This Adjustment Manual is valid for machines from the following serial numbers onwards:

# 6 001 000
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13 Adjustment

Please observe all notes from Chapter 1 Safety of the instruction manual! In particular care must be taken to see that all protective devices are refitted properly after adjustment, see Chapter 1.06 Danger warnings of the instruction manual!

If not otherwise stated, the machine must be disconnected from the electrical power supply.

13.01 Notes on adjustment

All following adjustments are based on a fully assembled machine and may only be carried out by expert staff trained for this purpose.

Machine covers, which have to be removed and replaced to carry out checks and adjustments, are not mentioned in the text.

The order of the following chapters corresponds to the most logical work sequence for machines which have to be completely adjusted. If only specific individual work steps are carried out, both the preceding and following chapters must be observed.

Screws, nuts indicated in brackets ( ) are fastenings for machine parts, which must be loosened before adjustment and tightened again afterwards.

13.02 Tools, gauges and other accessories

- 1 set of screwdrivers with blade widths from 2 to 10 mm
- 1 set of wrenches with jaw widths from 7 to 14 mm
- 1 set of Allan keys from 1.5 to 6 mm
- 1 metal ruler, part no. 08-880 218-00

13.03 Abbreviations

- t.d.c. = top dead centre
- b.d.c. = bottom dead centre
13.04 Adjusting the basic machine

13.04.01 Pre-adjusting the needle height

**Requirement**

With the needle bar at b.d.c., the top marking on needle bar 1 should be level with the bottom edge of bushing 3.

- By turning the balance wheel, bring the needle bar to its b.d.c.
- Without twisting it, adjust needle bar 1 (screw 2) in accordance with the requirement.
13.04.02 Setting the bottom feed dog at its neutral position

Requirement
With the stitch length set at "0", cranks 1 and 3 should be in alignment, and there should be no feeding motion of the bottom feed dog when the balance wheel is turned.

Fig. 13-02

- Raise the presser foot and set the stitch length at "0".
- Adjust crank 1 (screw 2) in accordance with the requirement.
Adjustment

13.04.03  Bottom feed dog motion

Requirement
1. When the needle bar is at its t.d.c., the bottom feed dog should be in its top point of reversal when the stitch length is set at "0".
2. When the needle bar is positioned 0.6 after t.d.c. and the largest stitch length is set, the bottom feed dog should not move when the reverse feed switch 3 is operated.

- Without moving it sideways, adjust eccentric 1 (screws 2) in accordance with the requirements.
13.04.04 Bottom feed dog position

Requirement
When the stitch length is set at "0" and the bottom feed dog 5 is at t.d.c., it should
1. Be positioned in the centre of the needle plate cutout in the feeding direction.
2. Its teeth should be 0.75 – 0.85 mm parallel over the needle plate.

- Shift or turn crank 1 (screw 2) in accordance with requirement 1.
- Turn crank 3 (screw 4) in accordance with requirement 2.
13.04.05 Needle rise, hook clearance, needle height and bobbin case position finger

**Requirement**
When the bottom marking on needle bar 3 is level with the bottom edge of bushing 5
1. The point of hook 1 should be centred to the needle and at a distance of 0.04 – 0.10 mm from the groove of the needle, and
2. The top edge of the needle eye should be 0.8 mm below the hook point.

- Adjust the hook 1 (screws 2) in accordance with requirement 1.
- Without twisting needle bar 3 (screw 4), adjust it according to requirement 2.
13.04.06  Thread check spring and thread regulator

Requirement
1. The movement of the thread check spring should be completed, when the needle point penetrates the material (spring stroke approx. 7 mm).
2. When the thread is being looped round the hook and the loop is at its largest, the thread check spring should have moved approx. 1 mm.

- Adjust thread tension 1 (screw 2) in accordance with requirement 1.
- Adjust thread regulator 3 (screw 4) in accordance with requirement 2.

For technical reasons it may be necessary to alter the specified spring stroke:
Turn thread regulator 1 (screw 2) towards "+" (= more thread) or towards "-" (= less thread).
13.04.07  Knee lever stop

Requirement
When knee lever 3 has been moved as far as possible, the presser foot should rise approx. 9 mm above the needle plate.

- Adjust screw 1 (nut 2) in accordance with the requirement.
13.04.08 Presser foot pressure

Requirement
The material should be fed without difficulty at all times and there should be no sign of pressure marks on the material.

- Adjust milled screw 1 (milled nut 2) in accordance with the requirement.
13.05 Adjusting the thread trimmer -900/93

13.05.01 Adjusting the synchronizer

**Requirement**
1. When the machine has stopped it should be positioned in b.d.c. needle bar.
2. After thread trimming the machine should be positioned in t.d.c. take-up lever.

- Slightly loosen screw 1 and adjust it in accordance with requirement 1.
- Slightly loosen screw 2 and adjust it in accordance with requirement 2.

⚠️ Only loosen screws 1 and 2, do not remove them completely!
13.05.02 Adjusting the control cam

**Requirement**
When the take-up lever is at its t.d.c., the cutting operation should have been concluded (roller lever is pushed out of the control cam).

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

⚠️ Make sure that the control cam 1 is touching retaining collar 3, when the screws 2 are tightened!
13.05.03 Position of the stationary knife

Requirement
The centre of the stationary knife 1 should be at needle heights and should have a distance of 3.5 mm.

Fig. 13 - 11

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

For technical reasons it may be necessary to alter the specified basic position:
Move stationary knife 1 towards "+" (= more thread) or towards "-" (= less thread).
Requirement
When magnets 3 are attracted, there should be a distance between the tension disks 4 of at least 0.5 mm.

- Adjust tension cable 1 (nuts 2) in accordance with the requirement.
13.06 Adjusting the thread wiper – 909/93

**Requirement**
1. During its movement thread wiper 1 should not have any contact.
2. When the take-up lever is at its t.d.c., and the thread wiping device is switched on, the thread wiper 1 should pass behind the needle point with a clearance of approx. 1 mm and under it with a clearance of approx. 2 mm.

● Adjust the thread wiper 1 (screw 2) in accordance with the requirements.
13.07 Adjusting the automatic presser foot lift –910/93

Requirement
When the automatic presser foot lift is operated, the presser foot should be 9 mm above the needle plate.

- Adjust shaft 1 (screw 2) in accordance with the requirement.
Adjustment

13.08 Adjusting the backtacking mechanism –911/93

Requirement
When the reverse feed switch 3 (reverse sewing) is operated, the stitch length should be the same as during sewing.

- Adjust solenoid 1 (screws 2) in accordance with the requirement.
13.09 Parameter settings

13.09.01 Selecting the user level

- Switch on the machine.

- Press the TE/Speed key twice to call up the input mode.

- By pressing the corresponding +/- key select the parameter group "798".

- By pressing the corresponding +/- key select the desired user level:
  
  "0" = operator level A
  "1" = technician level B
  "11" = service level C

The selected user level is displayed on the screen. (see arrow)
13.09.02 Example of a parameter input

- Switch on the machine.

2 x **TE/Speed**

- Press the **TE/Speed** key twice to select the input mode.

- By pressing the corresponding plus/minus key select parameter "798" and the user level "B", see Chapter 13.09.01 Selecting the user level.

- Select parameter "607" by pressing the corresponding +/- key.

- Select the required value for the maximum speed by pressing the corresponding +/- key.

- By pressing the **TE/Speed** key the selected value is taken over and the machine switches to the sewing mode.
## Liste der Parameter

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<tr>
<th>Gruppe</th>
<th>Parameter</th>
<th>Bedeutung</th>
<th>Nutzer-ebene</th>
<th>Einstell-bereich</th>
<th>Einstell-wert</th>
</tr>
</thead>
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<tr>
<td>1</td>
<td>101</td>
<td>Control panel beep tone</td>
<td>A, B, C</td>
<td></td>
<td>on</td>
</tr>
<tr>
<td>6</td>
<td>605</td>
<td>Speed display</td>
<td>B, C</td>
<td></td>
<td>off</td>
</tr>
<tr>
<td></td>
<td>607</td>
<td>Speed max.</td>
<td>B, C</td>
<td>300 - 6000</td>
<td>4000</td>
</tr>
<tr>
<td></td>
<td>609</td>
<td>Cutting speed</td>
<td>B, C</td>
<td>60 - 500</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>660</td>
<td>Bobbin thread control</td>
<td>A, B, C</td>
<td>0 - 2</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>700</td>
<td>Needle position 0 (needle reference position)</td>
<td>B, C</td>
<td>0 – 255</td>
<td></td>
</tr>
<tr>
<td></td>
<td>702</td>
<td>Needle position 1 (needle lowered)</td>
<td>B, C</td>
<td>0 – 255</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>703</td>
<td>Needle position 2 (take-up lever raised)</td>
<td>B, C</td>
<td>0 – 255</td>
<td>222</td>
</tr>
<tr>
<td></td>
<td>705</td>
<td>Needle position 5 (end of cutting signal 1)</td>
<td>B, C</td>
<td>0 – 255</td>
<td>196</td>
</tr>
<tr>
<td></td>
<td>706</td>
<td>Needle position 6 (start of cutting signal 2)</td>
<td>B, C</td>
<td>0 – 255</td>
<td>136</td>
</tr>
<tr>
<td></td>
<td>707</td>
<td>Needle position 9 (start thread tension release)</td>
<td>B, C</td>
<td>0 – 255</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>797</td>
<td>Hardwaretest</td>
<td>B, C</td>
<td></td>
<td>off</td>
</tr>
<tr>
<td></td>
<td>798</td>
<td>User level</td>
<td>A, B, C</td>
<td>0,1,11</td>
<td>0</td>
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<tr>
<td></td>
<td>799</td>
<td>Selected machine class</td>
<td>C</td>
<td>1 - 3</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>800</td>
<td>Rotating direction of the motor</td>
<td>C</td>
<td>0 - 1</td>
<td>1</td>
</tr>
</tbody>
</table>

Further parameters are listed in the Motor Instruction Manual.
13.10 Reset / Cold start

After selecting the reset menu, by pressing the corresponding key it is possible to delete seam parameters, delete seam programs and to carry out a cold start.

- Press and hold "+" on keys A and D and switch on the machine, see Chapter 7.01 Main switch.

**Resetting the seam parameters**
- Press "+" on key "A".
  All parameters are deleted, the display "—rE—" appears for a short time on the screen.

**Resetting the seam programs**
- Press "+" on key "B".
  All seam programs are deleted, the display "—rE—nA" appears for a short time on the screen.

**Cold start**
- Press "+" on key "D".
  With the exception of the value for the machine class, the values of the machine control unit are set back to their basic values, the display "—COLd—" appears for a short time on the screen.

After the cold start all programmed values are set back to their status at the time of delivery. For this reason after a cold start it is necessary to re-enter first the parameter "799" and then the parameter "700".
13.11 Explanation of the error signals

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<th>Description</th>
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<td>Pedal not in neutral position</td>
</tr>
<tr>
<td>E009</td>
<td>Start inhibitor during standstill</td>
</tr>
<tr>
<td>E010</td>
<td>Incorrect machine class</td>
</tr>
<tr>
<td>E062</td>
<td>Short circuit 24V</td>
</tr>
<tr>
<td>E063</td>
<td>Overload mains supply circuit</td>
</tr>
<tr>
<td>E064</td>
<td>Network monitoring</td>
</tr>
<tr>
<td>E065</td>
<td>Extint low in operation</td>
</tr>
<tr>
<td>E066</td>
<td>Short circuit</td>
</tr>
<tr>
<td>E067</td>
<td>Network off</td>
</tr>
<tr>
<td>E068</td>
<td>Extint low in operation</td>
</tr>
<tr>
<td>E069</td>
<td>No increments</td>
</tr>
<tr>
<td>E070</td>
<td>Motor blocking</td>
</tr>
<tr>
<td>E071</td>
<td>No incremental connector</td>
</tr>
<tr>
<td>E074</td>
<td>External transmitter for synchronisation marker missing</td>
</tr>
<tr>
<td>E088</td>
<td>RAM defective</td>
</tr>
<tr>
<td>E092</td>
<td>Start inhibitor when motor running</td>
</tr>
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<td>E173</td>
<td>Start error</td>
</tr>
<tr>
<td>E175</td>
<td>Start error</td>
</tr>
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13.12 Internet update of the machine software

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

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

To update the machine software carry out the following steps:

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

- Switch off the machine.
- Connect the PC (serial interface or appropriate USB-adapter) and the machine control unit (RS232).
- Switch on the PC and start the PFP boot program.
- Select the machine type.
- Press the "programming" button.
- An extra program (quick loader) is started.
- Switch on the machine within 60 seconds.
- The software update is carried out, the update progress is shown on the bar display.
- When the update has been completed, the message "software update successfully completed" appears.

If this message does not appear, the entire procedure must be repeated!

The machine is not safe for operation until the programming has been completed successfully and without faults.

- Switch off the machine and end the quick loader and PFP boot program.
- End the connection between the PC and the machine control unit.
- Switch on the machine.
- A plausibility control is carried out and, if necessary, a cold start.

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