

POWERLine

2591 ME

2591 PREMIUM

SERVICE MANUAL

This service manual applies to machines
from software version **0389/001** and serial
number **2 766 760** onwards →

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**PFAFF Industriesysteme
und Maschinen AG**

Hans-Geiger-Str. 12 - IG Nord
D-67661 Kaiserslautern

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1 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!



If not otherwise stated, the machine must be disconnected from the electrical power supply. Danger of injury due to unintentional starting of the machine!

1.01 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.

1.02 Tools, gauges and other accessories for adjusting

- Screwdrivers with blade width from 2 to 10 mm
- Spanners (wrenches) with jaw width from 7 to 14 mm
- 1 set Allen keys from 1.5 to 6 mm
- Setting gauge (Needle position in sewing direction Order No. 61-111 641-48)
- Step gauge
- Metal rule (part No. 08-880 218-00)
- Sewing thread and test materials

1.03 Abbreviations

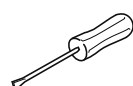
t.d.c. = top dead centre

b.d.c. = bottom dead centre

1.04 Explanation of the symbols



Note, information



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

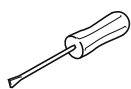
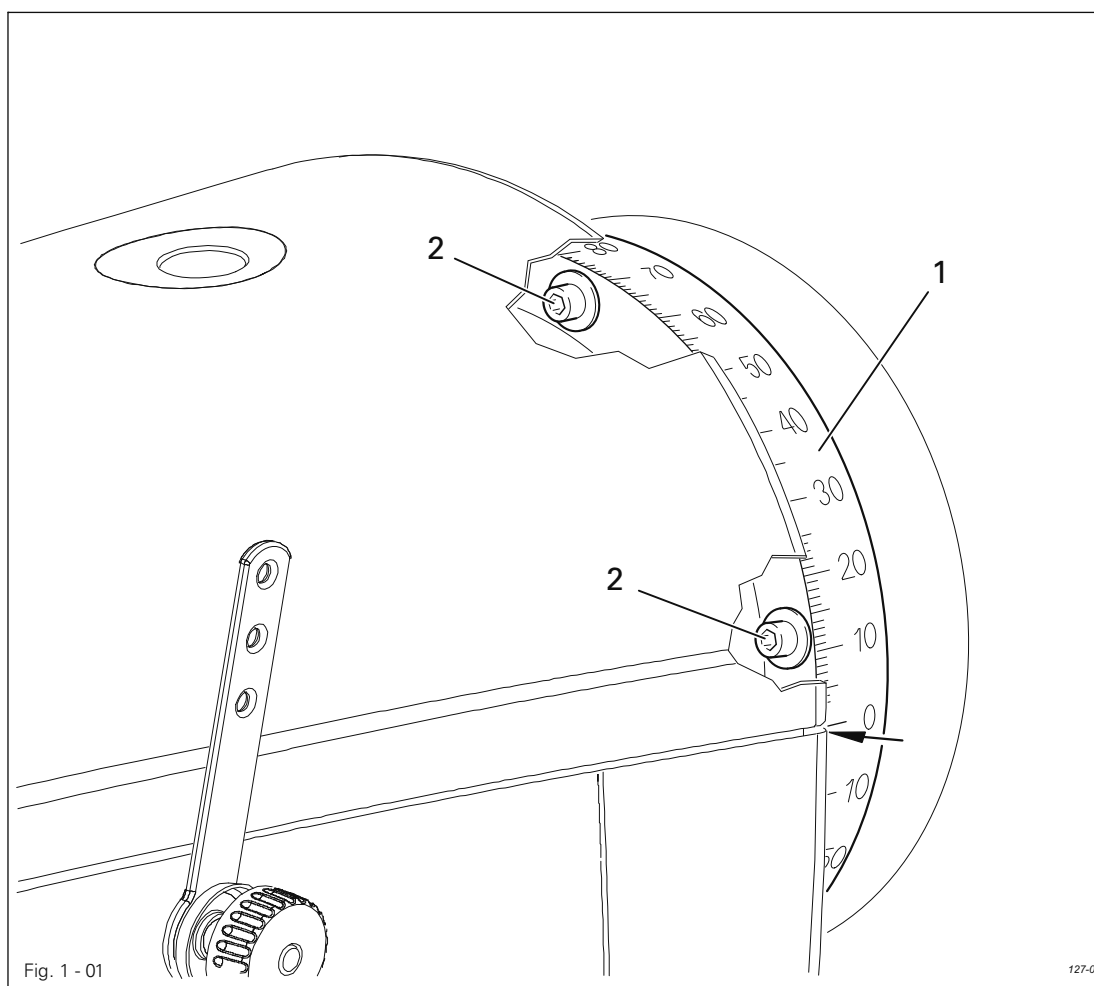
Adjustment

1.05 Adjusting the basic machine

1.05.01 Basic position of the balance wheel (adjustment aid)

Requirement

When the needle bar is positioned at t.d.c., the marking "0" on the scale should be level with the top edge of the belt guard (see arrow).

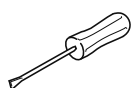
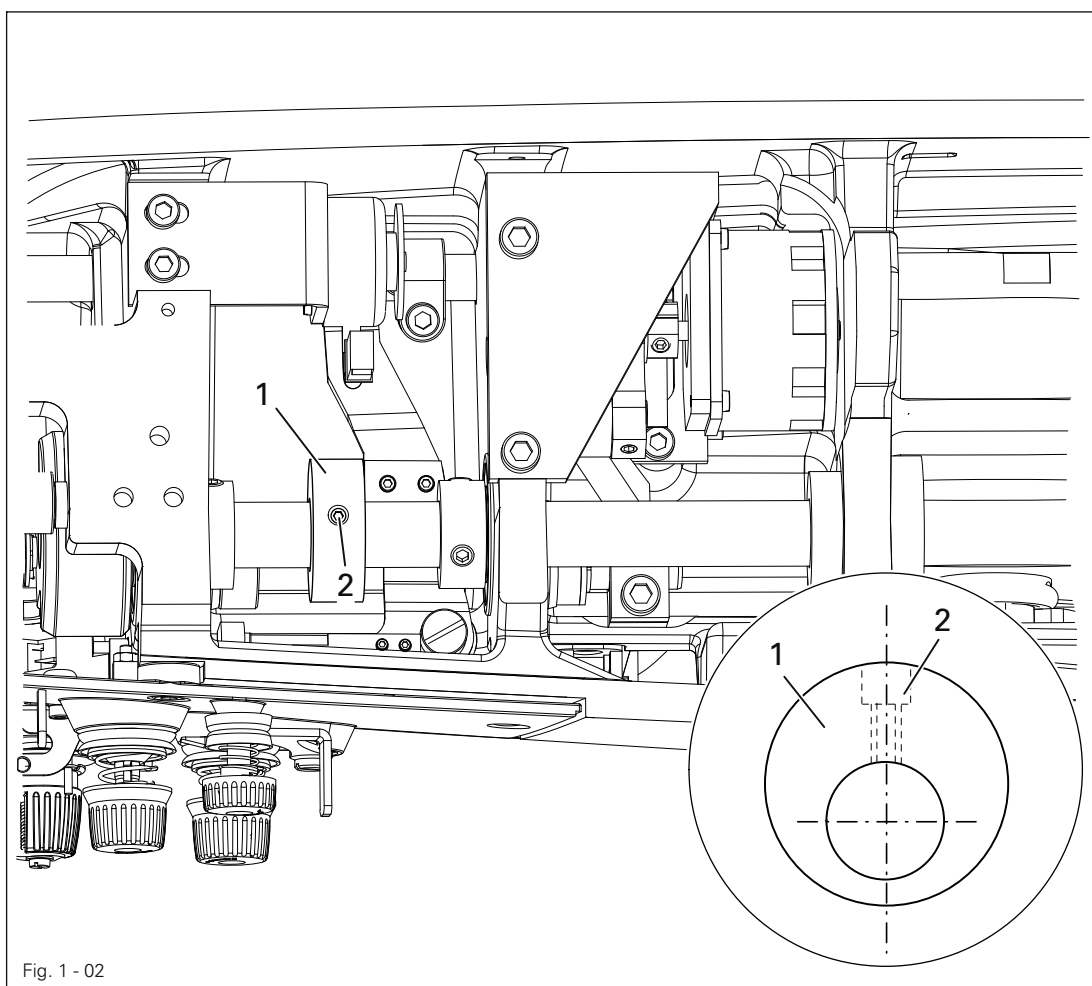


Adjust the scale dial 1 (four screws 2) in accordance with the **requirement**.

1.05.02 Balance weight

Requirement

When the needle bar is positioned at b.d.c. (balance wheel position 180°) the largest eccentricity of the balance weight 1 should be at the top.



- Adjust balance weight 1 (screw 2) in accordance with the requirement.

1.05.03 Needle position in the direction of sewing

Requirement

With the stitch length set at "5", in its front and rear point of reversal the needle should be the same distance from the inside edges of the needle hole.

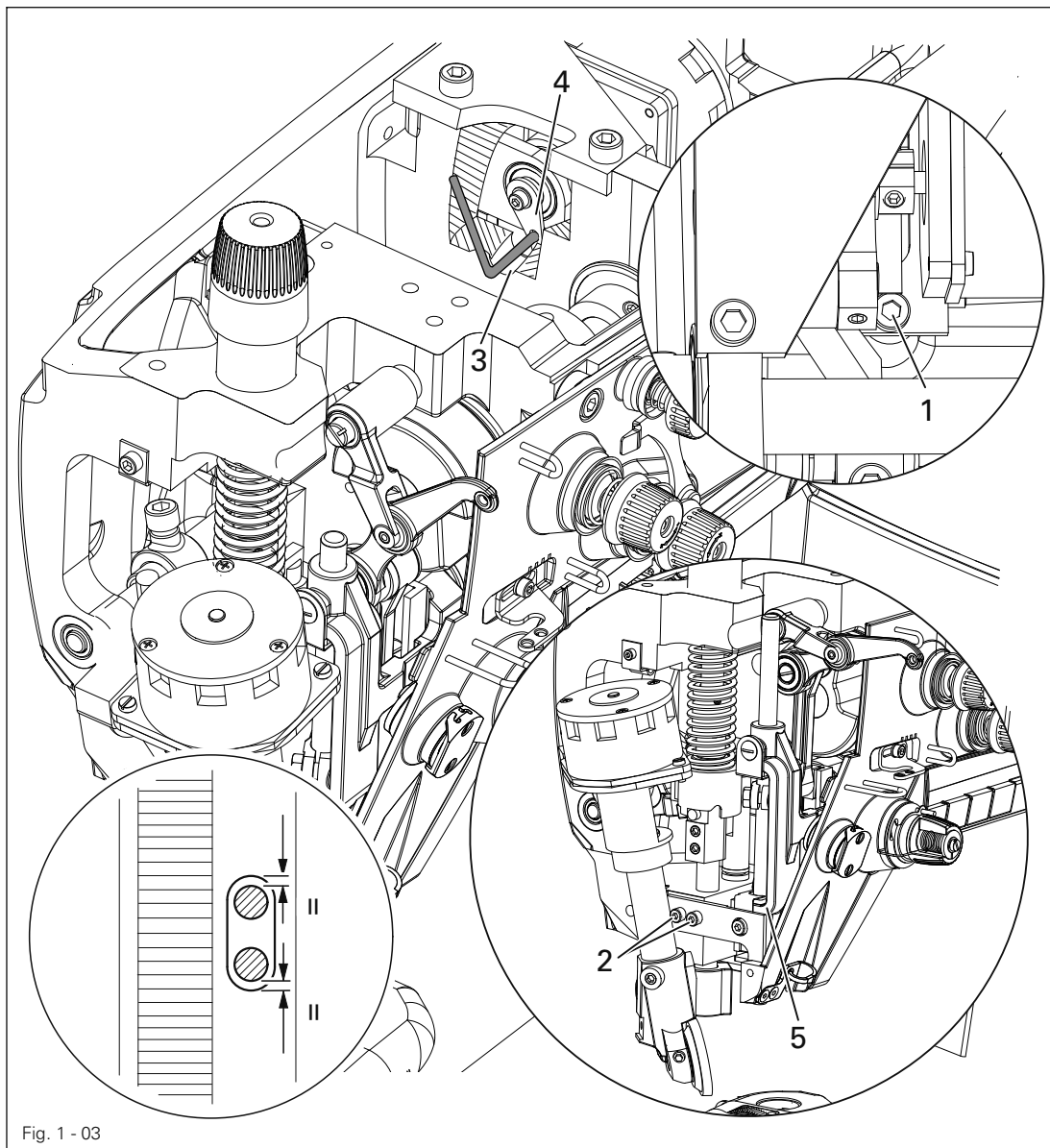
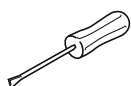


Fig. 1 - 03



- Turn on machine and set stitch length to "5".
- Turn machine off and on (synchronise needle bar to stitch length).
- Sew a stitch and check the rear position of the needle according to the requirement.
- Press the stitch control key, sew a stitch and check the forward position of the needle according to the requirement and where necessary make the following adjustments.
- Turn off machine and loosen screws 1 and 2.
- Push the adjusting pin's angled part (Order No. 61-111Snnb641-48 through hole 3 into the hole in lever 4.

- Move the needle bar frame **5** according to the requirement and tighten screw **1**.
- Check according to the requirement.
- Screws **2** remain loosened for the subsequent adjustment.

1.05.04 Limiting the needle bar frame

Requirement

With the stitch length set at "5", when the needle is in its front and rear point of reversal screw 3 should be the same distance from the inside edge of its hole..

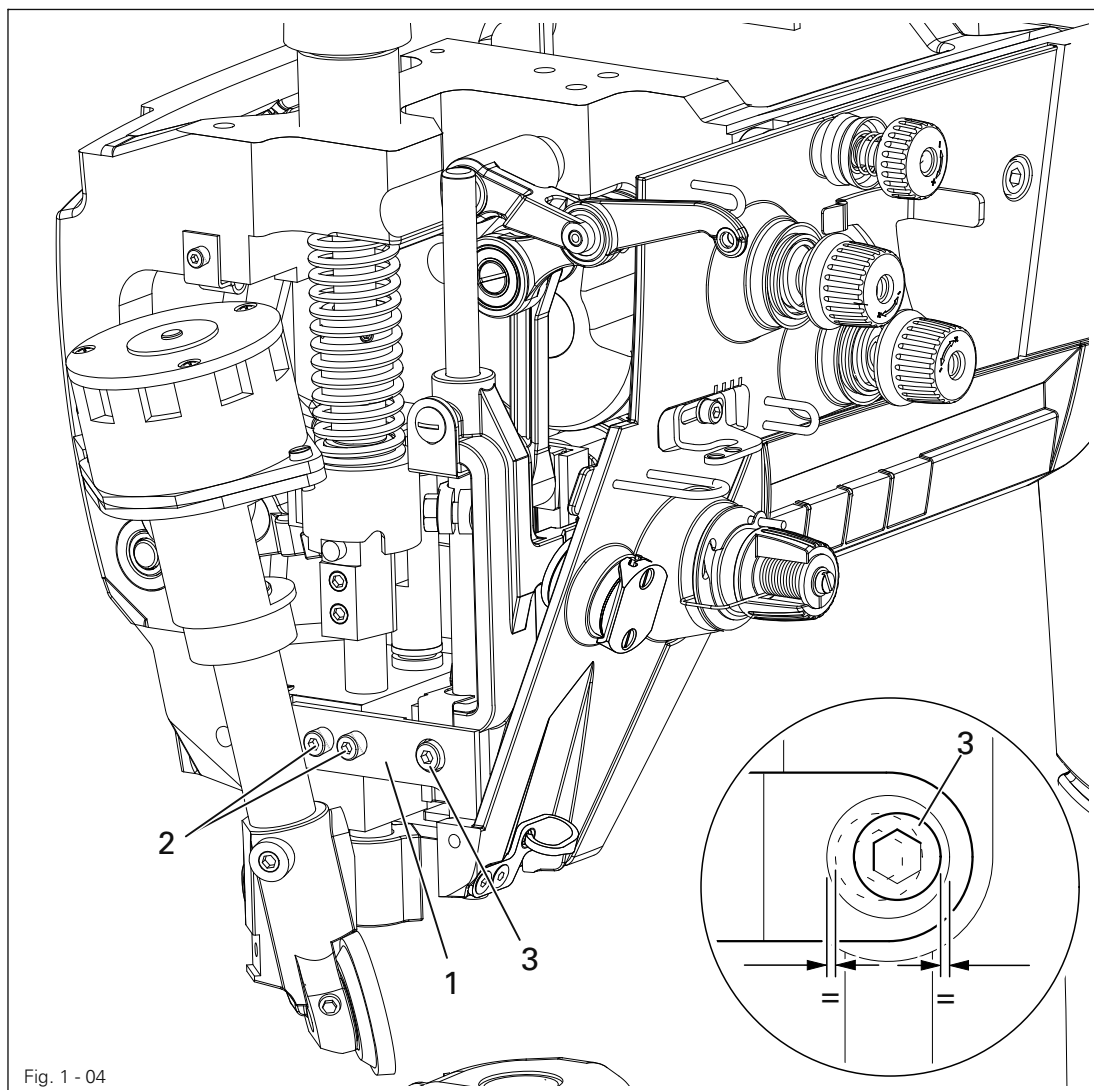
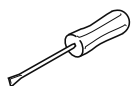


Fig. 1 - 04

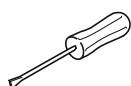
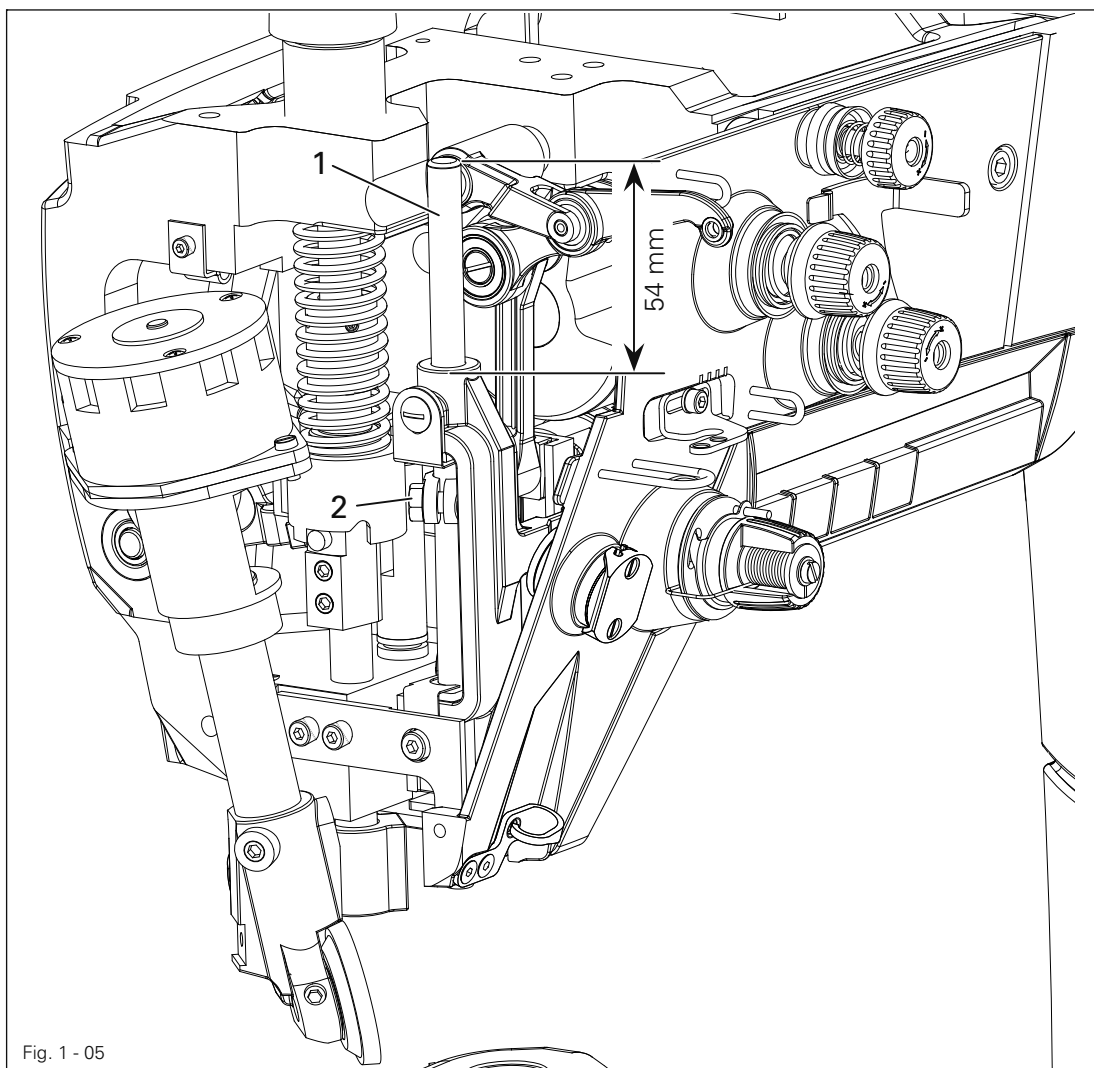


- Set stitch length to "5".
- Select parameter 605.
- Turn the handwheel in the direction of rotation and check the "requirement".
- If necessary move regulating bow 1 (screw 2).

1.05.05 Preliminary adjustment of the needle height

Requirement

When the needle bar is positioned at t.d.c. (handwheel position 0°) there should be a gap between upper edge needle bar and upper edge needle pendulum of about **54 mm**.



- Without turning it, re-position needle bar 1 (screw 2) in accordance with the requirement..

1.05.06 Needle rise, Gripper distance, Needle height and Needle guard

Requirement

With the needle bar positioned **2.0 mm** after BDC (balance wheel position **202°**) and the stitch length set at **"0.8"**

1. the hook point must be at needle centre with a hook-to-needle clearance of **0.05 to 0.1 mm**;
2. the top of the needle eye must be **0.8 to 1.0 mm** below the hook point;
3. the needle guard **6** must touch the needle lightly.

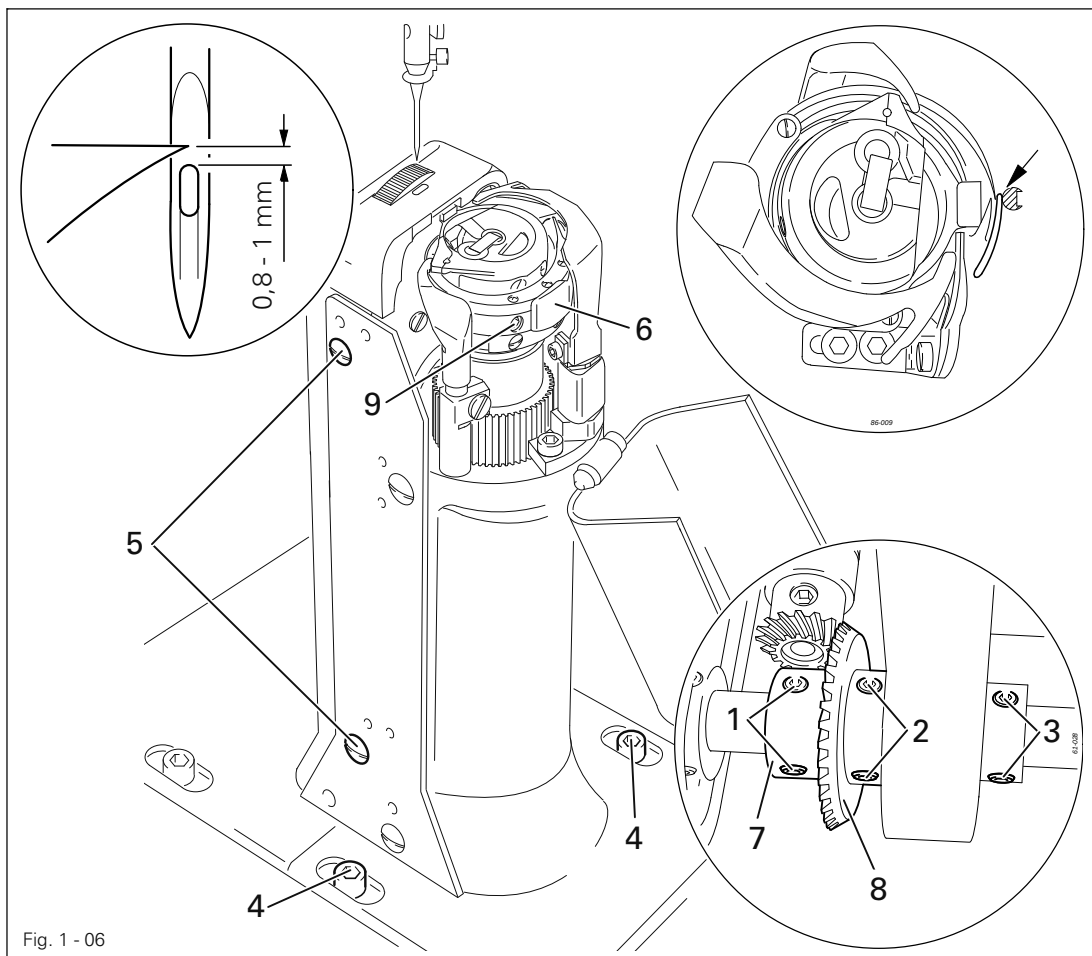
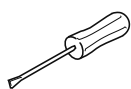
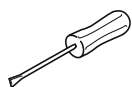


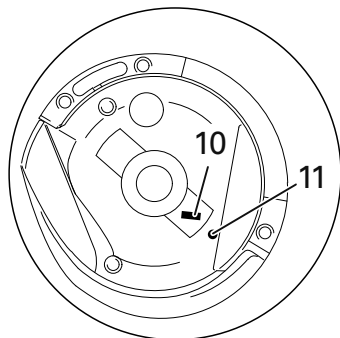
Fig. 1 - 06



- Set stitch length at **"0.8"**.
- Loosen screws **1, 2, 3,** and **4** as well as screw **5** on both sides of the post.
- Select parameter **605**.
- Unscrew the needle plate.
- Turn the handwheel four times in the direction of rotation.
- Bring the handwheel into position **202°** (= needle bar position **2.0mm** after b.d.c.)
- Set the hook point on the middle of the needle. Take care that the needle is not squeezed by needle guard **6**.
- Adjust the needle height according to requirement **2**, cf. chapter **1.05.05** Preliminary Adjustment of Needle Height.
- Move hook post according to requirement **1** and tighten screws **4**.



- Tighten screws **2** allowing for bevel gear wheel movement.
- Move collar **7** up against bevel gear wheel **8** and tighten screws **1**.
- Screws **5** remain loosened for further adjustments.
- Adjust needle guard **6** (screw **9**) according to requirement **3**.

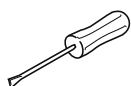
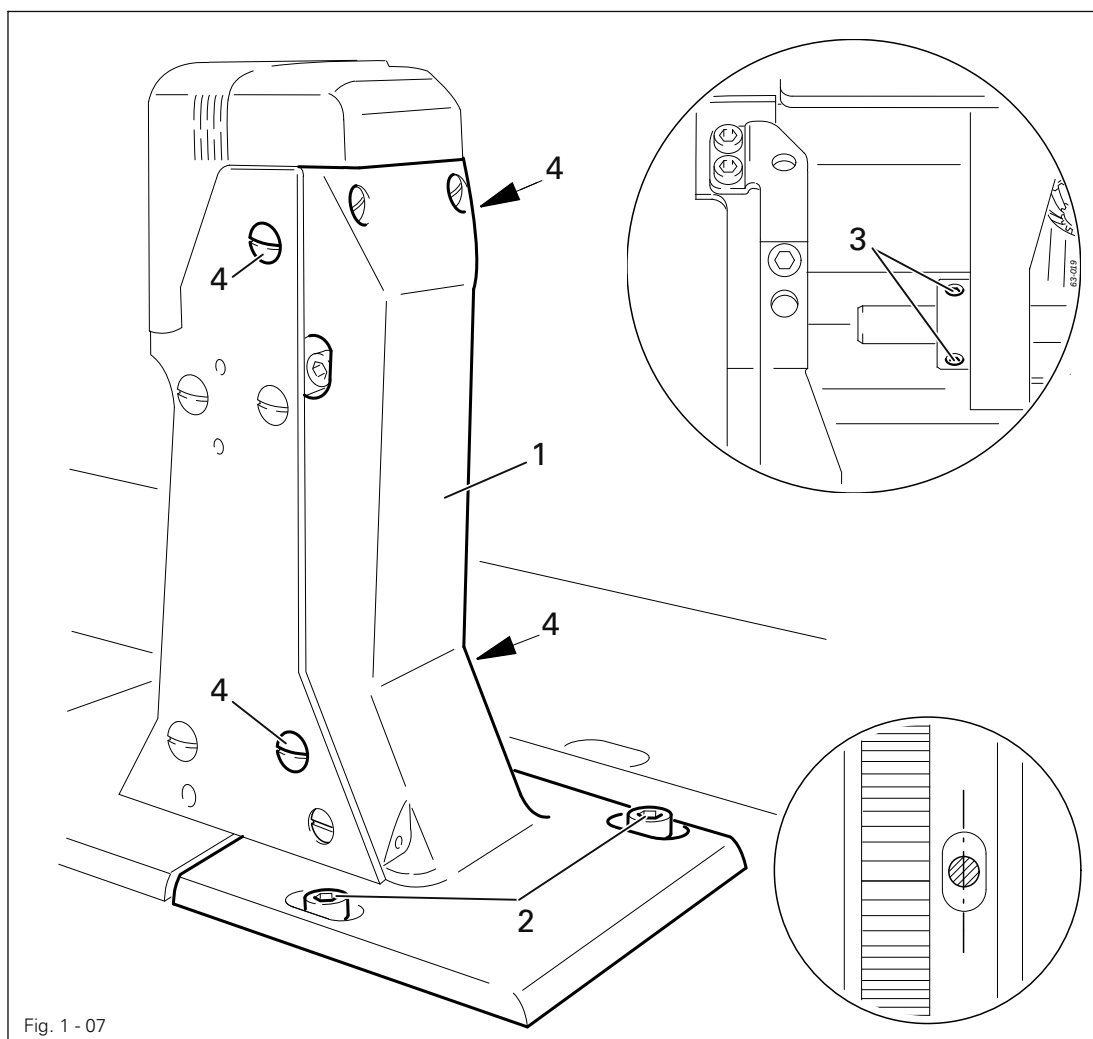


When changing a clamp take care that the markings **10** and **11** are on one side.

1.05.07 Needle position crosswise to sewing direction

Requirement

As seen crosswise to the sewing direction, the needle must penetrate in the centre of the needle hole.

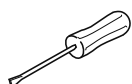
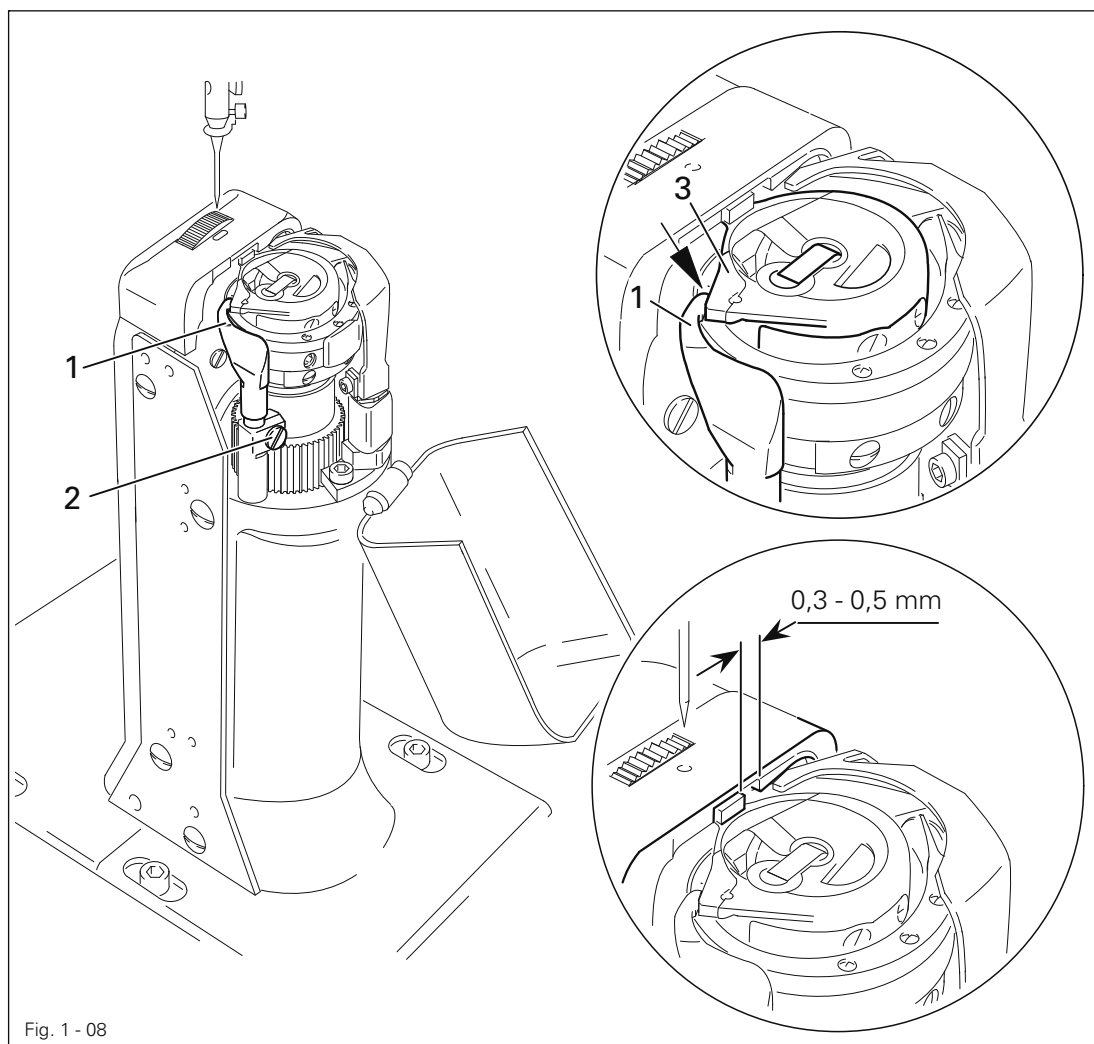


- Adjust feed wheel post 1 (screws 2, 3 and 4) according to the **requirement**.

1.05.08 Height and stroke of the bobbin case opener

Requirement

1. The top edges of the bobbin case opener **1** and bobbin case base **3** should be on one level.
2. When the bobbin case opener **1** has deflected the bobbin case to its furthest point, the catch of the bobbin case should be **0.3 - 0.5 mm** from the back edge of the needle plate recess.

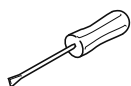
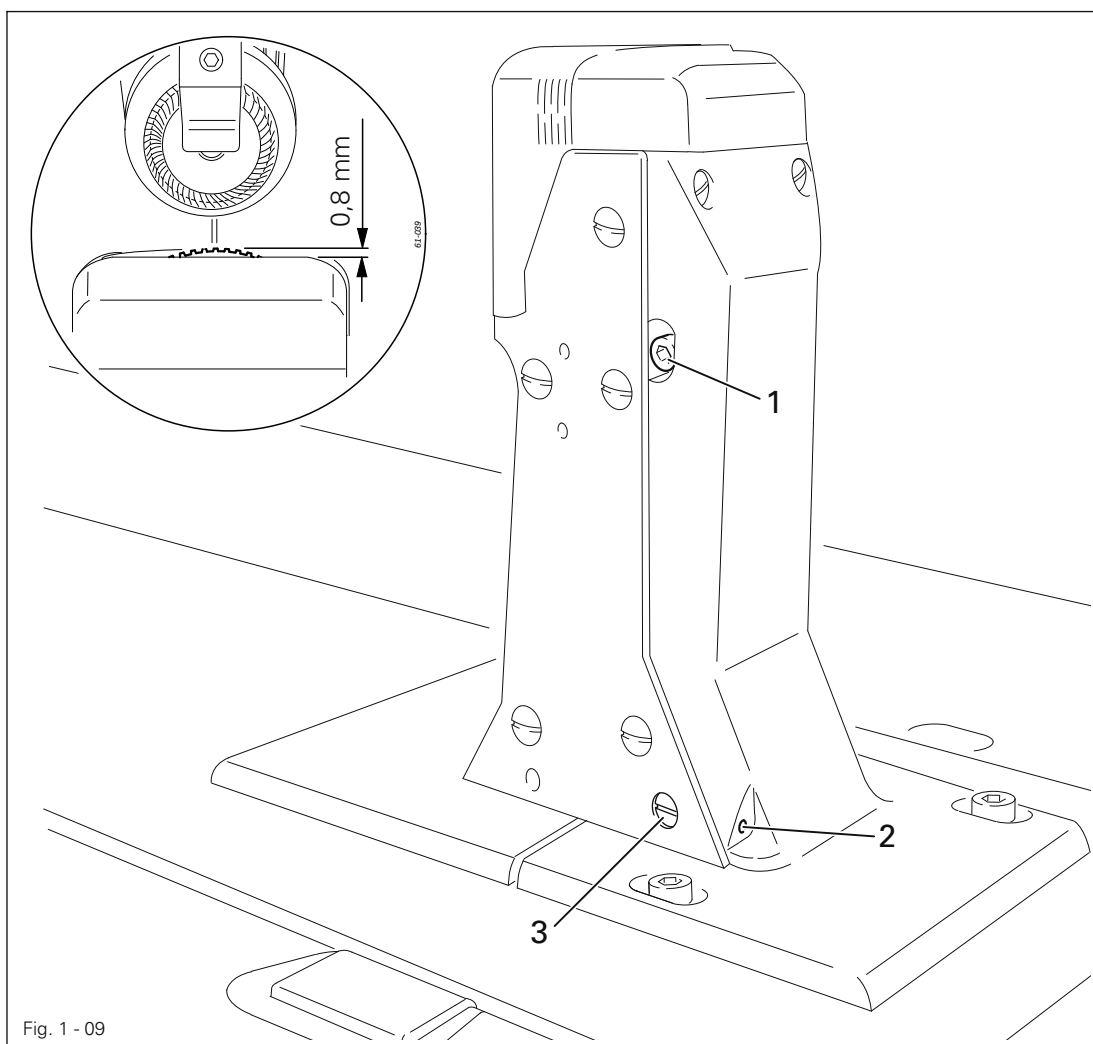


- Adjust bobbin case opener **1** (screw **2**) in accordance with **requirement 1**.
- Turn the balance wheel until the bobbin case opener has deflected the bobbin case to its furthest point.
- Adjust bobbin case opener **1** (screw **2**) in accordance with **requirement 2**.

1.05.09 Height of the feed wheel

Requirement

The feed wheel should protrude from the needle plate by tooth height (approx. **0.8 mm**)



- Swing out the roller presser.
- Loosen screws 1.
- Adjust eccentric 3 (fastening screw accessible through hole 2) according to the requirement.

1.05.10 Roller-presser

Requirement

When the roller-presser 1 is resting on the feed wheel 6 it must

1. be parallel to the feed wheel 6 when viewed in the direction of sewing,
2. be in the middle of the (needle when viewed in the direction of sewing and
3. be as close as possible to the needle when viewed in transverse direction of sewing.

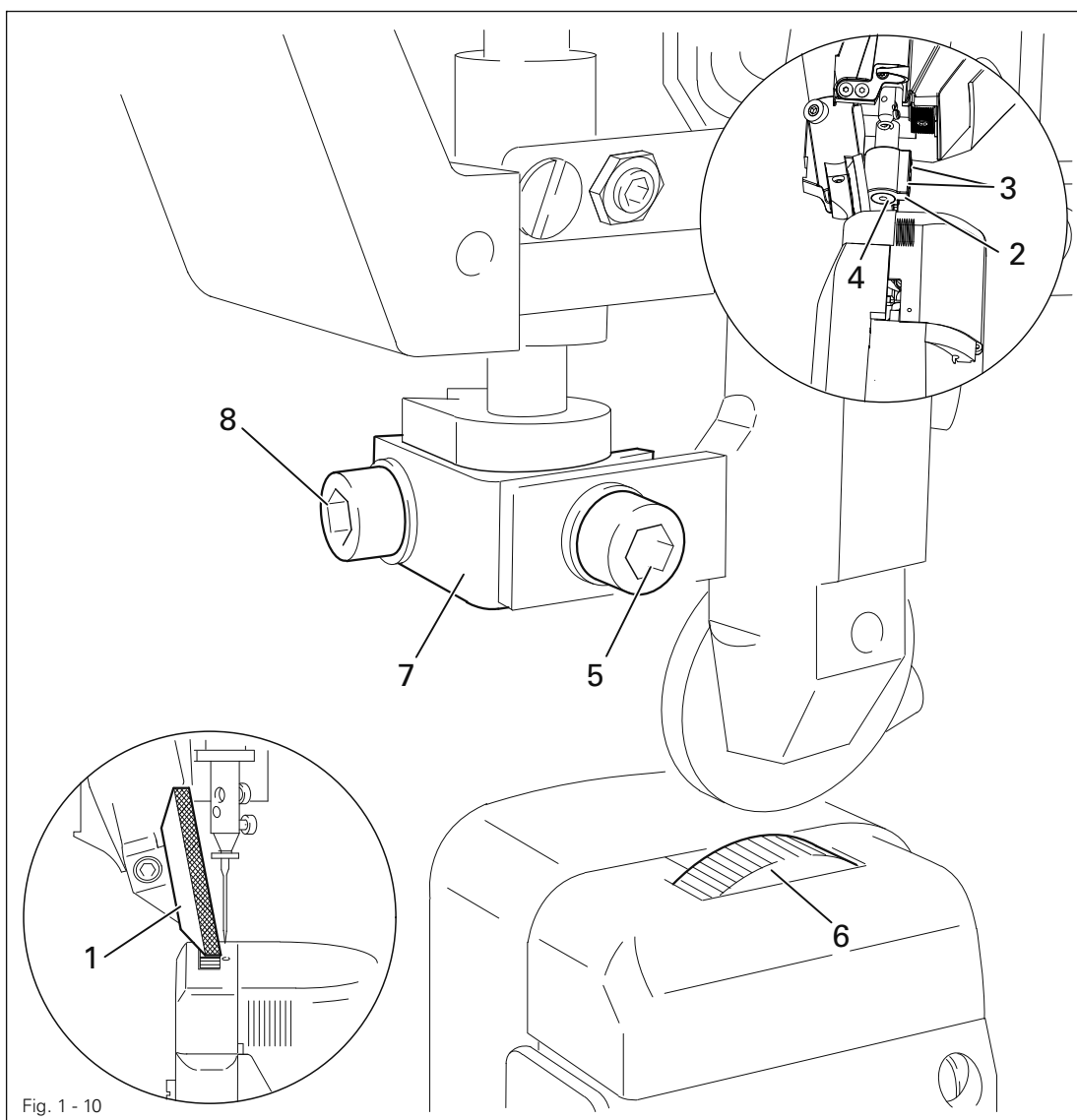
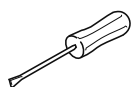


Fig. 1 - 10



- Raise the roller-presser 1.
- Place roller-presser bracket 2 (screws 3) flush to the bottom edge of presser bar 4.
- Always observe **requirement 1** when carrying out the following adjustments.
- Move the roller-presser 1 (screw 5) in accordance with **requirement 2**.
- Allow the roller-presser 1 to come to rest on the feed wheel 6.
- Move bracket 7 (screw 8) according to requirement 3.

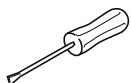
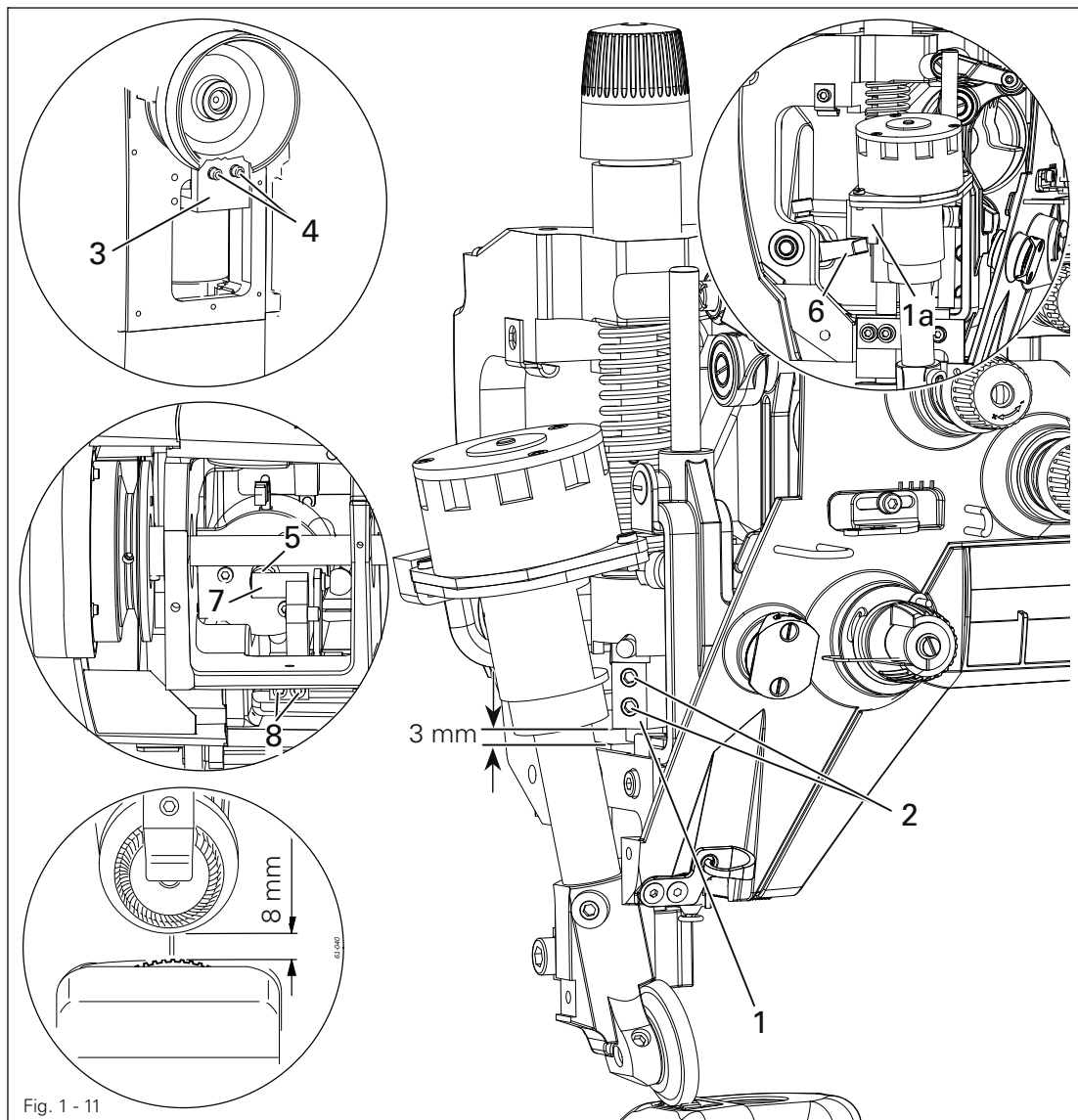


When sewing very tight curves the roller-presser 1 should be moved toward the operator slightly.

1.05.11 Clearance between roller presser and feed wheel

Requirement

1. With a resting roller-presser there should be a gap between the lift piece **1** and the housing of about **3mm**.
2. With a raised roller-presser the distance between roller-presser and feed wheel should be **8mm**.



- Set the roller-presser down on the needle plate.
- Decrease roller-presser pressure.
- Adjust lift piece **1** (screws **2**) according to the requirement **1**.
- Push magnet bracket **3** (screws **4**) downwards as far as it will go.
- Raise the roller-presser and place an **8mm** gauge under the roller-presser.
- With magnet plunger **5** extended, move lever **6** up against lift piece **1a** and mount lever **7** (screws **8**) on to magnet plunger **5**.
- Check according to the requirement.

1.05.12 Knee lever

Requirement

1. When the knee lever is pressed the roller-presser should raise up **7mm**
2. Before the roller-presser raises up, the knee lever should have a little bit of clearance.

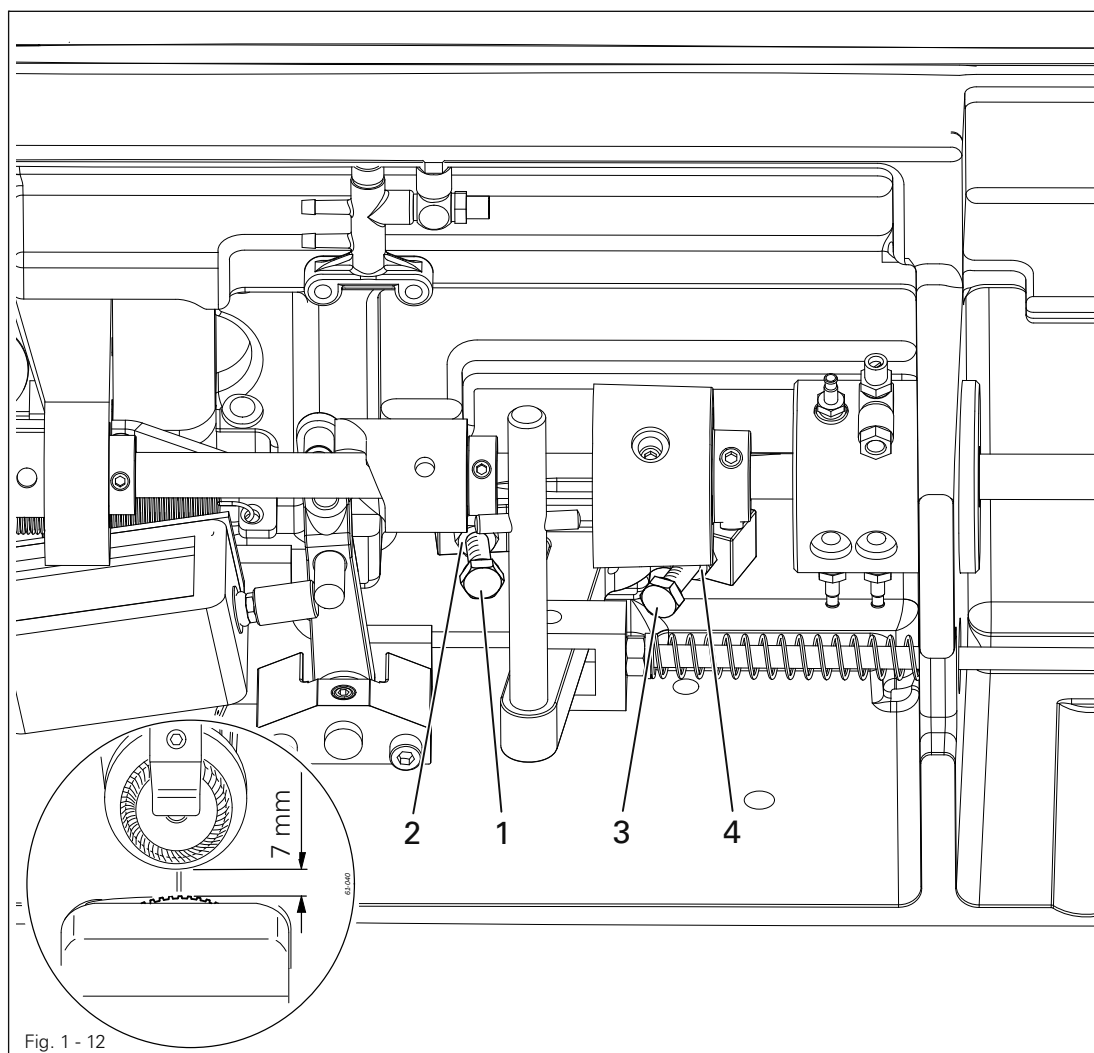
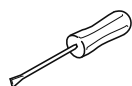


Fig. 1 - 12

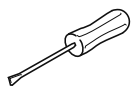
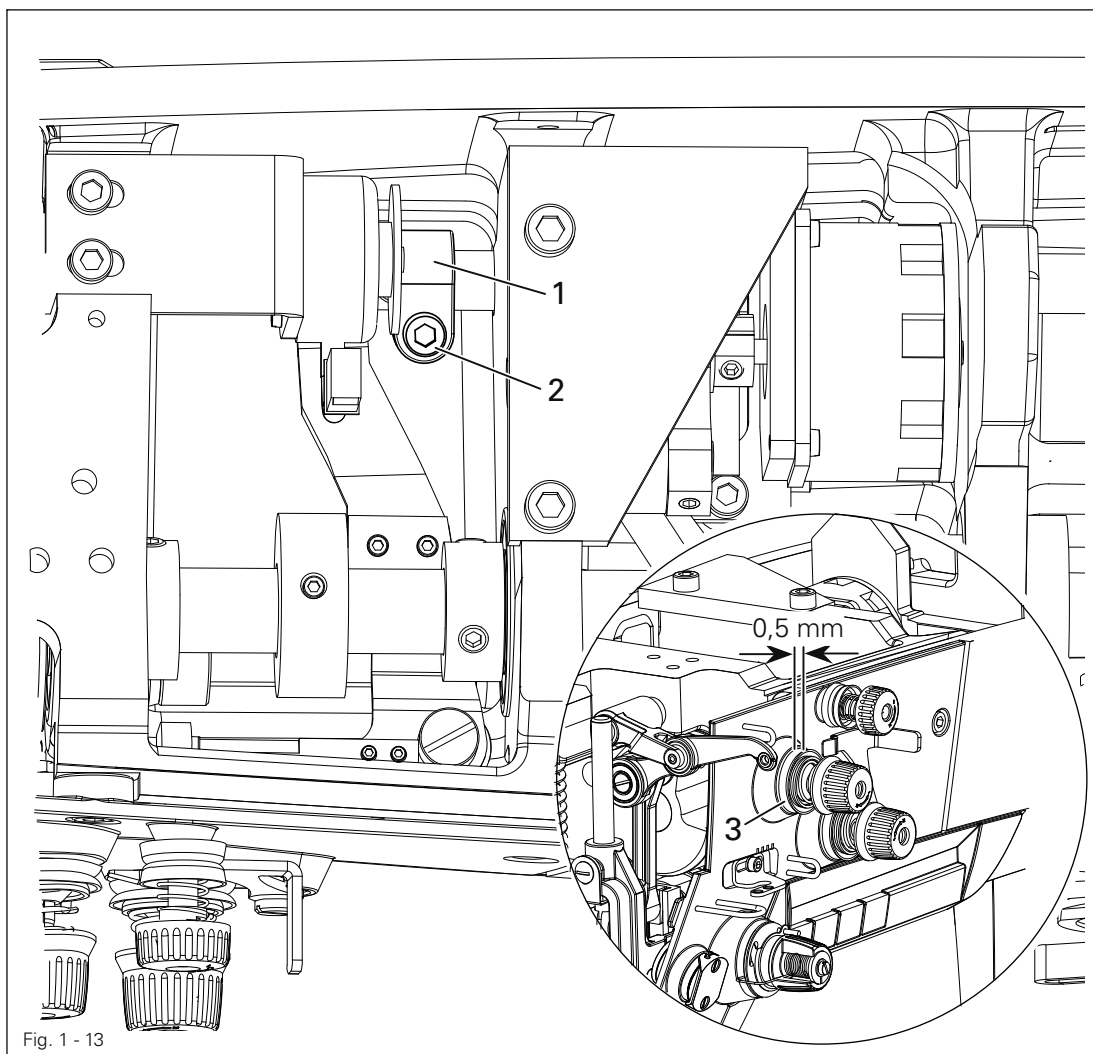


- Turn screw 1 (nut 2) according to **requirement 1** .
- Turn screw 3 (nut 4) according to **requirement 2**.

1.05.13 Tension release

Requirement

With the roller-presser raised the tension shims 3 should be about **0.5mm** loosened from each other.



- Raise roller-presser and calibrate lever 1 (screw 2) according to the requirement.

1.05.14 Thread check spring and thread regulator

Requirement

1. The movement of thread regulator **3** must be completed when the needle point enters the material.
2. When the thread loop is at its largest while being passed around the hook, the check thread spring **3** should rise slightly from the rest **1**.

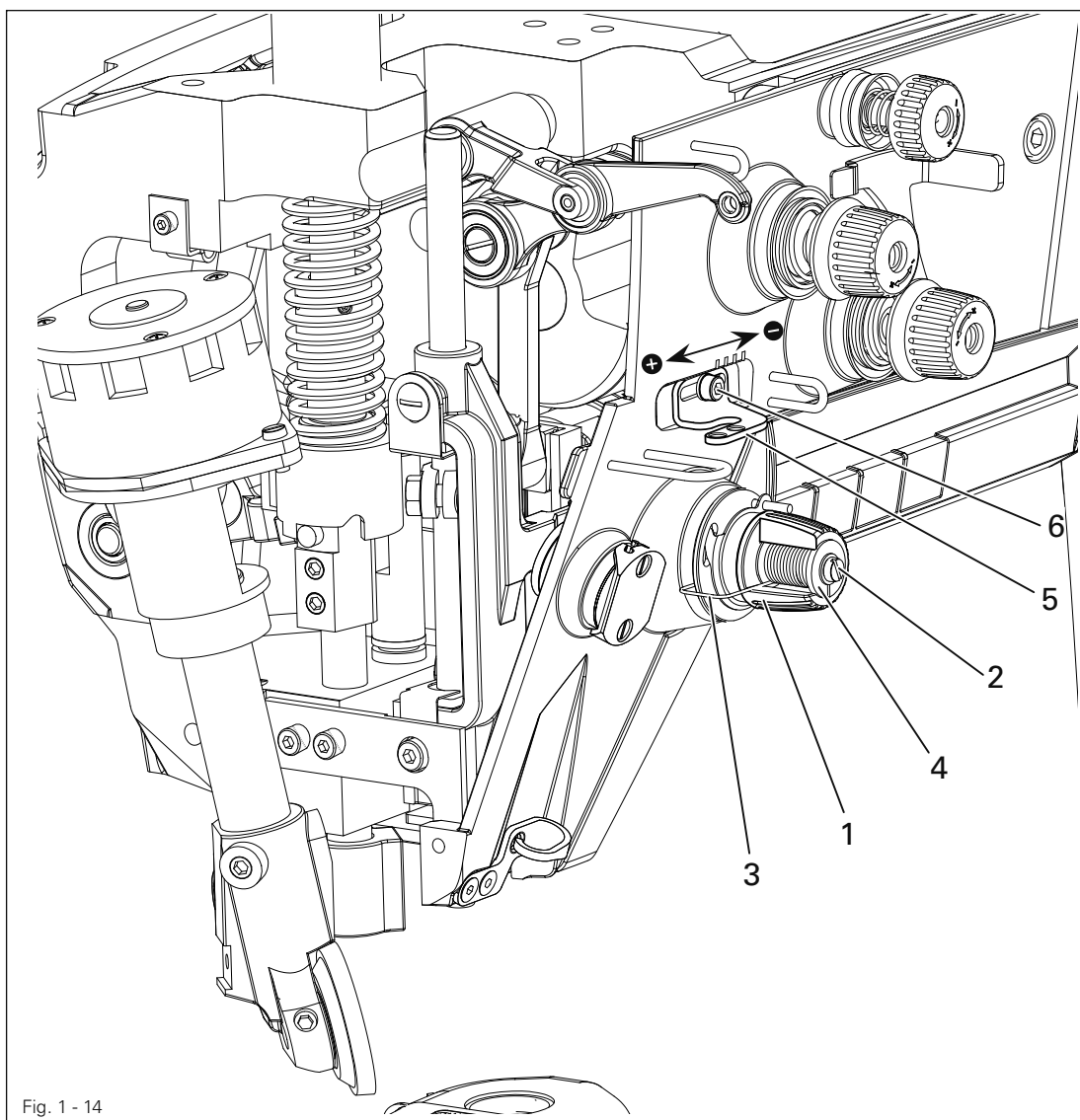
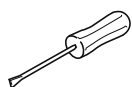


Fig. 1 - 14



- Position rest **1** (screw **2**) in accordance with **requirement 1**.
- Turn sleeve **4** (screw **2**) to adjust the tension of thread check spring **3**.
- Position thread regulator **5** (screw **6**) in accordance with **requirement 2**.



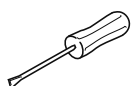
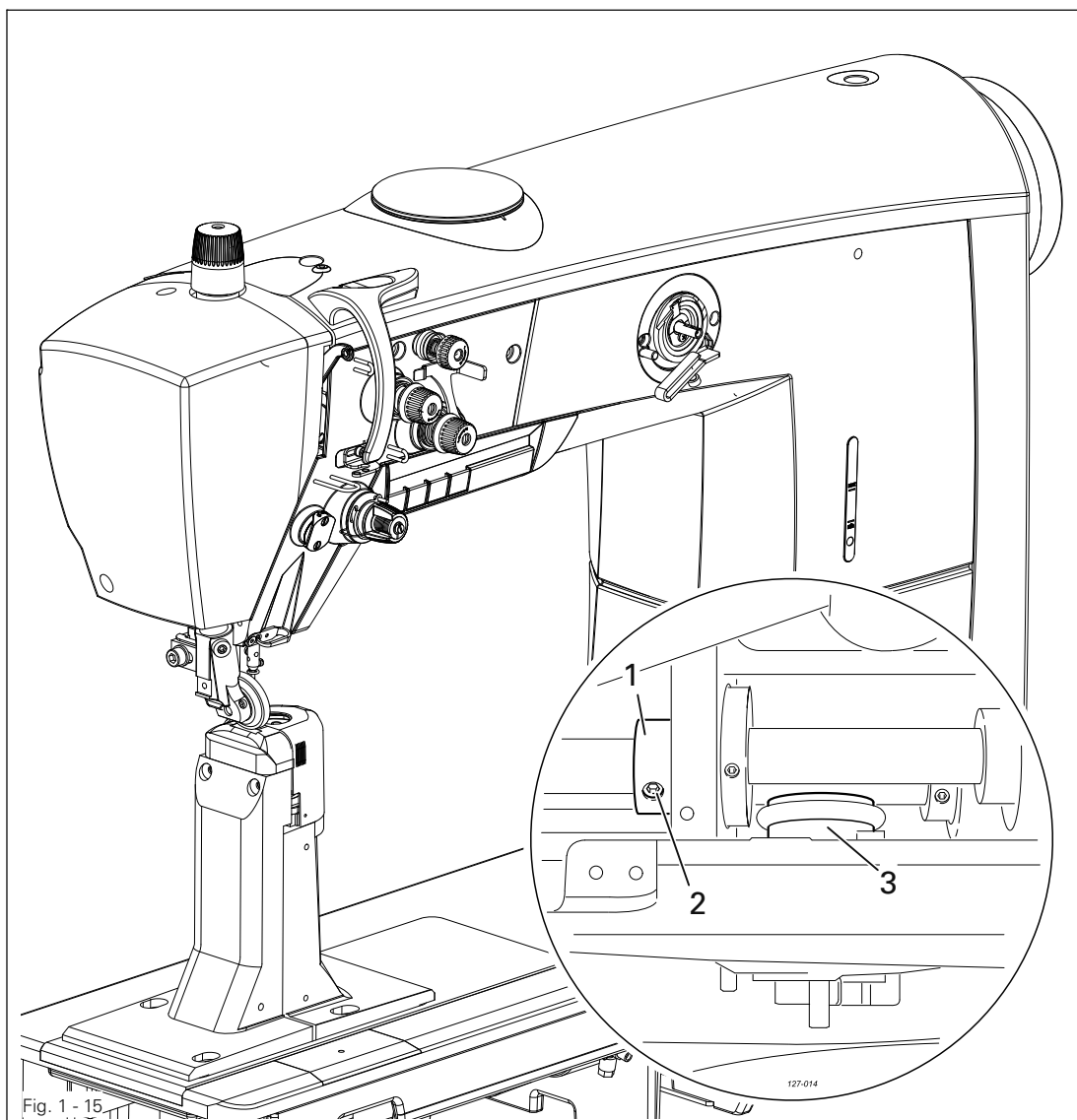
For technical reasons it may be necessary to deviate from the indicated spring stroke or spring tension.

Move thread regulator **5** (screw **6**) towards ("+") (= more thread) or ("-") (= less thread).

1.05.15 Bobbin winder

Requirement

1. When the bobbin winder is engaged, the winding spindle must be driven reliably.
When it is disengaged, friction wheel **3** should not be touching drive wheel **1**.
2. When it is switched off, the bobbin winder must click securely into its end position (knife raised).

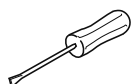
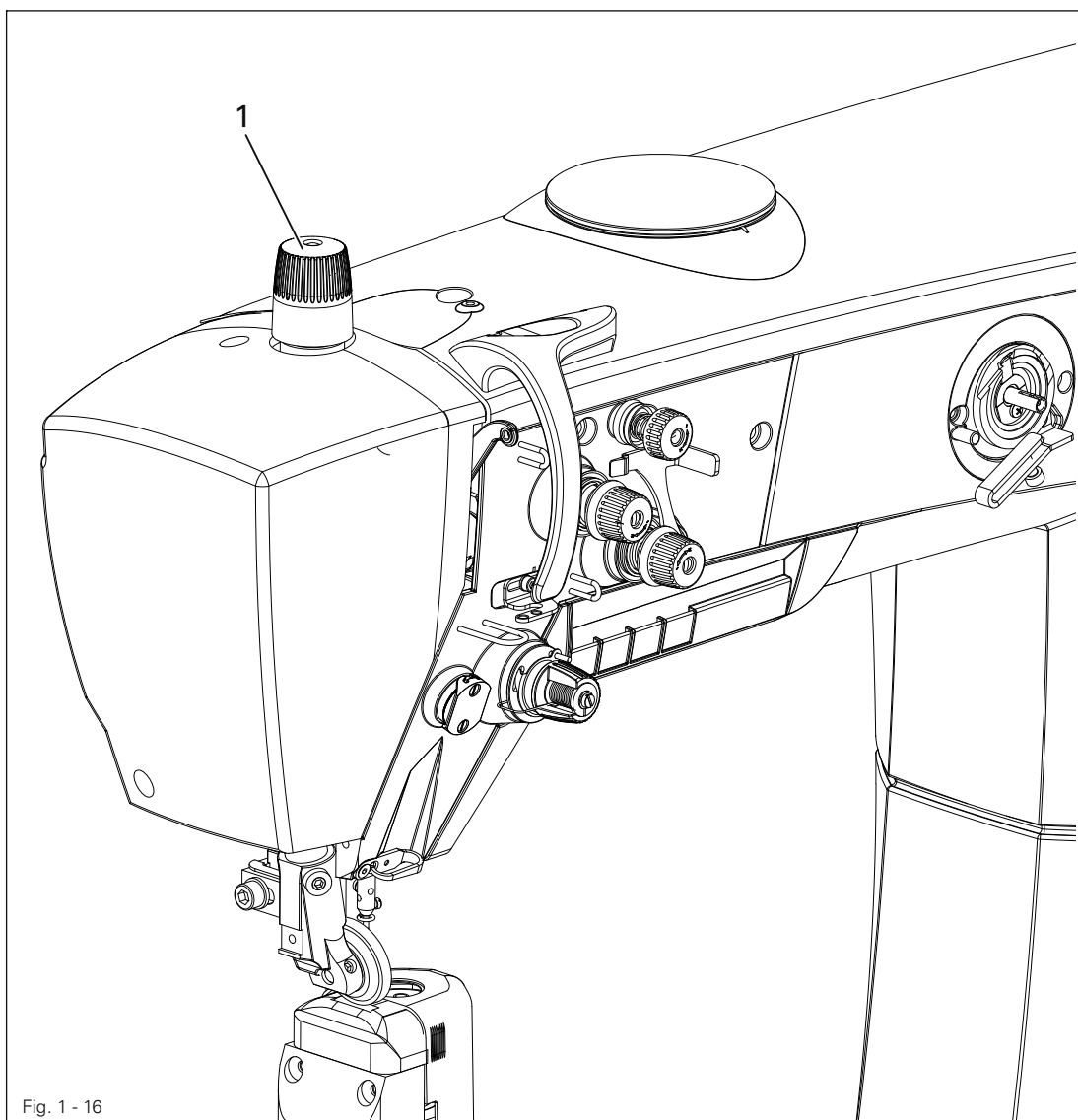


- Adjust drive wheel **1** (screw **2**) in accordance with the **requirement**.

1.05.16 Sewing foot pressure

Requirement

1. The material must be fed smoothly.
2. No pressure marks should be visible on the material.



- Turn adjustment screw 1 in accordance with the **requirement**.

1.05.18 Lubrication

Requirement

After a running time of 10 seconds a fine line of oil should form on a strip of paper held next to the hook.

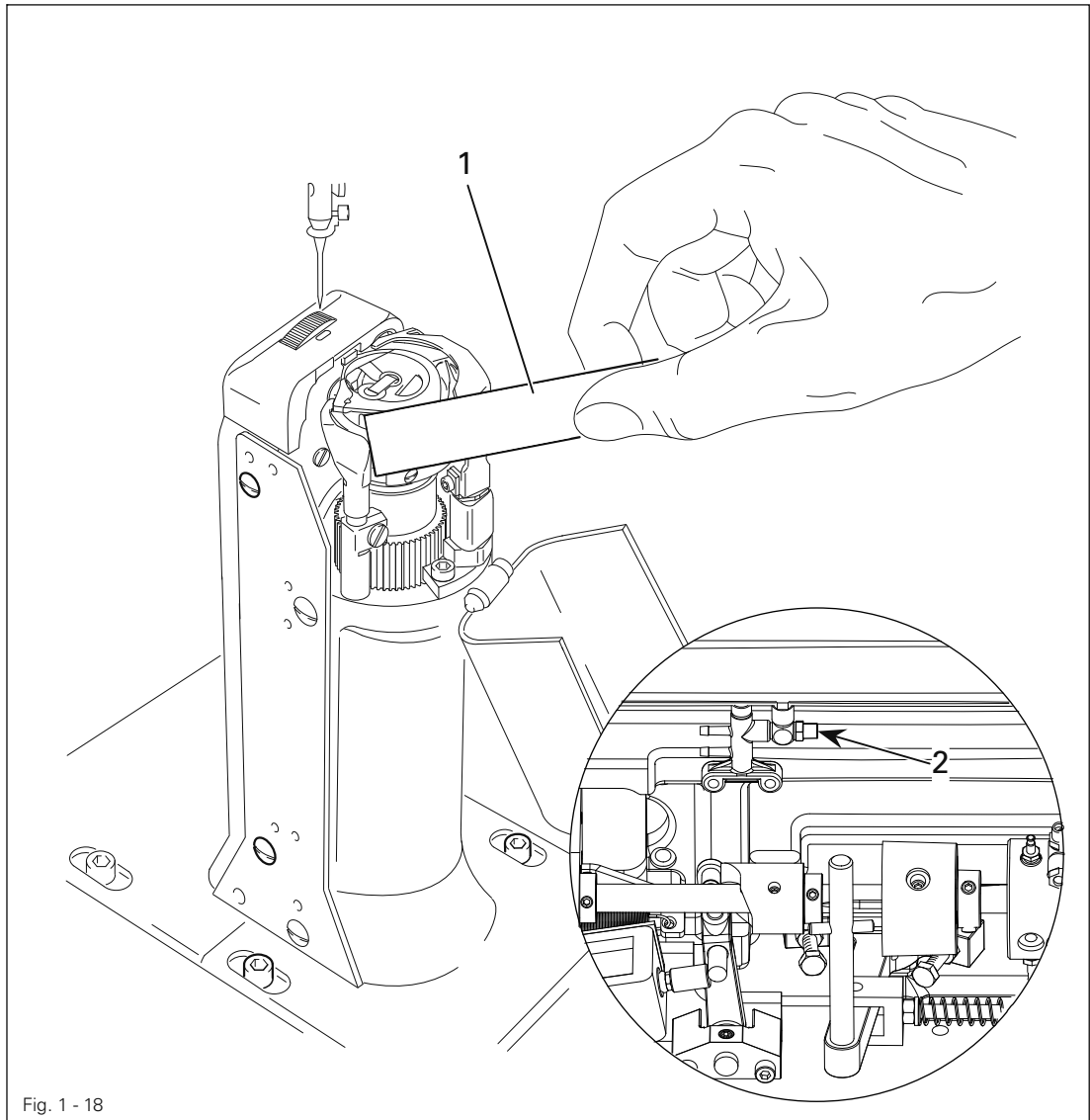
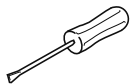


Fig. 1 - 18



- Check whether oil has been filled in and that there is no air in the oil lines.
- Let the machine run for **2-3 min.**



While the machine is running do not place hands in the needle or hook area!
Danger of injury from moving parts!

- With the machine running hold a strip of paper **1** on the hook and check the **requirement**.
- If necessary, adjust the oil flow on screw **2**.

1.05.19 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.

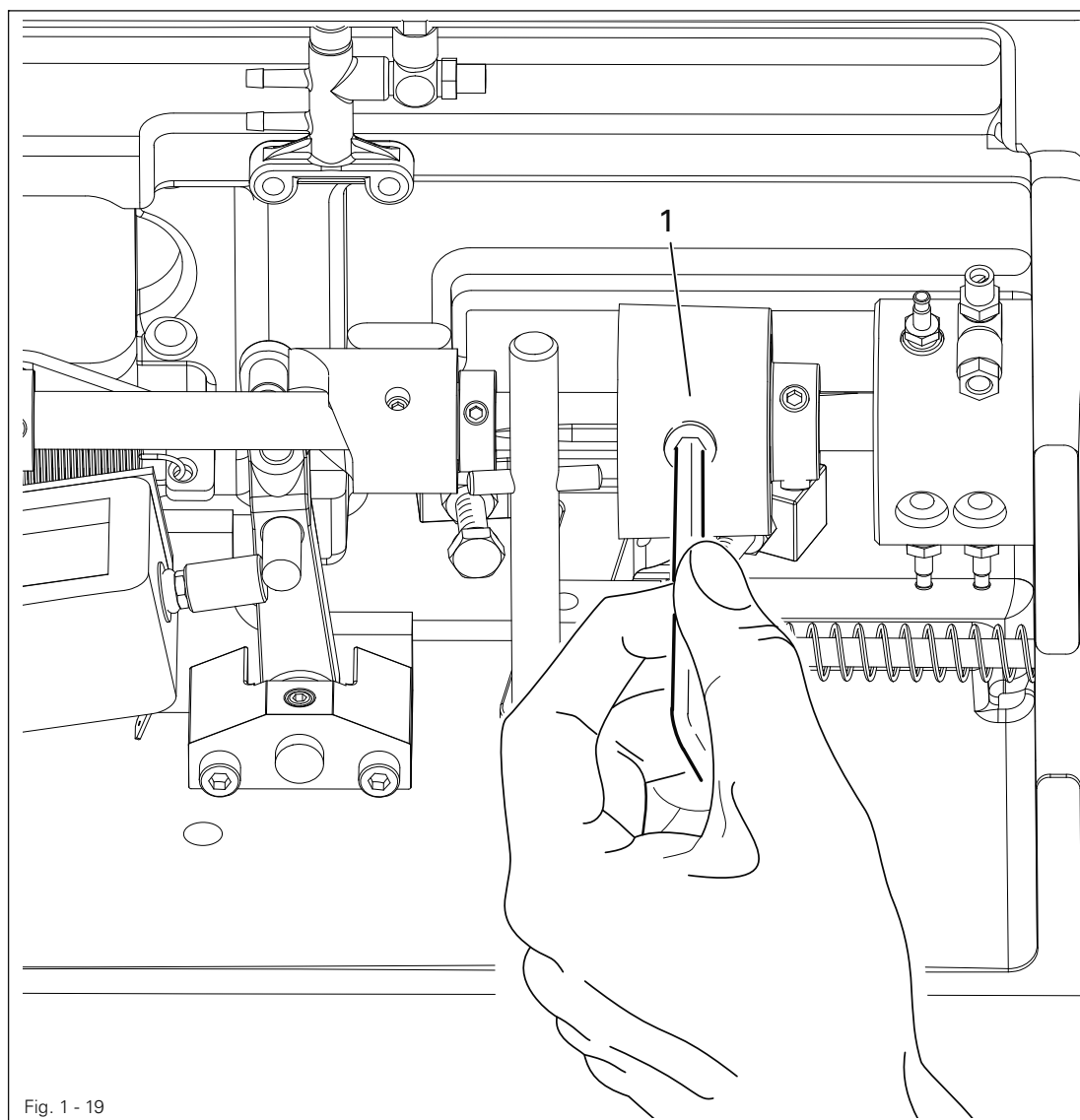


Fig. 1 - 19

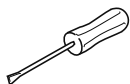
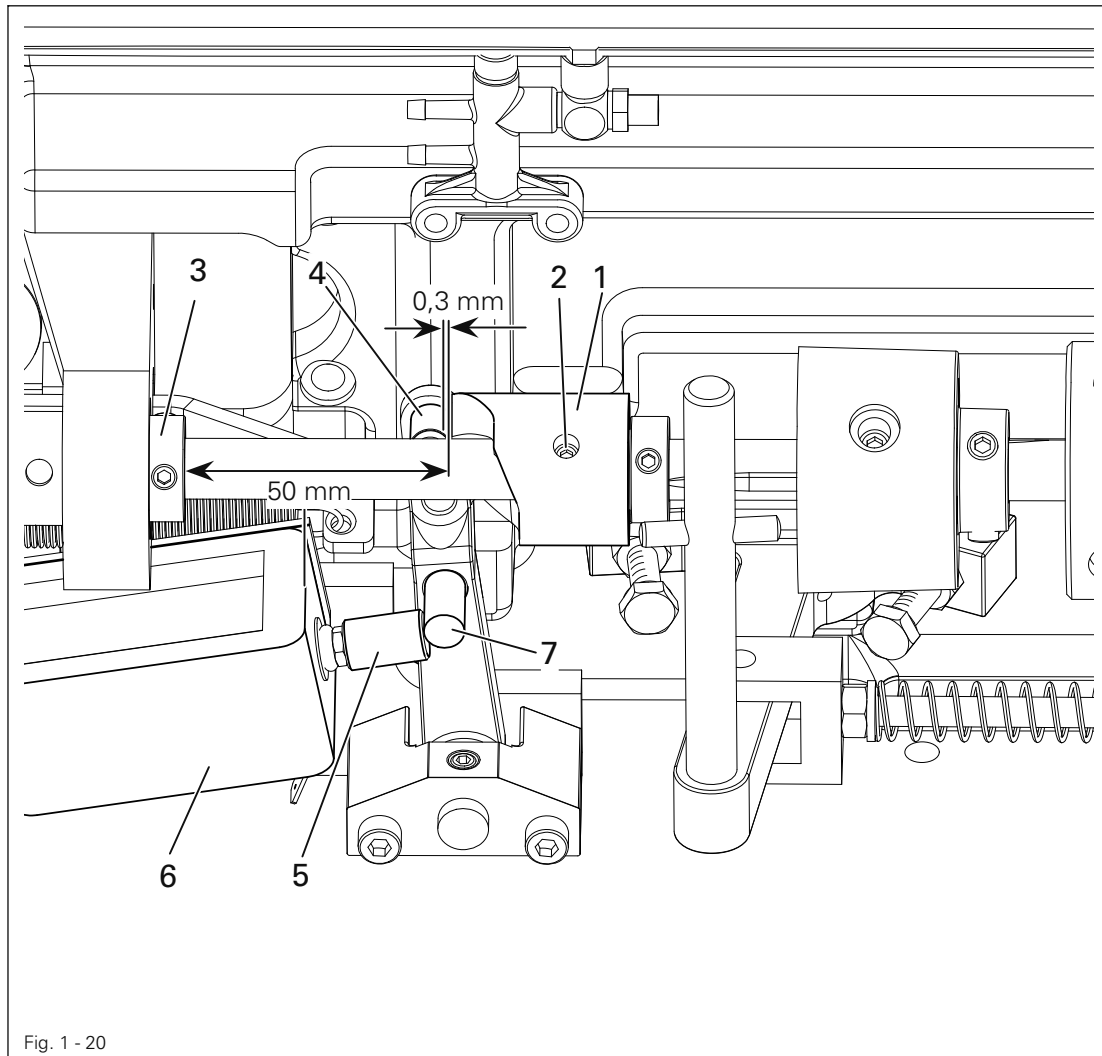
- Remedy jammed thread fault.
- Hold clutch 1 firmly, as shown in Fig. 1 - 19, and turn the balance wheel until clutch 1 re-engages.

1.06 Adjusting the thread trimmer -900/81

1.06.01 Resting position of the roller lever / radial position of the control cam

Requirement

1. When the thread trimmer attachment is at rest lever **7** should fit closely to plunger **5** and the roller on roller lever **4** should be **0.3mm** away from control cam **1**.
2. When thread lever at t.d.c. (handwheel position **53°**) the control cam **1** should have just brought roller lever **4** to rest.



- Create a distance of **50 mm** between the highest point of control cam **1** (screws **2**) and collar **3**.
- Turn the handwheel in the direction of rotation until the highest point of control cam **1** is opposite roller **4**.
- Ensure that plunger **5** is at the leftmost position, move magnet **6** (two screws) according to requirement **1**.
- Turn control cam **1** (screws **4**) according to requirement **2**.

1.06.02 Position of the thread catcher holder

Requirement

1. There should be a minimum amount of play between toothed wheel **3** and toothed segment **4**.
2. Both in the neutral position and the foremost position of the catcher, the distance between the toothed segment **4** and the outer edge of the thread catcher holder **1** should be the same (see arrow).

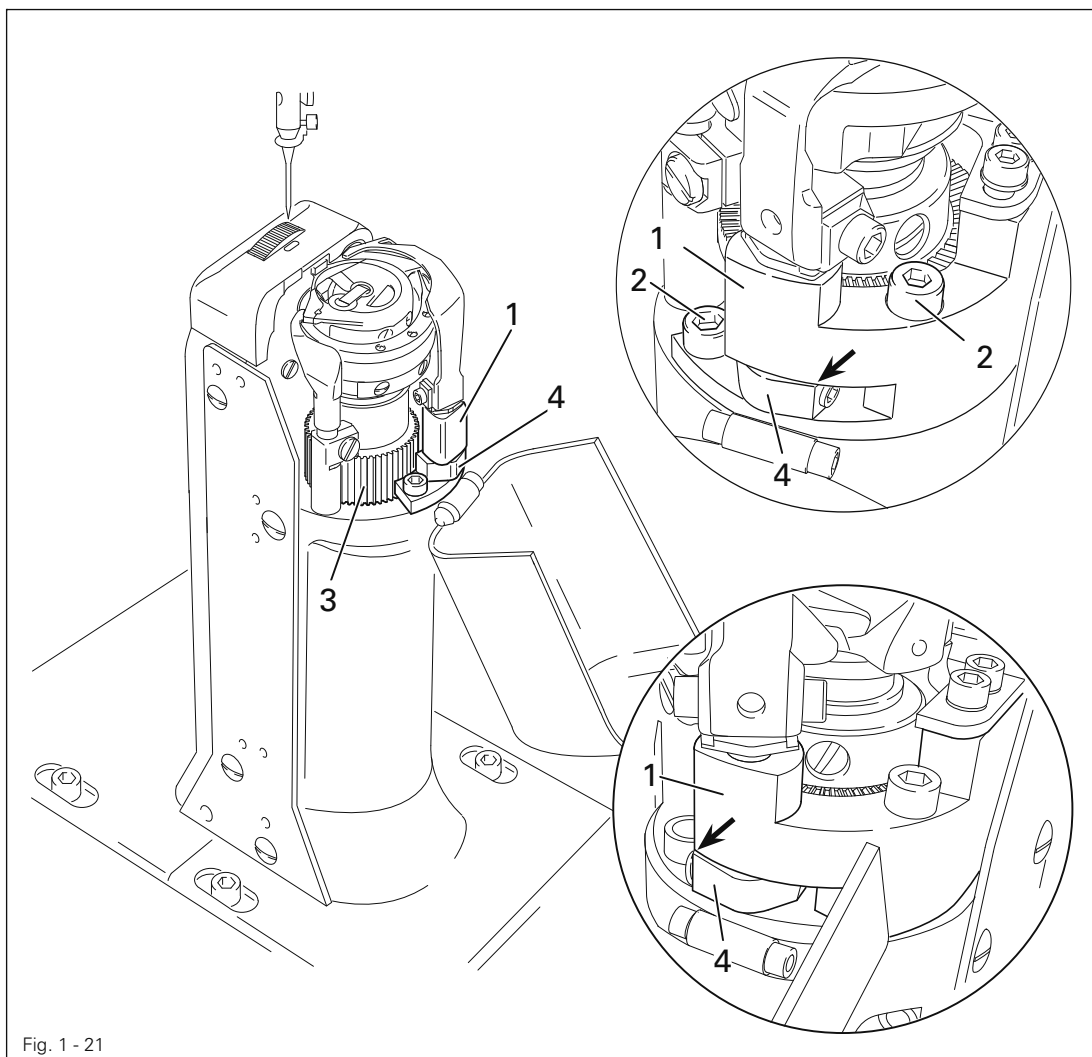
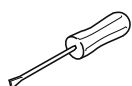


Fig. 1 - 21



- Adjust the thread catcher holder **1** (screws **2**) according to the **requirements**.



If **requirement 2** cannot be fulfilled, loosen screw **2** and move the toothed segment **4** by one tooth.

1.06.03 Distance between thread catcher and needle plate

Requirement

During its swivel movement thread catcher 1 should not pass the edge of the needle plate (see arrow in magnification).

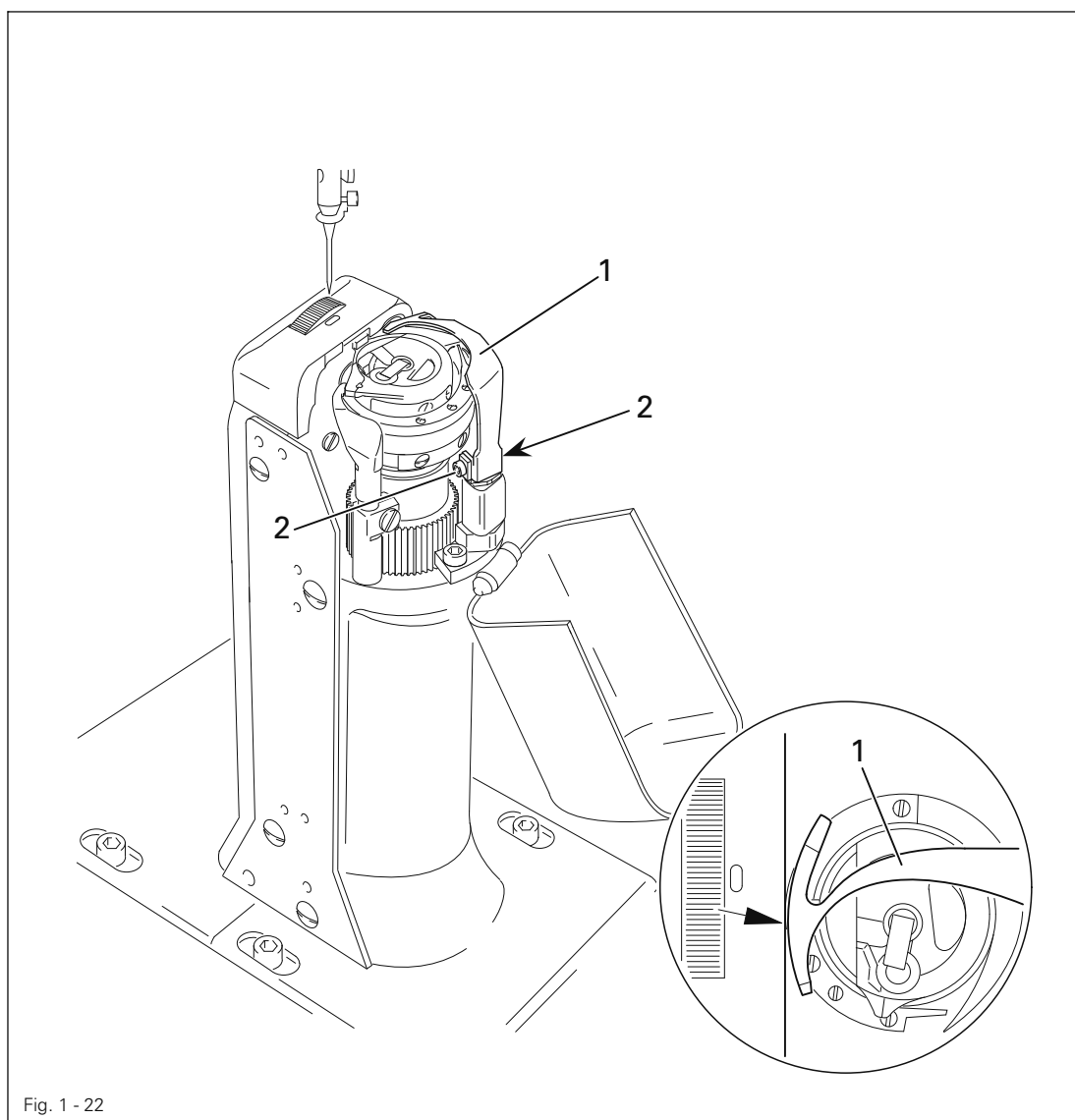
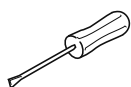


Fig. 1 - 22

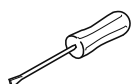
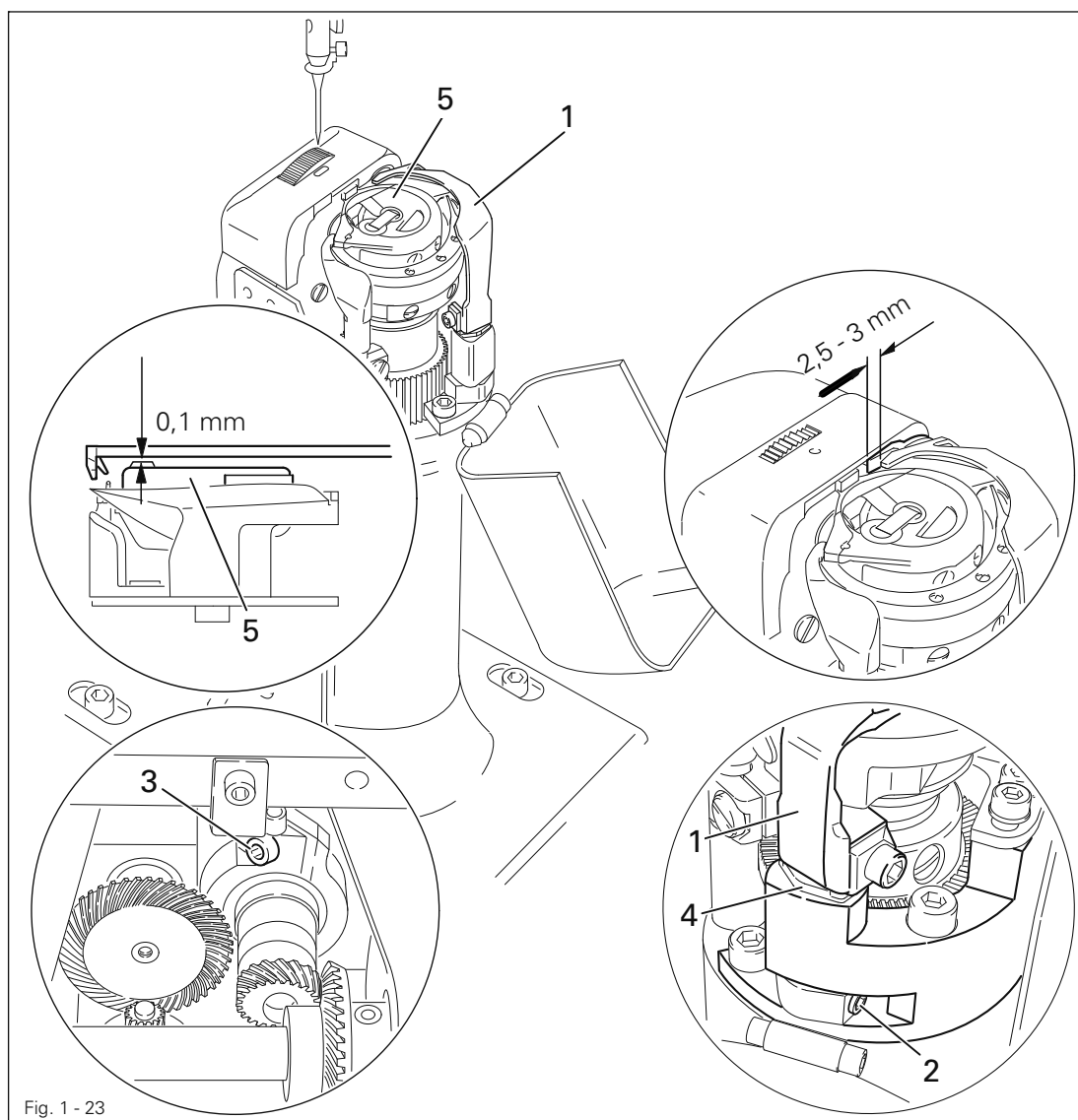


- Move thread catcher 1 (screws 2, two screws) parallel to the thread catcher holder in accordance with the **requirement**.

1.06.04 Position of the thread catcher

Requirement

1. The bottom edge of the thread catcher **1** should be at a distance of **0.1 mm** from the positioning finger of the bobbin case **5**.
2. When the thread trimmer is in its neutral position, the rear edge of thread catcher should be positioned approx. **2.5 - 3 mm** behind the edge of the knife.



- Move thread catcher **1** (screws **2**, two screws) in accordance with **requirement 1**.
- Turn thread catcher **1** (screw **3**) in accordance with **requirement 2**.

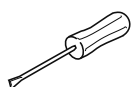
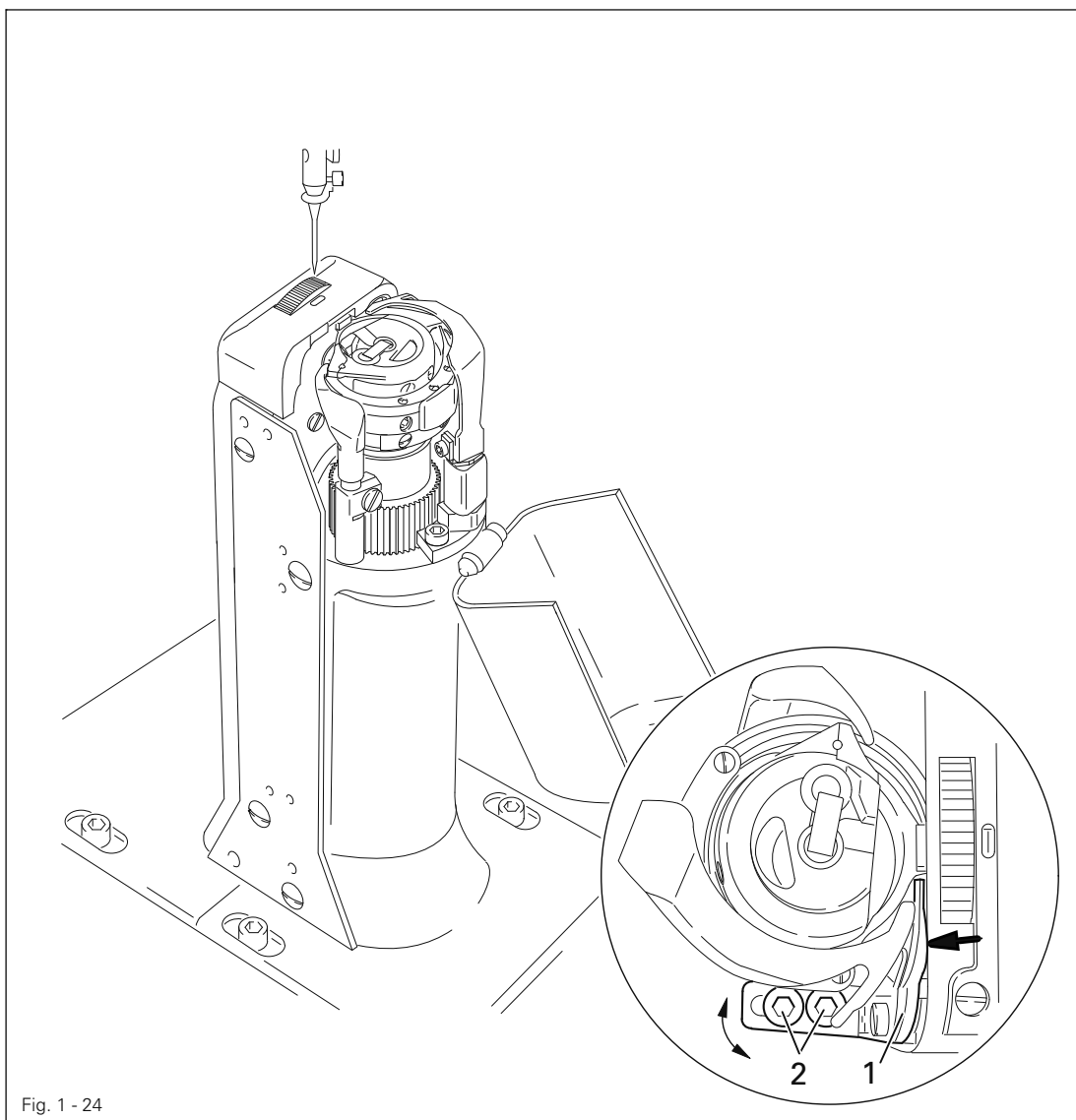


Thread catcher **1** must be parallel to the surface of the thread catcher holder **4**.

1.06.05 Knife position and knife pressure

Requirement

1. The knife **1** should be touching the needle plate.
2. The knife pressure should be set as low as possible but the cutting operation should still be carried out reliably.



- Move knife **1** (screws **2**) in accordance with **requirement 1** or swivel it in accordance with **requirement 2**.

1.06.06 Bobbin thread retaining spring

Requirement

1. The bobbin thread clamp spring should be guided reliably in the thread groove of the thread catcher 3.
2. The tension of the bobbin thread spring clamp should be as low as possible, but the bobbin thread should be held reliably after the cutting operation.

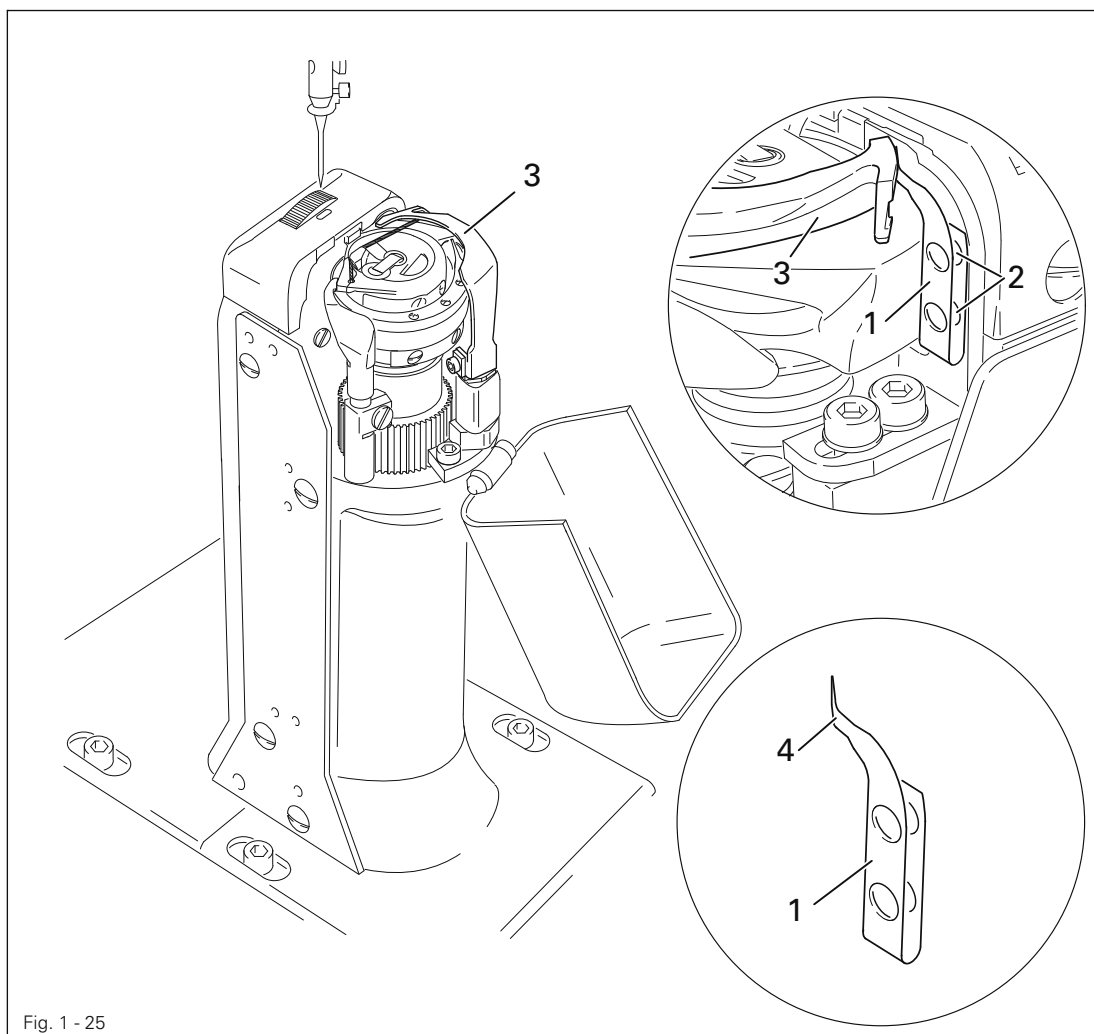
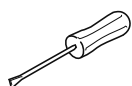


Fig. 1 - 25



- Adjust bobbin thread clamp spring 1 (screws 2) in accordance with **requirement 1**.
- Adjust the tension in accordance with **requirement 2** by bending side 4 of the bobbin thread clamp spring 1.

Control - requirement 1

- Switch off the machine and bring the take-up lever to its b.d.c.
- Engage and disengage the thread catcher 3 by hand and check **requirement 1**. Adjust if necessary.

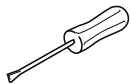
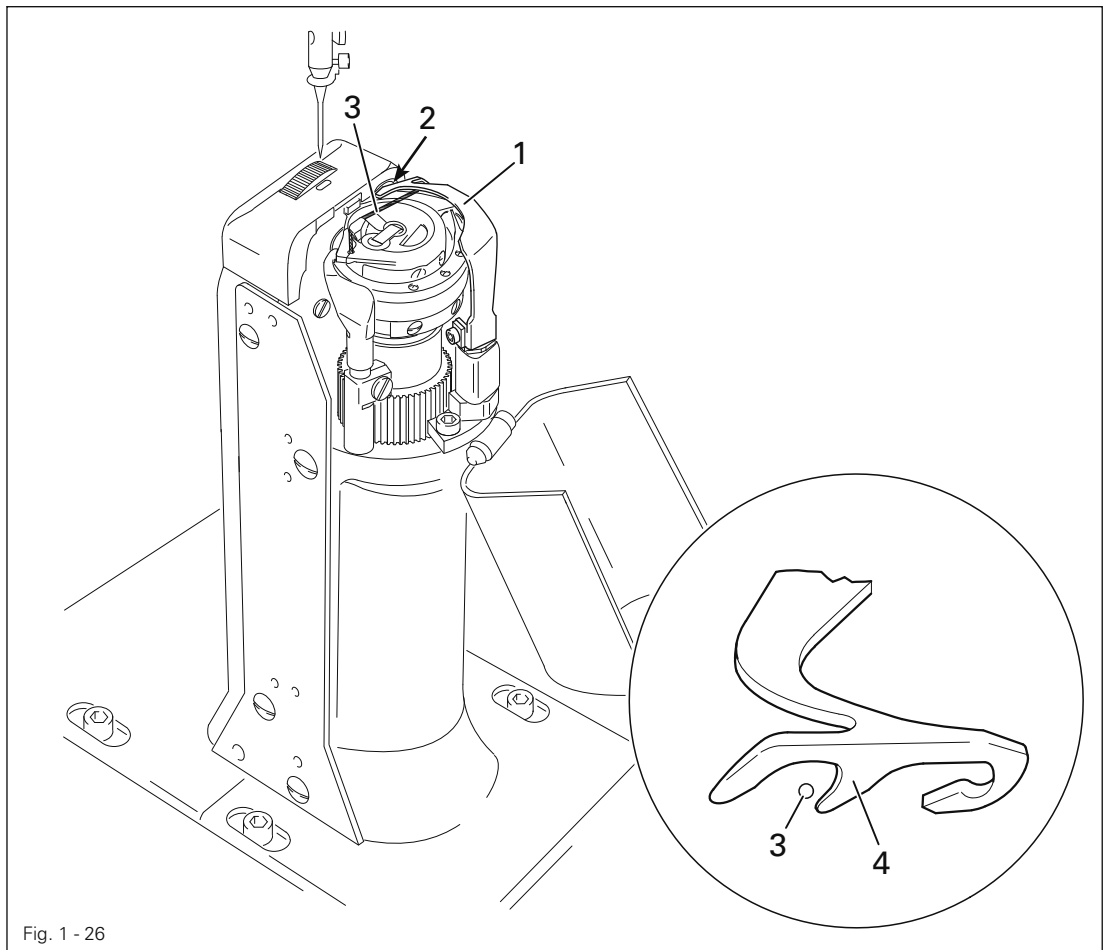
Control - requirement 2

- After the thread has been cut, sew a few stitches by turning the balance wheel, checking whether the bobbin thread is drawn out of the bobbin thread clamp spring between the 1st and 3rd stitches. If necessary, correct the tension.

1.06.07 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 held reliably by hook **4**.
3. After the trimming action, both the needle thread and the bobbin thread must be perfectly cut and bobbin thread **3** retained.



- Sew a few stitches.
- Turn off the on/off switch.
- Carry out the cutting operation manually.
- Check **requirement 1** and **2**, and if necessary readjust thread catcher **1** in accordance with Chapter **1.06.04** Position of the thread catcher.
- Check **requirement 3**, and if necessary readjust the bobbin thread retaining spring **2** in accordance with Chapter **1.06.06** Bobbin thread retaining spring.

1.07 List of parameters for control P321



The operator has free access to the "100" parameters.

Parameters "200" - "800" can only be changed after entering a code number and many only be changed by authorised personnel.

Group	Parameter	Description	Setting range	Set value
1	101	Pedal controlled start backtack (I = OFF, II = ON)	I - II	I
	102	Reverse rotation (I = OFF, II = ON)	I - II	I
	103	Placed stitch (I = OFF, II = ON)	I - II	I
	104	Bobbin thread monitoring (0 = Off, 1 = Counter)	0 - 1	1
	105	Bobbin thread counter (2591 PREMIUM only)	0 - 99999	12000
	106	Bobbin thread remaining counter (2591 PREMIUM only)	0 - 999	100
	107	Stitch length adjustment (-0.2mm – 0.2mm; 0.0mm)	-0,2 - +0,2 mm	0
	108	Display main processor software version		
	109	Display step motor processor software version		
	110	Display control panel software version		
	111	Display sewing drive component software version		
	112	Control panel key tone (2591 PREMIUM only), (I = OFF, II = ON)	I - II	II
	113	Control panel key tone when moving from one area to another (2591 PREMIUM only), (I = OFF, II = ON)	I - II	I
	116	Display serial number of machine	-	-
2	201	Machine configuration 8 = 2591, 9 = 2591 with photo cell, 10 = reserved, 11 = reserved, 12 = reserved 13 = reserved	8 - 14	8

Group	Parameter	Description	Setting range	Set value
2	202	Roller-presser field discharge (OFF = I, ON = II) I = roller-presser is lowered slowly. Should be set for high foot pressure II = roller-presser is lowered quickly. Should be set for low foot pressure	I - II	I
	203	Single stitch button assignment 1 = Single stitch, 2 = Needle up, 3 = Knee switch	1 - 3	1
	204	Half stitch button assignment 1 = Half stitch, 2 = Needle up, 3 = Knee switch	1 - 3	1
	205	Button F1 assignment (2591 ME only) (I = Backtack suppression, II = Raise needle)	I - II	I
	206	Open thread tension on stop and lift roller-presser (2591 ME only) (I = OFF, II = ON)	I - II	I
	207	Open thread tension after trimming and lift roller-presser (I = OFF, II = ON)	I - II	I
3	301	Thread carrier position t.d.c.	0 - 127	124
	302	Needle position under b.d.c.	0 - 127	16
	303	Thread trimmer magnet position on	0 - 127	16
	304	Thread trimmer magnet position pulse	0 - 127	93
	305	Thread trimmer magnet position off	0 - 127	113
	306	Reverse rotation position	0 - 127	93
	307	Placed stitch position	0 - 127	7
	308	Thread tension ventilation position	0 - 127	30
4	401	Time delay roller-presser lift	0,01s - 1,5s	0,02s
	402	Delayed start after lowering roller-presser	0,01s - 1,5s	0,15s
	403	Set roller-presser lift (must be increased for high foot pressure)	0,01s - 0,2s	0,03s
	404	Thread trimmer magnet pulse	10 -50%	35%

Group	Parameter	Description	Setting range	Set value
5	501	Maximum speed	100 - 3500	3500
	502	Start backtack speed	100 - 1500	700
	503	End backtack speed	100 - 1500	700
	504	Soft start speed	100 - 3500	1500
	505	Soft start stitch	0 - 15	0
6	601	Move roller-presser and feed wheel step motor		
	602	Inputs: 0123456789ABCDEF (2591 PREMIUM only), 0 = Needle mid point (E16) 1 = Needle mid point (E15) 2 = Intermittent coding (E14) 3 = Free (E13) 4 = Free (E12) 5 = Free (E11) 6 = Free (E10) 7 = Free (E9) 8 = Emergency button (E8) 9 = Free (E7) A = Knee switch (E6) B = Photo cell (E5) C = Starting inhibitor (E4) D = Single stitch button on machine head (E3) E = Half stitch button on machine head (E2) F = Reverse button on machine head (E1)		
	603	Adjust sewing motor on sewing head (Needle coming from above to needle plate upper edge)	0 - 127	8 ± 2
	604	Run cold start		
	605	Stitch process with step motors by hand-wheel		
	606	Display speed control unit value		

Group	Parameter	Description	Setting range	Set value
7	701	P-section speed regulator	1 - 50	20
	702	I-section speed regulator	0 - 100	50
	703	P-section position regulator	1 - 50	20
	704	D-section position regulator	1 - 100	30
	705	Time for position regulator	0 - 100	25
	706	P-section position regulator for remainder brake	1 - 50	25
	707	D-section position regulator for remainder brake	1 - 50	15
	708	Maximum torque for remainder brake	0 - 100	0
	709	Minimum machine speed	3 - 64	6
	710	Maximum machine speed	1 - 35	35
	711	Maximum motor speed	1 - 35	35
	712	Positioning speed	3 - 25	18
	713	Acceleration ramp	1 - 50	35
	714	Braking ramp	1 - 50	30
	715	Reference position	0 - 127	10
	716	Dead man time	0 - 255	40
	717	Motor starting current	3 - 10	8
	718	Vibration filter	1 - 10	6
	719	Assign direction of rotation	0 - 1	0
	720	Move positioner	1 - 2	2
8	801	Function group 100 access authorisation (Operator level)	0 - 1	0
	802	Function group 200 access authorisation (Technician level)	0 - 1	1

Group	Parameter	Description	Setting range	Set value
8	803	Function group 300 access authorisation (Sewing motor positions)	0 - 1	1
	804	Function group 400 access authorisation (Times)	0 - 1	1
	805	Function group 500 access authorisation (Counter and revolution speed)	0 - 1	1
	806	Function group 600 access authorisation (Service)	0 - 1	1
	807	Function group 700 access authorisation (Sewing motor)	0 - 1	1
	808	Function group 800 access authorisation (Access authorisation)	0 - 1	1
	809	Programming access authorisation	0 - 1	1
	810	Input access code	0 - 9999	2500

1.08 Error Messages and Description

Error	Description
E 1	System error
E 2	Sewing motor E002/BB/xxx BB = 20: Deadman 02: Position forwards 03: Position in reverse 05: Position by shortest route 09: Write parameter 10: Speed 0A: Reset stitch counter 0B: Stop after xxx stitches 30: Timeout for increasing speed 31: Timeout from uncertain positioning 32: Timeout from deadman command 33: Timeout for deleting errors 34: Timeout for emergency stop 35: Timeout for writing parameters 36: Timeout for resetting stitch counter 37: Timeout for stop command after x stitches 38: Timeout for initialisation 39: Establishing contact when turned on xxx = sewing motor control unit error byte (see Motor Errors)
E 3	Section
E 4	End of section
E 5	Pedal or half stitch button or single stitch button (on machine head) activated when machine turned on
E 6	Communication error with the step motor processor
E 7	End of ramp
E 8	Needle drive end point not found
E 9	Needle drive mid-point not found
E 10	Step motor processor error
E 11	Step motor step frequency too high
E 12	Sewing displacement error
E 13	Docu-seam system error
E 14	Incorrect program number (larger than 99)
E 15	Incorrect section number
E 16	Memory full
E 17	Incorrect stitch length
E 18	Unused
E 19	External control interface
E 20	Incorrect control
E 21	Power supply unit overloaded (24V)
E 22	Mains voltage
E 23	Power supply 24V too low

1.09 Motor Errors

Error	Description
33	Invalid parameter value
35	Communication error
36	Init not ready
37	Command overrun
64	Mains off during initialisation
65	Excess current directly after mains on
66	Short circuit
68	Excess current during operation
70	Motor blocked
71	No incremental plug
74	Incremental transducer missing for transmission/reduction
173	Motor blocked in 1st stitch
175	Interior starting error
222	Dead man monitoring

1.10 Internet-Update der Maschinen-Software

The machine software can be updated with PFAFF flash programming. For this purpose the PFP boot program (from **version 3.25** on) and the appropriate control software for the machine type must be installed on a PC. The transfer of the data to the machine can be carried out with a null modem cable (part no. **91-291 998-91**) or with an SD-card. The SD-card must be formatted in the **FAT16** format and must not exceed a capacity of 2 GBytes.



The PFP boot program and the control software of the machine type can be downloaded from the PFAFF-homepage using the following path:
www.pfaff-industrial.de/pfaff/de/partnerweb/downloadsoftware

1.10.01 Updating 2591 ME (with null modem cable)

- After downloading the PFP tool and the control software, open the PFP program.
- Select the **machine type** and under control unit **P321**.
- The software version is displayed under **report**.

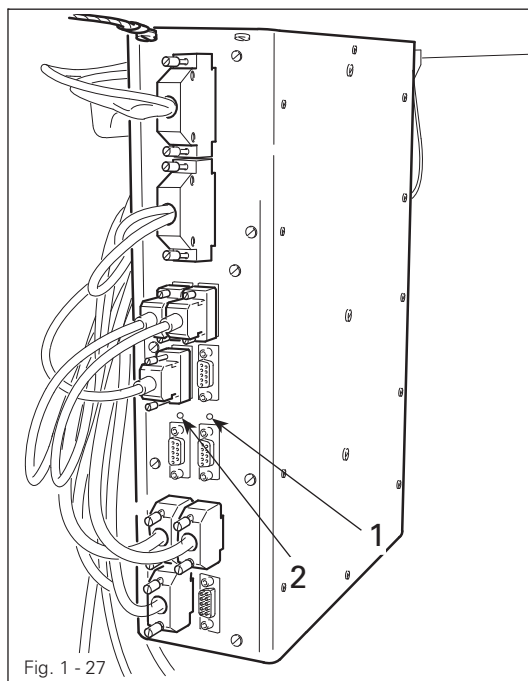


Fig. 1 - 27

- Switch off the machine.
- Connect the PC (serial interface or appropriate USB-adaptor) and the machine control unit (**RS232**). To do so disconnect the plug of the control panel.



While the machine software is being updated, no setting up, maintenance or adjustment work may be carried out on the machine!

- Depending on which software is to be up-dated, hold down boot key **1** or **2** and switch on the machine.
 - 1 = for machine controller
 - 2 = for stepping motors

- Press the "OK" button.

The software update is carried out, the update progress is shown on the bar display of the PFP boot program.

- During the up-dating procedure the machine must not be switched off.
- When the update has been completed, switch off the machine and end the PFP boot program.
- End the connection between the PC and the machine control unit and reconnect the control panel to the machine control unit.
- Switch on the machine.

A plausibility control is carried out and, if necessary, a cold start.



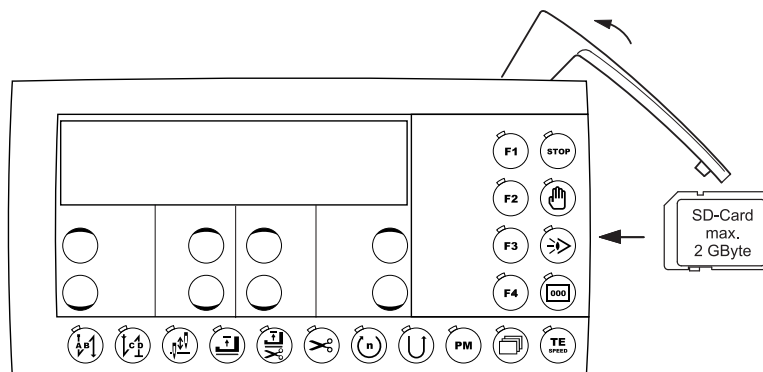
More information and assistance is at your disposal in the file "PFPHILFE.TXT", which can be called up from the PFP boot program by pressing the "help" button.

1.10.02 Updating 2591 PREMIUM (with SD card)

- After downloading the PFP tool and the control software, open the PFP program.
- Select the machine type and under control unit SD-CARD.
- The software version is displayed under report.



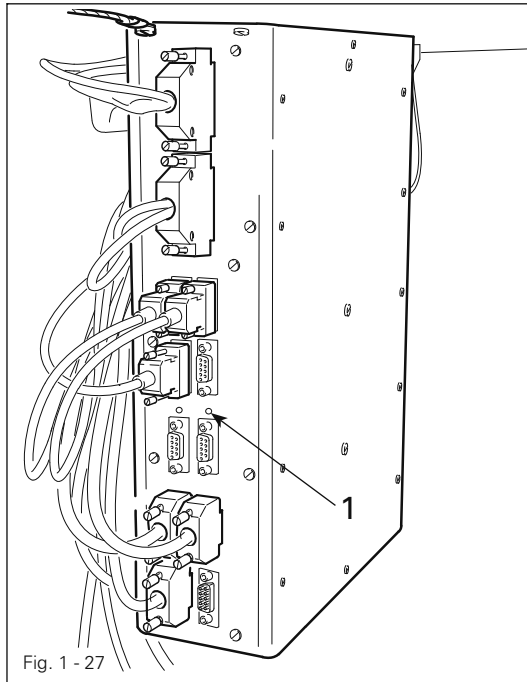
- Under **programming** copy the software to the drive with the SD-card.
- With the machine switched off insert the SD-card into the control panel.



To update the machine software carry out the following steps:



While the machine software is being updated, no setting up, maintenance or adjustment work may be carried out on the machine!



- Switch on the machine, keeping the boot key 1 pressed.
- Press the "TE" key.
The software update is carried out. During the updating process the diode in the memory card slot flashes.
- During the updating process the machine must not be switched off.
- When the update has been completed, switch off the machine and remove the SD-card.
- Switch on the machine
- A plausibility control is carried out and, if necessary, a cold start.
- To update the step motor software please contact your PFAFF representative.

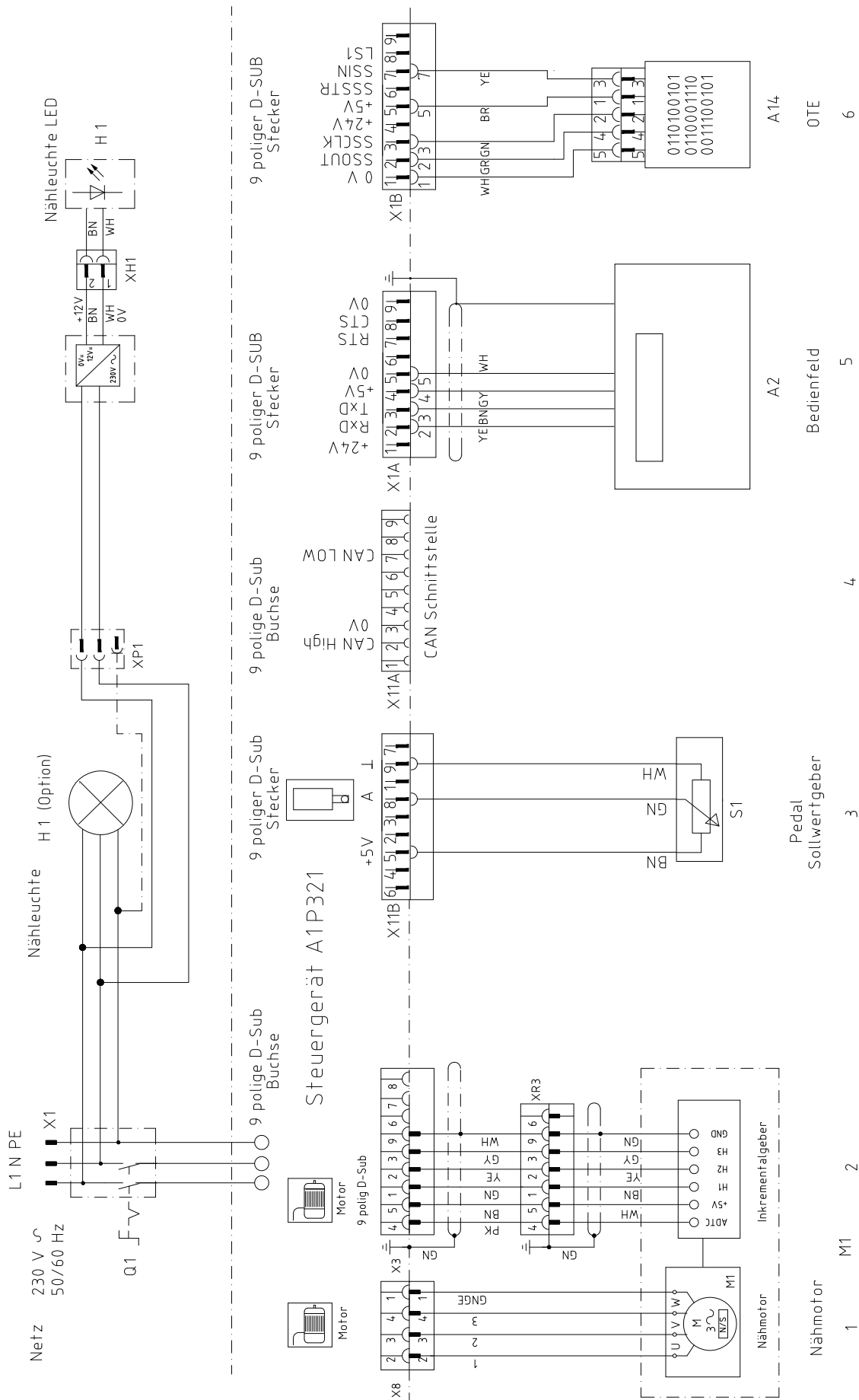


More information and assistance is at your disposal in the file "PFPHILFE.TXT", which can be called up from the PFP boot program by pressing the "help" button.

2 Circuit diagrams

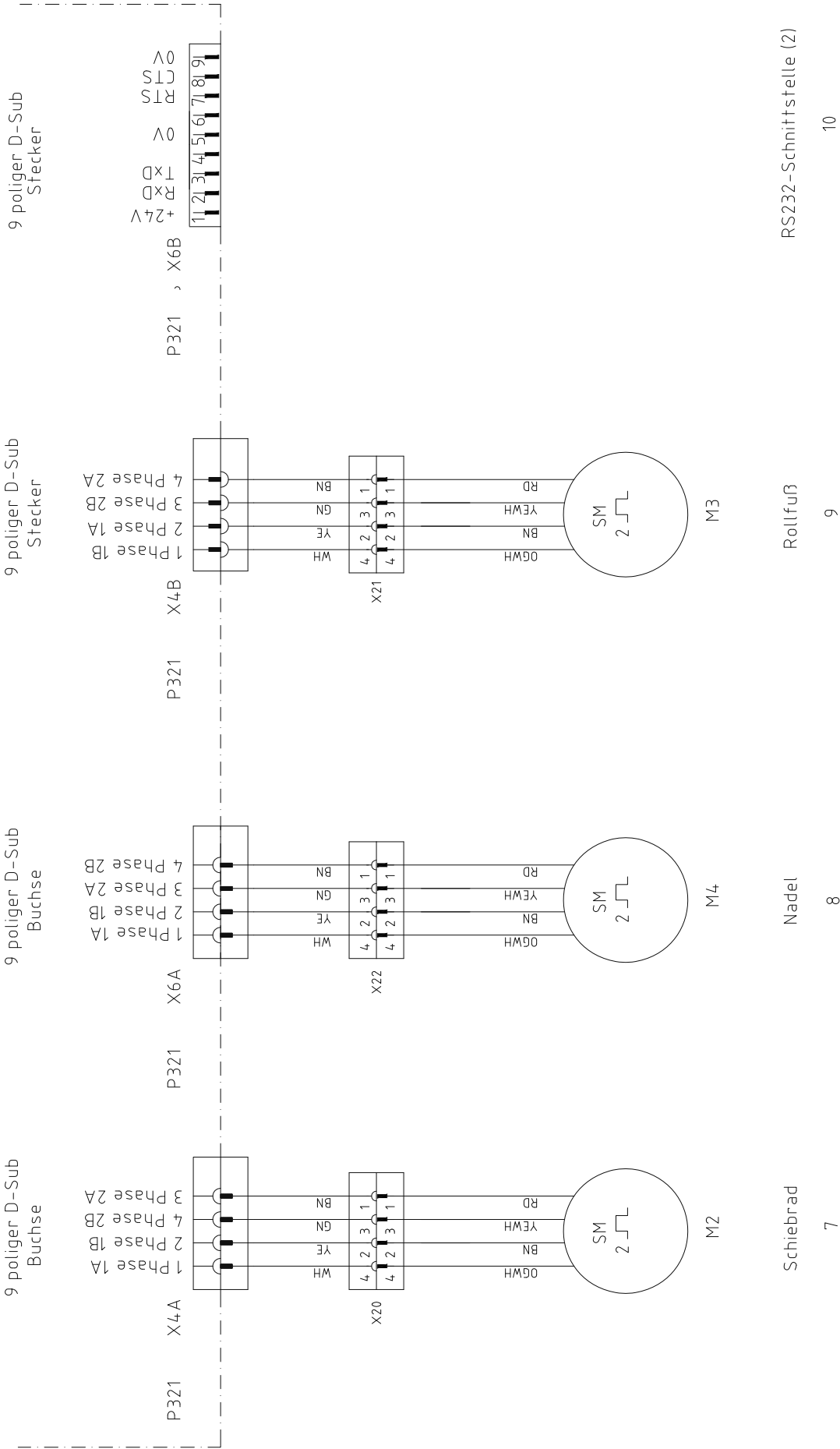
Reference list for circuit diagrams 91-191 544-95

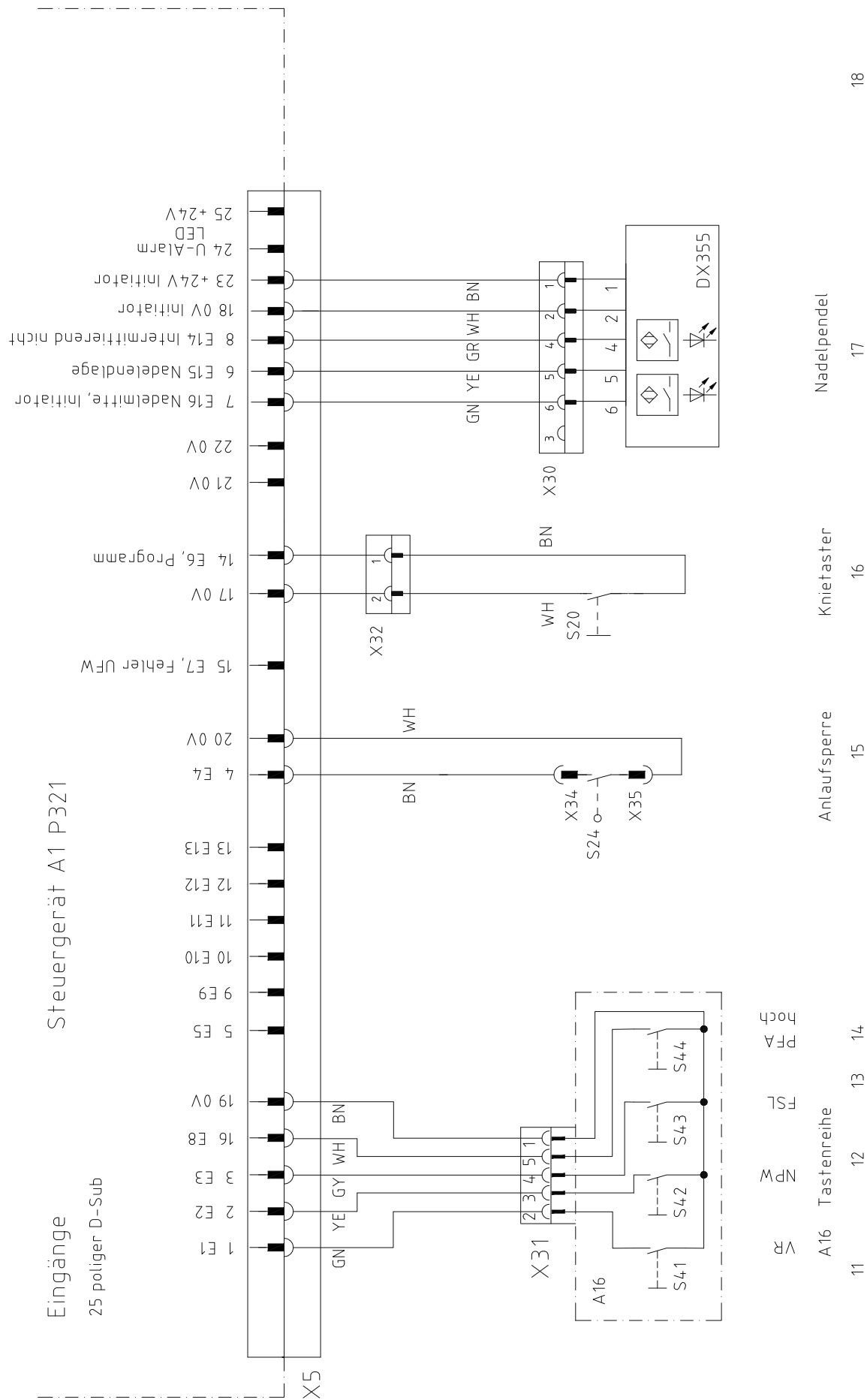
A1	PFAFF P 321ED Control Device
A2	PICOTOP or BDF S3 Control Panel
A14	OTE (Sewing Head Auto Select)
DX355	Needle pendulum
H1	Sewing lamp
M1	Sewing motor
M2	Feed wheel step motor
M3	Roller-presser step motor
M4	Needle step motor
Q1	Main switch
S1	Treadle speed control unit
S20	Knee switch
S24	Starting inhibitor button
S41	Hand operation front button
S42	Single stitch button (change needle position)
S43	Thread tension release (FSL)
S44	Automatic presser foot lift (PFA)
X1	Mains plug
X1A	RS232 – control panel interface 1
X1B	VSS OTE
X3	Incremental encoder (sewing motor)
X4A	Feed wheel step motor
X4B	Roller-presser step motor
X5	Inputs
X6A	Needle step motor
X6B	RS232 – interface
X8	Sewing motor
X11A	CAN interface
X11B	Treadle speed control unit
X13	Outputs
Y1	-910/.. PFA
Y2	-900/.. Thread trimmer
Y3	Thread tension release

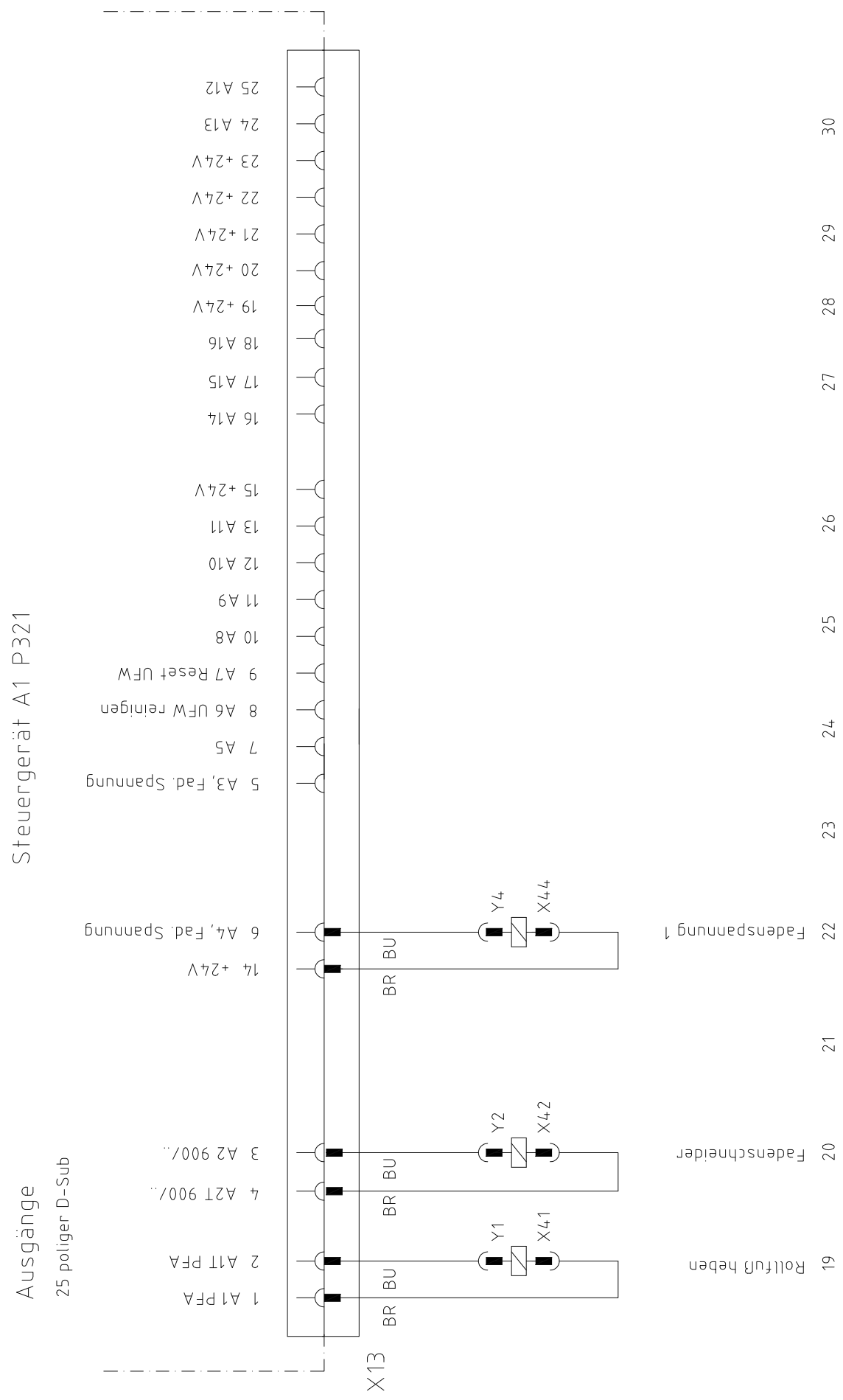


Steuergerät A1P321

Schrittmotore









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PFAFF Industriesysteme und Maschinen AG

Hans-Geiger-Str. 12 - IG Nord
D-67661 Kaiserslautern

Phone: +49-6301 3205 - 0
Fax: +49-6301 3205 1386
E-mail: info@pfaff-industrial.com

Hotlines:

Technical service: +49-175/2243-101
Application consultancy: +49-175/2243-102
Spare-parts hotline: +49-175/2243-103

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