# SINGER
## 147-117 & 147-118

# 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.**





20452

# INSTRUCTIONS

FOR USING AND ADJUSTING

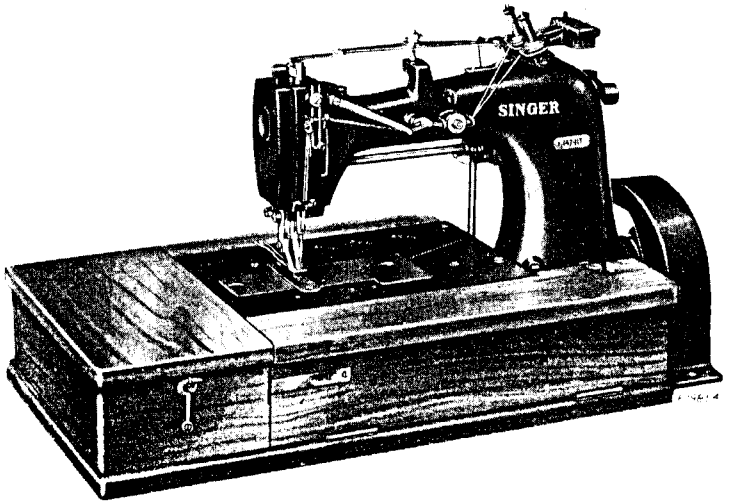
# SINGER*

# SEWING MACHINES

# 147-117 and 147-118

TWO NEEDLES AND ONE LOOPER

THREE-THREAD CHAIN STITCH




MACHINE 147-117

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



## DESCRIPTION

**Machine 147-117** has two needles and one looper and simultaneously makes two parallel lines of chain stitching on the upper surface of the work, while the looper thread is interwoven between the two needle threads on the under surface, producing a neat, durable and elastic stitch.

The machine is designed for sewing light and medium-weight leather. It has independent upper and under feeds, alternating pressers and an automatic oiling system. Needle gauges are 1/32, 3/64 and 1/16 inch. Needle bar stroke is 1-1/8 inches. The machine base is 16-1/2 inches long and the space at the right of the needles is 8-1/4 inches. The machine is adjustable to produce from 10 to 22 stitches to the inch.

The machine is provided with a foot lifter, but it will be furnished with a knee lifter instead, when so ordered.

**Machine 147-118** is designed for stitching around the draw on the backs of gloves and is similar to Machine 147-117, except that it is equipped with a single drop-feed mechanism.

## TO SET UP THE MACHINE

Before placing the machine on the metal base, see that the rubber insulating bushings are in place in the four holes in the machine bed, and that the four felt pads are over the studs in the corners of the base. Place the machine on these pads, with the four studs through the rubber bushings.

**CAUTION: After setting up, do NOT start the machine until it has been thoroughly oiled as instructed on pages 4, 5 and 6.**

## SPEED

The maximum speeds recommended for these machines are:

Machine 147-117—3000 stitches per minute.

Machine 147-118—3600 stitches per minute.

The machines should be operated at less than the maximum speeds until the moving parts become glazed by their action upon each other.

The balance wheel should always turn over from the operator.

## TO OIL THE MACHINES

These machines are equipped with an oiling system which automatically delivers the proper amount of oil to the principal bearings of the machine. **See large diagrams on pages 16 and 17, showing distribution of oil.**

Oil in a reservoir in the arm is picked up by a scoop in the connecting rod and lubricates the various bearings within the arm by splash. A cup inside the arm catches the excess oil and distributes it through connecting pipes and wicks to the principal bearings outside the arm.

**NOTE: In order that this system may operate efficiently, it is absolutely necessary that the following instructions be observed. Failure to do this may result in serious damage to the mechanism of these machines.**

Use **"TYPE B" or TYPE D" OIL,** sold only by Singer Sewing Machine Company. See inside front cover for description of these oils.

**NOTE: It is not necessary to remove the work plate for the first servicing or subsequent oiling of these machines. Before oiling, merely remove the right hand slide plate. The work plate and the throat plate are removed in Figs. 2 and 3 for purposes of illustration only.**

### ORDER OF LUBRICATION:

A machine new from the factory, or one which has been idle for one or more days, must be oiled as follows:

1. Lift and turn aside the cover **AA, Fig. 2,** and apply oil to filler **BB, Fig. 2,** until the oil stands at the mark **CC, Fig. 3,** on the gauge. **The oil must be maintained at this level.** After applying oil to the filler, turn the cover to closed position.



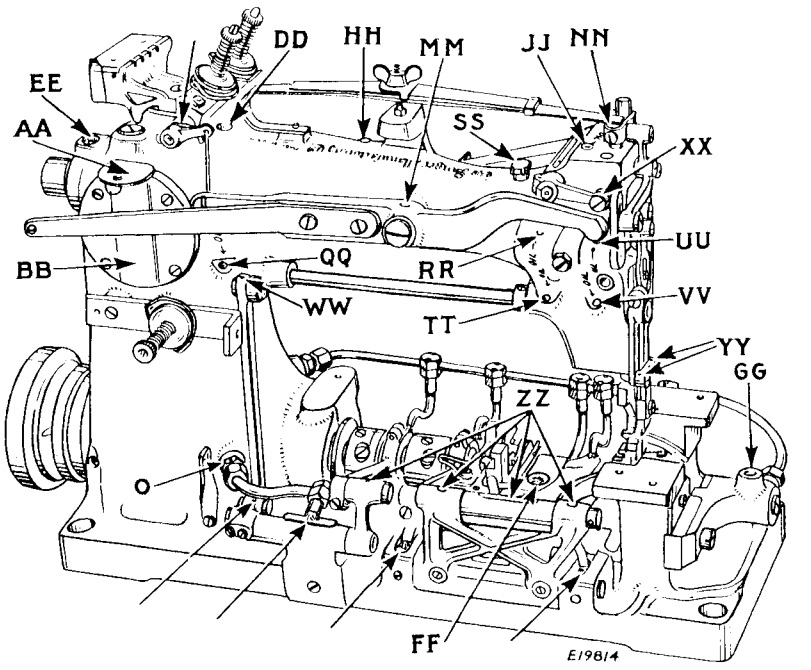



Fig. 2. Priming and Oiling Points at Rear of Machine

**CAUTION: This cover must be kept closed at all times,** except when opened for oiling.

2. Saturate the wicks at **DD, EE, FF, GG, HH** and **JJ, Figs. 2** and 3 and at **KK, Fig. 4.**

3. Apply oil to all oil holes or troughs marked "OIL" and at all other places indicated by unlettered arrows in **Figs. 2, 3** and **4.**

4. Fill the main oil pipe to **overflowing** through the oil hole **LL, Fig. 3.** This is **important,** as it primes various oil wicks.

5. Apply a drop of oil to **MM, Fig. 2,** for the foot lifter lever, and at **NN, Fig. 2,** where the presser bar passes through its bushing. Apply a drop of oil at **PP, Fig. 3,** where the needle bar passes through its bushing. Apply a few drops of oil at the points **QQ, RR, TT, UU, VV, WW, XX, YY** and **ZZ, Fig. 2.**

6. After a machine has been running at a moderate speed for approximately five minutes, stop it and let it stand idle for a few minutes. Then check the oil in the reservoir and, if necessary, add sufficient oil to bring the oil level to the mark **CC, Fig. 3,** on the gauge.

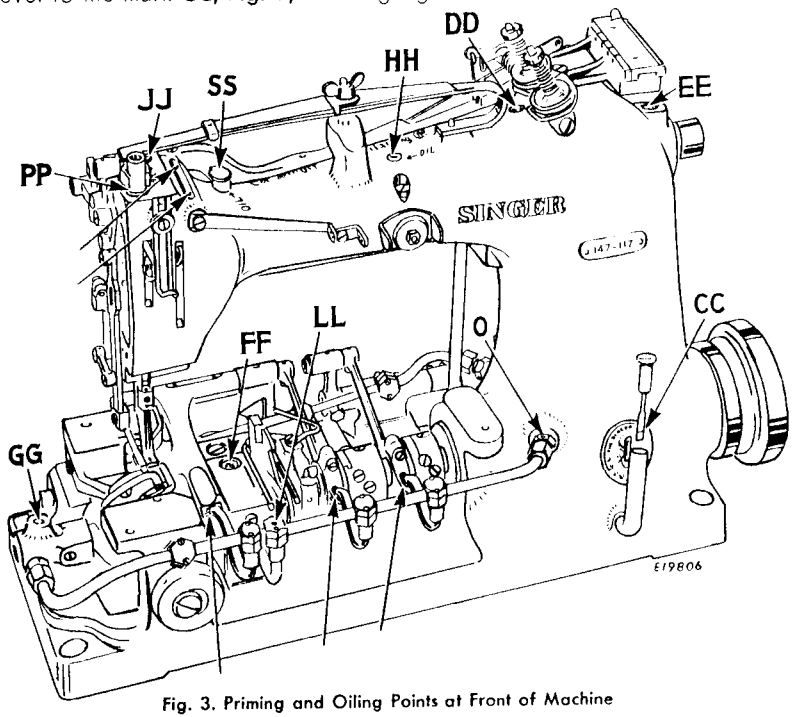



**Fig. 3. Priming and Oiling Points at Front of Machine**

## ORDER OF LUBRICATION: (Machines in daily use)

1. Apply oil to the filler **BB, Fig. 2,** as instructed in step 1 on **page 4.** Never permit the level of the oil to become lower than **1/4** inch below the mark **CC,** when the machine is at rest.

2. Fill the oil cup **SS, Fig. 3,** twice daily.

3. Apply oil twice daily to all oil holes marked "OIL".

## SPECIAL NOTICE

The letter "o" marked on oil pipe couplings **O, Figs. 2** and **3,** must always be at the top. This will insure that the oil spoon, attached to the inner end of each coupling, is open-side up.



## NEEDLES

Needles for these machines have a flat side and are designated by the **Class** and **Variety** numbers shown in the following chart:

| Machine | Gauge of Machine | Class and Variety of Needles | Style of Point | Sizes |
|---|---|---|---|---|
| 147-117 | 1/32" | 62x22 Right | Leather | 9, 10, 11, 12, 13, 14, 16 |
| | | 62x23 Right | Cloth | 7, 8, 9, 10, 11, 13, 14, 16 |
| | | 62x24 Left | Leather | |
| | | 62x25 Left | Cloth | |
| | 3/64" | 62x26 Right | Leather | 9, 10, 11, 12, 13, 14, 16, 17, 18 |
| | | 62x27 Right | Cloth | 7, 9, 10, 11, 13, 14, 16, 18 |
| | | 62x28 Left | Leather | 9, 10, 11, 13, 14, 16, 17, 18 |
| | | 62x29 Left | Cloth | 7, 9, 10, 11, 13, 14, 16, 18, 19 |
| | 1/16" | 62x30 Right | Leather | 9, 11, 12, 13, 14, 16, 17, 18, 19, 20 |
| | | 62x31 Right | Cloth | 7, 9, 10, 11, 12, 13, 14, 16, 18, 21 |
| | | 62x32 Left | Leather | 9, 10, 11, 12, 13, 14, 16, 17, 18, 20, 21 |
| | | 62x33 Left | Cloth | 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19 |
| 147-118 | 1/32" | 62x23 Right | Cloth | 7, 8, 9, 10, 11, 13, 14, 16 |
| | | 62x25 Left | | |
| | 3/64" | 62x27 Right | Cloth | 7, 9, 10, 11, 13, 14, 16 18 |
| | | 62x29 Left | Cloth | 7, 9, 10, 11, 13, 14, 16, 18, 19 |
| | 1/16" | 62x31 Right | Cloth | 7, 9, 10, 11, 12, 13, 14, 16, 18, 21 |
| | | 62x33 Left | Cloth | 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19 |

The size of the needle is determined by the size of the thread being used. The thread must pass freely through the needle eye.

The use of rough or uneven thread, or of thread which passes with difficulty through the needle eye, will interfere with the successful use of the machine.

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

The following is an example of an intelligible order:

"100 No. 16, 62x28 Needles"

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

## TO SET THE NEEDLES

Turn the balance wheel over from you until the needle bar moves up to its highest point, then loosen the two set screws in the needle clamp. Place the needles up into the needle clamp as far as they will go, with the long groove in each needle toward you, then tighten the two set screws.

## TO THREAD THE NEEDLES

See Fig. 4.

**To thread the right needle,** lead the thread from the unwinder through the slot **A** in the thread lubricator. Open the cover and lay the thread over the felt pad and pass it through the slot **B** in the thread lubricator, through the hole **C** in the rear tension discs bracket, then around the front of and between the rear tension discs **D,** then to the left through the hole **E** in the rear tension bracket, to the left through the hole **F** in the thread nipper bracket, to the left over and between the thread nipper discs **G,** to the left through the hole **H** in the thread nipper bracket, to the left through the rear hole **J** in the thread guide and through the rear hole **K** in the slack thread regulator, to the left through the hole **L** in the thread controller, to the left across and in front of the take-up wire **M,** to the left through the rear eyelet in the take-up lever **N,** down and to the rear through the thread retainer spring **P,** down to the right through the retainer spring **Q,** down through the slotted guide **R** on the needle clamp, then down and from front to back (away from the operator) through the eye **S** of the right needle. Draw about two inches of thread through the needle eye with which to commence sewing.

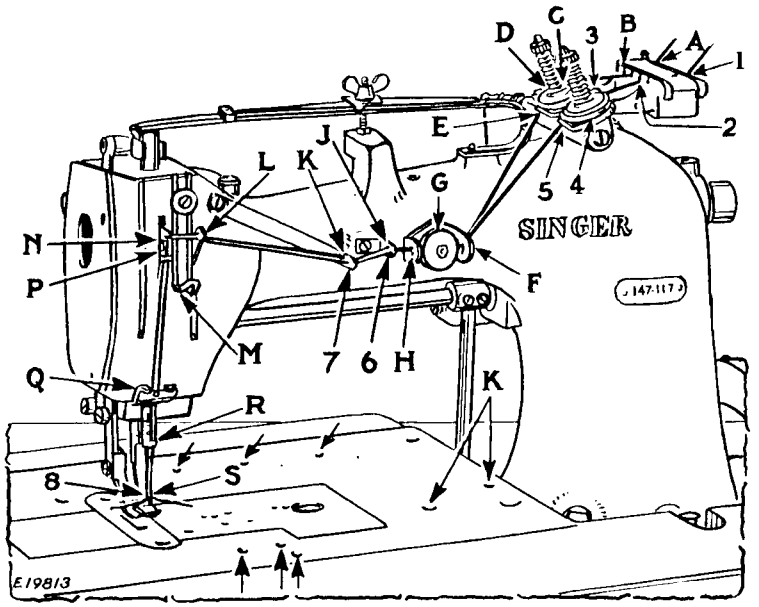



Fig. 4. Threading the Needles

**To thread the left needle,** lead the thread from the unwinder through the slot **1** in the thread lubricator, under the cover, over the felt pad and through the slot **2** in the thread lubricator, through the hole **3** in the front tension discs bracket, then around the front of and between the front tension discs **4,** to the left through the hole **5** in the tension discs bracket, to the left through the hole **F** in the thread nipper bracket, to the left under and between the thread nipper discs **G,** to the left through the hole **H** in the thread nipper bracket, to the left through the front hole **6** in the thread guide and through the front hole **7** in the slack thread regulator, to the left through the hole **L** in the thread controller, to the left across and in front of the take-up wire **M,** to the left through the front eyelet in the take-up lever **N,** down and to the front through the thread retainer spring **P,** down and to



the left through the thread retainer **Q,** down through the slotted guide **R** in the needle clamp, then down and from front to back (away from the operator) through the eye **8** of the left needle. Draw about two inches of thread through the eye of the needle with which to commence sewing.

## TO THREAD THE LOOPER

See Figs. 5. and 6

Pass the thread from the unwinder through the hole **T, Fig. 5,** in the tension bracket and over and between the tension discs **U,** at the back of the machine,

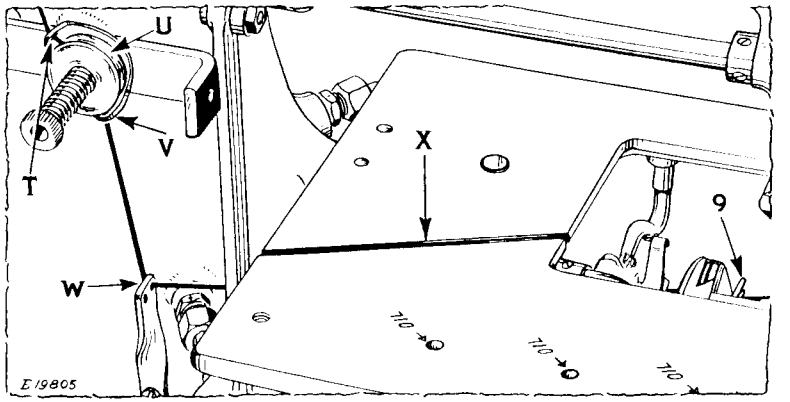



Fig. 5. Threading Looper—Rear View

down through the hole **V,** down through the thread guide **W,** that stands up from the base of the machine. Pass the thread through the slot **X,** and into the wire guide **Y** at the back end of the nipper plate and into the slot **Z** in the nipper plate. Raise the ends of the fork, pass the thread through the slots **9** at the front ends of the fork, then push the fork down. Pass the thread through the hole **10, Fig. 6,** in the heel of the looper and then, away from the operator, through the hole **11,** near the point of the looper. Draw about two inches of thread through the eye of the looper with which to commence sewing.

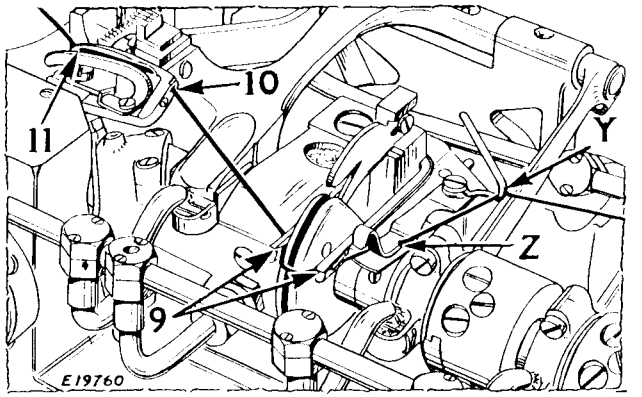



Fig. 6. Threading Looper—Front View

**NOTE:** It is not necessary to remove the work plate or the throat plate for looper threading. They are removed in **Fig. 6,** above, for purposes of illustration only.

## TO REGULATE THE TENSIONS

See Fig. 7

To increase the tension on the **needle threads,** turn the two thumb nuts **A2** downward. Turn them upward, for less tension. Tension on the needle threads should be just sufficient to set the stitch properly in the material.

To increase the tension on the **looper thread,** turn the thumb nut **C2** inward. Turn it outward, for less tension. Tension on the looper thread should be light but sufficient to control the thread.

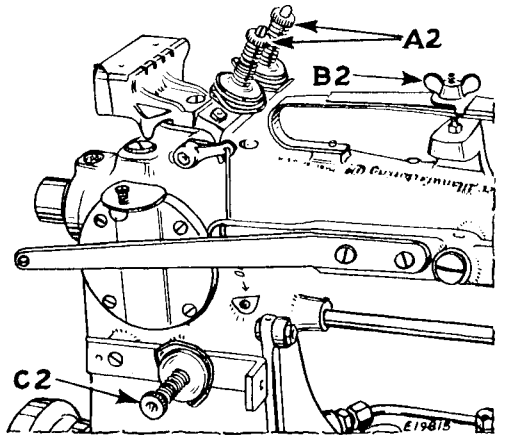



**Fig. 7. To Regulate the Tensions and Pressure on the Material**

## TO REGULATE THE PRESSURE ON THE MATERIAL

See Fig. 7

The pressure of the presser foot on the material is regulated by means of the wing nut **B2** at the top of the machine. Turn the wing nut **B2** downward to increase the pressure, or turn it upward to decrease the pressure.

## TO REGULATE THE LENGTH OF STITCH

See Fig. 8

**Machine 147-117:** While the upper and under feeds should, in general, be set to act synchronously, this setting is subject to some slight variation depending upon the nature of the work being sewn.

Loosen the two clamping screws **Y2** in the under feed eccentric **U2** and, to increase the length of stitch, turn the regulating screw **T2** over to the left or outward; to shorten the stitch ,turn the regulating screw **T2** to the right. Then securely tighten the two clamping screws **Y2.**



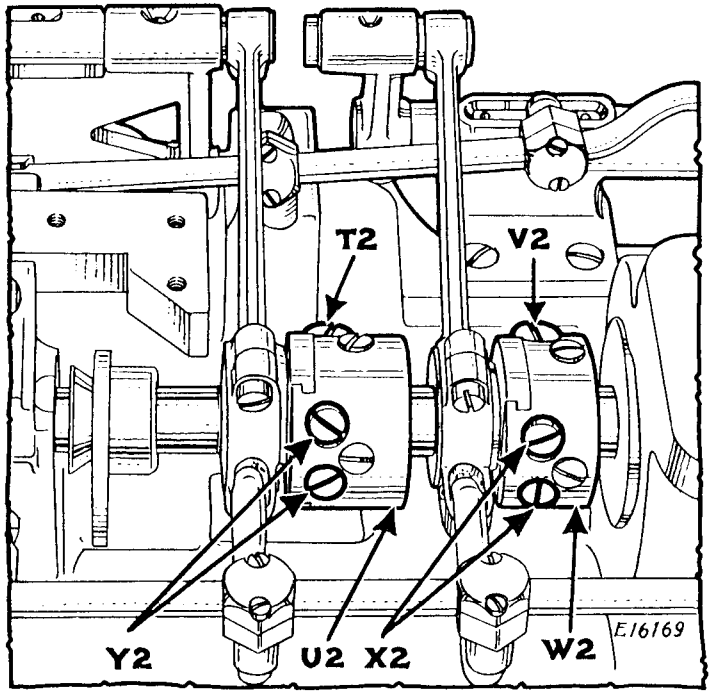



**Fig. 8. Feed Regulator**

Also loosen the two clamping screws **X2** in the upper feed eccentric **W2** and, to increase the stitch length, turn the regulating screw **V2** over to the left, or outward; to shorten the length of stitch, turn the screw **V2** to the right, or inward, keeping in mind that the feeding foot (upper feed) and the feed dog (under feed) should, in general, be given the same amount of feeding action.

**Machine 147-118:** Adjust the feed eccentric **U2, Fig. 8,** in the same manner as instructed on **page 10,** for **Machine 147-117.**

## TO SET THE LOOPER THE CORRECT DISTANCE FROM THE NEEDLES

**See Fig. 9**

When the needle bar is at its lowest position, the distance from the center of the right-hand needle to the point of the looper should be **9/64** inch as shown in **Fig. 9,** below.

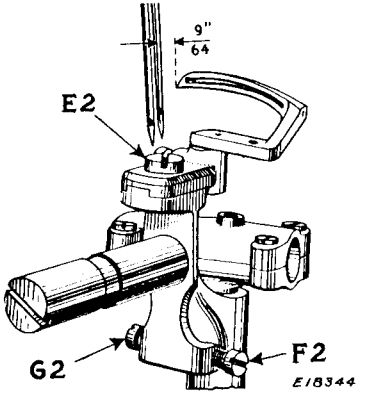



**Fig. 9. Looper Setting**

If the distance is less than **9/64** inch, loosen the right-hand screw **F2** in the looper holder bracket, and tighten the left-hand screw **G2** as required.

If the distance is more than **9/64** inch, loosen the left-hand screw **G2** and tighten the right-hand screw **F2,** as required.

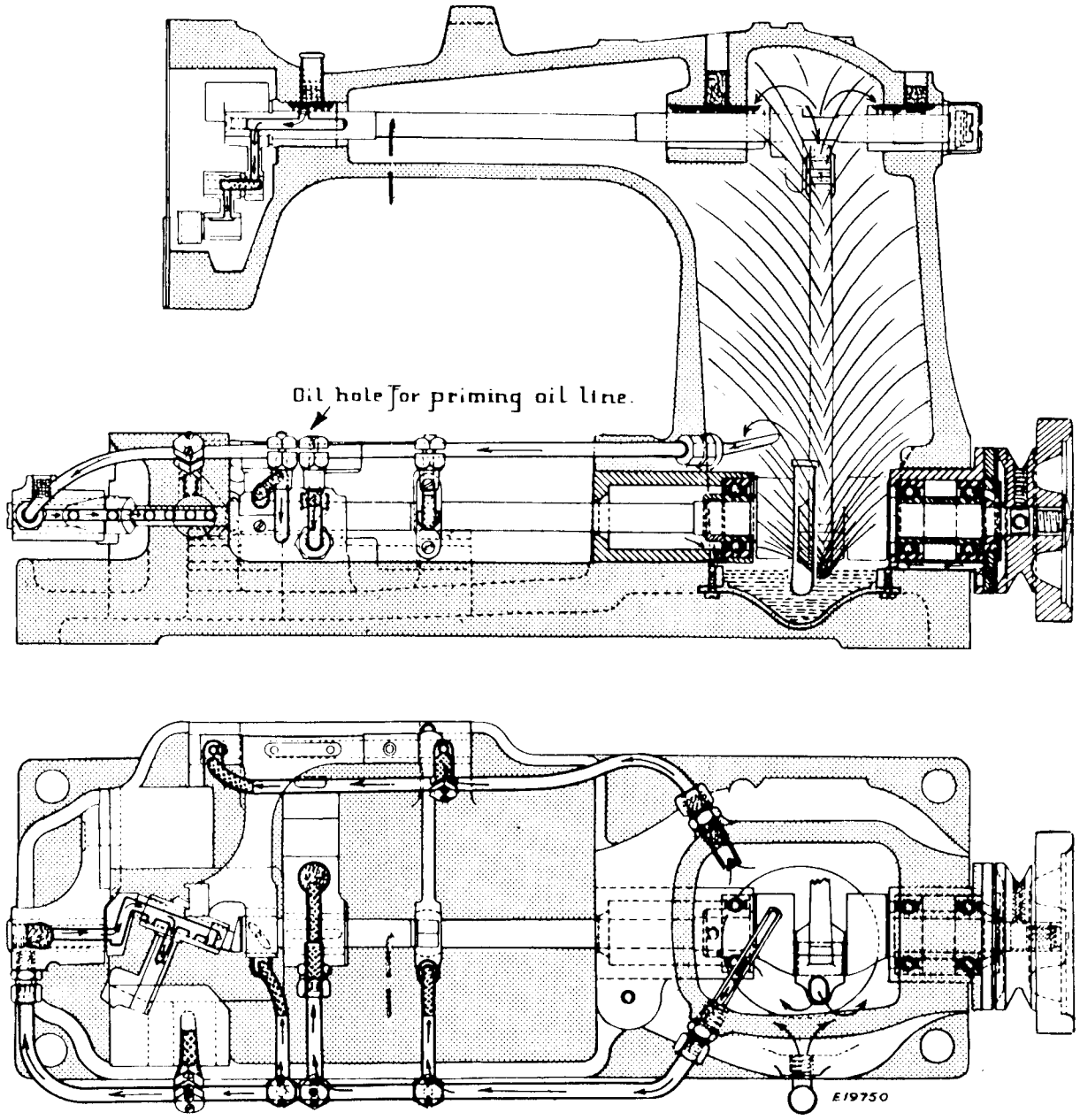
When the correct distance from the center of the right-hand needle to the point of the looper is obtained, see that the two screws **F2** and **G2** are securely tightened.

## TO CHANGE THE SIDEWISE POSITION OF THE LOOPER IN RELATION TO THE NEEDLES

**See Fig. 9**

The looper should be set to pass at an equal distance from the needles on its forward and backward strokes. To change the sidewise position of the looper with relation to the needles, loosen the screw **E2** and move the looper holder, as required. Then securely tighten the screw **E2.**

**Diagrams of Machine showing wicks and bearings oiled by automatic splash, also bearings oiled by gravity through tubes on outside of the machine.**



## TO SET THE NEEDLE BAR AT THE CORRECT HEIGHT

See Fig. 10

Turn the balance wheel over from you until the point of the looper, on its forward stroke, reaches the center of the right-hand needle.

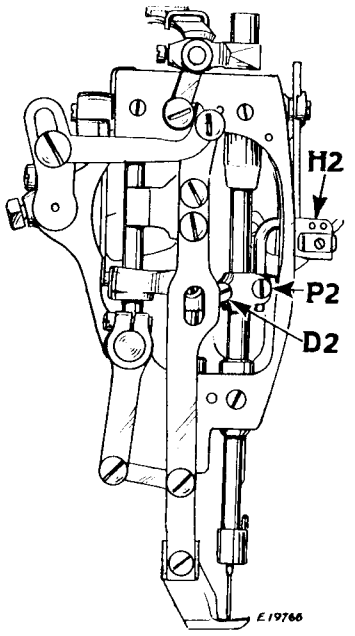



**Fig. 10. Setting the Needle Bar**

In this position, the eye of the right-hand needle should be approximately **3/16** inch below the point of the looper, to insure that the eyes of the needles and the looper will be in alignment as they pass each other during the loop-taking stroke.

When the needle bar is not set at the correct height, loosen the needle bar clamping screw **D2**, and move the needle bar up or down as required. Then securely tighten the clamping screw **D2**, making sure that the needles center in their respective slots in the needle hole in the throat plate.

**NOTE: For some threads it may be necessary to vary the height of the needle bar, owing to the differences in finish, twist, elasticity, etc. This applies also when different materials are to be sewn.**

## TO SET THE NEEDLE THREAD TAKE-UP

See Fig. 10

The needle thread take-up **H2** is usually set with its lower end flush with the bottom of the needle bar connecting stud in which it is held by the screw **P2.**



## TO ADJUST THE SLACK THREAD REGULATOR

See Fig. 11

The slack thread regulator **Z3,** on the front of the machine, should be set so that, when the loopers are shedding the needle loops on their backward stroke, the threads will not snap off the points of the loopers, nor be drawn through the tension discs.

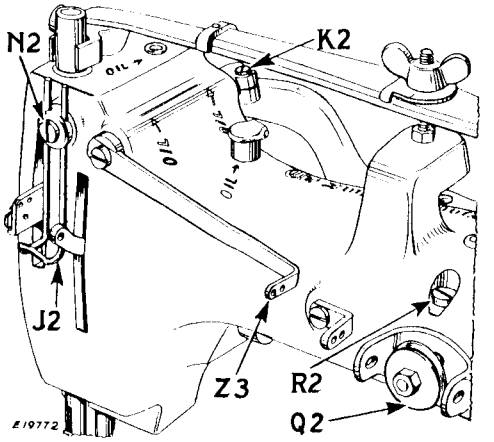



**Fig. 11. Needle Thread Adjustments**

To set the slack thread regulator, start with the regulator in a low position and continue raising the regulator until the loopers back out of the needle loops with a little tension on the threads. To make this adjustment, loosen the clamping screw **K2** and raise or lower the slack thread regulator, as required. Then securely tighten the clamping screw **K2.**

## TO ADJUST THE AUXILIARY THREAD TAKE-UP

See Fig. 11

The auxiliary thread take-up **J2,** at the front of the machine, should be set to take up the slack of the needle threads after the looper has shed the needle loops, as the needle bar finishes its downward stroke and the stitches are set.

To change the position of the auxiliary thread take-up, loosen the screw **N2,** and raise or lower the take-up, as required. Then securely tighten the screw **N2.**

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

## TO ADJUST THE AUTOMATIC THREAD NIPPER

See Fig. 12

The automatic thread nipper **Q2** makes it possible to set the stitch tightly without using a heavy tension on the needle threads. The nipper discs should first open wide enough to permit free passage of the threads and then they should close and nip the threads immediately after the looper has cast off the needle loops on the downward stroke of the needle bar.

To adjust, loosen the set screw **R2** and move the nipper body inward, away from the operator, for a wider opening of the discs, or move the nipper body outward for less opening. Then tighten set screw **R2**.

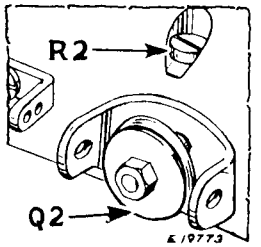



Fig. 12. Automatic Thread Nipper

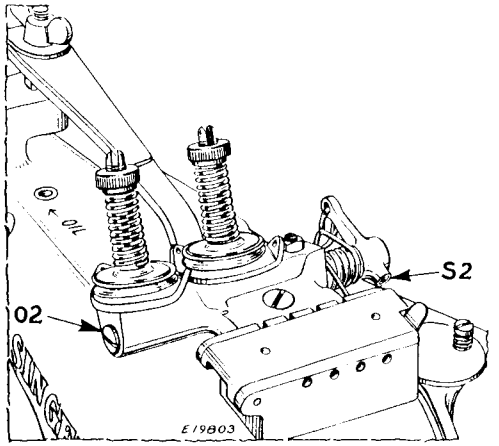



Fig. 13. Adjustment of Needle Thread Tension Releaser

## TO ADJUST THE NEEDLE THREAD TENSION RELEASER

See Fig. 13

The function of the needle thread tension releaser is to release the tension on the needle threads, when the presser bar is raised.

If the tension releaser does not release the threads, when the presser bar is raised, or if the tension is even partially released, when the presser foot is down, loosen set screw **S2** and turn the shaft **O2** to the right or left until the correct setting is obtained. Then securely tighten set screw **S2**.



## TO CHANGE THE EXTENT OF THE NEEDLE AVOIDING MOTION OF THE LOOPER

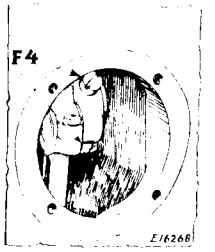



Fig. 14. Rock Shaft Crank

The extent of the sidewise movement of the looper is regulated by moving the rotary shaft endwise toward the needles for less sidewise motion, or away from the needles for more sidewise motion.

The looper, on its forward and backward strokes, should pass as close as possible to the needles, but not touch them.

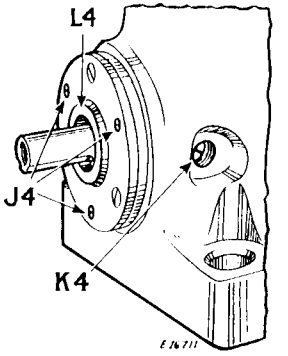



Fig. 15. Rotary Shaft

To adjust, loosen the two screws **F4, Fig. 14,** in the rock shaft crank and the set screw in the hub of the under thread rotary take-up **T3, Fig. 17.**

**Machine 147-117:** Loosen the three set screws **G4, Fig. 16,** in the under feed eccentric **U2** and the three set screws **H4, Fig. 16,** in the upper feed eccentric **W2, Fig. 16.**

**Machine 147-118:** Loosen the three set screws **L2, Fig. 17,** in the feed eccentric **M2, Fig. 17.**

Remove the balance wheel cap screw, loosen the two set screws in the belt groove of the balance wheel and take off the balance wheel. Loosen ball bearing case screw **K4, Fig. 15.** To move the rotary shaft toward the needles, turn the three position screws **J4, Fig. 15** uniformly inward and tap ball bearing case **L4, Fig. 15** until the desired amount of sidewise motion is obtained, then tighten the screw **K4.**

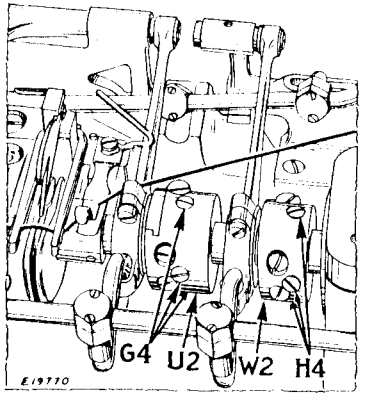



Fig. 16. Machine 147-117 Feed Eccentrics

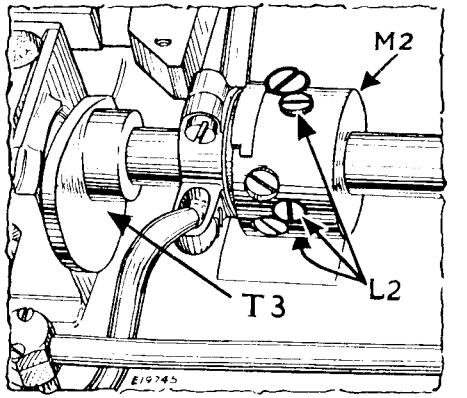



Fig. 17. Machine 147-118 Feed Eccentrics

To move the rotary shaft away from the needles, turn the three position screws **J4** uniformly outward, then tighten the ball bearing case screw **K4.** Replace the balance wheel. Turn the balance wheel a few times by hand to permit the rock shaft and feed eccentrics to align themselves. Then securely tighten screws **F4, Fig. 14,** against their flats. Time the feed, as instructed on page 25 and time the under thread take-up as instructed below.

## TO TIME THE LOOPER THREAD TAKE-UP

**See Fig. 18**

The looper thread take-up **B3** should be timed so that when the needles are at their highest point and the looper is just commencing its backward stroke, or loop shedding motion, the flat, or straight, part of the take-up **B3**

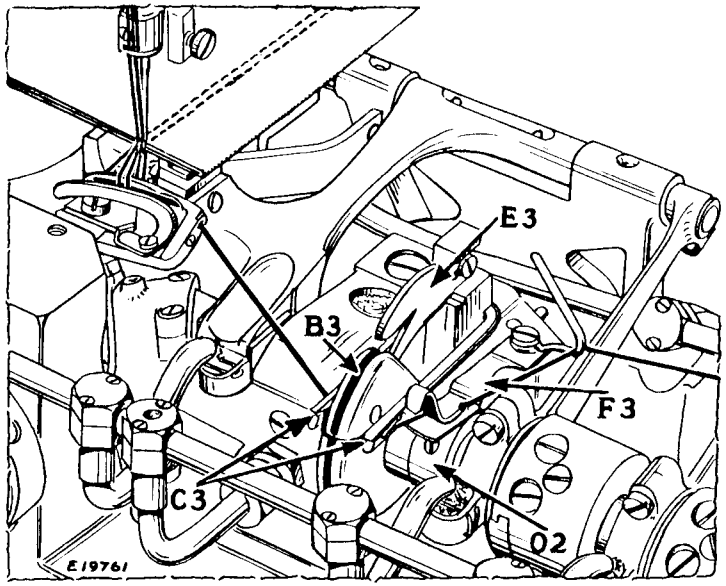



**Fig. 18. Timing the Looper Take-up**

just commences to touch the thread between the two eyelets in the thread take-up staple **C3.** As the needles move downward, the take-up **B3** should just take up the slack thread from the looper, keeping the thread taut from the eye of the looper to the last stitch formed.

To time the looper thread take-up, loosen the screw which holds it in position on the rotary shaft. The looper thread take-up should take the slackness out of the thread when the looper is on its **backward** stroke.

**CAUTION: If the looper thread take-up is timed too early it will strain the looper thread, causing it to break or to form a puckered stitch.**



## TO ADJUST THE LOOPER THREAD TAKE-UP STRIPPER

**See Fig. 18**

The purpose of the looper thread take-up stripper **E3** is to cast the threads from the take-up **B3,** after the needles have entered the triangle formed by the looper blade, looper thread and needle loops, as shown in **Fig. 18,** and to hold them in this position on the take-up until the point of the looper has entered the needle loops on its loop-taking motion. At this point, the stripper should release the threads and allow them to move easiiy with the looper.

To adjust, loosen the screw at the right of the stripper and move the stripper forward or backward, as required, then tighten screw.

## TO TIME THE LOOPER THREAD NIPPER

**See Fig. 18**

The function of the looper thread nipper **F3** is to prevent the take-up **B3** from pulling on the thread supply instead of taking up the slack from the looper.

The nipper cam **O2,** should be timed to close the nipper **F3** just before the flat portion of the take-up **B3** reaches the thread between the take-up eyelets **C3,** and before the take-up commences its action. The nipper cam **O2** can be correctly timed after loosening the set screw which holds it in position on the rotary shaft.

It is advisable to observe closely how the needles, on their downward stroke, pass the loops which are on the looper. The needles should pass to the left of the loops and in the triangle, as shown in **Fig. 18.**

## TO SET THE STATIONARY NEEDLE GUARD

**See Fig. 19**

To set stationary needle guard **V3** in the correct position, loosen set screw **E4** and move the guard to or from the needles, as required, then securely tighten set screw E4.

The needle guard should be set as close as possible to the needles without actually touching them.

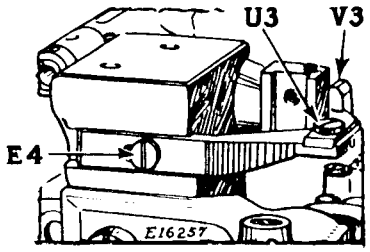



**Fig. 19. Stationary Needle Guard**

The needle guard can also be adjusted to the right or left, in order to clear the feed dog, after loosening the screw **U3.**

## TO SET THE FEED DOG AT THE CORRECT HEIGHT

See Fig. 20

When the feed dog is at its highest position, practically the full depth of the teeth should project through the slots in the throat plate. When the feed dog has been set at the correct height, it should rest upon the stop screw **Y3,** which, with the feed dog removed, may be turned up or down as required.

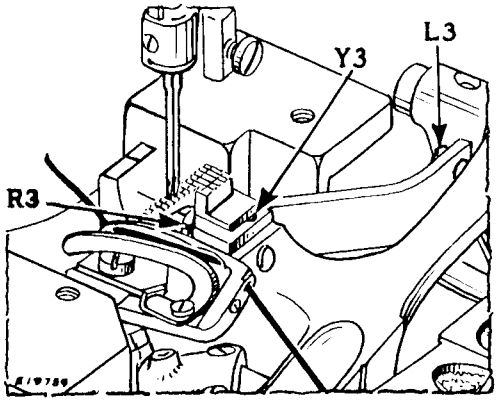



**Fig. 20. Feed Dog Adjustments**

## TO LEVEL OR TILT THE FEED DOG

See Fig. 20

The feed dog may be leveled, or tilted, to any desired position, after loosening feed dog screw **R3** and screw **L3.**

When the feed dog is in the desired position, press it down so that it rests upon the stop screw **Y3,** then securely tighten the screw **R3** and then the screw **L3.**

## TO CENTRALIZE THE FEED DOG IN THE THROAT PLATE SLOTS

See Fig. 21

The feed dog should be centered in the throat plate slots so that it moves equi-distant from both ends of the slots, during the feeding movement.

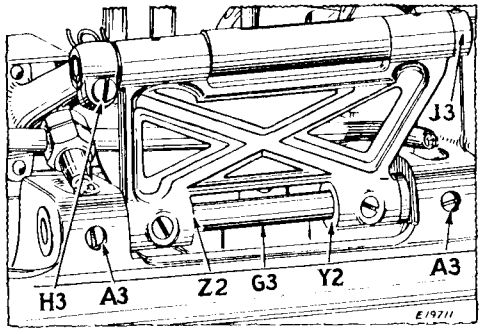


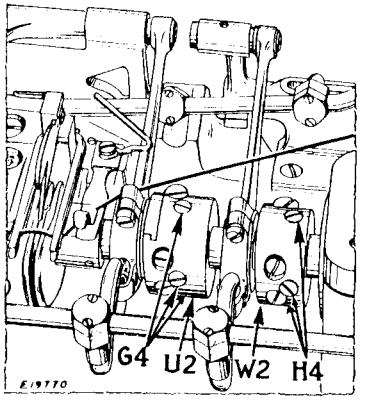

**Fig. 21. Centralizing the Feed Dog**

To adjust, loosen clamp screw **H3** and rotate the hinge pin **J3,** as required, then securely tighten clamp screw **H3.**



## TO ALIGN THE FEED DOG IN THE THROAT PLATE SLOTS

Loosen the three screws **G4, Fig. 22,** in the under feed eccentric **U2, Fig. 22.** Also loosen the two screws **A3, Fig. 21,** in the feed rocking frame bushings. Then tap the inside edge of the feed frame lug at **Z2, Fig. 21,** to move the feed to the left, or tap it at **Y2, Fig. 21,** to move it to the right.




**Take out excessive end play** by tapping the opposite bushing toward the feed frame, but use caution when making this setting, as **there should be slight end play** between the bushings.

**Fig. 22. Aligning the Feed Dog**

Then tighten the two screws **A3, Fig. 21.** Turn balance wheel by hand a few times to allow the feed eccentric to align itself. Tighten the three set screws **G4, Fig. 23,** as instructed under "TO TIME THE FEED", below.

## TO TIME THE UNDER-FEED
### Machine 147-117

For correct timing of the under-feed, the first two of the three set screws **G4, Fig. 23,** must be tightened against the two flats on the rotary shaft. The first of these screws is the one nearest the stitch regulator screw **T2, Fig. 23,** the second being the one which follows the first when the balance wheel is turned over from the operator. After these two screws have been tightened against their flats, tighten the third screw against the shaft.

## TO TIME THE UPPER-FEED
### Machine 147-117

Loosen the three set screws **H4, Fig. 23,** in the feed eccentric **W2, Fig. 23,** and turn the feed eccentric **W2** until the feeding foot moves in unison with the under-feed, then securely tighten the first two of the three screws **H4** against their flats on the shaft. The first of these three screws is the one nearest the stitch regulator screw **V2, Fig. 23,** the second being the one which follows the first when the balance wheel is turned over from the operator. After these two screws have been securely tightened, tighten the third screw against the shaft.

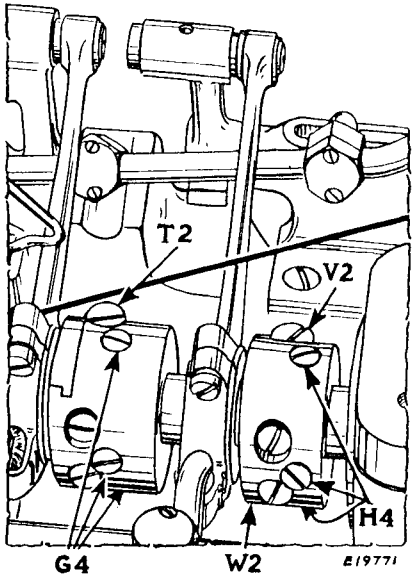



Fig. 23. Machine 147-117
Timing the Feed

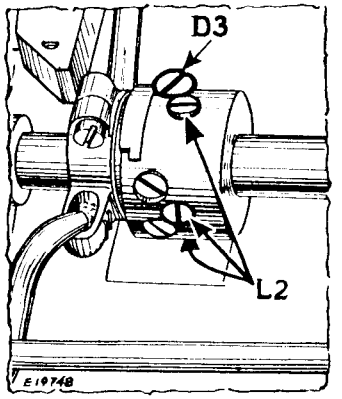



Fig. 24. Machine 147-118
Timing the Feed

## TO TIME THE FEED

### Machine 147-118

For correct timing of the feed, the first two of the three set screws **L2, Fig. 24,** must be tightened against the flats on the rotary shaft. The first of these screws is the one nearest the stitch regulator screw **D3, Fig. 24,** the second being the one which follows the first when the balance wheel turns over from the operator. After tightening these two screws against their flats, tighten the third screw against the shaft. Then time the looper thread take-up, as instructed on **page 22.**



## TO ADJUST THE ALTERNATING PRESSER FEET

### Machine 147-117

See Fig. 25

The amount of lift of the alternating presser feet should be regulated according to the thickness of the material being sewn. The feet should lift sufficiently high to clear the material.

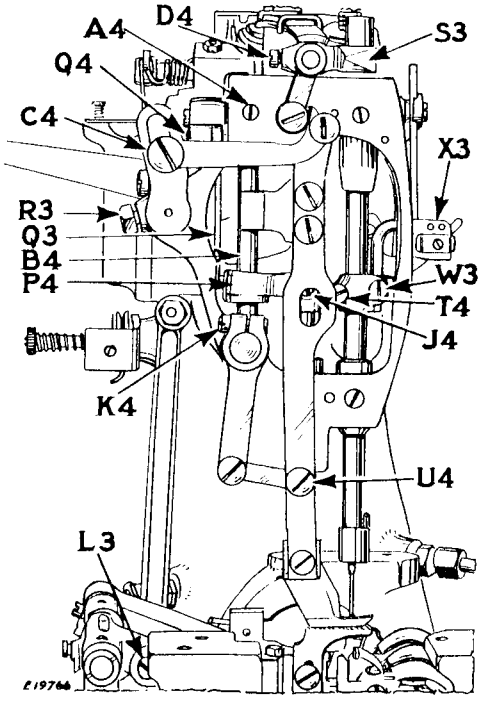



Fig. 25. Presser Feet Adjustments on Machine 147-117

To increase the lift of the presser feet, loosen the screw **C4** and move it upward in the slot. To decrease the lift of the feet, move the screw **C4** downward in the slot. When the required setting is obtained, securely tighten the screw **C4.**

The lift of the alternating pressers is equalized by loosening the screw **D4** and moving the bracket **S3** up or down on the presser bar, as required, after which the screw **D4** should be securely tightened.

The feeding foot should be adjusted in relation to the drop feed, so that it does not come in contact with the lifting presser. The feeding foot can be adjusted to the required position, after loosening the screw **K4.** When the feeding foot is correctly adjusted, securely tighten the screw **K4.**

## TO REMOVE THE LOOPER MECHANISM

See Fig. 26

Remove the throat plate, thread guard, cloth plate and feed dog. Take out screw **X4** and remove the looper holder together with the looper. Take out screw **E4** and remove the needle guard holder. Remove the four screws **W4** in the looper shaft connection and remove the cap. Remove the cap screw **Y4,** then insert a screwdriver into the hole and unscrew shaft **Z4** from the looper carrier, and remove looper assembly.

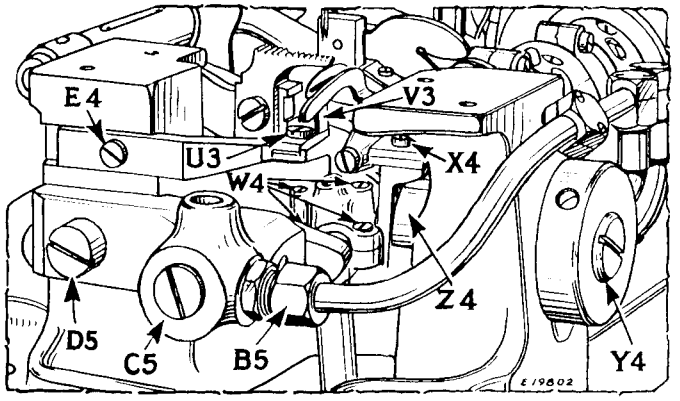



**Fig. 26. Removal of Looper Mechanism**

## TO REMOVE THE LOOPER SHAFT

To remove the looper shaft **A5, Fig. 27,** loosen clamping screw **N5, Fig. 28,** and, from the needle bar end of the machine, withdraw feed bar eccentric hinge pin **Z5, Fig. 28** and remove the feed bar.

Unscrew oil coupling **B5, Fig. 26,** take out screw **D5, Fig. 26,** and remove the bracket **C5, Fig. 26,** then turn the balance wheel until the looper shaft screw **F5, Fig. 27,** is at the top.

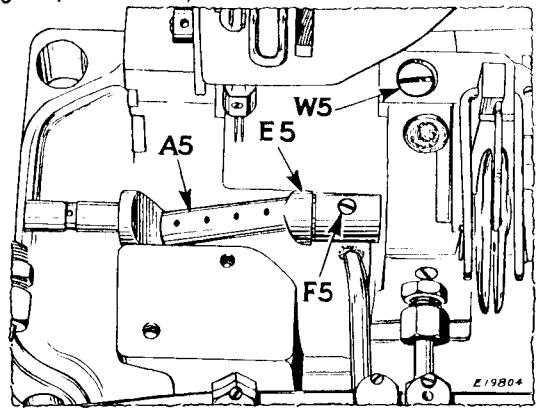



**Fig. 27. Removal of Looper Shaft**

Take out screw **F5** and remove the looper shaft from the rotary shaft by tapping against the flange **E5, Fig. 27** of the feed eccentric, with a piece of brass. **CAUTION: Do not spring this shaft while removing or replacing it,** as this may cause it to bind and heat, when the bracket **C5, Fig. 26,** is replaced.



## TO REMOVE THE UNDER-FEED MECHANISM
### Machine 147-117

See Fig. 28

With the needle bar at its highest position, remove the presser foot and the feeding foot. Remove the throat plate, thread guard and cloth plate. Loosen clamping screw **N5** and, from the needle bar end of the machine, withdraw eccentric hinge pin **Z5** from the feed rocking frame.

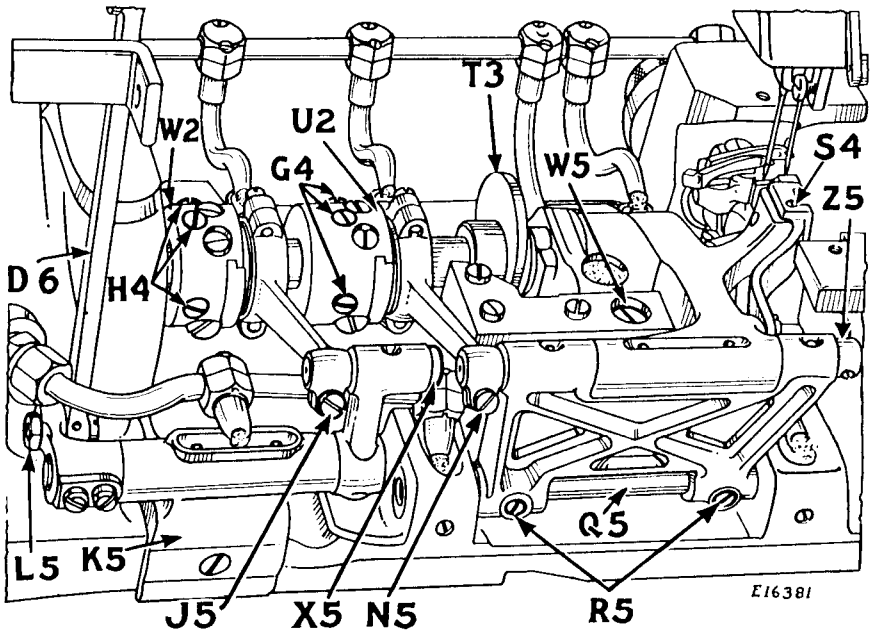



**Fig. 28. Removing Under-Feed Mechanism**

Remove the feed bar with the feed dog attached. The feed rocking frame can then be removed, if desired, by loosening the two set screws **R5** and withdrawing the feed rocking frame hinge pin **Q5.**

## TO REMOVE THE UPPER-FEED REGULATOR ASSEMBLY
### Machine 147-117

See Fig. 28

Take out stud **L5,** loosen clamping screw **J5** and disconnect the upper-feed connecting rod from the upper-feed connecting rod crank. Then remove the three screws which fasten the upper-feed regulator bracket **K5** to the base of the machine, and remove the bracket.

## TO REMOVE THE FEED MECHANISM
### Machine 147-118

Remove the feed mechanism from Machine 147-118 in the same manner as instructed above for the removal of the under-feed mechanism of Machine 147-117.

## TO REMOVE THE ARM ROCK SHAFT

Remove the face plate and needles, then unscrew the needle clamp from the needle bar. Loosen set screw **W3, Fig. 25, page 27,** and remove thread take-up **X3, Fig. 25.** Loosen screw **T4, Fig. 25** and remove needle bar from the top of the machine. Remove the presser foot and screw, then loosen screws **J4** and **D4, Fig. 25** and remove presser bar from top of machine. Loosen screw **A4, Fig. 25,** and take out the presser bar guide **B4** and presser bar lifting bracket **P4, Fig. 25.** Remove screws **C4** and **U4, Fig. 25** and take off the alternating presser mechanism (Machine 147-117). Remove the needle bar connecting link and the foot lifting lever. Take out screw **Q4, Fig. 25,** and remove the presser foot lifting link **Q3, Fig. 25,** then remove guide pin **R3, Fig. 25.**

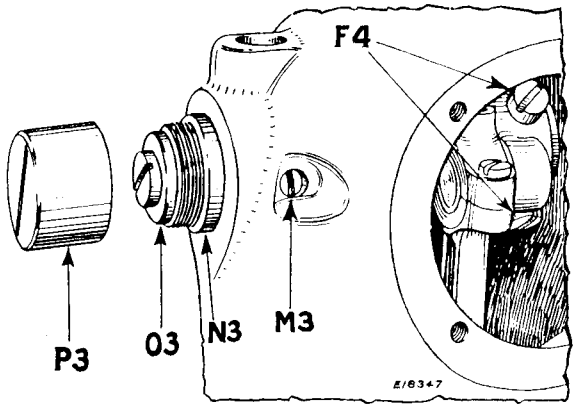



**Fig. 29. Removing Arm Rock Shaft**

Remove cap **P3, Fig. 29,** and screw and washer **O3, Fig. 29,** at the rear end of the rock shaft. Remove round cover plate at rear side of machine, carefully saving the gasket. Loosen the two screws **F4, Fig. 29** in the rock shaft crank and, with the connecting rod at the midway position, withdraw the rock shaft from the needle bar end of the machine. Remove the automatic thread nipper.

## TO REPLACE THE ARM ROCK SHAFT

When replacing the rock shaft, have connecting rod at the midway position. Replace screw and washer **O3, Fig. 29,** in the end of the shaft and turn the balance wheel a few turns by hand to allow rock shaft crank to align itself before tightening the two screws **F4, Fig. 29,** on their flats.



The end play in the rock shaft is regulated by loosening set screw **M3, Fig. 29,** and moving the bushing **N3, Fig. 29,** endwise.

**NOTE: Permit a little end play in the rock shaft, when cold, to allow for expansion which occurs when the machine is warmed up.**

## TO REMOVE THE ARM ROTARY SHAFT

Remove presser foot and feeding foot. Remove throat plate. Take out screw **X4, Fig. 26, page 28,** and remove the looper holder together with the loopers. Take out screw **W5, Fig. 28, page 29,** and remove the stripper plate bracket together with the stripper plate. Remove under-feed mechanism, as instructed on **page 29.** Loosen clamping screw **J5, Fig. 28,** and withdraw hinge stud **X5, Fig. 28,** from upper-feed connecting rod crank. Disconnect the upper end of the upper-feed rock shaft pitman **D6, Fig. 28** (Machine 147-117). Remove oil sump at under side of machine bed, being careful not to injure the gasket. Through this opening (see **Fig. 30**), take out the two hexagon nuts **U5, Fig. 30,** together with the lock washers **S5, Fig. 30,** and remove connecting rod cap.

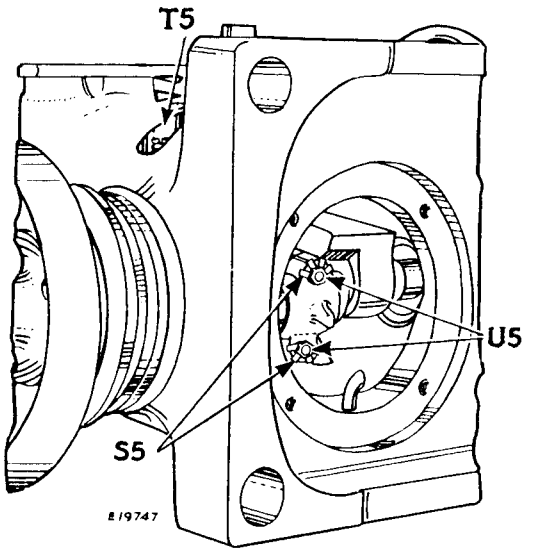



**Fig. 30. Removing Arm Rotary Shaft**

Loosen the three set screws **H4, Fig. 28,** in upper-feed eccentric **W2, Fig. 28** (Machine 147-117). Loosen the three set screws **G4, Fig. 28,** in the under-feed eccentric **U2.** Loosen set screw in hub of looper thread take-up **T3, Fig. 28.** Loosen ball bearing case screw **T5, Fig. 30,** and remove arm rotary shaft together with ball bearing case. Tap against the balance wheel, to assist in the removal of the shaft.

## TO REPLACE THE ARM ROTARY SHAFT

After inserting arm rotary shaft and its ball bearing case into the balance wheel end of the machine, tighten the three set screws **G4, Fig. 28,** in the under-feed eccentric. Also tighten the three set screws **H4, Fig. 28,** in the upper-feed eccentric (Machine 147-117). These settings should be made in the manner described on **pages 25** and **26** for timing the feed.

**CAUTION:** Have the flat on the ball bearing case where the ball bearing case screw **T5** will be tightened against it.

In replacing the connecting rod cap, first have the two cap screws in place, then apply the lock washers **S5,** then the hexagon nuts **U5.** Do **NOT** tighten these nuts too tightly, as this may cause binding of the shaft. When the nuts **U5** have been properly tightened, bend up the lugs of the washers **S5.**

When replacing the sump at the under side of the machine bed, see that the gasket is in good condition and that it is properly placed to prevent leakage of oil, before tightening the four fastening screws.