

1295 1296

ADJUSTMENT MANUAL

This Adjustment Manual is valid for machines
from the following serial numbers onwards:

(#& 0& →

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**PFAFF Industriesysteme
und Maschinen AG**

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13

Adjustment



Please observe all notes from **Chapter 1 Safety** of the instruction manual! In particular care must be taken to see that all protective devices are refitted properly after adjustment, see **Chapter 1.06 Danger warnings** of the instruction manual!



Unless stated otherwise, during all adjustment work the machine must be disconnected from the electric and pneumatic power supply!
Danger of injury if the machine is started accidentally!



For the adjustments in this chapter the **PFAFF 1296** two-needle machine is illustrated. On the **PFAFF 1295** single-needle machines various adjustments only have to be carried out on one side, i.e. in the right-hand hook area. This is referred to in the different chapters.

13.01

Notes on adjustment

All following adjustments are based on a fully assembled machine and may only be carried out by expert staff trained for this purpose.

Machine covers, which have to be removed and replaced to carry out checks and adjustments, are not mentioned in the text.

The order of the following chapters corresponds to the most logical work sequence for machines which have to be completely adjusted. If only specific individual work steps are carried out, both the preceding and following chapters must be observed.

Screws, nuts indicated in brackets () are fastenings for machine parts, which must be loosened before adjustment and tightened again afterwards.

13.02

Tools, gauges and other equipment

- Screwdrivers with blade widths from 2 to 10 mm
- Spanners (wrenches) in sizes from 7 to 13 mm
- Allen keys from 1.5 to 6 mm
- Metal rule (part No. 08-880 218-00)
- Needle-rise gauge (part No. 61-111 600-01)
- Gauge, (top feed stroke 7 mm) (Part No. 61-111 633-61)
- Screw clamp (part No. 61-111 600-35)

13.03

Abbreviations

t.d.c. = top dead centre

b.d.c. = bottom dead centre

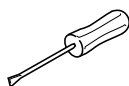
13.04

Explanation of the symbols

In this adjustment manual, symbols emphasize operations to be carried out or important information. The symbols used have the following meaning:



Note, information



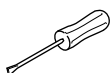
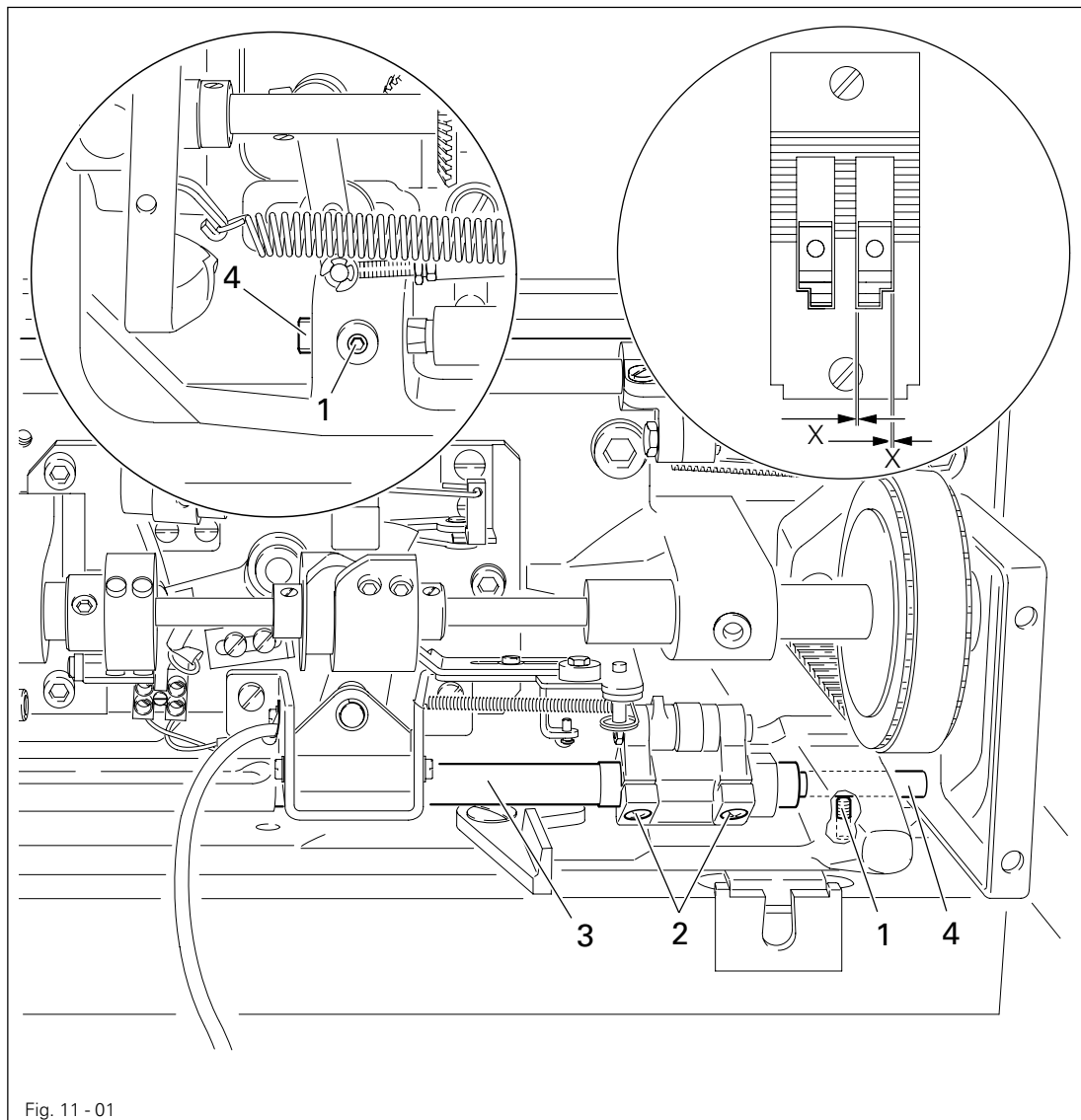
Service, repair, adjustment, maintenance
(work to be carried out by qualified staff only)

13.05 Adjusting the basic machine

13.05.01 Position of the bottom feed dog crosswise to sewing direction

Requirement

The bottom feed dog must be the same distance from the left and right side of the feed slots.



- Loosen screws 1 and 2.
- Position rock shaft 3 according to Requirement..
- Tighten screw 1.



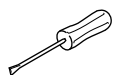
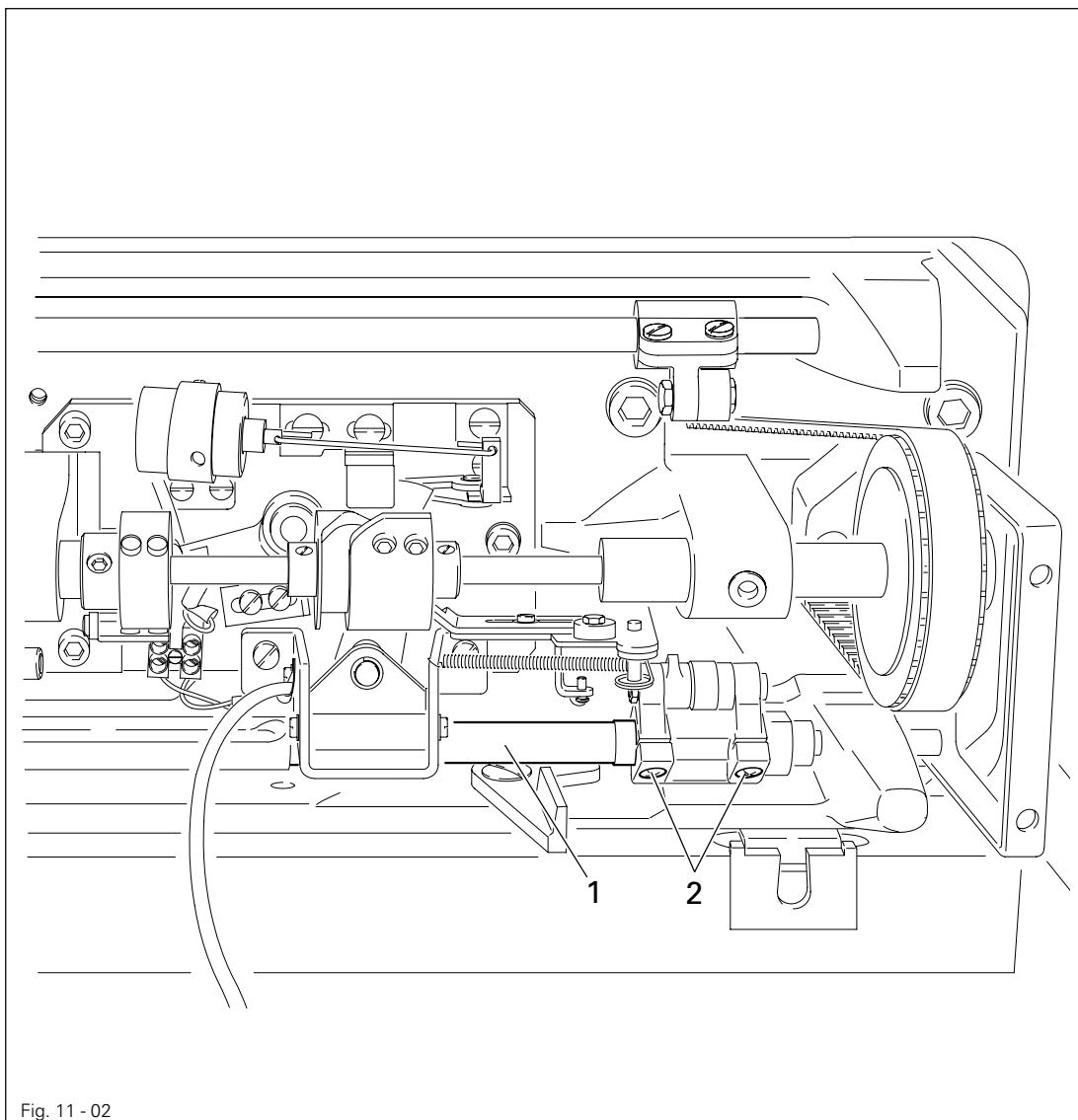
The flats of pins 4 must face screws 1 and rock shaft 3 must neither have any play nor bind.

Leave screws 2 loose for the following adjustments.

13.05.02 Adjusting the bottom feed dog in sewing direction

Requirement

With the longest stitch length set, the bottom feed dog must not strike the feed slot at the front or rear end of its stroke.



- Set the longest stitch length.
- Turn rock shaft 1 according to **Requirement.** and tighten screws 2.

13.05.03 Bottom feed dog height

Requirement

With the stitch length set at "0" the feed dog must protrude from the needle plate by the height of its teeth when at its highest position.

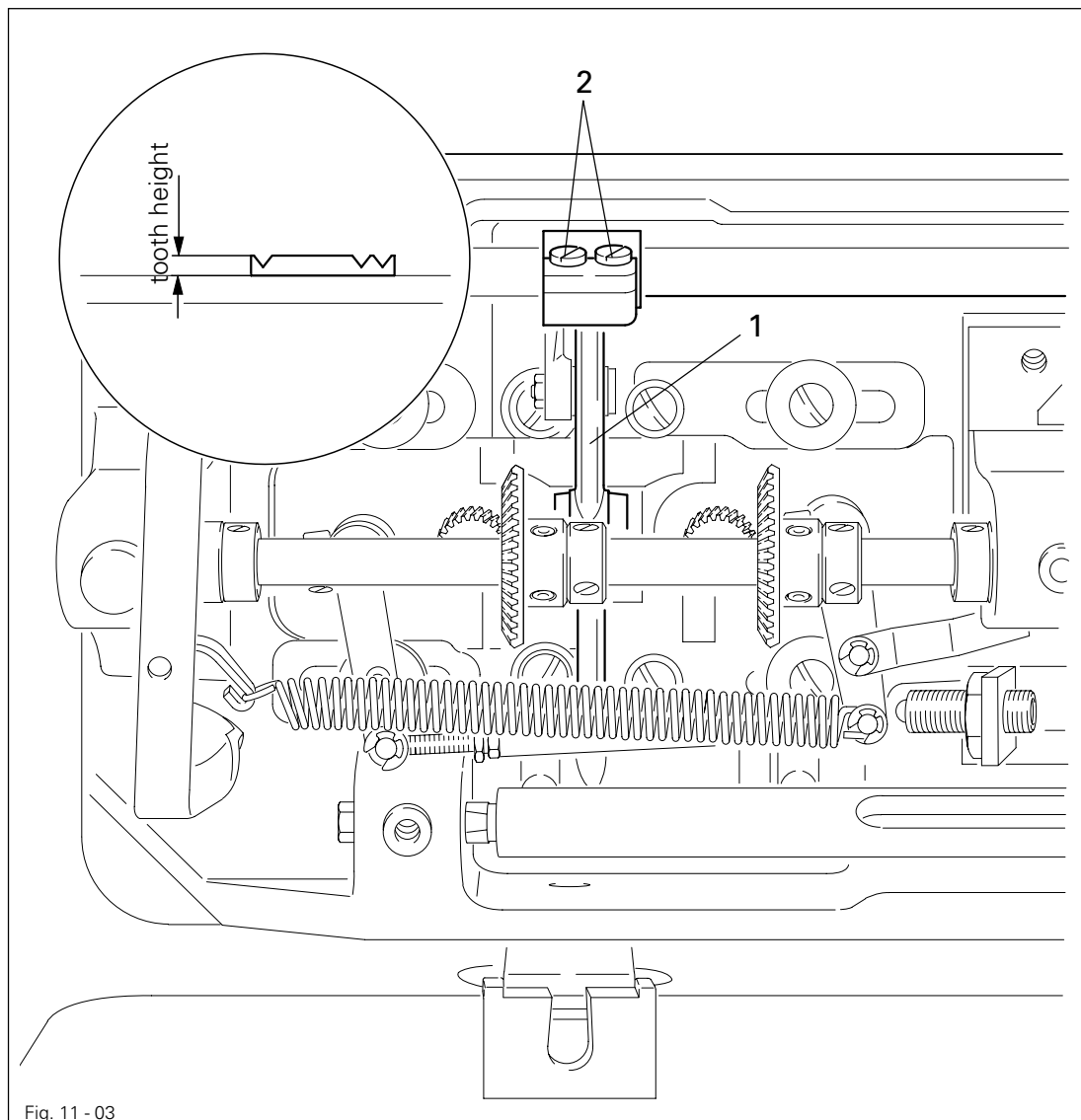
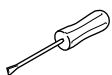


Fig. 11 - 03



- Set stitch length „0“.
- Turn the balance wheel to set the bottom feed dog at its highest position.
- Adjust bracket 1 (screws 2) according to **Requirement**.



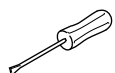
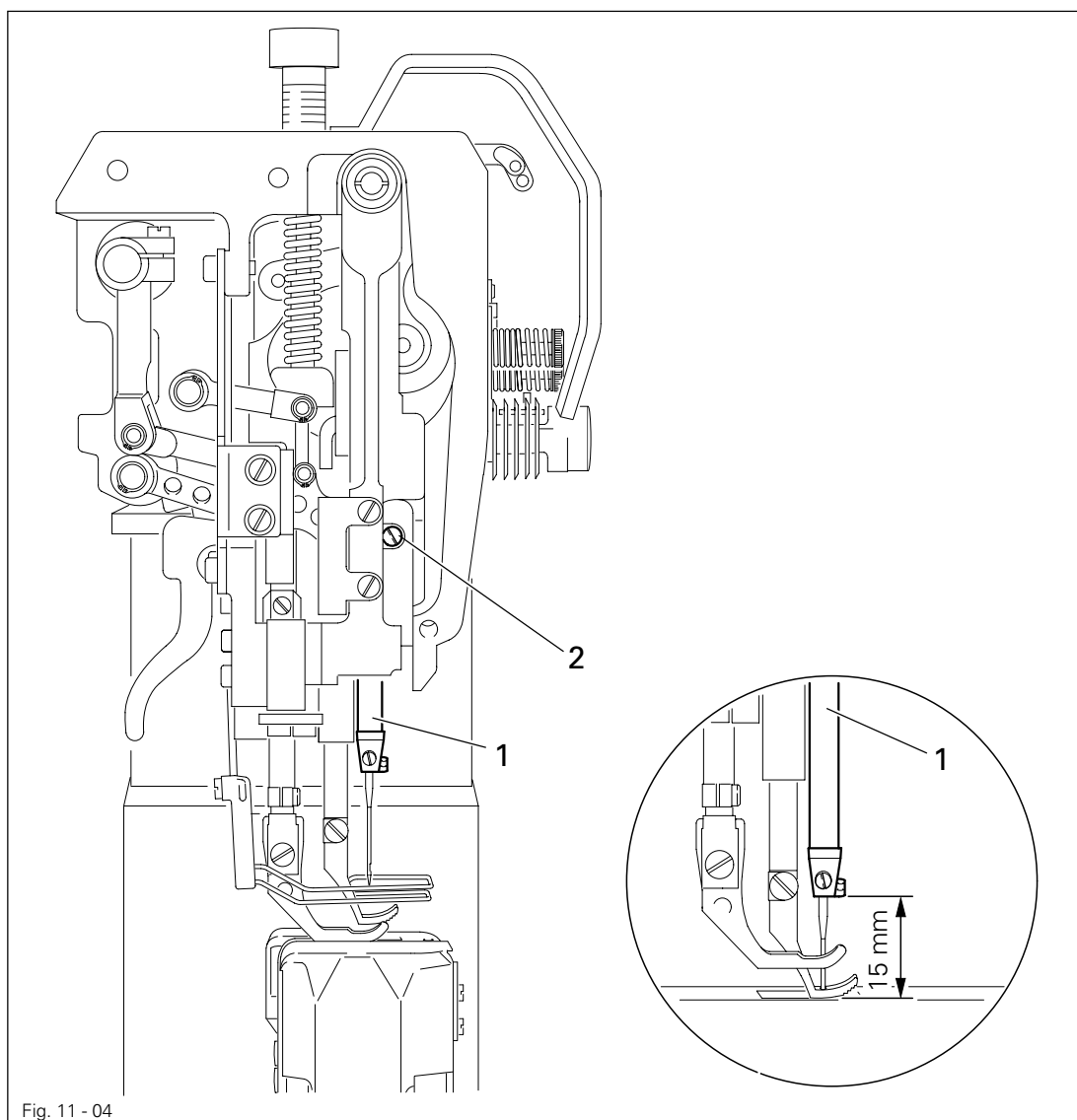
On machines without bottom-feed lifting phase (without "P") the feed dog height may be reduced somewhat if necessary.

Adjustment

13.05.04 Needle height (preliminary adjustment)

Requirement

With the needle bar at b.d.c. the clearance between needle bar and needle plate must be 15 mm.



- Re-position the height of needle bar 1 (screws 2) according to **Requirement**, but do not turn it.

13.05.05 Needle in needle-hole centre

Requirement

With the stitch length set at "0" the needle must enter exactly in the centre of the needle hole.

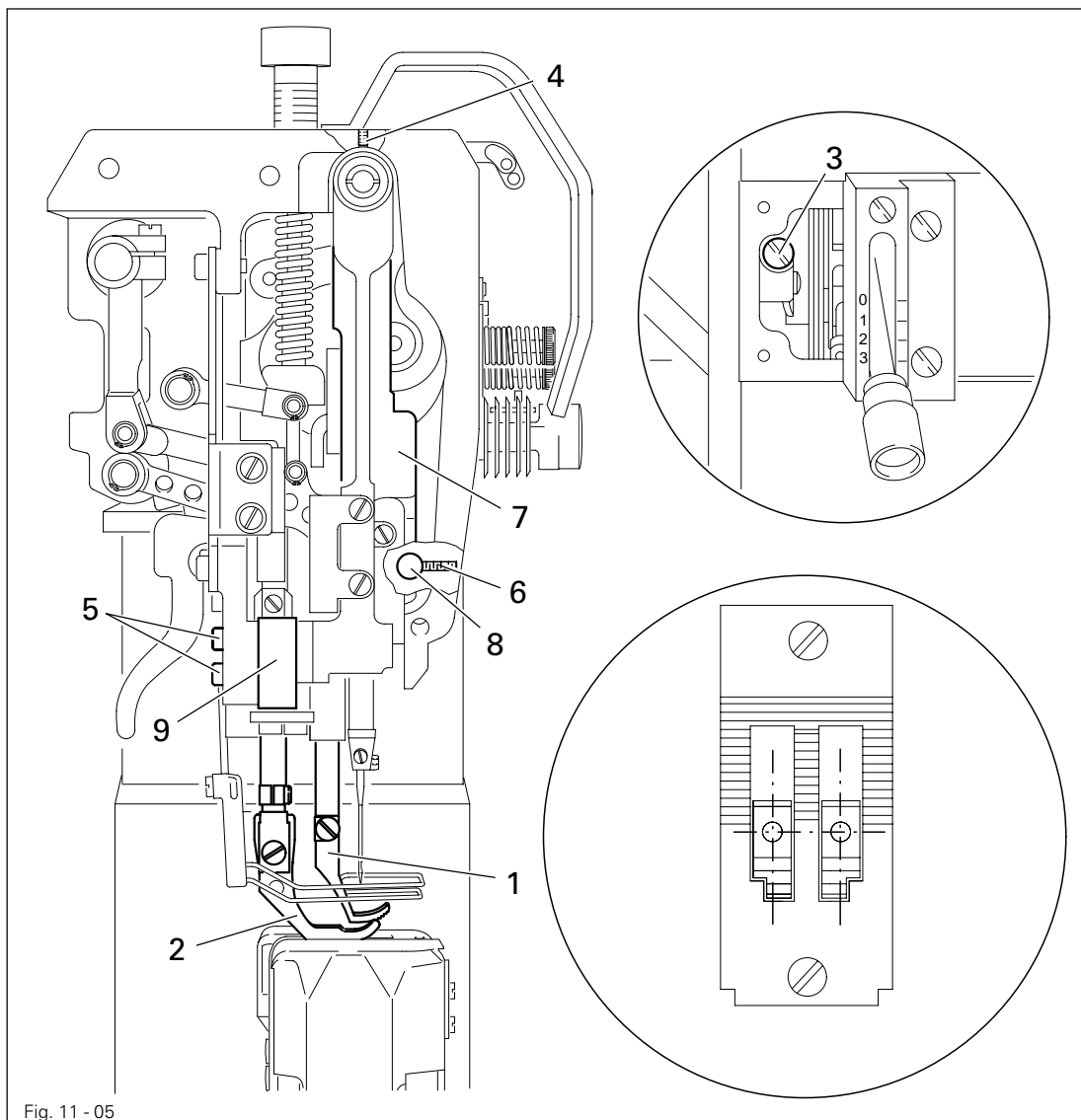
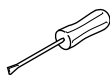


Fig. 11 - 05



- Remove vibrating presser 1 and lifting presser 2.
- Set the stitch length at "0" and set the needle bar at t.d.c.
- Insert a new needle, loosen screws 3, 4, 5 and 6.
- Turn the balance wheel to set the needle immediately above the bottom feed dog.
- Shift the position of needle bar frame 7 according to **Requirement**.
- Tighten screws 3, 4 and 5.
- Move stop 8 up against needle bar frame 7 and tighten screw 6.

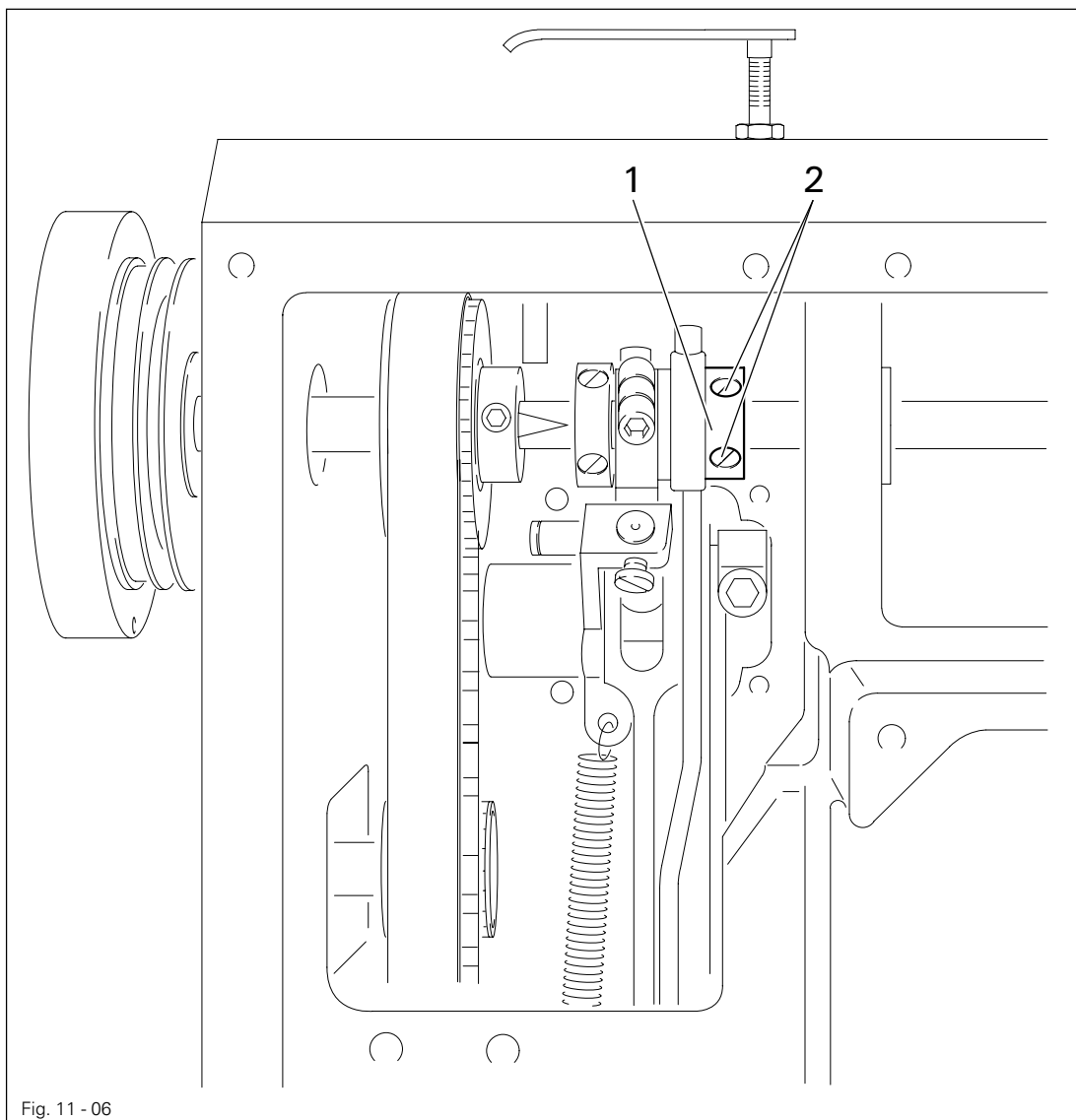


There must be no binding of needle bar frame 7 in guide 9 nor in the top-feed drive linkages.

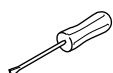
13.05.06 Bottom feed dog lifting motion

Requirement

1. With the needle bar at b.d.c. the feed dog must be at its highest position.
2. When the longest stitch length is set and the balance wheel is turned, the bottom feed dog must reach the top side of the needle plate at the same time as the needle.



This adjustment does not apply to machines without bottom-feed dog lifting phase (without "P")

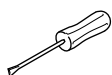
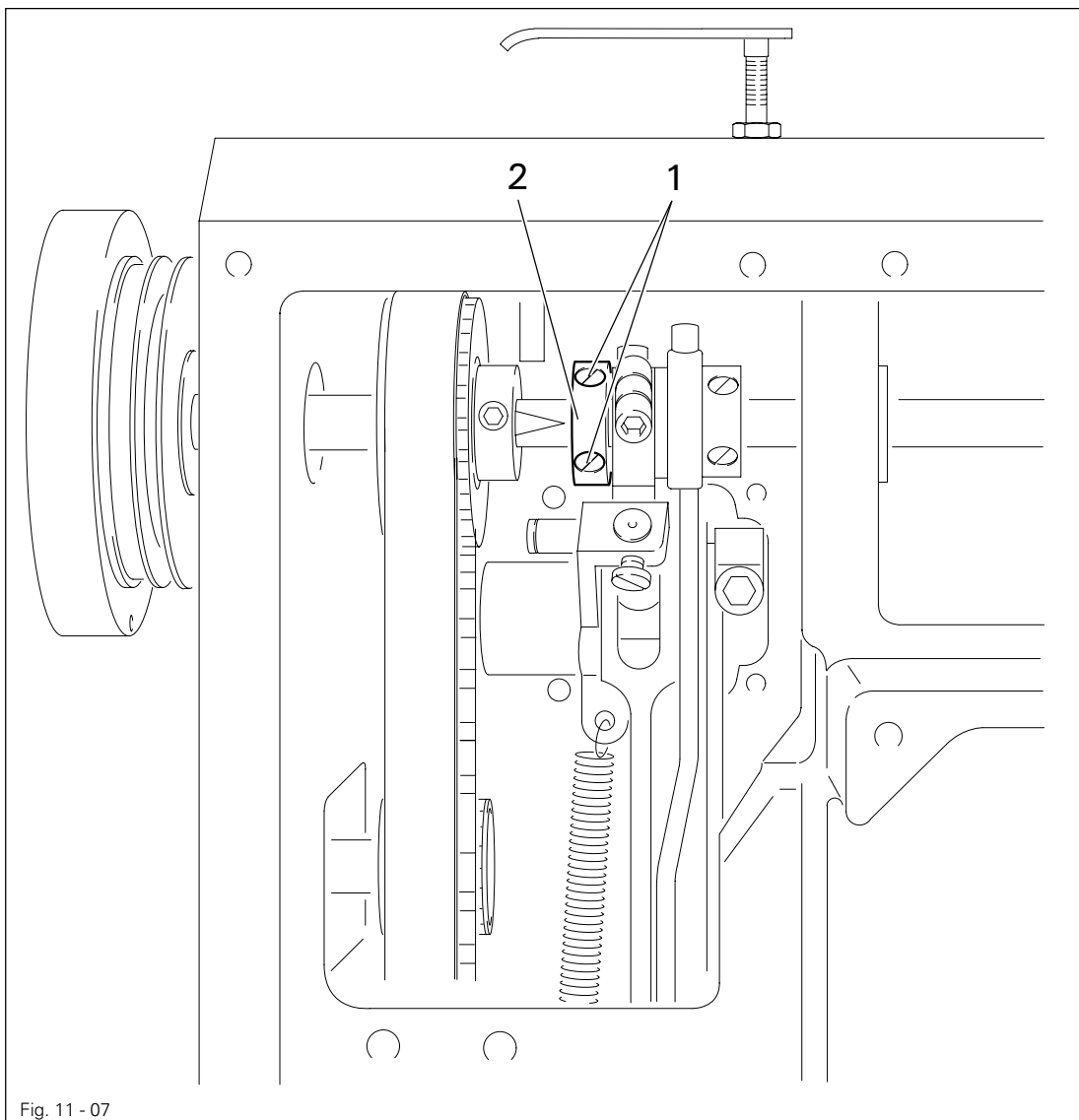


- Set needle bar at b.d.c.
- Turn eccentric 1 (screws 2) according to **Requirement 1**.
- In this position tighten the accessible screw 2 just enough to allow eccentric 1 to be turned against a resistance.
- Turn eccentric 1 slightly according to **Requirement 2**.
- Tighten both screws 2.

13.05.07 Feeding stroke of bottom and top feeds

Requirement

With the longest stitch length set and the needle bar at b.d.c. neither the top- nor bottom feed must make any movement when the reverse-feed lever is operated.



- Set the longest stitch length.
- Undo screw 1 enough to allow eccentric 2 to be turned on the shaft against a resistance.
- Set needle bar at b.d.c.
- First turn eccentric 2 so that its highest eccentric point is facing "downwards."
- Now turn it slightly in rotation direction according to **Requirement**.
- Tighten screw 1.

13.05.08 Hook clearance, needle rise, needle height and needle guard

Requirement

With the stitch length set at "3" and in needle-rise position (= 1.8 mm past b.d.c. on version "B" or 2.0 mm past b.d.c. on version "C")

1. The hook point must be at the "needle centre" and the clearance between hook and needle **0.05 to 0.1 mm**,
2. the top end of the needle eye must be **0.8 to 0.1 mm** below the hook point, and
3. needle guard **8** must touch the needle just lightly.

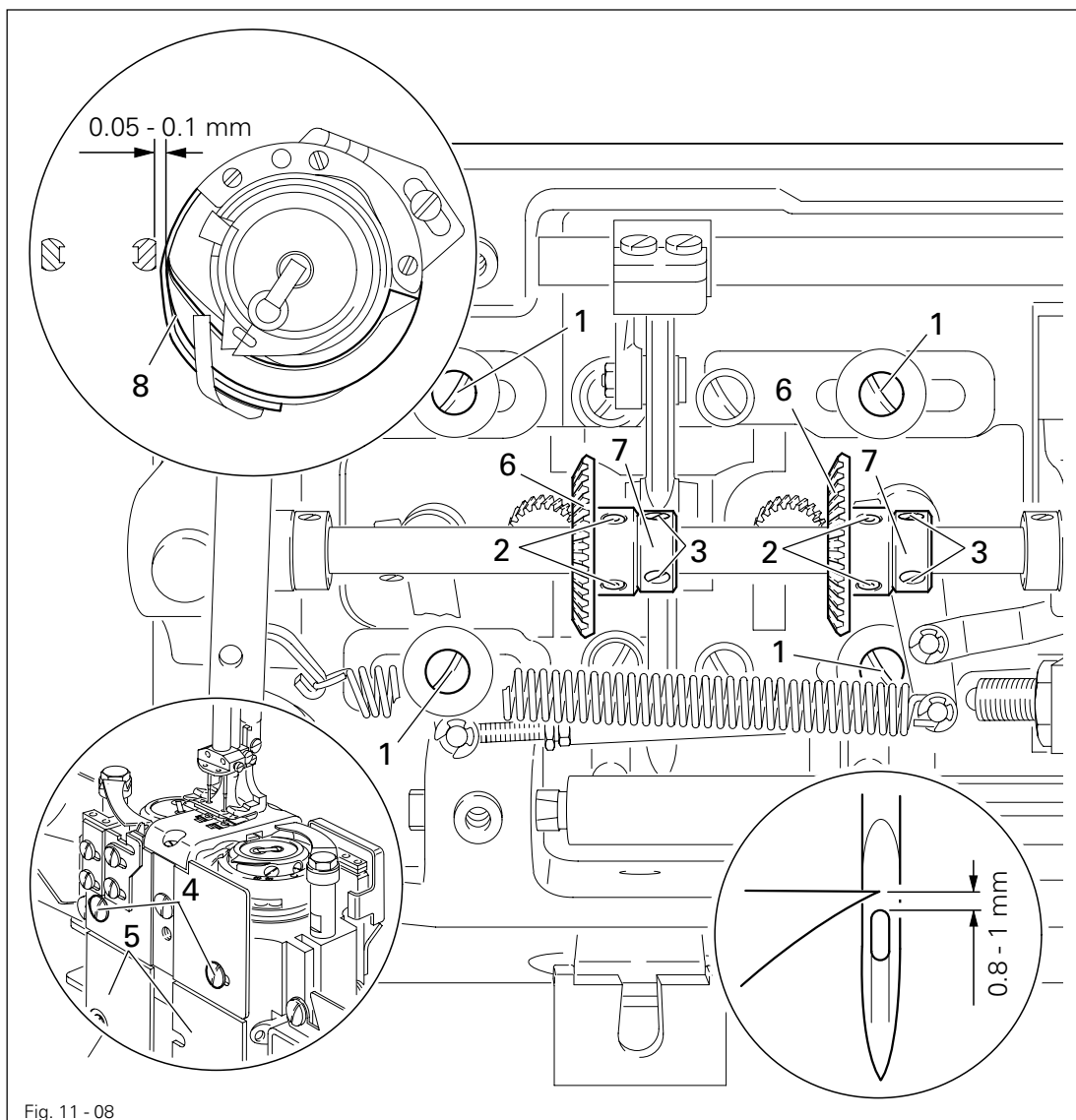
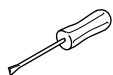


Fig. 11 - 08



- Set the stitch length at "3" and loosen screws 1, 2 and 3.
- Loosen screws 4 at the front and rear side.
- Position posts 5 according to **Requirement 1**.
- Tighten screws 1 and 4.
- Set the needle bar at b.d.c. and place the 1.8 or 2.0 mm thick feeler gauge close under the needle bar bearing, move the screw clamp up against the feeler gauge and screw it tight.
- Remove the feeler gauge and turn the balance wheel in sewing direction until the screw clamp is against the needle bar bearing.

- Set the hook point at the needle centre, making sure that the needle is not deflected by needle guard 8.
- Making sure that bevel gear 6 is not too close, but the hook has not too much play, tighten screws 2.
- Move fixing collar 7 up against bevel gear 6 and tighten screws 3.
- Adjust the needle height according to **Requirement 2** (see also **Chapter 13.04.04, Needle height preliminary adjustment**).
- position needle guard 8 according to **Requirement 3**.

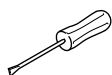
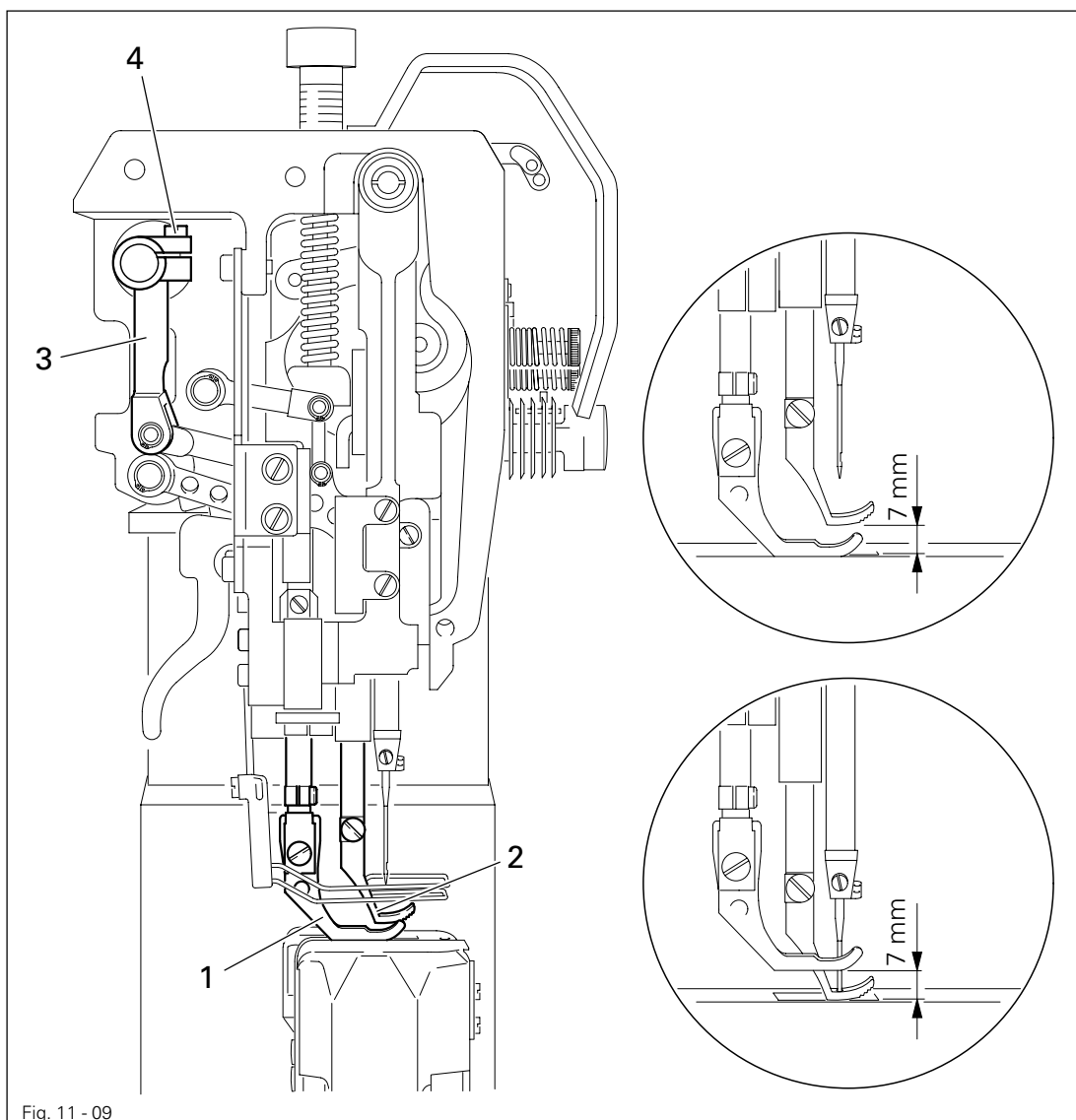


After changing the needle clearance be sure to readjust the connecting linkage of the thread trimmer mechanism (see also **Chapter 13.05.6, Connecting linkage**).

13.05.09 Top feed stroke

Requirement

With the longest top feed stroke set and the stitch length at "0", lifting presser 1 and vibrating presser 2 must each rise from the needle plate by 7.0 mm when the balance wheel is turned.

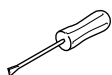
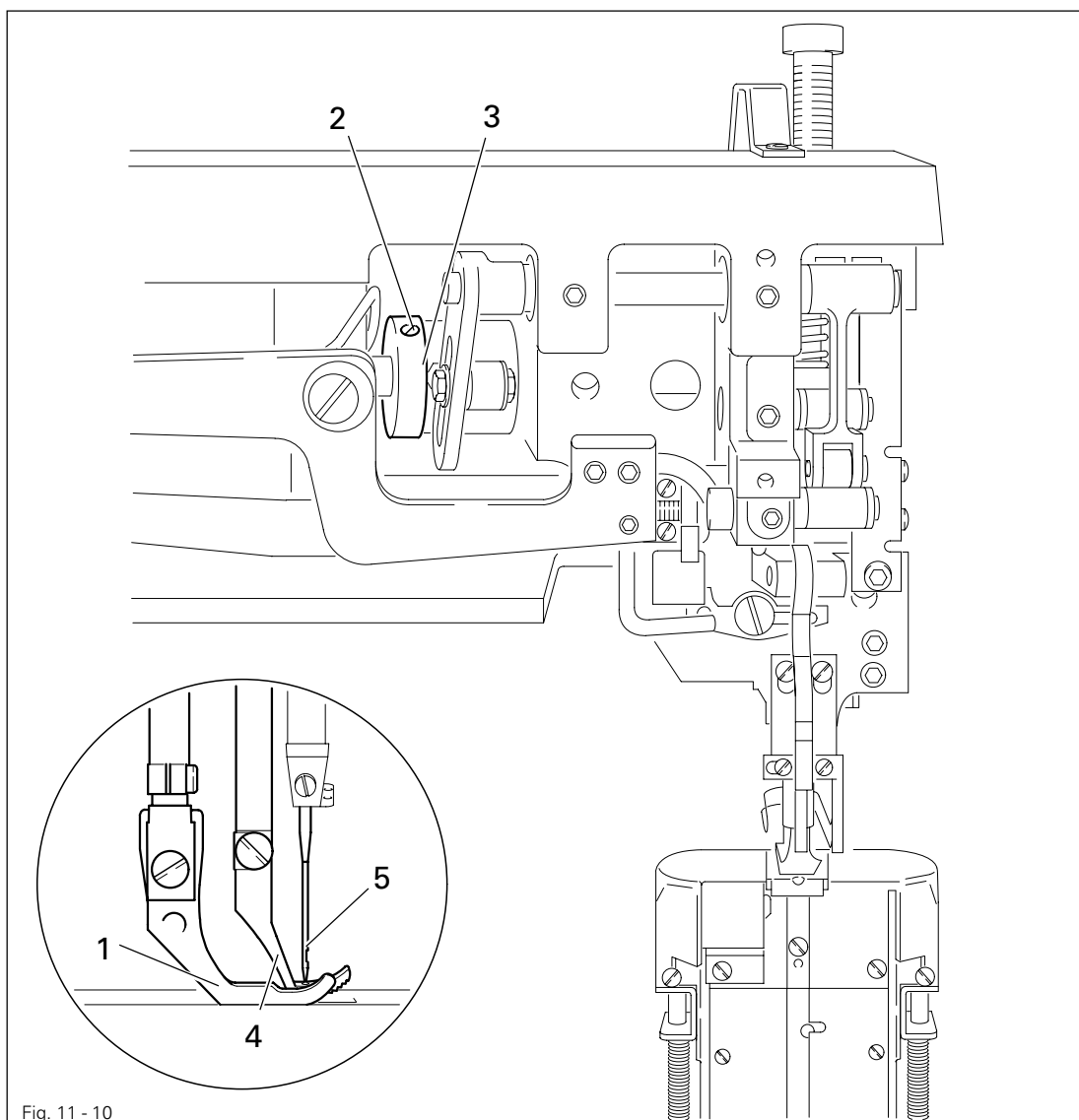


- Set the longest top feed stroke and stitch length "0".
- Lower lifting presser 1.
- Turn the balance wheel in sewing direction until vibrating presser 2 has reached its highest point.
- Turn crank 3 (screws 4) according to **Requirement**.

13.05.10 Top feed lifting motion

Requirement

When lifting presser 1 is resting on the needle plate, vibrating presser 4 and needle point 5 must reach the needle plate at the same time at the highest top feed stroke.



- Lower lifting presser 1 onto the needle plate.
- Loosen screws 2 just enough to allow eccentric 3 to be turned against a resistance on its shaft.
- Turn eccentric 3 according to **Requirement**.
- Tighten screws 2.

13.05.11 Bobbin case opener

Requirement

The needle thread must neither be trapped between bobbin case opener 3 and hook base 4 nor between position finger 5 and the retainer on the needle plate (see arrows).

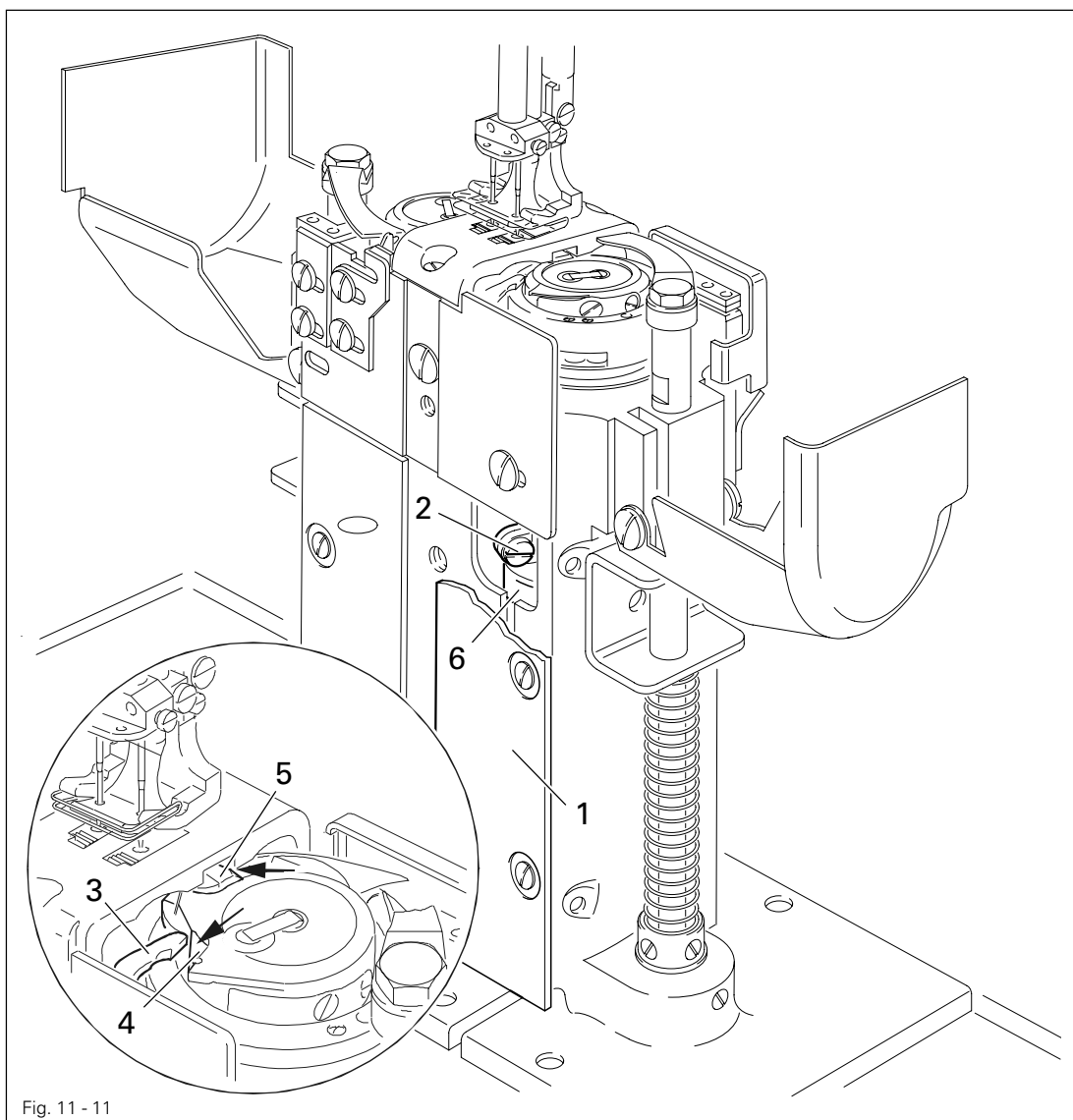
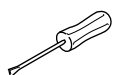


Fig. 11 - 11



- Unscrew and remove post covers 1 (on left post from the rear).
- Undo screws 2 enough to allow bobbin case opener 3 to be turned on its shaft against a resistance.
- Thread up the machine, place sewing material in and lower the lifting presser.
- Set bobbin case opener 3 according to **Requirement**.
- In this position, apply pressure on the bobbin case opener from the top, move clamp collar 6 up against it and tighten screws 2.

13.05.12 Slip coupling



Slip coupling **4** is adjusted at the works. When a thread jams, slip coupling **4** disengages, in order to avoid damage to the hooks. To engage the coupling again, proceed as follows.

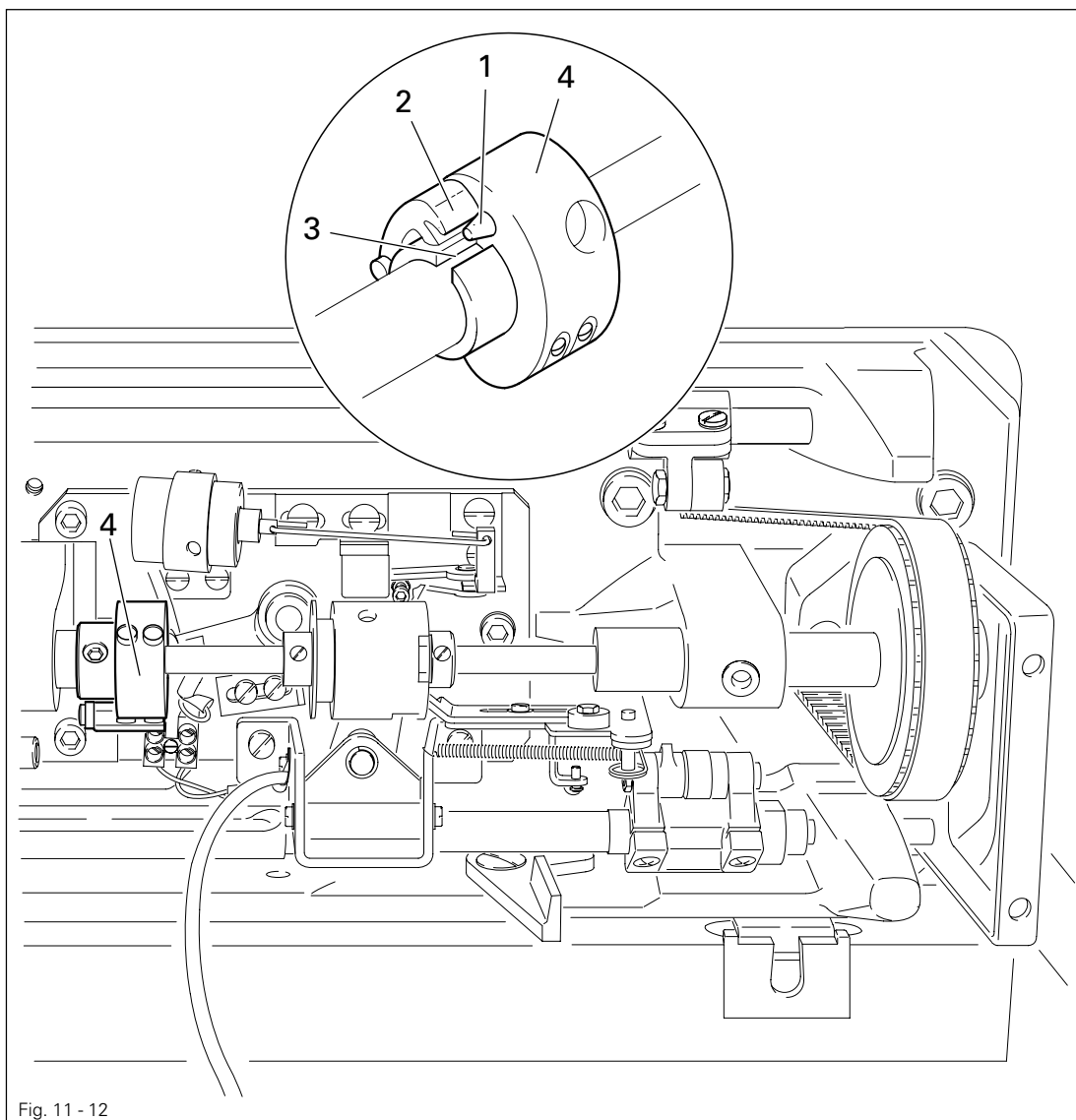
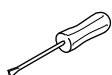


Fig. 11 - 12

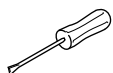
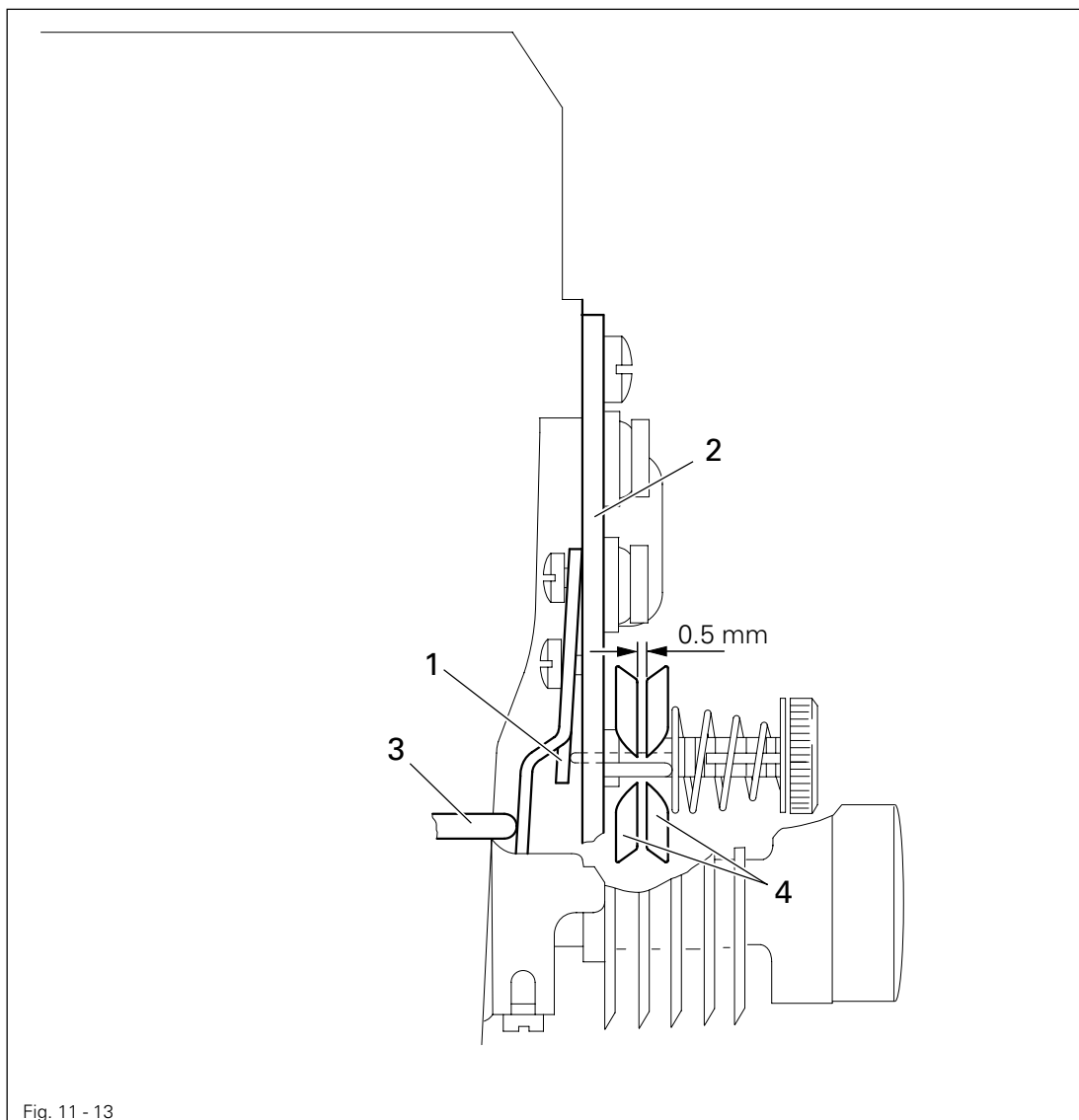


- Remove jammed thread.
- Press plunger **1** and turn the balance wheel until pawl **2** engages groove **3**.

13.05.13 Needle-thread tension release

Requirement

With the lifting presser raised, there must be a clearance of at least **0.5 mm** between tension discs **4**.



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



The clearance of **0.5 mm** is a minimum setting and may be as much as **1 mm** for heavy threads.

When the tension is engaged, release pin **3** must not be under load.

13.05.14 Thread check spring, without subclass -900/56

Requirement

The movement of thread check spring **5** must be finished when the needle point enters the material (=spring stroke of about **7 mm**).

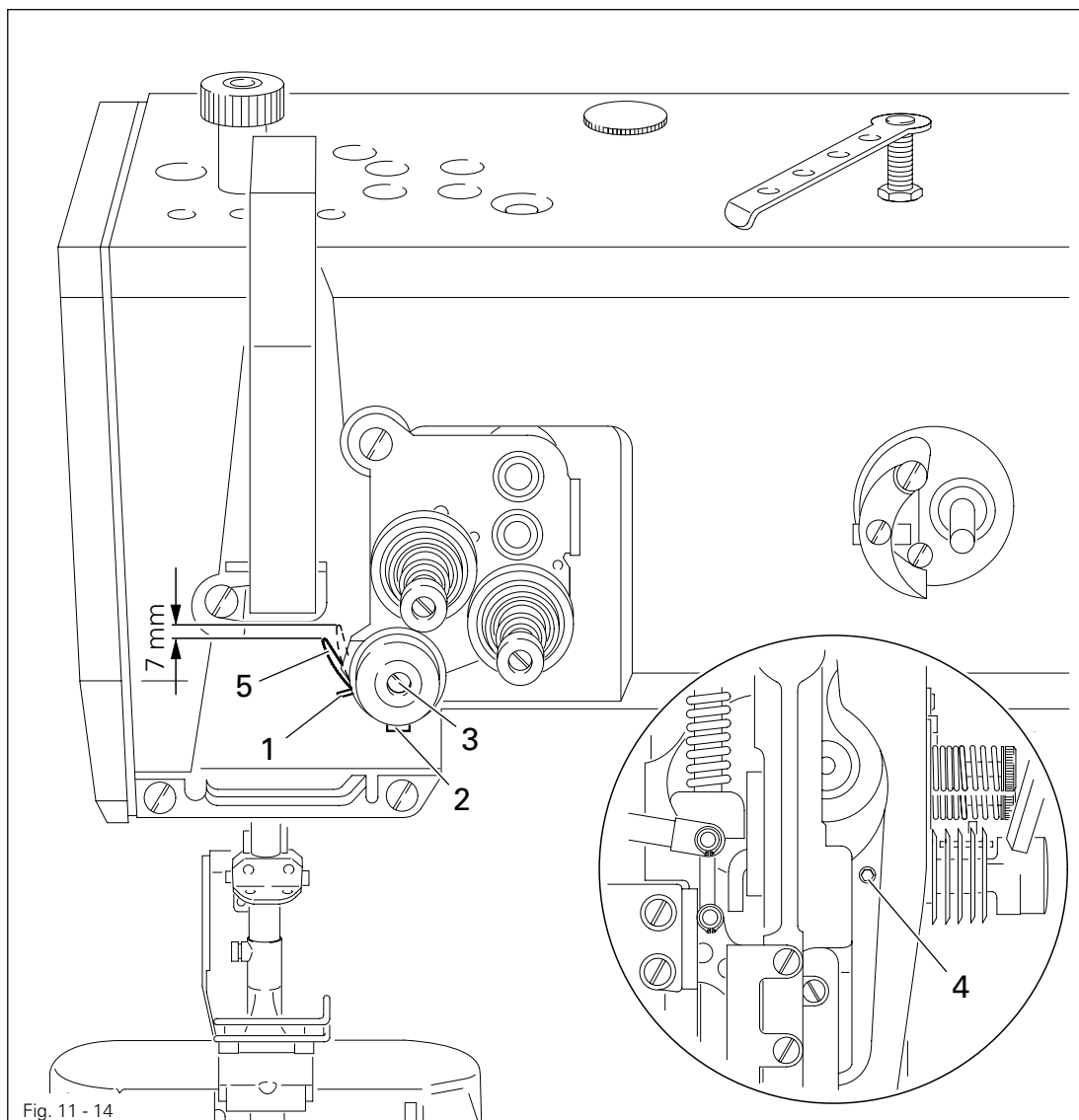
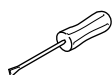


Fig. 11 - 14



- Adjust stop **1** (screw **2**) according to **Requirement**.
- To adjust the pressure of the spring, turn screw **3** (screw **4**).

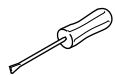
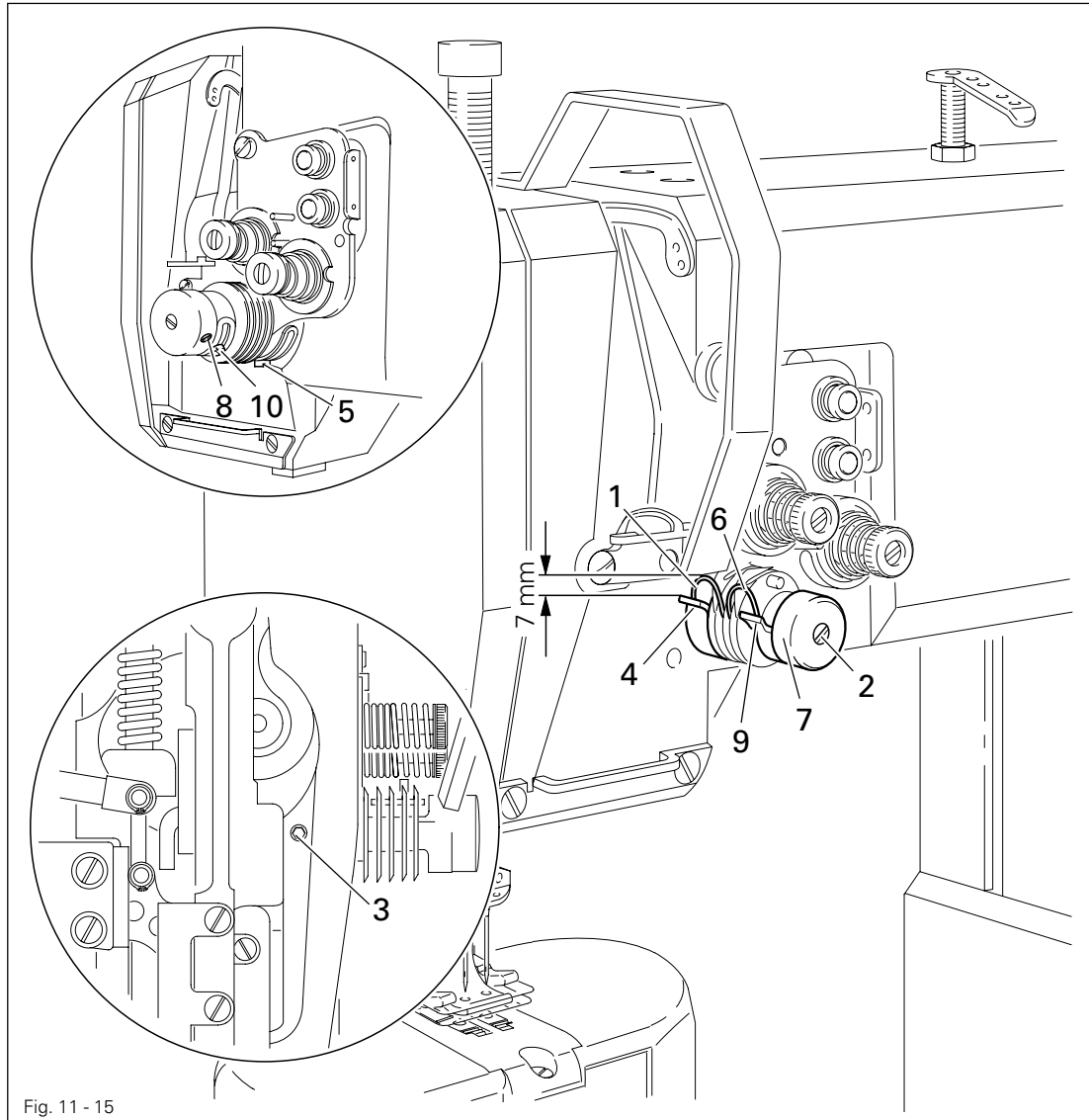


For technical reasons the length of the thread check spring stroke may vary upwards or downwards a little.

13.05.15 Thread check spring on the PFAFF 1296 with subclass -900/56

Requirement

The movements of thread check springs 1 and 6 must be finished when the needle points enter the material (=spring stroke of about 7 mm).



- To adjust the pressure of spring 1, turn screw 2 (screw 3).
- Adjust stop 4 (screw 5) according to **Requirement**.
- To adjust the pressure of spring 6, turn screw 7 (screw 8).
- Adjust stop 9 (screw 10) according to **Requirement**.

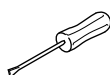
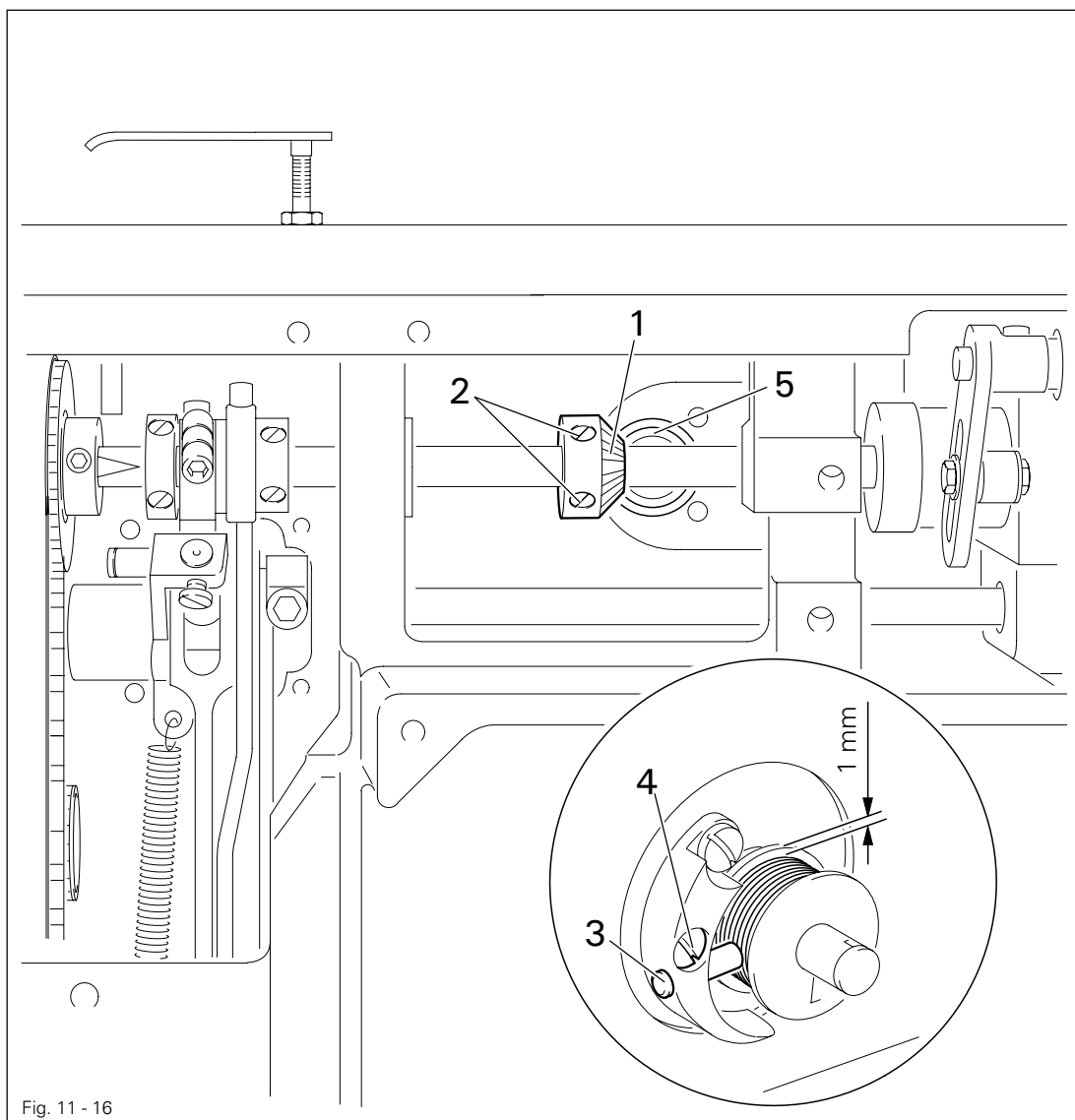


For technical reasons the length of the thread check spring stroke may vary upwards or downwards a little.

13.05.16 Bobbin winder

Requirement

1. With the bobbin winder engaged, drive wheel **1** must be driven reliably.
2. With the bobbin winder disengaged, friction wheel **5** must not run against drive wheel **1**.
3. The bobbin winder must switch itself off when the filled thread is about **1 mm** from the rim of the bobbin.



- Re-position drive wheel **1** (screws **2**) according to **Requirements 1 and 2**.
- Re-position pin **3** (screw **4**) according to **Requirement 3**.

Adjustment

13.05.17 Pressure of the lifting presser

Requirement

1. The material must be properly fed, even at the highest sewing speed.
2. There must be no pressure marks on the material.

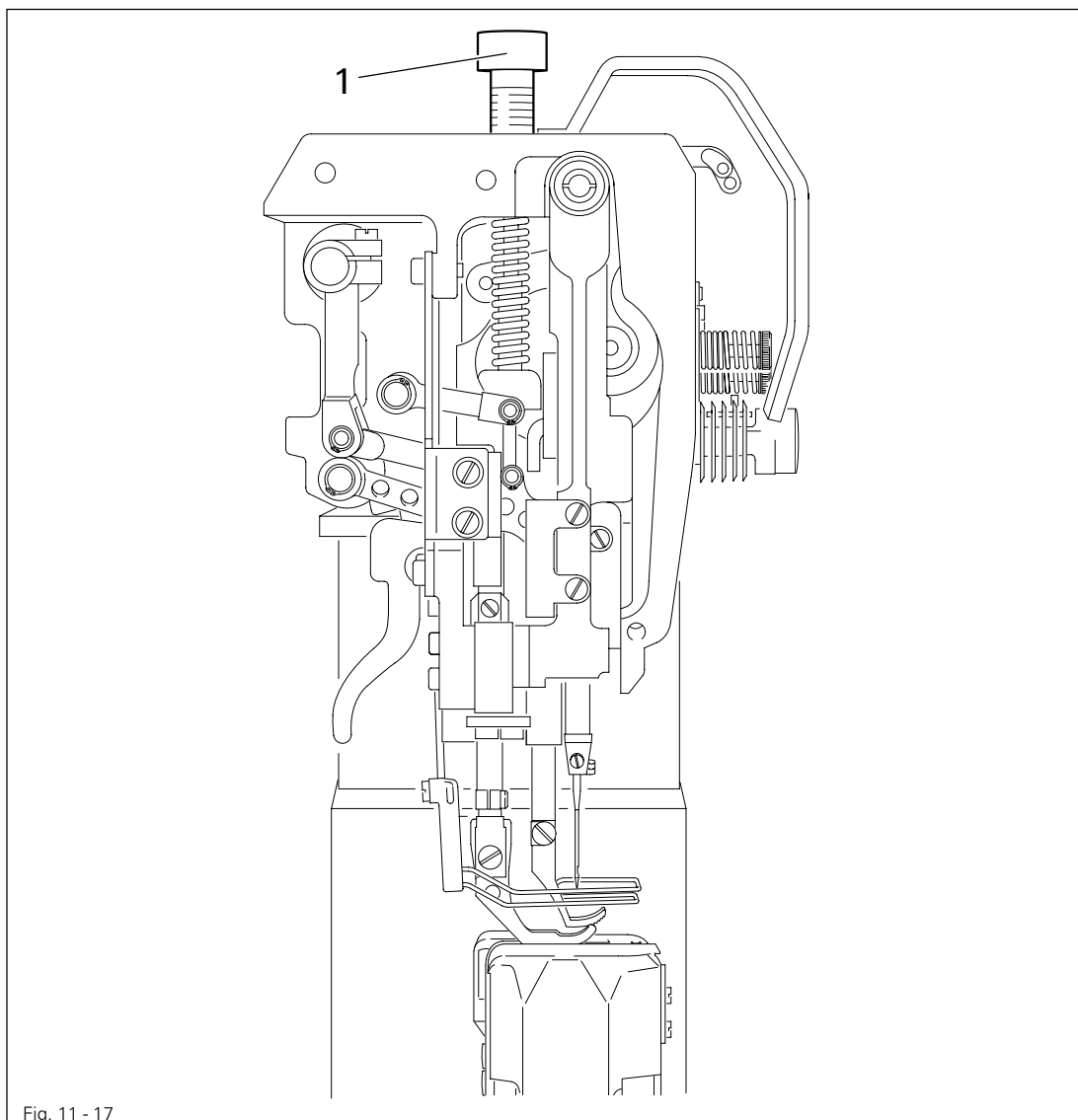
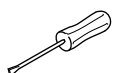


Fig. 11 - 17



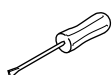
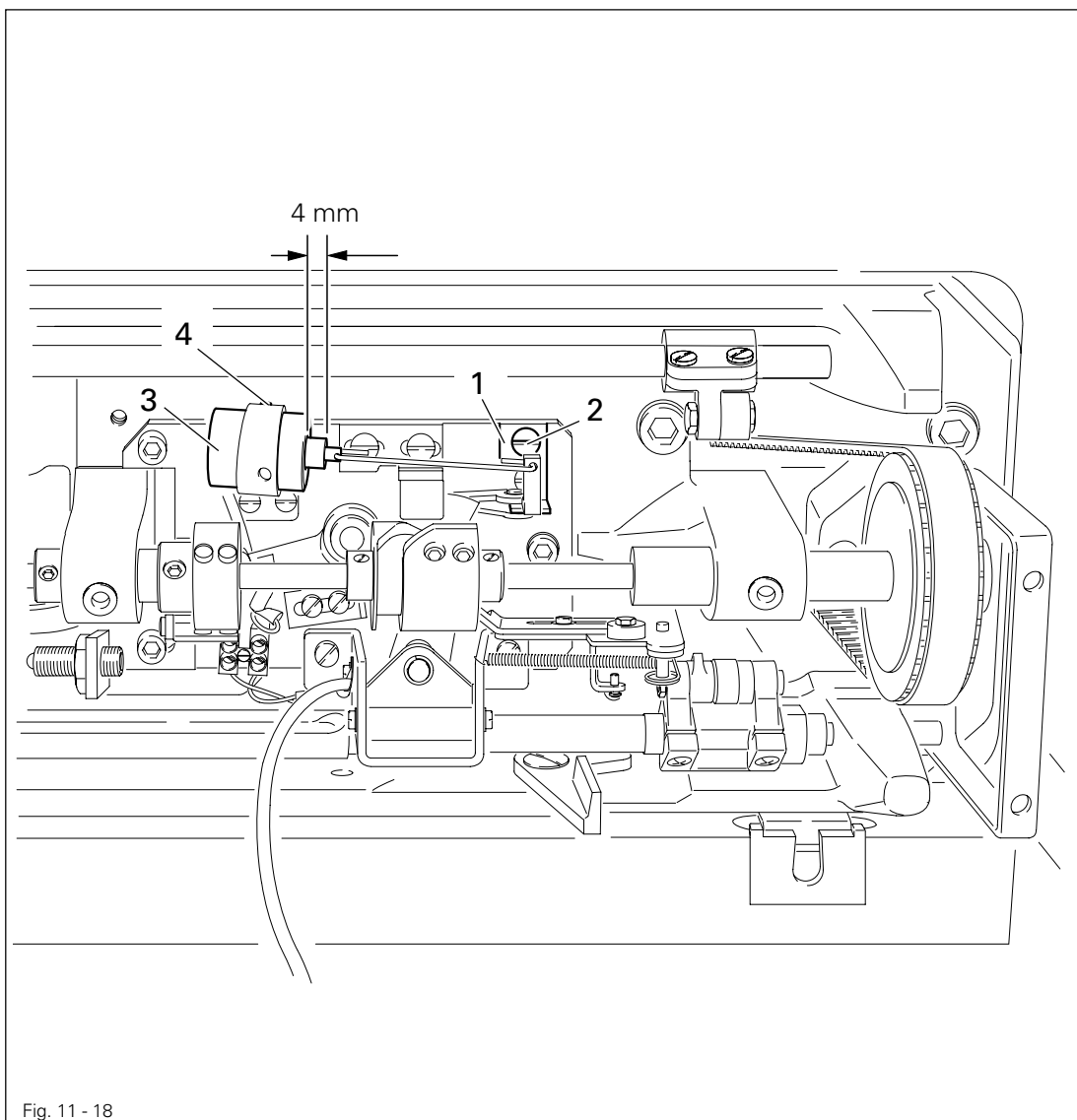
- Turn screw 1 according to the **Requirement**.

13.06 Adjusting the thread trimmer -900/56

13.06.01 Engaging solenoid

Requirement

1. Mounting bracket **1** must be in the middle of its adjusting range and parallel with the right-hand edge of the mounting bracket.
2. When the thread trimmer is in its resting position the core of solenoid **3** must protrude from the solenoid housing by about **4 mm**.

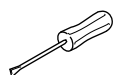
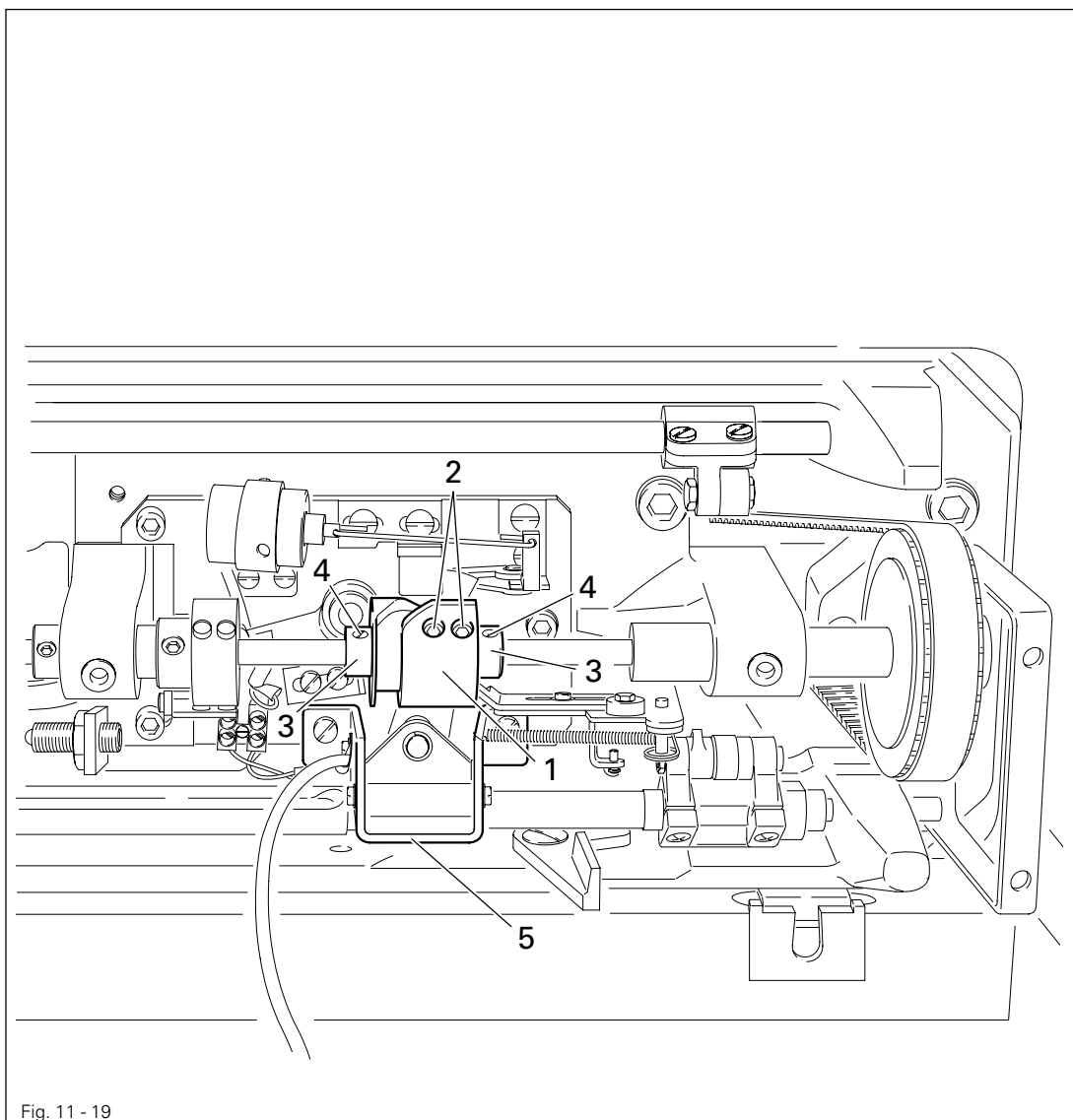


- Re-position bracket **1** (screw **2**) according to **Requirement 1**.
- Re-position solenoid **3** (screw **4**) according to **Requirement 2**.

13.06.02 Control cam (preliminary adjustment)

Requirement

1. Control cam 1, must be centred with the cutout of bearing mounting 5.
2. With the needle bar at t.d.c., screws 2 must be visible from the front and aligned parallel with the bedplate.

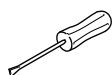
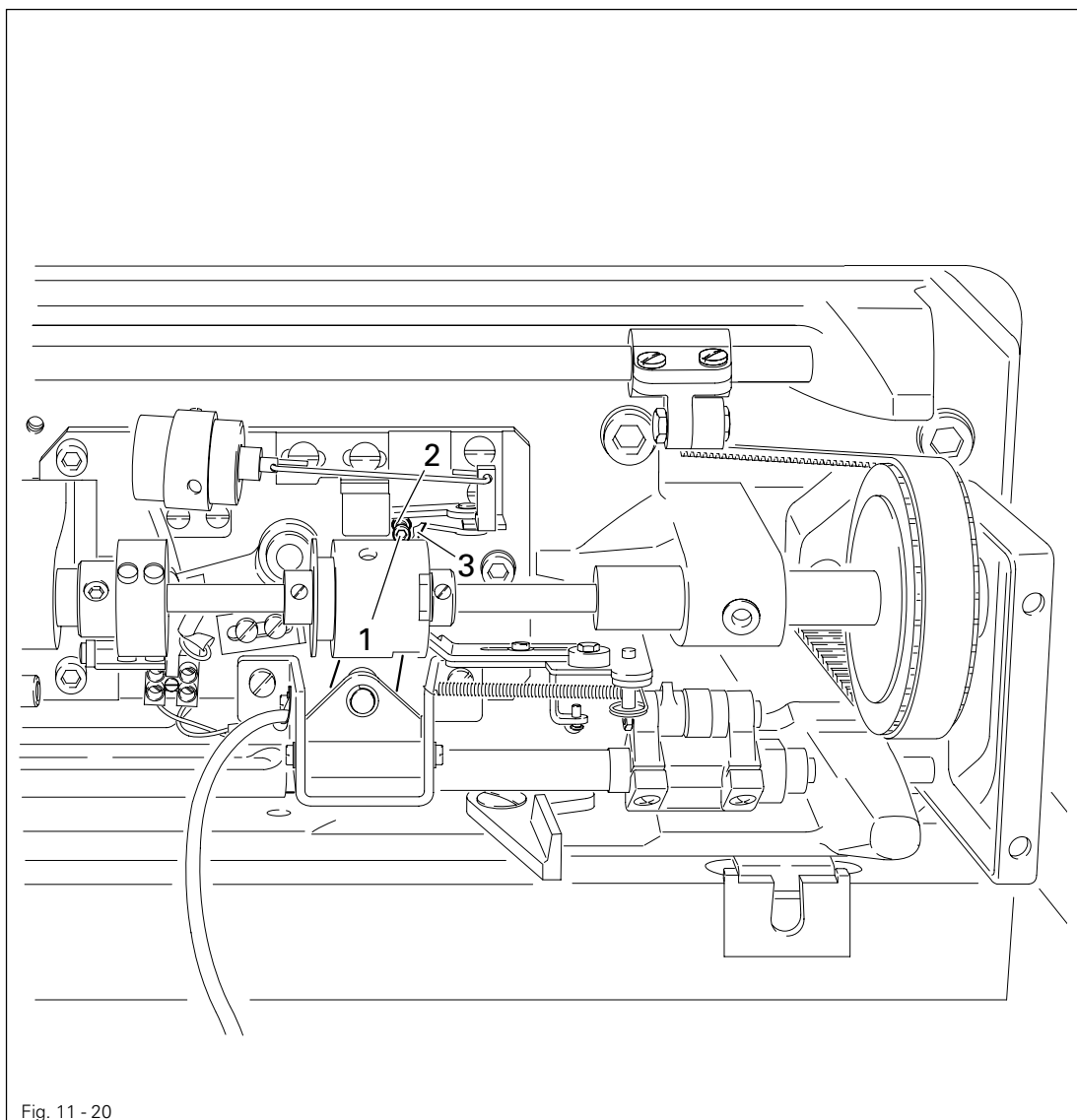


- Re-position control cam 1 (screws 2) and fixing collars 3 (screws 4) according to Requirement.

13.06.03 Control lever spring action

Requirement

When the thread trimmer is in its resting position, it must be possible to press control lever 3 about 1 mm towards the bedplate (spring action).

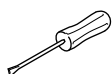
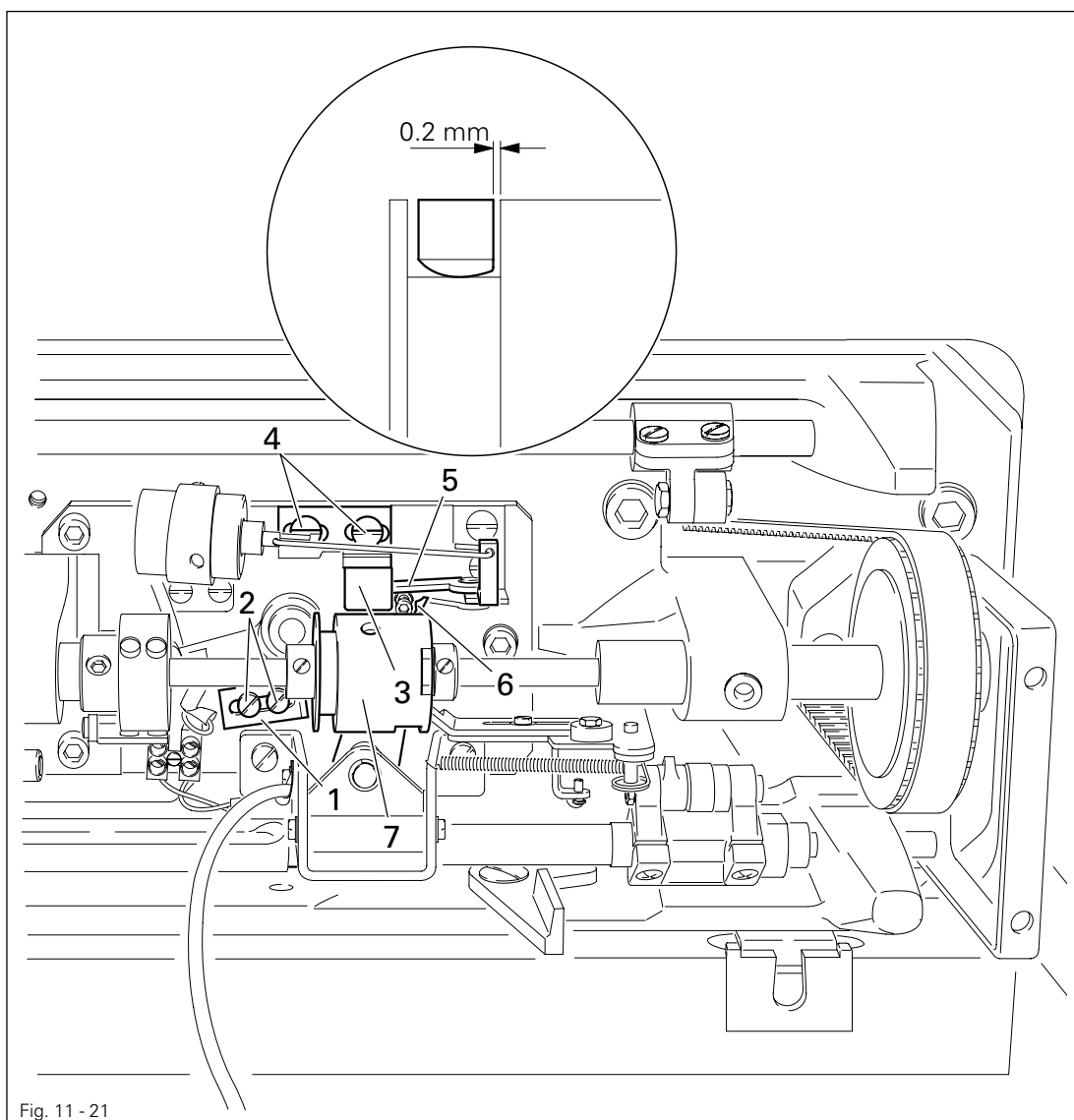


- Turn screw 1 (nut 2) according to **Requirement**.

13.06.04 Control lever stroke

Requirement

1. When engaging lever 5 is operated the pin of control lever 6 must drop freely into the track of control cam 7.
2. After thread trimming, control lever 6 must pass freely on the right side of stop plate 3 and engage control lever 5 behind stop plate 3.
3. There must be a clearance of **0.2 mm** between the pin of control cam 6 and the right-hand inside of the control cam track.

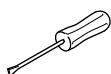
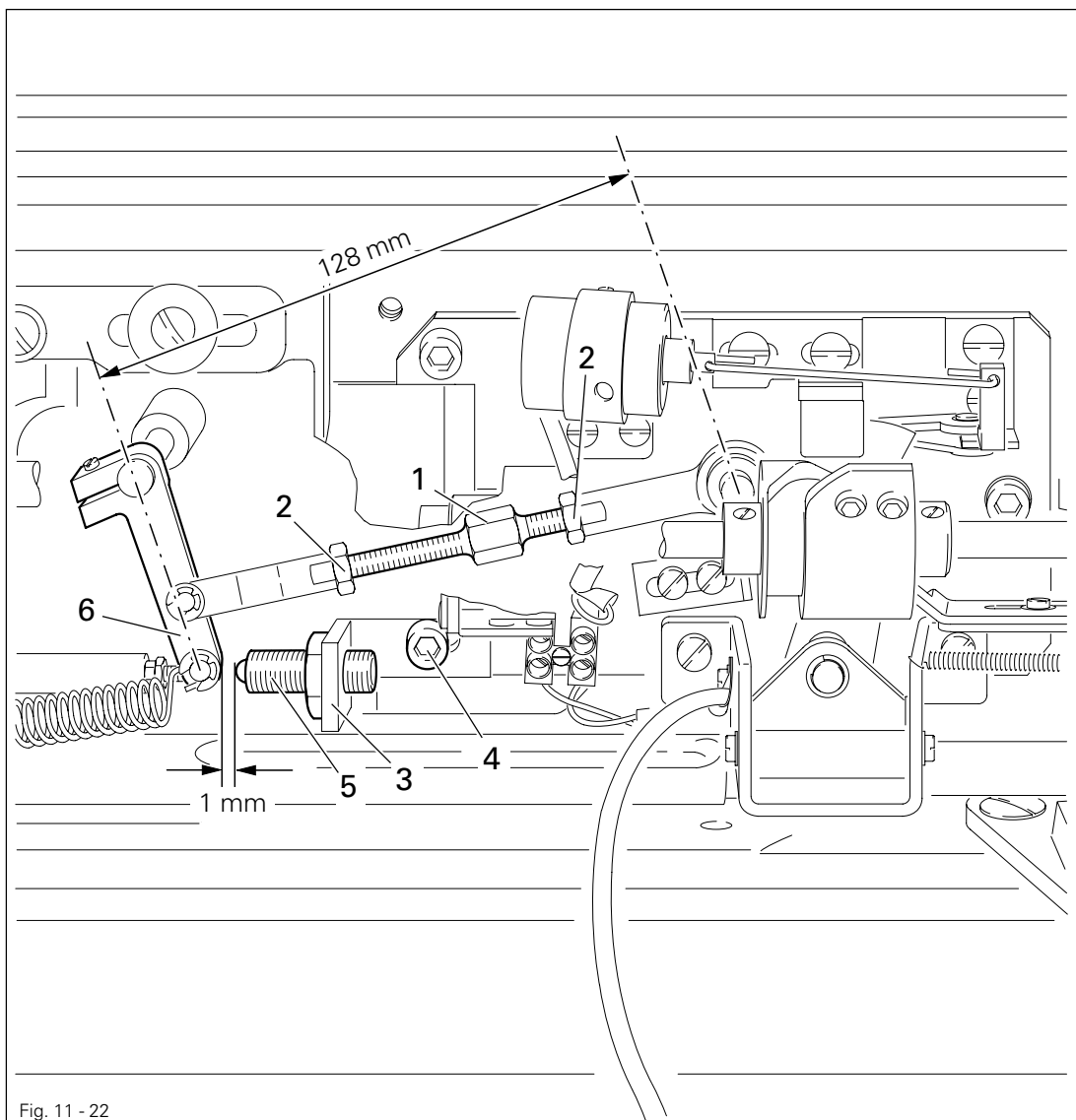


- Re-position stop plate 1 (screws 2) and stop plate 3 (screws 4) according to Requirement.

13.06.05 Thread-trimmer drive linkage

Requirement

1. On the **PFAFF 1296** thread-catcher drive linkage **1** must have a length of **128 mm**, less half of the needle gauge.
On the **PFAFF 1295**, thread catcher drive linkage **1** must have a length of **128 mm**
2. When the thread trimmer is in its resting position there must be a clearance of about **1 mm** between plunger **5** and lever **6**.



- Turn thread-catcher drive linkage **1** (nuts **2**) to adjust it according to **Requirement 1**.
- Re-position bracket **3** (screw **4**) according to **Requirement 2**.

Adjustment

13.06.06 Linkage bar (only on the PFAFF 1296)

Requirement

The length of linkage bar 1 must be the same as the distance between the two thread-catcher drive shafts 3.

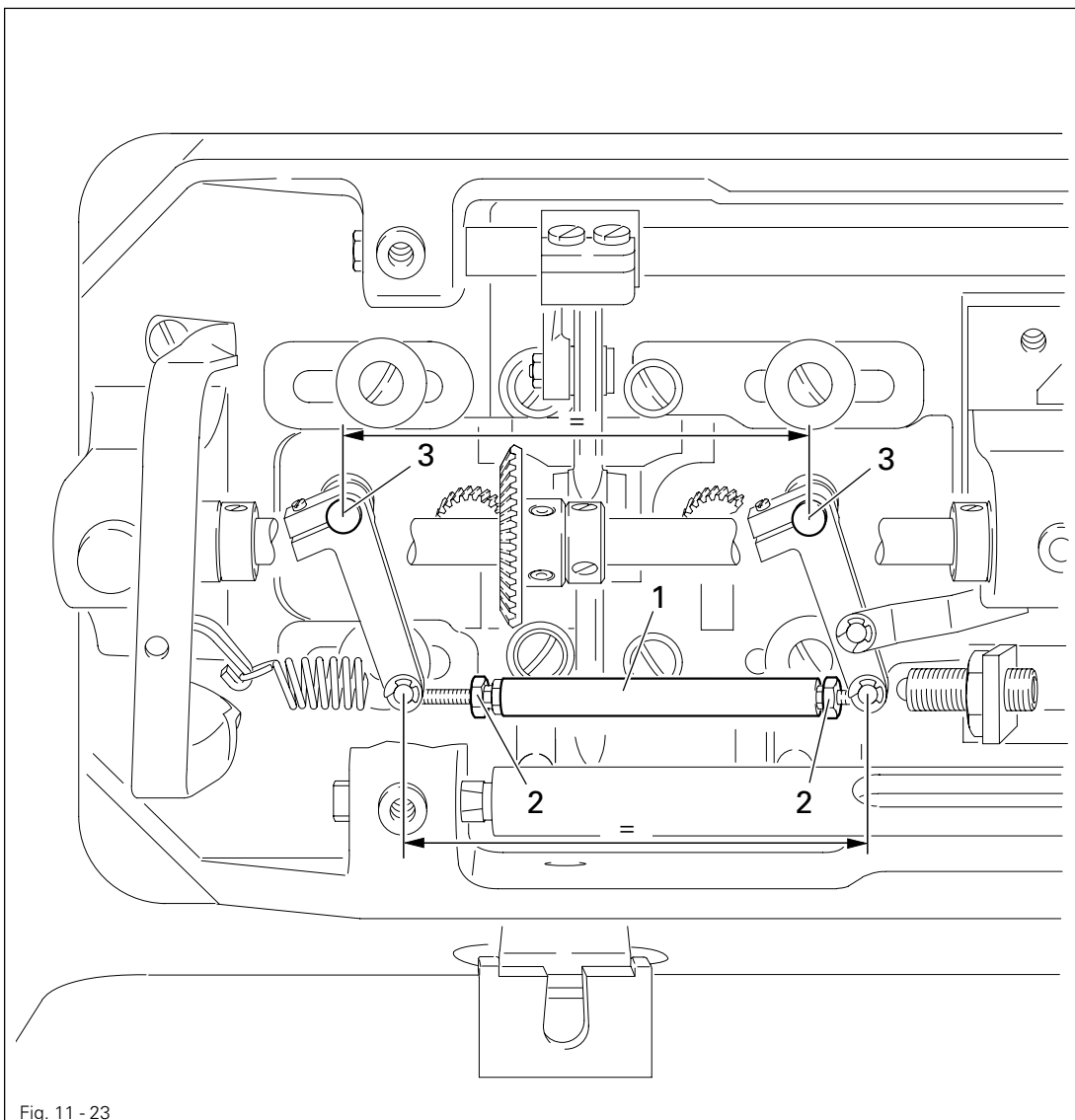
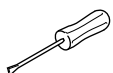


Fig. 11 - 23



- Adjust middle section 1 (nuts 2) of the linkage bar according to Requirement.

13.06.07 Thread catcher height

Requirement

There must be a clearance of **0.7 mm** between the underside of thread catcher **4** and bobbin case cap **5**.

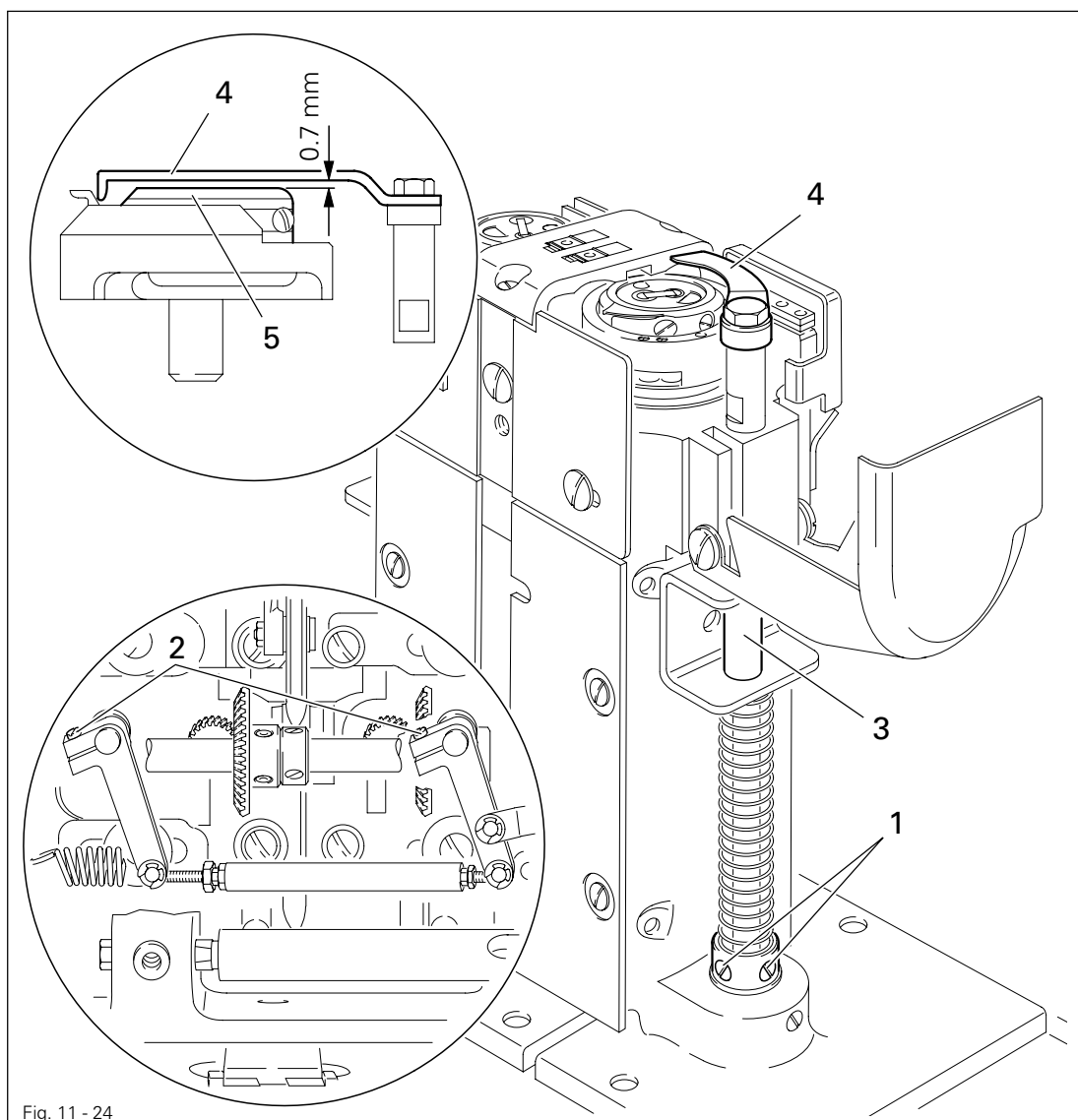
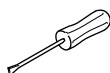


Fig. 11 - 24



- Loosen screws **1** and **2**.
- Adjust the height of shaft **3** according to **Requirement**.
- Tighten screws **1**.



Leave screws **2** loose for the following adjustment.

13.06.08 Thread catcher resting position

Requirement

When the thread trimmer is in its resting position there must be a clearance of about 4 mm between the point of catcher 3 and the cutting edge of knife 4.

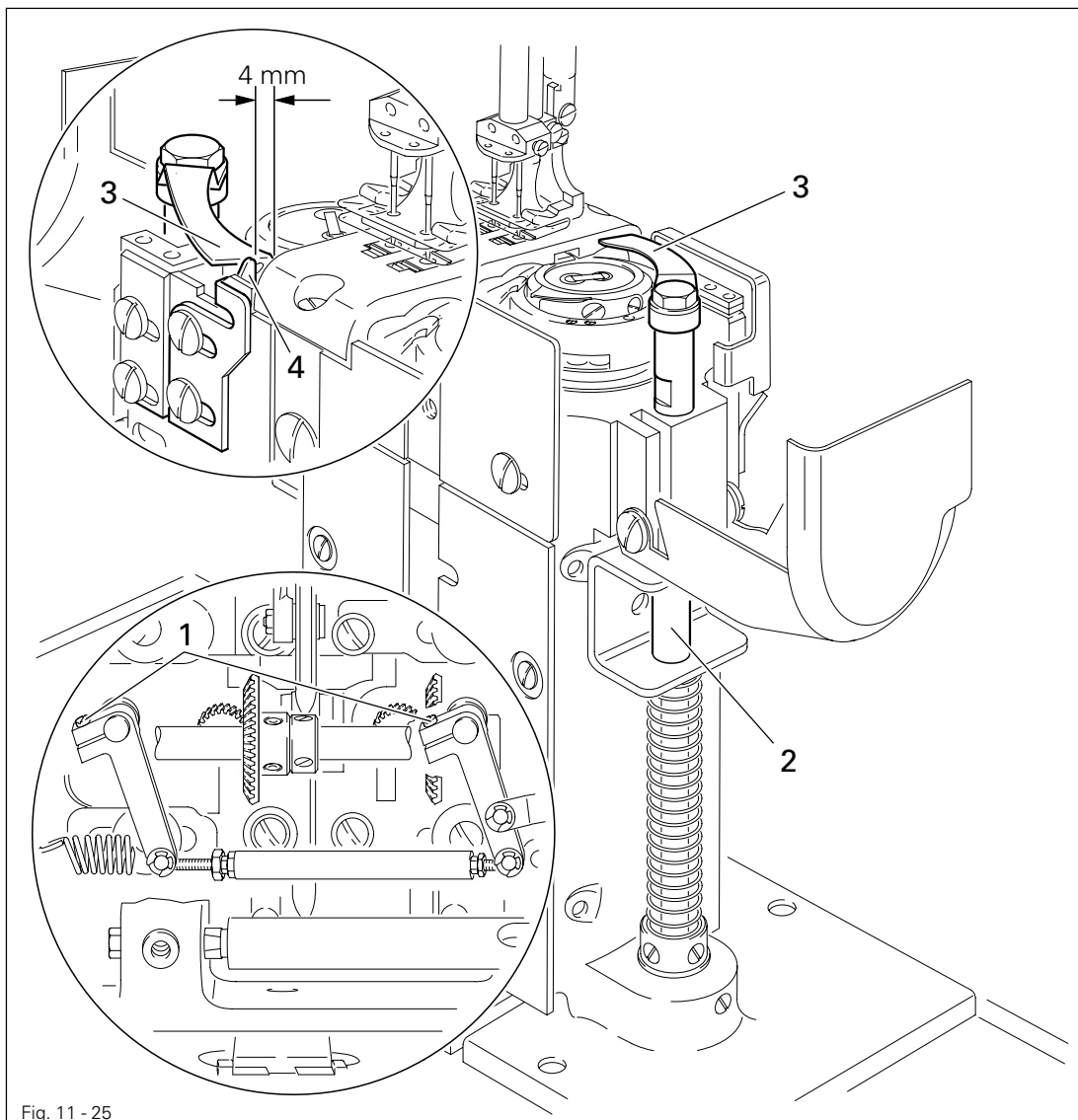
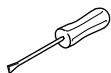


Fig. 11 - 25



- Turn shaft 2 according to Requirement.
- Tighten screws 1.



When tightening screws 1 make sure that all transmission parts of the thread catcher drive can move freely.

13.06.09 Knife pressure

Requirement

When the front edge of thread catcher 3 has passed the knife cutting edge by half, knife 1 must rest with light pressure on the edge of the catcher.

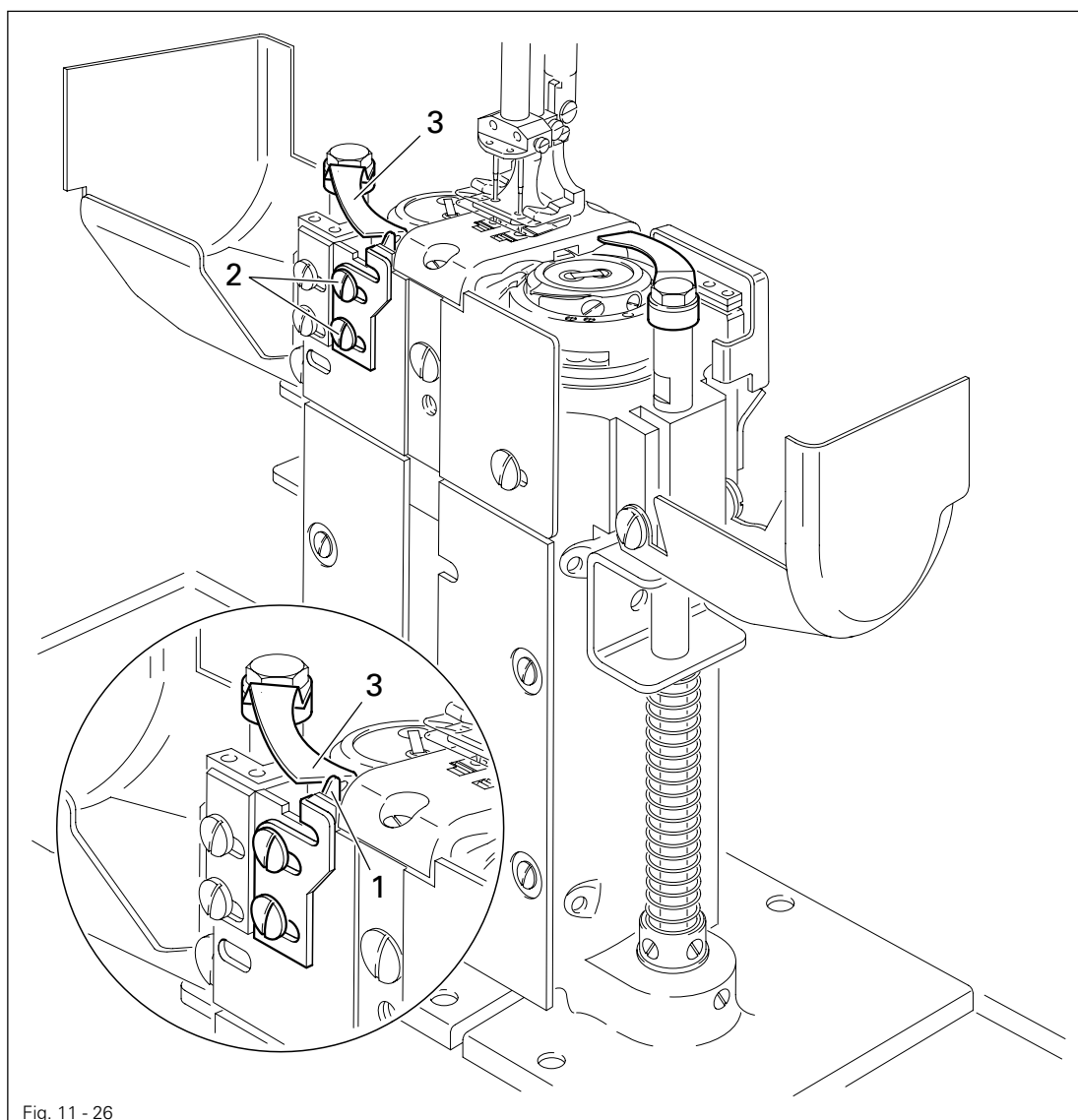
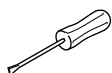


Fig. 11 - 26

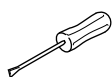
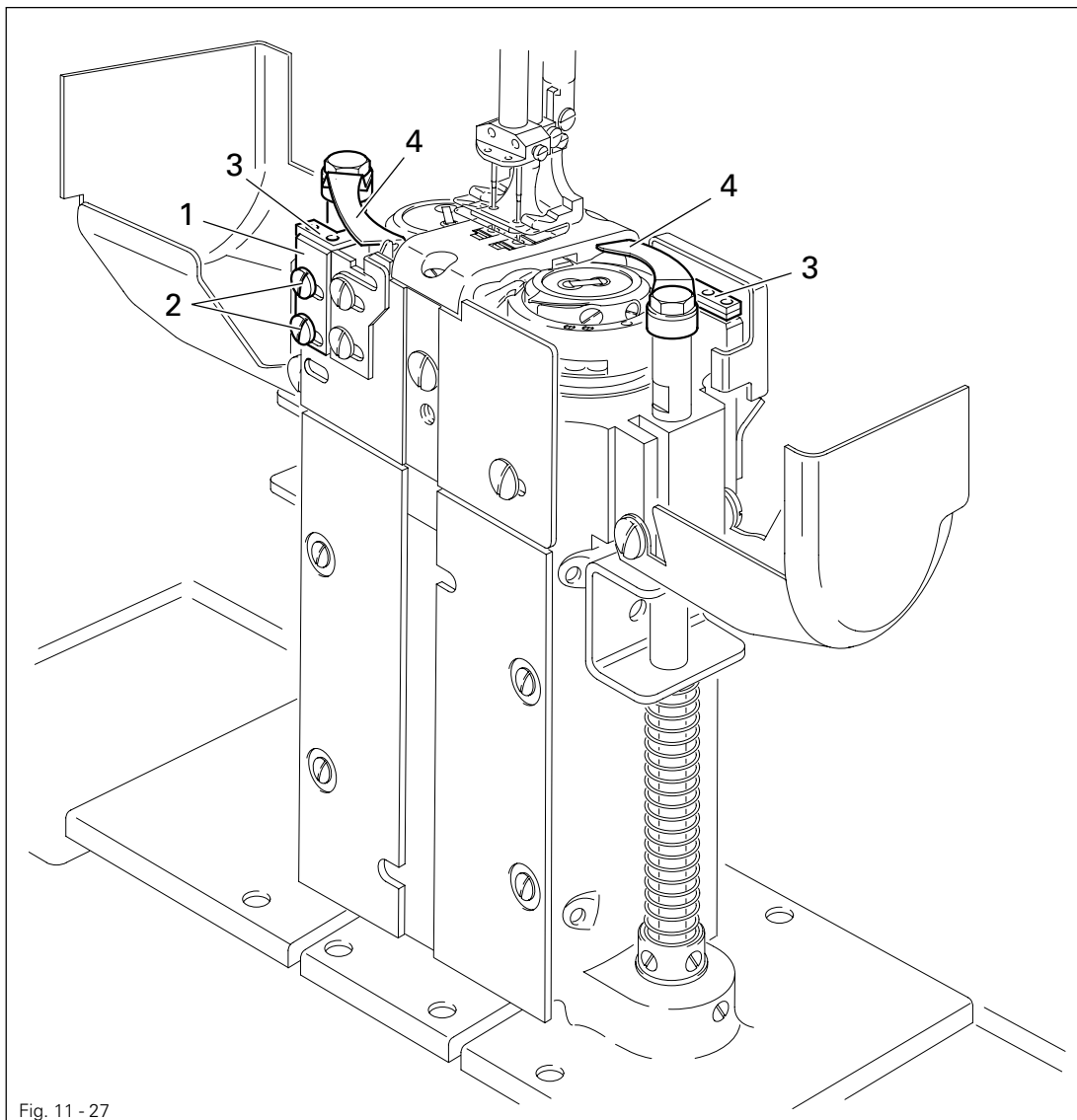


- Adjust knife 1 (screws 2) according to Requirement

13.06.10 Bobbin thread trapping spring

Requirement

1. Bobbin thread trapping spring **3** must not be deflected by thread catcher **4** in any phase.
2. After the trimming action the bobbin thread must be securely trapped.
3. It must be possible to insert and remove the bobbin from the hook without any hindrance.



- Re-position bracket **1** (screws **2**) according to **Requirements 1 and 3**.
- Bend trapping spring **3** according to **Requirement 2**.

13.06.11 Control cam (final adjustment)

Requirement

The trimming action must be just completed when the take-up lever is at t.d.c.

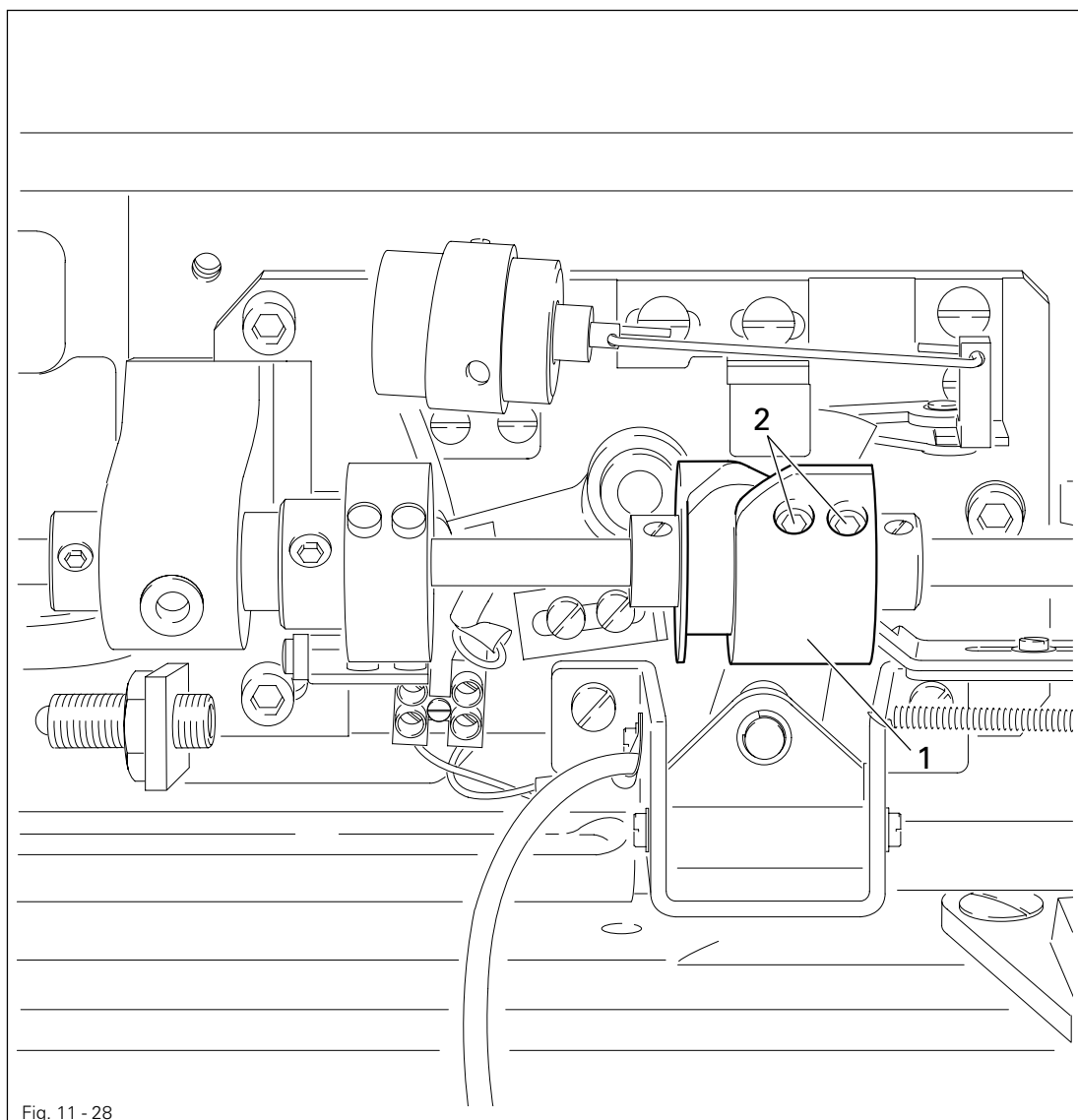
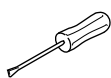


Fig. 11 - 28

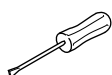
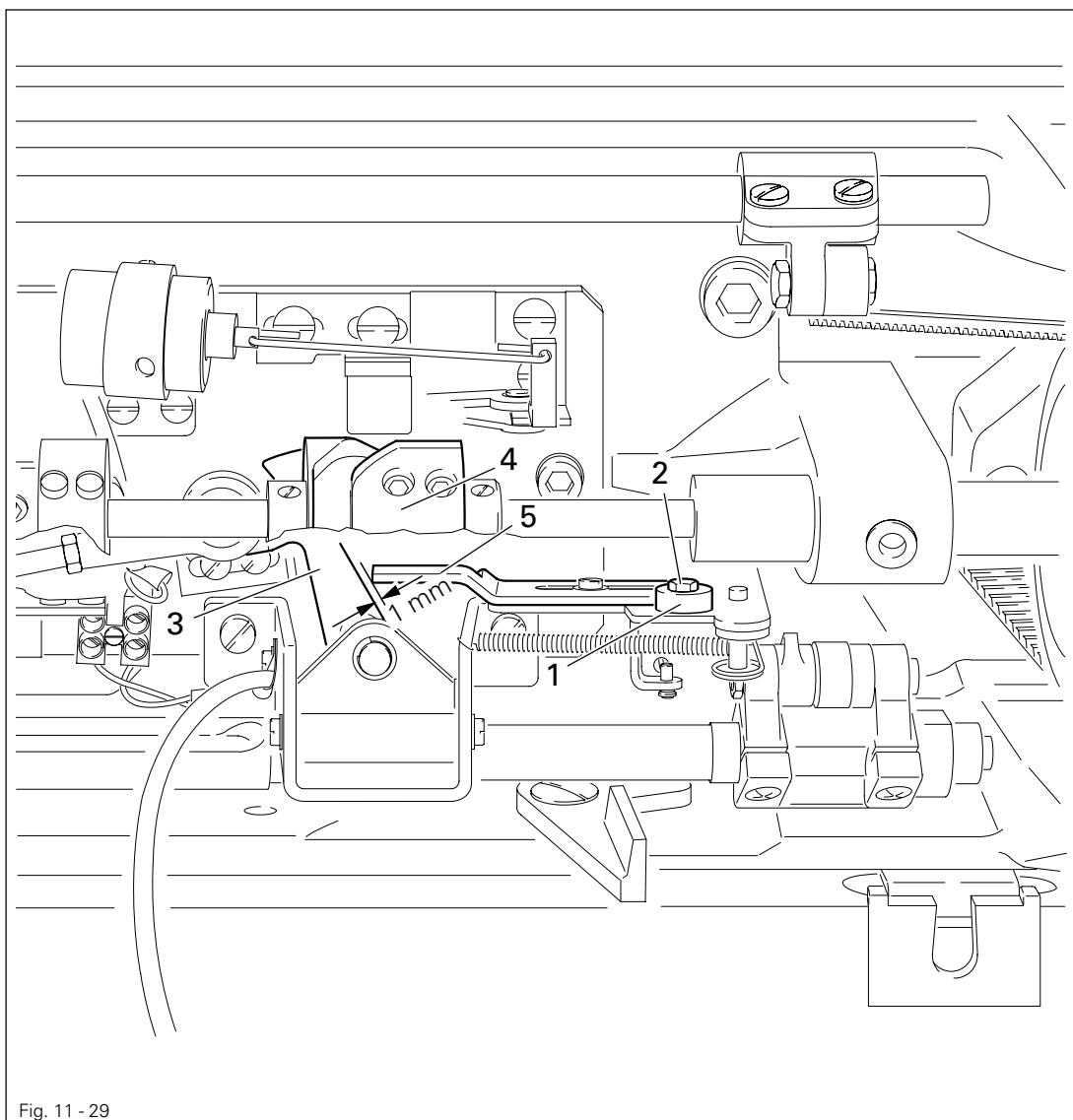


- Turn control cam 1 (screws 2) according to **Requirement**.

13.06.12 Release lever

Requirement

When the pin of control lever 3 has dropped into the track of control cam 4 and the needle bar is at b.d.c. there must be a clearance of about 1 mm between control lever 3 and release lever 5. In this position the needle thread tension must still be engaged.

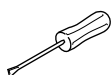
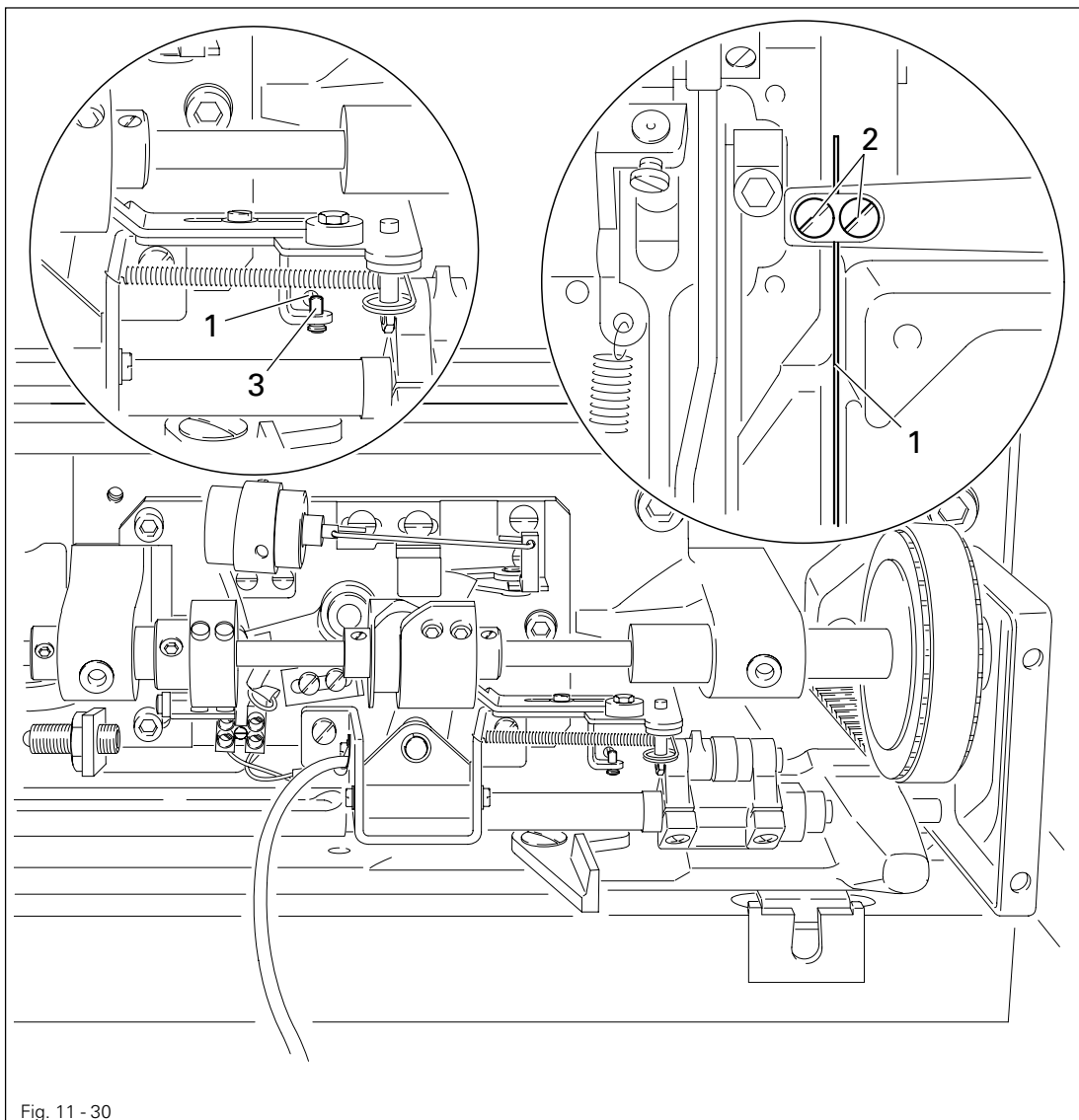


- Turn eccentric 1 (screw 2) according to Requirement

13.06.13 Release rod

Requirement

1. When the lifting presser is resting on the needle plate, pin 3 must rest at the lower end of the elongated hole in pull-rod 1.
2. The tension discs must not be moved apart in this position.



- Re-position pull-rod 1 (screws 2) according to Requirement.

13.07 Parameter settings

(only on machines with EcoDrive and control unit P40ED)

- The selection of the user level and the alteration of parameters is described in the separate instruction manual for the drive unit.

13.07.01 Parameter list

Group	Parameter	Description	User level	Setting range	Set value
1	105	Speed for start backtack	B, C	100 - 2000	700
	110	Speed for end backtack	B, C	100 - 2000	700
6	607	Speed max.	B, C	300 - 3200	▲
	609	Cutting speed 1	B, C	60 - 300	180
7	700	Needle position 0 (needle reference position)	B, C	0 - 255	*
	702	Needle position 1 (needle lowered)	B, C	0 - 255	15
	703	Needle position 2 (take-up lever raised)	B, C	0 - 255	230
	705	Needle position 5 (end cutting signal 1)	B, C	0 - 255	200
	706	Needle position 6 (start cutting signal)	B, C	0 - 255	15
	707	Needle position 9 (start thread tension release/start thread catcher)	B, C	0 - 255	195
	722	Acceleration ramp	B,C	1 - 60	50
	723	Brake ramp	B,C	1 - 60	40
	734	Tact output A2 (thread trimming)	B,C	0 -90	40
	760	Multiplier for the fixed value (200) for stitch count	A, B, C	0 - 250	5
	799	Selected machine class	C	1 - 8	2

▲ See Chapter 3 Specifications

* Adjustment see Chapter 8.05 Basic position of the machine drive unit (in the machine instruction manual)

Group	Parameter	Description	User lever	Setting range	Set value
8	800	Rotating direction of the motor	C	0 - 1	1
	884	Proportional sensitivity of the speed control unit	B,C	3 - 30	16
	897	Variant mini-motor, 1 = long, 2 = short	C	0 - 1	1
9	900	Additional P- sensitivity of the speed control unit	B,C	1 - 30	16

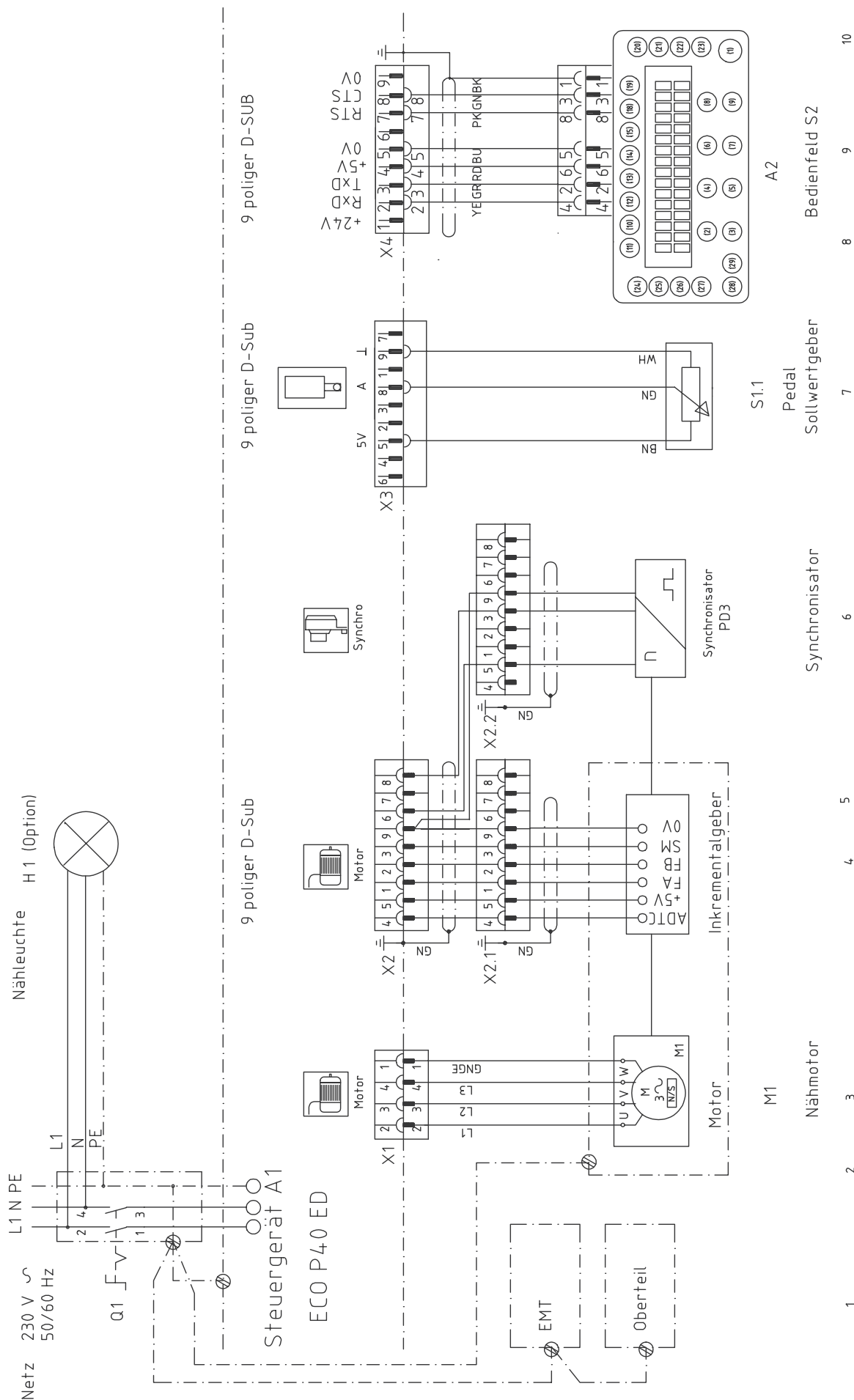


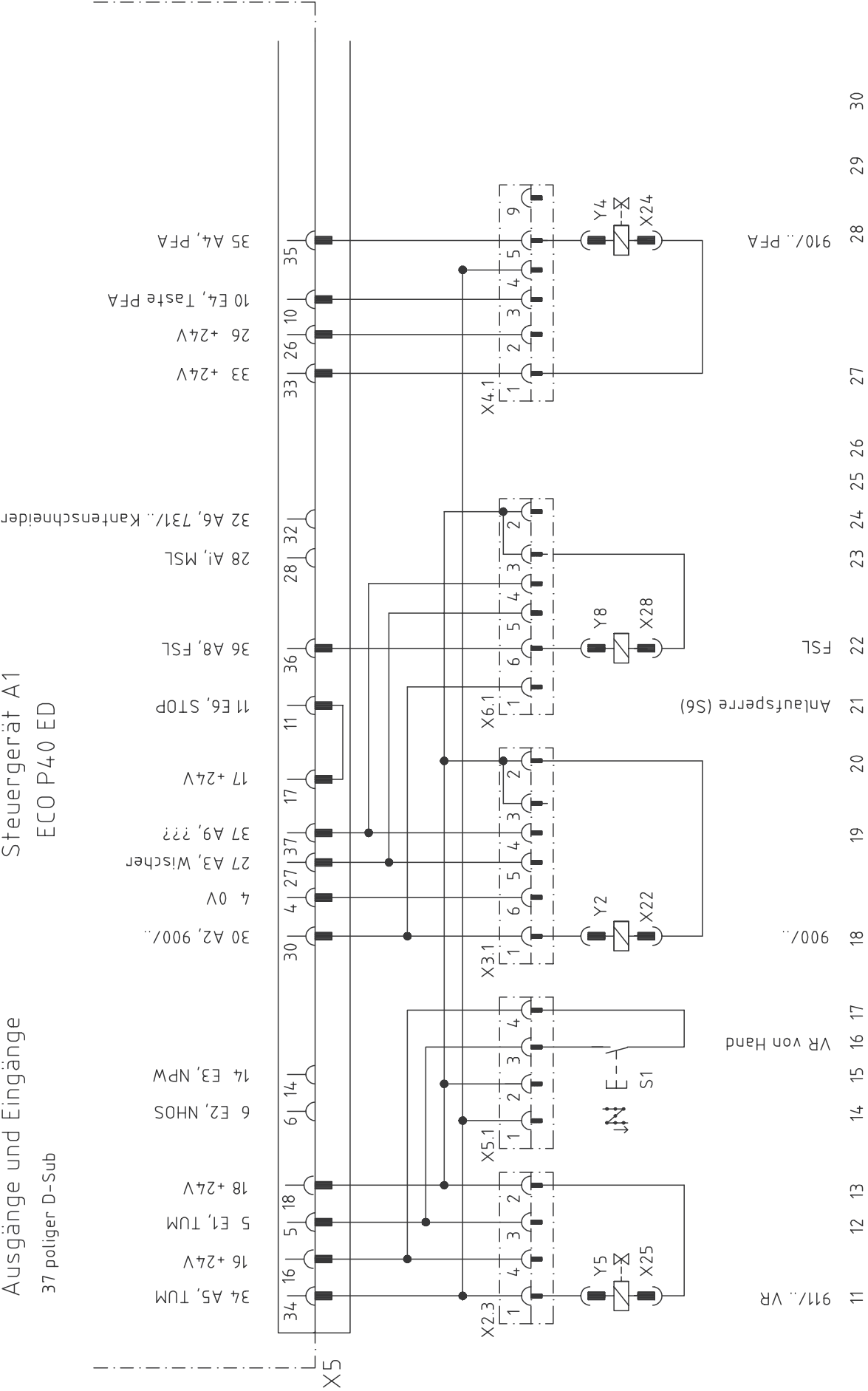
Further parameters and the description for an internet update of the machine software and reset /cold start of the machine can be found in the instruction manual for the control panel.

14.03 Circuit diagrams

Reference list for the Circuit diagrams

A1	Control unit P40 ED
A2	Control panel BDF S2
A14	Sewing head recognition system (OTE)
H1	Sewing lamp (optional)
H10	LED stitch counter
M1	Sewing motor
Q1	Main switch
S1	Manual backtacking key
S1.1	Pedal speed control unit
S2	Needle position change key
S3	Single stitch key
S6	Start inhibitor (E6 stop)
X0	PC-interface (RS 232)
X1	Motor
X2	Incremental transducer
X2.1	Incremental transmitter adapter
X2.2	Synchronizer adapter
X2.3	Y5-911/.. backtacking device
X3	Speed control unit
X3.1	Y2-900/.. thread trimmer (FS)
X4	A2 control panel plug BDF S2
X4.1	Y4 -910/.. automatic foot lift
X5	Out-/input
X6	Bobbin thread monitor (optional)
X6.1	Y8 Thread tension release
X7	Photoelectric barrier (optional)
X22	Y2 -900/.. thread trimmer (FS)
X24	Y4 -910/.. automatic foot lift
X25	Y5 -911/.. backtacking device
X28	Y8 Thread tension release
X40	S1-3 Control panel
X50	A14 Sewing head recognition system (OTE)
Y2	-900/.. thread trimmer
Y4	-910/.. automatic foot lift
Y5	-911/.. backtacking device
Y8	Thread tension release







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