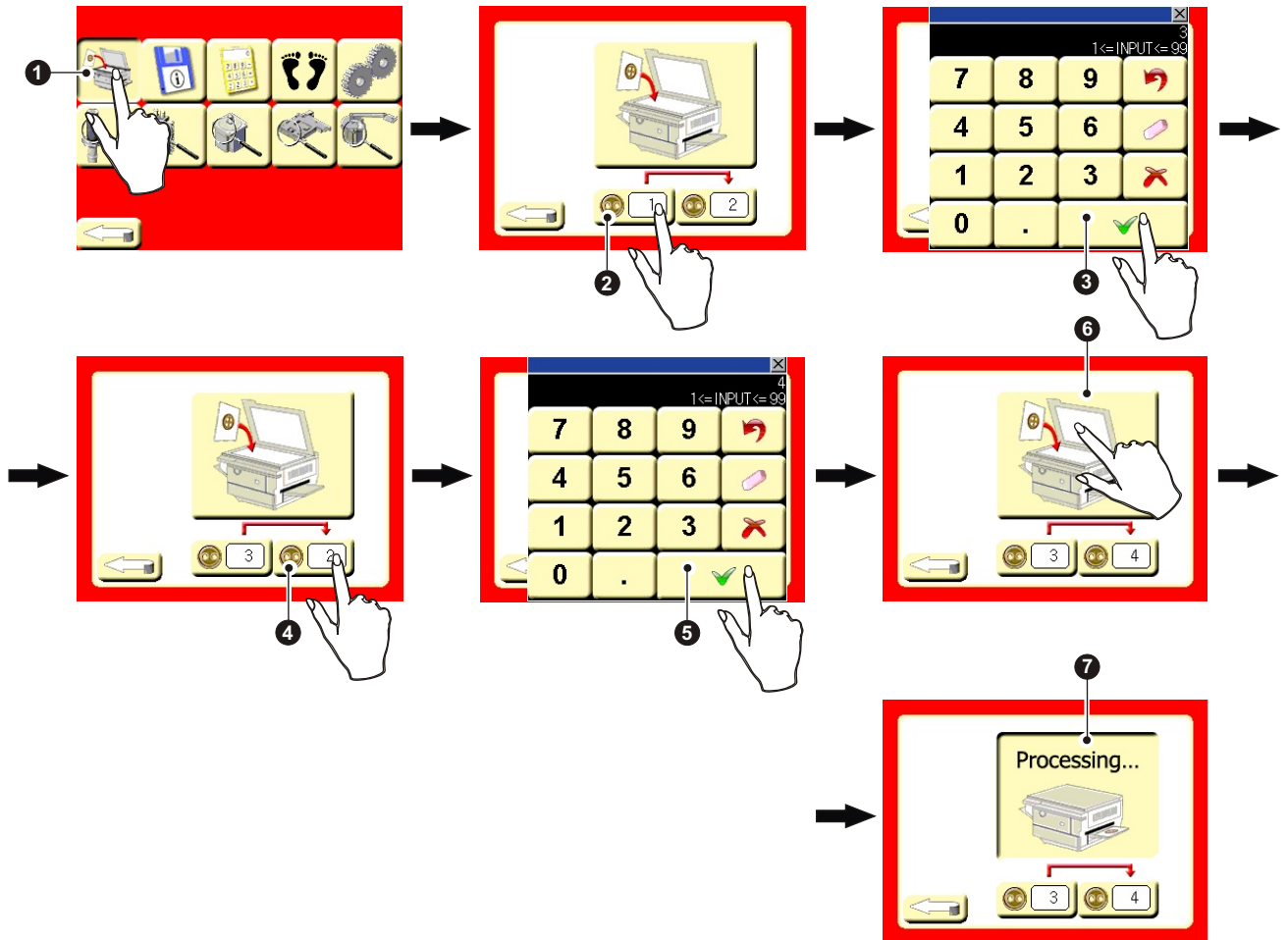
Program copy screen enables easy and quick copying of selected button program to a new required program number. Press icon **1** on the service menu screen to enter the program copy screen.

Press icon **2** to enter numerical keyboard. Select the source program number you want to copy.

Press icon **3** to save the setting and return to the program copy screen.

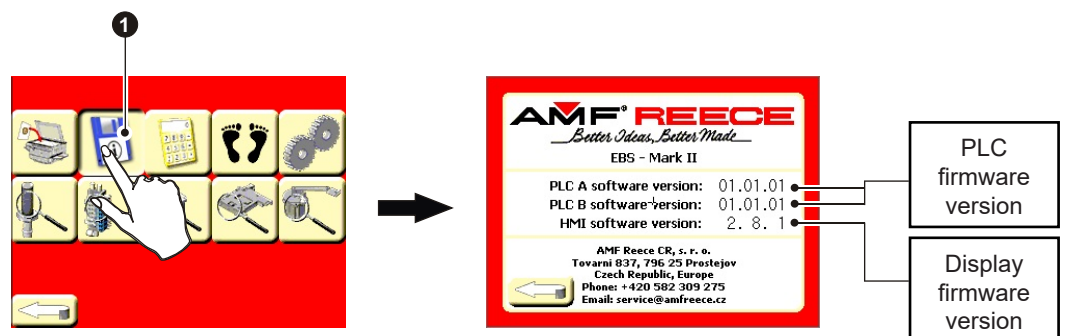
Press icon **4** to enter numerical keyboard. Select the destination program number to which you want to copy the source program. Press icon **5** to save the setting and return to program copy screen.

Press icon **6** to process the program copying, see point **6**.



### 1.4. SOFTWARE INFORMATION

Information screen provides the user with information such as display firmware version, PLC firmware version, and manufacturer's contacts. To enter the information screen, press icon **1** on the service menu screen.



## E - STANDARD MACHINE

### 1.5. MACHINE PARAMETERS

The machine parameter screen enables selection of display language, activation of automatic functions together with their timing, adjusting the button feeding speed, and selection of machine accessories. To enter the basic parameters screen, press icon **1** on the service menu screen.

a) Icons in point **2** are used to select a required display language (English, Czech, or Italian) especially used on the error description screen.


b) Icon **3** is used to activate/deactivate the automatic threading system. In case icon **3** is activated threading device is controlled by pedal. In case icon **3** is not activated threading device has to be handled manually.

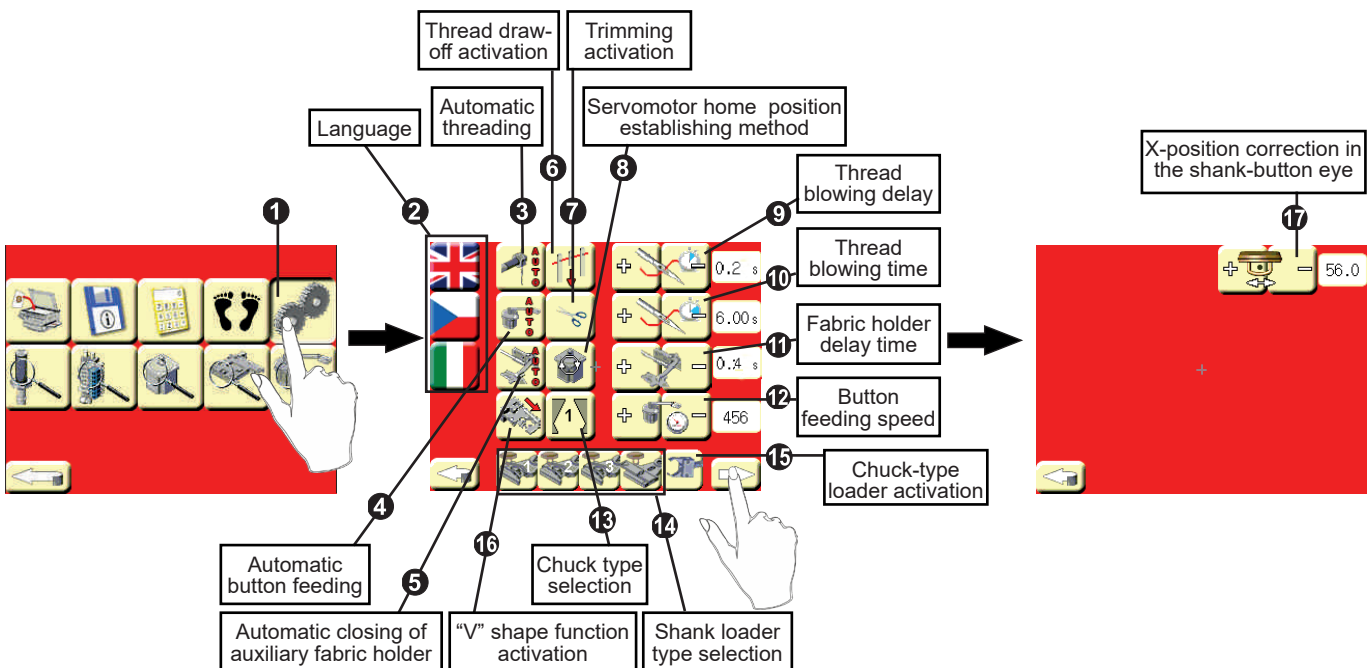
c) Icon **4** is used to activate/deactivate automatic button feeding. In case icon **4** is activated machine automatically loads another button every time the sewing cycle is finished.

d) Icon **5** is used to activate/deactivate automatic closing of the auxiliary fabric holder. In case icon **5** is activated the auxiliary fabric holder is closed automatically and it is necessary to set delay time of the auxiliary fabric holder activation by icons **11**. This delay is a time from closing the tongue till closing the auxiliary fabric holder. In case icon **5** is not activated fabric holder is controlled by pedal.

e) Icon **6** is used to activate/deactivate the thread draw-off system. Thread draw-off system may be deactivated for threads which can be easily pulled from the bobbin.

f) Icon **7** is used to activate/deactivate the thread trimming system. Trimming may be deactivated in case of the manual trimming requirement.


g) Icon **8** is used to activate/deactivate automatic servo home positioning. In case icon **8** is activated the servo is brought to its home position every time the home position icon  on the main screen is pressed. In case icon **8** is not activated servo has to be brought to its home position manually by using the hand wheel on the machine head - this can be used in case of enhanced safety requirements.





## E - STANDARD MACHINE

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- h) Icons ⑨ are used to set delay of the thread blowing system when automatic activation of closing of auxiliary fabric holder is set (thread blowing goes together).i) Icons ⑩ are used to set blowing time of the thread blowing system. To obtain required thread end increase or decrease the set time.
- j) Icons ⑫ are used to set the button feeding speed - this speed shall be decreased in a rare case of buttons falling down during the button feeding.
- k) Icon ⑬ is used to set the type of the chuck installed on the machine - type "1" is default.
- l) Icons ⑭ and ⑮ are used to set the type of the loader installed on the machine.
- m) Icon ⑯ is used to activate the "V" shape sewing function .
- n) Icon ⑰ is used to set the correction of X-position in the shank-button eye.

**NOTE!**


Icons ⑨ and ⑩ appear only if automatic closing of the auxiliary fabric holder (⑤) is activated.

## E - STANDARD MACHINE



### 1.6. JOGGING

Jogging function enables the user to monitor the button sewing process and check all set parameters. Jogging function is protected by password **level II**, see chapter **E 1.2.1**.

**CAUTION!**

 Before using jogging function, please make sure, button is loaded in the chuck and **machine is in position ready for sewing**. This means the green start button is on, see section **C** for details.

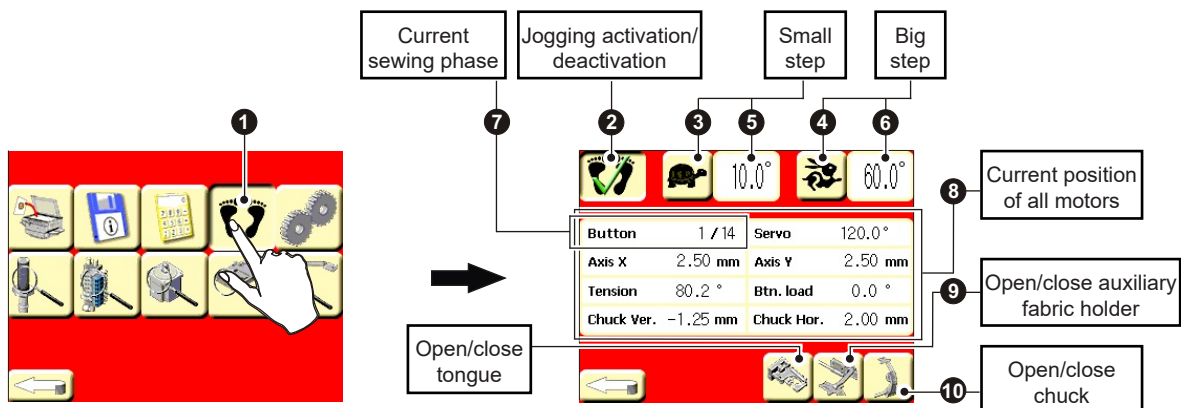
#### 1.6.1. JOGGING SCREEN DESCRIPTION

a) Press icon **1** on the service menu screen to enter the jogging screen. Press icon **2** to activate/deactivate the jogging function. Jogging function activated:  , jogging function deactivated:  . In case the jogging function is activated, machine can perform jogging in small or big steps switch are set in degrees by using icon **5** (small step) or **6** (big step).

b) To achieve jogging itself press icon **3** (small step) or **4** (big step). Current positions of all motors are displayed in the middle of jogging screen, see point **8**, together with the information on current sewing phase **7**.

c) During jogging it is possible to return to the main screen to adjust any sewing parameters. The newly set parameters are effective immediately. There are also the small **3** and big **4** step icons replicated on several sewing parameter adjustment screens to simplify the button sewing adjustment during jogging (refer to chapter **D 2**).

d) For a better accessibility of the sewing area, icons **9** and **10** can be used.

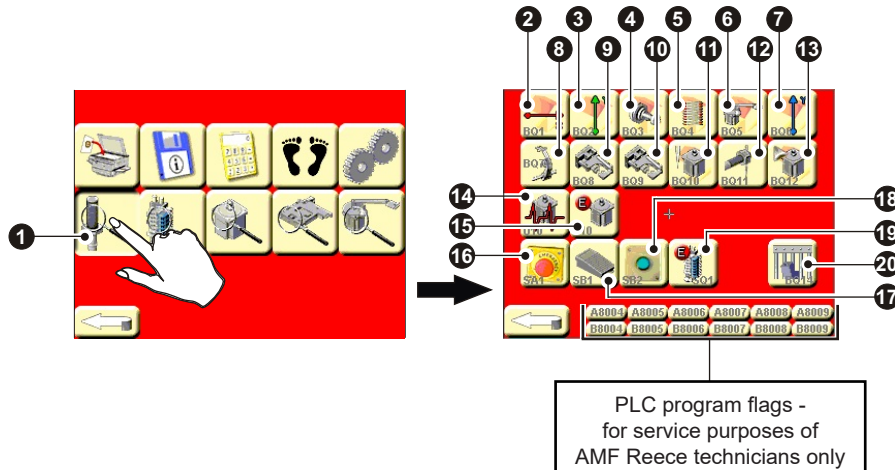


## E - STANDARD MACHINE

### 1.7. SENSOR TESTS

Sensor test screen enables user to check functions of all sensors. To enter the sensor test screen press icon **1** on the service menu screen. Sensor test screen is protected by password **level II**, see chapter **E 1.2.1**.

- 2** - X axis home position
- 3** - Y axis home position
- 4** - Thread tension home position
- 5** - Chuck vertical movement home position
- 6** - Button loader home position
- 7** - Chuck horizontal movement home position
- 8** - Tongue position for material clamping
- 9** - Horizontal chuck position
- 10** - Vertical chuck position
- 11** - Servo home position - needle is in highest position
- 12** - Threading device outside position
- 13** - Servo home position - looper basic position
- 14** - Servo motor movement control pulses
- 15** - Servo error
- 16** - Emergency stop
- 17** - Foot pedal
- 18** - Start button
- 19** - Low air pressure
- 20** - 5-thread system air blowing activation switch

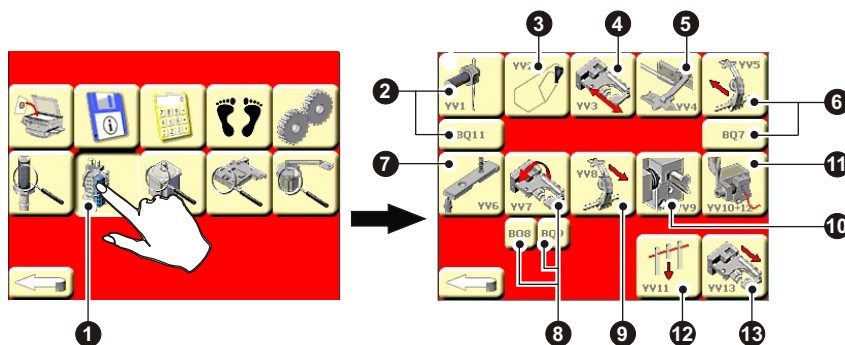


## E - STANDARD MACHINE

## 1.8. VALVE TESTS

Valve test screen enables user to check functions of all valves including relevant sensors. To enter the valve test screen press icon **1** on the service menu screen. Valve test screen is protected by password **level III**, see chapter **E 1.2.1**.

- |                                    |                                    |
|------------------------------------|------------------------------------|
| <b>2</b> - Threading device        | <b>8</b> - Chuck rotation          |
| <b>3</b> - Eye-guard cover         | <b>9</b> - Tongue opening          |
| <b>4</b> - Chuck closing           | <b>10</b> - Thread trimming        |
| <b>5</b> - Fabric auxiliary holder | <b>11</b> - Thread blowing system  |
| <b>6</b> - Tongue closing          | <b>12</b> - Thread draw-off system |
| <b>7</b> - Top needle bar lifting  | <b>13</b> - „V“-shape shifting     |



## 1.9. SEWING - MOTOR ADJUSTMENT

The sewing-motor test screen enables the user to test function of main sewing servomotor. Sewing motor test screen is protected by password **level III**, see chapter **E 1.2.1**. To enter the sewing motor test screen press **1** on the service menu screen.

Please note that before using any of screen functions it is **necessary to close eye-guard cover** by pressing icon **2**.

a) Icon **3** is used to activate/deactivate the servomotor. Servo-motor is activated , servomotor deactivated: . In case the servomotor is deactivated, the handwheel can be used to perform the servomotor movement.

b) Icon **4** is used to start/stop continuous movement of servomotor.

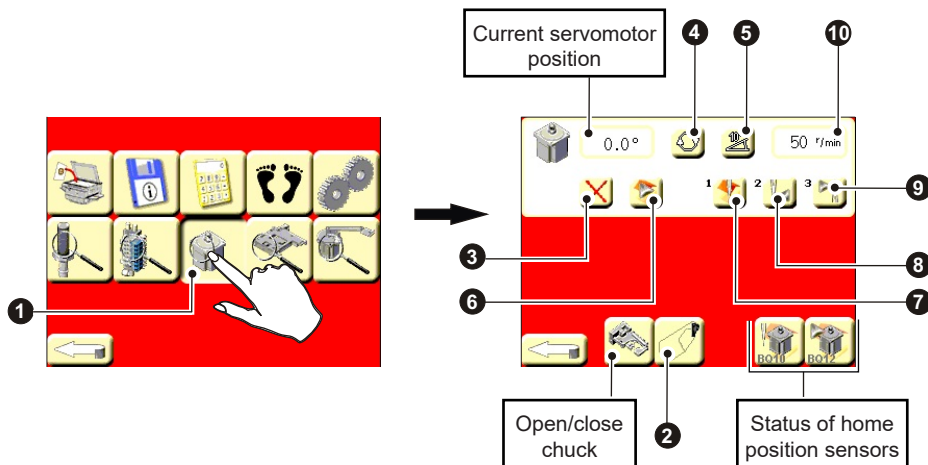
c) Icon **5** is used to move the servomotor by 10 degrees only.

d) Icon **6** is used to set the looper basic position; it means initial position for sewing.

e) Icon **7** is used to set servomotor home position, where needle is in its highest position. This icon together with icon **8** (icon to set upper looper position) an icon **9** (icon to set lower looper position) is used to adjust loopers position, see chapter **E 6** for more details.

f) Icon **10** is used to set rotation speed for testing the servomotor. This preset speed is used for functions **4**, **5**, **6** and **9**.

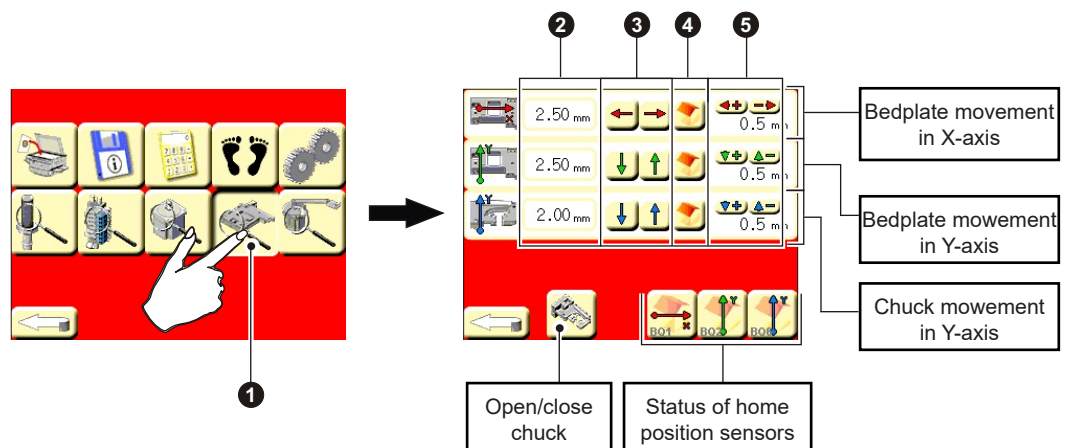
**E - STANDARD MACHINE**



**1.10. X-Y MOVEMENT MOTORS ADJUSTMENT**

X-Y movement motors test screen enables user to adjust and test bedplate movement in X and Y axis and chuck movement in Y axis. X-Y movement motors test screen is protected by password **level III**, see chapter **E 1.2.1**. To enter X-Y movement motors test screen press icon **1** on the service menu screen.

- a) Information in point **2** provides user with current positions in X, Y axis.
- b) Icons in point **3** are used to test X-Y movements in all directions.
- c) Icons in point **4** are used to establish the home position in case of a respective sensor's shutter position change.
- d) Icons in point **5** are used for electronic adjustment of home positions within the range  $\pm 1.5$  mm.



## E - STANDARD MACHINE

### 1.11. OTHER MOTORS ADJUSTMENT

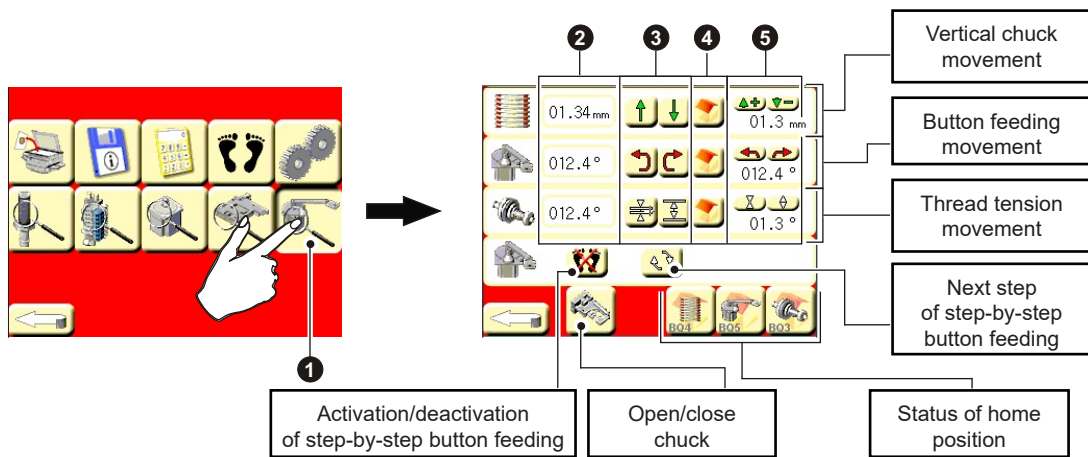
Remaining motors test screen enables user to adjust and test vertical chuck movement motor, button feeding motor, and thread tension motor. Remaining motors test screen is protected by password **level III**, see chapter **E 1.2.1**. To enter other motors test screen press icon **1** on the service menu screen.

a) Information in point **2** provides user with current vertical position of chuck, button loader and thread tension position.

b) Icons in point **3** are used to test particular movements in all directions.


c) Icons in point **4** are used to set home position in case position of a respective sensor shutter position change.

d) Icons in point **5** are used for electronic adjustment of home positions within the range  $\pm 1.5$  mm for vertical chuck position,  $\pm 5.0^\circ$  for button loader and  $\pm 1.5^\circ$  for thread tension.




## E - STANDARD MACHINE


### NOTE!

 During the machine adjustment proceed in the same order as the following chapters are arranged in this manual.


## 2. PNEUMATIC CYLINDERS ADJUSTMENT


### WARNING!

 All the adjustments must be carried out only after turning off the main switch

 Non-professional actions can damage the electronic components and also the mechanisms in the machine

### CAUTION!

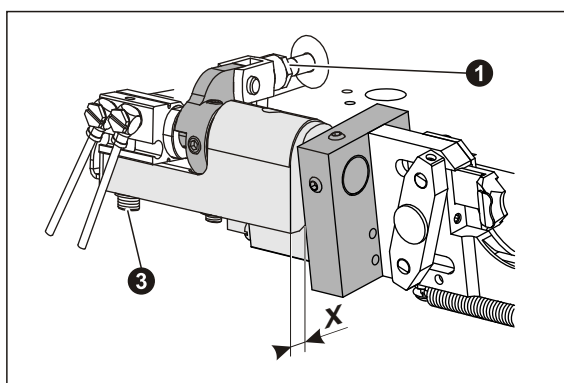
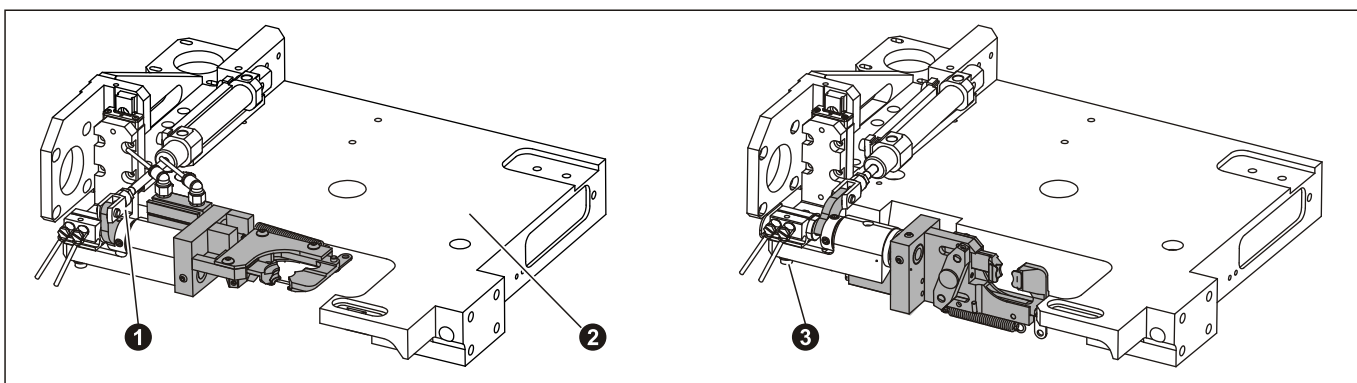
 Follow the safety regulations valid in the particular plant

 During the adjustment it is advisable to take out the needle for those procedures where the needle is not required.

 During the warranty period do not adjust the yellow - marked parts and follow the safety regulations



### 2.1. CHUCK ROTATION ADJUSTMENT

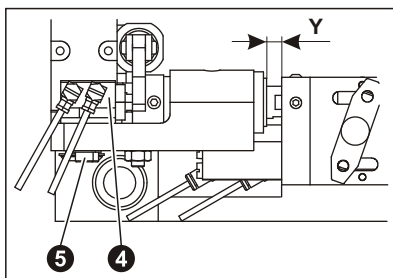
Adjust chuck horizontal position using the nut **1**, so that it is parallel with the bedplate **2**. Adjust chuck vertical position using the adjustment screw **3** - the right position is depicted below as  $X = 3$  mm.



## E - STANDARD MACHINE

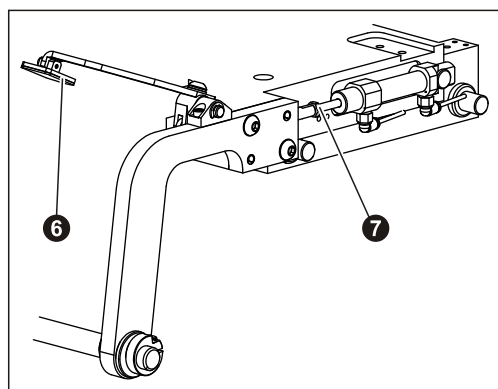
### 2.2. V - SHAPE CYLINDER ADJUSTMENT

Open the V-shape cylinder (from the valve tests screen:  → ) and adjust the stroke according to the figure below,  $Y = 2,5$  mm by moving the cylinder **4** after loosening the screw **5**.



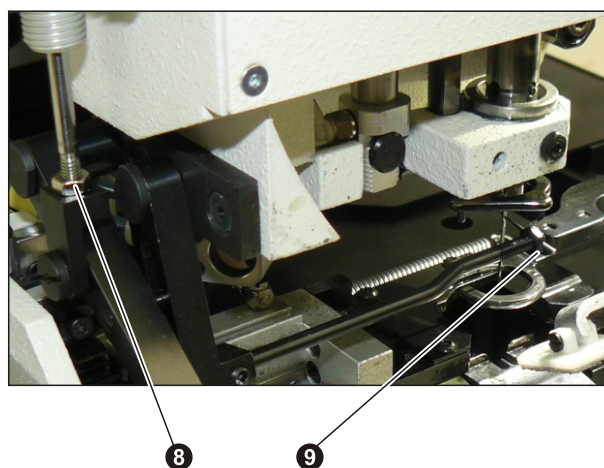
### 2.3. AUXILIARY FABRIC HOLDER ADJUSTMENT

Adjust the holder **6** in the way it allows free passing of the tongue with a sewn piece using the nut **7**. Avoid collision of the holder with the top looper! Check the whole rotation of the looper while the auxiliary fabric holder is open.



### 2.4. THREADING DEVICE ADJUSTMENT

Adjust the threading hook using the nuts **8** and **9** so that it goes smoothly into the needle eye.





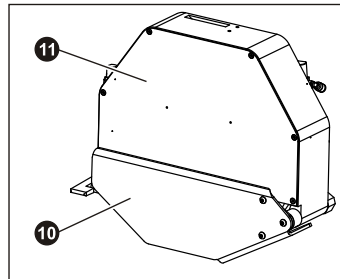
## E - STANDARD MACHINE

### 2.5. EYE GUARD ADJUSTMENT

Close the eye - guard ⑩ (from the valve test screen

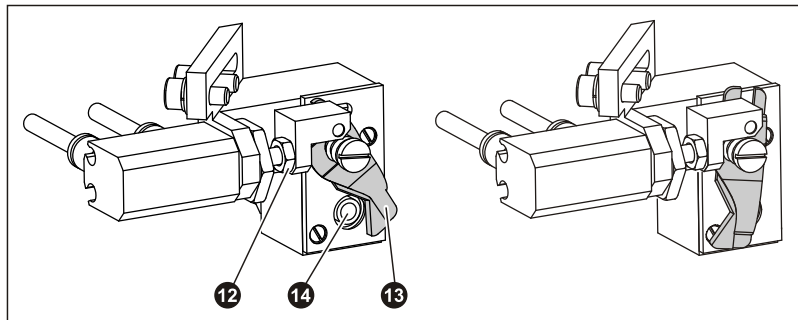


and adjust it to be parallel with the top looper cover ⑪.



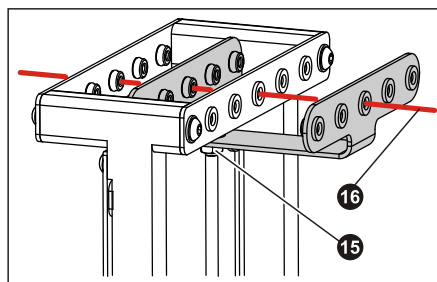
### 2.6. THREAD TRIMMING ADJUSTMENT

Adjust the thread trimming using the nut ⑫ in the way the knife ⑬ fully uncovers the hole while open and close the hole ⑭ and reliably trims the thread while closed.



### 2.7. 5-THREAD DRAW-OFF SYSTEM

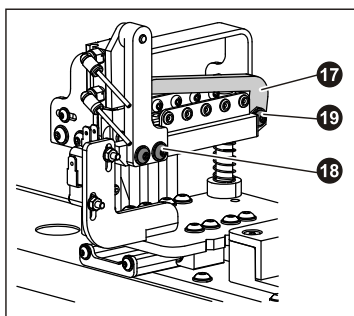
Right adjustment of the draw off system keep the thread ⑮ in one line - use the nut ⑯.



## E - STANDARD MACHINE

### 2.8. THREAD BRAKE ADJUSTMENT

Adjust the thread brake **17** so that it clamps all 5 threads equally. Use screws **18** and excentric screw **19**.

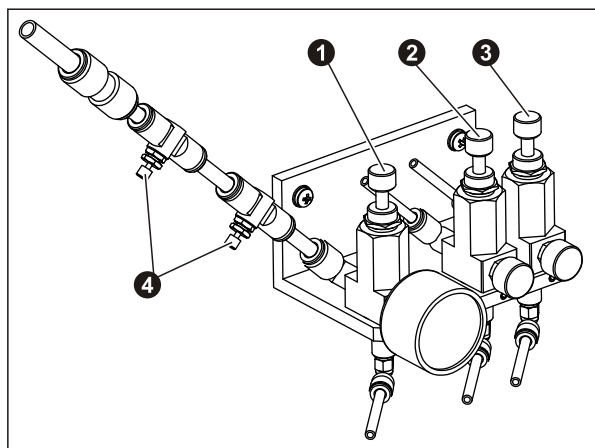


### 2.9. AIR PRESSURE REGULATORS ADJUSTMENT

a) Use regulator **1** to adjust the thread blowing pressure - make the adjustment when a new thread is not blown correctly into the sewing area. Use the flow-controls **4** to avoid thread returning.

b) Use regulator **2** to adjust the threading device air pressure so that the threading hook pulls the thread through the needle smoothly and does not frazzle it.

c) Use regulator **3** to adjust the thread clamp air pressure. Keep the eye-guard open for this adjustment! The thread clamp should hold threads softly so that the threading hook can pull out the thread while threading.



## E - STANDARD MACHINE

### 3. HEIGHT ADJUSTMENT OF NEEDLE BARS

3.1. Start with the adjustment of the height of the bottom needle bar **1**. Adjust it to the lowest possible position. Use the excentr **2** of the drive lever, you can turn it after loosening the screw **3**. After adjustment tighten the screw **3** again.

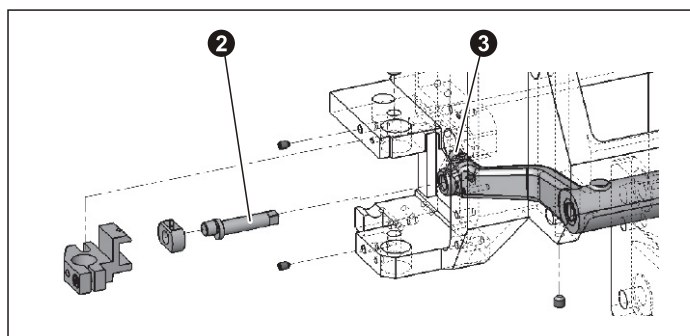
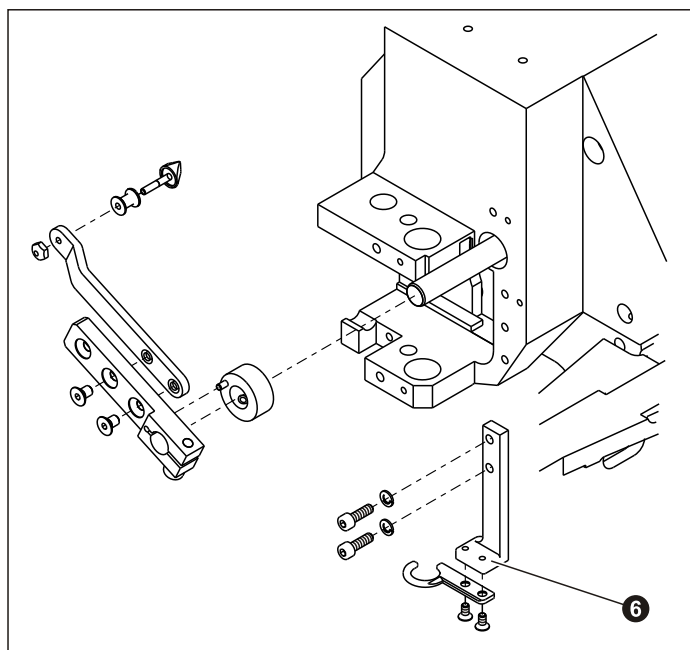
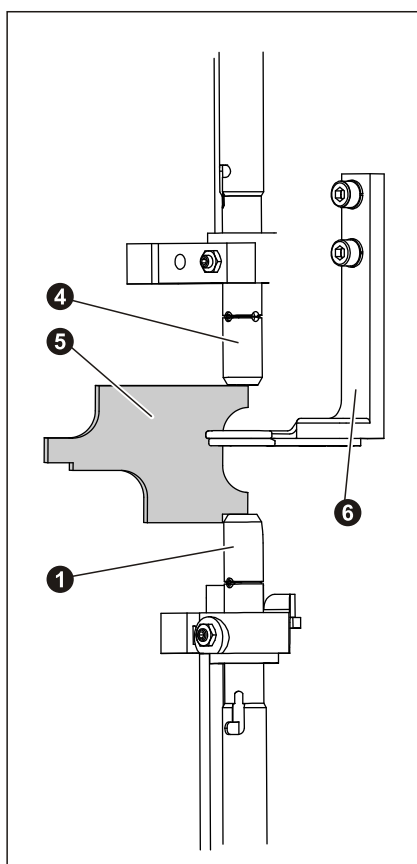
3.2. Adjust the height of the top needle bar **4** in the similar way as described in point 3.1. By turning the hand wheel move the needle bars to be as close as possible to each other (needle handover moment). Use the excentr of its drive lever so as the bottom surface of the needle bar case is in the correct distance from the top surface of the bottom needle bar. Use the gauge **5** from accessory. **Check:** When you place in the needle, check the handover of the needle between the needle bars. Refer to the next chapter.

3.3. Adjust the height of the fixed thread tension plate **6** so that there is a clearance not less than 0.2 mm from the top looper.

#### CAUTION!



The needle bars must be cleaned once a week or after 80 hours of operation according to chapter *F1*.



## E - STANDARD MACHINE

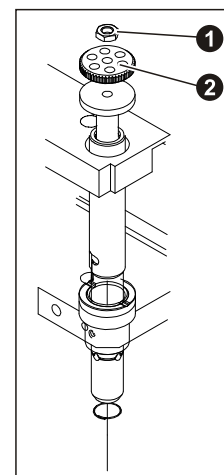
### 4. ADJUSTING THE NEEDLE RELEASE

4.1. When the needle is in the upper needle bar turn the handwheel so as the needle is in the position right after shifting into the lower needle bar. Slightly turn the handwheel back and forwards to test the needle releases from the upper needle bar.

4.2. Loosen the nut **1** on the upper part of the needle bar. Turn slightly the adjusting nut **2** anticlockwise when seeing it from above until the needle is released in the transfer point. Turn it back clockwise by another half turn. Tighten the nut **1**.

4.3. Slightly move the handwheel forward and backwards to be sure that the needle is shifted properly from one needle bar to another. You should feel no resistance while rotating the handwheel, but the needle shall be shifted properly, i.e., you should not be able to pull it into the needle-bar; you can test while holding the needle in pliers. The movement clearance of the needle is 0.4 - 1.2 mm.

4.4. Carry out the same adjustment also in the lower needle bar to release the needle from the lower needle bar into the upper needle bar.






### 5. ADJUSTING THE MACHINE'S SENSOR SHUTTERS

The adjustment of sensor shutters is important for proper operation. You can access them when you remove the covers. The sensors are set by default in the factory and are marked by a colour. The distance between all the sensors and their shutter shall be 0.3 mm throughout entire movement range.

After the coarse adjustment, adjust the particular mechanism according to the instructions in the following chapters, use the adjustments described in section **E 1**.

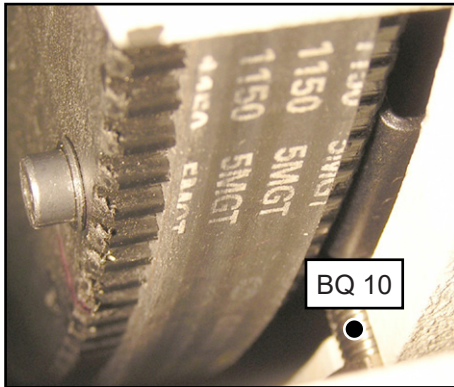
#### NOTE!

 After any adjustment of a shutter, press respective axis home icon  , or machine home position establishment icon  on the main screen.

LABEL	FUNCTION	NOTES	DETAIL
BQ 1	PLATE SENSOR - X AXIS	FROM THE SHUTTER EDGE TO PLATE	FIG. B
BQ 2	PLATE SENSOR - Y AXIS	FROM THE SHUTTER EDGE TO BEDPLATE EDGE	FIG. C
BQ 3	THREAD TENSION	THE BASIC POSITION, I.E., WHEN SENSOR STOPS LIGHTING, IS 22 MM	FIG. D
BQ 4	CHUCK VERTICAL POS.	FROM THE UPPER EDGE OF SENSOR	FIG. F, H
BQ 5	BUTTON LOADER	SENSOR SHALL BE IN DIRECTION TOWARDS THE AXIS OF THE LOADER SHAFT	FIG. G
BQ 6	CHUCK HORIZONTAL POS.	FROM MOTOR EDGE THE TO SHUTTER	FIG. F
BQ 7	TONGUE	LIGHTS WHEN THE TONGUE IS PUSHED INTO	FIG. H
BQ 8	VERTICAL POSITION OF THE CHUCK (FOR ERROR DETECTION)	SENSOR FURTHER FROM THE OPERATOR	FIG. I
BQ 9	HORIZONTAL POSITION OF THE CHUCK (FOR ERROR DETECTION)	SENSOR CLOSER TO THE OPERATOR	FIG. I
BQ 10	BASIC POSITION OF THE CAMSHAFT	INDICATES THE UPPER NEEDLE BAR IN UPPERMOST POSITION	FIG. A
BQ 11	THREADING	IN HORIZONTAL POSITION THE SENSOR SHOULD TURN OFF	FIG. J
BQ 12	BASIC POSITION OF THE LOOPER		FIG. K

## E - STANDARD MACHINE

Fig. A: POSITION OF SENSOR BQ 10







Using the icons  /  go to the servomotor adjustment screen, turn off the servo by pressing  → . Turn the handwheel and place the upper needle bar into the uppermost position of „the upper dead-centre“. Now the lower edge of the shutter shall leave the sensor (sensor stops lighting).

Fig. B: POSITION OF SENSOR BQ 1

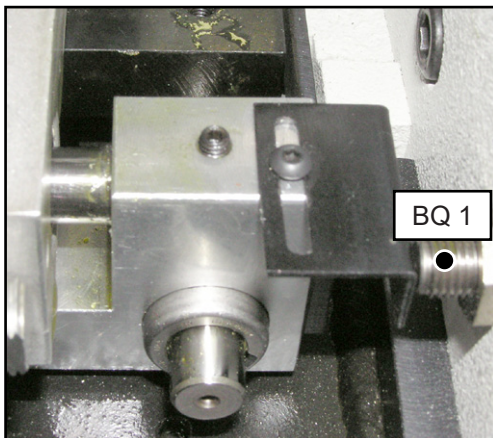


Fig. C: POSITION OF SENSOR BQ 2

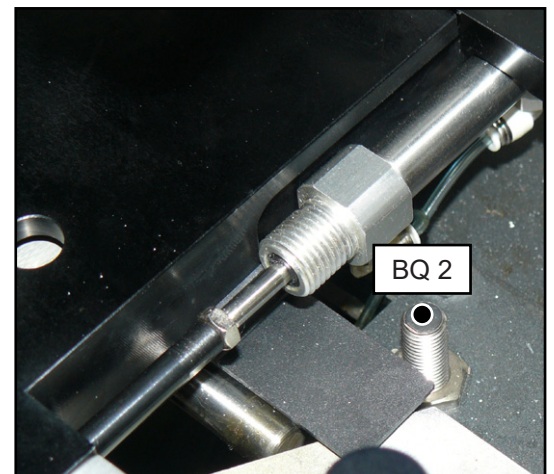


Fig. D: POSITION OF SENSOR BQ 3

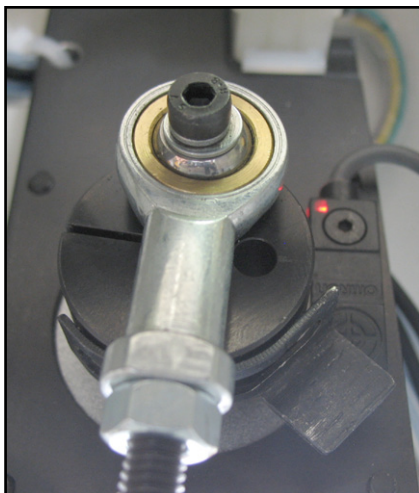
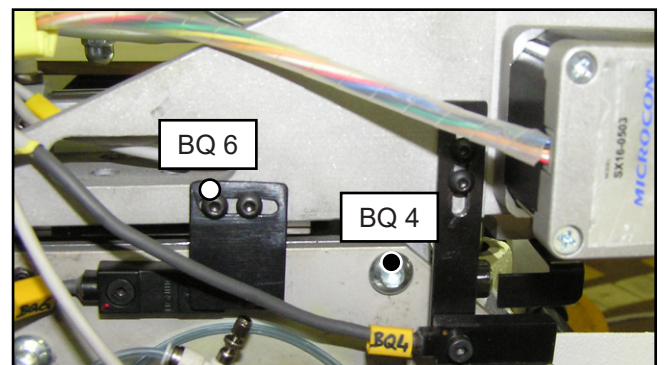


Fig. E: POSITION OF SENSOR BQ 4, BQ 6



## E - STANDARD MACHINE

Fig. F: POSITION OF SENSOR BQ 5

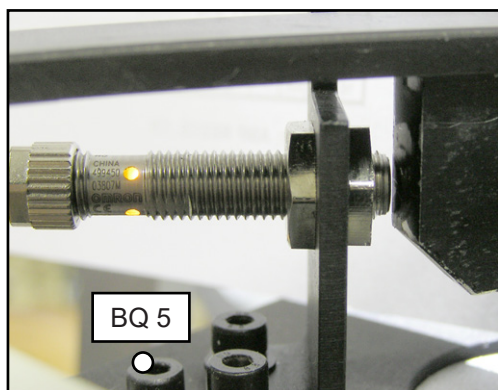


Fig. G: POSITION OF SENSOR BQ 4, BQ 7

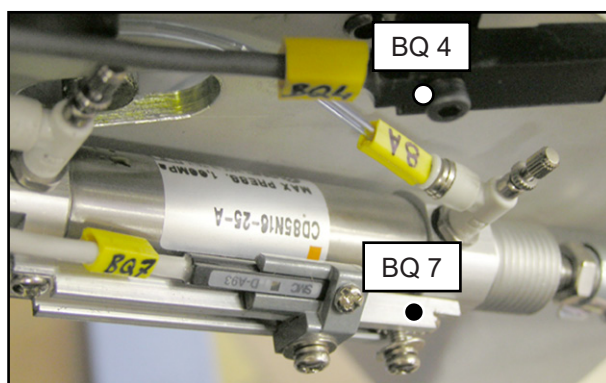


Fig. H: POSITION OF SENSOR BQ 8, BQ 9

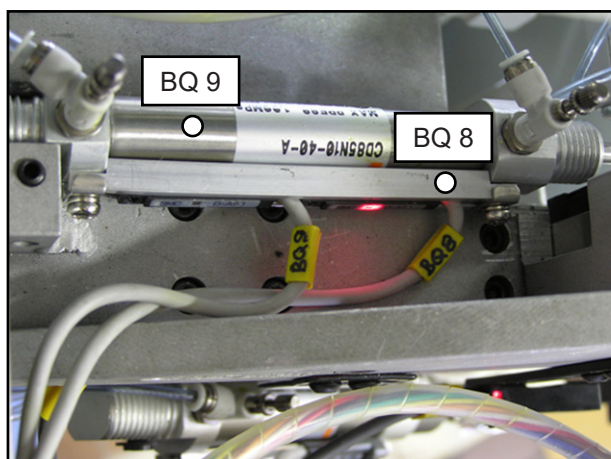


Fig. I: POSITION OF SENSOR BQ 11

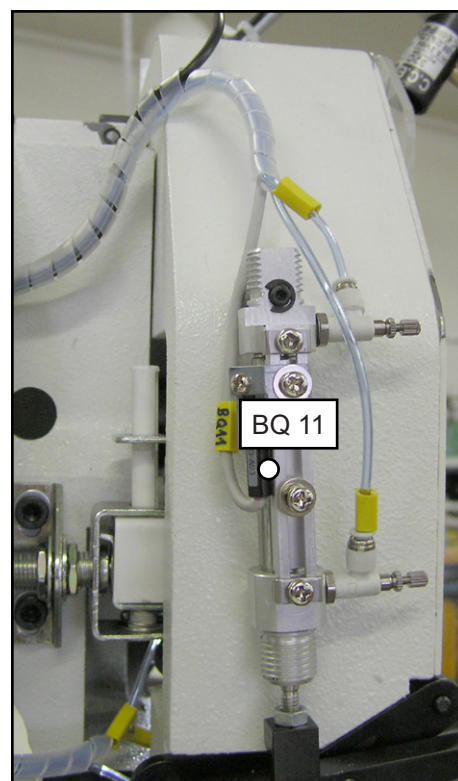
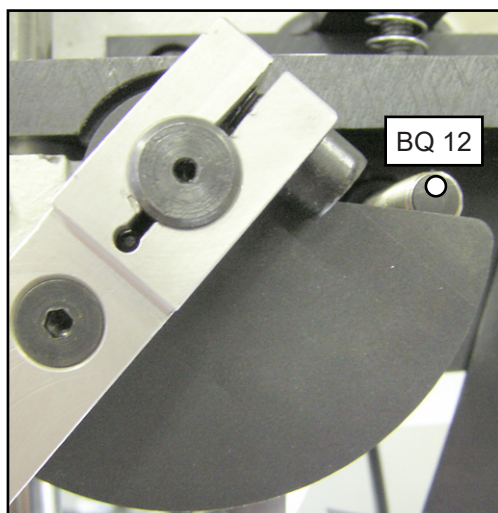
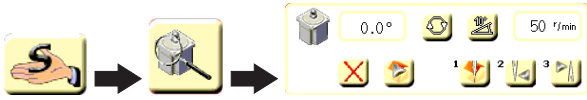





Fig. J: POSITION OF SENSOR BQ 12



## E - STANDARD MACHINE

### 6. LOOPER ADJUSTMENT



6.1. Press the icon of the eye-guard cover . The cover shuts down. To adjust the basic position of the upper looper, press icons  and . In this position align the tip of the looper with the centre of the needle - see Fig.1. Adjust it by a guide ring and a catch on the looper lever. Between the looper, shutter and guide ring there must not be any clearance. Check the correct distance 0.3 mm between the shutter and the sensor **BQ 12**. The distance between the looper tip and the needle shall be 0.1 - 0.3 mm.





6.2. Adjust the lower looper after you have pressed the icon  and adjust the lower looper in the same way as in 6.1. - see Fig. 2. When you press the icon  again, the machine is in its basic position - see Fig. 3. Check the correct position of the loopers towards the covers - turn off the servo by pressing  →  and use the handwheel to rotate throughout entire loopers revolution.

Fig. 1

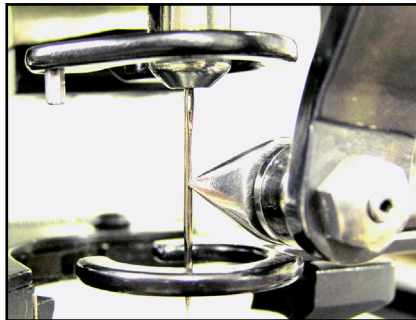



Fig. 2








Fig. 3



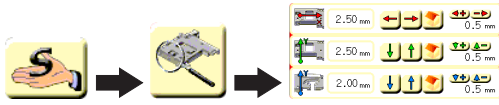
#### WARNING!

 For the adjustment of the lower looper you have to keep the order of the icons:

  . Do not use the simplified way  and  -the machine would go into a wrong position.

## E - STANDARD MACHINE

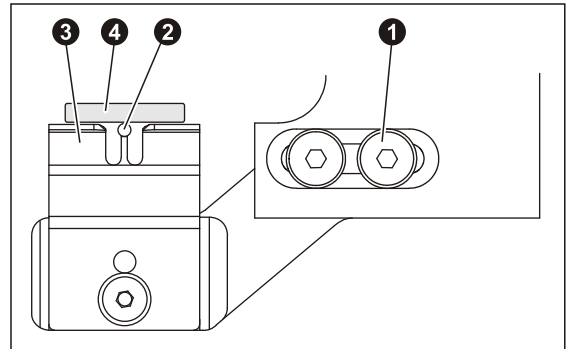
### 7. ADJUSTING THE Y BEDPLATE POSITION



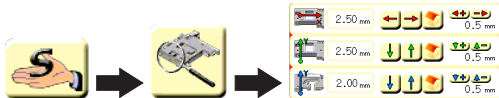
Put the needle into the position where it is in the level of the pucker-pin **3**. Use any straight object **4**, put it onto the edge of the pucker-pin **3** (according to the figure) and check the distance of the needle **2** from the object **4** in the central part.

Change the clearance to 0.0 mm using the icons

in row on the X-Y movement motors adjustment screen.



### 8. ADJUSTING THE X, Y BUTTON POSITION



8.1. Put the 5-hole adjusting gauge with a central hole into the chuck, use tweezers. Move the needle in the upper needle bar towards the gauge by turning the handwheel. Change the deviation from the central hole of the gauge by using the icons on the X - Y movement motors adjustment screen.

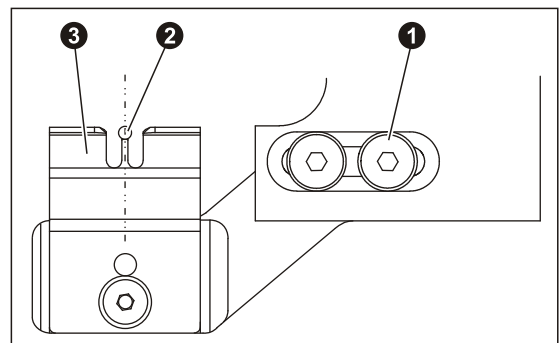
- The X axis of the bedplate with icons in row

- The Y axis of the chuck with icons in row

8.2. Lift up the needle from the gauge. Any adjustment will be stored automatically.

### 9. ADJUSTING THE X PUCKER-PIN POSITION

9.1. Move the needle in the position where it is in the level of the pucker-pin **3**. Adjust the centre of the pucker-pin **3** in X axis to be in one line with the needle **2**, use the screws **1** (see the figure).

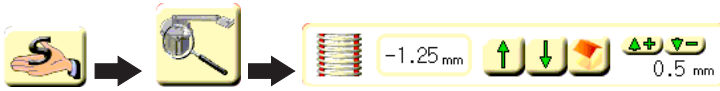



9.2. Check the Y bedplate position (see chapter E 7).



## E - STANDARD MACHINE

### 10. ADJUSTING THE CHUCK HEIGHT



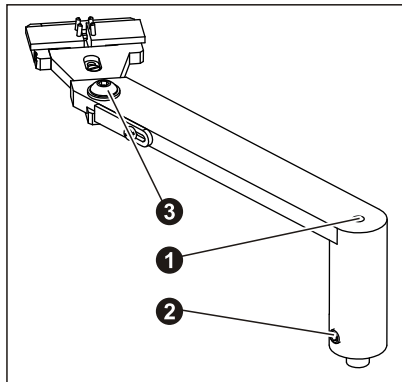
Press the icon  4x, in this way move the chuck into its lowest position (- 4 mm). Adjust the vertical distance between the chuck and the pucker-pin to approx. 0.1 mm.




### 11. ADJUSTING THE BUTTON FEEDER






Press the emergency stop button. The chuck is open, move it up manually. Turn the feeder lever manually under the chuck and check the height above the pucker-pin. The recommended clearance from the pucker-pin is 0.1...0.2 mm. If you need to adjust it, use the height adjustment screw **1** in the loader shaft after you have loosened the securing screw **2**. Move back the lever manually to the basic position indicated by the sensor light. Release the emergency

stop button and turn off the servo  →  →  → . Switch back to the main screen.



Move to the button parameters screen. Put a button onto the feeder. By pressing the icon  for the first time the feeder with the button moves under the chuck and the chuck lowers to the level of the button. By using the corrections   adjust the angle position of the feeder so as the button corresponds with the chuck in Y - axis. In the

X axis, adjust the position of the button holder on the lever: After you loose the screw **3**, by pressing the icon  the chuck presses/ releases the button and centralizes the holder.

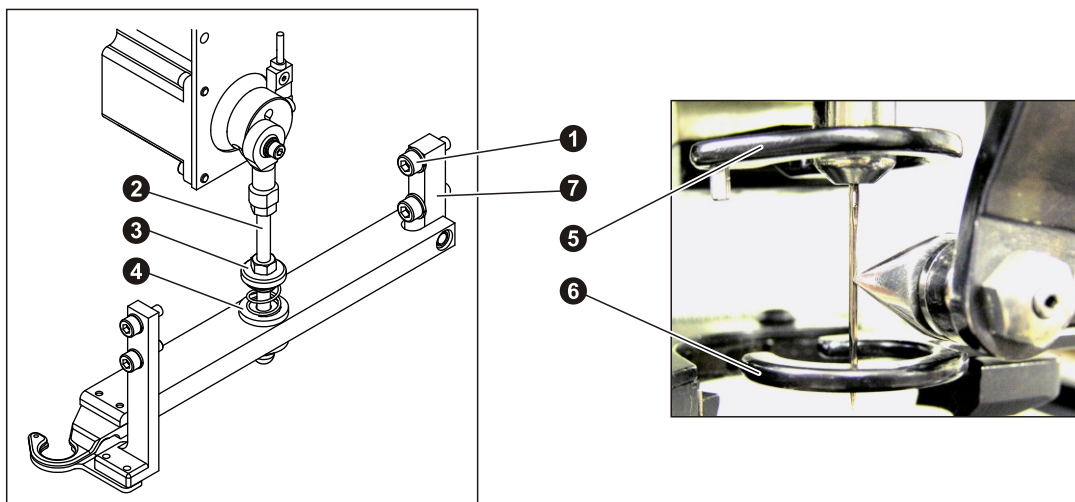
Now tighten the screw and press icon  for the second time. The button is caught by the chuck and the loader moves to its basic position. Pressing the icon  on the main screen releases the button.


## E - STANDARD MACHINE

## 12. ADJUSTING THE CLAMPING LEVER OF THE THREAD TENSION









By pressing the icon  2x the clamping tension lever is closed.



Tighten the nut **3** by one more turn after pressing the spring **4**. Press icon  2x. Align the top **5** tension plate with the bottom plate **6** by loosening the screw **1** and subsequent moving and tilting the lever holder **7**.

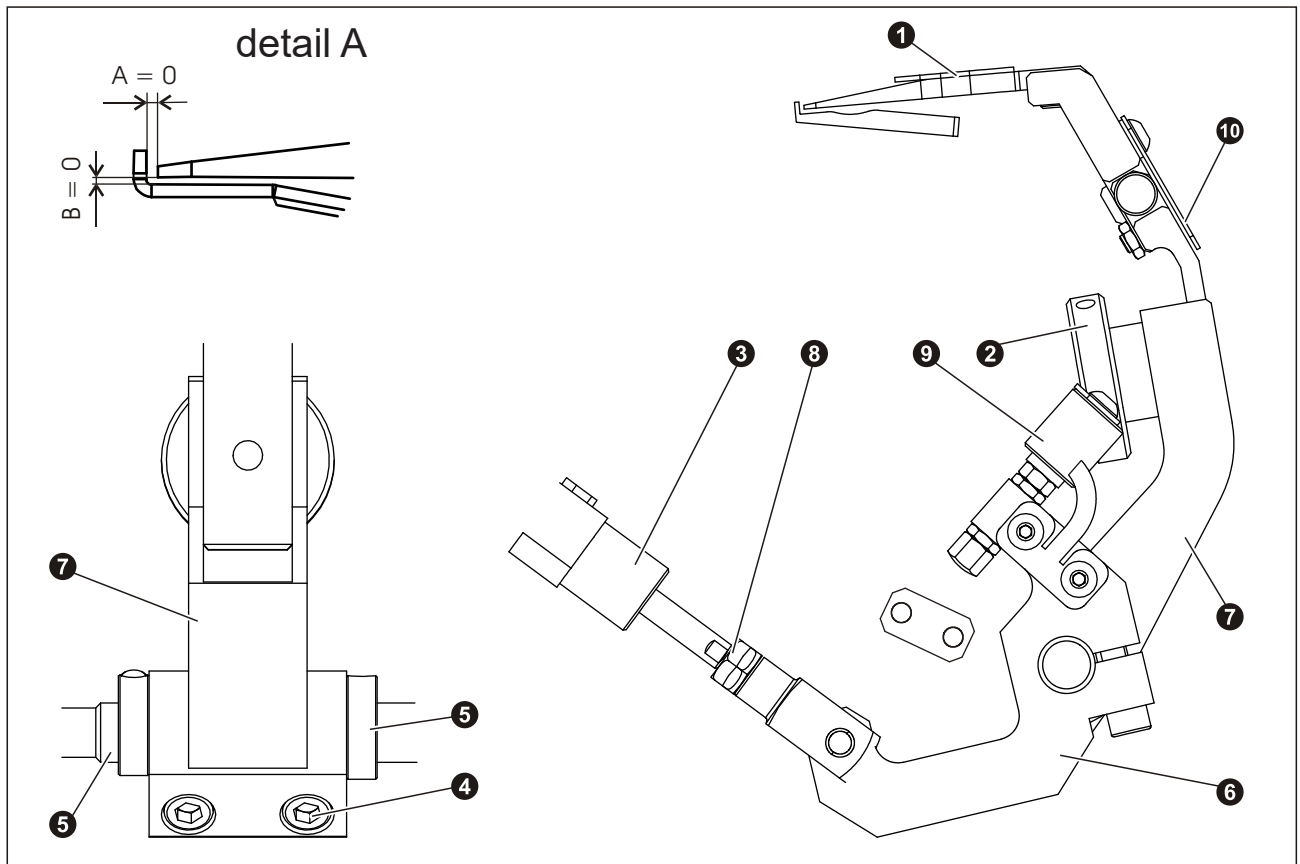
The distance between the top **5** and bottom **6** tension plate shall be approx 22 mm. Adjust the necessary distance by the help of the sensor **BQ 3** and its shutter (refer to the chapter **E5**); after every adjustment of the shutter press

. Press  2x, check the correct minimum tension by placing the used thread between the surfaces of the parts **5** and **6**. The pressed thread does not unweave when it is being pulled, and does not move too freely in any point of contact of the parts. Correction by the icons  and  eventually adjusting the **BQ 3** sensor's shutter.

Check also the remaining tension positions up to the maximum tension (  19x). Lift up and detach the end parts **5** and **6** by pressing . The pressed thread is released.

## E - STANDARD MACHINE

### 13. ADJUSTING THE TONGUE POSITION



13.1. Loosen the screws of the rings **5** and the screws **4** on the tongue lever **7**, centralize sideward the tip of the tongue towards the centre of the pucker-pin, and tighten the screws of the rings **5** so as the lever between the rings has no clearance.

13.2. Turn the screw **9** anticlockwise to the maximum position. Adjust the top of the tongue **1** to press towards the pucker-pin see „**detail A**“. In this adjustment the cylinder piston is maximally pushed out from the cylinder. Detent the adjustment by tightening the screw **4**. Later on, use the stop **9** to adjust the tongue position according to the sewn fabric.

13.3. After loosening the screw **2** you can adjust the tongue vertically so as the spring **10** cause only light pressure while the tongue touches the pucker-pin.

#### NOTE!



Check: It is useful to use buttons



+



, for pushing the tongue into the pucker-pin and out respectively!

## F - MAINTENANCE

### WARNING!

- ⚠ Check the condition of the electric wires if they are not damaged.
- ⚠ Check if the protective covers are not damaged. Replace the damaged covers by new ones.
- ⚠ Never put your fingers into the area of the sewing needle.
- ⚠ Do not modify the machine in a way that can shut off its safety elements.

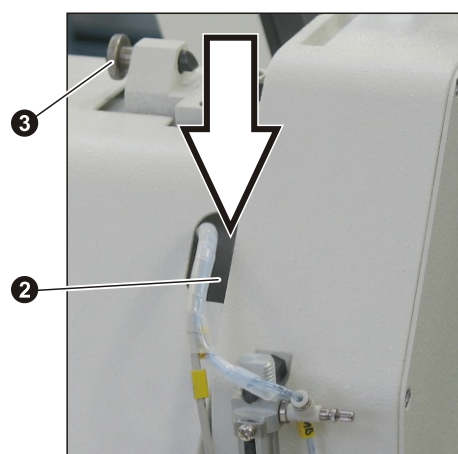
### CAUTION!

- ⚠ Do not fail to carry out regular maintenance works.
- ⚠ Clean the needle bars on a regular basis.
- ⚠ Do not damage, modify or remove the safety labels.
- ⚠ Do not operate the machine if you are intoxicated.
- ⚠ Ensure the lightening of the working area of at least 750 luxes.

## 1. CLEANING AND MAINTENANCE OF THE MACHINE

1.1. Shut off power supply and the air inlet.

1.2. If you want to carry out cleaning and greasing, lift up the cover of the upper looper **1**. By pressing the stud **2** and securing the cover by latch **3**. You can turn the sewing mechanism by rotating the handwheel.



### CAUTION!

⚠ In this position of the cover the threading hook is without the cover - have this in mind because it can cause injuries.

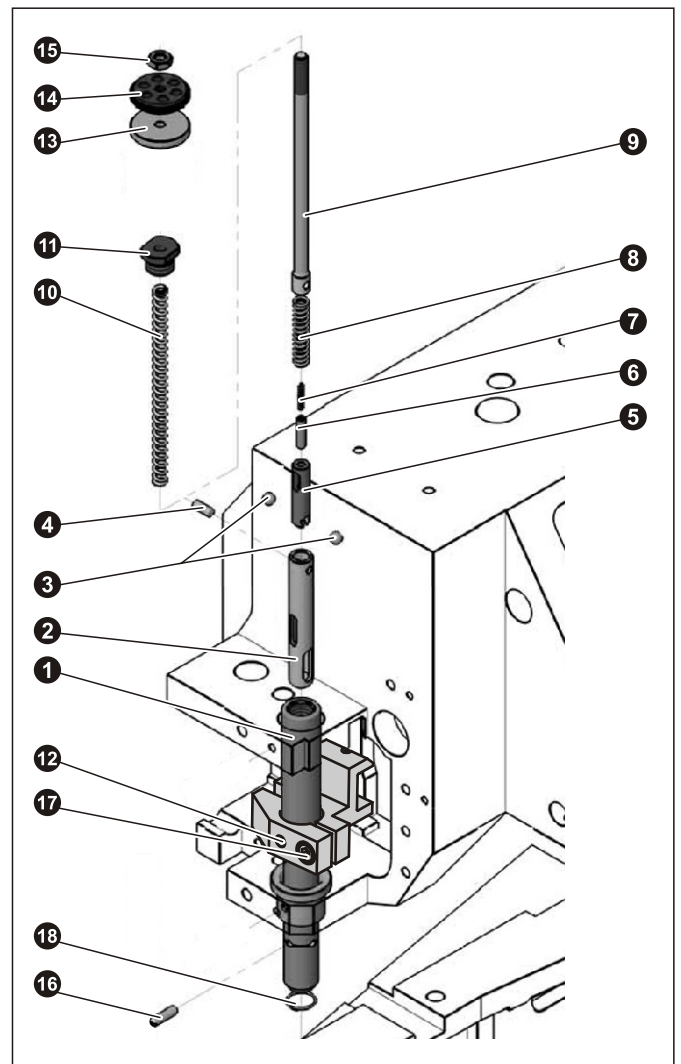
1.3. Clean the fabric leftovers from the sewing area.

## F - MAINTENANCE

1.4. It is inevitable to clean and check the needle bars as often as possible - follow this procedure:

- Switch off the machine, take out the needle.
- Loosen the screw of the needle bar guard **17**, turn the needle bar anti-clockwise and push it out of its guard.
- Loosen the nut **11** with the wrench.
- Take out the securing ring **18** from the needle bar groove and push out the pin **16**. Slowly take out the set from the case **1** in upward direction. Mind the balls **3**.
- Take out the pin **4**, this releases the bar **9** and you can push out the insert **5**.
- Remove the eventual damaged parts of the spring **7** and needle from the piston **6**. Clean the piston **6**, check its edges and polish the possible wear. If it is not possible to clean its opening, replace the piston **6** because it can damage the needle tip in the piston opening.
- Clean all the demounted parts, wash them with petrol, clean with the brush, and spread little oil on it. The piston **6** in the case **5** must move easily! Put a new spring **7** into the piston **6** and put it in the guide **5**. It must be pushed there easily!
- Put in the spring **8** and push the bar **9** into the guide - secure it with a pin **4**.
- Slide the set into the case **1** with the bevel in backward direction, i.e., against the lock **12**. Partially insert the balls **3** and pull the case up to the edge of set's bevel.
- Push in the pin **16** with its flat surface facing the spring **7** and secure it with a securing ring **18**. Mount the nut **11**. Put the needle bar into the machine and tighten the screw **17**.

In a similar way check the lower needle bar after you have unmounted the lower looper cover. The lower looper should be on the right side.

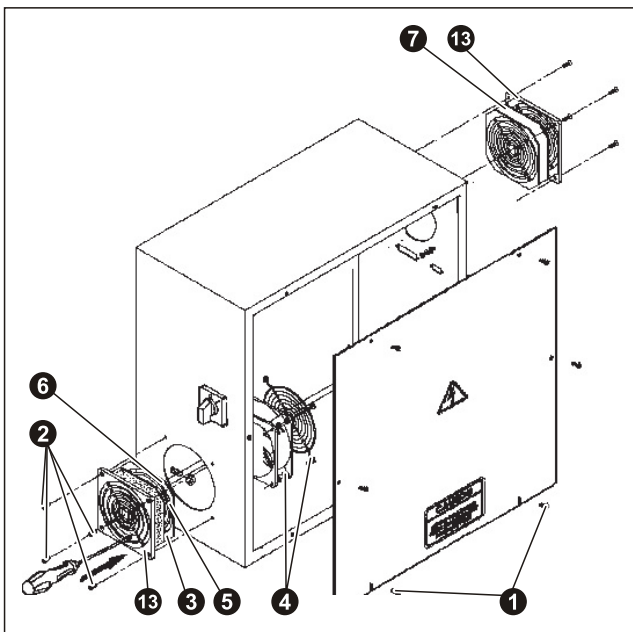


## F - MAINTENANCE

## 1.6. Cleaning the fan:

Loosen the screws ① on the control cabinet, use a cross screwdriver. Loosen 4 screws ② on the fan grid ③.

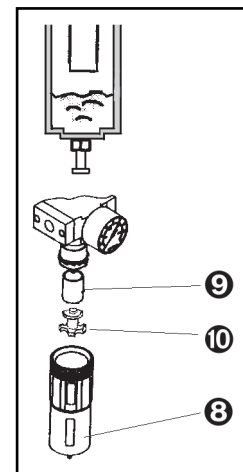
**⚠ ATTENTION!** When loosening the last screw hold the fan with the grid ④ inside the cabinet to avoid its fall into the control cabinet. Put the screwdriver into the aperture on the grid ⑬, press it through the cleaning insert ⑤ and then push the plastic cover of the grid ⑥. Take out the cleaning grid. Shake or draw out the insert, in case of larger dirt wash in a detergent. Carry out similar maintenance also on the back grid ⑦.



## 1.7. Maintenance of the air regulator

It includes **the check of the condensate** and the possible replacement of the filtering patron ⑨. The level of the condensate inside the sludge pit ⑩ should not reach the level above 10mm under the level of the filtrating patron ⑨. The lower nut collar ⑫ signalizes this height. Loosen the emptying screw ⑪ to drain the condensate and then tighten the screw again.

If the air flow worsens replace the filtrating patron ⑨ after you have shut off the air. Screw out the sludge pit ⑩ anticlockwise and vent. Unscrew the nut ⑫, this releases the filtrating patron ⑨, replace it with a new one and then mount the device in the reverse order.






1.8. Visually check the mechanisms, mainly in the area of the sewing. No threads and fabric can be left in this area.

1.9. Put the covers in their operating position and check the machine operation according to section C.

## F - MAINTENANCE

### 2. PERIODIC MAINTENANCE

once a day (8 hours of operation)	- cleaning of the sewing mechanism area and inner area of the machine
once a week (40 hours of operation)	- visual check - external and internal mechanism - lubrication according to chapter F3
once a month (160 hours of operation)	- check the clearance in sewing mechanism drive - check the screw connections tightening (values below) - check the condensate in regulator

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

## F - MAINTENANCE

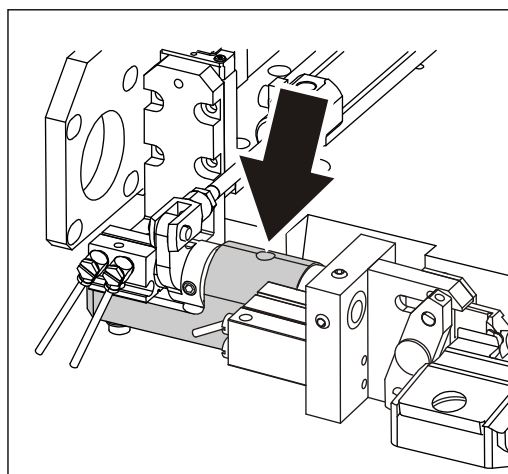
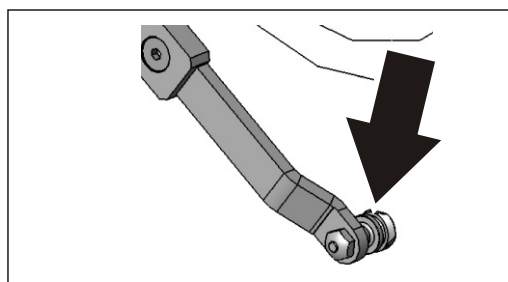
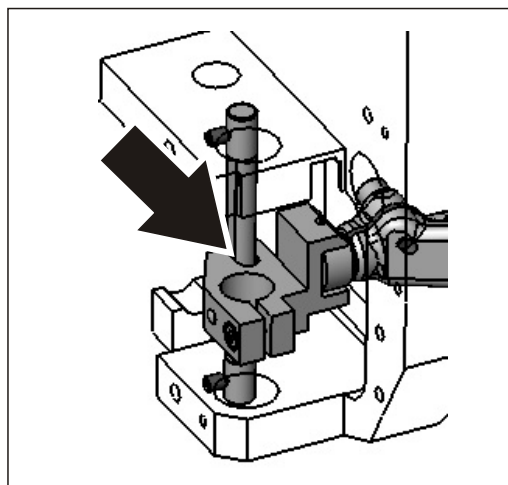
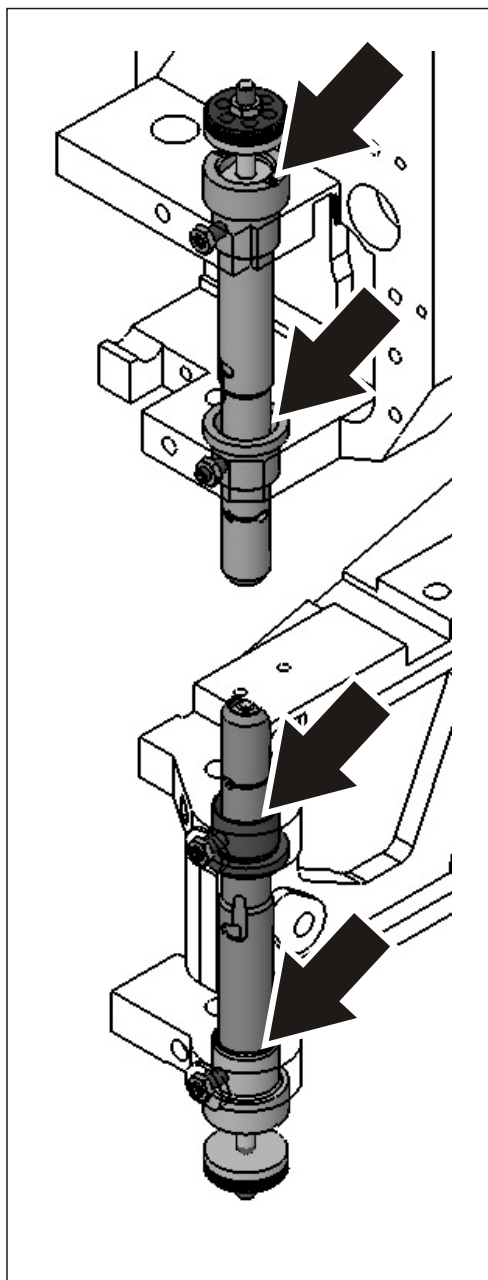
### 3. MACHINE GREASING

3.1. Before the first use of the machine you shall remove the preserving oil. Then it is necessary, before the first use or after a longer period of time when the machine is not used, to grease the depicted places. You can use the greasing oil ESSO TERESSO 32 or oil with similar characteristics.

3.2. Grease the bushings and guides of the needle bars, rollers on the loopers and „V“ shape mechanism. You can carry out greasing of the needle bars and loopers after you have opened / unmounted the needle bar covers.

**NOTE!**

Too much oil can leak out in the area of the needle bar and can stain the sewed piece.





## **F - MAINTENANCE**

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### **4. MACHINE DISPOSAL**

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

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

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



aluminium parts



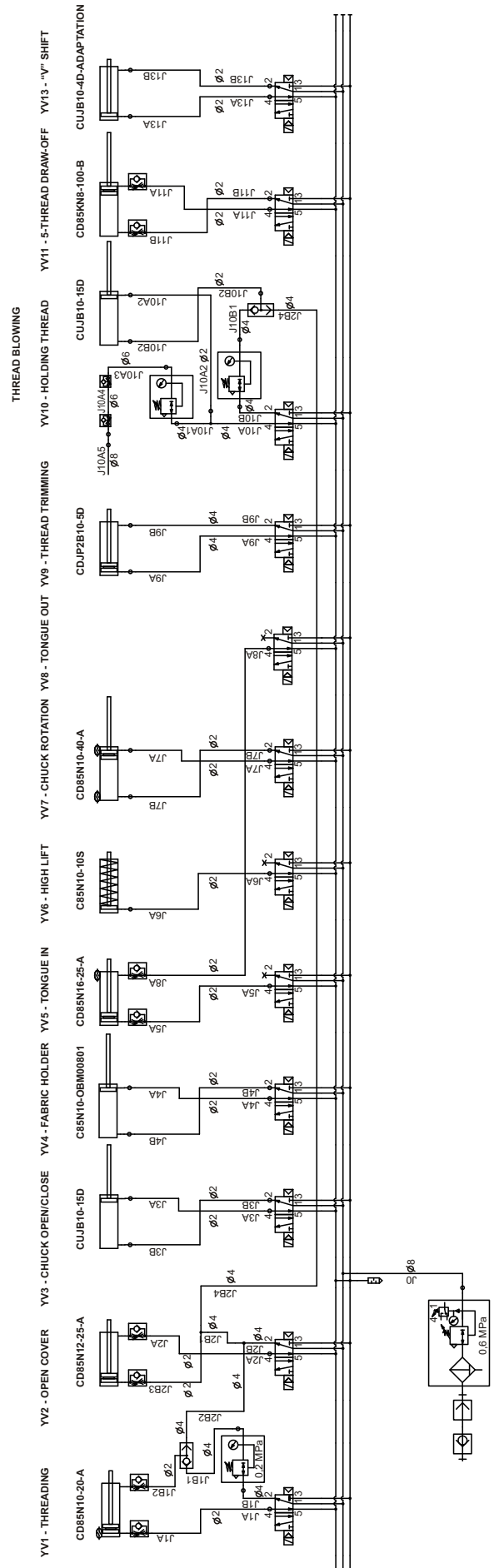
non-ferrous metal parts



plastic and non-metallic parts

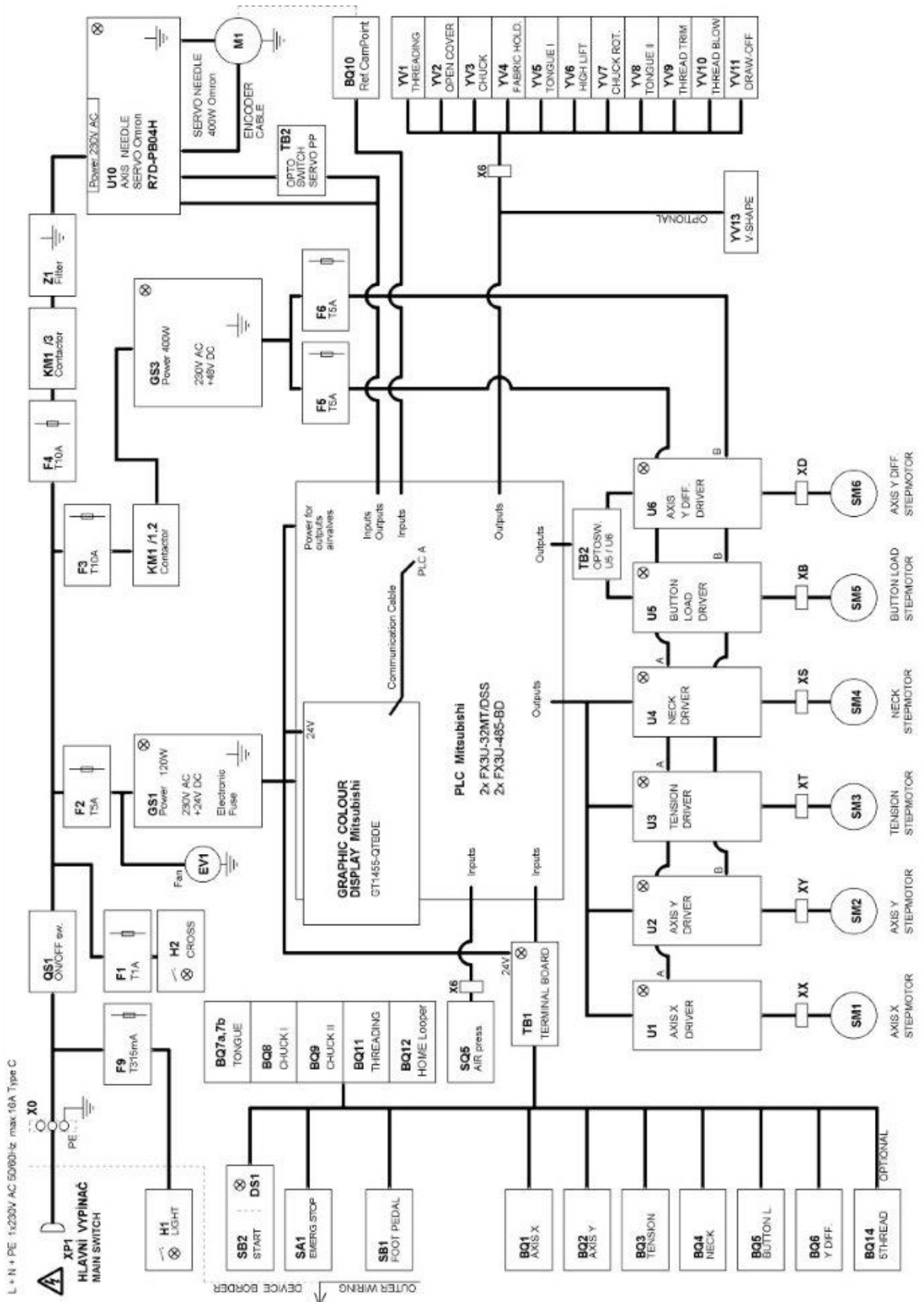
# G - DOCUMENTATION

## 1. AIR DISTRIBUTION - PNEUMATIC SCHEMES



**G - DOCUMENTATION**

**2. ELECTRICAL CIRCUIT SCHEMES**





# **TROUBLESHOOTING**

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## **TABLE OF CONTENTS**

1. INTRODUCTION .....	2
2. FAULTS OF THE MACHINE EBS MARK II .....	3
3. ERROR MESSAGES OF THE ELECTRONIC SYSTEM .....	4
4. ERROR MESSAGES OF THE SERVO DRIVE (FAULT 20) .....	5
5. ELETRIC FAULTS .....	7

## TROUBLESHOOTING

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### CAUTION!

 Check the main parts of the machine on a regular basis and use only parts of high quality. The manufacturer recommends to use the original parts AMF Reece, mainly needles, parts of the needle bar, loaders.

### 1. INTRODUCTION

The electronic machine EBS MARK II signalizes the error messages when the machine fails to work. If these messages are not displayed and the machine fails to work during the sewing process, it is necessary to check the thread (if it was not damaged by the threading hook) and the needle (if it is not damaged or bent) first. Remove the other signalized failures according to the detailed description in the following section.

### NOTE!

 It is possible to change the needed adjustment of the machine according to the fabric type and in this way you can compensate the wearing of the machine parts. It is not possible to adjust the mechanisms fixed with yellow during the warranty period without an approval from the manufacturer.

## TROUBLESHOOTING

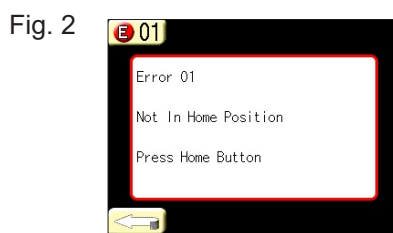
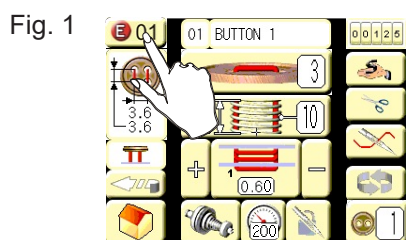
### 2. FAULTS OF THE MACHINE EBS MARK II

FAULT DESCRIPTION	FAULT LOCATION	FAULT ELIMINATION
Thread tearing	Check all mechanical parts needed for stitching if they are not damaged - looper, stopping of the sewed piece, thread guard, looper track, spring in the needle bar.	Remove all sharp edges by polishing them, eventually replace the parts. Check the proper operation of the roller on the looper.
	Check the value of the machine's operating pressure.	Decrease the pressure to the specified value.
Needles break	Check the needle bars - opening in the damson, piston, cushioning spring.	Demount the needle bars, wash them in petrol, polish the damaged parts, check the opening in the piston and damson, replace the broken cushioning spring. Assemble the needle bars and adjust according to chapter no. <b>E 3, E 4</b> .
	Check the adjustment of the machine for the chosen button.	Carry out the basic adjustment of the machine according to the provided gauge, then adjust the machine to the chosen button.
Wrong placing of buttons	The buttons falls from the holder.	Check the button holder if the clamping pins are not damaged, if the spring in the holder is not broken. Check if there is no foreign body in the holder track.
	The button is not caught in the	Adjust the button loading according to chapter no. <b>C 4</b> .
Skip a stitching	Wrong adjustment of the loopers.	Adjust the loopers according to chapter no. <b>E 6</b> . Check the rollers on the looper.
	Bent needle.	Replace the needle.
The machine does not trim threads	Dull cut-off knives.	Replace the faulty knives, adjust clamping.
	Clamping string of the mobile knife is cranked.	Replace the string, adjust clamping.
	Small tension on the thread guard.	Increase the thread tension by using the auxiliary tensioner on the upper cover of the machine.
Wrong tension of the thread when sewing - TENSION	Damaged or dirty mechanism TENSION.	Check the tensioning mechanism. Clean the possible dirt between the chucks of the tensioner, polish the damaged parts or replace them.
	Wrongly adjusted TENSION -mechanically.	Adjust the chucks TENSION by using the catches so as the bearing surfaces are joined in the same level - according to chapter no. <b>C 3</b> .
	Wrongly adjusted TENSION -electronically	Adjust the positions and the pressure of chucks TENSION, use the display according to chapter no. <b>E 1.5</b> .
Wrong thread feeding	The threads do not go through the threading hose.	Clean the hose with an air brush, event. mechanically remove the dirt from the hose.
	Short end of the thread.	Prolong the time of feeding on the control display - blowout of the thread according to chapter no. <b>E 1.5</b> .
Button torn from the chucks	Wrongly placed button.	Reload the button. If the failure occurs again, adjust the button loading mechanism again according to chapter no. <b>C 4</b> .
	Wrongly adjusted height of the lower needle bar.	Check the adjustment of the needle bars height so as the lower needle bar dos not hit the button. Adjust according to chapter no. <b>E 3, E 4</b> .
	High tension of the thread when wrapping the neck.	Decrease the tension of the thread when wrapping the neck. Adjust on the display according to chapter no. <b>D 2.8</b> .
	Mechanically damaged chuck.	Repair the chuck or replace the damaged part.
	Wrongly adjusted operational pressure of the machine.	Decrease the pressure to the specified value.

## TROUBLESHOOTING

### 3. ERROR MESSAGES OF THE ELECTRONIC SYSTEM

If an error message appears on the main display (see. Fig. 1), press the button with the message. Then the screen with the message description appears on the display with the steps how to repair the failure (see. Fig. 2).



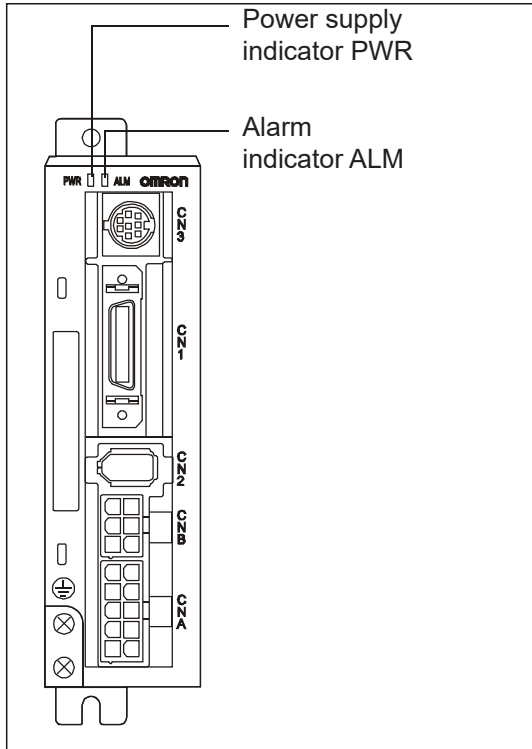
FAILURE NUMBER	REASON	REPAIR
E 01	The machine is not in basic position -failure is indicated in situations when the machine is in undefined position, i. e. after switching on, using the emergency stop button, test etc.	Push the button "Home".
E 02	The needle is not in upper position - failure is indicated only when "Permission to reverse the servo when adjusting the basic position" is activated	Turn the handwheel in the direction of sewing - if you reach the desired position, the servo supply is activated and then you cannot turn the wheel anymore.
E 04	Low air pressure - air pressure is not within the range of 5 - 6 bars.	Check the connection to the compressed air inlet and the desired air pressure, in case it is well check the proper operation and connection of manometer (sensor SQ 1 on the screen "Inputs test").
E 10	Time for the adjustment of the X axis position of the table is over - when adjusting the basic position	Check proper operation (screen "Inputs test") and position (0.3 mm from shutter) of the basic position sensor (BQ1 for X, BQ2 for Y), operation and proper connection of the motor (screen "Plate movements motor test")
E 11	Time for the adjustment of the Y axis position of the table is over - when adjusting the basic position	
E 12	Time for the adjustment of servo drive position is over - when adjusting basic position or when searching the starting position for sewing	
E 13	Time for the adjustment of the thread tension position of the table is over - when adjusting the basic position	Check proper operation (screen "Inputs test") and position (0.3 mm from shutter) of sensors of the basic position of servo drive (BQ10 and BQ12)
E 14	Time for adjustment of the position of vertical axis of the chuck is over - when adjusting the basic position	
E 15	Time for adjustment of the position of horizontal axis of the chuck is over - when adjusting the basic position	
E 16	Time for the adjustment of the button loader is over - when adjusting the basic position	Check proper operation (screen "Inputs test") and position (0.3 mm from shutter) of sensors of the basic position (BQ3 for thread tension, BQ4 for vertical axis of the chuck, BQ5 for button loader, BQ6 for horizontal axis of the chuck), operation and proper connection of the motor ("Button loading motor test")
E 20	Servo drive failure	
E 25	Recovery time of servo drive - after switching on the machine or after pressing the emergency stop button	
E 30	Thread tension failure during sewing - tensioning mechanism did not reach the position in desired time for safe transfer of upper looper	Check proper operation of thread tensioning mechanism, sensor and shutter for the basic position
E 31	Jaws turning failure during sewing - jaws did not turn into horizontal or vertical position	Check jaws turning mechanism (cylinder, vent and hoses) and sensors placed on cylinder (BQ8 and BQ9)
E 80	Communication error PLC	Check communication cable between PLC-A and PLC-B into the electric box and if both PLS are in RUN mode (signalized by to lit green LEDs on PLC)
E 99	Emergency stop	Release the emergency stop button, event. check its operation on the screen "Inputs test" (SA1)



## TROUBLESHOOTING

### 4. ERROR MESSAGES OF THE SERVO DRIVE (FAULT 20)

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 minutes. Then switch the machine on again. The error messages should not appear on the display. If the message appears - call AMF Reece service.



**PWR** - Power supply indication:

**ALM** - Default indication (Alarm indicator):

in case default appears, the indicator is switched on.

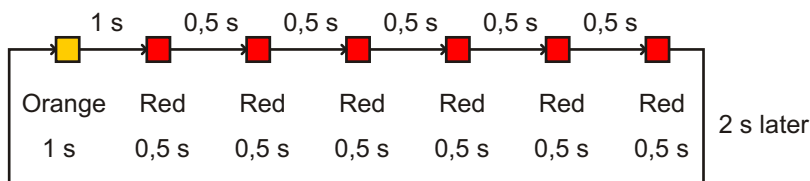
### Alarm indicator on the Servo Drive

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 1 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 voltage of the main circuit fell below the specified value while the RUN Command Input was ON.	Yes
12	Overvoltage	The 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
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 FE-PROM 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


### 5. ELETRIC FAULTS

FAULT DESCRIPTION	FAULT LOCATION	FAULT ELIMINATION
After switching the machine on the display, the fan in the cabinet and the working lights do not work	No supply voltage	Check the connection of the mains fork, eventually the voltage in socket
	Faulty power supply switch QS1	Replace switch 06.7100.0.047
Only working light does not work	Blown fuse F9 (T315mA)	Replace the fuse 12.0008.4.062
	Disconnected cable	Check the circuit of light
Only the cross marker does not work	Blown fuse F1 (T1A)	Replace the fuse 12.0008.4.063
	Disconnected cable	Check the circuit
Machine display, fan in the cabinet, active sensors do not work	Blown fuse F2 (T5A)	Replace the fuse 12.0008.4.109
Active sensors on the machine, both PLCs in control cabinet do not work. Display on the machine, turned on air vents do not work.	Faulty power supply GS1	Replace the supply 12.0010.4.511
		Check +24V for X1:1 to X1:8
Display on the machine does not work	Disconnected wire of the display	Check display connection
	Faulty display	Replace display 71.8000.0.003
	Faulty communication block	Replace block 12.0010.4.119
Stepping motors not in their position and do not work Contactor KM1 do not switch	Pressed Emergency stop	Switch off Emergency stop
	Faulty Emergency stop	Replace button 12.0010.4.122
	Faulty contactor	Replace contactor 12.0008.4.833
Stepping motors not in their position and do not work Motor drivers do not work. Indicators CB1 do not work.	<b>Blown fuse F3</b> (T10A)	Replace fuse 12.0008.4.664
	Faulty contactor <b>KM1</b>	Replace fuse 12.0008.4.833
	Blown fuse <b>F5</b> (T10A)	Replace fuse 12.0008.4.664
	Blown fuse <b>F6</b> (T10A)	Replace fuse 12.0008.4.664

## TROUBLESHOOTING

FAULT DESCRIPTION	FAULT LOCATION	FAULT ELIMINATION
One of stepping motors does not work	Faulty driver U1, U2	Replace driver 12.0010.4.505
	Faulty driver U3-U6	Replace driver 12.0010.4.500
	Faulty driver control	Necessary to adjust driver properly!
	Faulty stepping motor	Check respective outputs from PLC to driver
		Replace motor
Drivers U5 and U6 do not switch	Faulty switch <b>TB2</b>	Replace <b>TB2</b> - 12.0010.4.136
Sewing motor does not work. Driver U10 does not work	Blown fuse <b>F4</b> (T10A)	Replace the fuse 12.0008.4.664
	Faulty contactor <b>KM1</b>	Replace contactor 12.0008.4.833
	Faulty servo driver	Replace servo driver 71.8001.0.005
Sewing motor does not work. Driver U10 switched on	Faulty switch <b>TB2</b>	Replace <b>TB2</b> - 12.0010.4.136
	Error message on driver display	Steps according error message
	Faulty servo motor	Replace servo motor 12.0010.4.177
	<b>WARNING!</b>  During checks of stepping motors and servo drive use test available from the menu on display.	
Active sensors on machine do not work	No voltage on terminal <b>TB1</b>	Repair the supply circuit <b>TB1</b>
One of the sensors on the machine does not work	Faulty adjustment of sensor shutter	Proper adjustment of shutter
	Faulty cabling of sensor	Repair cabling
	Faulty sensor	Replace sensor
	<b>WARNING!</b>  During checks of sensors use inputs tests available from the menu on display.	
Some air vents work do not work	Faulty connection on minus pole	Check connections X4 and X1:18
One air vent does not work	Faulty cabling of vent	Repair cabling
	Faulty vent	Replace vent

### CAUTION!

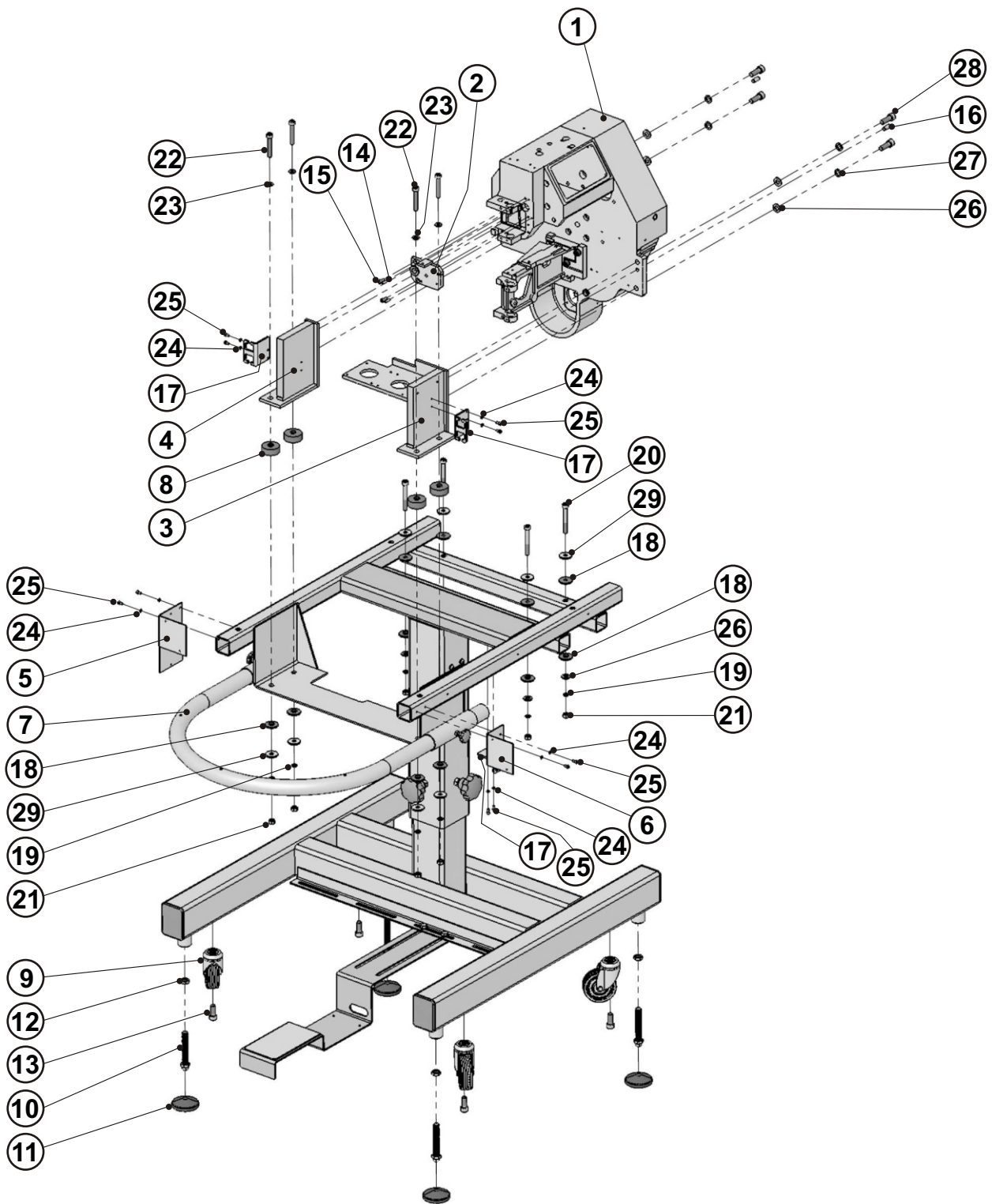
 Non-professional works on electric installation can irreversible changes and damages on the machine. The manufacturer not responsible for these works and for the warranty of the machine.

## TABLE OF CONTENTS

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FRAME ASSEMBLY .....	3-2
NEEDLE BAR LIFTER .....	3-4
THREADER, NEEDLE COVER.....	3-6
UPPER AND LOWER LOOPER.....	3-10
THREAD TENSION.....	3-12
BUTTON CHUCK JAW.....	3-14
NEEDLE BAR MECHANISM LOWER AND UPPER.....	3-16
NEEDLE BAR ASSEMBLY .....	3-18
GEAR TRAIN AND MOTOR ASSEMBLY .....	3-20
ADJUSTABLE LIFT TONGUE .....	3-24
RETAINER ASSEMBLY.....	3-28
NEEDLE BAR MECHANISM LOWER AND UPPER.....	3-30
BUTTON CHUCK MECHANISM .....	3-32
“V” ASSEMBLY.....	3-34
FIVE THREADS SYSTEM.....	3-36
SINGLE THREADS SYSTEM .....	3-40
LOCK ASSEMBLY .....	3-42
THREAD TENSION UPPER ASSEMBLY.....	3-44
SINGLE THREAD TENSION UPPER ASSEMBLY .....	3-46
LUBRICATION BOX ASSEMBLY .....	3-48
TABLE MECHANISM .....	3-50
AIR THREADING .....	3-52
LIGHT ASSEMBLY .....	3-54
COVERS AND GUARDS ASSEMBLY.....	3-56
COVERS HEAD ASSEMBLY .....	3-58
STAND THREAD.....	3-60
PANEL KIT GOT 1000.....	3-62
ELECTROBOX.....	3-64
KIT PNEU .....	3-66
STANDARD ACCESSORIES - TOOLS.....	3-70
STANDARD ACCESSORIES .....	3-72
ACCESSORIES.....	3-74

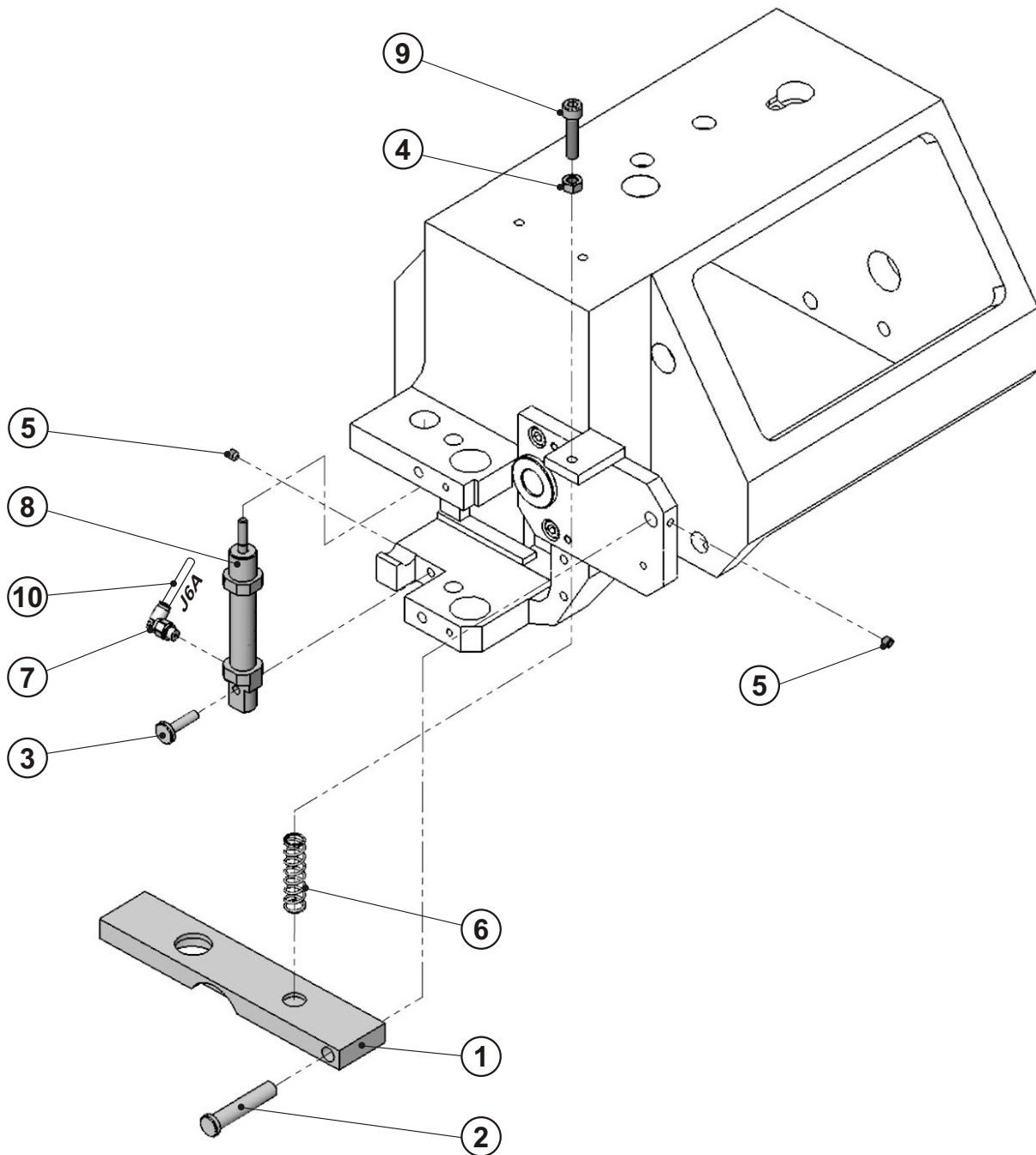
# FRAME ASSEMBLY



## FRAME ASSEMBLY

DET	PART NUMBER	DESCRIPTION	QTY.
01	71.6132.1.017	ARM ASSEMBLY	1
02	71.1253.8.027	UPPER LOOPER SUPPORT	1
03	71.1223.6.100	MOUNTING BRACKET MACHINE - RIGHT	1
04	71.1223.6.101	MOUNTING BRACKET MACHINE - LEFT	1
05	71.1565.3.031	HOLDER	1
06	71.1565.3.032	HOLDER	1
07	04.9071.0.000	STAND	1
08	17.0095.1.273	SHOCK MOUNT	4
09	12.0008.6.520	ROLLER LRA-TPA 75K-FK	4
10	12.0008.6.523	SCREW M12x100	4
11	12.0008.6.524	BASE PLATE	4
12	08.6712.9.000	NUT M12	4
13	08.6000.0.025	SCREW M10-25	4
14	12.1010.0.004	PIN 4m6x16	2
15	08.6000.5.012	SCREW M5-12	2
16	12.1010.0.820	PIN 8-20	2
17	19.0082.3.433	HOLDER	3
18	17.0095.1.272	SHOCK MOUNT	12
19	08.6800.8.000	SPRING WASHER M8	8
20	08.6000.8.065	SCREW M8-65	4
21	08.6702.8.000	NUT M8	8
22	08.6000.8.050	SCREW M8-50	4
23	08.6852.8.000	WASHER M8	4
24	08.6802.4.000	SPRING WASHER M4	10
25	08.6000.4.008	SCREW M4-8	10
26	08.6852.0.000	WASHER 10,5	8
27	08.6802.0.000	SPRING WASHER M10	4
28	08.6000.0.030	SCREW M10-30	4
29	17.0019.0.441	WASHER	8

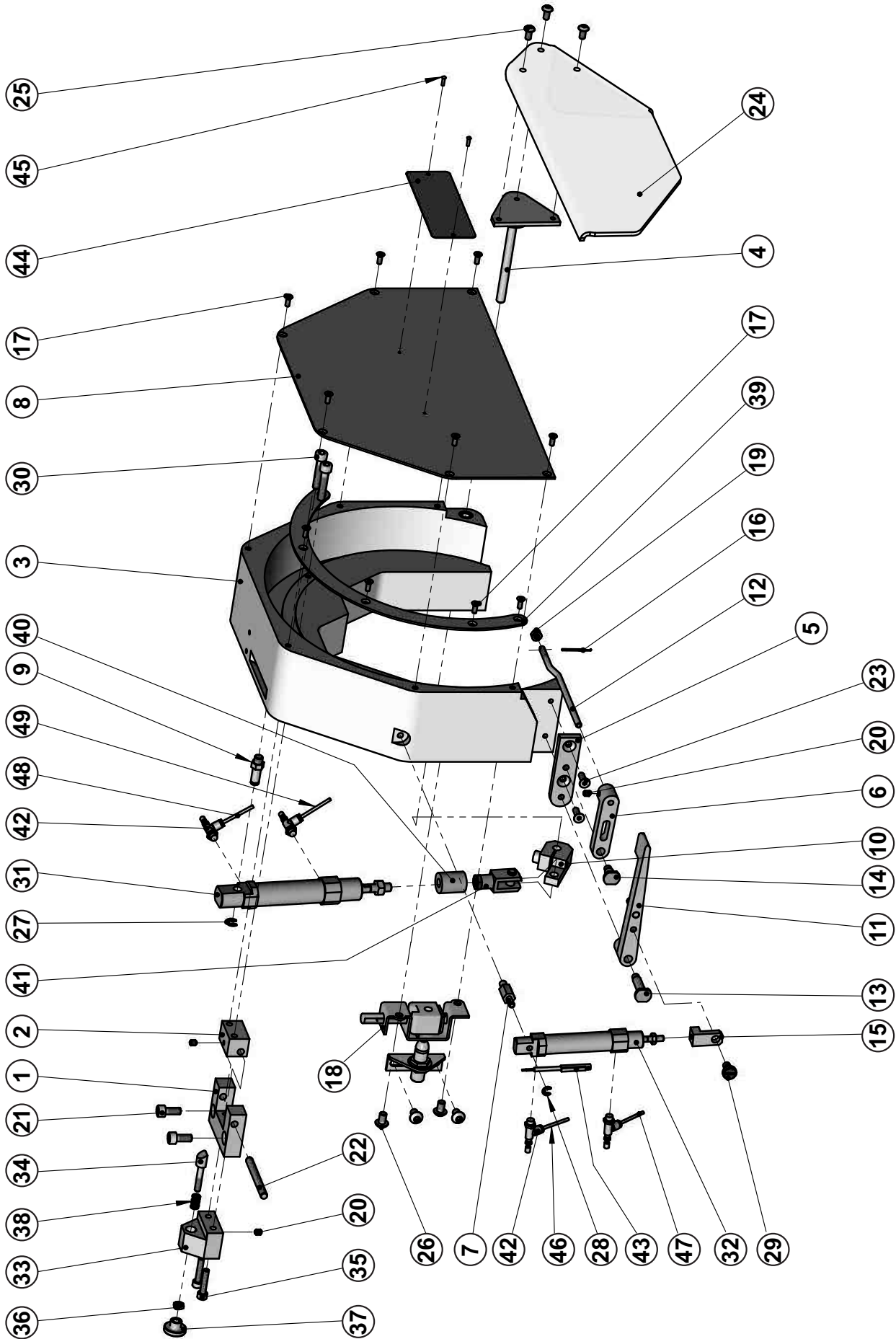
# NEEDLE BAR LIFTER







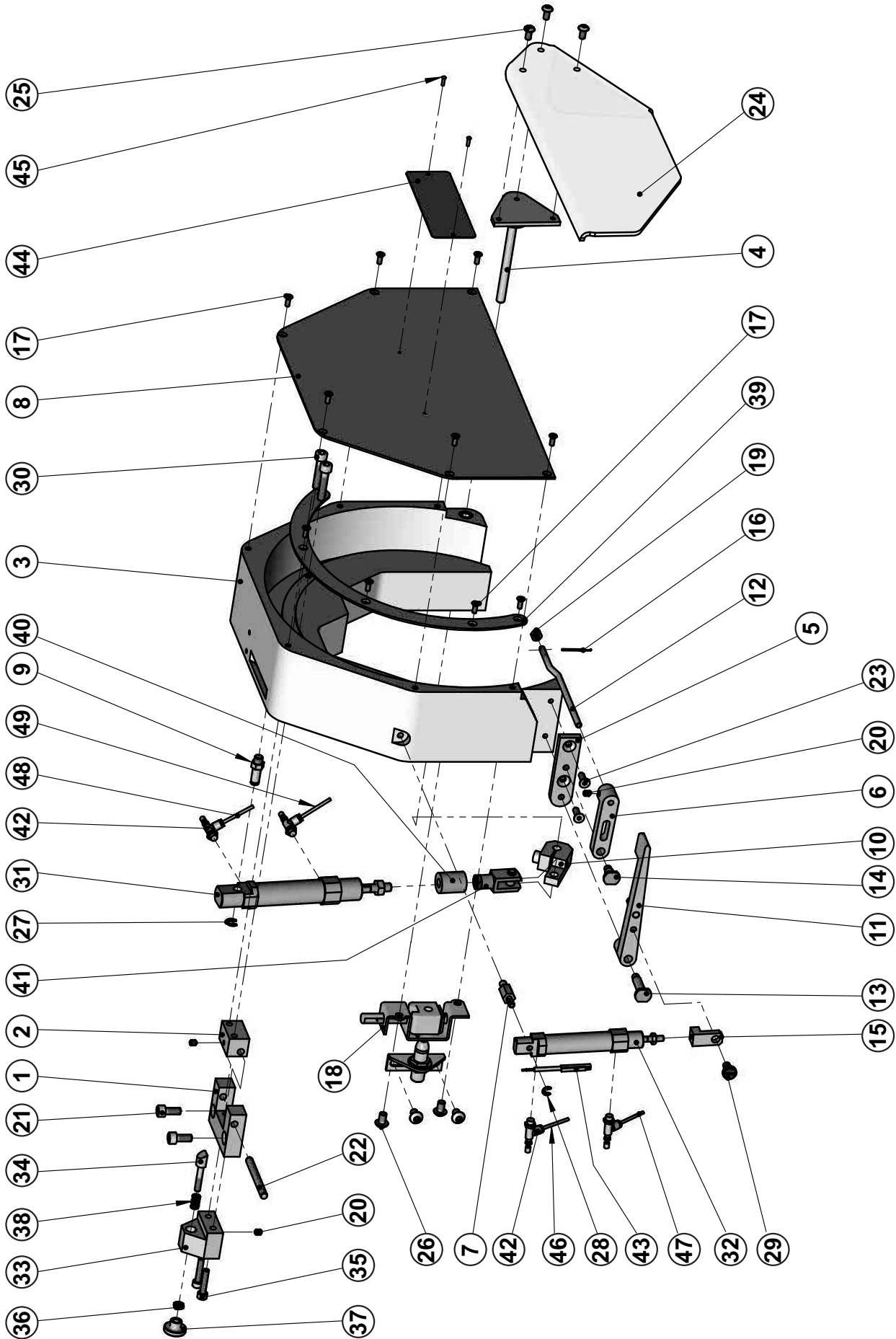
# THREADER, NEEDLE COVER



## THREADER, NEEDLE COVER

DET	PART NUMBER	DESCRIPTION	QTY.
01	71.1241.8.083	HINGE	1
02	71.1242.8.036	HINGE	1
03	71.1587.6.007	GUARD	1
04	71.1557.4.044	MOUNTING SHAFT GUARD FLAP	1
05	71.1663.1.027	PLATE	1
06	71.1663.1.029	THREADER ARM	1
07	71.1664.1.018	STUD	1
08	71.1586.1.017	COVER	1
09	71.1273.9.139	STUD	1
10	71.1661.8.041	LEVER	1
11	71.1664.1.014	LEVER EXTENSION	1
12	71.1195.5.015	THREADER ROD	1
13	71.1174.1.015	STUD	1
14	71.1174.1.012	STUD	1
15	71.1664.1.017	PISTON ROD	1
16	70.3721.3.002	NEEDLE THREADER	1
17	08.6102.3.008	SCREW M3-8	11
18	12.0008.6.228	LATCH	1
19	08.6702.4.000	NUT M4	1
20	08.6400.4.005	SCREW M4-5	3
21	08.6002.5.012	SCREW M5-12	2
22	12.1010.2.020	PIN 5h-50	1
23	08.6102.4.012	SCREW M4-12	2
24	71.1570.0.032	GUARD FLAP	1
25	08.6202.4.008	SCREW M4-8	3
26	08.6202.5.008	SCREW M5-8	4
27	12.1045.0.004	RETAINING RING 4	1
28	12.1045.0.003	RETAINING RING 3,2	1
29	22.0182.0.000	SCREW n6/M5x4	1
30	08.6002.5.025	SCREW M5-25	2
31	12.0008.3.609	CYLINDER	1
32	12.0010.3.005	CYLINDER	1
33	71.1241.8.084	HOLDER	1
34	71.1241.8.085	STUD	1
35	08.6002.4.020	SCREW M4-20	2
36	08.6712.4.000	NUT M4	1
37	17.0017.2.041	NUT M4	1
38	12.3010.0.009	SPRING LC	1
39	71.1488.1.006	PLATE	1
40	71.1661.8.044	SPACER	1

# THREADER, NEEDLE COVER

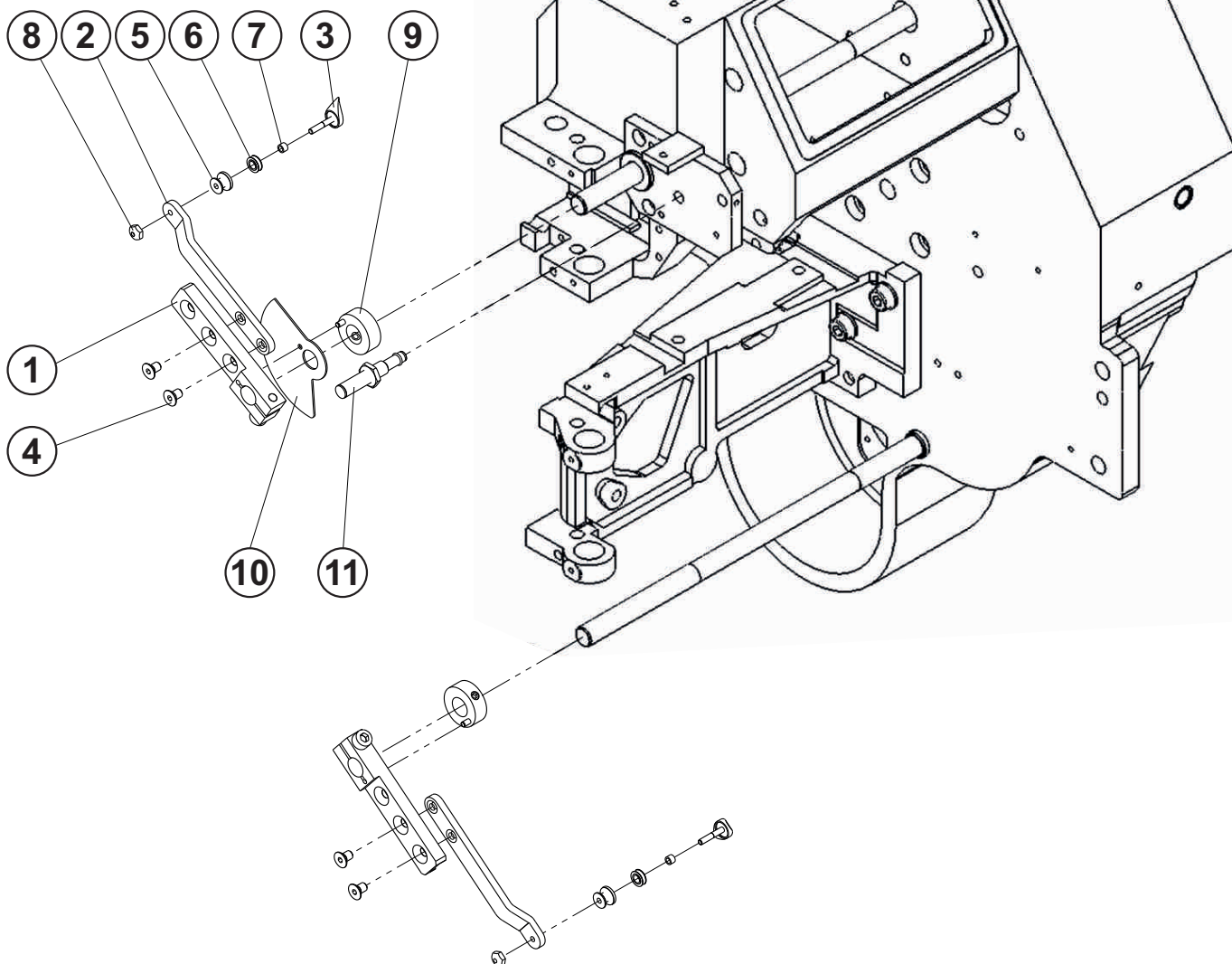


**THREADER, NEEDLE COVER**



DET	PART NUMBER	DESCRIPTION	QTY.
41	12.0008.3.806	KNUCKLE GKM6-12	1
42	12.0008.3.815	SPEED CONTR. AS1201-M5-02	4
43	06.7100.0.029	SENSOR BQ11	1
44	12.8000.1.034	LABEL EBS MARK II	1
45	12.1016.0.002	NAIL 1.86x6.35 (1/4)	2
46	12.0008.3.749	AIR TUBING - J1A	1
47	12.0008.3.749	AIR TUBING - J1B3	1
48	12.0008.3.749	AIR TUBING - J2B3	1
49	12.0008.3.749	AIR TUBING - J2A	1

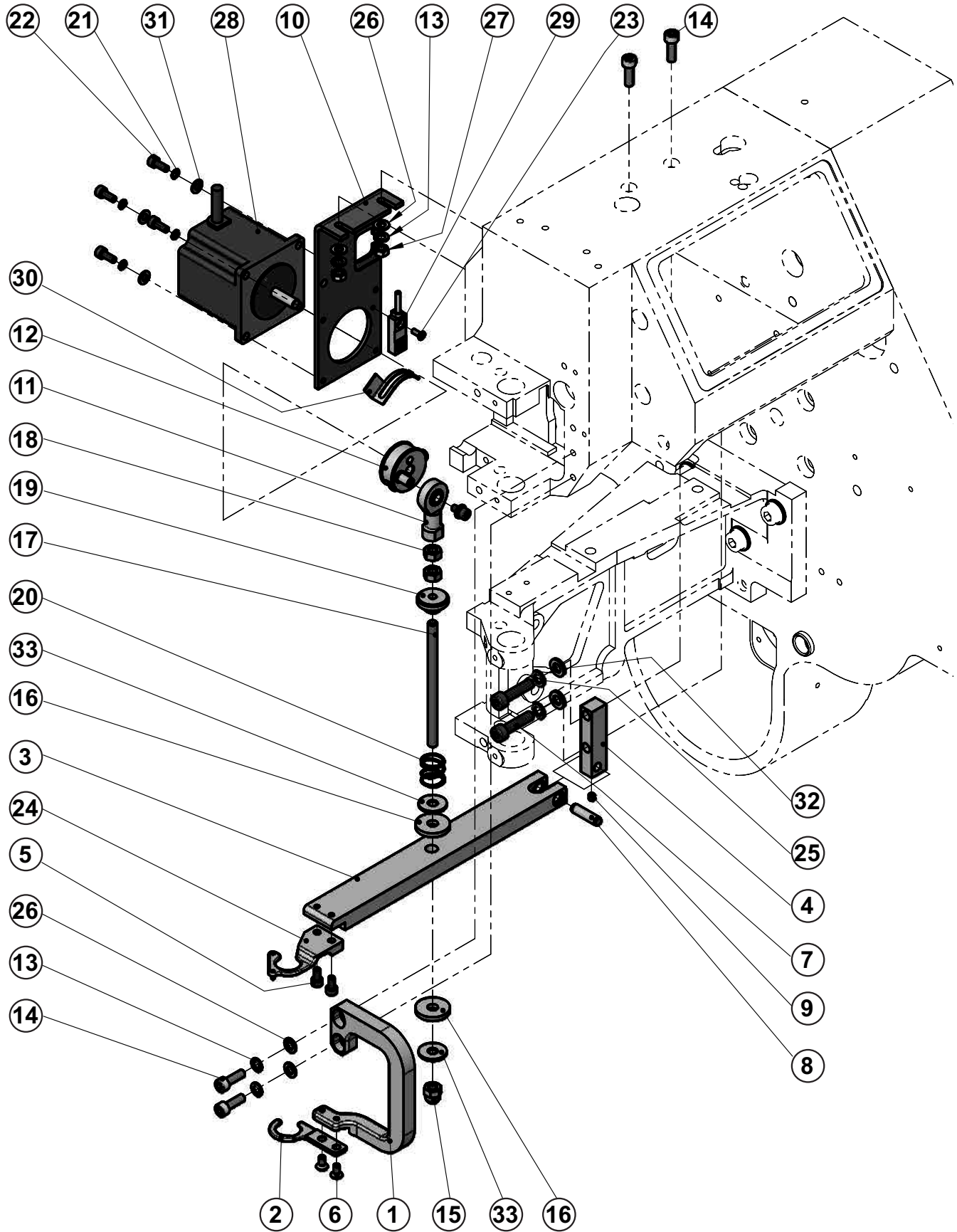
# UPPER AND LOWER LOOPER



**UPPER AND LOWER LOOPER**

DET	PART NUMBER	DESCRIPTION	QTY.
01	71.1325.2.045	LOOPER ARM BRACKET	2
02	71.1463.5.017	LOOPER ARM	2
03	71.1723.1.024	LOOPER	2
04	08.6100.5.008	SCREW M5-8	4
05	71.1174.3.004	LOOPER SPACER	2
06	36341035	LOOPER ROLLER	2
07	31413002	SPACER	2
08	31815017	NUT #5-40	2
09	71.1515.1.043	LOCATING COLLAR 12	2
10	71.1325.5.053	SENSOR PLATE	1
11	12.0010.4.025	SENSOR	1

# THREAD TENSION

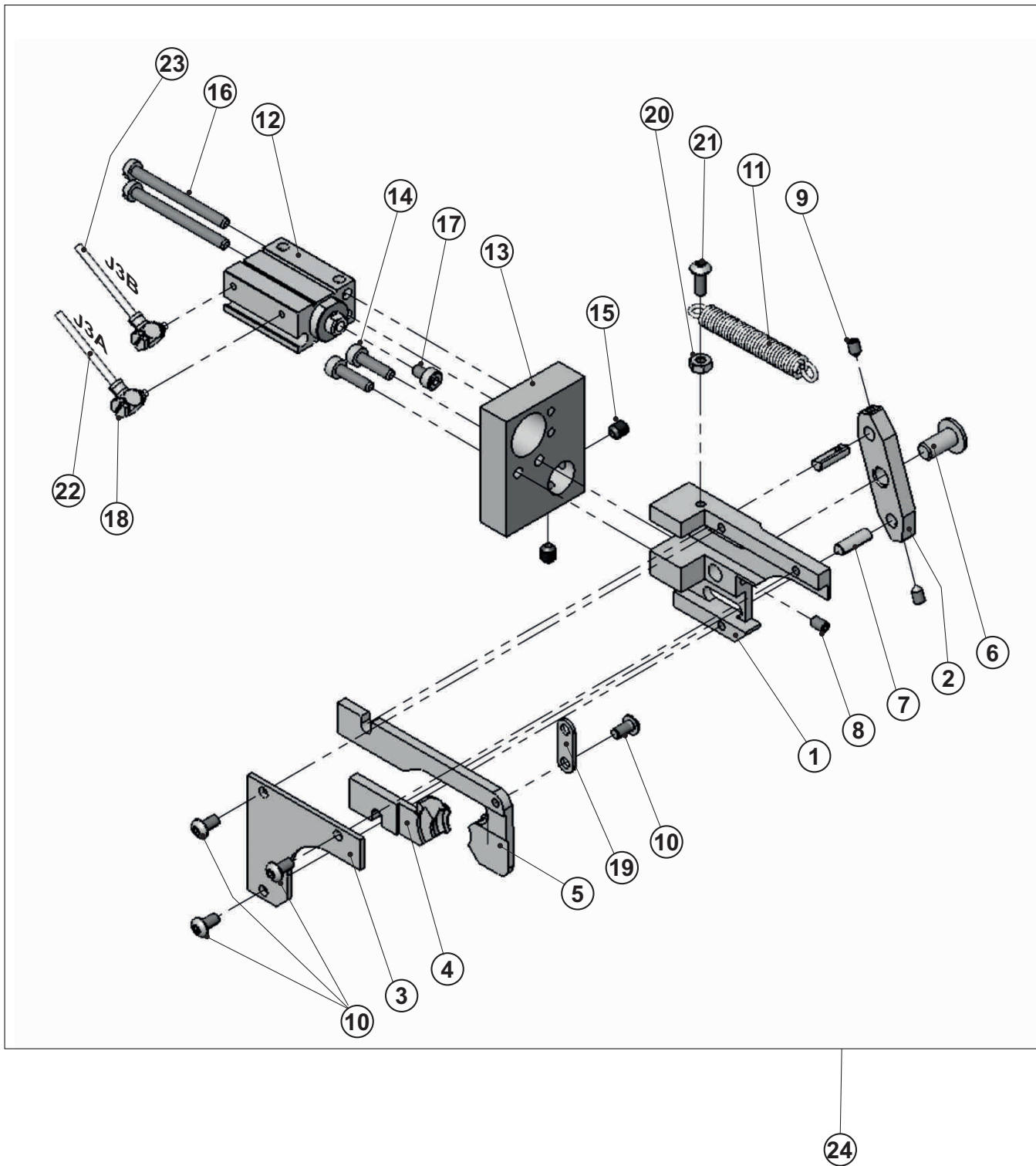




## THREAD TENSION

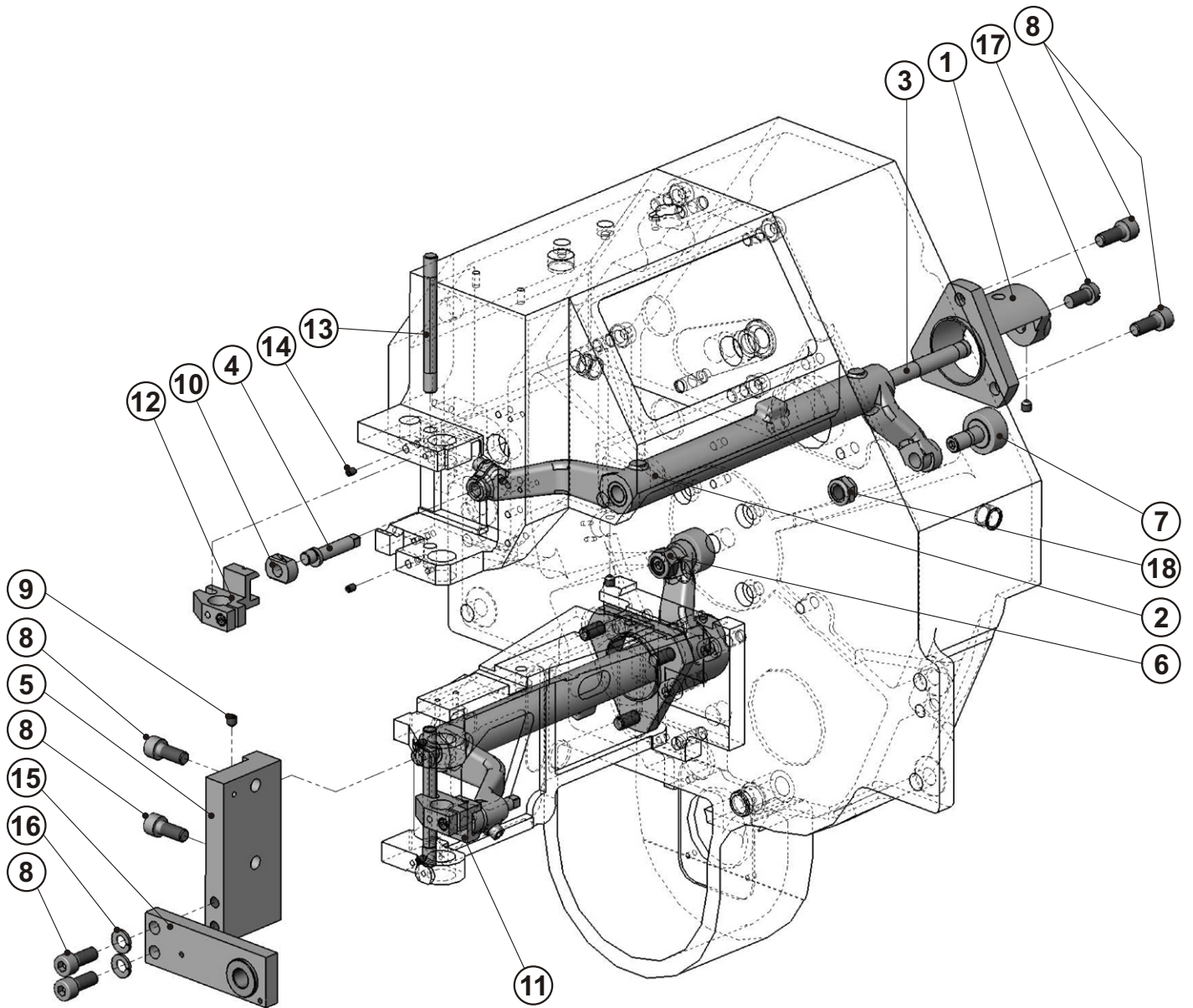
DET	PART NUMBER	DESCRIPTION	QTY.
01	71.1325.2.056	TENSION PLATE MOUNT	1
02	71.1661.1.101	TENSION PLATE	1
03	71.1332.4.001	BAR	1
04	71.1222.3.057	PIVOT MOUNT	1
05	08.6000.4.008	SCREW M4-8	2
06	08.6100.4.008	SCREW M4-8	2
07	08.6000.6.025	SCREW M6-25	2
08	12.1010.2.019	PIN 6h6-22	1
09	08.6400.4.005	SCREW M4-5	1
10	71.1451.5.097	MOTOR HOLDER	1
11	12.0008.3.700	BEARING ROD END	1
12	71.1135.2.006	ECCENTRIC	1
13	08.6802.5.000	SPRING WASHER M5	4
14	08.6002.5.016	SCREW M5-16	4
15	08.6722.6.000	NUT M6	1
16	71.1677.0.005	WASHER	2
17	71.1129.1.029	SCREW	1
18	08.6702.6.000	NUT M6	2
19	71.1159.3.013	ADJUSTABLE NUT	1
20	24971495	SPRING LC 045-01	1
21	08.6800.4.000	WASHER 4	4
22	08.6000.4.010	SCREW M4-10	4
23	08.6100.3.008	SCREW M3-8	1
24	71.1721.1.134	TENSION FINGER	1
25	08.6800.6.000	WASHER 6	2
26	08.6852.5.000	WASHER 5,3	4
27	08.6700.5.000	NUT M5	2
28	06.7100.1.011	MOTOR U3	1
29	06.7100.0.016	SENSOR FLAT BQ3	1
30	71.1325.5.048	SENSOR PLATE	1
31	08.6850.4.000	WASHER M4	4
32	08.6850.6.000	WASHER 6,4	2
33	08.6842.6.000	WASHER M6	2

# BUTTON CHUCK JAW



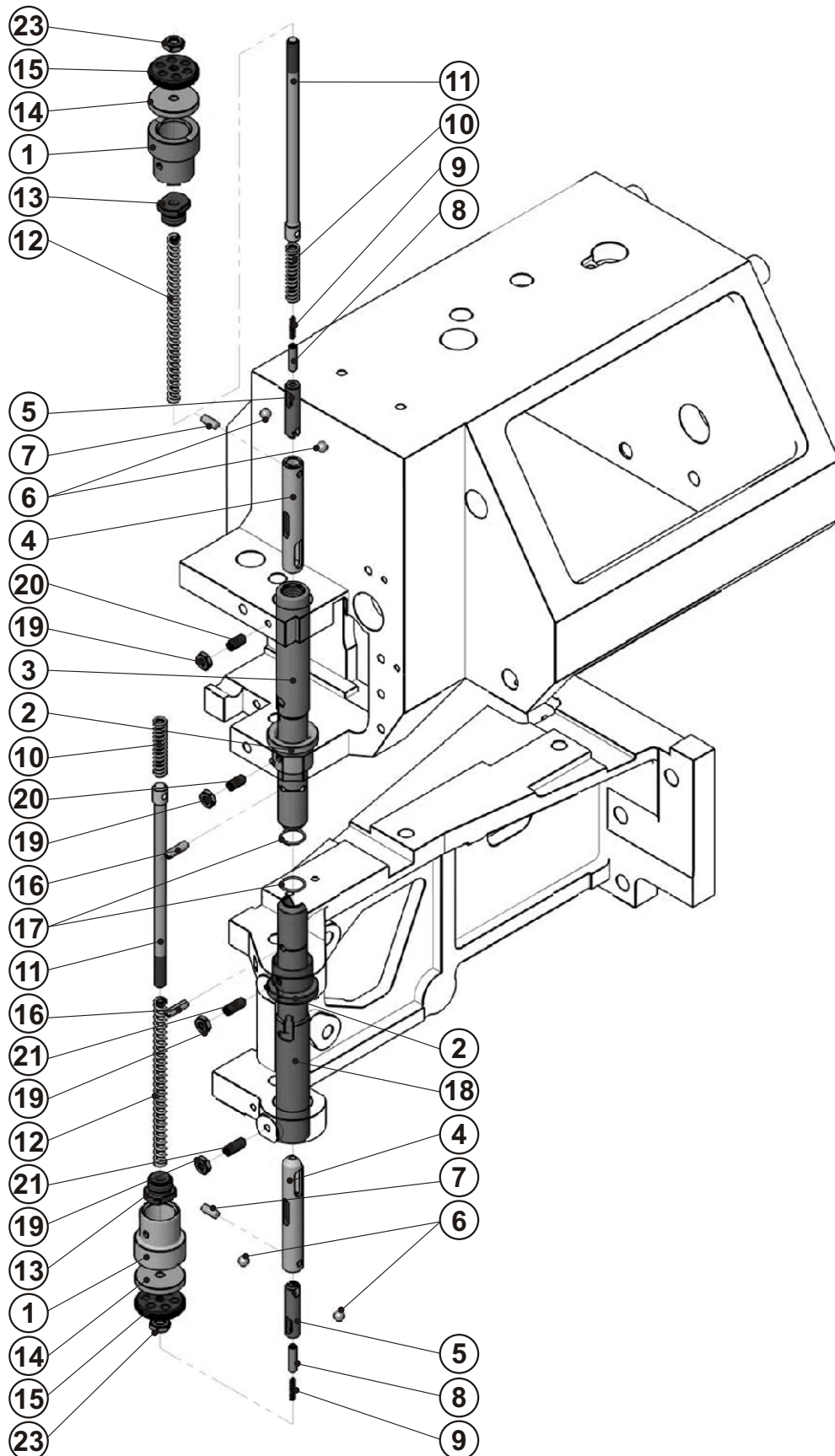


# NEEDLE BAR MECHANISM LOWER AND UPPER



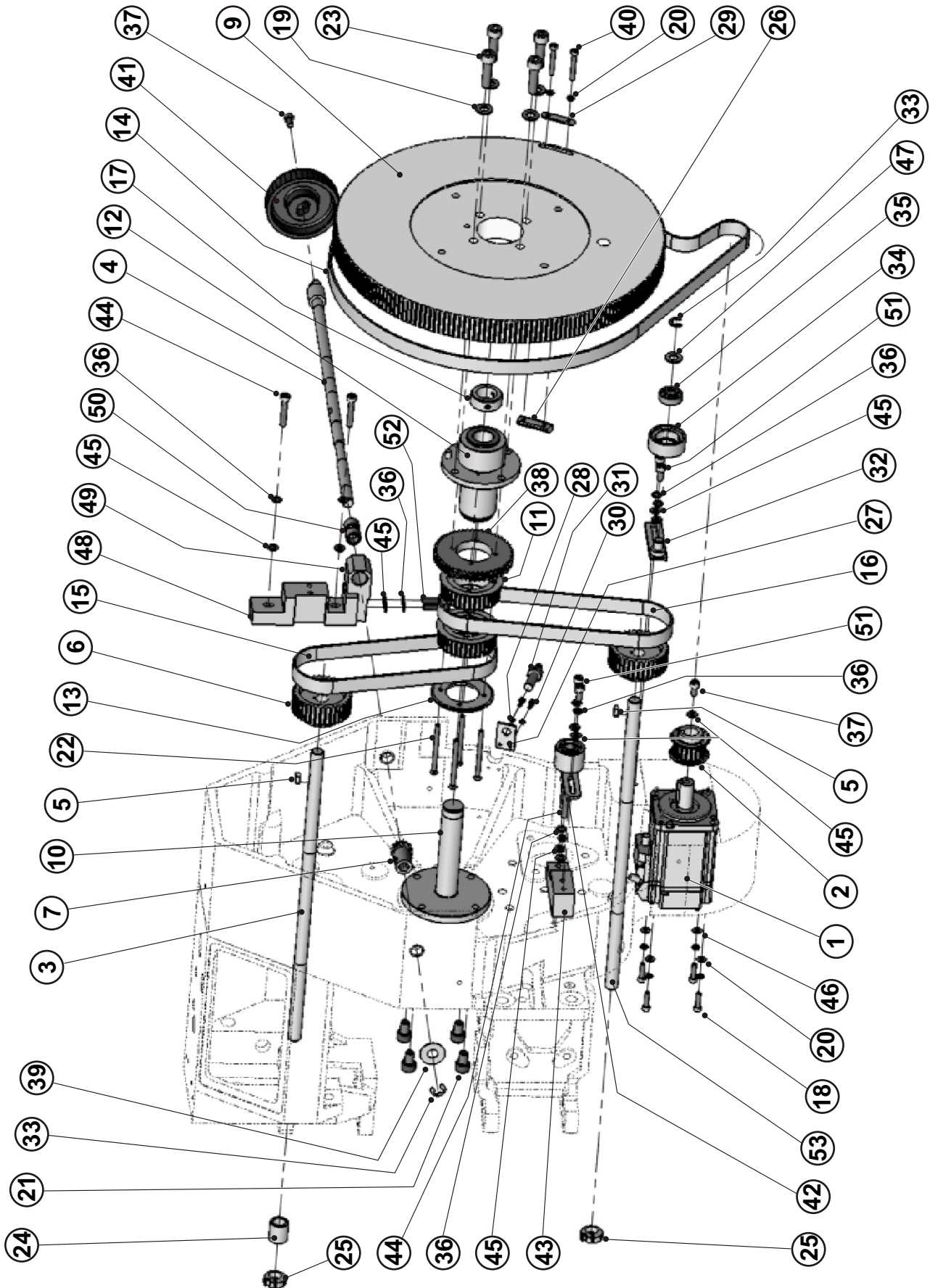


# NEEDLE BAR ASSEMBLY





# GEAR TRAIN AND MOTOR ASSEMBLY



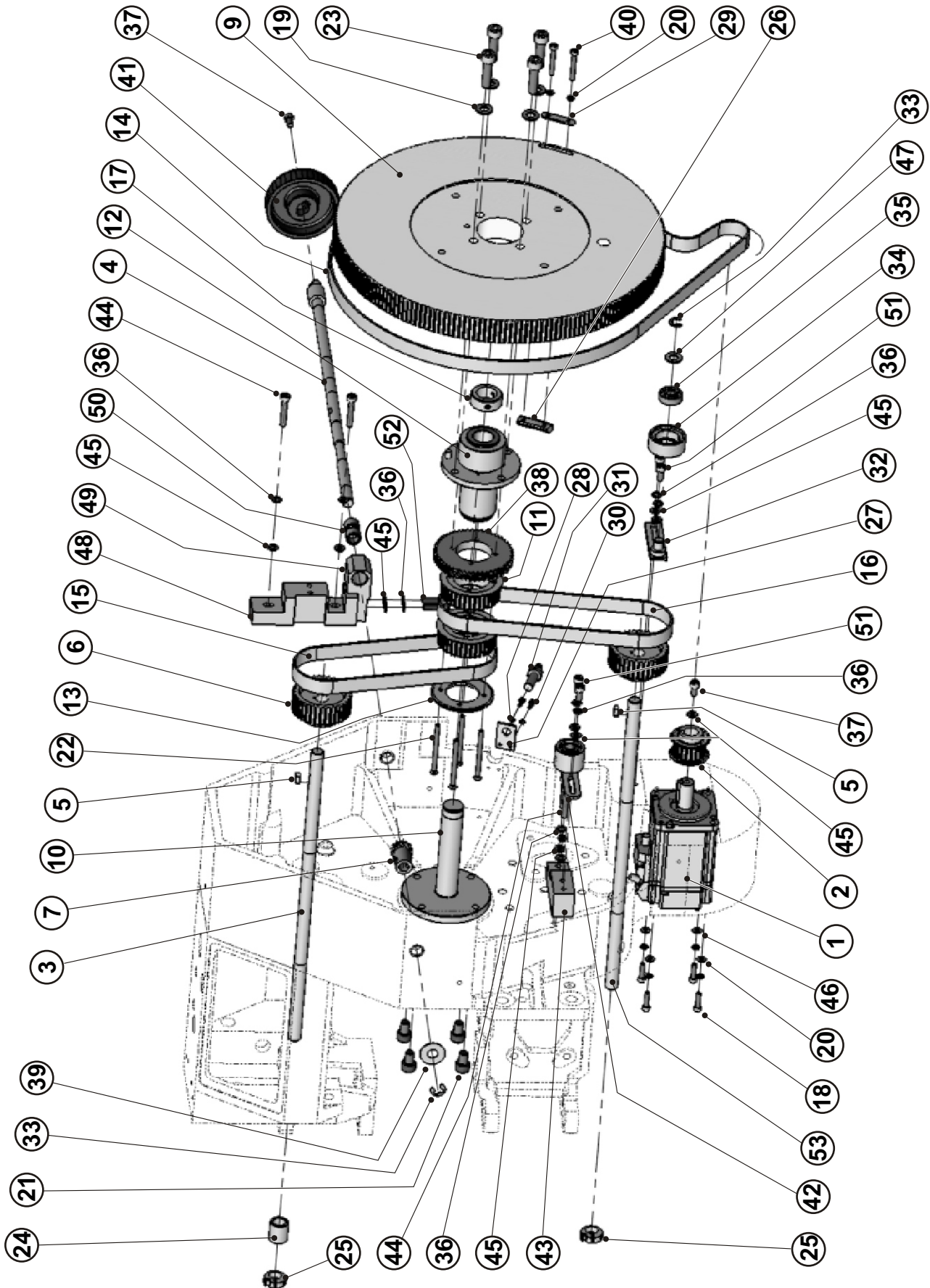


## GEAR TRAIN AND MOTOR ASSEMBLY



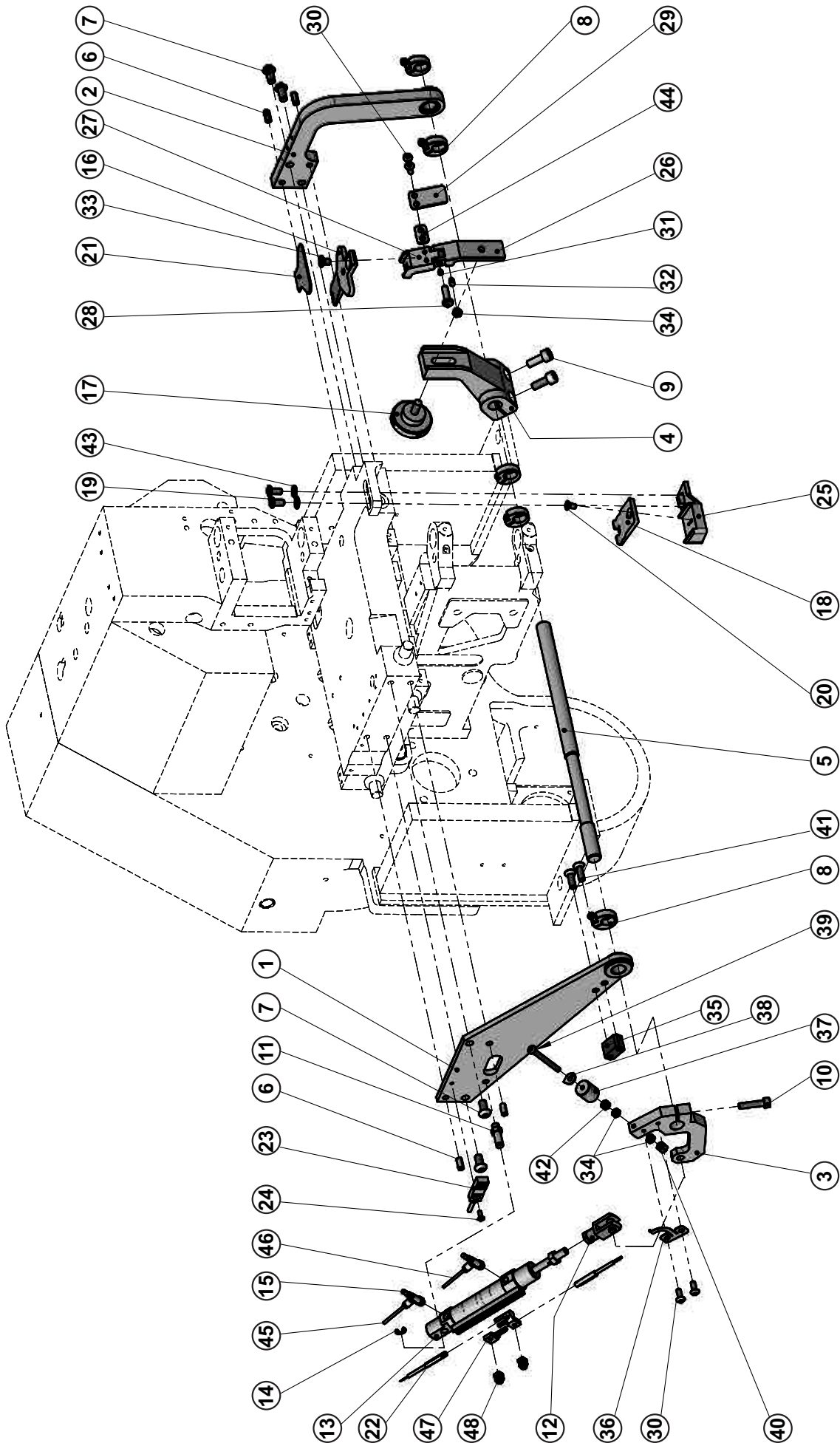
DET	PART NUMBER	DESCRIPTION	QTY.	
01	12.0010.4.177	SERVO MOTOR	1	
02	71.1634.1.146	PULLEY	1	
03	71.1172.8.011	LOOPER SHAFT	1	
04	71.1173.7.040	SHAFT	1	
05	12.4030.0.412	KEY	2	
06	71.1622.5.012	PULLEY	2	
07	71.1622.5.025	GEAR	1	
08	12.4030.0.001	KEY	1	
09	71.1651.6.019	CAM - NEEDLE BAR	•••	1
10	71.1184.6.001	DRIVE GEAR STUD		1
11	71.1179.3.001	PULLEY		2
12	71.1178.4.003	HOLDER		1
13	71.1178.4.006	WASHER		1
14	12.5050.2.017	BELT 1150 5M GT15	•••	1
15	12.5050.2.016	BELT 460 5M GT15		1
16	12.5050.2.015	BELT 510 5M GT15		1
17	71.1178.4.007	COLLAR 20H8		1
18	08.6000.4.016	SCREW M4-16		4
19	08.6852.8.000	WASHER M8		4
20	08.6802.4.000	SPRING WASHER M4		6
21	08.6000.8.012	SCREW M8-12		4
22	08.6112.4.055	SCREW M4-55		4
23	08.6000.8.030	SCREW M8-30		4
24	71.1313.2.211	BUSHING	•••	1
25	17.0043.6.351	COLLAR 12		2
26	71.1325.5.047	SENSOR SEGMENT		1
27	71.1223.6.103	HOLDER		1
28	08.6802.3.000	SPRING WASHER M3		2
29	71.1223.6.104	PLATE		1
30	08.6000.3.008	SCREW M3-8		2
31	12.0010.4.093	SENSOR		1
32	71.1178.4.010	TIGHTENER ROLLER		1
33	17.0027.4.085	LOCK RING 7		2
34	71.1178.4.008	ROLL		1
35	07.6321.0.020	BEARING		1
36	08.6802.5.000	SPRING WASHER M5		6
37	08.6000.5.010	SCREW M5-10		5
38	71.1178.4.004	GEAR		1
39	07.6321.0.001	BEARING PLATE		1
40	08.6000.4.030	SCREW M4-25		2
41	71.1671.2.025	HAND WHEEL	•	1
42	15.1128.0.050	TENSION PULLEY		1
43	71.1223.6.105	SPACER		1
44	08.6000.5.030	SCREW M5-30		2
45	08.6852.5.000	WASHER 5,3		2

# GEAR TRAIN AND MOTOR ASSEMBLY





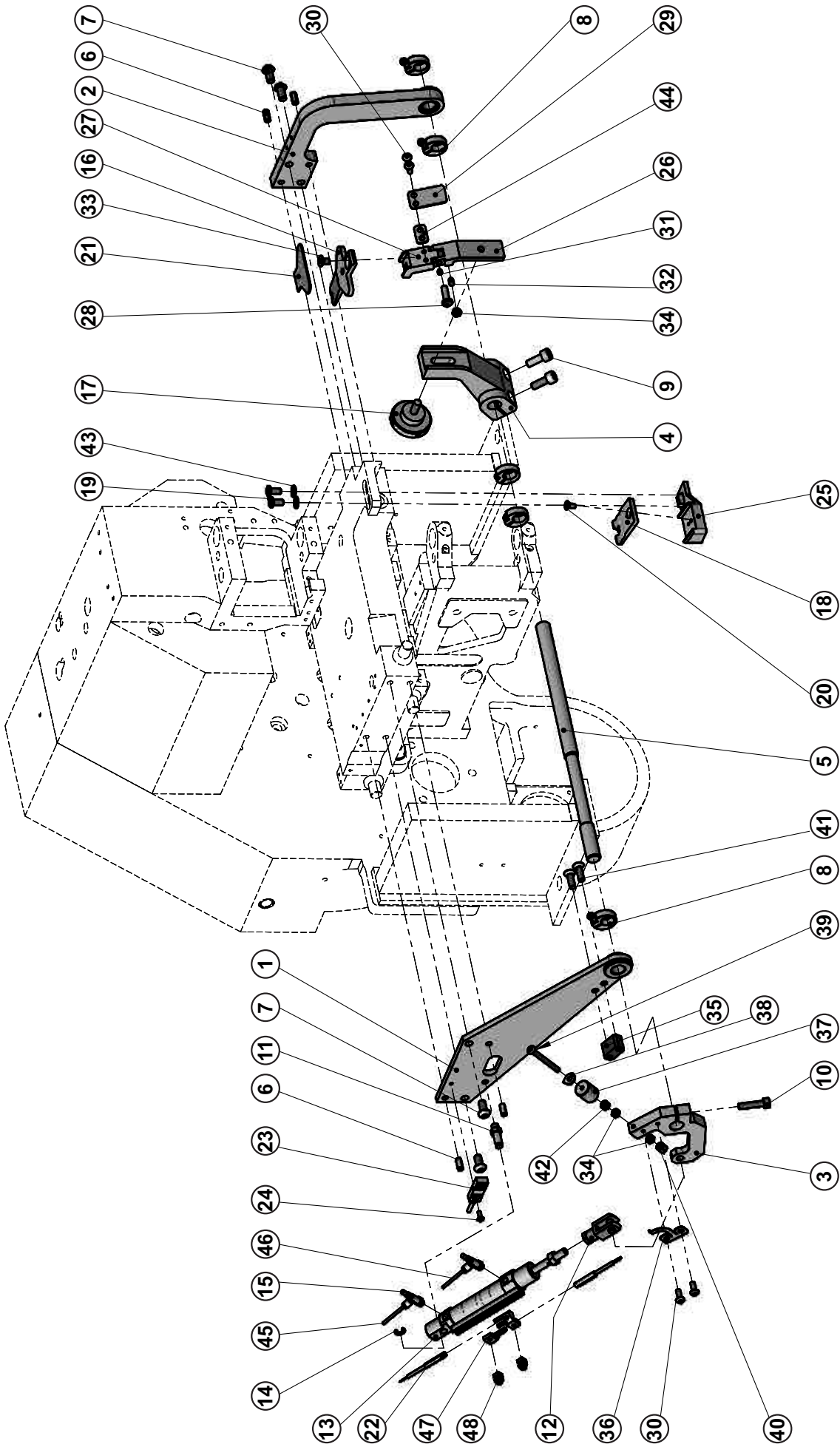
# ADJUSTABLE LIFT TONGUE



## ADJUSTABLE LIFT TONGUE

DET	PART NUMBER	DESCRIPTION	QTY.
01	71.1664.1.201	PLATE-LEFT •	1
02	71.1664.1.202	PLATE-RIGHT •	1
03	71.1665.1.018	LEVER	1
04	71.1664.1.079	LEVER •	1
05	71.1129.1.026	TONGUE BAR	1
06	12.1014.0.510	SPRING	4
07	08.6202.6.012	SCREW M6-12	4
08	17.0043.6.351	COLLAR 12	5
09	08.6002.6.016	SCREW M6-16	2
10	08.6002.5.022	SCREW M5-22	1
11	71.1273.9.139	STUD	1
12	12.0008.3.806	KNUCKLE	1
13	12.0008.3.808	CYLINDER	1
14	12.1045.0.004	RETAINING RING 4	1
15	12.0010.3.169	SPEED CONTR. AS	2
16	71.1664.1.081	TONGUE (4-HOLE)	1
17	71.1169.6.006	TANG KNOB	1
18	71.1453.8.032	PUCKER PIN	1
19	08.6050.5.010	SCREW M5-10	2
20	08.6100.4.008	SCREW M4-8	1
21	71.1001.4.460	ANTI-SLIP MAT •••	1
22	06.7100.0.030	SENSOR BQ7	2
23	06.7100.0.024	SENSOR FLAT BQ6	1
24	08.6100.3.008	SCREW M3-8	1
25	71.1664.1.090	HOLDER	1
26	71.1664.1.085	ARM	1
27	71.1664.1.086	HOLDER	1
28	71.1664.1.087	STUD	1
29	71.1664.1.088	FLAT SPRING 1mm	1
30	08.6202.4.010	SCREW M4-10	4
31	08.6400.4.004	SCREW M4-4	1
32	08.6400.4.008	SCREW M4-8	1
33	08.6102.5.008	SCREW M5-8	1
34	08.6710.4.000	NUT M4	3
35	71.1665.1.017	ENDSTOP	1
36	71.1665.1.019	SPRING	1
37	71.1665.1.020	NUT M4	1
38	71.1665.1.021	ARROW	1
39	71.1665.1.022	SCREW M4x43	1
40	19.0016.3.406	NUT M4-6,5 CLOSED	1
41	08.6102.5.016	SCREW M5-16	2
42	08.6700.4.000	NUT M4	1
43	08.6850.5.000	WASHER 5,3	2
44	71.1664.1.093	WASHER	1
45	12.0008.3.749	AIR TUBING - J5A •••	1

# ADJUSTABLE LIFT TONGUE

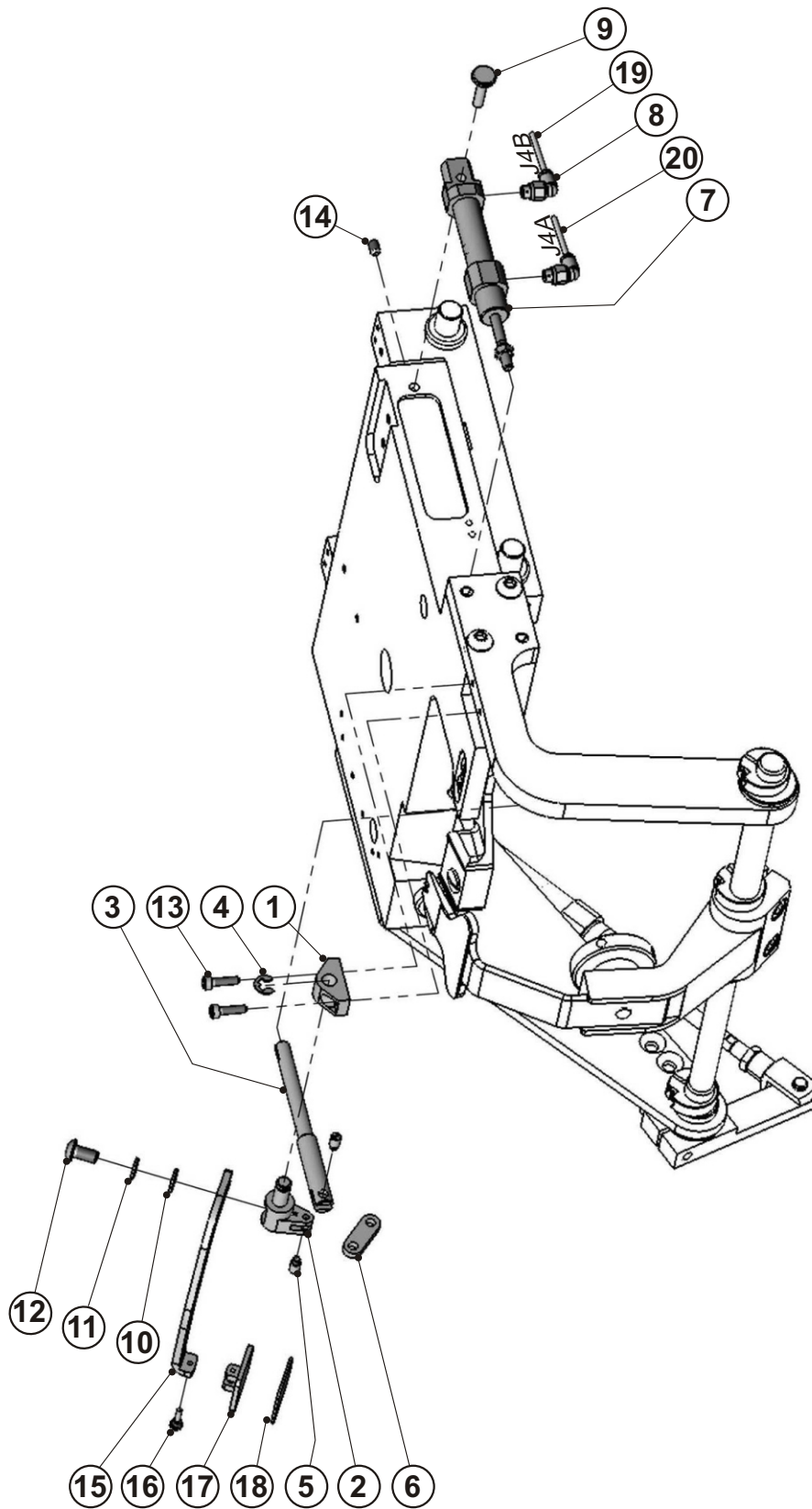


**ADJUSTABLE LIFT TONGUE**



DET	PART NUMBER	DESCRIPTION	QTY.
46	12.0008.3.749	AIR TUBING - J8A <span style="float: right;">•••</span>	1
47	12.0010.3.008	SENSOR HOLDER - BQ2-012	2
48	12.0010.3.007	SCREW AND NUT - BQ-1	2

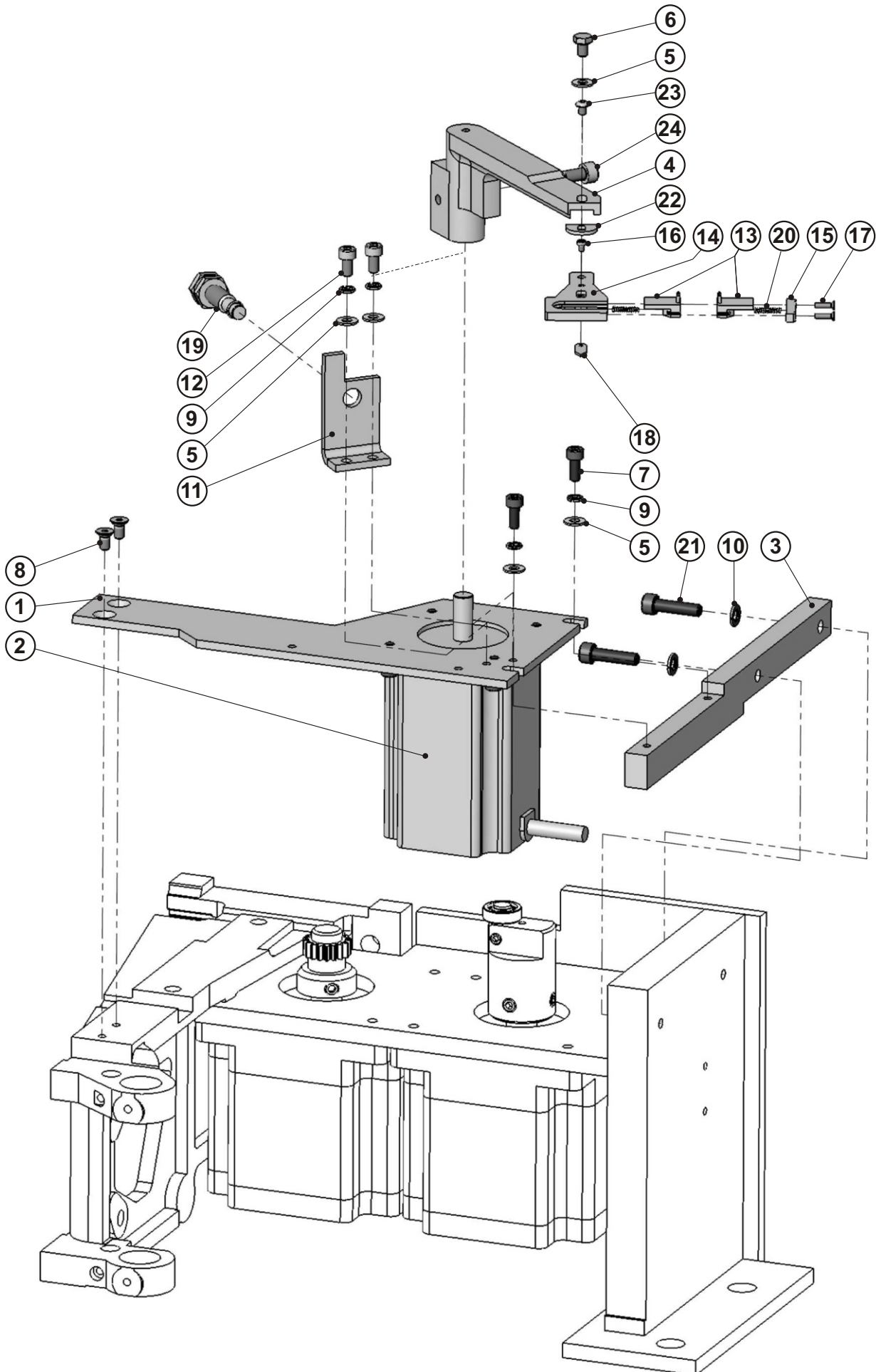
# RETAINER ASSEMBLY







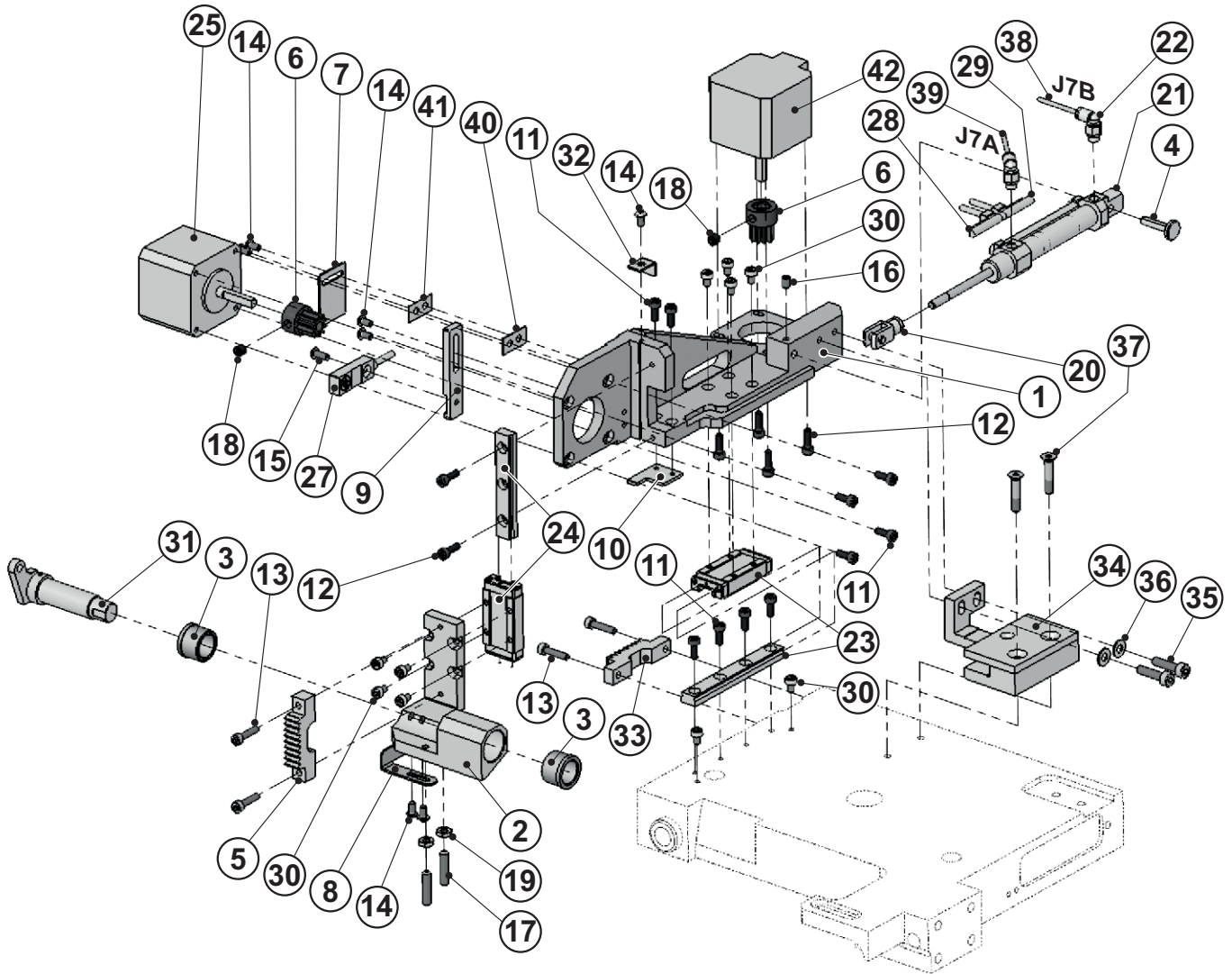
# NEEDLE BAR MECHANISM LOWER AND UPPER



**NEEDLE BAR MECHANISM LOWER AND UPPER**

DET	PART NUMBER	DESCRIPTION	QTY.
01	71.1276.9.191	PLATE	1
02	06.7100.2.013	MOTOR U5	1
03	71.1652.0.004	HOLDER	1
04	71.1187.2.018	ARM	1
05	08.6850.4.000	WASHER M4	5
06	08.6310.4.006	SCREW M4-6	1
07	08.6000.4.010	SCREW M4-10	6
08	08.6100.4.008	SCREW M4-8	2
09	08.6800.4.000	SPRING WASHER 4	8
10	08.6800.5.000	SPRING WASHER M5	2
11	71.1652.0.006	SENSOR HOLDER	1
12	08.6000.4.008	SCREW M4-8	2
13	71.1171.4.017	BLOCK 2/3,5	2
14	71.1325.1.076	PLATE	1
15	71.1325.1.077	STOP	1
16	08.6012.2.003	SCREW M2-3	1
17	08.6102.2.008	SCREW M2-8	2
18	71.1325.1.078	STOP	1
19	12.0010.4.093	SENSOR BQ 5	1
20	17.0026.0.219	SPRING	2
21	08.6000.5.020	SCREW M5-20	2
22	71.1325.1.082	STOP	1
23	08.6200.3.004	SCREW M3-4	1
24	08.6000.5.010	SCREW M5-10	1

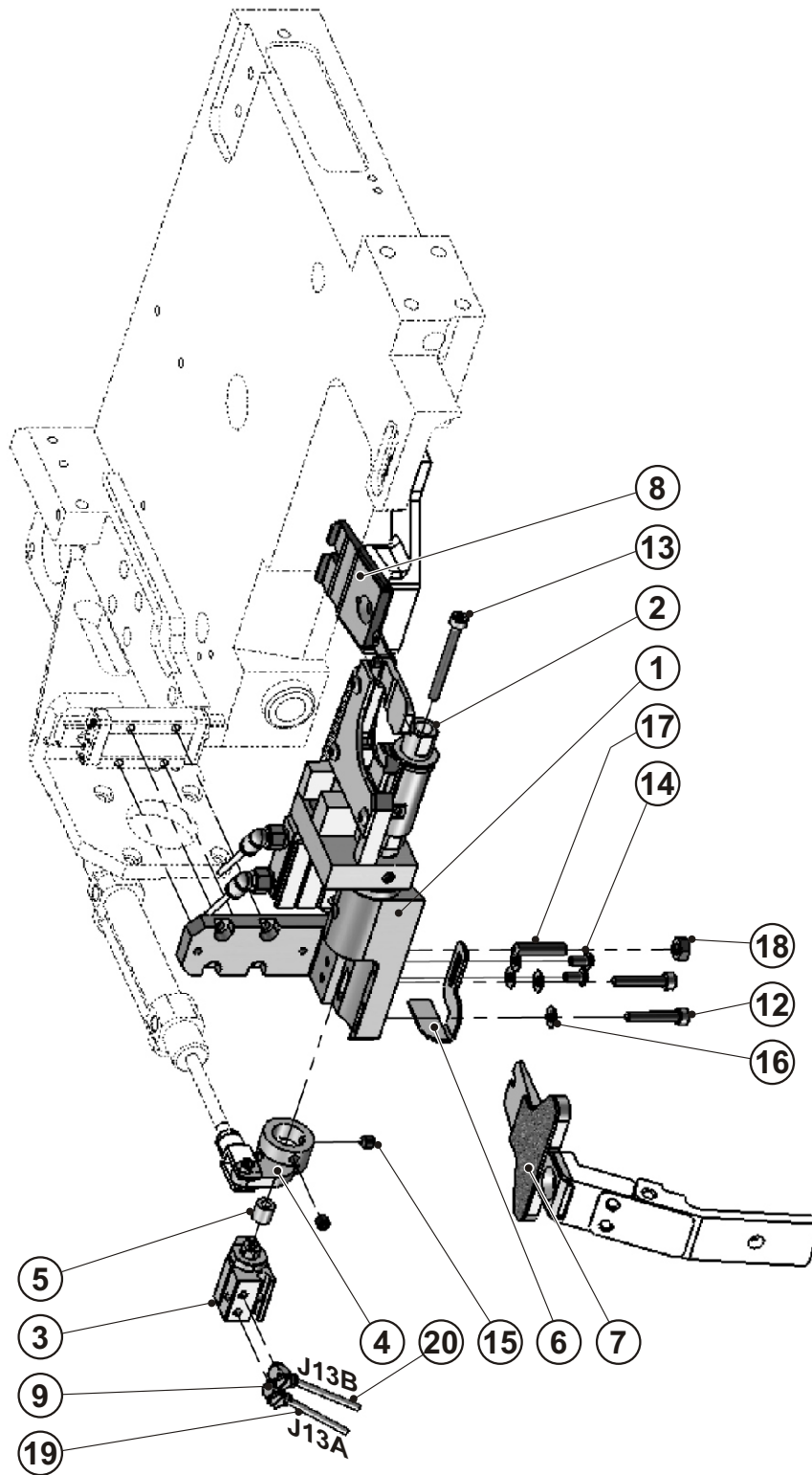
# BUTTON CHUCK MECHANISM



## BUTTON CHUCK MECHANISM

DET	PART NUMBER	DESCRIPTION	QTY.
01	71.1237.2.075	CONSOLE	1
02	71.1552.8.008	BRACKET	1
03	71.1651.8.074	BUSHING	2
04	71.1225.5.042	STUD	1
05	71.1651.8.070	RACK	1
06	71.1634.0.012	PINION	2
07	71.1325.5.049	SENSOR PLATE	1
08	71.1325.5.050	SENSOR PLATE	1
09	71.1325.5.051	HOLDER	1
10	71.1325.5.052	ENDSTOP	1
11	08.6000.3.008	SCREW M3-8	11
12	08.6000.3.010	SCREW M3-10	6
13	08.6000.3.014	SCREW M3-14	4
14	08.6200.3.006	SCREW M3-6	7
15	08.6200.3.008	SCREW M3-8	1
16	08.6400.4.006	SCREW M4-6	1
17	08.6400.4.018	SCREW M4-18	2
18	08.6400.5.005	SCREW M5-5	2
19	08.6712.4.000	NUT M4	2
20	12.0008.3.738	KNUCKLE	1
21	12.0008.3.881	CYLINDER	1
22	12.0010.3.064	CONNECTOR	2
23	71.1651.8.095	LINEAR GIUDE 70	1
24	71.1651.8.096	LINEAR GUIDE 57	1
25	06.7100.1.012	MOTOR U4	1
27	06.7100.0.023	SENSOR BQ4	1
28	06.7100.0.031	SENSOR BQ8	1
29	06.7100.0.032	SENSOR BQ9	1
30	08.6000.3.005	SCREW M3-5	10
31	71.1651.8.076	LEVER - ASSEMBLY	1
32	71.1325.5.054	ENDSTOP	1
33	71.1651.8.092	RACK	1
34	71.6482.0.005	GUIDING	1
35	08.6000.4.016	SCREW M4-16	2
36	08.6850.4.000	WASHER M4	2
37	08.6100.4.020	SCREW M4-20	2
38	12.0008.3.749	AIR TUBING - J7B	1
39	12.0008.3.749	AIR TUBING - J7A	1
40	71.1325.5.058	WASHER	2
41	71.1325.5.059	WASHER	2
42	06.7100.1.014	MOTOR U6	1

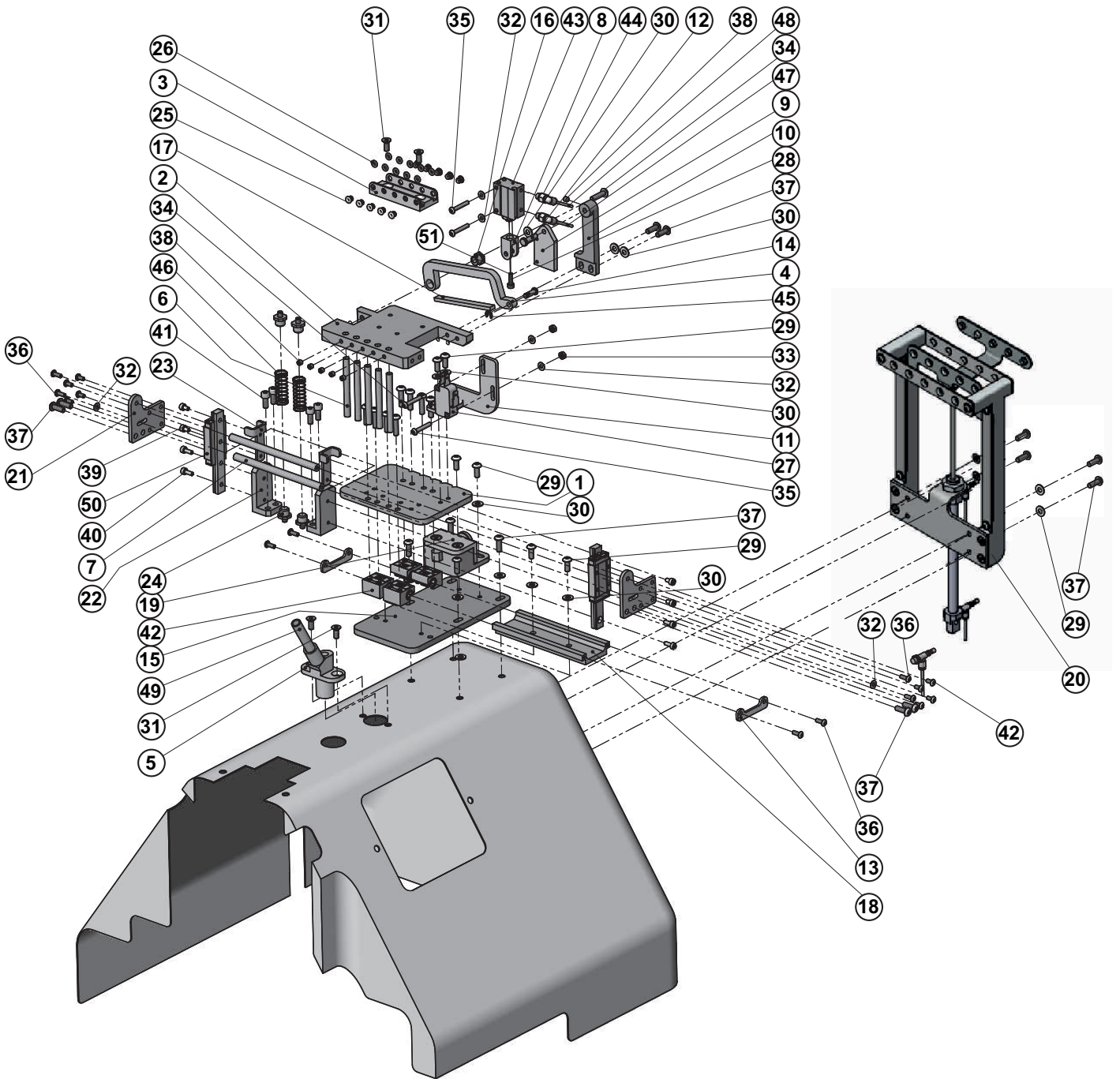
# “V” ASSEMBLY



**“V” ASSEMBLY**

DET	PART NUMBER	DESCRIPTION	QTY.
01	71.1552.8.011	BRACKET - ASSEMBLY •	1
02	71.1651.8.091	STUD ASSEMBLY	1
03	71.1651.8.088	CUJB10-4D - ADAPTATION	1
04	71.1237.2.078	LEVER	1
05	71.1651.8.090	SPACER	1
06	71.1325.5.056	SENSOR PLATE	1
07	03.5571.0.023	TONGUE “V”	1
08	71.1453.8.033	PUCKER PIN “V”	1
09	12.0008.3.826	CONNECTOR M-3ALU-2	2
10	12.0008.3.482	PN. VALVE	1
11	06.7100.0.050	CABLE V-SHIFT ASSEMBLY	1
12	08.6000.3.018	SCREW M3-18	2
13	71.1651.8.093	SCREW M3-32	1
14	08.6200.3.006	SCREW M3-6	2
15	08.6400.4.004	SCREW M4-4	2
16	08.6850.3.000	WASHER 3,2	4
17	08.6400.4.018	SCREW M4-18	1
18	08.6700.4.000	NUT M4	1
19	12.0008.3.749	AIR TUBING - J13A •••	1
20	12.0008.3.749	AIR TUBING - J13B •••	1

# FIVE THREADS SYSTEM



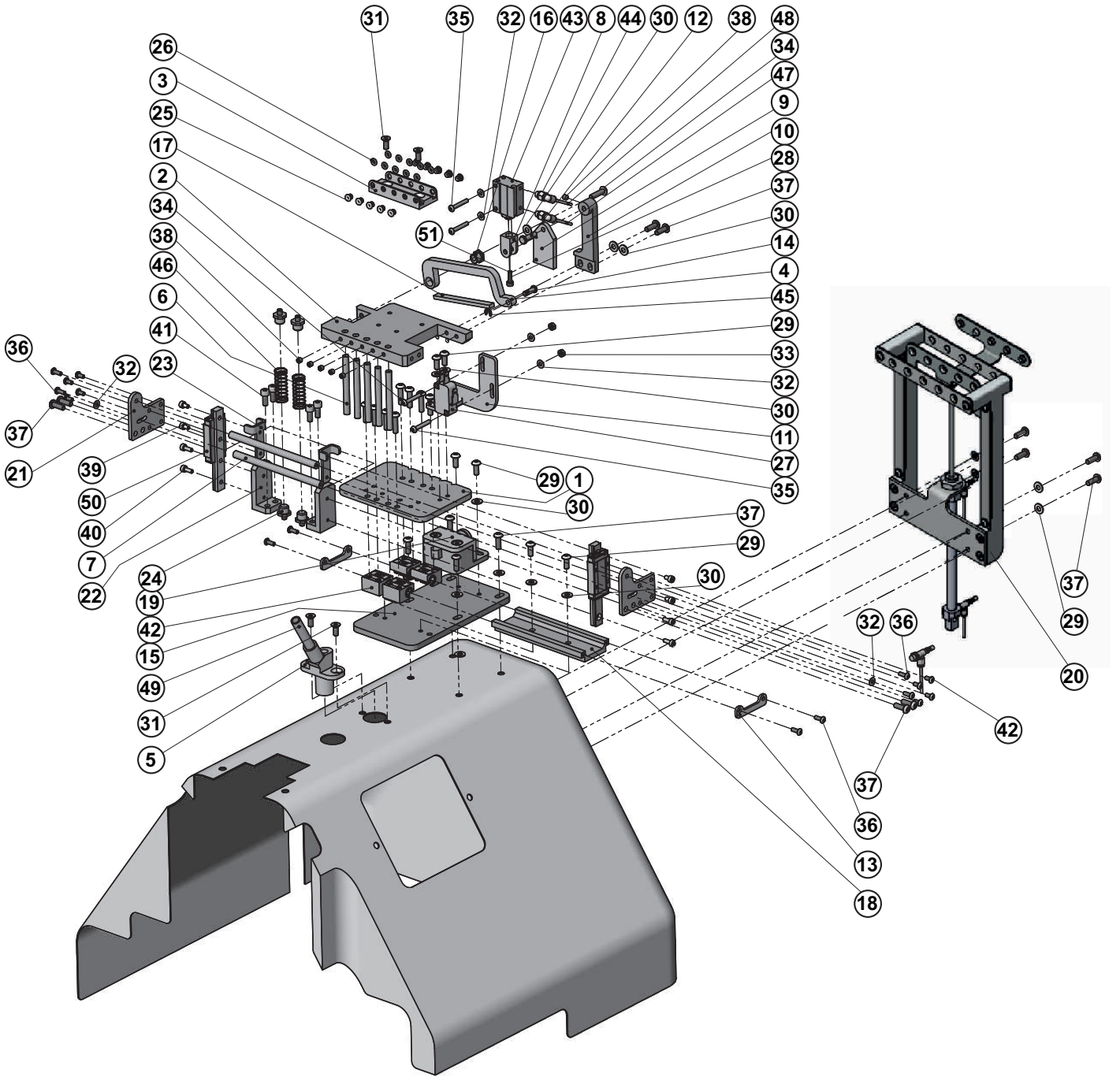


## FIVE THREADS SYSTEM



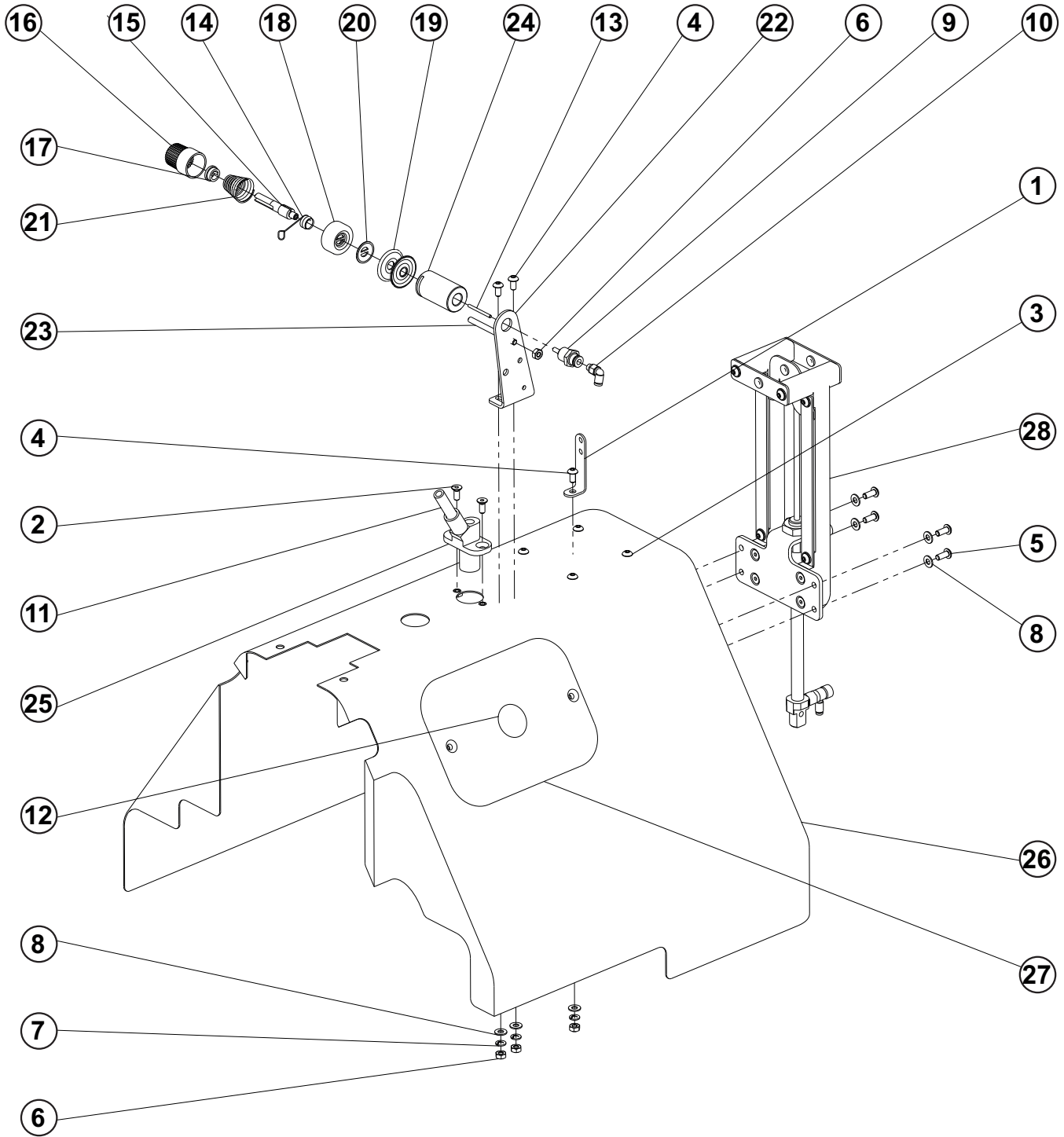
DET	PART NUMBER	DESCRIPTION	QTY.
01	71.1546.1.160	BASE PLATE	1
02	71.1546.1.161	PLATE	1
03	71.1546.1.103	LEADER	1
04	71.1546.1.104	BAR	1
05	71.1546.1.107	DIFFUSER	1
06	71.1546.1.108	TUBE	5
07	71.1546.1.109	CROSS-BAR	2
08	71.1546.1.111	KNUCKLE	1
09	71.1546.1.112	CYLINDER HOLDER	1
10	71.1546.1.113	BRACKET	1
11	71.1546.1.114	MICRO SWITCH HOLDER	1
12	71.1546.1.115	STUD	1
13	71.1546.1.116	END STOP	2
14	71.1546.1.118	STUD	1
15	71.1546.1.120	BASE PLATE	1
16	71.1546.1.121	ECCENTRIC	1
17	71.1546.1.122	PRESSURE PAD	1
18	71.1546.1.123	RAIL	1
19	71.6546.1.130	LOCK ASM.	1
20	71.6546.1.140	THREAD TENSION ASM.	1
21	71.1546.1.163	SIDEBOARD	2
22	71.1546.1.167	HOLDER	2
23	71.1546.1.168	END STOP	2
24	71.1546.1.169	PIN	4
25	01.7447.1.000	GUIDE	10
26	01.6551.0.000	O-RING 1,78x2.57	10
27	06.0120.0.000	SWITCH-MICRO	1
28	08.6202.4.010	SCREW M4-10	6
29	08.6852.4.000	WASHER M4	17
30	08.6102.4.010	SCREW M4-10	4
31	08.6852.3.000	WASHER M3	6
32	08.6702.3.000	NUT M3	2
33	08.6202.4.016	SCREW M4-16	9
34	08.6202.3.020	SCREW M3-20	4
35	08.6202.3.008	SCREW M3-8	8
36	08.6202.4.010	SCREW M4-10	14
37	08.6400.4.004	SCREW M4-4	6
38	08.6002.3.005	SCREW M3-5	4
39	08.6002.3.008	SCREW M3-8	4
40	08.6002.4.010	SCREW M4-10	4
41	08.6202.3.006	SCREW M3-6	8
42	12.2070.1.004	CARRIAGE	4
43	12.0008.3.631	CYLINDER	1
44	12.0010.3.064	CONNECTOR	2
45	12.1045.0.003	RETAINING RING 3,2	1

# FIVE THREADS SYSTEM





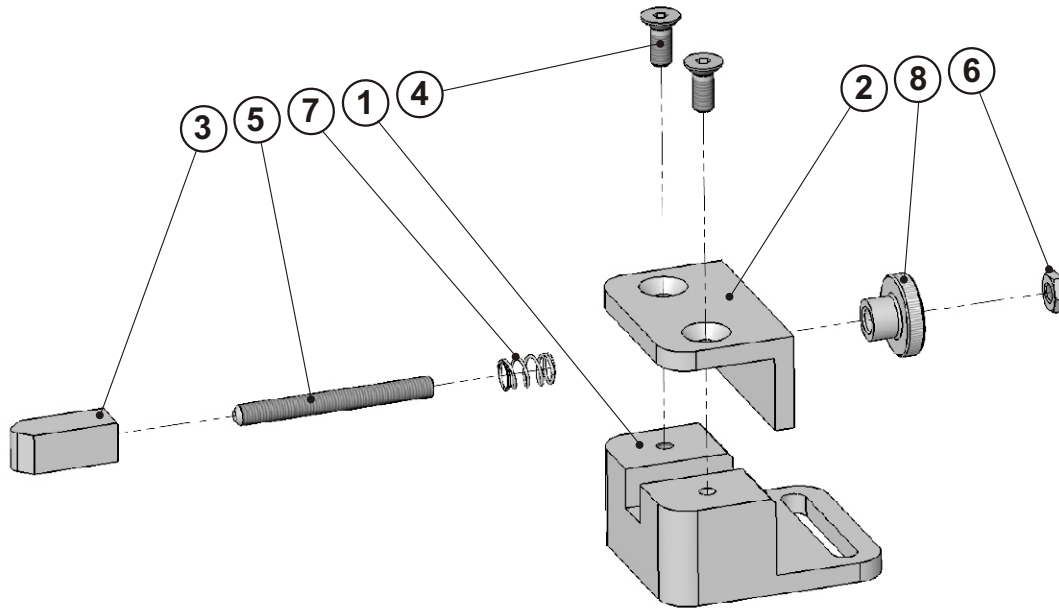
# SINGLE THREADS SYSTEM



## SINGLE THREADS SYSTEM

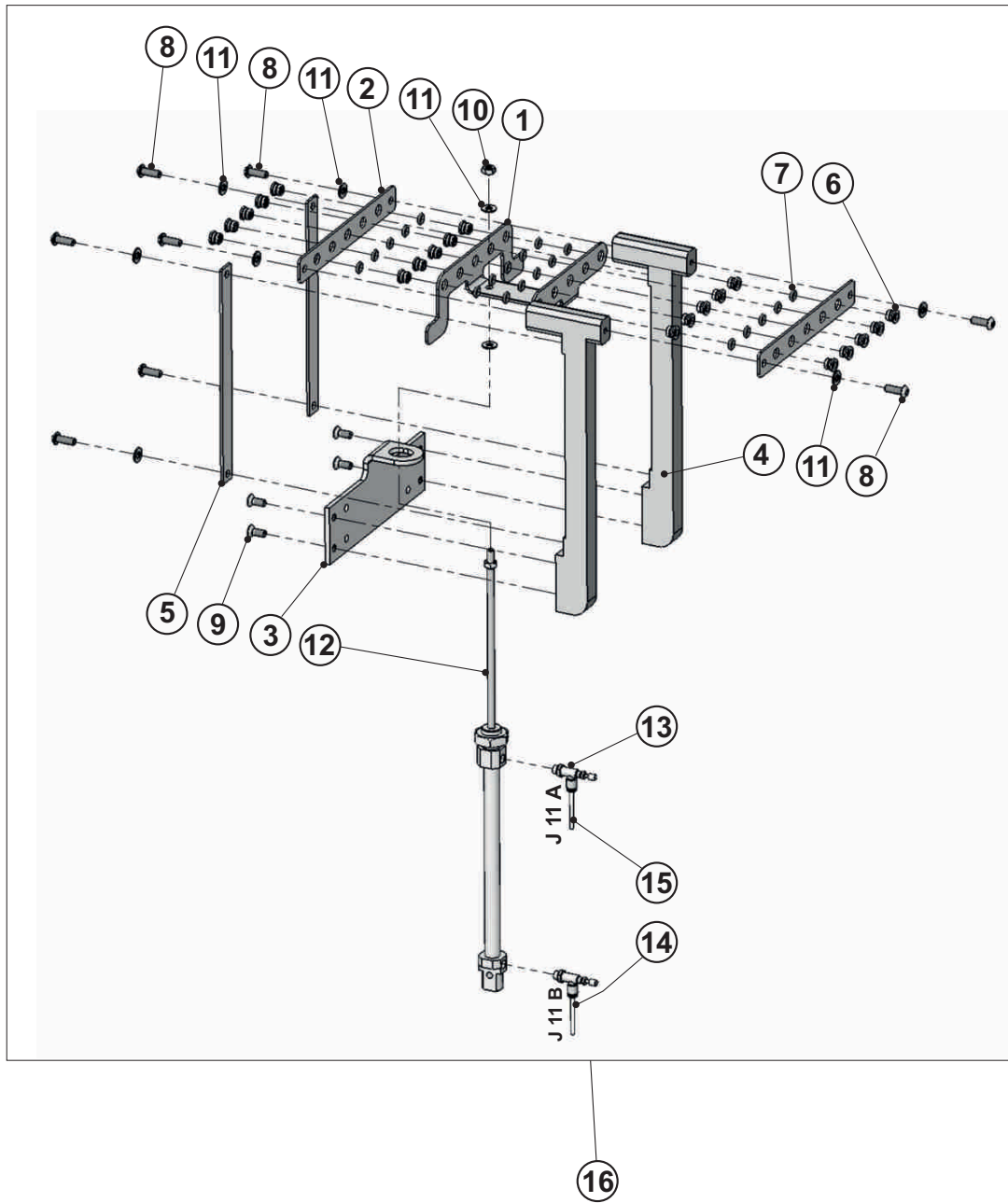
DET	PART NUMBER	DESCRIPTION	QTY.
01	05.0043.1.000	THREAD GUIDE	1
02	08.6102.4.010	SCREW M4-10	2
03	08.6202.4.005	SCREW M4-5	4
04	08.6202.4.008	SCREW M4-8	3
05	08.6202.4.010	SCREW M4-10	4
06	08.6702.4.000	NUT M4 DIN 934	4
07	08.6802.4.000	SPRING WASHER M4	3
08	08.6852.4.000	WASHER M4	7
09	12.0008.3.413	CYLINDER CJPB6-5	1
10	12.0008.3.809	CONNECTOR KJL02-M5	1
11	12.0008.3.998	HADICE SMC TUS0805B-20 L=1850 mm	1
12	12.0008.4.777	PLUG 18,4-20,6	1
13	12.1010.2.003	PIN 2m6-24	1
14	12.9900.3.001	SPRING	1
15	12.9900.3.002	STUD	1
16	12.9900.9.001	NUT	1
17	12.9900.9.002	LOCK	1
18	12.9900.9.003	BOWL PLASTIC	1
19	15.1321.0.400	TENSION PLATE	2
20	17.0082.8.082	TENSION DISC	1
21	24.0120.0.000	SPRING - CONCAL	1
22	71.1546.1.030	HOLDER	1
23	71.1546.1.031	BAR	1
24	71.1546.1.033	BUSHING	1
25	71.1546.1.107	DIFFUSER	1
26	71.1570.0.020	COVER - HEAD	1
27	71.1570.0.038	COVER	1
28	71.6546.1.148	THREAD TENSION ASM.	1

# LOCK ASSEMBLY





# THREAD TENSION UPPER ASSEMBLY

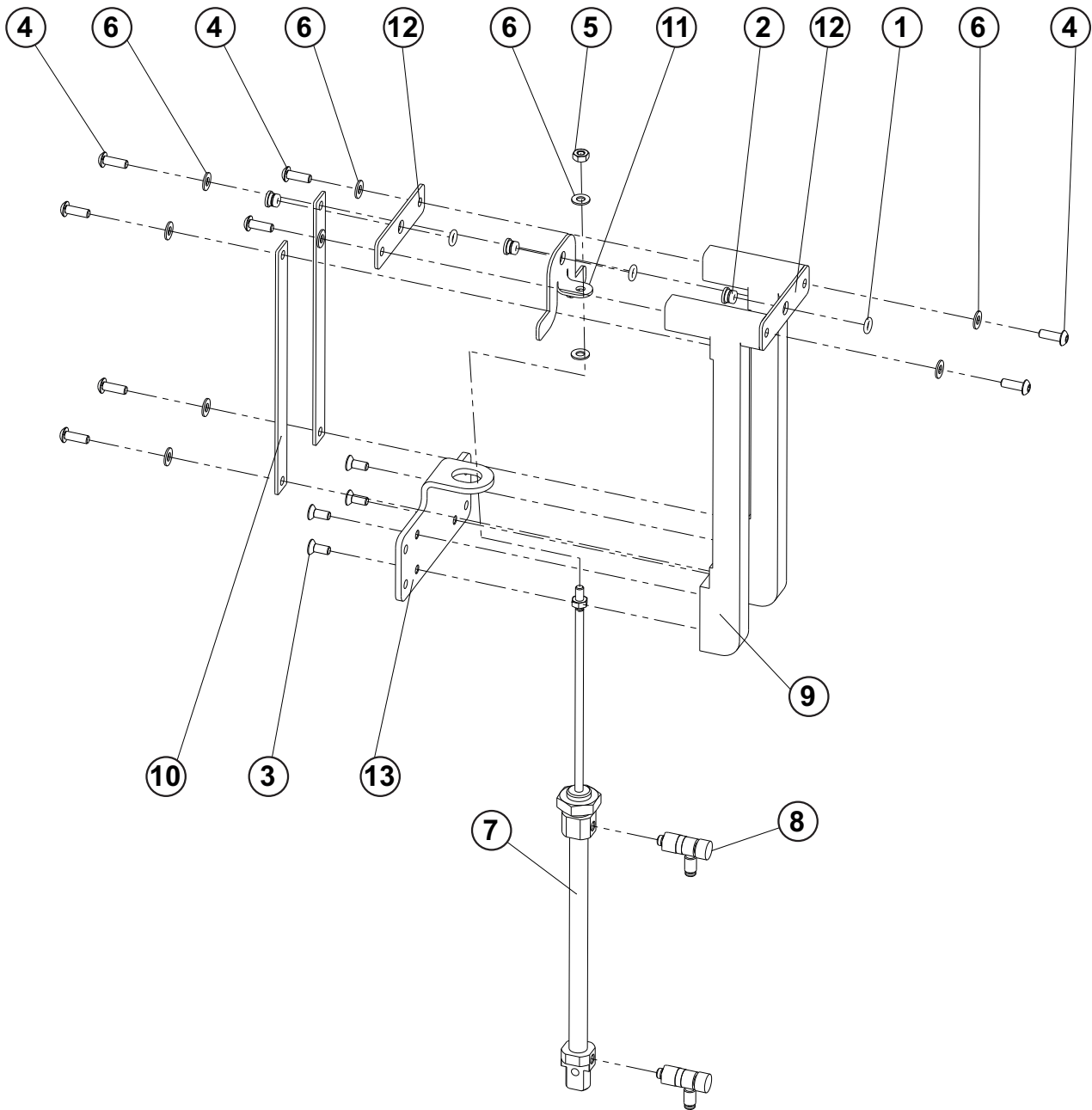




## THREAD TENSION UPPER ASSEMBLY

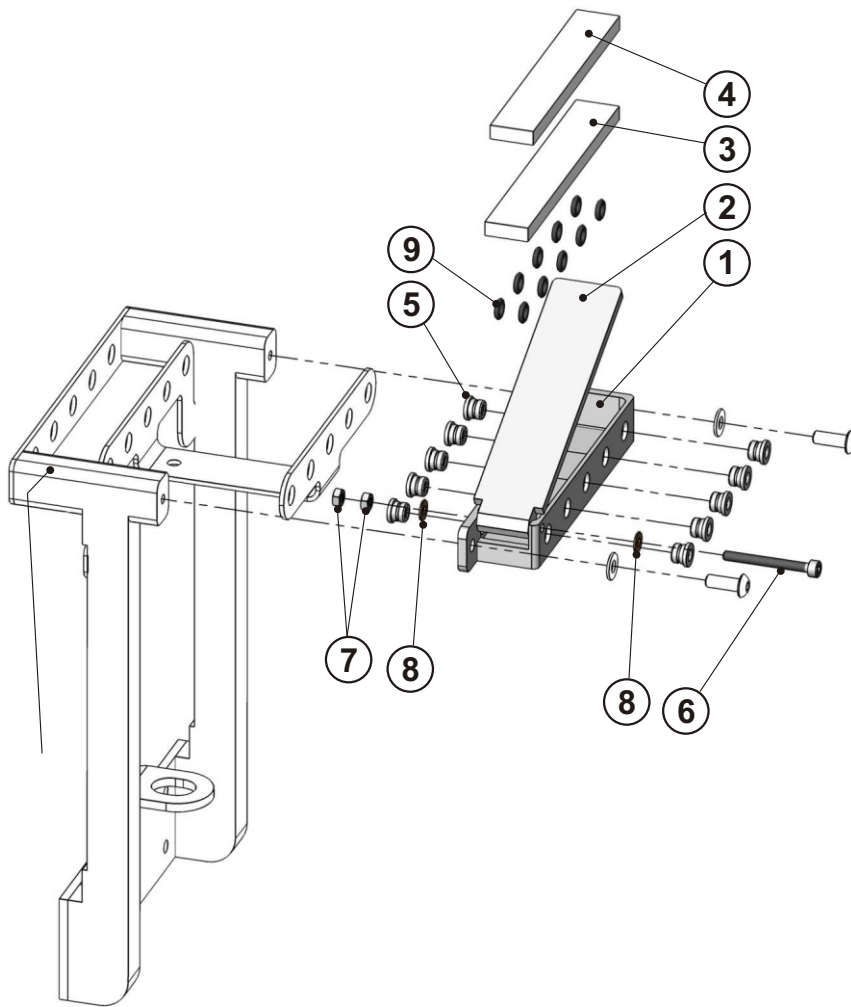
DET	PART NUMBER	DESCRIPTION	QTY.
01	71.1546.1.148	PLATE	(2)
02	71.1546.1.143	PLATE	(2)
03	71.1546.1.144	PLATE	(1)
04	71.1546.1.145	CONSOLE •	(2)
05	71.1546.1.146	PLATE	(2)
06	01.7447.0.001	GUIDE	(20)
07	12.0008.6.817	O - RING 4x1,5	(20)
08	08.6202.4.010	SCREW M4-10	(8)
09	08.6100.4.010	SCREW M4-10	(4)
10	08.6702.4.000	NUT M4	(1)
11	08.6852.4.000	WASHER M4	(10)
12	12.0010.3.012	CYLINDER	(1)
13	12.0010.3.169	SPEED CONTROLER	(2)
14	12.0008.3.749	AIR TUBING - J11B •••	(1)
15	12.0008.3.749	AIR TUBING - J11A •••	(1)
16	71.6546.1.140	THREAD TENSION ASM.	1

# SINGLE THREAD TENSION UPPER ASSEMBLY



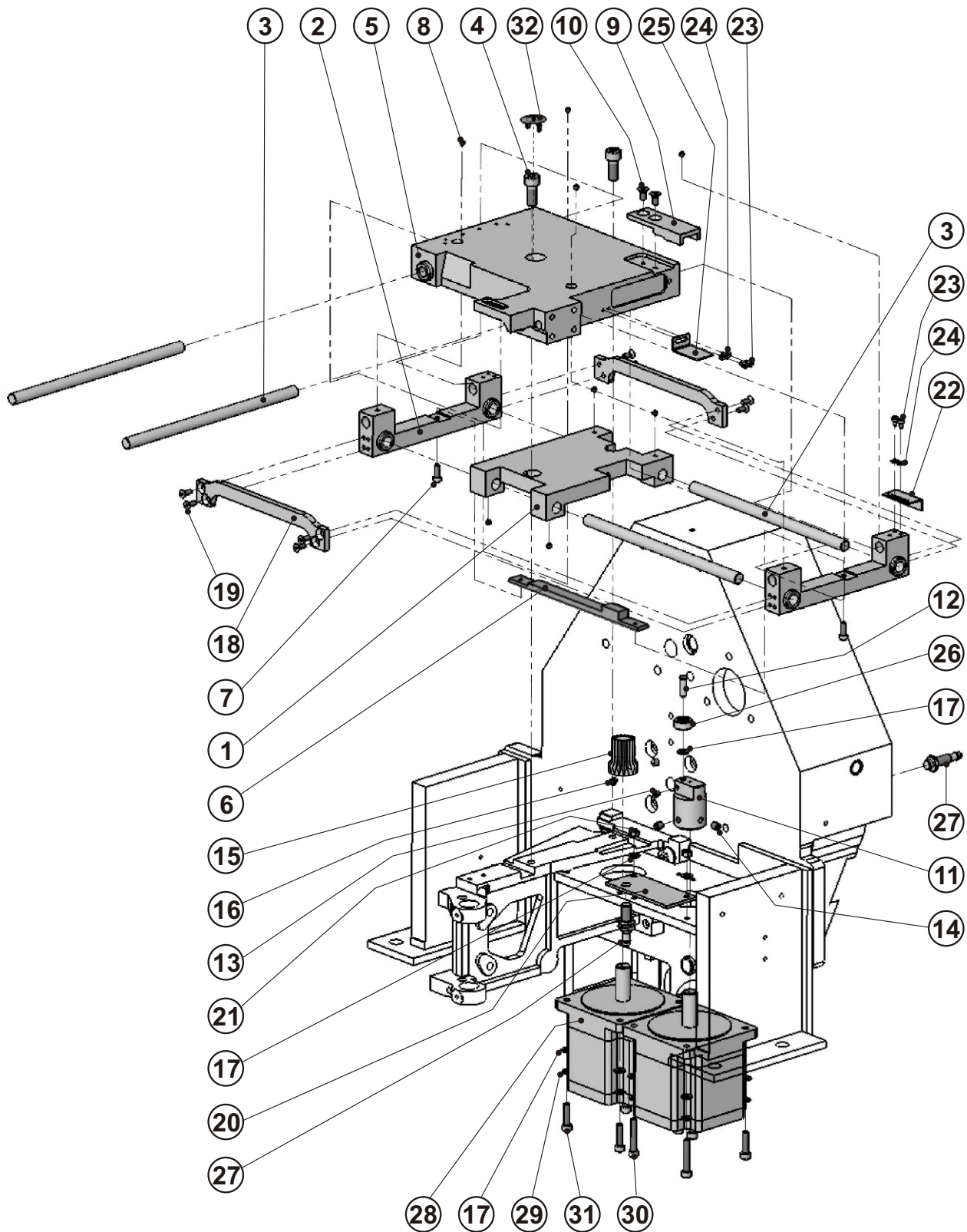


# LUBRICATION BOX ASSEMBLY





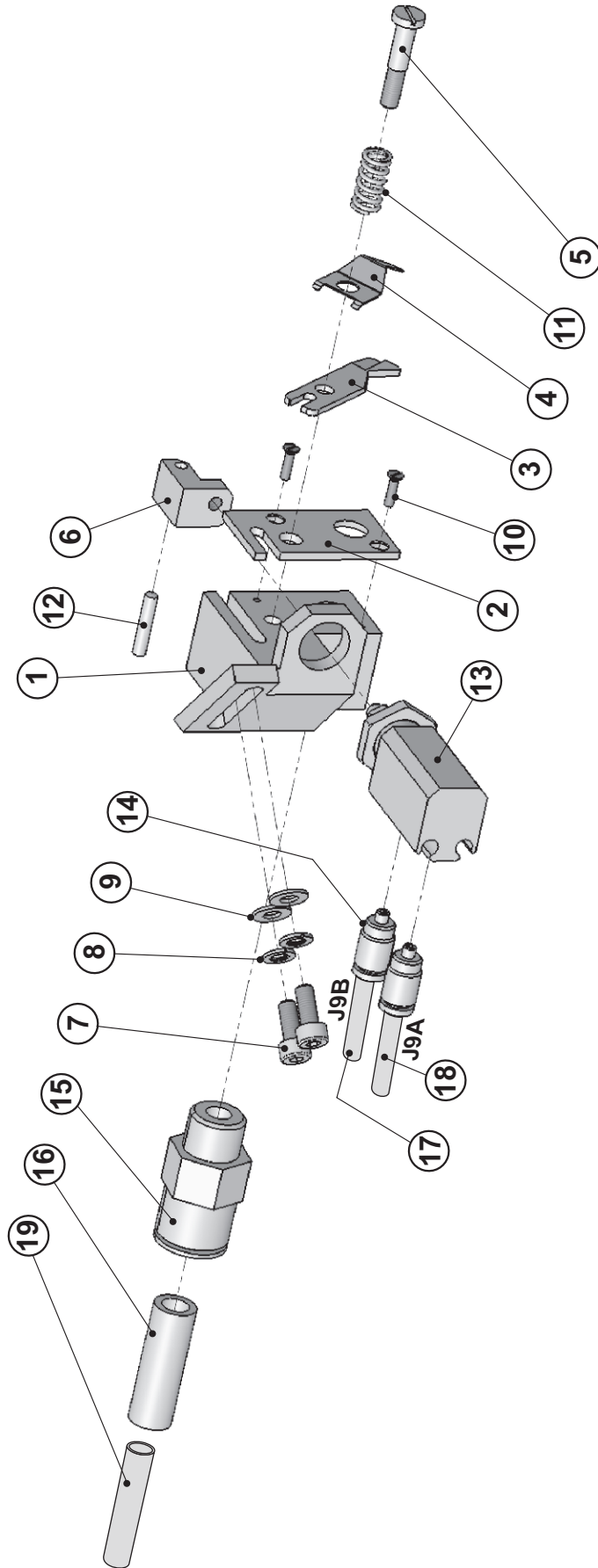
# TABLE MECHANISM



**TABLE MECHANISM**

DET	PART NUMBER	DESCRIPTION	QTY.
01	71.1222.6.011	HOLDER	1
02	71.1666.6.006	SLIDE RAIL "X" ASM.	2
03	71.1184.8.019	BAR W10h6x200	4
04	08.6000.8.020	SCREW M8-20	2
05	71.1325.1.016	TABLE	1
06	71.1182.3.003	RACK	1
07	08.6000.4.012	SCREW M4-12	2
08	08.6400.4.004	SCREW M4-4	8
09	71.1276.6.056	GIB	1
10	08.6100.5.010	SCREW M5-10	2
11	71.1666.6.007	ADAPTOR	1
12	71.1142.2.047	PIVOT	1
13	08.6400.5.005	SCREW M5-5	1
14	08.6400.6.008	SCREW M6-8	2
15	71.1182.3.002	GEAR	1
16	08.6400.6.006	SCREW M6-6	3
17	08.6850.5.000	WASHER 5,3	11
18	71.1273.5.093	CROSSBAR	2
19	08.6100.4.010	SCREW M4-10	8
20	71.1223.6.102	HOLDER	1
21	08.6700.5.000	NUT M5	2
22	71.1325.5.045	SENSOR PLATE	1
23	08.6000.3.005	SCREW M3-5	4
24	08.6850.3.000	WASHER 3,2	4
25	71.1325.5.046	SENSOR PLATE	1
26	71.1666.6.008	ROLLER	1
27	12.0010.4.093	SENSOR	2
28	06.7100.2.010	STEPPER MOTOR 2-PHASE U1, U2	2
29	08.6800.5.000	SPRING WASHER M5	8
30	08.6000.5.030	SCREW M5-30	2
31	08.6000.5.020	SCREW M5-20	6
32	12.0008.4.777	PLUG	1

# AIR THREADING

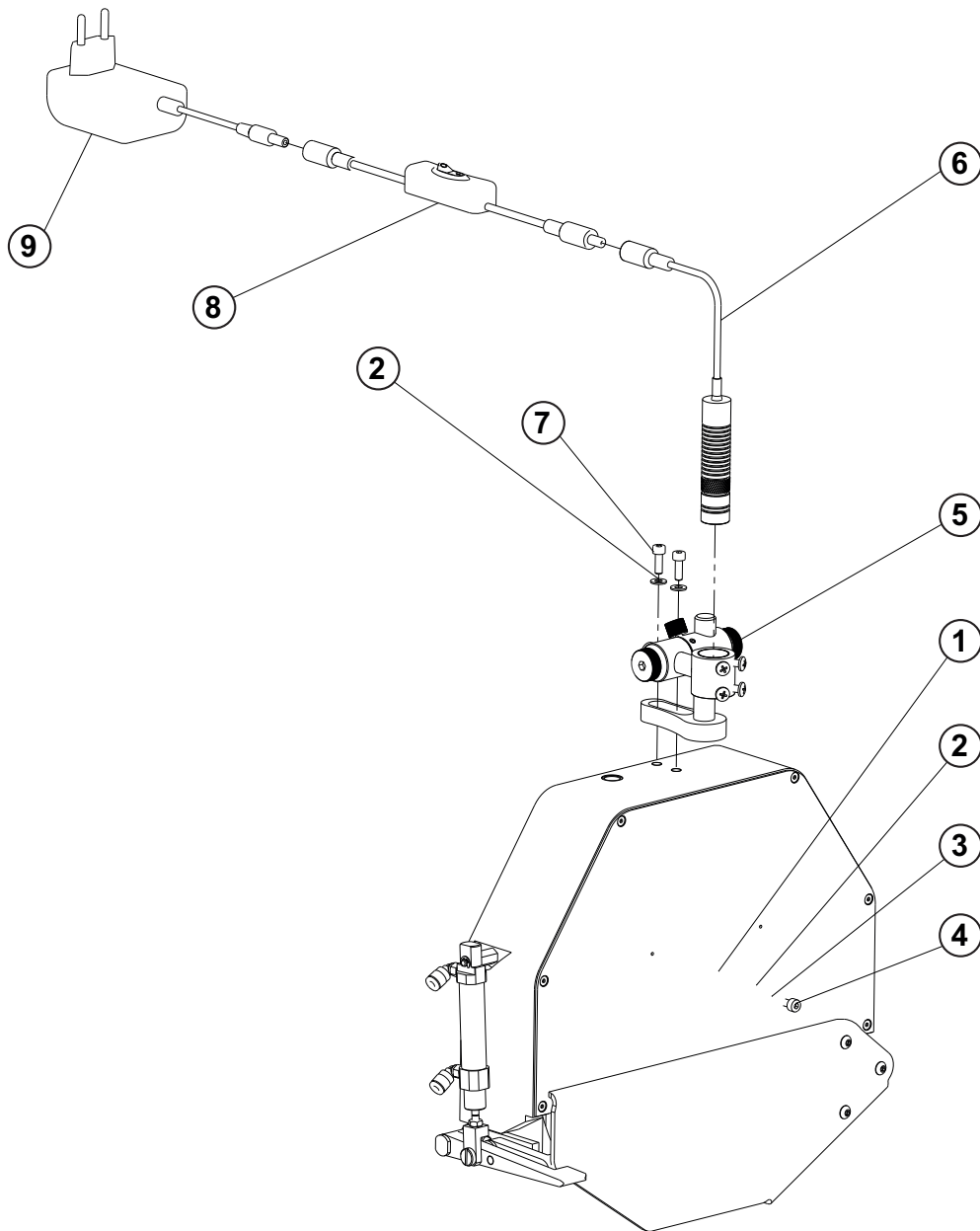




## AIR THREADING

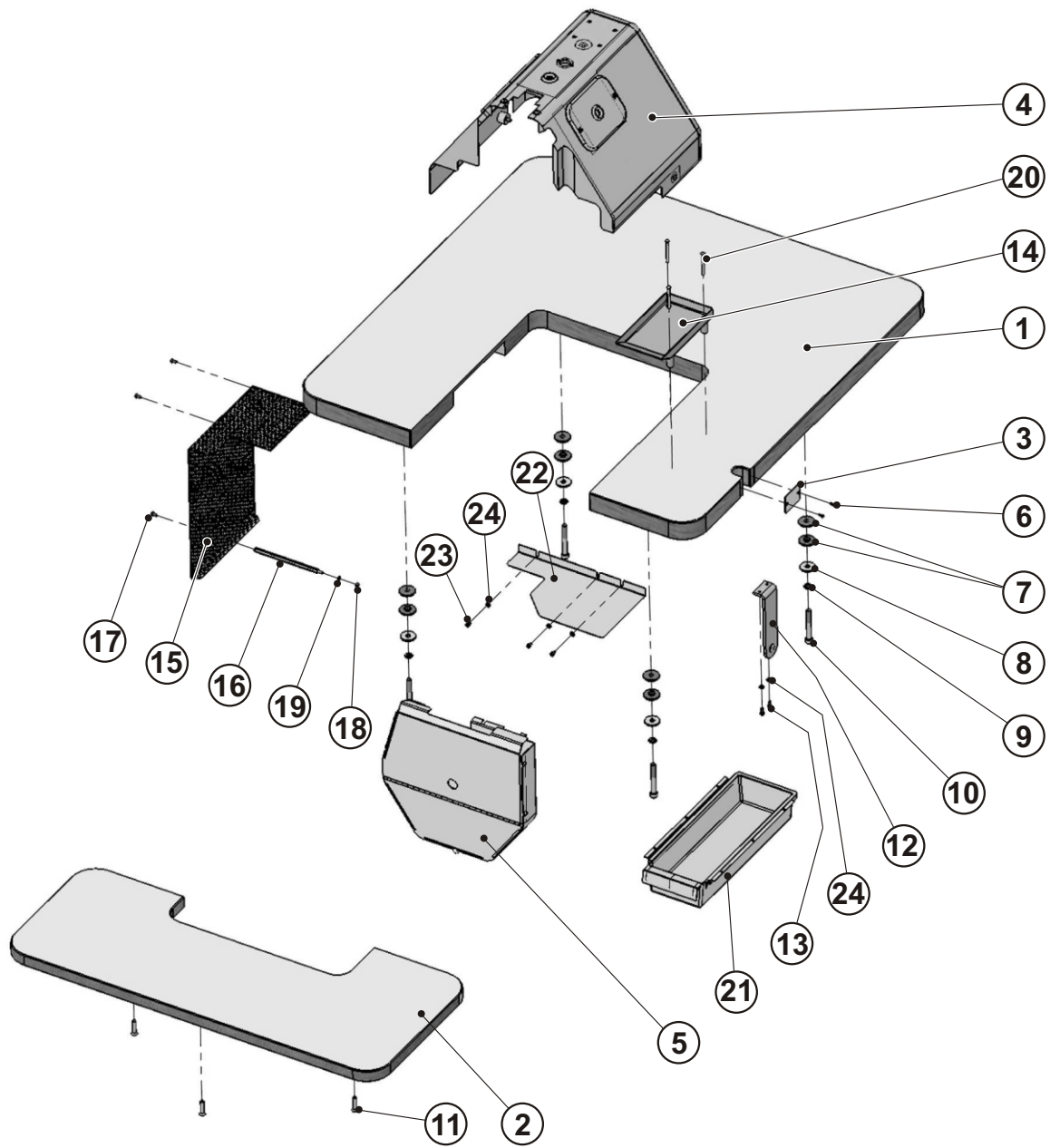
DET	PART NUMBER	DESCRIPTION	QTY.	
01	71.1712.4.212	HOLDER	1	
02	71.1661.1.104	KNIFE	1	
03	71.1661.1.105	KNIFE	1	
04	71.1661.1.106	SPRING PLATE	1	
05	71.1151.1.055	SCREW	1	
06	71.1784.1.040	GUIDE	1	
07	08.6000.4.010	SCREW M4-10	2	
08	08.6802.4.000	SPRING WASHER M4	2	
09	08.6852.4.000	WASHER M4	2	
10	08.6102.2.008	SCREW M2-8	2	
11	12.3010.0.019	SPRING	1	
12	12.1010.0.316	PIN 3x16	1	
13	12.0008.3.862	CYLINDER	1	
14	12.0010.3.119	CONNECTOR	2	
15	12.0010.3.171	CONNECTOR	••	1
16	12.0008.3.876	AIR TUBING L=400 mm	•••	1
17	12.0008.3.416	AIR TUBING - J9B	•••	1
18	12.0008.3.416	AIR TUBING - J9A	•••	1
19	12.0008.3.415	AIR TUBING-SMC L=400mm	•••	1

# LIGHT ASSEMBLY





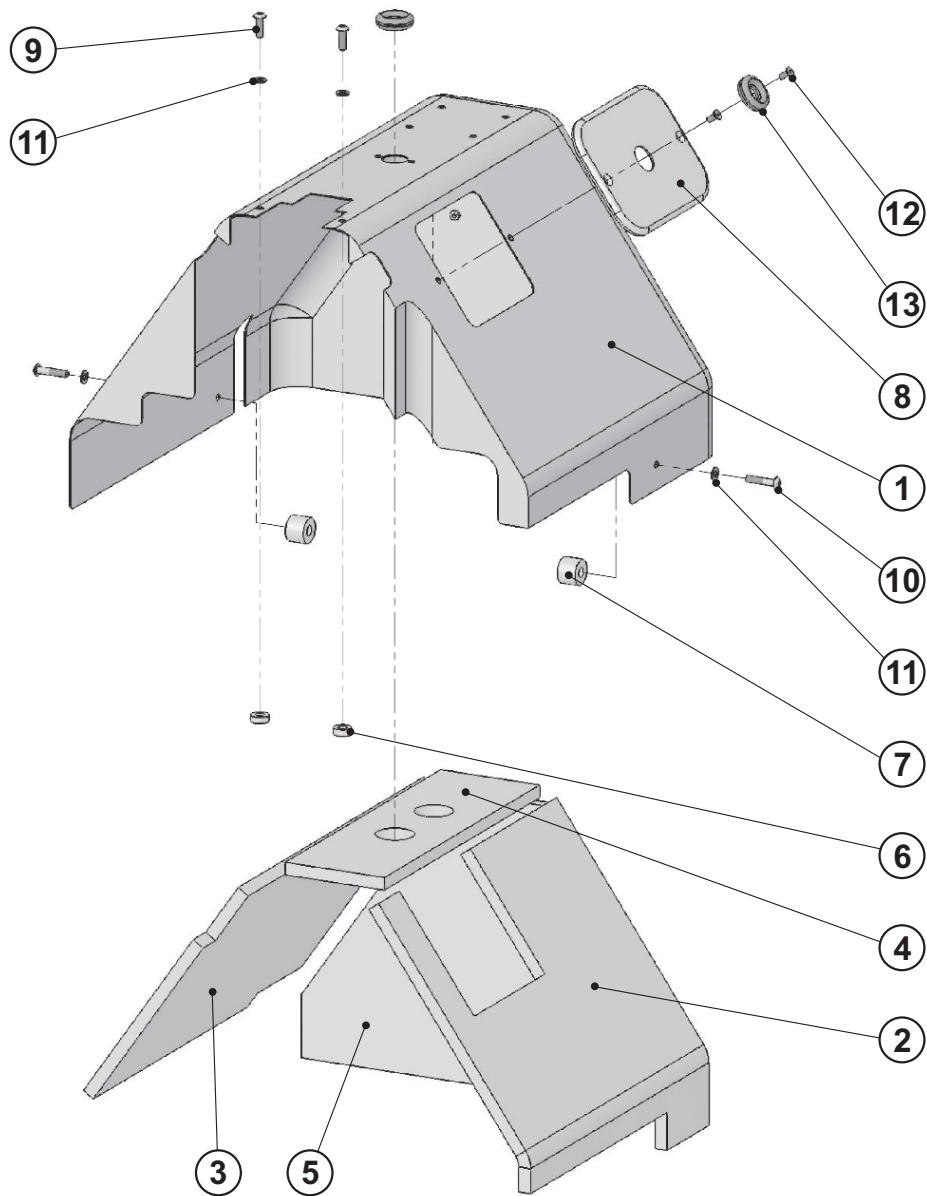
# COVERS AND GUARDS ASSEMBLY



## COVERS AND GUARDS ASSEMBLY

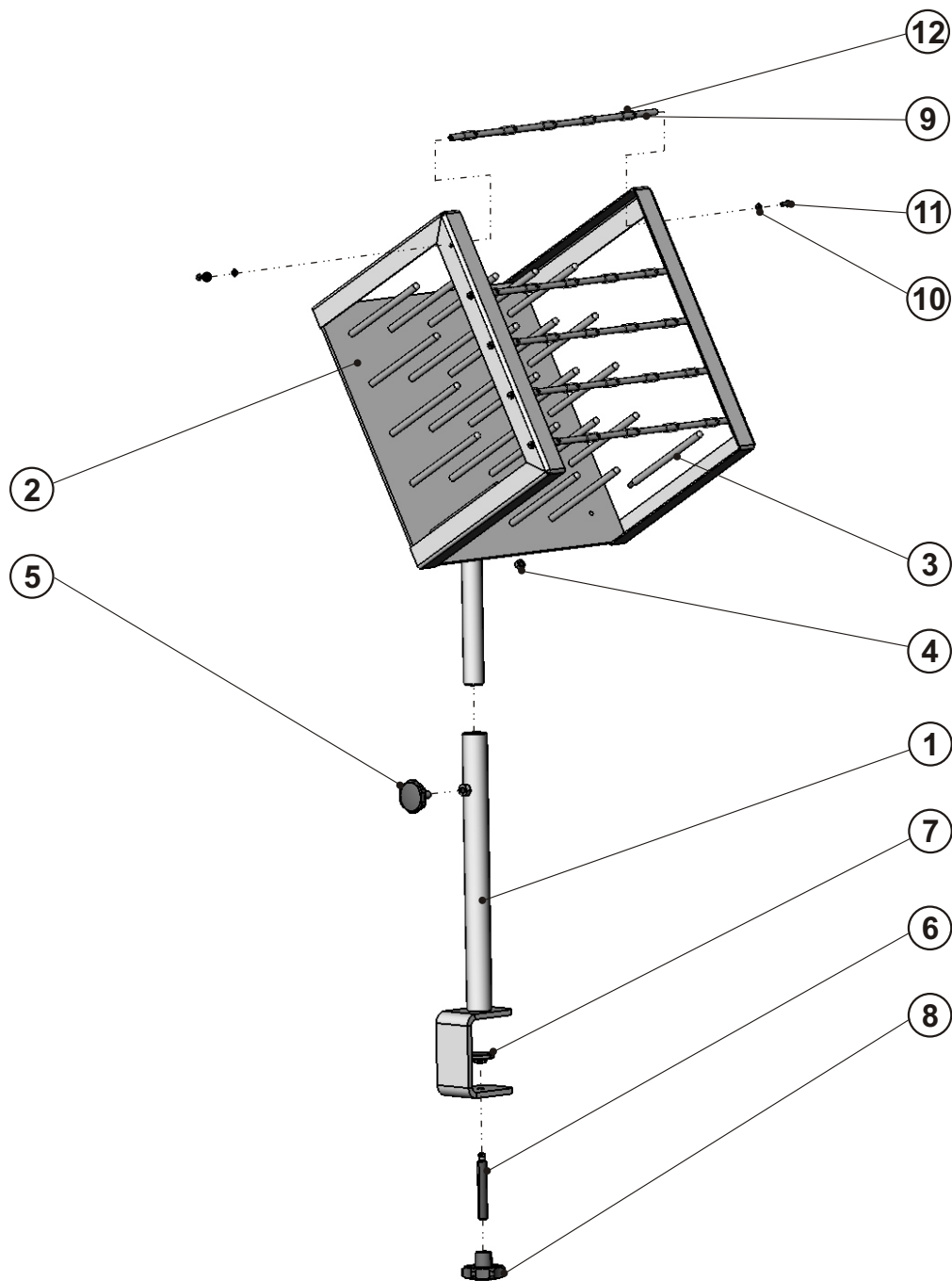
DET	PART NUMBER	DESCRIPTION	QTY.
01	04.9071.0.902	TABLE TOP ASSEMBLY ●●●	1
02	04.9071.0.903	TABLE ●●●	1
03	71.1261.3.035	PLATE	1
04	71.1570.0.033	COVER - HEAD - ASSEMBLY	1
05	71.1570.0.023	COVER - LOWER LOOPER	1
06	08.6646.3.016	SCREW 3-16	2
07	17.0095.1.272	RUBBER WASHER ●●●	8
08	17.0019.0.441	WASHER	4
09	08.6802.8.000	SPRING WASHER M8	4
10	08.6000.8.065	SCREW M8-65	4
11	08.6100.6.030	SCREW M6-30	3
12	71.1451.5.050	HOLDER	1
13	08.6000.4.010	SCREW M4-10	2
14	71.1570.0.037	RESERVOIR	1
15	71.1570.0.034	COVER	1
16	19.0014.6.412	DISTANCE NUT	1
17	08.6010.4.008	SCREW M4-8	3
18	08.6702.4.000	NUT M4	1
19	08.6832.4.000	WASHER M4	1
20	08.6646.4.050	SCREW 4x50	3
21	12.0008.6.901	BOX ●●●	1
22	71.1586.1.018	COVER	1
23	08.6000.4.006	SCREW M4-6	3
24	08.6850.4.000	WASHER M4	5

# COVERS HEAD ASSEMBLY





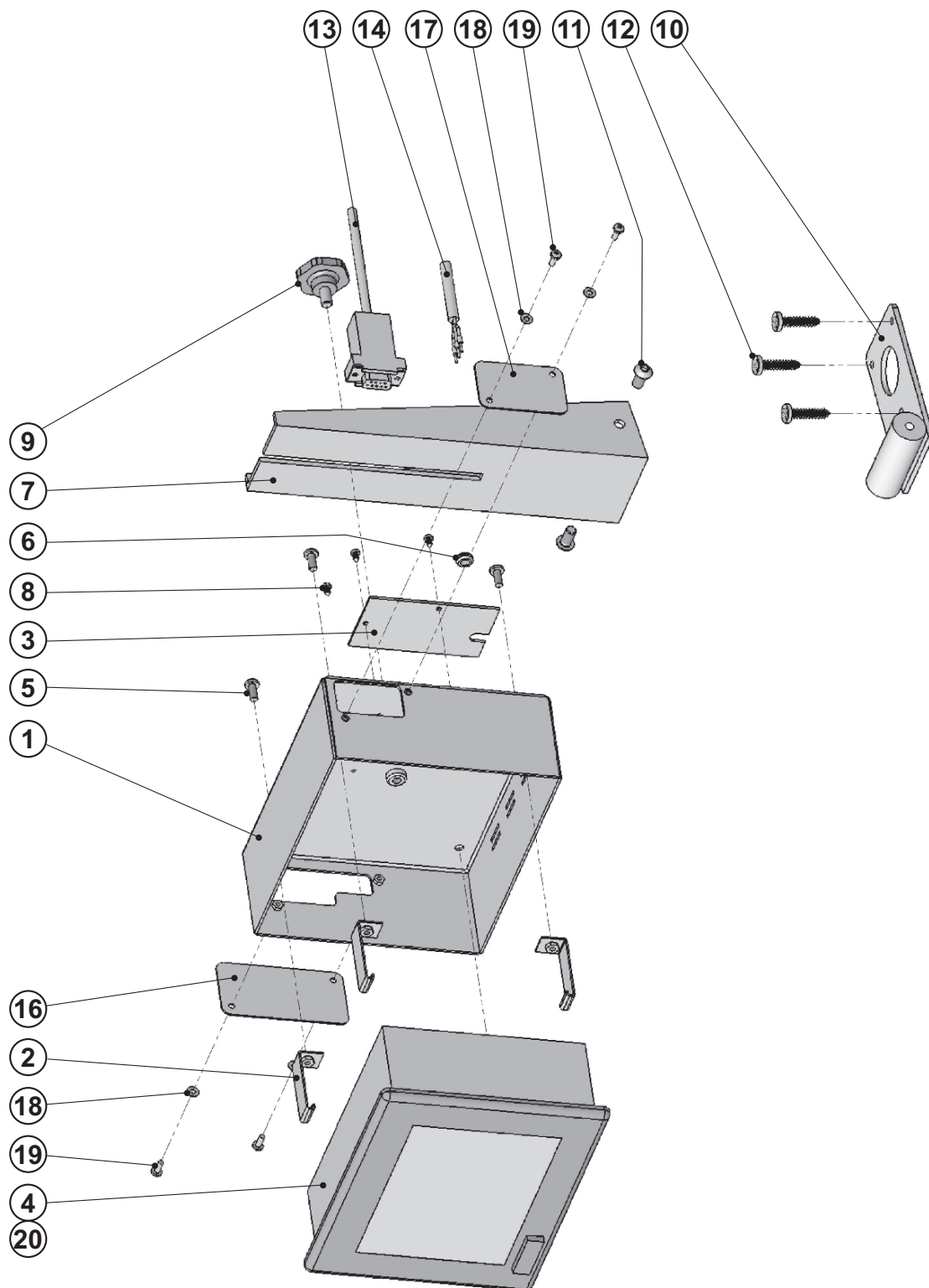
# STAND THREAD







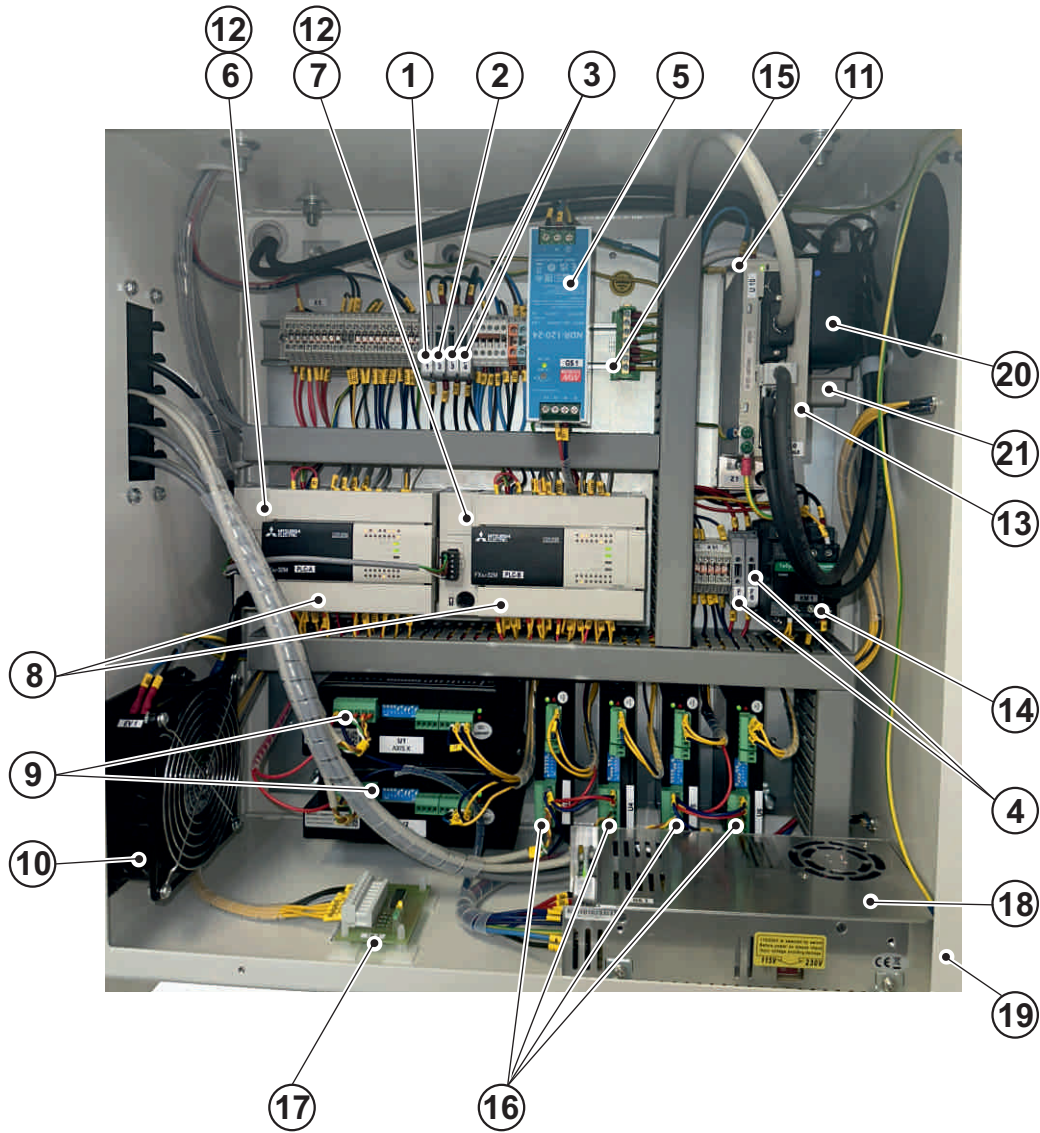
# PANEL KIT GOT 1000



**PANEL KIT GOT 1000**

DET	PART NUMBER	DESCRIPTION	QTY.
01	71.1451.7.080	PANEL COVER GOT 1000	1
02	71.1451.7.081	PANEL HOLDER GOT 1000	4
03	24.0161.0.000	COVER	1
04	12.0010.4.118	DISPLAY GT1155-QSBD	1
05	08.6032.4.010	SCREW M4-10	4
06	12.0008.4.581	BUSHING	1
07	19.0083.7.002	PANEL STAND	1
08	08.6662.3.006	SCREW	3
09	19.0014.7.003	SCREW-PANEL	1
10	19.0005.0.013	PANEL STAND BASE	1
11	08.6202.6.012	SCREW M6-12	2
12	08.6663.5.025	SCREW	3
13	12.0008.4.821	DISPLAY CABLE FX-50DU-CAB0-1M	1
14	06.7100.0.041	CABLE DISPLAY POWER	1
15	12.0008.4.140	SPIRAL HOSE	
16	71.1451.7.082	COVER	1
17	71.1451.7.083	COVER	1
18	08.6852.3.000	WASHER M3	4
19	08.6032.3.008	SCREW M3-8	4
20	12.0010.4.113	BATTERY DISPLAY	1

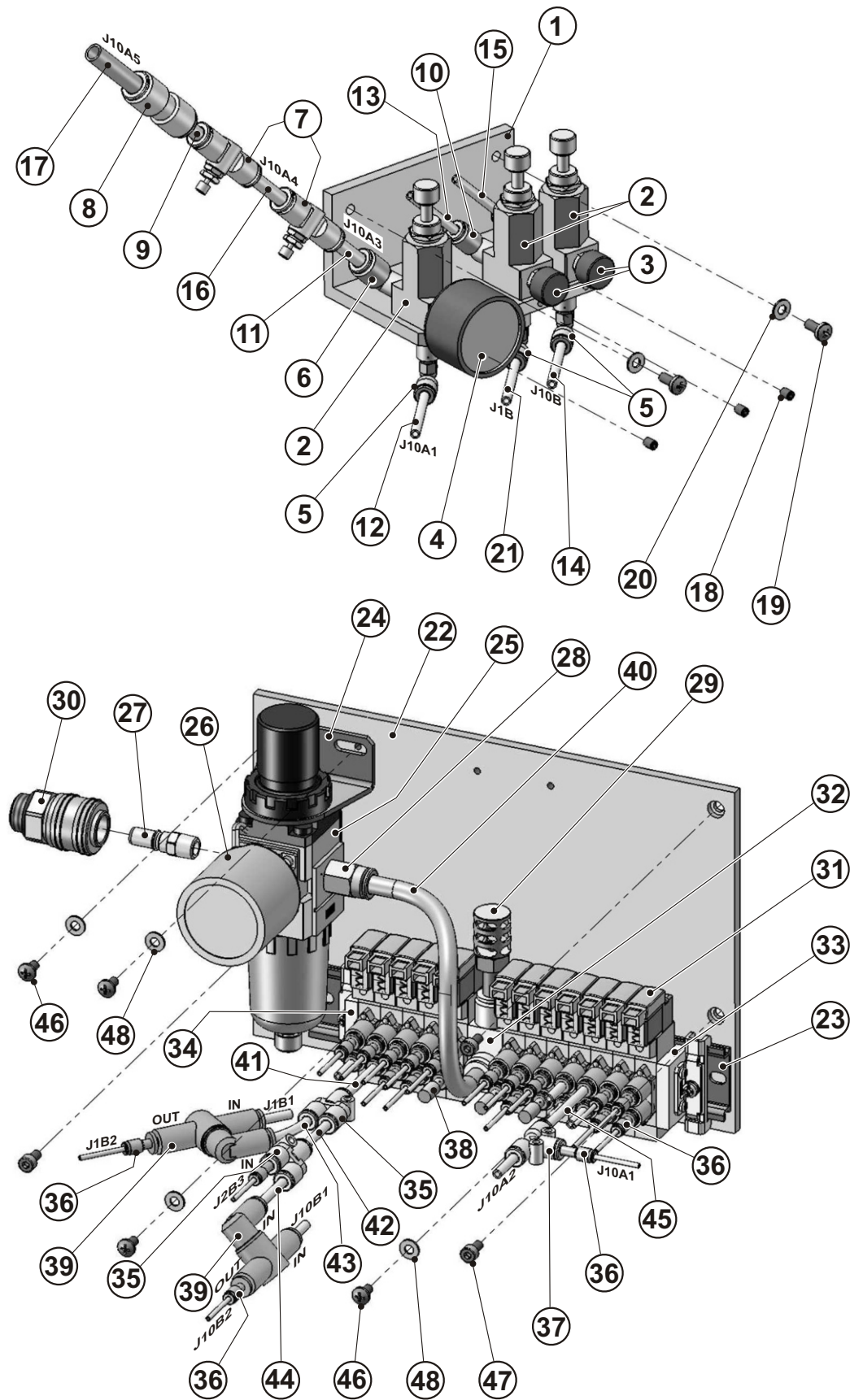
# ELECTROBOX



**ELECTROBOX**

DET	PART NUMBER	DESCRIPTION	QTY.
01	12.0008.4.063	FUSE F1	1
02	12.0008.4.109	T5 A FUSE F2	1
03	12.0008.4.664	T10 A FUSE F3, F4	2
04	12.0008.4.664	T10 A FUSE F5, F6	2
05	12.0010.4.511	POWER	1
06	71.8001.0.001	PCL-A 1	1
07	71.8001.0.002	PCL-B 1	1
08	12.0010.4.119	BLOCK RS 485	2
09	12.0010.4.505	DRIVER U1-U2	2
10	12.0008.4.682	FAN EV1 230V	1
11	12.0010.4.251	FILTER Z1	1
12	12.0010.4.164	BATTERY PLC	2
13	71.8001.0.005	SERVODRIVE U10	1
14	12.0008.4.833	CONTACTOR KM1	1
15	06.7100.0.045	BRIDGE PE	1
16	12.0010.4.500	DRIVER U3-U6	4
17	12.0010.4.136	PLATE TB2	1
18	12.0010.4.504	POWER	1
19	71.1565.0.001	CONTROL BOX	1
20	12.0010.4.520	SWITCHING POWER SUPPLY ADAPTER	1
21	12.0010.4.521	SOCKET	1

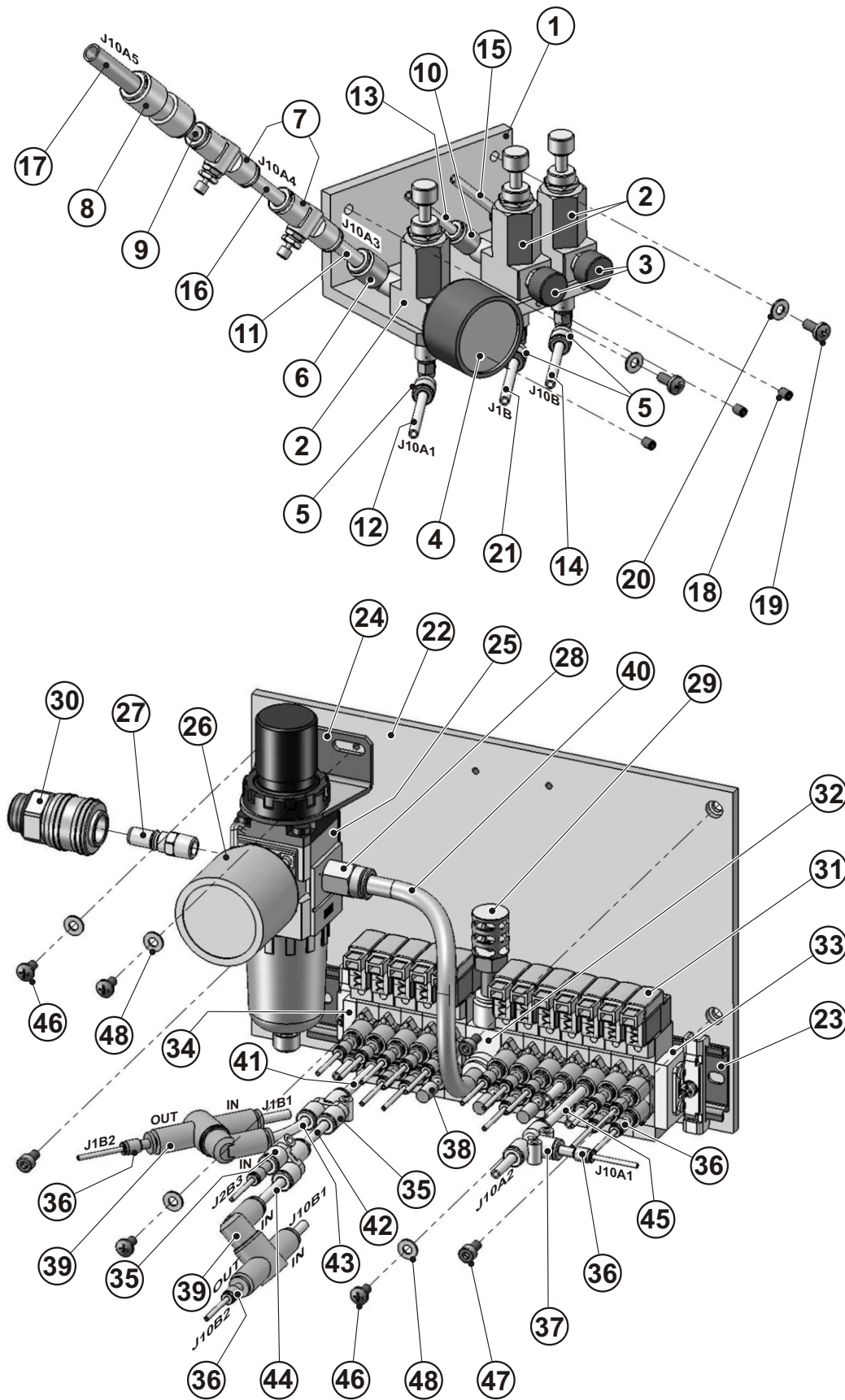
# KIT PNEU



**KIT PNEU**

DET	PART NUMBER	DESCRIPTION	QTY.
01	71.1570.0.039	HOLDER	1
02	12.0008.3.615	REGULATOR	3
03	12.0008.3.785	GAUGE	2
04	12.0008.3.435	GAUGE	1
05	12.0010.3.028	CONNECTOR	3
06	12.0010.3.172	CONNECTOR	1
07	12.0010.3.173	SPEED CONTROLLER	2
08	12.0010.3.174	CONNECTOR	1
09	12.0008.3.487	REDUCTION	1
10	12.0010.3.090	CONNECTOR	2
11	12.0008.3.415	AIR TUBING - J10A3	1
12	12.0008.3.416	AIR TUBING - J10A1	1
13	12.0008.3.416	AIR TUBING - J1B1	1
14	12.0008.3.416	AIR TUBING - J10B	1
15	12.0008.3.416	AIR TUBING - J10B1	1
16	12.0008.3.415	AIR TUBING - J10A4	1
17	12.0008.3.998	AIR TUBING - J10A5	1
18	08.6400.4.006	SCREW M4-6	3
19	08.6032.4.010	SCREW M4-10	2
20	08.6852.4.000	WASHER M4	2
21	12.0008.3.416	AIR TUBING - J1B	1
22	71.1570.0.040	PLATE	1
23	12.0010.3.002	DIN BAR	1
24	12.0010.3.137	HOLDER	1
25	12.0010.3.138	REGULATOR	1
26	12.0008.3.418	GAUGE	1
27	12.0008.3.420	CONNECTOR	1
28	12.0010.3.141	CONNECTOR	1
29	12.0010.3.030	SILENCER	1
30	12.0008.3.608	CONNECTOR	1
31	12.0008.3.482	VALVE	12
32	12.0008.3.479	BLOCK	1
33	12.0008.3.476	END PLATE	1
34	12.0008.3.478	END PLATE	1
35	12.0010.3.037	CONNECTOR	2
36	12.0010.3.170	CONNECTOR	19
37	12.0010.3.088	CONNECTOR	1
38	12.0008.3.426	PLUG	3
39	12.0008.3.899	LOGIC VALVE	2
40	12.0008.3.431	AIR TUBING - J0	1
41	12.0008.3.416	AIR TUBING - J2B	1
42	12.0008.3.416	AIR TUBING - J2B1	1
43	12.0008.3.416	AIR TUBING - J2B2	1
44	12.0008.3.416	AIR TUBING - J2B4	1
45	12.0008.3.416	AIR TUBING - J10A	1

# KIT PNEU

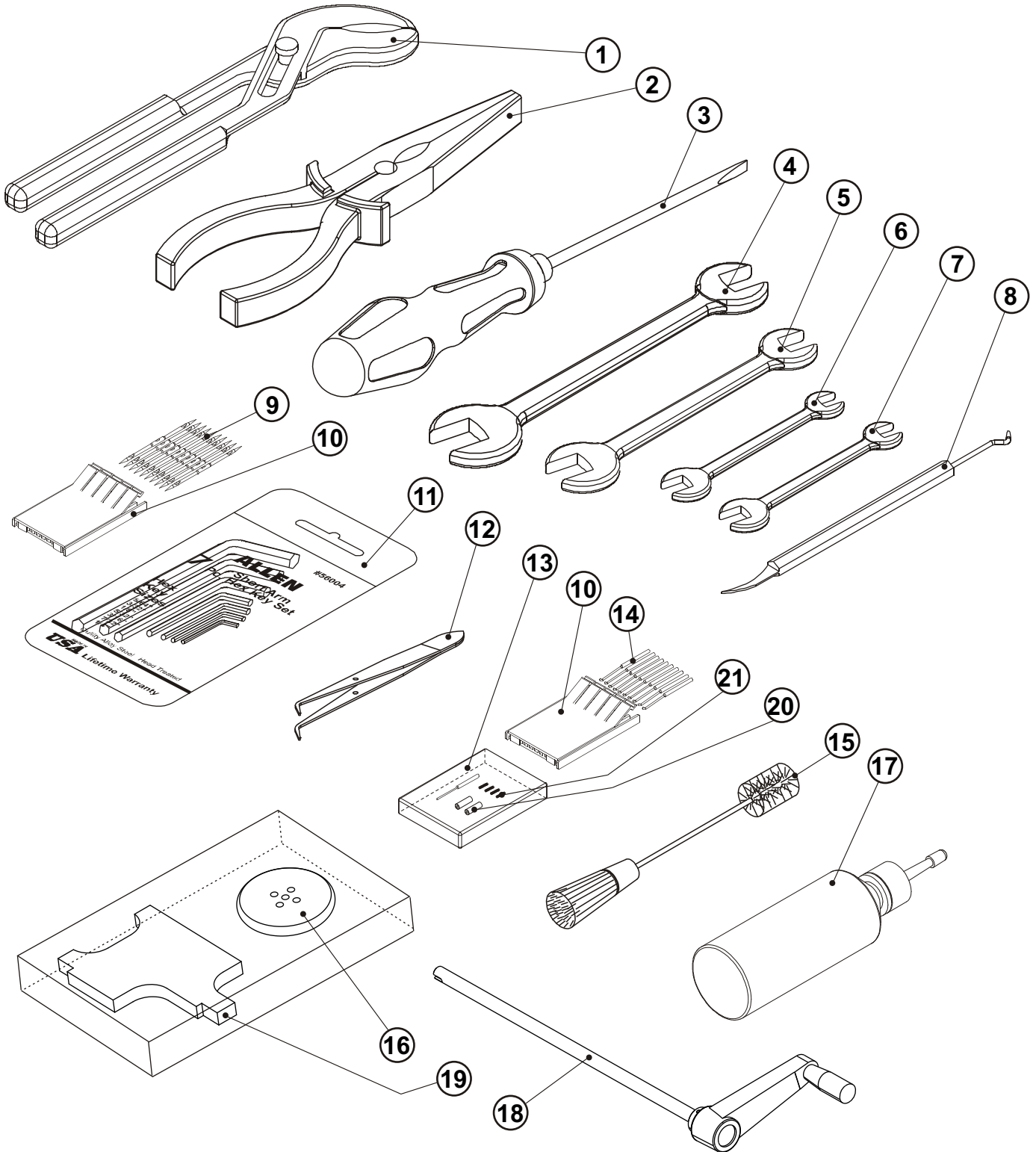




**KIT PNEU**

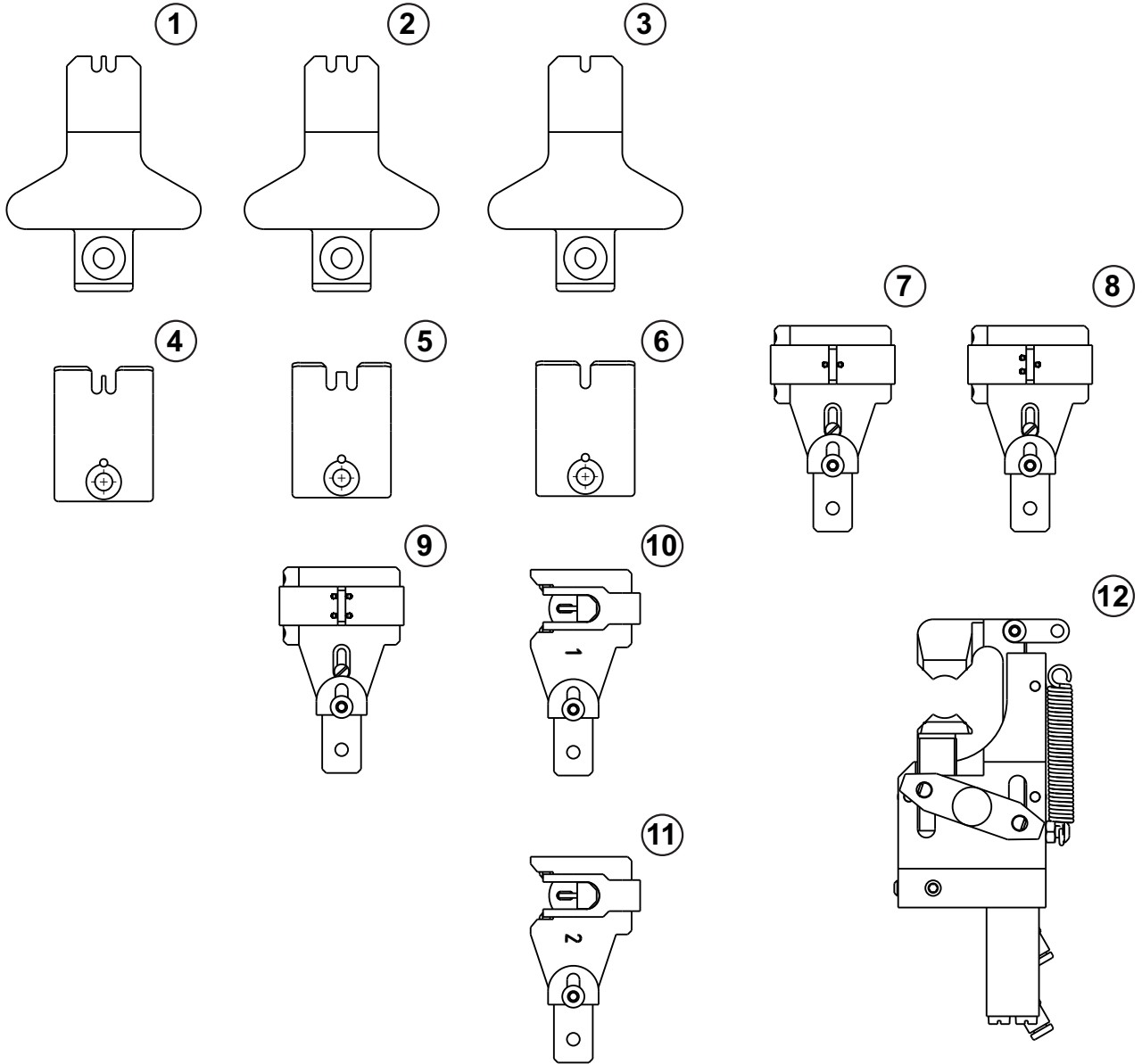
DET	PART NUMBER	DESCRIPTION	QTY.
46	08.6032.4.008	SCREW M4-8	4
47	08.6000.4.008	SCREW M4-8	3
48	08.6852.4.000	WASHER M4	4

# STANDARD ACCESSORIES - TOOLS



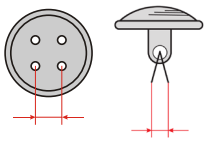
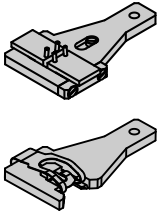
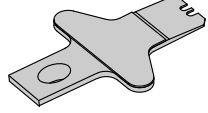
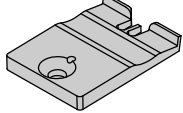
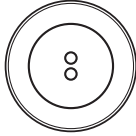
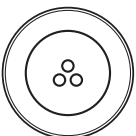
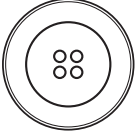

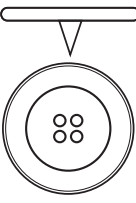


# STANDARD ACCESSORIES





## ACCESSORIES

Button Type	Hole/ Stitch Spacing (mm)	Button Holder		Tongue		Pucker Pin	
							
	3,0-6,0 mm	●	03.5571.0.015	●	03.5571.0.022	●	71.1453.8.030
	3,0-4,5 mm	●	03.5571.0.016	●	03.5571.0.020	●	71.1453.8.032
	4,5-6,0 mm	○	03.5571.0.018	●	03.5571.0.021	●	71.1453.8.031
	2,6-3,3 mm	○	03.5571.0.024	●	03.5571.0.020	●	71.1453.8.032
	3,0-4,5 mm	○	03.5571.0.013	●	03.5571.0.020	●	71.1453.8.032
	4,5-6,0 mm	●	03.5571.0.014	●	03.5571.0.021	●	71.1453.8.031
	0 mm			●	03.5571.0.022	●	71.1453.8.030
	3,0-4,5 mm	●	03.5571.0.017	●	03.5571.0.020	●	71.1453.8.032
	4,5-6,0 mm			●	03.5571.0.021	●	71.1453.8.031
	3,0-4,5 mm	✓	03.5571.0.013	✓	03.5571.0.023	✓	71.1453.8.033

✓	FACTORY SET UP
●	STANDARD ACCESSORY
○	OPTIONAL ACCESSORY

**INDEX**

PART NUMBER	PAGE	DET	QTY	PART NUMBER	PAGE	DET	QTY	PART NUMBER	PAGE	DET	QTY
00200038	3-19	22	1	03.5571.0.016	3-73	8	1	08.6000.0.025	3-3	13	4
00200038	3-71	9	10	03.5571.0.016	3-74	0	0	08.6000.0.030	3-3	28	4
22965006	3-19	6	4	03.5571.0.017	3-74	0	0	08.6000.3.005	3-15	17	(1)
24971069	3-5	6	1	03.5571.0.017	3-73	10	1	08.6000.3.005	3-33	30	10
24971495	3-13	20	1	03.5571.0.018	3-74	0	0	08.6000.3.005	3-51	23	4
24973041	3-15	11	(1)	03.5571.0.020	3-74	0	0	08.6000.3.008	3-21	30	2
26913004	3-71	2	1	03.5571.0.020	3-73	1	1	08.6000.3.008	3-33	11	11
31111009	3-19	7	2	03.5571.0.020	3-74	0	0	08.6000.3.010	3-33	12	6
31264001	3-19	16	2	03.5571.0.020	3-74	0	0	08.6000.3.010	3-39	51	1
31412001	3-19	14	2	03.5571.0.020	3-74	0	0	08.6000.3.012	3-15	14	(2)
31413002	3-11	7	2	03.5571.0.021	3-73	2	1	08.6000.3.012	3-29	13	2
31566008	3-19	5	2	03.5571.0.021	3-74	0	0	08.6000.3.014	3-33	13	4
31593007	3-19	15	2	03.5571.0.021	3-74	0	0	08.6000.3.018	3-35	12	2
31674025	3-19	11	2	03.5571.0.021	3-74	0	0	08.6000.3.030	3-49	6	1
31697002	3-19	18	1	03.5571.0.022	3-74	0	0	08.6000.4.006	3-57	23	3
31697003	3-19	3	1	03.5571.0.022	3-73	3	1	08.6000.4.008	3-3	25	10
31815017	3-11	8	2	03.5571.0.022	3-74	0	0	08.6000.4.008	3-13	5	2
35131002	3-19	17	2	03.5571.0.023	3-35	7	1	08.6000.4.008	3-31	12	2
35511071	3-19	4	2	03.5571.0.023	3-74	0	0	08.6000.4.008	3-55	4	1
36341035	3-11	6	2	03.5571.0.024	3-74	0	0	08.6000.4.008	3-69	47	3
36523021	3-19	1	2	03.5571.0.025	3-73	11	1	08.6000.4.010	3-13	22	4
36523022	3-19	2	2	04.9071.0.000	3-3	7	1	08.6000.4.010	3-31	7	6
36531010	3-19	9	2	04.9071.0.902	3-57	1	1	08.6000.4.010	3-53	7	2
36531010	3-71	21	4	04.9071.0.903	3-57	2	1	08.6000.4.010	3-57	13	2
36532021	3-19	12	2	05.0043.1.000	3-41	1	1	08.6000.4.012	3-51	7	2
36532022	3-19	10	2	05.0090.1.000	3-71	17	1	08.6000.4.016	3-21	18	4
36771021	3-19	8	2	06.0120.0.000	3-37	27	1	08.6000.4.016	3-33	35	2
36771021	3-71	20	2	06.7100.0.016	3-13	29	1	08.6000.4.030	3-21	40	2
37771023	3-71	19	1	06.7100.0.023	3-33	27	1	08.6000.5.002	3-5	9	1
49910018	3-71	8	1	06.7100.0.024	3-25	23	1	08.6000.5.010	3-21	37	5
49910019	3-71	13	1	06.7100.0.029	3-9	43	1	08.6000.5.010	3-31	24	1
01.6551.0.000	3-37	26	10	06.7100.0.030	3-25	22	2	08.6000.5.012	3-3	15	2
01.6582.0.000	3-47	1	3	06.7100.0.031	3-33	28	1	08.6000.5.012	3-23	51	4
01.7447.0.001	3-45	6	(20)	06.7100.0.032	3-33	29	1	08.6000.5.020	3-23	52	2
01.7447.0.001	3-47	2	3	06.7100.0.041	3-63	14	1	08.6000.5.020	3-31	21	2
01.7447.0.001	3-49	5	10	06.7100.0.045	3-65	15	1	08.6000.5.020	3-51	31	6
01.7447.1.000	3-37	25	10	06.7100.0.050	3-35	11	1	08.6000.5.030	3-21	44	2
03.0018.0.000	3-71	4	1	06.7100.0.054	3-55	1	1	08.6000.5.030	3-51	30	2
03.5571.0.005	3-73	12	1	06.7100.1.011	3-13	28	1	08.6000.6.025	3-13	7	2
03.5571.0.013	3-74	0	0	06.7100.1.012	3-33	25	1	08.6000.8.012	3-21	21	4
03.5571.0.013	3-74	0	0	06.7100.1.014	3-33	42	1	08.6000.8.020	3-17	8	11
03.5571.0.014	3-73	9	1	06.7100.2.010	3-51	28	2	08.6000.8.020	3-51	4	2
03.5571.0.014	3-74	0	0	06.7100.2.013	3-31	2	1	08.6000.8.030	3-21	23	4
03.5571.0.015	3-73	7	1	07.6321.0.001	3-21	39	1	08.6000.8.050	3-3	22	4
03.5571.0.015	3-74	0	0	07.6321.0.020	3-21	35	1	08.6000.8.065	3-3	20	4

## INDEX

PART NUMBER	PAGE	DET	QTY	PART NUMBER	PAGE	DET	QTY	PART NUMBER	PAGE	DET	QTY
08.6000.8.065	3-57	10	4	08.6200.3.006	3-15	10	(4)	08.6400.6.006	3-51	16	3
08.6002.3.005	3-37	38	4	08.6200.3.006	3-33	14	7	08.6400.6.008	3-51	14	2
08.6002.3.008	3-37	39	4	08.6200.3.006	3-35	14	2	08.6420.3.005	3-15	9	(2)
08.6002.4.010	3-37	40	4	08.6200.3.008	3-15	21	(1)	08.6420.4.010	3-19	20	2
08.6002.4.012	3-55	7	2	08.6200.3.008	3-33	15	1	08.6420.4.012	3-19	21	2
08.6002.4.020	3-7	35	2	08.6200.5.010	3-29	12	1	08.6432.0.200	3-17	6	1
08.6002.5.012	3-7	21	2	08.6202.3.006	3-37	41	8	08.6490.8.060	3-61	6	1
08.6002.5.016	3-13	14	4	08.6202.3.008	3-37	35	8	08.6646.3.016	3-57	6	2
08.6002.5.022	3-25	10	1	08.6202.3.020	3-37	34	4	08.6646.4.050	3-57	20	3
08.6002.5.025	3-7	30	2	08.6202.4.005	3-41	3	4	08.6662.3.006	3-63	8	3
08.6002.6.016	3-25	09	2	08.6202.4.008	3-7	25	3	08.6663.5.025	3-63	12	3
08.6010.4.008	3-57	17	3	08.6202.4.008	3-41	4	3	08.6700.3.000	3-49	7	2
08.6012.2.003	3-31	16	1	08.6202.4.010	3-25	30	4	08.6700.4.000	3-25	42	1
08.6012.3.008	3-61	11	10	08.6202.4.010	3-37	28	6	08.6700.4.000	3-35	18	1
08.6017.8.016	3-17	17	1	08.6202.4.010	3-37	36	14	08.6700.5.000	3-13	27	2
08.6032.3.008	3-63	19	4	08.6202.4.010	3-41	5	4	08.6700.5.000	3-51	21	2
08.6032.3.035	3-15	16	(2)	08.6202.4.010	3-45	8	(8)	08.6702.3.000	3-15	20	(1)
08.6032.4.008	3-69	46	4	08.6202.4.010	3-47	4	8	08.6702.3.000	3-37	32	2
08.6032.4.010	3-63	5	4	08.6202.4.016	3-37	33	9	08.6702.4.000	3-7	19	1
08.6032.4.010	3-67	19	2	08.6202.5.008	3-7	26	4	08.6702.4.000	3-41	6	4
08.6050.5.010	3-25	19	2	08.6202.5.016	3-59	9	2	08.6702.4.000	3-45	10	(1)
08.6100.3.008	3-13	23	1	08.6202.5.025	3-59	10	2	08.6702.4.000	3-47	5	1
08.6100.3.008	3-25	24	1	08.6202.6.012	3-25	07	4	08.6702.4.000	3-57	18	1
08.6100.4.008	3-13	6	2	08.6202.6.012	3-63	11	2	08.6702.4.000	3-61	4	25
08.6100.4.008	3-25	20	1	08.6310.4.006	3-31	6	1	08.6702.5.000	3-5	4	1
08.6100.4.008	3-31	8	2	08.6400.3.005	3-15	8	(1)	08.6702.6.000	3-13	18	2
08.6100.4.010	3-43	4	2	08.6400.4.004	3-5	5	2	08.6702.8.000	3-3	21	8
08.6100.4.010	3-45	9	(4)	08.6400.4.004	3-25	31	1	08.6710.4.000	3-25	34	3
08.6100.4.010	3-47	3	4	08.6400.4.004	3-35	15	2	08.6710.4.000	3-43	6	1
08.6100.4.010	3-51	19	8	08.6400.4.004	3-37	37	6	08.6710.5.000	3-19	23	2
08.6100.4.010	3-59	12	2	08.6400.4.004	3-51	8	8	08.6712.4.000	3-7	36	1
08.6100.4.020	3-33	37	2	08.6400.4.005	3-7	20	3	08.6712.4.000	3-19	19	4
08.6100.5.008	3-11	4	4	08.6400.4.005	3-13	9	1	08.6712.4.000	3-33	19	2
08.6100.5.010	3-51	10	2	08.6400.4.005	3-15	15	(2)	08.6712.9.000	3-3	12	4
08.6100.6.030	3-57	11	3	08.6400.4.006	3-17	14	4	08.6722.6.000	3-13	15	1
08.6102.2.008	3-31	17	2	08.6400.4.006	3-29	14	1	08.6800.4.000	3-13	21	4
08.6102.2.008	3-53	10	2	08.6400.4.006	3-33	16	1	08.6800.4.000	3-31	9	8
08.6102.3.008	3-7	17	11	08.6400.4.006	3-67	18	3	08.6800.5.000	3-31	10	2
08.6102.4.010	3-37	30	4	08.6400.4.008	3-25	32	1	08.6800.5.000	3-51	29	8
08.6102.4.010	3-41	2	2	08.6400.4.018	3-33	17	2	08.6800.6.000	3-13	25	2
08.6102.4.012	3-7	23	2	08.6400.4.018	3-35	17	1	08.6800.8.000	3-3	19	8
08.6102.5.008	3-25	33	1	08.6400.4.040	3-43	5	1	08.6802.0.000	3-3	27	4
08.6102.5.016	3-25	41	2	08.6400.5.005	3-33	18	2	08.6802.3.000	3-21	28	2
08.6112.4.055	3-21	22	4	08.6400.5.005	3-51	13	1	08.6802.3.000	3-61	10	10
08.6200.3.004	3-31	23	1	08.6400.6.006	3-17	9	4	08.6802.4.000	3-3	24	10



**INDEX**

PART NUMBER	PAGE	DET	QTY	PART NUMBER	PAGE	DET	QTY	PART NUMBER	PAGE	DET	QTY
08.6802.4.000	3-21	20	6	12.0008.3.416	3-53	17	1	12.0008.3.749	3-39	47	1
08.6802.4.000	3-41	7	3	12.0008.3.416	3-53	18	1	12.0008.3.749	3-39	48	1
08.6802.4.000	3-53	8	2	12.0008.3.416	3-67	12	1	12.0008.3.749	3-45	14	(1)
08.6802.4.000	3-55	3	1	12.0008.3.416	3-67	13	1	12.0008.3.749	3-45	15	(1)
08.6802.5.000	3-13	13	4	12.0008.3.416	3-67	14	1	12.0008.3.765	3-5	8	1
08.6802.5.000	3-21	36	6	12.0008.3.416	3-67	15	1	12.0008.3.785	3-67	3	2
08.6802.5.000	3-29	11	1	12.0008.3.416	3-67	21	1	12.0008.3.806	3-9	41	1
08.6802.8.000	3-17	16	4	12.0008.3.416	3-67	41	1	12.0008.3.806	3-25	12	1
08.6802.8.000	3-57	9	4	12.0008.3.416	3-67	42	1	12.0008.3.808	3-25	13	1
08.6832.4.000	3-57	19	1	12.0008.3.416	3-67	43	1	12.0008.3.809	3-41	10	1
08.6842.6.000	3-13	33	2	12.0008.3.416	3-67	44	1	12.0008.3.815	3-9	42	4
08.6850.3.000	3-35	16	4	12.0008.3.416	3-67	45	1	12.0008.3.826	3-15	18	(2)
08.6850.3.000	3-49	8	2	12.0008.3.418	3-67	26	1	12.0008.3.826	3-35	9	2
08.6850.3.000	3-51	24	4	12.0008.3.420	3-67	27	1	12.0008.3.862	3-53	13	1
08.6850.4.000	3-13	31	4	12.0008.3.426	3-67	38	3	12.0008.3.876	3-53	16	1
08.6850.4.000	3-31	5	5	12.0008.3.431	3-67	40	1	12.0008.3.881	3-33	21	1
08.6850.4.000	3-33	36	2	12.0008.3.435	3-67	4	1	12.0008.3.899	3-67	39	2
08.6850.4.000	3-57	24	5	12.0008.3.476	3-67	33	1	12.0008.3.998	3-39	49	1
08.6850.5.000	3-25	43	2	12.0008.3.478	3-67	34	1	12.0008.3.998	3-41	11	1
08.6850.5.000	3-51	17	11	12.0008.3.479	3-67	32	1	12.0008.3.998	3-67	17	1
08.6850.6.000	3-13	32	2	12.0008.3.482	3-35	10	1	12.0008.4.063	3-65	1	1
08.6850.8.000	3-23	47	1	12.0008.3.482	3-67	31	12	12.0008.4.109	3-65	2	1
08.6852.0.000	3-3	26	8	12.0008.3.487	3-67	9	1	12.0008.4.140	3-63	15	0
08.6852.3.000	3-37	31	6	12.0008.3.608	3-67	30	1	12.0008.4.581	3-63	6	1
08.6852.3.000	3-63	18	4	12.0008.3.609	3-7	31	1	12.0008.4.664	3-65	3	2
08.6852.4.000	3-23	46	4	12.0008.3.615	3-67	2	3	12.0008.4.664	3-65	4	2
08.6852.4.000	3-37	29	17	12.0008.3.631	3-15	12	(1)	12.0008.4.682	3-65	10	1
08.6852.4.000	3-41	8	7	12.0008.3.631	3-37	43	1	12.0008.4.737	3-59	13	2
08.6852.4.000	3-45	11	(10)	12.0008.3.700	3-13	11	1	12.0008.4.777	3-41	12	1
08.6852.4.000	3-47	6	10	12.0008.3.738	3-33	20	1	12.0008.4.777	3-51	32	1
08.6852.4.000	3-53	9	2	12.0008.3.749	3-5	10	1	12.0008.4.821	3-63	13	1
08.6852.4.000	3-55	2	3	12.0008.3.749	3-9	46	1	12.0008.4.833	3-65	14	1
08.6852.4.000	3-67	20	2	12.0008.3.749	3-9	47	1	12.0008.6.005	3-71	3	1
08.6852.4.000	3-69	48	4	12.0008.3.749	3-9	48	1	12.0008.6.108	3-71	5	1
08.6852.5.000	3-13	26	4	12.0008.3.749	3-9	49	1	12.0008.6.109	3-71	6	1
08.6852.5.000	3-21	45	2	12.0008.3.749	3-15	22	(1)	12.0008.6.111	3-71	7	1
08.6852.5.000	3-29	10	1	12.0008.3.749	3-15	23	(1)	12.0008.6.119	3-71	1	1
08.6852.5.000	3-59	11	4	12.0008.3.749	3-25	45	1	12.0008.6.215	3-71	12	1
08.6852.8.000	3-3	23	4	12.0008.3.749	3-27	46	1	12.0008.6.228	3-7	18	1
08.6852.8.000	3-21	19	4	12.0008.3.749	3-29	19	1	12.0008.6.229	3-61	7	1
12.0008.3.410	3-29	7	1	12.0008.3.749	3-29	20	1	12.0008.6.520	3-3	9	4
12.0008.3.413	3-41	9	1	12.0008.3.749	3-33	38	1	12.0008.6.523	3-3	10	4
12.0008.3.415	3-53	19	1	12.0008.3.749	3-33	39	1	12.0008.6.524	3-3	11	4
12.0008.3.415	3-67	11	1	12.0008.3.749	3-35	19	1	12.0008.6.817	3-45	7	(20)
12.0008.3.415	3-67	16	1	12.0008.3.749	3-35	20	1	12.0008.6.817	3-49	9	10

## INDEX

PART NUMBER	PAGE	DET	QTY	PART NUMBER	PAGE	DET	QTY	PART NUMBER	PAGE	DET	QTY
12.0008.6.901	3-57	21	1	12.0010.4.511	3-65	5	1	17.0026.0.219	3-31	20	2
12.0008.6.968	3-71	10	2	12.0010.4.517	3-55	6	1	17.0027.4.085	3-21	33	2
12.0008.6.975	3-71	15	1	12.0010.4.518	3-55	5	1	17.0043.6.351	3-21	25	2
12.0008.6.993	3-61	8	1	12.0010.4.519	3-55	8	1	17.0043.6.351	3-25	08	5
12.0010.3.002	3-67	23	1	12.0010.4.520	3-55	9	1	17.0045.1.062	3-17	10	2
12.0010.3.005	3-7	32	1	12.0010.4.520	3-65	20	1	17.0082.8.082	3-41	20	1
12.0010.3.007	3-27	48	2	12.0010.4.521	3-65	21	1	17.0095.1.272	3-3	18	12
12.0010.3.008	3-27	47	2	12.1010.0.004	3-3	14	2	17.0095.1.272	3-57	7	8
12.0010.3.012	3-45	12	(1)	12.1010.0.316	3-53	12	1	17.0095.1.273	3-3	8	4
12.0010.3.012	3-47	7	1	12.1010.0.820	3-3	16	2	19.0005.0.013	3-63	10	1
12.0010.3.028	3-67	5	3	12.1010.2.003	3-41	13	1	19.0014.6.412	3-57	16	1
12.0010.3.030	3-67	29	1	12.1010.2.019	3-13	8	1	19.0014.7.003	3-61	5	1
12.0010.3.037	3-67	35	2	12.1010.2.020	3-7	22	1	19.0014.7.003	3-63	9	1
12.0010.3.064	3-5	7	1	12.1014.0.510	3-25	06	4	19.0016.3.406	3-25	40	1
12.0010.3.064	3-29	8	2	12.1016.0.002	3-9	45	2	19.0082.3.433	3-3	17	3
12.0010.3.064	3-33	22	2	12.1045.0.003	3-7	28	1	19.0083.7.002	3-63	7	1
12.0010.3.064	3-37	44	2	12.1045.0.003	3-37	45	1	22.0182.0.000	3-7	29	1
12.0010.3.088	3-67	37	1	12.1045.0.004	3-7	27	1	24.0120.0.000	3-41	21	1
12.0010.3.090	3-67	10	2	12.1045.0.004	3-25	14	1	24.0161.0.000	3-63	3	1
12.0010.3.119	3-53	14	2	12.1045.0.004	3-29	4	1	24.2076.0.000	3-29	16	1
12.0010.3.137	3-67	24	1	12.2070.1.004	3-37	42	4	70.3721.3.002	3-7	16	1
12.0010.3.138	3-67	25	1	12.2070.1.017	3-39	50	2	70.3721.3.002	3-71	14	10
12.0010.3.141	3-67	28	1	12.2080.0.012	3-23	50	2	71.1001.4.460	3-25	21	1
12.0010.3.169	3-25	15	2	12.2099.2.000	3-17	7	2	71.1001.4.461	3-29	18	1
12.0010.3.169	3-45	13	(2)	12.3010.0.009	3-7	38	1	71.1121.1.011	3-15	7	(1)
12.0010.3.169	3-47	8	2	12.3010.0.009	3-43	7	1	71.1129.1.026	3-25	5	1
12.0010.3.170	3-67	36	19	12.3010.0.018	3-39	46	2	71.1129.1.029	3-13	17	1
12.0010.3.171	3-53	15	1	12.3010.0.019	3-53	11	1	71.1135.2.006	3-13	12	1
12.0010.3.172	3-67	6	1	12.4030.0.001	3-21	8	1	71.1142.2.047	3-51	12	1
12.0010.3.173	3-67	7	2	12.4030.0.412	3-21	5	2	71.1143.1.086	3-71	16	1
12.0010.3.174	3-67	8	1	12.5050.2.015	3-21	16	1	71.1151.1.054	3-61	3	25
12.0010.4.025	3-11	11	1	12.5050.2.016	3-21	15	1	71.1151.1.055	3-53	5	1
12.0010.4.093	3-21	31	1	12.5050.2.017	3-21	14	1	71.1159.3.013	3-13	19	1
12.0010.4.093	3-31	19	1	12.8000.1.034	3-9	44	1	71.1161.1.071	3-29	5	2
12.0010.4.093	3-51	27	2	12.9900.3.001	3-41	14	1	71.1161.1.072	3-29	6	1
12.0010.4.113	3-63	20	1	12.9900.3.002	3-41	15	1	71.1164.1.041	3-15	6	(1)
12.0010.4.118	3-63	4	1	12.9900.9.001	3-41	16	1	71.1164.2.016	3-29	2	1
12.0010.4.119	3-65	8	2	12.9900.9.002	3-41	17	1	71.1169.5.011	3-19	13	2
12.0010.4.136	3-65	17	1	12.9900.9.003	3-41	18	1	71.1169.6.006	3-25	17	1
12.0010.4.164	3-65	12	2	15.1128.0.050	3-21	42	1	71.1171.4.017	3-31	13	2
12.0010.4.177	3-21	1	1	15.1321.0.400	3-41	19	2	71.1172.3.007	3-17	3	2
12.0010.4.251	3-65	11	1	17.0017.2.041	3-7	37	1	71.1172.8.011	3-21	3	1
12.0010.4.500	3-65	16	4	17.0017.2.041	3-43	8	1	71.1172.8.012	3-23	53	1
12.0010.4.504	3-65	18	1	17.0019.0.441	3-3	29	8	71.1173.7.040	3-21	4	1
12.0010.4.505	3-65	9	2	17.0019.0.441	3-57	8	4	71.1174.1.012	3-7	14	1

**INDEX**

PART NUMBER	PAGE	DET	QTY	PART NUMBER	PAGE	DET	QTY	PART NUMBER	PAGE	DET	QTY
71.1174.1.015	3-7	13	1	71.1313.2.211	3-21	24	1	71.1453.8.032	3-73	4	1
71.1174.3.004	3-11	5	2	71.1319.2.002	3-71	18	1	71.1453.8.033	3-35	8	1
71.1175.4.011	3-15	19	(1)	71.1321.1.038	3-5	1	1	71.1453.8.033	3-74	0	0
71.1177.2.035	3-17	13	2	71.1325.1.016	3-51	5	1	71.1458.7.002	3-61	1	1
71.1178.4.003	3-21	12	1	71.1325.1.076	3-31	14	1	71.1458.7.003	3-61	2	1
71.1178.4.004	3-21	38	1	71.1325.1.077	3-31	15	1	71.1463.5.017	3-11	2	2
71.1178.4.006	3-21	13	1	71.1325.1.078	3-31	18	1	71.1488.1.006	3-7	39	1
71.1178.4.007	3-21	17	1	71.1325.1.082	3-31	22	1	71.1515.1.043	3-11	9	2
71.1178.4.008	3-21	34	1	71.1325.2.045	3-11	1	2	71.1546.1.030	3-41	22	1
71.1178.4.010	3-21	32	1	71.1325.2.056	3-13	1	1	71.1546.1.031	3-41	23	1
71.1179.3.001	3-21	11	2	71.1325.5.045	3-51	22	1	71.1546.1.033	3-41	24	1
71.1182.3.002	3-51	15	1	71.1325.5.046	3-51	25	1	71.1546.1.103	3-37	3	1
71.1182.3.003	3-51	6	1	71.1325.5.047	3-21	26	1	71.1546.1.104	3-37	4	1
71.1184.6.001	3-21	10	1	71.1325.5.048	3-13	30	1	71.1546.1.107	3-37	5	1
71.1184.8.019	3-51	3	4	71.1325.5.049	3-33	7	1	71.1546.1.107	3-41	25	1
71.1187.2.018	3-31	4	1	71.1325.5.050	3-33	8	1	71.1546.1.108	3-37	6	5
71.1187.4.023	3-5	2	1	71.1325.5.051	3-33	9	1	71.1546.1.109	3-37	7	2
71.1195.5.015	3-7	12	1	71.1325.5.052	3-33	10	1	71.1546.1.111	3-37	8	1
71.1222.3.057	3-13	4	1	71.1325.5.053	3-11	10	1	71.1546.1.112	3-37	9	1
71.1222.6.011	3-51	1	1	71.1325.5.054	3-33	32	1	71.1546.1.113	3-37	10	1
71.1223.6.100	3-3	3	1	71.1325.5.056	3-35	6	1	71.1546.1.114	3-37	11	1
71.1223.6.101	3-3	4	1	71.1325.5.058	3-33	40	2	71.1546.1.115	3-37	12	1
71.1223.6.102	3-51	20	1	71.1325.5.059	3-33	41	2	71.1546.1.116	3-37	13	2
71.1223.6.103	3-21	27	1	71.1332.4.001	3-13	3	1	71.1546.1.118	3-37	14	1
71.1223.6.104	3-21	29	1	71.1344.1.002	3-17	11	1	71.1546.1.120	3-37	15	1
71.1223.6.105	3-21	43	1	71.1344.1.003	3-17	12	1	71.1546.1.121	3-37	16	1
71.1223.6.106	3-23	48	1	71.1345.5.006	3-29	3	1	71.1546.1.122	3-37	17	1
71.1223.6.107	3-23	49	1	71.1451.5.050	3-57	12	1	71.1546.1.123	3-37	18	1
71.1225.5.042	3-5	3	1	71.1451.5.097	3-13	10	1	71.1546.1.131	3-43	1	1
71.1225.5.042	3-29	9	1	71.1451.7.080	3-63	1	1	71.1546.1.132	3-43	2	1
71.1225.5.042	3-33	4	1	71.1451.7.081	3-63	2	4	71.1546.1.133	3-43	3	1
71.1237.2.075	3-33	1	1	71.1451.7.082	3-63	16	1	71.1546.1.143	3-45	2	(2)
71.1237.2.076	3-29	1	1	71.1451.7.083	3-63	17	1	71.1546.1.144	3-45	3	(1)
71.1237.2.078	3-35	4	1	71.1453.8.030	3-74	0	0	71.1546.1.145	3-45	4	(2)
71.1241.8.083	3-7	1	1	71.1453.8.030	3-74	0	0	71.1546.1.145	3-47	9	2
71.1241.8.084	3-7	33	1	71.1453.8.030	3-73	6	1	71.1546.1.146	3-45	5	(2)
71.1241.8.085	3-7	34	1	71.1453.8.031	3-74	0	0	71.1546.1.146	3-47	10	2
71.1242.8.036	3-7	2	1	71.1453.8.031	3-74	0	0	71.1546.1.148	3-45	1	(2)
71.1253.8.027	3-3	2	1	71.1453.8.031	3-74	0	0	71.1546.1.150	3-49	1	1
71.1261.3.035	3-57	3	1	71.1453.8.031	3-73	5	1	71.1546.1.151	3-49	2	1
71.1273.5.093	3-51	18	2	71.1453.8.032	3-25	18	1	71.1546.1.152	3-49	3	1
71.1273.9.139	3-7	9	1	71.1453.8.032	3-74	0	0	71.1546.1.153	3-49	4	1
71.1273.9.139	3-25	11	1	71.1453.8.032	3-74	0	0	71.1546.1.156	3-47	11	1
71.1276.6.056	3-51	9	1	71.1453.8.032	3-74	0	0	71.1546.1.157	3-47	12	2
71.1276.9.191	3-31	1	1	71.1453.8.032	3-74	0	0	71.1546.1.158	3-47	13	1

## INDEX

PART NUMBER	PAGE	DET	QTY	PART NUMBER	PAGE	DET	QTY	PART NUMBER	PAGE	DET	QTY
71.1546.1.160	3-37	1	1	71.1651.8.074	3-33	3	2	71.1669.1.014	3-17	2	2
71.1546.1.161	3-37	2	1	71.1651.8.076	3-33	31	1	71.1671.2.025	3-21	41	1
71.1546.1.163	3-37	21	2	71.1651.8.084	3-17	18	1	71.1677.0.005	3-13	16	2
71.1546.1.167	3-37	22	2	71.1651.8.088	3-35	3	1	71.1712.4.212	3-53	1	1
71.1546.1.168	3-37	23	2	71.1651.8.090	3-35	5	1	71.1721.1.111	3-29	17	1
71.1546.1.169	3-37	24	4	71.1651.8.091	3-35	2	1	71.1721.1.117	3-29	15	1
71.1552.1.048	3-17	1	2	71.1651.8.092	3-33	33	1	71.1721.1.134	3-13	24	1
71.1552.1.049	3-17	5	1	71.1651.8.093	3-35	13	1	71.1723.1.024	3-11	3	2
71.1552.1.070	3-17	15	1	71.1651.8.095	3-33	23	1	71.1784.1.040	3-53	6	1
71.1552.8.008	3-33	2	1	71.1651.8.096	3-33	24	1	71.1784.1.047	3-15	5	(1)
71.1552.8.011	3-35	1	1	71.1652.0.004	3-31	3	1	71.1784.1.048	3-15	4	(1)
71.1554.1.065	3-15	1	(1)	71.1652.0.006	3-31	11	1	71.6132.1.017	3-3	1	1
71.1557.4.044	3-7	4	1	71.1661.1.101	3-13	2	1	71.6432.0.002	3-15	24	1
71.1565.0.001	3-65	19	1	71.1661.1.104	3-53	2	1	71.6482.0.005	3-33	34	1
71.1565.3.031	3-3	5	1	71.1661.1.105	3-53	3	1	71.6546.1.130	3-37	19	1
71.1565.3.032	3-3	6	1	71.1661.1.106	3-53	4	1	71.6546.1.140	3-37	20	1
71.1570.0.020	3-41	26	1	71.1661.1.107	3-61	9	5	71.6546.1.140	3-45	16	1
71.1570.0.020	3-59	1	1	71.1661.1.108	3-61	12	25	71.6546.1.148	3-41	28	1
71.1570.0.023	3-57	5	1	71.1661.8.041	3-7	10	1	71.8001.0.001	3-65	6	1
71.1570.0.026	3-59	2	1	71.1661.8.044	3-7	40	1	71.8001.0.002	3-65	7	1
71.1570.0.027	3-59	3	1	71.1663.1.027	3-7	5	1	71.8001.0.005	3-65	13	1
71.1570.0.028	3-59	4	1	71.1663.1.029	3-7	6	1	84.0003.0.390	3-71	11	1
71.1570.0.029	3-59	5	1	71.1664.1.014	3-7	11	1				
71.1570.0.030	3-59	7	2	71.1664.1.017	3-7	15	1				
71.1570.0.031	3-59	6	2	71.1664.1.018	3-7	7	1				
71.1570.0.032	3-7	24	1	71.1664.1.079	3-25	04	1				
71.1570.0.033	3-57	4	1	71.1664.1.081	3-25	16	1				
71.1570.0.034	3-57	15	1	71.1664.1.085	3-25	26	1				
71.1570.0.037	3-57	14	1	71.1664.1.086	3-25	27	1				
71.1570.0.038	3-41	27	1	71.1664.1.087	3-25	28	1				
71.1570.0.038	3-59	8	1	71.1664.1.088	3-25	29	1				
71.1570.0.039	3-67	1	1	71.1664.1.090	3-25	25	1				
71.1570.0.040	3-67	22	1	71.1664.1.093	3-25	44	1				
71.1577.8.058	3-15	3	(1)	71.1664.1.201	3-25	01	1				
71.1586.1.017	3-7	8	1	71.1664.1.202	3-25	02	1				
71.1586.1.018	3-57	22	1	71.1665.1.017	3-25	35	1				
71.1587.6.007	3-7	3	1	71.1665.1.018	3-25	03	1				
71.1622.5.012	3-21	6	2	71.1665.1.019	3-25	36	1				
71.1622.5.025	3-21	7	1	71.1665.1.020	3-25	37	1				
71.1634.0.012	3-33	6	2	71.1665.1.021	3-25	38	1				
71.1634.1.146	3-21	2	1	71.1665.1.022	3-25	39	1				
71.1651.6.019	3-21	9	1	71.1666.1.026	3-15	2	(1)				
71.1651.8.030	3-17	4	2	71.1666.6.006	3-51	2	2				
71.1651.8.068	3-15	13	(1)	71.1666.6.007	3-51	11	1				
71.1651.8.070	3-33	5	1	71.1666.6.008	3-51	26	1				