PFAFF® Industrial

422
1422

INSTRUCTION MANUAL

This instruction manual applies to machines from the following serial numbers onwards:
540 337 →

296-12-18 397/002
Betriebsanleitung engl. 06.09



This Instruction Manual is valid for all models and subclasses listed in the chapter "Specifications ".

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PFAFF Industriesysteme
und Maschinen AG

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1 Safety

1.01 Regulations

This machine is constructed in accordance with the European regulations indicated in the conformity and manufacturer's declarations.
In addition to this instruction manual, please also observe all generally accepted, statutory and other legal requirements, including those of the user's country, and the applicable pollution control regulations!
The valid regulations of the regional social insurance society for occupational accidents or other supervisory authorities are to be strictly adhered to!

1.02 General notes on safety

- The machine must only be operated by adequately trained operators and only when the instruction manual has been fully read and understood!
- All notices on safety and the instruction manual of the motor manufacturer are to be read before the machine is put into operation!
- All notes on the machine concerning danger and safety must be observed!
- The machine must be used for the purpose for which it is intended and must not be operated without its safety devices; all regulations relevant to safety must be adhered to.
- When part sets are changed (e.g. needle, presser foot, needle plate, feed dog or bobbin), during threading, when the workplace is left unattended and during maintenance work, the machine must be isolated from the power supply by turning off the on/off switch or removing the plug from the mains!
- Daily maintenance work must only be carried out by appropriately trained persons!
- Repairs and special maintenance work must only be carried out by qualified technical staff or persons with appropriate training!
- During maintenance or repairs on the pneumatic system the machine must be isolated from the compressed air supply! The only exception to this is when adjustments or function checks are carried out by appropriately trained technical staff!
- Work on the electrical equipment must only be carried out by technical staff who are qualified to do so!
- Work on parts or equipment connected to the power supply is not permitted! The only exceptions to this are specified in regulations EN 50110.
- Conversion or modification of the machine must only be carried out under observation of all relevant safety regulations!

- Only spare parts which have been approved by us are to be used for repairs! We draw special attention to the fact that spare parts and accessories not supplied by us have not been subjected to testing nor approval by us. Fitting and/or use of any such parts may cause negative changes to the design characteristics of the machine. We shall not accept any liability for damage caused by the use of non-original parts.

1.03 Safety symbols



Danger!
Special points to observe.



Danger of injury to operating or technical staff!



Caution

Do not operate without finger guard and safety devices. Before threading, changing bobbin and needle, cleaning etc. switch off main switch.

1.04 Important notes for the user

- This instruction manual belongs to the equipment of the machine and must be available to the operating staff at all times.
  This instruction manual must be read before the machine is operated for the first time.
- Both operating and technical staff must be instructed on the safety devices of the machine and on safe working methods.
- It is the duty of the user to operate the machine in perfect running order only.
- The user must ensure that none of the safety devices are removed nor put out of working order.
- The user must ensure that only authorized persons operate and work on the machine.

For further information please refer to your PFAFF agency.

1.05 Notes for operating and technical staff

1.05.01 Operating staff

Operating staff are the persons responsible for setting up, operating and cleaning the machine and for removing any disturbances in the sewing area.

The operating staff are obliged to observe the following points, and must:

- always observe the notes on safety in this instruction manual!
- avoid using any working methods which adversely effect the safety of the machine!
- avoid wearing loose-fitting clothing or jewelry such as necklaces or rings!
- also ensure that only authorized persons are allowed near the danger area of the machine!
- immediately report to the user any changes to the machine that may affect its safety!

1.05.02 Technical staff

Technical staff are persons who have been trained in electrical engineering, electronics, pneumatics and mechanical engineering. They are responsible for lubricating, servicing, repairing and adjusting the machine.

The technical staff are obliged to observe the following points, and must:

- always observe the notes on safety in this instruction manual!
- switch off the on/off switch before carrying out adjustment and repair work and ensure it cannot be switched on again unintentionally!
- never work on parts or equipment still connected to the power supply! Exceptions to this are only permissible according to regulations EN 50110;
- isolate the machine from the compressed air supply when carrying out maintenance or repair work on pneumatic equipment!
  Exceptions to this are only permissible for function checks;
- replace all safety covers after carrying out maintenance or repair work!

1.06 Danger warnings

A working area of 1 m must be kept free both in front of and behind the machine, so that easy access is possible at all times.

Never put your hands in the sewing area during sewing!
Danger of injury by the needle!

While setting or adjusting the machine do not leave any objects on the table nor in the needle plate area! Objects may be trapped or slung out of the machine!

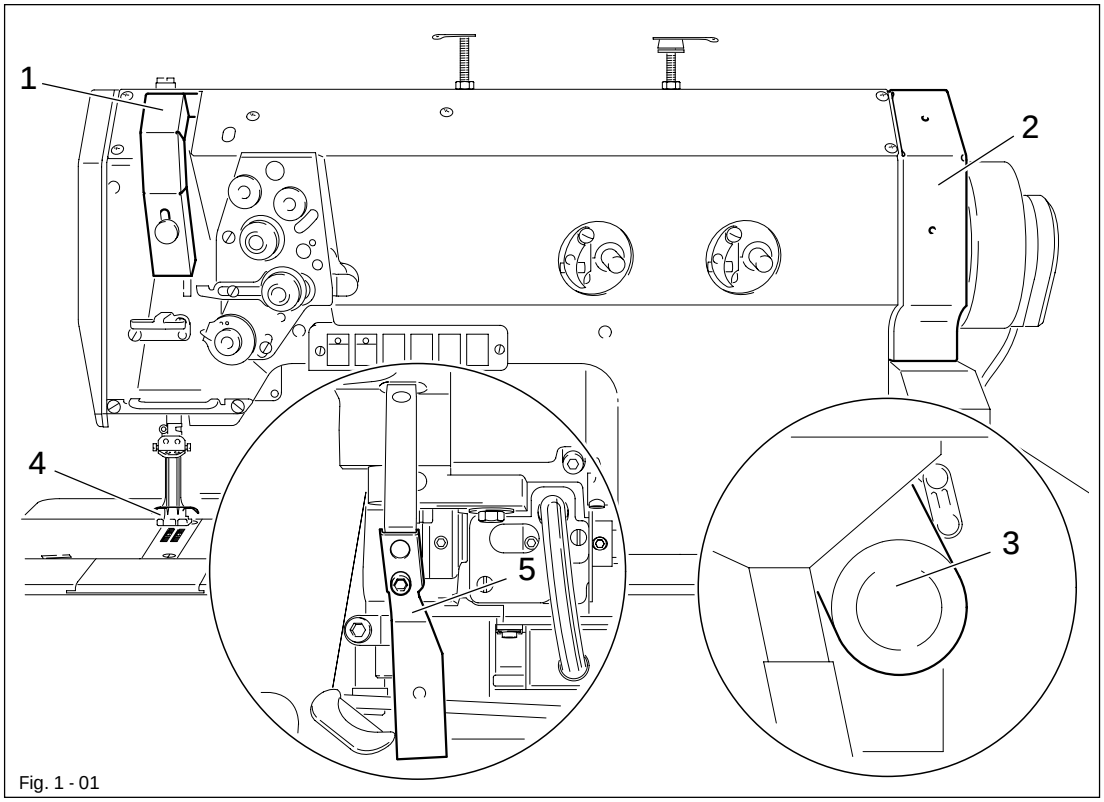


Fig. 1 - 01

Do not operate the machine without take-up lever guard 1!
Danger of injury due to movement of the take-up lever!

Do not operate the machine without belt guards 2 und 3!
Dange of injury by the rotating v-belt!

Do not operate the macine without finger guard 4!
Danger of injury by the needle!

Do not operate the machine without tilt lock 5!
Danger of crushing between sewing head and table!

2 Proper use

The PFAFF 422 is a special two-needle high-speed lockstitch seamer with compound feed.

The PFAFF 1422 is a special two-needle high-speed lockstitch seamer with compound feed and large sewing hook.

These machines are intended for sewing lockstitch seams in the textile industry.



Any use of these machines which is not approved by the manufacturer shall be considered as improper use! The manufacturer shall not be liable for any damage arising out of improper use! Proper use shall also be considered to include compliance with the operation, adjustment, service and repair measures specified by the manufacturer!

3 Specifications

3.01 PFAFF 422, PFAFF 1422▲

Stitch type: ..... 301 (lockstitch)

Effective dia. of balance wheel: ..... 65 mm

Needle system:
PFAFF 422: 134
PFAFF 1422: 134-35

Fabric clearance:
PFAFF 422: ..... 7 mm
PAFFF 1422: ..... 9 mm

Clear workspace width: ..... 252 mm
Clear workspace height: 110

Stitch length
PFAFF 422: ..... 4.5 mm max.
PFAFF 1422: ..... 6 mm max.

Noise level at workplace
at a speed of 2,800 r.p.m.: ..... 80 dB (A)
Noise measurement according to DIN 456365-48-A-1

Net weight of sewing head: ..... approx. 51 kg
Gross weight: ..... approx. 59 kg

Maximum sewing speed
The maximum sewing speed depnds on the operation and on the material to be sewn.

PFAFF 422

Model	Maximum sewing speed		
	Needle gauge up to 6,4 mm	Needle gauge up to 7,2 - 14 mm	Needle gauge from 15 mm
A	5000 min^{-1}	4500 min^{-1}	4000 min^{-1}
B	4500 min^{-1}	4000 min^{-1}	3500 min^{-1}

PFAFF 1422

Model	Maximum sewing speed		
	Needle gauge up to 6,4 mm	Needle gauge up to 7,2 - 14 mm	Needle gauge from 15 mm
B	4000 min^{-1}	3800 min^{-1}	3500 min^{-1}
C	3800 min^{-1}	3500 min^{-1}	3200 min^{-1}

▲Subject to technical alterations

3.02 Needle and thread

Selection of the correct needle depends on the machine model, the thread used and the material

Model	Application	Needle thickness (Nm) [1/100 mm]	Max. thread sitze (Nm) synthetic▲
A	For sewing light materials	60 - 70	100
B	For sewing medium materials	80 - 100	50
C	For sewing medium-heavy materials	110 - 140	15/3

▲ or comparable sizes of other thread types

3.03 Possible work aids

Subclass -900/81 ..... thread trimmer
Subclass -910/04 ..... automatic foot lift
Subclass -911/35 ..... automatic backtack

4 Disposal of Machine

- Proper disposal of the machine is the responsibility of the customer.
- The materials used for the machine are steel, aluminium, brass and various plastic materials.
  The electrical equipment comprises plastic materials and copper.
- The machine is to be disposed of according to the locally valid pollution control regulations; if necessary, a specialist ist to be commissioned.



Care must be taken that parts soiled with lubricants are dispoed of separately according to the locally valid pollution control regulations!

5 Transportation, packing and storage

5.01 Transportation to customer's premises

Within the Federal Republic of Germany, complete machines (with table and motor) are delivered without packing.
Machines without table (only sewing heads) and machines intended for exports are packed.

5.02 Transportation inside the customer's premises

The manufacturer cannot be made liable for transportation inside the customer's premises nor to other operating locations. It must be ensured that the machines are only transported in an upright position.

5.03 Disposal of packing materials

The packing materials of this machine comprise paper, cardboard and VCE fibre. Proper disposal of the packing material is the responsibility of the customer.

5.04 Storage

If the machine is not in use, it can be stored as it is for a period of up to six months, but It should be protected against dust and moisture.
If the machine is stored for longer periods, the individual parts, especially the surfaces of moving parts, must be protected against corrosion, e.g. by a film of oil.

6 Explanation of symbols

In this instruction manual, work to be carried out or important information is accentuated by symbols. These symbols have the following meanings:



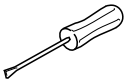
Note, information



Cleaning, care



Lubrication



Maintenance, repairs, adjustment, service work
(only to be carried out by technical staff)

7 Controls

7.01 On/off switch

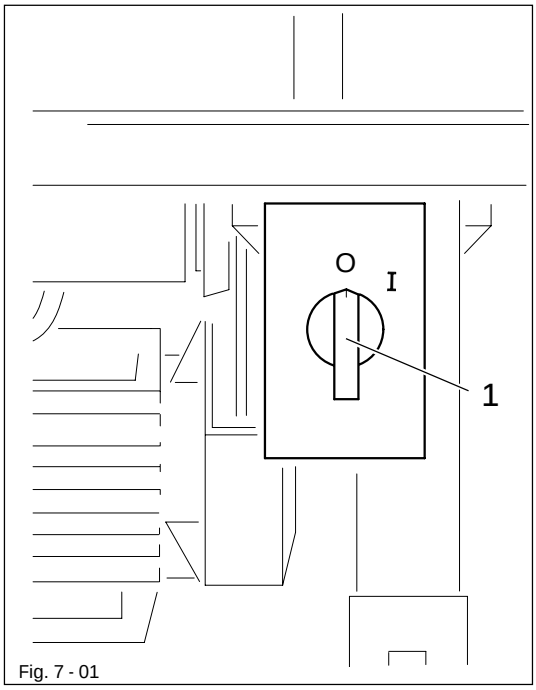


Fig. 7 - 01

- Switch machine on or off by turning on/-off switch 1.

7.02 Keys on machine head

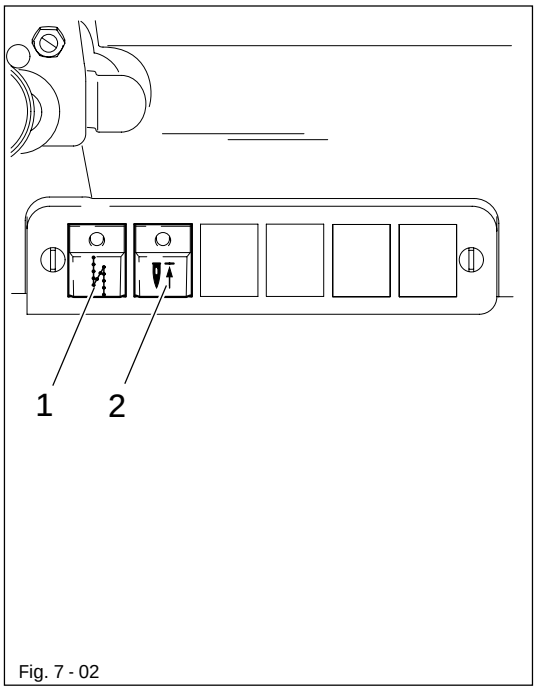


Fig. 7 - 02

- The keys on the machine head are pressed to set off certain functions.

Key 1: Reverse sewing or intermediate backtack within the seam

Key 2: Raise needle

7.03 Pedal

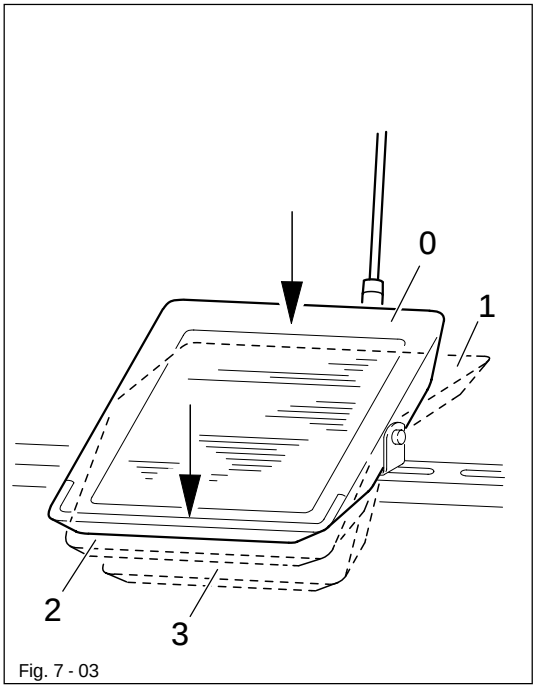


Fig. 7 - 03

0 = Neutral position

1 = Sewing

2 = Raise presser foot

3 = Trim sewing threads

For other pedal functions please refer to the instruction manual of the motor manufacturer.

7.04 Knee lever

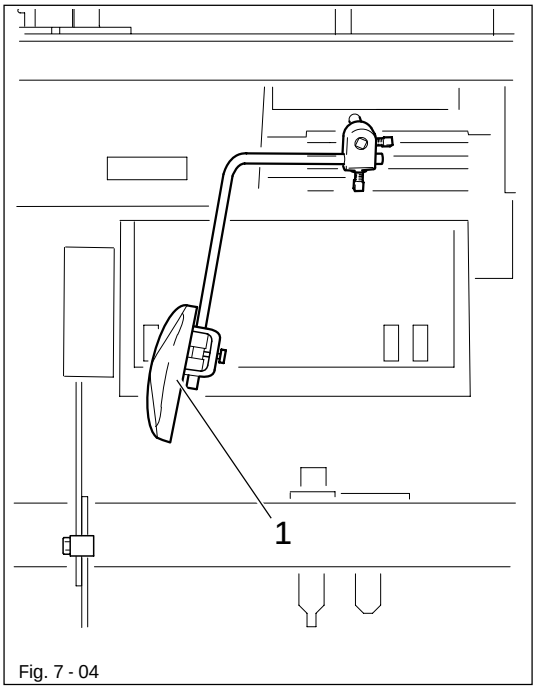


Fig. 7 - 04

- The presser foot is raised by pressing knee lever 1.

7.05 Presser bar lifter

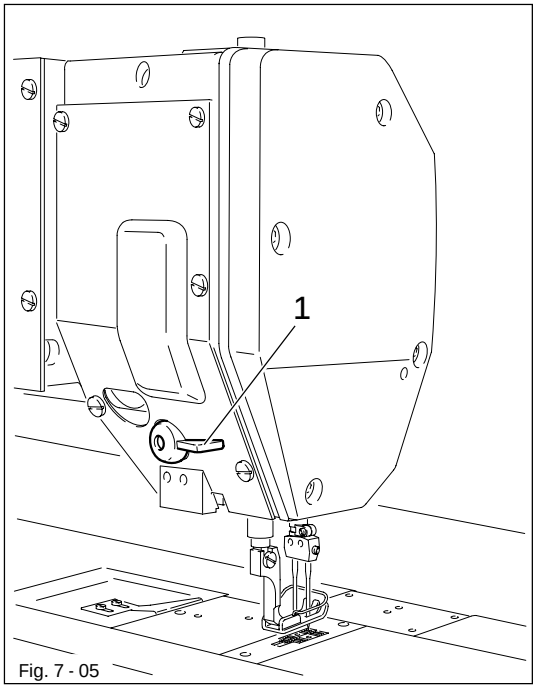


Fig. 7 - 05

- The presser foot is raised by turning presser bar lifter 1.

7.06 Feed regulator wheel

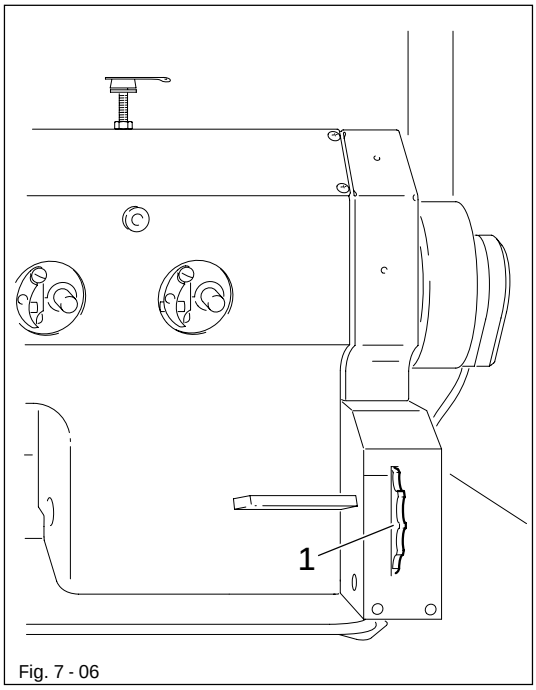


Fig. 7 - 06

- The stitch length is set by turning regulator wheel 1.

7.07 Reverse-feed control

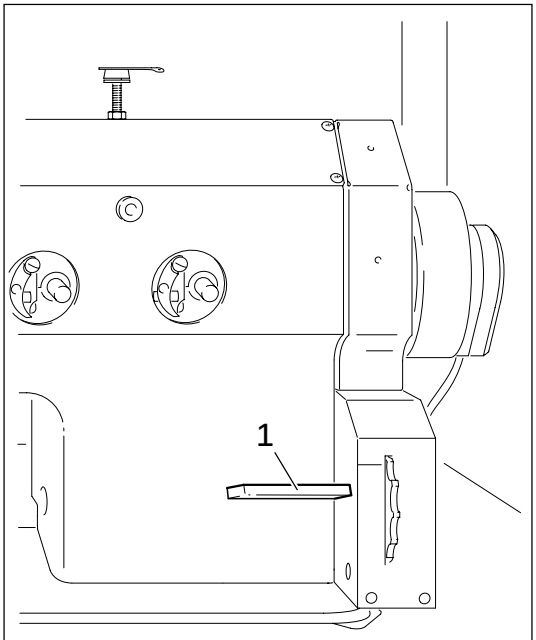


Fig. 7 - 07

- To sew in reverse, press reverse-feed control lever 1.

8 Installation and commissioning

The machine must only be installed and commissioned by qualified personnel!
All relevant safety regulations must be strictly adhered to!

If the machine is delivered without a table, be sure to use a stand and table top that can hold the weight of the machine with its motor.
It is very important to ensure that the stand of the machine is firm and steady, also during sewing.

8.01 Installation

The site where the machine is installed must be provided with suitable connections for electric current.
It must be ensured that the standing surface of the machine site is firm and horizontal, and that sufficient lighting is provided for.

For packing and transportation reasons the table top is in the lowered position.
The table height is adjusted as described below.

8.01.01 Adjusting the table height

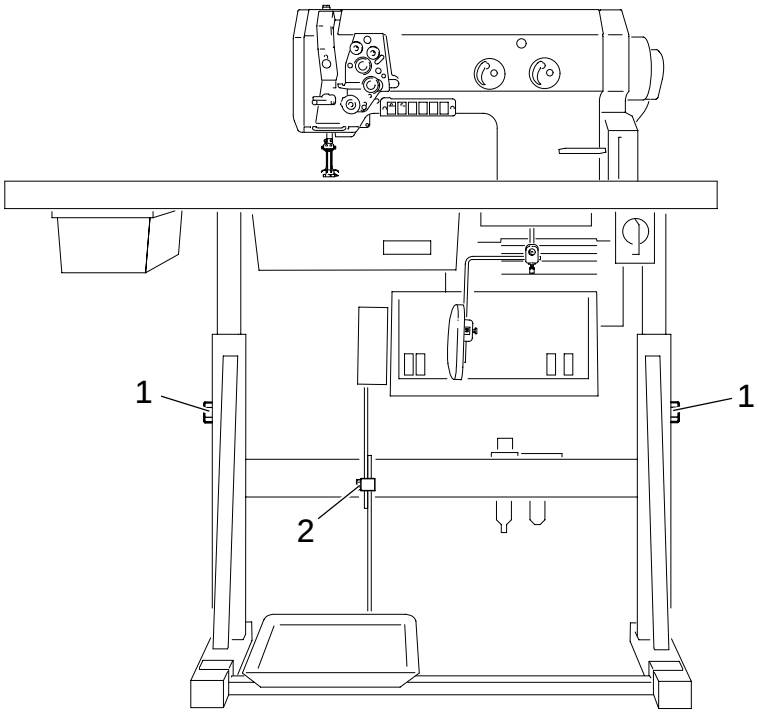


Fig. 8 - 01

- Loosen screws 1 and 2 and set the table height as required.
- Firmly tighten screw 1.
- Set the required pedal position and tighten screw 2.

8.01.02 Fitting the tilt lock

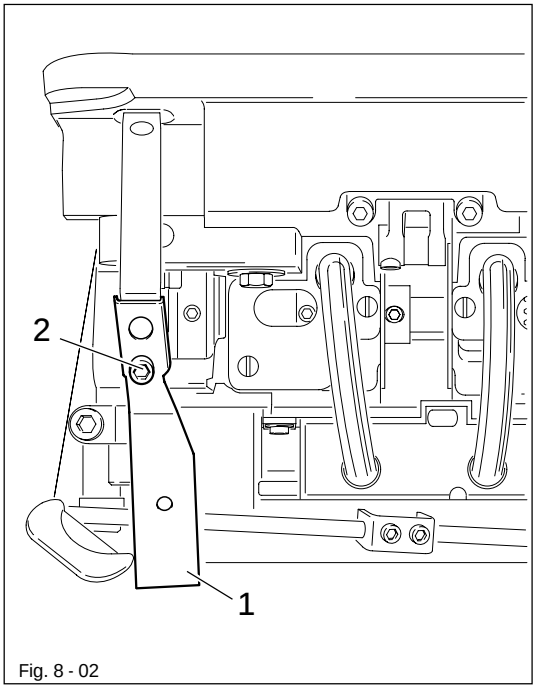


Fig. 8 - 02

- Screw on tilt lock 1, provided in the accessories, using screw 2.



Do not operate the machine without tilt lock 1!
Danger of crushing between sewing head and table top!

8.01.03 Tensioning the v-belt

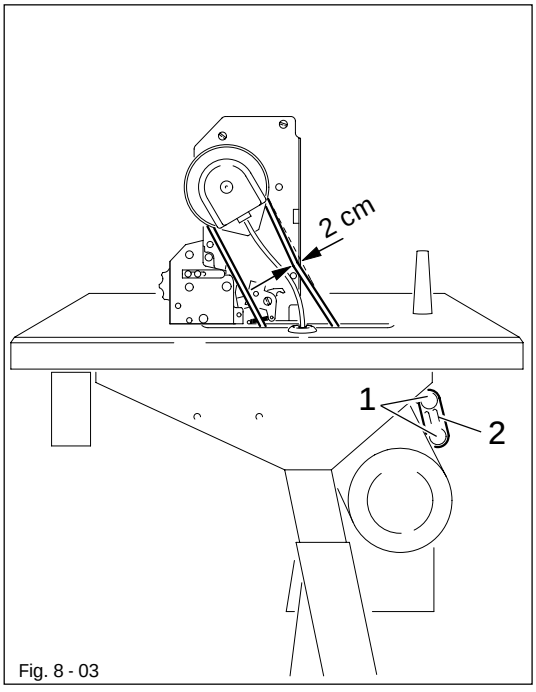


Fig. 8 - 03

- Loosen nut 1.
- Set tension of v-belt by moving motor bracket 2.
- Tighten nuts 1.

8.01.04 Fitting the top v-belt guard

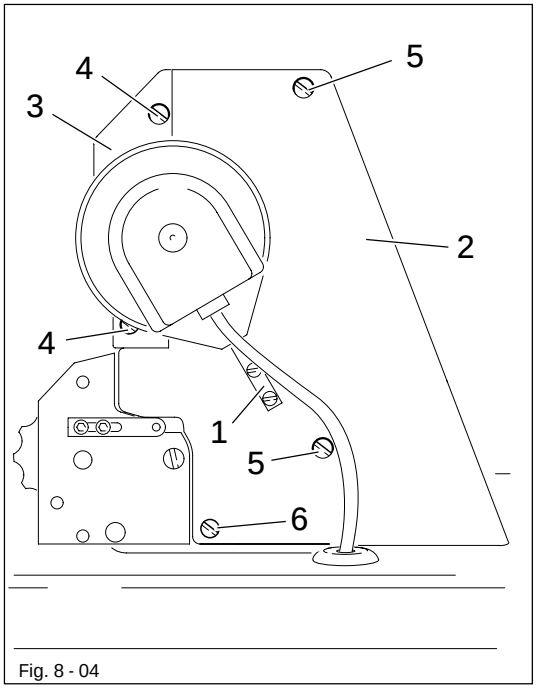


Fig. 8 - 04

- Screw retainer 1 onto right v-belt half 2.
- Fit left v-belt part 3 using screws 4.
- Fit right part 2 of the v-belt guard by pushing its slots behind the heads of retaining screws 5 and screw it on with screw 6. Afterwards fully tighten screws 5 through the holes.

8.01.05 Fitting the bottom v-belt guard

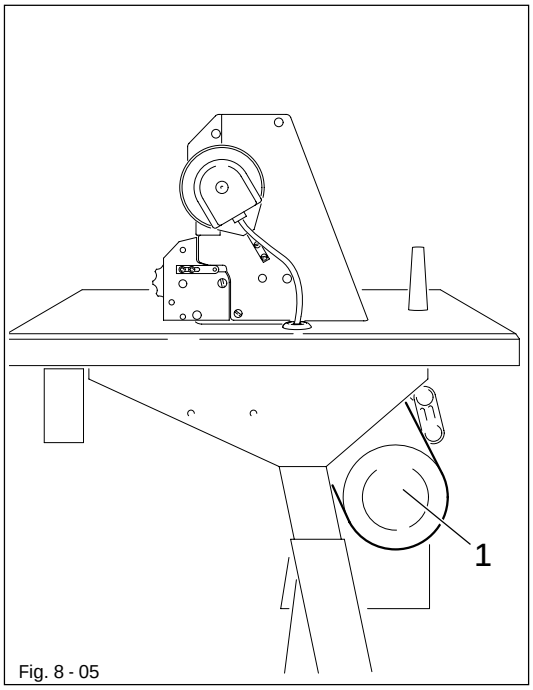


Fig. 8 - 05

- Position v-belt guard 1 in such a way that motor pulley and v-belt can run freely.

Fig. 8 - 05 shows a Quick motor. If a different motor is used, the instruction manual of the motor must be complied with.

8.01.06 Fitting the synchronizer

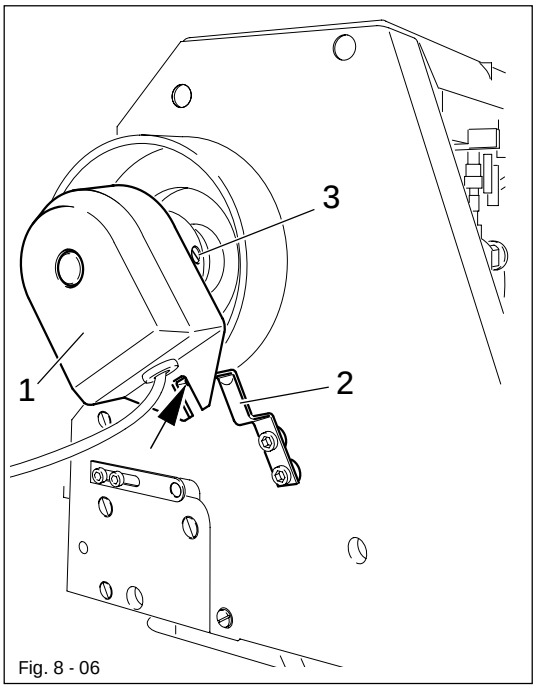
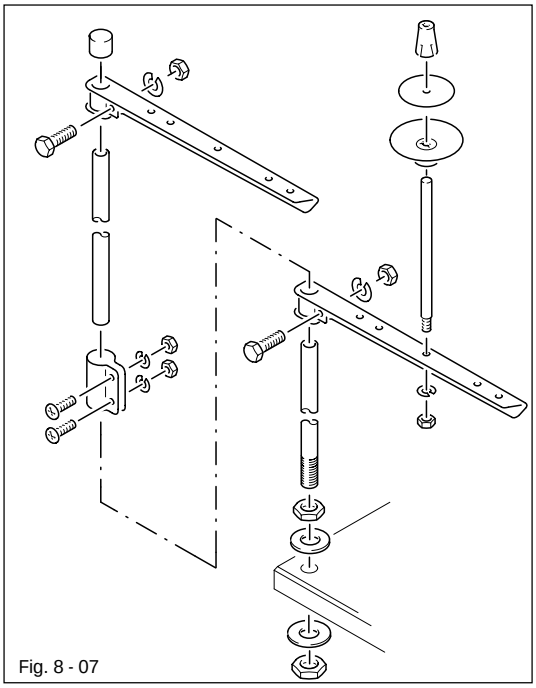


Fig. 8 - 06

- Push synchronizer 1 onto the shaft so that stop 2 is standing in the slot on the synchronizer (see arrow)
- Tighten screws 3 a little.
- Connect the synchronizer plug to the socket on the control box.
- Adjust the synchronizer (see Chapter 11.04.01 Adjusting the synchronizer)

8.01.07 Fitting the reel stand


Fig. 8 - 07

- Fit the reel stand as shown in Fig. 8 - 07.
- Afterwards insert the stand in the hole in the table top and secure it with nuts provided.

8.02 Commissioning

- Check the machine, particularly its electrical wiring and pneumatic tube connections, for any damage.
- Clean the machine thoroughly and afterwards fill with oil and oil the machine (see Chapter 10, Care and maintenance).
- Have a mechanic check whether the motor of the machine can be used with the available power supply and that the motor is correctly connected in the junction box.
  Do not operate the machine if there is any discrepancy.
- When the machine is running, the balance wheel must turn towards the operator. If it does not, have the motor connection changed by a mechanic.
- Connect the machine to the compressed air supply. When it is connected, the gauge should indicate a pressure of approx. 6 bar. If necessary have this reading correctly set (see Chapter 10.03, Checking/adjusting the air pressure).
- Before commissioning the machine, remove grommet 1 of oil container 2.

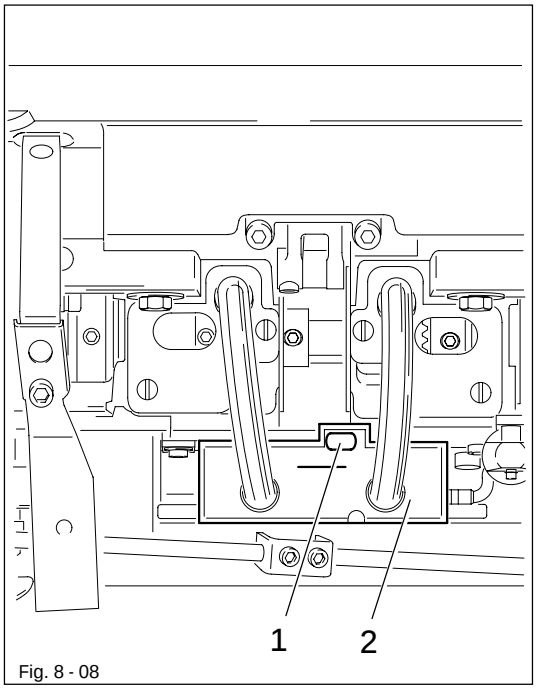


Fig. 8 - 08



Grommet 1 is only needed for support during transportation and must not be used while the machine is in operation.

8.03 Switching the machine on/off

- Switch the machine on (see Chapter 7.01, On/off switch).
- Carry out a running test.

9 Setting up

All instructions and regulations in this instruction manual must be observed. Special attention must be given to all safety regulations!

All setting-up work must only be done by personnel with the necessary training. For all setting-up work the machine must be isolated from its power supply by turning off the on/off switch or removing the machine plug from the electric power socket!

9.01 Inserting the needle

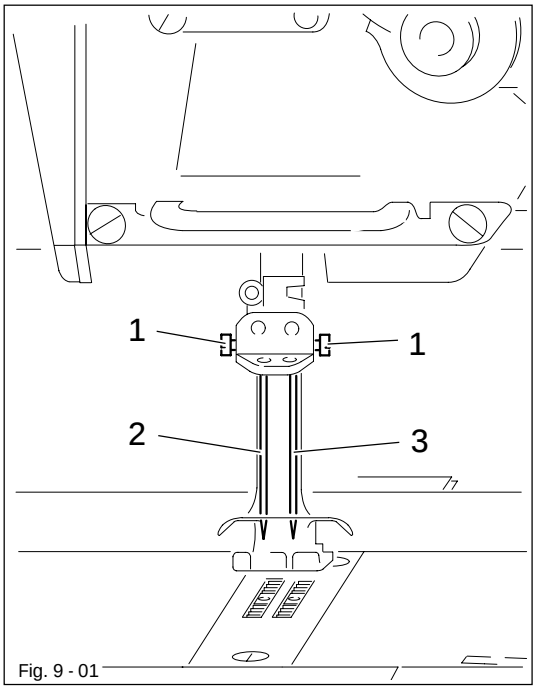


Fig. 9 - 01

Switch the machine off! Danger due to unintentional starting of the machine!

Only use the following needle systems:
PFAFF 422: System 134
PFAFF 1422: System 134-35

- Set the needle bar at its top position and loosen screws 1.
- Push needles 2 and 3 fully in (the long groove of needle 2 must face to the right and that of needle 3 to the left).
- Fully tighten screws 1 again.

The choice of needle depends on the model of the machine and the thread and material used for sewing (see Chapter 3, Specifications).

9.02 Winding the bobbin thread, regulating the winder tension

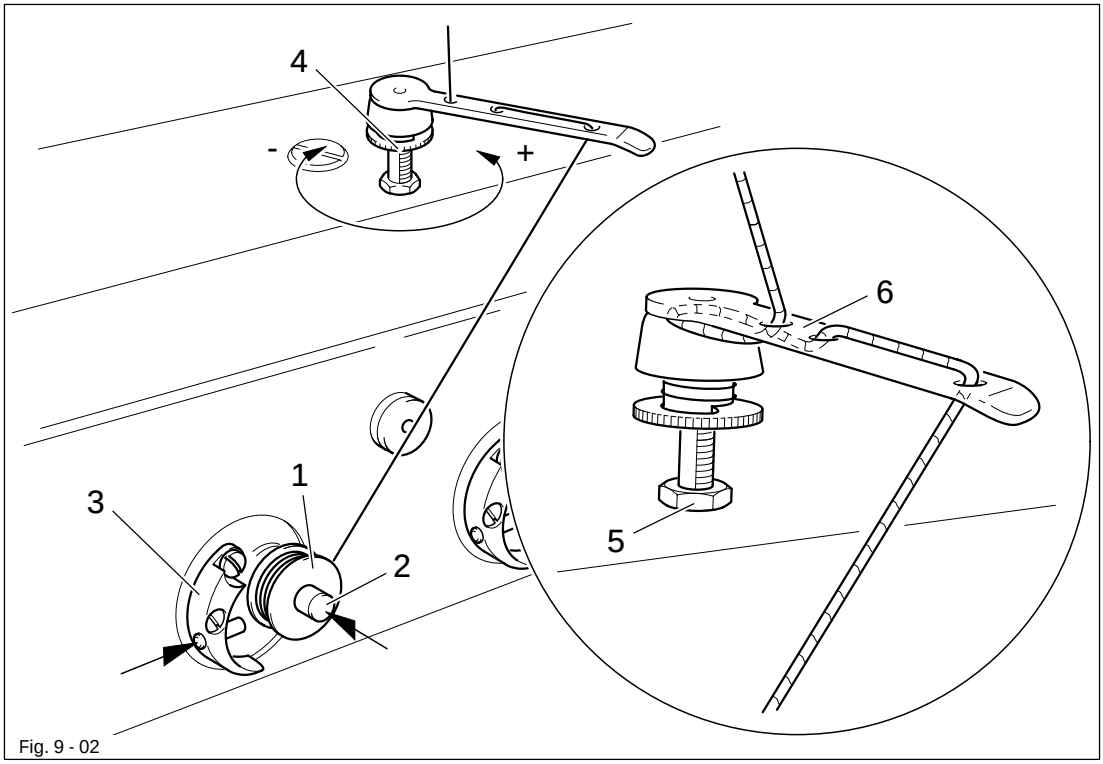


Fig. 9 - 02

- Place an empty bobbin 1 on winder spindle 2.
- Thread up as shown in Fig. 9 - 02 and wind the thread a few times clockwise around bobbin 1.
- Engage the bobbin winder by pressing spindle 2 and lever 3 simultaneously.

The bobbin is wound during sewing.

- The tension of the thread wound onto bobbin 1 is set on milled screw 4.
- The bobbin winder will stop when sufficient thread is wound onto bobbin 1.

If the thread is wound on unevenly:

- Loosen nut 5.
- Turn thread guide 6 as required.
- Tighten nut 5 again.

9.03 Removing and inserting the bobbin case

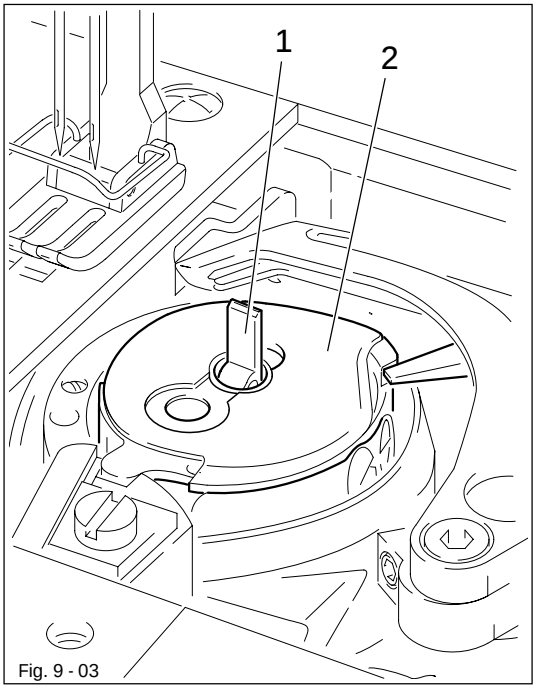


Fig. 9 - 03

Switch the machine off!
Danger due to unintentional starting of the machine!

Removing the bobbin case:

- Set the take-up lever at its top position.
- Open the hook cover, latch 1, and remove bobbin case 2.

Inserting the bobbin case:

- Insert bobbin case 2 so that you feel it snap in.
- Push down latch 1 and close the hook cover.

Do not run the machine with the hook cover removed!
Danger of injury by moving parts!

9.04 Threading the bobbin case and adjusting the bobbin thread tension

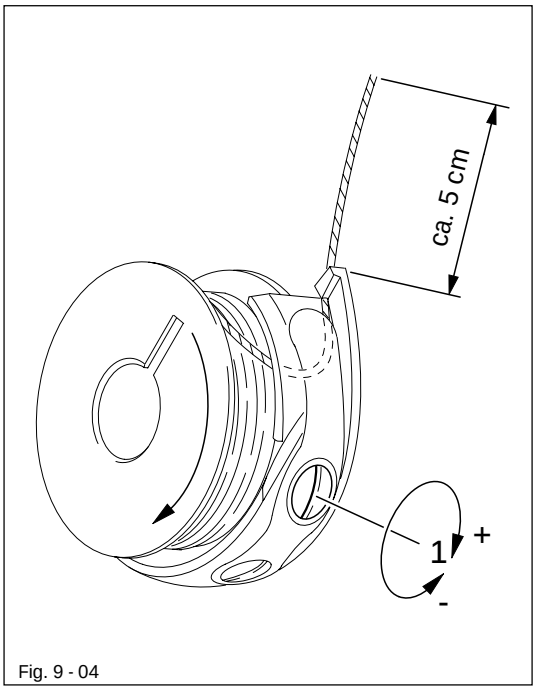


Fig. 9 - 04

Switch the machine off!
Danger due to unintentional starting of the machine!

- Thread bobbin as shown in Fig. 9-04 so that the bobbin turns as shown by the arrow when the thread is pulled.
- Turn screw 1 to adjust bobbin thread tension as required.

9.05 Threading needle threads and regulating tensions

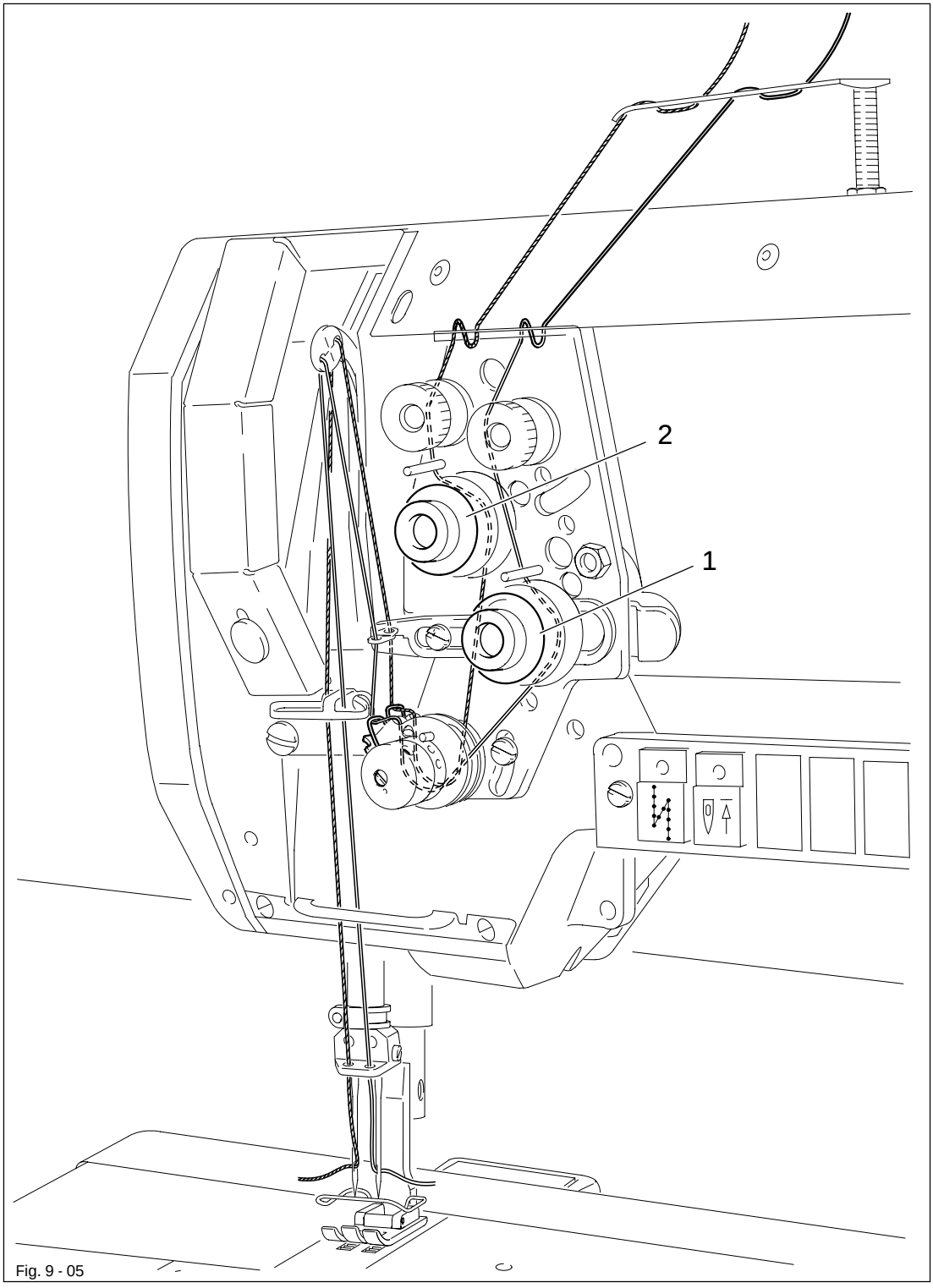


Fig. 9 - 05



Switch the machine off!
Danger due to unintentional starting of the machine!

- Thread the needle thread as shown in Fig. 9 - 05.
- Regulate the needle-thread tension by turning milled screw 1 (right needle) or 2 (left needle).

10 Care and maintenance

Clean hook areas	daily, more frequently if in continuous operation
Check oil level (hook oil container)	daily, before operation
Check/adjust air pressure	taily, before operation
Clean hook	once per week
Clean oil filter of air filter/regulator	when required

These maintenance intervals apply to the average machine running time in single-shift operation. If machine running times are increased, it is advisable to shorten these intervals.

10.01 Cleaning the hook areas and the hooks

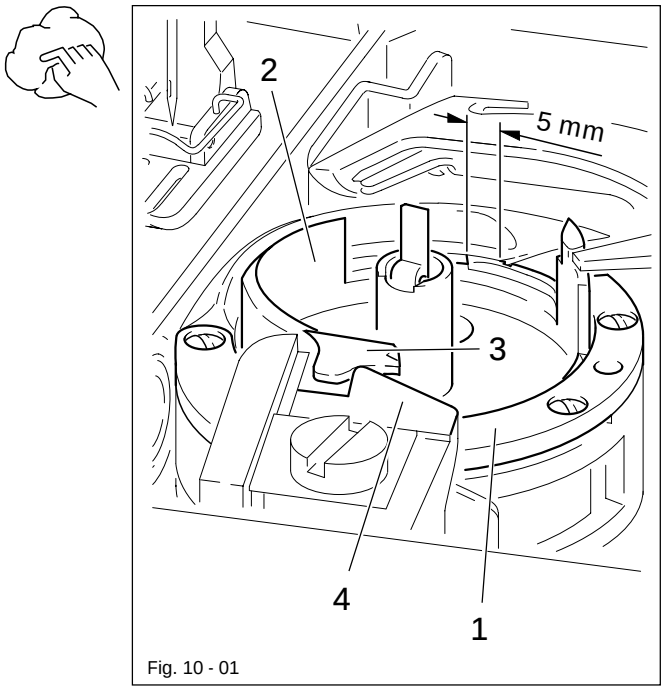


Fig. 10 - 01

Switch the machine off!
Danger due to unintentional starting of the machine!

Cleaning hook areas:

- Clean hook areas with a brush daily, more frequently if in continuous operation.

Cleaning hook

- Clean both hooks thoroughly once a week; to do so, open hook cover.
- Set needle bar at its top position.
- Take out bobbin case together with bobbin.
- Remove hook gib 1.
- Turn the balance wheel until the tip of the hook base enters the groove of the hook race by about 5 mm, and take out hook base 2.
- Clean hook race with petroleum spirit.
- When inserting the hook base, make sure that lug 3 fits into the slot of positioning stop 4.
- Screw on hook gib 1.
- Insert bobbin case and close bed slide.

10.02 Oiling the hook



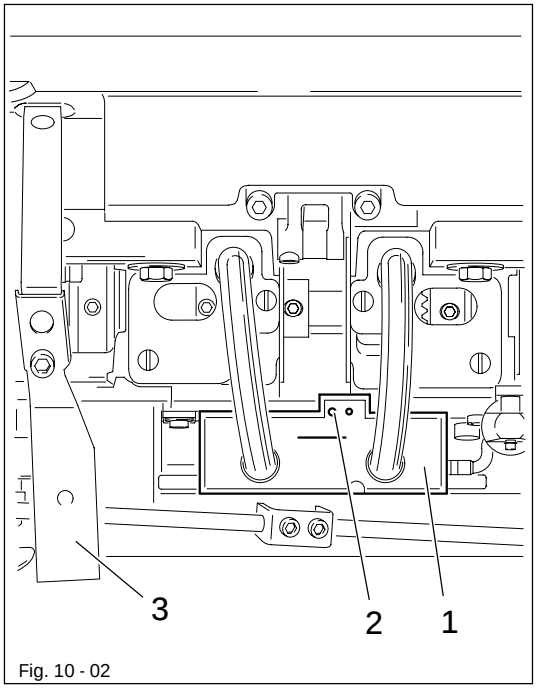


Fig. 10 - 02

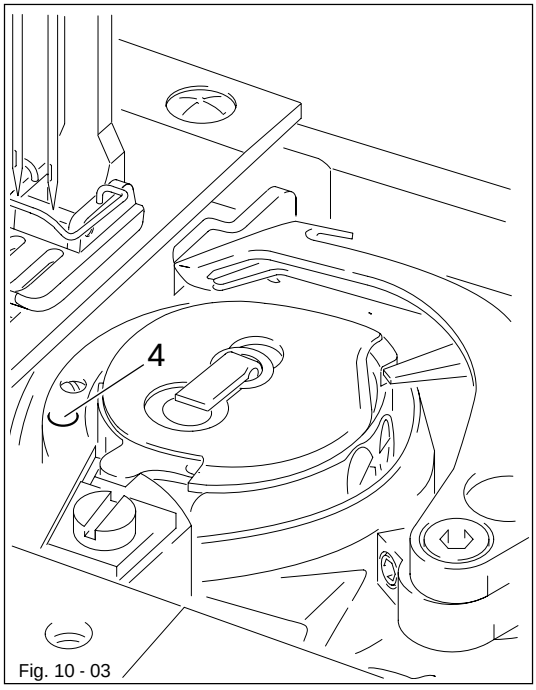


Fig. 10 - 03



Switch the machine off!
Danger due to unintentional starting of the machine!



Check the oil level every time before operation!
There must always be oil in container 1!

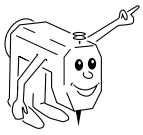
- If required, pull knee lever out towards front and tilt machine back.
- Top up oil container 1 through hole 2 to the mark.
- Before initial operation and when the machine has stood for a long time, apply 1 to 2 drops of oil into hole 4 of the hook gib on both hooks in addition.
- To set the machine upright press tilt lock 3 and position the machine upright with both hands.



When setting the machine upright always hold it with both hands!
Danger of crushing your hands between table cutout and machine!



Only use oil with a medium viscosity of 22.0 mm²/s at 40° C and a density of 0.865 g/cm³ at 15 C.



We recommend PFAFF sewing mahine oil, No. 280-1-120 144.

10.03 Checking/adjusting the air pressure



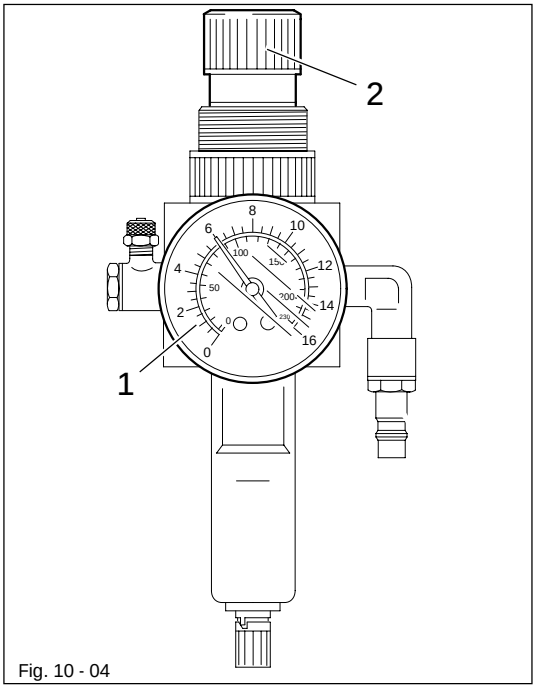


Fig. 10 - 04

- Before operating the machine, always check the air pressure on gauge1.
- Gauge 1 must show a pressure of 6 bar.
- If necessary adjust to this reading.
- To do so, pull knob 2 upwards and turn it so that the gauge shows a pressure of 6 bar.

10.04 Cleaning the air filter of the air-filter/lubricator



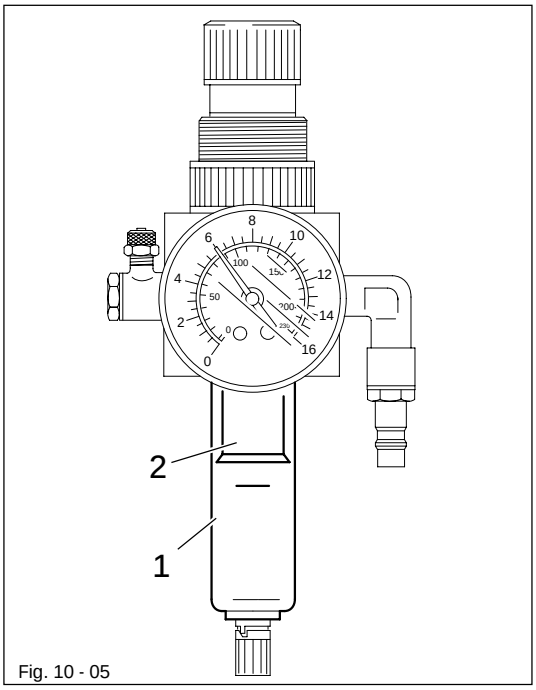


Fig. 10 - 05



Switch the machine off!
Disconnect the air hose at the air-filter/lubricator.

To drain water bowl 1:

- Water bowl 1 drains itself automatically whe the compressed-air hose is disconnected from the air-filter/lubricator.

Cleaning filter 2:

- Unscrew water bowl 1.
- Take out filter 2.
- Clean filter 2 with compressed air or isopropyl alcohol (part No. 95-665 735-91).
- Screw in filter 2 and screw on water bowl 1.

11 Adjustment



Some of the adjustments in the hook area have to be carried out on the left and right sewing hook. Attention is drawn to this in the chapters concerned.

11.01 Notes on adjustment

All adjustments in these adjustment instructions are based on a fully assembled machine. Machine covers that have to be removed and replaced to carry out checks and adjustments are not mentioned in the text. Screws, nuts and other means of fixation for machine parts indicated in the text in brackets ( ) are to be loosened before the adjustment and tightened again afterwards.

11.02 Tools, gauges and other equipment

- Set of screwdrivers with 2 to 10 mm blade widths
- Set of open-ended spanners/wrenches, 7 to 14 mm across flats
- Set of allen keys from 2 to 6 mm
- Needle rise gauge, part No. 61-111600-01
- Screw clamp, part No. 61-111600-35/001
- Adjustment gauge, 1.1 mm and 7.0 mm, part No. 61-111633-71
- Metal rule, part No. 08-880218-00
- Sewing thread and test material

11.03 Abbreviations

t.d.c. = top dead centre
b.d.c. = bottom dead centre

11.04 Adjusting the basic machine

11.04.01 Adjusting the synchronizer

Requirement
1. At a seam interruption the machine must position the needle bar at 4 mm past b.d.c.
2. After thread trimming the machine must position the take-up lever at t.d.c.

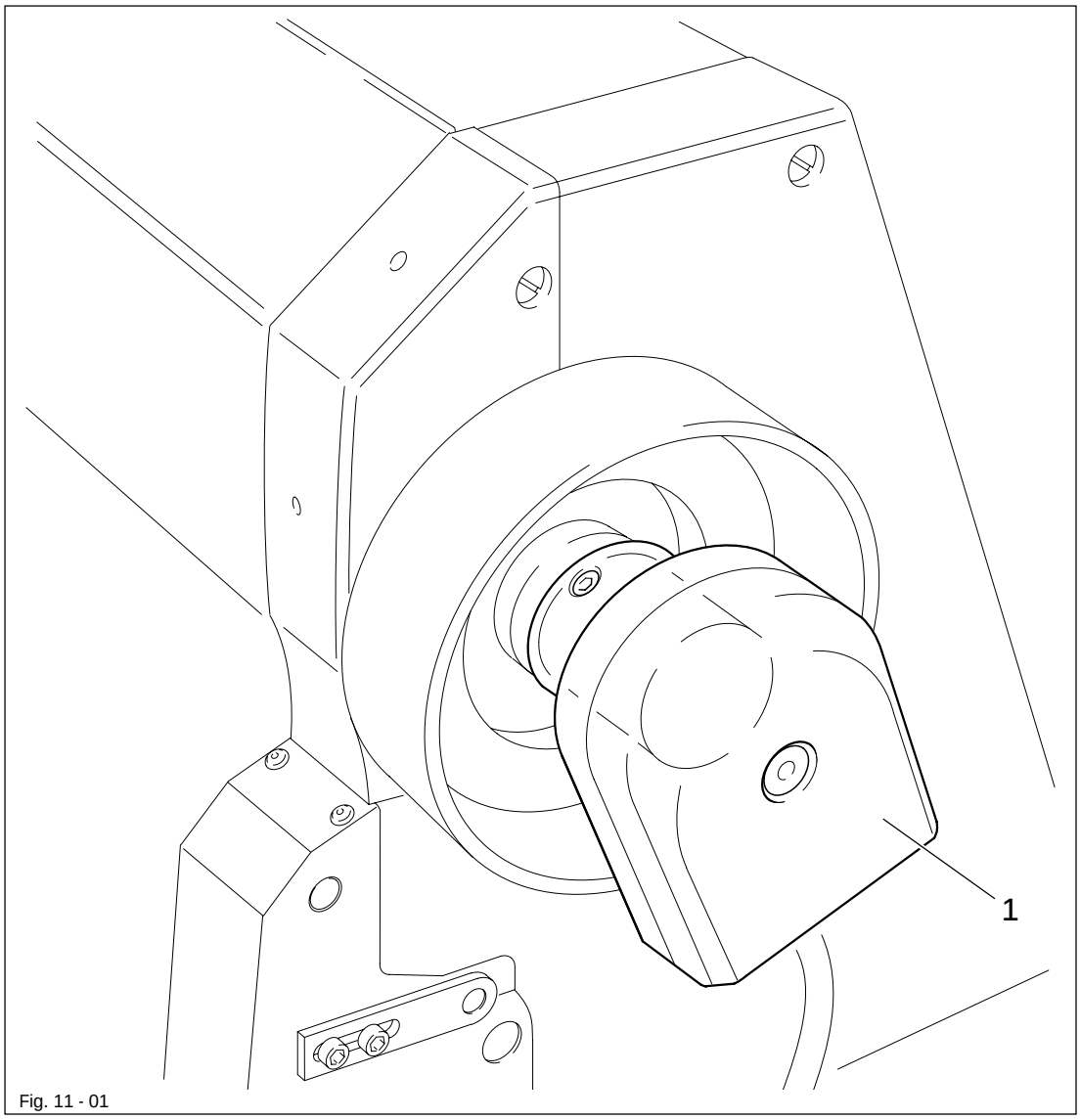


Fig. 11 - 01

- Carry out adjustments according to motor instruction manual.
- See also Chapter 11.06, Parameter adjustments.

11.04.02 Balance weight

Requirement
At needle bar t.d.c. the eccentric lobe of balance weight 1 must face downwards.

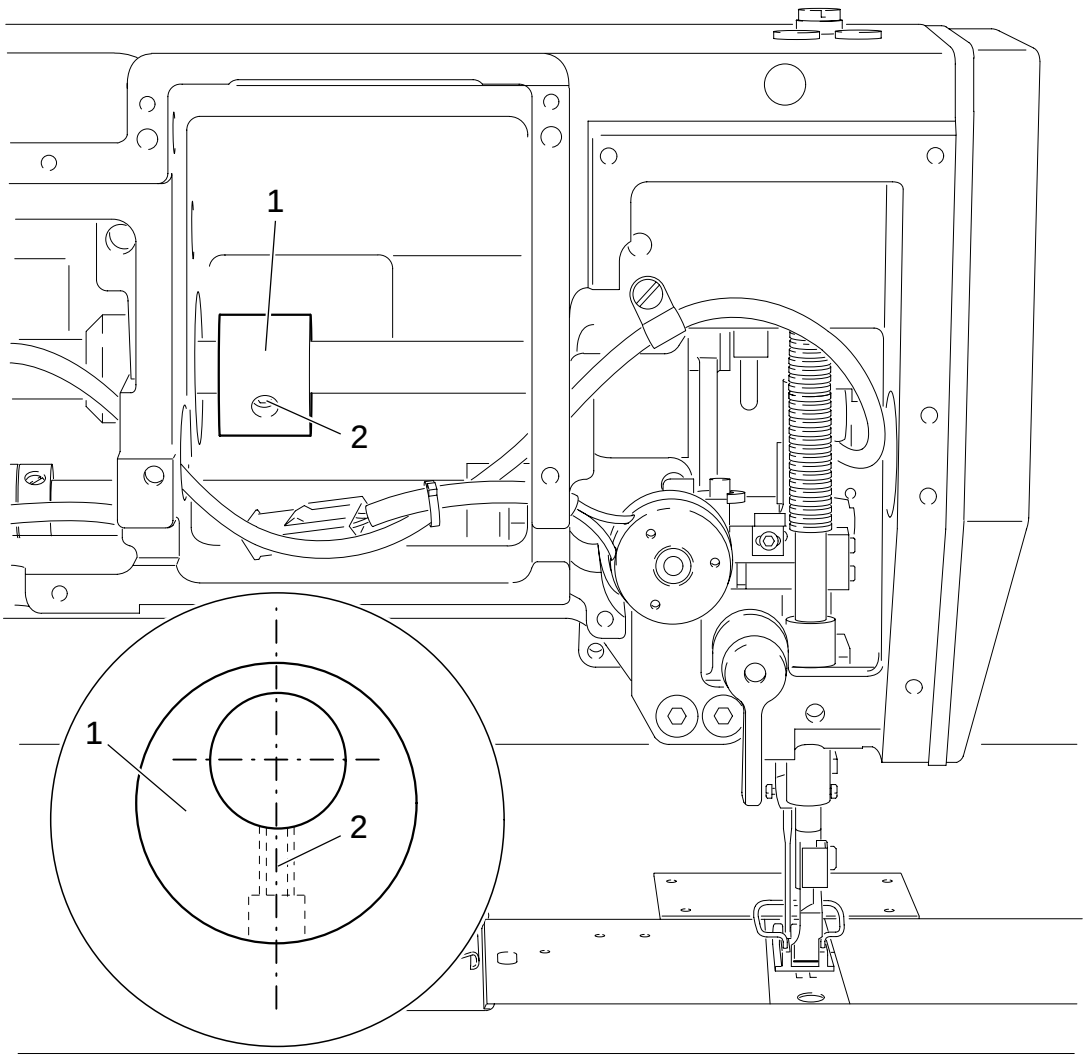
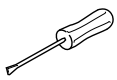


Fig. 11 - 02



- Adjust balance weight 1 (screw 2) according to Requirement.

11.04.03 Positioning the feed dog in the needle plate cutout

Requirement

1. The feed dog must be positioned in the centre of the needle plate cutout.
2. At the longest stitch length setting the feed dog must not strike the needle plate during its movement.

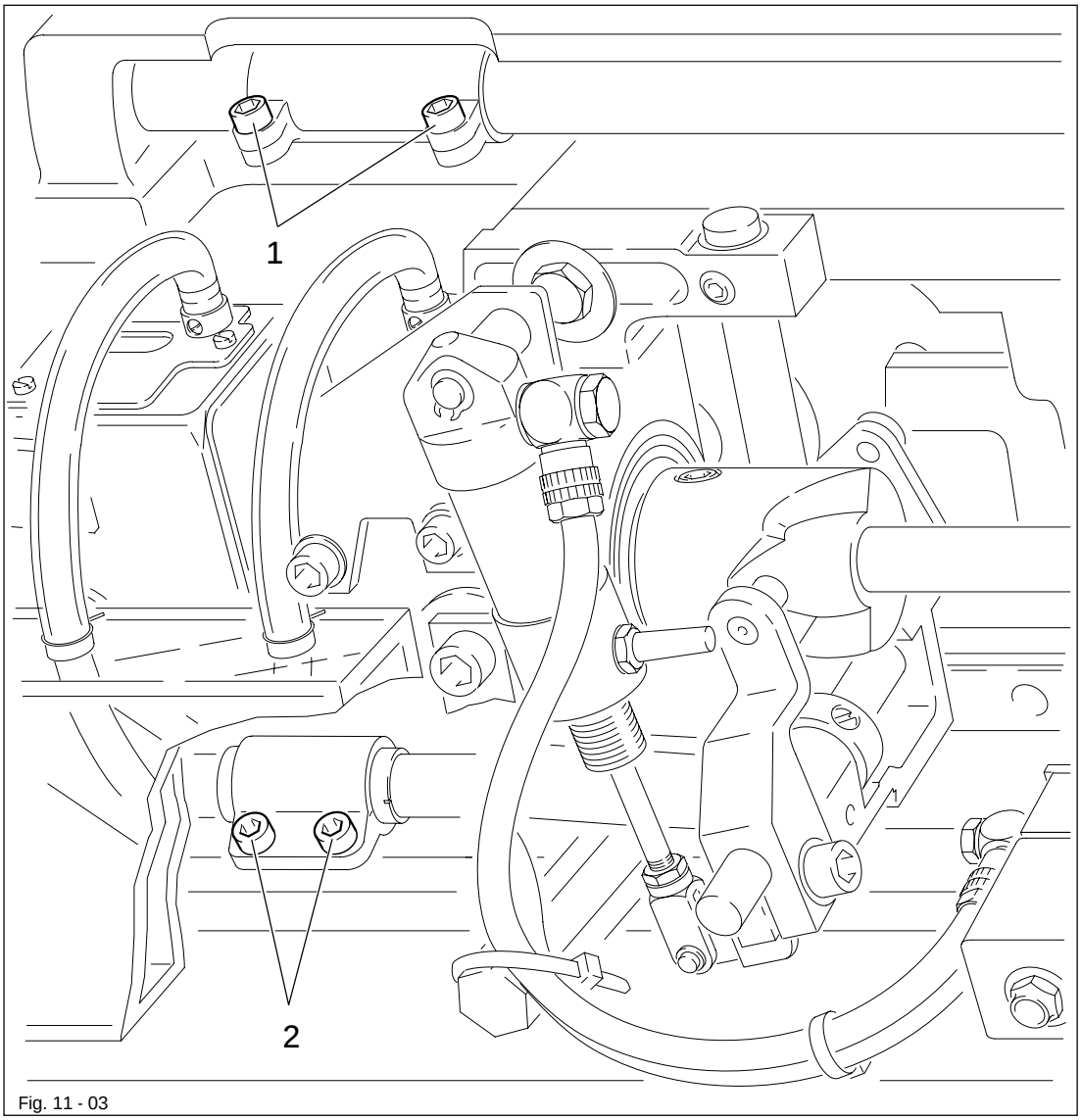
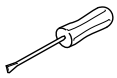


Fig. 11 - 03



- Raise pressser foot.
- Position fed dog (screws 1 and 2) according to Requirements.

11.04.04 Neutral position of the feed dog

Requirement
At stitch length setting "0" the feed dog must not move when the balance wheel is turned.

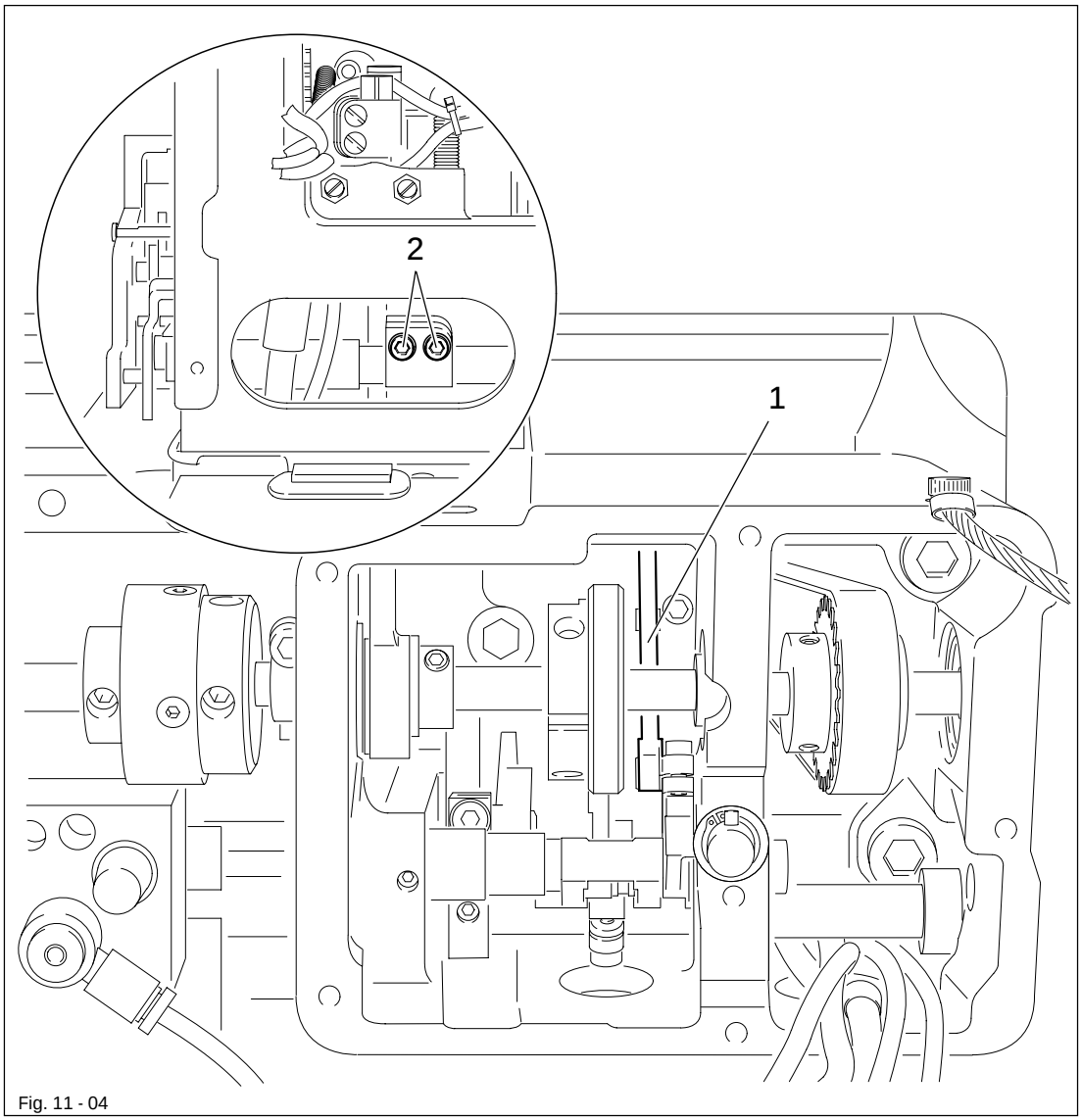
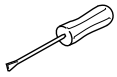


Fig. 11 - 04



- Turn the balance wheel continuously and position connecting link 1 (screws 2) according to Requirement.

11.04.05 Feeding stroke of feed dog

Requirement
With the needle bar at b.d.c. and the longest stitch length set, the feed dog must not move when the reverse-feed control is operated.

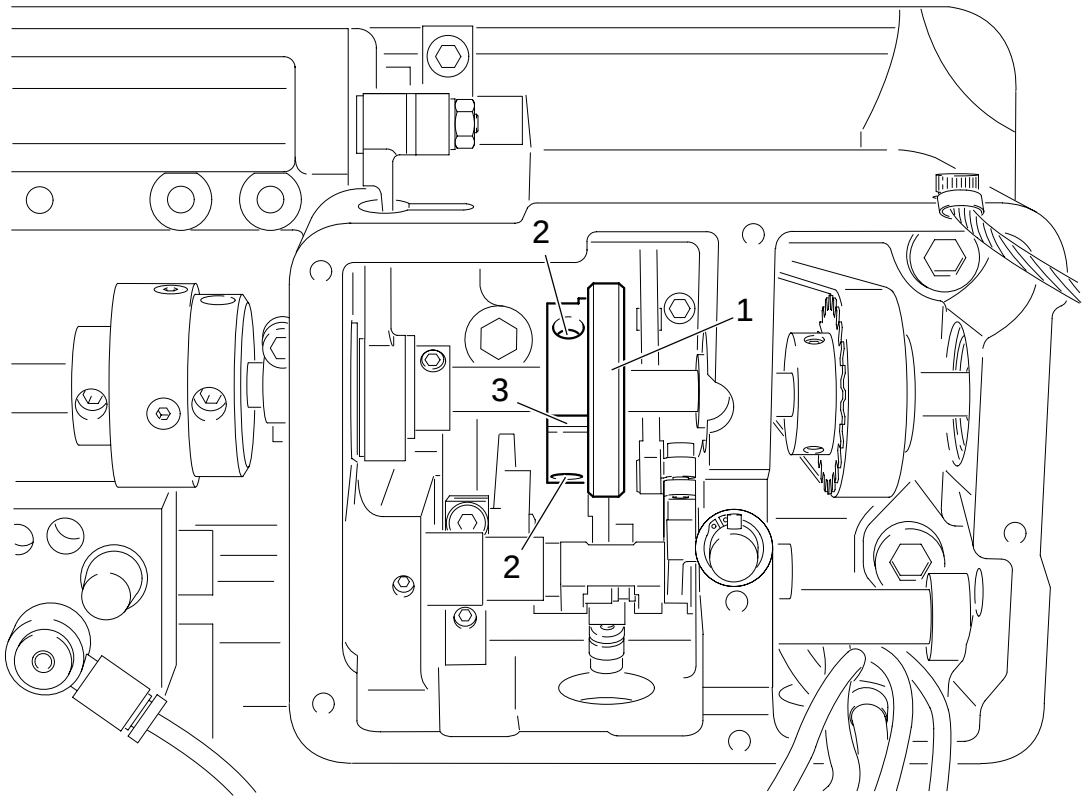
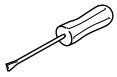


Fig. 11 - 05



- Turn eccentric 1 (screws 2) according to Requirement, making sure that cutout 3 is visible from the underside.

11.04.06 Lifting stroke of feed dog

Requirement
With the needle bar at b.d.c. the feed dog must be in its highest position.

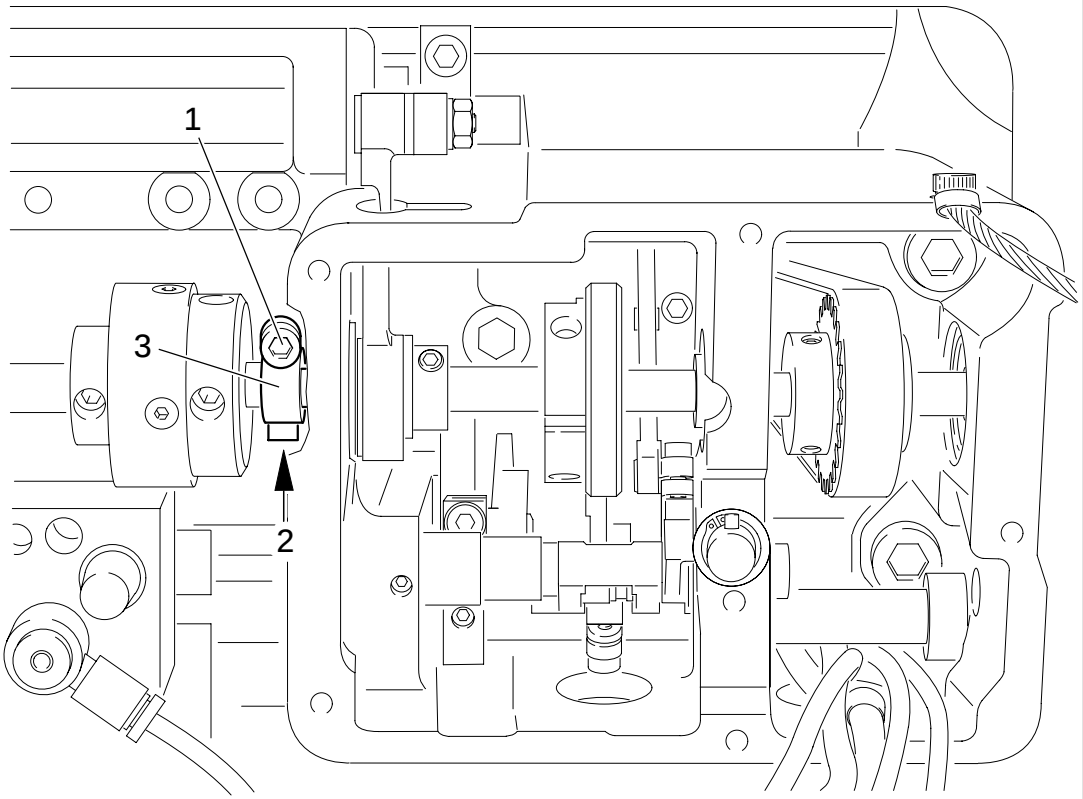
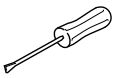


Fig. 11 - 06



- Loosen screw 1 and undo screw 2 by a half turn.
- Turn clamp 3 according to Requirement, then first tighten screw 2 and afterwards screw 1.

11.04.07 Feed dog height

Requirement
With the needle bar at b.d.c. and the stitch length set at "0" the feed dog must protrude parallel above the needle plate surface by 1.1 mm when crank 5 is at the top end of its slotted lever.

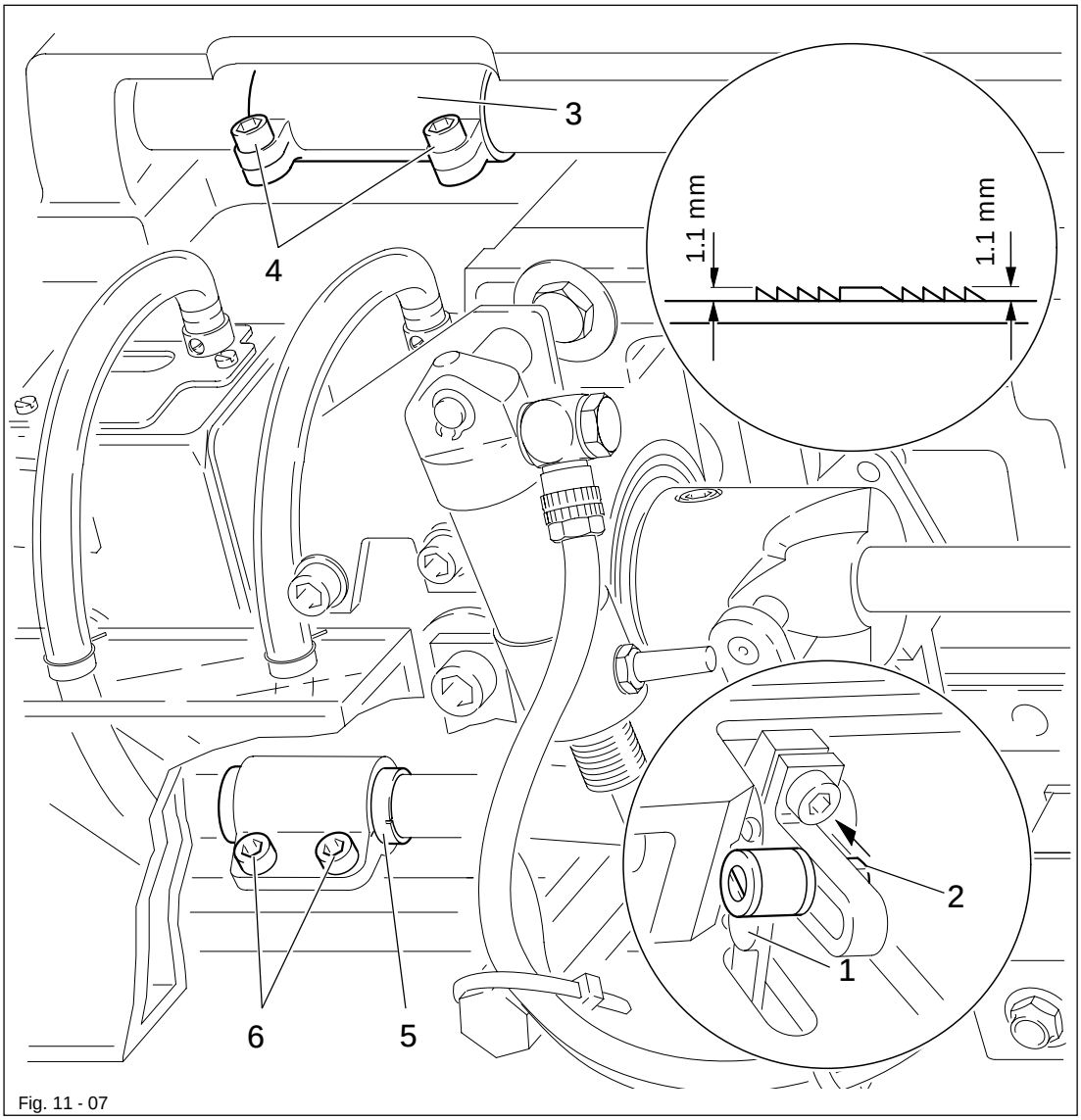


Fig. 11 - 07

- Set crank 1 (nut 2) at the top end of the slot.
- Turn and position crank 3 (screws 4) and eccentric sleeve 5 (screws 6) according to Requirement.

The height of the feed dog can be reduced if required by shifting crank 1 (nut 2).

11.04.08 Needles in needle-hole centre

Requirement
At stitch length setting "0" the needles must enter exactly in the centre of the needle holes.

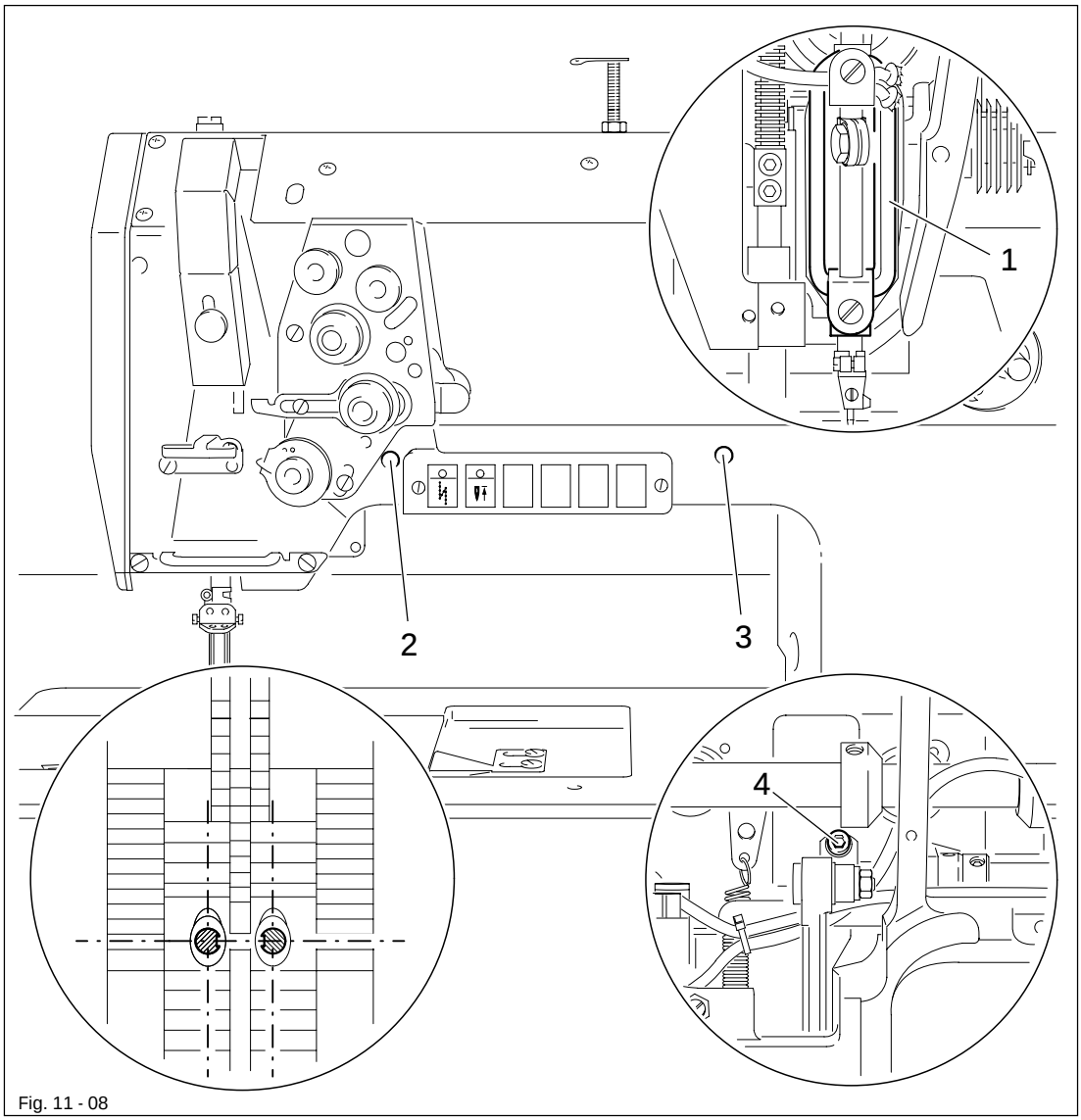
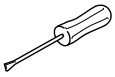


Fig. 11 - 08



- Position needle bar frame 1 (screws 2, 3 and 4) according to Requirement.

11.04.09 Needle height (preliminary adjustment)

Requirement
At needle-bar t.d.c. the clearance between needle point and needle plate must be approx. 17 mm.

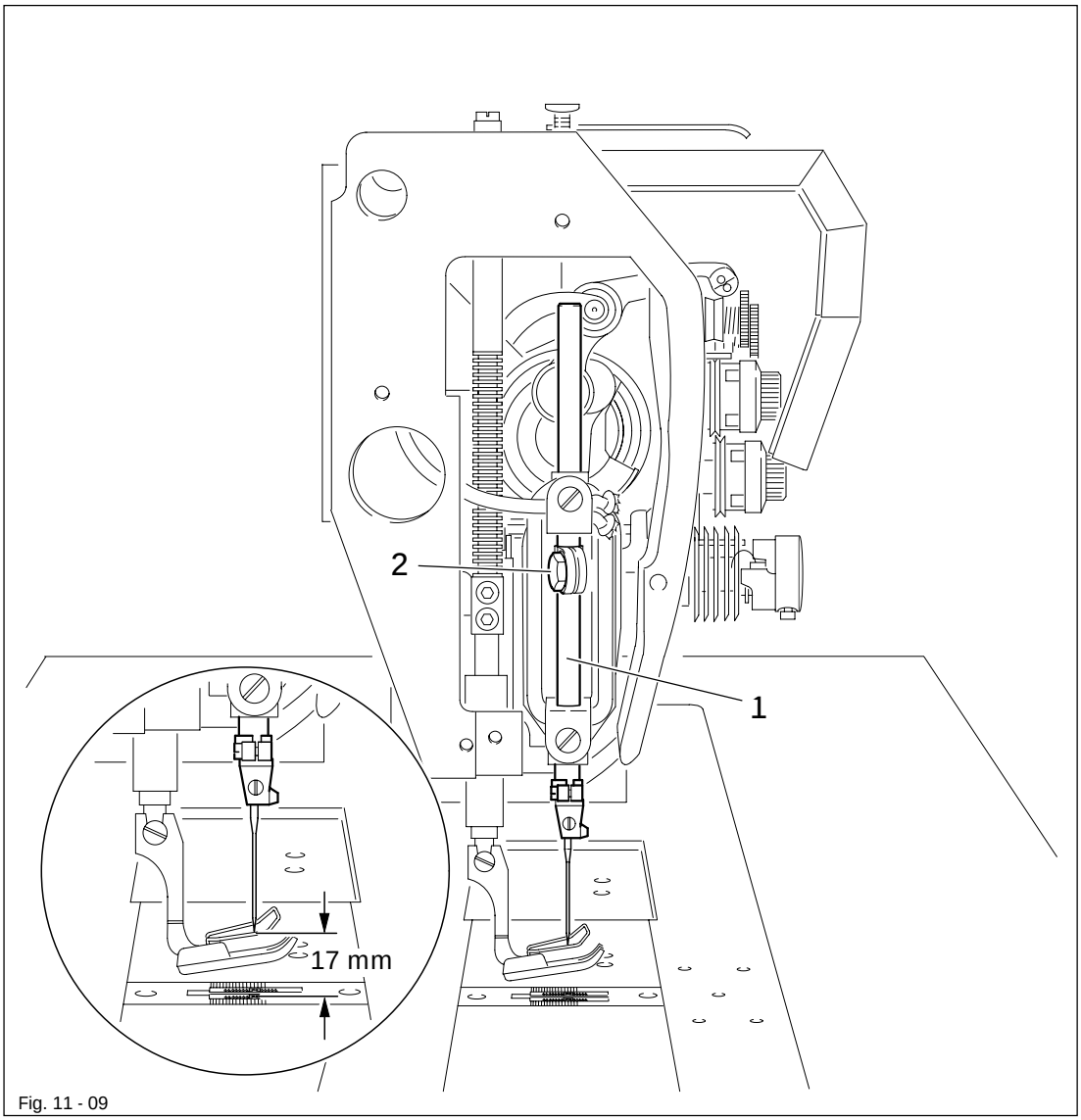


Fig. 11 - 09

- Re-position needle bar 1 (screw 2), without twisting it, according to Requirement.

11.04.10 Needle rise, hook-to-needle clearance, needle height (final adjustment) and needle guard

Requirement

In needle rise position (observe machine model!) and at stitch length setting "3"

1. the hook point must be at **"needle centre"** at a clearance of 0.05 to 0.10 mm,
2. the top of the needle eye must be 0.8 mm below the hook point, and
3. needle guard 9 must touch the needle just slightly.

Models A and B ..... needle rise position: 1.8 past b.d.c. of needle bar

Model C .....needle rise position: 2.0 mm past b.d.c. of needle bar

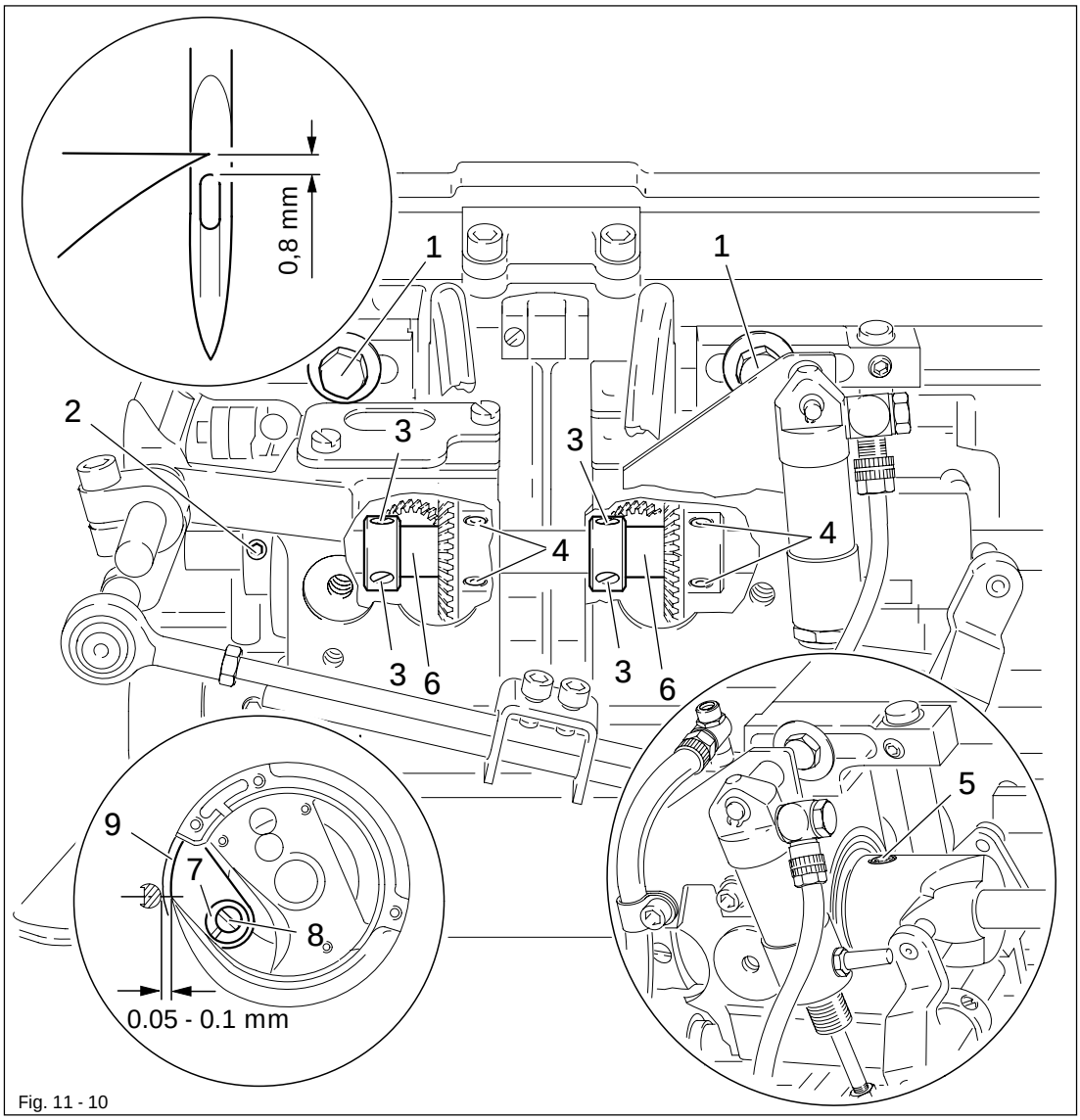
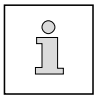


Fig. 11 - 10

- Set stitch length at "3" and loosen screws 1, 2, 3, 4 and 5.
- Set machine at needle rise position and hook point at **"needle centre".**
- Set hook clearance according to Requirement 1 and tighten screws 1, 2 and 5.
- Making sure there is only a slight gear play, move fixing collar 6 up and tighten screws 3.

- Set needle bar 2 mm past b.d.c. by using needle rise gauge, part No. 61-111600-01 and screw clamp, part No. 61-111600-35/001.
- Set hook point at "needle centre", move gears up against fixing collars 6 and tighten screws 4.
- If necessary re-position needle bar according to Requirement 2.
- Remove hook base and turn eccentric 7 (screw 8) according to Requirement 3.



Carry out adjustment on both hooks.

11.04.11 Bobbi case opener stroke

Requirement

1. The front edges of retaining spring 1 and retaining trip 7 must be flush.
2. With bobbin case opener 5 in its rear position, hook base 6 and retaining spring 1 must have a clearance equal to the thread thickness.

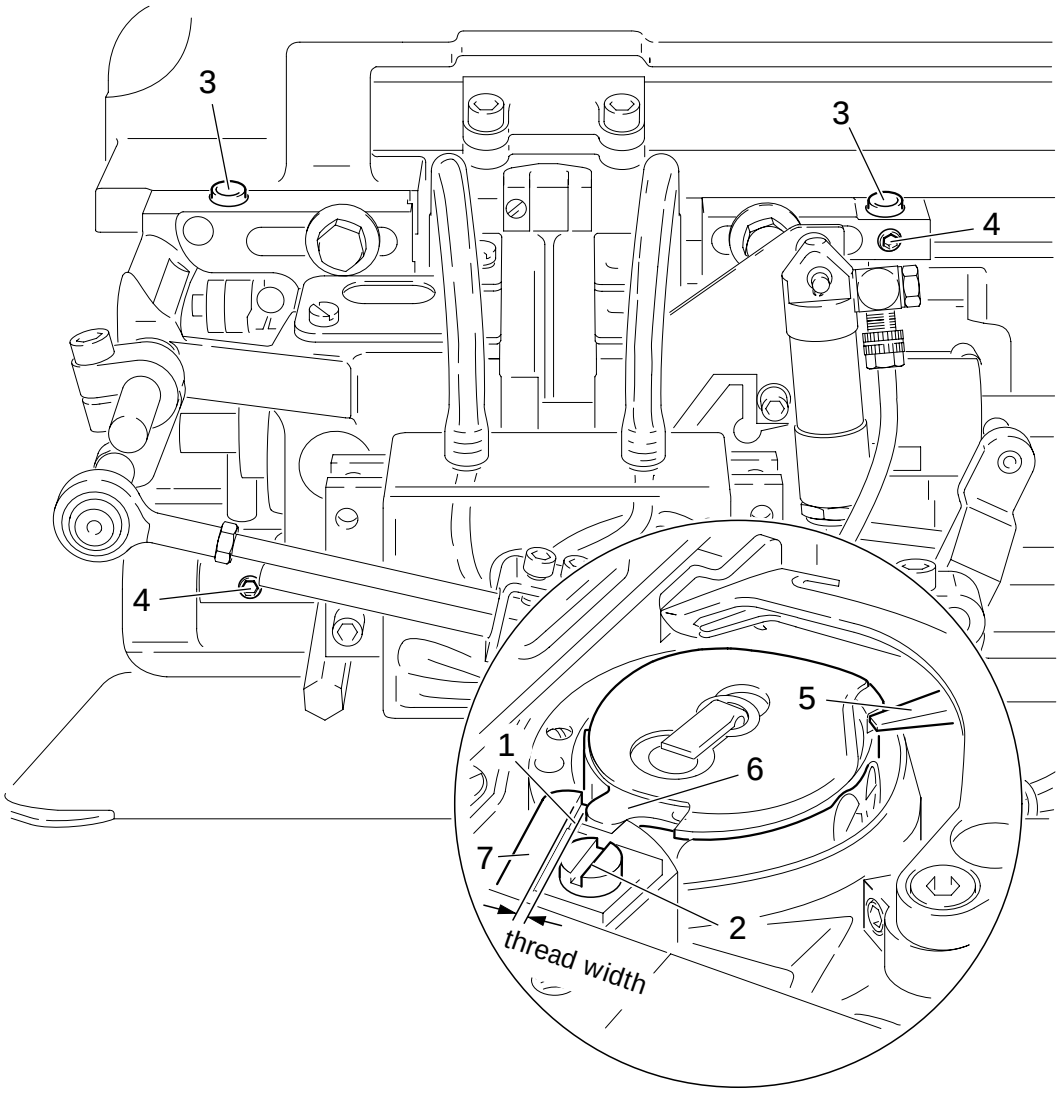


Fig. 11 - 11

- Position retaining spring 1 (screw 2) according to Requirement 1.
- Re-position shafts 3 (screws 4) according to Requirement 2.

Carry out adjustment on both hooks.

11.04.12 Re-engaging the slip-clutch

Clutch 1 is adjusted at the works. In the case of a thread jamming, clutch 1 will disengage, in order to avoid damage to the hooks.
The following describes how to re-engage clutch 1.

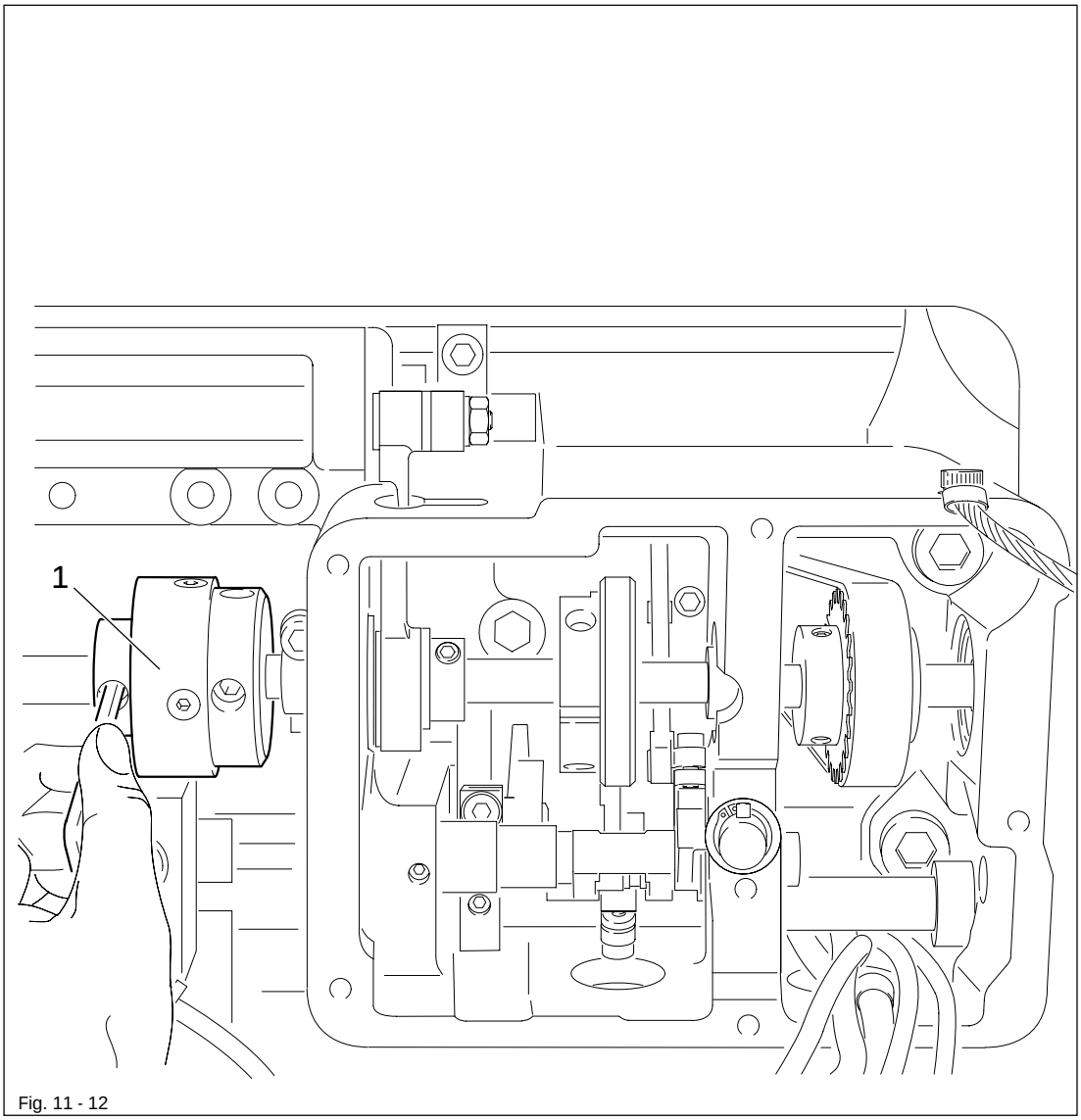


Fig. 11 - 12

- Remedy jammed thread fault.
- Hold clutch 1 firmly, as shown in Fig. 11-12, and turn the balance wheel until clutch 1 re-engages.

11.04.13 Clearance between presser foot and needle plate

Requirement
With presser foot 3 raised, there must be a clearance between presser foot 3 and the needle plate of:
1. 7 mm on the PFAFF 422, and
2. 9 mm on the PFAFF 1422.

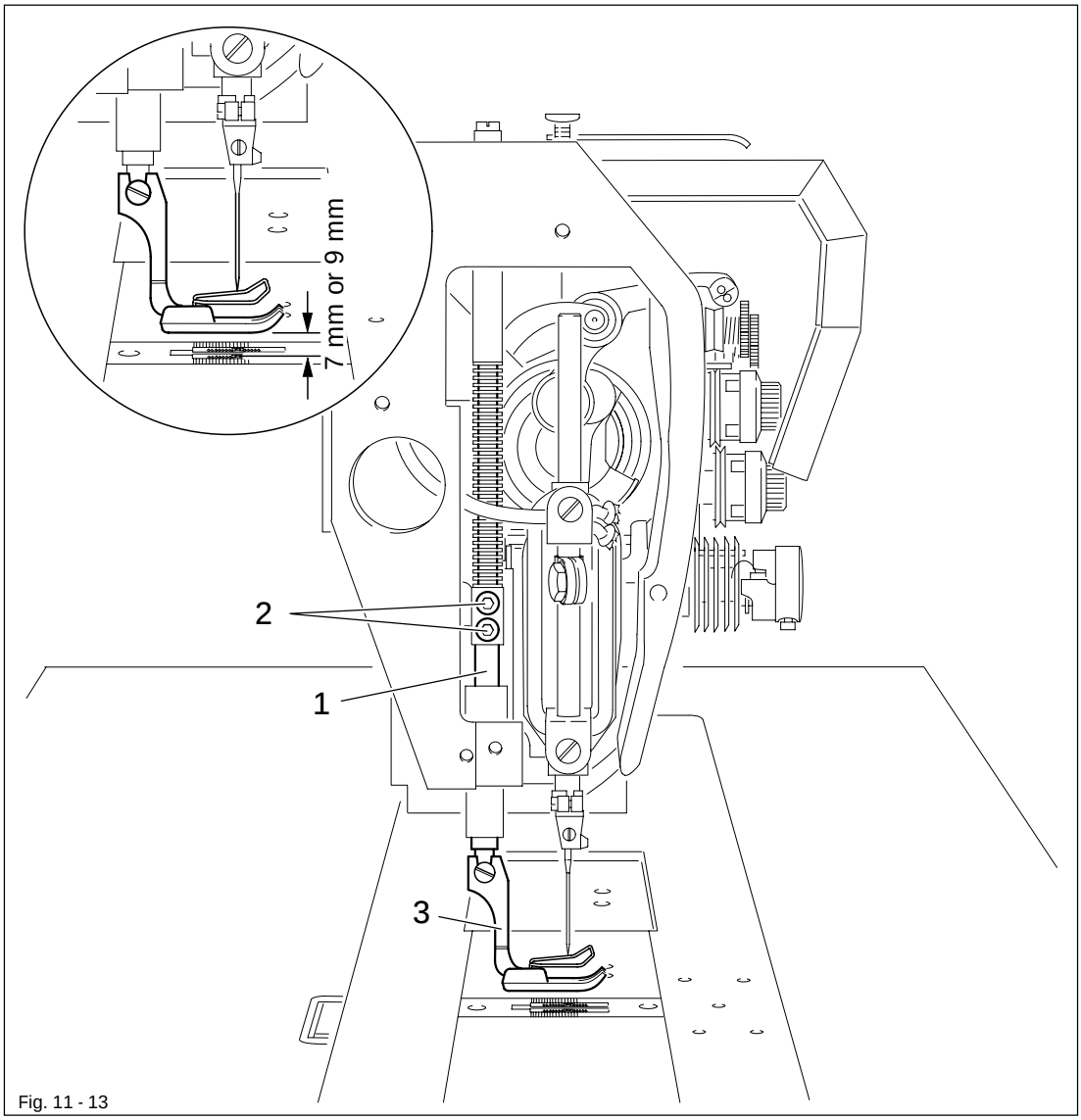
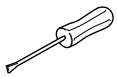


Fig. 11 - 13



- Raise the presser bar lifter.
- Re-position presser bar 1 (screws 2) according to Requirement, but without twisting it.

11.04.14 Knee lever

Requirement

1. The knee lever must be at an angle of 75° to the bedplate.
2. There must be a slight play in the knee lever before it raises the presser foot.
3. When the knee lever is fully pressed, the presser bar lifter must drop on its own.

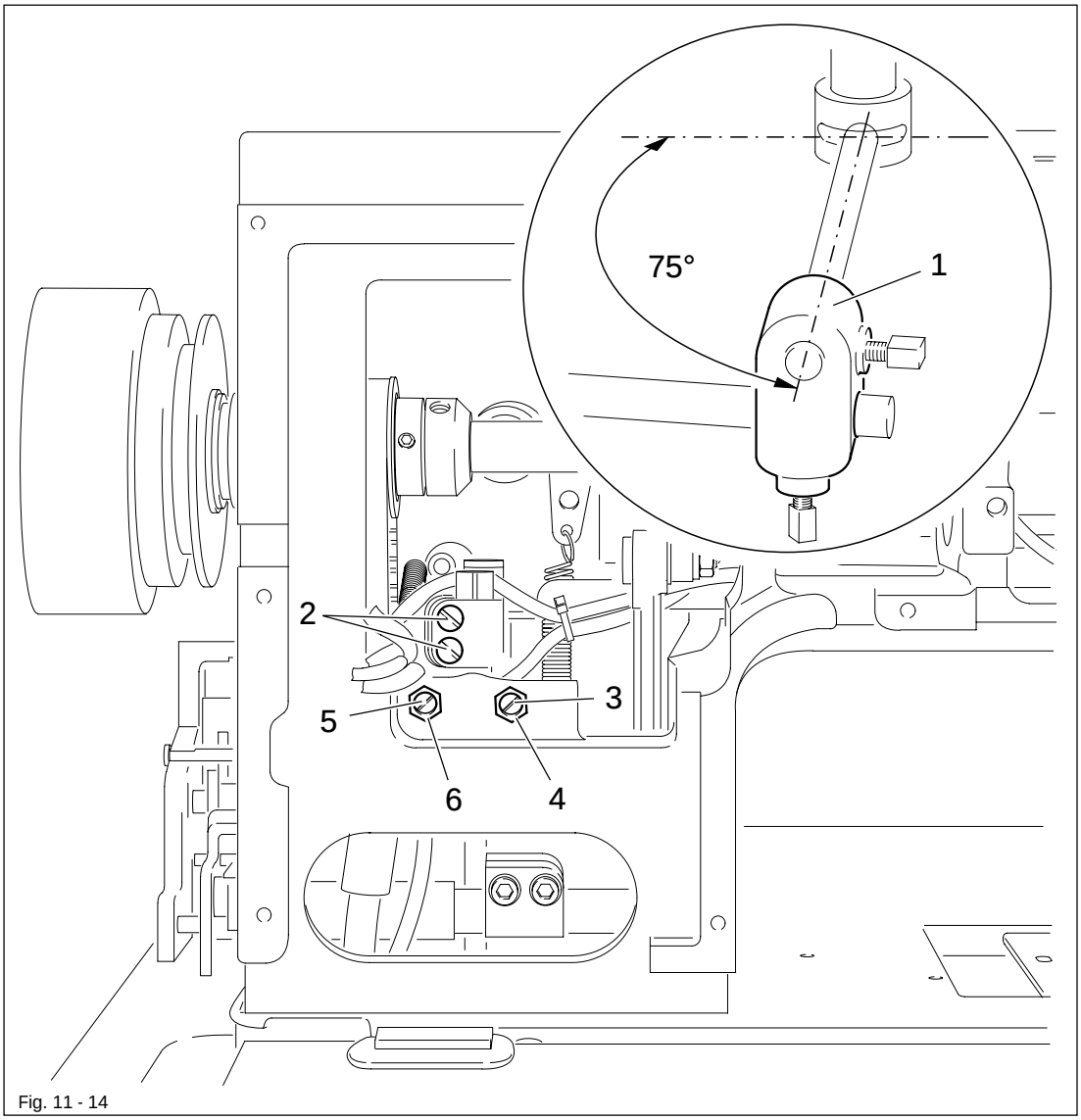


Fig. 11 - 14

- Turn linkage 1 (screws 2) according Requirement 1.
- Turn screw 3 (nut 4) according to Requirement 2.
- Turn screw 5 (nut 6) according to Requirement 3.

11.04.15 Needle thread tension release (on machines without Subclass -900/81)

Requirement

Tension discs 5 must be at least 0.5 mm apart when

1. the presser bar lifter is raised, or
2. the knee lever is operated.

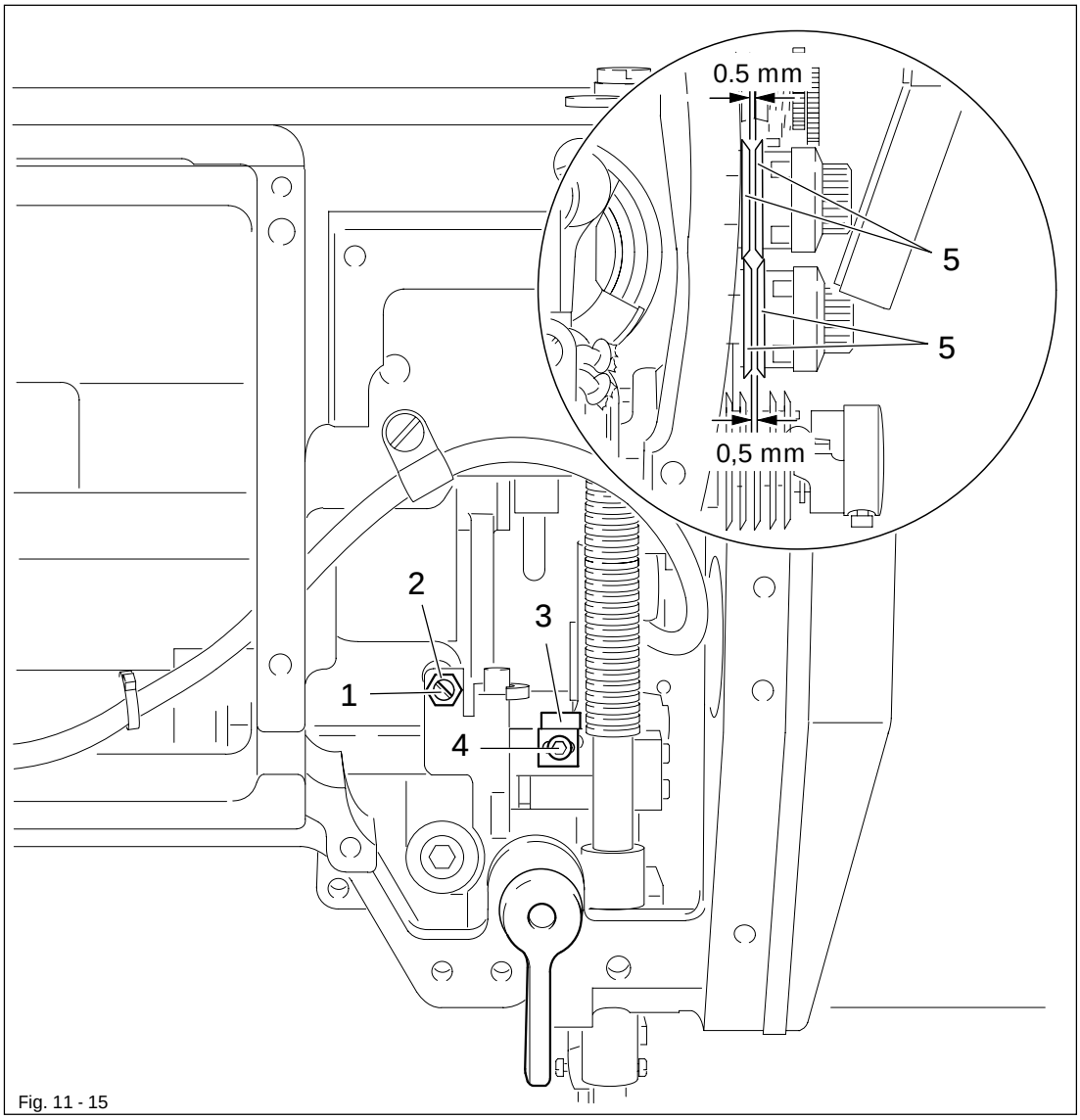


Fig. 11 - 15

- Raise the presser bar lifter and turn screw 1 (nut 2) according to Requirement 1.
- Fully press knee lever and adjust actuator 3 (screw 4) according to Requirement 2.

11.04.16 Needle thread tension release (on machines with Subclass -900/81)

Requirement

1. When stop 4 is actuated by hand there must be a clearance of at least 0.5 mm between tension discs 3.
2. When stop 4 is in its resting position the tension must be engaged.

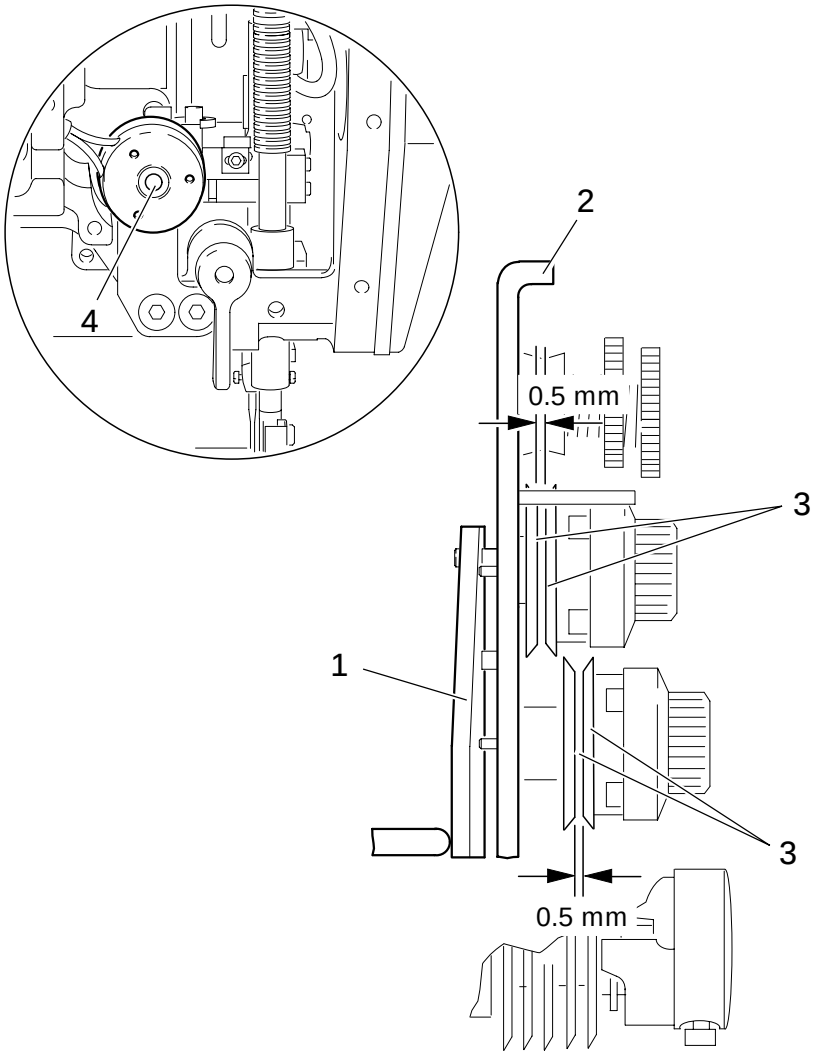
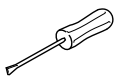


Fig. 11 - 16



- Position pressure plate 1 behind tension mounting plate 2 according to Requirement.

11.04.17 Bobbin winder

Requirement

1. When the bobbin winder is engaged the winding spindle must be reliably driven; when the bobbin winder is disengaged, friction wheels 5 must not rest on drive wheels 1.
2. The bobbin must wind the thread evenly and switch itself off when the filled thread is 1 mm from the edge of the bobbin.

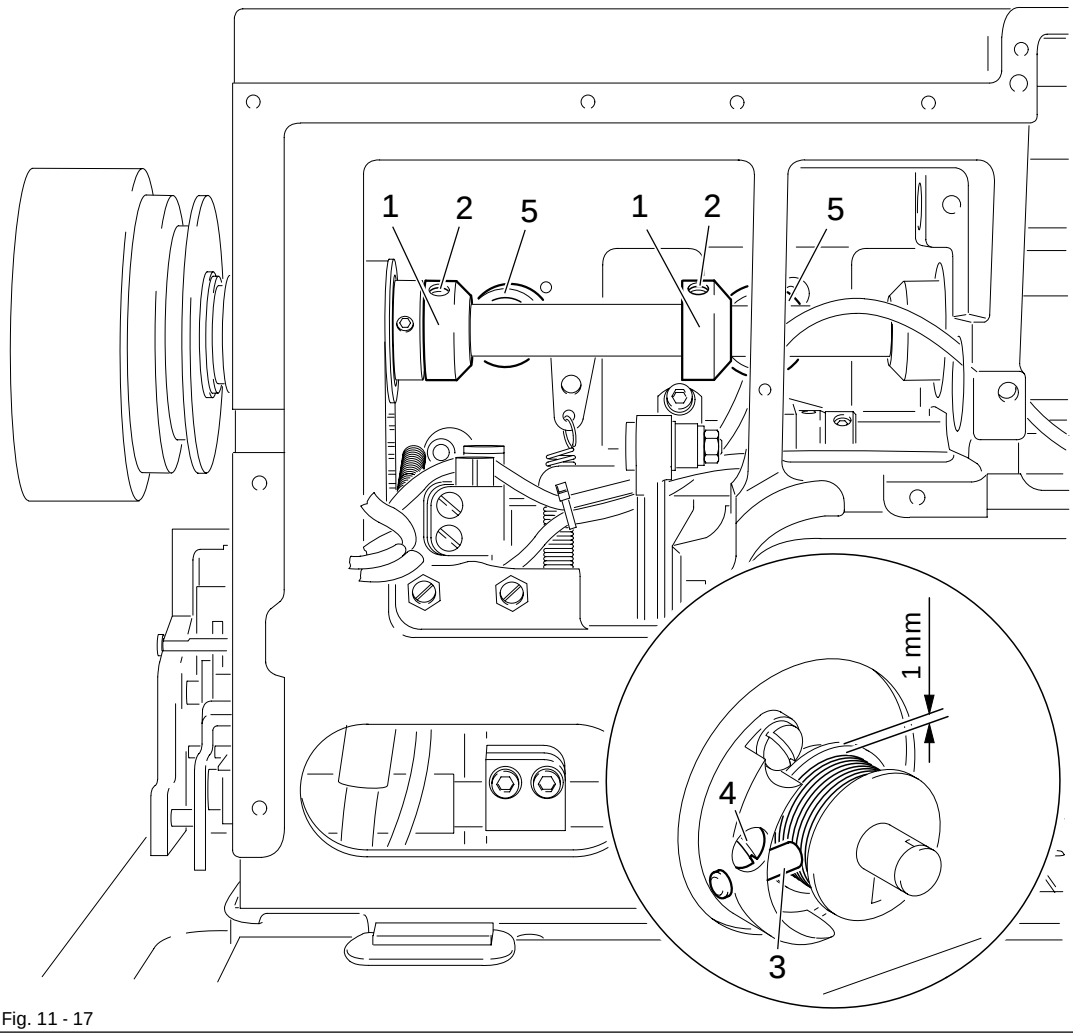


Fig. 11 - 17

- Position drive wheels 1 (screws 2) according to Requirement 1.
- Position adjusting pins 3 (screws 4) of both bobbin winders according to Requirement 2.

11.04.18 Presser foot pressure

Requirement
The material must be reliably fed, even at the highest sewing speed.

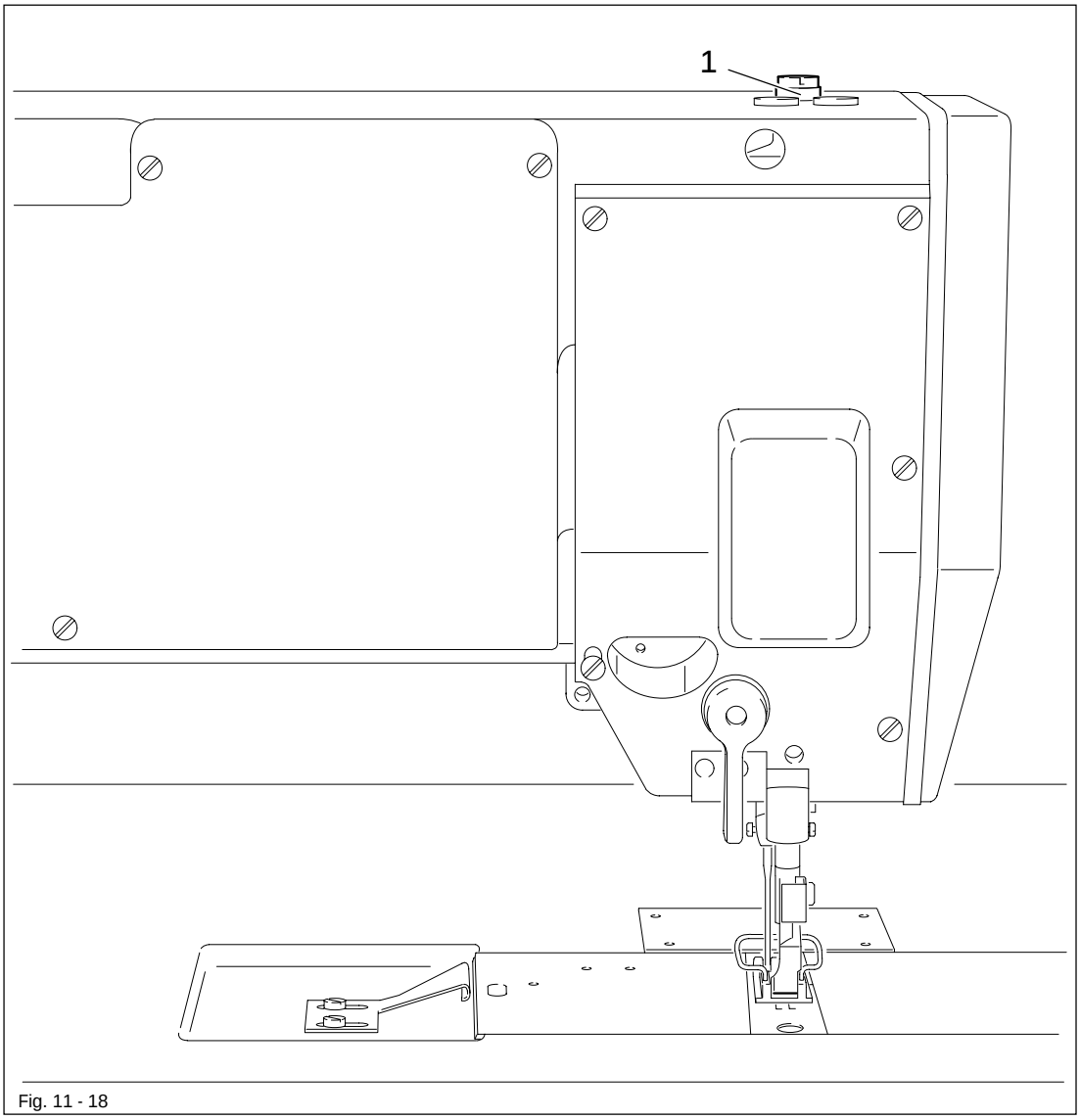


Fig. 11 - 18

- Adjust screw 1 according to Requirement.

11.04.19 Thread check spring and thread regulator

Requirement

1. The movement of springs 3 and 6 must be finished when the needle points enter the material.
2. When the thread loops are extended the farthest while being passed around the hook, springs 3 and 6 must rise from stops 1 and 9 a little.

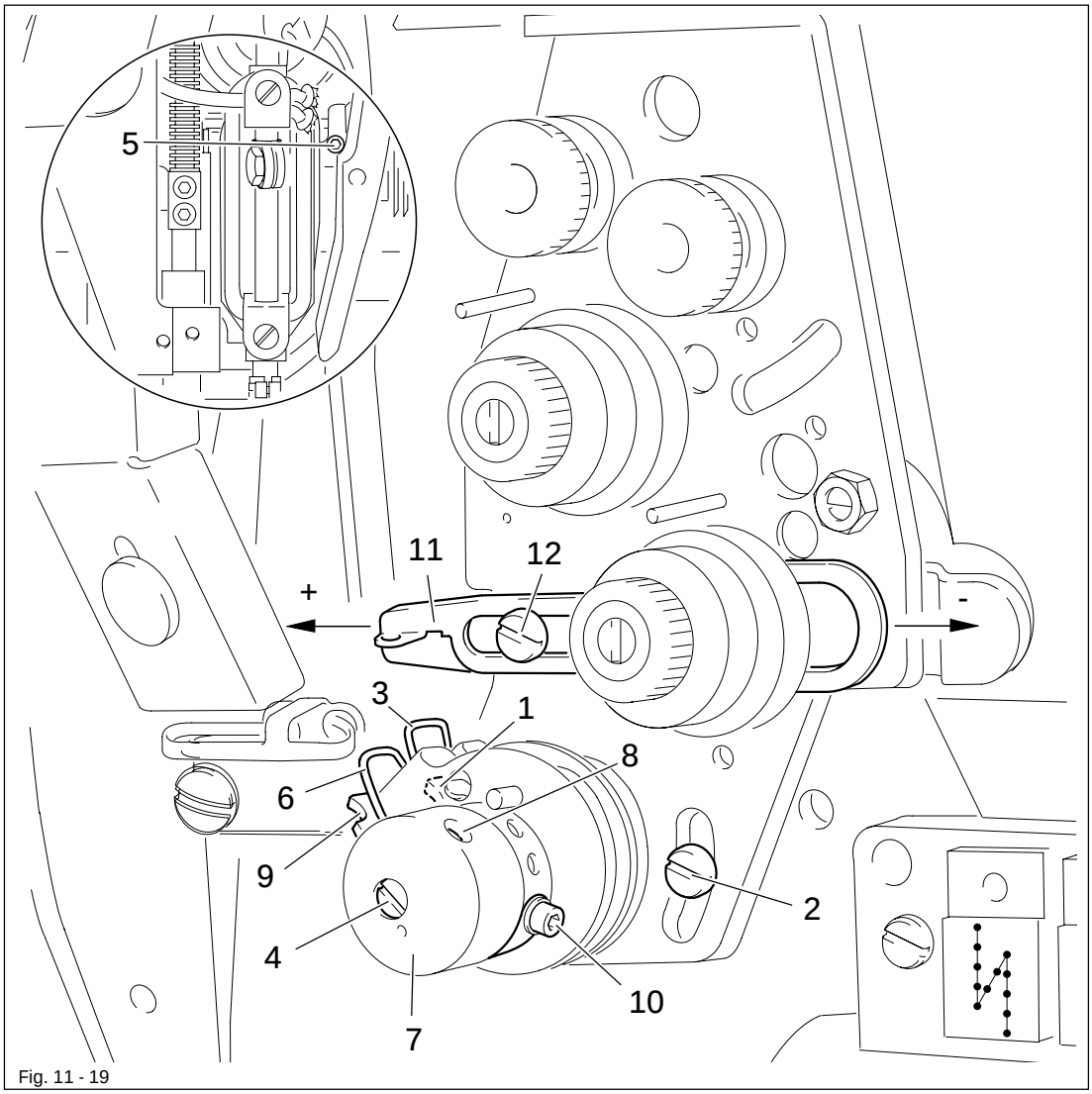


Fig. 11 - 19

- Position stop 1 (screw 2) according to Requirement 1.
- To adjust the pressure of spring 3, turn screw 4 (screw 5).
- To adjust the pressure of spring 6, turn sleeve 7 (screw 8).
- Position stop 9 (screw 10) according to Requirement 1; if the adjusting range is too small, stop 9 can be screwed into another hole.
- Position regulator 11 (screw 12) according to Requirement 2.

For sewing-technical reasons it may be necessary to choose a different spring stroke or spring pressure from that indicated. Position regulator 11 (screw 12) according to the required amount of thread.

11.05 Adjusting the thread trimmer 900/81

11.05.01 Resting position of roller lever/radial position of control cam

Requirement

1. When cylinder plunger 1 is retracted there must be a clearance of 0.1 mm between outer edge of control cam 6 and the roller of lever 5.
2. When cylinder plunger 1 is retracted and the take-up lever is at t.d.c., control cam 6 must just move roller lever 5 to its resting position

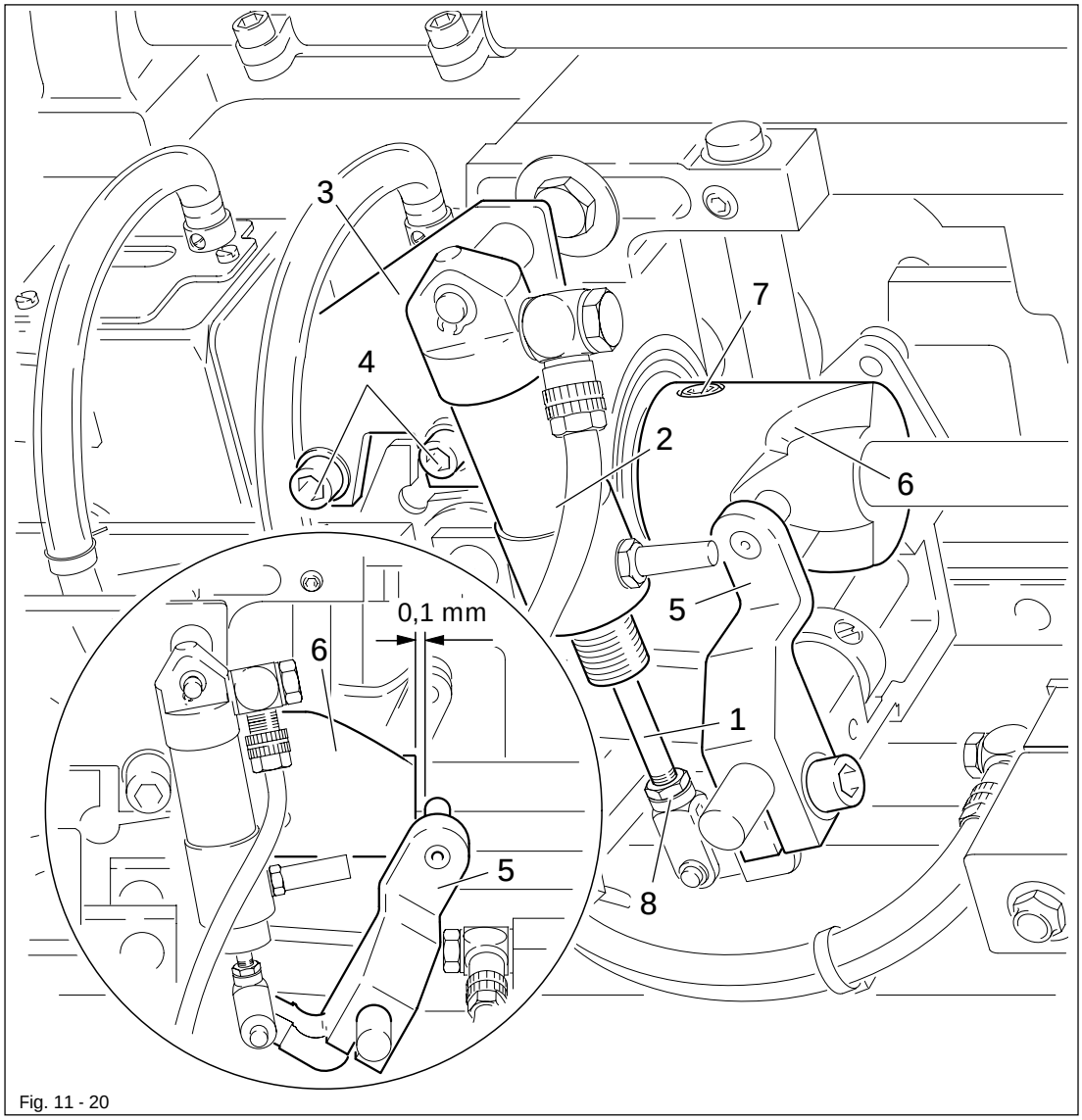


Fig. 11 - 20

- Fully retract plunger 1 into cylinder 2.
- Re-position cylinder mounting 3 (screws 4) according to Requirement 1.
- Push roller lever 5 into control cam 6.
- Set take-up lever at t.d.c. and turn control 6 (screws 7) according to Requirement 2.

On cylinder plunger 1, about 1 mm of thread must protrude above locknut 8.

11.05.02 Thread-catcher height

Requirement

The lower edge of thread catcher 3 must clear bobbin case 4 by about 0.8 mm.

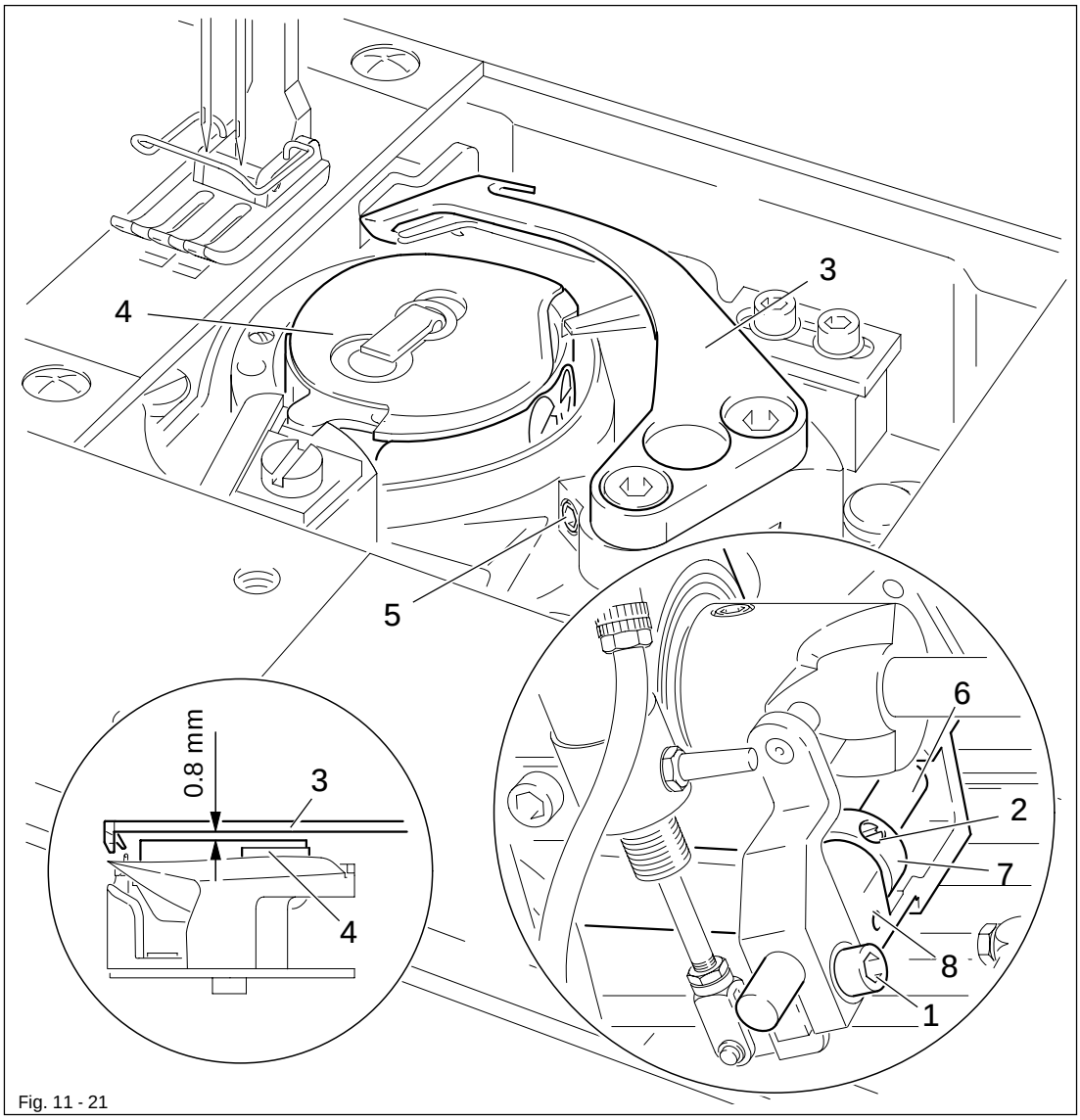


Fig. 11 - 21

- Loosen screws 1 and 2.
- Set thread catcher 3 above bobbin case 4.
- Re-position thread catcher 3 (screw 5) according to Requirement.
- Balance out the vertical play of shaft 6, set fixing collar 7 against bearing housing 8 and tighten screw 2.

For further adjustments leave screw 1 untightened.

11.05.03 Thread catcher position

Requirement
When the thread catcher is in its resting position, the edges of thread catcher 4 and knife 5 must be flush (see arrow).

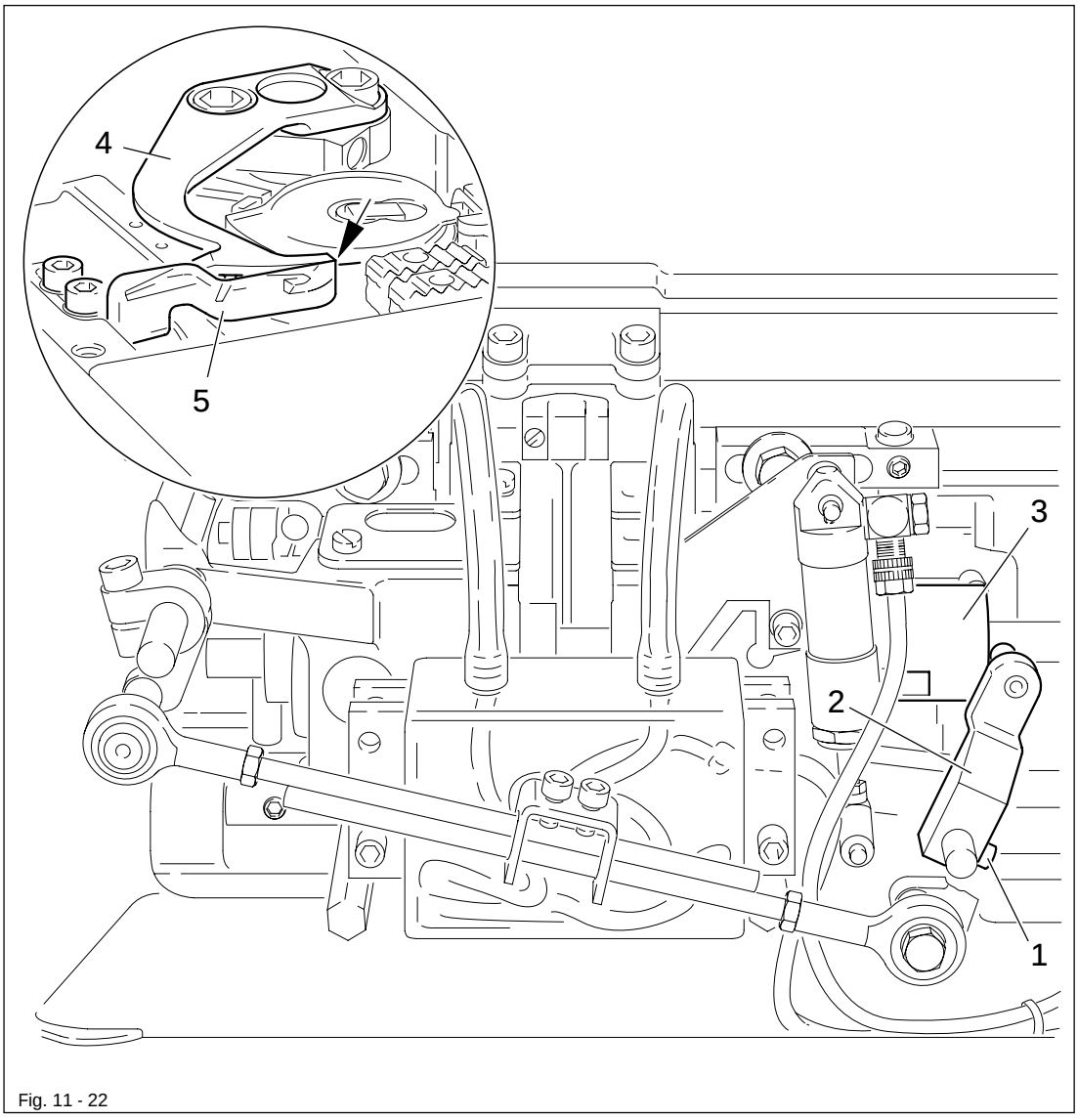
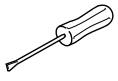


Fig. 11 - 22



- Set needle bar at b.d.c. and push roller lever 2 against control cam 3.
- Turn thread catcher 4 according to Requirement.
- Tighten screw 1.

11.05.04 Knife height

Requirement
With the thread trimmer in its resting position the edges of thread catcher 3 and knife 5 must be flush (see arrow).

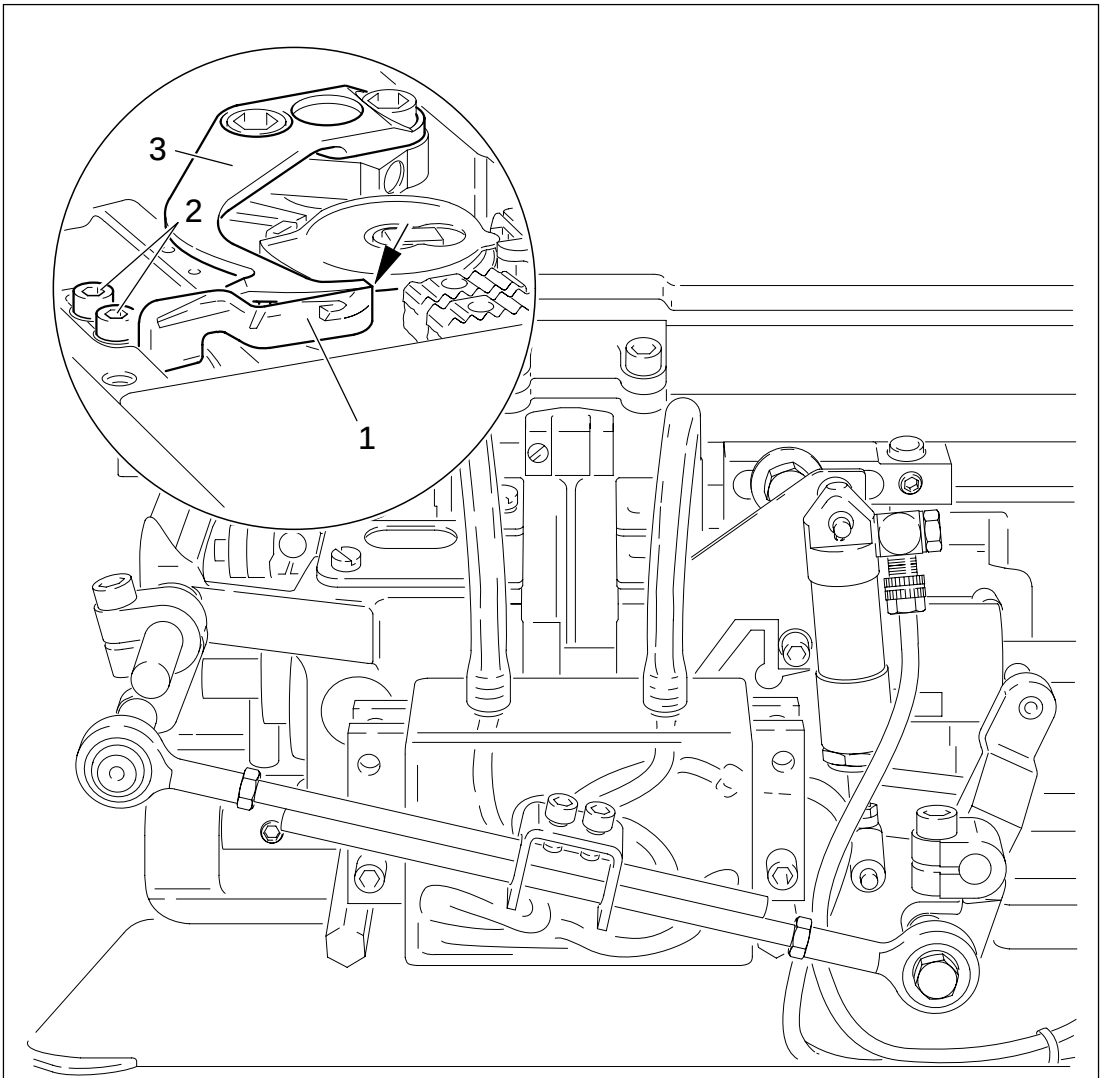
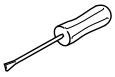


Fig. 11 - 23



- Check knife height according to Requirement.

To adapt the height of knife 1, remove it (screws 2) and fit shims (part No. 91-141 402-05) according to Requirement .

11.05.05 Knife pressure

Requirement
When the front edge of thread catcher 3 has passed the cutting edge by half, knife 4 must rest with light pressure on the edge of the catcher.

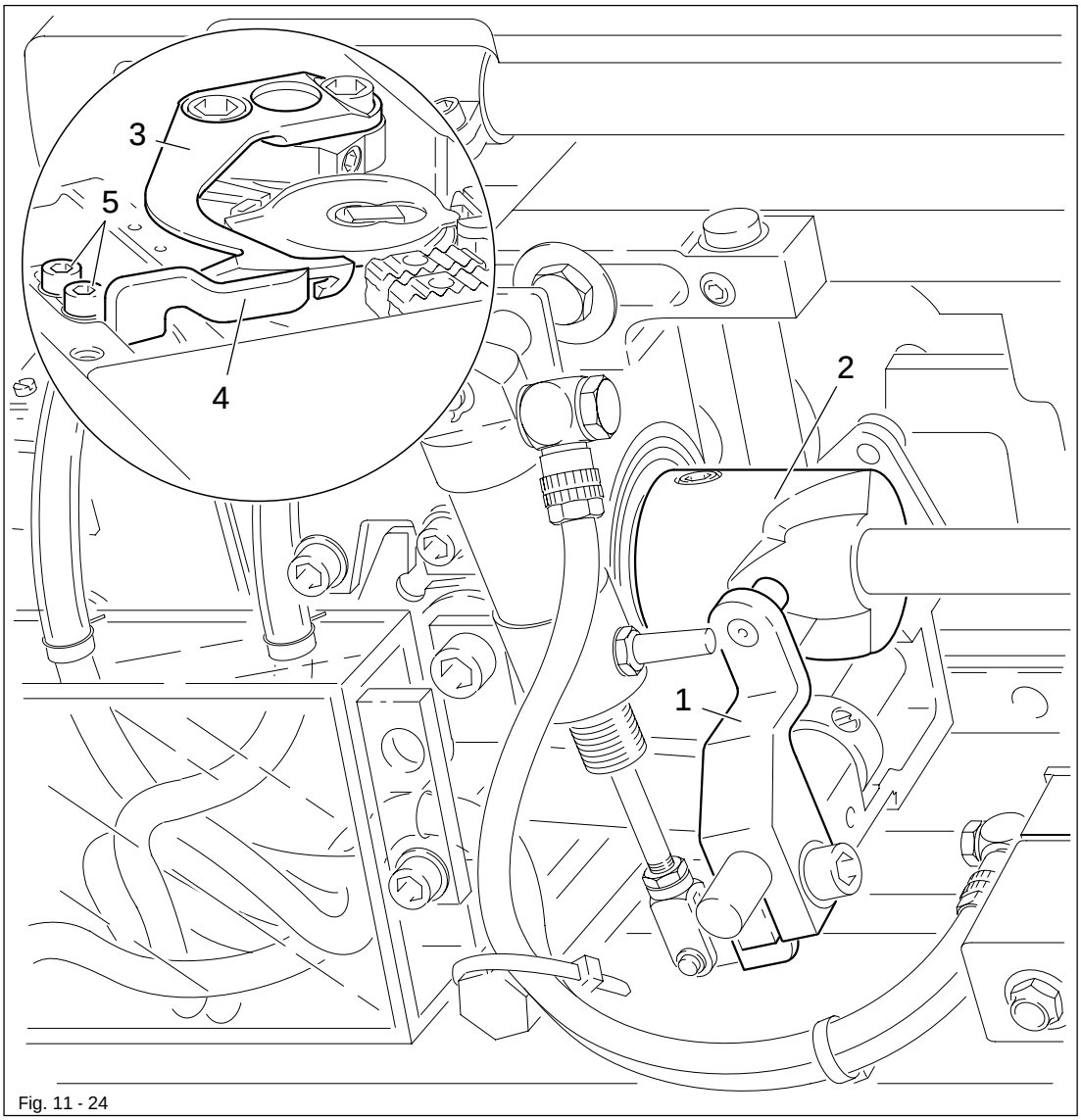


Fig. 11 - 24

- Set take-up lever at b.d.c. and push roller lever 1 into control cam 2.
- Turn balance wheel until front edge of catcher 3 has passed cutting edge of knife 4 by half.
- Re-position knife 4 (screws 5) according to Requirement.

After adjustment, check again according to Chapter 11.05.03.

11.05.06 Bobbin-thread retaining spring

Requirement

Retaining spring 1 must

1. not be deflected during the thread catcher movement,
2. reliably retain bobbin thread 4 after cutting, and
3. not hinder removal and replacment of the bobbin case.

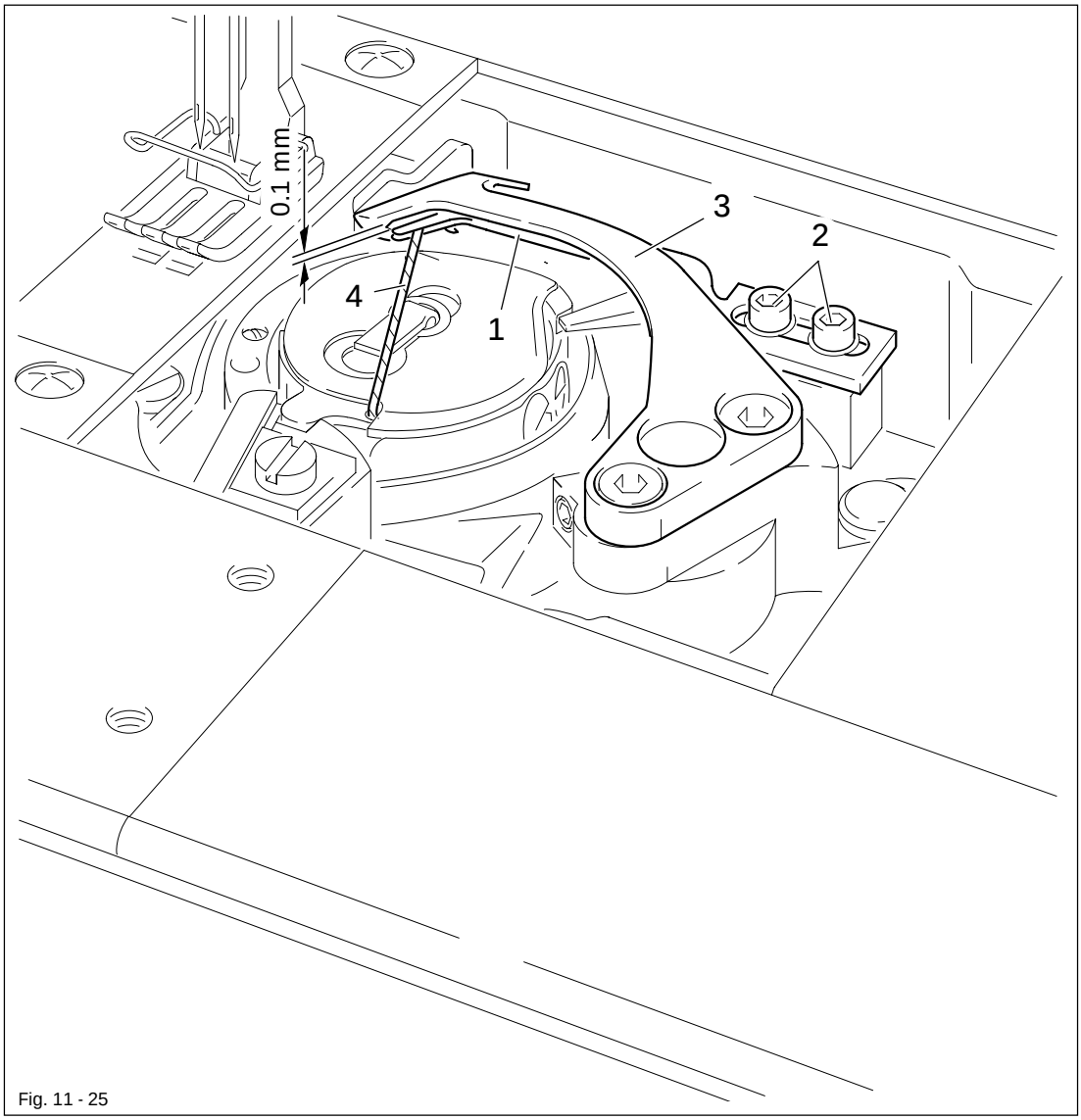


Fig. 11 - 25

- Set thread trimmer at its resting position.
- Position retaining spring 1 (screws 2) so that the retaining lips are as close as possible to the inside wall and to the front edge of thread catcher 3.
- Bend retaining spring 1 to set its height so that there is a clearance of about 0.1 mm between top side of retaining spring 1 and thread catcher 3.

11.05.07 Thread catcher transmission crank

Requirement
With the thread trimmer in its resting position the bearing points of roller 3, roller lever 4 and ball-joint 5 must be aligned.

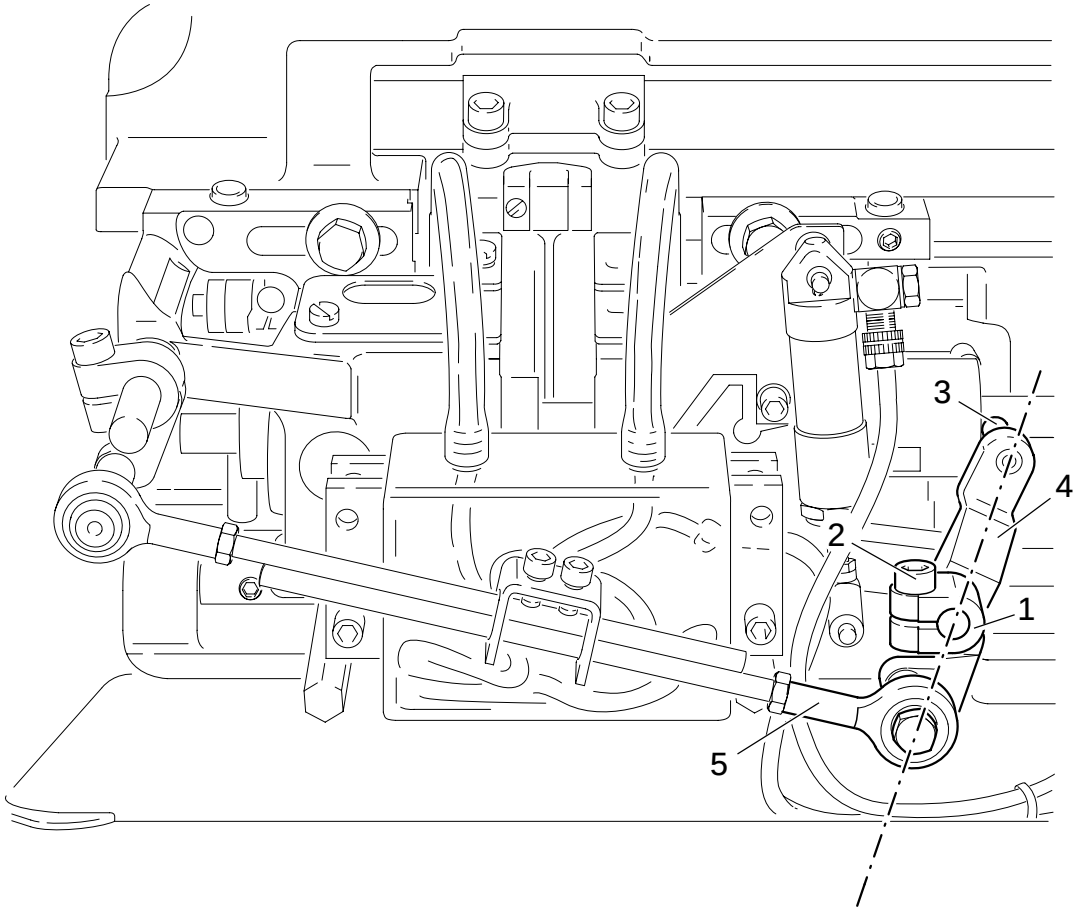


Fig. 11 - 26

- Set thread trimmer at resting position.
- Turn transmission crank 1 (screw 2) according to Requirement.

11.05.08 Tansmission linkage

Requirement
With the thread trimmer in its resting position, transmission cranks 3 and 4 must stand parallel with each other.

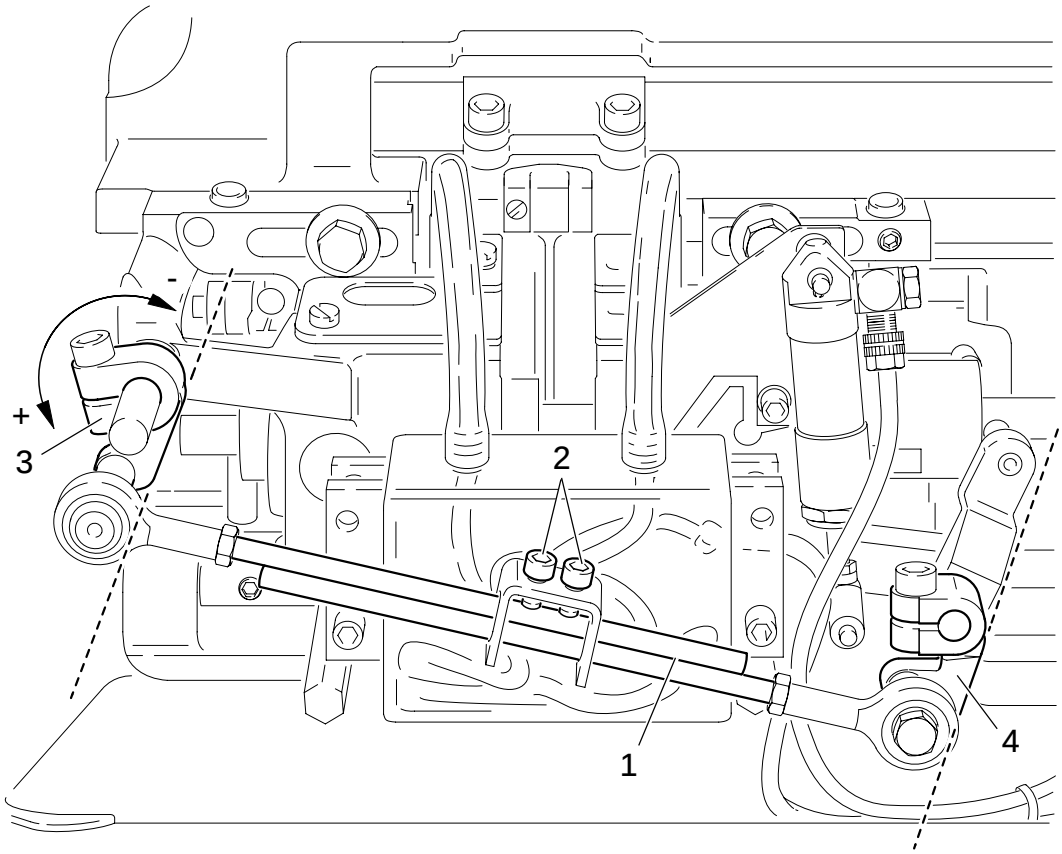


Fig. 11 - 27

- Set the thread trimmer at its resting position.
- Adjust transmission linkage 1 (screws 2) according to Requirement.

If problems occur in thread catching on the left sewing hook, the catcher stroke can be increased (+) or decreased (-) by turning transmission crank 3.

11.05.09 Manual cutting test

Requirement

1. When thread catcher 1 is on its forward stroke, it must not carry bobbin thread 3 forward too.
2. When thread catcher 1 is in its front position, bobbin thread 3 must be approx. 2 mm behind the prong of thread catcher 1.
3. After the trimming action, both needle- and bobbin thread must be perfectly cut, and bobbin thread 3 retained.

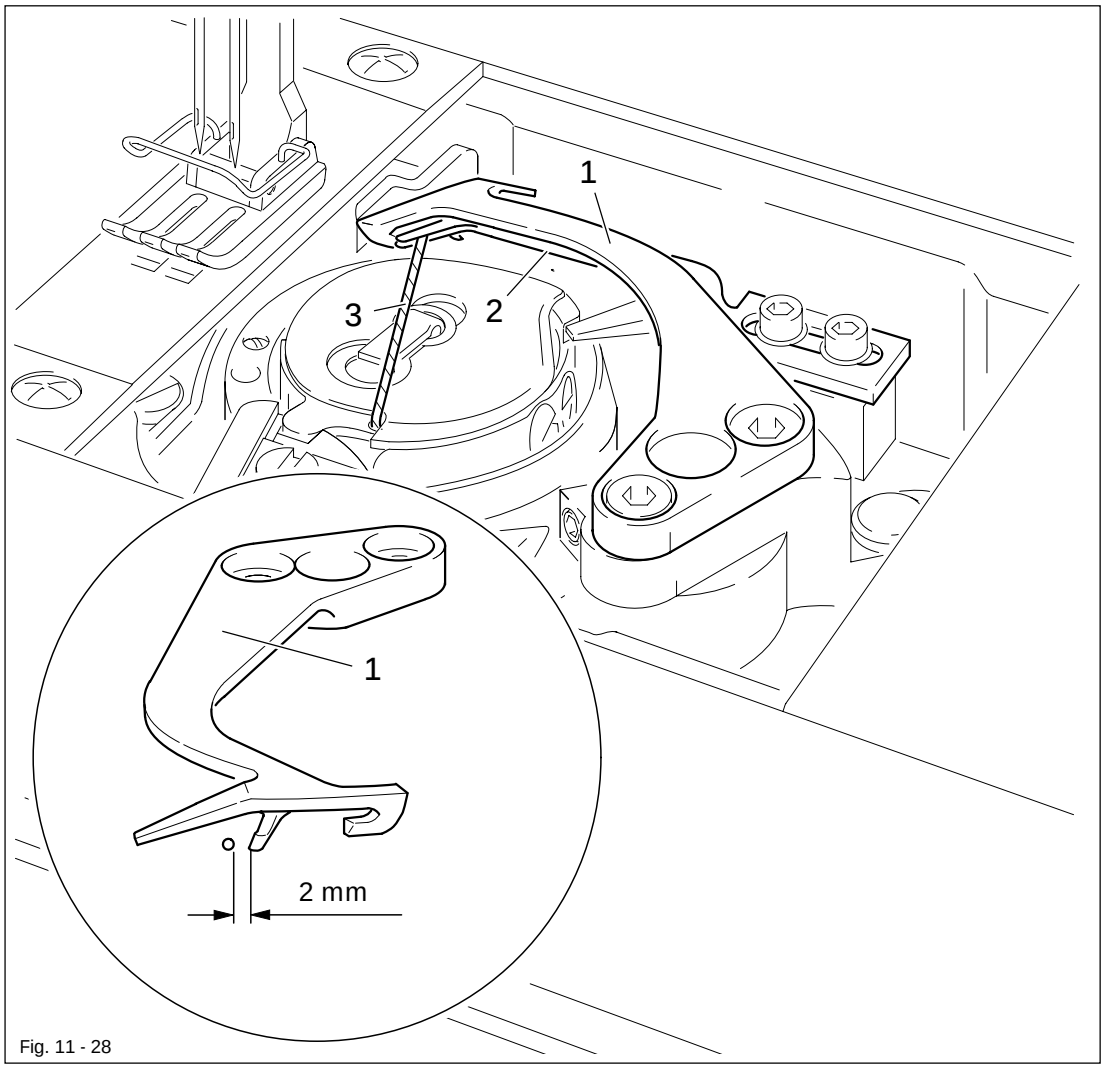
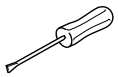


Fig. 11 - 28

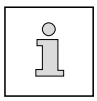


- Sew a few stitches.
- Turn off the on/off switch.
- Carry out cutting test manually.
- Check Requirement 1 and readjust thread catcher 1 according to Chapter 11.05.02 Thread-catcher height if necessary.
- Check Requirement 2 and readjust thread catcher 1 according to Chapter 11.05.03 Thread-catcher position if necessary.
- Check Requirement 3 and readjust bobb-thread retaining spring 2 according to Chapter 11.05.06 Bobbin-thread retaining spring if necessary.

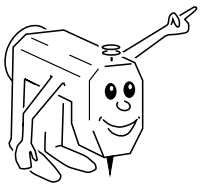
11.06 Parameter adjustments

On the control panel the paramaters can be adjusted on the display.

Group	Parameter	Meaning	Adjustm. range	Standard setting
6	601	Trimming I = yes II = no		I
	609	Trimming speed 1	30 - 300	180
7	700	Needle position 0 Reference position of needle	0 - 239	
	701	Angle position I = Adjusting synchroniser with balance wheel II = Adjusting synchroniser with keys " + " und " - "		I
	702	Needle position 1 (needle down)	0 - 239	75
	703	Needle position 2 (take-up lever up)	0 - 239	213
	705	Needle position 5 (end of trimming signal 1)	0 - 239	175
	707	Needle position 9 (start of tension-release signal 2)	0 - 239	180



For further displays and information please see instruction manual of motor manufacturer.



Notes

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