

PFAFF

®

238
238-0



R 9030

Instruction Book

and

Service Manual

from the library of: Superior Sewing Machine & Supply LLC



238
238-0

High-Speed Zigzag Sewing Machine

Organized with link take-up

and transverse rotary hook

Instruction Book

and

Service Manual

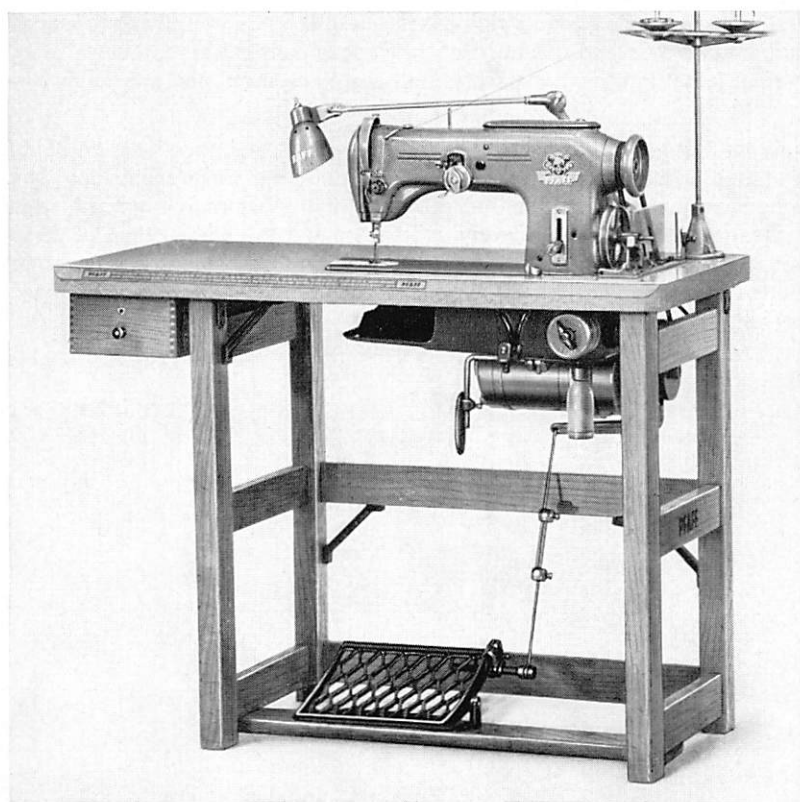
G·M·PFAFF AG · KAISERSLAUTERN BRANCH

Foreword

This instruction book contains much valuable information about Pfaff 238 and 238-0 high-speed zigzag sewing machines. Though not intended as a full-scale textbook capable of answering all questions related to sewing exhaustively, it offers sufficient information on the construction, function and operation of the various mechanisms to enable every interested operator to get to know her machine and attain maximum efficiency as quickly as possible.

The instructions for mechanics contained in the second part of this book will no doubt be much appreciated by all maintenance men servicing our sewing machines since even the best sewing machine will work satisfactorily only if it is employed properly and serviced by an expert. We have made every effort to render the presentation of these instructions as simple as possible and have included numerous illustrations in order to afford a better understanding. We welcome any suggestions and recommendations which you may wish to make.

G. M. PFAFF AG



R 7686

Fig. 1

Instructions for Operators

1. Brief Description of the Pfaff 238

The Pfaff 238 high-speed zigzag sewing machine is an improved version of the Pfaff 138 which has been redesigned to match our modern high-speed straight stitchers in outward appearance and sewing performance.

Like the Pfaff 138, it is organized with link take-up and transverse rotary sewing hook which features a special balancing collar in order to ensure vibrationless running.

The Pfaff 238 is supplied in Models A and B for a maximum stitch length of down to 7 stitches per inch.

The permissible top speed of the machine depends on the model and the stitch width. Model B machines are normally fitted for a stitch width of $11/64"$, or 4.5 mm, and a top speed of 3,500 s.p.m.

If desired, Model B machines can be fitted with a special parts set for a stitch width of about $1/4"$, or 6.0 mm, and maximum speed of 3,200 s.p.m.

As a special variety, the Pfaff 238 can be supplied in Model A for a maximum stitch width of $5/32"$ and a sustained speed of 3,800 s.p.m.

2. Settling Up the Machine

In most instances, the Pfaff 238 is supplied for individual power drive. Sewing head and power table are packed separately.

The machine is driven by a $1/2$ -HP clutch motor. (Type of current and voltage optional to suit local requirements.)

Power is transmitted from the motor to the sewing machine by means of a V-belt $25/64"$, or 10 mm, wide and conforming to German DIN 2215 standards.

When connected to a 50-cycle power supply, the motor runs at a speed of 2,800 r.p.m., and when connected to a 60-cycle power supply, at 3,400 r.p.m.

The motor pulley can be easily exchanged in order to vary the maximum sewing speed, as may be required.

The relationship between pulley diameter and maximum sewing speed is indicated in the table below:

Balance Wheel Dia.		Motor Speed 2,800 r.p.m.				Motor Speed 3,400 r.p.m.			
d _m mm	D mm	d _m mm	Motor Pulley Dia. D mm	Order No.	Stitches per Minute	d _m mm	D mm	Motor Pulley Dia. Order No.	Stitches per Minute
71	76	63	68	16-437 010-55	2,500	—	—	—	—
71	76	67	72	16-437 020-55	2,600	—	—	—	—
71	76	71	76	16-437 030-55	2,800	—	—	—	—
71	76	75	80	16-437 040-55	3,000	63	68	16-437 010-55	3,000
71	76	80	85	16-437 050-55	3,200	67	72	16-437 020-55	3,200
71	76	85	90	16-437 060-55	3,400	71	76	16-437 030-55	3,400
71	76	90	95	16-437 070-55	3,600	75	80	16-437 040-55	3,600
71	76	95	100	16-437 080-55	3,800	80	85	16-437 050-55	3,800

d_m = effective diameter

D = outside diameter

63 mm = 2.48",

72 mm = 2.83",

85 mm = 3.35",

67 mm = 2.64",

75 mm = 2.95",

90 mm = 3.54",

68 mm = 2.67",

76 mm = 3.00",

95 mm = 3.74",

71 mm = 2.79",

80 mm = 3.15",

100 mm = 3.94".

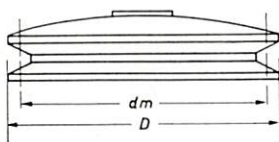


Fig. 2

Unpack the sewing head cautiously to avoid damage to the machine. After removing the lid from the box, unscrew the wood screws which hold the cushioned wooden blocks that support the machine in the box. Cautiously lift the machine out of the box, wipe off the dust and mount the machine on the table so that it rests on the rubber pads.

To facilitate the mounting of the V-belt, slip it on the machine pulley first. Then slightly lift the motor and pull the belt onto the motor pulley.

For adjusting the V-belt tension, please refer to the instructions which are furnished with the motor.

The machine is dispatched **without oil** in the reservoir and must not be run while in this condition.

3. The Lubrication System

An oil reservoir has been incorporated in the top cover of the machine (Figs. 4 & 5) which holds enough oil to ensure adequate lubrication of the arm shaft parts.

After pulling out plug **C** (Fig. 3), fill about $4 \frac{1}{3}$ fl. oz. of ordinary sewing machine oil (Order No. 280-1-120122) or a technical white oil having a viscosity of 150 R/68°F or 175 S/68°F into the reservoir.

The oil in the reservoir will last for a longer time, depending on how long the machine is in operation each day. Oil should be replenished when the red tip of the oil level gauge which can be seen through the oil sight glass emerges from the surface of the oil.

Fig. 4 shows the open oil reservoir with oil wick, Fig. 5 the bottom of the reservoir with the lower end of oil wick **D** which protrudes into hole **A** and supplies oil to the arm shaft center bearing.

The oil seeps through a vent hole into the hollow arm shaft and is distributed inside the arm shaft by a packing. Emerging from additional vent holes, oil is supplied to the various arm shaft bearings and the feed eccentric. Dripping oil is collected by a large oil drip pan and accumulates in a detachable plastic oil bottle. (Fig. 6)

R 7715

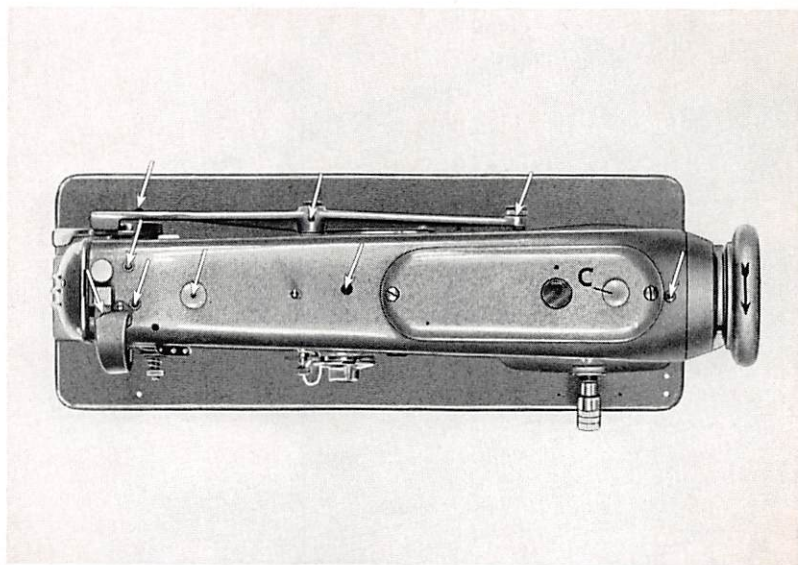


Fig. 3

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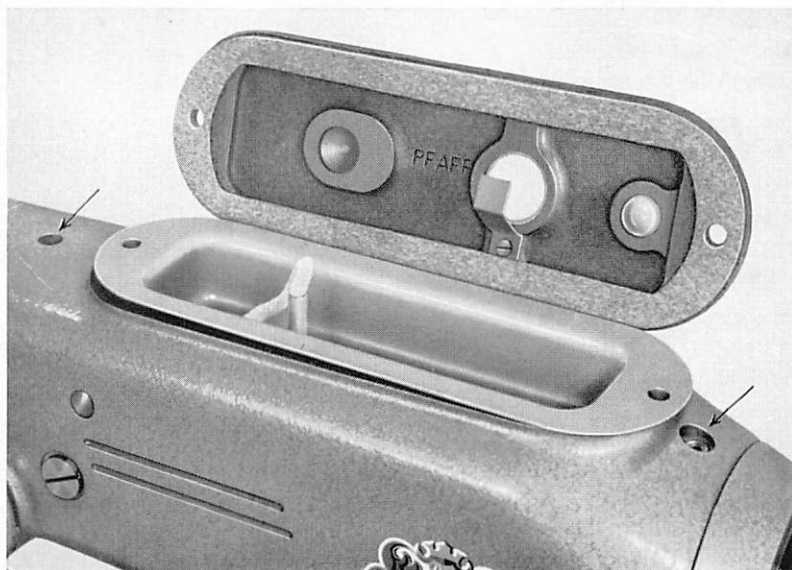


Fig. 4

R 7718



Fig. 5

R 6768

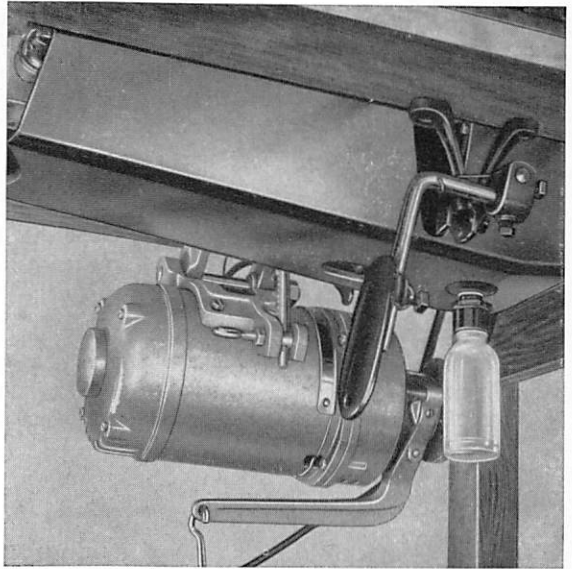


Fig. 6

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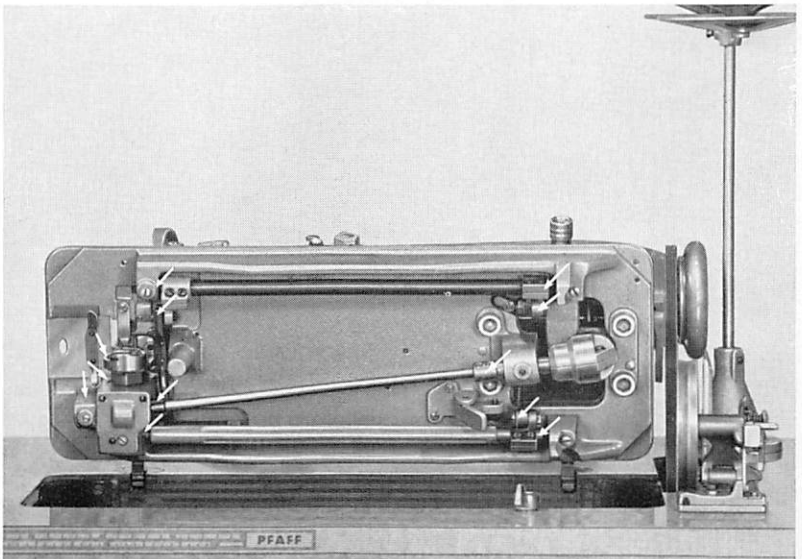


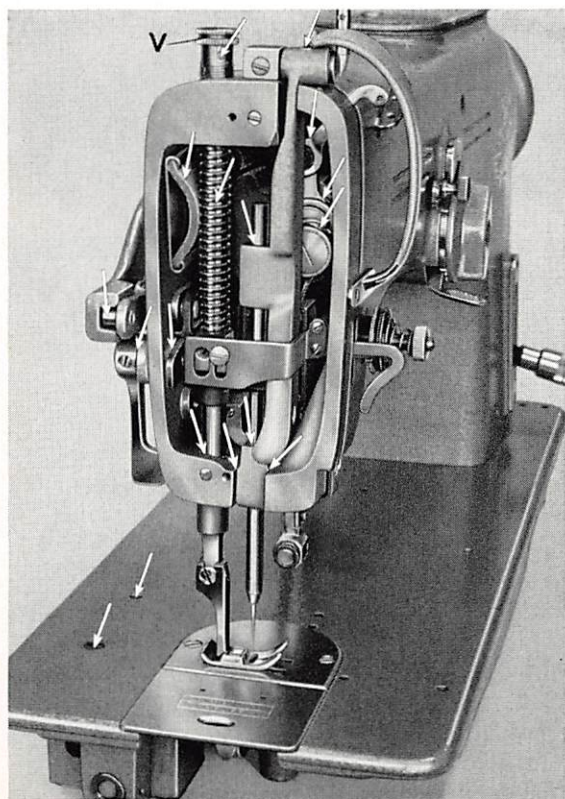
Fig. 7

The oil which has accumulated in this bottle may be returned to the oil reservoir without prior cleaning. After the oil has circulated in the machine several times, it is advisable to filter it through a piece of linen before it is returned to the reservoir. This will not impair its lubricity in the least. Used oil, naturally, may be employed for other lubrication purposes as well.

All other oiling points which are marked by arrows in Figs. 3, 4, 5, 7 and 8 have to be oiled by hand.

Special care should be taken in applying oil to the large oiling felt which supplies oil to the needle vibrating eccentric and can be reached through aperture **F** (Fig. 5). This pad should be soaked with oil regularly.

Put one drop of oil into the hook raceway each day the machine is in operation. Frequently take off the needle plate and remove the lint which has accumulated on its underside and on the feed dog. This is very important because the lint contains small particles of dressing which have an abrasive effect on the sewing hook and, in time, will cause excessive wear.



R 7722

Fig. 8

4. Test-Running the Machine

Before you test-run the machine, carefully remove the rust preventative.

After the machine has been lubricated as instructed above, test-run the unthread machine with a piece of fabric under the presser foot.

Before you plug the machine in, make sure that the voltage indicated on the rating plate of the motor is within the tension range marked on the electric meter.

Also, make sure the machine pulley rotates in the proper direction, i. e. toward you. If it does not, simply exchange the two wires at the motor terminals.

R 7685

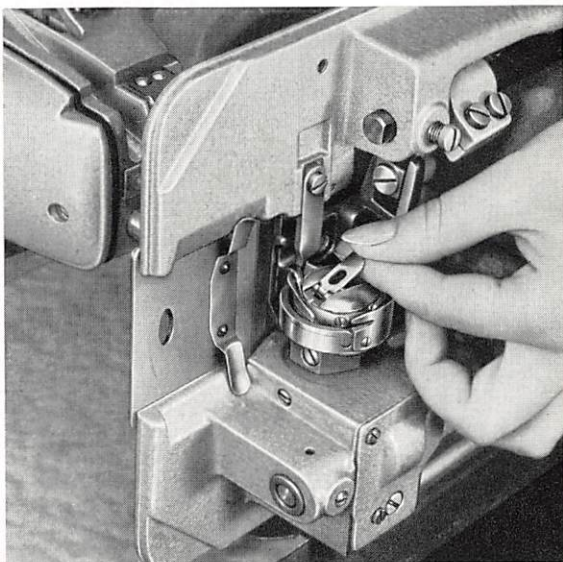
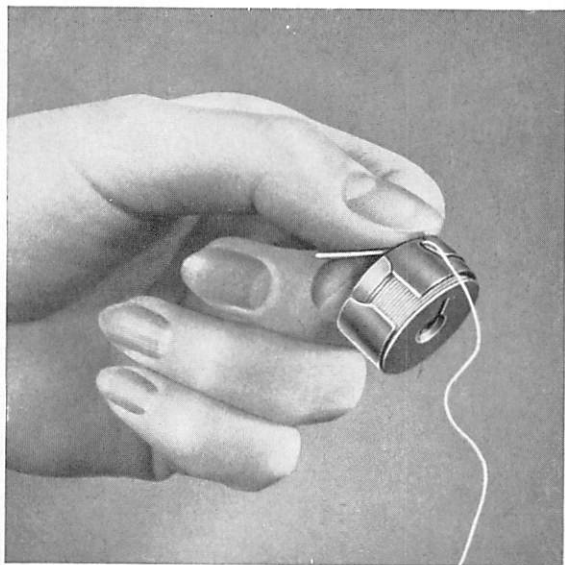


Fig. 9

5. Removing the Bobbin Case

Raise the take-up lever to its highest position. Reach under the table with your left hand, open the bobbin case latch and pull out the bobbin case by holding this latch with thumb and forefinger, as shown in Fig. 9.

While you hold the bobbin case by its open latch, the bobbin cannot fall out (Fig. 10).



R 7432

Fig. 10

6. Winding the Bobbin

The Pfaff 238 is equipped with a bobbin winder which is mounted on the power table (Fig. 11).

This bobbin winder requires no lubrication since its spindle runs in a sintered-metal bushing.

The bobbin winder is stopped quietly by means of an adjustable leather pad.

Mount the bobbin winder on the table so that its pulley will not contact the driving belt when the winder is disengaged.

Place an empty bobbin on bobbin winder spindle 5. Lead the thread from the spool on pin 1 through thread guide 2 and clockwise around and between tension discs 3. Wind a few turns of thread on the bobbin in clockwise direction.

Start the bobbin winder by depressing engaging lever 6. The bobbin winder will stop automatically when the bobbin is full. The amount of thread to be wound on the bobbin is regulated by turning screw 7. Turn this screw clockwise for more thread, or counter-clockwise for less thread.

If the thread should pile up at one end of the bobbin, loosen screw 4 and adjust the tension bracket, as appropriate.

R 6767

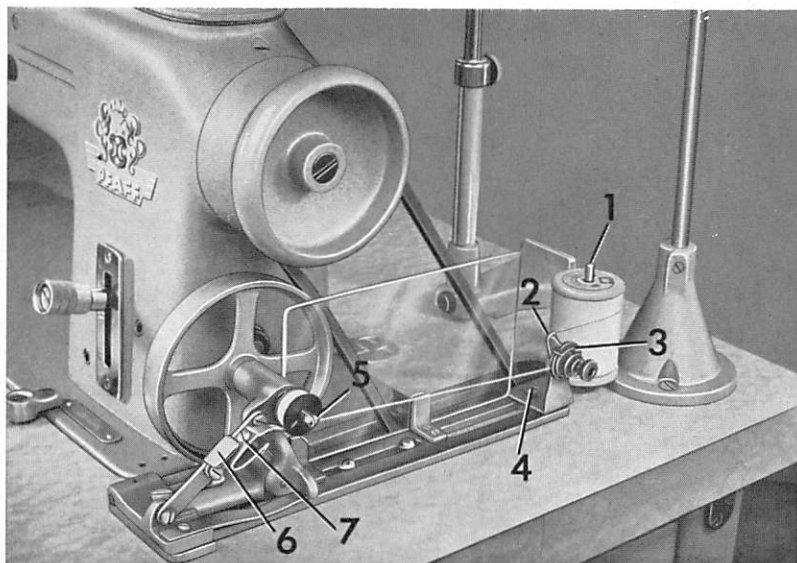


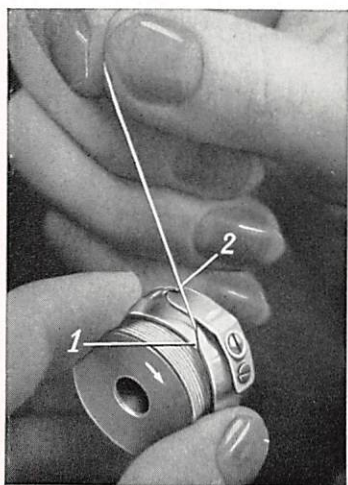
Fig. 11

7. Threading the Bobbin Case

Insert a full bobbin into the bobbin case so that the thread draws on the top from the left toward the right (Fig. 12).

Hold the bobbin firmly in the bobbin case, pull the thread into slot **1** and draw it under the tension spring and into delivery eye **2**. Turn the bobbin case so that the end of its latch points toward the right and place it on the center stud in the bobbin case base. Press against the bobbin case until you hear it snap into place.

Failure to observe this precaution may result in bobbin case or needle breakage.



R 4345

Fig. 12

8. Threading the Needle

Threading the Pfaff 238 is simple because the thread passes down on the front of the machine in the operator's field of vision.

As illustrated in Fig. 13, lead the thread from the spool on the thread unwinder up and through the thread guide at the top of the rod, then down to thread guide 1 on top of the machine arm, through both its holes, and through all three holes in thread retainer 2, clockwise around and between tension discs 3, through the loop of thread check spring 4, under slack thread regulator 5, up and from right to left through the hole of take-up lever 6, down and through thread retainer 7, and from front to back through needle eye 8.

R 7723

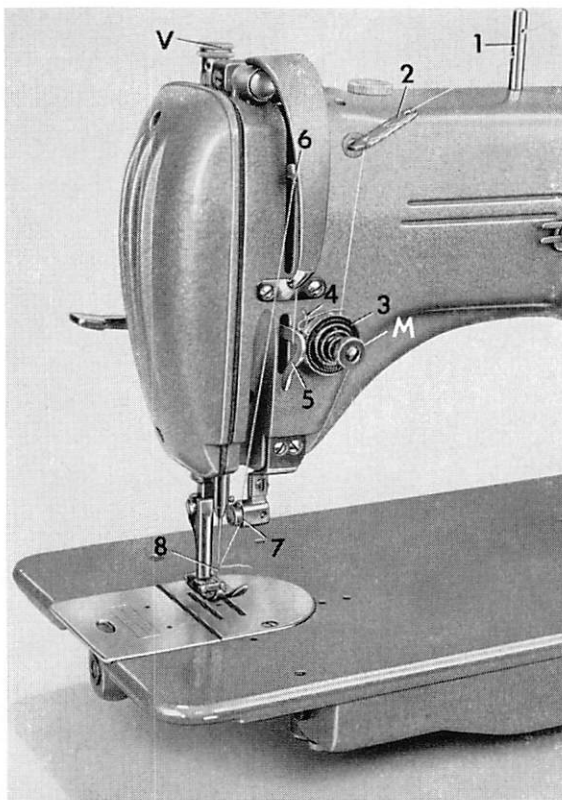


Fig. 13

9. Drawing Up the Bobbin Thread

Hold the end of needle thread and turn the balance wheel toward you until the needle moves down and up again. Lightly pull the needle thread to draw the bobbin thread up through the needle hole (Fig. 14). Lay both threads back under the presser foot.

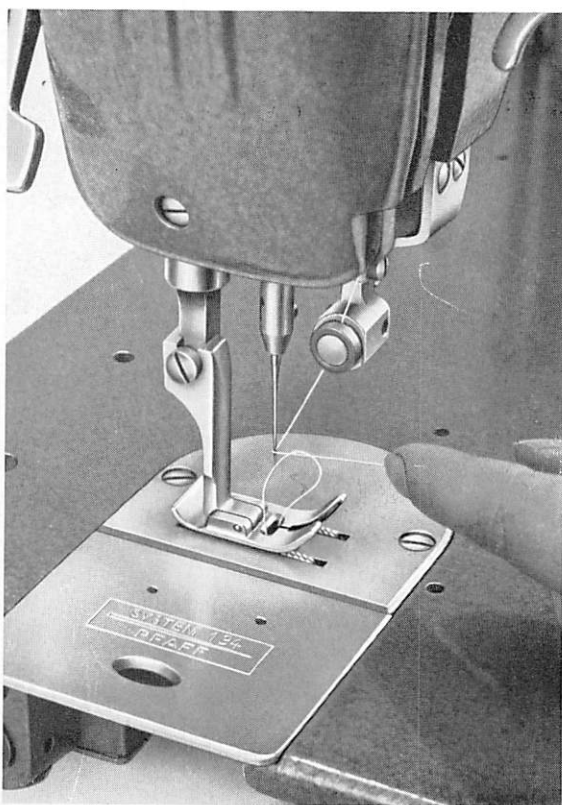
Always turn the balance wheel toward you until the take-up lever is at its highest point before you begin and after you have completed a seam.

Failure to observe this rule may cause the thread to jam in the hook raceway or to slip out of the needle eye. If the above rule is observed, there is no need to hold both threads when you begin to sew.

10. Regulating the Thread Tension

The neat appearance of the finished seam and its durability greatly depend on the correct regulation of tensions.

The tensions are correctly balanced if the needle and bobbin threads interlock in the center of the material, as shown in Fig. 16.



R 7721

Fig. 14

The needle thread tension is increased by turning tension nut **M** clockwise, and decreased, by turning it counter-clockwise (Fig. 13).

The bobbin thread tension is regulated by means of the small hook screwdriver. Turn tension screw **z** in for more tension, or out, for less tension (Fig. 15).

The tensions should be regulated according to the material to be sewn. Check to see that the stitches are tightly drawn in without puckering the material. In straight sewing, the stitches should lie in a straight line, and in zigzag sewing, should form a perfect zigzag pattern on the top and bottom of the material without kinking.

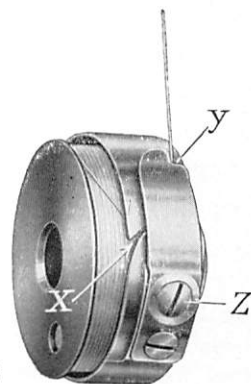


Fig. 15

The grade of thread used plays an important part in obtaining a perfect seam on any material. Sheer fabrics require a thin and soft thread, whereas stiff and resistant threads, because of their low resilience, are unsuitable for almost any fabric.

You will have to have a little experience in order to be able to tell which tension needs adjustment.

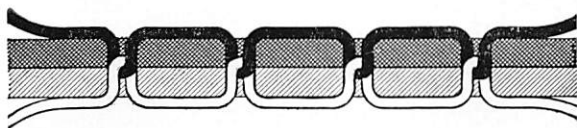


Fig. 16

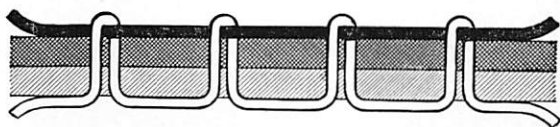


Fig. 17

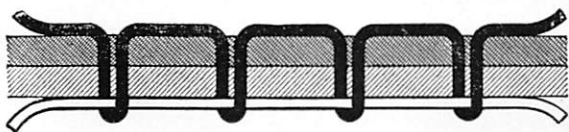


Fig. 18

In Fig. 17 either the upper tension is too tight, or the lower tension too weak.

In Fig. 18 either the upper tension is too weak, or the lower tension too tight.

You will have to decide in every individual case, if either the upper or the lower tension needs to be adjusted, particularly when the thread forms small knots or kinks on top or bottom of the fabric.

Always lower the presser bar before you adjust the upper tension. When the presser bar is raised, it will automatically release the tension.

11. Regulating the Stitch Length

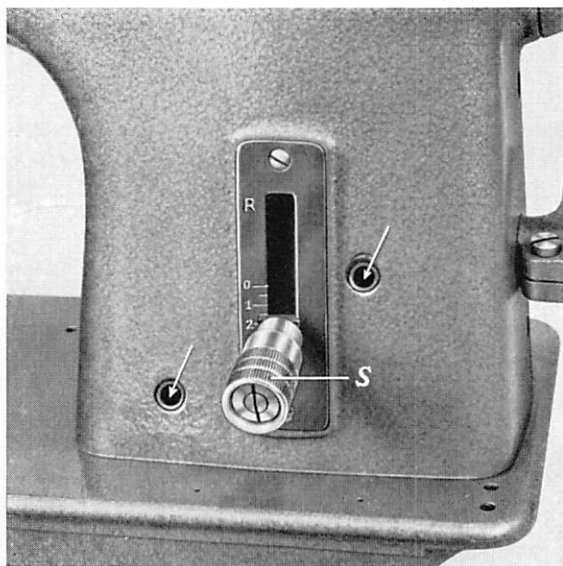
The stitch length is regulated by turning thumb nut **S** on the feed regulator lever (Fig. 19). This applies to both straight and zigzag sewing.

Turn this thumb nut right for shorter stitches, or left, for longer stitches.

The numerals on the left of the slot indicate the stitch length in millimeters.

The feed regulator lever is permanently held down in forward feeding position by spring action.

When you push the feed regulator lever up beyond the zero mark, the machine will feed in reverse. The lever will return to its forward feeding position automatically, when released (Fig. 19). This feature is particularly useful for backtacking.



R 7720

Fig. 19

12. Regulating the Stitch Width

The stitch width is regulated by turning knob **G** which is located in the middle of the machine arm (Fig. 20). The numerals on the zigzag scale indicate the stitch width in millimeters.

When pointer **Z** is set on zero, the machine sews straight.

When you turn knob **G** to the left, the stitch width increases gradually and the machine makes the zigzag stitch.

With the zigzag knob at the extreme left of its scale, the machine will make stitches about $\frac{3}{16}$ " or $\frac{1}{4}$ " (4.5 or 6.0 mm) wide, depending on the machine model.

There is a small lug on the underside of pointer **Z** which engages in a notch of slide **S**. Screw **B** serves to lock this slide in position.

If you set the zigzag knob on 2 and tighten screw **B**, for instance, the stitch width is fixed and will not be disturbed by the vibrations of the machine when sewing. In spite of this, knob **G** can be jerked to zero when a few straight stitches have to be made in back-tacking the end of a seam. By the same token, knob **G** can be jerked to the left for a wider zigzag stitch. Returned to the middle of the zigzag scale, pointer **Z** will again engage in notch **R** of slide **S** so that the previous stitch width setting will be restored automatically.

Switching from straight to zigzag stitching as well as changing the stitch length and the stitch width can be done while sewing.

R 7719

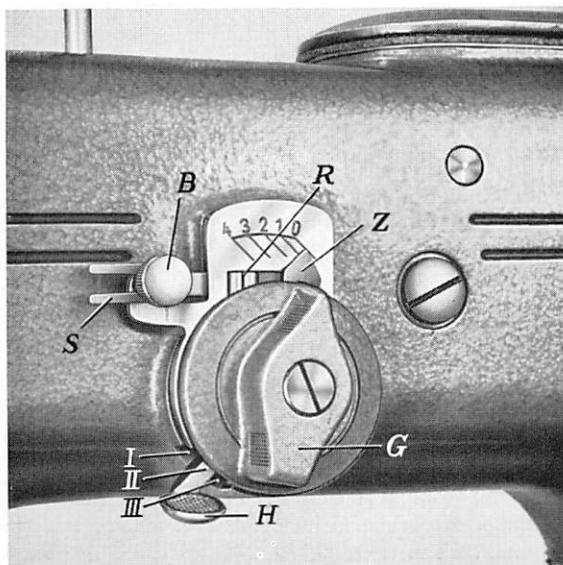


Fig. 20

13. Setting the Needle Position

Lever **H** can be set in notch I, II or III and serves to move the needle from the center to the left or right of the needle plate slot.

With lever **H** in notch I, the needle is at the extreme left of the needle plate slot in straight sewing, and swings to the right in zigzag stitching.

When lever **H** is set in notch II, the needle is centered in the needle plate slot in straight sewing, and swings both ways in zigzag stitching.

With lever **H** in notch III, the needle is at the extreme right of the needle plate slot in straight sewing, and swings to the left in zigzag stitching.

The needle position can be changed while sewing. When the machine is not in operation, however, raise the needle out of the fabric before you change the needle position. Failure to observe this precaution may cause bending or breaking of the needle.

14. Regulating the Pressure on the Material

Smooth feeding and uniform stitching greatly depend on the correct amount of presser foot pressure. Staggering stitches and feed markings on the underside of the fabric are a direct result of incorrect pressure regulation.

To increase the pressure for heavier fabrics, turn screw **V** in, and to ease the pressure for lightweight materials, turn it out (Fig. 13).

When stitching delicate and sheer fabrics, feed a piece of tissue paper under the material to protect it from the feed points and prevent puckering. This paper can be readily pulled away after sewing has been completed.

15. Selecting the Correct Needle

The Pfaff 238 is fitted with round-shank needles.

Model A machines use short System 133 needles which will not tremble, regardless of the sewing speed, and hence assure neat seams.

Model B machines are equipped with System 134 R needles which are about 5/32", or 4 mm, longer and are available in a number of different point styles to suit various materials.

Pfaff 238-115 cording machines use System 130 B needles with a smaller shank diameter. Pin tucks are made with two System 130 Br and BI needles which are placed between the needle holder jaws with their flat sides facing, and are secured in position by tightening the needle gauge regulating screw. To make three System 134 RFr RFI needles having a flat on the right and left side of the shank, respectively, and two System 134 Rfmc needles whose shank is flattened on both sides.

The number indicating the needle size is identical with the diameter of the needle shaft, or blade, expressed in hundredths of millimeters. Thus, if the diameter of a needle is 0.8 mm, its size is 80.

The appearance of the finished seam is dependent on the correct relationship between needle, thread and fabric.

Lightweight fabrics should be sewn with a thin needle in order to prevent ugly needle marks.

When thick thread is used in a thin needle, the thread is likely to break. Thin thread used in a thick needle may cause skipping of stitches.

Select the proper needle and thread sizes from the chart below:

Never use rusty needles.

Only the exceptional quality of the needle finish ensures trouble-free sewing and prevents thread breaking. When operating at the high speed of the Pfaff 238, a rough-surfaced needle will overheat quickly and burn the thread. This is particularly true of synthetic threads which are very sensitive to heat and fuse easily.

If an ordinary needle should overheat when sewing resistant materials or stitching long seams, we recommend that you use a superfinished, chromium-plated System 134 needle which may be obtained from us.

Needle and Thread Chart

Needle Size	Cotton	Silk	Synthetic	Linen
60	130/3 130/4	140/3	200/3—150/3	
70	100/3 100/4	120/3	140/3—120/3	
80	80/3 80/4	100/3	120/3—100/3	
90	70/3—60/3 70/4—60/4	80/3	100/3— 80/3	70/3
100	50/3—40/3 50/4—40/4	70/3	70/3	60/3
110	30/3 30/4 30/6	60/3	60/3	50/3

16. Changing the Needle

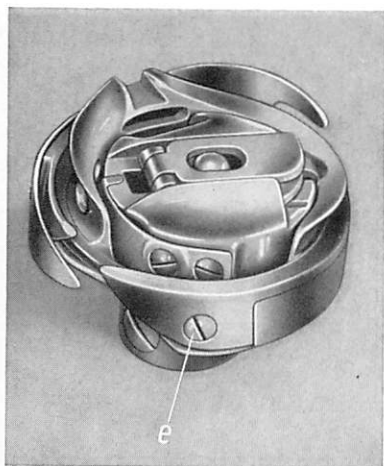
- (1) Raise the needle bar to its highest point.
- (2) Loosen the needle set screw, using a small screwdriver for this purpose.
- (3) Pull out the old needle.
- (4) Insert a new needle into the opening of the needle clamp and push it up as far as it will go. Make sure the long groove faces toward you.
- (5) Tighten the needle set screw securely.

17. The Sewing Hook

The Pfaff 238 is organized with a System 134 double-revolution, transverse rotary hook which moves counter-clockwise and is equipped with a special balancing collar to ensure vibrationless running of the machine.

This sewing hook features a welcome improvement over the old-type hook in that its gib is held in place by one screw instead of the three screws used previously. This screw (e in Fig. 21) is located at one end of the hook gib while its other end enters a small recess in the body of the hook. Removal of the gib for a thorough cleaning of the hook, or in case of thread jamming, is exceedingly simple. Since the hook gib is secured by one screw and the hook thread guard, or thread pull-off flange, by three, the two parts cannot possibly be confused.

The springiness of the redesigned gib prevents bobbin case breakage as a result of thread jamming. Furthermore, the machine will never be blocked to an extent which will make it impossible to get at the gib screw. All this will eliminate the necessity of removing the hook, resetting the hook shaft and retiming the sewing hook, a job for which a mechanic normally has to be called.



R 5271

Fig. 21

18. Pfaff 238-14 for Eyeletting

The Pfaff 238-14 eyeletting machine is supplied in two varieties. While on the Pfaff 238-14/1 the work is turned about the center stud by hand, the Pfaff 238-14/2 is equipped with positive rotary feed.

Operation of the Pfaff 238-14/1 is exceedingly simple.

Put needle position lever **H** in notch **III** (Fig. 20) so that the needle swings from right to left in zigzag sewing.

Select a slide with a stud diameter which suits the size of the eyelets you want to make. Push this slide into the slot of the needle plate and position it so that the needle will be just inside the groove in the center stud when it descends on the right of its throw.

Punch out the hole for the eyelet, using one of the punches supplied with the machine. Make sure the punch diameter is smaller than the center stud diameter so that the material will fit around the stud snugly. Slip the fabric over the center stud and push it down evenly all around.

Select the stitch width according to the thickness of the material and the type of eyelet desired. To sew a neat eyelet, run the machine at a uniform speed while turning the work around the center stud evenly.

Another procedure which may be applied is as follows:

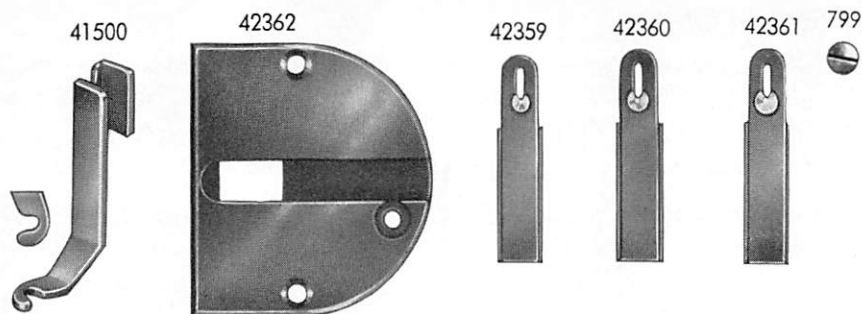
Put needle position lever **H** in notch **I** and turn knob **G** to the desired stitch width. Rotate the balance wheel until the needle descends on the left of its throw. Position the slide so that there is a small clearance between the needle and the center stud. The slide must be repositioned whenever the stitch width is changed.

This setting affords the advantage that the stitch width can be changed several times in the process. Thus, it is possible to join multiple plies by sewing around the hole with straight stitches (before sewing the eyelet seam with zigzag stitches) and to finish the eyelet with a few tying stitches (with knob **G** set on "O").

To prepare the machine for eyeletting, exchange the ordinary needle plate and the presser foot for the special needle plate and eyeletting foot.

The set of organizational parts for subclass -14/1 machines consists of the following:

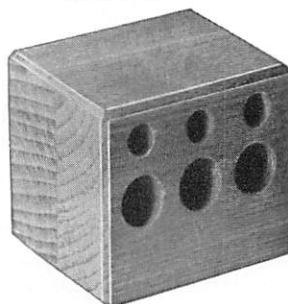
- 1 Eyeletting foot No. 41500
- 1 Needle plate No. 42362
- 1 Eyeletting slide, w/4 mm -dia. stud, No. 42359
- 1 Eyeletting slide, w/5 mm -dia. stud, No. 42360
- 1 Eyeletting slide, w/6 mm -dia. stud, No. 42361
- 1 Clamping screw No. 799
- 1 Punch, 3 mm -dia., No. 41664
- 1 Punch, 4 mm -dia., No. 41665
- 1 Punch block No. 32424710



41664

41665

32424710



The following parts will be supplied on special request:

- 1 Eyeletting slide, w/3 mm -dia. stud, No. 42358
- 1 Eyeletting slide, w/7 mm -dia. stud, No. 46159
- 1 Eyeletting slide, w/8 mm -dia. stud, No. 46162
- 1 Punch, 2 mm dia., No. 41663

2 mm = 5/64"; 3 mm = 1/8"; 4 mm = 5/32";
 5 mm = 3/16"; 6 mm = 1/4"; 7 mm = 9/32";
 8 mm = 5/16".

42358

46159

46162



41663



Operation of the Pfaff 238-14/2 is basically the same as of the Pfaff 238-14/1, except that the material is turned about the center stud by a positively driven rotary feed rather than by hand.

The Pfaff 238-14/2 is available in two varieties:

Group I for center studs of from $5/64"$ to $15/32"$ (2-10 mm) dia.

Group II for center studs of from $7/16"$ to $23/32"$ (11-18 mm) dia.

All that is required to change the size of the eyelet within one of the above groups is to exchange the slide with center stud and the presser ring disc in the eyeletting foot. When changing over from group I to group II, or vice versa, the rotary feed has to be exchanged in addition. This conversion job can be performed by every mechanic in a few minutes.

The mechanical setup of the rotary-feed eyeletting unit is illustrated in Fig. 22.

R 8891

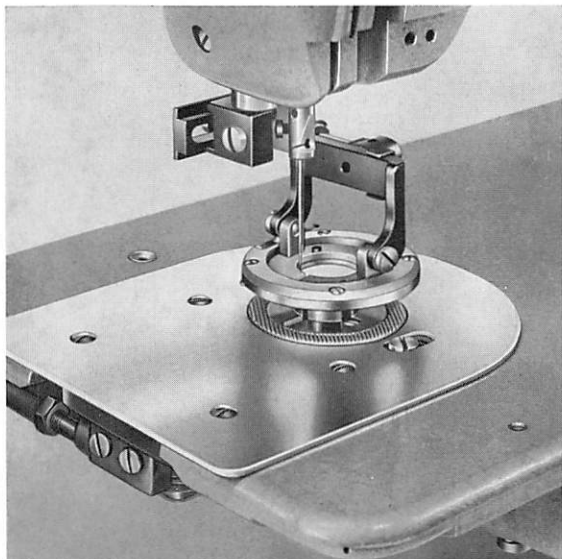


Fig. 22

19. Pfaff 238-115 for Cording

The Pfaff 238-115 is specially fitted for multi-needle decorative stitching and cording operations. To suit different requirements, this machine is supplied in a number of varieties equipped with different needle holders, cording plates and cording feet, as follows:

238-115/1-6 Two and three-needle ornamental stitching in straight or narrow zigzag stitch; needle plate slot 3/16" or 1/4" (4.5 or 6.0 mm) wide; needle holder fitted with double-threaded screw; System 130 B needles.

238-115/1-45 Two or three-needle air cording; needle holder fitted with double-threaded screw; System 130 Br and 130 BI needles.

The needle gauge can be adjusted by turning only one screw. Available for maximum needle gauges of 1/8", 3/16", and 1/4" (3.0, 4.5 and 6.0 mm).

238-115/1-235 Same as 238-115/1-45, but fitted to make filled cording; System 130 Br and 130 BI needles.

238-115/2-45 Two-needle air cording in needle gauges ranging from 1/16" to 1/4" (1.4 – 6.0 mm); needle holder jaws individually adjustable; available for maximum needle gauges of 1/8", 3/16", and 1/4" (3.0, 4.5 and 6.0 mm); System 134 R needles.

238-115/2-245 Same as 238-115/2-45, but fitted to make filled cording; System 134 R needles.

238-115/4-45 Four-needle air cording on gloves, etc.; needle holder fitted with double-threaded screw; four needles are inserted in slot of needle holder jaws and are clamped in position by tightening double-threaded screw; shanks of outer needles are flattened on one side, while shanks of inner needles are flattened on both sides; over-all width of triple cording 3/16" or 7/32" (4.7 or 5.4 mm); System 134 Rfr and 134 RFI or System 134 Rfmc and 134 Rfmh needles.

238-115/5 This variety is supplied on special request only. Fitted with exchangeable needle holders for 1, 2 and 3 needles; can be combined with subclass -6, -45 and -245 organizations; System 130 B or 130 Br and 130 BI needles.

Listed on the opposite page are a variety of feed dogs, needle plates, needle plate inserts and cording feet which may be used on Pfaff 238-115 machines. One needle plate, four needle plate inserts and four cording feet are standard with each machine.

Since the composition of the individual parts sets depends on the thickness of the material to be sewn, no hard-and-fast rule can be given as to which parts are required for a certain cording size.

Fig. 23 shows the Pfaff 238-115/1-245 fitted with needle plate insert and adjustable needle holder for filled cording work.

Apart from cording work, the Pfaff 238-115 can also be used for sewing ornamental two-needle zigzag seams. For this type of work, it is set for a narrow zigzag stitch and a narrow needle gauge. If the machine is to be used for single-needle zigzag stitching, simply insert one needle between the needle holder jaws.

R 6365

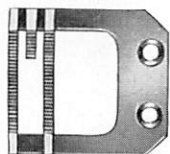


Fig. 23

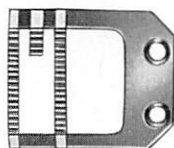
Organizational Parts for the Pfaff 238-115

Needle plate, for 1/8", of 3.0 mm, needle gauge	No. 26835
Feed dog, for 1/8", or 3.0 mm, needle gauge	No. 26833
Needle plate, for 3/16", or 4.5 mm, needle gauge	No. 26885
Feed dog, for 3/16", or 4.5 mm, needle gauge	No. 26883
Needle plate, for 1/4", or 6.0 mm, needle gauge	No. 26892
Feed dog, for 1/4", or 6.0 mm, needle gauge	No. 26890
Cording slide, w/o ridge	No. 26902
Cording slides, w/ ridges from 1/32" to 9/64", or 0.8 to 3.6 mm high, in steps of 0.2 mm	No. 26900 x height of ridge
Cording slides, w/ cord ducts from 1/32" to 3/32", or 0.6 to 2.4 mm, dia., in steps of 0.2 mm	No. 26904 x cord duct dia.
Cording slide set screw	No. 564
Cording foot, w/ 11 grooves, 0.6 x 0.8 mm, for 1/8", or 3.0 mm, needle gauge	No. 51263
Cording foot, w/ 11 grooves, 0.8 x 1.0 mm, for 1/8", or 3.0 mm, needle gauge	No. 51265
Cording foot, w/ 9 grooves, 1.0 x 1.2 mm, for 1/8", or 3.0 mm, needle gauge	No. 51267
Cording foot, w/ 9 grooves, 1.2 x 1.4 mm, for 3/16", or 4.5 mm, needle gauge	No. 51269
Cording foot, w/ 7 grooves, 1.6 x 1.6 mm, for 3/16", or 4.5 mm, needle gauge	No. 51271
Cording foot, w/ 7 grooves, 2.0 x 1.8 mm, for 3/16", or 4.5 mm, needle gauge	No. 51273
Cording foot, w/ 5 grooves, 2.4 x 2.0 mm, for 3/16", or 4.5 mm, needle gauge	No. 51275
Cording foot, w/ 5 grooves, 2.8 x 2.4 mm, for 3/16", or 4.5 mm, needle gauge	No. 51277
Cording foot, w/ 3 grooves, 3.4 x 2.8 mm, for 1/4", or 6.0 mm, needle gauge	No. 51279
Cording foot, w/ 3 grooves, 4.5 x 3.2 mm, for 1/4", or 6.0 mm, needle gauge	No. 51281

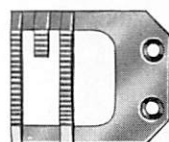
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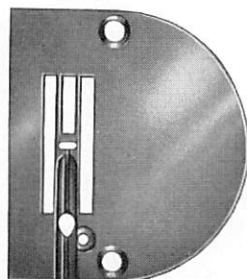
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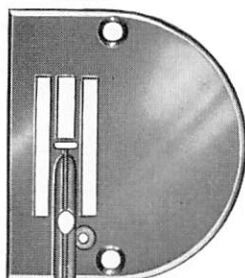
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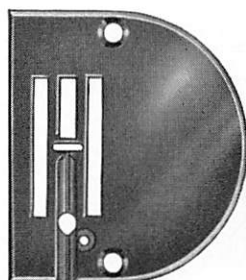
26835



26885



26892



26902



26900



26904



564



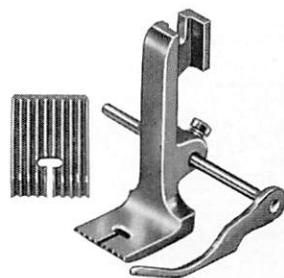
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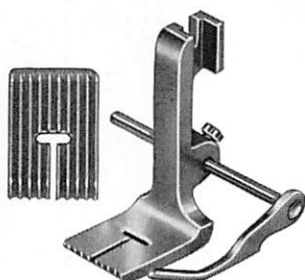
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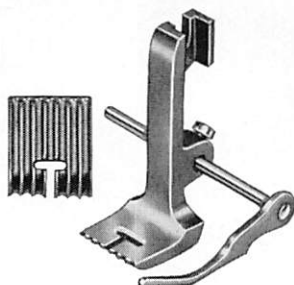
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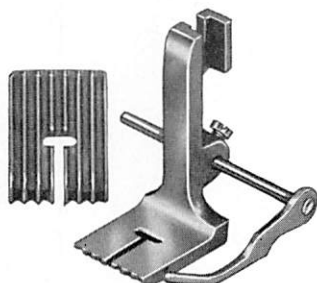
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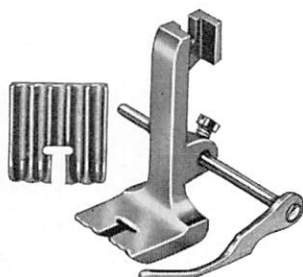
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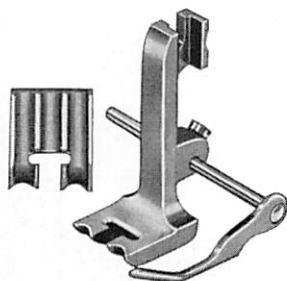
51277



51279



51281



20. Pfaff 238-130 with Knee-Operated Stitch Width Control

This machine features a knee-operated stitch width control which greatly facilitates such operations as single-needle cording, eyelet embroidery and flat embroidery in the production of white goods, blouses, etc. (Fig. 24). A second treadle serves to raise the presser foot.

When knee pressure is relieved, the stitch width control is automatically returned to "0" by spring action.

On the Pfaff 238-130 the lug on the underside of pointer **Z** fits snugly into notch **R** of slide **S** (Fig. 20). For this reason, screw **B** must be loosened when the stitch width is to be varied by knee action while sewing.

Screw **B** is tightened to lock the slide for any desired stitch width so that the operator need not press against the knee lever continuously when sewing satin-stitch seams with a uniform stitch width throughout. In this way, the Pfaff 238-130 can be used for ordinary zigzag sewing. To this end, an ordinary zigzag foot with a smooth sole is attached to the presser bar.

R 7213

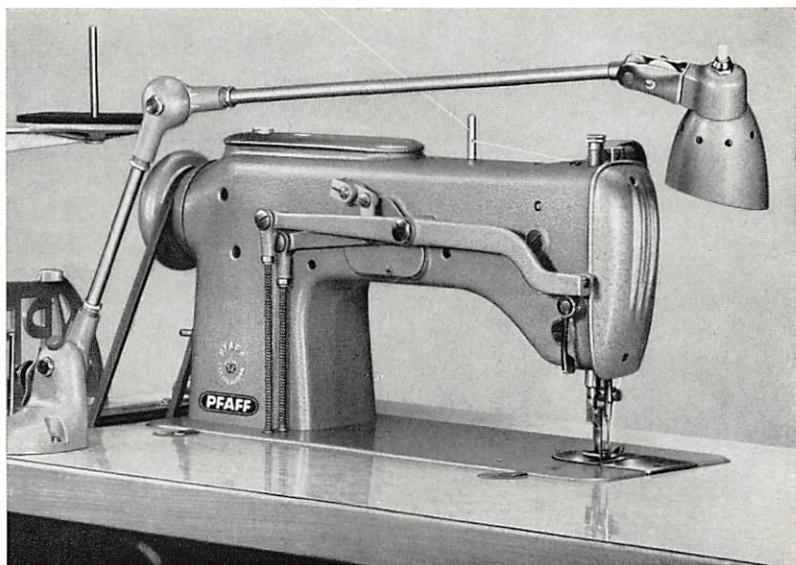


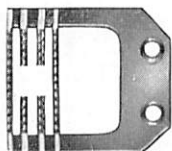
Fig. 24

Satin-stitch seams are made with hinged zigzag foot No. 51355 which has a relieved sole and permits to sew bends without compressing the seam.

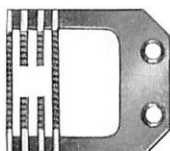
If a more prominent seam is to be produced, we recommend to use sewing foot No. 51353 which has three cord ducts in front of the needle hole.

Interesting effects can be obtained by varying the needle position, i. e. by putting lever **H** in notch I, II or III, so that the needle swings to the right, to the left, or both ways from the middle.

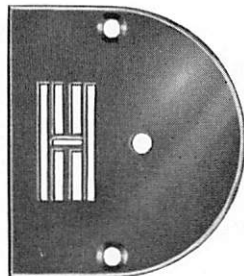
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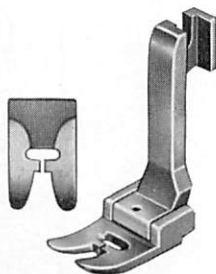
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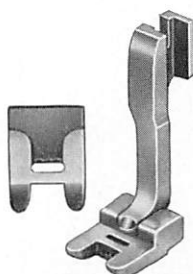
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51355



51353



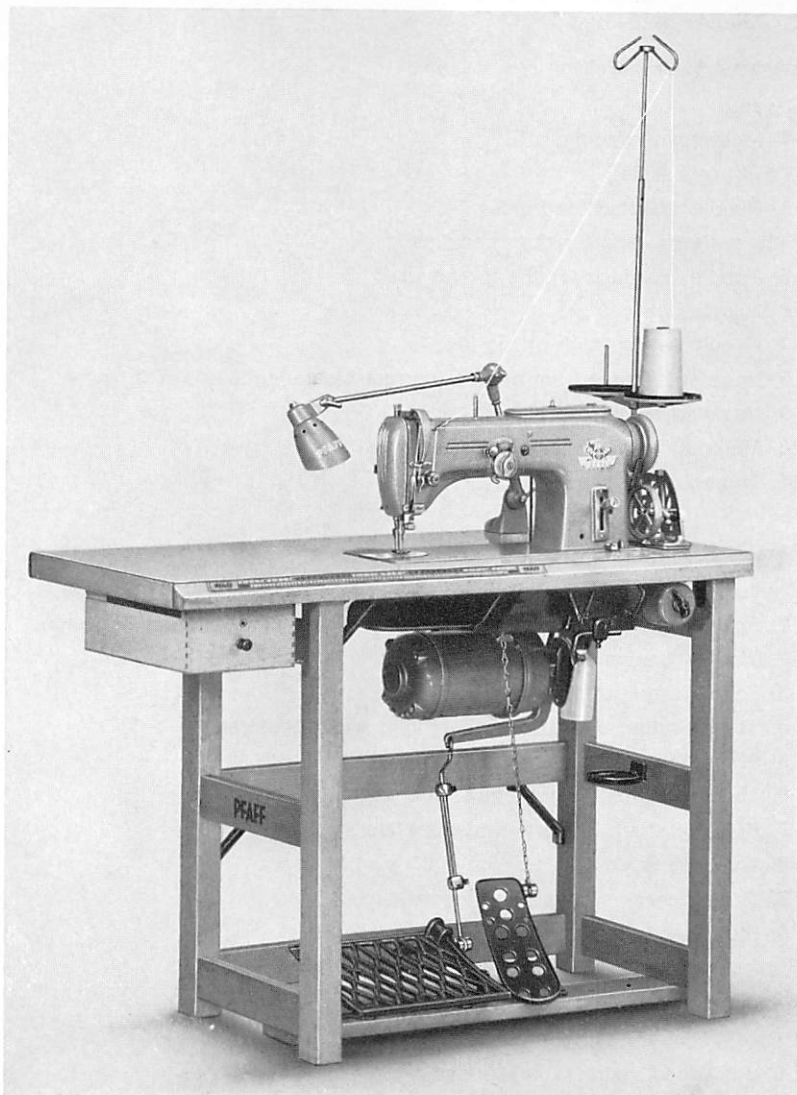


Fig. 25

Pfaff 238-130 mounted on power table fitted with a second treadle for raising the presser bar.

21. Trouble Shooting

Machine Skips Stitches

Cause:

1. Incorrect threading.
2. Wrong needle.
3. Needle inserted incorrectly.
4. Needle too fine for the thread used.
5. Needle too thick for the thread used.
6. Needle bent.
7. Needle set too high or too low.
8. Hook set too far from needle (correct clearance .004", or 0.1 mm).
9. Hook timed incorrectly.
10. Material tacky or heavily dressed.
11. Thread twisted too much.

Thread Breaks

Cause:

1. Any of the above-mentioned conditions may cause thread breakage.
2. Thread tension too tight.
3. Poor or knotty thread used.
4. Thread rotten due to extremely long and dry storage.
5. Poor-quality thread used.
6. Thread jammed in hook race.
7. Burrs or sharp edges on needle plate slot.
8. Thread snarled up on spool pin.
9. Thread check spring timed incorrectly.
10. Blunt needle point.

Needle Breaks

Cause:

1. Bent needle strikes hook point.
2. Thread too heavy for needle used.
3. Hook setting disturbed after thread jamming.
4. Upper tension too tight.
5. Needle deflected by hard spots in material.
6. Needle bent because material is pushed or pulled.
7. Machine feeds while needle is down in material.
8. Hook set too close to needle.
9. Needle too fine for the fabric.
10. Thread snarled up on spool pin.

Machine Feeds Improperly

Cause:

1. Feed dog set too low.
2. Feed teeth too fine for the material.
3. Feed dog unsuitable for the work to be performed.
4. Incorrect pressure on material.
5. Accumulations of packed lint between feed teeth.
6. Blunt feed points.

Overheating

Cause:

1. No oil in reservoir.
2. V-belt too tight, causing excessive pressure on arm shaft bearings.
3. Full weight of motor pulls down V-belt because belt take-up hanger has come loose.

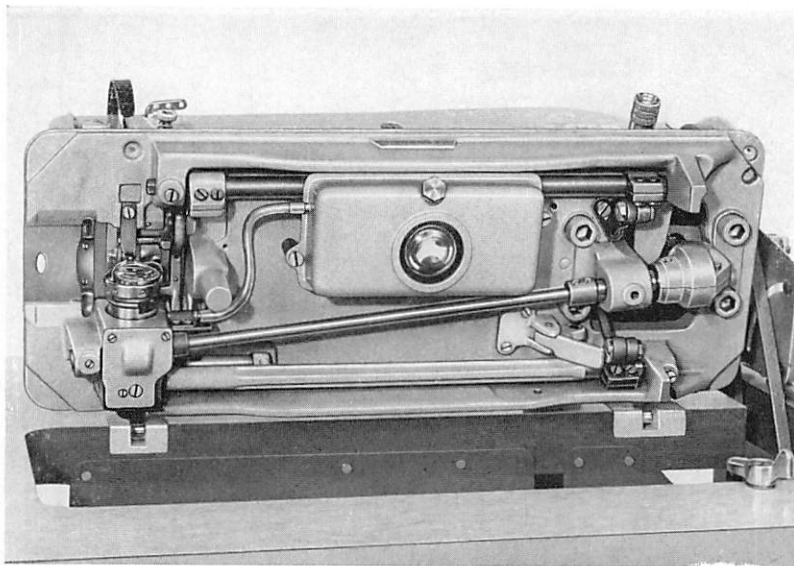
Pfaff 238-0 High-Speed Zigzag Sewing Machine

22. Brief Description of the Pfaff 238-0

With the introduction of its Cl. 238-0, Pfaff has met the demand of the sewing industry for a more efficient high-speed sewing machine. The mechanical setup of the Pfaff 238-0 closely resembles that of the job-proven Pfaff 238, while its sewing speed has been increased from 3,800 to 4,500 s.p.m. through the incorporation of the following improvements:

Maintenance-free anti-friction bearings instead of plain bearings at both ends of the arm shaft, sealed-for-life needle bearings in the take-up lever assembly, wick-lubricated needle bar bushings, and a separate wick and reservoir lubrication system for the sewing hook.

With the exception of Chapter 3, entitled "The Lubrication System", all instructions given for Pfaff 238 apply to the Pfaff 238-0 also.



R 9401

Fig. 26

23. The Lubrication System of the Pfaff 238-0

From the oil reservoir under the top cover of the machine oil is supplied not only to the arm shaft center bearing and the zigzag mechanism in the machine arm, but also to the two needle bar bushings in the needle bar frame. For this purpose, a wick-filled plastic tube has been incorporated which conducts oil from the oil reservoir to both needle bar bushings.

From time to time, check the oil level in the oil sight glass and replenish the oil, if necessary.

The high speed of the machine has made it necessary to incorporate a combination wick and reservoir lubrication system for the transverse rotary hook.

The sewing hook is lubricated from the oil reservoir under the bed plate (Fig. 26). A wick-filled plastic tube conducts oil to the hook saddle whence it flows through a copper tube into the oil retainer ring on the sewing hook. Centrifugal force then flings the oil through an oil duct into the hook raceway.

This reservoir lubrication system minimizes maintenance and ensures that all vital parts are properly lubricated at all times.

The bed plate reservoir holds 5 1/3 fl. oz. of oil which will last for several weeks' lubrication. The oil level can be checked through an oil sight glass on the bottom of the reservoir and the oil be replenished, if necessary. Checking the oil level may be combined with the weekly cleaning of the machine. To top up the oil, you do not lose the gasket.

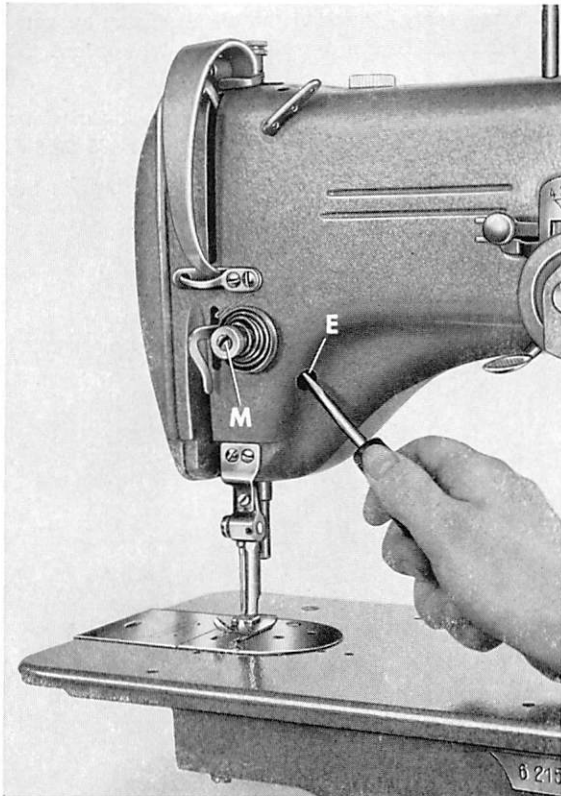
The Pfaff 238-0 uses the same oil as the Pfaff 238, i. e. either ordinary sewing machine oil No. 2801-120122 or a technical white oil having a viscosity of 150R/68°F or 175 S/68°F.

The oiling points which have to be lubricated manually are marked by arrows in the illustrations on pp. 4-8.

Instructions for Mechanics

24. Timing the Thread Check Spring

The functions of the thread check spring are to assist the take-up lever in taking up the balance of the needle thread after the loop has passed around the bobbin, in setting the stitch to the desired tightness, and in controlling the slack of the needle thread from the time the descending take-up lever begins to draw the thread from the spool until the needle reaches the goods.



R 7880

Fig. 27

The downward stroke of the thread check spring is limited by a stop on the tension barrel and can be adjusted by rotating this barrel, as may be required.

To do this, insert a screwdriver into opening **E** (Fig. 27), loosen the tension barrel set screw and, inserting the screwdriver into the slot of tension stud **M**, turn the latter until the tension barrel is in the correct position.

To adjust the thread check spring tension, turn tension stud **M** in the tension barrel. If it should be impossible to turn the tension stud in the tension barrel with the aid of a screwdriver, loosen the tension barrel set screw in opening **E** (Fig. 27), take the tension barrel out of the machine and slightly loosen the set screw at its rear end. After the tension barrel has been replaced in the machine, the stroke of the thread check spring must be readjusted.

R 7887

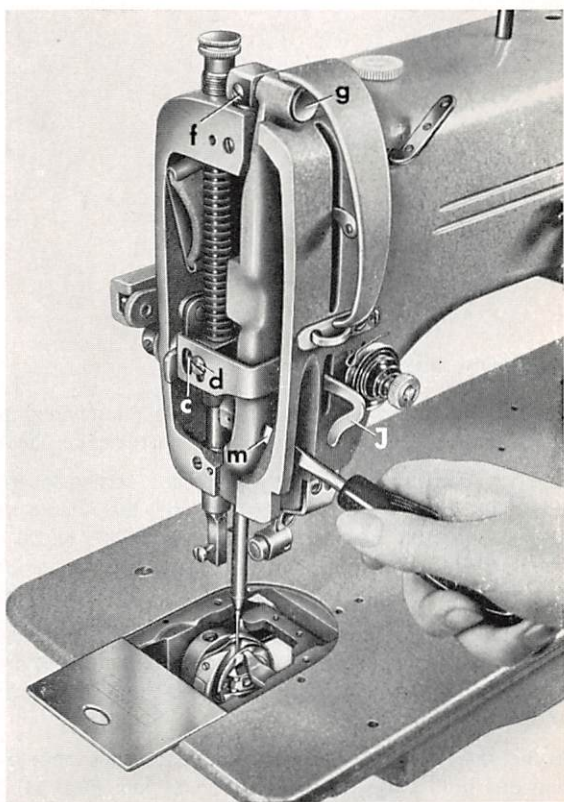


Fig. 28

Thread regulator J (Fig. 28) is mounted on the presser bar guide collar and moves up and down with the presser bar as the sewing foot passes over irregularities in thickness. By so doing, it adapts the thread consumption to the varying thicknesses of the material being sewn. As a result of this action, the check spring has to take up less thread when thicker portions of the material pass under the sewing foot.

Thread regulator J can be adjusted vertically after loosening screw d (Fig. 28). By setting the thread regulator higher or lower the amount of thread to be controlled by the thread check spring can be adjusted within certain limits. It is recommended to correlate the thread regulator and tension barrel settings so that the thread check spring not only takes up the proper amount of thread, but also pulls the thread upwards perpendicularly.

Once you are familiar with the functions performed by both the check spring and the thread regulator, you will be able to make the proper adjustment right away without resorting to trial-and-error methods.

The thread check spring is timed correctly if it is through acting when the needle reaches the goods. Since the take-up lever of the Pfaff 238 makes a rather long stroke, it may be necessary to increase the stroke of the thread check spring somewhat so that it will still exert a slight pull on the thread when the needle enters the material.

25. Timing the Sewing Hook

To time the sewing hook correctly, we recommend that you use a needle rise gauge which can be obtained from us under Order Nos. 880136/01 and 880137/00.

Begin by removing the needle plate and setting lever H in notch II and knob G on "0" (Fig. 20). Rotate the balance wheel until the needle has reached the lowest point of its stroke. Slip both the needle rise gauge (5/64", or 2.0 mm, thick and the clamp onto the needle bar, push the clamp up against the gauge until the latter contacts the needle bar frame, and tighten the clamp screw securely (Fig. 29).

Then pull out the gauge and cautiously turn the balance wheel until the clamp contacts the needle bar frame (Fig. 30). Loosen set screws K and T (Figs. 29 and 30, respectively) and rotate the sewing hook on its shaft until its point is opposite the center line of the needle.

At the same time, set the hook as close to the needle as possible, the proper clearance between both parts being .004", or 0.1 mm (Fig. 31).

R 7888

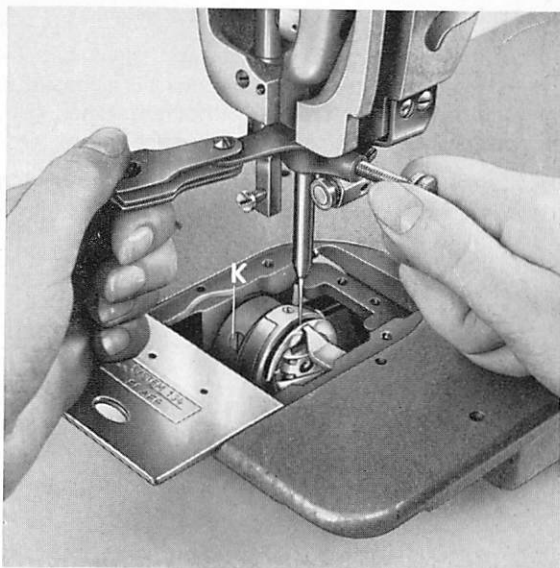


Fig. 29

R 7879

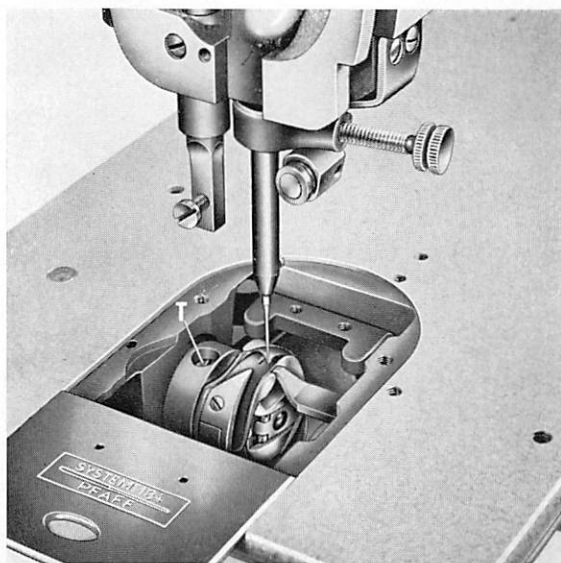
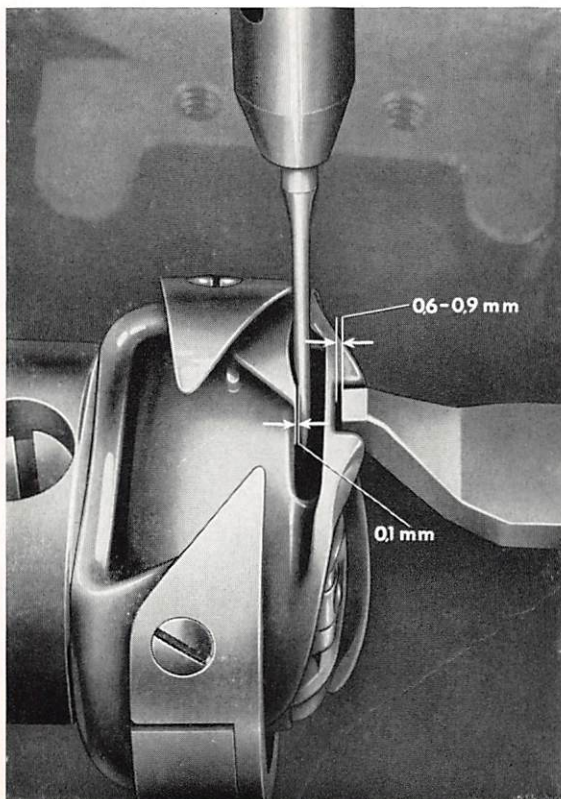


Fig. 30

26. Setting the Needle Bar at Correct Height

To set the needle bar at the correct height, turn knob **G** (Fig. 20) to "4" and rotate the balance wheel until the hook point is opposite the center line of the needle when the latter ascends on the left of its throw. When in this position, the hook point should be positioned .04", or 1.0 mm, above the top of the needle eye (Fig. 31a).

If adjustment is required, loosen set screw **m** (Fig. 28) and set the needle bar higher or lower, as may be required.



R 7881

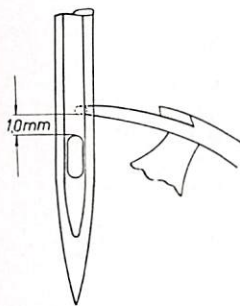


Fig. 31a

Fig. 31

27. Changing the Sewing Hook

1. Remove needle, needle plate, feed dog and bobbin case position finger bracket.
2. Loosen hook set screws **K** and **T** (Figs. 29 and 30).
3. Rotate the balance wheel until the feed bar is at its highest point.
4. Pull the sewing hook off its shaft.
5. With the feed dog set at its highest point, push the new hook onto the hook shaft and replace the bobbin case position finger bracket. As you replace this bracket, make sure there is a clearance of .024 to .036", or 0.6 to 0.9 mm, between the tip of the position finger and the bottom of the position slot in the bobbin case base (Fig. 31).
6. Time the sewing hook as instructed in Chapter 25 and tighten set screws **K** and **T** securely.
7. Replace feed dog and needle plate.

28. Dismantling the Thread Take-up

1. Remove face cover, presser foot (with screw) and needle.
2. Take out pressure regulating screw and remove presser bar spring. Loosen set screw **c** (Fig. 28) and pull the presser bar up out of the machine.
Pull thread regulator **J** (Fig. 28), presser bar guide collar and presser bar lifting bracket back out of the machine.
3. Remove complete needle bar frame assembly so that the height setting of the needle bar will not be disturbed. To do this, loosen set screw **b** (Fig. 36) and remove eccentric stud **a**. Then loosen screw **f** (Fig. 28) and pull out hinge stud **g**. This done, pull the needle bar frame, enclosing the needle bar, forward out of the machine.
4. Take out plastic plug **U** on the back of the machine arm (Fig. 32) and strip the lifting lever assembly.
5. Rotate the balance wheel until take-up crank screw **Q** in the needle bar crank can be reached through the aperture on the back of the machine arm (Fig. 33).
6. Loosen take-up crank screw **Q**.
7. Loosen set screw **P** on take-up link stud (Fig. 33).
8. Place the bar of the pull-off device across the face side of the machine, as shown in Fig. 34. Insert the threaded end of the pull-off device through the hole in the bar, screw it into the hollow hinge stud of the take-up link and, in this way, pull the hinge stud out of its mount. (The pull-off device is available under No. 880141/00 and will be supplied at extra cost.)
9. Cautiously pull out the take-up lever assembly, including the take-up lever link, take-up crank and needle bar connecting link.

R 7885

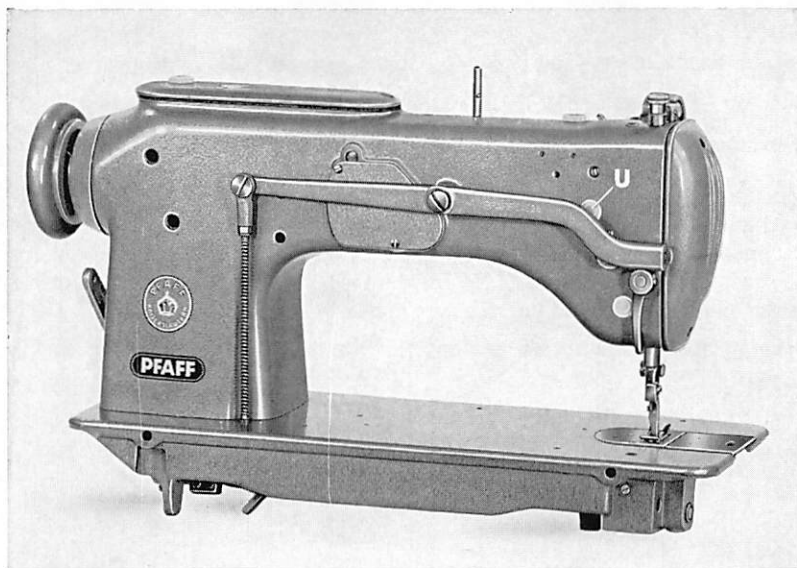


Fig. 32

R 7886

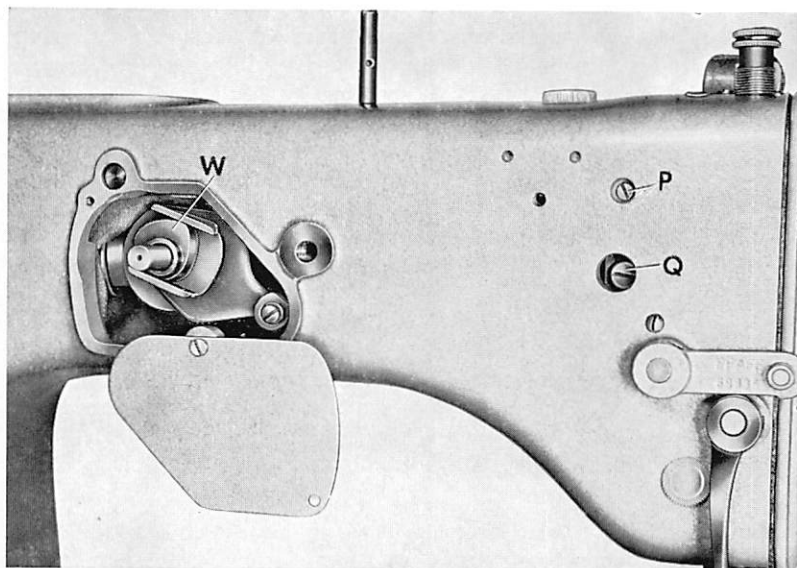


Abb. 32

Do not apply force in removing the take-up lever assembly since all parts are precision-engineered and meticulously fitted. Do not tap these parts out of their mount as this would upset the position of the press-fitted bearing rings.

The boreholes at the lower end of the take-up lever and the upper end of the needle bar connecting link are fitted with super-finished needle bearings.

Note that end screw L (Fig. 34) must be turned right to loosen it because it has left-hand thread.

In stripping the thread take-up and needle bar assemblies care should be taken that none of the 18 tiny needles gets lost which are contained in each bearing. To facilitate insertion of the needles into the bearings, put some grease into the latter and insert the needles singly, using a pair of tweezers.

To replace the thread take-up and needle bar assemblies, reverse the above procedure and proceed with great care.

R 7882

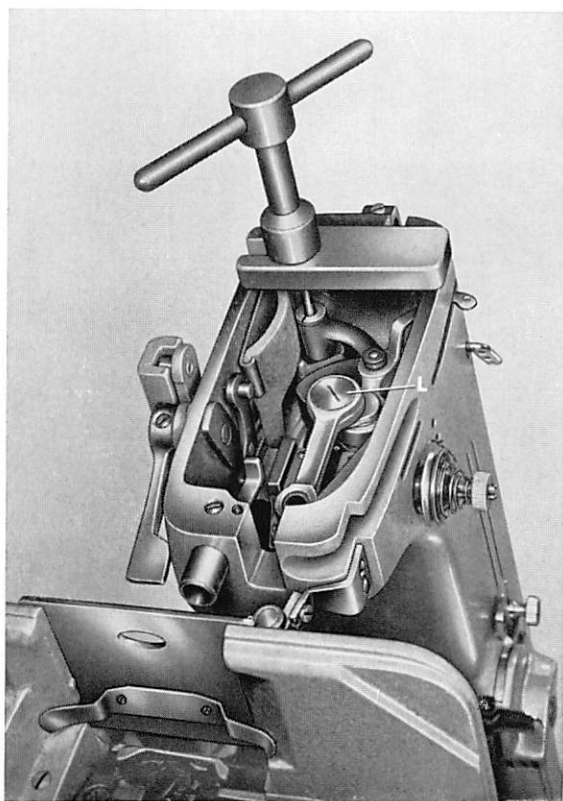


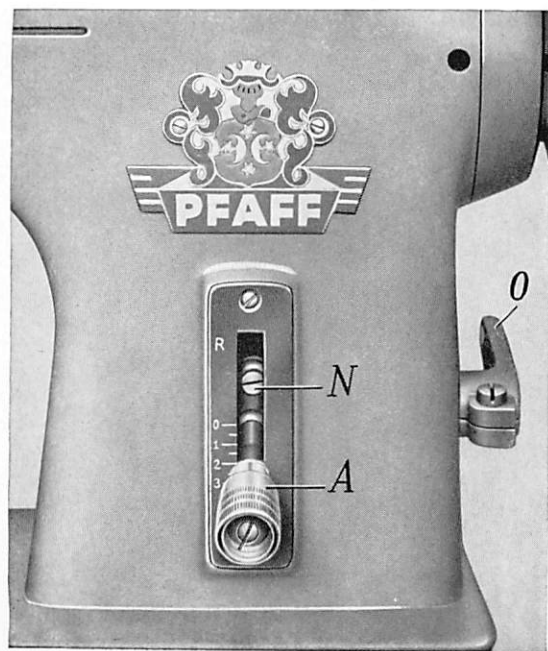
Fig. 34

29. Adjusting the Stitch Length for Forward and Reverse Sewing

Pfaff 238 machines normally are set to make stitches of exactly the same length, regardless whether they sew forward or backward. This feature will be much appreciated because the needle, in backtacking the end of a seam, will stitch into the same holes which were made in forward sewing.

To change the relative stitch lengths in forward and backward sewing, loosen clamping screw **N** in the feed regulator slot (Fig. 35), hold feed regulator lever **A** steady and adjust the length of forward stitches by turning crank **O** on its shaft, as appropriate. Turn crank **O** upwards for longer stitches, or downwards, for shorter stitches.

In this way, the stitch length relationship of forward and backward stitches can be regulated, as desired. After the adjustment, tighten clamping screw **N** securely.



R 5092

Fig. 35

30. Centering the Needle Throw in the Needle Plate Slot

When the machine is set for its widest zigzag stitch, the needle should be centered correctly in the needle plate slot and, descending on the right and left of its throw, should clear both ends of the slot at the same distance. If adjustment is required, loosen pinch screw **b** (Fig. 36) and turn eccentric stud **a** in the needle bar frame pitman to the right or left, as may be required.

R 7884

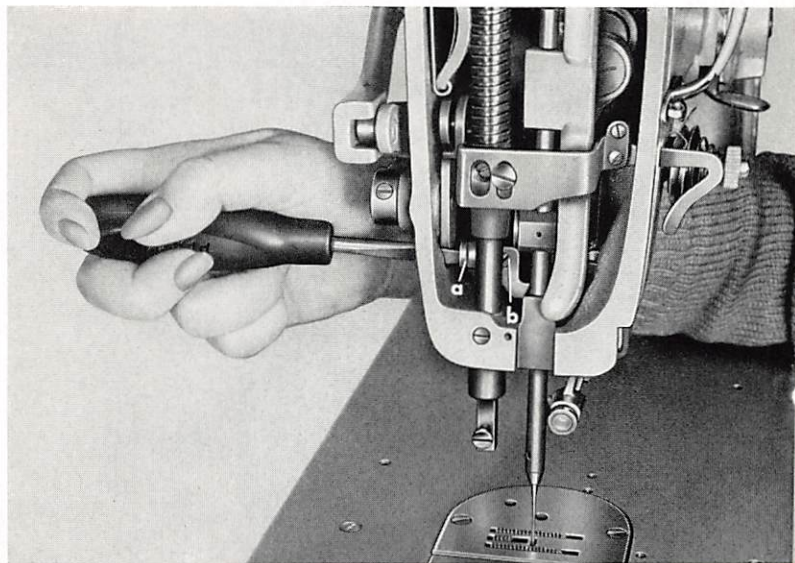


Fig. 36

31. Zeroing the Needle for Straight Stitching

When knob **G** (Fig. 20) is set on "0", the needle bar must not make any sideways motion and the machine should sew a perfectly straight seam. To check this setting, drop the feed dog, place a piece of thin cardboard under the sewing foot and turn knob **G** to "0". Rotate the balance wheel forward, then backward, and let the needle stitch into the cardboard lightly. The needle is zeroed correctly, if both punctures are exactly in the same spot.

If adjustment is required, slightly loosen the set screw on knob **G** (Fig. 20), hold the knob steady and turn the zigzag regulator stud to the right or left, as appropriate. Make sure the zigzag regulator stud has no end play and tighten the set screw securely.

R 7883

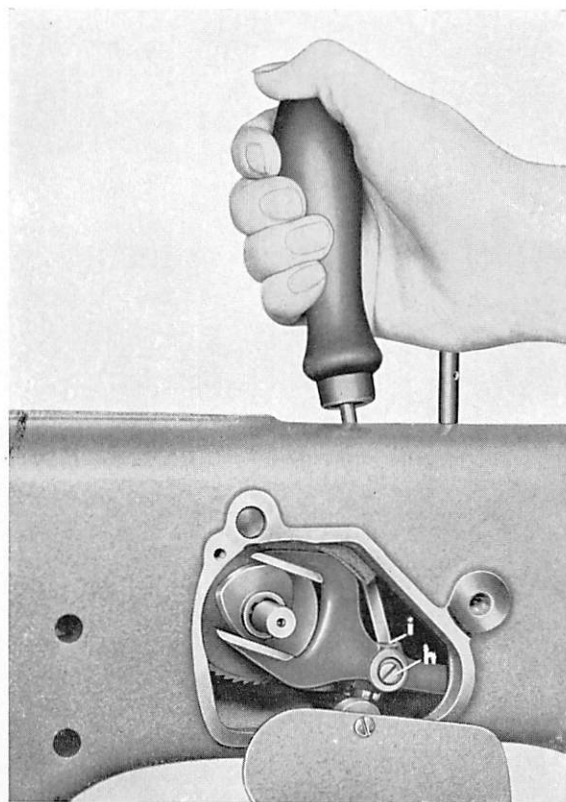


Fig. 37

32. Adjusting the Needle Position

Pfaff 238 machines normally are set to make zigzag stitches which extend the same distance from the zero position both ways (central needle position). To check this setting, set knob **G** on "0" and put lever **H** in notch II (Fig. 20). Place a piece of thin cardboard under the sewing foot and rotate the balance wheel toward you until the needle stitches into the cardboard lightly. Flick knob **G** to "4", rotate the balance wheel forward, then backward, and let the needle, descending on the right and left of its throw, stitch into the cardboard lightly. The setting is correct if the right and left punctures are equidistant from the central puncture.

To adjust, loosen set screw **i** (Fig. 37) and turn eccentric stud **h** to the right or left, as appropriate. Then tighten set screw **i** securely.

R 6686

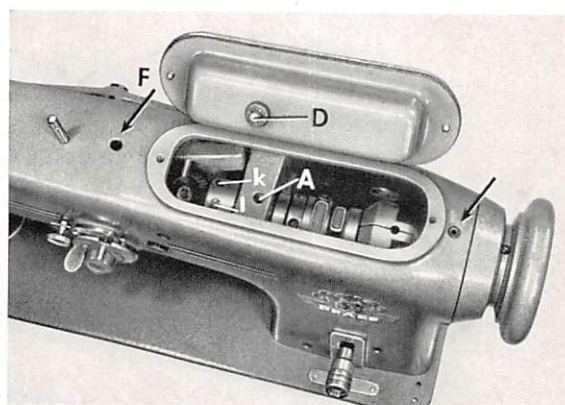


Fig. 38

33. Adjusting the Needle Throw

The sideways motion of the needle bar must be timed correctly in relation to its vertical motion so that the needle will not begin to vibrate until it has risen clear of the goods and will cease vibrating when it again reaches the goods.

To check this setting, flick knob **G** to "4" and watch the needle vibration. If adjustment is required, rotate the bevel gear on the arm shaft, as may be required.

To double-check this setting, raise the needle bar to its highest point and set lever **H** (Fig. 20) in notch II. The setting is correct if the needle bar makes no sideways motion when you turn knob **G** to the right and left.

For a coarse adjustment, rotate the balance wheel until set screw **Q** on the needle bar crank (Fig. 33) is visible in the aperture in the machine arm. Loosen set screws **k** and **i** (Fig. 38) and turn the arm shaft bevel gear until lobe **w** of the needle vibrating eccentric (Fig. 33) points upward. Tighten both set screws securely after the adjustment.

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