PFAFF® Industrial

3371-1/..

SERVICE MANUAL

This service manual applies to machines from serial number **2 780 933** and software version **0335/022** onwards

296-12-18 982/002
Justieranleitung engl. 01.11

PFAFF Industriesysteme
und Maschinen AG

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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

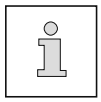
- Screwdrivers with blade width from **2** to **10 mm**
- Spanners (wrenches) with jaw width from **7** to **14 mm**
- **1** set Allen keys from **1.5** to **6 mm**
- **1** Metal rule (part No. **08-880 218-00**)
- **1** machine zero point gauge, part number **61-111 637-08**

1.03 Abbreviations

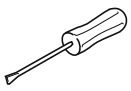
t.d.c. = top dead centre
b.d.c. = bottom dead centre

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 Basic position of the machine

Requirement
After being switched on the machine should position approx. **3 – 4 mm** before t.d.c. take-up lever.

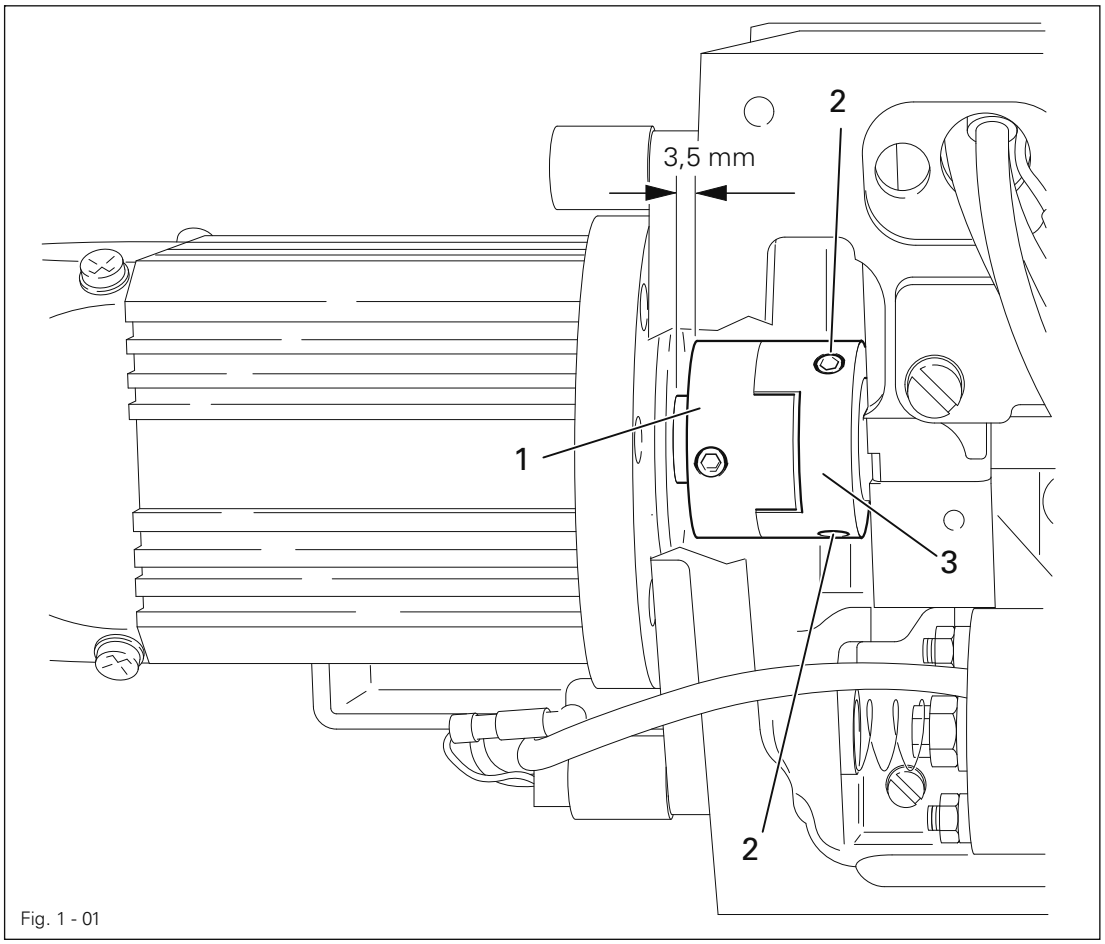
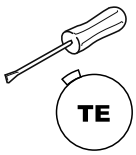


Fig. 1 - 01



- Switch on the machine.
- Press the TE key.
- Select parameter **605** with the corresponding **+/- key**.
- Press pedal forwards once briefly (machine positions in t.d.c. needle).
- Hold clutch **1** (screws **2**) and bring the needle bar into the appropriate position by turning the balance wheel.
- Press pedal forwards again to re-check the position set.
- Conclude the adjustment by operating the TE key.

The distance from the clutch **1** to the motor plate should be **3.5 mm**. In the direction of rotation the second screw of the clutch section **3** should be on the surface of the motor shaft. The clutch section **1** should be touching the 0-ring of the axial bearing.

1.06 Work clamp zero point

Requirement

After the machine ahs been switched on and parameter "608" selected,

1. the needle should be centred to the hole in the adjustment gauge,
2. the switch lugs 2 and 4 should be centred to the respective initiator.

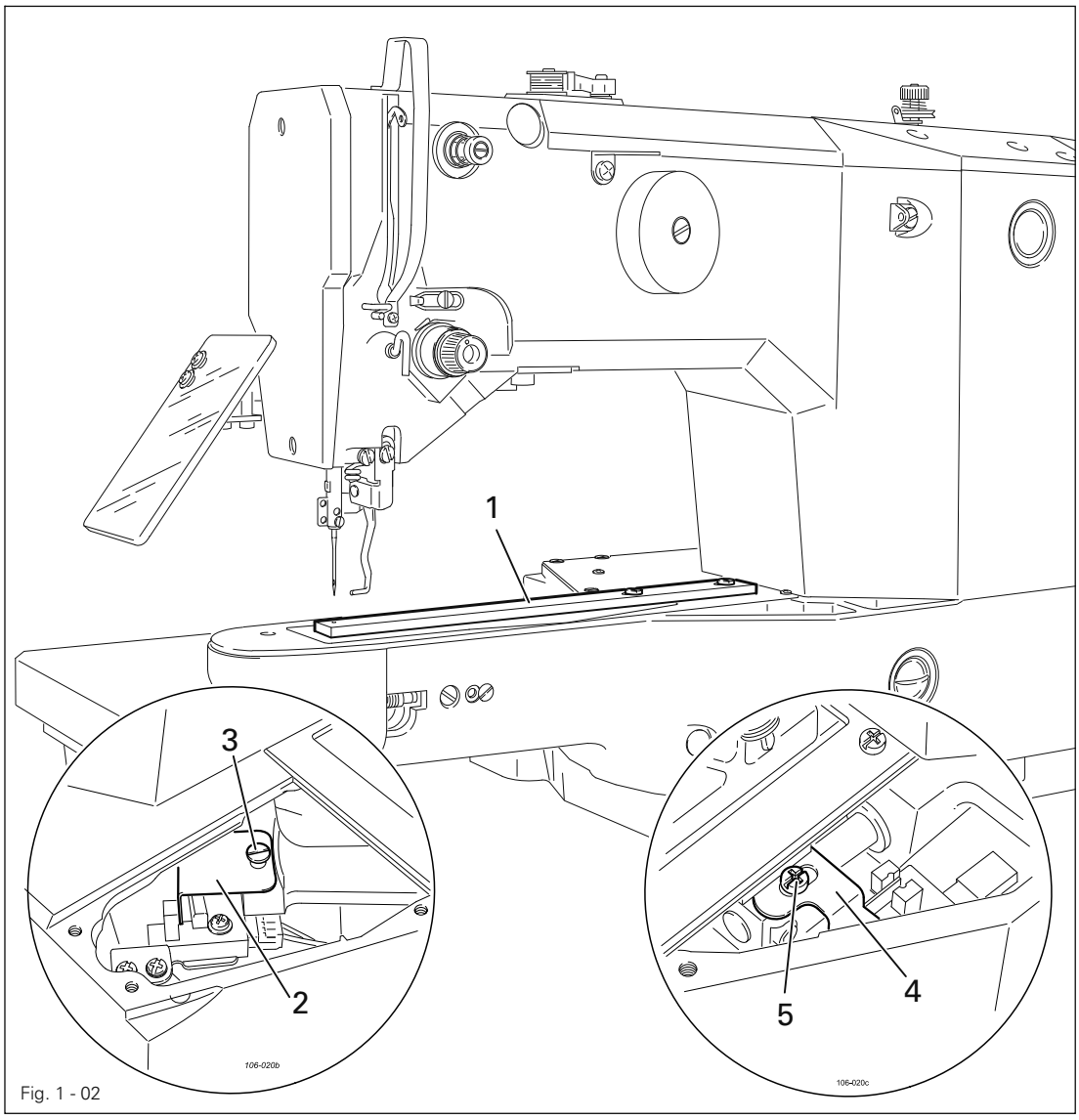


Fig. 1 - 02

When removing the work clamp holder, take care that the ball bearings in the arm support do not drop out !

- Remove the work clamp holder and the lower feed plate .
- Screw adjustment gauge 1 (part no. 61-111 637-08) to the work clamp drive unit.

Preliminary adjustment

- Move the work clamp drive unit by hand in accordance with requirement 1.
- Adjust switch lug 2 (screw 3) and switch lug 4 (screw 5) in accordance with requirement 2.

Fine adjustment

- Switch on the machine.
- In the input mode, select parameter "608", see Chapter 11.03 Parameter input in the instruction manual.
- If necessary, enter the access code, see Chapter 11.04.01 Entering the access code in the instruction manual.

- With the corresponding **plus/minus key** move the work clamp drive unit in accordance with **requirement 1**, also see Chapter 11.03 Parameter input.

- Switch off the machine.
- Remove adjustment gauge 1.
- Fit the lower feed plate and work clamp holder.

If, during the fine adjustment, the setting is ± 5 increments above or below the value in X- and Y-direction, the setting should be checked again in accordance with **requirement 2**.

1.07 Aligning the work clamp

Requirement
The work clamp should be aligned in "X" and "Y" direction, so that it does not touch the needle during sewing.

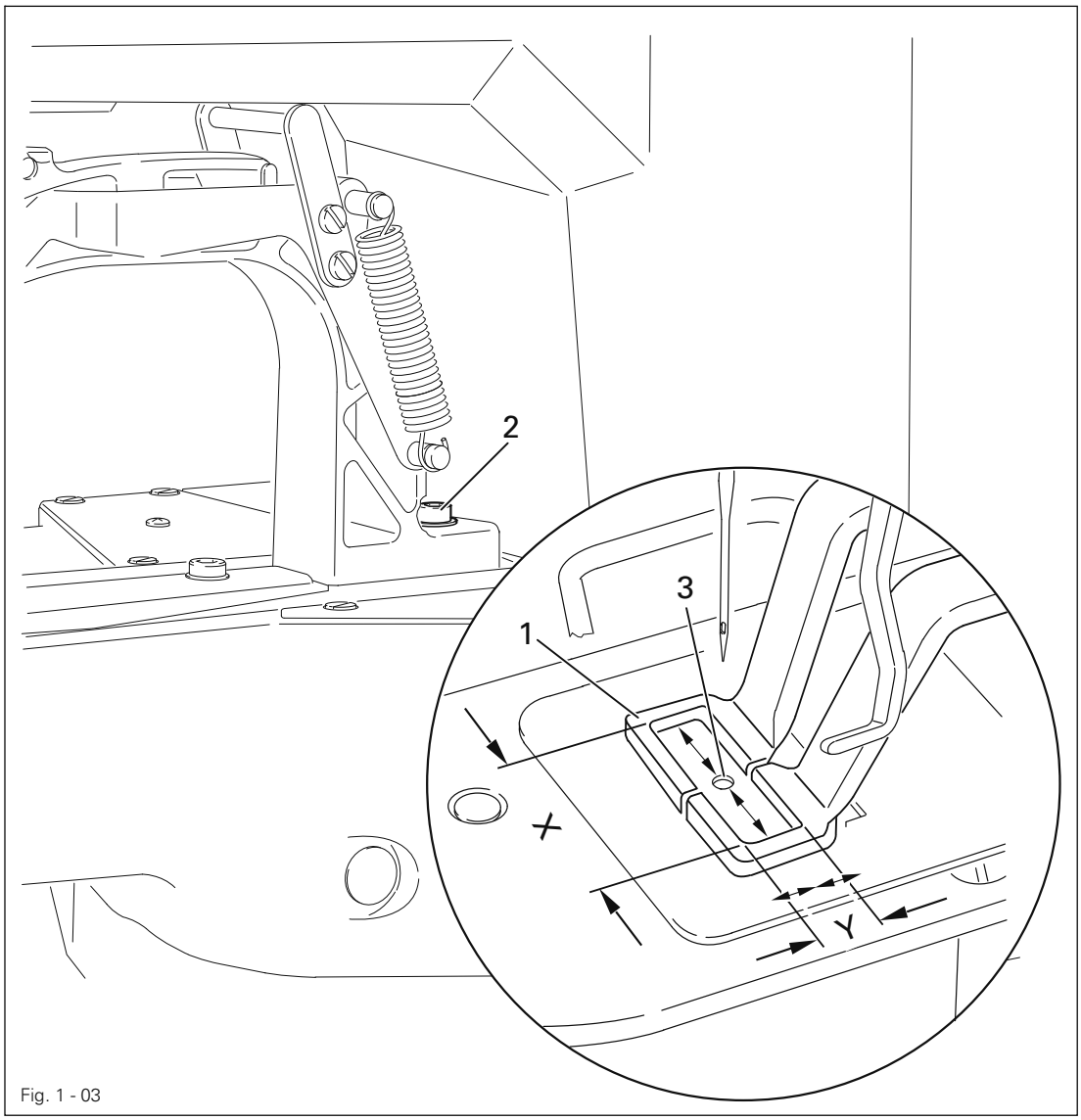
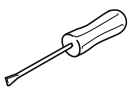


Fig. 1 - 03



- Switch on the machine.
- Set the sewing area size (see Chapter **9.07 Adjusting the size of sewing area** in the instruction manual)
- In the input mode, select parameter "**610**", see Chapter **11.03 Parameter input in the instruction manual**
- If necessary, enter the access code, see Chapter **11.04.01 Entering the access code** in the instruction manual.
- Align work clamp **1** (screw **2**) so that the needle hole **3** is in the centre of the work clamp cutout.

Checking the "Y-direction"

- To check this adjustment, move along the maximum set sewing area size in "**Y-direction**" by pressing the corresponding **plus/minus keys** (readjust if necessary).
- Call up parameter "**609**".

Checking the "X-direction"

- Move along the maximum set sewing area size in "**X-direction**" by pressing the corresponding **plus/minus keys**.
- If necessary adjust the position of work clamp **1** by entering a correction value "**X**" with the corresponding plus/minus keys in "**X-direction**" in accordance with the **requirement**.

TE

- Conclude the input.

When using the max. sewing area size (X=**40**mm, X =**20** mm), the correction value under parameter "609" must be set at "0".

1.08 Hook driver

Requirement

1. When the balance wheel is turned, the machine should not bind.
2. The play of catch **7** should be less than **0.1 mm**.

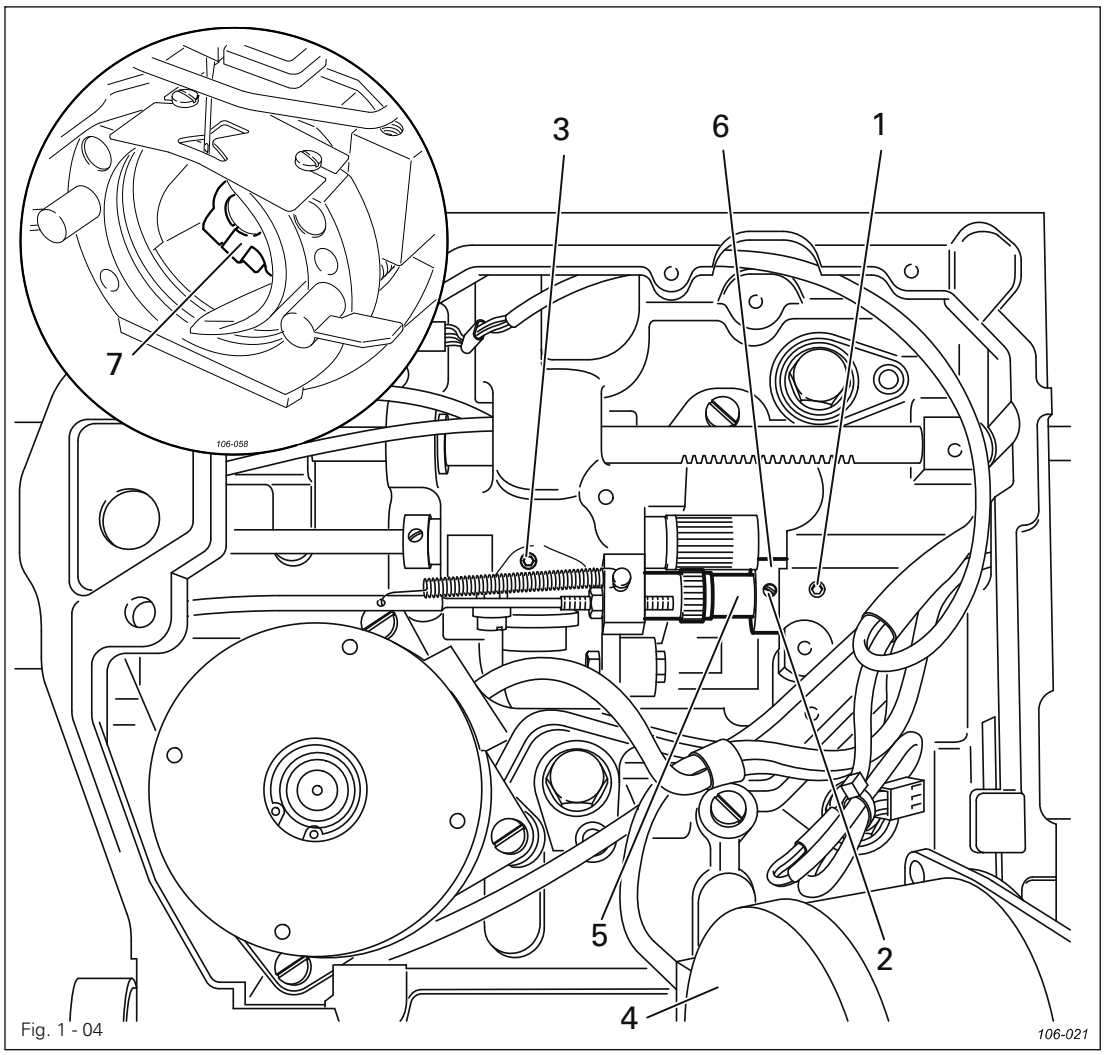
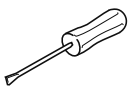
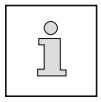


Fig. 1 - 04



- Remove the hook.
- Loosen screws **1**, **2** and **3** (remove motor **4**).
- Move the eccentric shaft **5** in accordance with **requirement 1** and twist it in accordance with **requirement 2**.
- Tighten screws **1** and **3**.
- Move adjustment ring **6** against the metal edge and tighten screw **2**.
- Insert the hook.



If catch **7** has too much play, the running noise of the machine increases. Too little play may cause the machine to jam.

1.09 Preadjusting the needle height

Requirement
With the needle bar in b.d.c., the upper marking on the needle bar **1** should be flush with the lower edge of the needle bar bush.

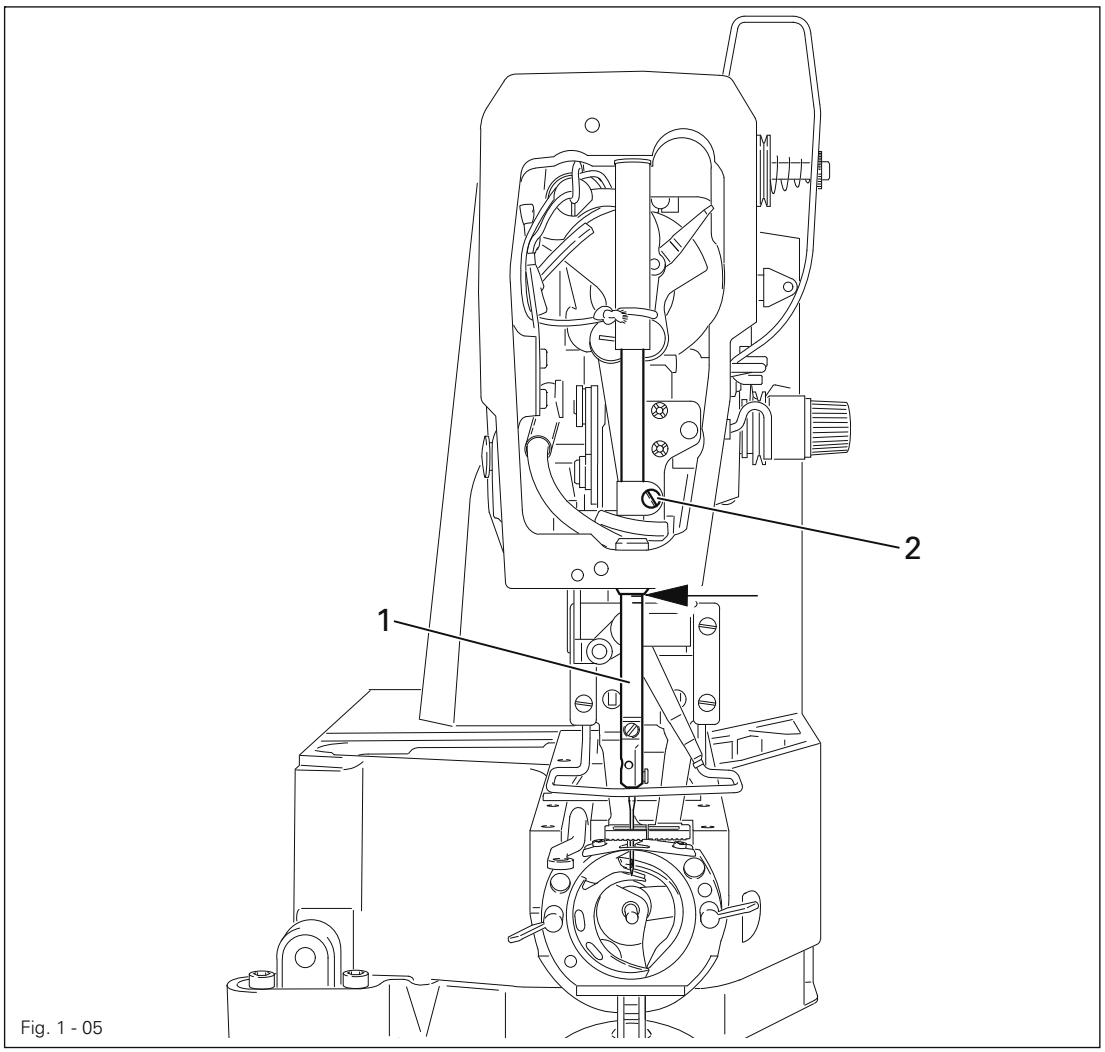
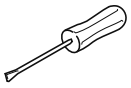


Fig. 1 - 05



- Adjust needle bar **1** (screw **2**) in accordance with the **requirement**.

1.10 Hook-to-needle clearance

Requirement

With the needle at **2.4 mm** after BDC,

1. the hook **5** should be **0.05 – 0.1 mm** behind the needle,
2. the top edge of the needle eye must be **0.8** mm below the hook point and
3. the distance between the needle and the tip of the hook race should be **7.5 mm**.

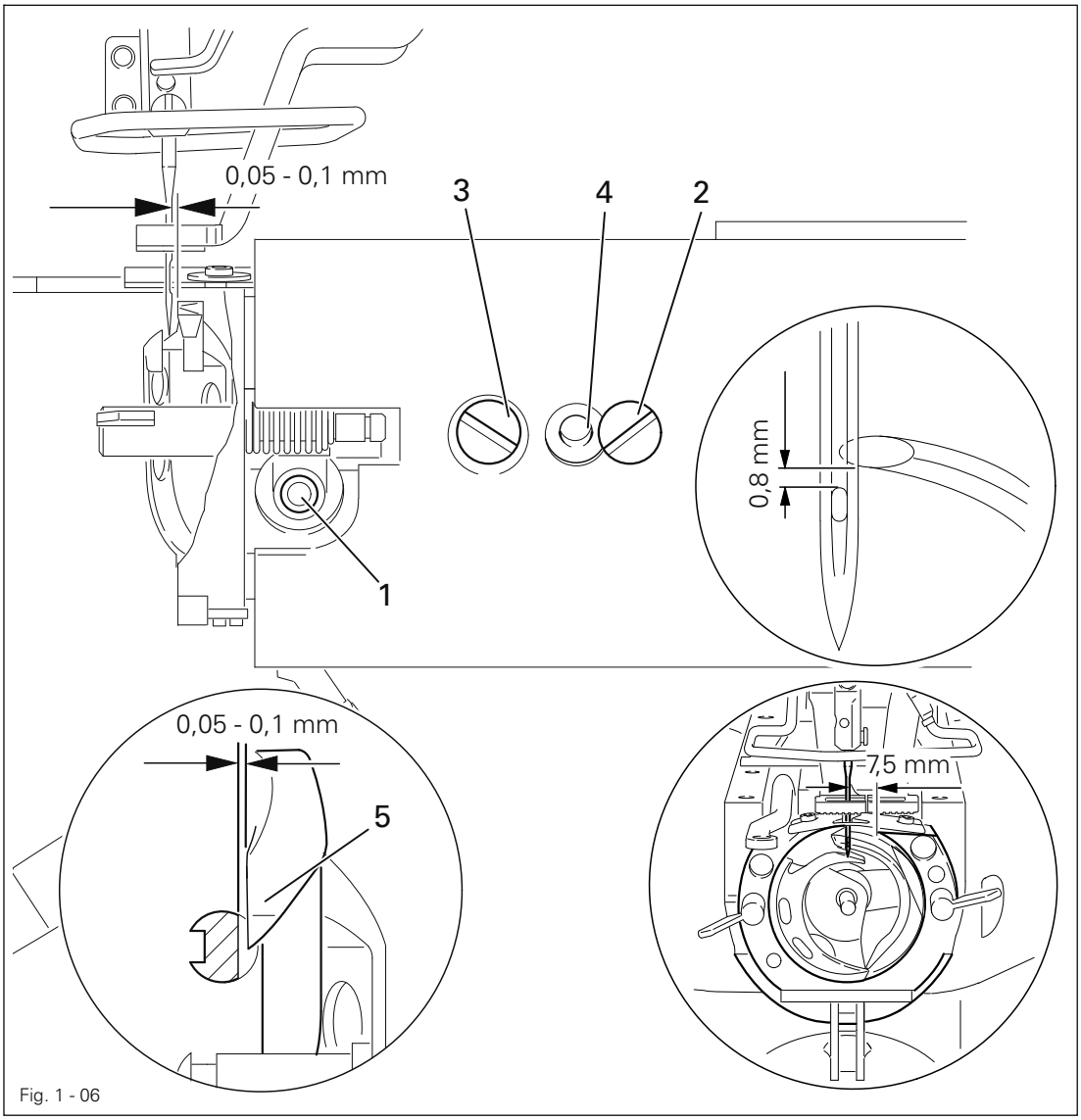
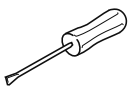


Fig. 1 - 06



- Loosen screws **1**, **2** and **3**.
- Turn the eccentric pin **4** in accordance with the **requirements**.
- Tighten screws **2** and **3**.

Screw **1** remains loosened for further adjustments.

1.11 Needle rise and needle guard

Requirement

With the needle at **2.4 mm** after BDC,

1. the hook point should be centred to the needle and
2. the needle guard (see arrow) should slightly touch the needle.

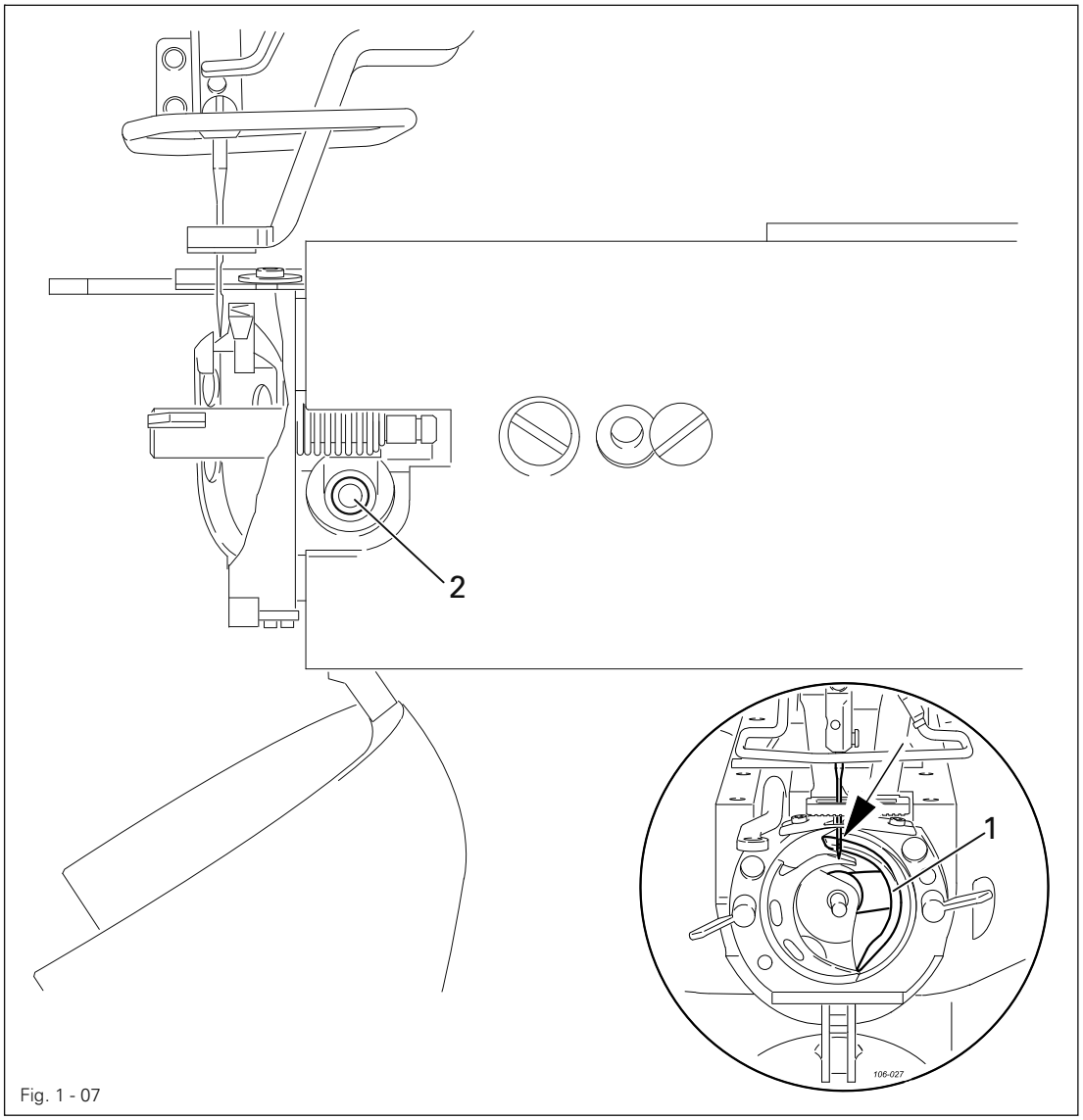
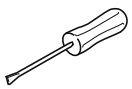


Fig. 1 - 07



- Turn catch **1** (screw **2**) in accordance with **requirement 1**, or move it in accordance with **requirement 2**.

1.12 Aligning the hook race cover

Requirement
The needle should be centred to cutout **B** and the rear side of the needle flush to the imaginary line **A**.

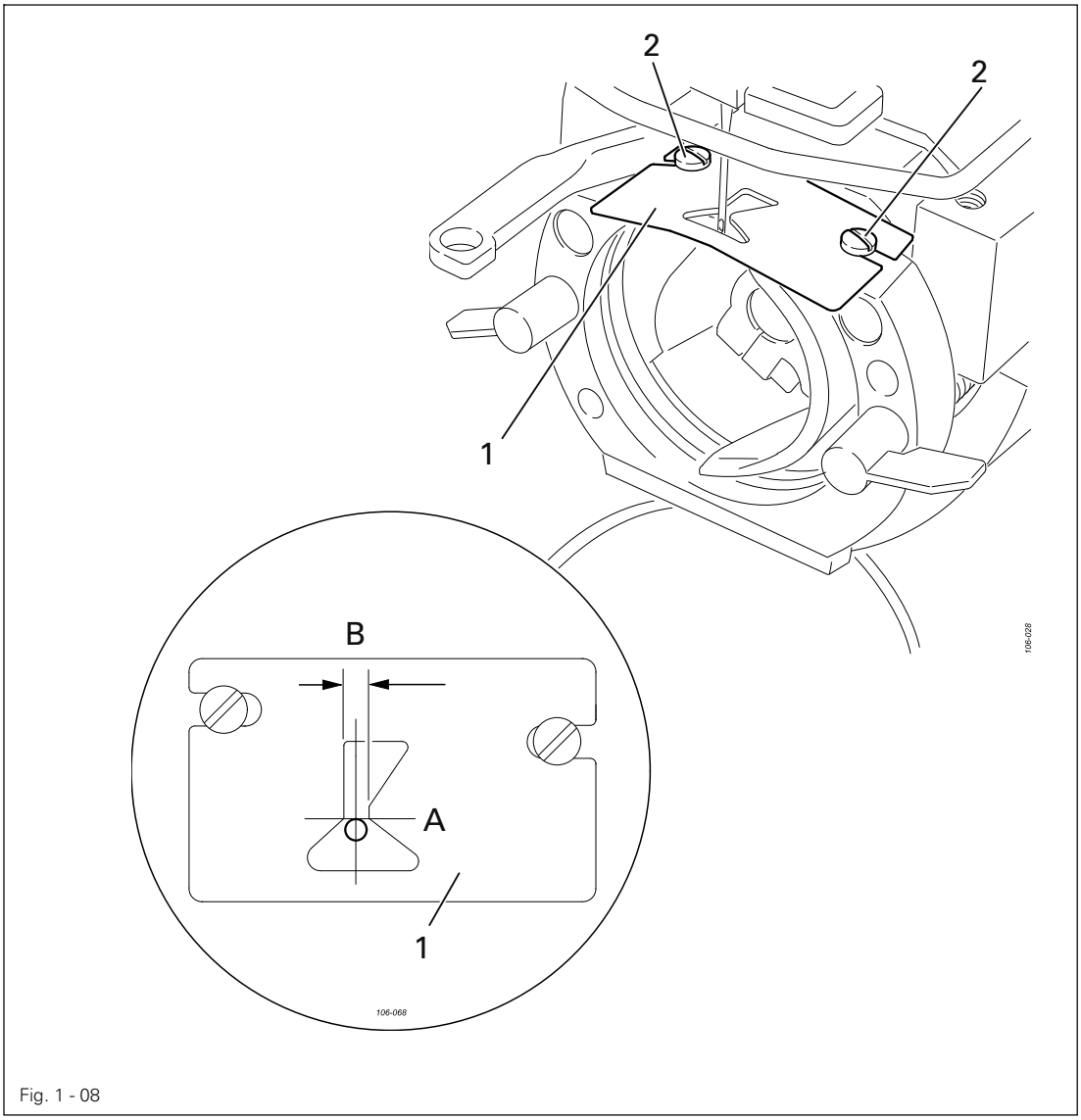


Fig. 1 - 08

- Move the hook race cover **1** (screws **2**) in accordance with the **requirement**.

1.13 Work clamp height

Requirement

1. The work clamp should be **13 mm** above the upper edge of the needle plate.
2. Both halves of the work clamp should be parallel to each other.

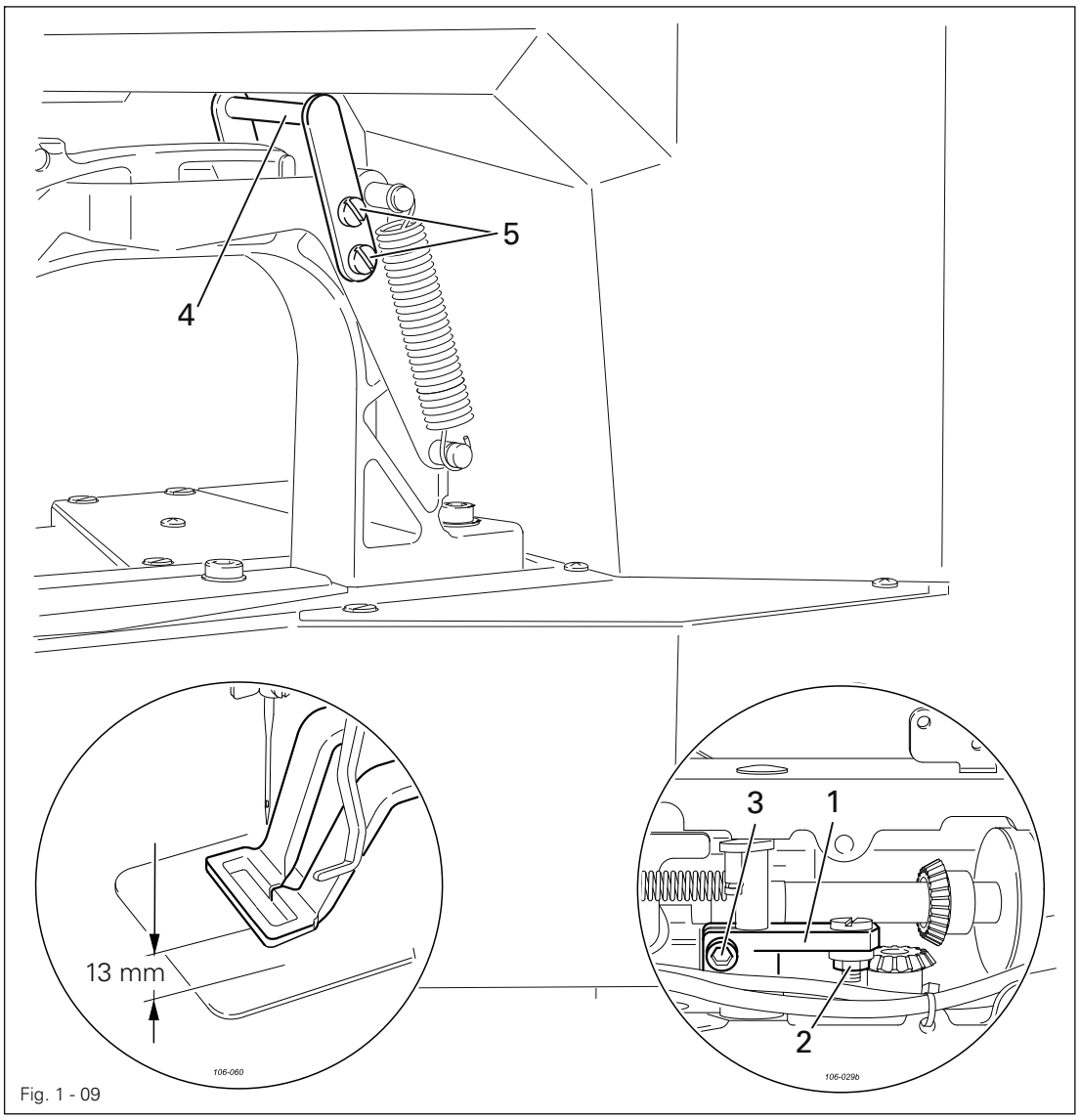


Fig. 1 - 09

- Turn lever **1** (nut **2** and screw **3**) in accordance with **requirement 1**.
- Move lift plate **4** (screws **5**) in accordance with **requirement 2**.

After aligning the work clamp, it is imperative to check the position of the thread wiper, see Chapter **1.14**. Position of the thread wiper! Danger of needle breakage!

1.14 Position of the thread wiper

Requirement
When the thread wiper is centred to the needle, its lower edge should be **14 – 15 mm** above the upper edge of the needle plate.

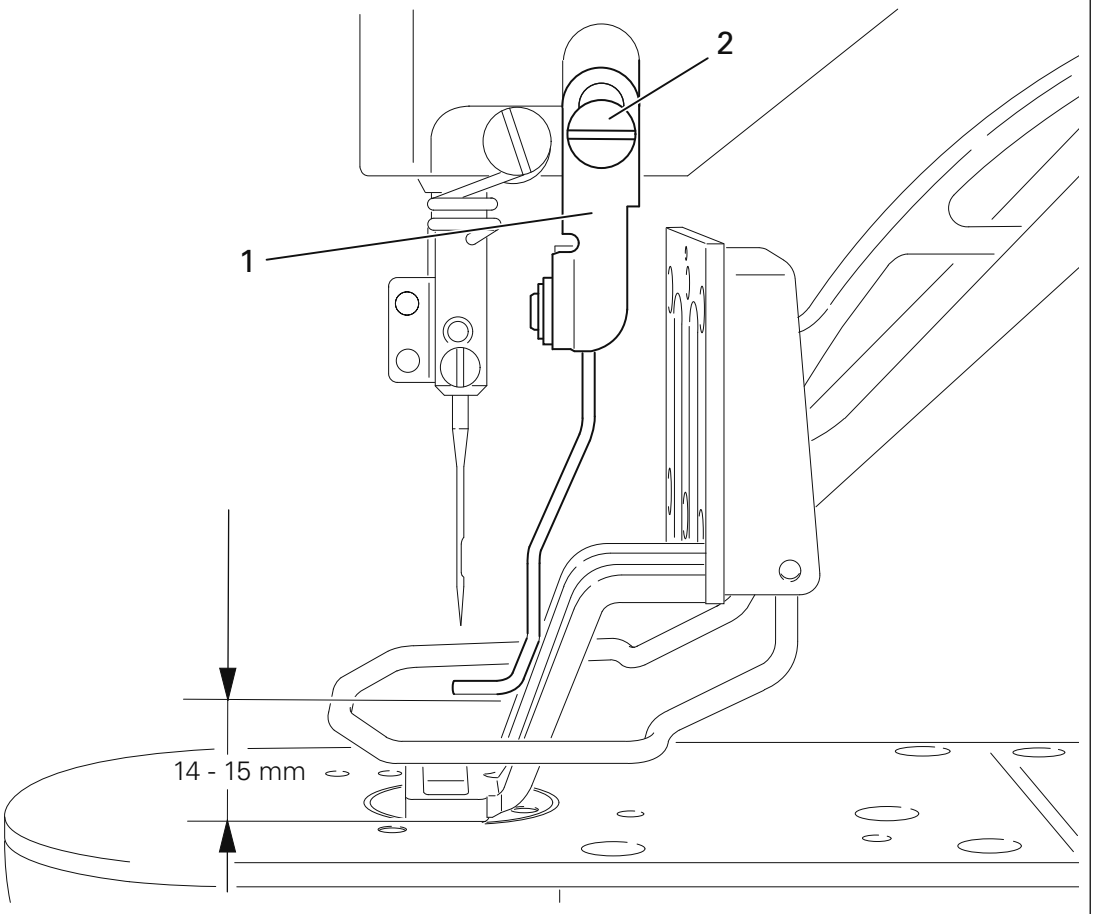
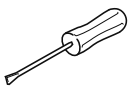


Fig. 1 - 10



- Bring the thread wiper **1** into the appropriate position by operating the work clamp manually.
- Move thread wiper **1** (screw **2**) in accordance with the **requirement**.

1.15 Position of the control cam

Requirement

1. The markings on control cam **1** and arm shaft **3** should correspond with each other.
2. The outer edge of control cam **1** should be at a distance of **32.5 mm** from the metal surface of the case.

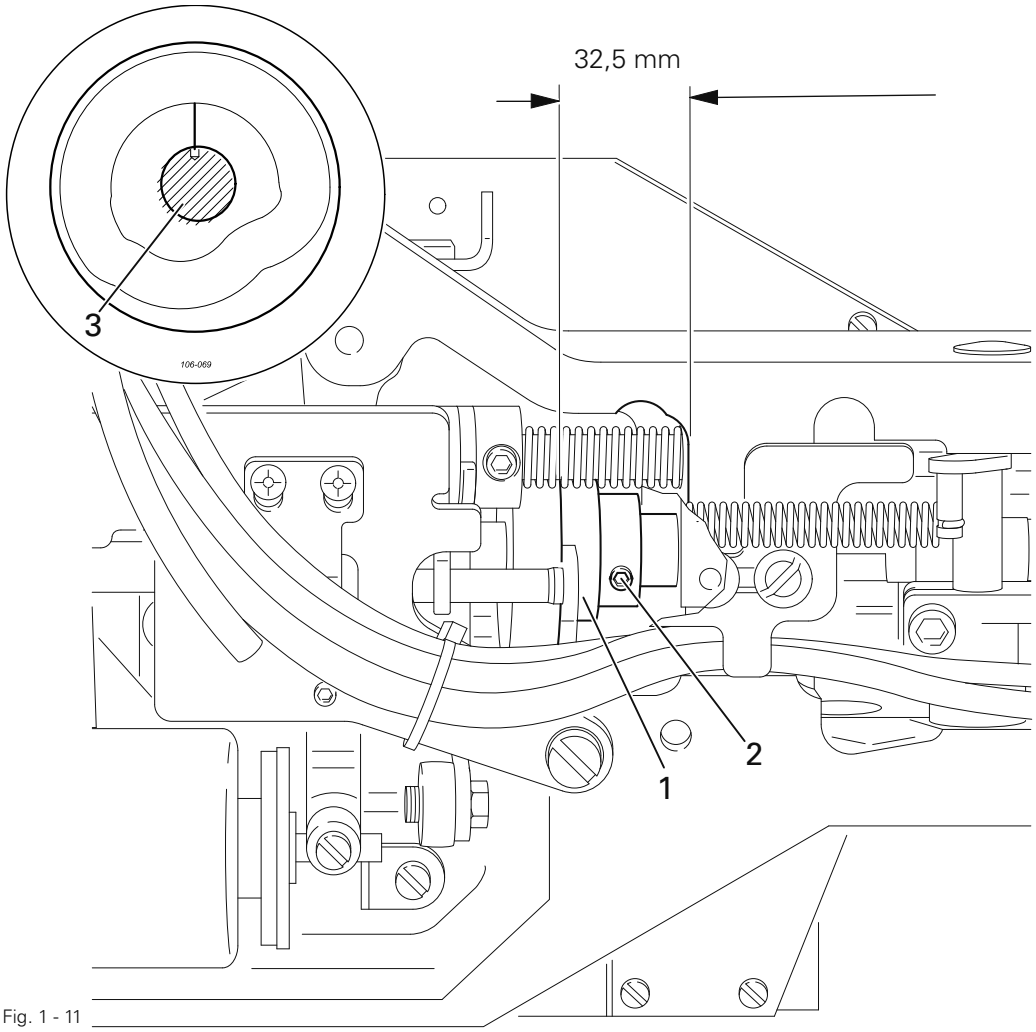
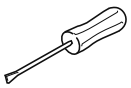


Fig. 1 - 11



- Turn control cam **1** (screw **2**) in accordance with **requirement 1**, or move it in accordance with **requirement 2**.

1.16 Position of the control roller

Requirement
When the needle bar is at its b.d.c., the control roller should be centred to the running path of control cam **2**.

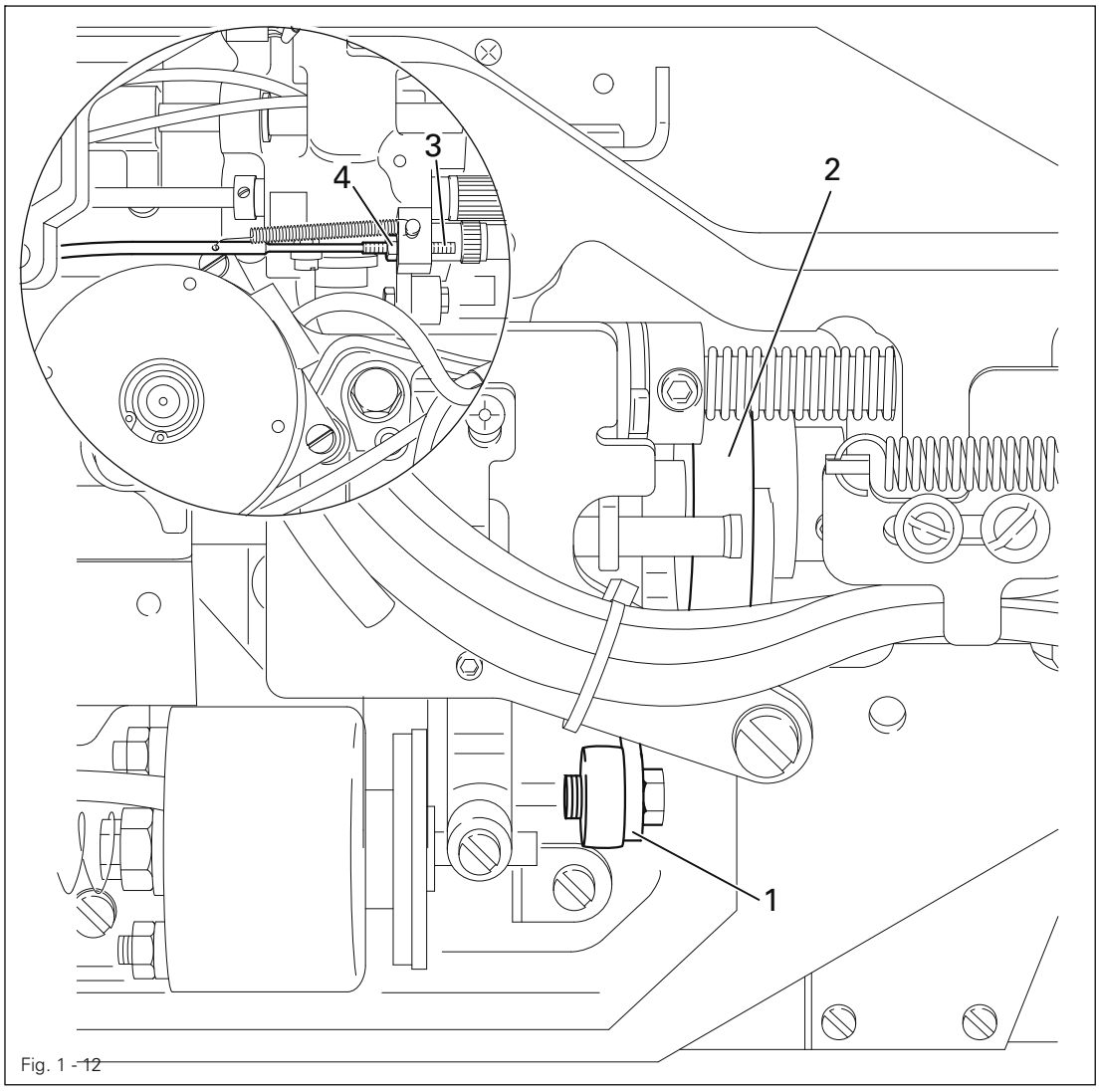


Fig. 1 - 12

- Turn screw **3** (nut **4**) in accordance with the **requirement**.
- For checking purposes, operate lever **1** by hand to let the control roller fall into the running path of control cam **2**.

1.17 Position of the drive shaft of the thread trimmer

Requirement
When the thread trimmer is in its basic position, shaft **1** should be flush with the metal edge of the machine case.

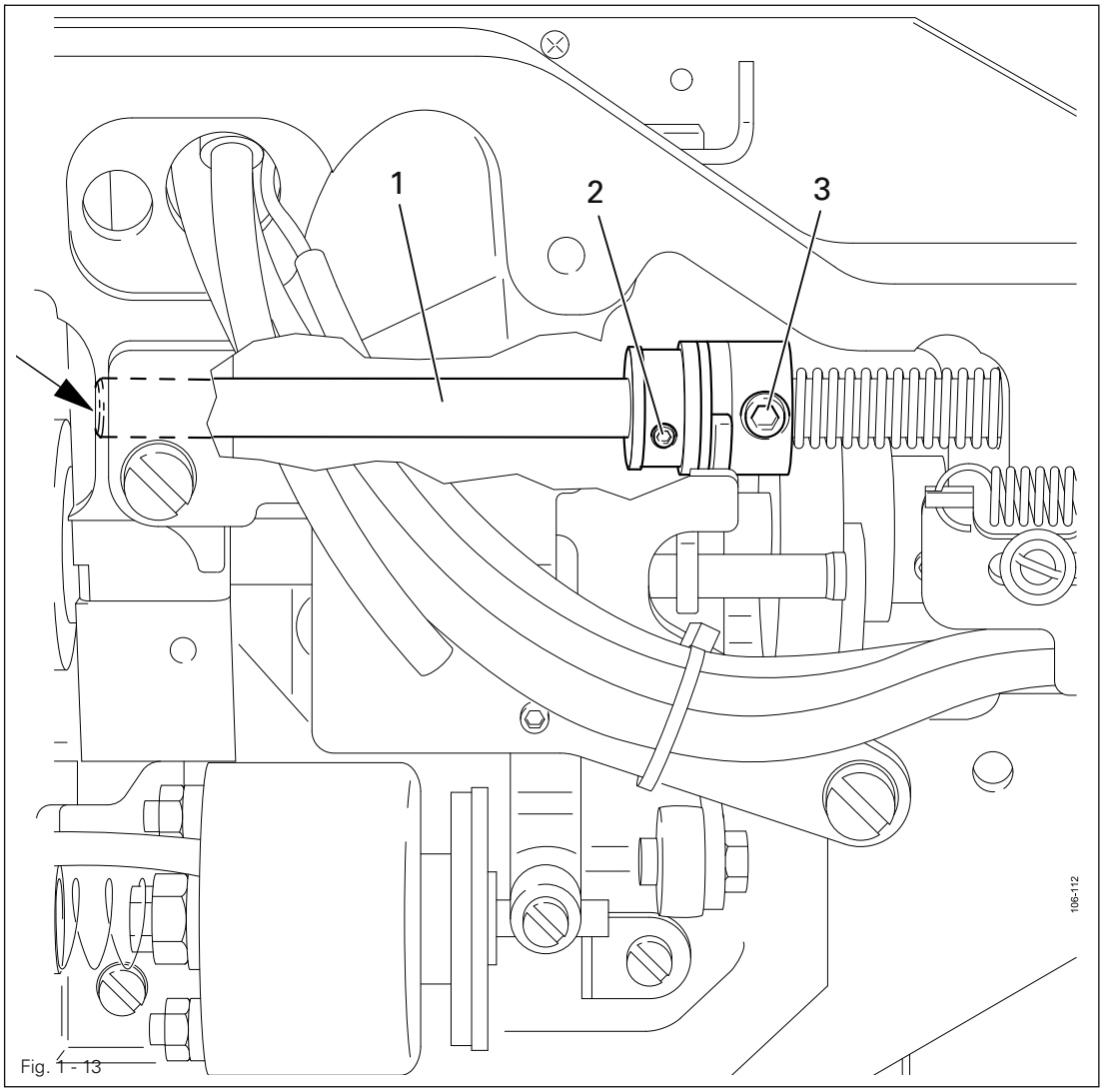


Fig. 1 - 13

- Move shaft **1** (screws **2** and **3**) in accordance with the **requirement**.

1.18 Aligning the stop plate

Requirement
When the thread trimmer is in its basic position, there should be a clearance of **0.3 mm** between lever **3** and plate **1**.

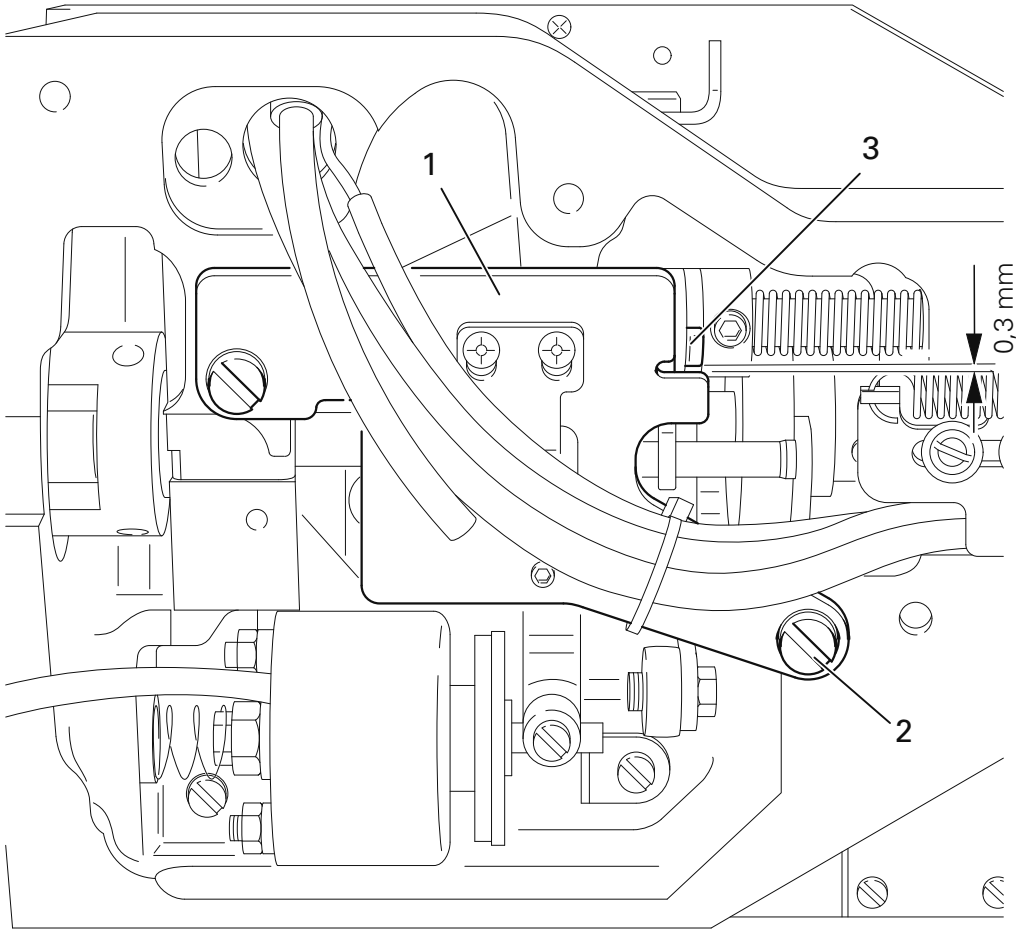
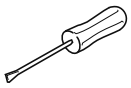


Fig. 1 - 14



- Move plate 1 (screws 2) in accordance with the **requirement**.

1.19 Adjusting the trimmer solenoid

Requirement
When the thread trimmer is in its neutral position, solenoid **1** should be at a distance of **5 mm** from the case.

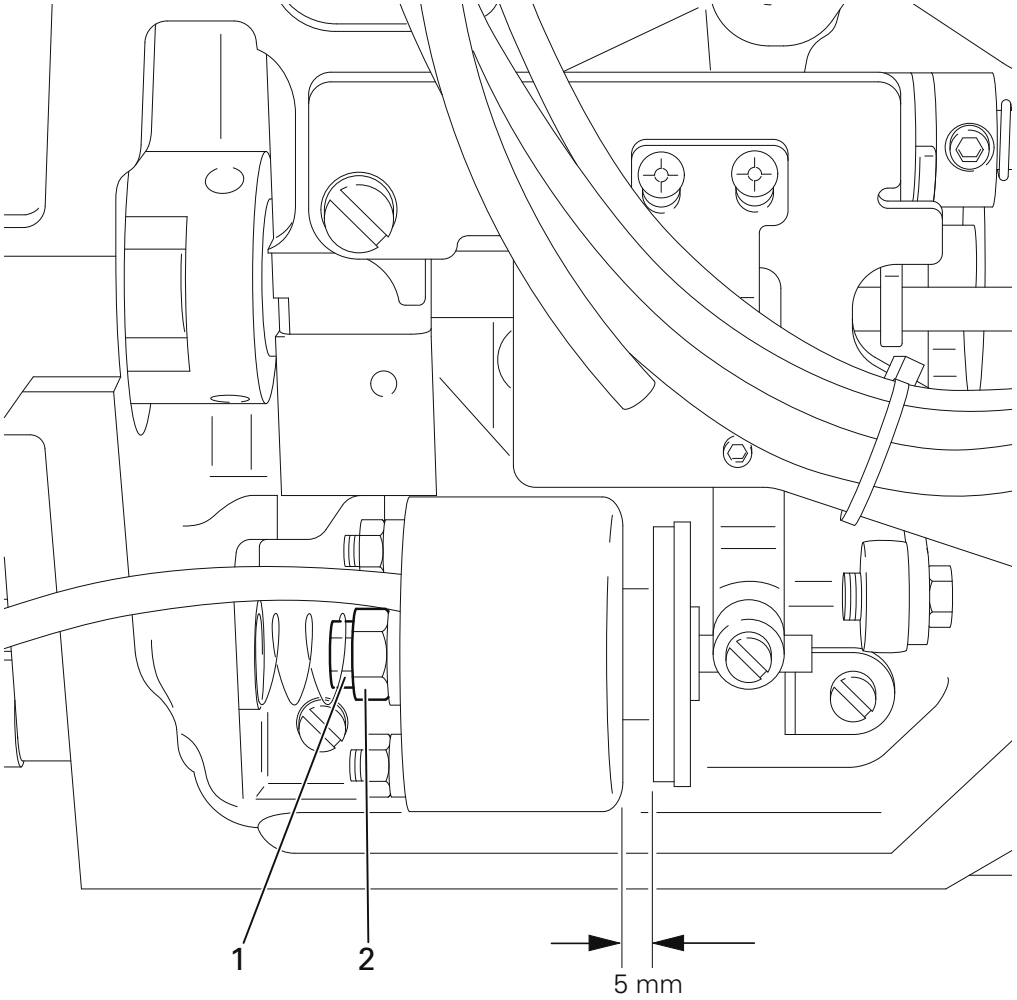
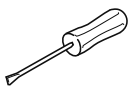


Fig. 1 - 15



- Turn nut **1** (nut **2**) in accordance with the **requirement**.

1.20 Adjusting the engaging lever

Requirement
When the thread trimmer is in its neutral position, pin **3** should be at a distance of **0.5 mm** from release trip **4**.

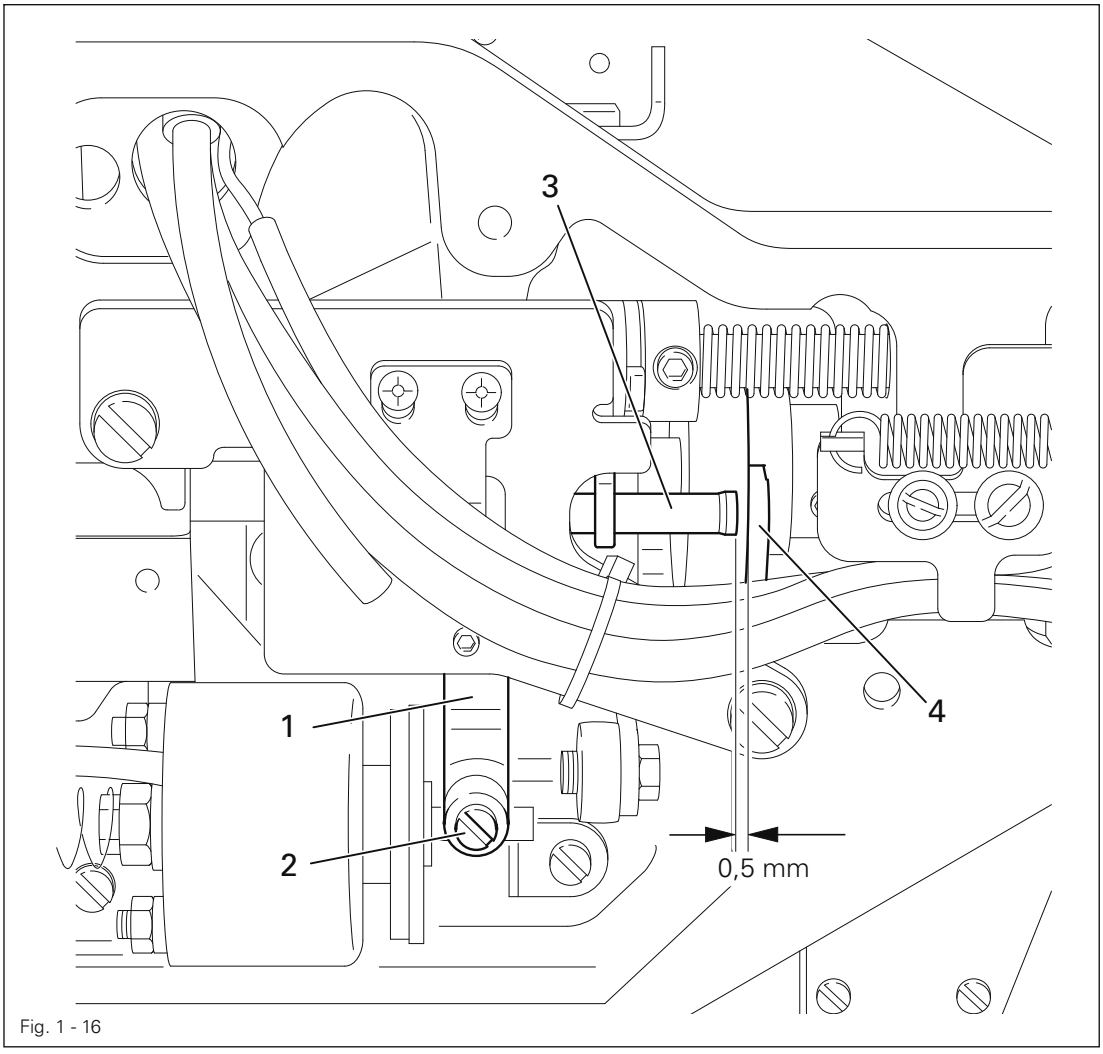
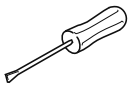


Fig. 1 - 16



- Move lever **1** (screws **2**) in accordance with the **requirement**.

1.21 Position of the thread catcher and knife

Requirement

When the machine is in its basic position

1. the tip of the thread catcher **1** should be at a distance of **4.5 mm** from the centre of the needle hole.
2. The blade of knife **3** should be at distance of **0.5 mm** from the needle plate insert.

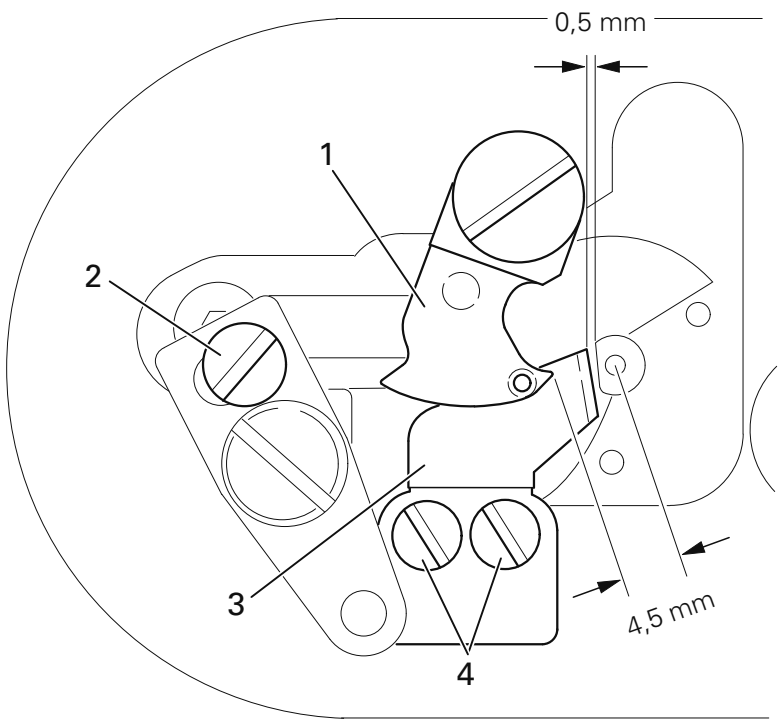
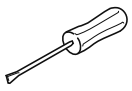


Fig. - 17



- Adjust thread catcher **1** (screw **2**) in accordance with **requirement 1**.
- Adjust knife **3** (screws **4**) in accordance with **requirement 2**.

1.22 Position of the release trip

Requirement
The slots of trip **1** should be touching screws **2** on the right side.

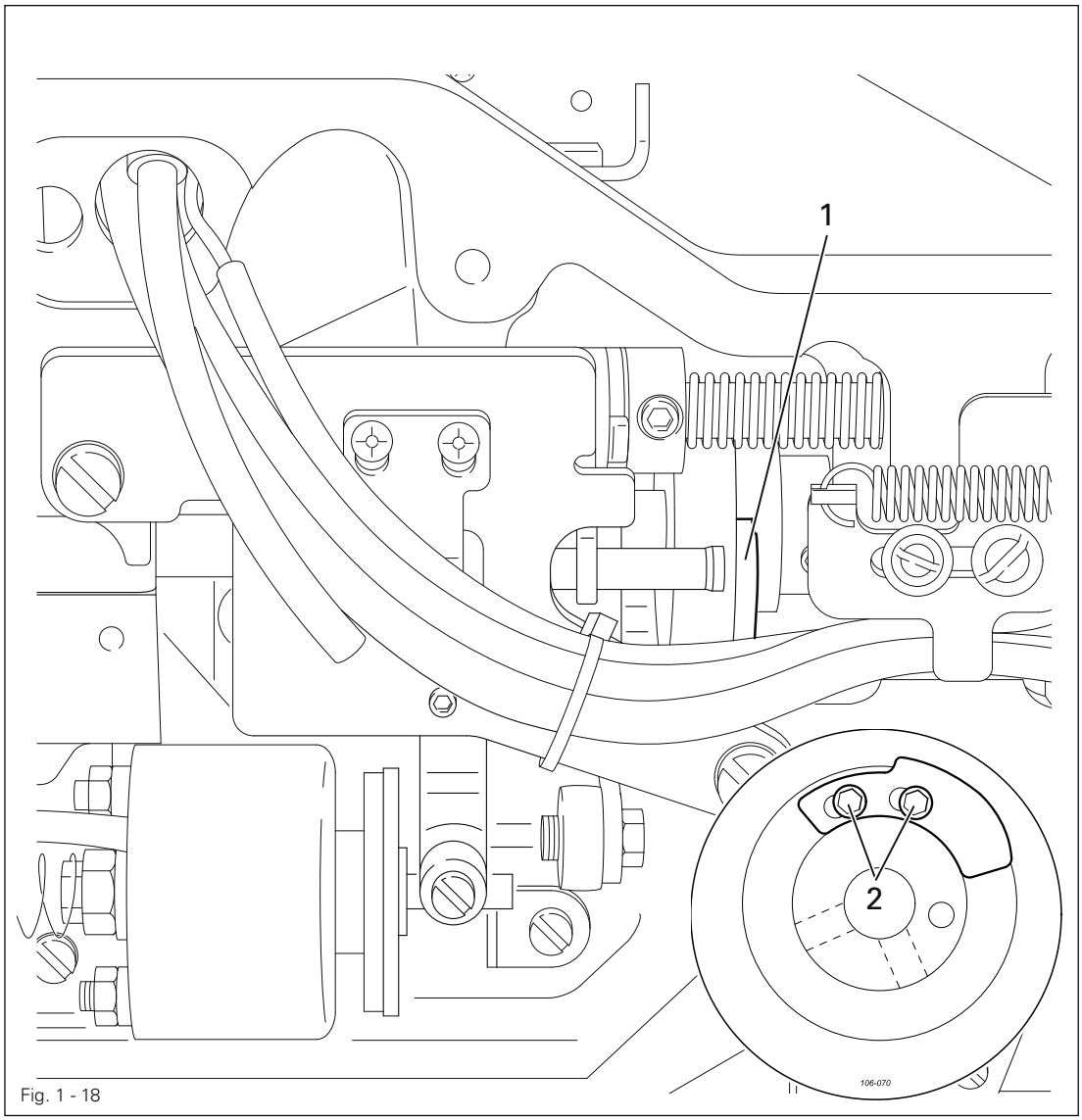


Fig. 1 - 18

- Move trip **1** (screws **2**) in accordance with the **requirement**.

If the needle thread is too short after trimming, trip **1** can be slightly readjusted.

1.23 Position of the release catch

Requirement
When lever **6** is touching release catch **7**, there should be a distance of **0.3 mm** between drive lever **5** and pin **1**.

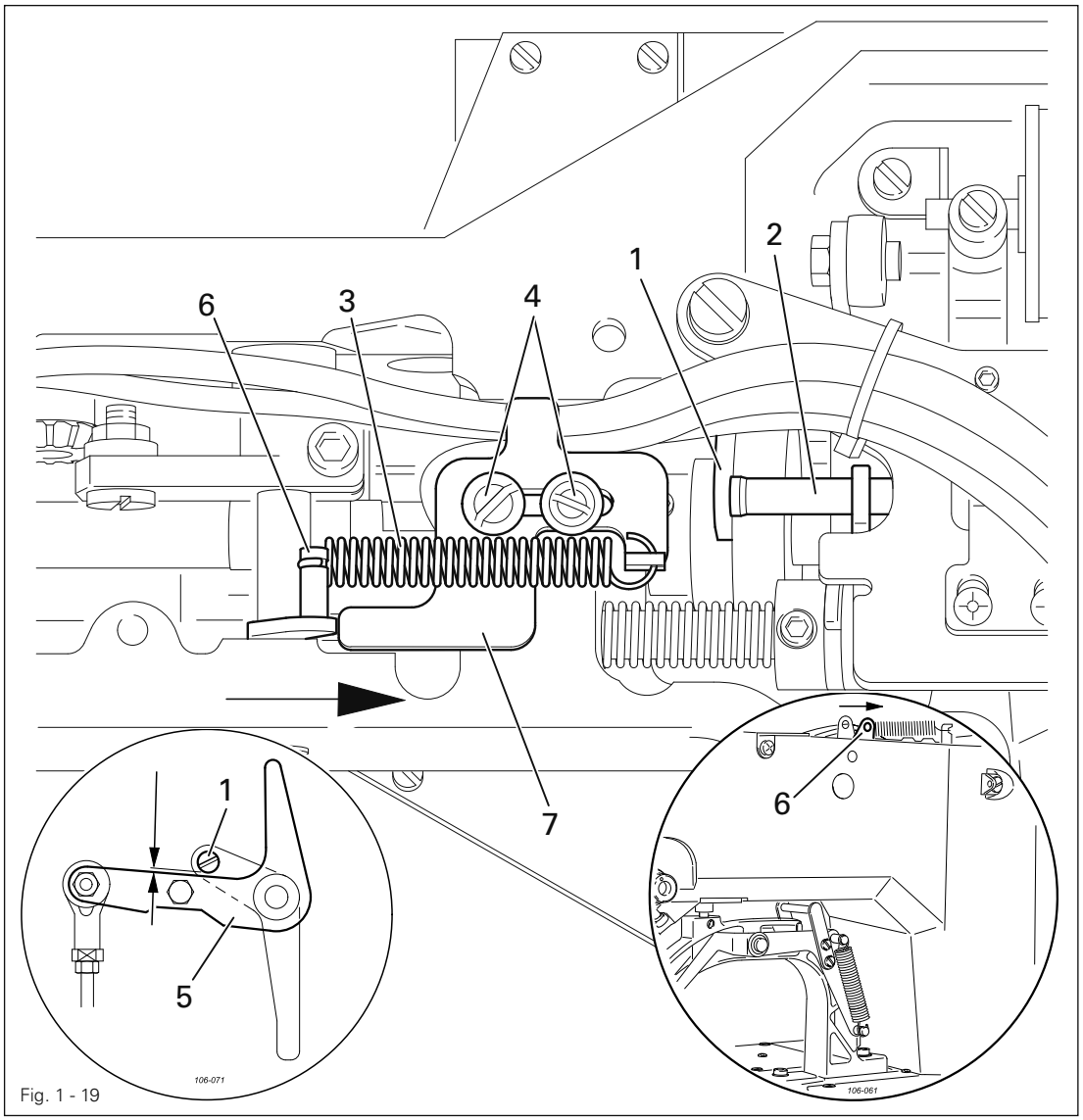


Fig. 1 - 19

- Turn the balance wheel until pin **1** is no longer on the release trip **2**.
- Release spring **3** and loosen screws **4**.
- In accordance with the **requirement**, place the feeler gauge between the drive lever **5** and pin **1**.
- Push lever **6** lightly in the direction shown by the arrow.
- Move release catch **7** against lever **6** and tighten screws **4**.
- Remove the feeler gauge and attach spring **3**.

Spring **3** should only be released and attached with suitable tools!
Danger of injury!

1.24 Needle thread tension release

Requirement
After thread trimming the distance X between tension discs **3** should be **0.6 – 0.8 mm** for normal materials and **0.8 – 1.0 mm** for heavy materials.

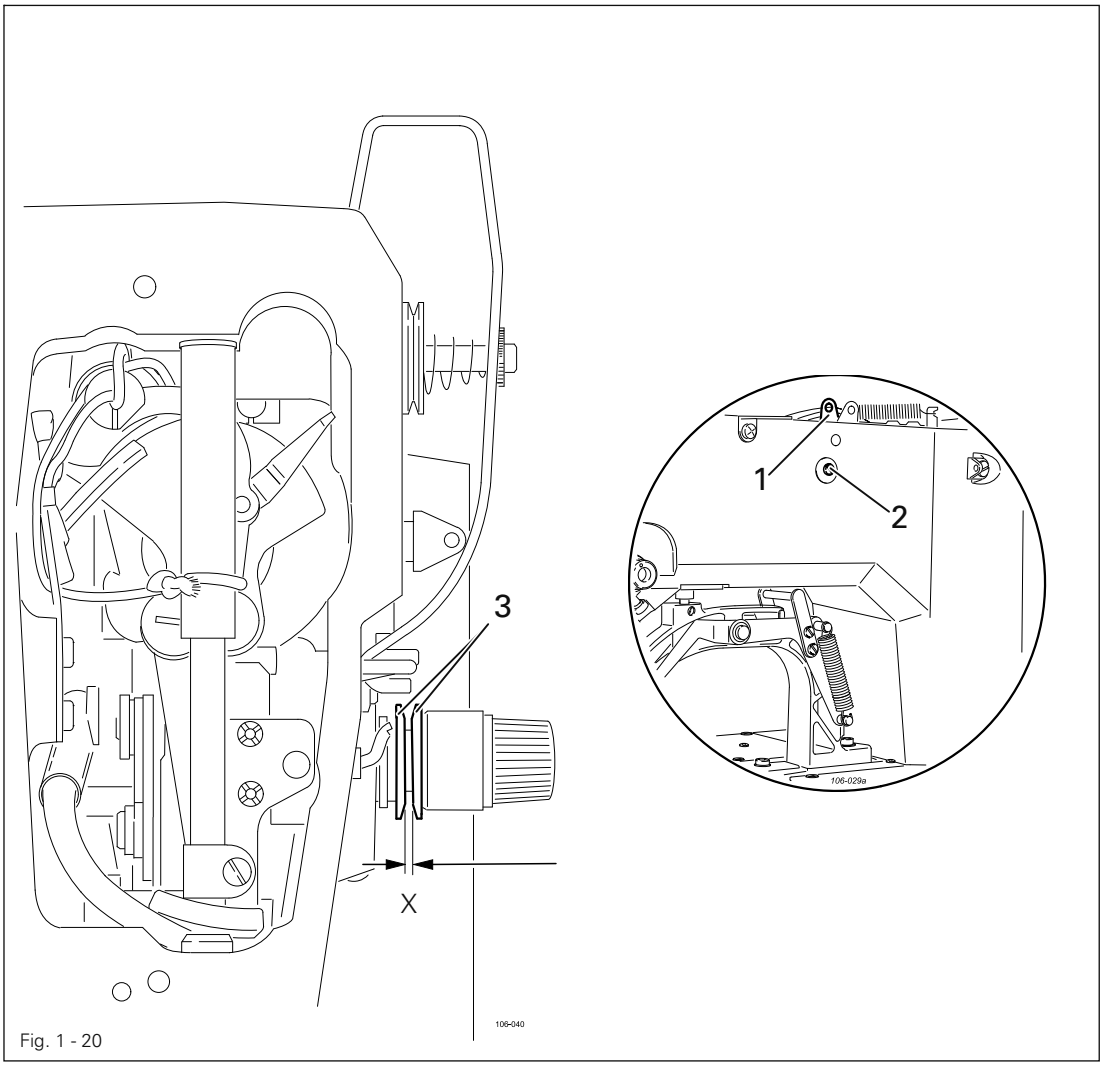


Fig. 1 - 20

- Bring the machine into the cutting position by hand.
- Move lever **1** (screw **2**) in accordance with the **requirement**.

1.25 Thread check spring and thread regulator

Requirement

1. The thread check spring **1** should have a **6 – 8 mm** stroke.
2. Screw **4** should be positioned in the centre of the slot of thread regulator **3**.

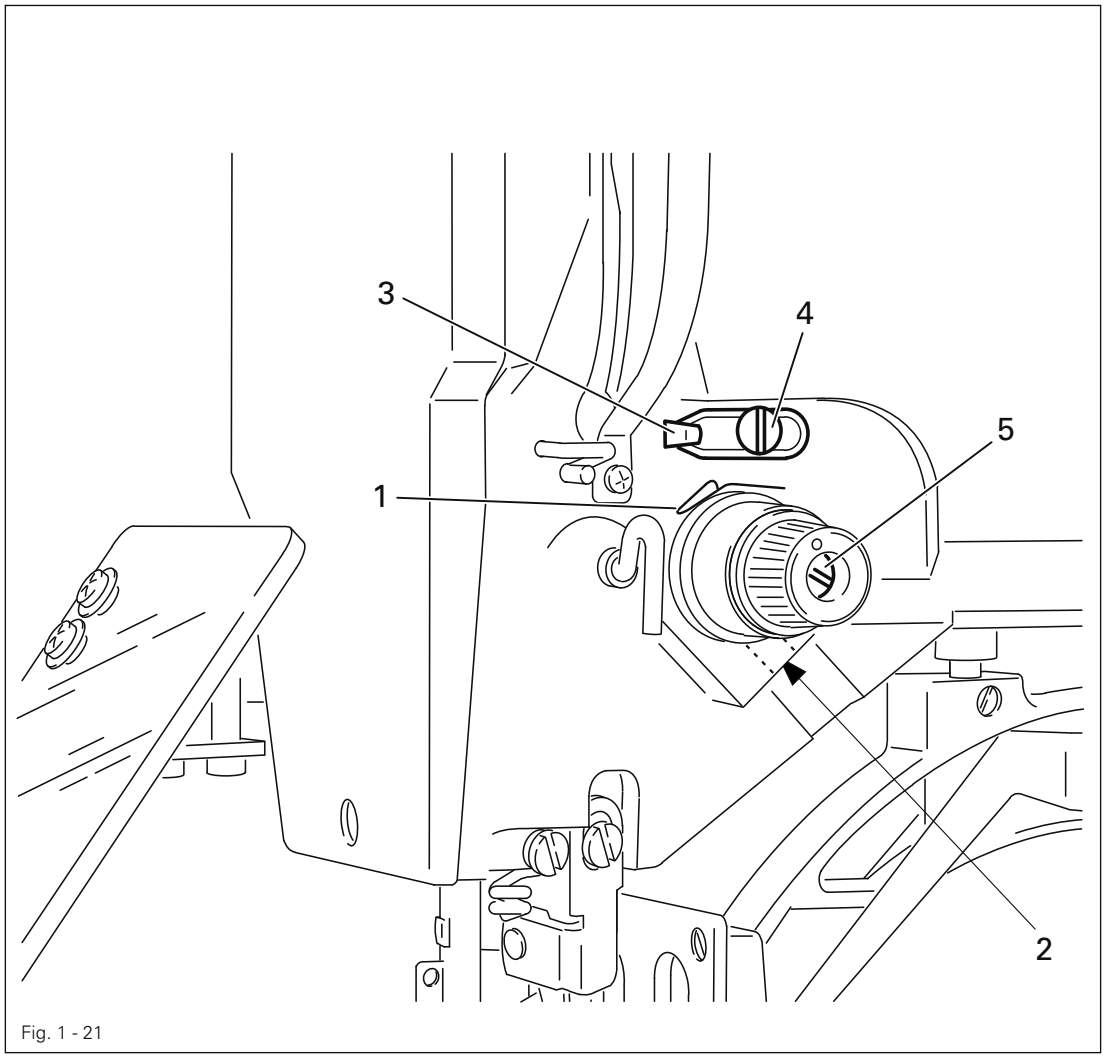
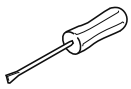
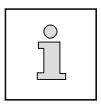


Fig. 1 - 21



- Adjust thread check spring **1** (screw **2**) in accordance with **requirement 1**.
- Move thread regulator **3** (screw **4**) in accordance with **requirement 2**.



Turn pin **5** to adjust the thread spring resistance. All settings of the thread check spring **1** depend on the material and might have to be corrected to achieve the desired result.

1.26 Bobbin winder drive wheel

Requirement

1. The should be a distance of approx. **40 mm** between drive wheel **1** and the metal edge of the machine case.
2. When the bobbin winder is switched on, its friction wheel should be driven by drive wheel **1**. When the bobbin winder is switched off, drive wheel **1** must not touch the friction wheel of the bobbin winder.

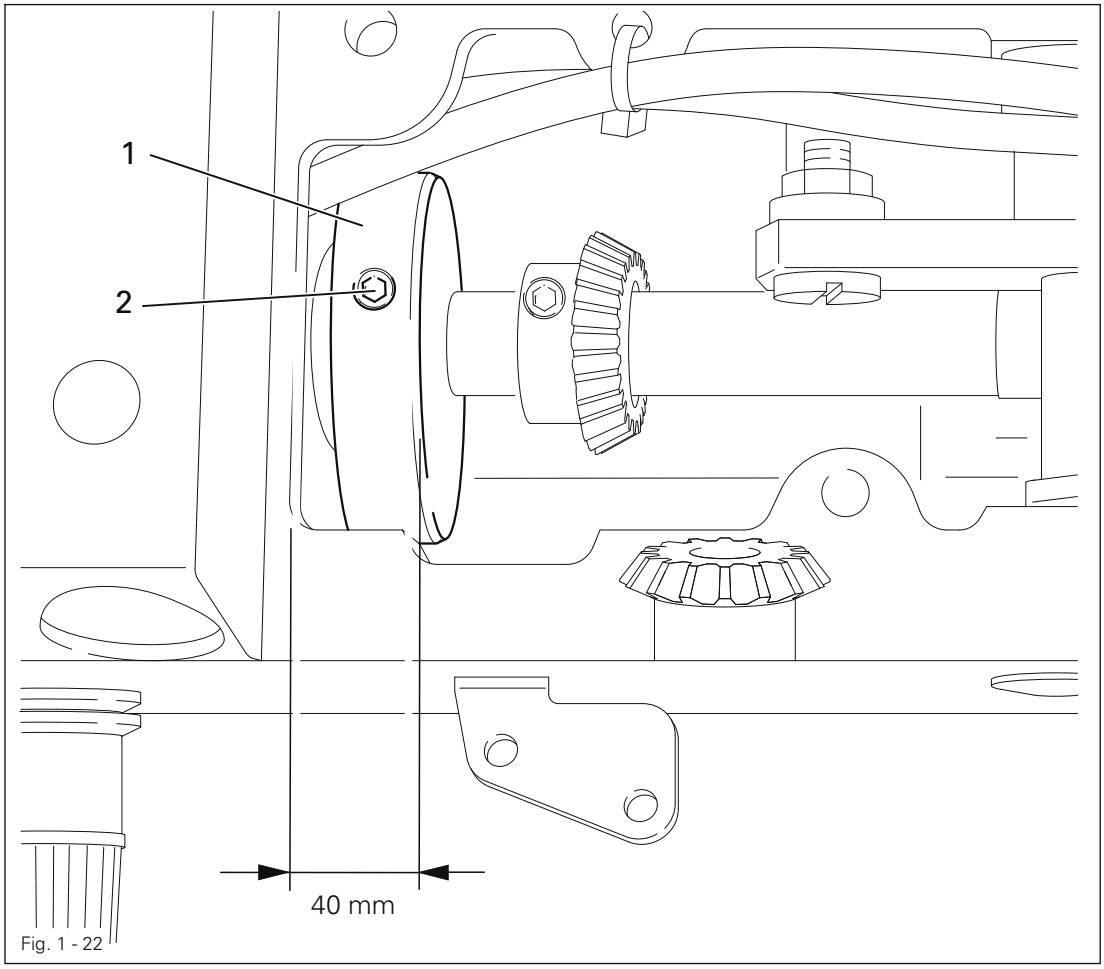
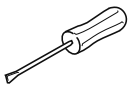


Fig. 1 - 22



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

1.27 Work clamp initiator

Requirement
When the work clamp is lowered and shortly before lever 5 in the machine arm touches stop 6, the initiator should switch on (input "3" parameter "601" is positioned at "off").

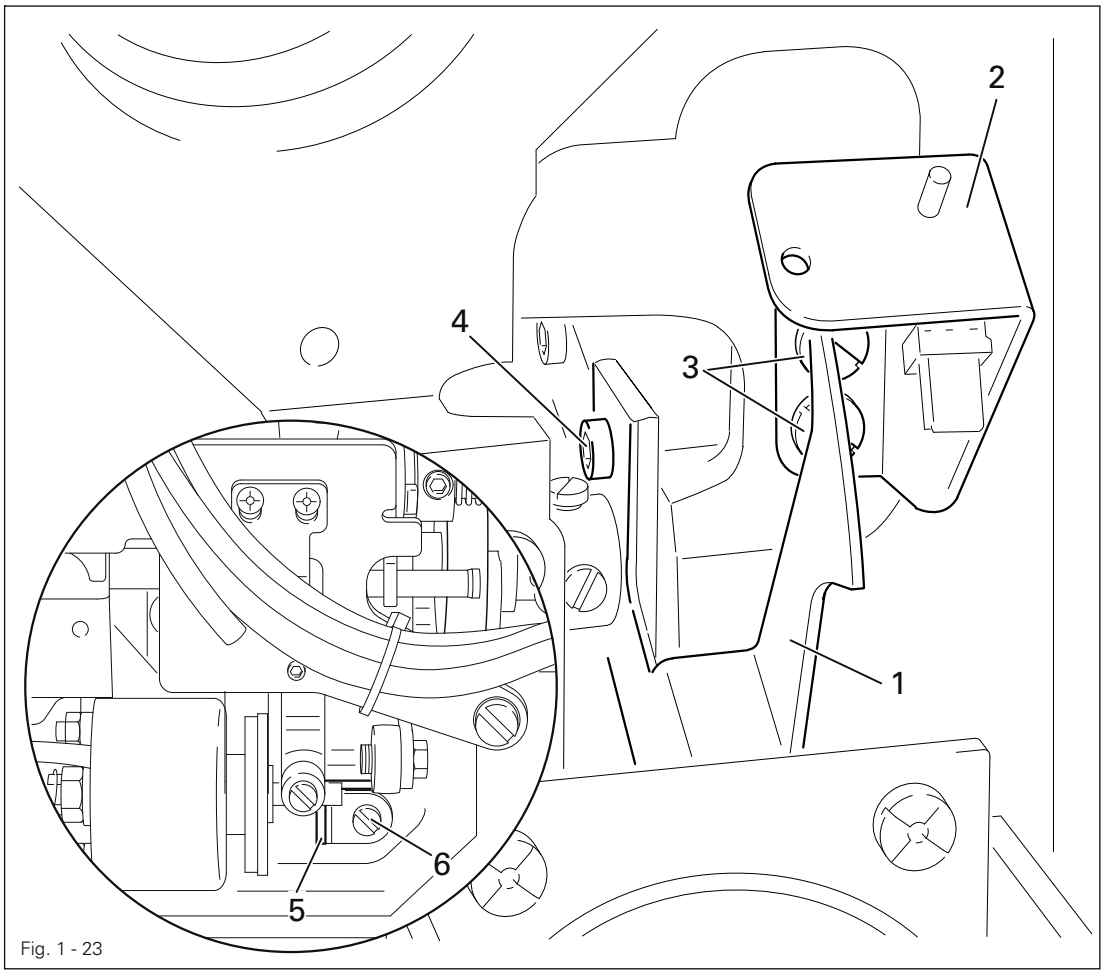
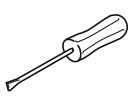


Fig. 1 - 23




- Switch on the machine and press the "**TE**" key.

- Lower the work clamp by pressing the "**tacting forwards**" key.

- With the clamp in this position, press the "**TE**" key.
- In the input mode, select parameter "**601**", see Chapter **11.03 Parameter input** in the instruction manual.

- Select input "**3**" with the corresponding **plus/minus key**.
- If necessary, enter the access code, see Chapter **11.04.01 Entering the access code** in the instruction manual.
- Move cam switch **1** by hand and check the ON/OFF switch position on the display.
- Adjust support **2** (screws **3**) and cam switch **1** (screws **4**) in accordance with the **requirement**.
- Switch off the machine.

1.28 Changing the work clamp

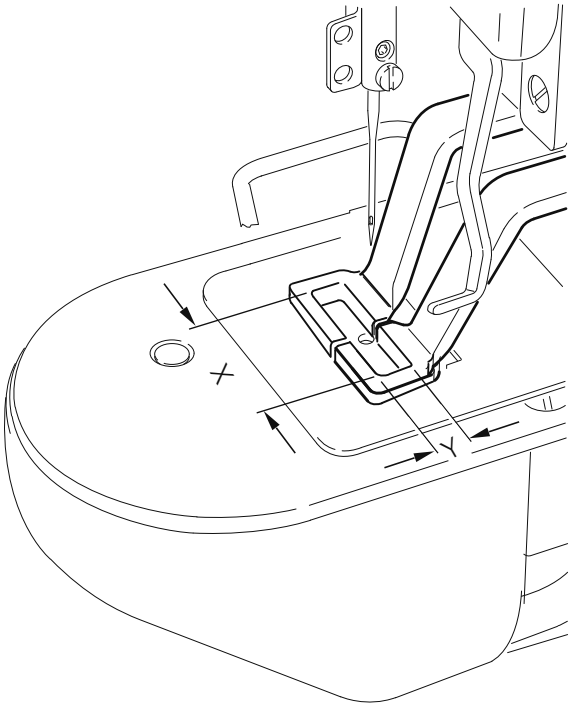


Fig. 1 - 24

- Measure the cutout of the new work clamp in X- and Y-direction.
- Adjust the sewing area size as described in Chapter **9.07** of the instruction manual.
- Fit the new work clamp and align it in as described in Chapter **15.07**.
- Select the seam program to match the work clamp cutout (see Chapter **9.06** of the instruction manual).
- Check the seam program by tacting (see Chapter **7.04** of the instruction manual).

If the actual size of the sewing area differs from the size entered, serious damage can be caused to the machine!

1.29 Cold start

When a cold start is carried out, the seam patterns 50 – 99 and all altered parameter settings are deleted! The machine is reset to its condition on delivery, the machine's zero points remain unaffected.

- Switch on the machine.

- Select parameter "607" with the corresponding plus/minus keys.
- If necessary, enter the code, see Chapter 11.04.01 Entering the access code in the instruction manual.

- With the corresponding plus/minus keys carry out the reset operation.
- Switch the machine off and on again after approx. 3 seconds.

1.30 Internet update of the machine software

The machine software can be updated with PFAFF flash programming. For this purpose the PFP boot program and the appropriate control software for the machine type must be installed on a PC. To transfer the data to the machine, the PC and the machine control unit must be connected with an appropriate null modem cable (part no. 91-291 998-91).

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/service/downloads

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

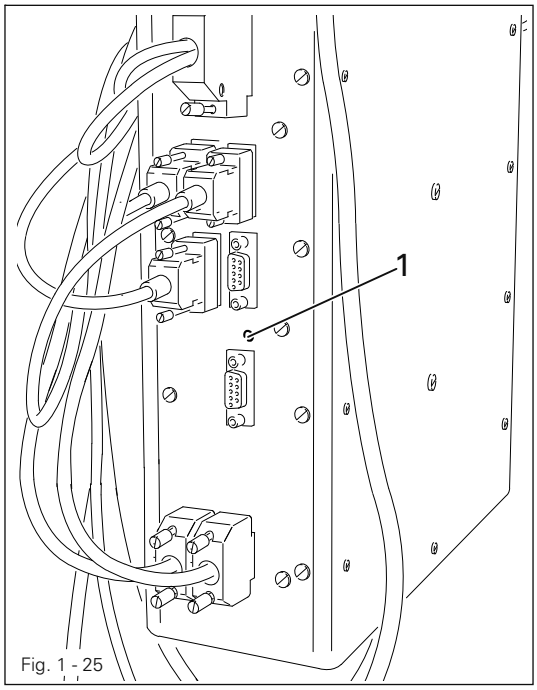


Fig. 1 - 25

- Switch on the PC and start the PFP boot program.
- Select the machine type.
- Press the "programming" button.
- Switch on the machine, keeping the boot key 1 pressed.
- Press the "OK" button.
- The software update is carried out, the update progress is shown on the bar display of the PFP boot program.
- 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.

1.31 List of parameters

The parameter setting values my only be altered by appropriately trained staff!

Group	Parameter	Description	Setting range	Set value
000	001	**Maximum speed** This parameter is used to fix the max. sewing speed (upper limit).	500 - 2700	2700
	002	**Sewing speed for start stitches** With this parameter the speeds for the **5** start stitches are fixed. Speed (spm) for start stitch no. **1** Speed (spm) for start stitch no. **2** Speed (spm) for start stitch no. **3** Speed (spm) for start stitch no. **4** Speed (spm) for start stitch no. **5**	 500 - 2700 500 - 2700 500 - 2700 500 - 2700 500 - 2700	 500 900 2700 2700 2700
	003	**Locking/releasing seam patterns** This parameter is used to release (ON) or lock (OFF) the individual seam patterns (**0** to **99)** to be carried out in the sewing mode.	ON - OFF	ON
	004	**Switch bobbin thread counter on/off** **Standard value (pieces per bobbin)** In the sewing mode, the bobbin thread counter counts the pieces sewn backwards from the standard value. If the bobbin thread counter is switched on, in the sewing mode a signal is given when the value **0** is reached.	ON - OFF 1 - 9999	OFF 11
	005	**Sequence combination** This parameter is used to combine several sequences with each other. 0 = no combination 1 = C1 with C2 2 = C2 with C3 3 = C1 with C3 4 = C1 with C2 and C3	0 - 4	0

Group	Parameter	Description	Setting range	Set value
000	006	**Reversing after thread trimming** **Reverse position [°]** With this parameter it is possible to switch the automatic reversing function after thread trimming on or off. If the reversing function is switched on, the reverse position can be set by turning the balance wheel. The access code is necessary for this adjustment.	ON - OFF 0 - 14	ON 11
	007	**Starting point = scale reference point** With this parameter it is possible to choose whether the scale reference point is the starting point (ON) or the zero point (OFF).	ON - OFF	OFF
	008	**Speed for the "winding" function** This parameter is used to fix the speed for the winding operation.	200 - 2700	1500
	009	**Via zero point to starting point after end of sequence** With this parameter it is possible to choose that, after the end of the sequence, the X-, Y-drive moves to the seam starting point via the reference initiators.	ON - OFF	OFF
	010	**Via zero point to starting point after number of program cycles Number of program cycles** With this parameter it is possible to choose that, after a certain number of program cycles, the X-, Y-drive moves to the seam starting point via the reference initiators.	ON - OFF 1 - 100	OFF
	011	**Pedal mode** Switchover between level mode (**0**) and flip flop mode (**1**).	0 - 1	0
	012	**Needle or balance wheel position in degrees**	0 - 360	11

Group	Parameter	Description	Setting range	Set value
000	013	NIS "needle in material" [°] This parameter is used to set the NIS signal. If the function is executed, the position can be entered by turning the balance wheel. If the position is altered, the result is a change in the point of time when the carriage is moved. The access code is necessary for this adjustment.	65 -166	107
	014	Thread trimming speed [min^{-1}] This parameter is used to fix the speed for thread trimming.	100 - 700	300
	015	Reduced current for stepping motors The reduction function of the holding current at rest with closed work clamp is switched on or off.	ON - OFF	ON
	016	Key tone The key tone, as reaction to a key on the control panel being pressed, is switched on or off. The double tone for incorrect inputs always remains switched on.	ON - OFF	ON
	017	Clamp solenoid Operating time [10 ms] The time, for which the solenoid is under full current, is entered.	5 - 100	10
	018	Clamp solenoid duty-cycle [%] At the end of the clamp solenoid operating time (Parameter "**017"**) the solenoid is clocked. The relationship between duration of operation and non-operation is entered here.	5 - 100	20
	019	Thread trimming solenoid operating time [10 ms] The time, for which the solenoid is under full current, is entered.	5 - 100	25
	020	Thread trimming solenoid duty-cycle At present without a function	5 - 100	100

Group	Parameter	Description	Setting range	Set value
000	021	**Thread take-up lever t.d.c. [°]** The position for the t.d.c. thread take-up lever is entered here. If the function is executed, the position can be set by turning the balance wheel. The access code is necessary for this adjustment.	45 - 53	51
	022	**Thread trimming position (in relation to t.d.c. needle) [°]** The position, at which the thread trimming solenoid is switched on, is entered here. The adjustment is set by turning the balance wheel. The access code is necessary for this adjustment.	180 - 253	180
	023	**Sewing area size X [1/10 mm]** To avoid mechanical collisions, the sewing area size of the clamp in use is entered. The control unit checks the path and, if necessary, issues an error message.	± 200	-100/ +100
	024	**Sewing area size Y [1/10 mm]** To avoid mechanical collisions, the sewing area size of the clamp in use is entered. The control unit checks the path and, if necessary, issues an error message.	± 100	-15/ +15
	025	**Thread wiper solenoid operating time [10 ms]**		
	026	**Thread wiper solenoid,** ratio on-time to off-time in % (Duty-Cycle)		
	027	Basic position / loading point = zero point	ON - OFF	OFF
100	101	**Software version main processor** The software version of the main processor is displayed		0335/xxx
	102	**Software version sewing drive unit** The software version of the sewing drive module is displayed.		V.xx
	103	**Software version control panel** The soft- and hardware version of the control panel are displayed.		V.xxx/ H.xxx

Group	Parameter	Description	Setting range	Set value
600	601	**Display inputs** With this function the digital inputs can be checked. "IN" shows the input numbers (1 - 16). Under "VAL" the respective switch status is displayed. IN VAL 1 IN1, programmable input 1 2 IN2, programmable input 2 3 E3, work clamp raised 4 5 6 7 8 9 10 11 12 13 14 15 16		
	602	Display special inputs With this function it is possible to check the special inputs pedal, reference X (SM1) and reference Y (SM2). "IN" shows the inputs (PED, REFX, REFY). Under "VAL" the respective switch status is displayed. IN VAL PED Pedal (speed control unit -1; 0; +1; 2) REFX Reference input X REFY Reference input Y		

Group	Parameter	Description	Setting range	Set value
600	603	**Connect outputs** With this function the outlets can be connected. "OUT" shows the outlet selected (**1-16).** Under "VAL" the selected output is set (S) with the plus/minus key (+), and reset (R) with the plus/minus key. Interlocks are checked. Non-assigned outlets are not connected. OUT VAL **1** S/R Solenoid for work clamp open **2** S/R **3** S/R Solenoid for thread trimming **4** S/R **5** S/R **6** S/R Program outlet **7** S/R Program outlet **8** S/R **9** S/R **10** S/R **11** S/R **12** S/R **13** S/R **14** S/R **15** S/R **16** S/R		
	604	**Move stepping motors** The stepping motors SM1 (X-axis) and SM2 (Y-axis) are moved individually with the respective plus/minus keys. Interlocks are not checked.		
	605	**Turn sewing motor** The sewing motor can be operated with a selectable set speed by pressing the pedal. After the sewing motor has been started, the current speed is also displayed.	500 -2700	500

Group	Parameter	Description	Setting range	Set value
600	606	Thread trimming sequence The sequence for a complete thread trimming cycle is started with the +/- key (+) below CUT and below THR.		
	607	Cold start (RESET) With this function the control unit carries out a cold start (RESET) with which the data is reset. After this function has been selected, the machine must be switched off and then on again.		
	608	Setting zero points With this function and the adjustment gauge, the zero points for the X/Y-drive unit can be set. (stepping motor correction values for the reference points REFX, REFY). The access code is required for this adjustment.		
	609	Setting the clamp centre X This function is used to set the centre of the clamp in X-direction. When entering the function, the machine moves to the current clamp centre, after which it is possible to move to the right or left edge of the clamp, depending on the set limits (param. "023"). A correction can be made with the plus/minus keys. The relocation value is displayed.		
	610	Setting the clamp centre Y This function is used to help set the centre of the clamp in Y-direction. After entering this function, the machine moves to the current clamp centre, after pressing a key to the front or the rear limit (param. "024"). The clamp must be shifted manually.		

Group	Parameter	Description	Setting range	Set value
600	611	**Automatic clamp opening off** With this function the automatic opening of the clamp after thread trimming can be switched off. After the machine has been switched off, the automatic clamp opening function is always activated.	ON - OFF	OFF
	612	**Test function continuous start**	ON - OFF	OFF
800		The function groups and the functions Programming the Function Keys **P, P1-P8** and **C1-C3** can be released for manipulation (ON) or locked (OFF). If a function group is suppressed, its parameters cannot be changed until a valid access code has been entered. Once a valid access code has been entered, the suppression is cancelled until the machine is switched off.		
	801	**Right of access function group 000**	ON - OFF	ON
	802	**Right of access function group** 100	ON - OFF	ON
	807	**Right of access function group** 600	ON - OFF	OFF
	808	**Right of access function group** 700	ON - OFF	OFF
	809	**Right of access function group** 800	ON - OFF	OFF
	810	**Right of access to keys "P",** "**P1**" - "**P8**" and "**C1**" - "**C3**"	ON - OFF	ON
	811	**Access code** This parameter is used to alter the access code. Upon delivery the machine is set with the access code "**3371**".		**3371**

1.32 Error messages on the display

Following error messages are shown on the control panel display

ERROR: **1** Processor error STACK_OVERFLOW
ERROR: **2** Processor error STACK_UNDERFLOW
ERROR: **3** Processor error UNDEF_OPCODE
ERROR: **4** Processor error PROTECTION_FAULT

ERROR: 5	Processor error ILLEGAL_WORD_OPERAND
ERROR: 6	Processor error ILLEGAL_INSTRUCTION
ERROR: 7	Processor error ILLEGAL_BUS_ACCESS
ERROR: 8	Processor error NMI
ERROR: 10	OTE (Sewing head recognition unit) not attached
ERROR: 11	OTE not programmed (new)
ERROR: 12	OTE check sum error
ERROR: 13	OTE header invalid
ERROR: 14	OTE user data invalid
ERROR: 30(#)	(OTE error see cap. 11.10)
ERROR: 31(#)	(Error Sewing motor see cap. 11.09)
ERROR: 50	Incorrect control panel
ERROR: 51	Incorrect machine class in OTE
ERROR: 52	Incorrect software for main drive
ERROR: 101	Mains voltage
ERROR: 102	Power supply overload
ERROR: 103	24 V too low
ERROR: 201(#)	(Error Sewing motor see cap. 11.09)
ERROR: 202	Pattern too large
ERROR: 203	Overload data transfer sewing motor
ERROR: 204	Tacting function locked
ERROR: 205	Run function locked
ERROR: 206	No NIS
ERROR: 207	Not end of ramp
ERROR: 208	Zero point not found
ERROR: 209	Sewing function locked
ERROR: 210	Bobbin thread fault
ERROR: 211	Stitch too large
ERROR: 301	Raise clamp not completed
ERROR: 302	Lower clamp not completed
ERROR: 303	Raise clamp locked (needle position)
ERROR: 304	Lower clamp locked (needle position)
ERROR: 305	Thread wiper on locked (needle position)
ERROR: 401	Error sewing motor
ERROR: 402	Overload data transfer sewing motor
ERROR: 403	Program station not programmed
ERROR: 404	Program locked
ERROR: 405	Program does not exist
ERROR: 406	No NIS
ERROR: 407	Zero points invalid
ERROR: 408	Machine not in basic position

ERROR: **409**	Zero point not found
ERROR: **416**	Error in SD-memory card reader
	1: No SD-memory card inserted
	2: Wrong SD-memory card (does not match the machine)
	3: SD-memory card not inserted correctly
	4: SD-memory card with write protection
	5: Data error on SD-memory card
	6: Formatting failed
	7: File does not match machine
	8: Incorrect file size
	9: Transfer error
	10: Data cannot be deleted
	11: Sewing head recognition unit not connected
ERROR: **417**	No penetration point found for winding
ERROR: **418**	**1st** penetration point for winding is located outside the sewing area
ERROR: **419**	Incorrect number of sewing-on stitches
ERROR: **420**	Incorrect number of attaching stitches

1.33 Sewing motor errors

1	Time out
9	Position not reached
33	Invalid parameter value
34	Brake path too short
35	Communication error
36	Initialisation (Init.) not completed
37	Command overflow
64	Mains OFF during initialisation
65	Overcurrent directly after mains ON
66	Short circuit
68	Overcurrent in operation
69	No increments
70	Motor blocking
71	No incremental connector
73	Motor running interrupted
74	Incremental transmitter missing for speed increase / reduction
75	Controller locked
170	Invalid transmission
171	Zero mark invalid
173	Motor blocked in **1st** stitch
175	Start error
222	Time-out monitoring

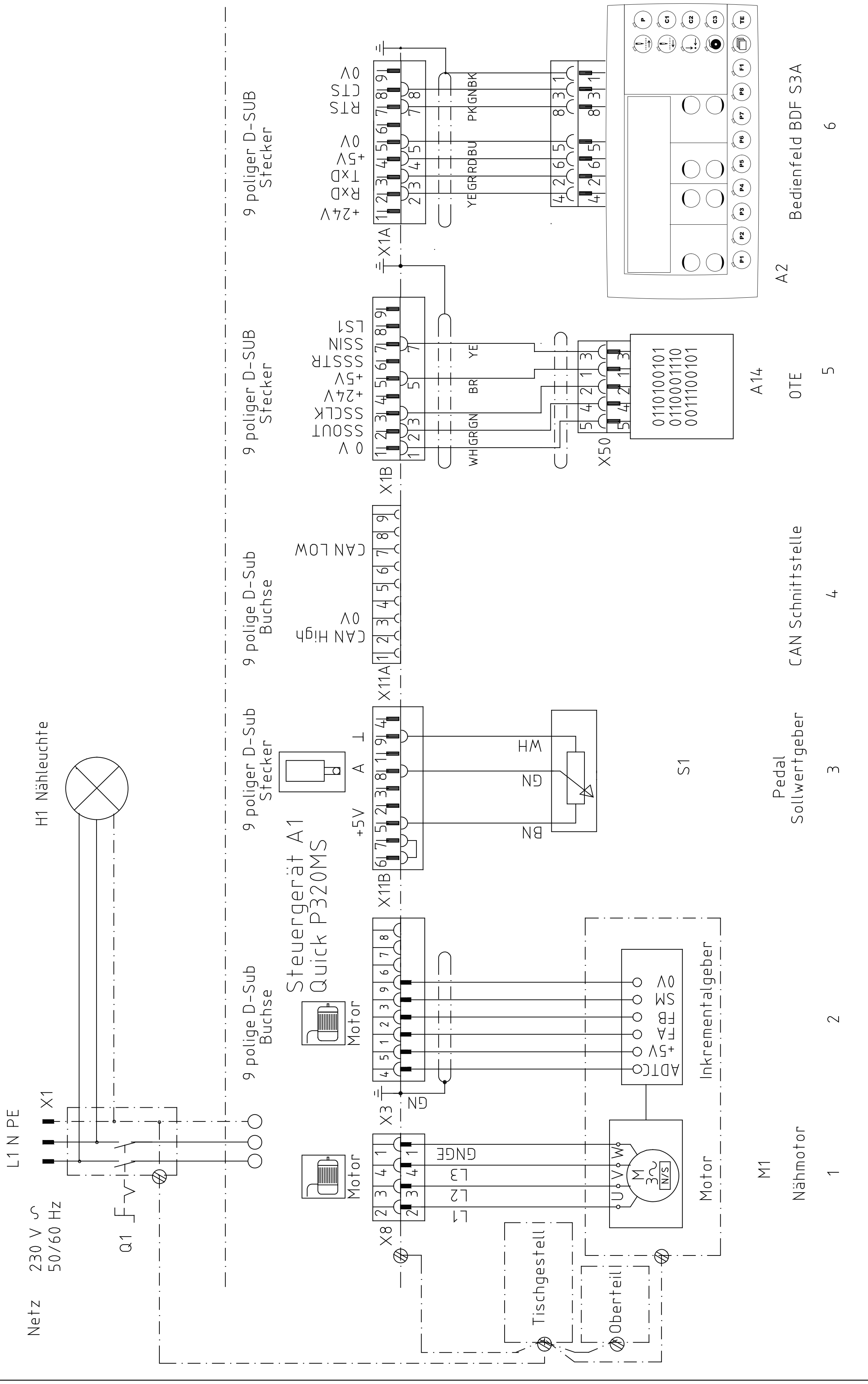
1.34 OTE-errors

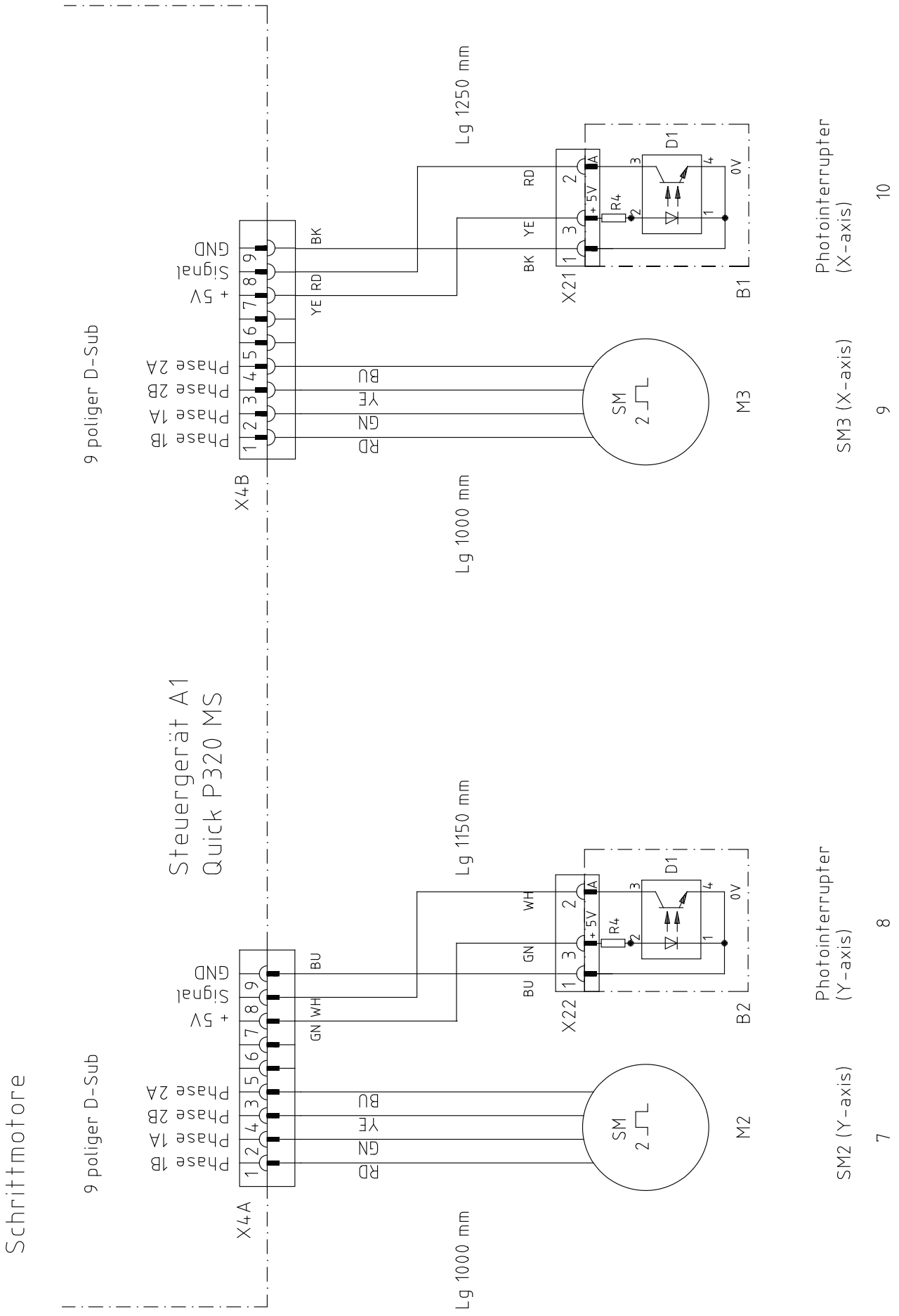
1	Read error
2	Write error
3	Full EEPROM
4	No EEPROM
5	Invalid size
6	Invalid address
7	Address overflow
8	Checksum falled
9	Serialnr. changed
7	Adressen-Überlauf
8	Checksummen-Fehler
9	Falsche Seriennummer

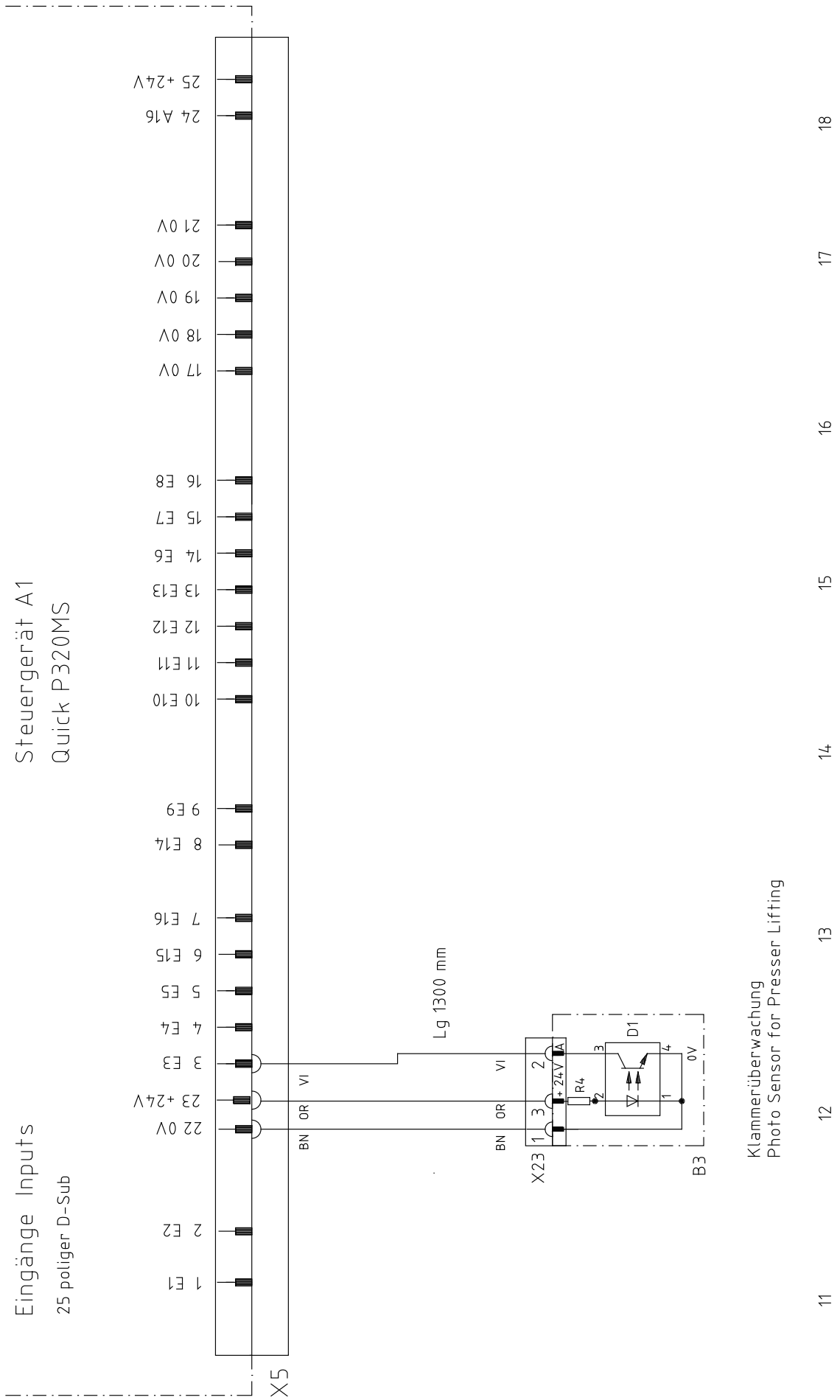
2 Circuit diagrams

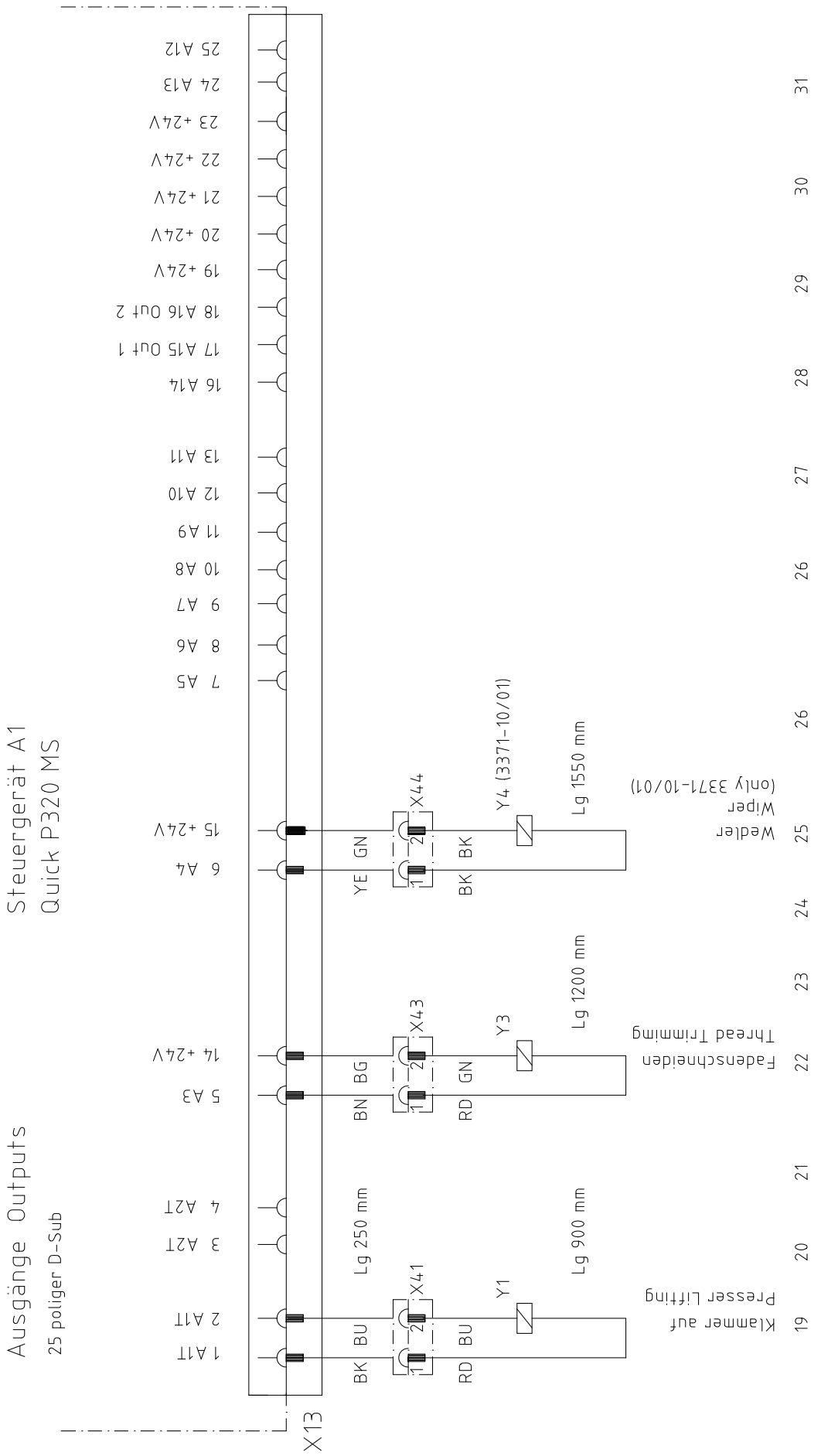
Circuit diagram reference list

A1	Controller P 320MS
A2	Control panel S3A
A14	Sewing head recognition system (OTE)
B1	Hybrid light barrier Y axis
B2	Hybrid light barrier X axis
B3	Hybrid light barrier clamp monitoring
H1	Sewing lamp
M1	Sewing motor
M2	Sewing motor Y axis
M3	Sewing motor X axis
Q1	Main switch
S1	Pedal speed control unit
X1	Mains switch
X1A	A2 Control panel S3A
X1B	A14 Sewing head recognition system (OTE)
X3	M1 Incremental transmitter (sewing motor)
X4A	M2 Stepping motor + hybrid light barrier Y axis
X4B	M3 Stepping motor + hybrid light barrier X axis
X5	Inputs
X8	M1 Sewing motor
X11A	CAN interface
X11B	S1 Pedal speed control unit
X13	Outputs
X21	B1 Hybrid light barrier X axis
X22	B2 Hybrid light barrier Y axis
X23	B3 Hybrid light barrier clamp monitoring
X41	Y1 Clamp open
X43	Y3 Thread trimming
X44	Y4 Thread wiper
Y1	Clamp open
Y3	Thread trimming
Y4	Thread wiper


Netz
230 V
50/60 Hz
L1 N PE
X1
Q1
H1 Nähleuchte
9 polige D-Sub Buchse
9 poliger D-Sub Stecker
9 polige D-Sub Buchse
9 poliger D-SUB Stecker
9 poliger D-SUB Stecker
Steuergerät A1
Quick P320MS
Motor
X8
X3
X11B
X11A
X1B
X1A
CAN High
CAN LOW
0V
+5V
A
SSOUT
SSCLK
+24V
+5V
SSSTR
SSIN
LS1
0 V
+24V
RxD
TxD
+5V
0V
RTS
CTS
0V
GNGE
L3
L2
L1
GN
WH
GN
BN
BR
YE
YEGRRDBU
PKGNBK
WHGRGN
ADTC
+5V
FTA
FBA
SM
0V
Inkrementalgeber
Motor
Tischgestell
Oberteil
S1
X50
A14
0110100101
0110001110
0011100101
A2
M1
Nähmotor
1
Pedal
Sollwertgeber
3
2
CAN Schnittstelle
4
OTE
5
Bedienfeld BDF S3A
6


Schrittmotore
9 poliger D-Sub
X4A
Phase 1B
Phase 2A
Phase 2B
Phase 1A
+ 5V
Signal
GND
RD
GN
YE
BU
SM
2
M2
Lg 1000 mm
Lg 1150 mm
X22
B2
D1
R4
+5V
0V
WH
GN
BU
SM2 (Y-axis)
Photointerrupter
(Y-axis)
7
8
Steuergerät A1
Quick P320 MS
9 poliger D-Sub
X4B
BK
RD
YE
BU
YE
GN
RD
M3
Lg 1000 mm
Lg 1250 mm
X21
B1
SM3 (X-axis)
Photointerrupter
(X-axis)
9
10


Steuergerät A1
Quick P320MS
Eingänge Inputs
25 poliger D-Sub
X5
25 +24V
24 A16
21 0V
20 0V
19 0V
18 0V
17 0V
16 E8
15 E7
14 E6
13 E13
12 E12
11 E11
10 E10
9 E9
8 E14
7 E16
6 E15
5 E5
4 E4
3 E3
23 +24V
22 0V
BN OR VI
Lg 1300 mm
X23
B3
+24V
0V
R4
D1
Klammerüberwachung
Photo Sensor for Presser Lifting
11 12 13 14 15 16 17 18


Steuergerät A1
Quick P320 MS
Ausgänge Outputs
25 poliger D-Sub
X13
1 A1T
2 A1T
3 A2T
4 A2T
5 A3
6 A4
7 A5
8 A6
9 A7
10 A8
11 A9
12 A10
13 A11
14 +24V
15 +24V
16 A14
17 A15 Out 1
18 A16 Out 2
19 +24V
20 +24V
21 +24V
22 +24V
23 +24V
24 A13
25 A12
Klammer auf
Presser Lifting
Lg 900 mm
Y1
X41
Lg 250 mm
BK BU
RD BU
Fadenschneiden
Thread Trimming
Lg 1200 mm
Y3
X43
BN BG
RD GN
Wedler
Wiper
(only 3371-10/01)
Lg 1550 mm
Y4 (3371-10/01)
X44
YE GN
BK BK
19 20 21 22 23 24 25 26 27 28 29 30 31

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