

**SINGER**  
247-4 TO 247-7

# 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, STAIN-  
LESS, 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 lubri-  
cant 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.**

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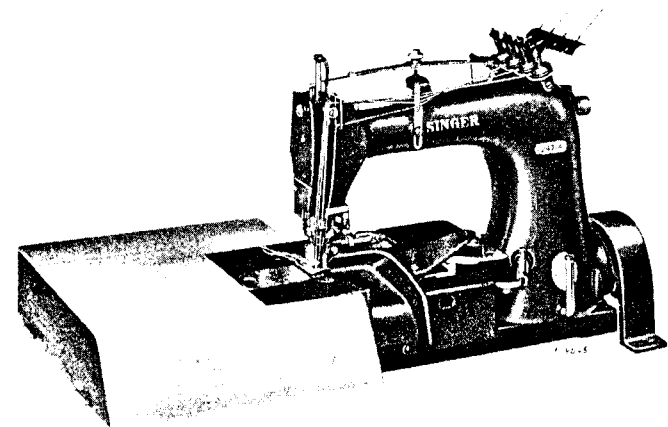
# ADJUSTERS MANUAL

FOR

# **SINGER**\*

# SEWING MACHINES

# 247-4, 247-5, 247-6 and 247-7



**CAUTION:** Special attention is called to the  
lubricating instructions on pages 4 to 7.

\* A TRADE MARK OF

# THE SINGER MANUFACTURING CO.

## 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.

## DESCRIPTION

SINGER Machines of Class 247, described in this book, are equipped with a vertical trimmer and have three needles, two loopers and mechanism for laying a top covering thread. Each machine simultaneously trims the edge of the fabric and produces an edge covering stitch with two needles, one looper and a thread laying finger and makes a reinforcing, independent parallel line of two-thread chain stitching with the third needle and second looper.

They each have ball bearings for the arm rotary shaft intermediate and rear bearings, and an oiling system which automatically oils all principal bearings.

The greatest distance between the outside needles is  $\frac{3}{8}$  inch, and machines can be furnished in the following gauges:

Distance between overedging needles	Distance between single line of stitching and overedging stitching
$\frac{1}{8}$ "	$\frac{1}{16}$ "
$\frac{1}{8}$ "	$\frac{1}{8}$ "
$\frac{1}{8}$ "	$\frac{3}{16}$ "
$\frac{1}{8}$ "	$\frac{1}{4}$ "
$\frac{3}{16}$ "	$\frac{1}{16}$ "
$\frac{3}{16}$ "	$\frac{1}{8}$ "
$\frac{3}{16}$ "	$\frac{3}{16}$ "
$\frac{1}{4}$ "	$\frac{1}{16}$ "
$\frac{1}{4}$ "	$\frac{1}{8}$ "

Following are descriptions of the individual machines:

**Machine 247-4** (drop feed) is equipped with gathering feed and is used for seaming dresses, children's wear, trousers and similar work, and has a needle bar stroke of  $1\frac{1}{32}$  inches. Maximum stitch length is 8 stitches to the inch.

**Machine 247-5** (drop feed) is used for seaming and welting auto seat covers, upholstery, cushions, trousers, coats and similar work, and has a needle bar stroke of  $1\frac{3}{8}$  inches. Maximum stitch length is 6 stitches to the inch.

**Machine 247-6** is equipped with independent upper and under feeds and with gathering feed, and is used for seaming children's dresses, children's wear, trousers, bed spreads with inserted welt, and for similar work. Needle bar stroke is  $1\frac{1}{32}$  inches. Maximum stitch length is 8 stitches to the inch.

**Machine 247-7** is equipped with independent upper and under feeds and is used for seaming and welting auto seat covers, upholstery, cushions, trousers, coats and similar work. Needle bar stroke is  $1\frac{3}{8}$  inches. Maximum stitch length is 6 stitches to the inch.

## 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

## SETTING UP

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 below and on pages 5, 6 and 7.

## SPEED

The maximum speeds recommended for these machines are as follows:

Machines 247-4 and 247-6 . . . . .3800 revolutions per minute

Machines 247-5 and 247-7 . . . . .3600 revolutions per minute

**CAUTION—**These machines should be operated at moderate speeds for the first few days, after which they can be operated at maximum speeds depending on the nature of the work being sewn.

## TO OIL THE MACHINES

These machines are each equipped with an oiling system which automatically delivers the required quantity of oil to all principal bearings. A connecting rod scoop takes oil from the reservoir and lubricates, by splash, the various bearings inside the machine arm. Some of this oil is distributed, through pipes and wicks, to the principal bearings outside the machine arm.

**TO INSURE OPERATION OF THIS OILING SYSTEM, THE FOLLOWING INSTRUCTIONS MUST BE CAREFULLY OBSERVED. FAILURE TO DO THIS WILL RESULT IN SERIOUS DAMAGE TO THE MACHINE.**

**CAUTION—**Use "TYPE B" or "TYPE D" OIL sold only by Singer Sewing Machine Company. For description of oils, see inside of front cover.

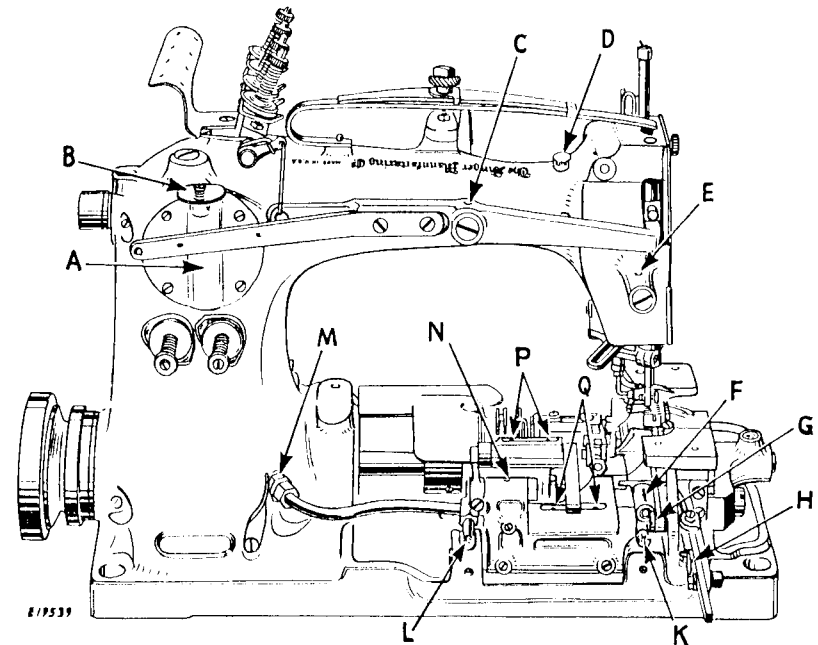


Fig. 2. Priming and Oiling Points at Rear Side of Machine

A machine new from the factory, or one which has been idle for some time, must be oiled as instructed next below and on pages 6 and 7.

**NOTE—**It is not necessary to remove the work plate for the first or subsequent oiling of the machine. For this purpose, open out hinged portion of the work plate at the front side. The work plate is removed in Figs. 2 and 3 for the purpose of illustration.

1st. Lift up and turn aside the cover B, Fig. 2, and apply oil to the filler A, Fig. 2, until the oil stands at the mark Y, Fig. 3, when the gauge is inserted in the gauge pipe X, Fig. 3, as far as it will go. The oil supply must be maintained at this level. After applying oil to the filler, turn the cover B to closed position.

**CAUTION—**This cover must be kept closed at all times except when oiling.

2nd. Fill the oil holes or troughs at **D, L and K, Fig. 2**, and at **R, T, U, V, Z** and **A2, Fig. 3**, to prime the wicks at these points.

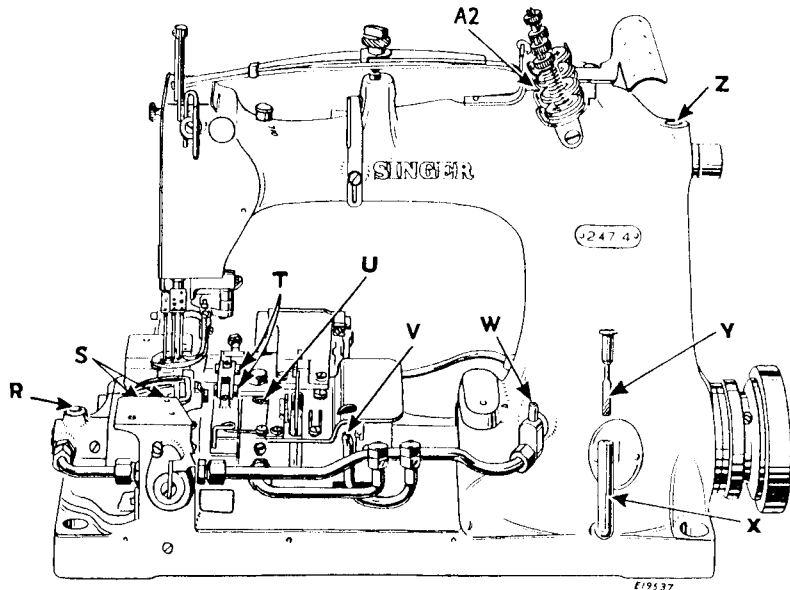


Fig. 3. Priming and Oiling Points at Front Side of Machine  
(Oil Gauge shown Removed)

3rd. Fill the oil holes or troughs at **P, Q and F, Fig. 2**.

4th. Fill the main oil pipe to **overflowing** through the oil hole **W, Fig. 3**.

5th. Apply oil to oil holes at **C, N, E and G, Fig. 2**, and at **S, Fig. 3**. These two oil holes are not visible in these illustrations, but the arrows **S** will indicate their location. They serve the looper avoiding motion eccentric connection hinge pin. Also apply an occasional drop of oil at **H, Fig. 2**, on the gathering feed control.

6th. Apply oil at **D2, Fig. 4**, for the needle bar connecting stud, also apply a drop or two of oil at **B2 and F2, Fig. 4**, where the presser bar passes

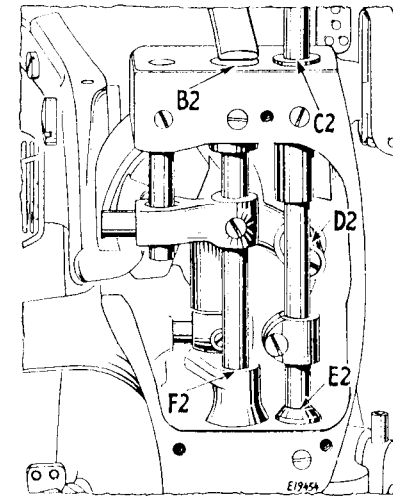


Fig. 4. Face Plate removed to show Oiling Points

through its bushings, also at **C2 and E2, Fig. 4**, where the needle bar passes through its bushings.

**NOTE**—After the machine has run 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 **Y, Fig. 3**.

A machine in daily use must be oiled as follows:

1st. Apply oil to the oil filler **A, Fig. 2**, until the oil stands at the oil level mark **Y, Fig. 3**, when the machine is at rest.

2nd. Fill the oil cup **D, Fig. 2**, **LEVEL FULL** twice daily or as required.

3rd. Apply oil twice daily, or as required, to all oil holes.

4th. 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 **M, 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 for these machines 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 furnished 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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## TO THREAD THE NEEDLES AND THE THREAD CARRYING FINGER

See Figs. 5, 6 and 7

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**.

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

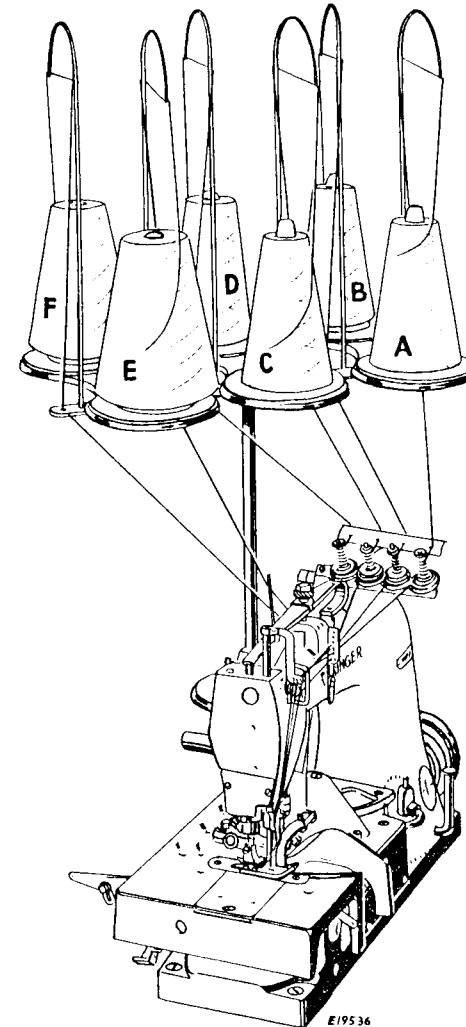


Fig. 5. Threading the Needles and Thread-Carrying Finger

Spools **E** and **F** are for the loopers. See instructions on pages 10 and 11 for threading the loopers.

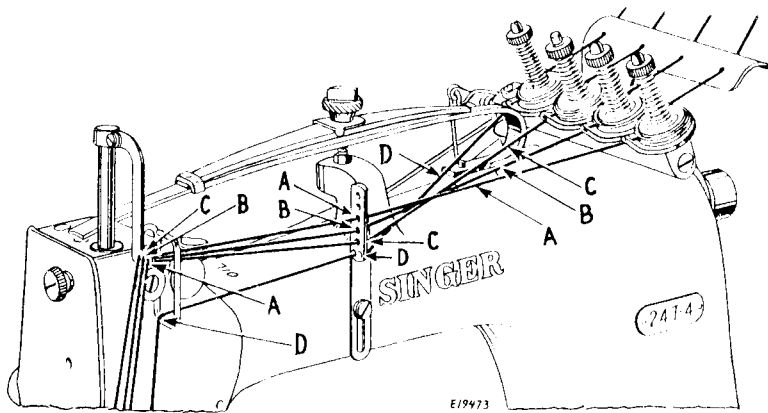


Fig. 6. Upper Threading of Machine

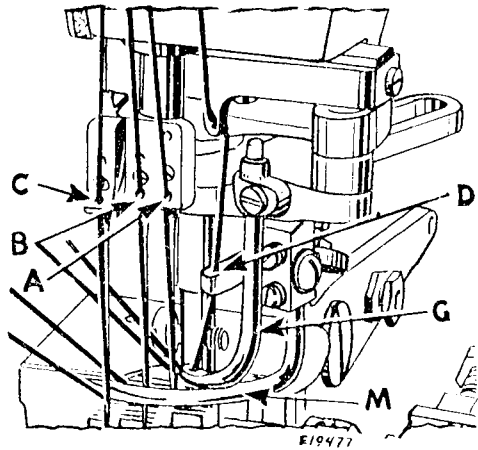


Fig. 7. Threading Needles and Thread-Carrying Finger

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 LOOPERS

Spool E, Fig. 5, is for the rear looper K, Fig. 9, the thread for which is passed down through the rear hole in the lifting lever W, Fig. 8, and down through tension N, Fig. 8, down through the outside hole in the upright guide P, Fig. 8, then forward through the slot Q, Fig. 8, in the work plate, then forward and over guide R, Fig. 9, through guide S, Fig. 9, through under thread take-up stripper T, Fig. 9, through the rear slot of thread separator U, Fig. 9, under the tension V, Fig. 9, and forward through the rear looper K, Fig. 9.

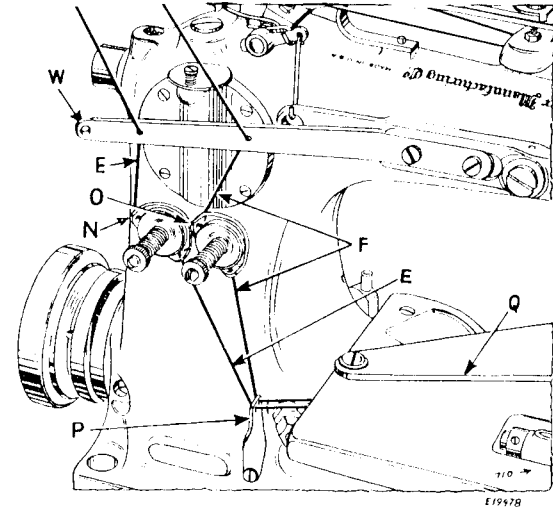


Fig. 8. Threading the Loopers—Rear Side of Machine

Spool F, Fig. 5, is for the front looper L, Fig. 9, the thread for which is passed down through the front hole of the lifting lever W, Fig. 8, down through tension O, Fig. 8, and down through the inside hole of the upright guide P, Fig. 8, then forward through the slot Q, Fig. 8, in the work plate,

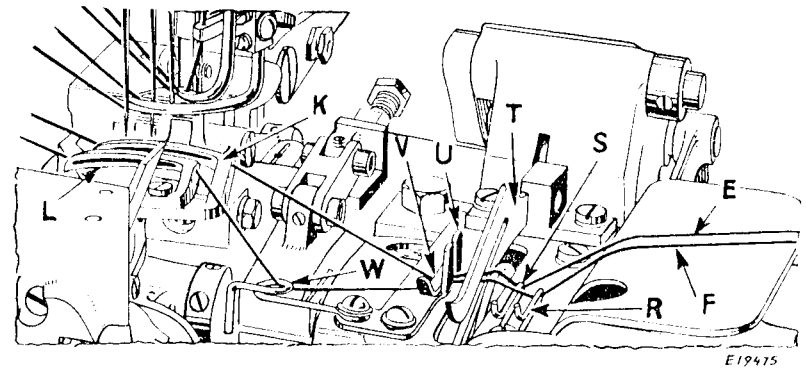


Fig. 9. Threading the Loopers—Front Side of Machine

then forward through the guide R, Fig. 9, and over the guide S, Fig. 9, through under thread take-up stripper T, Fig. 9, through the front hole of thread separator U, Fig. 9, over the tension V, Fig. 9, through wire guide W, Fig. 9, and forward through the front looper L, Fig. 9.

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

CAUTION—Before commencing to sew, hold the covering thread D, 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, Fig. 7, catches the covering thread.

### TO REGULATE NEEDLE THREAD TENSIONS

See Fig. 10

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

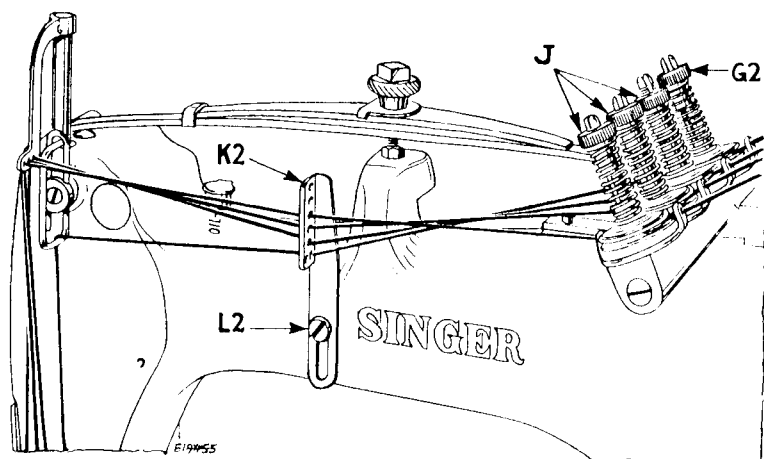


Fig. 10. To Regulate Needle Thread Tensions and Tension on Covering Thread

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

### TO REGULATE TENSION ON THE COVERING THREAD

Tension for the covering thread is regulated by loosening screw H2, Fig. 11, and setting the controller J2, Fig. 11, forward (toward the operator)

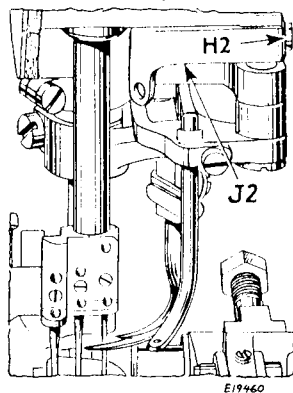


Fig. 11. To Regulate Covering Thread Tension

or backward (away from the operator). When adjustment is completed, tighten-screw H2. This adjustment is in conjunction with tension regulation by means of thumb nut G2, Fig. 10. Turn this thumb nut downward for increased tension, or upward for less tension on the covering thread.

### TO ADJUST THREAD SEPARATOR

After loosening screw L2, Fig. 10, the thread separator K2, Fig. 10, is adjustable upward or downward to obtain the best results with various kinds and thicknesses of thread. Tighten screw L2 after adjustment has been completed.

### TO REGULATE LOOPER THREAD TENSION

See Fig. 12

To increase the tension on the looper threads, turn the thumb nuts M2, at

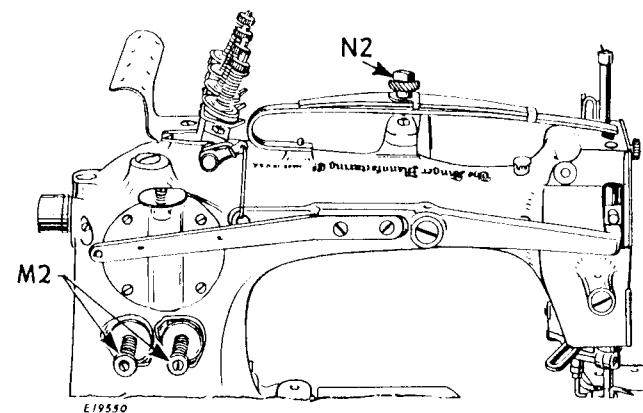


Fig. 12. To Regulate Looper Thread Tension and To Regulate Pressure on the Material

the rear side of the machine, inward, or turn these thumb nuts outward for less tension on the looper threads.

### TO REGULATE THE PRESSURE ON THE MATERIAL

Turn the thumb nut N2, Fig. 12, downward for increased pressure, or upward for less pressure on the material.



### TO REGULATE STITCH LENGTH

See Fig. 13

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**

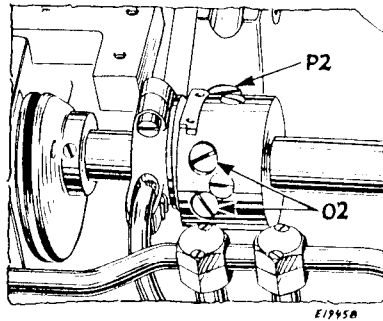


Fig. 13. To Regulate Stitch Length

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 page 24.

### TO SET THE NEEDLE THREAD TAKE-UP

See Fig. 14

With the needle bar at its lowest position, the needle thread take-up **T2** is normally set about  $\frac{1}{4}$  inch from the top of the needle bar, as indicated in Fig. 14. This setting may be varied to suit sewing conditions. To adjust,

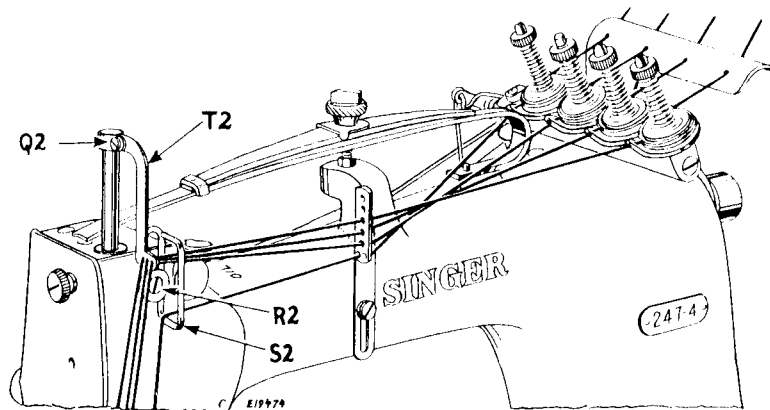


Fig. 14. Setting Needle Thread Take-up and Adjusting Auxiliary Thread Take-up

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

### TO ADJUST AUXILIARY THREAD TAKE-UP

See Fig. 14

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 the position of the auxiliary thread take-up, loosen screw **R2** and raise or lower the auxiliary thread take-up as required, then tighten screw **R2**.

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.

### GATHERING FEED CONTROL

See Fig. 15

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

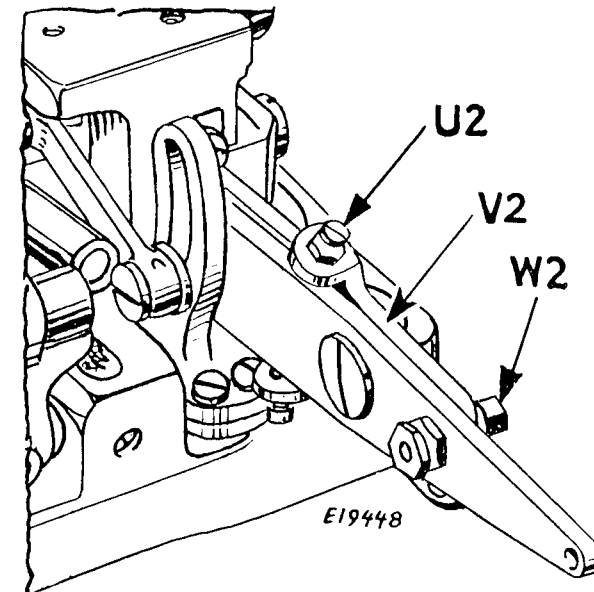


Fig. 15. Gathering Feed Control

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 REMOVE AND REPLACE THE WORK PLATE

See Fig. 16

Turn the balance wheel to raise the needle bar to its highest position. Remove the presser foot, throat plate and the needles.

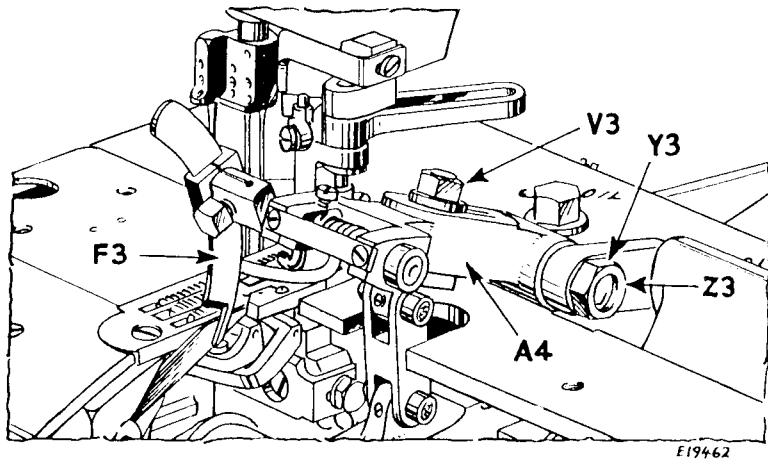


Fig. 16. Removing the Work Plate

Remove the nut **Y3** from the hinge screw stud **Z3**, at the back end of the movable knife lever **A4**, and withdraw the hinge screw stud **Z3**. Next remove the nut **V3** from the upper end of the movable knife lever connection, then remove the movable knife lever **A4** with the knife holder and movable knife **F3**, attached thereto.

Next remove the three screws which fasten the work plate to the machine and remove the work plate.

To replace the work plate, reverse the foregoing procedure, and adjust the movable knife as instructed on page 23.

# INSTRUCTIONS

FOR

## ADJUSTERS and MECHANICS

### TO SET THE REAR (RIGHT HAND) LOOPER WITH RELATION TO THE RIGHT HAND NEEDLE

When the needle bar is at its lowest position and the loopers have reached their farthest-back position, the point of the rear (right-hand) looper **K**, Fig. 17, should be from  $\frac{3}{32}$  to  $\frac{3}{16}$  inch from the center of the right hand needle, as shown in Fig. 17.

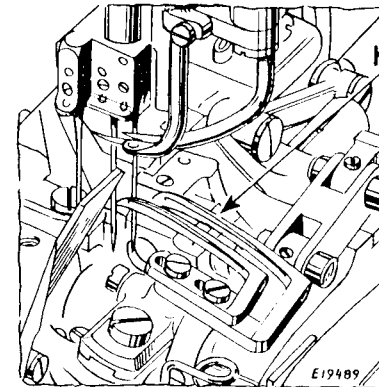


Fig. 17. Setting Rear (right hand) Looper with Relation to Right-Hand Needle

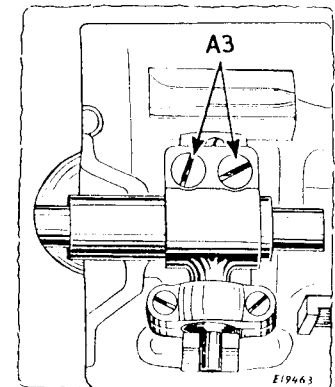


Fig. 18

To make this adjustment, loosen the two screws **A3**, Fig. 18, 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 next below.

### TO SET THE NEEDLE BAR AT CORRECT HEIGHT

Turn the balance wheel over from you until the eye of the rear (right hand) looper **K** reaches the center of the middle needle as shown in Fig. 20. With the looper in this position, the eye of the middle needle and the eye of the rear looper should be in perfect alignment when passing each other on the loop-taking stroke of the loopers, as shown in Fig. 20.

If the eye of the looper and the eye of the middle needle are not in perfect alignment, as stated, loosen set screw **B3**, Fig. 19, 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 loopers as on page 20.

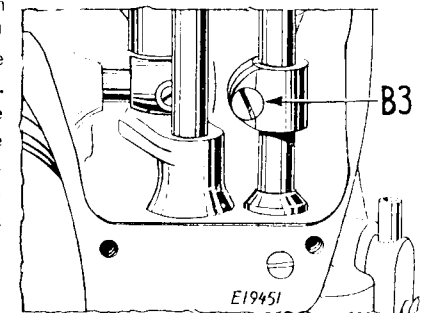


Fig. 19. Setting Needle Bar

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## TO REGULATE THE AMOUNT OF NEEDLE-AVOIDING MOTION OF THE LOOPERS

See Fig. 20

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

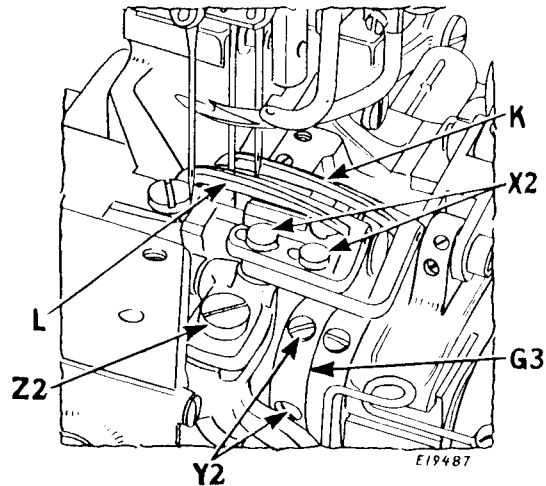


Fig. 20. To Regulate Needle Avoiding Motion of Loopers

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

To adjust, loosen the three set screws Y2, only two of which are visible in Fig. 20, 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 loopers, 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 front looper with relation to the left hand needle, as instructed next below.

### TO SET THE FRONT (Left Hand) LOOPER WITH RELATION TO THE LEFT HAND NEEDLE

See Fig. 20

With the rear looper and the needle bar properly set as instructed on page 17, turn the balance wheel over from you until the eye of the front looper L reaches the center of the left hand needle on the upward stroke of the needle bar. The eye of this looper should then be in exact alignment with the eye of the left hand needle as shown in Fig. 20. If this is not the case, loosen the two screws X2, and move this looper forward or backward until alignment is obtained, then securely tighten the two screws X2.

**NOTE**—The two screws X2 also provide a slight sidewise adjustment of the left-hand looper. This sidewise adjustment of the left hand looper is required to compensate for differences in various sizes of needles.

## 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. 21, should be stopped against the lower

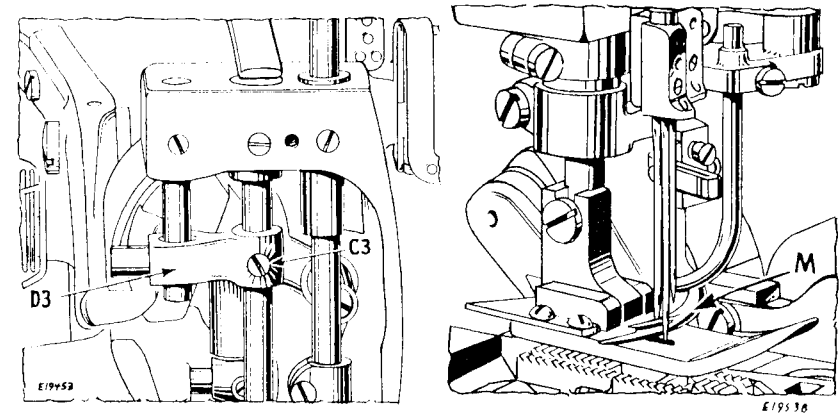


Fig. 21. To Regulate Height of Presser Bar Lift

Fig. 22.

end of the presser bar bushing when the top surface of the presser foot is just below the thread-laying finger M, Fig. 22, to prevent the presser foot from striking and damaging the thread-laying finger.

To adjust, loosen set screw C3, Fig. 21, and move the bracket up or down to produce the correct presser bar lift, then tighten set screw C3.

## TO ADJUST THE THREAD TENSION RELEASER

See Fig. 23

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

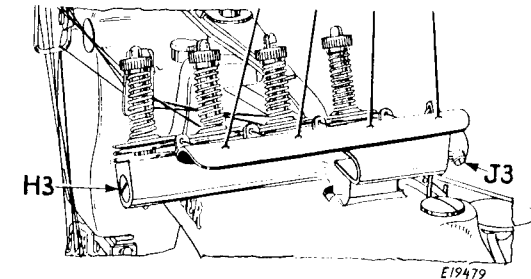


Fig. 23. Adjust Thread Tension Releaser

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

### TO ADJUST THE LOOPER THREAD TAKE-UP GUIDES

See Fig. 24

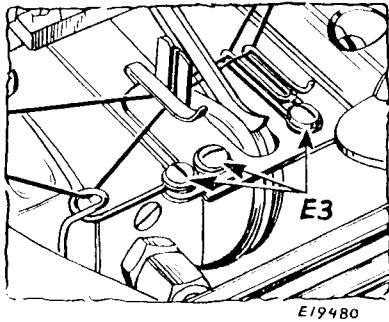


Fig. 24. Adjust Looper Thread Take-Up Guides

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

To adjust turn the screws E3, as required.

### TO TIME THE FEED

See Fig. 25

Of the three set screws K3 (only two of which are shown) in the feed eccentric L3, the first two must be tightened against the two flats on the rotary shaft. The first screw is the one nearest the stitch regulator screw P2, the second screw being the one which follows the first when the balance wheel is turned over from the operator. After these two screws are tightened against their flats, tighten the third screw against the shaft.

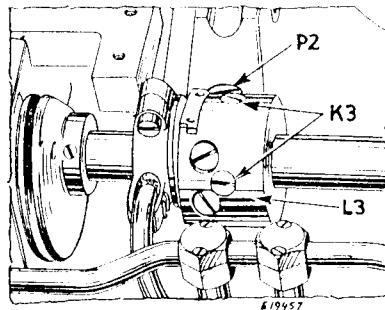


Fig. 25. Timing the Feed

### TO REMOVE AND REPLACE THE VERTICAL TRIMMER KNIVES

See Fig. 26

When it is necessary to remove the knives, for sharpening, etc., loosen set screw W4 and withdraw the stationary (lower) knife Y4 from the machine. Loosen the hexagon clamping screw Z4 and withdraw the movable (upper) knife F3 from its holder A5. Reverse the above procedure to replace these knives, and adjust as follows:

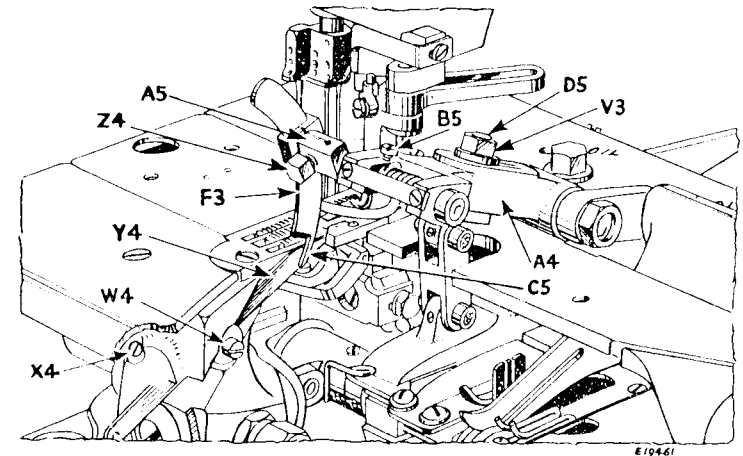


Fig. 26. To Remove, Replace and Adjust Vertical Trimmer Knives

### TO ADJUST THE VERTICAL TRIMMER KNIVES

See Fig. 26

The **Stationary Knife Y4** should be set with its cutting (beveled) edge flush with the top surface of the throat. Loosen screw W4 and set knife Y4 up or down to the required position, then firmly tighten screw W4. Then loosen screw X4 for sidewise adjustment of this knife. It should be set against (but not tightly against) the right hand edge of the throat plate, after which firmly tighten screw X4.

The **Movable Knife F3** must be set so that its cutting (beveled) edge has fully lapped or passed the cutting edge of the stationary knife Y4, when the movable knife F3 has completed its downward stroke. The movable knife F3 can be set up or down as required, after loosening hexagon screw Z4 which must be firmly tightened after this adjustment. The knife F3 must rub or bear against the knife Y4. For this adjustment, loosen screw B5 in the movable knife holder and set the knife F3 against the stationary knife Y4 then firmly tighten screw B5.

**CAUTION**—Make sure that the guide point C5 on the cutting edge of movable knife F3 does not strike the two screws which fasten the front looper to the looper holder. This would occur if the knife F3 were set too low.

In conjunction with the above adjustments of the movable knife **F3**, its movement must be regulated to insure that its cutting edge lifts high enough above the throat plate to accommodate the material being sewn. To adjust, loosen nut **V3** on the lever connection **D5** and move lever connection **D5** forward (toward the operator) for less lift, or move it backward (away from the operator) for more lift of the knife **F3**. The connection **D5** is adjustable to the limits of its slot in the lever **A4**.

**IMPORTANT**—The height, or lift, of knife **F3** should be not greater than is required for the material being sewn. When this adjustment is completed, firmly tighten nut **V3**.

#### TO SET THE NEEDLE GUARD

See Fig. 27

The function of the needle guard **Q4** is to prevent the needles from springing into the path of the loopers when the loopers are on their forward stroke.

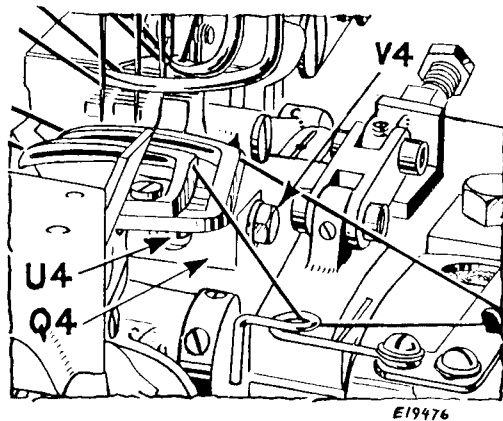


Fig. 27. Setting the Needle Guard

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

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 but 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 14.

#### TO SET THE FEED DOG AT CORRECT HEIGHT

See Fig. 28

When the feed dog is at its highest position, practically 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. 28

To Centralize the Feed Dog and the Gathering Feed in the Throat Plate Slots. When the actuating lever **V2** is released, the gathering feed does not function as a separate (gathering) feed, but moves as a feeding

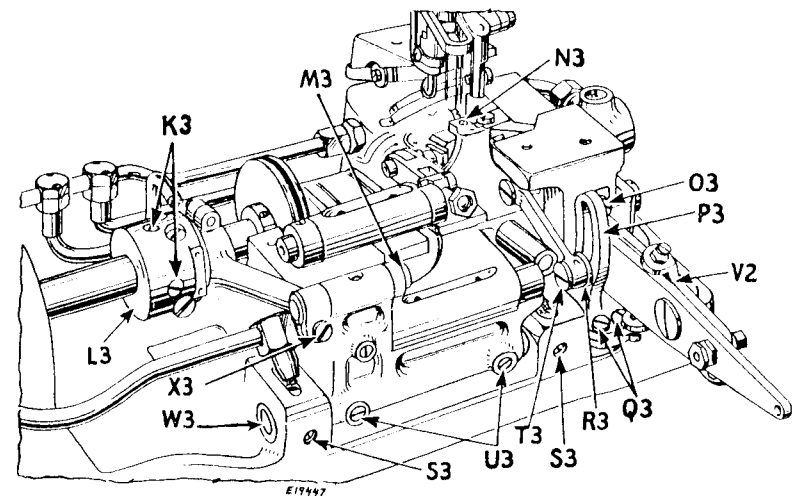


Fig. 28. Centralizing and Aligning Feed Dog and Gathering Feed, also Setting Feed Dog at Correct Height

unit with the feed dog. The feeding action of the feed dog and the gathering feed must then be equi-distant from both ends of the slots. Loosen clamping screw **X3** and turn the eccentric hinge pin **M3** until the feeding action is centralized as above stated, then securely tighten clamping screw **X3**.

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 in the throat plate.

If adjustment is necessary, take out the two screws **O3**, only one of which is visible in **Fig. 28**—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. 28**) 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

See Fig. 28

If adjustment is necessary, loosen the three screws **K3**, only two of which are visible in **Fig. 28**; 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**; also, when connecting the gathering feed crank with the regulator **P3**, be sure to have the washer **R3** in place as shown in this illustration; also make sure that the tension spring connects the inner end of the regulating lever **V2** to the machine as instructed in the foregoing. Also, if the feed eccentric **L3** was disturbed during the foregoing adjustments, retime as instructed on page 22.

#### TO ADJUST THE THREAD-CARRYING FINGER

See Figs. 29 and 30

The movement of the thread-carrying finger holder slide block **C4**, **Fig. 29**, 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. 30**, above the thread-laying finger **M** during operation.

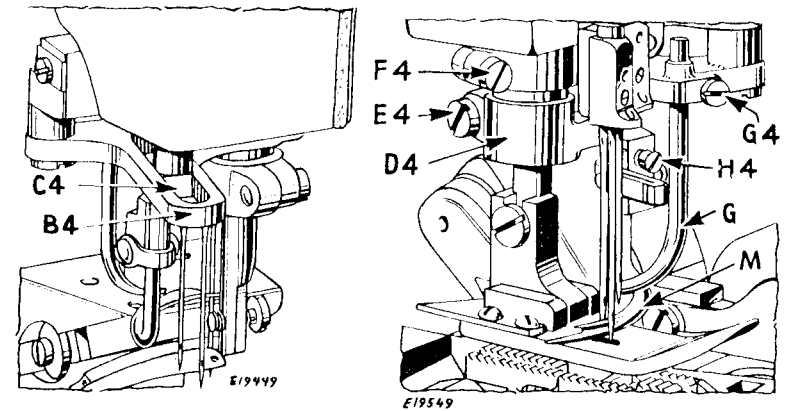


Fig. 29.  
Adjusting Thread-Carrying  
Finger

Fig. 30.  
Adjusting Thread-Carrying  
Finger and Thread-Laying  
Finger

To obtain this setting, loosen clamping screw **F4**, **Fig. 30**, 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. 30**. 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 **G** 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. 31

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  $\frac{1}{16}$  inch from the center of the right hand needle, as shown in Fig. 31. Then as the thread-laying finger moves forward, the thread should be caught between the upper and lower prongs of the thread-laying finger.

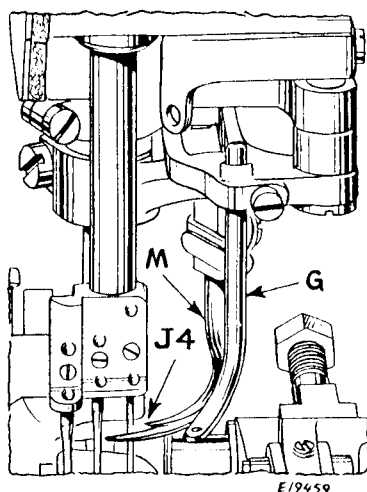


Fig. 31. Adjusting Thread-Laying Finger

To adjust, loosen the clamping screw **E4**, Fig. 30, and turn the thread-laying finger holder **D4**, Fig. 30, 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 and backward strokes. Loosen the two set screws **H4**, Fig. 30, 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 third paragraph of page 27. 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 the two set screws **H4**.

## TO TIME THE LOOPER THREAD TAKE-UP

See Figs. 32 and 33

The looper thread take-up **K4** must contact the threads just as the loopers are commencing their backward stroke, or loop-shedding motion, as shown

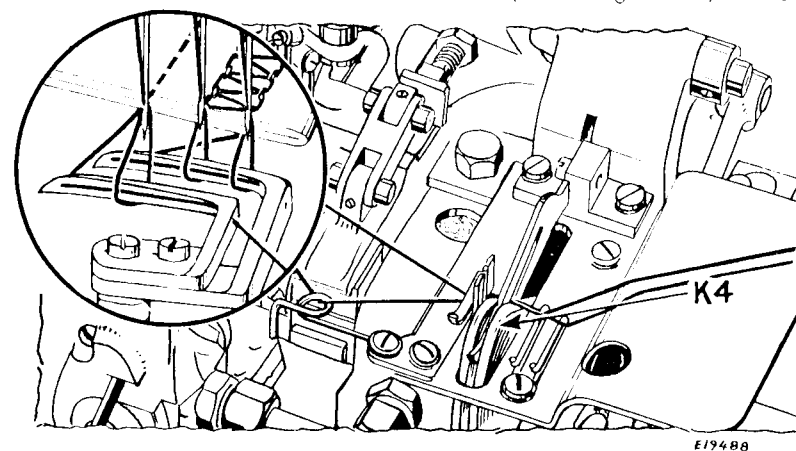


Fig. 32. Timing Looper Thread Take-Up

in Fig. 32, and keep the threads taut until the points of the needles, on their downward stroke, have entered the triangles formed by the looper blades, the looper threads and the needle loops, as shown in Fig. 33.

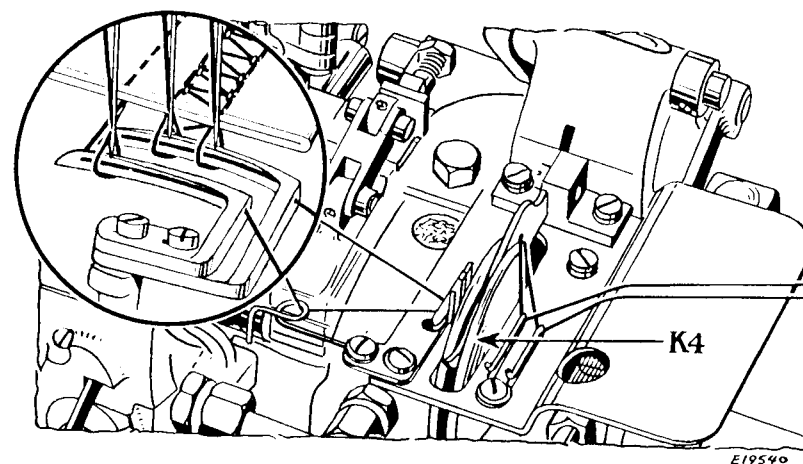


Fig. 33. Timing Looper Thread Take-Up

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 REMOVE THE FEED MECHANISM

See Fig. 34

Remove the presser foot and the throat plate. Remove the work plate as instructed on page 16. Take out the two screws O3, only one of which is visible in Fig. 34. Remove the feed regulator bracket and lever V2.

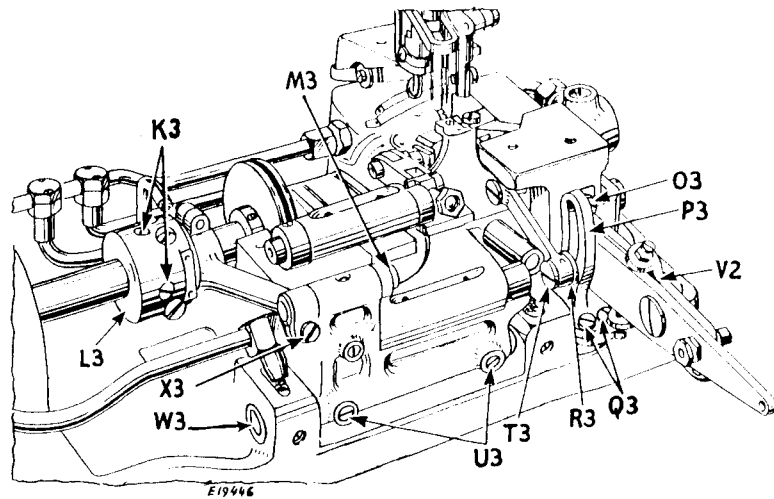


Fig. 34. Removing Feed Mechanism

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

**CAUTION** -When replacing, centralize the feed dog and gathering feed in the slots in the throat plate, as instructed on pages 25 and 26. 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. 34 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. 37, and remove the needle bar from the top of the machine. Remove the presser foot and presser foot screw. Remove the adjusting screw N2, Fig. 35, from the presser bar spring at the top of the machine arm to release the presser bar spring. Loosen set screw C3, Fig. 37, and remove the presser bar from the top of the machine. Loosen set screw N4, Fig. 37, and remove the presser bar guide M4, Fig. 37, and presser bar lifting bracket D3, Fig. 37. Remove the needle bar connecting link K5, Fig. 37, and the foot lifting lever.

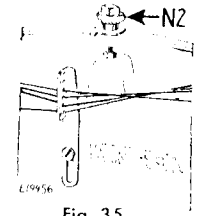


Fig. 35.

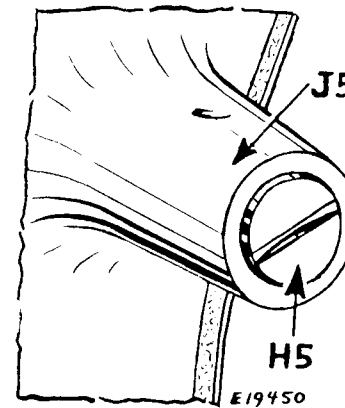


Fig. 36.

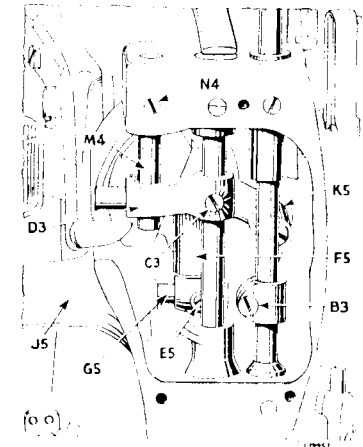


Fig. 37

Remove set screw E5, Fig. 37, and remove cap screw H5, Fig. 36, in the end of the lug J5, Figs. 36 and 37, then remove the slide block holder shaft G5, Fig. 37, from the end of the lug J5, then remove the covering thread stud mechanism F5, Fig. 37.

Remove cap P4, Fig. 38, and screw and washer O4, Fig. 38, at the rear end of the rock shaft. Remove the round cover plate at the rear side of

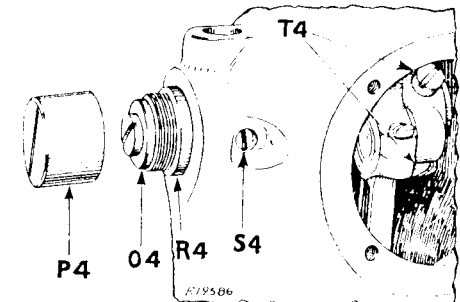


Fig. 38.

the machine, carefully saving the gasket. Loosen the two screws T4, Fig. 38, 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.

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 screw **S4**, Fig. 38, 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 is warmed up.

When the parts, removed as above, are replaced, set the needle bar as instructed on page 19, and set the presser bar as instructed on page 21.

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