

SINGER
247-2 AND 247-3

USE ONLY **SINGER*** OILS and LUBRICANTS

They insure freedom from lubricating trouble and give longer life to sewing equipment

The following are the correct lubricants for this machine:

TYPE B — MANUFACTURING MACHINE OIL, HEAVY GRADE

When a stainless oil is desired, use:

TYPE D — MANUFACTURING MACHINE OIL, STAINLESS, HEAVY GRADE

OTHER **SINGER** LUBRICANTS

TYPE E — STAINLESS THREAD LUBRICANT

For lubricating the needle thread of sewing machines for stitching fabrics or leather where a stainless thread lubricant is required.

TYPE F — MOTOR OIL

For oil lubricated motors and plain bearings in power tables and transmitters.

NOTE: All of the above oils are available in 1 quart, 1 gallon and 5 gallon cans or in 55 gallon drums.

GEAR LUBRICANT

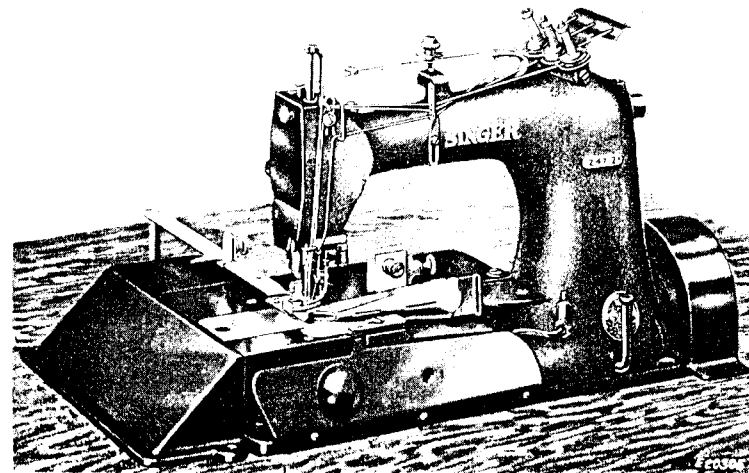
This specially prepared grease is recommended for gear lubrication on manufacturing sewing machines.

BALL BEARING LUBRICANT

This pure grease is specially designed for the lubrication of ball bearings and ball thrust bearings of motors and electric transmitters, ball bearing hangers of power tables, etc. Furnished in 1 lb. and 4 lb. tins.

20457

ADJUSTERS MANUAL FOR **SINGER*** SEWING MACHINES **247-2 and 247-3** AUTOMATIC OILING SYSTEM



CAUTION: Special attention is called to the lubricating instructions on pages 4, 5 and 6

*A TRADE MARK OF

THE SINGER MANUFACTURING COMPANY

TO ALL WHOM IT MAY CONCERN:

The improper placing or renewal of the Trade Mark "SINGER" or any other of the Trade Marks of The Singer Manufacturing Company (all of which are duly Registered Trade Marks) on any machine that has been repaired, rebuilt, reconditioned, or altered in any way whatsoever outside a SINGER factory or an authorized SINGER agency is forbidden.

THE IMPORTANCE OF USING **SINGER*** PARTS AND NEEDLES IN **SINGER** MACHINES

The successful operation of SINGER machines can only be assured if SINGER parts and needles are used. Supplies are available at all SINGER Shops for the Manufacturing Trade, and mail orders will receive prompt attention.

SINGER Needles should be used
in SINGER Machines.
These Needles and their Containers
are marked with the
Company's Trade Mark "SIMANCO.*" 1

Needles in Containers marked
"FOR SINGER MACHINES"
are NOT **SINGER** made needles. 2

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DESCRIPTION

Machine 247-2 is a high speed, two-needle, single looper, drop feed machine producing a top and bottom covering stitch (FST 602), for attaching split tubing and tube borders to the necks and armholes of underwear. It can also be equipped for attaching lace to knit underwear.

The machine is equipped with a gathering feed, automatic thread pull-off and with mechanism for laying the top covering thread.

It has an automatic oiling system with a central reservoir from which, by splash and through tubing, all principal bearings are lubricated. The machine is provided with ball bearings for the balanced arm rotary shaft intermediate and rear bearings.

The machine is furnished in gauges from 1/8 to 1/4 inch, in steps of 1/32 inch.

Maximum stitch length is 8 to the inch.

Needle bar stroke is 1-7/32 inch.

Base is 16-1/2 inches long.

Space at right of needle is 8-1/4 inches.

Unless otherwise ordered, the machine will be fitted for attaching **split tube** borders. The order must so specify when the machine is required for attaching **solid tube** borders. Either of these two sets of fittings is included in the price of the machine. If both sets are ordered, one of these will be furnished at an additional charge.

When the machine is ordered for attaching lace to knit underwear, a lace holder complete will be furnished and included in the price of the machine. If these fittings are ordered in addition to the split tube or tube border equipment, they will be furnished at additional charge.

The machine is furnished with a foot lifter. A knee lifter will be furnished when so ordered.

Machine 247-3 is similar to **Machine 247-2**, except that it has three needles and one looper and produces a top and bottom covering stitch (FST 605) for joining cuff and ankle pieces to knit underwear. It can also be specially fitted for attaching split tube or tube borders to the necks and armholes of underwear, and for attaching lace to knit underwear.

The machine is furnished in gauges of 3/32 inch and 1/8 inch between the center needle and each of the two other needles.

TO SET UP THE MACHINE

When setting up the machines, see that the rubber insulating bushings are in place in the four holes in the machine bed. Place the felt pads over the four studs in the corners of the base, then set the machine on the base, with the studs through the holes in the rubber bushings.

CAUTION: After setting up the machine, do not run it until it has been oiled as instructed on pages 4, 5, and 6.

6. Apply oil at **OO**, Fig. 4, for the needle bar connecting stud, also apply a drop or two of oil at **B6** and **A6**, Fig. 4 where the presser bar

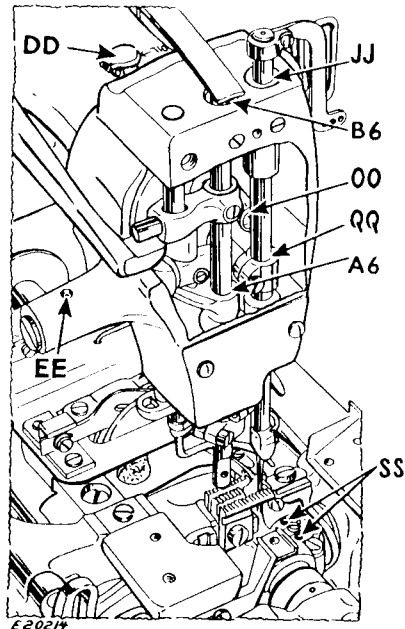


Fig. 4. End View (Face Plate Removed to Show Oiling Points)

passes through its bushings, also at **JJ** and **QQ**, Fig. 4, where the needle bar passes through its bushings.

NOTE—After the machine has been running at a moderate speed for about five minutes, it should be stopped and allowed to stand idle for a few minutes. The oil in the reservoir should then be checked and oil should be added, when necessary, to bring it to the oil level mark, **YY**, Fig. 3.

A machine in daily use must be oiled as follows:

1. Apply oil to the oil filler **AA**, Fig. 2, until the oil stands at the oil level mark **YY**, Fig. 3, when the machine is at rest.
2. Fill the oil cup **DD**, Fig. 2, LEVEL FULL at least twice daily.
3. Apply oil at least twice daily to all oil holes.
4. Remove the face plate and apply oil to the points shown in Fig. 4.

SPECIAL NOTICE

The letter "o" marked on the oil pipe coupling **MM**, Fig. 2, must always be at the top. This is to insure that the oil spoon, attached to the inner end of the coupling, is open side up.

NEEDLES

Needles recommended for Machine 247-2 are of Class and Variety 62x53 in Sizes 9, 11, 12, 13, 14, 16, 17 and 18.

Needles recommended for Machine 247-3 are of Class and Variety 62x53 in Sizes 12, 14, 16, 18, 21, 22 and 23.

The size of the needles to be used is determined by the size of the thread which must pass freely through the needle eye. Rough or uneven thread, or thread which passes with difficulty through the needle eye, will interfere with correct stitching.

Orders for needles must specify the quantity required, the size number, also the class and variety numbers separated by the letter "X."

Following is an example of an intelligible order:

"100 No. 21, 62 x 53 needles"

The best stitching results will be obtained with needles sold by Singer Sewing Machine Company.

TO SET THE NEEDLES

Insert the needles as far as they will go up into the needle clamp, with the single continuous groove of each needle toward the front side of the machine (toward the operator), then securely tighten the set screw for each needle.

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UPPER THREADING OF MACHINE 247-2

See Figs. 5 and 6

Spool A supplies the thread for the right hand needle. Spool B is for the left hand needle. Spool D is for the thread-carrying finger G, Fig. 7.

Spool E is for the looper. See instructions on page 12 for threading the looper.

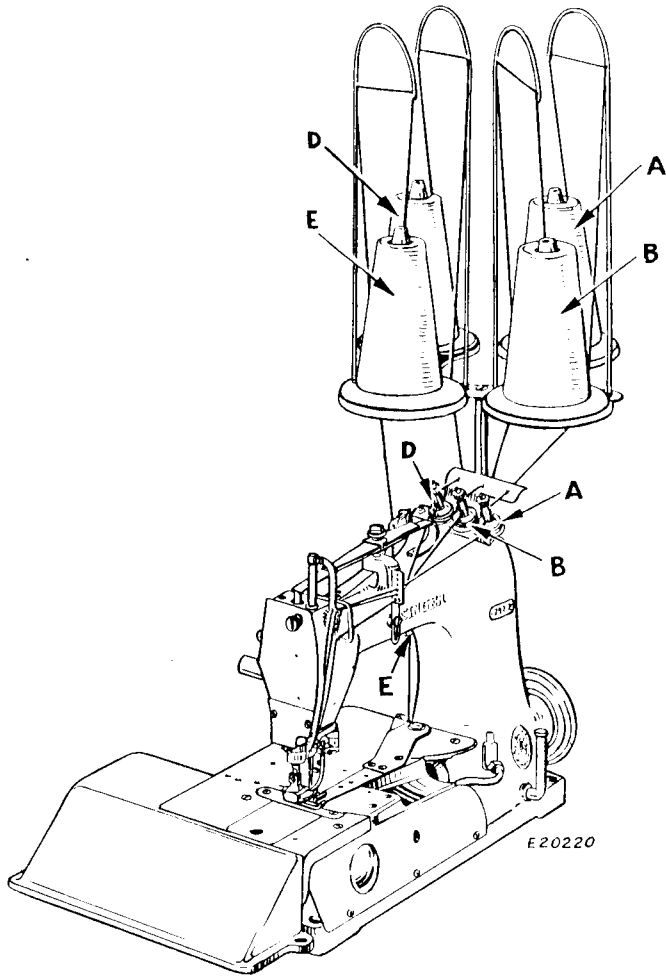


Fig. 5. Threading Unwinder 151037 (Machine 247-2)

The course of each thread is shown in detail in Figs. 5, 6, and 7.

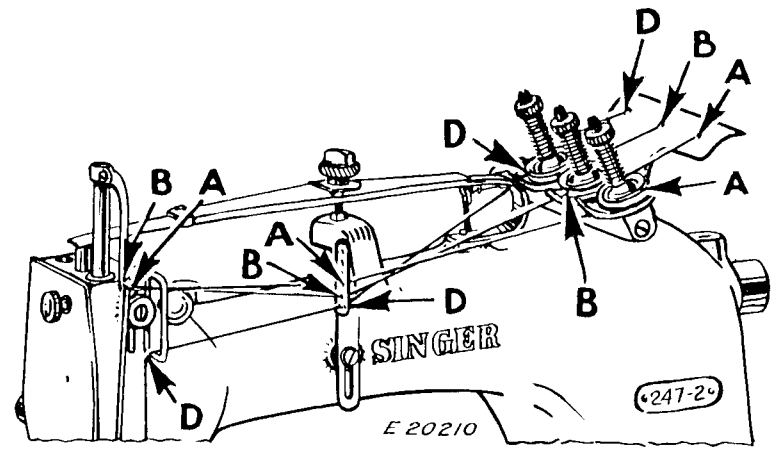


Fig. 6. Upper Threading of Machine 247-2

TO THREAD THE NEEDLES AND THE THREAD-CARRYING FINGER Machine 247-2

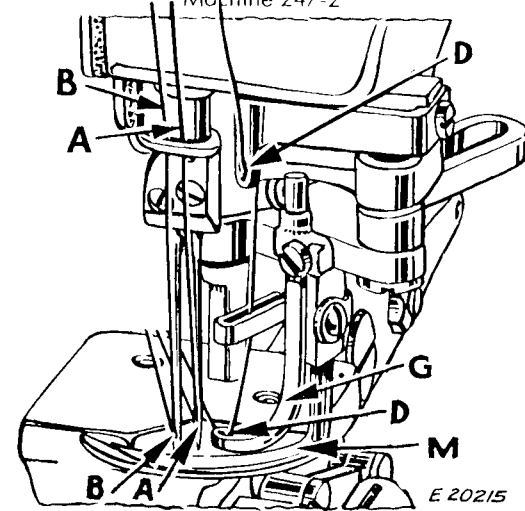


Fig. 7. Threading Needles and Thread-Carrying Finger (Machine 247-2)

NOTE—Draw about two inches of thread through each needle eye and the eye of the thread-carrying finger with which to commence sewing.

UPPER THREADING OF MACHINE 247-3

See Figs. 8 and 9

Spool **A** supplies the thread for the right-hand needle. Spool **B** is for the center needle. Spool **C** is for the left-hand needle. Spool **D** is for the thread-carrying finger **G**, Fig. 10.

Spool **E** is for the looper. See instructions on page 12 for threading the looper.

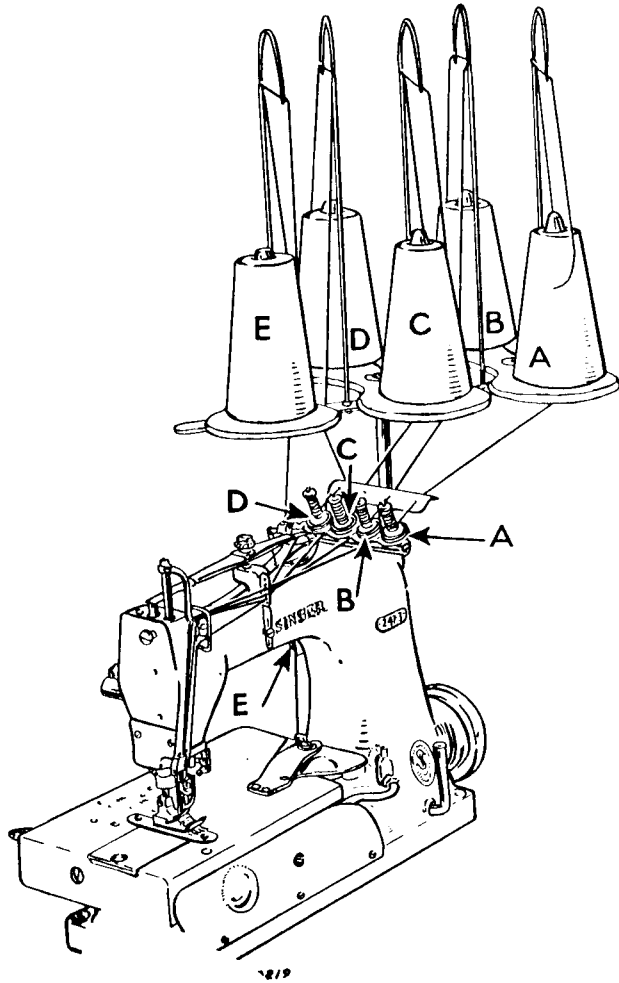


Fig. 8. Threading Unwinder 151093 (Machine 247-3)

The course of each thread is shown in detail in Figs. 8, 9, and 10.

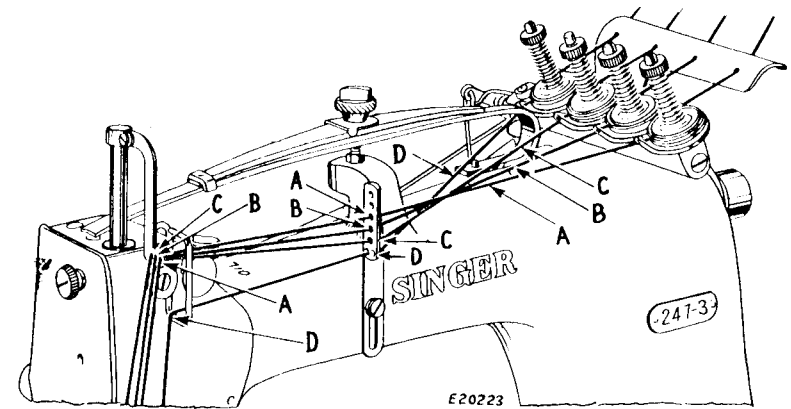


Fig. 9. Upper Threading of Machine 247-3

TO THREAD THE NEEDLES AND THE THREAD-CARRYING FINGER

Machine 247-3

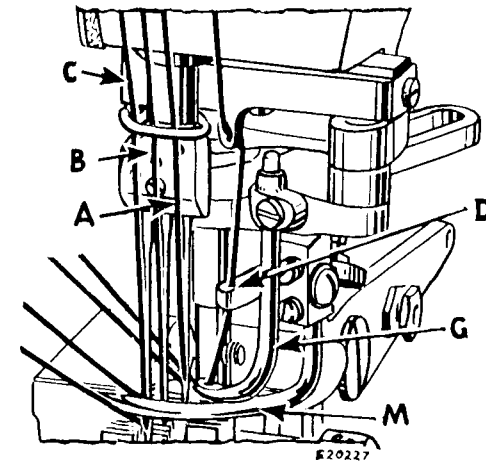


Fig. 10. Threading Needles and Thread-Carrying Finger (Machine 247-3)

NOTE—Draw about two inches of thread through each needle eye and the eye of the thread-carrying finger with which to commence sewing.

TO THREAD THE LOOPER

See Figs. 11 and 12

Pass the thread from the spool E, Fig. 5, on the unwinder through the front hole 1 of lifting lever W, Fig. 11, at the back of the machine, down through the hole 2 in the tension bracket at the bottom of the arm, over

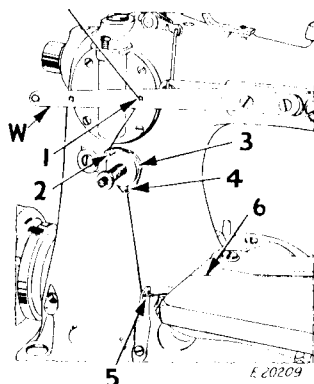


Fig. 11. Threading the Loper—Rear View

between the tension discs 3, through the hole 4, in the tension bracket, then down and forward through the inside thread eyelet 5, then forward through the slot 6, in the work plate, through the guides 7, through the slot 8, Fig. 12, in the nipper. Pass the thread through the guide 9, through

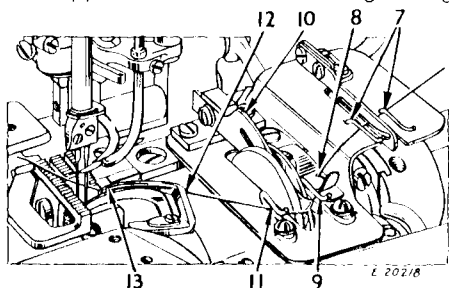


Fig. 12. Threading the Loper—Front View

under-thread take-up 10, and through guide 11, through the heel 12, of the looper, and from front to back through eye 13, of the looper.

Draw about two inches of thread through the eye of the looper with which to commence sewing.

CAUTION—Before commencing to sew, hold the covering thread D, Figs. 7 and 10 to the left of the presser foot and toward the rear side of the machine for the first few stitches to insure that the thread-laying finger M, Figs. 7 and 10 catches the covering thread.

TO REGULATE NEEDLE THREAD TENSIONS

See Fig. 13

Tension should be just enough to set the stitches properly in the goods.

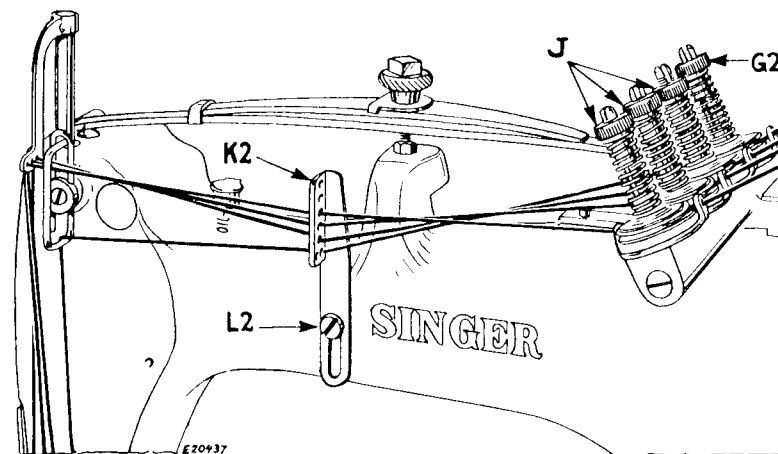


Fig. 13. To Regulate Needle Thread Tensions and Tension on Covering Thread

Turn thumb nuts J, downward to increase the tensions or upward to decrease the tensions on the needle threads.

TO REGULATE TENSION ON THE COVERING THREAD

See Fig. 14

Tension on the covering thread is regulated by loosening screw H2, and setting the controller J2 forward (toward the operator), or backward (away from the operator). When adjustment is completed, tighten screw H2. This adjustment is accomplished in conjunction with tension regulation by means of thumb nut G2, Fig. 13. Turn this thumb nut downward for more tension, or upward for less tension on the covering thread.

The tension on the covering thread should only be sufficient to cause this thread to lay flat on the upper surface of the work.

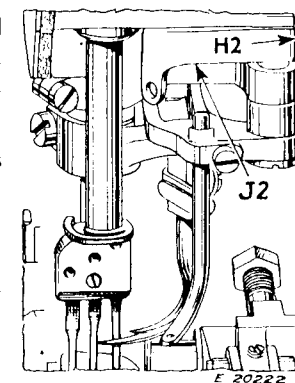


Fig. 14. To Regulate Covering Thread Tension

TO ADJUST THREAD SEPARATOR

See Fig. 13

After loosening screw L2, the thread separator K2 is adjustable upward or downward to obtain the best results with various kinds and thicknesses of thread. Tighten screw L2 after this adjustment has been completed.

TO REGULATE LOOPER THREAD TENSION

See Fig. 15

To increase the tension on the looper thread, turn the thumb nut **M2**,

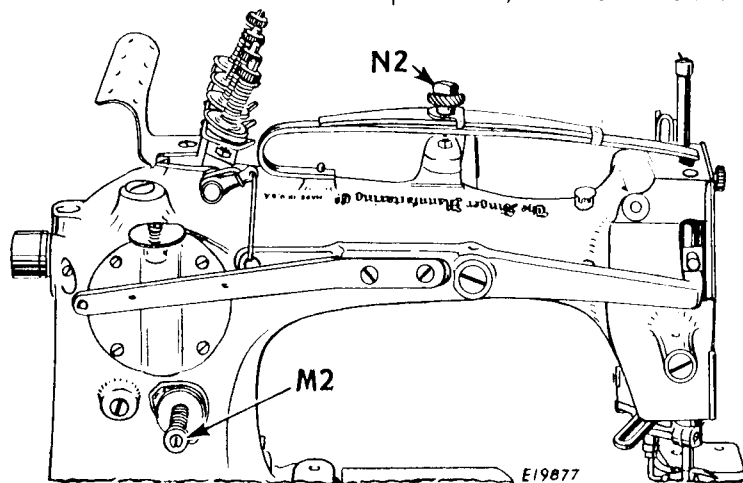


Fig. 15. To Regulate Looper Thread Tension and To Regulate Pressure on the Material

at the rear side of the machine, inward, or for less tension on the looper thread turn this thumb nut outward.

TO REGULATE THE PRESSURE ON THE MATERIAL

Turn the thumb nut **N2**, Fig. 15, downward for more pressure, or upward for less pressure on the material.

TO REGULATE PRESSER FOOT LOCK-SPRING FOR SPLIT TUBING

See Fig. 16

The small lock-spring **F** at the top left side of the hinged presser foot, with which the machine is equipped when used for attaching split tubing, can be moved forward to engage the hinged portion of the foot, when additional tension is required for gathering. To release this tension, move the spring **F** all the way back as shown in Fig. 16. When the machine is used for attaching closed tubing, this type of foot is not used.

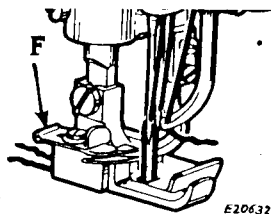


Fig. 16. Presser Foot Lock-Spring

TO ADJUST THE FOLDER (TRANSVERSE BINDER) FOR SPLIT TUBING

See Fig. 17

The transverse binder is attached to the adjusting device **K** by means of the thumb screw **L**. To adjust, turn the thumb screw **H**, inward or outward, as required, to set the stitch properly in both the split tubing and the material to which the split tubing is being attached.

NOTE—The edge of the split tubing should be from midway between the two rows of stitching, close to—but not actually touching—the left hand row of stitching, according to requirements.

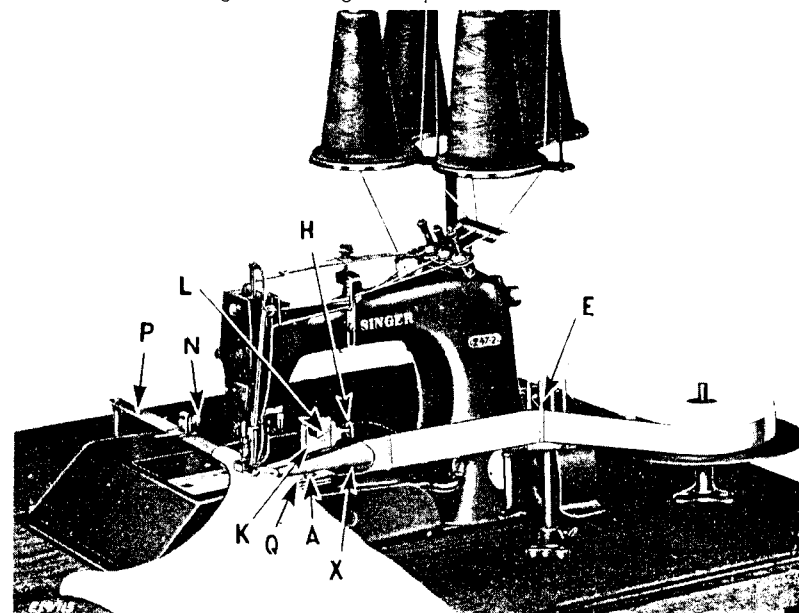


Fig. 17. Machine Equipped For Attaching Split Tubing

The split tubing is taken from the holder at the rear of the machine and passed through the upright guide **E** mounted on the table, then to the left and through the folder (transverse binder) where it joins the material to which it is to be attached.

The graduated strip gauge **P** is adjustable by means of thumb screw **N** to hold the shoulder straps at a predetermined length.

Edge guide **Q** is adjustable to right or left, by means of the thumb screw at **A**, for the purpose of inserting the material to the desired depth into the split tubing.

TO ADJUST THE EQUIPMENT FOR ATTACHING TUBE BORDERS TO NECKS AND ARMHOLE OF UNDERWEAR

See Fig. 18

The tubing is taken from the tubing holder, down through the guide O and then down to the presser foot where it joins the material to which it is to be attached, and the shoulder strap lengths are produced in the same manner as the split tubing shoulder straps, as illustrated and described on the page immediately preceding.

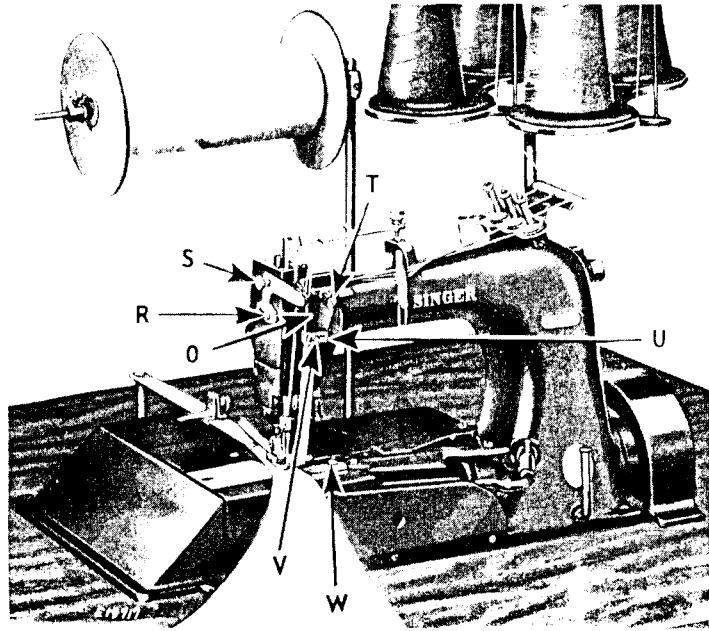


Fig. 18. Machine Equipped for Attaching Tube Borders

The guide is adjustable to right or left after loosening the screw at the rear side of this guide. It is also adjustable up or down, by means of thumb screw S and the screw R. The tension on the tubing, as it passes through guide O, is regulated by means of thumb screw T. Auxiliary guide U is independently adjustable to right or left to accommodate various widths of tubing, after loosening clamping screw V. The edge guide, shown above, is adjustable to right or left, by means of thumb screw W, to regulate extent to which tubing overlaps edge of garment. This edge guide can be thrown out of use, for finishing operation.

INSTRUCTIONS

FOR

ADJUSTERS and MECHANICS

TO SET THE LOOPER WITH RELATION TO THE RIGHT HAND NEEDLE

When the needle bar is at its lowest position and the looper has reached its farthest-back position, the point of the looper K, Fig. 19, should be from 5/32 to 3/16 inch from the center of the right hand needle, as shown in Fig. 19.

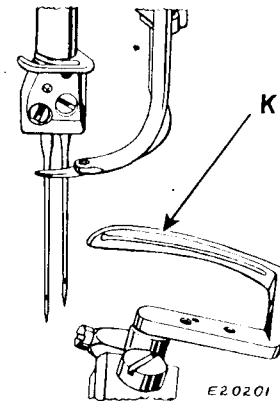


Fig. 19. Setting Looper with Relation to Right Hand Needle

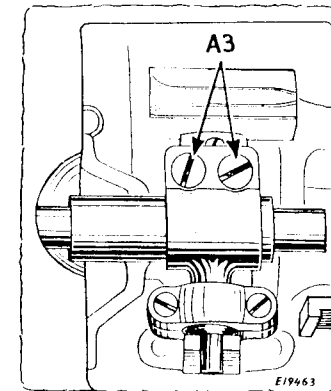


Fig. 20

To make this adjustment, loosen the two screws A3, Fig. 20, in the looper carrier, accessible through the under side of the machine bed, and move the looper holder bracket as required, then tighten the two screws A3; then set the needle bar as instructed on the following page.

TO SET THE NEEDLE BAR AT CORRECT HEIGHT

Turn the balance wheel over from you until the eye of the looper **K**, reaches the center of the left-hand needle on the loop-taking stroke of the looper, as shown in Fig. 22. With looper in this position, eye of left-hand needle and eye of looper should be in alignment.

If the eye of the looper and the eye of the left-hand needle are not in alignment, as stated, loosen set screw **B3**, Fig. 21, in the needle bar connecting stud, and move the needle bar up or down as required, then securely tighten screw **B3**. Next regulate the amount of needle-avoiding motion of the looper as instructed below.

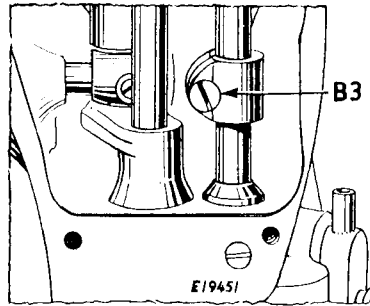
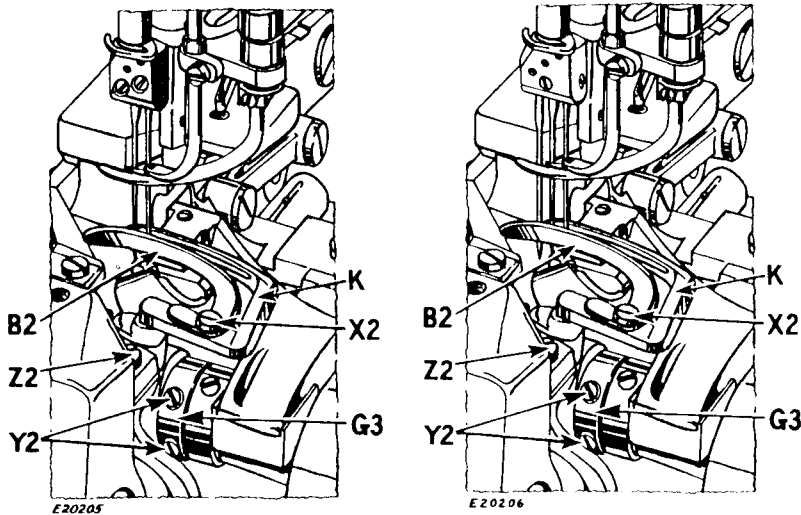


Fig. 21. Setting Needle Bar

TO REGULATE THE AMOUNT OF NEEDLE-AVOIDING MOTION OF THE LOOPER

See Fig. 22

The extent of the sidewise movement of the looper is regulated by means of the eccentric **G3**.



Machine 247-2

Fig. 22. To Regulate Needle-Avoiding Motion of Looper

The needle-avoiding motion of the looper should be regulated so that the looper will pass as close as possible to the needles without actually touching them.

To adjust, loosen the three set screws **Y2**, only two of which are visible in Fig. 22, and turn the eccentric **G3** until the required amount of needle-avoiding motion has been obtained, then securely tighten the three set screws **Y2**.

NOTE—This adjustment will impart the required motion to the looper, but it is also necessary to center this movement with regard to the needles, by moving the looper holder inward or outward after loosening the screw **Z2**. When the looper-avoiding motion has been correctly centered, securely tighten screw **Z2**.

Next set the looper needle-guard with relation to the needles, as instructed below.

TO SET THE LOOPER NEEDLE-GUARD WITH RELATION TO THE NEEDLES

See Fig. 22

With the looper and the needle bar properly set as instructed on pages 17 and 18, turn the balance wheel over from you until the tip of the looper needle-guard just passes the left-hand needle on the upward stroke of the needle bar. The looper needle guard should pass the needles as closely as possible without touching the needles at any time during its motion. If this is not the case, loosen the screw **X2**, and move this guard forward or backward until the correct position is obtained, then securely tighten the screw **X2**.

TO CHANGE STITCH LENGTH

See Fig. 23

Loosen the two clamping screws **O2** in the feed eccentric on the rotary shaft, and, to increase the length of stitch, turn the regulating screw **P2**

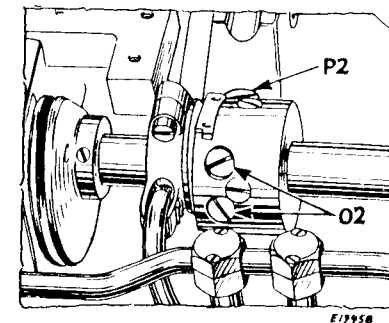


Fig. 23. To Change Stitch Length

counter-clockwise (outward), or turn the regulating screw **P2** clockwise (inward) to shorten stitch length, then securely tighten the two clamping screws **O2**. Then set the needle guard as instructed on the following page.

TO SET THE MOVABLE NEEDLE GUARD

See Fig. 24

The function of the movable needle guard **Q4** is to prevent the needles from springing into the path of the looper when the looper is on its forward stroke.

Needle guard **Q4** is adjustable up or down and forward or backward.

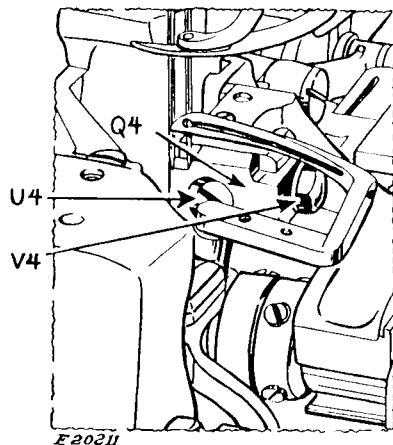


Fig. 24. Setting the Needle Guard

To adjust up or down, loosen screw **U4** and set the guard at the required height, then securely tighten screw **U4**. For forward or backward adjustment, loosen hexagon screw **V4**. This guard should be set as close as possible to the needles without actually touching them. When this adjustment is completed, firmly tighten screw **V4**.

NOTE—These adjustments must be made whenever stitch length has been changed, as instructed on page 19.

TO SET THE NEEDLE THREAD TAKE-UP

See Fig. 25

With the needle bar at its lowest position, the needle thread take-up **T2** is normally set about 1/4 inch from the top of the needle bar bushing, as indicated in Fig. 25. This setting may be varied to suit sewing condi-

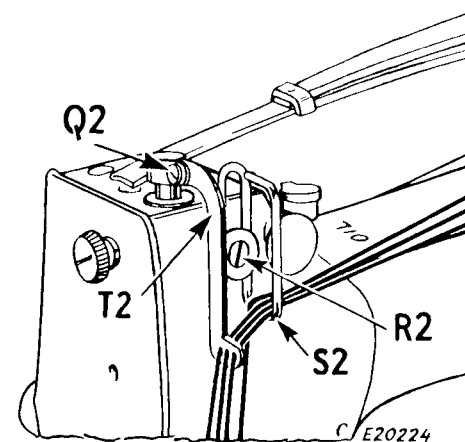


Fig. 25. Setting Needle Thread Take-up and Adjusting Auxiliary Thread Take-up

tions. To adjust, loosen clamp screw **Q2** and set take-up as required, making certain that it parallels face plate of machine, then tighten screw **Q2**.

TO ADJUST AUXILIARY THREAD TAKE-UP

See Fig. 25

The auxiliary thread take-up **S2** should be set to take up the slack of the needle threads after the looper has shed the needle loops and as the needle bar finishes its downward stroke and the stitches are set. To change position of auxiliary thread take-up, loosen screw **R2** and raise or lower auxiliary thread take-up as required, then tighten screw **R2**.

NOTE—For some threads it will be necessary to set the auxiliary thread take-up at a height different from that required by others, owing to the differences in finish, twist, elasticity, etc.

TO ADJUST THE THREAD TENSION RELEASER

See Fig. 26

The thread tension releaser must release tension on the needle threads and the covering thread when the presser foot is raised.

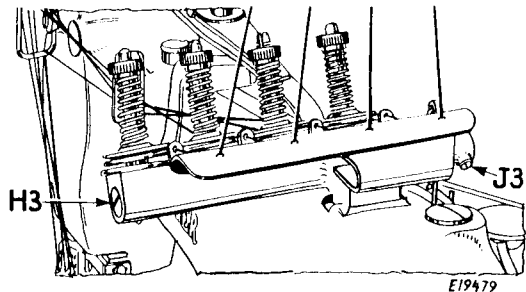


Fig. 26. Adjust Thread Tension Releaser

In case the tension releaser does not properly release the threads, loosen the set screw J3 and turn the shaft H3 over to the left until correct adjustment is obtained, then securely tighten set screw J3.

TO REGULATE HEIGHT OF PRESSER BAR LIFT

When the presser foot is raised to its highest position, the top of the presser bar lifting bracket D3, Fig. 27, should be stopped against the lower end of the presser bar bushing when the top surface of the presser

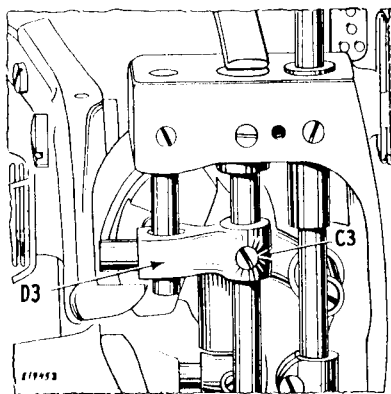


Fig. 27. To Regulate Height of Presser Bar Lift

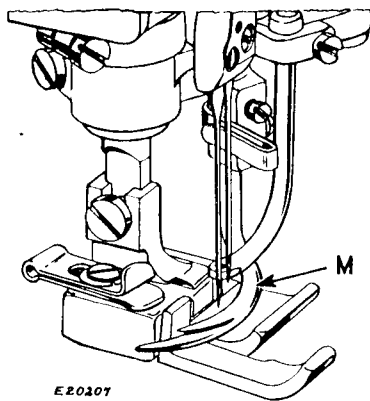


Fig. 28

foot is just below the thread-laying finger M, as shown in Fig. 28, to prevent the presser foot from striking and damaging the thread-laying finger.

To adjust, loosen set screw C3, Fig. 27, and move the bracket up or down to produce the correct presser bar lift, then tighten set screw C3.

TO SET THE FEED DOG AT CORRECT HEIGHT

See Fig. 29

When the feed dog is at its highest position, approximately the full depth of the feed dog teeth should project through the slots in the throat plate. The height of the feed dog is determined by the stop screw N3, which, with the feed dog removed, may be turned up or down as required. The feed dog should always rest upon the stop screw N3.

TO SET THE FEED DOG AND THE GATHERING FEED WITH RELATION TO THE SLOTS IN THE THROAT PLATE

See Fig. 29

To Centralize the Feed Dog and the Gathering Feed in the Throat Plate Slots, first release the actuating lever V2. Then the rear feed will not function as a gathering feed, but will function as a feeding unit. The feeding action of this unit must then be equi-distant from both ends of the slots. To adjust, loosen clamping screw X3 and turn the eccentric hinge pin M3 until the feeding action is centralized as stated above, then securely tighten clamping screw X3.

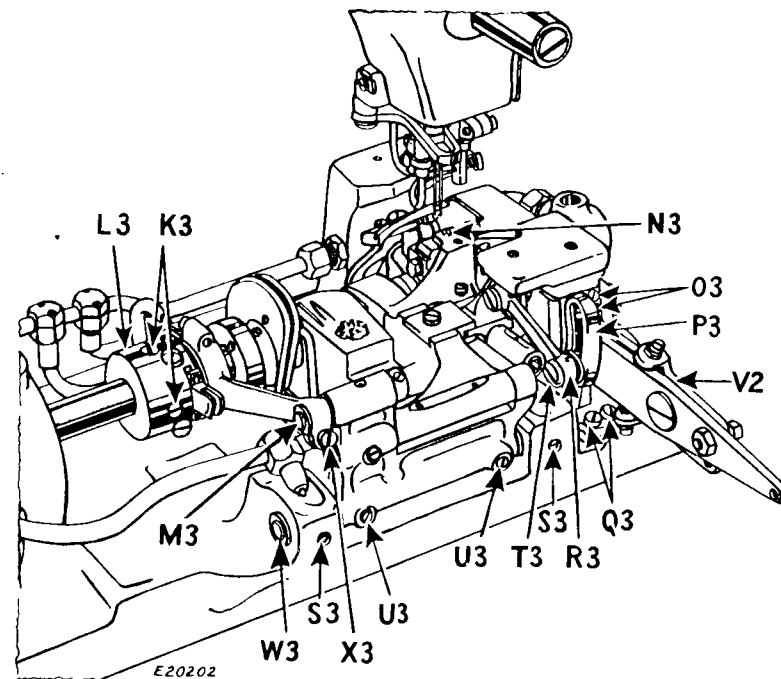


Fig. 29. Centralizing and Aligning Feed Dog and Gathering Feed, also Setting Feed Dog at Correct Height

In addition to centralizing the feed dog and gathering feed, together, as stated, the gathering feed must be centralized separately (when it functions as a gathering feed) between the feed dog and the front end of the feed dog slots on the throat plate.

If adjustment is necessary, take out the two screws **O3**, only one of which is visible in **Fig. 29**—and remove the feed regulating bracket and lever **V2**. Loosen the two clamping screws **Q3** and move the gathering feed regulator **P3** backward or forward until the action of the gathering feed is central between the feed dog and the end of the feed dog slot, after which securely tighten the two clamping screws **Q3** and replace the feed regulator bracket and lever **V2**, making certain that the tension spring (not shown in **Fig. 29**) is attached to the stud at the inner end of the feed regulating lever **V2**, and to the stud in the machine bed.

To Align the Feed Dog and Gathering Feed in the Throat Plate Slots, loosen the three screws **K3**, two of which are visible in **Fig. 29**; remove the feed regulating bracket and lever **V2**, as instructed above, and remove the gathering feed regulator screw stud **T3**; loosen the two screws **U3** in the feed rocking frame. Loosen the two bushing set screws **S3** and move the two bushings to right or left as required.

CAUTION—These two bushings for the shaft **W3** must be set to eliminate unnecessary end play for the feed rocking frame, but should not be set close enough to interfere with the free movement of the feed rocking frame.

When replacing, make certain that the two screws **U3** engage the flats on the shaft **W3**; when connecting the gathering feed crank with the regulator **P3**, be sure to have the washer **R3** in place as shown in **Fig. 29**; also make sure that the tension spring connects the inner end of the regulating lever **V2** to the machine, as instructed above. Also, if the feed eccentric **L3** was disturbed during the foregoing adjustments, re-time the feed, as instructed on page 26.

TO ADJUST THE GATHERING FEED CONTROL

See Fig. 30

The adjustable gathering feed is controlled by means of the actuating lever **V2** which is operated by either foot control or knee control.

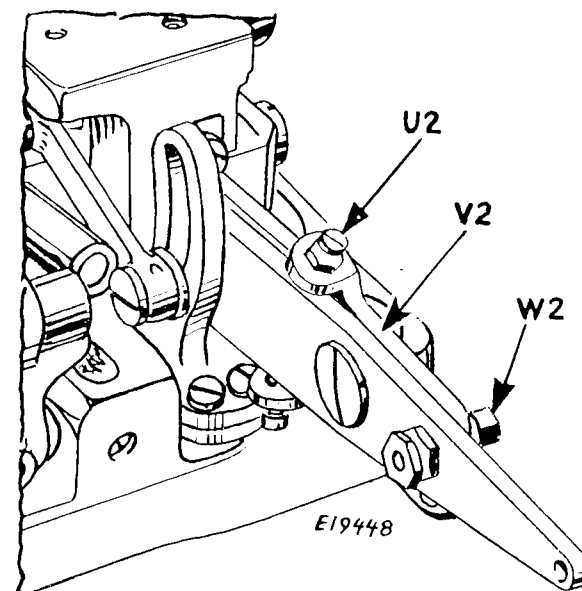


Fig. 30. Gathering Feed Control

The extent of gathering feed action is limited by setting the stop screw **U2**. The gathering feed mechanism can be locked for continuous gathering by means of the screw **W2**.

TO TIME THE LOOPER THREAD NIPPER

See Fig. 31

The function of the looper thread nipper **Y** is to prevent the take-up **K4** pulling the thread from the supply instead of taking up the slack from the looper.

The nipper cam **Z** should be designed to close the nipper **Y** just after the flat portion of the take-up **K4** reaches the thread between the take-up eyelets **E3**. The nipper cam **Z** can be timed after loosening the set screw **F2** which holds it in position on the rotary shaft.

TO ADJUST THE LOOPER THREAD TAKE-UP GUIDES

See Fig. 31

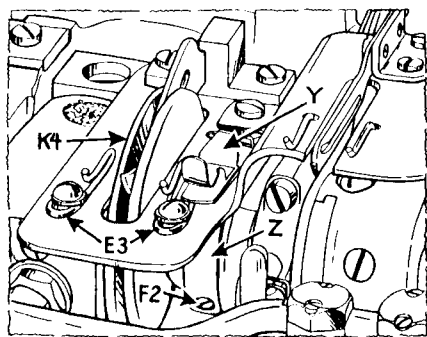


Fig. 31. Adjust Looper Thread Take-Up Guides

The looper thread take-up guides are adjustable to produce the best results with the kind of thread being used in the looper, the positions of these guides depending upon the character of the thread being used.

To adjust, loosen the screws E3, move the guides required, then securely tighten screws E3.

TO TIME THE FEED

See Fig. 32

For correct timing of the feed, the first two of the three set screws K3 (two of which are shown) in the feed eccentric L3, must be tightened against the two flats on the rotary shaft. The first of these three screws is the one nearest the stitch regulator screw P2; the second being the one which follows the first when the balance wheel is turned over from the operator. After tightening these two screws against their flats, tighten the third screw against the shaft. Then time the under thread take-up, as instructed on page 27.

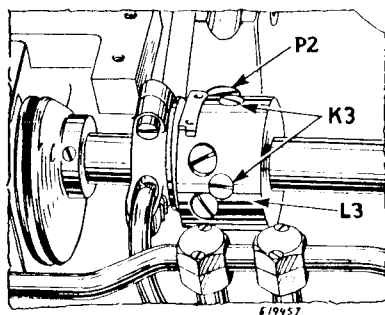


Fig. 32. Timing the Feed

TO TIME THE LOOPER THREAD TAKE-UP

See Figs. 33 and 34

The looper thread take-up K4 must contact the threads just as the looper is commencing its backward stroke, or loop-shedding motion, as shown in Fig. 33, and keep the threads taut until the points of the needles,

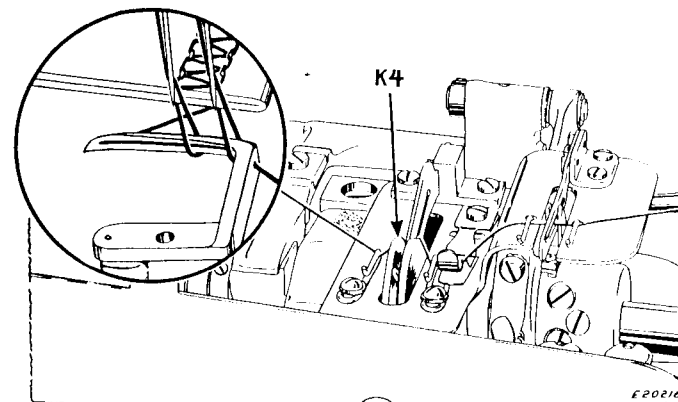


Fig. 33. Timing Looper Thread Take-Up

on their downward stroke, have entered triangles formed by looper blade, looper thread and needle loops, as shown in Fig. 34.

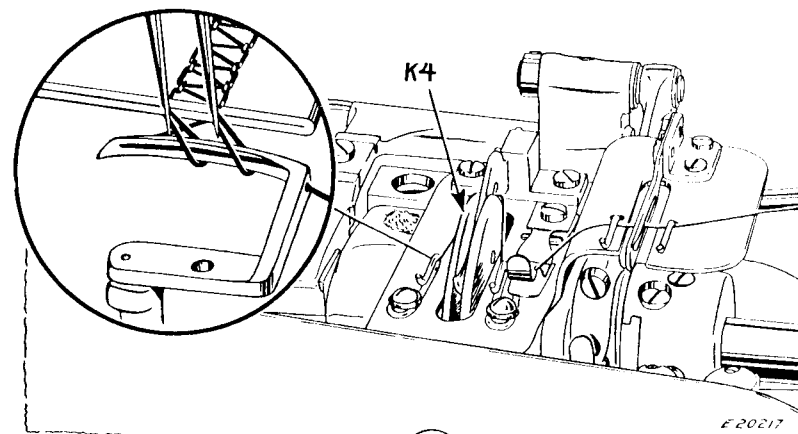


Fig. 34. Timing Looper Thread Take-Up

To adjust, loosen the set screw in the hub of the looper thread take-up K4 and set the take-up in correct position on the rotary shaft. Then securely tighten the set screw.

TO ADJUST THE THREAD-CARRYING FINGER

See Figs. 35 and 36

The movement of the thread-carrying finger holder slide block **C4**, Fig. 35, in the slideway of the bracket **B4** should be equi-distant from both ends of the slideway. This will provide the proper movement of the thread-carrying finger **G**, Fig. 36, above the thread-laying finger **M**, during operation.

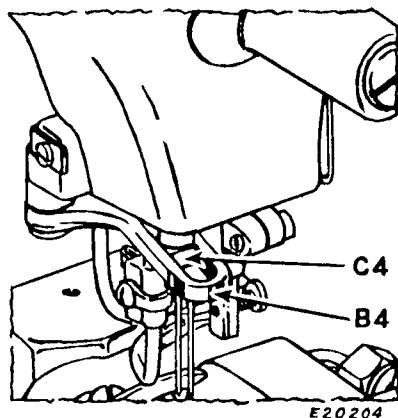


Fig. 35. Adjusting Thread-Carrying Finger

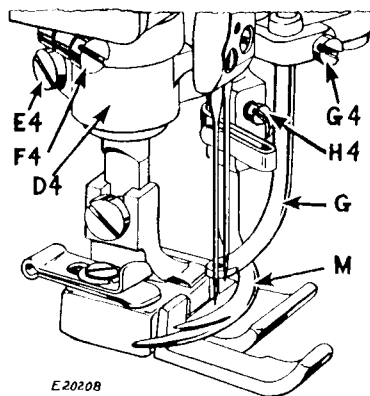


Fig. 36. Adjusting Thread-Carrying Finger and Thread Laying Finger

To obtain this setting, loosen clamping screw **F4**, Fig. 36, in the slide block crank and set, as instructed above, then securely tighten clamping screw **F4**.

To adjust the thread-carrying finger **G** for height, loosen clamping screw **G4**, Fig. 36. Then move the thread-carrying finger up or down to a position where it passes the thread freely, but without extra clearance, between the thread-laying finger **M** and the thread-carrying finger **G**. The thread-carrying finger should be set forward (toward the operator) or backward so that when the needle bar is at its highest position the covering thread will have passed beneath the point of the right-hand needle. Then the thread should lead from the eyelet of the thread-carrying finger, directly between the two needles to the thread-laying finger. When these adjustments are completed, firmly tighten clamping screw **G4**.

TO ADJUST THE THREAD-LAYING FINGER

See Fig. 37

When the needle bar is at its lowest position, the point of the upper prong **J4** of the thread-laying finger **M** should be about 1/16 inch from the center of the right-hand needle, as shown in Fig. 37. Then as the thread-laying finger moves forward, the thread should be caught between the upper and lower prongs of the thread-laying finger.

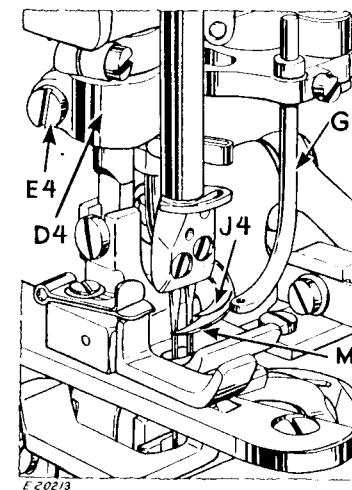


Fig. 37. Adjusting Thread-Laying Finger

To adjust, loosen clamping screw **E4**, Fig. 37, and turn the thread-laying finger holder **D4**, Fig. 36, to bring the thread-laying finger to the position mentioned, then securely tighten clamping screw **E4**. The thread-laying finger is adjustable for height as well as for its position relative to the needles on its forward or backward strokes. Loosen the set screw **H4**, Fig. 36, and set the thread-laying finger up or down so that it just clears the under side of the thread-carrying finger **G**, as mentioned in the last paragraph on page 28. On the upward stroke of the needle bar and the forward stroke of the thread-laying finger **M**, the latter should pass as close as possible, without touching the needles.

When these adjustments are completed, securely tighten set screw **H4**.

TO REMOVE AND REPLACE THE FEED MECHANISM

See Fig. 38

Remove the presser foot and the throat plate. Remove the work plate. Take out the two screws O3, only two of which are visible in Fig. 38. Remove the feed regulator bracket and lever V2.

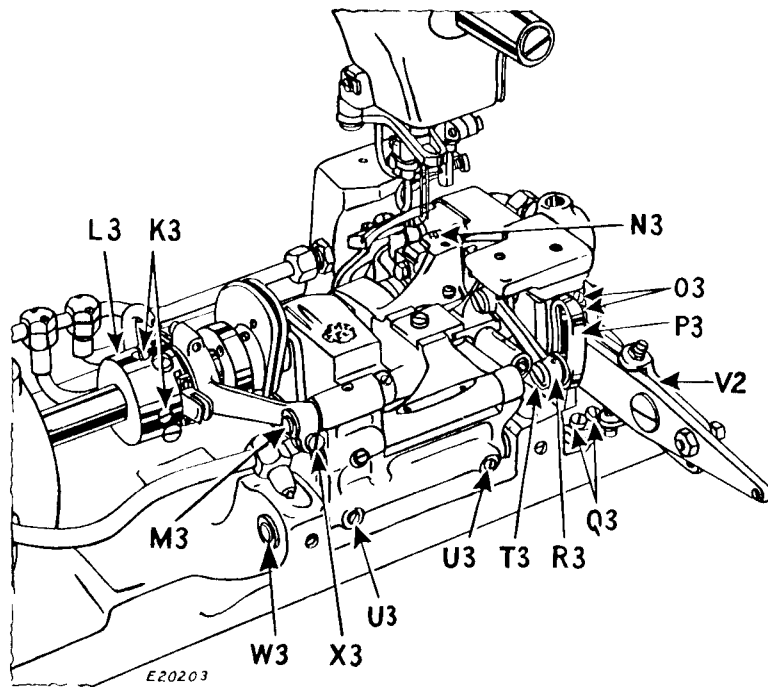


Fig. 38. Removing Feed Mechanism

Take out the feed regulator screw stud T3. Loosen clamping screw X3 and withdraw the eccentric hinge pin M3. Loosen the two screws U3 which hold regulator P3 in position. Withdraw the shaft W3 from the feed rocking frame by means of the regulator P3. The feed mechanism can then be removed from the machine.

CAUTION—When replacing, centralize the feed dog and the gathering feed in the slots in the throat plate, as instructed on pages 23 and 24. Make sure that the two screws U3 engage the flats on the shaft W3. When connecting the gathering feed link to the regulator P3, see that the small washer R3 is in place on the screw stud T3, as shown in Fig. 38 and that the tension spring is attached to the stud at the inner end of the feed regulator lever V2 and to the stud in the machine bed.

TO REMOVE THE ARM ROCK SHAFT

Remove the face plate and the needles, and unscrew the needle clamp from the needle bar. Loosen clamping screw B3, Fig. 41, and remove the needle bar from the top of the machine. Remove the presser foot and the presser foot screw. Remove the adjusting screw N2, Fig. 39, from the presser bar spring at the top of the machine arm to release the presser bar spring. Loosen set screw C3, Fig. 41, and remove the presser bar from the top of the machine. Loosen set screw N4, Fig. 41; and remove the presser bar guide M4, Fig. 41 and presser bar lifting bracket D3, Fig. 41. Remove the needle bar connecting link K5, Fig. 41, and the foot lifting lever.

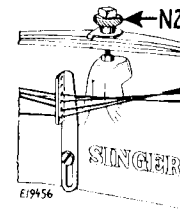


Fig. 39

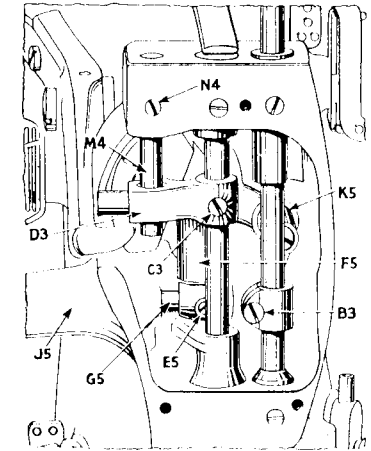


Fig. 41

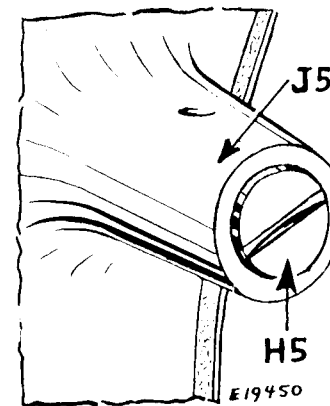


Fig. 40

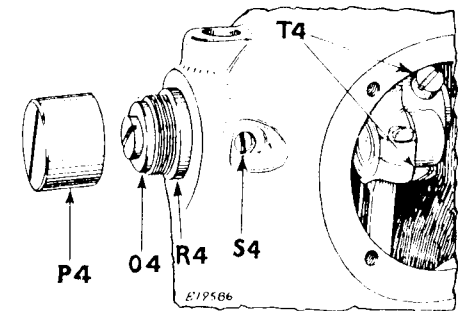


Fig. 42

Remove set screw E5, Fig. 41, and remove cap screw H5, Fig. 40, in the end of the lug J5, Figs. 40 and 41, then remove the slide block holder shaft G5, Fig. 41, from the end of the lug J5, then remove the covering thread stud mechanism F5, Fig. 41.

Remove cap P4, Fig. 42, and screw and washer O4, Fig. 42, at the rear end of the rock shaft. Remove the round cover plate at the rear side of the machine, carefully saving the gasket. Loosen the two screws T4, Fig. 42, in the rock shaft crank and, with the connecting rod at midway position, withdraw the rock shaft from the needle bar end of the machine.

TO REPLACE THE ARM ROCK SHAFT

See Fig. 42

When replacing the rock shaft have the connecting rod at midway position. Replace the screw and washer **O4** in the end of the shaft. Turn the balance wheel a few times by hand to permit the rock shaft crank to align itself before tightening the two screws **T4** on their flats. End play in the rock shaft is regulated by loosening set screws **S4**, Fig. 42, and moving the bushing **R4** endwise.

NOTE—Permit a little end play in the rock shaft, when cold, to allow for the expansion, which occurs when the machine warms up.

When the parts, removed as above, are replaced, set the needle bar, as instructed on page 18 and set the presser bar, as instructed on page 22.

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