# **PFAFF**

3117

Instruction Manual

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#### 1 Safety

#### 1.01 Directives

The PFAFF 3117 was built in accordance with the following European regulations:

- EC Machine Directive (89/392/EEC, 91/368/EEC, 93/44/EEC, 93/68/EEC)
- Safety of Appliances Law, Machine Ordinance 9GSGV
- EC Directive "Electromagnetic Compatibility" (89/336/EEC, 92/31/EEC, 93/68/EEC)
- EN 60204-1 Safety of Machines, Electrical Equipping of Industrial Machines: Part 3
- EN 292 Parts 1 and 2: 1991 Safety of Machines (Basic Terms)
- EN 294 Safety of Machines; safety clearance margins for avoiding dangerous situations for the upper limbs
- EN 349 Safety of Machines; minimum safety clearances for avoiding the crushing of bodily parts
- EN 418 Safety of Machines; EMERGENCY STOP devices
- DIN 45635 Measurement of noise levels

In addition to this Instruction Manual, observe also all generally accepted, statutory and other regulations and legal requirements - also those of the country in which the machine will be operating - and all valid environmental protection regulations!

The regionally valid regulations of the social insurance society for occupational accidents or other supervisory organisations are to be strictly adhered to!

#### 1.02 General notes on safety

- This machine may only be operated by adequately trained operators and only after having completely read and understood the Instruction Manual!
- All Notes on Safety and Instruction Manuals of the motor manufacturer are to be read before operating the machine!
- The Danger and Safety Instructions on the machine itself are to be followed!
- This machine may only be used for the purpose for which it is intended and may not be operated without its safety devices. All Safety Regulations relevant to its operation are to be adhered to.
- When exchanging sewing tools (e.g. needle, presser foot, needle plate, feed dog or bobbin), when threading the machine, when leaving the machine unattended and during maintenance work, the machine is to be separated from the power supply by switching off the On/Off switch or by removing the plug from the mains!
- Everyday maintenance work is only to be carried out by appropriately trained personnel!
- Repairs and special maintenance work may only be carried out by qualified service staff or appropriately trained personnel!

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## Safety

- When servicing or carrying out repairs on pneumatic devices, the machine is to be removed from the compressed air supply! The only exceptions to this are adjustments and function checks carried out by appropriately trained personnel!
- Work on electrical equipment may only be carried out by appropriately trained personnel!
- Work is not permitted on parts and equipment which are connected to the power supply! Exceptions to this are in accordance with the regulations EN 50110.
- Modifications and alterations to the machine may only be carried out under observance of all the relevant safety regulations!
- Only spare parts which have been approved by us are to be used for repairs! We expressly point out that any replacement parts or accessories which are not supplied by us have not been tested and approved by us. The installation and/or use of any such products can lead to negative changes in the constructionalcharacteristics of the machine. We shall not be liable for any damage which may be caused by non-original parts.

#### 1.03 Safety symbols



Danger!
Points to be observed.



Danger of injury for operating and specialist personnel!

#### 1.04 Built in safety systems

The PFAFF 3117 is equipped with a push button for stopping the machine immediately in dangerous or emergency situations.

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#### 1.05 Important points for the user

 This Instruction Manual is a component part of the machine and must be available to the operating personnel at all times.

The Instruction Manual must be read before operating the machine for the first time.

- The operating and specialist personnel is to be instructed as to the safety equipment of the machine and regarding safe work methods.
- It is the duty of the operator to only operate the machine in perfect running order.
- It is the obligation of the operator to ensure that none of the safety mechanisms are removed or deactivated.
- It is the obligation of the operator to ensure that only authorised persons operate and work on the machine.

Further information can be obtained at your PFAFF agent.

#### 1.06 Operating and specialist personnel

#### 1.06.01 Operating personnel

Operating personnel are persons responsible for the equipping, operating and cleaning of the machine as well as taking care of faults arising in the sewing area.

The operating personnel is obliged to observe the following points and must:

- always observe the Notes on Safety in the Instruction Manual!
- never use any working methods which could limit the level of safety in using the machine!
- not wear loosely fitting clothing or jewellery such as chains or rings!
- also ensure that only authorised persons have access to the dangerous area around the machine!
- always immediately report to the person responsible any changes in the machine which may limit its safety!

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## Safety

#### 1.06.02 Specialist personnel

Specialist personnel are persons with a specialist education in the fields of electrics, electronics and mechanics. They are responsible for the lubrication, maintenance, repair and adjustment of the machine.

The specialist personnel is obliged to observe the following points and must:

- always observe the Notes on Safety in the Instruction Manual!
- switch of the On/Off switch before carrying out adjustments or repairs and ensure that it cannot be switched on again unintentionally!
- never work on parts which are still connected to the power supply! Exceptions are contained in the regulations EN 50110.
- when servicing or carrying out repairs on pneumatic devices, remove the machine from the compressed air supply! The only exceptions to this are function checks.
- replace the protective coverings and close the electrical control box after all repairs or maintenance work!

#### 1.07 Danger



A working area of 1 metre is to be kept free both in front of and behind the machine while it is in operation so that it is always easily accessible.



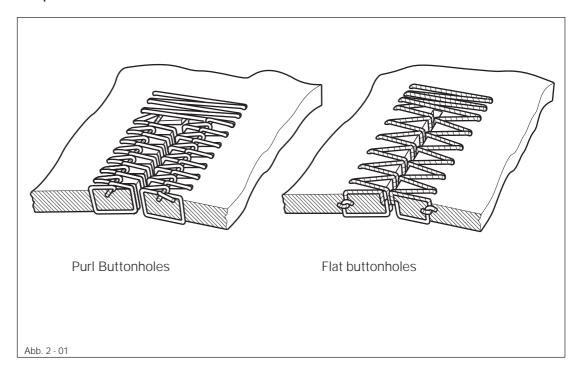
Never reach into the sewing area while sewing! Danger of injury by the needle!



Never leave objects on the table or in the needle plate area while adjusting the machine settings! Objects can become trapped or be slung away! Danger of injury!

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### 2 Proper use



The PFAFF 3117 is a machine for the automatic production of purl or flat buttonholes with two square, flat bartacks on linen and apparel. If required, the buttonhole can be sewn around twice.



Any and all uses of this machine which have not been approved of by the manufacturer are considered to be inappropriate! The manufacturer cannot be held liable for any damaged caused by the inappropriate use of the machine! The appropriate use of the machine includes the observance of all operational, adjustment, maintenance and repair measures required by the manufacturer!

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# Specifications

# 3 Specifications

Model:	
A:	1 0
B:	For processing medium materials
Speed:	max. 4000 spm
Stitch type:	zigzag lockstitch
Stitch type:	304
Needle bar stroke:	
Workpiece thickness:	max. 4 mm
Clearance under the work clamp:	max. 14 mm
Clearance for workpiece ( across sewing arm ):	235 mm
Clearance for workpiece ( along sewing arm ):	30 mm
Sewing construction:	Buttonhole
Sewing construction size:	40 mm x 6 mm
Length of cut:	min. 6.4 mm; max. 31.7 mm
Stitch size:	max. 6 mm
Number of stitches:	min. 64; max. 400
Type of feed:	
Sewing motor:	Quick-Synchro QE 6040 - P110S - 1
Power supply:	230 V + 10%, 50 / 60 Hz, 1 Phase
Power input:	
Input rating:	
Fuse protection:	
·	Ţ
Working air pressure:	
Air consumption:	~1.21 / work cycles
Working noise level:	
Emission at workplace at sewing cycle of 4s in and	d 2s out: $L_{PA} \leq 81 \text{ dB(A)}$
( noise measurement in accordance with DIN 45 $\mathrm{6}$	35-48-B-1 )
Dimensions of head:	
	approx 610 mm
Length: Width:	
	···
Height:     Weight of head:	
Weight of flead.	арргох. 60 ку
Dimensions of stand:	
Length:	approx. 1060 mm
Width:	
Height:	approx. 820 mm
Weight of stand including motor:	approx. 45 kg
Needle system:	
Needle thickness for processing fine materials:	
Needle thickness for processing medium materials	
J 3 3	

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# Disposal of the machine

### 4 Disposal of the machine

- The proper disposal of the machine is the responsibility of the customer.
- The materials used on the PFAFF 3117 are steel, aluminium, brass and various plastics. The electrical equipment consists of plastics and copper.
- The machine is to be disposed of in accordance with the locally valid environmental protection regulations.



Special care is to be taken that the oil reservoir and the oil leads are separately disposed of in accordance with the locally valid environmental protection regulations!

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# Notes on testing in accordance with EN 60204-1

## Notes on testing in accordance with EN 60204-1

This machine was tested in accordance with EN 60204-1 before delivery. The following tests were carried out on the machine:

- Continuous connection of the protective conductor systems
  - a) Visual check
  - b) Check of the connection of the protective conductor
- Insulation check
- Voltage check
- Function check

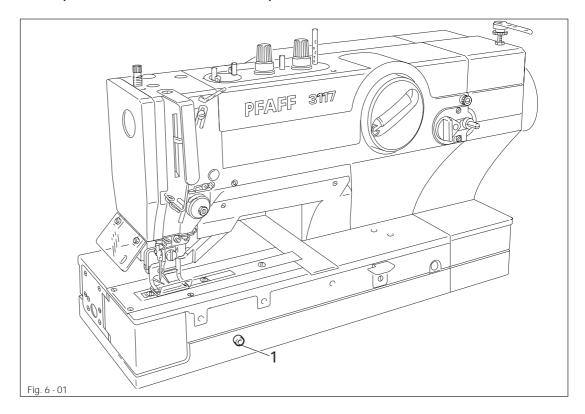
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#### 6 Transport, packaging and storage

#### 6.01 Transport to the customer's premises

Within Germany, the machine is delivered without packaging. Certain machines are packaged for export.

#### 6.02 Transport within the customer's premises



The manufacturer carries no liability for transport within the customer's premises. Care is to be taken to transport the machine in an upright position. The machine must be secured against opening.

To secure the machine against opening, tighten screw 1.

#### 6.03 Disposal of the packaging

The packaging of the machine consists of wood, paper, cardboard and VCE fibre. The proper disposal of the packaging is the responsibility of the customer.

#### 6.04 Storage

The machine can be stored for up to 6 months if not in use. During this time it should be protected from dust and moisture.

For longer storage the individual parts of the machine, especially the moving parts, should be protected against corrosion e.g. by a layer of oil.

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# Symbol key

## 7 Explanation of the symbols

In the following section of this Instruction Manual, certain tasks or important pieces of information are accentuated by symbols. The symbols used have the following meanings:



Note, information



Clean, care



Servicing, repair, adjustment, maintenance

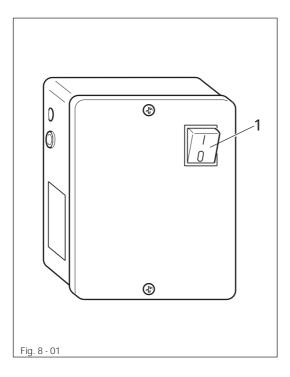


Lubrication, greasing, oiling

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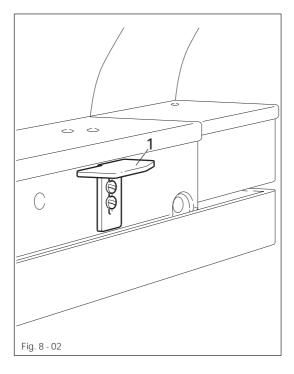
## 8 Operational controls

#### 8.01 On / Off switch



 Switch the machine on and off with switch 1. When the machine is on, the control lamp in switch 1 is lit.

## 8.02 Stop button



 In case of danger and in emergency situations, stop the machine by pressing the stop button 1.

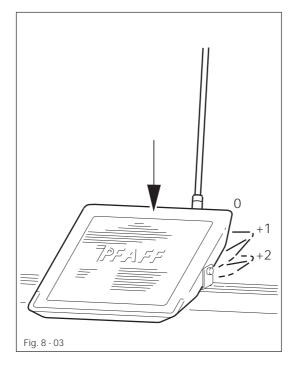
The motor stops in a controlled manner (cover thread carrier moves to highest position).

The machine can be restarted by switching the On / Off switch off and then back on again.

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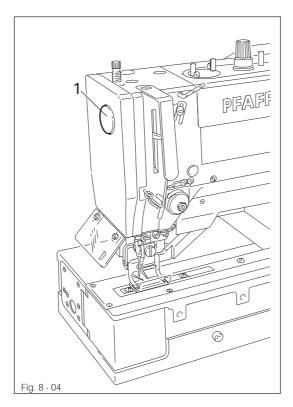
# Operational controls

# 8.03 Functions of the pedal



- 0 = Machine stop +1 = Work clamp down
- +2 = Sew

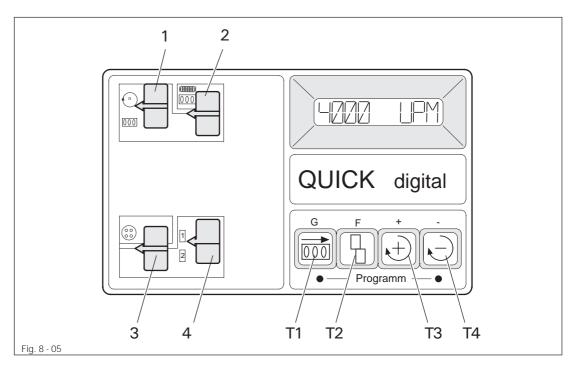
# 8.04 Button for stopping knife actuation



• If the actuation of the knife is to be stopped, press button 1.

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## 8.05 Functions of the quick control panel



#### 8.05.01 Functions of the switches and buttons

#### Switch 1

is for changing between the RPM and number-of-buttonholes readings in the display. When this switch is up, the RPM reading is displayed. The RPM can be altered using buttons T3 (+) and T4 (-).

When this switch is down, the number of buttonholes sewn is displayed. The maximum number which can be displayed is 65536.

By holding button **T4** pressed and pressing **T2** briefly this counter can be reset to zero. To do so the buttons must be held for approx. 1 second.

#### Switch 2

Is for setting the countdown mechanism.

When the switch is up, the following reading appears in the display:



XXX = the total number of buttonholes to be sewn.

YYY = the number of buttonholes still to be sewn.

By pressing button T2, the YYY reading (buttonholes remaining) is made to equal the XXX reading (total buttonholes).

The range for the total number of buttonholes lies between 0 and 500.

A start is only possible when switch 2 is down (off).

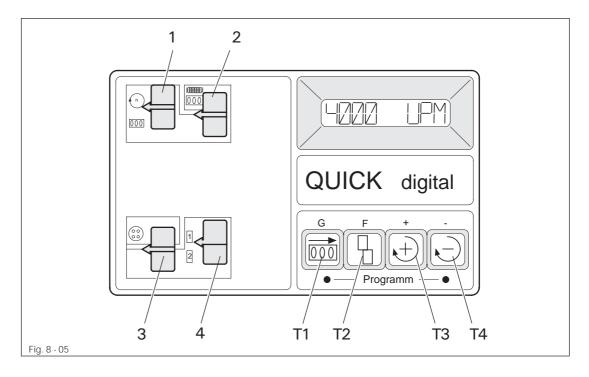
In normal operation, a renewed start of the machine is impossible when the number of buttonholes remaining is 0 ( YYY = 000 ). The fault reading **BOBBIN** appears in the display.

After changing the bobbin, this disturbance can be removed by pressing button T2.

This returns the number of buttons remaining ( YYY ) to the same level as the number of buttons to be sewn ( XXX ).

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# Operational controls



#### Switch 3

serves to start and stop winding the bobbin.

When the switch is up, winding can take place as long as the foot pedal is pressed and one cycle is not yet completed.

#### Switch 4

switches between work cycles.

When the switch is up the machine carries out only one cycle.

When the switch is down the machine carries out two cycles.

#### 8.05.02 Switching the countdown device on/off

When the machine is switched on, the countdown mechanism (parameter 620) can be switched on and off by the operating personnel as follows:

- Press buttons T1 and T4 simultaneously.
- Press button T2.
- Press button T3 or T4.
  - I = countdown ON
  - II = countdown OFF
- Press buttons T1 and T4 simultaneously.

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# 8.05.03 List of parameters

Group	Parameter	Explanation	Adjustment range		Standard value	
1	116	No. of stitches for reduced	0	-	30	3
		speed n1				
	117	Reduced speed n1	50	-	2250	1000
	143	Reduced speed n3	1000	-	2700	2000
4	410	Alteration of speed n2				II
		in steps of:				
		I = 10 RPM				
		II = 100 RPM				
	417	I = Display mode display				II
		machine unit counter				
		II = Display mode display				
		daily unit counter or n2				
6	605	I = Actual RPM in the display				II
		II = No actual RPM in the				
		display				
	620	I = Countdown mechanism ON				II
		II = Countdown mechanism OFF				
	659	I = Normal running				II
		after fault correction				
		II = Reduced speed n3				
		after fault correction				
7	718	Cycle brake	0	-	30	3
	722	Acceleration ramp	1	-	50	44
	723	Brake ramp	1	-	50	48
	730	Lift delay for	0	-	250	100
		work clamp				
	733	Language	1	-	6	ENGL
8	800	I = left running for sewing				I
		(Viewpoint Drive-BLM)				
		II = right running for sewing				
	884	P share speed regulation	1	-	50	10

In groups 2, 3 and 5 there are no parameters.



For further information see the Operation Manual of the motor.

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## Operational controls

#### 8.05.04 Fault indication in the display

Faults are documented via the quick control panel.

#### K-faults

**K-faults are machine specific faults.** The following readings can appear in the quick-control-panel display:

K1 = pedal (S1.1 / S1.2).

3116 = no autoselect.

resistance (470 Ohm) in plug test INP.

**KNIFE** = knife not in start position (S21).

**BOBBIN** = bobbin is empty or wrong counter value is set.

**CLAMP** = check switch and/or magnet valve (S3).

START = check plug connection, magnet valve and / or switch (S2).

STOP = machine has been stopped via Machine-Stop button (S5).

**POSITION** = control cam not in basic position (S8).

After the fault reading **BASIC**, the machine runs with the reduction speed in its starting position after being restarted with the pedal.

The fault reading BOBBIN can be anulled by pressing button T2 or machine ON / OFF.

All other fault readings can only be anulled with the machine ON / OFF switch.

#### Q-faults

Q-faults are motor specific faults. The following readings can appear in the display of the quick control panel:

Q2 = No impulses from position transmitter or impulses from position transmitter

not recognized.

Q10 = Commutation plug not inserted.

If other Q-faults are displayed, the motor control box should be changed.

It is also possible that these fault readings can be caused by cable breakages. This should be checked.



By pressing button T2 the work clamp can be raised or lowered when the machine is in basic position.

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### 9 Mounting and initial operation



This machine may only be mounted and put into operation by qualified specialists! All relevant safety regulations are to be adhered to!

#### 9.01 Mounting

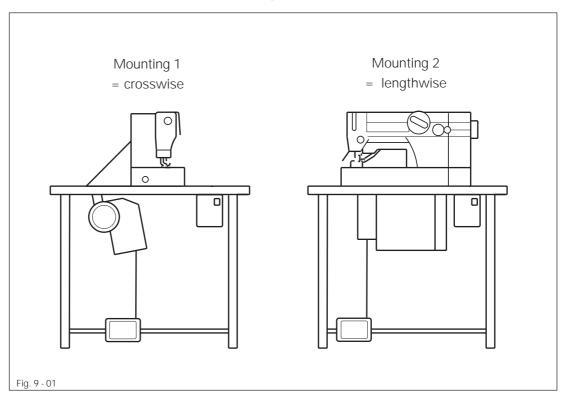
Connections for electrical and compressed air supplies must be available at the machine's location ( see chapter 3 Specifications ).

A solid, horizontal surface and adequate lighting must also be guaranteed.



Due to reasons of packaging, the table top is lowered on machines with stands. When putting the machine into operation, the table top should be raised again or adjusted to an ergonomically suitable height.

The PFAFF 3117 is available in two mountings.



- Mounting 1 is perpendicular to the operator.
- Mounting 2 is parallel to the operator.

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# Mounting and initial operation

## 9.02 Initial operation

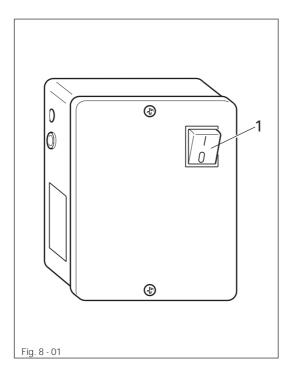
- Check the machine for any possible damage, especially the electrical and pneumatic leads.
- Clean the machine thoroughly and then oil it ( see chapter 13 Maintenance and care ).
- Connect the machine to the power supply.
- Connect the machine to the compressed air supply. The manometer should display an air pressure level of approx. 6 bar. Adjust to this value if necessary ( see chapter 13.03 Checking the air pressure ).
- Carry out a test run.

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# Switching the machine On / Off

# 10 Switching the Machine On / Off

## 10.01 On / Off switch



 Switch the machine on and off at switch 1. When the machine is switched on, the control lamp in switch 1 is lit.

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# Preparation

### 11 Preparation

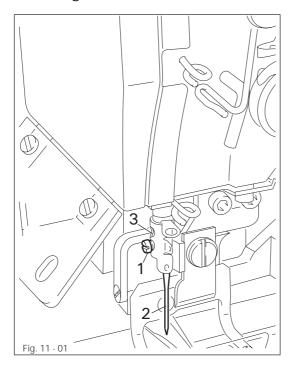


All regulations and notes in this Instruction manual are to be adhered to. Special attention is to be taken to the safety requirements!



All Preparation work must be carried out only by appropriately trained persons. The machine is to be separated from the power supply at the On/Off switch or by pulling the plug out of the socket whenever carrying out preparation work!

#### 11.01 Inserting the needle





Switch off the machine!

- Loosen the needle retaining screw 1.
- Insert needle 2 as far as possible.
- The long needle-groove must be facing the knife.
- Tighten the needle retaining screw 1.



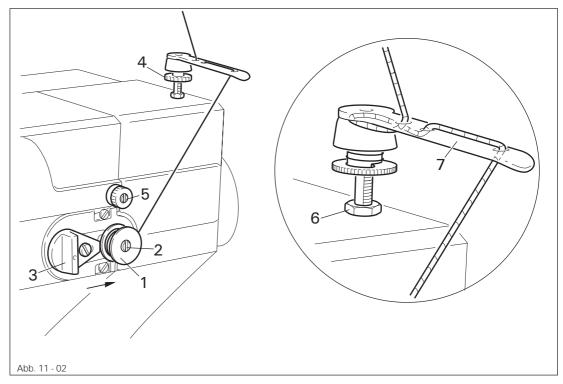
Attention! needle point and knife blade! Danger of injury!



Hole 3 can be used to check if the needle 2 is inserted properly. By inserting a suitable tool into hole 3 pieces of broken needle can be removed.

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- Place an empty bobbin 1 onto the bobbin shaft 2.
- Thread the machine in accordance with Fig. 11-02.
- Push key 3 to the end of the bobbin shaft 2.
- Regulate the thread tension by turning the milled screw 4.
- Push the foot pedal.
- The bobbin winder stops automatically when the bobbin 1 is full.
- Clamp the thread coming from the spool in the clamp 5 and snap the thread.
- For bobbin winding see section 8.05 Functions of the quick control panel (switch 3).

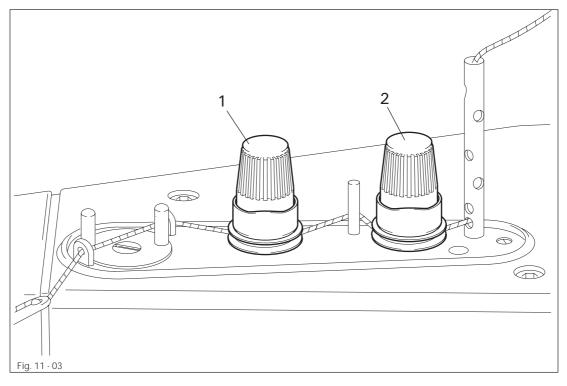
If the thread winds unevenly:

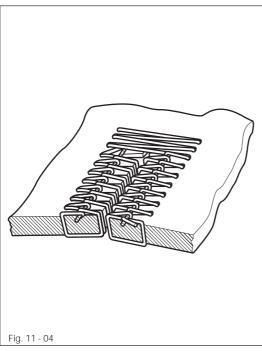
- loosen nut 6.
- Turn the thread guide 7 accordingly.
- Tighten nut 6.

**PFAFF** 11 - 2

# Preparation

# 11.03 Adjusting the needle thread tension on purl buttonholes and flat bartacks





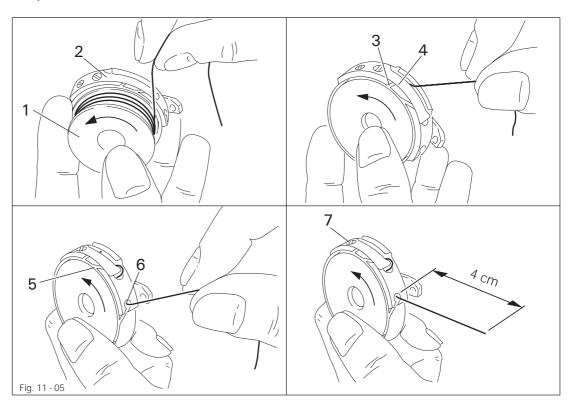
- Open tensioner 1 as far as possible.
- Adjust tensioner 2 so that the knots of the stitches are in the middle of the material.
- Adjust tensioner 1 so that the knots of the purl stitches are pulled up.



Carry out this adjustment with needle and bobbin threads of different colours.

11 - 3 **PFAFF** 

# 11.04 Threading the bobbin case, adjusting the thread tension on purl buttonholes



- Insert bobbin 1 into bobbin case 2.
- Pass the thread through slot 3 and under spring 4.
- Then pass the thread into slot 5.
- Pass the thread out of hole 6 again.
- Adjust the thread tension by turning screw 7.
- Use the enclosed tool for this process.

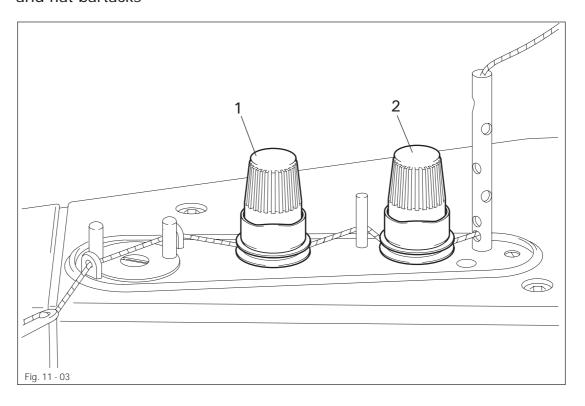


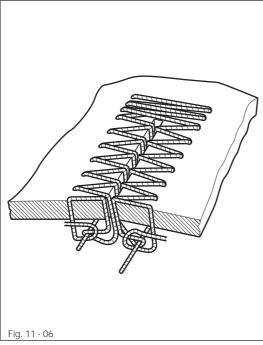
The bobbin thread should be able to be pulled easily and evenly out of the bobbin case 2 for sewing purl buttonholes. Therefore, turn screw 7 so that the bobbin case 2, with a full bobbin 1, slides slowly downwards when hanging freely from the thread.

**PFAFF** 11 - 4

# Preparation

# 11.05 Adjusting the needle thread tension on flat buttonholes and flat bartacks





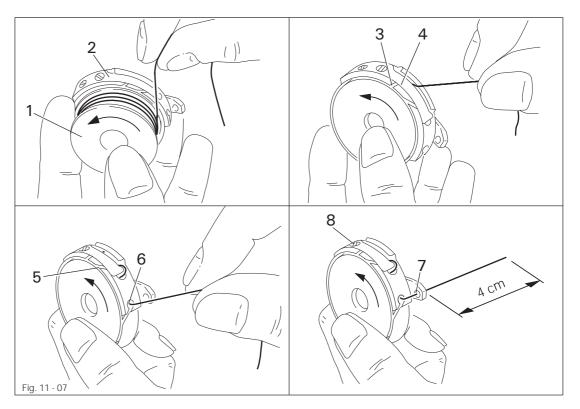
 Adjust tensioners 1 and 2 (less tension) so that the knots in the stitches are pulled onto the underside of the material.



Carry out this adjustment with a needle thread and a bobbin thread of different colours.

11 - 5 **PFAFF** 

# 11.06 Threading the bobbin case, adjusting the thread tension on flat buttonholes



- Insert bobbin 1 into bobbin case2.
- Pass the thread through slot 3 and under spring 4.
- Then pass the thread into slot 5.
- Then pass the thread into slot 6 again.
- Pass the thread through eye 7.
- Adjust the thread tension by turning screw 8.
- Use the enclosed tool for this process.



When sewing flat buttonholes the bobbin thread must have enough tension so that the knotting of the bobbin thread takes place on the underside of the material.

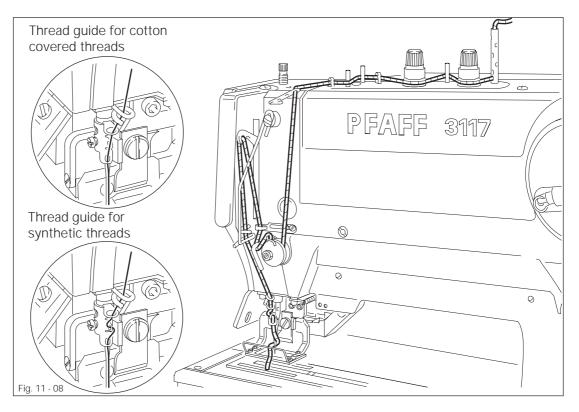
**PFAFF** 11 - 6

# Preparation

# 11.07 Threading the needle thread



Switch the machine off!



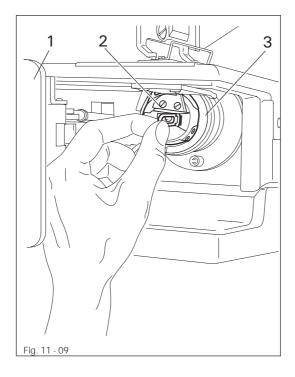
• Thread the needle thread in accordance with fig. 11 - 08.



Attention! Needle point and knife blade! Danger of injury!

11 - 7 **PFAFF** 

## 11.08 Inserting the bobbin case

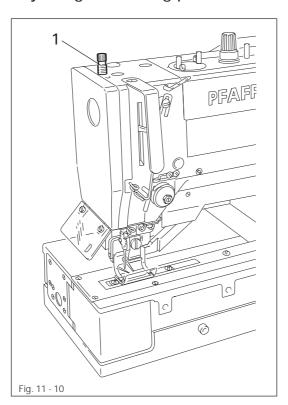




Switch the machine off!

- Open the cover 1 to the hook compartment.
- Insert the bobbin case 2 into the bobbin case carrier 3.
- Close the hook compartment with the cover 1.

## 11.09 Adjusting the sewing pressure



 Adjust the pressure on the work clamp by turning the adjustment screw 1.

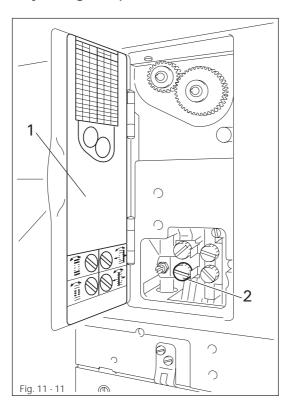


The sewing pressure is dependent on the material to be sewn and must be adjusted accordingly. The pressure is correct when the workpiece is fed securely and evenly without feed marks being left on it.

**PFAFF** 11 - 8

# Preparation

## 11.10 Adjusting the purl seam width

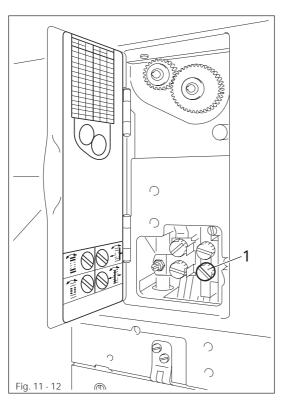


- Open cover 1.
- Adjust the purl seam width by turning the milled screw 2.



Any larger change to the purl seam width also requires the adjustment of the right purl seam position.

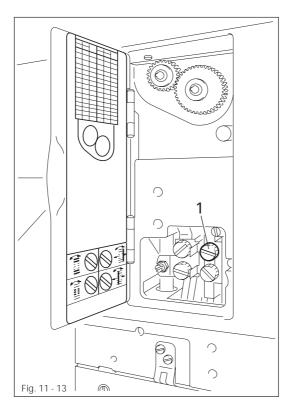
# 11.11 Adjusting the left purl seam position



 Adjust the left purl seam position by turning the milled screw 1.

11 - 9 **PFAFF** 

## 11.12 Adjusting the right purl seam position

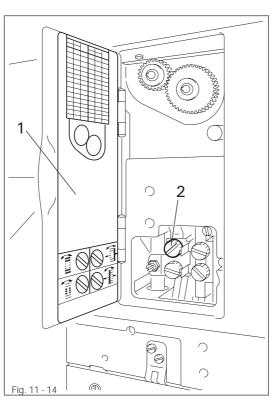


 Adjust the right purl seam position by turning the milled screw 1.



The right purl seam position must be adjusted in relation to the left purl seam position so that the cutting area between the two seams is adequately wide.

## 11.13 Adjusting the bartack width



- Adjust the bartack width by turning the milled screw 2.
- Close cover 1.

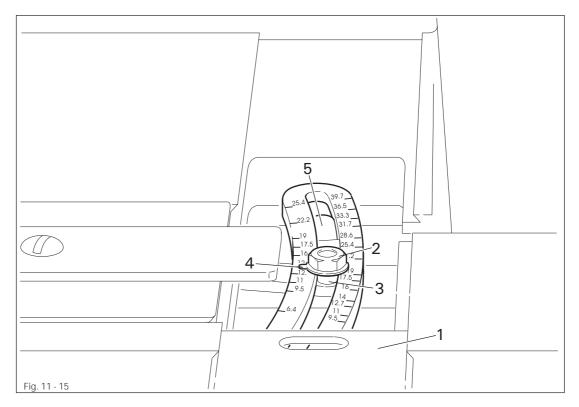


The bartack width is set correctly when the bartack stitches cover both purl seams.

**PFAFF** 11 - 10

# Preparation

## 11.14 Adjusting the buttonhole length





Switch the machine off!

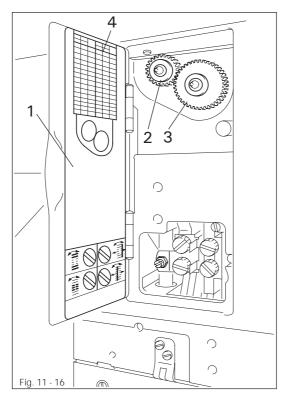
- Open the bed slide 1.
- Loosen nut 2.
- Move bolt 3 in the slot so that the pointer 4 is pointing to the desired value. Only the scale on the inside of the curve is to be used here.
- Tighten nut 2.
- Close bed slide 1.



The maximum buttonhole length must be secured by the stop **5** in such a way that the work clamp mounted for this buttonhole length is adequate. When changing to a longer work clamp the stop **5** must also be changed accordingly.

11 - 11 **PFAFF** 

## 11.15 Adjusting the number of stitches per buttonhole

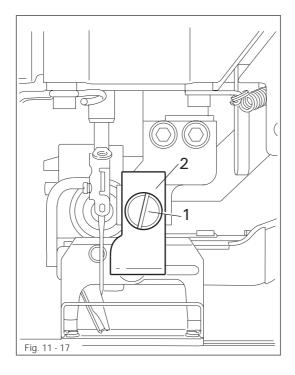




Switch the machine off!

- Open cover 1.
- Remove cogs 2 and 3.
- Select cogs 2 and 3 in accordance with chart 4.
- Replace cogs 2 and 3.
- Close cover 1.

## 11.16 Changing the knife





Switch the machine off!

- Remove screw 1.
- Remove the knife 2 from screw 1.
- Insert a new knife 2 in accordance with the buttonhole length.
- Adjust the height of the knife 2 ( see chapter 14.12.09 Height with the buttonhole cutter or chapter 14.12.10 Height with the buttonhole punch ).
- Tighten screw 1.



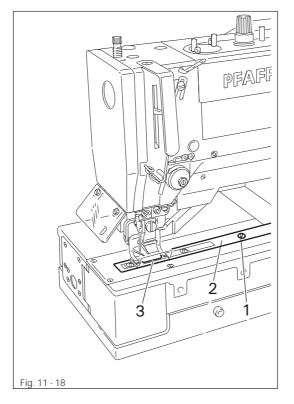
Sharp blade!

Danger of injury!

**PFAFF** 11 - 12

# Preparation

## 11.17 Changing the plastic insert in the needle plate

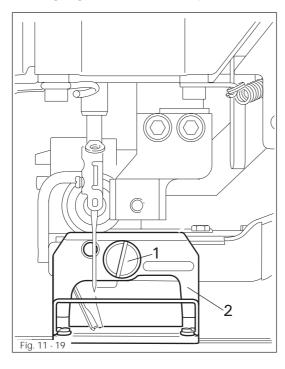




Switch the machine off!

- Loosen screw 1.
- Loosen the feeder 2.
- Change or rotate the plastic insert 3.
- Tighten screw 1.

## 11.18 Changing the work clamp





Switch the machine off!

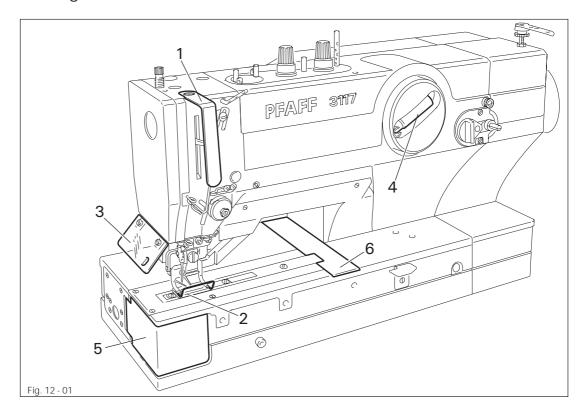
- Disassemble the knife.
- Loosen screw 1.
- Change the work clamp 2.
- Tighten screw 1.
- Reassemble the knife.



When changing to a longer work clamp, the stop 5 ( see Fig. 11 - 15 ) must also be changed accordingly.

11 - 13 **PFAFF** 

### 12 Sewing





Do not operate the machine without its take up lever guard 1, finger guard 2, or eye guard 3! The hand crank 4 must be folded in during operation! The cover 5 and the bed slide 6 must be closed. The machine may only be operated when all covers are completely installed and the belt guard cover is closed! Danger of injury!

The machine must only be operated by appropriately trained personnel! The operating personnel is also responsible for ensuring that only authorized personnel are allowed into the area of potential danger around the machine.

#### 12.01 Test seam

After any form of preparation, after all maintenance and repair work and when changing materials a test seam is to be sewn.

### 12.02 Sewing with a single cycle

- Push switch 4 on the quick control panel up ( see chapter 8.05 Functions of the quick control panel ).
- Insert the workpiece.
- Bring the foot pedal into its + 1 position which lowers the work clamp.
- Move the foot pedal into position + 2. One buttonhole will be sewn.
- Remove the workpiece or move it into its next position.

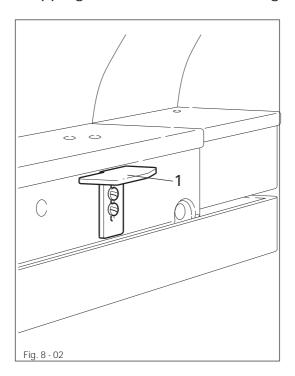
**PFAFF** 12 - 1

# Sewing

## 12.03 Sewing with a double cycle

- Push switch 4 on the quick control panel down ( see chapter 8.05 Functions of the Quick control panel ).
- Insert the workpiece.
- Bring the foot pedal into its + 1 position which lowers the work clamp.
- Move the foot pedal into position + 2. One buttonhole will be sewn around twice.
- Remove the workpiece or move it into its next position.

## 12.04 Stopping the machine in an emergency



• Push the button 1 down.

12 - 2 **PFAFF** 

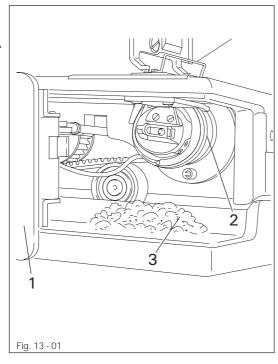
## Care and maintenance

## 13 Care and maintenance

Cleaning	daily
Check oil level	daily before use
Fill oil	as required
Check oil level for hook lubrication	weekly
Fill oil for hook lubrication	as required
Check air pressure	daily before use

# 13.01 Cleaning







Switch the machine off!

- Open the cover 1.
- Clean the hook 2 and hook compartment 3 daily.
- Close the cover 1.

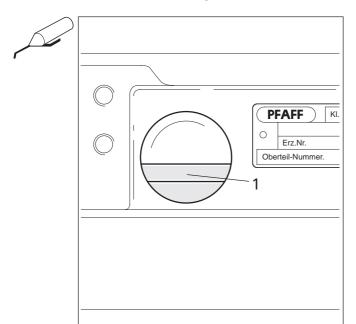
**PFAFF** 13 - 1

## Care and maintenance

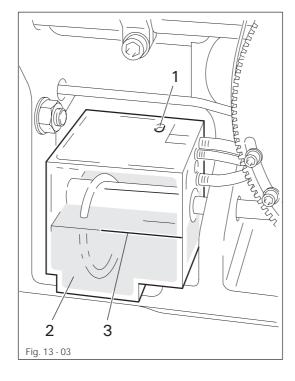
### 13.02 Lubricating

## 13.02.01 General lubricating

Fig. 13 - 02



 Check the oil level in the glass 1 before every use.



#### As required:



Switch the machine off!

- Lay the head on its side.
- Fill the oil reservoir 2 through hole 1 up to marking 3.
- Return head back to its upright position with both hands.



Danger of crushing between machine head and table top!



Only use oil with a mean viscosity of 22.0 mm<sup>2</sup>/s at 40°C and a density of 0.865 g/cm<sup>3</sup> at 15°C!

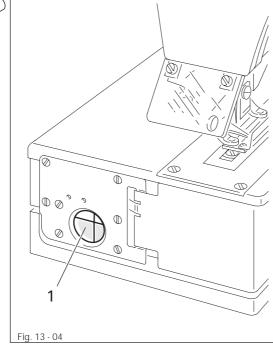


We recommend PFAFF sewing machine oil Part No. 280-1-120 144.

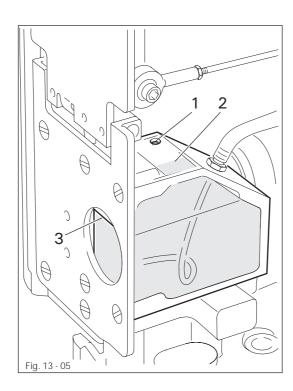
13 - 2 **PFAFF** 

## 13.02.02 Lubricating the hook





 Check the oil level in the glass 1 every week.



As required:



Switch the machine off!

- Lay the head on its side if required.
- Fill the oil reservoir 2 through hole 1 up to marking 2.
- Return head back to its upright position with both hands.



Danger of crushing between machine head and table top!



Only use oil with a mean viscosity of 10.3 mm<sup>2</sup>/s at 40°C and a density of 0.847 g/cm<sup>3</sup> at 15°C!

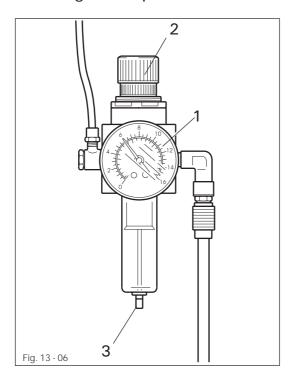


We recommend PFAFF sewing machine oil Part No. 280-1-120 105.

**PFAFF** 13 - 3

## Care and maintenance

## 13.03 Checking the air pressure



- Check the air pressure on the manometer 1 before every use of the machine.
- The manometer 1 should display a pressure of approx. 6 bar.
- If necessary, adjust to this value.
- To do this, lift button 2 and twist it until a value of approx. 6 bar is shown on the manometer.



When the compressed air is turned off, condensation escapes through the release valve 3. Place a suitable container under this valve!

13 - 4 **PFAFF** 



All relevant safety regulations are to be adhered to! The machine is to be separated from the power supply before all adjustment work and to be secured against accidentally being turned back on!



All adjustments in these adjustment instructions are based on a completely installed machine. Covers on the machine which have to be removed and replaced for checks and adjustment work are not mentioned.



The PFAFF 3117 is set up for Singer needles at the factory. When using needles from other manufacturers the hook settings are to be checked.

#### 14.01 Tools, gauges and other accessories

- Screwdrivers with blade width from 2 to 10 mm
- Screwdrivers with blade width from 7 to 14 mm
- Allan keys from 1.5 to 6 mm
- Offgrub screwdrivers, Part No. 91-029 339-91
- Metal rule, Part No. 08-880 218-00
- Terminal screw, Part No. 08-880 137-00
- Needle rise gauge 2.4 mm, Part No. 61-111 600-09
- Adjustment gauge, Part No. 61-111 635-86
- Knife adjustment gauge, Part No. 61-111 635-85
- Needles, system 438 or 265 or DPX 438
- Sewing thread and test material
- Sewing machine oil: mean viscosity of 22.0 mm<sup>2</sup>/s at 40°C

Density 0.865 g/cm<sup>3</sup> at 15°C

Part No. 280-1-120 144

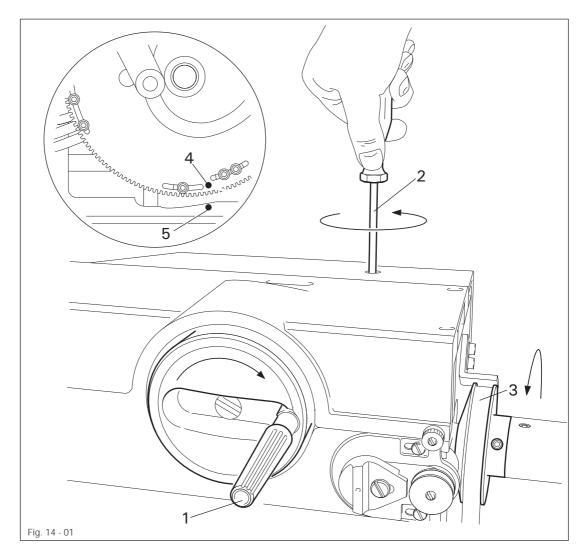
• Sewing machine oil: mean viscosity of 10.3 mm<sup>2</sup>/s at 40°C

Density 0.847 g/cm³ at 15°C Part No. 280-1-120 105

## 14.02 Machine positions and needle bar positions



When the machine is switched off, the machine positions can be attained by turning the handwheel 1, by turning the shaft 2 or by turning the drive pulley 3. The needle bar positions can be attained by turning the drive pulley 3. At the end of a program the marking 4 on the control cam must be aligned with the marking 5 on the housing.





• Turn the handwheel 1 clockwise.

or

• Turn the shaft 2 counter clockwise with a screwdriver.

or

• Turn the drive pulley 3 in its direction of rotation.



Before turning the drive pulley **3** the stop motion device must be engaged! The separate machine positions should only be approached with the work clamp is touching.

14 - 2 **PFAFF** 

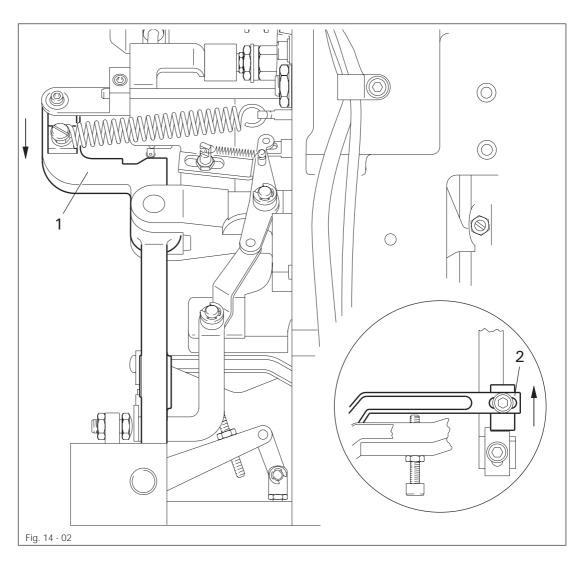
## 14.03 Engaging/disengaging the stop motion device

#### Requirement

Before turning the drive pulley, the stop motion device must be engaged!



By engaging the stop motion device, collisions between the needle and the needle thread scissor are avoided.



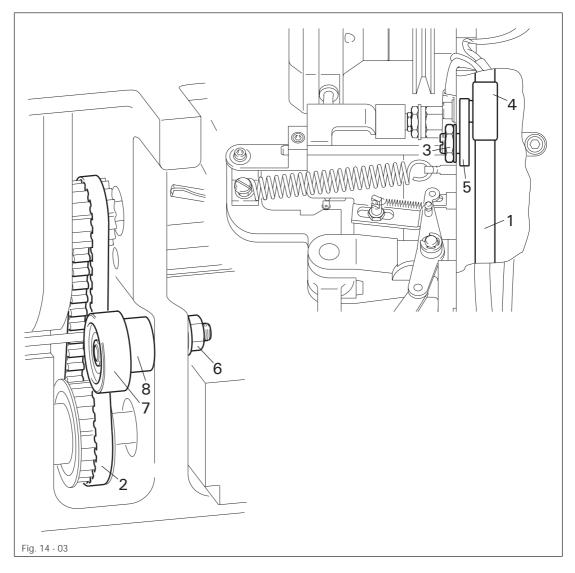


- Push the switching lever 1 down to engage the stop motion device.
- Lift the disengaging lever 2 to disengage the stop motion device.

#### 14.04 Toothed belt drives

#### Requirement

The toothed belts 1 and 2 should be tight enough to guarantee a perfect transmission of power. There should be virtually no noticeable play between the toothed belts and the toothed belt cogs.





- Loosen nut 3 and bring the tightening roller 4 to a resting position by turning the lever 5 on the toothed belt 1.
- Then press the tightening roller 4 another 5 mm more against the toothed belt 1.
- Tighten nut 3.
- Loosen nut 6 and displace the tightening roller 7 by turning the eccentric 8 in accordance with the requirement.
- Tighten nut 6.



In the case of noise occuring, displace the tension rollers once again.

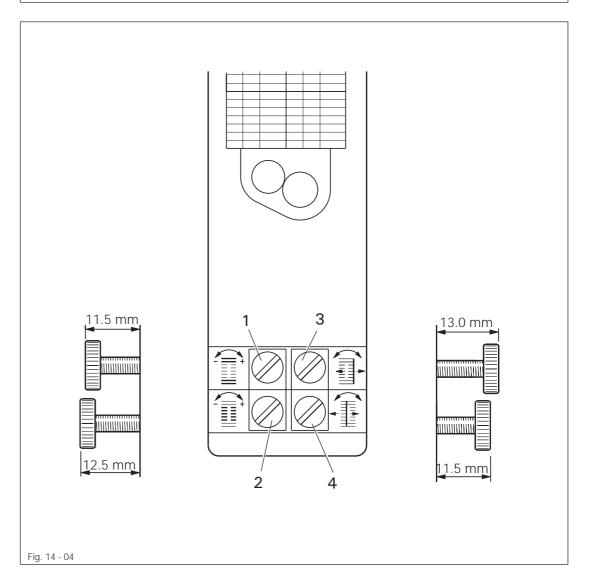
14 - 4 **PFAFF** 

## 14.05 Basic position of the milled screws on the feed regulator

#### Requirement

The milled screws 1 to 4 should be set at the following measurements:

- Milled screw 1 (bartack width) = 11.5 mm
- Milled screw 2 (buttonhole seam width) = 12.5 mm
- Milled screw 3 (buttonhole seam position right) = 13.0 mm
- Milled screw 4 (buttonhole seam position left) = 11.5 mm





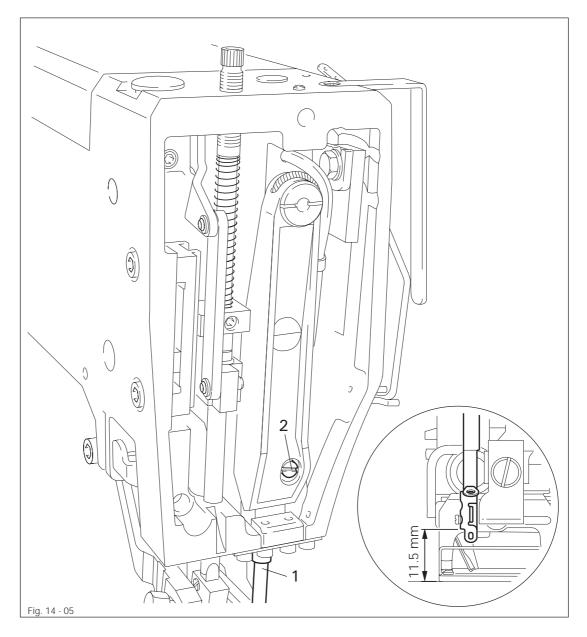
• Adjust to the measurements given by turning the milled screws 1 to 4.

#### 14.06 Needle bar and needle

## 14.06.01 Pre-adjusting the needle bar height

#### Requirement

With the needle bar at its BDC, there should be a clearance of 11.5 mm between the bottom edge of the needle bar 1 and the needle plate.





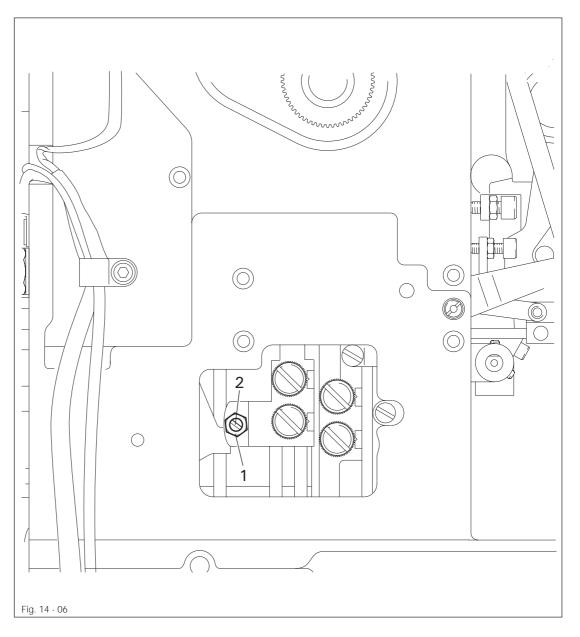
- Bring the needle bar to its BDC.
- Loosen the screw 2 that can now be seen.
- Move the needle bar 1 in accordance with the requirement.
- Tighten screw 2.

14 - 6 **PFAFF** 

## 14.06.02 Needle bar in its program end position

#### Requirement

At its program end position the needle should carry out a minimal zigzag movement.



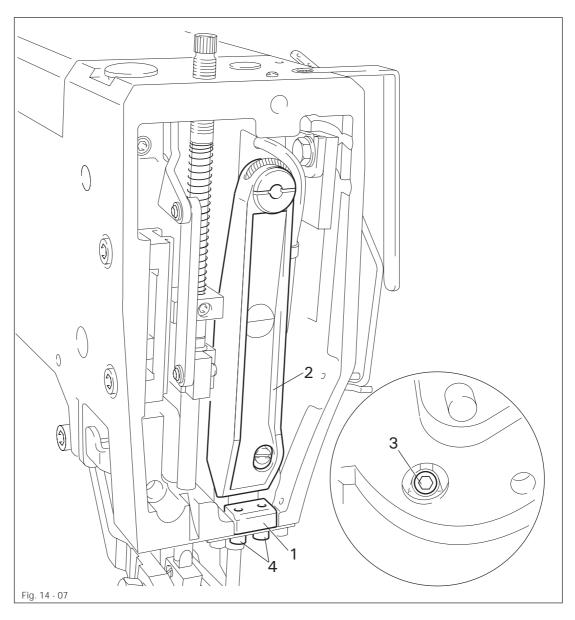


- Engage the stop motion device.
- Bring the machine into program end position.
- Lift the work clamp and place a piece of paper underneath it.
- Turn the drive pulley in its direction of rotation until the needle perforates.
- Then turn the drive pulley back until the needle perforates again.
- Loosen nut 1 for the adjustment and turn screw 2 in accordance with the requirement.
- Tighten nut 1.
- Disengage the stop motion device.

## 14.06.03 Needle bar pendulum

#### Requirement

The guide piece 1 should be touching the needle bar pendulum 2 on axis, without play.





- Loosen the grub screws on the handwheel and remove the handwheel.
- Loosen the screw 3 that can now be seen, so that the needle bar pendulum 2 can be moved.
- Loosen screws 4 and move the guide piece 1 in accordance with the requirement.
- Tighten screws 4.



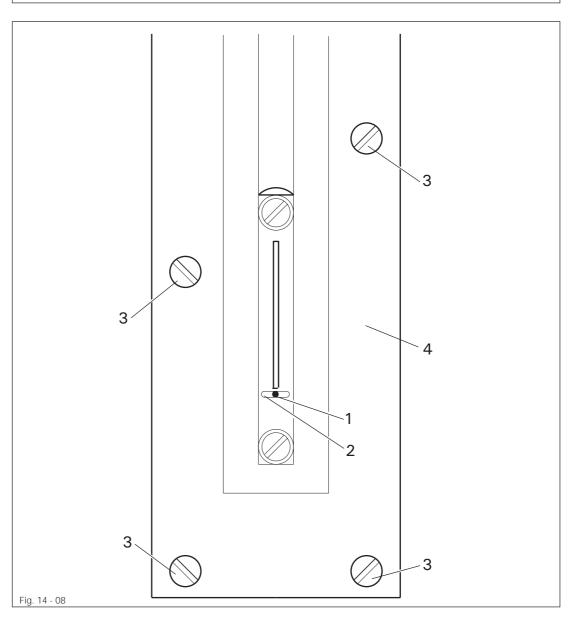
For the following adjustments, the handwheel remains dismounted and screw 3 remains loosened.

14 - 8 **PFAFF** 

## 14.06.04 Needle plate to needle

#### Requirement

The needle 1 should should be positioned in the middle of the needle hole  ${\bf 2}.$ 





- Insert the needle 1. See chapter 11.01 Inserting the needle.
- Loosen screws 3 and move the needle plate carrier 4 in accordance with the requirement.
- Tighten screws 3.

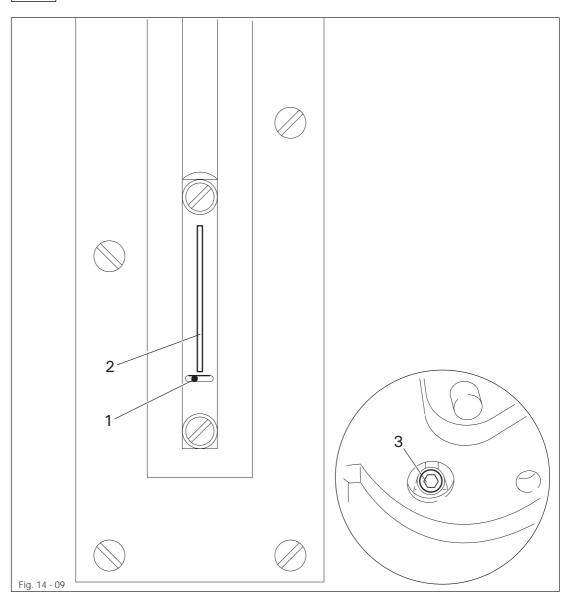
## 14.06.05 Basic position of the needle bar

#### Requirement

In the program end position and with the needle bar at its BDC, the needle 1 should be positioned at the left edge of the knife actuating hole 2.



Carry out this adjustment with a needle plate with a knife actuating hole mounted.





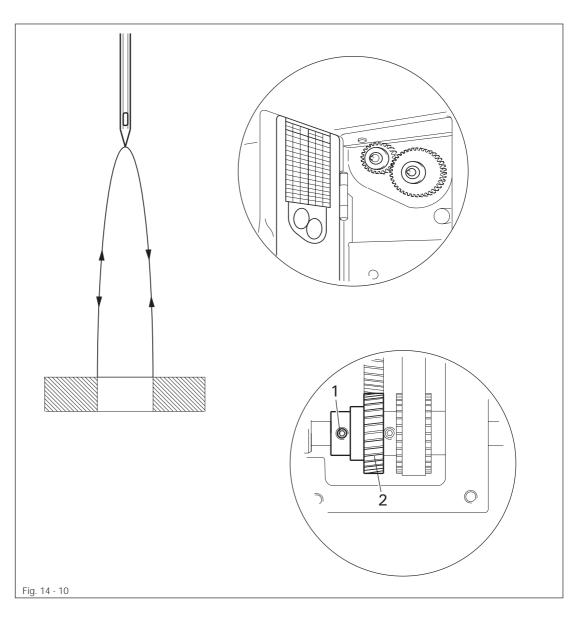
- Bring the machine into its program end position.
- Engage the stop motion device.
- Bring the needle bar to its BDC.
- Move the needle1 in accordance with the requirement.
- Tighten screw 3.
- Remount the handwheel. (cf. chapter 14.06.01 Pre-adjusting the needle bar height)
- Disengage the stop motion device.

14 - 10 **PFAFF** 

#### 14.06.06 Lateral movement of the needle

#### Requirement

The lateral movement of the needle should be finished above the needle plate.





- Engage the stop motion device
- Bring the machine into the initial bartack position (rear bartack).
- Remove one feed gear.
- Turn the drive pulley in its direction of rotation and observe the lateral movement of the needle.
- Loosen the grub screws 1 and turn the cog 2 in accordance with the requirement.
- Tighten the grub screws 1.
- Disengage the stop motion device.
- Remount the feed gear.

#### 14.07 Seam construction

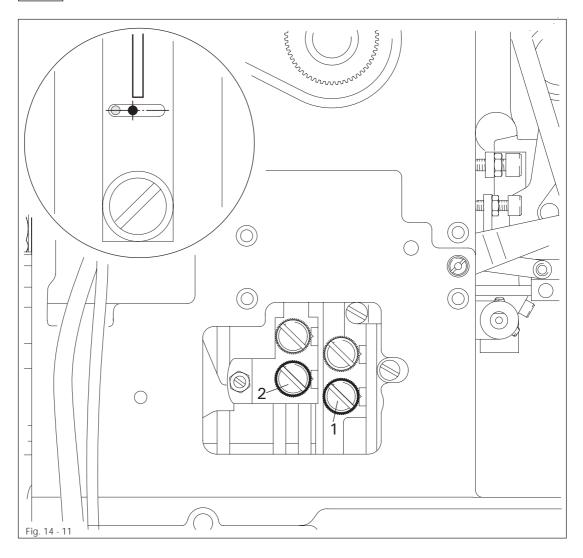
#### 14.07.01 Left buttonhole seam

#### Requirement

- 1. The needle should be positioned at the right perforation of the left buttonhole seam at the left edge of the knife actuating hole.
- 2. The left perforation must be within the needle hole.



Carry out this adjustment with a needle plate with a knife actuating hole mounted.





- Bring the machine into the left buttonhole seam position.
- Engage the stop motion device.
- Bring the needle to the right perforation.
- Turn milled screw 1 in accordance with requirement 1.
- Bring the needle to the left perforation.
- Turn milled screw 2 in accordance with requirement 2.
- Disengage the stop motion device.

14 - 12 **PFAFF** 

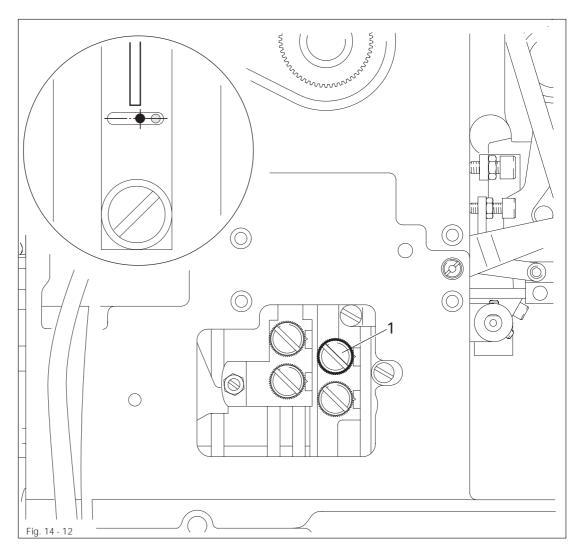
### 14.07.02 Right buttonhole seam

#### Requirement

The needle should be positioned at the left perforation of the right buttonhole seam at the right edge of the knife actuating hole.



Carry out this adjustment with a needle plate with a knife actuating hole mounted.



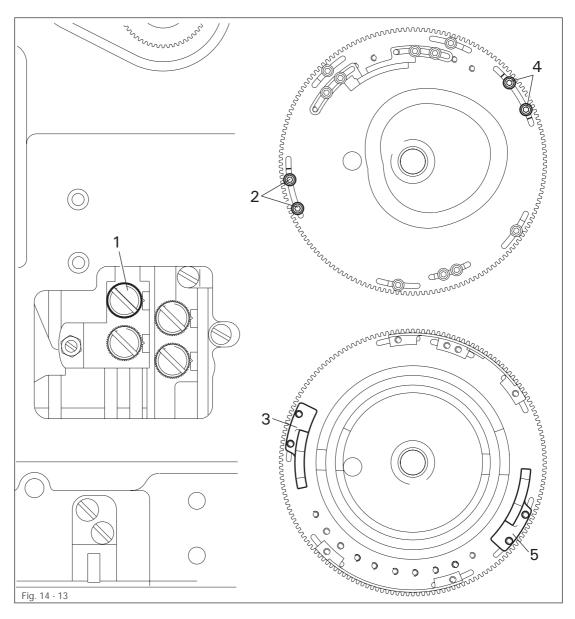


- Bring the machine into the right buttonhole seam position.
- Engage the stop motion device.
- Bring the needle to the left perforation.
- Turn milled screw 1 in accordance with the requirement.
- Disengage the stop motion device.

#### 14.07.03 Bartack

#### Requirement

- 1. The bartack width must be the same as the width of both buttonhole seams together.
- 2. The first bartack must only be at its full width when the buttonhole seam displacement is complete. Within the range of the first bartack, the movement of the needle must not pass over the left edge of the buttonhole seam.
- 3. The end bartack must begin early enough so that the beginning of the left buttonhole seam is covered.

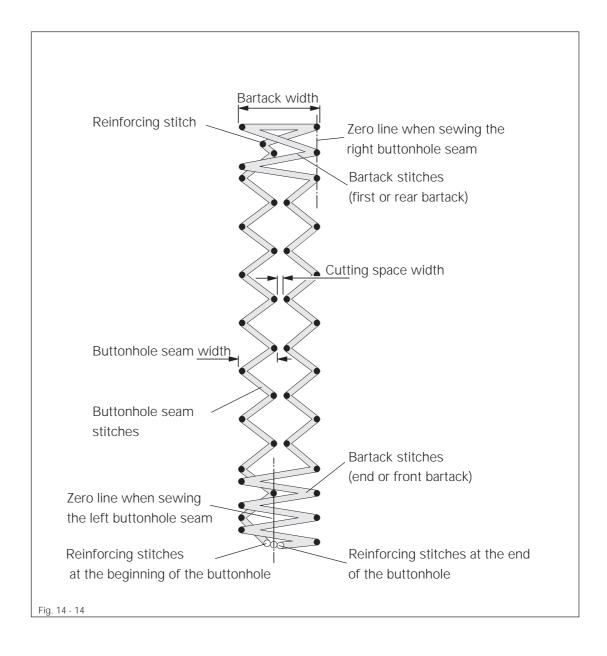




- Bring the machine in the first bartack position.
- Turn milled screw 1 in accordance with requirement 1.
- Loosen screws 2 and move trip 3 for the first bartack in accordance with requirement 2.
- Tighten screws 2.
- Loosen screws 4 and move trip 5 for the end bartack in accordance with requirement 3.
- Tighten screws 4.

14 - 14 **PFAFF** 

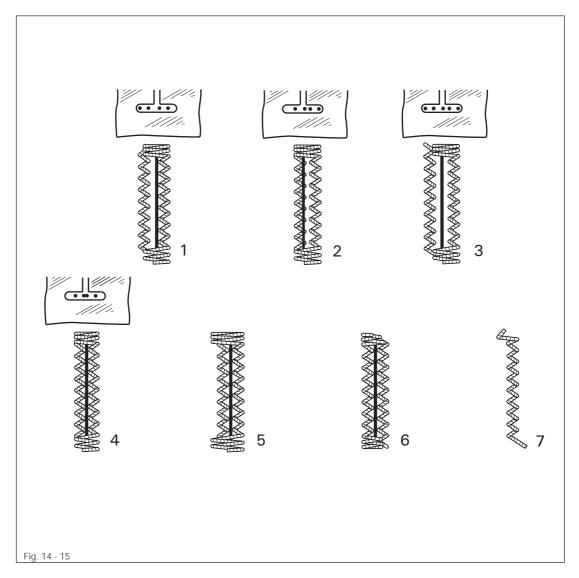
## 14.07.04 Description of the seam construction



#### 14.07.05 Faults in the seam construction



Faults in the seam construction occur due to a false adjustment of the milled screws 1 to 4. These must be adjusted as required. See also **chapter 11.10 to chapter 11.13**.



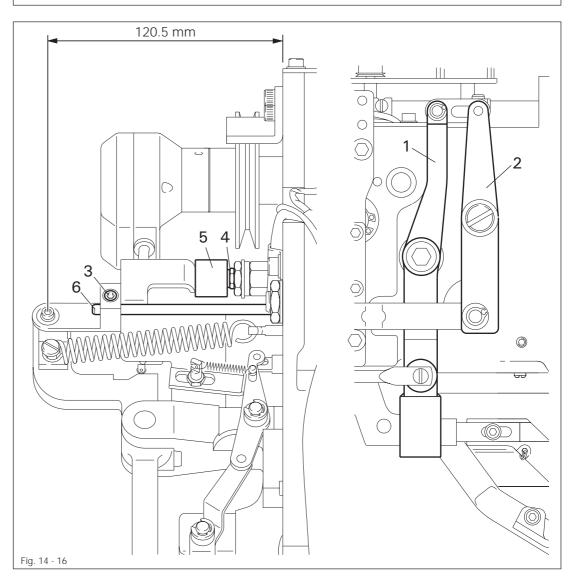
- 1 = False! The right buttonhole seam is correct but the left buttonhole seam is positioned too far to the left.
- 2 = False! The buttonhole is too far to the right, the buttonhole knife will cut through the left buttonhole seam. ( see chapter 14.06.05 Needle bar in program end position )
- 3 = False! The cutting area is too wide. The buttonhole will not be cut open accurately.
- 4 = False! the cutting area is too narrow. The buttonhole seams will be damaged by the knife.
- 5 = False! The bartack topstitch is too wide
- 6 = False! The bartack topstitch is too narrow
- 7 = False! The bartack trip triggers the bartack stitch to soon. ( see chapter 14.07.03 Bartack )

14 - 16 **PFAFF** 

## 14.08 Stop motion buffer

#### Requirement

- 1. With the machine switched off there must be a clearance of 120.5 mm between the middle of the hole in the switching lever and the housing.
- 2. With the machine stopped levers 1 and 2 should be upright (pre-adjustment).



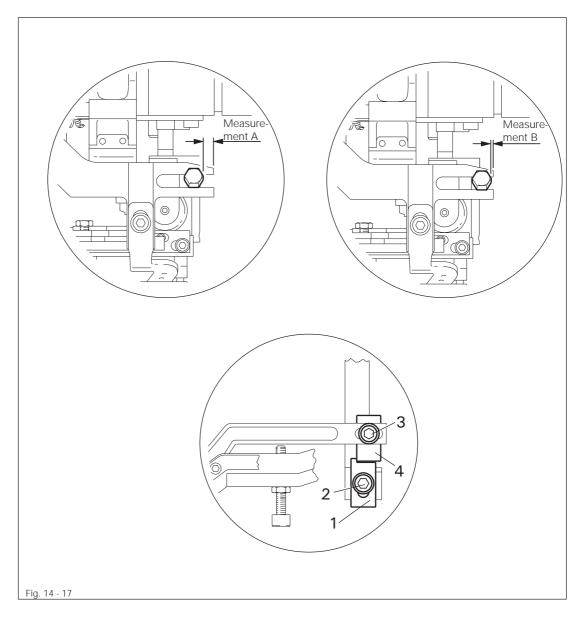


- Loosen grub screw 3.
- Loosen nut 4 and turn the stop motion buffer 5 in accordance with requirement 1.
- Tighten nut 4.
- Move rod 6 in accordance with requirement 2.
- Tighten grub screw 3.

## 14.09 Adjusting the catches

#### Requirement

- 1. Catch 1 must be centered in the elongated hole.
- 2. The needle thread knife must travel **4.5 mm** when stopping mechanism is being engaged or disengaged.





- Bring the machine to its program end position.
- Loosen screw 2 and move catch 1 in accordance with requirement 1.
- Disengage the stop motion device and measure distance A.
- Engage the stop motion device and measure distance B.
- The difference between distances A and B must be 4.5 mm.

#### Adjustment:

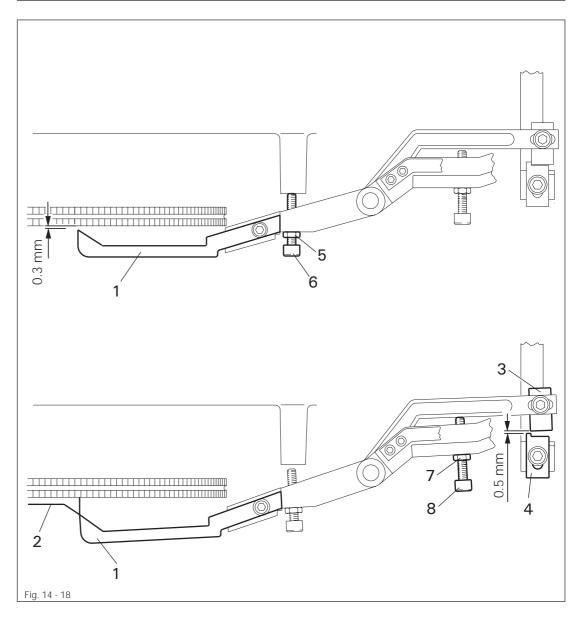
• Loosen screw 3 and move catch 4 in accordance with requirement 2.

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## 14.10 Sensing lever and catch lever

#### Requirement

- With the machine in its left buttonhole seam position, there must be a clearance of
   mm between the projection of the sensing lever 1 and the control cam.
- 2. When the sensing lever 1 is at the highest point of trip 2 there must be a clearance of 0.5 mm between the catches 3 and 4.





- Bring the machine into its left buttonhole seam position.
- Loosen nut 5 and turn screw 6 in accordance with requirement 1.
- Tighten nut 5.
- Turn the control cam by turning the handwheel so that the sensing lever 1 is at the highest point of trip 2.
- Loosen nut 7 and turn screw 8 in accordance with requirement 2.

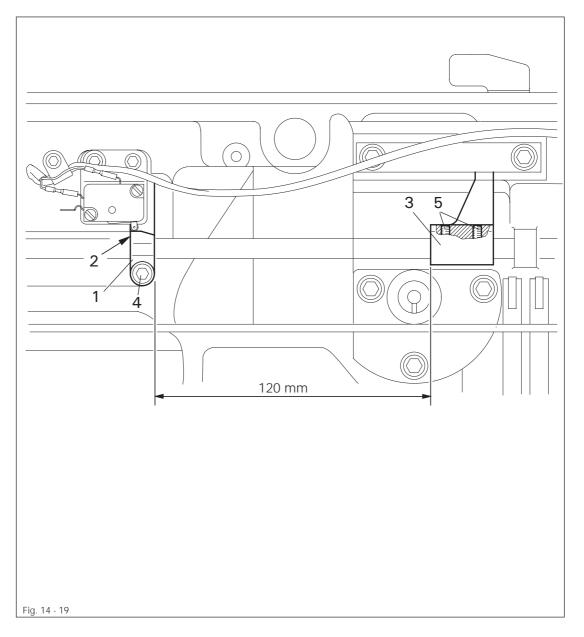
Tighten nut 7.

## 14.11 Work clamp

## 14.11.01 Basic position of the work clamp

#### Requirement

When the clamp piece 1 is flush with the marking 2 there must be a clearance of 120 mm between the clamp pieces 1 and 3.





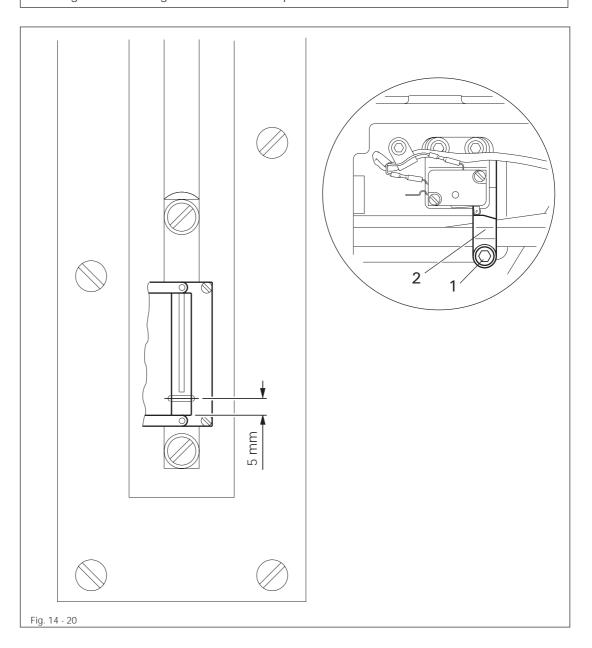
- Loosen screw 4.
- Move clamp piece 1 so that it is flush with the marking 2.
- Tighten screw 4.
- Loosen grub screws 5 and move clamp piece 3 in accordance with the requirement.
- Tighten the grub screws 5.

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## 14.11.02 Lengthwise positioning and parallelism of the work clamp

#### Requirement

- 1. In the program end position there must be a clearance of **5 mm** between the work clamp and the middle of the needle hole.
- 2. The lateral distance between the work clamp and the needle hole must be the same along the entire length of the work clamp.





- Bring the machine to its program end position.
- Loosen screw 1 and move clamp piece 2 in accordance with requirement 1.
- Tighten screw 1.
- Adjust the work clamp in accordance with requirement 2.

#### 14.12 Knife unit



The thread tension plate can be dismounted before making any adjustments to the knife unit so that the parts of the unit are more accessible.

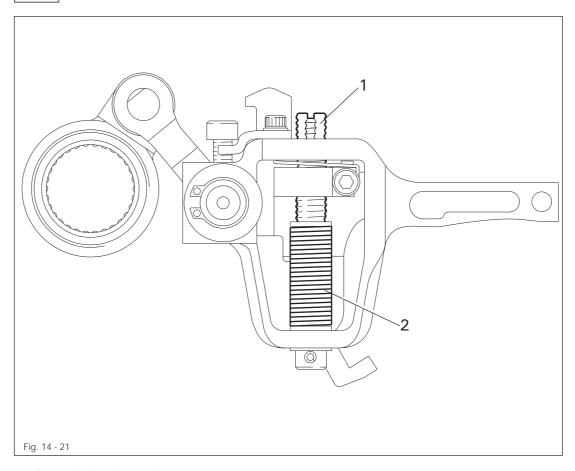
#### 14.12.01 Cutting pressure

#### Requirement

The pressure on the knife must be as low as possible while still guaranteeing a perfect cut.



The pressure required for a perfect cut is dependent on the material being processed.





- Go to the basic position.
- To do this, press the plate washer set 2 completely together by turning screw 1.
- Then turn screw 1 back 3 turns.



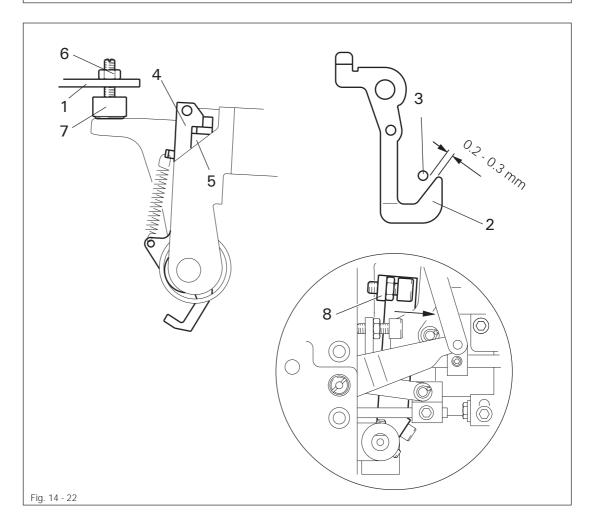
If a clean cut is no longer possible with the buttonhole punch, despite having been readjusted, rotate the plastic insert. See **chapter 11.17 Changing the plastic insert in the needle plate.** The cutting pressure should then be returned to the basic adjustment.

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## 14.12.02 Upper knife-arm-stop

#### Requirement

- 1. Taking care to ensure that the carrier plate 1 is pushed as far forward as possible in its elongated holes there must be a clearance of 0.2 mm to 0.3 mm between finger 2 of the needle thread monitor and pin 3 of the knife latch.
- 2. The knife latch 4 must fall into the actuator finger 5 when it is just below its TDC.



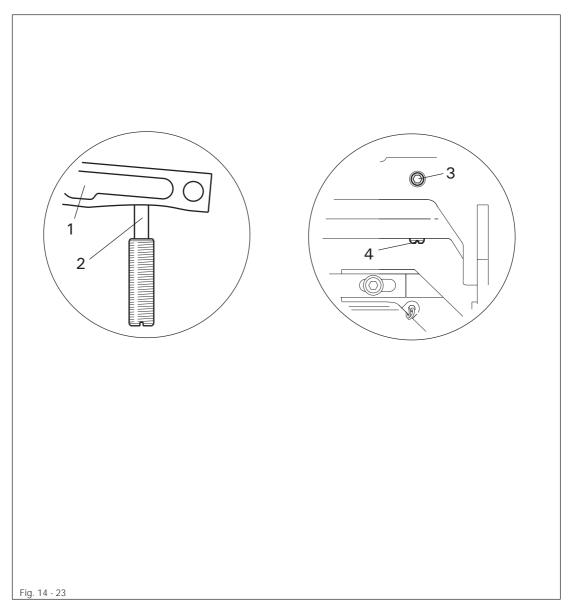


- Loosen nut 6 and turn the stop motion buffer 7 in accordance with requirement 1.
- Tighten nut 6.
- Engage the stop motion device.
- Turn the drive pulley in its direction of rotation until the actuator projection 5 is in its BDC.
- Hold the thread monitor finger forwards.
- Manually switch on the knife by pulling lever 8.
- The knife latch 4 positions itself in front of the actuator projection 5.
- Turn the drive pulley in its direction of rotation until the actuator projection **5** is just below its TDC.
- The knife latch 4 must then fall into the actuator projection 5.
- If this does not happen readjust the stop motion buffer 7 in accordance with requirement 2.
- Turn the drive pulley in its direction of rotation until the knife latch 4 is in its basic position.
- Disengage the stop motion device.

## 14.12.03 Lower stop motion buffer

#### Requirement

With the knife at its BDC the knife arm  ${\bf 1}$  should be touching the lower stop motion buffer  ${\bf 2}$  .





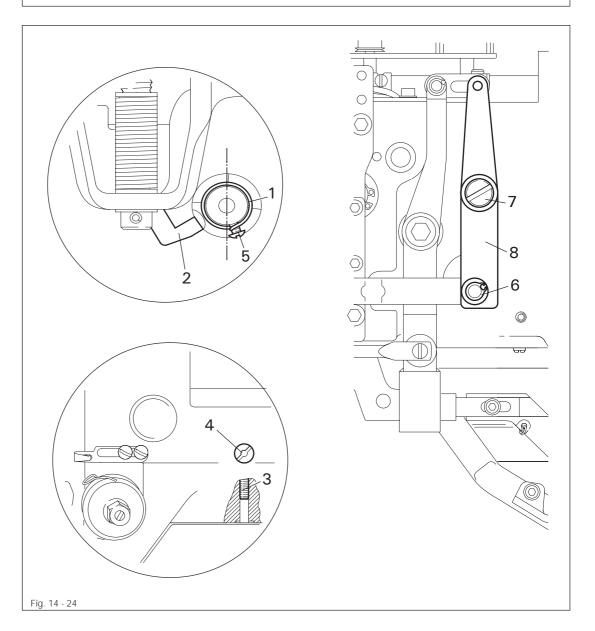
- Engage the stop motion device.
- Turn the drive pulley in its direction of rotation until the actuator projection is in its BDC.
- Hold the thread monitor finger forwards.
- Switch the knife on manually.
- Turn the drive pulley in its direction of rotation until the knife latch falls into the actuator projection.
- Turn the drive pulley in its direction of rotation until the knife is in its BDC.
- Loosen grub screw 3 and turn screw 4 in accordance with the requirement.
- Tighten grub screw 3.
- Disengage the stop motion device.

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## 14.12.04 Stop axle

#### Requirement

- 1. The torsion spring 1 must properly close the jaw of the stop axle.
- 2. The jaw of the stop axle must be opened to such an extent that the engaging lever 2 can engage properly.





- Loosen grub screw 3.
- lacktriangle Turn the stop axle 4 so that screw  $\Box$  is in the five o'clock position.
- Tighten grub screw 3.
- Engage stopping mechanism.

To be able to see engaging lever 2:

• Remove circlip 6, loosen screw 7 and dismount lever 8.



Release the pressure from the knife pawl from time to time while carrying out the following adjustments by pulling pin 9 in direction of arrow.

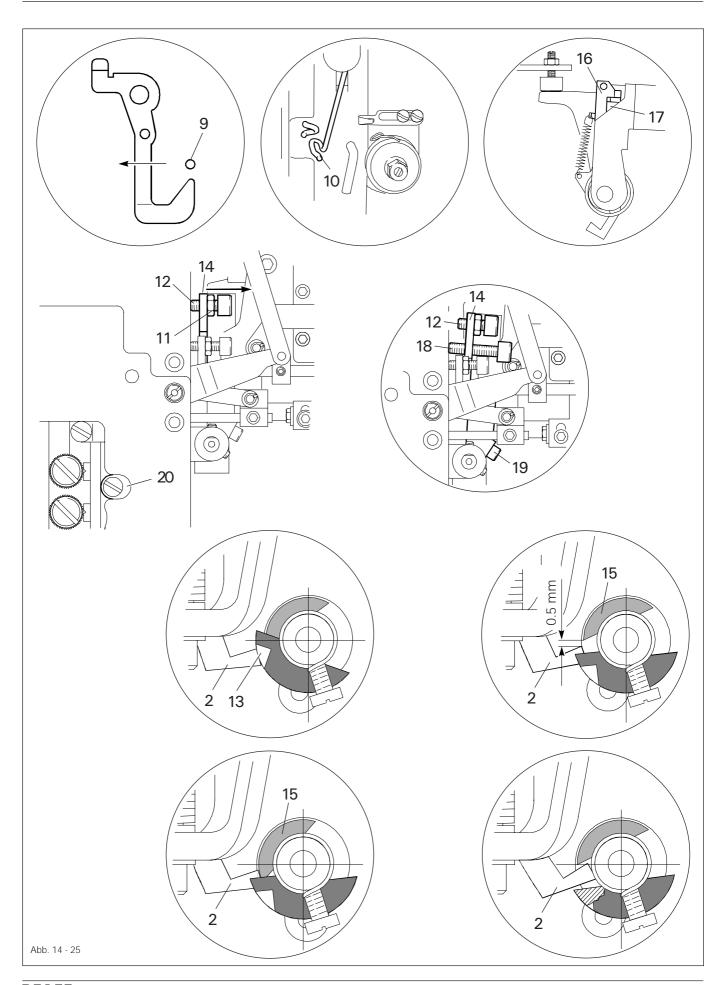


- Bring thread monitor wire 10 to its front position and secure it.
- Loosen nut 11 and turn screw 12 so that recess 13 is centered with respect to the engaging lever 2.
- Pull lever 14 by hand in direction of arrow until the engaging lever 2 falls onto catch 15.
- Bring lever 14 back to its basic position (i.e. let go of it).
- Turn the handwheel in direction of rotation until knife pawl 16 has engaged in drive dog 17.
- Turn screw 12 so that there is a clearance of approx. 0.5 mm between the engaged engaging lever 2 and the catch 15.
- Tighten nut 15.
- Bring engaging lever 2 to its basic position by pulling pin 9 in direction of arrow.
- Turn adjusting screw 18 (M6 x 30 of cover retainer) in lever 14.
- Turn the hand crank or the handwheel until lever 14 is at its furthest from the housing (= highest point of the knife trip).
- Loosen screw 19 and turn adjusting screw 18 until the engaging lever 2 has fallen onto catch 15.
- Turn adjusting screw 18 one more turn.
- Put downward pressure on clamp 20 and tighten screw 19.
- Remove adjusting screw 18.
- Turn the handwheel until the engaging lever 2 has engaged fully in the open jaw of the stop axle.
- Keep on turning the handwheel until the knife is back in its basic position.
- Carry out a check.
- Remove the blocking mechanism on the thread monitor wire.



Lever 8 (see fig. 14 - 23) remains dismounted for further adjustments.

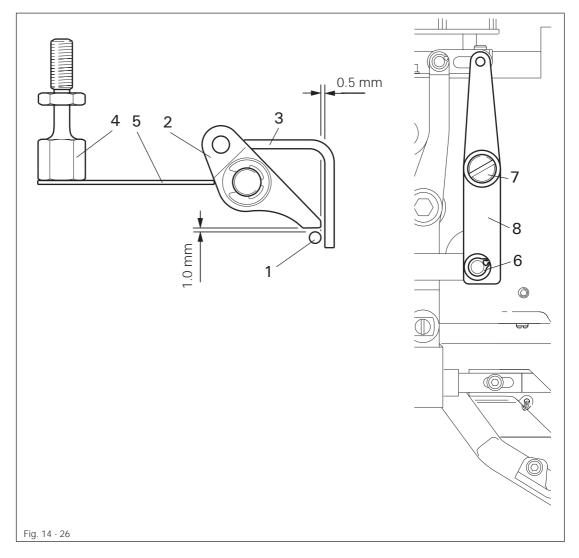
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#### 14.12.05 Locking lever

#### Requirement

- 1. With the knife latch fallen and the actuator projection at its TDC there must be a clearance of 1.0 mm between rod 1 of the knife latch and the locking lever 2.
- 2. In this position there must be a clearance of **0.5** mm between finger **3** and rod **1** of the knife latch.





- Engage the stop motion device.
- Turn the drive pulley in its direction of rotation until the actuator projection is in its BDC.
- Hold the thread monitor finger forwards.
- Turn the handwheel until the switch function of the knife latch has been carried out.
- Turn the drive pulley in its direction of rotation until the knife latch has fallen into place and the actuator projection is in its TDC.
- Loosen bolt 4 and move the stop 5 in accordance with requirement 1.
- Tighten bolt 4.
- Position finger 3 in accordance with requirement 2.
- Disengage the stop motion device.
- Mount lever 8 and circlip 6.
- Tighten screw 7.

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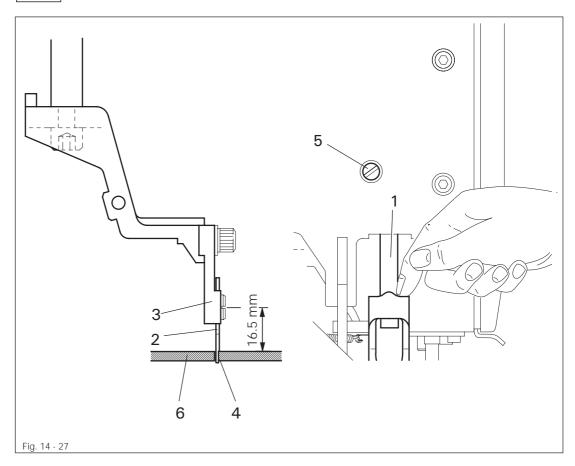
## 14.12.06 Knife bar height

#### Requirement

The height of the knife bar 1 must be adjusted with the aid of the knife adjustment gauge 2.



Carry out this adjustment with a needle plate with a knife actuating hole mounted.





- Bring the machine to its program end position.
- Disengage the stop motion device.
- Manually push out the needle thread scissor.
- Mount the knife adjustment gauge 2 onto the knife carrier 3.
- Carefully push the knife bar 1 down with your finger and check that the knife adjustment gauge 2 can enter the cutting slot 4.
- If not, proceed to chapter 14.12.07 Position of the knife carrier relative to the cutting slot.
- Turn the handwheel until the switch function of the knife is carried out.
- Hold the thread monitor finger forwards.
- Turn the drive pulley in its direction of rotation until screw 5 becomes visible.
- Loosen screw 5 a little.
- Turn the drive pulley in its direction of rotation until the knife bar 1 is at its BDC.
- In this position the knife adjustment gauge 2 must rest on the needle plate 6 ( = 16.5 mm ).
- Tighten screw 5.

**PFAFF** 

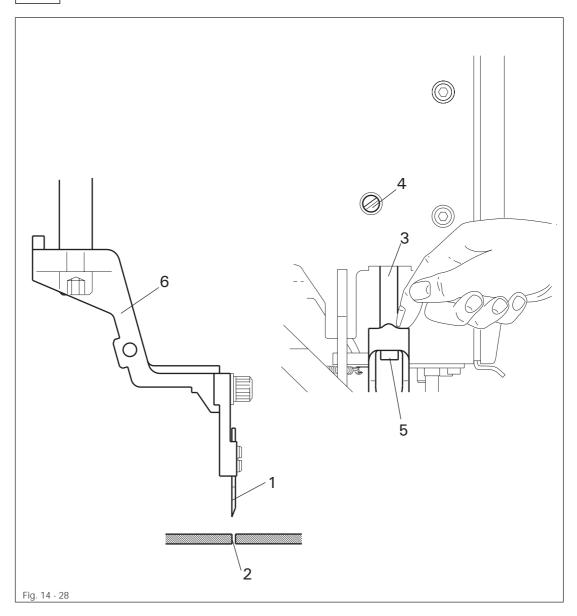
# 14.12.07 Position of the knife carrier relative to the cutting slot

### Requirement

- 1. The knife 1 must be parallel to the cutting slot 2.
- 2. The knife 1 must be in the middle of the cutting slot 2.



Carry out this adjustment with a needle plate with a knife actuating hole mounted.





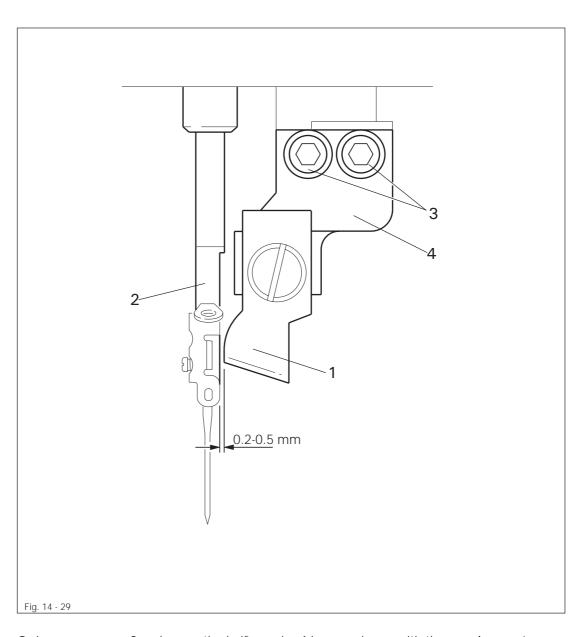
- Press the knife bar 3 down manually.
- Loosen screw 4.
- Turn the knife bar 3 in accordance with requirement 1.
- Tighten screw 4.
- Loosen screw 5.
- Move the knife carrier 6 in accordance with requirement 2.
- Tighten screw 5.

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# 14.12.08 Lengthwise positioning of the knife carrier

## Requirement

There must be a clearance of 0.2 to 0.5 mm between the knife 1 and the needle bar 2.



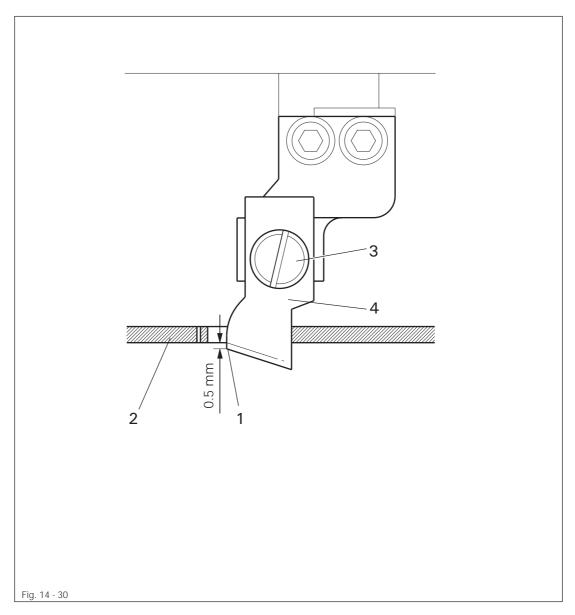


- Loosen screws 3 and move the knife carrier 4 in accordance with the requirement.
- Tighten screws 3.

# 14.12.09 Height with the buttonhole cutter

## Requirement

At the BDC of the buttonhole cutter the bottom edge of the front of the knife 1 must be 0.5 mm under the needle plate 2.





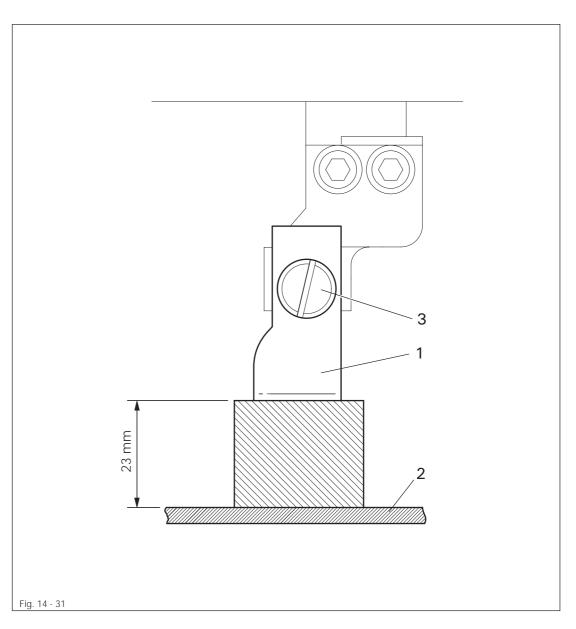
- Bring the buttonhole cutter to its BDC.
- Loosen screw 3 and move knife 4 in accordance with the requirement.
- Tighten screw 3.

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# 14.12.10 Height with the buttonhole punch

# Requirement

The blade of the knife 1 must be 23 mm above the plastic insert 2.



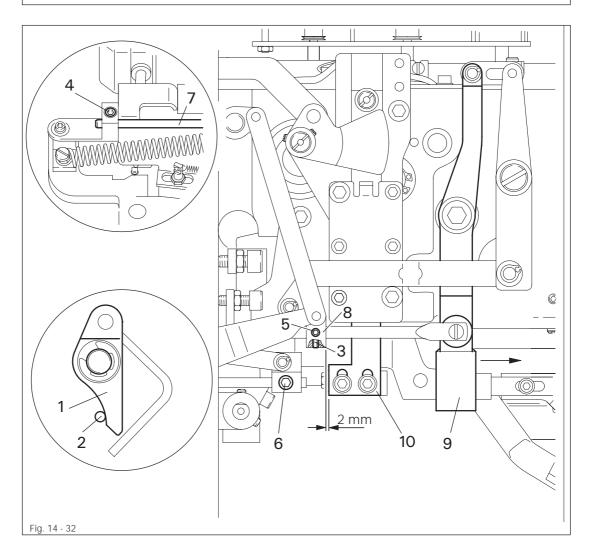


- Loosen screw 3.
- Place the gauge, Part no. 61-111 635-86, between the knife 1 and the plastic insert 2.
- Tighten screw 3.

## 14.12.11 Securing the knife

#### Requirement

With the stop motion device disengaged, the locking lever 1 must be touching the pin 2 of the knife latch.





- Bring the machine to its program end position.
- Disengage the stop motion device.
- Loosen screws 3, 4, 5 and 6.
- Position rod 7 flush with the front end of the clamp piece 8 and tighten screw 3.
- In this position push guide 10 all the way up and move the rod 7 with the clamp piece 8 so that there is a clearance of approx. 2 mm between the guide 10 and the clamp piece 8.
- Tighten screw 4.
- Pull lever 9 in the direction of the arrow until the locking lever 1 is touching the pin 2 of the knife latch.
- Tighten screw 5.



The clamp piece 8 must be horizontal.

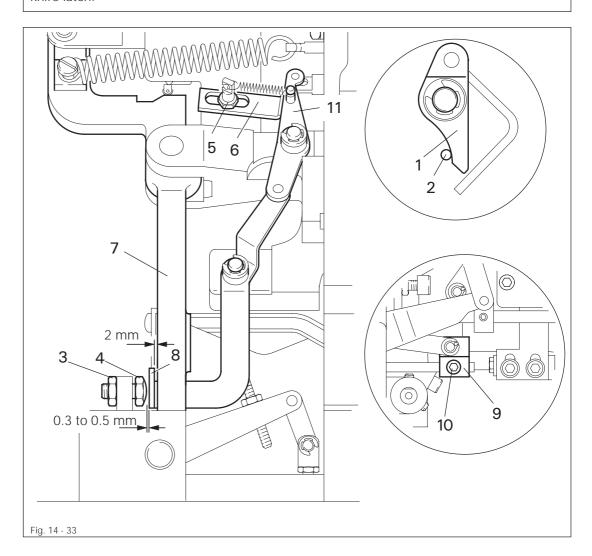
Screw 6 remains loosened for further adjustments.

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## 14.12.12 Stopping the knife on the double cycle

#### Requirement

With the engaging cylinder retracted the locking lever 1 must be touching the pin 2 of the knife latch.



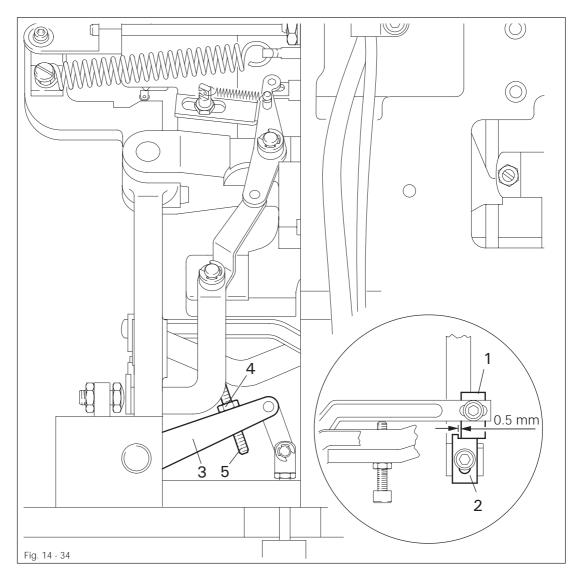


- Bring the machine to its program end position and disengage the stop motion device.
- Loosen nut 3 and wind screw 4 back completely.
- Loosen nut 5 and move stop 6 so that there is a clearance of 2 mm between the switching lever 7 and lever 8. The stop must be parallel to lever 11.
- Tighten nut 5.
- Wind screw 4 until there is a clearance of 0.3 to 0.5 mm between screw 4 and lever 8.
- Tighten nut 3.
- Engage the stop motion device.
- Press lever 8 against the switching lever 7.
- In this position move the clamp piece 9 so that the locking lever 1 is touching the pin 2 of the knife latch.
- Tighten screw 10.
- Disengage the stop motion device.
- If necessary, remount the thread tensioning plate.

# 14.13 Engaging lever

### Requirement

With the engaging cylinder retracted there must be a clearance between the catches 1 and 2 of 0.5 mm.





- Disengage the stop motion device.
- Press the engaging lever 3 down manually.
- Loosen nut 4 and wind screw 5 in accordance with the requirement.
- Tighten nut 4.

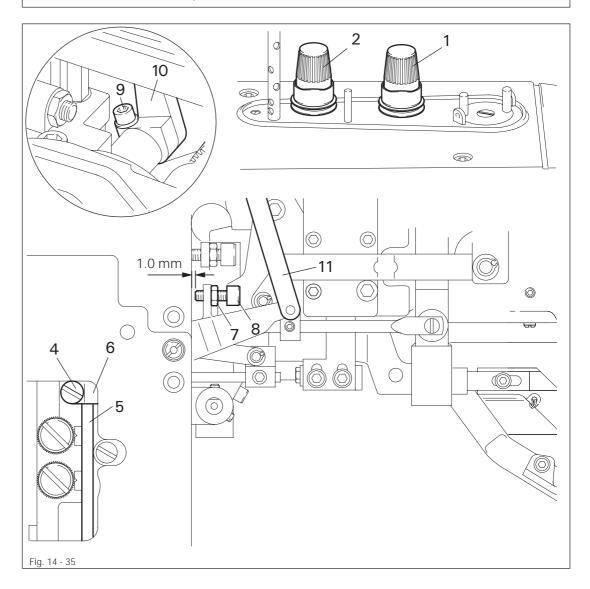
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#### 14.14 Needle thread tension

#### Requirement

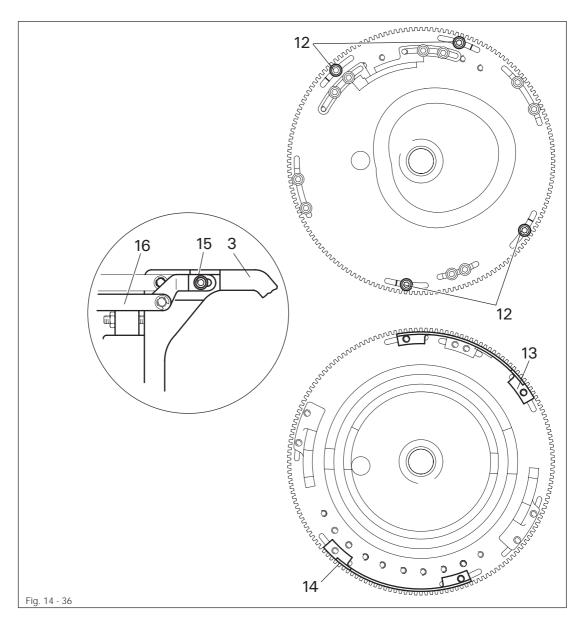
- 1. The tension 1 must remain open for approx. 3 stitches when starting sewing.

  Before beginning the first bartack the tension 1 must also be open for 3 stitches.
- 2. The tension 2 must be open for a minimal movement of the lever 3.





- Engage the stop motion device.
- Bring the machine into the left buttonhole seam position.
- Loosen screw 4 and push plunger 5 in the clamp eye 6 up as far as possible.
- Tighten screw 4.
- Turn the control cam by turning the handwheel until the plunger 5 is fully in use.
- Loosen nut 7 so that there is a clearance of 1 mm between screw 8 and the housing.
- Continue turning the handwheel until the plunger 5 begins to drop and screw 8 is touching the housing.
- Loosen screw 9 and move the disengaging rod assembly 10 so that the tension 1 is opened by a minimal movement of the lever 11.
- Tighten screw 9.





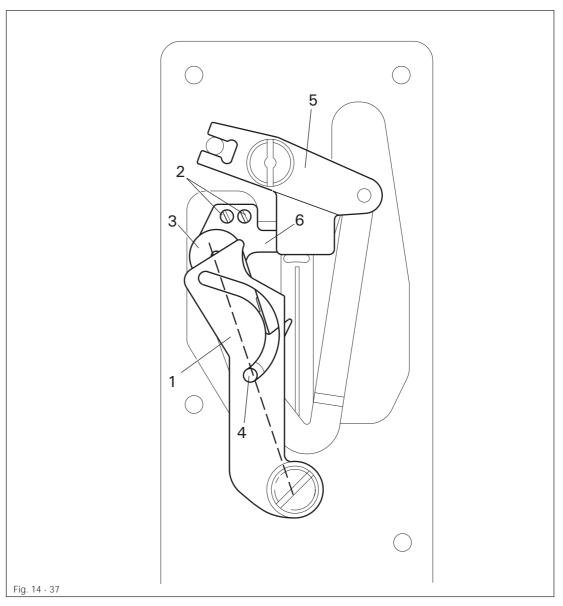
- Loosen screw 12 and move the tension disengaging trips 13 and 14 in accordance with requirement 1.
- Tighten screws 12.
- Loosen screws 15 and move the disengaging rod assembly 16 in accordance with requirement 2.
- Tighten screw 15.

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### 14.15 Bobbin thread trimmer

### Requirement

When in resting position, thread puller 1 of the bobbin thread trimmer must be parallel to the needle plate insert.





- Loosen screws 2. Move knife 3 and thread puller 1 in according with the requirement.
- Tighten screws 2.



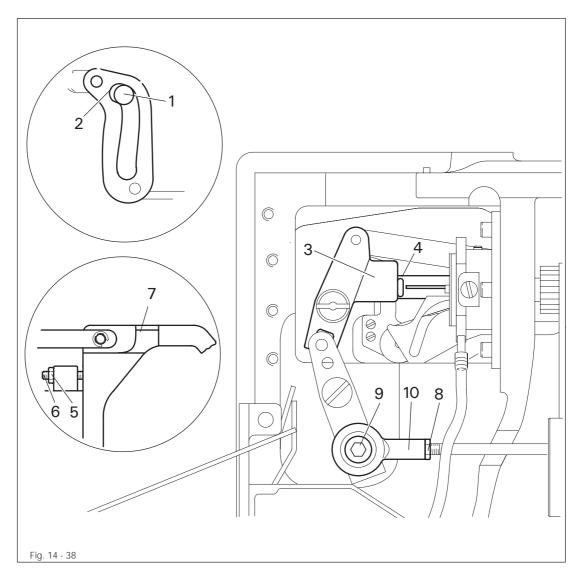
When knife guide 5 is moved, the actuating pin 4 must run easily and without any binding through the cutout.

With knives 3 and 6 overlapping by 0.5 to 1 mm the thread must be neatly cut.

# 14.16 Bobbin thread trimmer drive linkage

### Requirement

- 1. Roller 1 must not be in contact with end 2 of the cam.
- 2. In basic position knife guide 3 must be parallel to needle hole 4.





- Loosen nut 5 and turn screw 6 back a few turns.
- Set screw 6 against lever 7 and turn screw 6 another 1/4 of a turn.
- Tighten nut 5.
- Loosen nut 8 and screw 9.
- Turn linkage 10 according to requirement 2.
- Tighten screw 9.
- Tighten nut 8.



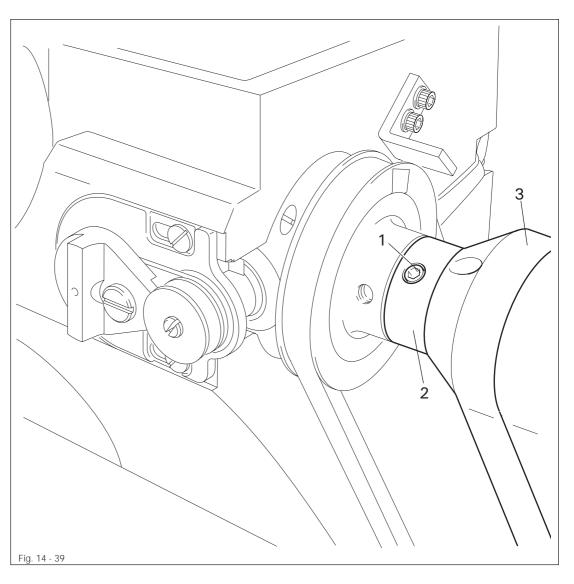
On machines with buttonhole trimmer the catching lug must be behind the cutting slot.

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#### 14.17 Positioner

#### Requirement

The thread lever must be positioned at 1.2 mm before the TDC.





- Turn the machine approx. 15 mm out of the basic position by turning the handwheel.
- Turn the machine off / on.
- The motor runs into a desired position.
- Loosen the grub screws 1 on the positioning shaft 2 and hold the positioner 3 on the positioning shaft.
- Turn the drive pulley in its direction of rotation until the thread lever is 1.2 mm before its TDC.
- Tighten the grub screws 1.
- After switching the machine off / on, check the needle position.
- If necessary, repeat the adjustment process.



Before positioner adjustment disconnect copressed air.

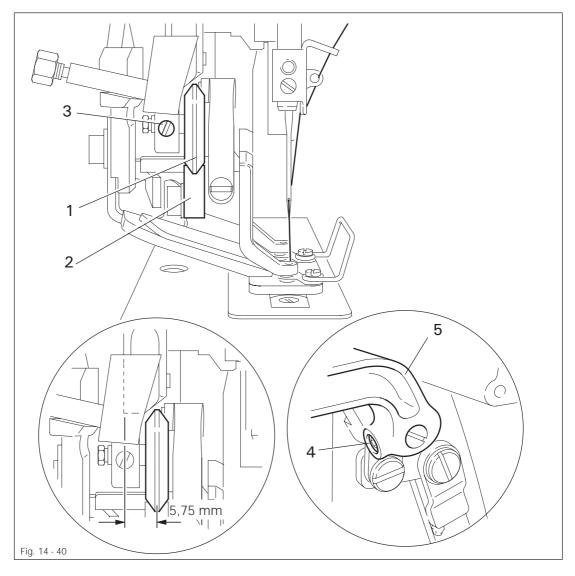
Lifting of the work clamp in a wrong tread lever position can cause damage of bobbin thread trimmer.

**PFAFF** 

## 14.18 Presser roller and presser bar lifter with work clamp

#### Requirement

- 1. With the presser roller 1 in the prismatic guide 2 of the work clamp, the work clamp cut out must be in the middle of the seam construction and parallel to the needle plate insert.
- 2. There must be a clearance of **5.75** mm between the presser roller **1** and the screwing surface of the presser bar.





- Remove all sewing pressure. See chapter 11.09 Adjusting the sewing pressure.
- Loosen screw 3 and move the presser roller 1 in accordance with requirement 2.
- Tighten screw 3.
- Loosen grub screw 4 and move the presser bar 5 so that the presser roller 1 remains in the prismatic guide 2 throughout the entire movement.
- Tighten grub screw 4.



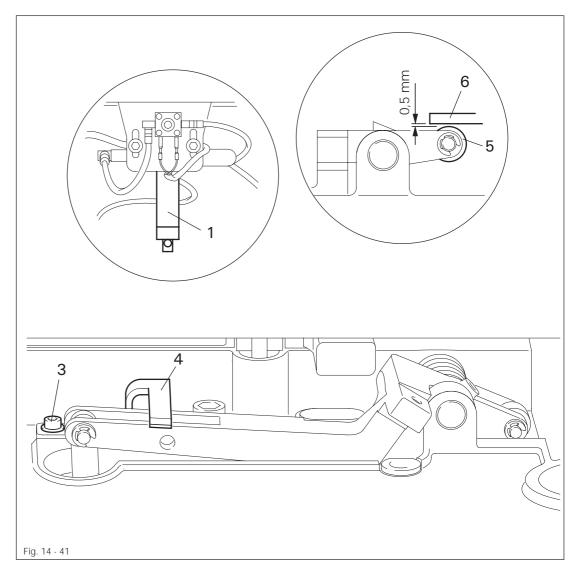
During the entire movement the work clamp must remain parallel to the needle plate insert. Adjust work clamp if necessary.

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## 14.19 Feed lifting cylinder

#### Requirement

- 1. With the feed lifting cylinder 1 extended there must be a clearance of 0.5 mm between the presser roller and the pressing surface of the lever 6.
- 2. With the feed lifting cylinder 1 retracted ( see fig. 14.42 ), the lever 2 of the work clamp must be able to be lifted a little more.
- 3. With the feed lifting cylinder 1 retracted, the work clamp must rise 12.5 mm from the feeder.

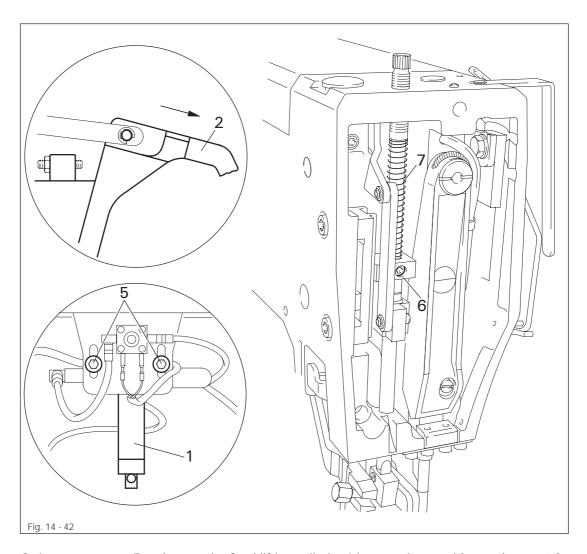




- Lay the machine head on its side.
- With the feed lifting cylinder 1 extended, loosen the screws 3.
- Move the angle bracket 4 in accordance with requirement 1.
- Tighten screws 3.
- Return the machine head to its upright position.



Danger of crushing between machine head and table top!





- Loosen screws 5 and move the feed lifting cylinder 1 in accordance with requirement 2.
- Tighten screws 5.
- Switch the machine on. The feed lifting cylinder 1 retracts.
- Remove sewing pressure completely. See chapter 11.09 Adjusting the sewing pressure.
- Loosen screw 6 and lift the work clamp in accordance with requirement 3 (e.g. lay 12.5 mm underneath).
- Tighten screw 6.



Do not turn rod 7!

• Adjust the sewing pressure. See chapter 11.09 Adjusting the sewing pressure.

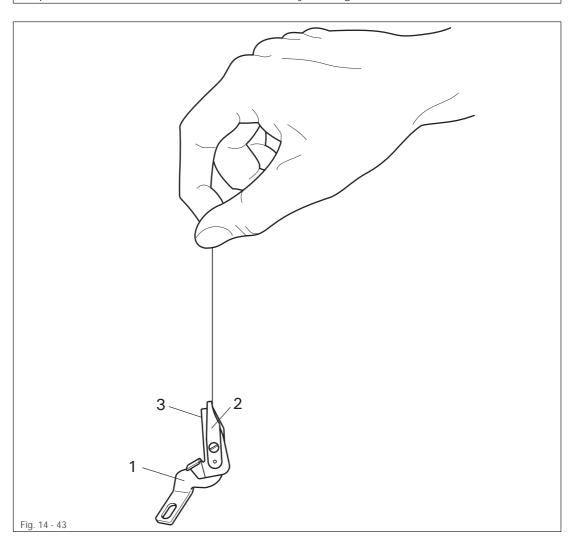
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#### 14.20 Needle thread scissor

### 14.20.01 Function check

#### Requirement

- 1. With a thread inserted, the needle thread scissor 1 must cut the thread neatly.
- 2. After the cutting action one thread end must remain clamped in the scissor so that it is possible to lift the needle thread scissor 1 by holding the thread end.





- Dismount the needle thread scissor 1.
- Carry out a cutting test in accordance with requirement 1.
- Carry out a lifting test in accordance with requirement 2.
- If necessary, adjust the clamp spring 2 or roughen the clamp surfaces.
- Fit the needle thread scissor 1 to the machine.



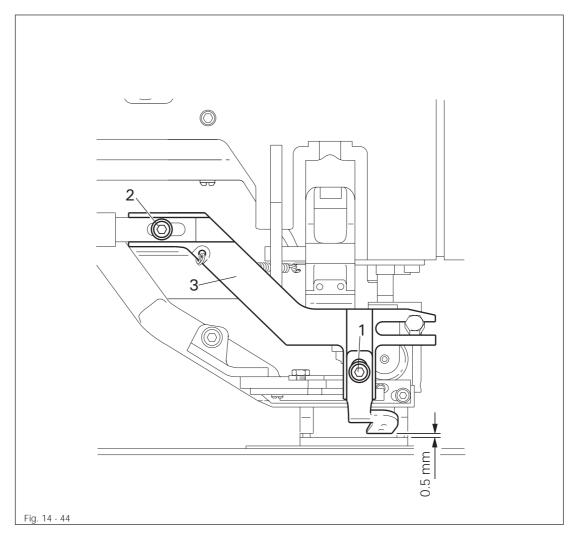
The thread must not be clamped so tightly that it is damaged!

There must not be any sharp edges on upper blade 3. The clamp surface of upper knife blade 3 must be sufficient. Smooth clamp surfaces impair the clamping effect!

# 14.20.02 Height and lengthwise positioning

#### Requirement

- The needle thread scissor must be positioned as low as possible. However, it must in no position be in contact with the work clamp. The clearance between the needle thread scissor and the work clamp must be 0.5 mm.
- 2. When fully opened, the needle thread scissor must go directly towards the needle thread and catch it securely.





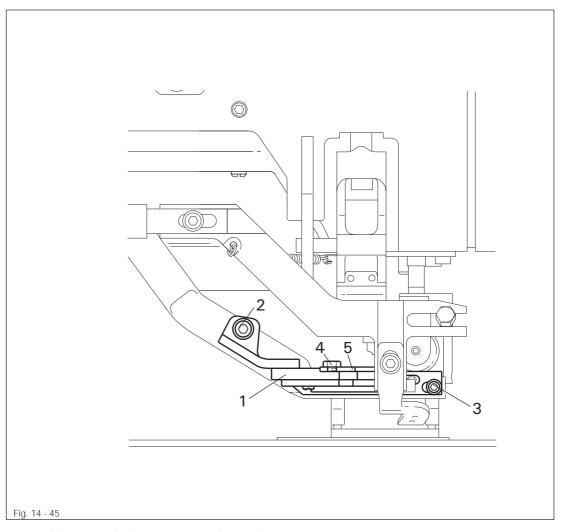
- Loosen screw 1.
- Shift needle thread scissor in accordance with requirement 1.
- Tighten screw 1.
- Loosen screw 2.
- Shift needle thread scissor frame 3 in accordance with requirement 2.
- Tighten screw 2.

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## 14.20.03 Trip guide

#### Requirement

Trip guide 1 for the opening and control of the needle thread scissor must be adjusted so that the thread end is perfectly stitched over by the left-hand buttonhole seam.





- Machine must be in program end position.
- Engage the stop motion device. Make sure the needle thread scissor does not open.
- Loosen screws 2 and 3.
- Shift trip guide 1 in accordance with the requirement.
- Tighten screws 2 and 3.
- Loosen screw 4 and re-position guide plate 5 so that the thread is centered in the middle
  of the left-hand buttonhole seam. The left-hand buttonhole seam must be stitched over
  the thread.
- Tighten screw 4.
- Disengage the stop motion device.



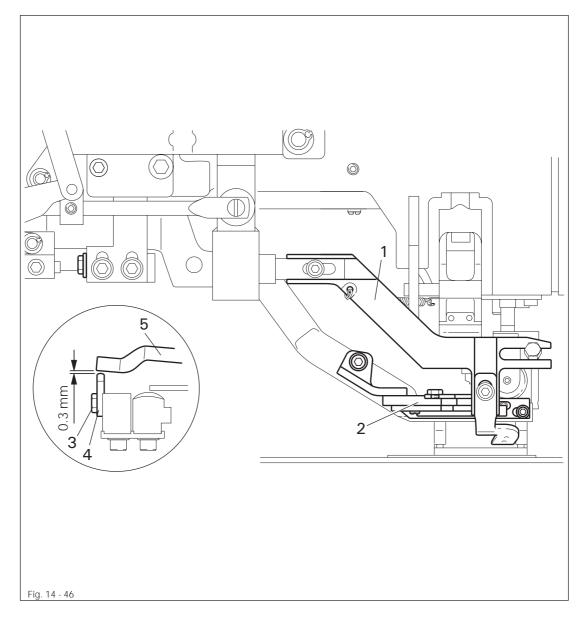
If necessary, adjust the opening and control of the needle thread scissor while sewing.

**PFAFF** 

# 14.20.04 Stop piece

### Requirement

During the entire sewing action the needle thread scissor must keep clear of the sewing area.





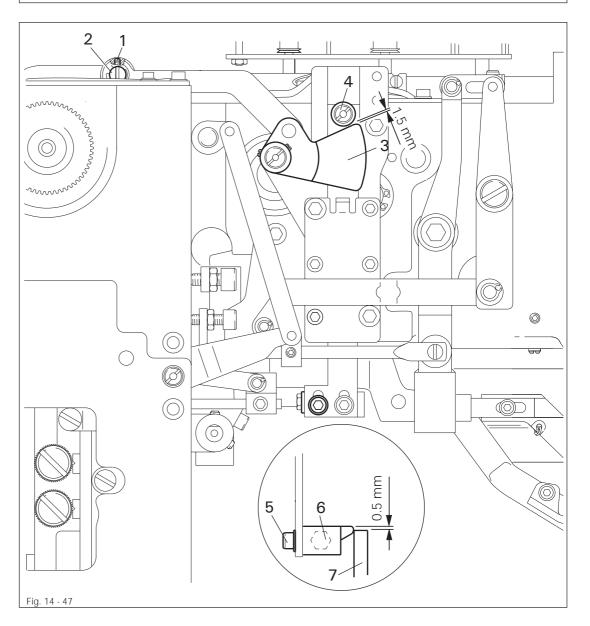
- The machine must be in program end position.
- Engage the stop motion device.
- Turn the handwheel until needle thread scissor frame 1 is at the highest point of trip guide 2.
- Loosen screw 3 and shift the stop piece 4 so that there is a clearance of 0.3 mm between the springborn pawl 5 and the stop piece 4.
- Tighten screw 3.
- Disengage the stop motion device.

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# 14.20.05 Triggering the needle thread scissor

### Requirement

The needle thread scissor must not cut the thread before tension 2 has opened (cf. section 14.14 Needle thread tension).



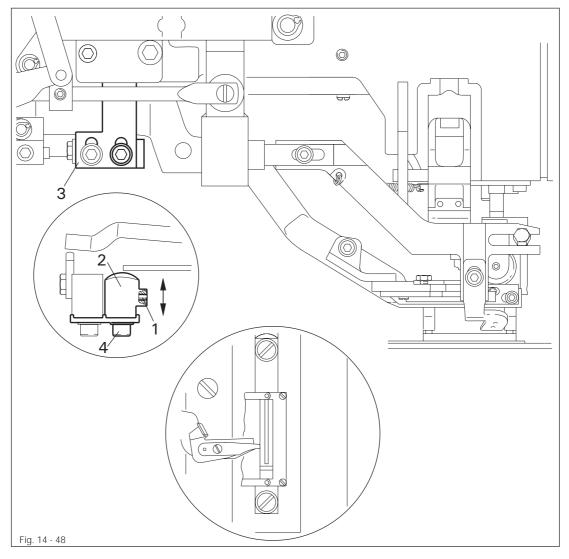


- Loosen grub screw 1.
- Turn the eccentric 2 until there is a clearance of 1.5 mm between the lifting piece 3 and the roller 4.
- Tighten grub screw 1.
- Loosen screw 5 and shift catch 6 in height so that there is a clearance of 0.5 mm between the springborn pawl 7 and the top surface of catch 6.
- Tighten screw 5.

#### 14.20.06 Backwards motion of the needle thread scissor

#### Requirement

- 1. When the work clamp is lifted, the needle thread scissor must not touch the needle.
- 2. Before the needle thread scissor moves back to its initial position, it must catch the thread securely.





- Insert the needle. See section 11.01 Inserting the needle.
- Bring the machine to program end position.
- Disengage the stop motion device.
- Loosen grub screw 1.
- Press guide 3 upwards as far as it will go.
- Move the trip piece 2 in the direction of the arrow until the needle thread scissor is flush with the inner edge of the work clamp. Tighten grub screw 1.
- Loosen screw 4 and raise the trip piece 2 in height in accordance with requirement 2.
- Tighten screw 4.

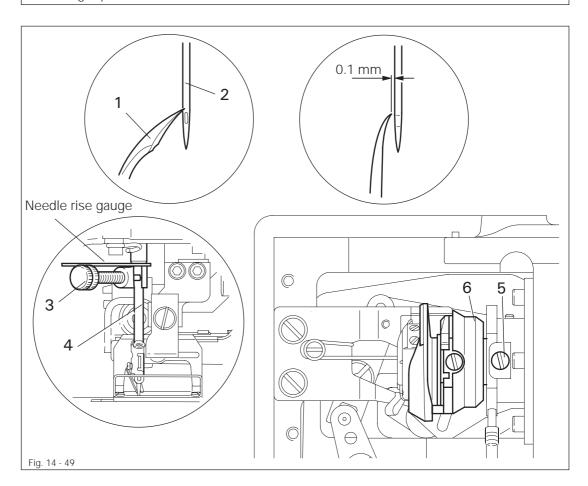
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#### 14.21 Hook and needle bar

#### 14.21.01 Needle bar rise and clearance

#### Requirement

- 1. At the right perforation on the left buttonhole seam the needle bar rise must be 2.4 mm. The hook point 1 must be pointing directly at the middle of the needle 2.
- 2. The lateral clearance between the needle 2 and the hook point 1 must be 0.1 mm at the right perforation into the left buttonhole seam after the end of the needle bar rise.



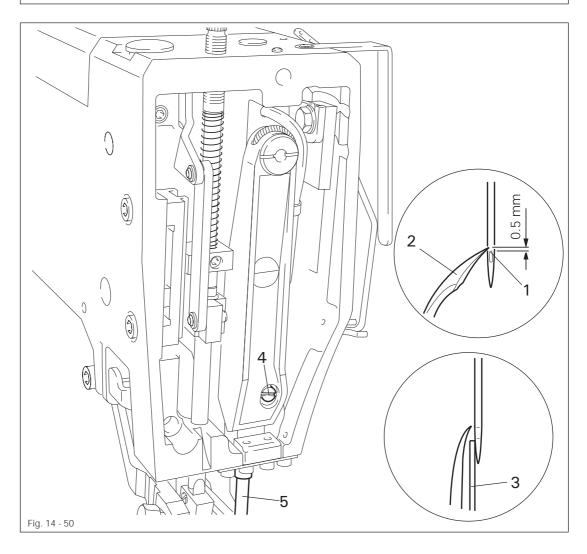


- Bring the machine into buttonhole seam position.
- Engage the stop motion device.
- Bring the needle into its BDC on the right perforation of the left buttonhole seam.
- Mount the C-clamp 3 on the needle bar 4.
- Position the 2.4 mm needle rise gauge, Part no. 61-111 600-09 between the C-clamp 3 and the stop of the needle bar 4.
- Loosen the C-clamp 3, pull it upwards as far as possible and retighten it.
- Remove the needle rise gauge.
- Turn the drive pulley in its direction of rotation until the C-clamp 3 is touching. The needle bar rises 24 mm.
- In this position, loosen screws 5 and turn the hook sleeve 6 on the hook shaft in accordance with requirement 1 and move it in accordance with requirement 2.
- Tighten screws 5.
- Loosen and remove the C-clamp 3.

## 14.21.02 Needle bar height and need guard

#### Requirement

- At the right perforation on the right buttonhole seam there must be a clearance of
   5 mm between the top of the needle eye 1 and the hook point 2 at the end of the needle rise.
- 2. At the right perforation on the left buttonhole seam the needle must lightly touch the needle guard 3 in needle bar rise position.





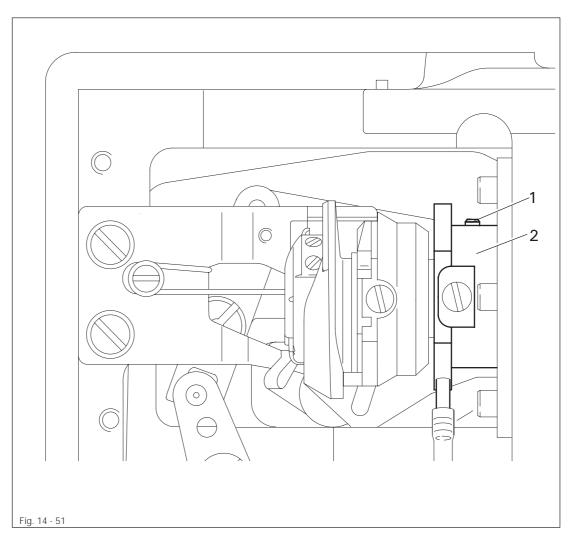
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- Bring the machine into the right buttonhole position.
- Engage the stop motion device.
- Bring the needle into the needle bar rise position ( = 2.4 mm after BDC) of the right perforation.
- Loosen the now accessible screw 4.
- Move the needle bar 5 in accordance with requirement 1 and tighten screw 4.
- Bring the machine into the left buttonhole seam position.
- Engage the stop motion device.
- Bring the needle into the needle bar rise position ( = 2.4 mm after BDC) of the right perforation.
- Adjust the needle guard 3 in accordance with requirement 2.
- Disengage the stop motion device.

### 14.21.03 Hook lubrication

### Requirement

- 1. The hook must be adequately lubricated.
- 2. With the hook clearance adjusted correctly, the felt ring must lightly touch the spring mounted metal disc.





- Check that there is sufficient oil in the reservoir 3. See chapter 13.02.02 Lubricating the hook.
- Loosen grub screw 1 and move the oil distributor ring 2 in accordance with requirement 2.
- Tighten grub screw 1.

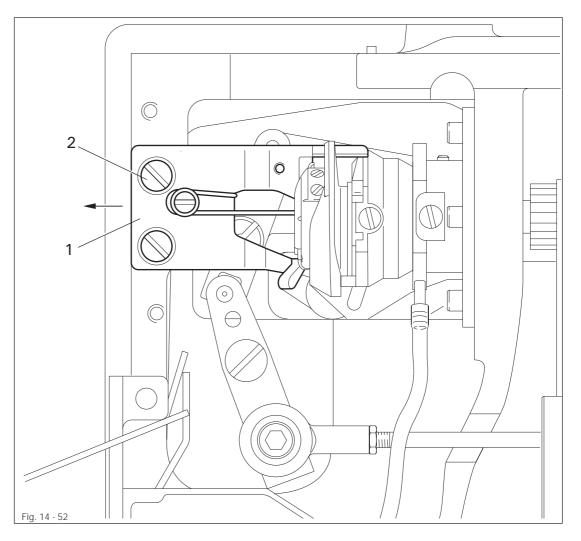


With the hook lubrication adjusted correctly, there should be a fine film of oil on a strip of paper after 10 cycles

## 14.22 Bobbin case holder

# Requirement

The bobbin case holder 1 should be mounted in the direction of the arrow.





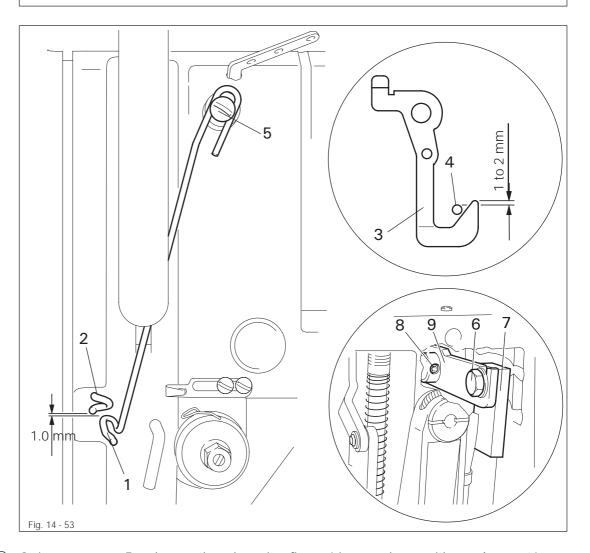
- Loosen screws 2.
- Move the bobbin case holder 1 in the direction of the arrow.
- In this position, tighten screws 2.

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#### 14.23 Needle thread monitor

#### Requirement

- 1. The clearance between the thread monitor finger 1 and the thread guide eye 2 must be 1.0 mm.
- 2. The thread monitor finger 1 must be held only by the needle thread.
- 3. In the case of the needle thread breaking, the thread monitor finger 1 must move far enough to the right so that the point of the finger 3 is approx. 1 to 2 mm above the pin of the knife latch 4.





- Loosen screw 5 and move thread monitor finger 1 in accordance with requirement1.
- Tighten screw 5.
- Loosen nut 6 and move the weight 7 in the elongated hole in accordance with requirement 2.
- Tighten nut 6.
- Loosen grub screw 8 and turn the lever 9 in accordance with requirement 3 taking care that the thread monitor finger does not have any axial play.
- Tighten grub screw 8.

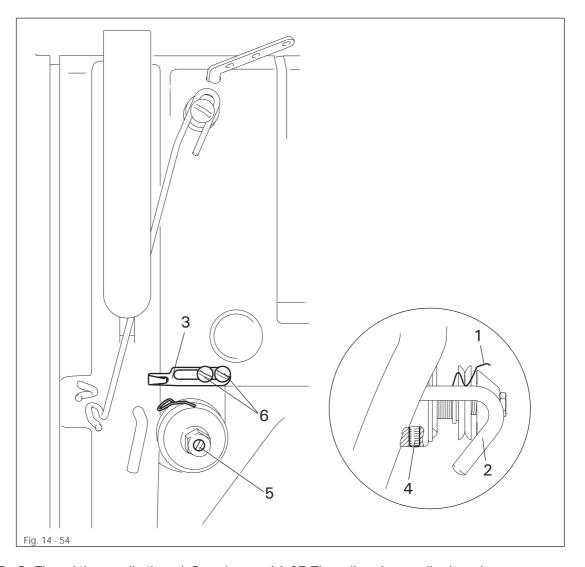


The thread monitor finger 1 must be still while sewing. It must not vibrate. If necessary move the weight 7 again.

#### 14.24 Lateral thread tension and thread control

### Requirement

- 1. The thread check spring 1 must be flush with the top edge of the jockey finger 2.
- 2. The thread control **3** must be mounted in the elongated hole so that the thread check spring **1** moves approx. **1** mm at the largest expansion of the thread loop by the hook.





- Thread the needle thread. See chapter 11.07 Threading the needle thread.
- Loosen grub screw 4.
- Turn the tension barrel 5 in accordance with requirement 1.
- Tighten grub screw 4.
- Loosen screws 6.
- Move the thread control 3 in the elongated hole in accordance with requirement 2.
- Tighten screws 6.



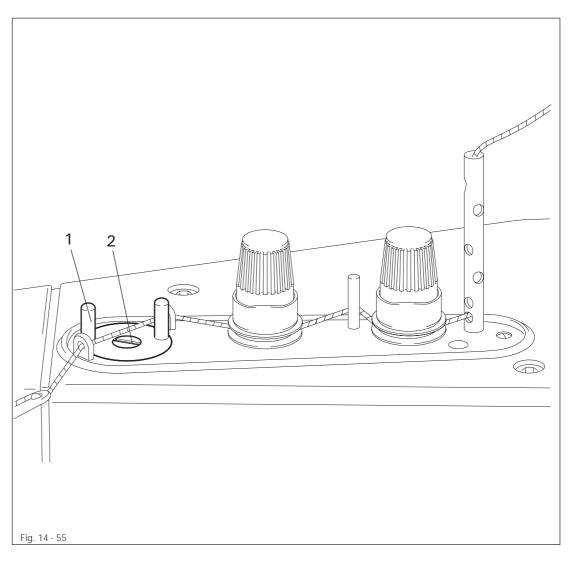
The path of the thread check spring 1 and the adjustment of the thread control 3 is dependent on the material and the thread and must be corrected in accordance with the results of sewing.

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# 14.25 Needle thread puller

### Requirement

The needle thread puller 1 must pull enough thread so that the needle thread is not pulled out of the needle thread scissor at the first stitch. The excess thread must be used by the first stitch.



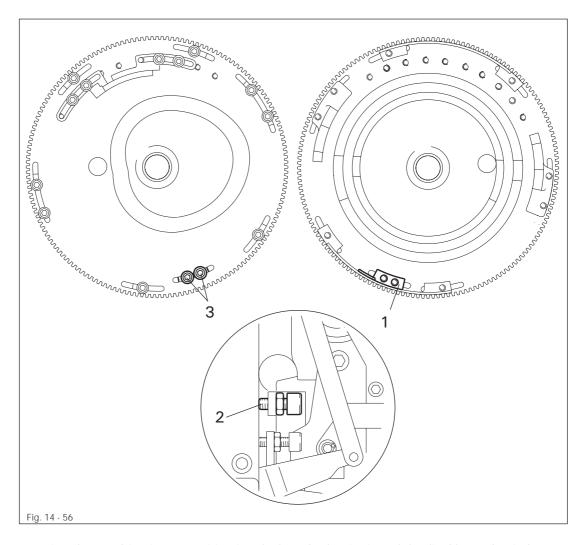


- Loosen screw 2.
- Turn the needle thread puller 1 in accordance with the requirement.
- Tighten screw 2.

## 14.26 Knife triggering time

### Requirement

The movement of the knife must be triggered after the first stitch of the final bartack.





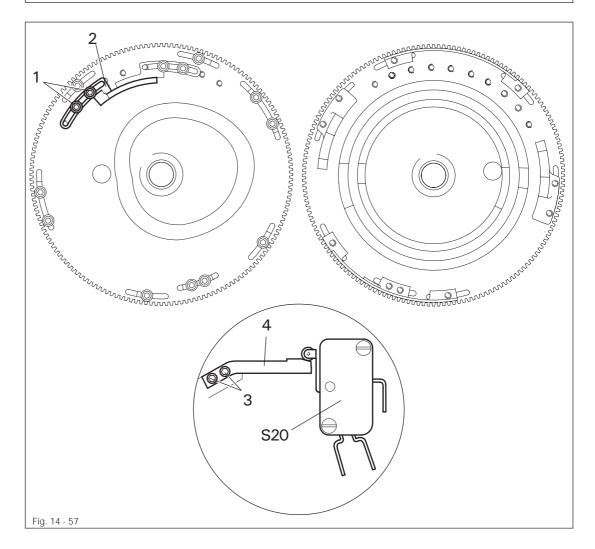
- Bring the machine into a position just before the beginning of the final bartack stitches.
- Engage the stop motion device.
- Turn the drive pulley in its direction of rotation until the first final bartack stitch has been completed.
- In this position the plunger must have dropped from the highest point of the knife latch 1 and screw 2 must be touching the housing again.
- Loosen screws 3 and move the knife latch 1 in accordance with the requirement.
- Tighten screws 3.

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## 14.27 Reducing speed

#### Requirement

- 1. With the sensing lever touching the reduction lug 2 the switch S20 must be pressed securely.
- 2. The speed must be reduced approx. five stitches before the triggering of the knife movement.



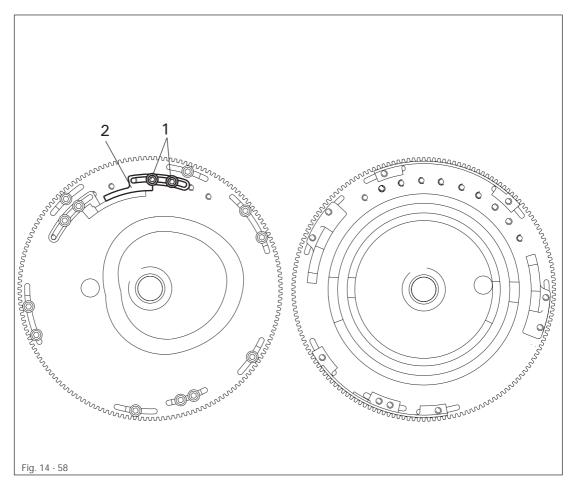


- Bring the machine into the right buttonhole seam position.
- Engage the stop motion device.
- Turn the handwheel until switch S20 just on.
- Loosen screws 3 and move the switch blade 4 in accordance with requirement 1.
- Tighten screws 3.
- Turn the drive pulley in its direction of rotation until the first final bartack stitch while counting the stitches.
- Loosen screws 1 and move the reduction lug 2 in accordance with requirement 2.
- Tighten screws 1.
- Disengage the stop motion device.

#### 14.28 Switch off time

### Requirement

The reinforcing stitches ( zero stitches ) must lie with one half on the seam end and one half on the seam beginning.





- Bring the machine to the start of the end bartack stitches.
- Engage the stop motion device.
- Turn the drive pulley in its direction of rotation and observe the needle stitches.
- The machine switches off.
- Continue turning the drive pulley in its direction of rotation while observing the needle stitches.
- Loosen screws 1 and move the trip 2 in accordance with the requirement.
- Tighten screws 1.
- Allow the machine to run at operating speed and carry out a check.



If another distribution of the reinforcing stitches is necessary due to operational reasons, this can be achieved by moving the trip **2**.

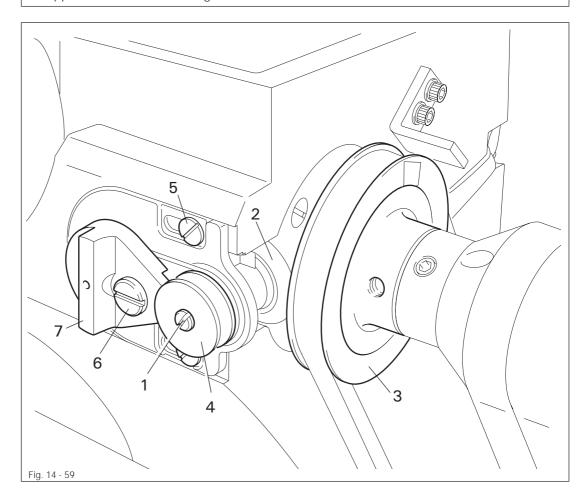
The reduction lug and the stop trip **2** are dependent on the transmission ratio. These are to be readjusted if necessary when adjusting the feed gear pairing.

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#### 14.29 Bobbin winder

### Requirement

- 1. When switching the machine on, the bobbin winder shaft 1 must be driven securely by the drive pulley 2. When the machine is off there must be a clearance of 1 mm between the drive wheel 2 and the drive pulley 3.
- 2. The bobbin winder must wind evenly and stop independently when the thread level is approx. 1 mm from the edge of the bobbin 4.



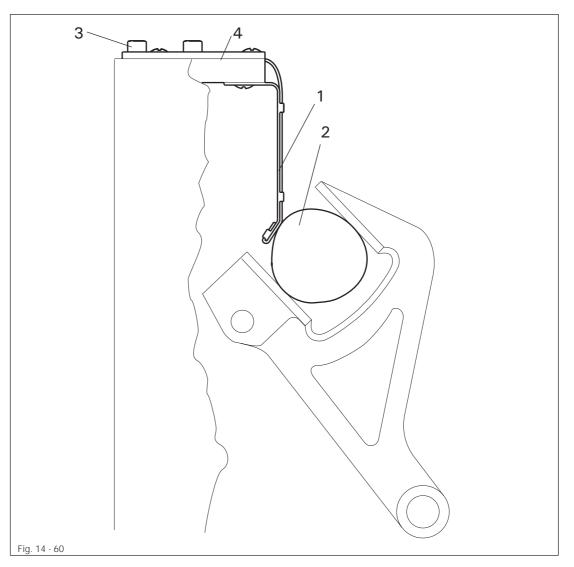


- Switch the bobbin winder off.
- Loosen screws 5 and move the bobbin winder in accordance with requirement 1.
- Tighten screws 5.
- Loosen screw 6 land move the button 7 in accordance with requirement 2.
- Tighten screw 6.

# 14.30 Lubricating the feed regulator eccentric

## Requirement

The felt strip 1 must be lightly touching at the highest point of the feed regulator eccentric 2.





- Loosen screws 3.
- Move the carrier 4 in accordance with the requirement.
- Tighten screws 3.

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### 14.31 Electrical switches

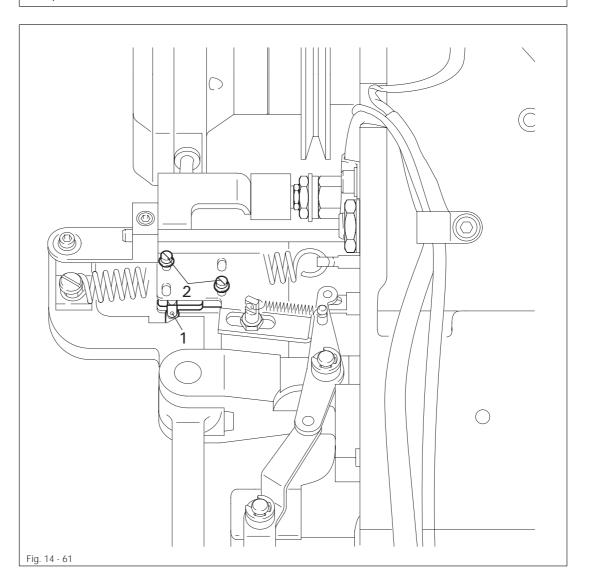


All switches must be adjusted so that there is a little play between the switching rollers and the switch housing when pressed.

# 14.31.01 Switch for the starting mechanism (S2)

### Requirement

Switch 1 must be securely on as soon as the starting cylinder begins to pull. In program end position switch 1 must be free.



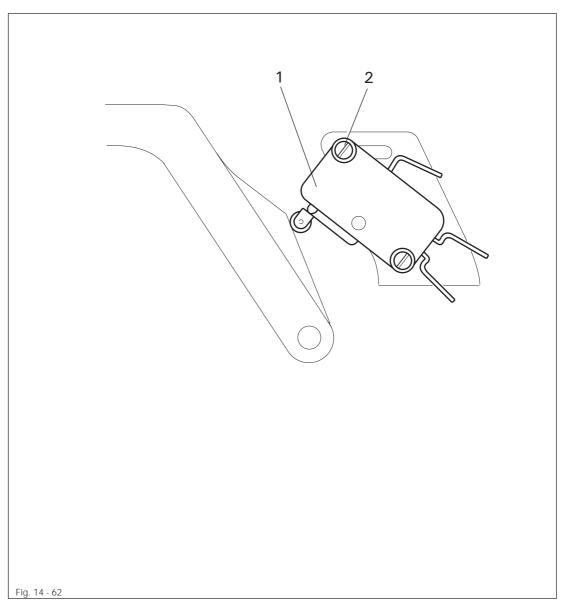


- Loosen screws 2 and move switch 1 in accordance with the requirement.
- Tighten screws 2.

# 14.31.02 Switch for the work clamp (S3)

# Requirement

With the work clamp lowered, switch 1 must be securely on.





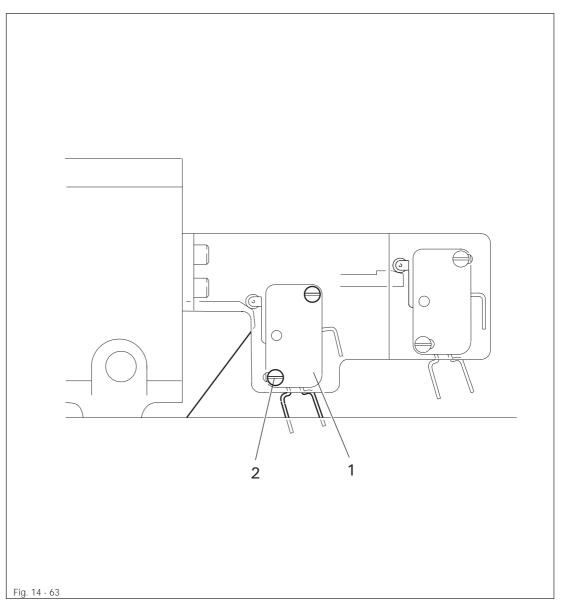
- Loosen screws 2 and move switch 1 in accordance with the requirement.
- Tighten screws 2.

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# 14.31.03 Switch for machine stop (S5)

## Requirement

The switch1 must be securely on as soon as the button is pressed.



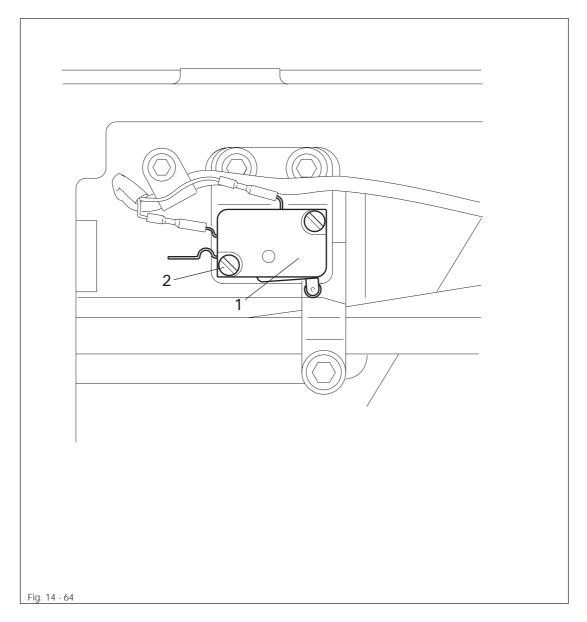


- Loosen screws 2 land move switch 1 in accordance with the requirement.
- Tighten screws 2.

# 14.31.04 Switch for monitoring control cam (S8)

### Requirement

In the program end position, switch 1 must be securely on. After approx. 10 mm of the path of the work clamp, the switch 1 must be free.





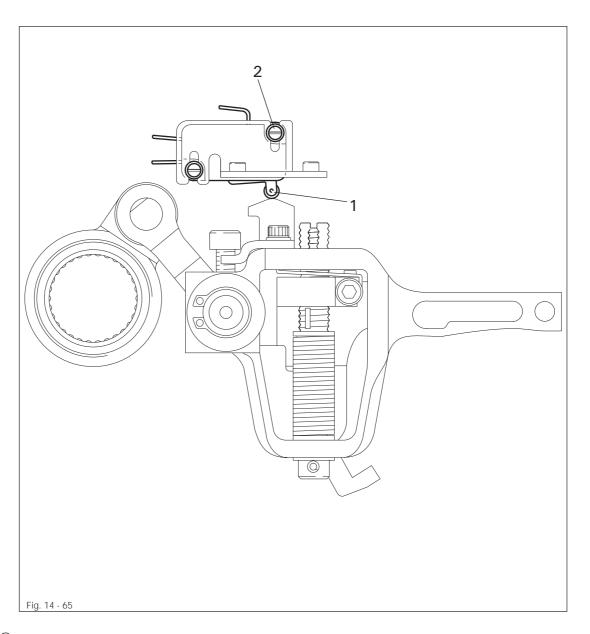
- Loosen screws 2 land move switch 1 in accordance with the requirement.
- Tighten screws 2.

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# 14.31.05 Switch for monitoring knife (S21)

## Requirement

In start position of the knife bar, switch 1 must be securely on.



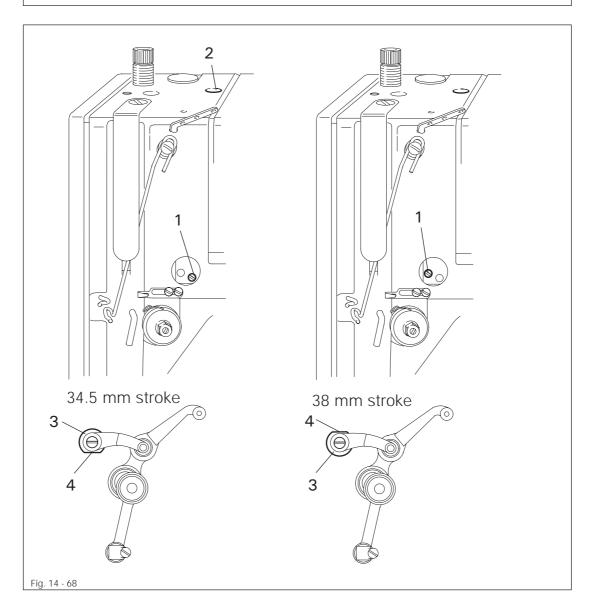


- Loosen screws 2 and move switch 1 in accordance with the requirement.
- Tighten screws 2.

### 14.32 Needle bar stroke

### Requirement

A needle bar stroke of either 34.5 mm ( standard ) or 38 mm can be set. The needle bar stroke and the cover thread carrier setting must coincide with eachother.





Needle bar stroke 34.5 mm:

- Remove the closing stopper.
- Wind screw 1 in the right threaded hole.
- Loosen the screw which accessible through hole 2 and turn the eccentric 3 so that surface 4 is facing downwards.
- Tighten the screw.

Needle bar stroke 38 mm:

- Wind screw 1 in the left threaded hole.
- Loosen the screw and turn the eccentric 3 so that surface 4 is facing upwards.
- Tighten the screw.

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Notes



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