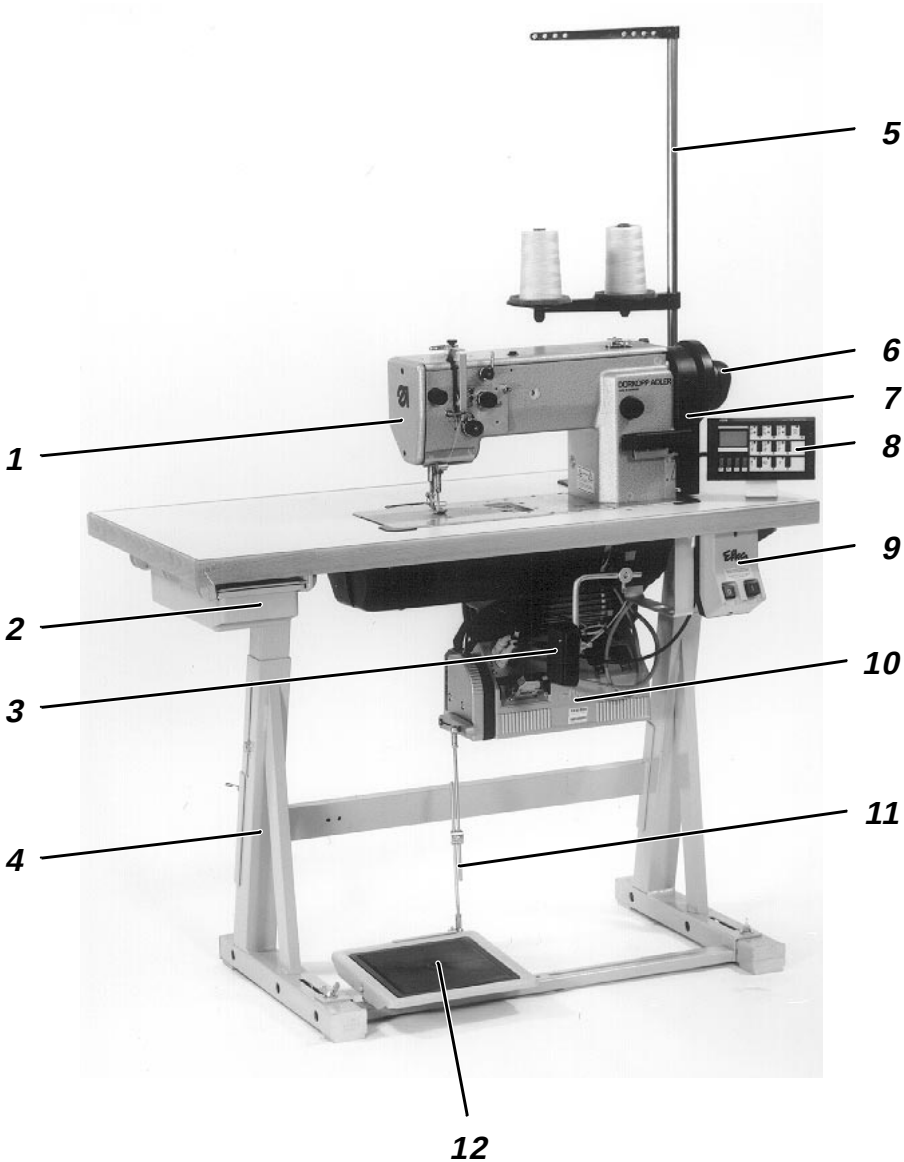
# Part 2: Installation Instructions Cl. 467


1
2
3
4
5
6
7
8
9
10
11
12

# 1. Scope of Delivery

The scope of delivery **is dependent on your order**.
Please check if all required parts are present before installation.

This description applies for a sewing machine whose individual components are all supplied by **DÜRKOPP-ADLER**.

**Standard equipment** (with or without thread trimmer depending on subclass):

- **1** Machine head
- **2** Drawer
- **3** Knee lever
- **4** Stand
- **5** Yarn stand
- **6** Synchronizor (dependent on drive package)
- **7** Belt guard
- **8** Control panel (dependent on drive package)
- **9** Main switch
- **10** Sewing drive
- **11** Pedal rod
- **12** Pedal
- Belt pulley and V-belt
- Small parts in the accessories pack

# 2. General information and Transport Safeguards

**ATTENTION !**

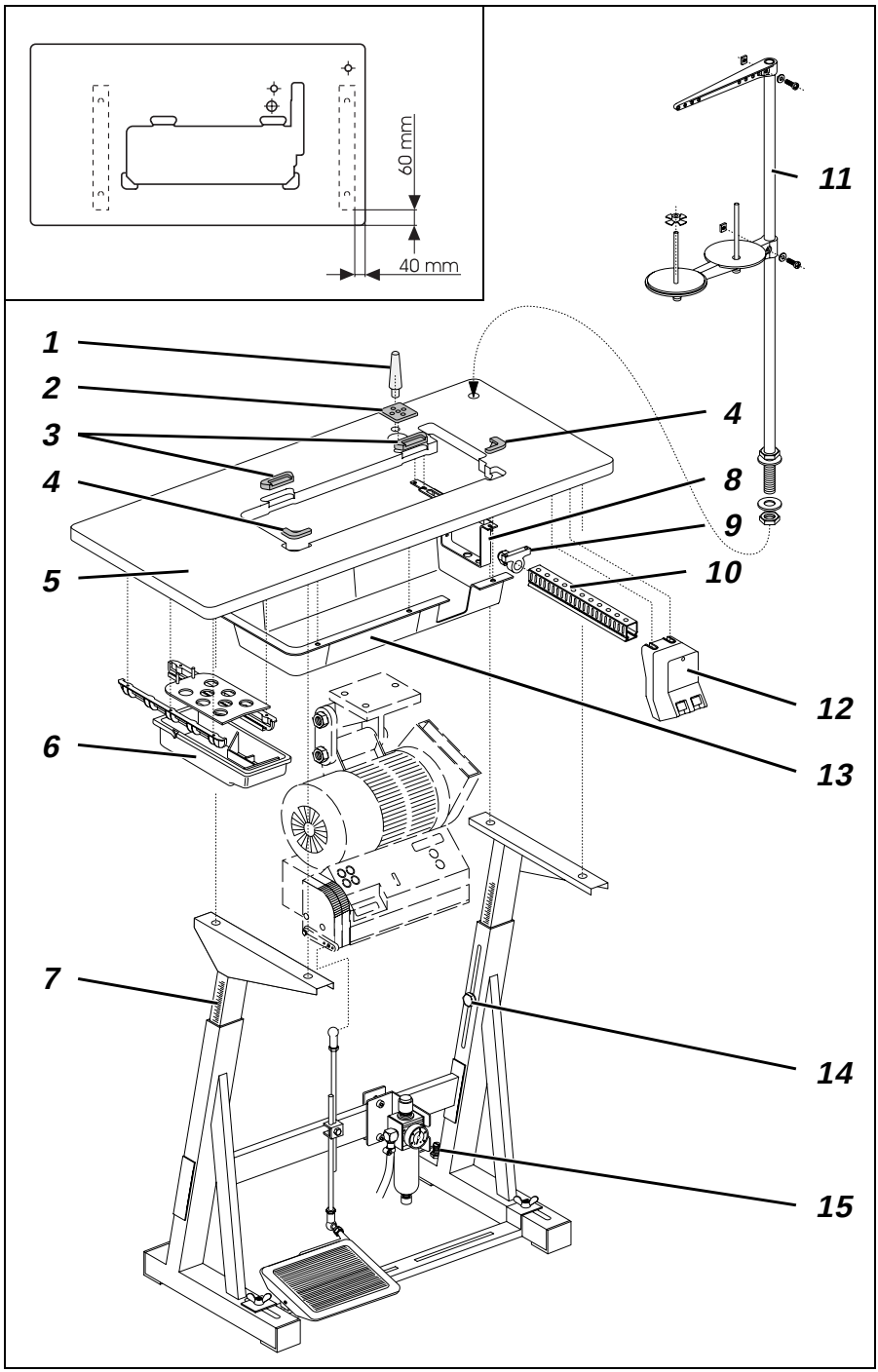
The special sewing machine may only be installed by trained, skilled personnel.

Different drive packages are available for the **467** (see also Chapter 4.1).
All illustrations shown in these installation instructions refer to a special sewing machine with following sewing drive: Efka DC1600/DA820V.
Please note that your special sewing machine may deviate from the illustrations because of the differing equipment variants!

**Transport safeguards**

If you have bought a fitted special sewing machine, the following transport safeguards are to be removed:

- Securing bands and wooden slats on machine head, table and stand
- Securing block and bands on the sewing drive


60 mm
40 mm
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

# 3. Assembling the Stand

## 3.1 Assembling the Stand Parts

- Assemble the individual parts of the stand as shown in the illustration.
- Turn the adjusting screw 15 for a secure positioning of the stand.
  The stand must rest with all four feet on the floor!

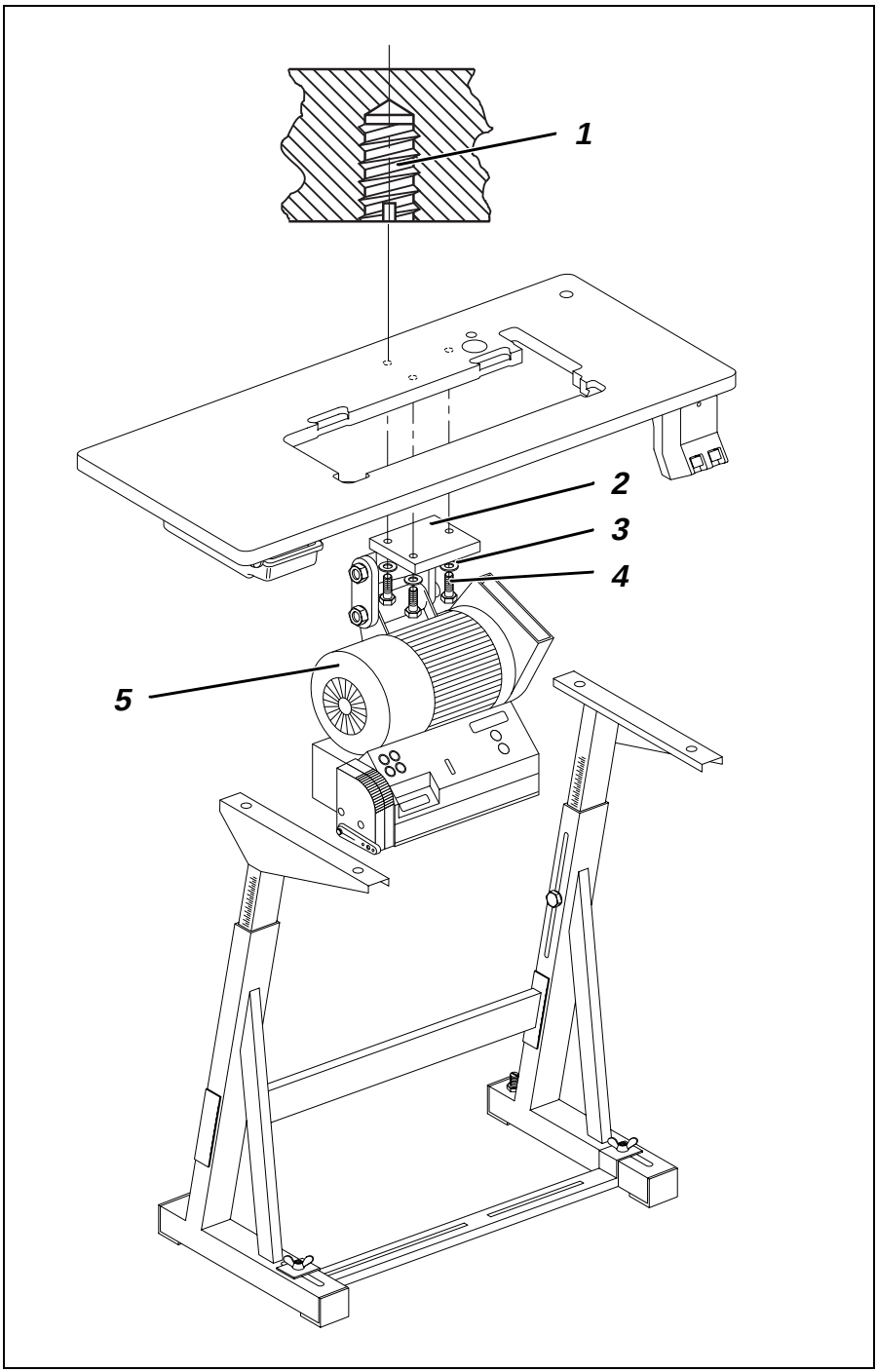
## 3.2 Completing the Table Top and Mounting on the Stand

- Hammer the **machine head support 1** into the drilled hole in the table top.
- Insert the **plug 2** into the drilled hole for the cable passage through the table top.
- Press the **rubber rests 3 and 4** for the machine head into the recesses of the table top.
- Screw on the **drawer 6** with its mountings at the left under the table top.
- Screw on the **main switch 12** at the right under the table top.
- Screw on the **cable duct 10** behind the main switch 12 under the table top.
- Screw on the **mounting 9 for the tension relief** of the connection leads behind cable duct 10 under the table top.
- Lay **mains cable** from main switch 12 through cable duct 10 and mounting 9.
- Lay the **connection cable of the sewing drive** from main switch 12 through cable duct 10.
- Screw **bar 8** on under the table top. The bar serves to reinforce the table top and for mounting the optional equipment RAP 13-4.
  The bar 8 is mounted with the aid of the three threaded inserts in the table top.
- Fasten the **oil collector 13** under the table cutout with wood screws.
- Fasten the **table top 5** on the stand with wood screws (B8 x 35).
  The alignment on the stand can be seen in the dimensions in the sketch.
- Insert the **yarn stand 11** into the drilled hole of the table top and fasten with nuts and washers.
  Mount and align the thread spool holder and take-off arm.
  The thread spool holder and take-off arm must lie vertically above each other.

## 3.3 Setting the Work Height

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

- Loosen the screws 14 on both legs of the stand.
- Set the table top horizontally to the desired work height.
  In order to avoid tilting, pull out or push in the table top uniformly on both sides.
  The scales 7 on the outer sides of the legs serve as setting aids.
- Tighten both screws 14.


1
2
3
4
5

# 4. Mounting and Connecting the Sewing Drive

## 4.1 General Information

**Drive packages**

Complete drive packages are available for the **467**.
The sewing drives available for each subclass are to be found in the following table.

| Subclass | Sewing drive | Control panel |
|---|---|---|
| **467-183080** | FIR 1147-F.752.3 | - |
| **467-183081** | Efka VD552/4P720V<br>Efka DC1600/DA820V | V720<br>V720 |

The drive packages contain the following parts:

- Sewing drive
- Main switch with connection leads
- Control panel
- Pedal rod
- Belt pulley
- V-belt
- Connection plan
- Fastening and connection material.

**Electro-connection packages**

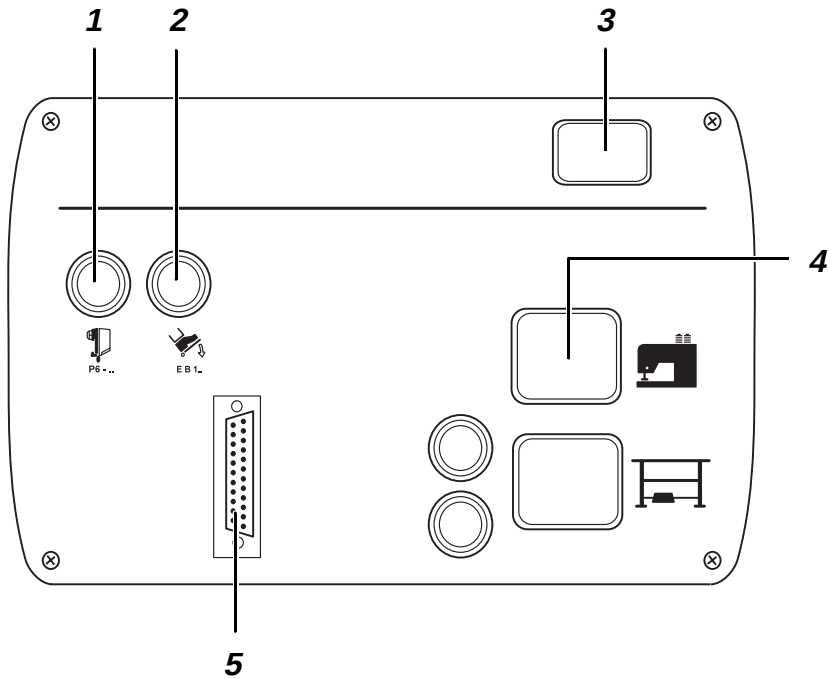
The electro-connection packages contain all parts required to electrically connect the machine head with the sewing drive:

- Connection leads
- Grounding kit
- Wiring diagram.

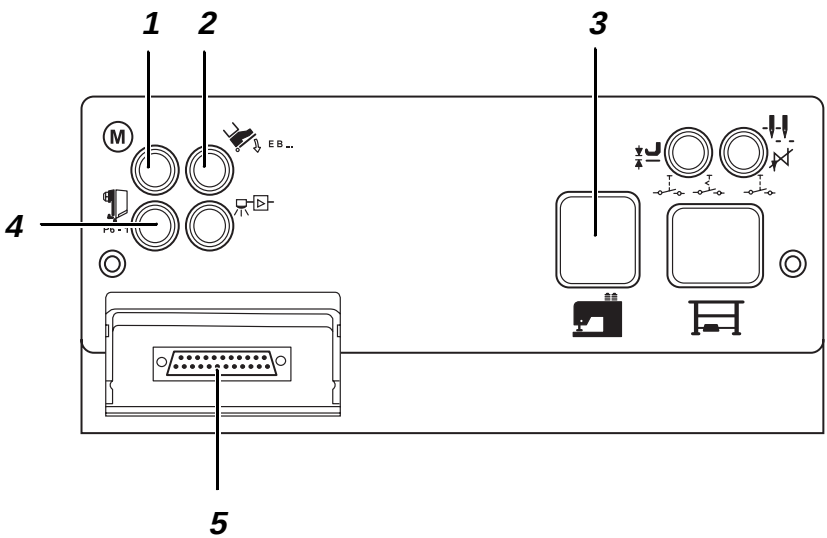
## 4.2 Mounting the Sewing Drive under the Table Top

- Fasten the sewing drive 5 (in the illustration type Efka) with its base 2 on the underside of the table.
  For this, screw the three hex-head screws 4 (M8x35) with washers 3 into the threaded inserts 1 in the table.

**Connection jacks EFKA VD552/4P720V:**




**Connection jacks EFKA DC1600/DA820V:**



## 4.3 Connecting the Sewing Drive

**ATTENTION !**

All work on the electrical equipment of the special sewing machine may only be conducted by electricians or appropriately trained persons.
The mains plug must be pulled!

**It is essential to follow the operating instructions of the manufacturer enclosed with the sewing drive!**

**With all sewing drives (FIR and EFKA):**

– Connect the electrical connection lead from the main switch on the sewing drive.

**Sewing drive EFKA VD552/4P720V:**

– Connect the set value initiator (pedal) and coupling/brake (see Illus. pg.12)

**Sewing drive EFKA DC1600/DA820V:**

– Connect the commutation initiator and set value initiator (pedal) (see Illus. pg.12).

| Connection jack | EFKA VD552/4P720V | EFKA DC1600/DA820V: |
|---|---|---|
| **1** | Synchronizor | Commutation initiator for DC motor |
| **2** | Set value initiator (pedal) | Set value initiator (pedal) |
| **3** | Coupling / brake | Sewing machine head |
| **4** | Sewing machine head | Synchronizor |
| **5** | Control panel | Control panel |

Not identified connection jacks are **not active** with this machine class!

## 4.4 Checking the Nominal Voltage

**ATTENTION !**

The nominal voltage given on the identification plate and the mains voltage must be in agreement.

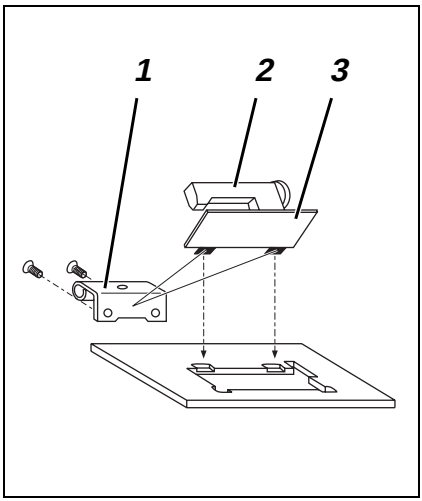
An adaption to the local mains voltage occurs via the connection terminals on the transformer of the sewing drive.

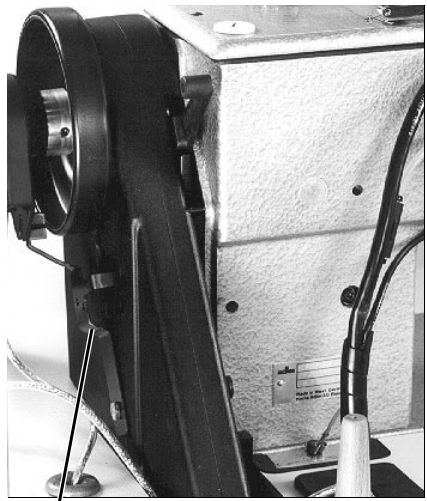
– Check the arrangement of the connections on the transformer of the sewing drive.

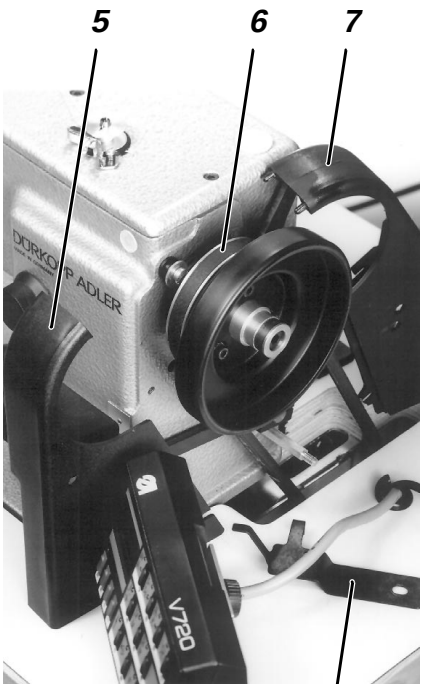
– If necessary, alter the connections according to the existing mains voltage (see Wiring Diagram).

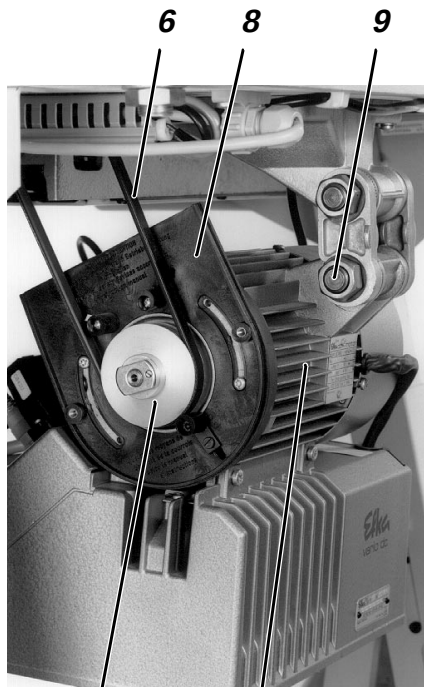
The direct current sewing drive used is operated with a "single-phase alternating current". In order that there be no overloading of individual phases with the connection of multiple sewing machines on a 3-phase supply, the following is to be observed:

The connections of the individual sewing machines must be spread equally over the phases of the 3-phase supply (Wiring see Wiring Diagram).


1
2
3


4


5
6
7
4


6
8
9
10
11

# 5. Mounting the Machine Head

## 5.1 Inserting the Machine Head

– Fasten the hinges 1 on the base plate 3 with countersunk screws M6X8.

– Insert the machine head 2 into the cutout of the table top.

## 5.2 Placing and Tensioning the V-belt

**Remove the protection devices** (if attached at delivery)

– Remove the two-piece belt guard 4 and 6 on the machine head.
The mounting screws are accessable through the drilled holes in both parts of the belt guard.

– Remove the cover of the belt guard 8 on the sewing drive.

**Place the V-belt and attach the belt guard on the machine head**

– Mount the belt pulley 10 (in the accessories pack) on the shaft of the sewing drive.

– Place the V-belt 5 on the belt pulley on the machine head.

– Guide the V-belt 5 down through the cutout in the table top.

– Tilt the machine head to the back.

– Place the V-belt 5 on belt pulley 10 on the sewing drive.

– Return the machine head.

– Mount the two-piece belt guard 4 and 6 on the machine head.

– Mount the twist protection 7 for the synchronizor on the right-hand part 6 of the belt guard.

**Tensioning the V-belt**

– Loosen screw 9 on the base of the sewing drive.

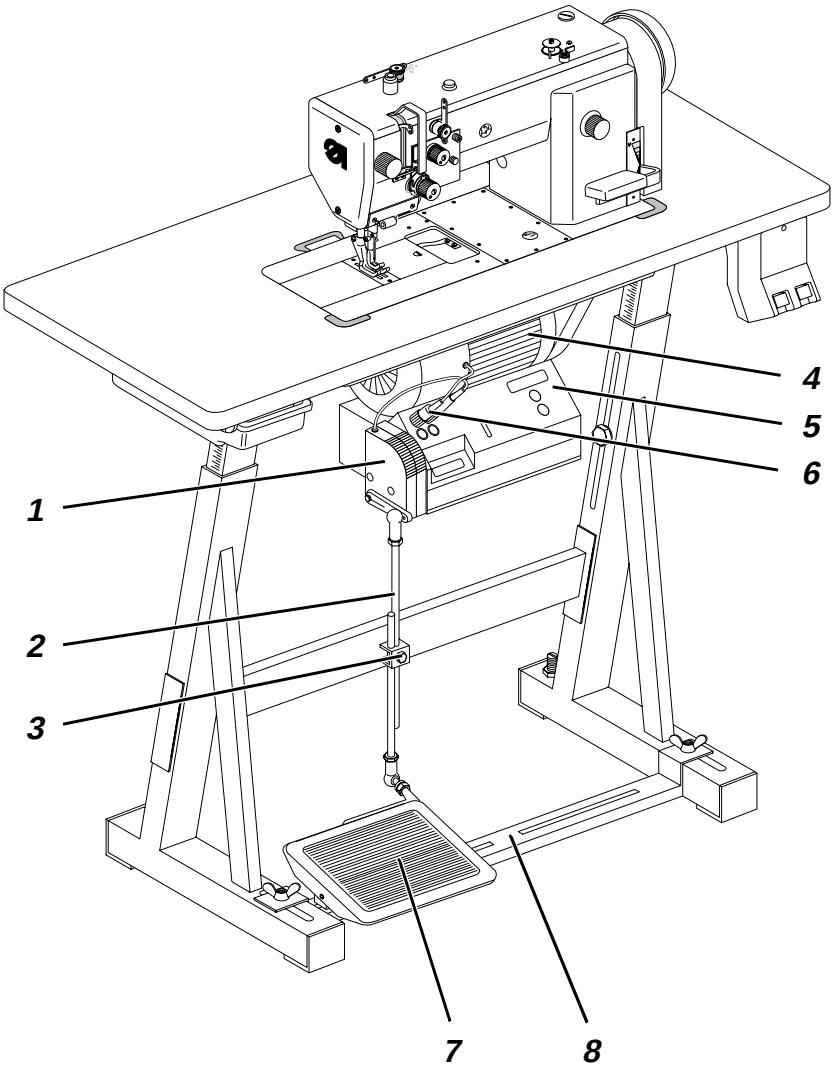
– Tension V-belt 5 by slewing the sewing drive 11.
With correct belt tension the V-belt 5 can be pressed in approx. 10 mm in the middle by finger pressure (without much force).

– Tighten screw 9.

**Mounting the belt guard on the sewing drive**

– Set the belt run-off protection (adjustable cams or angles depending on the type of drive) of the belt guard 8 as follows:
With the machine head tilted back the V-belt 5 must remain on the belt pulleys.
See also the enclosed operating instructions of the motor manufacturer!

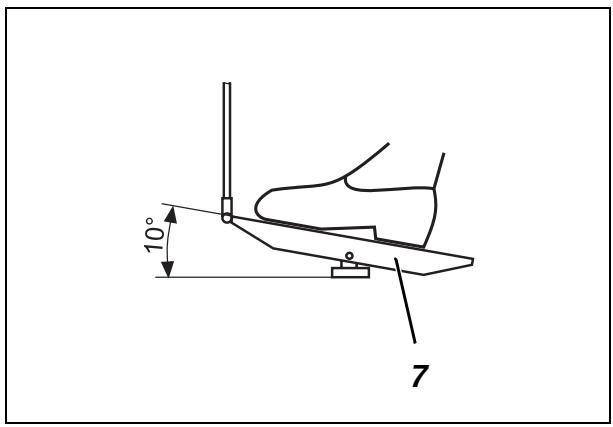
– Screw on the cover of the belt guard 8.

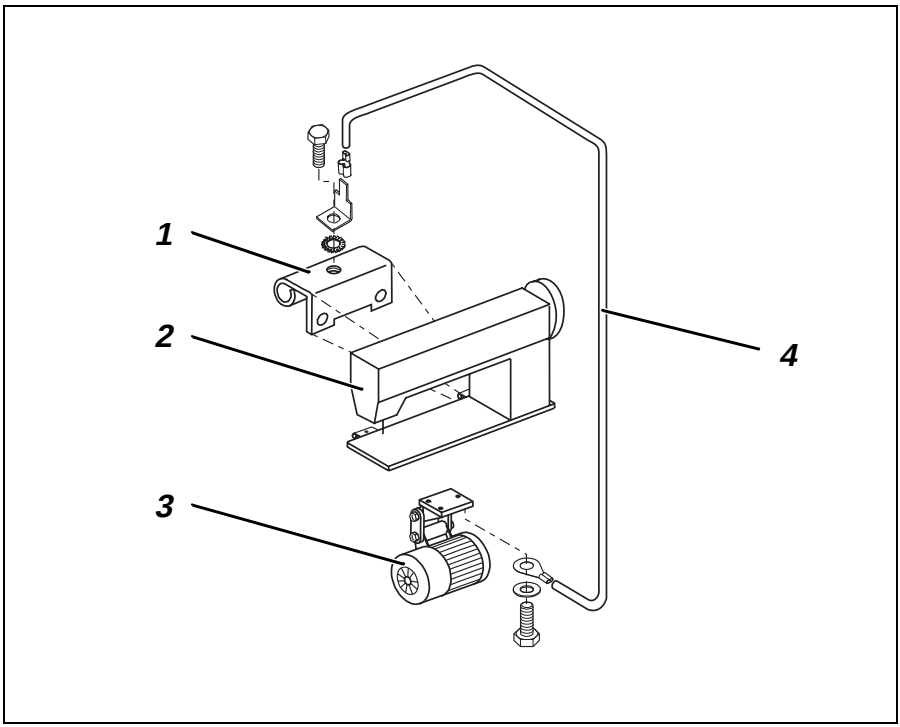


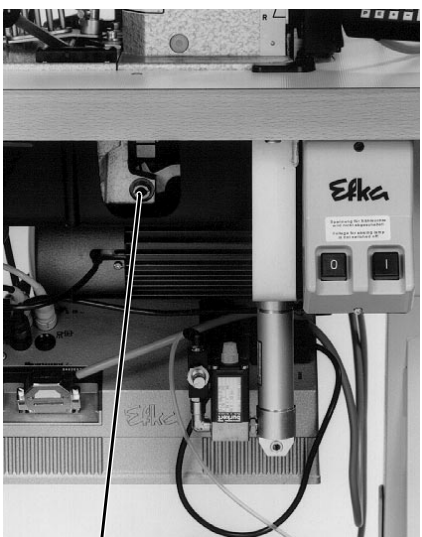

1 - Set value initiator
4 - Sewing drive
5 - Control box
6 - Connecting cable for commutation output

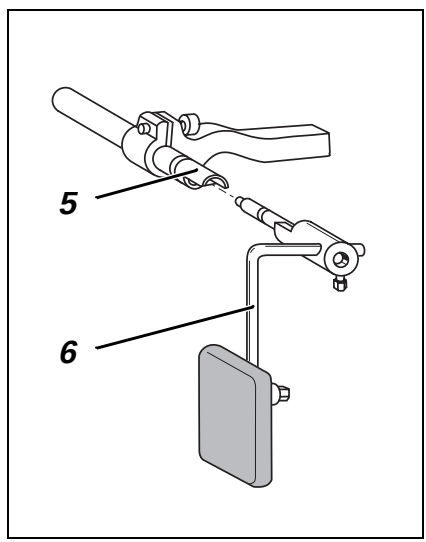
## 5.3 Attaching the Pedal

- Mount pedal 7 on stand brace 8.
- Align pedal 7 sideways as follows:
  The hung-in pedal rod 2 must be vertical.
  The frame brace 8 is equipped with slots for the alignment of the pedal.
- Hang in pedal rod 2.
- Loosen screw 3 slightly.
- Set the height of the pedal rod 2 as follows:
  The released pedal 7 must have an incline of approx. 10°.
- Tighten screw 3.




1
2
3
4


5


5
6

## 5.4 Potential Compensation

The ground lead 4 (part of the connection package) conducts static charges of the machine head 2 to ground via the sewing drive 3.

– Fasten the cable bracket of the ground lead 4 on the base of the sewing drive 3 with screw (M4) and washer.

– Guide the ground lead 4 up through the drilled hole in the table top.

– Fasten the ground lead 4 on the hinge 1 of the machine base plate with plug cap, flat plug and toothed washer.

## 5.5 Attaching the Knee Lever

The knee lever 6 mechanically raises the pressure feet.

– Insert knee lever 6 into the hollow shaft 5 and let catch.

**ATTENTION !**

Before tilting the machine head back remove the knee lever 6.

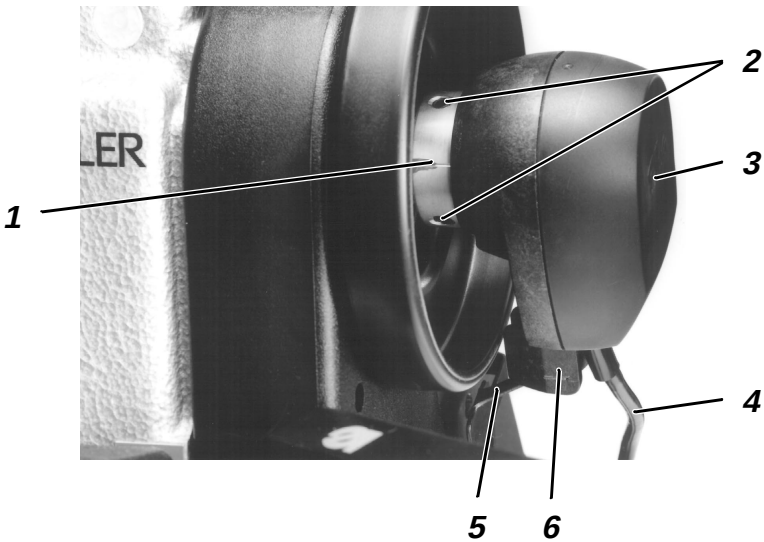
## 5.6 Attaching the Control Panel

– Fasten the external control panel 7 on the table top with mounting angle 9 and wood screw.

– Guide connection lead 8 of the control panel down through the drilled hole in the table top.

– Insert the plug of the connection lead 8 into the appropriate jack of the drive controls (see Table pg. 9).

# 6. Mounting, Connecting and Setting the Synchronizor




## 6.1 Mounting the Synchronizor

– Place the synchronizor 3 on the handwheel flange.
The groove in the neck 6 of the synchronizor housing must catch over the twist protection 5 on the belt guard.

– Tighten both set screws 2 on the synchronizor collar 1.

## 6.2 Connecting the Synchronizor

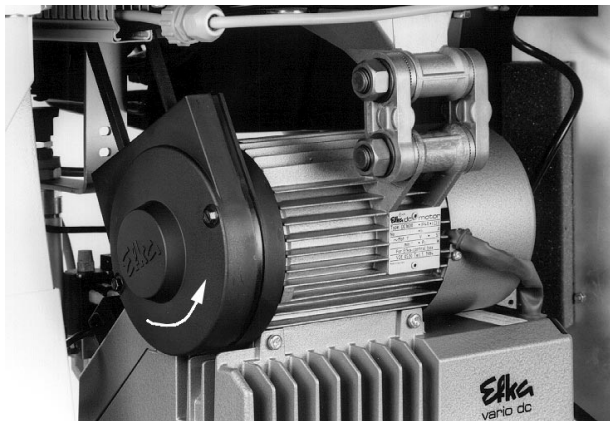
– Guide the connection lead 4 down through the drilled hole in the table top.

– Insert the plug of the connection lead 4 into the appropriate jack of the drive controls (see Table pg. 9).

## 6.3 Checking the Direction of Turn

**ATTENTION !**

Before commissioning the special sewing machine it is essential to check the direction of turn of the sewing drive. Turning on the special sewing machine with an incorrect direction of turn can lead to damage.




The arrow in the illustration shows the correct direction of turn (**counterclockwise run**).

**3-phase drives**

The direction of turn is determined by the rotary field of the current supply.

- Insert the mains plug.
- Check the direction of turn of the motor ventilator wheel by briefly turning on the main switch.
- With an incorrect direction of turn check if the current supply generates a clockwise rotary field.
  Is this the case, then two phases in the mains plug must be interchanged.

**Direct current drives**

The direction of turn is set to **counterclockwise run** at the factory.
If the special sewing machine was delivered in individual components, then the direction of turn is to be checked.

The direction of turn is set at the control panel.
With **counterclockwise run** the parameter **F-161** must be set to the value "**0**"
(see instructions of the motor manufacturer).

**ATTENTION !**

After a change in the direction of turn the positions must be programmed again.

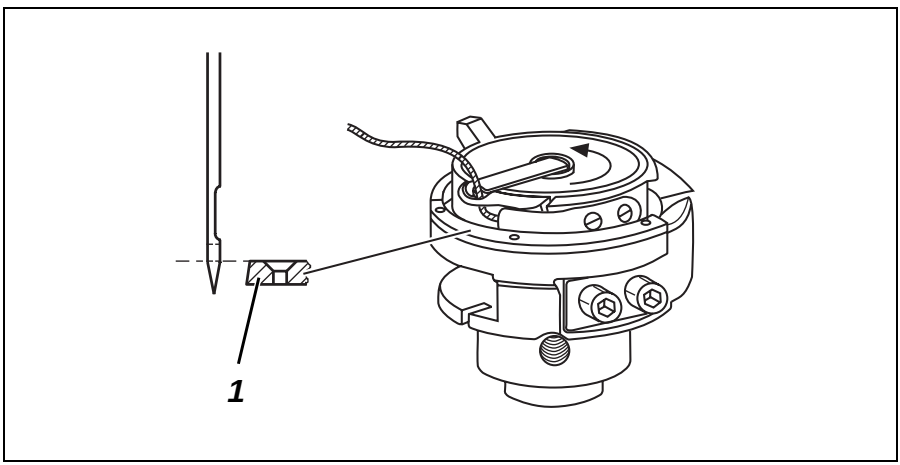
## 6.4 Checking the Positioning

**Reference position**

The reference position is the starting point for all positions set at the factory. In the reference position the lowering needle point lies at the height of the top of the needle plate.

**Position 1**

By sewing machines with thread trimmer the trimming sequence is initiated in the 1st position. The trimming must occur before the needle low position because the thread-pull knife would otherwise collide with the bobbin case opener finger.




In the 1st position the lower edge of the needle eye of the lowering needle must lie at one level with the hook covering ring 1.

**Position 2**

In the 2nd position the thread lever lies in the high position.

**Checking the positioning**

- Turn the main switch on.
- Briefly step forward on the pedal.
  The sewing machine positions in position 1.
  Check the position of the needle.
- Step the pedal completely back and hold.
  The thread is trimmed.
  The sewing machine positions in position 2 (thread lever high position).
- Check if the thread lever lies at its upper dead center.
  For this, turn the handwheel back and forth slightly.
- This normally completes the check.
  Should a correction of the factory settings be necessary, proceed as follows for the programming of the positions.

## 6.5 Setting the Positions

The synchronizor must be reset after the following work:

- Mounting of the synchronizor during installation of the special sewing machine
- Screwing off of the synchronizor
- Replacement of the synchronizor
- Replacement of the microprocessor of the dirve controls
- Replacement of the whole drive controls

No mechanical settings are necessary on the digital synchronizor.
Before commissioning only the reference position must be set.

The machine positions are registered by the synchronizor in steps (increments) and shown in the display.
One rotation of the handwheel corresponds to 512 steps.
The change in the display occurs in steps of 2. A change from one to the next display value thus corresponds to a rotation angle of approx. 1.4°.

The angle setting of positions 1 and 2 to the reference position is each defined by a specific number of increments.

**Programming steps:**

**1. Accessing the correction mode**

- Turn the main switch off.
- Press the "**P**" key and hold down.
- Turn the main switch on.
  The display shows "**C-0000**".
- Release the "**P**" key.

**2. Changing to the technician level**

- Enter code number "**1907**" via the numeric keys "**1**...**0**".
- Press the "**E**" key.
  The controls change to the "technician level".
  The display shows the parameter no. "**F-100**".
- When an incorrect code number is entered the text "**C-0000 Info F1**" appears.
  Repeat the entry.

**3. Programming the reference position**

- Enter parameter number "**170**" via the numeric keys "**1**...**0**".
- Press the "**E**" key.
  The display shows the parameter "**F-170**" with the short designation "**Sr1**" (Service routine 1).
  The LED above the "**F**" key blinks.
- Press the "**F**" key.
  The display shows "**Position 0**".
- Turn the handwheel at least one revolution in the direction of run until the reference position is reached (needle point at needle plate level).
- Press the "**P**" key.
  The set reference position is stored.

**4. Programming position 1**

- Enter parameter number "**171**" via the numeric keys "**1**...**0**".
- Press the "**E**" key.
  The display shows the parameter "**F-171**" with the short designation "**Sr2**" (Service routine 2).
  The LED above the "**F**" key blinks.
- Press the "**F**" key.
  The display shows "**Position 1**" and the corresponding number of increments.
- Turn the handwheel until the 1st position is reached.

**5. Programming position 2**

- Press the "**E**" key.
  The display shows "**Position 2**" and the corresponding number of increments.
- Turn the handwheel until the 2nd position is reached.

**6. Exiting the correction mode**

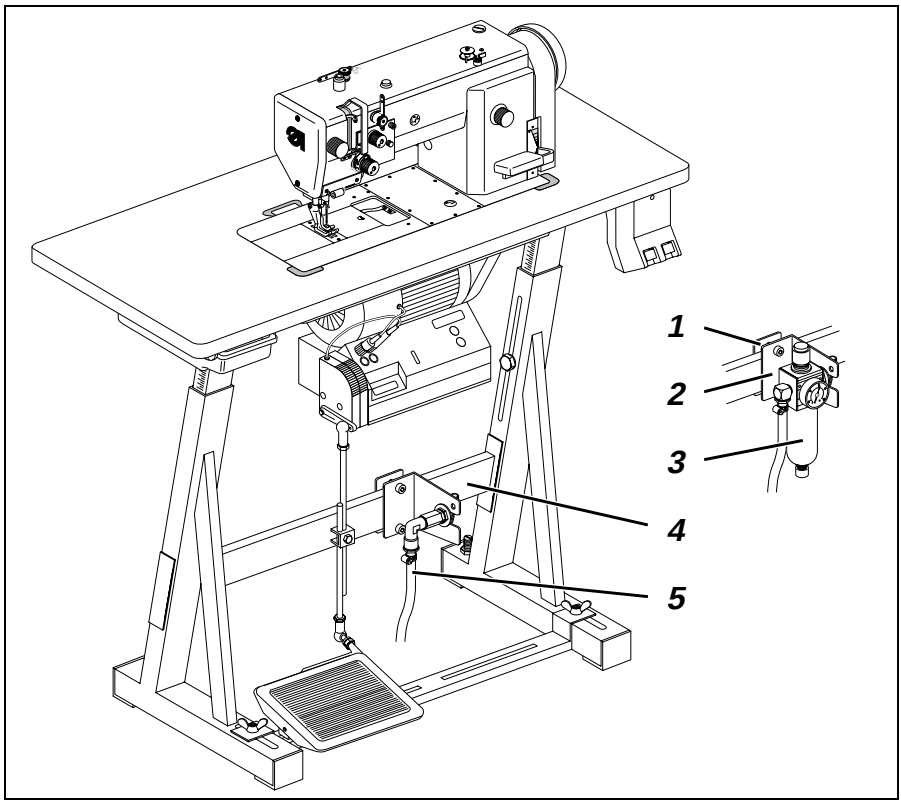
- Press the "**P**" key 2x.

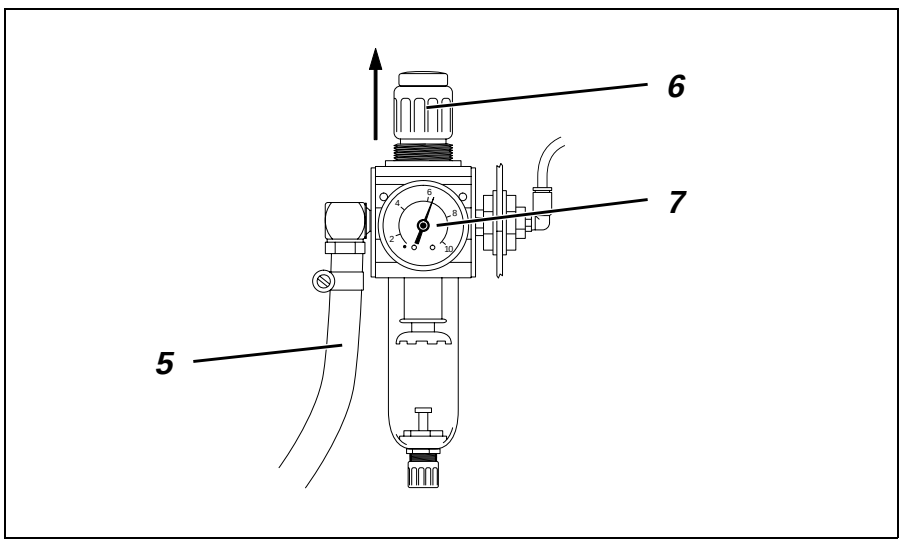
**7. Saving the setting**

- Briefly step forward on the pedal.
- Step the pedal completely back.
  Thread trimming occurs. The pressure feet rise.
  The corrected setting is stored.
- The sewing machine is ready for operation.

**ATTENTION !**

To complete the correction procedure it is essential to sew a little. Only then is the changed setting finally stored.
If no sewing occurs the setting is lost when the main switch is next turned off.


1
2
3
4
5


6
7
5

# 7. Pneumatic Connection

For the operation of the electropneumatic seam bartacking and sewing foot lift available as optional equipment (**RAP 13-4**), the special sewing machine must be supplied with water-free compressed air.

**ATTENTION !**

The flawless functioning of the electropneumatic seam bartacking and sewing foot lift (**RAP 13-4**) is only assured when the line pressure is 8 to 10 bar.

The operating pressure of the special sewing machine is **6 bar**.

– Connect the electropneumatic seam bartacking and sewing foot lift to the in-house compressed air supply with connection hose 5 (Ø = 9 mm).

– **Pneumatic connection package**
A pneumatic connection package for stands with compressed air maintenance unit and pneumatic optional equipment is available under Order no. 797 3031.
It contains following parts:
- Connection hose, 5m long, Ø = 9 mm
- Hose nozzles and hose clamps
- Coupling socket and coupling plug

## 7.1 Compressed Air Maintenance Unit

The compressed air maintenance unit WE-6 for pneumatic optional equipment is available under Order no. 9781 000002.

**Connecting the compressed air maintenance unit**

– Fasten the compressed air maintenance unit 3 on the stand brace 4 with angle 2 and bracket 1.

– Connect the compressed air maintenance unit 3 to the in-house compressed air supply with connection hose 5 (Ø = 9 mm) and hose coupling R1/4".

**Setting the operating pressure**

The operating pressure is **6 bar**.
It can be seen at the manometer 7.

– For setting the operating pressure pull up knob 6 and turn.
Increase pressure = Turn knob 6 clockwise
Decrease pressure = Turn knob 6 counterclockwise

# 7. Lubrication

**Caution Risk of Injury !**

Oil can cause skin rashes.
Avoid longer skin contact.
After contact wash yourself thoroughly.

**ATTENTION !**

The handling and disposal of mineral oils is subject to legal constraints.
Deliver used oil to an authorized reception point.
Protect your environment.
Take care not to spill any oil.

For filling the oil reservoir use only **ESSO SP-NK 10** lubricating oil or an equivalent oil with following specification:

- Viscosity at 40° C : 10 $mm^2/s$
- Flash point: 150 °C

**ESSO SP-NK 10** is available from **DÜRKOPP-ADLER AG** sales offices under the following parts no.s:

2 liter container: 9047 000013

5 liter container: 9047 000014

## 7.1 Filling the Oil Reservoirs

**Lubrication of the machine bottom**

- Screw out the oil fill screw 2.
- Fill oil.
- Check the oil level at the viewing glass 3.
  The oil level must lie between the two red marking lines.
- Screw the oil fill screw 2 in again.
- Remove overflow oil from the oil collector.

**Lubrication of the machine head**

- Fill tube 1 up to the edge with oil.
  The oil slowly reaches into the machine head through the felt under the tube.

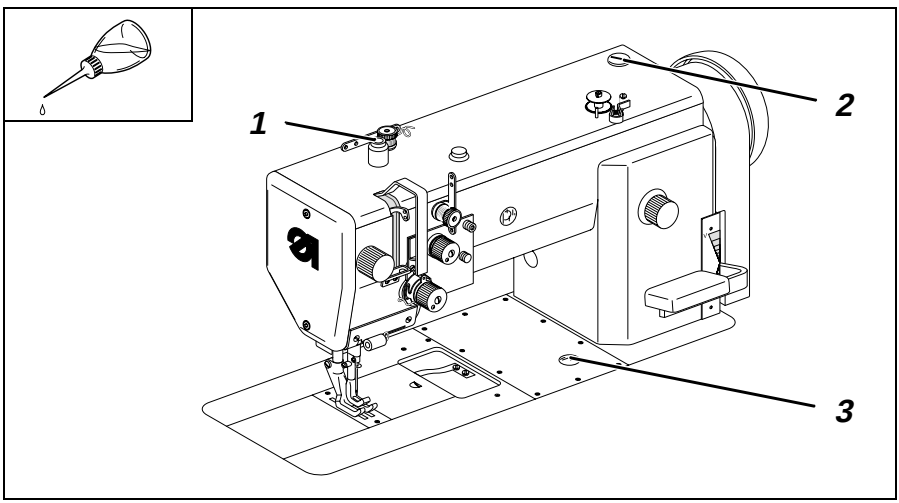
**Hook lubrication**

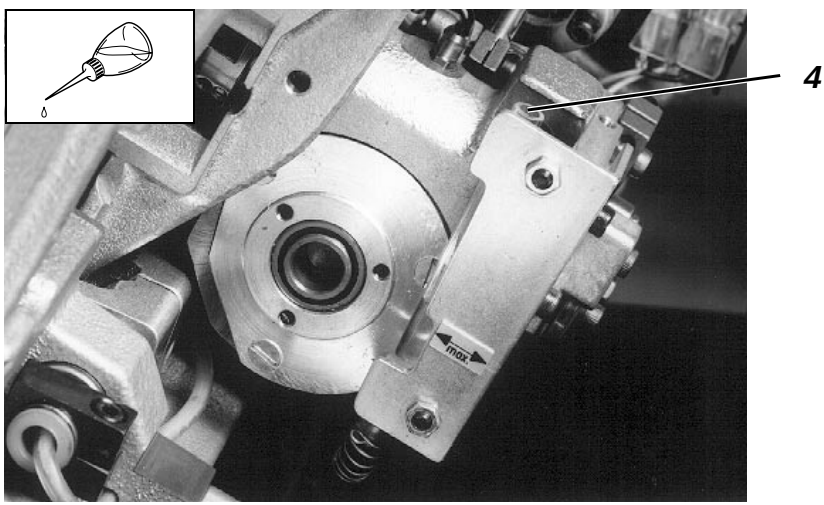
- Remove the knee lever.
- Tilt the machine head back.
- Fill the tube 4 up to the "**max.**" mark with oil.

**ATTENTION !**

In order to assure a sufficient lubrication of the hook during the run-in period a relatively large quantity of oil was set at the factory.

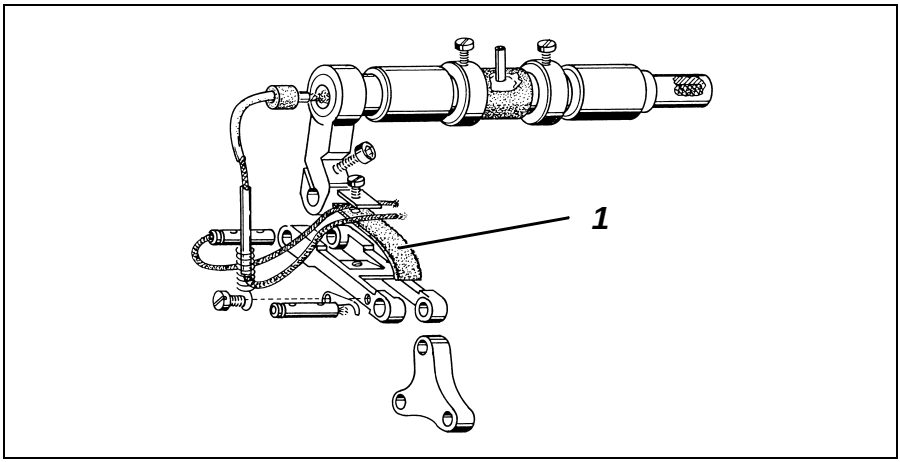
The setting is to be checked and reduced to the required quantity after the run-in period (see Service Instructions).

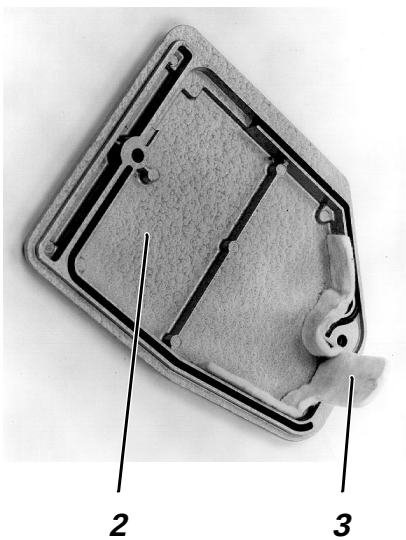


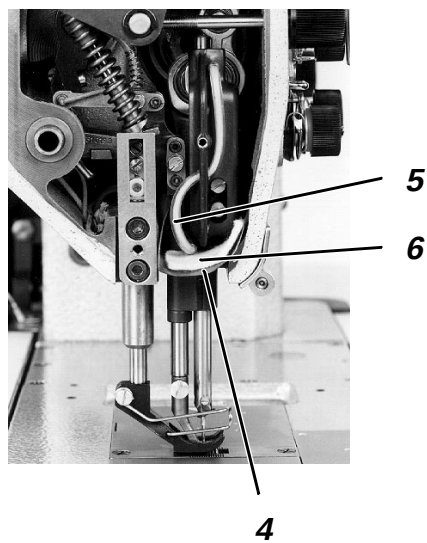



## 7.2 Oiling the Wicks and Felt Pads

During installation and after longer idle periods the wicks and the felt 1 in the maschine head are to be soaked with a little oil.




- Screw off the head cover 2.
- Soak the wicks and felt 1 with a little oil.
- Replace the head cover 2 and screw fast.
  Thereby clamp the felt tongue 3 of the head cover between the draw-off felt 6 and the nippel of the wick 5.
  The foil 4 must touch on the inside of the head cover 2.

# 8. Sewing Trial

A sewing trial is to be conducted after completion of the installation work!

– Plug in the mains plug.

**Caution Risk of Injury !**

Turn the main switch off.
Thread the underthread for winding only with the sewing machine turned off.

– Thread the underthread for winding (see Operating Instructions).
– Arrest the pressure feet in the high position (see Operating Instructions).
– Turn the main switch on.
– Fill the bobbin at a low sewing speed.

**Caution Risk of Injury !**

Turn the main switch off.
Thread the needle and underthreads only with the sewing machine turned off.

– Thread needle and underthreads (see Operating Instructions).
– Select the material to be sewn.
– Conduct the sewing trial first with low and then with continuously increasing speed.
– Check if the seams meet the desired requirements.
If the requirements are not met, change the thread tensions (see Operating Instructions).
the settings given in the Service Instructions are also to be checked as required and, if necessary, corrected.