# **PFAFF**®

1427

Service Manual

# **Notes on Safety**

The machine must only be used for the purpose it has been designed for.

When converting it into other versions, all valid safety regulations have to be considered.

Adjustment and repair work must only be carried out by trained personnel.

Apart from admissible deviations according to DIN 57 105 and VDE 0105, work on live parts and equipment is not allowed.

### Important!

For the adjustment of thread trimming systems -900/56 and -900/61, please refer to the existing Service Manual (Publication No. 296-12-14826).

# Tools, gauges, and other equipment needed for adjusting the Pfaff 1427

Set of screwdrivers with blades from 2 to 10 mm wide
Set of wrenches with openings from 7 to 14 mm
Set of allen keys from 2 to 6 mm
Needle-rise gauge, part No. 08-880 136-00
Universal gauge, part No. 61-111 639-49
Adjustable clamp, part No. 08-880 137-00
Metal rule
Needles of system 134-35
Sewing thread and sewing-in material

Sewing hook oil: Pfaff sewing machine oil, part No. 280-1-120 144

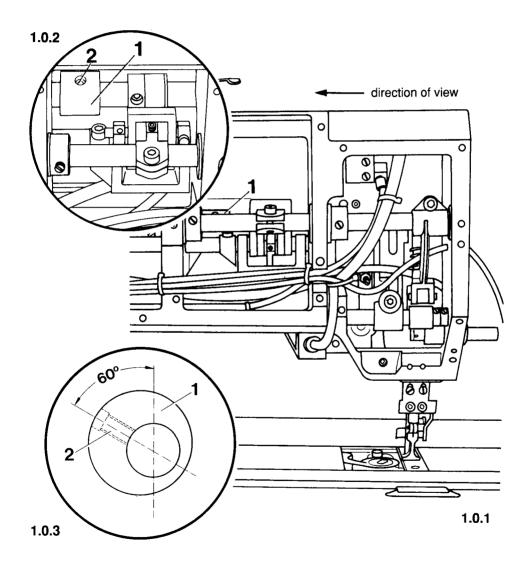
(mean viscosity 22.0 mm2/sec at 40°, density 0.865 g/cm3)

# 1 Balance weights

#### 1.1 Balance weight on the arm shaft

Setting:

With the needle bar at bottom dead center, the lobe of balance weight 1 must be 60° left of the perpendicular.

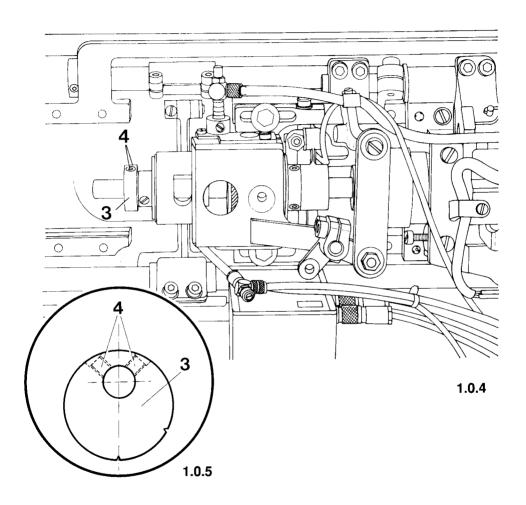


1.1.1 Loosen screw 2 and adjust by turning balance weight 1.

# 1.2 Balance weight on the hook shaft

# Setting:

With the needle bar at top dead center, the lobe of balance weight 3 must face down.

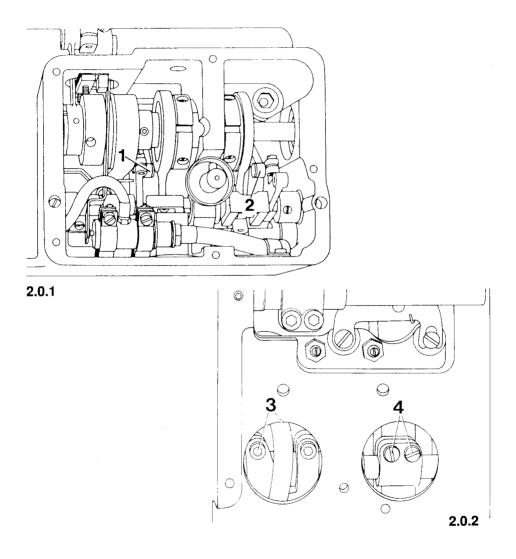


1.2.1 Loosen screws 4 and adjust by turning balance weight 3.

# 2 Neutralizing top- and bottom feed

#### Setting:

With the stitch length set at "0" and the reverse-feed control pressed, feed dog and vibrating presser must not move.

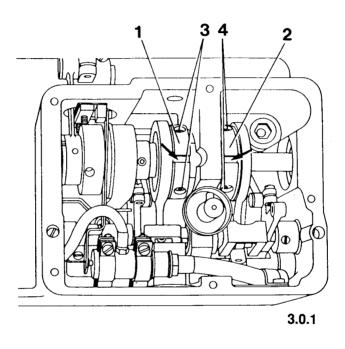


- 2.1 Remove gear box cover under machine stand and collect dripping oil.
  - .2 Loosen screws 3 and 4 and adjust by re-positioning pull rods 1 and 2.

# 3 Feed motion of top and bottom feed

#### Setting:

With the longest stitch length set and the needle bar **0.6 mm** past top dead center, feed dog and vibrating presser must not move when the reverse-feed control is pressed.



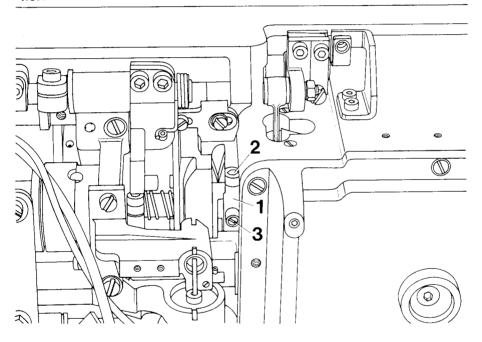
Loosen screws **3** and **4** and adjust by turning eccentrics **1** and **2** (in this machine position the cutouts of the eccentrics must be visible).

# 4 Feed dog lifting motion

#### Setting:

When the needle bar is at top dead center, the feed dog must be at its highest position.

#### 4.0.1



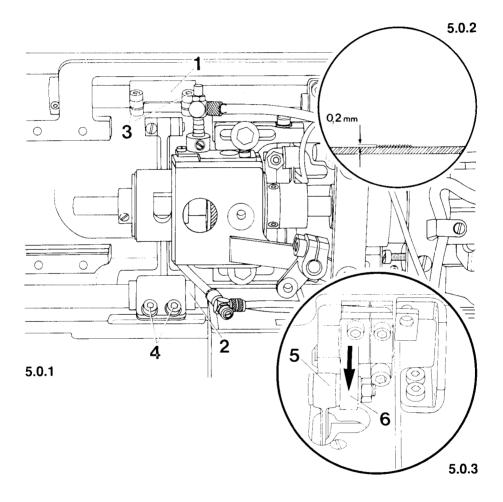
- 4.1 Loosen screws 2 and 3 and adjust by turning eccentric 1.
  - .2 First tighten screw 2, then screw 3.

# 5 Feed dog height

#### Setting:

Feed dog height = **0.2 mm** parallel above needle plate when

- stitch length is "0",
- crank **5** is positioned fully down in slotted lever **6**, and needle bar is at top dead center.

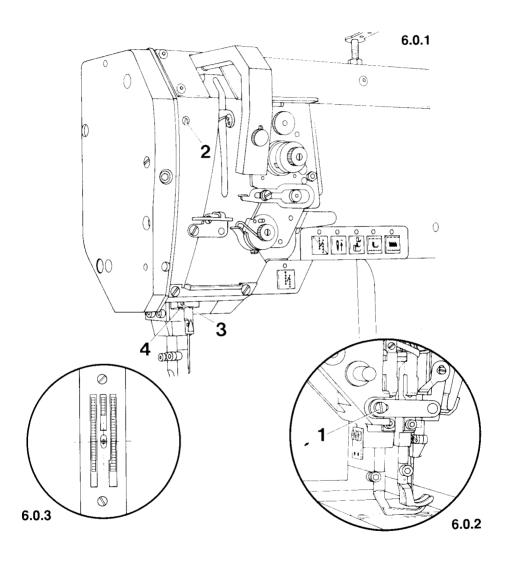


5.1 Loosen screws **3** and **4** and adjust by re-positioning crank **1** and turning eccentric bush **2**.

Note: Increase feed dog lifting stroke by moving crank 5 up in slotted lever 6.

# 6 Needle in center of needle hole

**Setting:** The needle must enter the needle hole exactly in the center.

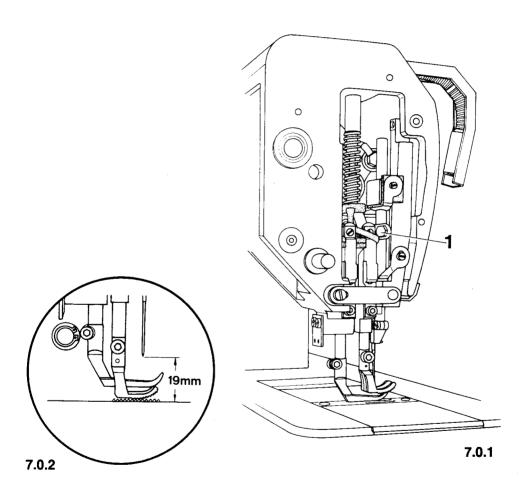


- 6.1 Loosen screws **1** and **2** and make adjustment **in sewing direction** by repositioning the needle bar frame.
  - Loosen screws **2**, **3**, and **4** and make adjustment **crosswise to sewing direction** by re-positioning the needle bar frame.

# 7 Needle height (preliminary adjustment)

#### Setting:

With the needle bar at top dead center, the clearance between needle point and needle plate must be 19 mm.



# Loosen screw 1 and adjust.

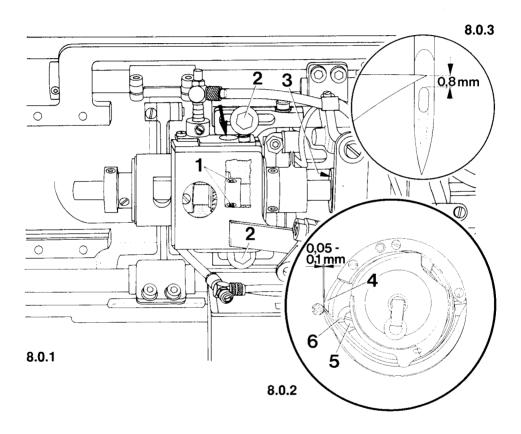
7.1

# 8 Sewing hook

Setting 1: Needle rise = 2 mm Setting 2: Needle height = 0.8 mm

Setting 3: hook-to-needle clearance = 0.05 to 0.1 mm

Setting 4: In needle rise position needle guard 4 must lightly touch the needle



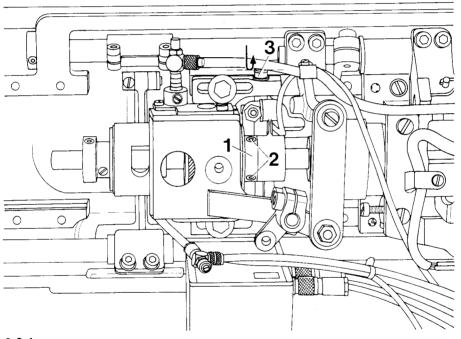
- 8.1 Loosen screws 1 and set needle rise position (note gear backlash).
  - .2 Loosen screw 1 (Fig. 7.0.1) and adjust needle height.
  - Loosen screws **2** and adjust hook-to-needle clearance (if necessary, reposition coupling **3** accordingly).
  - .4 Loosen screw 5 and adjust needle guard 4 by turning eccentric 6.

# 9 Bobbin case opener

#### 9.1 Eccentric of bobbin case opener

#### Setting:

With the needle bar at top dead center, rock shaft **3** of the bobbin case opener must be exactly at its **rear point of reversal** as seen in the direction of feed (see arrow).



9.0.1

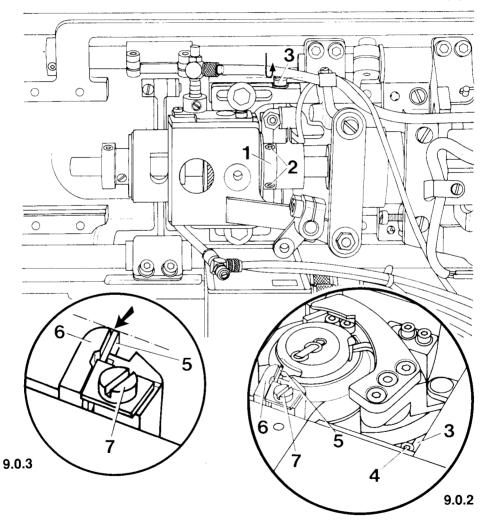
# 9.1.1 Loosen screws 2 and adjust by turning eccentric 1.

#### 9.2 Stroke of bobbin case opener

Setting 1: With rock shaft 3 at its rear point of reversal, the load on spring 5 of position stop 6 must be reduced.

Setting 2: The front edges of spring 5 and position stop 6 must be flush (see arrow in Fig. 9.0.3).

9.0.1

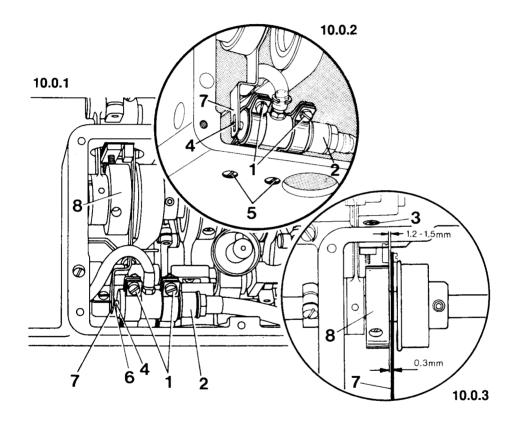


- 9.2.1 Loosen screw 4 and adjust by re-positioning shaft 3.
  - .2 Loosen screw **7** and align front edge of spring **5** with front edge of position stop **6**.

# 10 Oil check valve

Setting 1: The clearance between actuator 7 and centrifugal switch 8 must be 1.2 to 1.5 mm (top) and 0.3 mm (bottom).

Setting 2: Plunger 4 must be positioned in the middle of the elongated hole and its circlip 6 must rest against actuator 7.

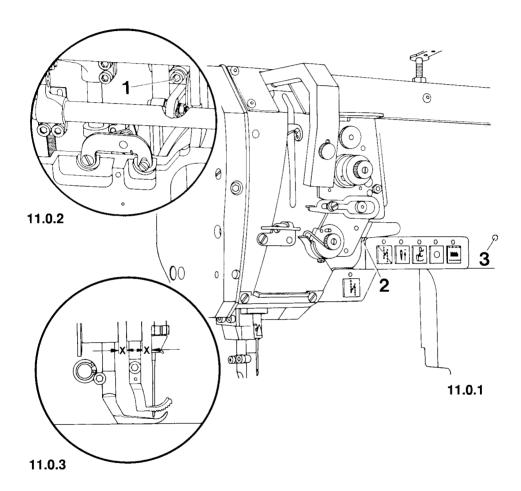


- 10.1 Loosen screws 1 and push oil check valve 2 to the right.
  - .2 Loosen screw **3** and set a clearance of **1.2 to 1.5 mm** (top) and **0.3 mm** (bottom).
  - .3 Loosen screws **5** and set plunger **4** at the middle of the elongated hole.
  - Re-position check valve 2 to rest circlip 6 against actuator 7, then tighten screws 1.

# 11 Vibrating presser bar

Setting 1: With the stitch length set at "0", the vibrating presser bar must be at the same distance from the presser bar bearing and the needle holder, as seen in sewing direction (see Fig. 11.0.3).

Setting 2: Crosswise to sewing direction the vibrating presser must not strike the presser foot.

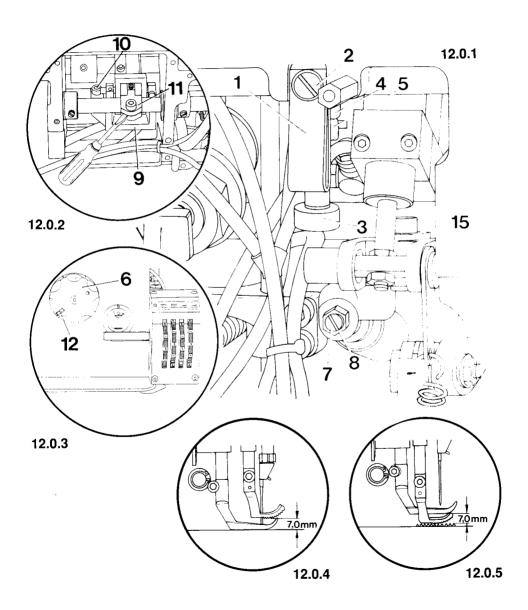


- 11.1 Loosen screw 1 and adjust vibrating presser bar in sewing direction.
  - .2 Loosen screws 1, 2, and 3 and adjust vibrating presser crosswise to sewing direction.

# 12 Top feed lift and lift limitation

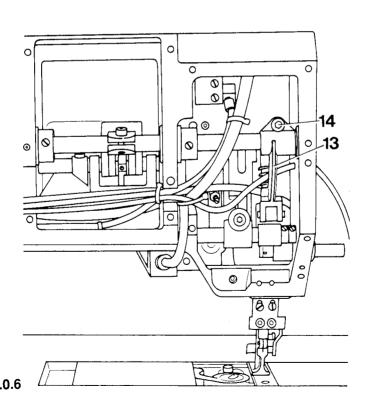
Setting 1: With feed regulating dial 6 set at "6.5", vibrating presser and presser foot must be lifted by **7.0 mm** each.

**Setting 2:** The standard lift should be limited to **5 mm**.



- 12.1 Take out screw 2 and remove spring plate 1.
  - Loosen nuts 4 and 5 and screw in screw 3 as far as it will go.
  - .3 Set feed regulating dial 6 at "1".
  - .4 Loosen nut 8 and screw out screw 7 as far as it will go.
  - .5 Loosen screw **10** and adjust crank **9** so that crank **11** does not move when the balance wheel is turned.
  - .6 Unscrew feed regulating dial **6** and remove limiting screw **12**.
  - .7 Replace feed regulating dial 6 and set at "6.5".
  - Screw in screw 7 until both the vibrating presser and presser foot are lifted by 7.0 mm when the balance wheel is turned (to eliminate differences, loosen screw 14 and re-adjust crank 13).
  - .9 Tighten nut 8.
  - .10 Rest screw 3 against pin 15.
  - .11 Rest nut 4 against housing and lock with nut 5.
  - Screw on spring plate 1, set feed regulating dial 6 at "5", and rest screw 3 against pin 15.
  - Unscrew feed regulating dial **6**, screw in limiting screw **12**, then replace feed regulating dial **6** again.

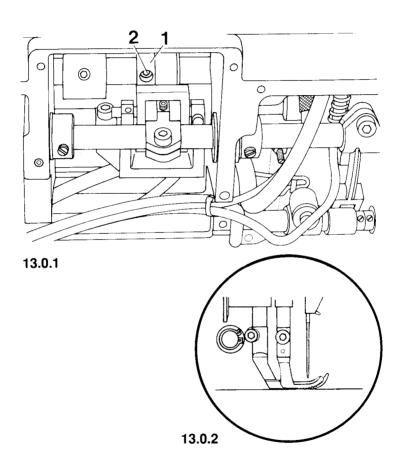
Note: To set the maximum lift of 7.0 mm, screw in screw 3 as far as it will go.



# 13 Top feed lifting motion

#### Setting:

With a top feed lift of **3 mm** and a top feed stroke of **3 mm** set, vibrating presser and feed dog must reach the needle plate surface at the same time.

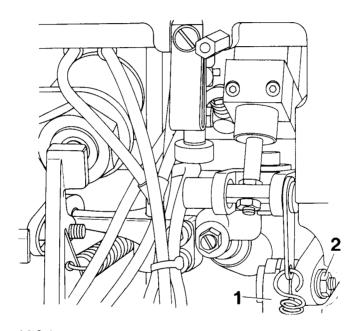


Loosen screws 2 and adjust by turning eccentric 1.

# 14 Feed difference

# Setting:

With the longest stitch length set, the feed movements of vibrating presser and feed dog must be of the same length.



14.0.1

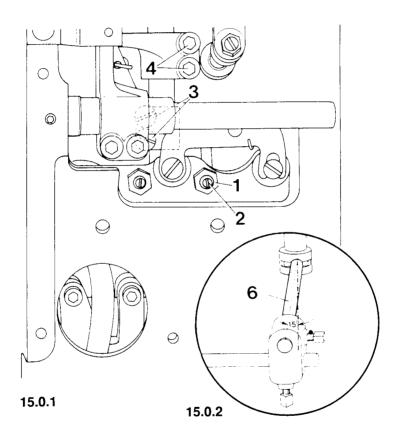
14.1 Loosen nut 2 and adjust by re-positioning pull rod 1.

# 15 Knee lever

### 15.1 Knee lever rest position

#### Setting:

In rest position kneelever connecting bar 6 must point about 15° to the left of the perpendicular to the base plate.

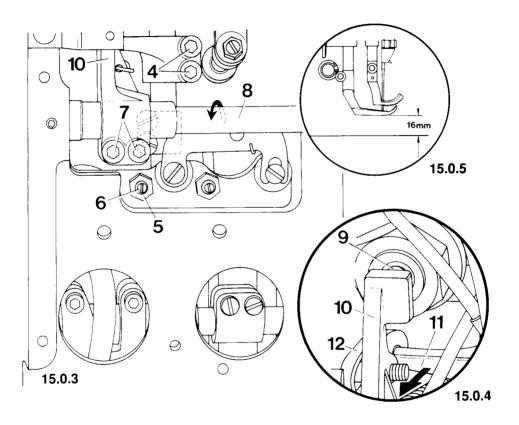


- 15.1.1 Screw 1 must be flush with nut 2.
  - .2 Loosen screws 3 and 4.
  - .3 Adjust 15° and tighten screws **3** (the vertical shaft must not have any end play).

#### 15.2 Fabric clearance

#### Setting:

With the knee lever fully actuated, there must be a fabric clearance of about **16 mm** between presser foot and needle plate (**11 mm** on machines without reversing mechanism).

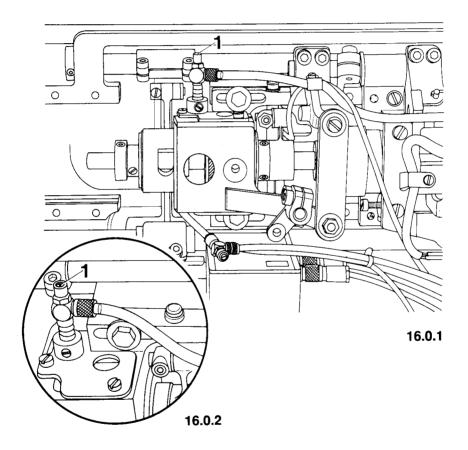


- 15.2.1 Set needle bar at top dead center.
  - .2 Loosen nut 5 and screw out screw 6 a few turns.
  - Loosen screws 7, turn shaft 8 in direction of arrow as far as will go, and adjust about 1 mm play between cylinder plunger 9 and lever 10.
  - .4 Tighten screws 7.
  - .5 Move lever **11** in direction of arrow as far as will go, then back by about **1 mm**, set ball-joint linkage **12** vertical and tighten screws **4**.
  - .6 Fully actuate knee lever and turn screw 6 to set fabric clearance of 16 mm (11 mm on machines without reversing mechanism).
  - .7 Lock screw 6 with nut 5.

# 16 Hook lubrication

#### Setting:

When the machine has run at full speed for about 10 seconds, a fine trace of oil must appear on a piece of paper held vertically behind the sewing hook.



16.1 Basic adjustment:

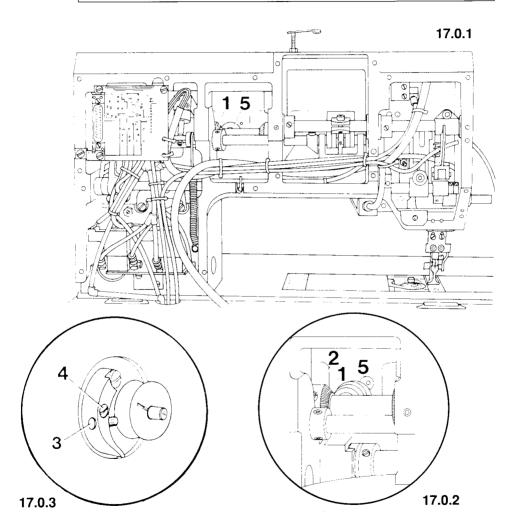
Fully screw in regulating screw 1 and then back out by **about 3 turns**.

#### 17 Bobbin winder

**Setting 1:** When the bobbin winder is engaged, the winder spindle must be driven reliably.

When the bobbin winder is disengaged, friction wheel 5 must not come into contact with drive wheel 1.

Setting 2: The bobbin winder must disengage automatically when the thread wound has reached a point about 1 mm below the rim of the bobbin.



- 17.1 Loosen screws 2 and adjust drive wheel 1.
  - .2 Loosen screw 4 and adjust stop pin 3.

# 18 Thread regulation

#### 18.1 Thread check spring

\_\_\_\_\_

Setting:

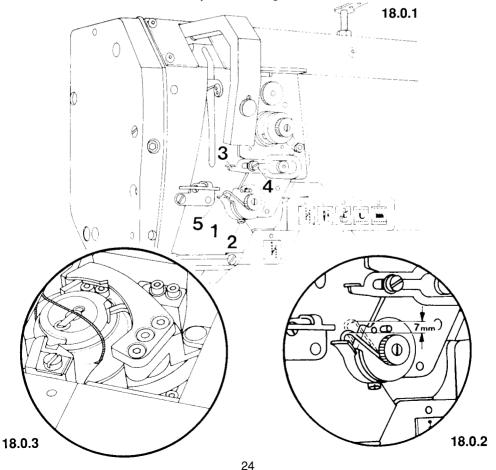
Thread check spring 5 must have finished its stroke when the needle enters the material (stroke of spring about 7 mm).

18.1.1 Loosen screw 2 and adjust support 1.

#### 18.2 Thread regulator

Setting: When the needle thread loop has reached its maximum size (see Fig. 18.0.3) thread check spring 5 must be lifted from support 1 a little.

18.2.1 Loosen screw 4 and adjust thread regulator 3.



#### 19 Maximum sewing speed

Class 1427			
Top feed lift	Max. sewing speed		
1 mm to 3.5 mm	3500 s.p.m.		
3.5 mm to 7 mm	1900 s.p.m.		

# 20 Quick-change stepping control -918/09

On machines equipped with this mechanism, the sewing speed is automatically reduced when switching over to high lift, and is increased when switching to low lift. Maximum sewing speeds are adjusted at the external control panel (see instruction manual of motor manufacturer).

# 21 After-braking action

The after-braking action must be set so that after thread trimming, the machine is reliably stopped at the 2nd position after top dead center of take-up lever. However, it has to be made sure that the balance wheel can still be turned by hand.

The adjustment is made at the external control panel (see instruction manual of motor manufacturer).

		Plug connections of Series 1420	
X	1	central plug	
Х	2	plug for keyboard	
Х	3	thread trimmer, long/short thread ends	(-900/56;/61)
X	4	automatic presser foot lift	(-910/04)
X	5	automatic backtacking	(-911/35)
Χ	6	reversing mechanism	(-913/08)
Χ	7	-	
Х	8	-	
Х	9	puller lifting	(-748/26)
Х	10	edge trimming	(-731/01)
Χ	11	left needle disengagement	(-720/04)
Х	12	right needle disengagement	(-720/04)
Х	13	thread wiper	(-909/02)
X	14	quick-change stepping control, vibrating presser	(-918/09)
X	15	bobbin monitoring	(-926/04)
X	16	stitch length adjustment, vibrating presser	(-918/27;/28)
Х	17	stitch length adjustment, feed dog	(-918/26;/28)
		3 2 1 bridge 1-2 for Efka motors	
X	18	● ● ● bridge 3-2 for Efka-DC Modular	
		bridge 3-2 for Quick motors	
X	19	3 2 1 bridge 1-2 switch functions for X 16	
		● ● ● bridge 3-2 key functions for X 16	
X :	20	3 2 1 bridge 1-2 switch functions for X 17	
		● ● ● bridge 3-2 key functions for X 17	

#### **Contents**

	Page	
1	Balance weights 3 + 4	
2	Neutralizing top- and bottom feed5	
3	Feed motion of top and bottom feed 6	
4	Feed dog lifting motion 7	
5	Feed dog height 8	
6	Needle in center of needle hole9	
7	Needle height (preliminary adjustment) 10	
8	Sewing hook11	
9	Bobbin case opener 12 +	13
10	Oil check valve14	
11	Vibrating presser bar15	
12	Top feed lift and lift limitation	17
13	Top feed lifting motion	
14	Feed difference19	
15	Knee lever	
16	Hook lubrication22	
17	Bobbin winder23	
18	Thread regulation24	
19	Maximum sewing speed	
20	Quick-change stepping control -918/0925	
21	After-braking action25	
	Plug connections 26	

# **PFAFF**®

PFAFF Postfach 3020/3040 Königstraße 154 D-6750 Kaiserslautern

Telefon: (0631) 200-0 Telefax: (0631) 17202 Telex: 45753

296-12-16 743

4/90