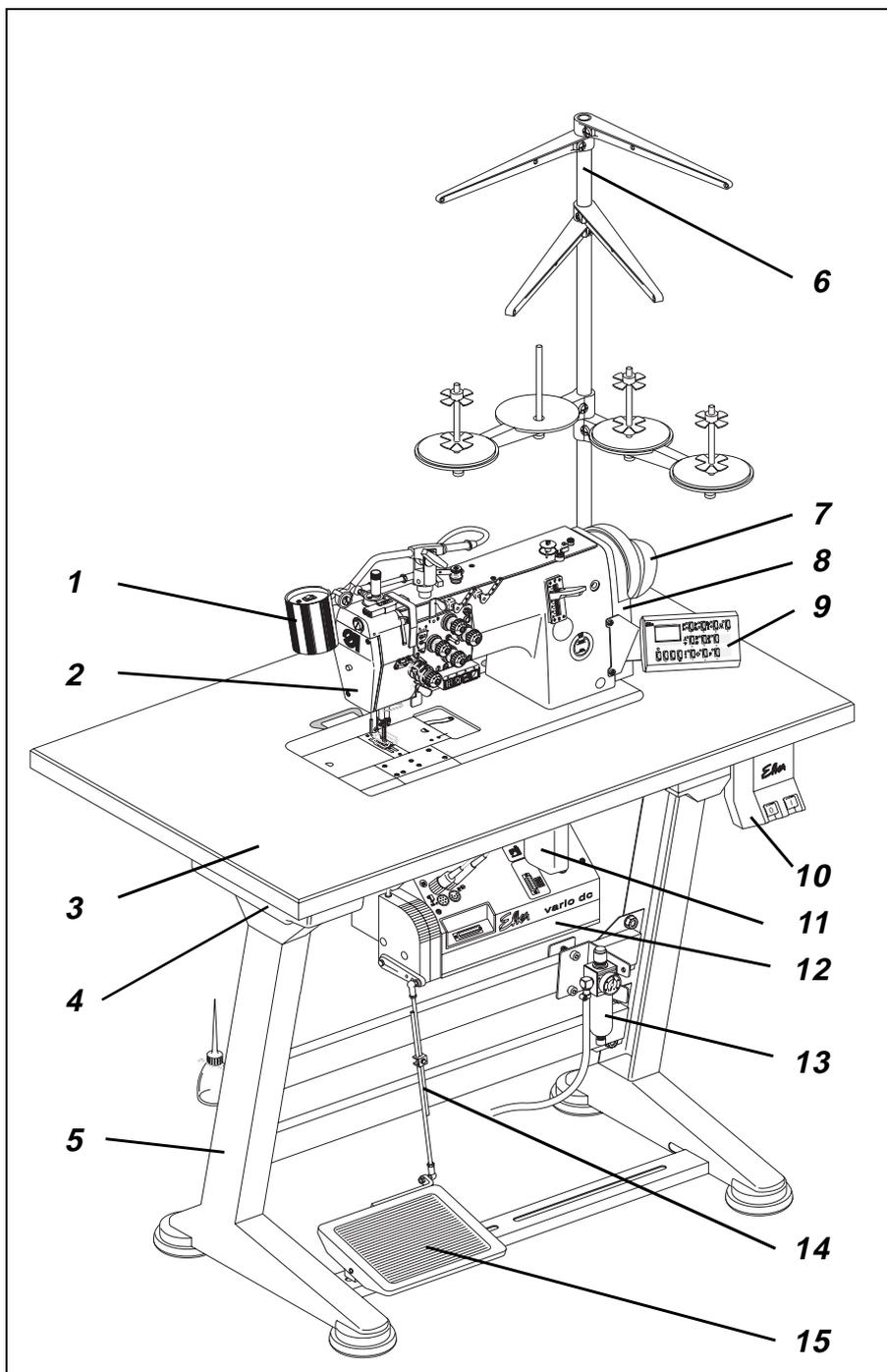


**Part 2: Installation Instructions cl. 381 - 382**

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## 1. Delivery scope

The scope of delivery **depends on your order**.

Before installing, please check whether all the required parts are available.

**Equipment** (depending on the sub-class):

- 1 Sewing lamp
- 2 Machine head
- 3 Table top
- 4 Drawer
- 5 Stand
- 6 Thread unwinder
- 7 Positioner
- 8 Belt guard
- 9 Control panel
- 10 Main switch
- 11 Knee lever
- 12 Sewing motor
- 13 Conditioning unit
- 14 Pedal linkage
- 15 Pedal
- Belt pulley and V-belt
- Small parts in the accessories

## 2. General and Transportation safety precautions

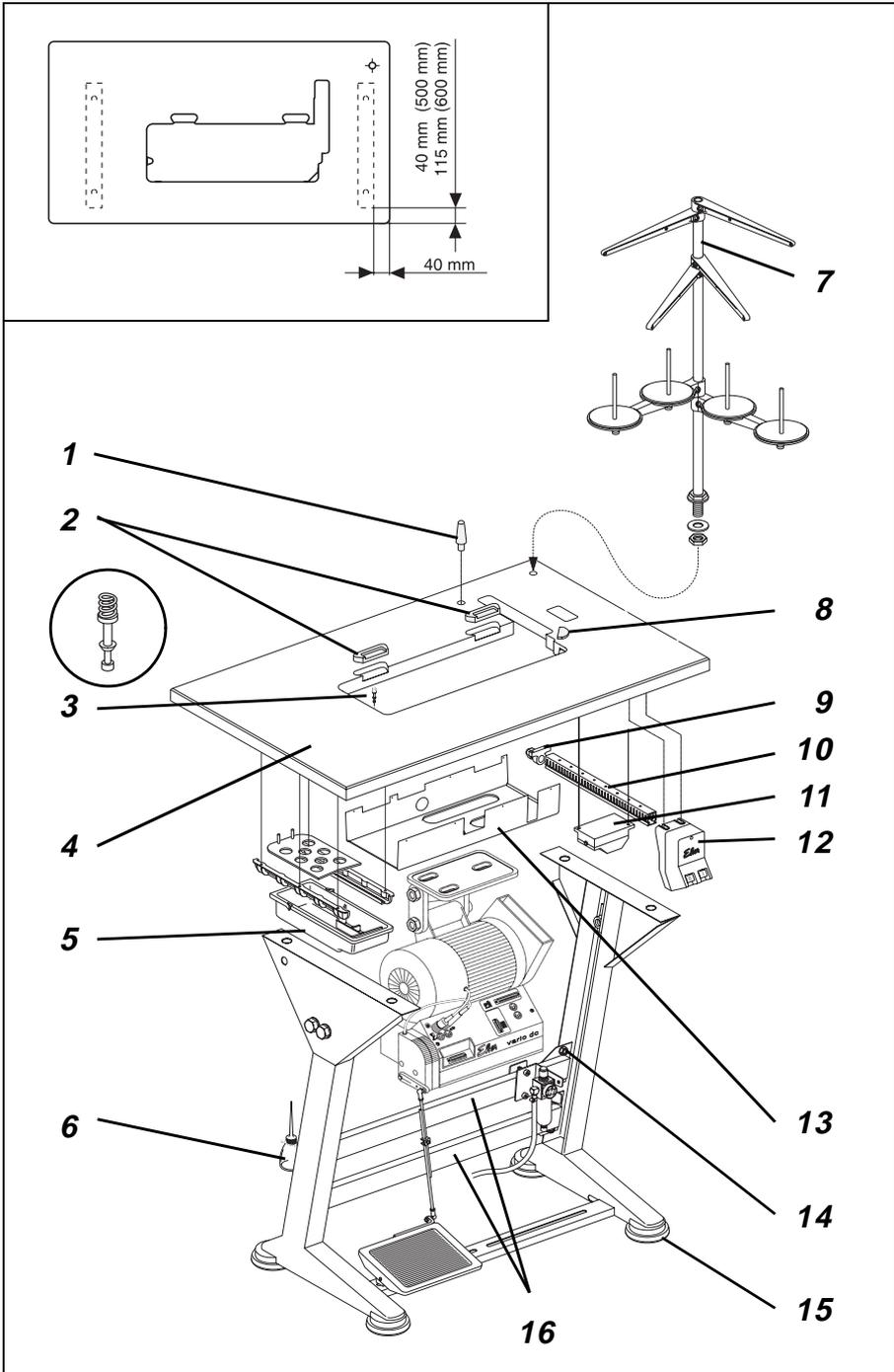


**NOTE !**

The special sewing machine should be operated exclusively by qualified operators.

If you have received a special sewing machine that has been prepared for a safe transportation, remove following safety elements:

- Safety bands and wooden ledges on the machine head, on the table and on the stand
- Safety block and bands on the sewing motor





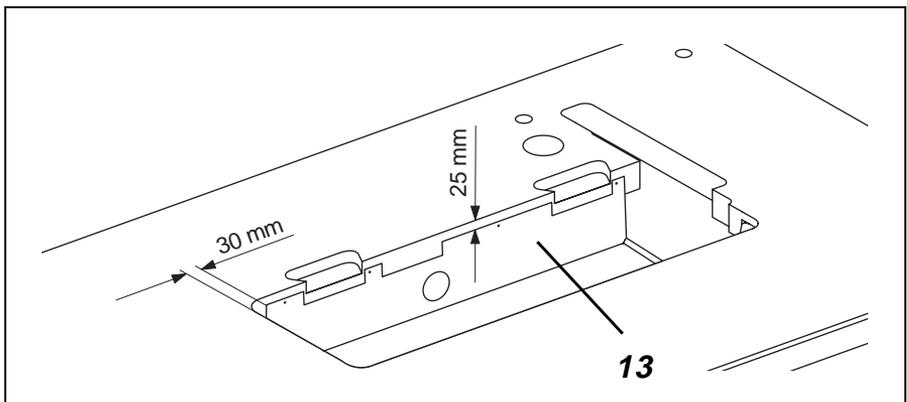
### 3. Stand installation

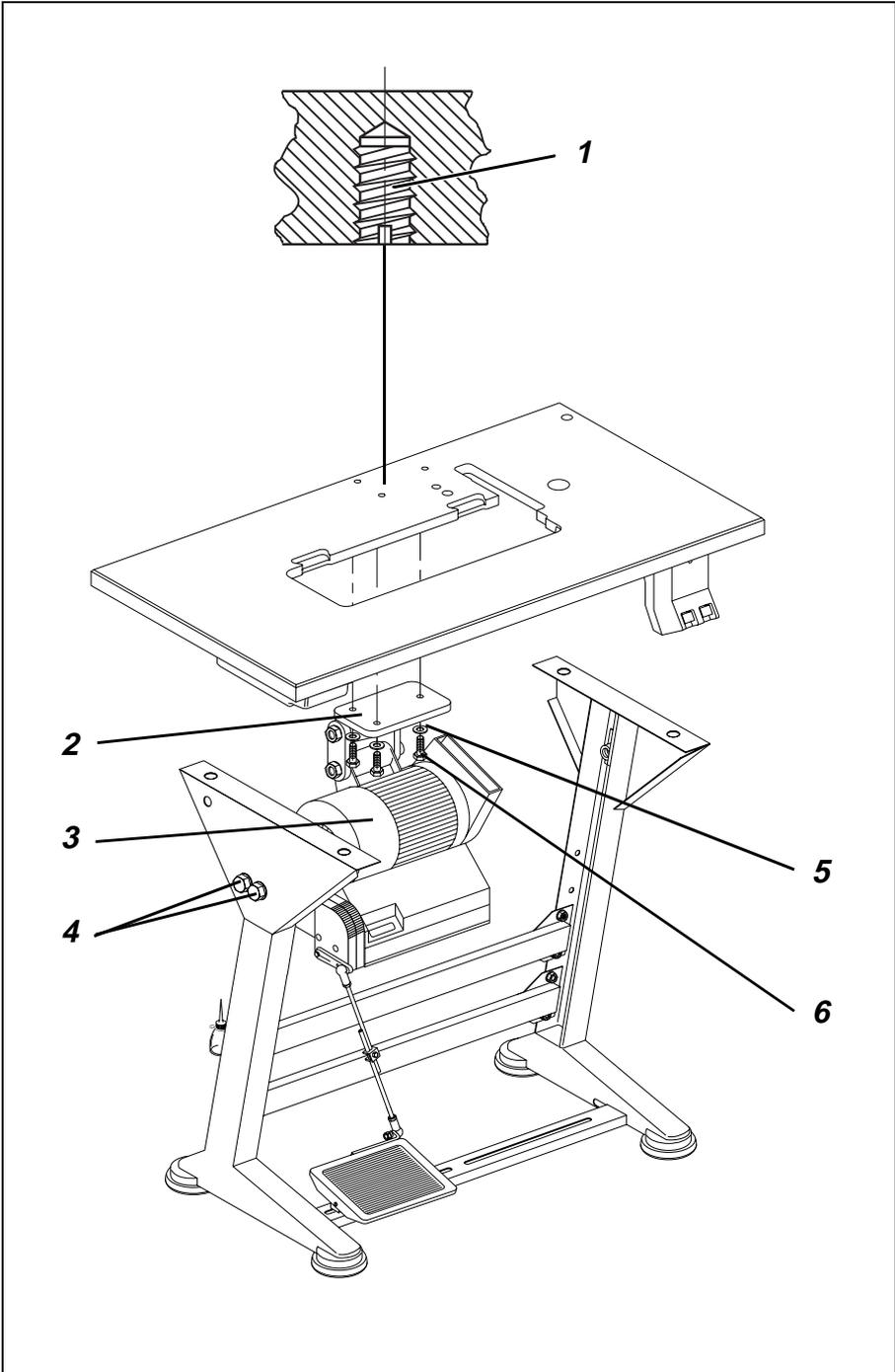
#### 3.1 Installing stand parts

- Install individual parts of the stand as shown in the illustration.
- Slip-on the available stand feet **15**.
- Loosen slightly the screws **14** on both lateral and transversal struts **16** and ensure that the stand stands safely.  
The stand should rest on the ground with all its four feet!

#### 3.2 Completing table top and fastening to the stand

- Insert **machine head support 1** into the bore-hole of the table top.
- Insert the **hinge bottoms 2** for the machine head into the recesses of the table top 4 and screw up.
- Insert **rubber corner 8**.
- Pull-in **rest plugs 3** and slip-on pressure spring.
- Screw **drawer 5** with its holders on the left under the table top.
- Screw **main switch 12** on the right under the table top.
- Screw **cable duct 10** behind main switch 12 under the table top.
- Screw the **holder 9 for the strain relief of the connection cables behind the cable duct 10** under the table top.
- Screw the **sewing lamp transformer 11** (additional equipment) under the table top.
- Fasten the **oil collector 13** in the table top recess by nails.  
(For distance, see the sketch., nails in the accessories)
- Fasten the **table top 4** on the stand by wood screws (B8 x 35).(for position, see the sketch)
- Introduce the **thread unwinder 7** into the bore-hole in the table top and fasten by nuts and shims.  
Fit and align thread reel holder and unwinder arm.  
The thread reel holder and the unwinder arm should be vertically superposed..
- Screw the holder for the **oil can 6** to the left stand strut.







### 3.3 Setting working height

The working height is adjustable between 750 and 900 mm (measured from the upper edge of the table top).

- Loosen the screws 4 on both stand struts.
- Adjust the table top horizontally for the desired working level.  
For avoiding tilting, pull out or push in the table top equally on both sides.
- Retighten both screws 4.

## 4. Installing and connecting sewing motor

### 4.1 General

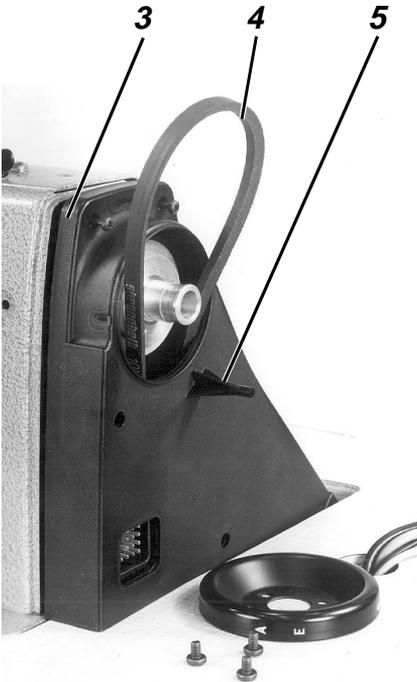
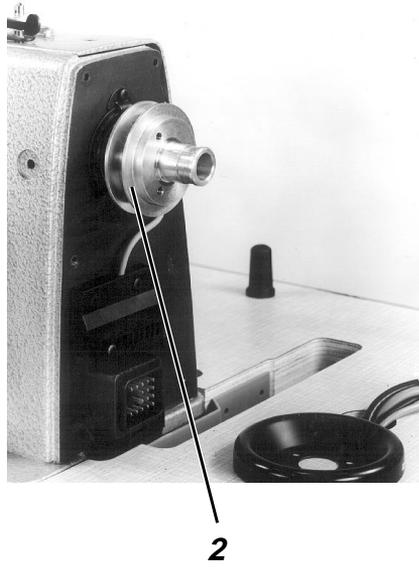
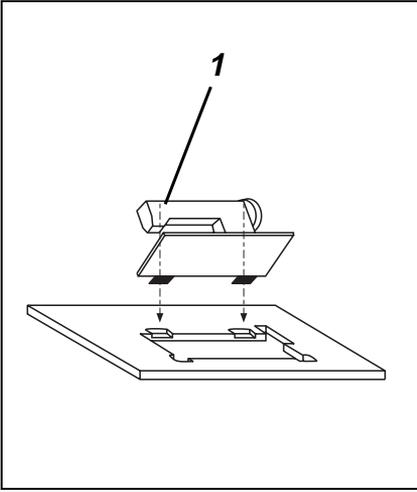
#### Motor package

Under the ref. no. 9889 038201 8 the **381 - 382** will be supplied with a complete motor package, including following elements:

- Sewing motor DC1600 / DA82GA 3239
- Main switch with connection cables
- Control panel
- Pedal linkage
- Belt pulley
- V-belt
- Connection diagram
- Fastening and connection material.

### 4.2 Fitting sewing motor under the table top

- Fasten the sewing motor 3 with its base 2 to the underside of the table top.  
Turn the 3 hexagon screws 6 (M8x35) with the shims 5 into the nuts 1 of the table top.





## 5. Installing machine head

### 5.1 Insert machine head

- Insert machine head 1 into the cut-out of the table top.

### 5.2 Fitting the keys

The tension plate has 3 threaded holes for fastening the keys.

- Fasten the key 11 to the tension plate by 2 screws as shown in the illustration on side 10. Two screws are included in the accessories. 2 positions are possible. In the right hand position there is more space at the lever for connecting and disconnecting the needles.
- Remove the bobbin cover and pass the incoming cable through its duct.
- Pass the plug through the table top cut-out and introduce into the bush **B3** of the drive controller.

### 5.3 Placing and tensioning the V-belt

#### Remove the safety devices

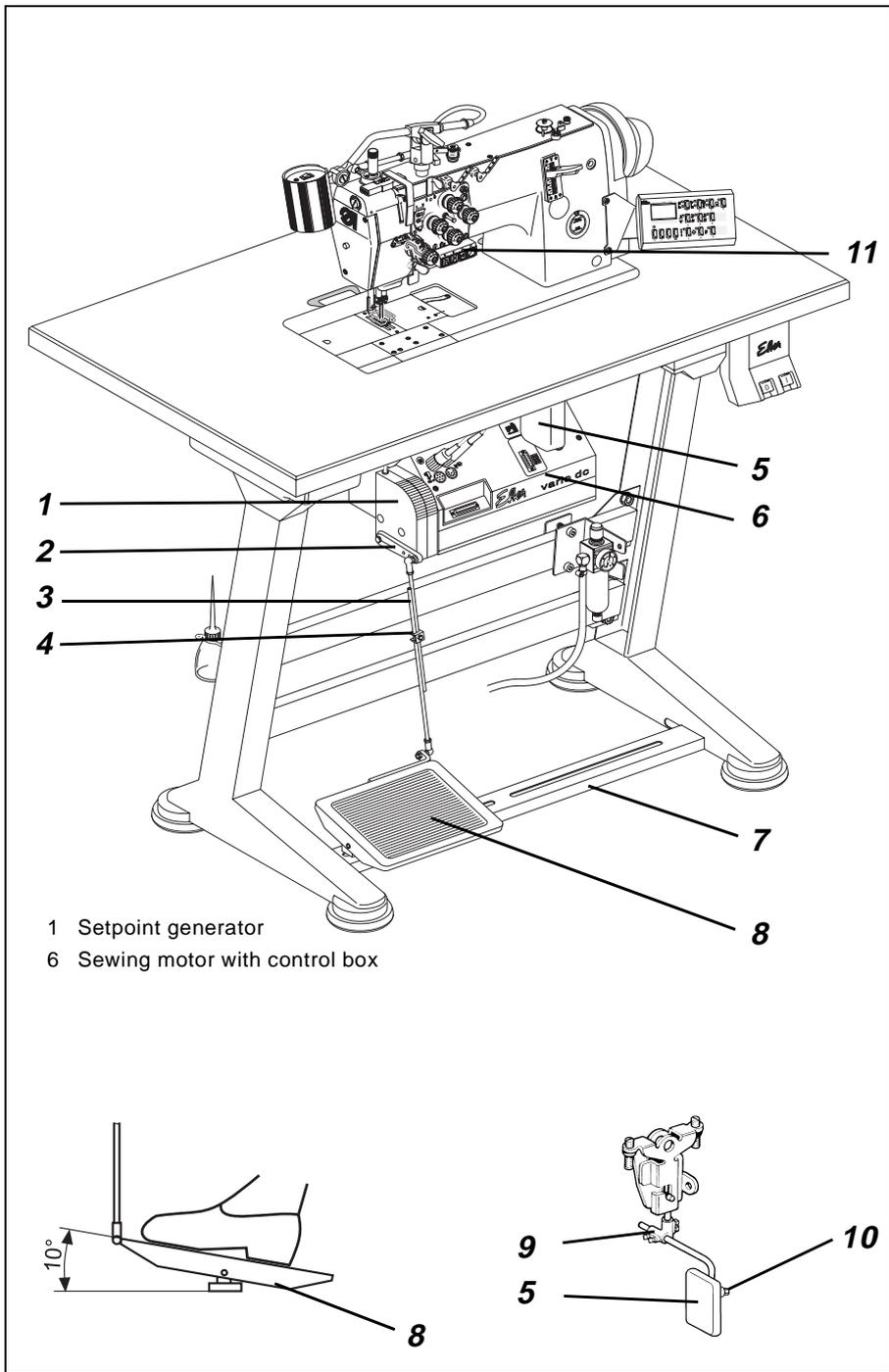
- Remove the belt guard cover 6 from the sewing motor.

#### Place V-belt in position and fit belt guard 3 on the machine head

- Fasten belt pulley 8 (in the accessories) on the shaft of the sewing motor.
- Place the V-belt 4 through belt guard on the belt pulley 2 of the machine head.
- Pass the V-belt 4 down through the cut-out in the table top.
- Tilt the machine head backwards.
- Place the V-belt 4 onto the belt pulley 8 of the sewing motor.
- Return the machine head into its initial position.. When tilting, the belt guard should freely enter the cut-out in the table top.
- Screw up the belt guard on the machine head.

#### Tensioning the V-belt

- Loosen the screw 7 on the base of the sewing motor.
- Tension the V-belt by swinging the sewing motor 9. When the tension of the V-belt is correct and when the belt is pressed in its middle (without any excessive force) it must yield inwards about 10 mm.
- Re-tighten the screws 7.





### Fitting the belt guard on the sewing motor

- Adjust the safety devices of the belt guard 6 (adjustable cams or squares, depending on the motor type) as follows (see page 8):  
After tilting the machine head, the V-belt 4 (see page 8) must still rest on its pulley. See also the available operating instructions of the motor manufacturer!
- Replace the cover of the belt guard 6 (see page 8) and fasten it by screws.

### 5.4 Fitting the pedal

- Fasten the pedal 8 to the stand strut 7.
- For ergonomic reasons, adjust the pedal 8 sideways as follows:  
The middle of the pedal must stand more or less under the needle.  
The stand strut contains longitudinal holes for the adjustment of the pedal.
- Screw the spherical bolts from the middle into the **front** bore-hole of the lever 2.
- Hang-in pedal rods 3.
- Loosen slightly screw 4.
- Adjust the height of the pedal rods 3 as follows:  
The released pedal 8 should have an inclination of about. 10°.
- Re-tighten screw 4.

### 5.5 Fastening the knee lever

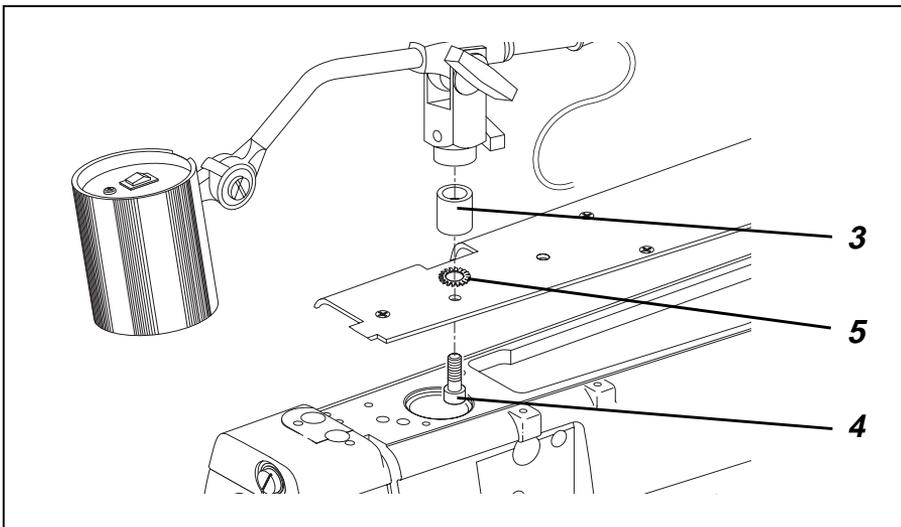
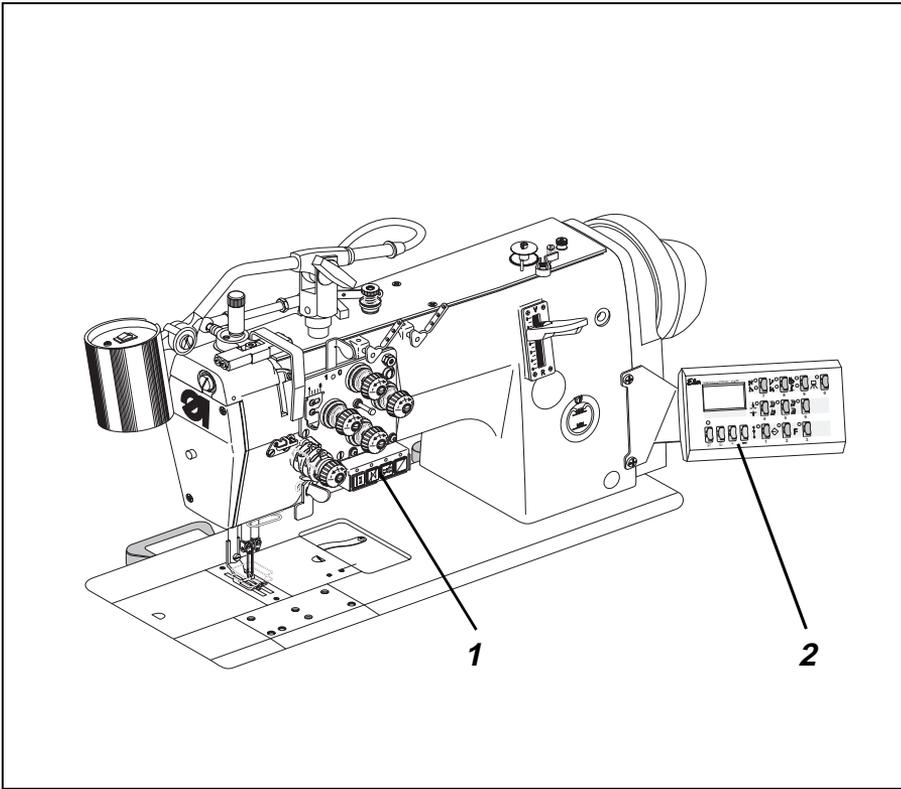
The knee lever 5 is used for mechanical lifting of the sewing feet.

- Hang-in knee lever 5.
- Loosen the screws on the joint 9 .  
Adjust the knee lever so that it can be conveniently operated by the right knee.  
Re-tighten the screws on the joint 9.
- Loosen screw 10.  
Adjust knee pad.  
Re-tighten screw 10.



#### **NOTE !**

Remove the knee lever 5 before tilting the machine head.





## 5.6 Fitting the control panel

The machine head provides 2 threaded holes for fastening the control panel.

- Fasten the external control panel 2 by a square and 2 screws at a side of the sewing machine head.
- Lead the connection cable of the control panel 2 through the table top cut-out and pass it down.
- Introduce the plug of the connection cable into the bush **B776** of the drive controller.

## 5.7 Fitting the sewing lamp



### NOTE!

The sewing lamp will be supplied with current also when the main switch is turned off.

- Stick the adhesive label with the safety indication to the front of the main switch.
- Remove the bobbin cover.
- Fasten the holder 3 to the bobbin cover by the screw 4 and the toohted washer 5 (see picture).
- Place the sewing lamp.
- Install the incoming cable in its duct.
- Lead the connection cable through the hole in the table top and pass it down.
- Fasten the sewing lamp transformer by chip board screws to the table top.
- Fasten the connection cable by cable binder under the table top.
- Connect the incoming cable to the sewing lamp transformer by a plug-in connector.



## 6. Electrical connection

### 6.1 General



#### **NOTE !**

Any work on the electrical equipment of the special sewing machine should be carried out exclusively by qualified electricians or by accordingly instructed persons. The mains plug must have been pulled out!

**It is absolutely necessary to note the Operating Instructions of the manufacturer, supplied together with the sewing motor!**

#### **Connection package and grounding set**

The electrical connection package and the grounding set are included in the accessories of the special sewing machine.

The connection package includes all parts that are necessary for the electrical connection of the sewing machine head to the sewing motor.

The grounding set serves for grounding the sewing machine head. For connecting, see chapter 6.7.

### 6.2 Checking nominal voltage



#### **NOTE !**

The rated voltage and the nominal voltage, stated on the rating plate, must agree.

The direct current drives, where used, are driven by single-phase alternating voltage. For avoiding overloading of a single phase when connecting several machines to a three-phase mains, please note the following:

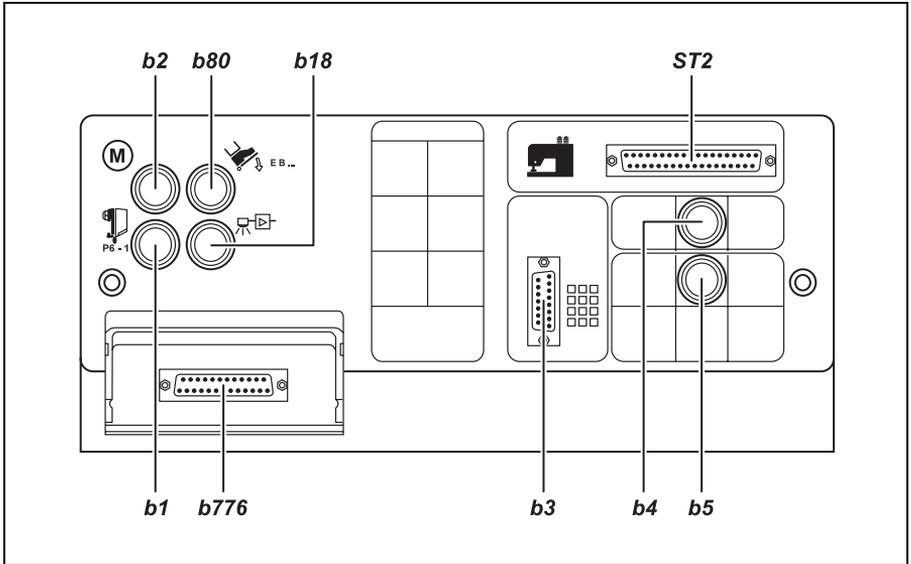
The connections of the individual machines must be evenly distributed to the phases of the three-phase mains (for cabling, see the circuit diagram).

### 6.3 Connecting the sewing motor

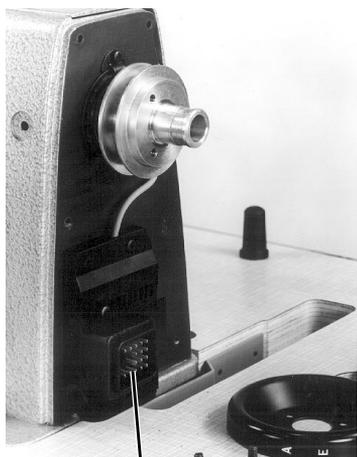
- Pass the incoming cable of the main switch through the cable duct to the sewing motor.
- Connect the commutation transmitter and the setpoint generator (pedal).
- Pass the mains cable of the main switch through the cable duct and through the holder.
- Secure the mains cable by a strain relief clamp.



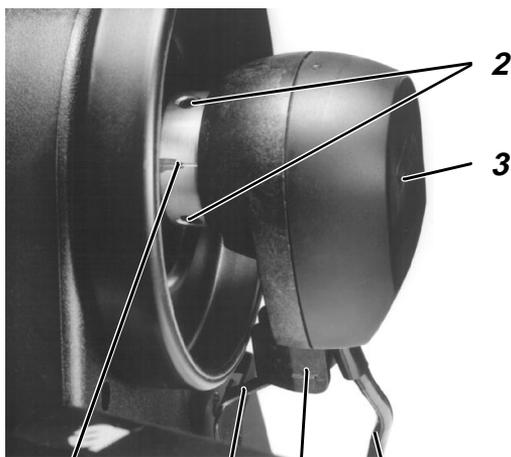
## 6.4 Connection bushes on control box



Connection bush	Assignment
<b>B1</b>	Positioner
<b>B2</b>	Commutation transmitter for DC motor
<b>B3</b>	Key block (on sewing machine arm)
<b>B4</b>	not assigned!
<b>B5</b>	not assigned!
<b>B18</b>	not assigned!
<b>B80</b>	Setpoint generator (pedal)
<b>B776</b>	Control panel Variocontrol
<b>ST2</b>	Inputs and outputs (sewing machine head)



1



4

5

6

7

## 6.5 Establishing cable connections

The electrical connections to the machine head are passed through the central plug-in connector 1.

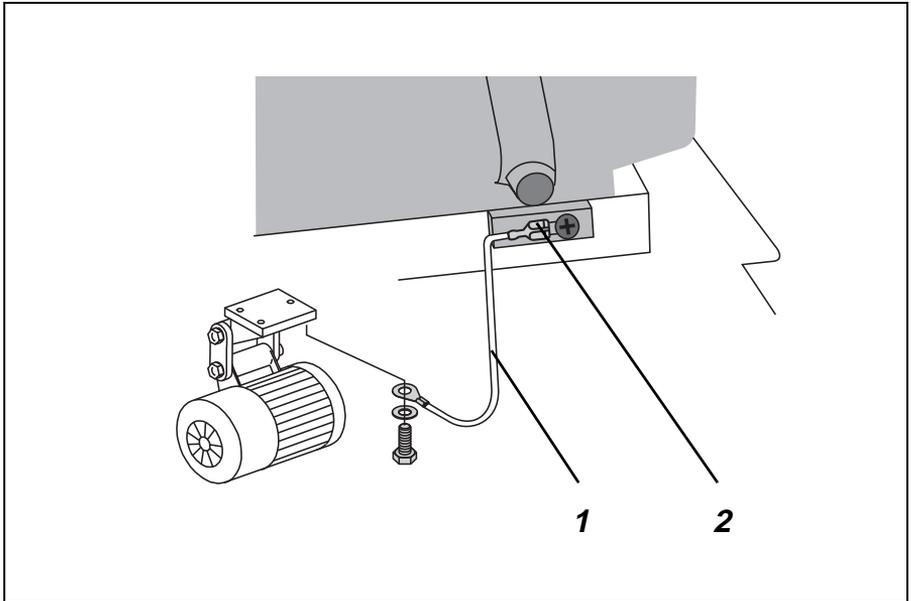
- Introduce the plug into the bush of the sewing machine head.
- Pass the plug through the table top opening and introduce into the bush **ST2** of the drive controller.

## 6.6 Installing the positioner

- Slip the positioner 3 onto the handwheel flange. The slot 6 on the positioner housing must catch over the anti-rotation element 5 on the belt guard.
- Tighten both threaded pins 2 on the position transmitter ring 4.
- Lead the connection cable 7 through the table top bore-hole and pass it down.
- Introduce the plug of the connection cable into the bush **B1** of the drive controller.



## 6.7 Equipotential bonding

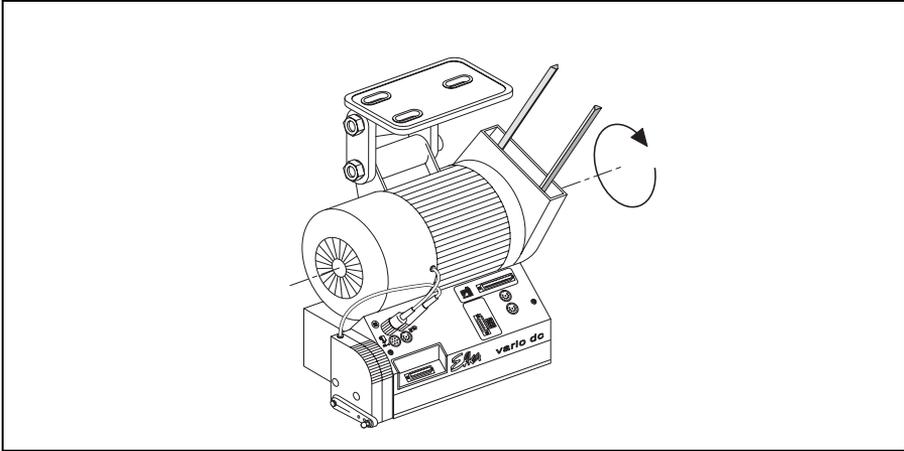


The grounding cable 1 (in the accessories) guides the static charges of the machine head via the sewing motor to the ground.

- Fasten the cable lug of the grounding cable by the screw (M4) and by the shim to the base of the sewing motor.
- Pass up the grounding cable.
- Fasten the grounding cable 1 by flat connector 2 to the machine base plate.



## 6.8 Checking the direction of rotation



### NOTE !

It is absolutely necessary to check the direction of rotation of the sewing motor prior to putting the special sewing machine into operation. Damages can result if the special sewing machine is started to run in the wrong direction of rotation.

The arrow in the illustration shows the proper direction of rotation (**counter clockwise rotation**).

The special sewing machines, that are supplied fully assembled, have been factory-set for the **counter clockwise rotation** (when looking at the belt pulley).

If the special sewing machine is supplied by single components, check the direction of rotation.

The direction of rotation is set on the control panel by means of the parameter **F-161** (drE).

For checking the direction of rotation:

- Introduce the mains plug.
- Turn on main switch.
- Call on the control panel the parameter **F-161** of the technician level. The parameter must be set to the value " 1 " (counter clockwise rotation).
- If required, correct the parameter value.



### NOTE !

Following a change of the direction of rotation, the positions must be programmed once again.



## 6.9 Checking the positioning

### Reference position

The reference position is the starting point for all factory-set positions. In the reference position, the point of the lowered needle stands level with the top of the throat plate.

### Position 1

The 1st position serves for starting the cutting process if the sewing machine is supplied with a thread cutter. The sewing machine is then 2 mm behind its lower dead point.

### Position 2

In the 2nd position, the thread take-up lever must be in its upper position.

### Checking the positioning

After thread cutting, the sewing machine must stop in the 2nd position (thread take up lever in upper position).

- Turn on main switch.
- Lower the pedal briefly forwards.
- Lower the pedal backwards completely and hold it lowered.  
The thread will be cut.  
The sewing machine will stop in the 2nd position (thread take-up lever in upper position).
- Check whether the thread take-up lever stands in its upper dead position.
- Normally, here ends the checking process. Should it be necessary to correct the factory setting, proceed for programming the positions as follows.

## 6.10 Setting the positions

It is necessary to proceed to a new setting of the position transmitter after following operations:

- Fitting the position transmitter when installing the special sewing machine
- Removing the position transmitter
- Replacing the position transmitter
- Replacing the complete drive controller

The digital position transmitter does not require any mechanical adjustments. It is only necessary to set the reference position when taking the machine into service for the first time.

The machine positions are sensed by steps (increments) by the position transmitter and they are shown by the display. One rotation of the handwheel corresponds to 512 steps. The change of the display is done by 2 steps. A change from one display value to the other corresponds consequently to a rotation angle of about  $1,4^\circ$ .

The angle position of the positions 1 and 2 in respect to the reference position is defined by a certain number of increments.



## Programming steps:

### 1. Calling up programming mode

- Turn off main switch.
- Operate the key "P" and hold it operated.
- Turn on main switch.  
The display will show "C-0000".
- Release the key "P".

### 2. Changing over to the technician level

- Enter code number "1907" by the digital keys "1...0".
- Operate the key "E".  
The controller will change over to the technician level ".  
The display will show the parameter no. "F-100".
- If a wrong code number is entered, the display will show "C-0000 Info F1".  
Enter again.

### 3. Programming reference position

- Enter parameter number "170" by the digital keys "1...0".
- Operate the key "E".  
The display will show the parameter "F-170" together with the code designation "Sr1" (Service routine 1).  
The LED above the key "F" will be blinking.
- Operate the key "F".  
The display will show "Position 0".
- Turn the handwheel until the reference position is attained (Needle point flush with the throat plate level).
- Operate the key "P".  
The position set will be memorised.

### 4. Programming position 1

- Enter parameter no. "171" by the digital keys "1...0".
- Operate the key "E".  
The display will show the parameter "F-171" together with the code designation "Sr2" (Service routine 2).  
The LED above the key "F" will be blinking.
- Operate the key "F".  
The display will show "Position 1" and the respective number of increments.  
Pos1 = 151 , Pos1a = 200
- Turn the handwheel until the 1st position is attained.

### 5. Programming 2nd position

- Operate the key "E".  
The display will show "Position 2" and the respective number of increments.  
Pos2 = 460 , Pos2a = 510
- Turn the handwheel until the 2nd position is attained.



## 6. Parameter setting

Following parameters must be set before putting the machine into operation.  
(see also the parameter sheet 9800 130012 PB05)

- **F-111** n2 = 2500 upper limit of the maximum speed
- **F-115** n6 = 250 Softstart speed
- **F-119** nST = 2 Speed graduation slightly progressive
- **F-190** iFA = 300 Engagement angle FA
- **F-191** FSA = 100 Disengagement delay of the thread tension release
- **F-202** br1 = 5 Braking effect

## 7. Leaving correction mode

- Operate the key "P".

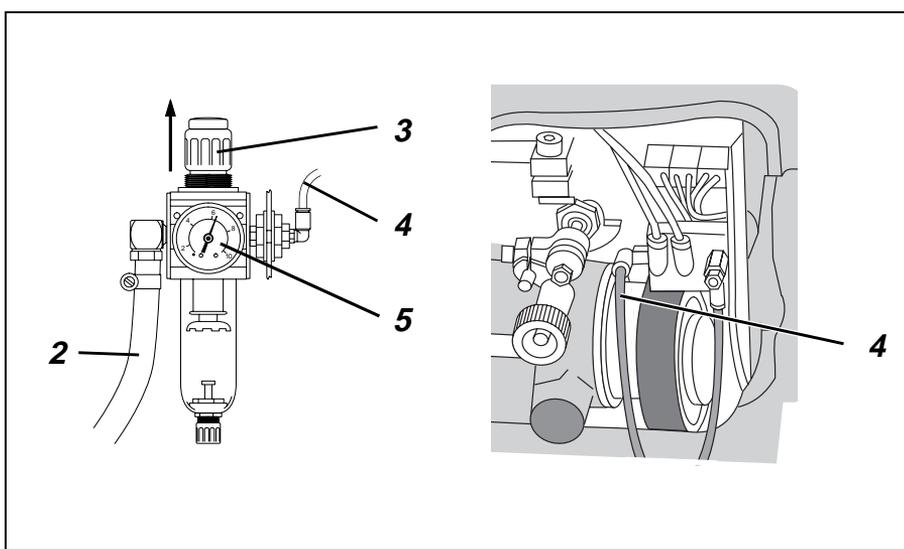
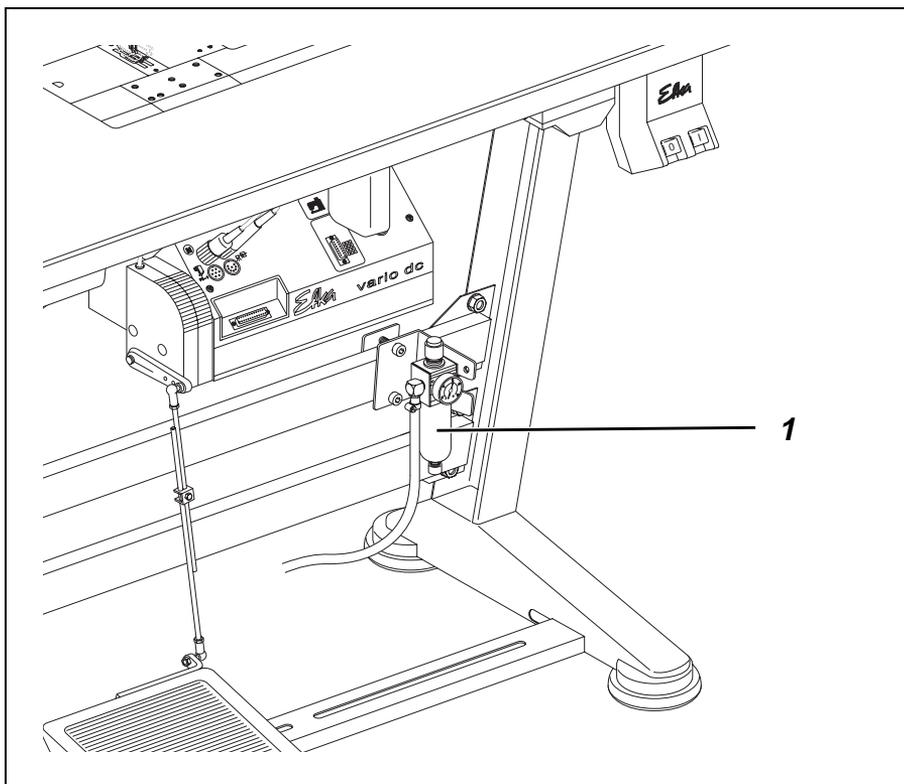
## 8. Memorizing the setting

- Tread the pedal briefly forwards.
- Tread the pedal completely backwards.  
The threads will be cut. The sewing feet will be lifted.  
The corrected setting will be memorised.
- The sewing machine is ready to operate.



### NOTE !

For terminating the correction process it is absolutely necessary to sew a short distance. This will finally memorise the modified setting.  
If no sewing is done, the setting will be lost after turning off the main switch.





## 7. Pneumatic connection



### NOTE !

A perfect function of the pneumatic elements will only be ensured if the line pressure ranges between 8 and 10 bar.

The service pressure of the special sewing machine amounts to **6 bar**.

### Pneumatic connection package

Under the ref. no. 0797 003031 you can order a pneumatic connection package for stands with compressed air conditioning unit.

- It includes following parts::
- Connection hose, 5 m long  $\varnothing = 9$  mm
  - Hose nozzles and hose binders
  - Coupling socket and coupling plug

### Connecting compressed air conditioning unit

- Fasten the compressed air conditioning unit 1 to the stand strut by a square, by screws and by a shackle.
- Connect the compressed air conditioning unit to the compressed air line by the connecting hose 2 ( $\varnothing = 9$  mm) and by the hose coupling R1/4"

### Connecting the compressed air conditioning unit to the sewing machine head

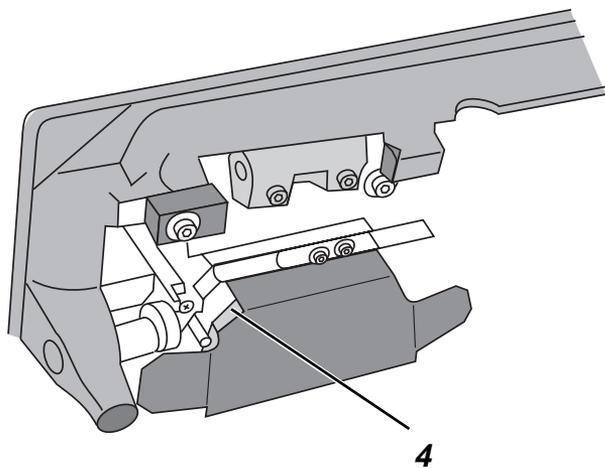
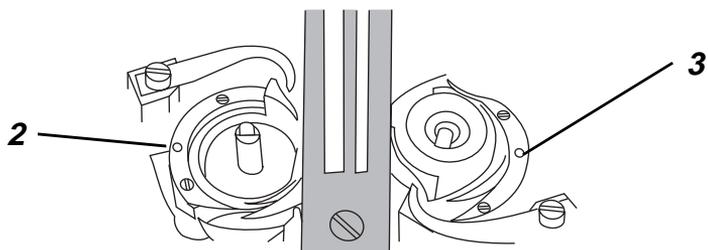
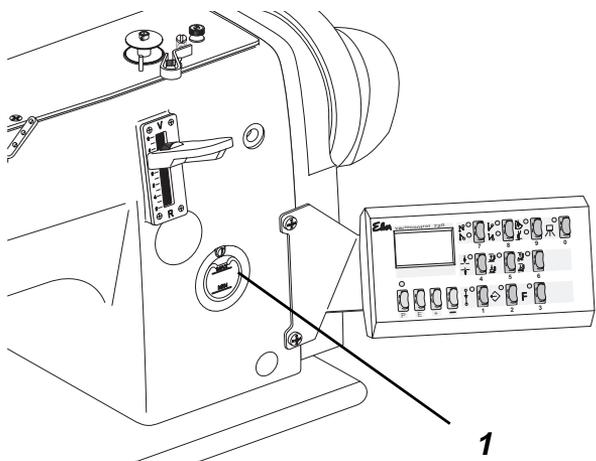
- Connect the hose 4 (in the accessories) with the distribution plate on the machine head.

### Setting the service pressure

Set the service pressure to **6 bar**.

It is shown by the pressure gauge 5

- For setting the service pressure, pull up the rotary handle 3 and turn it.  
Increase the pressure = by turning the rotary handle 3 clockwise  
Reduce the pressure = By turning the rotary handle 3 counter clockwise 3





## 8. Oil lubrication



### Caution: Danger of bodily injuries !

Oil can cause skin irritations.  
Avoid longer contacts with the skin.  
Wash the contaminated skin thoroughly.



### ACHTUNG !

The handling and the disposal of the mineral oil is subjected to legal rules.  
Take the used oil to an authorised disposal centre.  
Protect the environment.  
Take care not to spill any oil.

For replenishing the oil container use exclusively the oil quality **ESSO SP-NK 10** or an equal oil grade with following specifications:

- Viscosity at 40° C : 10 mm<sup>2</sup>/s
- Flash point: 150 °C

**ESSO SP-NK 10** can be obtained from sales centres of **DÜRKOPP ADLER AG** under following reference numbers:

- 2 litre container: 9047 000013
- 5 litre container: 9047 000014

Lubrication of the machine head

- Fill the container with oil up to the mark "**max.**".

### Hook lubrication

- Lubricate the points 2 and 3 by some drops of oil.
- Check whether the felt 4 under the hook drives is sufficiently lubricated.  
If necessary, lubricate the felt 4 at the open right and left corner when installing.  
The toothed wheels of the hook drive have oil felts, supplied with oil by the felt 4.  
The felt 4 must be in contact with the oil felts of the hook drive.

### Oiling wicks and felt parts

- When installing and after long periods of standstill oil slightly the wicks and the felt parts of the sewing machine.



## 9. Sewing test

Following the installation, proceed to a sewing test!

- Introduce the mains plug.



**Caution: danger of bodily injuries !**

Turn off main switch.  
Switch off the sewing machine before threading the needle and the hook.

- Thread the bobbin (see the Operating Instructions).
- Turn on main switch.
- Fill the bobbin at low speed.
- Thread the needle and the hook (see the Operating Instructions).
- Select the material to be sewn.
- Conduct the sewing test first at low speed and then at an increasingly higher speed.
- Check whether the seems are meeting the requirements.  
If the requirements are not met, modify thread tensions (see the Operating Instructions).  
If required, check and, if necessary, also correct the settings specified in the Service Instructions.