Adjusting Alternating Pressers of the Pfaff 145, 545, 546, 555, 596

Applies also to Pfaff Machines 146, 335, 345, 346, 195, 196, 543 etc.

(Training aid prepared for use in Pfaff's Mechanical Training Courses only).

1 The basic setting of the sewing and feeding mechanisms

11 If the alternating pressers are combined with compound feed adjust the machine at first as instructed in "Sewing and Feeding Mechanisms of Pfaff 141".

12 If the alternating pressers are combined with drop feed adjust the machine at first as instructed in "Sewing Mechanism Pfaff 134" and "Feeding Mechanism Pfaff 134".

20 Position of Alternating Pressers

21 When the presser bar lifter is raised, there should normally be a clearance of 7 mm between the sole of the lifting presser and the surface of the needle plate.

The amount of fabric clearance varies with the machine model and, for C, D and H machines, should be looked up in special tables or in our Instructions for Mechanics. Model C and D machines are intended for heavier materials, while Model H machines feature a higher foot lift.

22 The amount of fabric clearance can be adjusted by raising the presser bar lifter and loosening the two binding screws in the presser bar position bracket. After the adjustment, both screws must be tightened securely.

23 Secure the foot lift adjusting stud in the middle of the driving crank slot.

24 Loosen the binding screws of the driving crank and adjust the driving shaft so that the vertical motion of the vibrating presser is halved by the sole of the raised lifting presser.

25 Tighten the binding screws on the driving crank securely.

30 Foot Motion

31 Lower the presser bar so that the lifting presser rests on the needle plate.

32 Set the lifting eccentric so that

32.1 both the needle and the feed dog reach the goods at the same time (on compound-feed machines) or

32.2 that the vibrating presser engages the feed dog when the feeding action commences (on rigid-needle-bar machines).

Adjustment Procedures for Pfaff Machines 141

Applies also to Pfaff machines 142, 120, 122, 151, 541, 542, 191, 192, 341 and 342

1. Adjusting the position of the feed dog

1.1. Lateral adjustment of feed dog:

Adjust position of feed rock shaft endwise until feed dog is centered in feed slot.

1.2. Lengthwise adjustment of feed dog:

Adjust feed rock shaft in driving crank so that the feed dog will not strike the near or far end of the feed slot when the machine is set for its longest stitch, both forward and backward.

1.3. Adjust the feed dog so that its right and left tooth rows emerge from the feed slots in the needle plate simultaneously.

1.4. Vertical adjustment of feed dog:

When at its highest position, the feed dog should show a full tooth above the needle plate. Special sewing conditions may necessitate a slight modification of this setting. If adjustment is required, rotate the crank on the feed lifting shaft, as appropriate.

2. Checking the straightness of the needle and its position in needle holder and needle hole

2.1. The machine normally uses system 134 needles. Certain classes or subclass machines use different needle systems which are indicated in the respective needle and thread chart.

2.2. Check straightness of needle.

2.3. Check (with your fingernail) to see that needle point is not damaged.

2.4. Check position of needle in needle holder:

2.4.1. Needle must be pushed into needle holder as far as it will go.

2.4.2. Long groove of needle should be on the opposite side from the sewing hook; needle eye should be positioned at right angles to plane of hook rotation.

2.4.3. The needle holder should hold the needle securely.

2.4.4. The needle should be centered in the needle hole. Adjustment is made by turning the rear crank on the needle bar frame shaft (below the eccentrics).

2.4.5. The needle should descend in a straight line with the needle bar motion. If it does not, check to see whether the needle holder or the needle bar is bent, and straighten the bent part.

3. Needle bar rise

3.0. General hints

The term "needle bar rise" denotes the amount of needle rise which is required to form a loop of the proper size. This amount is measured in millimeters or inches from the lowest point of the needle stroke with the needle bar drive rotating in its normal direction.

When the needle bar has risen the required distance from the bottom of its stroke, the hook point should be opposite the center line of the needle.

The amount of needle bar rise required to form the loop is depended on the size and quality of the thread used, the needle size, the type of sewing hook, the sewing speed as well as other factors. The needle bar rise of the Pfaff 141 normally is 1.6. mm, or 0.062". For further particulars, please refer to a needle rise table or the instructions for mechanics. (Model A and B machines: 1.6 mm or 0.062"; Model C: 2.0 mm or 0.078"; Model D: 2.2 to 2.4 mm or 0.086" to 0.094").

3.1. Set feed regulator on "0".

3.2. Setting the amount of needle bar rise with the aid of a gauge:

3.2.1. Turn the balance wheel until the needle bar is at the lowest point of its stroke.

3.2.2. Slip the clamp of the needle rise gauge onto the needle bar above the needle holder.

3.2.3. Slip the gauge (for the amount of needle rise specified) onto the needle bar above the clamp and push clamp and gauge up until the gauge bears against the lower needle bar bushing and the balance wheel can be turned neither forward nor backward.

3.2.4. Pull out the gauge.

3.2.5. Turn the balance wheel in its normal direction of rotation until the clamp strikes the bottom of the lower needle bar bushing.

3.2.6. When the needle bar has risen to this position, the loop has reached its proper size and the hook point should be exactly opposite the center line of the needle. The hook should be set close to the needle (for a rough setting of the lateral clearance between hook and needle; for further particulars, see par. 5 below).

3.2.7. Prerequisite for adjustment the amount of needle rise is that both the needle bar and hook drive mechanisms have no excessive play and work smoothly.

4. Needle bar height

When both the sewing hook and the needle are at the position indicated in par. 2.6. above, the bottom edge of the hook point should be positioned about 1.5 mm or 1/16" above the top of the needle eye. If adjustment is required, loosen the set screw in the needle bar connecting stud and set the needle bar higher or lower, as appropriate. Then tighten the set screw securely again.

5. Setting hook to needle

With the needle bar set at the correct height and risen the required distance from the bottom of its stroke, there shoul be a clearance of about 0.1 mm or .004" between hook point and needle (which equals the thickness of a piece of paper). To adjust, reposition the hook saddle and the large bevel gear.

6. Adjustment of the needle guard

Having set the hook to the needle as instructed above, the latter should contact the needle guard lightly without being deflected. To this end, the needle guard should be bent acco dingly.

7. Bobbin case opener

7.1. Insert the bobbin case base into the sewing hook.

7.2. Screw on the needle plate, making sure though that the position finger on the bobbin case base enters the recess in the needle plate.

7.3. Loosen the set screws to the right or left of the sewing hook and adjust the bobbin case lever fulcrum on the hook saddle so that the bobbin case base is rotated counter-clockwise, lifting it clear of the stop in the needle plate recess by half its amount of play. Tighten the screw securely again.

7.4. Check and correct this setting after threading the machine. As you do this, make sure that the bobbin case opener opens a clearance gap for the thread to slip through between the position finger on the bobbin case base and the needle plate recess as well as the bobbin case position finger and the position slot.

7.5. By no means must the bobbin case opener rotate the bobbin case base so that it strikes the opposite stop in the needle plate recess.

8. Feed motion

8.1. Feed lifting motion; The rising feed dog and the point of the descending needle should reach the surface of the needle plate simultaneously.

8.2. Feed driving motion:

8.2.1. Set the machine for its maximum stitch length.

8.2.2. Adjust the feed driving eccentric on the arm shaft so that the needle bar (and the feed dog), after the needle has risen 0.6 mm from the lowest point of its stroke, will not make any perceptible motion as you move the feed regulator up and down between its ultimate positions (for the longest feed stroke forward and backward).

8.2.3. To obtain a more favorable feed motion, this basic setting may be modified slightly.

9. Adjusting the position of the sewing foot

9.1. There should be a clearance of 6 to 7 mm, about 1/4", between the needle plate and the raised sewing foot. A larger clearance is possible for certain subclasses, provided a longer needle is used.

9.2. When the needle bar is at the lowest point of its stroke, the needle holder must not strike the raised sewing foot.

9.3. Orient the presser bar so that the needle is centered in the slot of the sewing foot.

9.4. When the sewing foot is lowered, its sole should rest on the needle plate evenly.

9.5. The presser bar should exert the full amount of pressure on the needle plate (the presser bar lifter has a slight amount of play when it is inoperative). Take a thin piece of paper or a piece of delicate material to check whether the sewing foot exerts the full amount of pressure and rests on the needle plate evenly.

9.6. The amount of pressure exerted by the sewing foot should be adapted to the type of fabric being sewn and the sewing speed.
If the sewing foot pressure is set incorrectly, the following sewing troubles may occur:

a) Pressure too strong: the material is damaged by the feed dog; the material is stretched along the seam line (seam puckering); the top and bottom plies are disarranged so that they will not finish out evenly.

b) Pressure too weak: the material may be damaged because it is not firmly engaged by the feed dog; at higher speeds, the material is not held securely so that accurate guidance is impossible; one ply creeps ahead of another; skipped stitches, irregular feeding.

10. Thread tension (general hints)

10.1. Bobbin thread tension:

The lower tension should be as weak as possible, yet clearly noticeable. Make sure that the bobbin thread can be pulled from the bobbin evenly, regardless whether the bobbin case is in the machine or has been taken out. Tension trouble may occur as a result of spring breakage, loss or slackness of the regulating screw, accumulations of dirt on the underside of the tension spring, damage of the bobbin or the bobbin case and knotty thread.

10.2. Needle thread tension:

The needle thread tension should be adjusted so that the needle and bobbin threads interlock in the center of the material, i.e. the concatenation of threads should lock the same top and bottom. This ensures maximum elasticity of the seam. The degree of needle thread tension is dependent on the bobbin thread tension, the fabric weight, the thread size, the setting of the thread check spring and the feeding mechanism. As a rule, the needle thread tension should be as weak as possible in order to prevent puckering of the material and ensure maximum elasticity of the seam.

10.3. Tension release:

When the sewing foot is raised, the needle thread should pass through the upper tension lightly when pulled. When the sewing foot is lowered so that it rests on the material or the needle plate, the upper tension should be fully operative.

10.4. Thread check spring:

10.4.1. The thread check spring should be tensioned so that it will return to its stop smoothly and swiftly, yet with a certain power reserve. If the needle thread tension is weak, the thread check spring should likewise be set for a weak tension. And, conversely, when the needle thread tension is strong, the tension of the thread check spring should be increased or a more poverful spring be inserted.

10.4.2. The thread check spring stop should be set so that the spring is through acting when the needle point has reached the surface of a piece of material of normal thickness. A slight modification of this setting may become necessary either way.

Adjustment of the Drop Feed Mechanism of the Pfaff 134

Applies also to Pfaff Machines 234, 433, 144, 143, 343, 344, etc.

1 Adjusting the Position of the Feed Dog

11 Lateral adjustment of feed dog:

Adjust the position of the feed rock shaft laterally so that the feed dog is centered in the feed slot.

12 Lengthwise adjustment of feed dog:

Position the crank of the feed rock shaft so that the feed dog will not strike the near or far end of the feed slot when the machine is set for the longest forward or backward stitch.

13 Checking the horizontal position of the feed dog:

The right and left tooth rows should emerge from the feed slots in the needle plate simultaneously.

14 Vertical adjustment of the feed dog:

When at its highest position, the feed dog should show a full tooth above the needle plate. Special sewing conditions may necessitate a slight modification of this rule. If adjustment is required, rotate the crank on the feed lifting shaft, as appropriate.

2 Timing the Feed Dog

21 Feed driving motion: To time the feed driving motion, proceed as follows:

211 Turn the balance wheel in the normal direction of rotation until the needle has passed the lowest point of its stroke and risen about 5/32" (or 4,0 mm).

212 When moving the feed regulator lever from the longest forward to the longest backward stich position, the feed dog must not make any perceptible motion.

213 To adjust, rotate feed driving eccentric on its shaft.

214 To double-check this setting, make sure that the feed motion has just been completed when the needle enters the goods.

22 Feed lifting motion: If the feed driving and lifting eccentrics are not rigidly conected with each other, the feed lifting eccentric is adjusted as follows:

221 Approximate setting: Position the feed lifting eccentric on its shaft so that the feed dog and the needle bar reach the top of their strokes simultaneously.

222 Exact setting: Slightly rotate the feed lifting eccentric forward or backward until the motion diagram of the feed do closely resembles a rectangle, i.e. the feed dog should rise perpendicularly, move forward horizontally and drop below the needle plate perpendicularly again.

Make sure the reverse stroke of the feed dog has been completed before its point emerge from the feed slots in the needle plate.

Adjusting the Sewing Foot of Pfaff Machines 134

Applies to all other classes likewise

1. There should be a clearance of about 6-7 mm, or 1/4", between the needle plate and the raised sewing foot. Certain subclasses permit a larger clearance, provided a longer needle is used.

2. The needle bar or the needle holder must not strike the raised sewing foot when it reches the bottom of its stroke.

3. Orient the presser bar so that the needle is centered in the slot of the sewing foot.

4. When using a hinged sewing foot, check to see that the needle will not be deflected by the shoe swinging to any particular position.

5. When the sewing foot is lowered, its sole should rest on the needle plate evenly.

6. The presser bar should exert the full amount of pressure on the needle plate (the presser bar lifter has a slight amount of pressure and rests on the needle plate evenly).

7. The amount of pressure exerted by the sewing foot should be adapted to the type of fabric being sewn and the sewing speed.

   If the sewing foot pressure is set incorrectly, the following sewing troubles may occur:

   (a) Pressure too strong: the material is damaged by the feed dog; the material is stretched along the seam line (seam puckering) ; the top and bottom plies are disarranged so that they will not finish out evenly.

   (b) Pressure too weak; the material may be damaged because it is not firmly engaded by the feed dog; at higher speeds, the material is not held securely so that accurate guidance is impossible ; one ply ereeps ahead of another; skip stitches, irregular feeding.

Instructions for Adjusting the Sewing Mechanism of Pfaff 134 Machines

The following instructions apply to lockstitch sewing machines equipped with rigid needle bar and horizontal rotary sewing hook, such as the Pfaff 134, 234, 433, and 333.

1. Checking the Serviceability of the Needle

.1. Check the needle system. (For ordinary sewing operations, System 134 is used).

.2. Check whether the needle is absolutely straight.

.3. Check (with your fingernail) to see that the needle point is not blunt or damaged.

.4. Check to see that the needle has been inserted correctly, i. e.

.1. that it is pushed into the needle holder as far as it will go;

.2. that its long groove faces toward the left;

.3. that its eye is positioned at right angles to the direction of hook rotation;

.4. that it is held securely in the needle holder;

.5. that it is centered correctly in the needle hole;

.6. that it is threaded from left to right.

2. Needle Bar Rise

.1. General

As the needle rises from the lowest point of its stroke, the needle thread bulges away from it to form a loop. The distance the needle has to rise from its lowest point until this loop has reached its proper size is termed "needle bar rise". It is measured in inches or millimeters. To set the amount of needle bar rise, turn the balance wheel in its normal direction of rotation.

When the needle bar has risen the required distance from the bottom of its stroke, the hook point should have reached a position opposite the center line of the needle.

The amount of needle bar rise depends on the size and quality of the thread used, the needle size, the hook system, the sewing speed, and other factors.

The amount of needle bar rise required to form the loop normally is about .07", or 1.8 mm.

2.2. Setting the Amount of Needle Bar Rise with the Aid of a Gauge

.1. Turn the balance wheel until the needle is at the lowest point of its stroke.

.2. Slip the screw clamp onto the needle bar close to the needle holder.

.3. Place the feeler gauge (for the amount of needle bar rise specified) onto the screw clamp. Push screw clamp and gauge upwards against the needle bar bushing, and tighten the clamp screw. Check to see that the balance wheel turns neither forward nor backward.

.4. Pull out the gauge.

.5. Turn the balance wheel in its normal direction of rotation until the clamp bears against the needle bar bushing.

.6. When the needle bar has risen to this position, the loop has reached its porper size and the hook point should be exactly opposite the center line of the needle.

.7. Prerequisite for this adjustment is that both the needle bar and hook drive mechanisms have no excessive play and run easily.

3. Needle Bar Height

.1. When both the sewing hook and the needle are at the position indicated in paragraph 2.2.6. above the top of the needle eye should be about 1/16", or 1.5 mm the bottom edge of the hook point.

.2. If adjustment is required, loosen the set screw in the needle bar connecting stud and set the needle bar higher or lower, as appropriate, without rotating the arm shaft.

.3. After the adjustment, tighten the set screw securely.

4. Setting Hook to Needle

.1. With the needle bar set at the correct height and risen the required distance from the bottom of its stroke, there should be a clearance of about .004", or 0.1 mm, between hook point and needle (which equals the thickness of a piece of paper).

.2. Loosen the hook set screws and adjust the position of the hook on its shaft, without rotating the arm shaft.

.3. After the adjustment, tighten the hook set screws securely.

.4. Set the hook shaft front bushing close to the sewing hook.

5. Double-Checking the Needle-to-Hook Setting

If the sewing hook has been timed correctly, the needle bar set at the correct height, and the needle set close to the sewing hook, the needle should bear lightly against the bobbin case base, without being deflected. This will prevent the needle from being damaged by the sewing hook in case it should be slightly deflected by the material being sewn.