

***POWER*Line**

3741

ADJUSTMENT MANUAL



This instruction manual applies to
machines from software version 1.2 and
serial number 2 763 625 onwards

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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
- Metal rule (part No. 08-880 218-00)
- Sewing thread and test materials

1.03 Abbreviations

t.d.c. = top dead centre

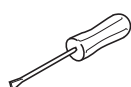
b.d.c. = bottom dead centre

1.04 Explanation of the symbols

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



Note, information



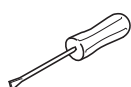
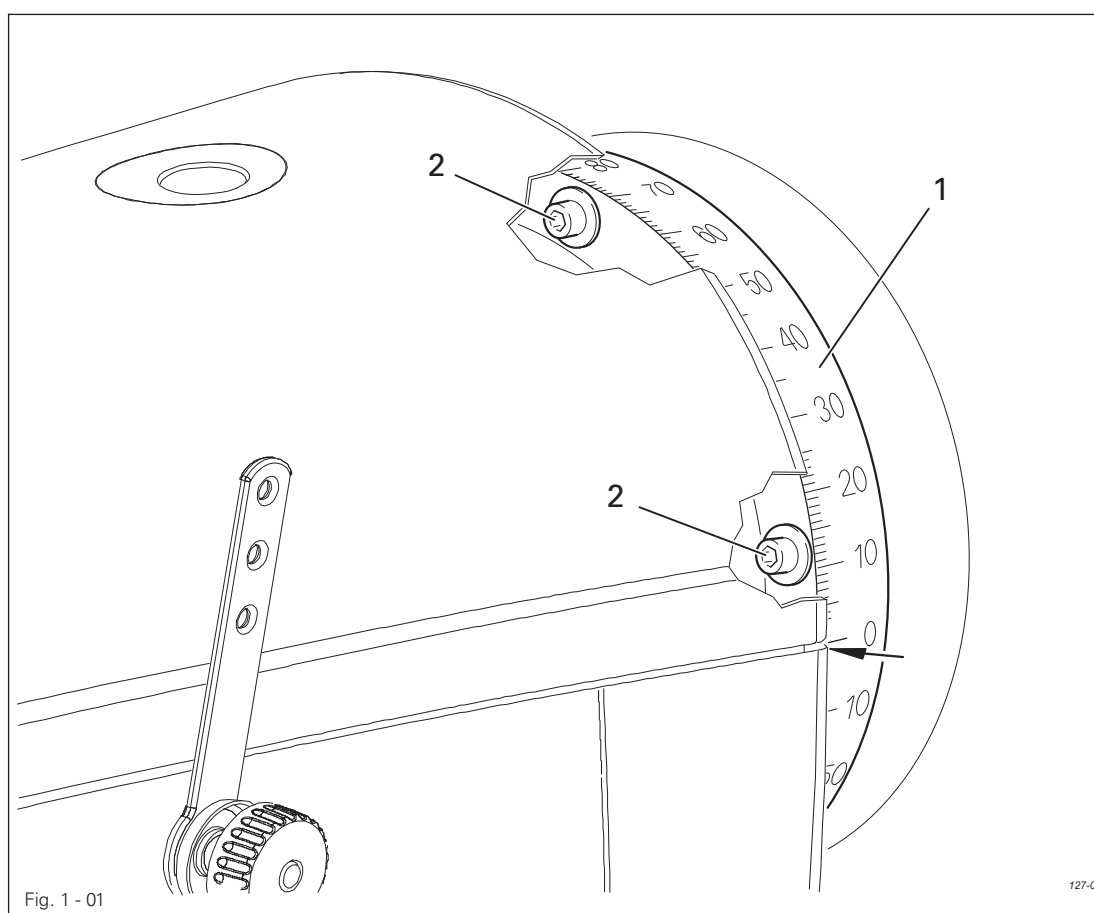
Service, repair, adjustment, maintenance
(work to be carried out by qualified staff only)

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).



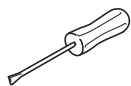
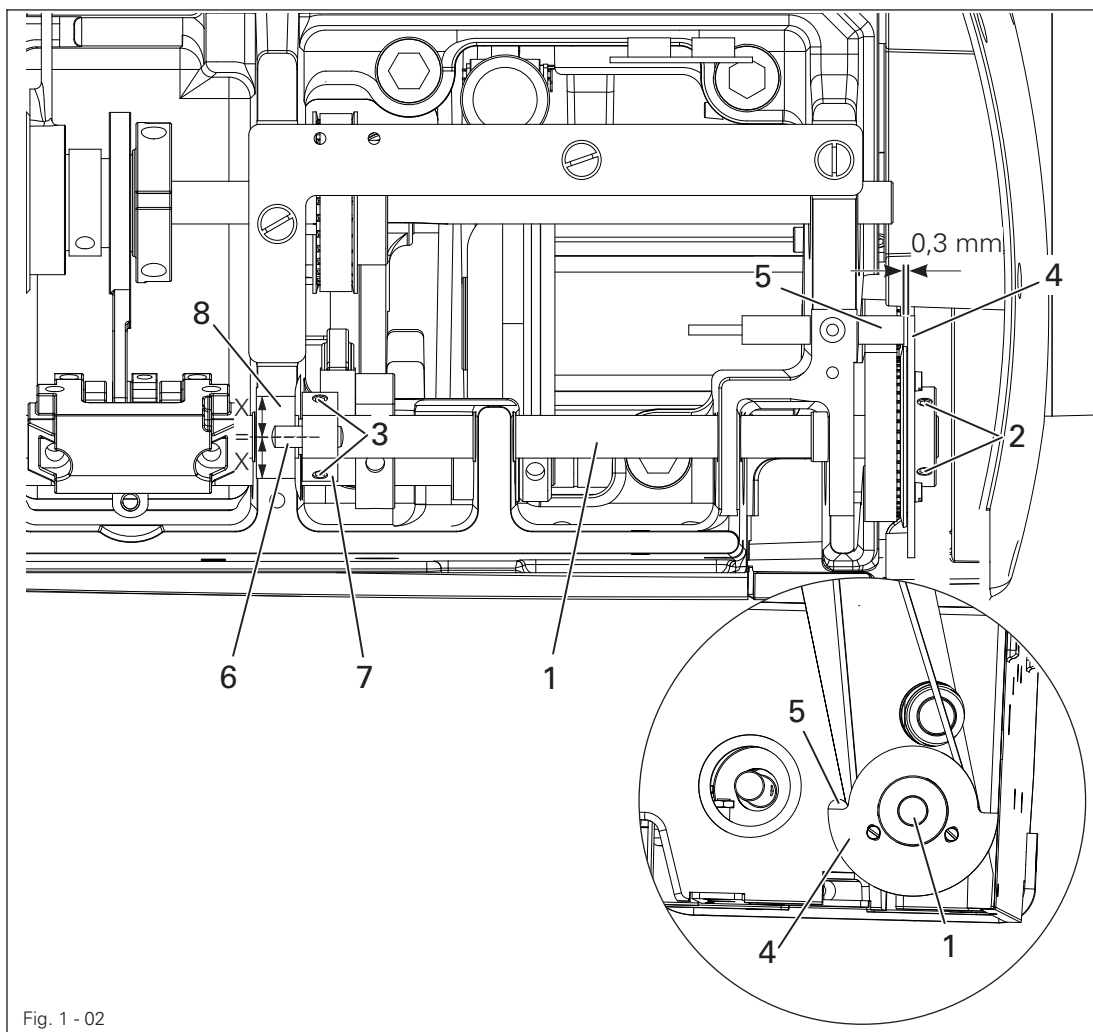
- Adjust the scale dial 1 (four screws 2) in accordance with the requirement.

1.05.02 Zero position of the bottom and needle feed

Requirement

At stitch length setting "0"

1. turning the handwheel, the bottom transporter and the needle bar should not move, and
2. the bolt of lever 7 should be set to the middle position of recess 8.
3. A gap of **0.3 mm** should exist between initiator 5 and switching plate 4.

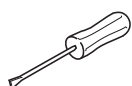
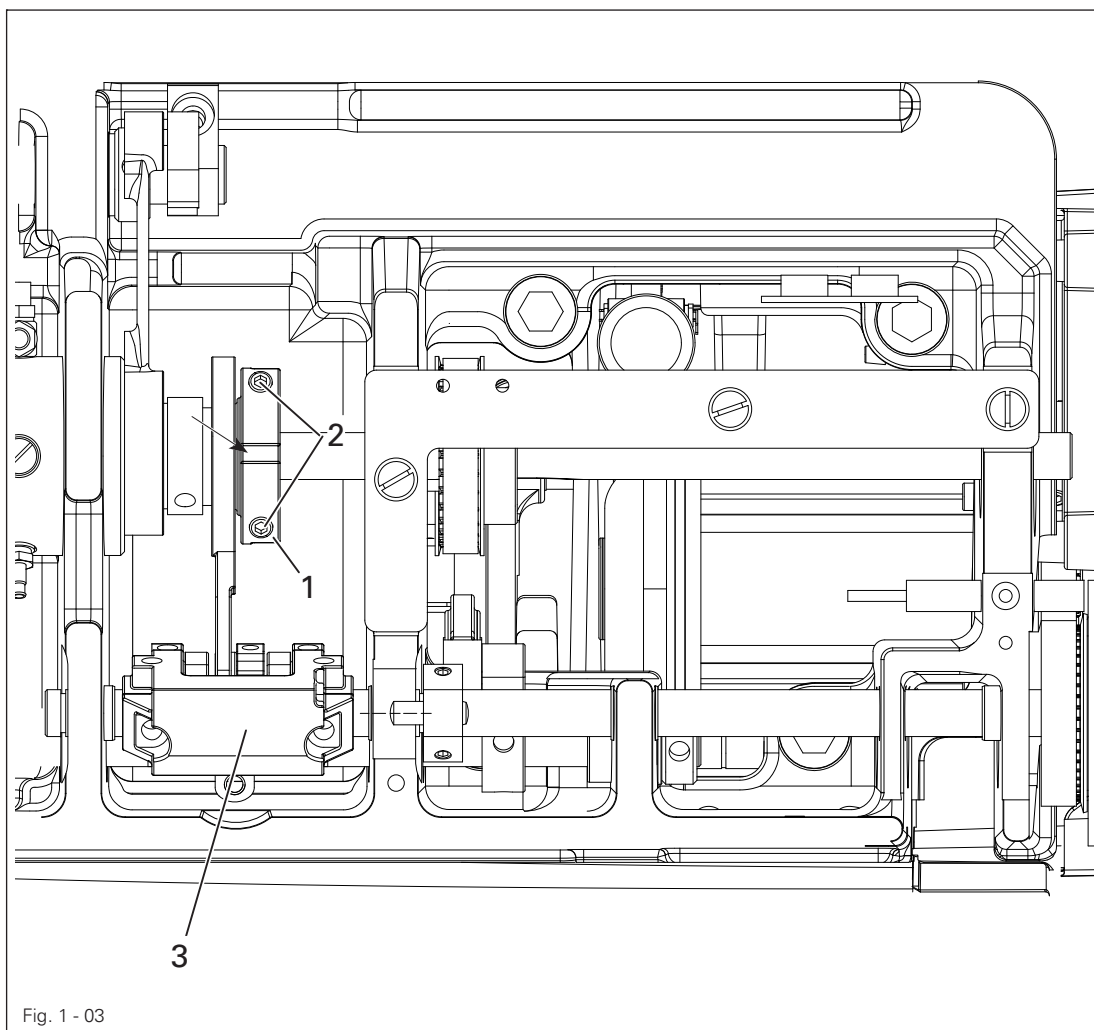


- Turn machine on, stitch platen motor moves to reference position.
- Turn shaft 1 of the stitch platen (screws 2 and 3) in accordance with requirement 1.
- Move switching plate 4 in accordance with rule 3 and tighten screws 2.
- Set bolt 6 of lever 7 to the middle of recess 8, and tighten screws 3.
- Check rule settings and adjust where required.

1.05.03 Feed dog motion of bottom feed dog and needle feed

Requirement

Bottom transporters, as well as the needle bar should not move, when stitch platen **3** is activated with handwheel at **190°** or higher.



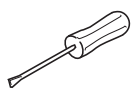
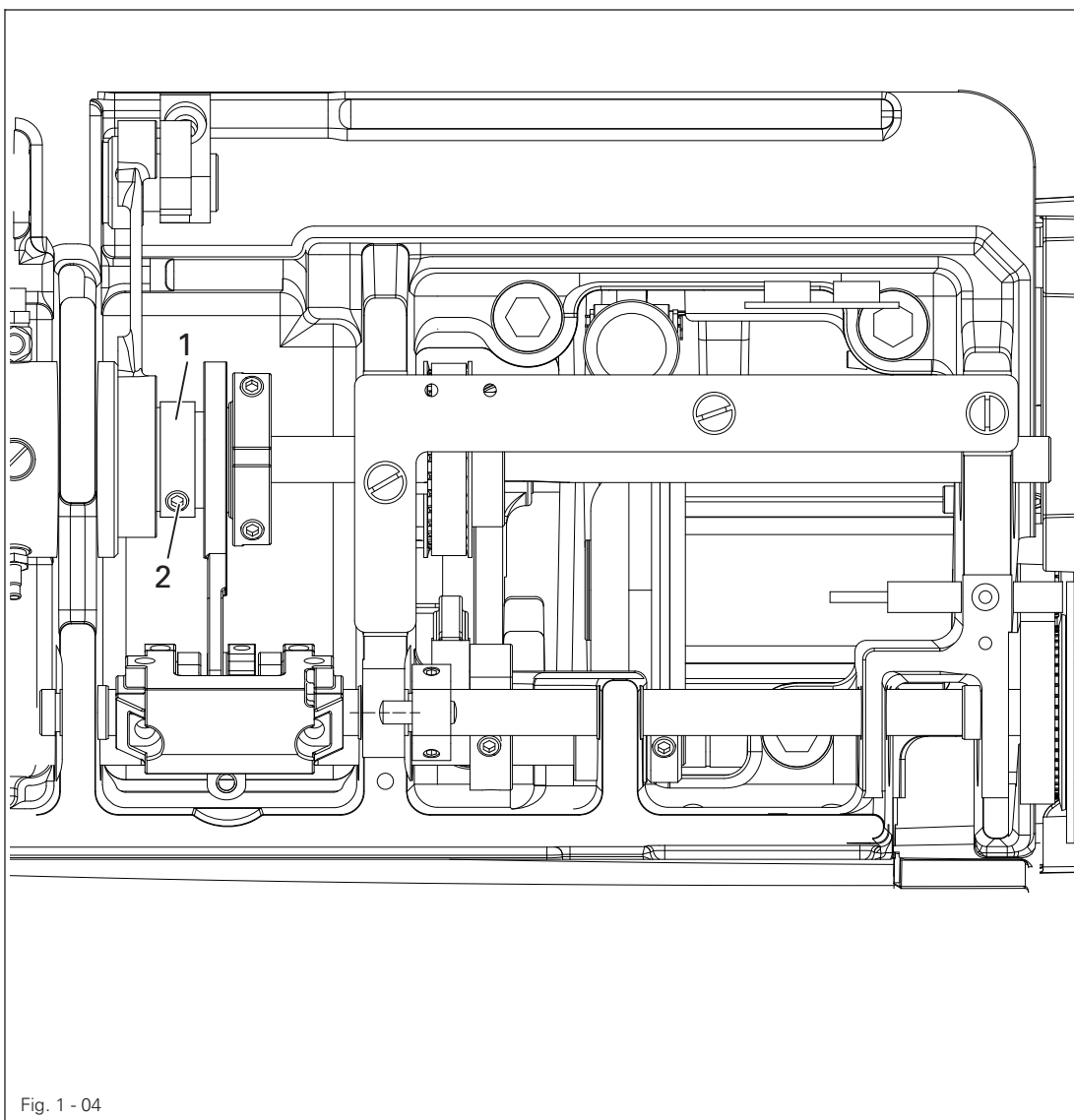
- Adjust eccentric **1** (screws **2**) in accordance with the requirement. Make sure that the cut-out (see arrow) is visible.

Adjustment

1.05.04 Feeding motion of the bottom feed dog

Requirement

When the balance wheel is positioned at **180°**, the feed dog should be at t.d.c.

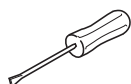
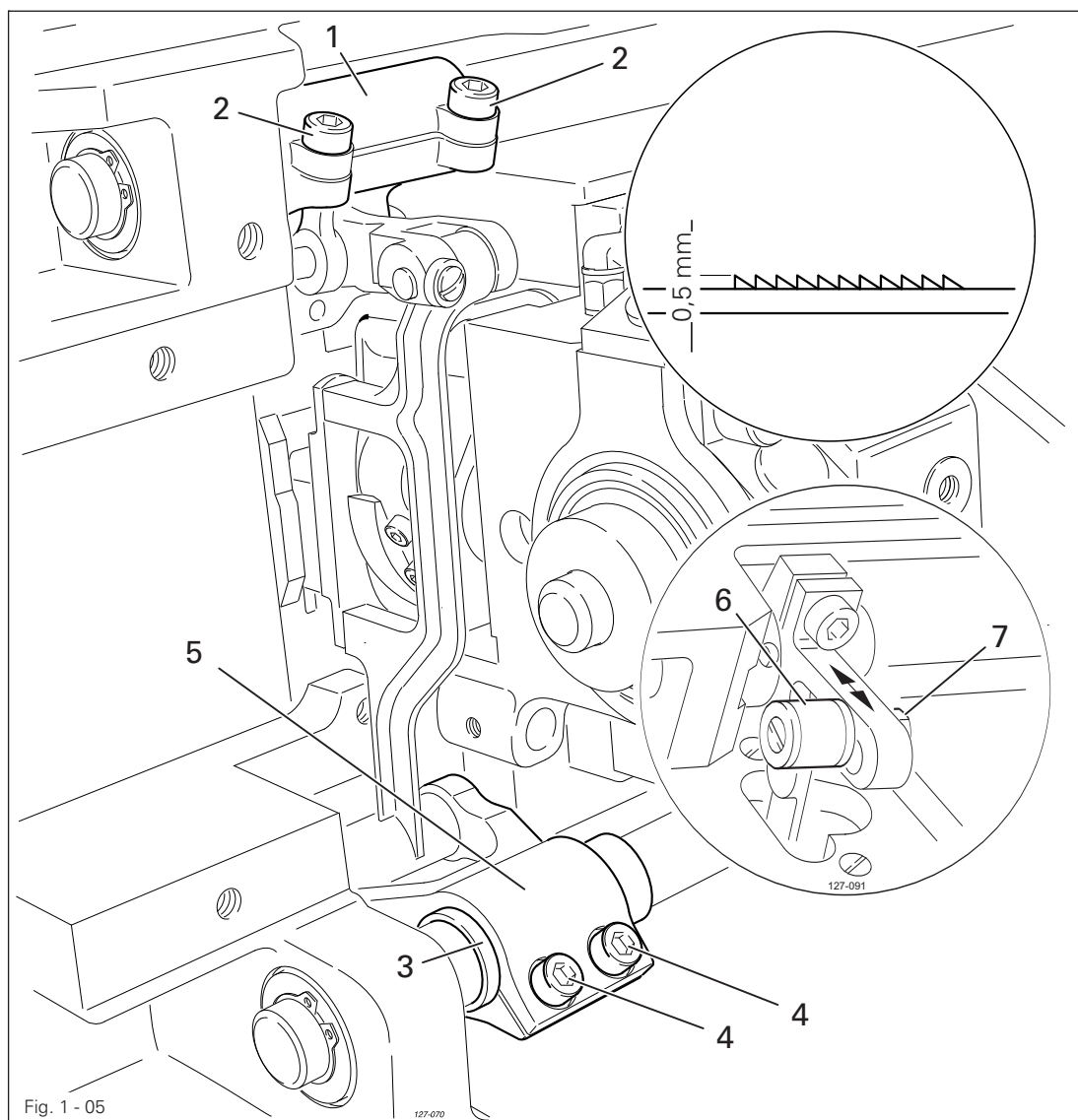


- Adjust eccentric 1 (screws 2) in accordance with the requirement.

1.05.05 Height of the bottom feed dog

Requirement

1. When the needle bar is positioned at b.d.c. (balance wheel position **180°**), the bottom feed dog should be positioned **0.5 mm** horizontally above the top edge of the needle plate, when crank **6** is in the centre of the slot.
2. The bottom feed dog should be positioned in the centre of the needle plate slot.



- Turn lifting crank **1** (screws **2**) in accordance with requirement 1.
- Adjust eccentric sleeve **3** and feed bar **5** (screws **4**) in accordance with requirement 2

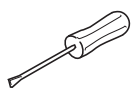
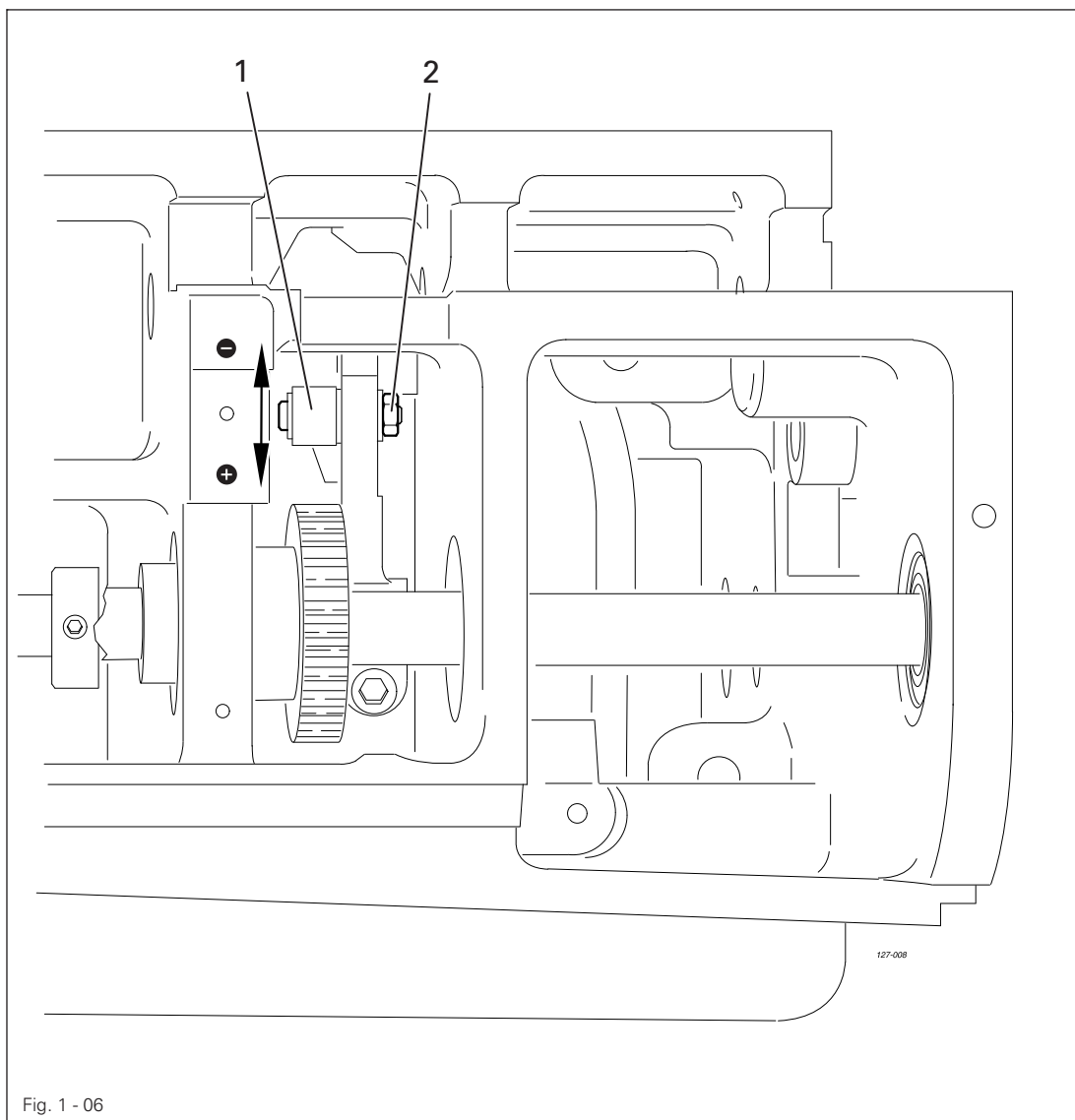


The height of the bottom feed dog can be increased or reduced by moving crank **6** (nut **7**) up or down.

1.05.06 Feeding stroke difference

Requirement

With the maximum stitch length set, when the balance wheel is turned the feeding strokes of the needle and the bottom feed dog should be the same.

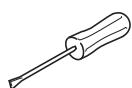
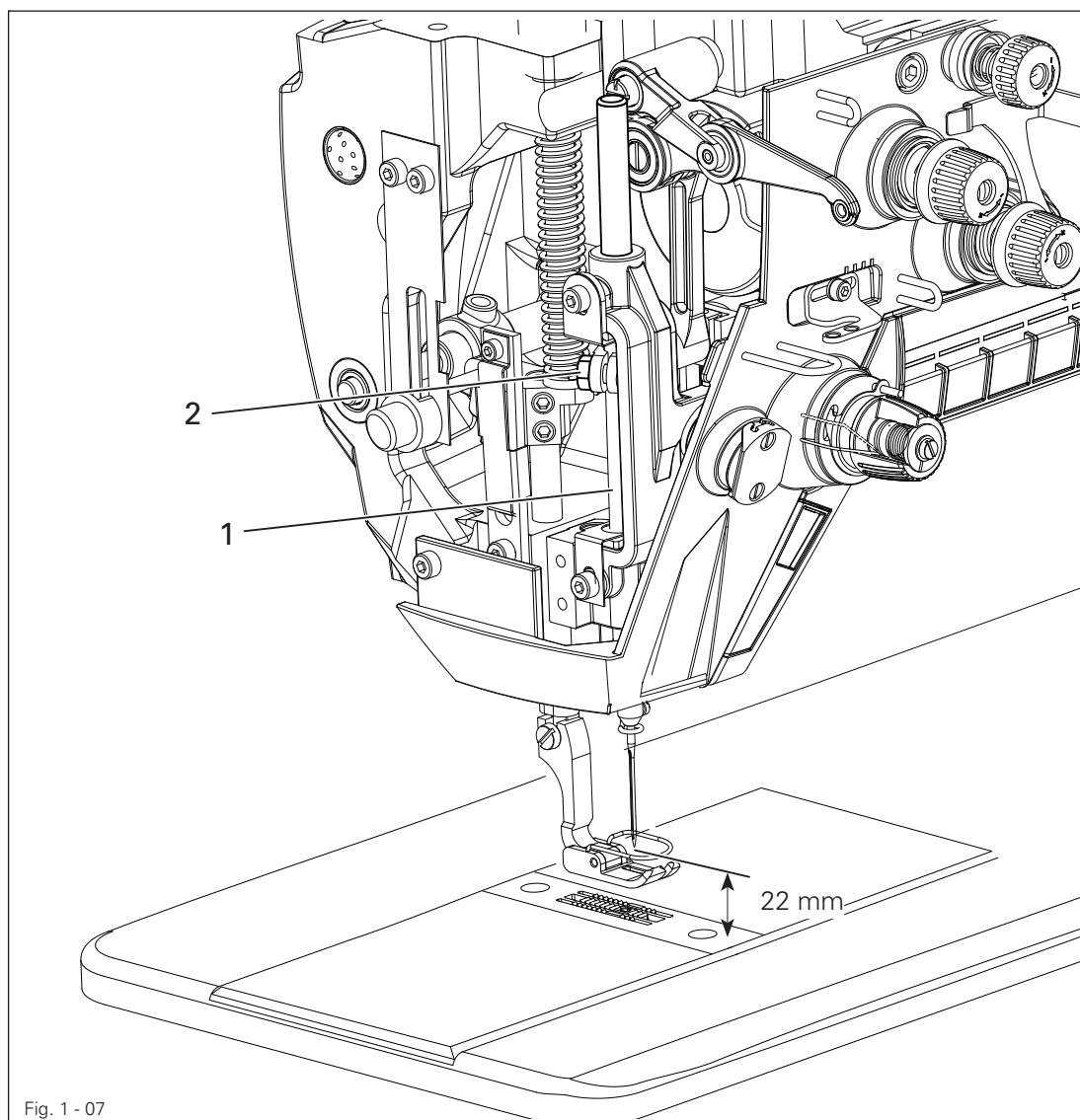


- With connecting rod 1 (nut 2) increase ("+") or reduce (-) the needle feed stroke in accordance with the requirement.

1.05.07 Preliminary adjustment of the needle height

Requirement

When the needle bar is positioned at t.d.c. (balance wheel position 0°), the clearance between the needle point and the needle plate should be 22 mm.



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

1.05.08 Needle rise, hook clearance, needle height and bobbin case position finger

Requirement

For stitch length setting "4.0" and needle bar position 2.0 mm to u.T.

(= handwheel position 202°):

1. The hook point should be positioned at needle centre with a needle cut clearance of 0.05 – 0.10 mm.
2. The top of the needle eye should be positioned 0.8 mm below hook point 6.
3. Needle guard 7 should slightly touch the needle.

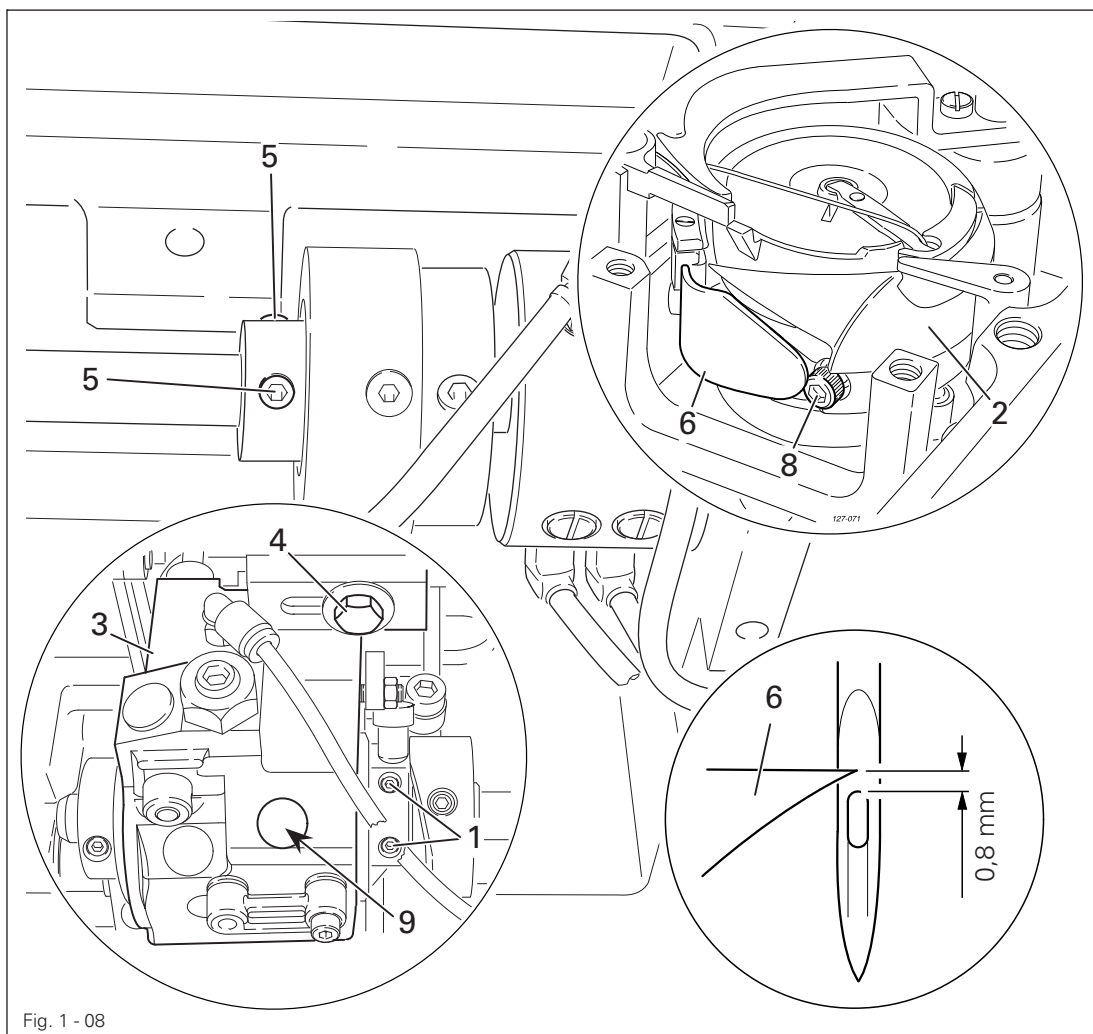
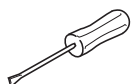


Fig. 1 - 08



- Loosen both screws of the gear drive of hook 1 (under cover 2).
- Adjust hook 1 and hook bearing 3 (screws 4 and 5) in accordance with requirement 1.
- Without turning it, re-position the needle bar in accordance with the requirement 2, also see Chapter 1.05.08 Preliminary adjustment of the needle height.
- Adjust needle guard 7 (screw 8) in accordance with requirement 3.
- Set a low cog clearance for screw 9.

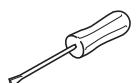
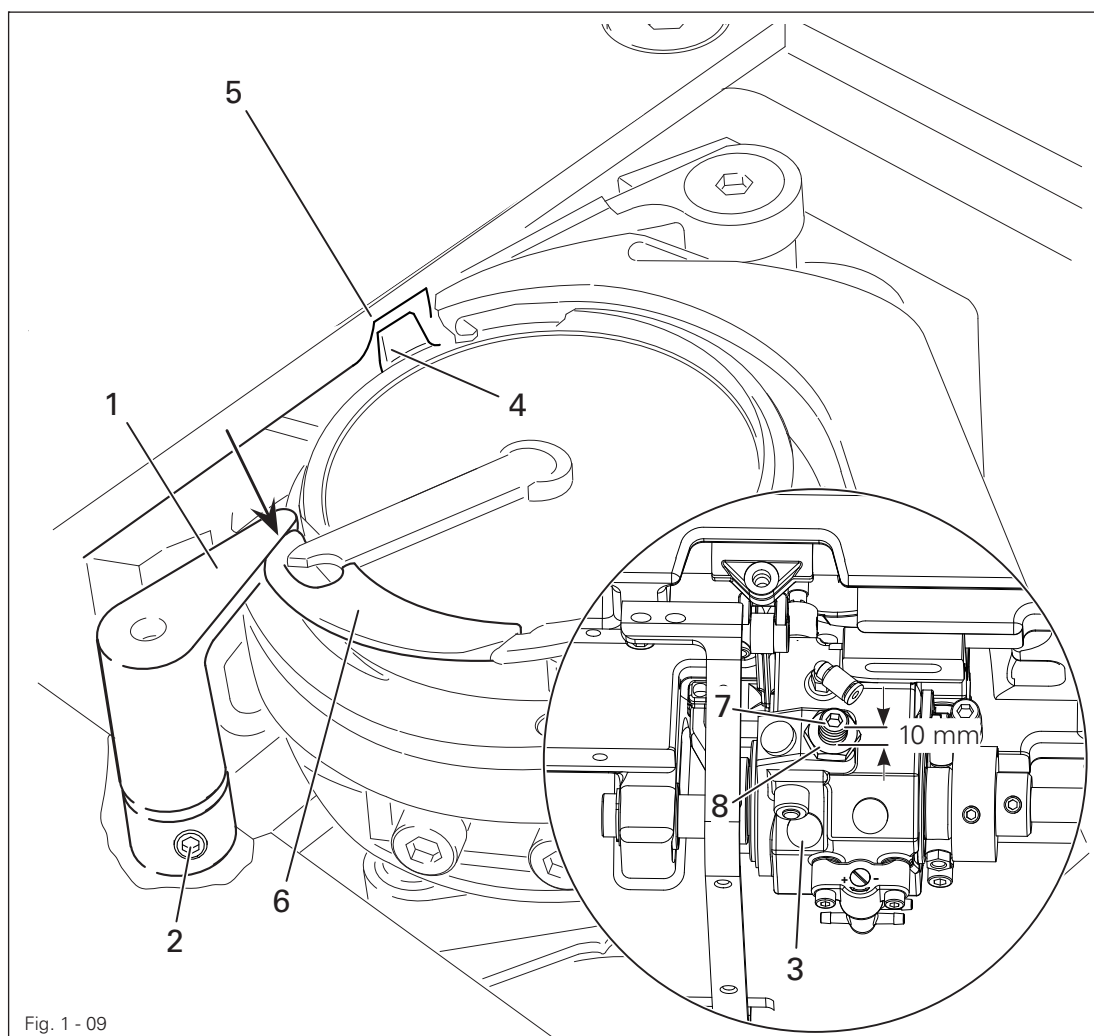


If the needle size is changed, a quick adjustment of hook bearing 3 is possible, after loosening screws 4 and 5.

1.05.09 Bobbin case opener

Requirement

1. When turning the handwheel, the horn 4 should be lifted off the stitch platen 5 on the right turning point of the bobbin lift 1 by the thread thickness.
2. Bobbin lift upper edge, and lower bobbin upper edge should be at same level.
3. Bobbin lift 1 should be in the right turning point at handwheel position "300°".
4. Screw 7 to the return spring of the bobbin lift should be positioned approx. 10 mm above the lock nut 8.



- Bobbin lift 1 (screw 2) must be turned and moved according to **requirements 1 and 2**.
- Excenter (screw under cover 3) must be turned in accordance with **requirement 3**.
- Adjust screw 7 (nut 8) in accordance with **requirement 4**.

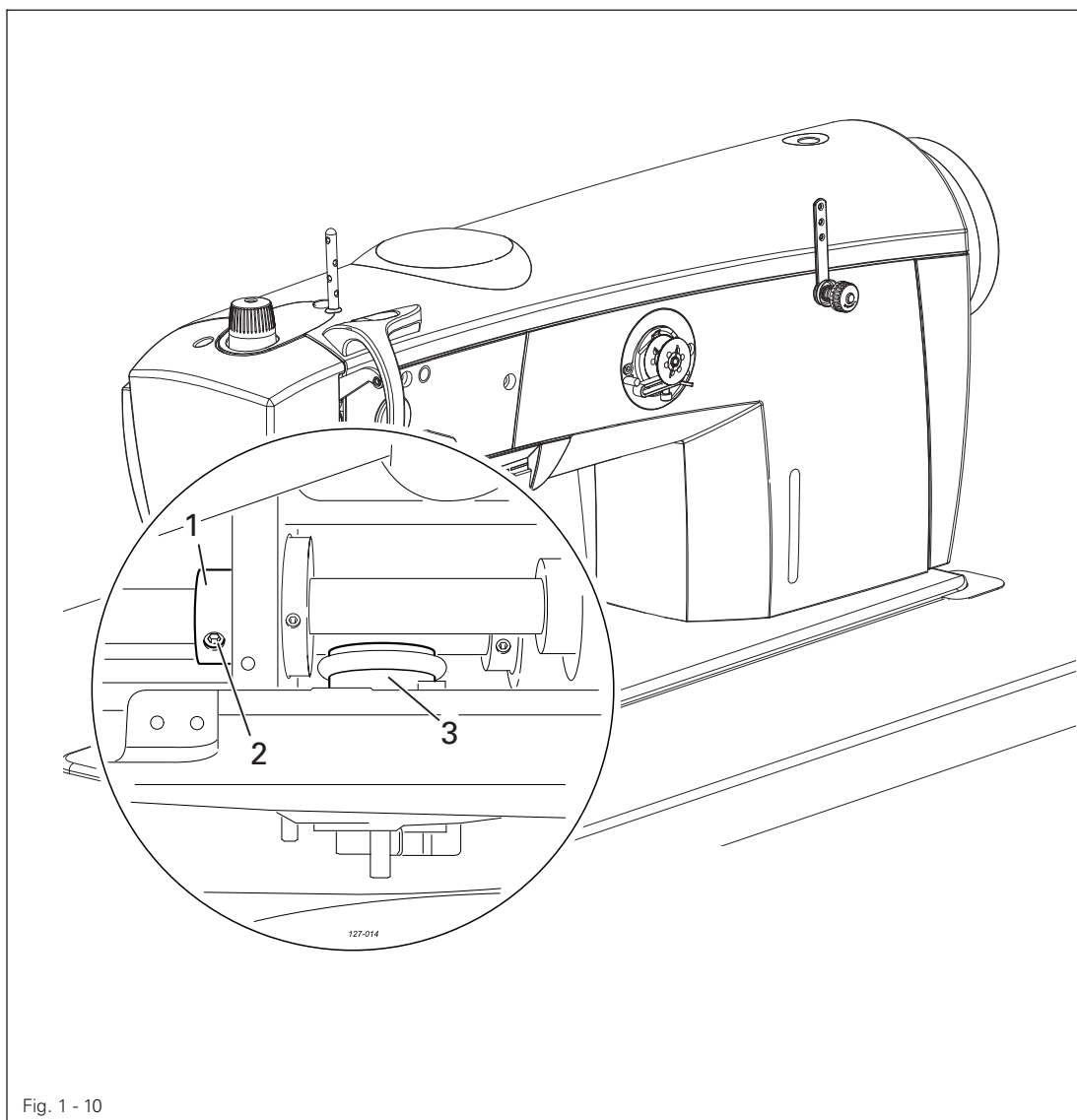


The thread must be able to pass unhindered between bobbin case opener 1 and bobbin case 6

1.05.10 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**.

1.05.11 Thread check spring and thread regulator

Requirement

1. The movement of thread regulator **3** must be completed when the needle point enters the material (spring stroke approx. **7 mm**).
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**.

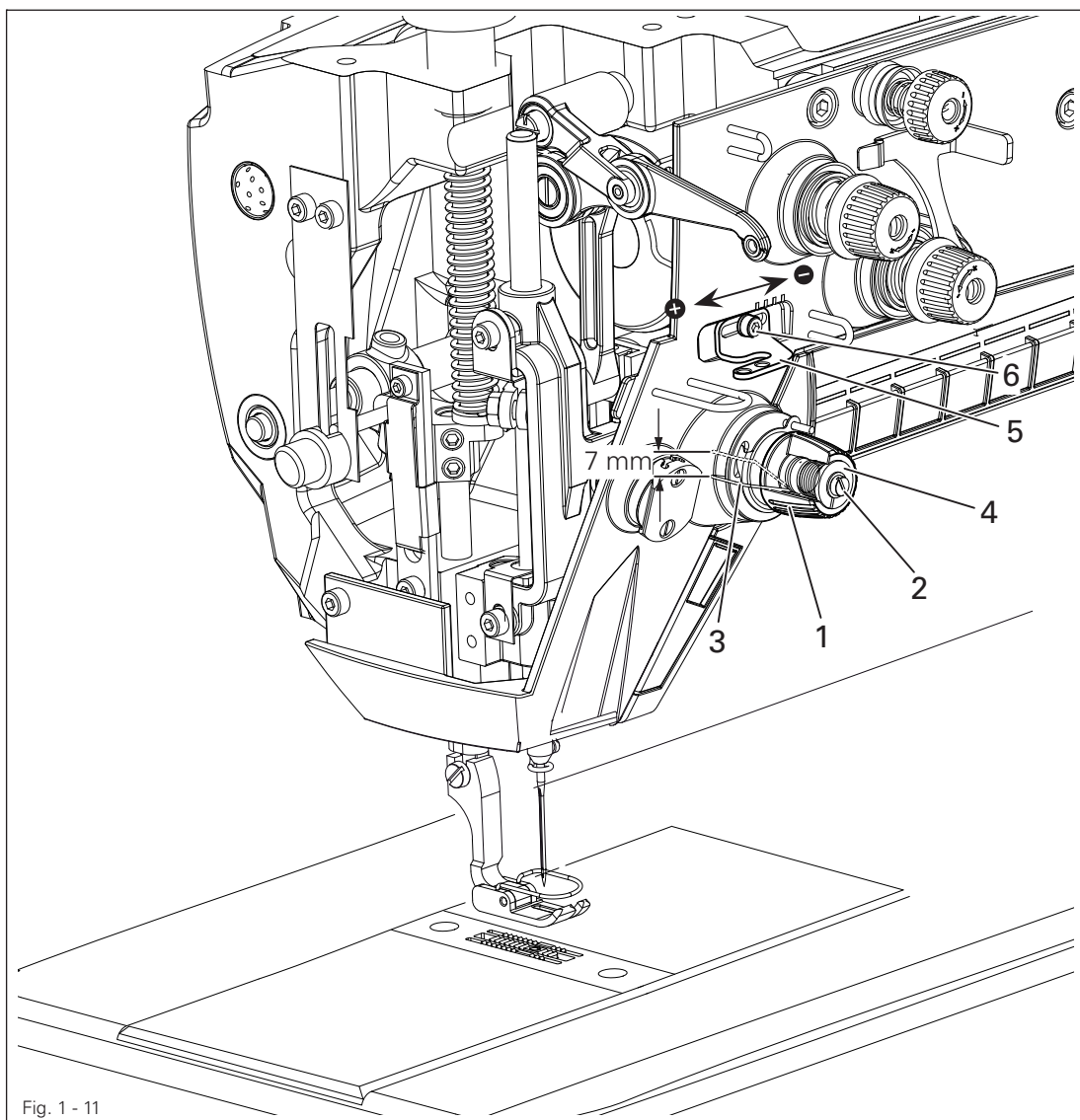
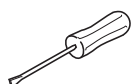


Fig. 1 - 11



- 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)

1.05.12 Sewing foot pressure

Requirement

The material should be fed properly even at maximum speed and with the smallest stroke.

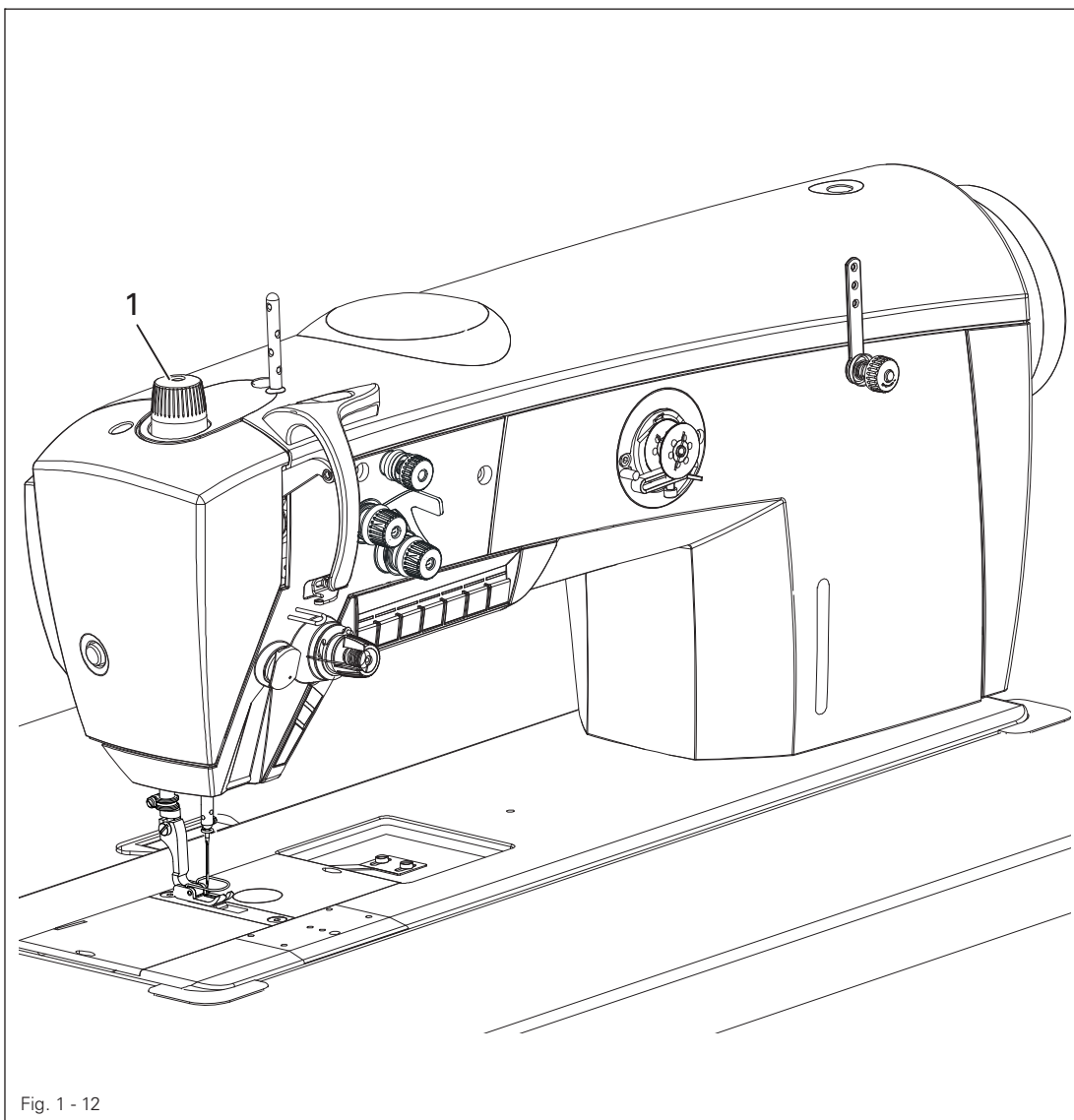
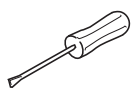


Fig. 1 - 12



- Turn adjustment wheel 1 in accordance with the requirement.

1.05.13 Lubrication

Requirement

After 10 seconds operation at **800 rpm**, a light oil strip should appear on a paper strip held to the clamp foot.

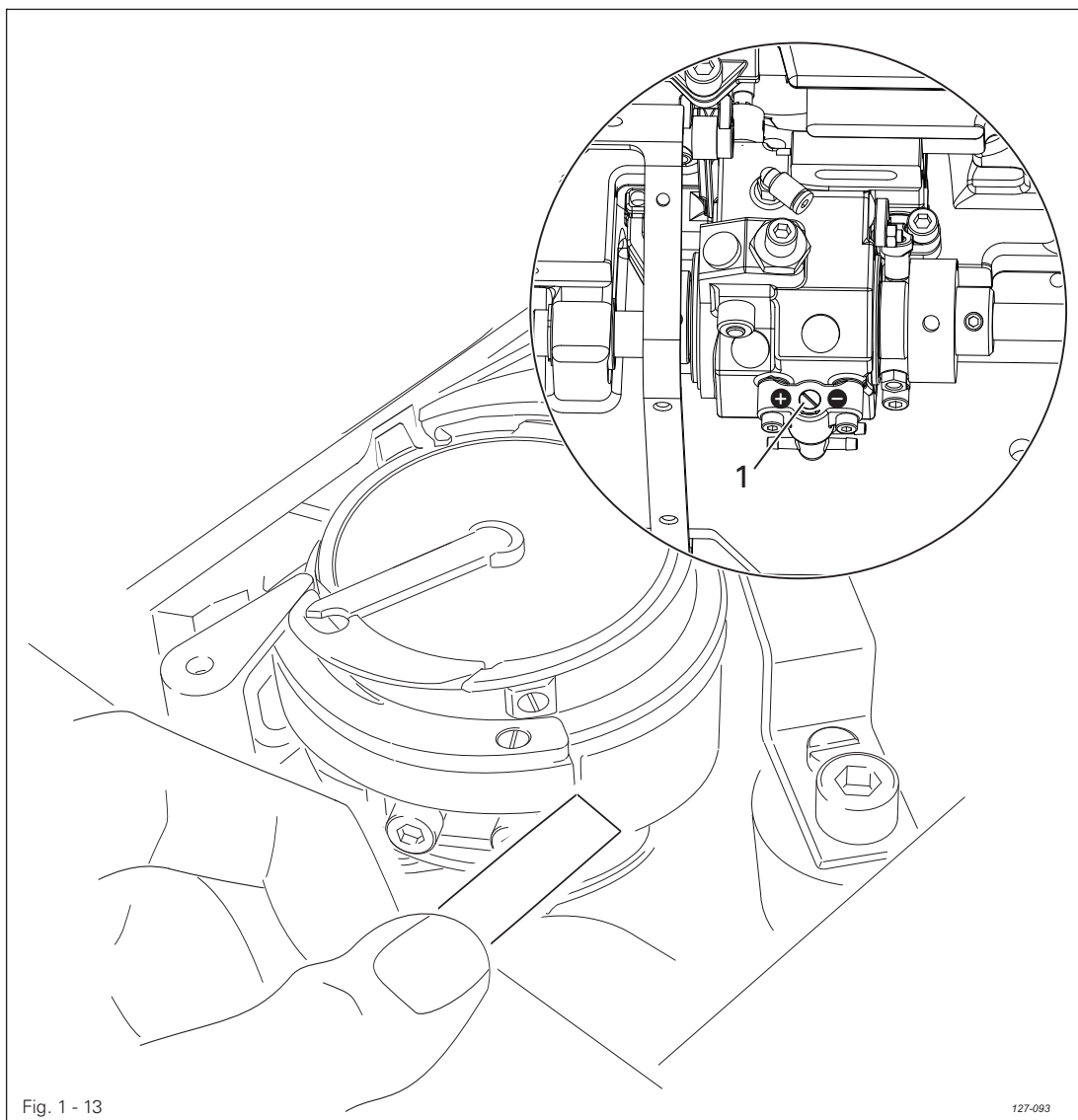
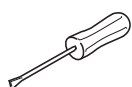


Fig. 1 - 13

127-093



- Check that the machine is filled with oil and that the oil lines are free of air.
- Run the machine for **2 – 3 min.**



Do not put your hands into the needle area when the machine is running!
Danger of injury from moving parts!

- With the machine running, hold the paper strip against the hook and check the requirement.
- If necessary, regulate amount of oil with screw **1**

1.05.14 Reengaging the slip clutch



Clutch 1 is pre-set by the manufacturer. If the thread jams, clutch 1 disengages in order to avoid damage to the hooks.

Below is a description of how to engage clutch 1.

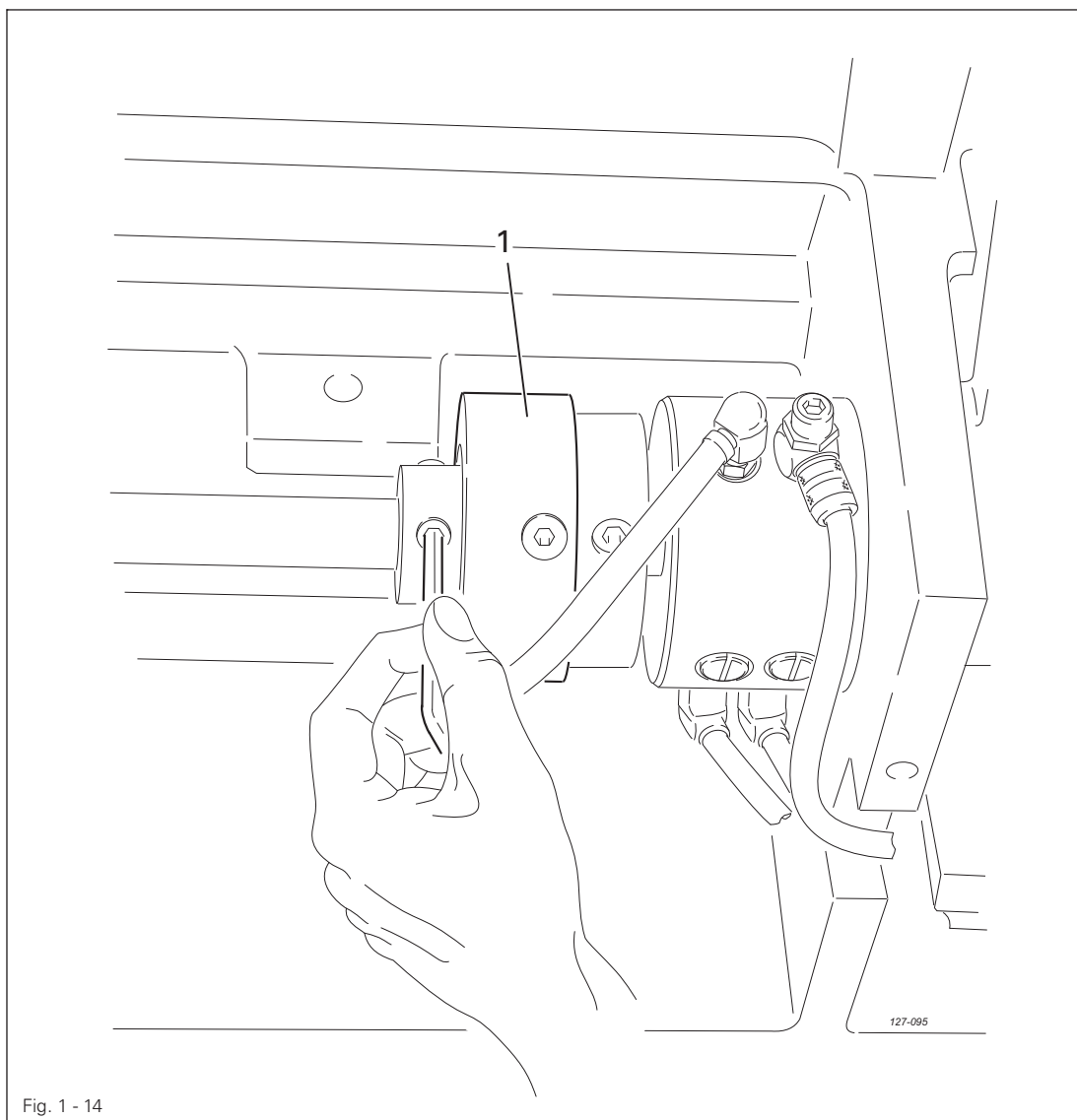
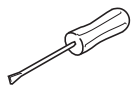


Fig. 1 - 14



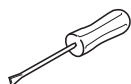
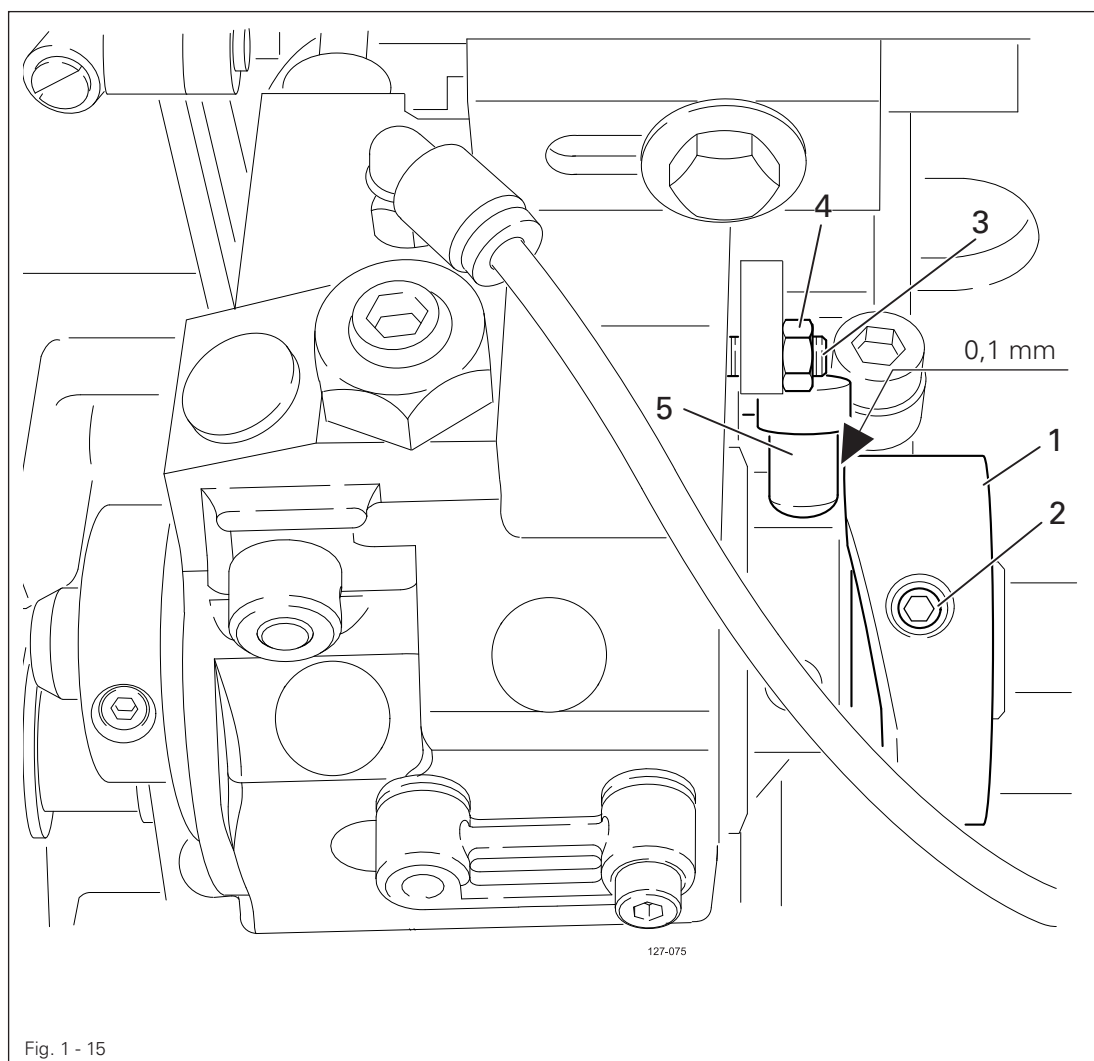
- Eliminate the jammed thread.
- Brace clutch 1 as shown in Fig. 1-18, and turn the balance wheel until you feel clutch 1 engage again.

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 take-up lever is at t.d.c. (balance wheel position 60°), control cam 1 should just have moved roller lever 5 into its basic position.
2. When the thread trimmer is in its resting position, there should be a clearance of 0.1 mm between roller lever 5 and control cam 1.

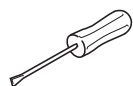
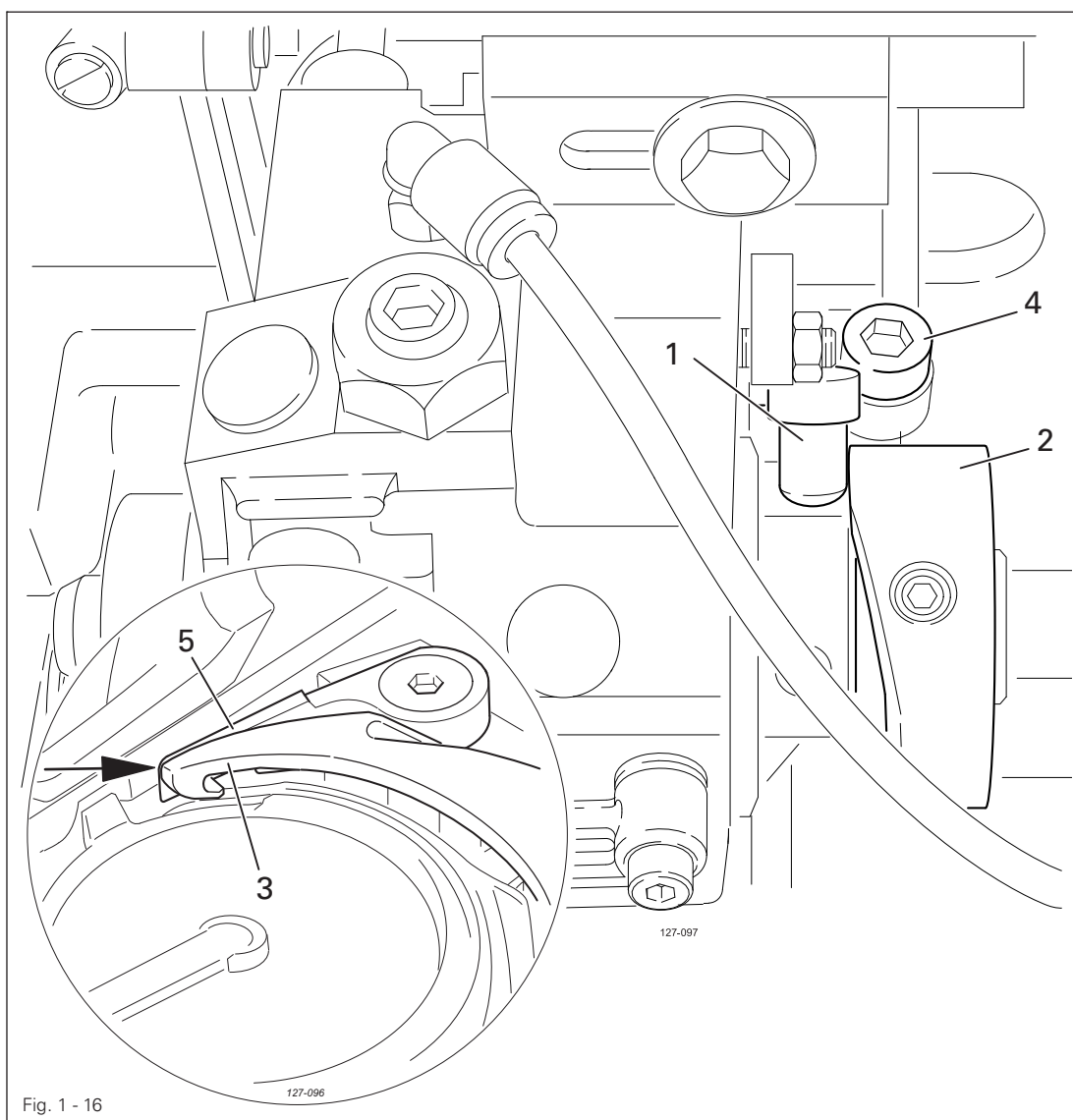


- Adjust control cam 1 (screws 2) in accordance with requirement 1.
- Adjust screw 3 (nut 4) in accordance with requirement 2

1.06.02 Position and height of the thread catcher

Requirement

When the needle bar is positioned at b.d.c. (balance wheel position 180°) the edges of thread catcher **3** and knife **5** should be flush (see arrow).



- Press roller lever **1** against control cam **2**.
- Adjust thread catcher **3** (screw **4**) in accordance with the requirement



The height of thread catcher **3** is pre-set by the manufacturer and, if necessary, it can be adjusted with washers under thread catcher **3** on the base of the hook bearing.

1.06.03 Knife pressure

Requirement

When the front edge of thread catcher 3 is 5 – 6 mm in front of the knife blade, the knife 4 should be touching the catcher edge with slight pressure.

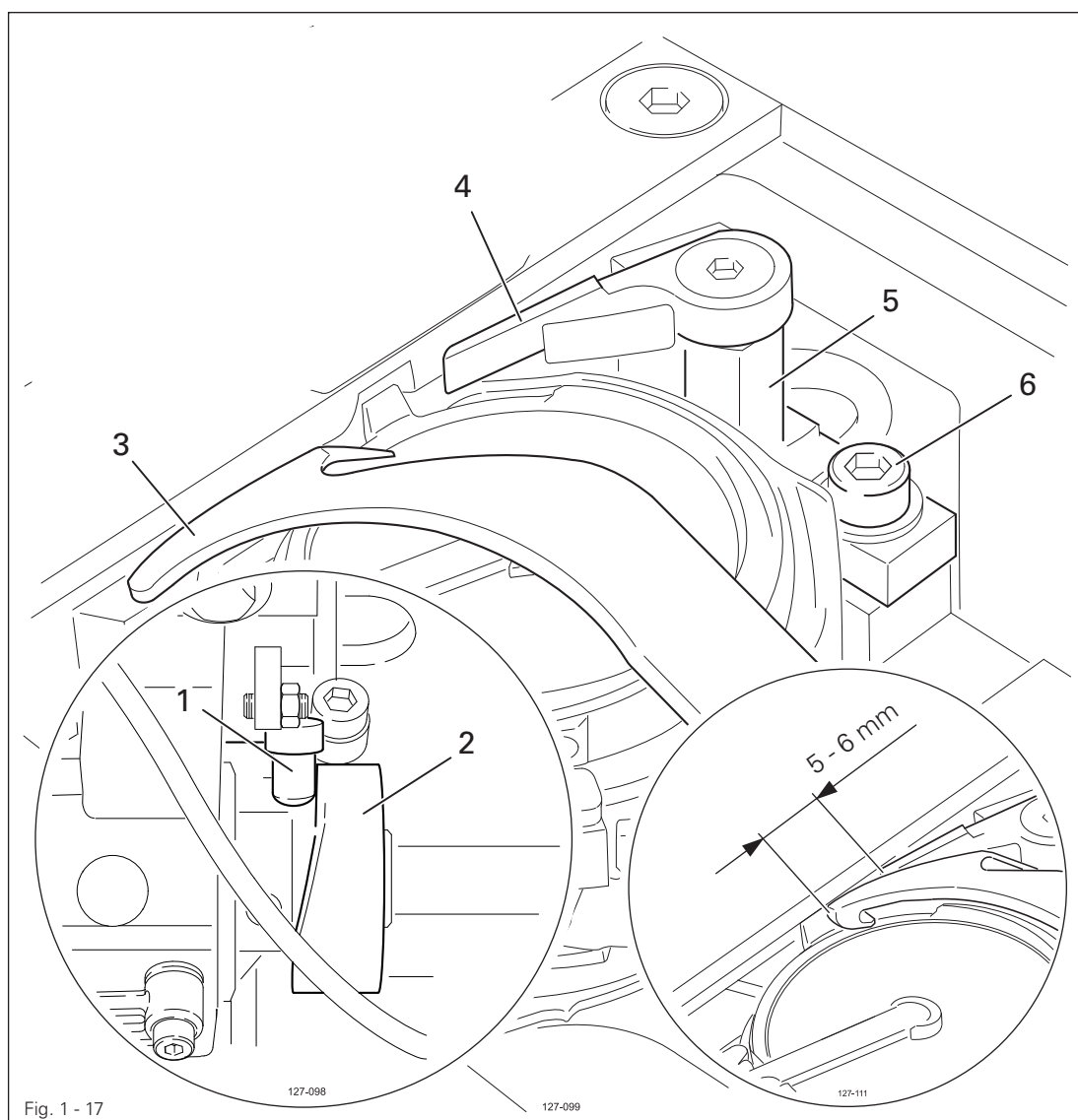
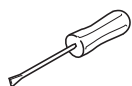


Fig. 1 - 17



- Bring the take-up lever to its b.d.c and press roller lever 1 into the control cam 2.
- Turn the balance wheel until the front edge of catcher 3 is at a distance of 5 – 6 mm from the blade of knife 4.
- Swing knife bearing 5 (screw 6) in accordance with the requirement.

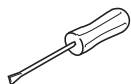
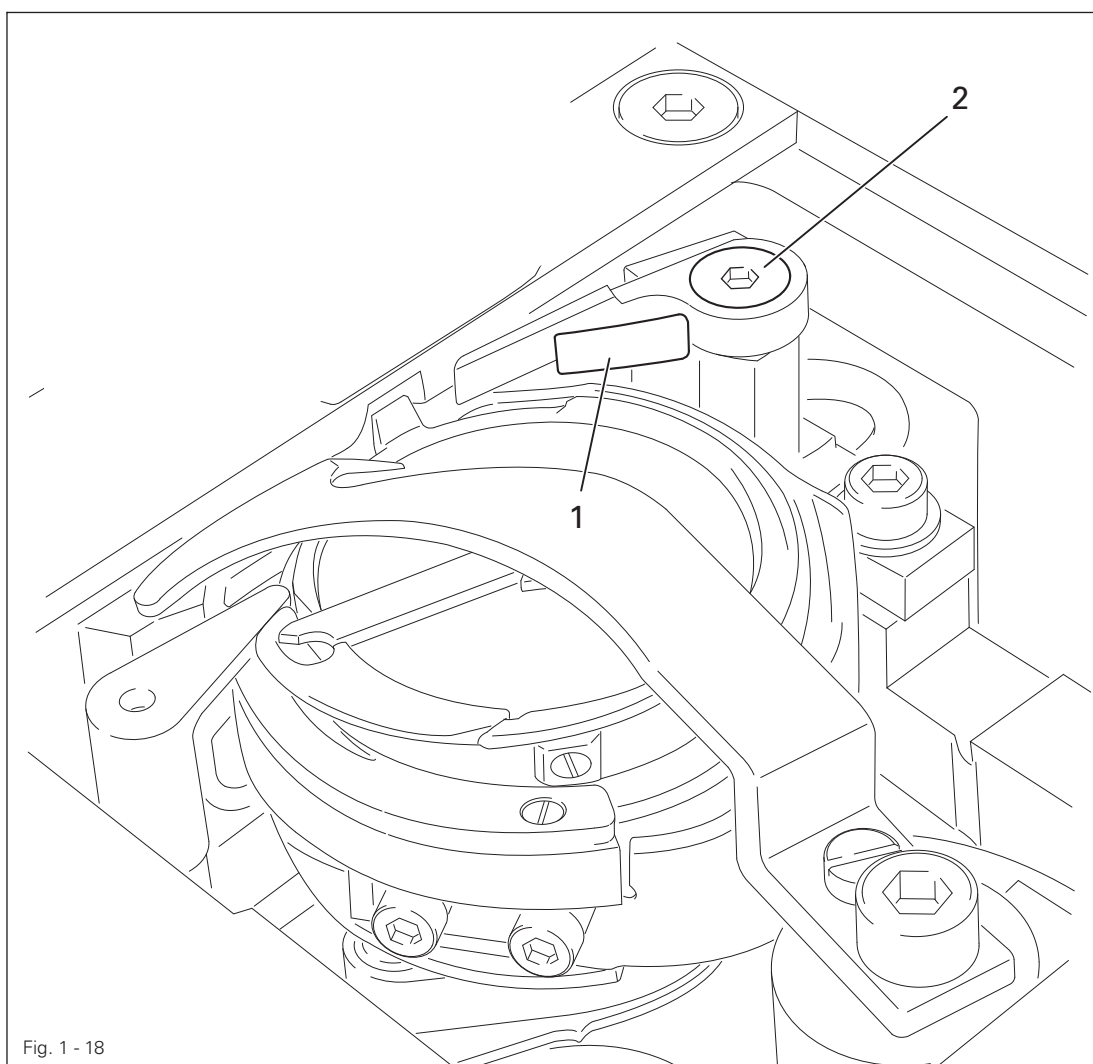


After completing the adjustment, recheck the position of the thread catcher in accordance with Chapter 1.06.02 Position and height of the thread catcher.

1.06.04 Bobbin thread clamp spring

Requirement

When the thread trimmer is in its cutting position, the clamp spring should slightly touch the thread catcher and hold the thread reliably.

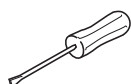
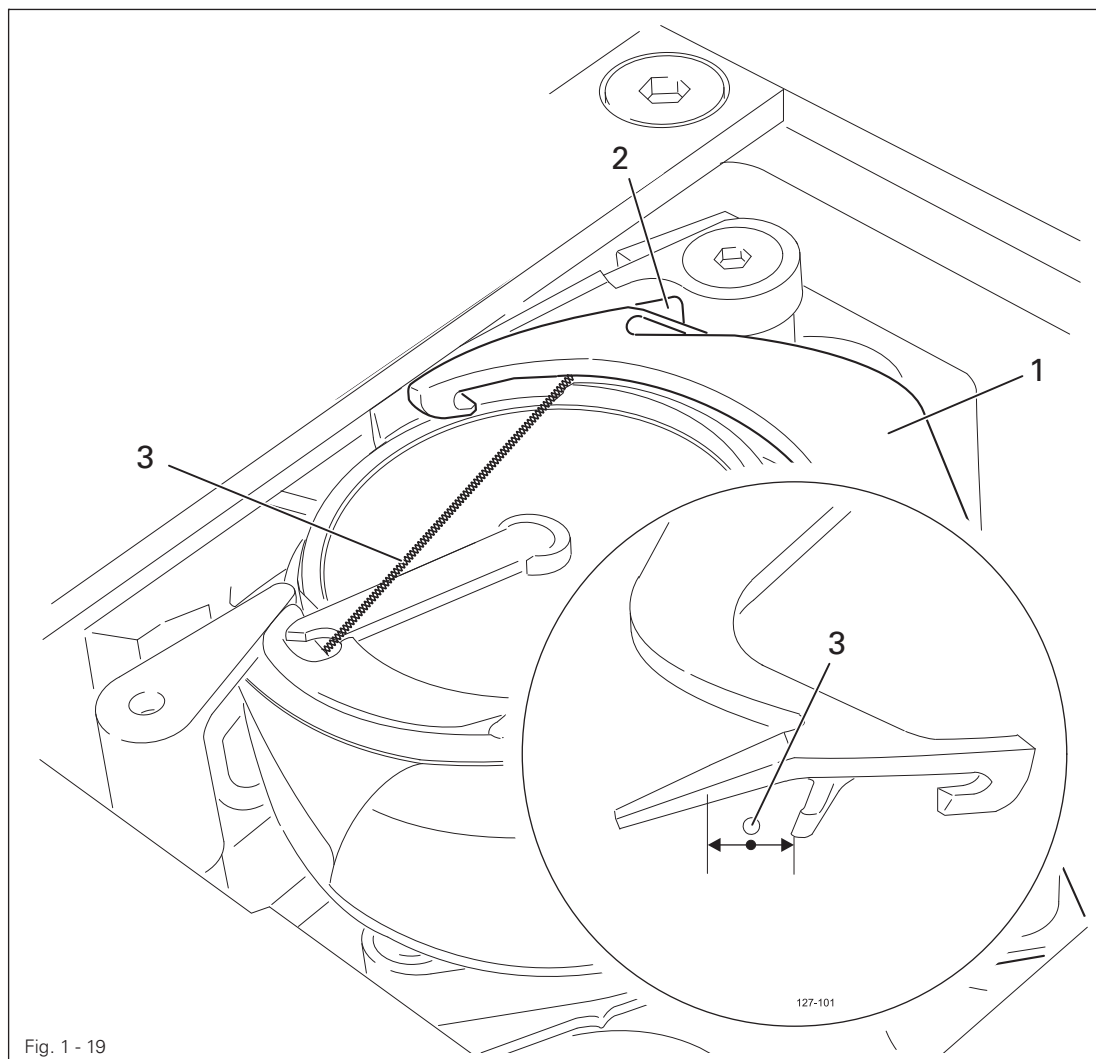


- Adjust clamp spring 1 (screw 2) in accordance with the requirement.
- Carry out the cutting operation by hand and check the setting. Readjust if necessary.

1.06.05 Manual cutting test

Requirement

1. When moving forward, thread catcher 1 must not move bobbin thread 3
2. When thread catcher 1 is at its front point of reversal, bobbin thread 3 should be in the centre of the marked area (see arrow).
3. After the cutting operation has been completed, needle and bobbin thread should be cut neatly and bobbin thread 3 should be held.



- Sew a few stitches.
- Switch of the main switch and the compressed air.
- Carry out a manual cutting test.
- Check requirement 1. If necessary, readjust thread catcher 1 in accordance with Chapter 1.06.02 Position and height of the thread catcher.
- Check requirement 3. If necessary, readjust bobbin thread clamp spring 2 in accordance with Chapter 1.06.04 Bobbin thread clamp spring.

1.07 Setup

1.07.01 Set reference position

- Log on as administrator or setter.



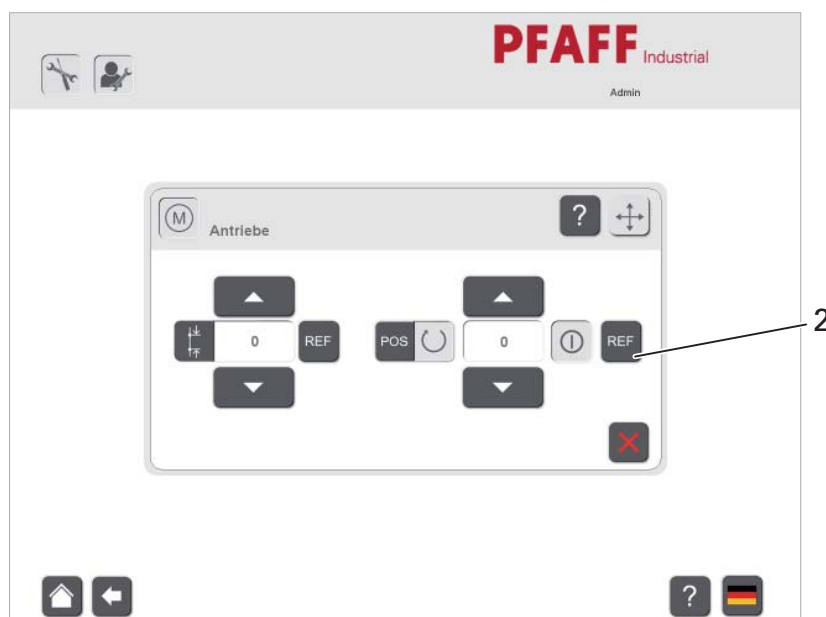
- Select function "Tools".



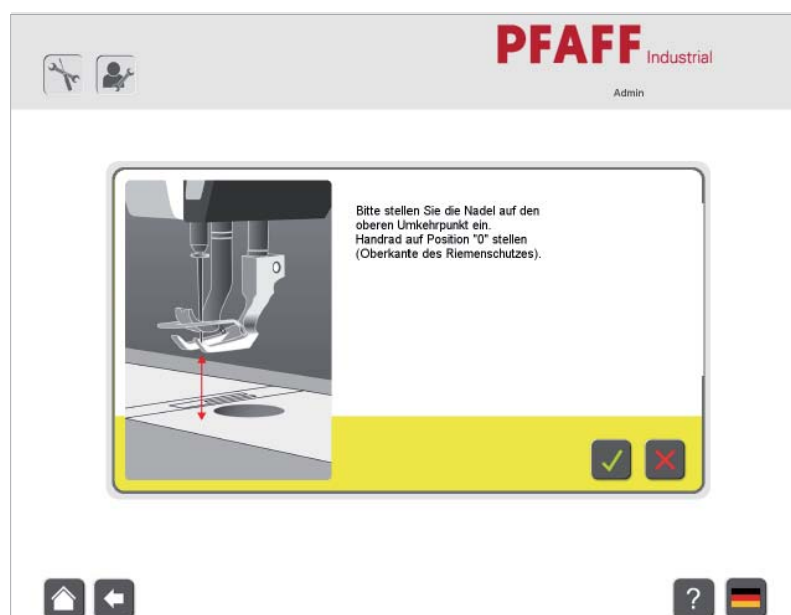
- Select function "Service".



- Select function "Drives".



- Select function "Reference" on button 2.



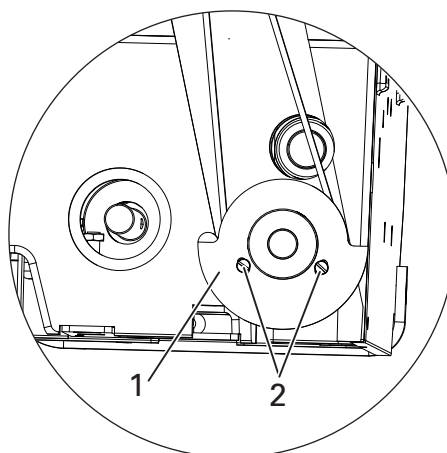
- Follow on-screen instruction on touch screen display.



- Finish input.

1.07.02 Stitch length adjustment

Enter stitch length "0" in programme "Manual", and check that no transport feed occurs. Adjust switching plate **1** (screws **2**) to stepper motor if required.



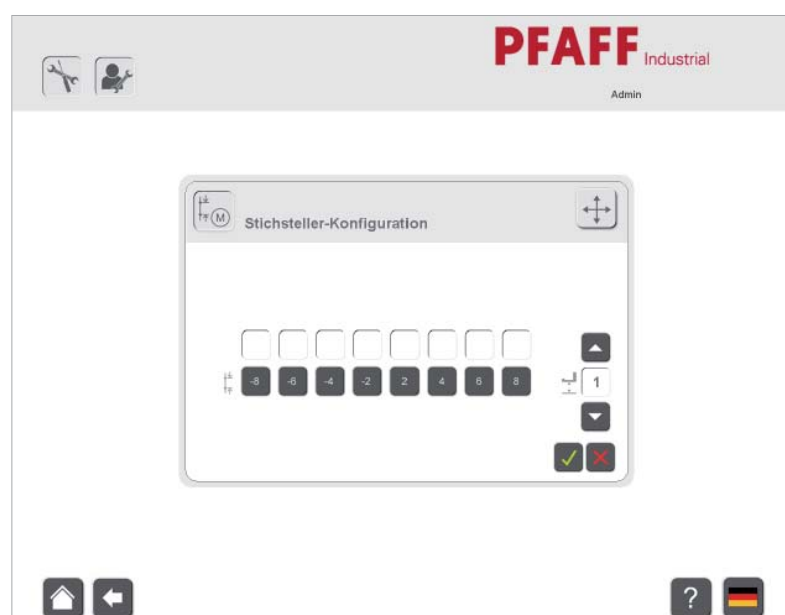
- Select function "Tools".



- Select function "Service".



- Select function "Stitch Platen Configuration"



- Select lift via buttons, e.g. "1".
- Press stitch length button, e.g. "4".
- Carry out a trial stitching and measure stitch length.
- If stitch length is too short or too long, enter the measured value above the selected stitch length and carry out another trial stitching.
- Repeat until stitch length is correct.
- Carry out setting procedure at each lift height and stitch length.



If bolt 6 should touch the casting in longer stitch lengths, and error 38 is displayed, then lever 7 (see **chapter 1.05.03 Top, Bottom and Needle Feed Zero Position**) must be adjusted.

1.07.03 Commissioning the scanner



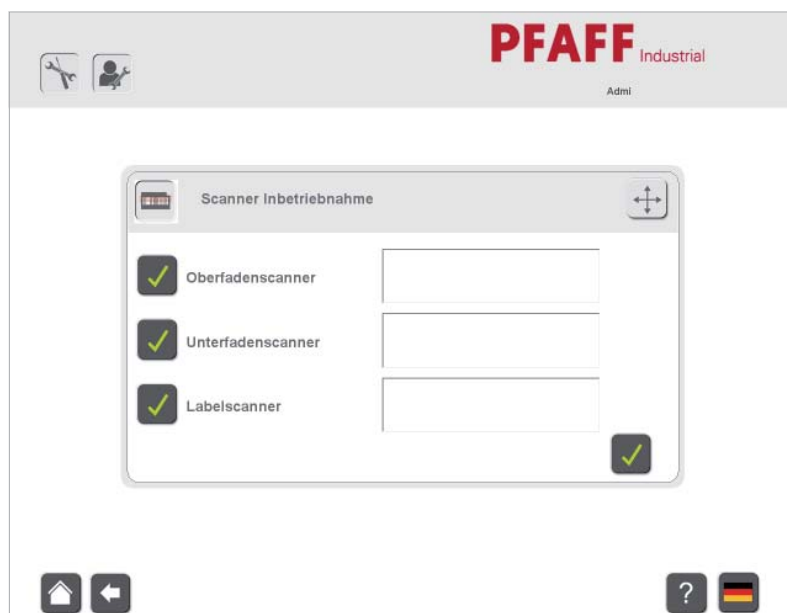
- Select function "Tools".



- Select function "Service".



- Select function "Scanner Commissioning".



- Switch the scanner on.
- Position the barcode.
- Set the scanner at the head of the machine in height and directionality, until the barcode is read continuously.



- Finish input.

1.08 Parameter settings

1.08.01 Selecting and altering the parameters

The parameter values can only be altered by the supervisor or the administrator.

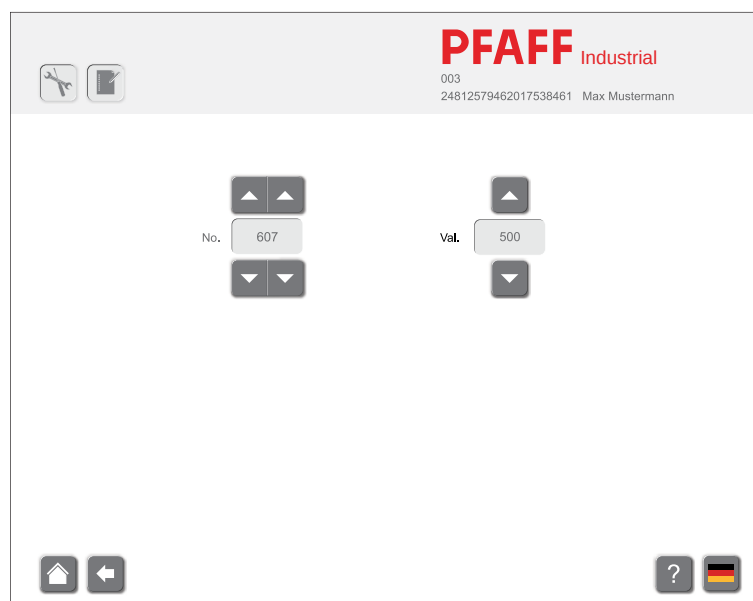
- Log in as administrator or supervisor.



- Select the "tools" function.



- Call up the menu for altering parameter values



- By tapping the appropriate arrow symbols select the desired parameter ("No.").
- By tapping the appropriate arrow symbols alter the value ("Val.") of the selected parameter.

1.08.02 Parameter list

Group	Parameter	Description	User level	Setting range	Set value
1	106	Speed for seam start ON = variable (pedal-related) OFF = constant	B, C	ON - OFF	OFF
	107	Speed for seam start ON = limited by program OFF = limited by parameter 607	B, C	ON - OFF	OFF
	112	No. of stitches req. for light barrier blank-out	A, B, C	0 - 255	0
	116	Soft start stitches (soft start)	A, B, C	0 - 255	0
	117	Soft start stitches (soft start)	B, C	60 - 2000	400
	118	Output is ON = needle cooling OFF = running motor	B, C	ON - OFF	ON
2	199	Speed for light barrier compensation stitches	B, C	300 - 6400	1200
	201	Transmitting capacity of laser diode of bobbin thread monitor 0 = off, 255 = max. luminosity	B, C	0 - 255	100
3	206	Program interruption/break-off of seam section at fixed speed ON = with pedal -2 OFF = with pedal 0	B, C	ON - OFF	OFF
	307	Delay time till stop of needle cooling after machine stop	B, C	0 - 2000	50
	311	Stitch-counting stop ON = with thread trimming OFF = without thread trimming	B, C	ON - OFF	ON
	323	No. of forward stitches for programmable start tack	B, C	1 - 9	2
	324	No. of reverse stitches for programmable start tack	B, C	1 - 9	1
	325	Speed of programmable start tack	B,C	200 - 1500	700
	326	No. of repeats of programmable start tack	B, C	1 - 10	3
	329	No. of forward stitches for programmable end tack	B, C	1 - 9	2
3	330	No. of reverse stitches for programmable end tack	B, C	1 - 9	1

Group	Parameter	Description	User level	Setting range	Set value
3	331	Speed of programmable end tack	B,C	100 - 1500	700
	332	No. of repeats of programmable end tack	B,C	1 - 10	3
	368	Start tack / ornamental start tack ON = quadruple, OFF = double	B, C	ON - OFF	OFF
4	401	Input "stroke adjustment"  ON = switch operation OFF = key operation	B, C	ON - OFF	ON
	403	Delay till speed release to end of stroke adjustment [ms]	B, C	0 - 2500	150
	404	Stitch number with stroke adjustment	B, C	0 - 250	1
5	587	Speed limit at stroke 2	B,C	300 - 5000	2900
	588	Speed limit at stroke 3	B,C	300 - 5000	2000
	589	Speed limit at stroke 4	B,C	300 - 5000	1100
6	606	Minimum speed	B,C	30 - 650	180
	607	Maximum speed	B,C	300 - 3200	2500
	608	Speed phase curve (pedal characteristic) ON = linear OFF – non-linear	B,C	ON - OFF	OFF
	609	Cutting speed	B,C	60 - 300	180
	615	End recognition with light barrier ON = from bright to dark OFF = from dark to bright	B,C	ON - OFF	OFF
	618	Return after end of seam ON = yes OFF = no	B,C	ON - OFF	ON
	623	Switch-on delay for return [ms]	B,C	0 - 2000	50
	634	Function of external key for feed changeover  ON = feed changeover at standstill and with machine running OFF = feed changeover with machine running only	B,C	ON - OFF	ON

Group	Parameter	Description	User level	Setting range	Set value
6	636	Thread tension release in connection with presser foot ON = yes OFF = no	B,C	ON - OFF	OFF
	644	No. of knotting stitches	B,C	1 - 20	0
	653	Bearing position before sewing ON = yes OFF = no	B,C	ON - OFF	OFF
	660	Bobbin thread monitoring ON = off OFF = with sensor	A,B,C	0 - 1	1
	665	Running lock/stop when ON = contact closed OFF = contact open	B,C	ON - OFF	ON
	668	Thread wiper ON = yes OFF = no	B,C	ON - OFF	OFF
	688	Thread tension release in connection with the presser foot during intermediate stop, if parameter 636 is at = 1 ON = yes, OFF = no	B,C	ON - OFF	ON
	695	Function of "needle position change" key  1 = Needle raised without trimming 2 = Needle position change 3 = Single stitch 4 = Single reverse stitch 5 = Move forward to a needle position step by step 6 = programmable tack on / off 7 = proceed to next sewing range	B,C	1 - 7	2
7	700	Needle position 0 (needle in t.d.c.)	B,C	0 - 359	110
	702	Needle position 1 (needle lowered)	B,C	0 - 359	140
	703	Needle position 2 (take-up lever raised)	B,C	0 - 359	66
	705	Needle position 5 (end of cutting signal)	B,C	0 - 359	330

Group	Parameter	Description	User level	Setting range	Set value
7	706	Needle position 6 (start cutting signal)	B,C	0 - 359	214
	707	Start thread tension release	B,C	0 - 359	214
	710	Needle position 3 (needle raised)	B,C	0 - 359	0
	715	Switch-on time (ms) for thread wiper	B,C	0 - 2550	40
	716	Switch on delay time for thread wiper [ms]	B,C	0 - 2000	120
	718	Standstill brake tact (0 = brake off)	B,C	0 - 40	20
	722	Acceleration ramp for sewing motor 1 = flat 50 = steep	B,C	1 - 50	40
	723	Brake ramp for sewing motor 1 = flat 50 = steep	B,C	6 - 60	45
	727	Bobbin monitoring effected ON = sewing motor stop and signal lamp on OFF = signal lamp on	B,C	ON - OFF	ON
	729	Start delay after presser foot lowered	B,C	10 - 2550	140
	730	Lift delay for presser foot after seam end	B,C	0 - 2000	100
	750	Increased standstill brake in case of docu-seam error	B,C	0 - 100	70
	760	Remaining no. of stitches after response of bobbin thread monitor during monitoring (fixed value x 10)	A,B,C	1 - 250	20
	770	Lift delay for presser foot at pedal position "-1"	B,C	10 - 2000	100
	778	Blowing time for cleaning thread monitor	B,C	10 - 5000	100
	780	 Function of "tack suppression" key 1 = Bartack inversion (once) 2 = Bartack suppression (all bartacks switched off) 3 = Reverse move to needle position by step 4 = Edge trimmer on /off 5 = programmable tack on / off	B,C	1 - 5	1

Group	Parameter	Description	User level	Setting range	Set value
7	781	Fade-out stitches for light barrier	B,C	0 - 20	0
	789	Needle position 10 (bearing position)	B,C	0 - 359	71
	793	Delay till start knotting stitches	B,C	0 - 2000	140
	799	Selected machine class	C	1 - 1	1
8	800	Motor rotation direction with view of V-belt pulley 1 = anti-clockwise 0 = clockwise	C	0 - 1	1
	801	Reverse angle after seam end	B,C	10 - 200	31
	802	Gear reduction main drive 1 = variable 0 = 1:1	C	0 - 1	1
	814	Switch-over positioning process 1 = Ramp brake in target position 2 = Max. brake on positioning speed and wait till target position is reached.	C	1 - 2	2
	815	Rotor position definition after mains ON 1 = with rotary field 2 = with current impulse	C	1 - 2	1
	880	Starting current max. [A]	C	1 - 20	10
	881	Proportional amplification of speed control of sewing motor	C	10 - 1000	250
	884	Integral amplification of speed control of sewing motor	B,C	3 - 24	18
	885	Proportional amplification of position controller for sewing motor	C	10 - 80	40
	886	Differential amplification of position controller (sewing motor)	C	1 - 30	24
	887	Time for position control (0 = always)	C	1 - 20	10
	889	Proportional amplification of superordinate position controller for stop brake	C	0 - 2500	200

Group	Parameter	Description	User level	Setting range	Set value
8	890	Variant MINI-motor 1 = long, 0 = short	C	1 - 10	5
	897	Variant MINI-Motor 1 = long, 0 = short	C	0 - 1	1
	898	Motor current limitation 1 = 15A, 0 = 10A	C	ON - OFF	ON
9	900	Additional P-amplification of speed controller (sewing motor)	B,C	1 - 30	18
	901	Cutting release-speed	B,C	30 - 500	300
	933	Switchover of screen display >1 = diagnosis 0 = normal display	C	0 - 3	0
	969	Switch off angle for presser foot during thread pulling at beginning of seam	B,C	0 - 359	255
	985	Angle for thread clamp switch on	B,C	0 - 359	224
	986	Angle for thread clamp switch off	B,C	0 - 359	54
	989	Thread clamp at beginning of seam 0 = thread clamp off 1 = thread clamp without presser foot lift 2 = thread clamp with presser foot lift	B,C	0 - 2	1
	996	Timer thread clamp (max. switch-on time of electrical thread clamp after end of thread [100 ms])	B,C	0 - 600	100
10	1001	Switchover position stepping motor feed regulator	B,C	0 - 359	100
11	1101	Rotating direction stepping motor (feed regulator) 1 = anti-clockwise 0 = clockwise	B,C	0 - 1	1
	1102	Stepping mode stepping motor (feed regulator) 1 = full step 2 = half step 3 = quarter step 4 = eighth step	B,C	0 - 4	4

Group	Parameter	Description	User level	Setting range	Set value
11	1103	Max. current in % stepping motor (feed regulator)	B,C	1 - 100	80
	1104	Reducing current in % stepping motor (feed regulator)	B,C	0 - 100	60
	1105	Start stop time (time for one step at start stop speed) stepping motor (feed regulator)	B,C	5 - 1000	54
	1106	Roof time (time for one step at roof speed) stepping motor (feed regulator)	B,C	1 - 1000	20
	1107	Acceleration stepping motor feed regulator (percentage increase of start stop to roof speed)	B,C	1 - 100	10
	1108	Number of brake steps stepping motor (feed regulator)	B,C	1 - 200	12
	1110	Zero position step motor of the stitch adjuster	B,C	-100 - 100	0
12	1201	Rotation direction stepping motor thread tension 1 = anti-clockwise 3 = clockwise	B,C	0 - 1	0
	1202	Rotation direction thread tension 1 = full step, 2 = half step, 3 = quarter step, 4 = eighth step	B,C	0 - 4	2
	1203	Max. current in % stepping motor (thread tension)	B,C	1 - 100	100
	1204	Reducing current in % stepping motor (thread tension)	B,C	0 - 100	30
	1205	Start stop time stepping motor thread tension (time for one step at start stop speed)	B,C	-4000	300
	1206	Roof time stepping motor thread tension (time for one step at roof speed)	B,C	-2000	100
	1207	Acceleration stepping motor thread tension (percentage increase of start stop to roof speed)	B,C	-100	10

Group	Parameter	Description	User level	Setting range	Set value
12	1208	Brake steps stepping motor thread tension (number of brake steps)	B,C	-200	14
	1210	Correction value of reference position stepping motor thread tension	B,C	10 - 100	20
	1213	Zero position step motor thread tension	B,C	10 - 200	81
20	2010	Position compensation point for thread strength sensor, in degrees 0 – 359	B,C	0 - 359	200
	2011	Position measurement 1 (largest hook loop) in degrees 0 – 359	B,C	0 - 359	337
	2012	Measurement window measurement 1 in +/-degrees	B,C	0 - 100	20
	2013	Position measurement 2, t.d.c. take-up lever, in degrees 0 – 359	B,C	0 - 359	66
	2014	Measurement window measurement 2 in +/-degrees)	B,C	0 - 100	25
	2015	Fade-out stitches for missed stitch recognition	A,B,C	2 - 50	10
	2016	Fade-out stitches edge guide	A,B,C	1 - 10	5
	2017	Conversion factor for regulating distance of stepping motor of thread tension (normal thread tension)	A,B,C	0 - 4000	2600
	2018	Docu-seam ON = Permanent release of edge guide adjustment OFF = Edge guide adjustment only with appropriate authorization		ON - OFF	OFF
	2019	Docu-seam ON = Block sewing functions of keypad in documented seam sector OFF = Functions always permitted	B,C	ON - OFF	ON
	2020	Docu-seam, P-share of thread tension control	A,B,C	0 - 10	1
	2021	Thread tension while cutting (cN)	A,B,C	0 - 500	50
	2022	Stitch length of tie stitches	A,B,C	10 - 30	15

Group	Parameter	Description	User level	Setting range	Set value
20	2023	Selection mode for soft limit for docu-seam 1 = Docu-seam fields, once tolerance stitches sequentially surpass limit. 2 = Docu-seam fields, once number of tolerance stitches has surpassed soft limit.	A,B,C	1 - 2	2
	2024	Stitch length for backtack 0 = Stitch length as per programme	A,B,C	0 - 60	0
	2025	Stitch length for end backtack 0 = Stitch length as per programme	A,B,C	0 - 60	0
	2026	Thread tension values 1 = no median values generated >1 = no. of stitches req. for median value generation	A,B,C	1 - 5	1

1.09 Description of the error messages

Display	Description	Remedy
Error: 1	Treadle not at rest	Check treadle
Error: 3	Stitch setter reference position not	Check step motor and initiator
Error: 30	Circuit board sensor defective	Replace control
Error: 38	Stitch setter setpoint/current position different	Stitch setter has moved to mech. stop or step motor must be replaced
Error: 43	Circuit board step motor defective	Replace control
Error: 62	Voltage at 24V net adapter too	Check connected consumer
Error: 63	Overload of 24V net adapter	Check connected consumer
Error: 64	"Supply OFF" signal at power on	Replace control
Error: 65	Error at power electronics at power up	Replace control
Error: 66	Power electronics diagnostic returned error	Replace control
Error: 68	Overload on main drive	Replace control
Error: 70	Motor blocked	Check machine for sluggishness or replace motor
Error: 71	Incremental encoder of main drive not plugged in	Check plug connection
Error: 74	No synchronisation impulse for top part	Check transmitter
Error: 172	PC communication error	Check control connection to PC
Error: 173	Run-up error main drive	Check plug connection

1.10 Inputs / Outputs



Inputs

Key	Input	Function
1	E1	Ref. SM stitch setter
2	E2	E-winder
3	E7	Knee switch (stroke adjustment)
5	E9	
6	E4	Knee switch (man. seam section)
7	E6	Stop (safety device)
8	E8	
9	E11	Stop motion device
10	E3	Slide control
17	E51	Bobbin lower thread
18	E52	Bobbin top thread
19	E53	Error straight edge
25 - 31		Control panel on machine
32		Hotkey

Outputs

Key	Output	Function
1	A6	Stroke adjustment 0
2	A11	Stop motion device reset
5	A12	Stroke adjustment 1
6	A13	Stroke adjustment 2
7	A3	Thread clamp
9	A15	Foot cleaning
10	A1	Motor run
11	A14	Stroke adjustment 3
13	A5	E-winder
14	A4	Clamp foot
15	A8	Thread tension to be released
16	A9	Cutting
17		LED docu-seam Straight edge
25 - 40		LED on control panel of machine

1.11 Pin assignment

X1	
AMP 4polig	Motor connection
1	PE
2	U
3	W
4	V

X2	
SubD 9polar	Motor incremental encoder
1	FA
2	FB
3	SM
4	ADTC
5	5V
6	Y EXT SM
7	15V
8	EXT SM
9	GND

X3	
SubD 9polar	Speed control unit
5	5V
8	IN
9	GND

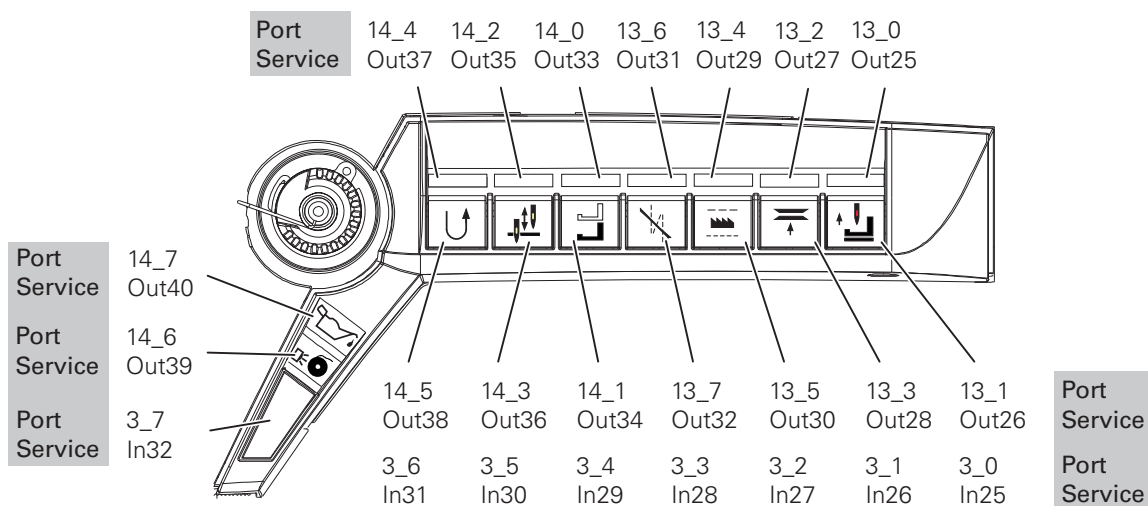
X4	
SubD 9polar	Control panel
1	24V
2	RXD in
3	TXD out
4	5V
5	GND
7	RTS out
8	CTS in
9	NC

X6	
Modular jack 9polar	Light barrier/ Stop motion device
1	NC
2	5V
3	GND
4	UFW-Sensor
5	LS
6	24V/15V
7	UFW-Laser
8	NC

X5 SubD 37polar Inputs/outputs				
PIN	Service	Port	Name	Function
1			ANA	Poti for stroke adjustment
2			+5V	OTE (+5V)
3			ANA	Laser stop motion device
4				
5	In1	0_0	E1	Ref. SM stitch setter
6	In2	0_1	E2	E-winder: Bobbin full
7	In3	0_2	E7	Knee switch (stroke adjustment)
8			I2C-SDA	OTE (SDA)
9	In5	0_4	E9	
10	In6	0_5	E4	Knee switch (man. seam section)
11	In7	0_6	E6	Stop (safety device)
12	In8	0_7	E8	
13	In9	1_0	E11	Stop motion device
14	In10	1_1	E3	Switch (slide - stitch platen)
15				
16				
17				
18				Inputs (+24V)
19			Gnd	OTE (Gnd)
20	Out1	10_0	A6	Stroke adjustment 0
21	Out2	10_1	A11	Stop motion device reset
22			A19	Counting impulse/SyMa f. stop motion device
23			I2C-SCA	OTE (SCL)
24	Out5	10_4	A12	Stroke adjustment 1
25	Out6	10_5	A13	Stroke adjustment 2
26				
27	Out7	10_6	A3	Thread clamp (pneum.)
28	Out8	10_7	A7	
29	Out9	11_0	A15	Foot cleaning (pneum.)
30	Out10	11_1	A1	Motor run
31	Out11	11_2		Stroke adjustment 3
32	Out12	11_3		
33				Outputs (+24V)
34	Out13	11_4	A5	Electric spooler
35	Out14	11_5	A4	Thread clamp (pneum.)
36	Out15	11_6	A8	Release thread tension (pneum.)
37	Out16	11_7	A9	Cut (pneum.)

15pol. SubD-connector				
PIN	Service	Port	Name	Function
15			U24	+24V
				Inputs (high +24V)
1	In17	2_0	E51	Bobbin lower thread spooler
2	In18	2_1	E52	Bobbin upper thread spooler
3	In19	2_2	E53	Error straight edge
4	In20	2_3	E54	24V/15V
9	In21	2_4	E55	
10	In22	2_5	E56	
11	In23	2_6	E57	
				Outputs (OC 0,35A)
12	Out17	12_0	A51	LED docu-seam in straight edge
5	Out18	12_1	A52	
13	Out19	12_2	A53	
6	Out20	12_3	A54	
14	Out21	12_4	A55	
7	Out22	12_5	A56	
8	Out23	12_6	A57	

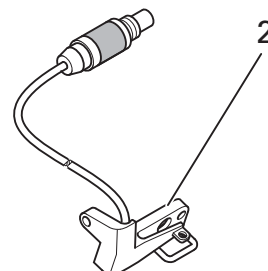
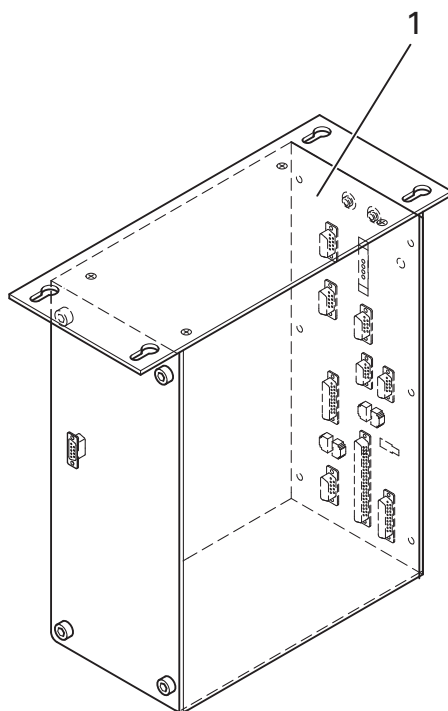
Control panel on machine





Attention!!

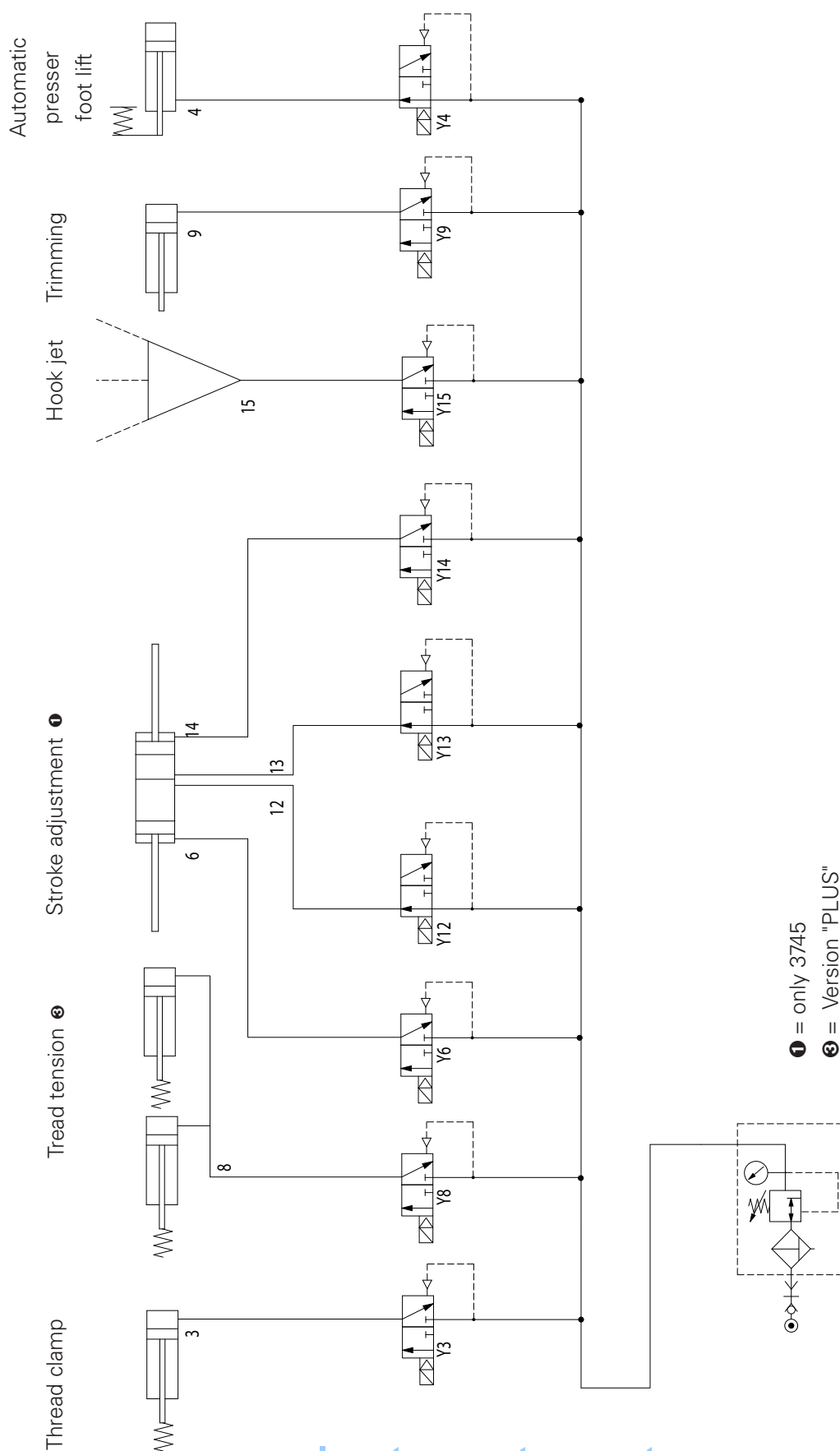
To avoid wrong monitoring, it is necessary to calibrate the system, after changing the thread-force-sensor 2 or the control box 1.



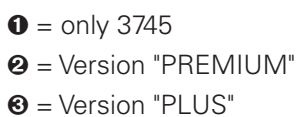
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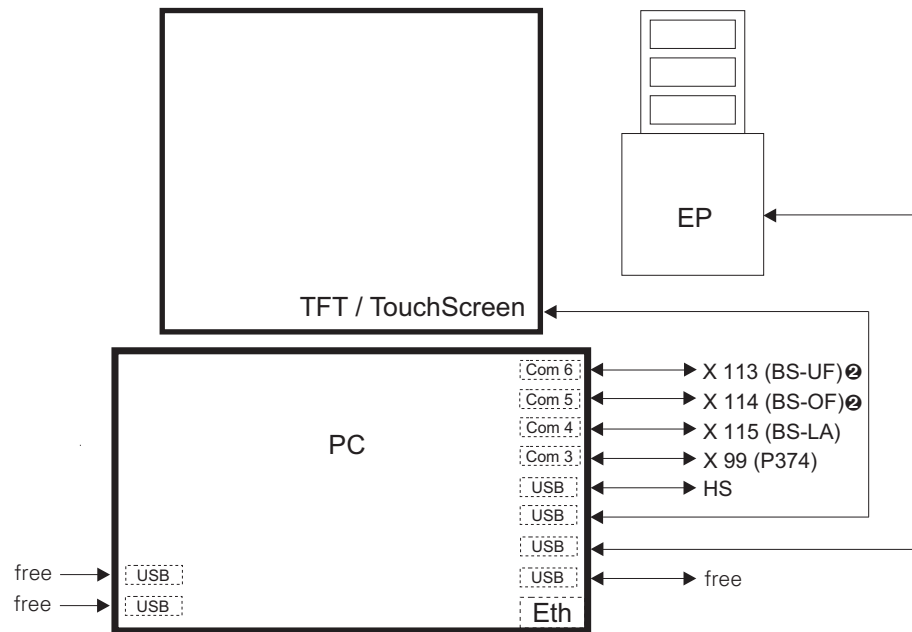
Pneumatics-switch diagram PFAFF 3741 + 3745

The control elements and valves are in the machine's basic position. Main switch -ON, compressed air -ON



3.01 Block diagram PFAFF 3741 + 3745 (with control unit P374 ED))



**P374ED Control unit**

HA	Main drive
IG	Incremental transmitter
PG	Synchronizer
SWG	Speed control unit

SMM Stepping motor module in P374EDD

SM-SL	Stepping motor feed regulator
IG-SL	Incremental transmitter feed regulator SM
Ref-SL	Reference sensor feed regulator
SM-FSS	Stepping motor thread tension release control

IO Input / Output

SK1	Switch cop 1
SK2	Switch cop 2
Lin	Edge guide with distance control
SS	Slide switch
KS-man	Knee switch manual seam
KS-HV	Knee switch stroke adjustment
US	Reverse fuse
MSZ-HV	Stroke adjustment
PF	Presser foot
FK	Thread clamp
SN	Thread trimmer
ML	Motor running signal (free)
GR	Clean hook
LS	Light barrier
FSL	Release thread tension

PC Docu-seam-PC

TFT	Monitor with touch-screen
EP	Label printer
HS	Barcode hand-held scanner (ID)

BS-LA Barcode scanner (label)

BS-OF	Barcode scanner (needle thread cop)
BS-UF	Barcode scanner (bobbin thread cop)

I2C Interface to head

OTE	Sewing head recognition
OeS	Oil sensor
TF7	Keypad

FKM Thread strength module in P374ED

FSM	Thread tension measurement
UFW	Bobbin thread monitoring

Sp Internal electric-powered bobbin winder

SSp	Switch bobbin
SpSt	Bobbin control

LED LED lighting

② = Version "PREMIUM"

3.02 Circuit diagrams

Reference list for the Circuit diagrams 91-191 528-95

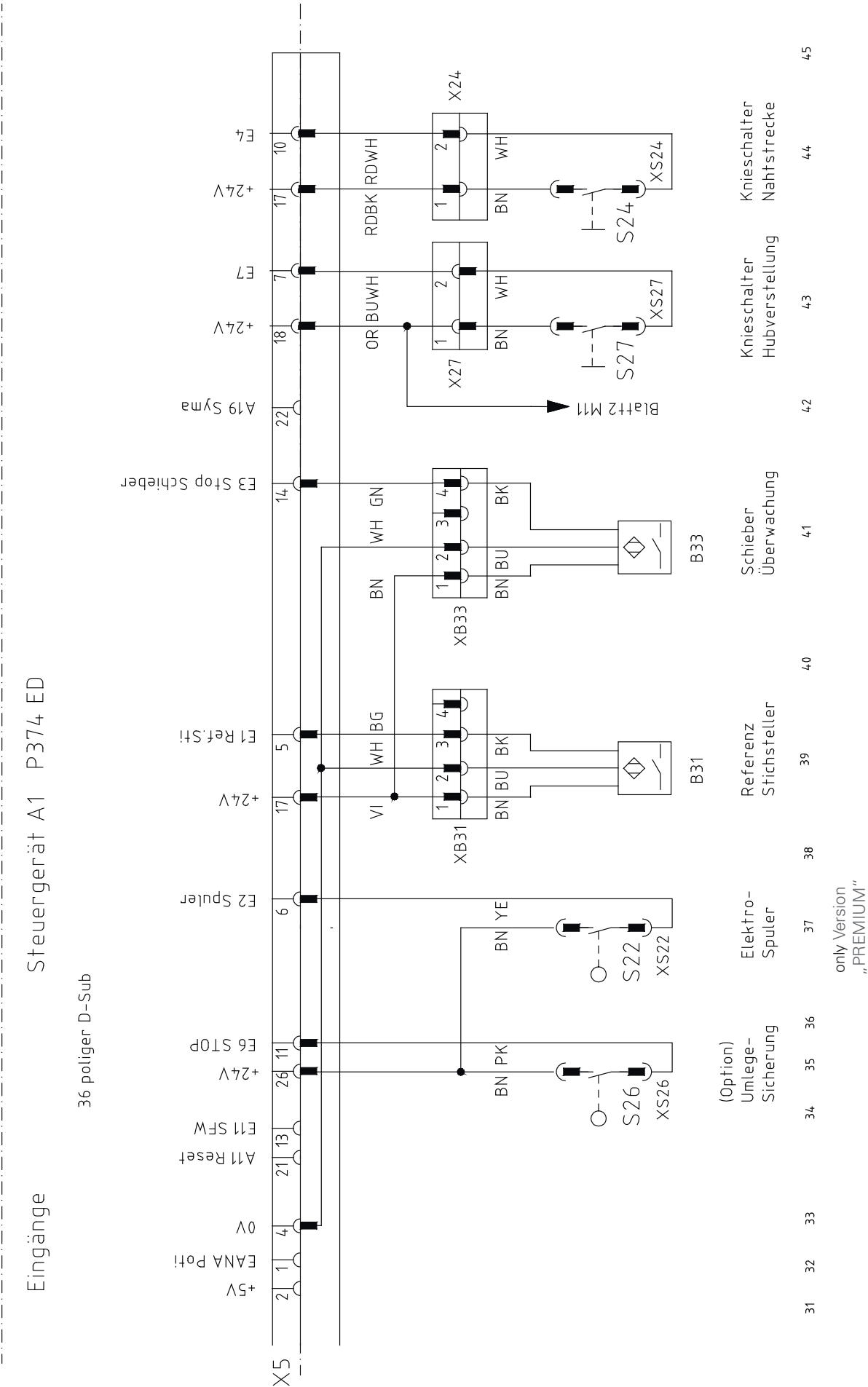
A1	Controller P374 ED-L	X5	Output-input plug
A2	Control panel PicoTop (optional)	X6	Light barrier plug
A14	Sewing head recognition (OTE)	X11	not assigned
A15	Oil sensor (I2C-Bus)	X20	A20 bobbin thread monitor and B19 thread strength sensor
A16	Keyboard (I2C-Bus)	X24	Knee switch seam section (optional)
A20	Bobbin thread monitor	X27	Knee switch stroke adjustment (optional)
B7	Light barrier	X44	Stepping motor thread tension
B10	Thread strength sensor	XA14	A14 Sewing head recognition (OTE)
B31	Initiator feed regulator	XA15.1	A15 Oil sensor (I2C-Bus)
B33	Initiator slider monitoring	XA15.2	A15 Oil sensor (I2C-Bus) > A14 (OTE) (I2C-Bus)
B41	Oil sensor (I2C-Bus)	XA16	A16 Keyboard (I2C-Bus)
H1	Sewing lamp	XB31	B31 Initiator feed regulator
M1	Sewing motor	XB33	B33 Initiator slider monitoring
M2	Stepping motor stitch length	XS22	S22 Key electrical bobbin winder
M11	Motor electrical bobbin winder	XS26	S24 Seam section (optional)
M14	Stepping motor thread tension	XS50	Cop switch S51 and S52
Q1	Main switch	XS51	Cop switch S51
S1.1	Pedal speed control unit	XS52	Cop switch S52
S1▲	Key 1	XL10	Edge guide
S2▲	Key 2	XY3	-909/..Y 3 Thread clamp
S3▲	Key 3	XY4	-910/..Y 4 Presser foot lift
S4▲	Key 4	XY6	❶ -918/..Y 6 Stroke adjustment 1
S5▲	Key 5	XY8	Y8 Thread tension release
S6▲	Key 6	XY9	-900/..Y 9 Thread trimmer
S7▲	Key 7	XY12	❶ -918/..Y 12 Stroke adjustment 2
S8▲	Key 8	XY13	❶ -918/..Y 13 Stroke adjustment 3
S22	Key electrical bobbin winder	XY14	❶ -918/..Y 14 Stroke adjustment 4
S24	Seam section (optional)	XY15	-926/..Y 15 Hook cleaning
S26	Key switchover fuse	A20	Bobbin thread monitor
S51	Cop switch needle thread	Y3	-909/.. Thread clamp
S52	Cop switch bobbin thread	Y4	-910/.. Presser foot lift
X0	RS 232 interface (PC)	Y6	❶ -918/.. Stroke adjustment 1
X1	Sewing motor	Y8	Main thread tension release
X1A	RS 232/485 interface (PC)	Y9	-900/.. Thread trimmer
X2	Incremental transmitter	Y12	❶ -918/.. Stroke adjustment 2
X2.1	Incremental transmitter	Y13	❶ -918/.. Stroke adjustment 3
X2.2	Synchronizer PD 6	Y14	❶ -918/.. Stroke adjustment 4
X3	Speed control unit	Y15	-926/.. Hook cleaning
X4	PicoTop control panel	A20	Bobbin thread monitor
X4/A	Stepping motor thread tension		
X4/B	Stepping motor feed regulator		

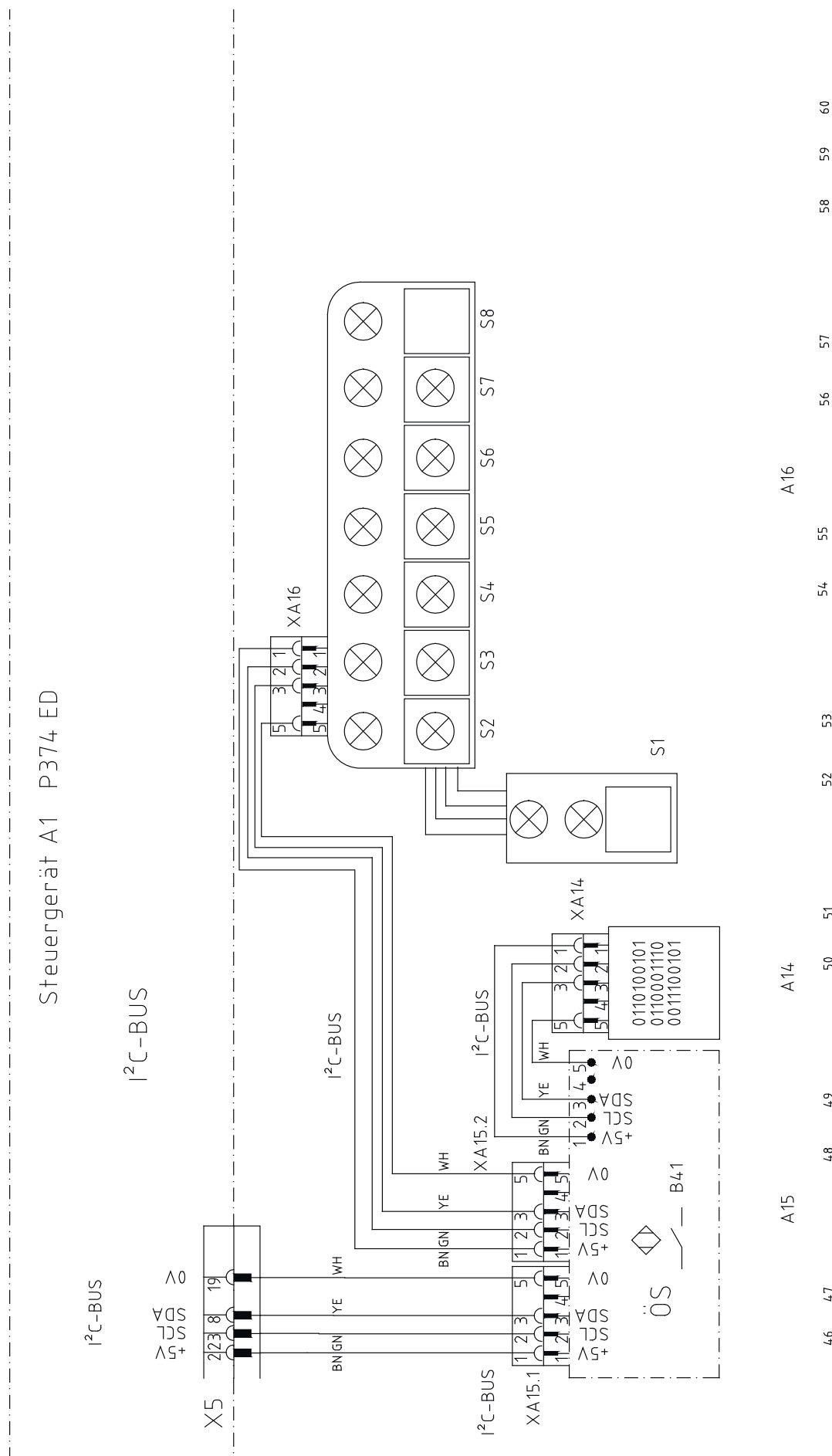
▲ Function depends on parameter selection

❶ = only 3745





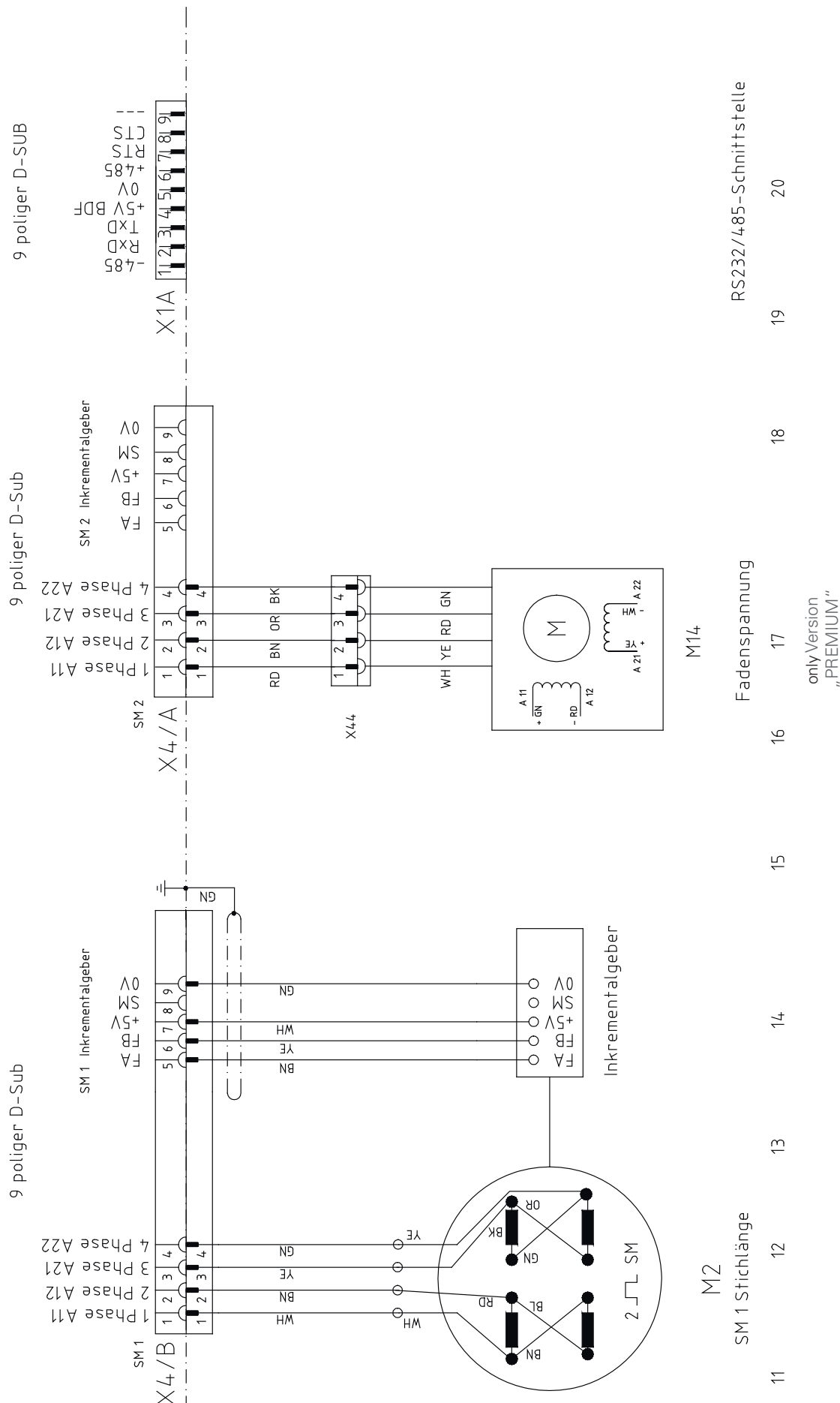




Schrittmotorleiterplatte

Steuergerät A1

P374 ED

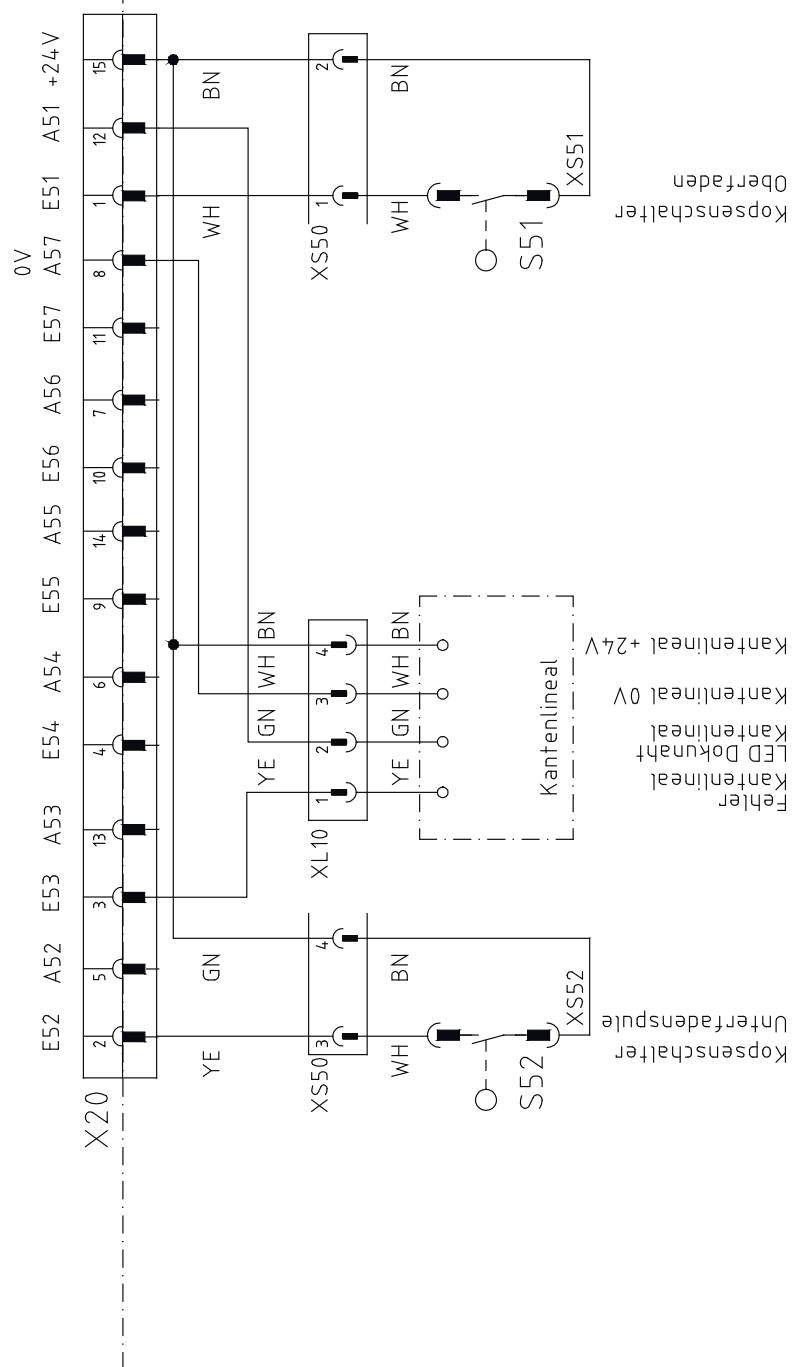


RS232/485-Schnittstelle

Fadenspannung

only Version
„PREMIUM“

15 poliger D-Sub

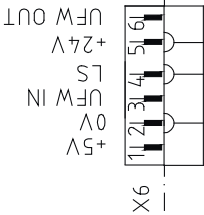


only Version
„PREMIUM“

only Version
„PREMIUM“

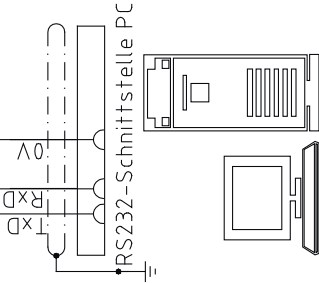
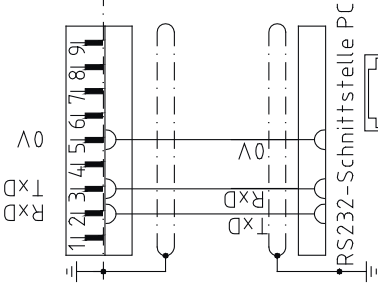
Steuergerät A1 P374 ED

6 poliger Western



X0

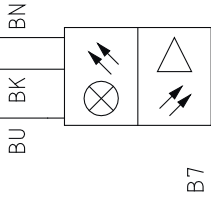
9 poliger D-SUB



DokuNaht-
PC



Lichtschranke



RS232-Schnittstelle PC

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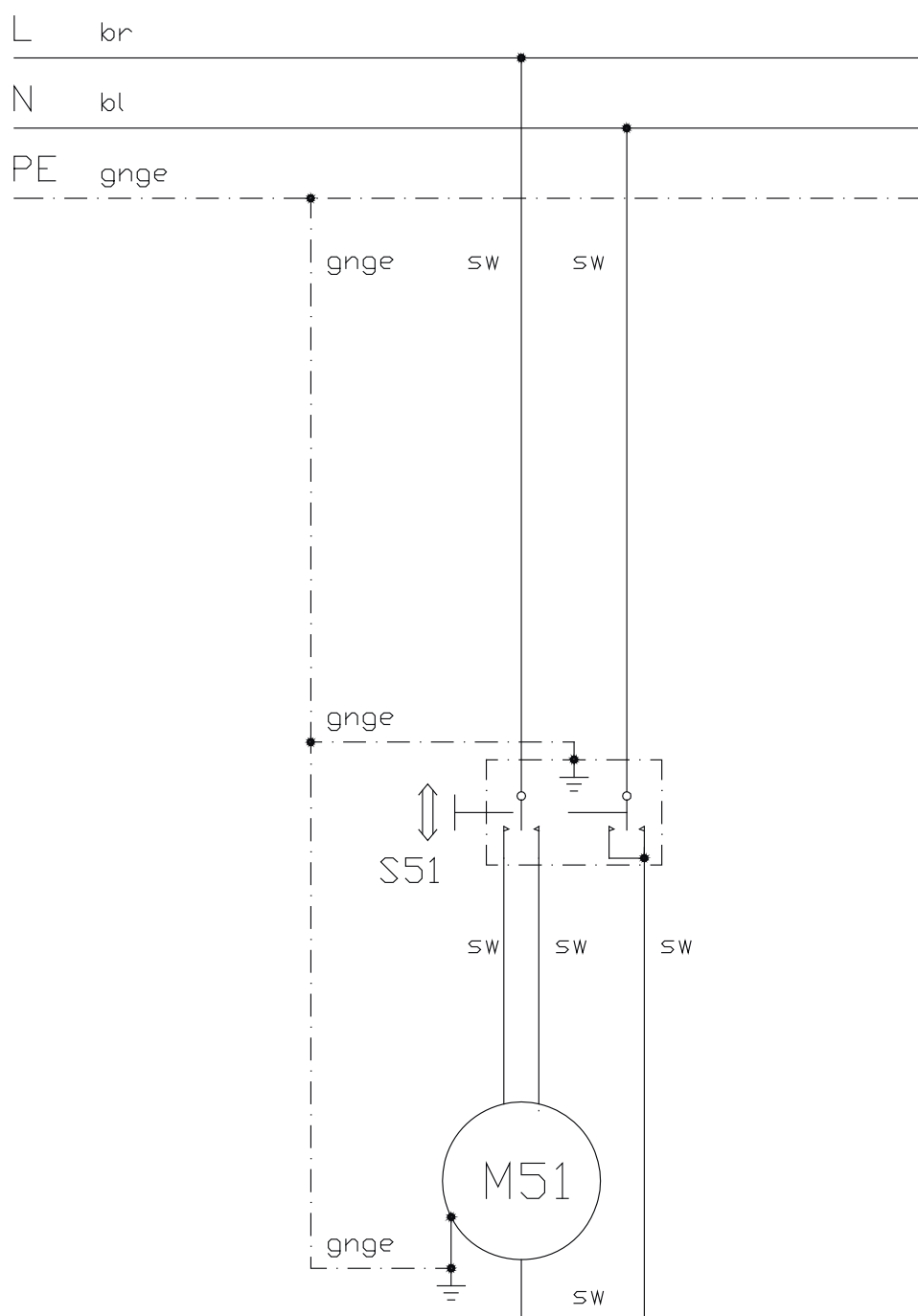
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Printed in Germany

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