

SINGER
151K1,K2,K3

USE 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 an oil is desired which will produce a minimum of stain on fabrics, even after a long period of storage, use:

TYPE D — MANUFACTURING MACHINE OIL, HEAVY GRADE

OTHER SINGER* LUBRICANTS

TYPE E — THREAD LUBRICANT

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

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.

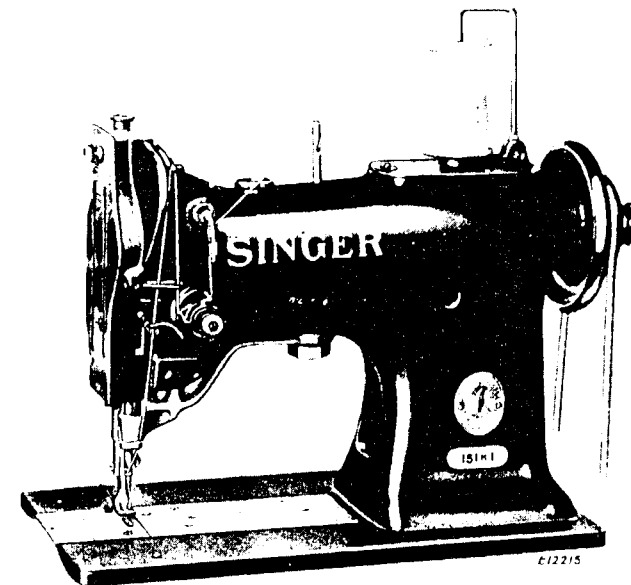
Form K6428
(761)

INSTRUCTIONS

FOR USING AND ADJUSTING

SINGER*

SEWING MACHINES



151K1, 151K2 and 151K3

UNISON FEED

THE SINGER MANUFACTURING CO.

DESCRIPTION

MACHINES 151k1 to 151k3 have one needle and a belt driven rotary sewing hook and make the lock stitch. The bed of the machines is 13-5/16 inches long and the distance from the needle to the upright part of the arm is 5-3/4 inches. The upper and lower shafts have ball bearings at the machine pulley end. Provision is made for automatically lubricating the hook race.

The machines have unison feeding mechanism, consisting of a vibrating needle, a vibrating presser foot and a bi-motion needle plate which vibrates flush with the surface of the throat plate, the vibrating movement of all these being always on the line of the seam. The needle carrier frame is made of a light aluminium alloy for high speed operation.

In operation, the needle descends through the material into the needle hole in the needle plate and at the same time the vibrating presser foot descends on the material, and all move forward together for the desired length of stitch. The lifting presser foot then descends on the material and holds it firmly while the needle and vibrating foot rise and with the needle plate return to position for the next stitch.

By moving the stitch regulator, the throw of the needle, vibrating presser foot and needle plate is changed without disturbing their relative positions. The elongated needle hole in the vibrating presser foot enables the operator to watch the point of the needle and place corner stitches correctly.

The unison feed especially adapts the machines for stitching together two or more plies of material of equal length, without puckering either the lower or the upper ply, so that the several plies will come out even at the end of a seam and lie flat without a tendency to roll.

MACHINE 151k1 is intended for use in the manufacture of corsets, cloth mittens, leather palm gloves, etc., and for stitching close to the edges of collars and cuffs and similar work.

MACHINE 151k2 is fitted with an attachment for inserting and guiding the raw edges of a machine turned collar within the band while stitching the finishing seam that unites them. This machine feeds the several plies of a collar so accurately that the collar band is edge stitched and the collar fitted within the allotted space without puckering or fulling either the lower or upper ply, and the collar lies flat when finished.

MACHINE 151k3 is designed for binding corsets, brassieres, corset covers, etc. This machine feeds the binding and the fabric so accurately that both sides of net brassieres are of the same size when finished, and do not show draw nor fullness.

To Oil the Machine

When the machine is received from the factory, it should be thoroughly cleaned and oiled. Use "TYPE B" or "TYPE D" OIL, sold by Singer Sewing Machine Company. For description of these oils, see inside of front cover of this book.

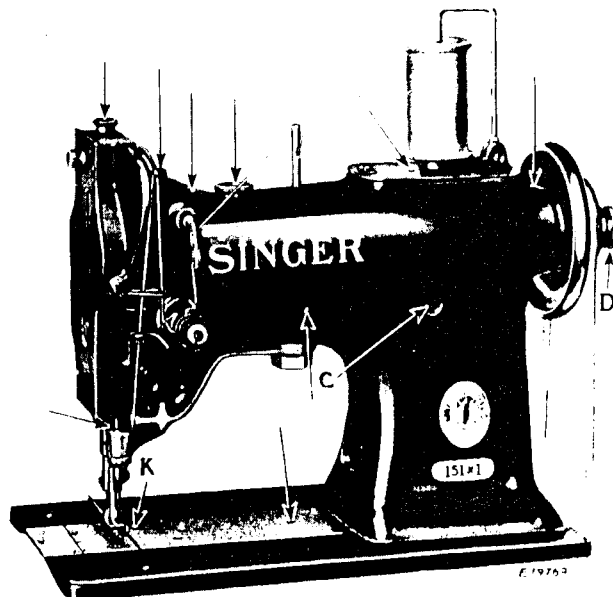


Fig. 2. Oiling Points at Front of Machine

Before starting the machine, fill the oil reservoir (K, Figs. 2 and 3) through the oil hole in the bed of the machine. This reservoir lubricates the front hook shaft bearing and sewing hook raceway through the oiling system shown in Fig. 3.

When starting a new machine, it is advisable each morning, for about a week, to apply a few drops of oil directly to the hook raceway (L, Fig. 3). ALWAYS KEEP A SUPPLY OF OIL IN THE RESERVOIR (K)

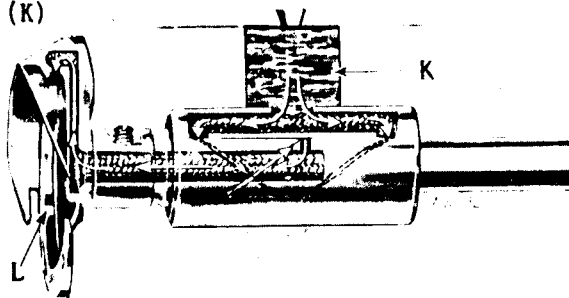


Fig. 3. X-ray View of Hook

Lubricating System (Oil flows in direction indicated by arrows)

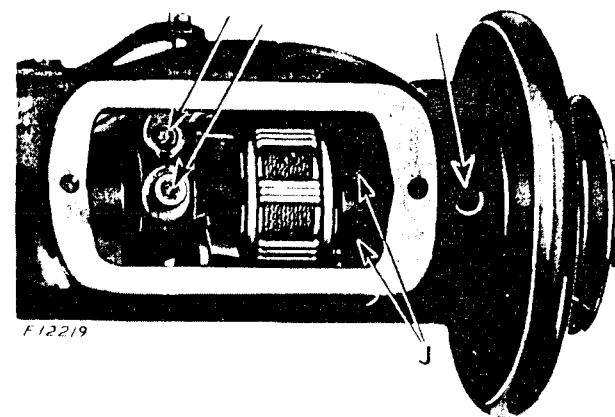


Fig. 4. Oiling Points in Arm of Machine

Oil should also be applied to each of the places designated by arrows in Figs. 2, 4, 5 and 6. When the machine is in continuous use, it should be oiled at least twice each day.

Swing back the cover on top of the machine and apply oil where indicated in Fig. 4. Loosen the thumb screw in the upper end of the face plate, turn the plate up and oil the wick and bearings shown in Fig. 6, then replace and tighten the face plate.

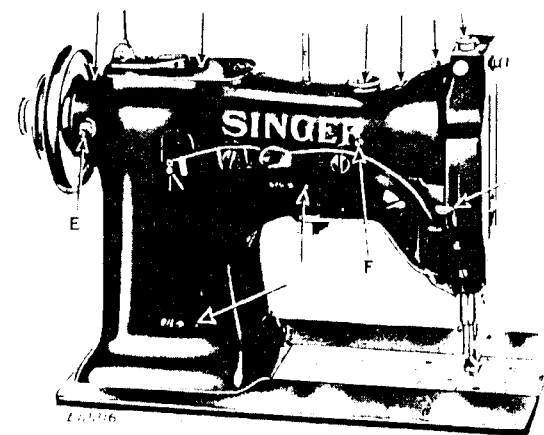


Fig. 5. Oiling Points and Adjustments at Rear of Machine

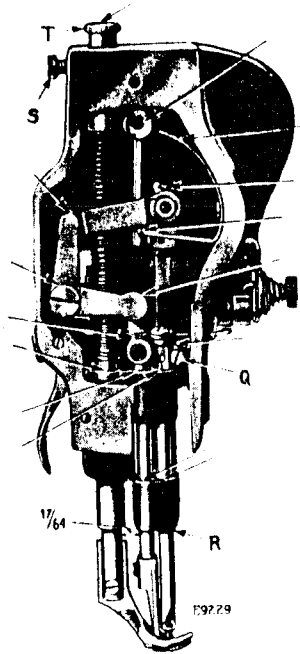


Fig. 6. Face Plate Removed for Oiling

Speed

The maximum speed recommended for Machines 151k1, 151k2 and 151k3 is 3000 stitches per minute, when permitted by the nature of the material being stitched. The machines should be run slower than the maximum speed at first, until the parts which are in movable contact have become glazed by their action on each other.

Needles

Needles for machines of Class 151k are Catalogue 1451 (135x1), made in sizes 8, 9, 10, 12, 14, 16, 18, 20 and 22 (No.9 and above have reduced blade), and Catalogue 1453 (135x3) (no short groove above the eye), made in sizes 16, 18, and 20, for silk thread.

The needle which is best adapted for the work that the machine is fitted to do, is set in the machine at the factory.

The size number of the needle is marked upon its shank.

The size of the needle to be used should be determined by the size of the thread which must pass freely through the eye of the

needle. If rough or uneven thread is used, or if it passes with difficulty through the eye of the needle, the successful use of the machine will be interfered with.

Orders for needles must specify the QUANTITY required, the SIZE number, and also the CATALOGUE number.

The following is an example of an intelligible order:

"100 size 12-- Catalogue 1451 Needles
100 size 16-- Catalogue 1453 Needles"

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

Thread

Left twist thread should be used in the needle. Either right or left twist thread can be used in the bobbin.

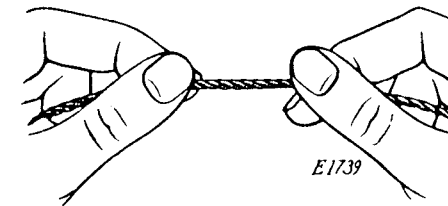


Fig. 7. How to Determine the Twist

Hold the thread as shown above. Turn the thread over toward you between the thumb and forefinger of the right hand; if left twist, the strands will wind tighter; if right twist, the strands will unwind.

Relative Sizes of Needles and Thread

The following sizes of needles and thread are recommended:

SIZES OF NEEDLES	COTTON	SILK
8	90, 100	00
9	80, 90	0
10	70, 80	A
12	60, 70	A
14	50, 60	B
16	40, 50	C
18	30 to 40	C
20	24, 30	D
22	16 to 24	E

To Set the Needle

Turn the machine pulley over toward you until the needle bar moves up to its highest point; loosen the screw in the lower end of the needle bar and put the needle up into the bar as far as it will go, with the long groove of the needle toward the right and the eye of the needle directly in line with the arm of the machine, then tighten the screw.

To Thread the Needle

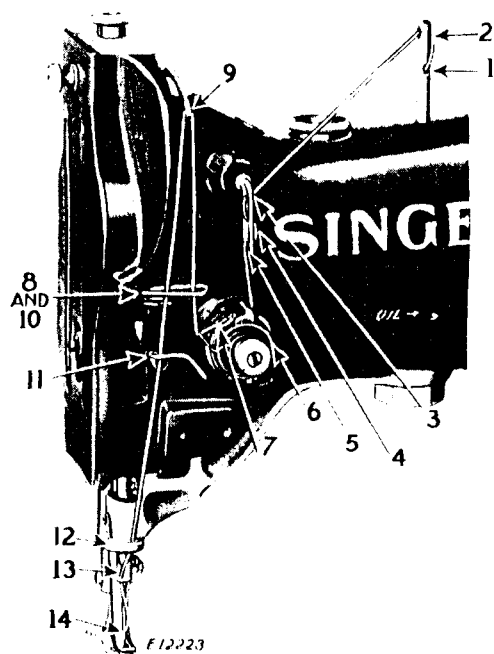


Fig. 8. Threading the Needle

Pass the thread from the unwinder, from back to front through the lower hole (1) in the pin on top of the machine, up and from right to left through the upper hole (2) in the pin, down and from right to left through the upper hole (3), from left to right

through the centre hole (4) and from right to left through the lower hole (5) in the thread guide at the front of the machine, down under and to the left between the tension discs (6), against the pressure of the take-up spring into the notch (7), up through the thread guide (8), to the left through the eye of the take-up lever (9), down again through the guide (10), into the guides (11 and 12), through the hole (13) in the needle bar and from right to left through the eye of the needle (14). Draw about three inches of thread through the eye of the needle.

To Remove the Bobbin

Draw out the slide in the bed of the machine, reach down with the thumb and forefinger of the left hand, open the bobbin case

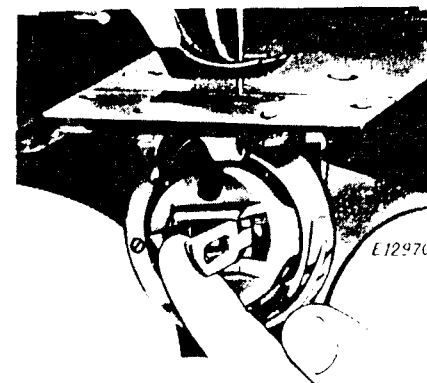


Fig. 9. Removing the Bobbin

latch with the forefinger as shown above, and lift out the bobbin case. Release the latch, turn the open end of the bobbin case downward and the bobbin will drop out.

To Wind the Bobbin

(See Fig. 10)

Fasten the bobbin winder to the table with its driving pulley in front of the machine belt, so that the pulley will drop away from the belt when sufficient thread has been wound upon the bobbin.

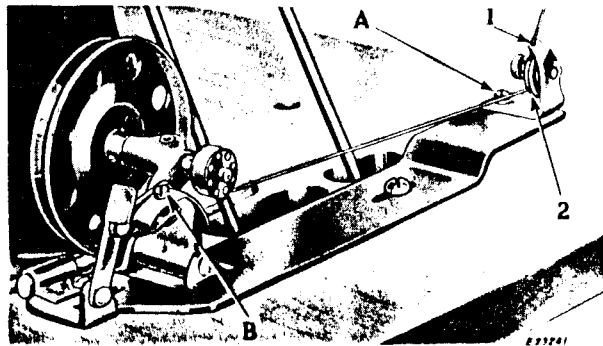


Fig. 10. Winding the Bobbin

Place the bobbin on the bobbin winder spindle and push it on as far as it will go.

Pass the thread down through the thread guide (1) in the tension bracket, around the back and between the tension discs (2). Then wind the end of the thread around the bobbin a few times, push the bobbin winder pulley over against the machine belt and start the machine.

When sufficient thread has been wound upon the bobbin, the bobbin winder will stop automatically.

If the thread does not wind evenly on the bobbin, loosen the screw (A) in the tension bracket and move the bracket to the right or left as may be required, then tighten the screw.

The amount of thread wound on the bobbin is regulated by the screw (B). To wind more thread on the bobbin, turn the screw (B) inwardly. To wind less thread on the bobbin, turn the screw outwardly.

Bobbins can be wound while the machine is stitching.

To Thread the Bobbin Case

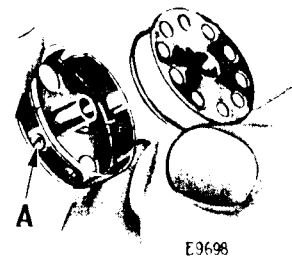


Fig. 11

Hold the bobbin between the thumb and forefinger of the right hand, the thread drawing on the bottom from the left toward the right, as shown in Fig. 11.

With the left hand, hold the bobbin case as shown in Fig. 11, the tension spring being at the front and place the bobbin into the bobbin case.

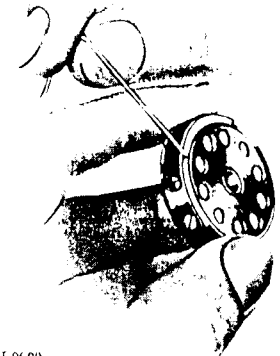


Fig. 12

Then pull the thread into the slot in the edge of the bobbin case as shown in Fig. 12, and back under the tension spring into the slot at the end of the tension spring, as shown in Fig. 13.

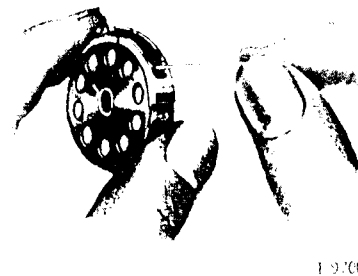


Fig. 13

To Replace the Bobbin Case

After threading, take the bobbin case by the latch (A, Fig. 14), holding it between the thumb and forefinger of the left hand,

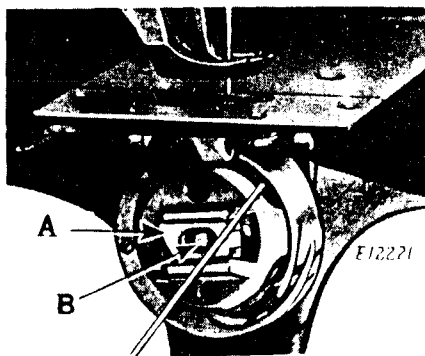


Fig. 14. Bobbin Case Threaded and Replaced

place it on the centre stud (B, Fig. 14) of the bobbin case base, release the latch and press the bobbin case back until the latch catches the groove near the end of the stud (see Fig. 14). Allow about two inches of thread to hang free and replace the slide in the bed of the machine.

To Prepare for Sewing

With the left hand hold the end of the needle thread, leaving it slack from the hand to the needle, turn the machine pulley over toward you until the needle moves down and up again to its

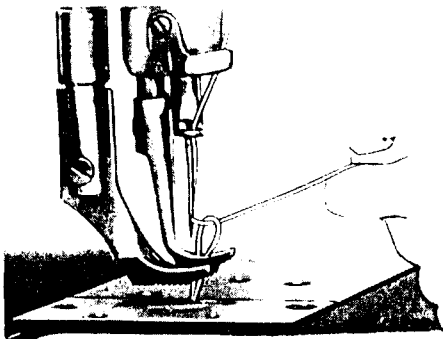


Fig. 15. Pulling up the Bobbin Thread

highest point, thus catching the bobbin thread; draw up the needle thread and the bobbin thread will come up with it through the hole in the throat plate. Lay both threads back under the presser foot.

To Commence Sewing

Place the material beneath the presser feet, lower the presser feet and commence to sew, turning the machine pulley over toward you.

To Remove the Work

Have the thread take-up lever at its highest point, raise the presser feet and draw the work back and cut the threads close to the goods.

For convenience in taking out the work, the tension of the upper thread is released by raising the presser feet with the lifter; but is not released by thick goods or seams passing under the presser feet.

To Turn a Corner

Stop the machine with the needle in the cloth, after it has been down and come partly up; then lift the presser foot lifter and turn the work in the direction desired, using the needle as a pivot.

To Regulate the Length of Stitch

The length of stitch is regulated by the feed regulating spindle head (D, Fig. 2) at the right of the machine pulley.

There is a notch in the hub of the machine pulley and the number appearing in the notch shows the number of stitches to the inch that the machine is ready to make.

To lengthen the stitch, turn the stitch regulator (D) over toward you. To shorten the stitch, turn the stitch regulator over from you.

Tensions

The needle and bobbin threads should be locked in the centre of the thickness of the material, thus:



Fig. 16. Perfect Stitch

If the tension on the needle thread is too tight, or if that on the bobbin thread is too loose, the needle thread will lie straight along the upper surface of the material, thus:



Fig. 17. Tight Needle Thread Tension

If the tension on the bobbin thread is too tight, or if that on the needle thread is too loose, the bobbin thread will lie straight along the under side of the material, thus:



Fig. 18. Loose Needle Thread Tension

To Regulate the Tensions

The tension on the needle thread is regulated by the thumb nut (U, Fig. 19) at the front of the tension discs on the front of the machine. To increase the tension, turn this thumb nut over to the right. To decrease the tension, turn the thumb nut over to the left.

The tension on the bobbin thread is regulated by the screw (A, Fig. 11) in the tension spring on the outside of the bobbin case. To increase the tension, turn this screw over to the right. To decrease the tension, turn this screw over to the left. Do not let it become too loose as considerable under tension is necessary to insure a perfect stitch at high speed. See that there is no lint or dirt under the bobbin case tension spring.

Correctly made stitches can usually be obtained by regulating the upper tension only.

CAUTION. Do not try to adjust the upper tension when the presser lifter is up, as the tension is then loose.

Causes of the machine not stitching properly will usually be found in the tension not being correctly adjusted, or its discs may be clogged with lint or knots of thread, or the thread may be too coarse or too fine for the needle, or the needle and thread too coarse or too fine for the throat plate, or the needle bent or blunt. See that a straight needle is pushed up in the needle bar as far as it should go; any particle of lint or dirt which prevents it from going up can be removed through the cross hole in the needle bar.

To Regulate the Pressure on Material

The pressure of the presser feet on the material should be only heavy enough to clamp the work firmly and prevent it from rising with the needle; if too heavy, it will make the machine run harder and be of no benefit.

The pressure on the material is regulated by the thumb screw (T, Fig. 6) at the top of the machine. To increase the pressure, loosen the lock screw (S, Fig. 6) at the back of the machine and turn the thumb screw (T) downward. To decrease the pressure, turn the thumb screw (T) upward. When the desired pressure is obtained, securely tighten the lock screw (S). The pressure should be only heavy enough to enable the feed to move the work along freely.

INSTRUCTIONS

FOR

ADJUSTERS AND MACHINISTS

To Adjust the Thread Controller

The function of the thread controller spring is to hold back the slack of the needle thread until the eye of the needle nearly reaches the goods in its descent, as without this controlling action of the spring, the slack thread or silk (more especially silk) will sometimes be penetrated by the point of the needle as the needle is descending.

To change the thread controller stop for more controller action on the thread, loosen the set screw (W, Fig. 19) and turn the thread controller spring stop to the right; for less action, turn the thread controller spring stop to the left, after which securely tighten the set screw (W).

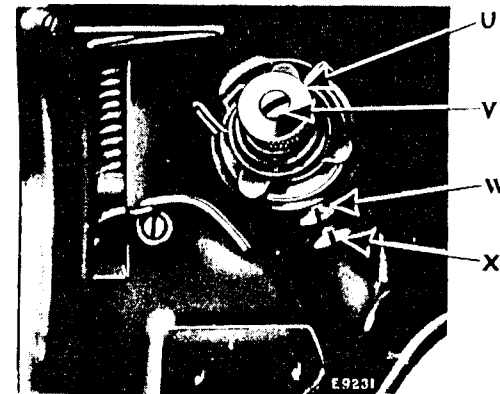


Fig. 19. Adjustment of Thread Controller

It may be found necessary to increase the tension of the thread controller spring for coarse thread, or to lessen it for fine thread.

To increase the tension of the thread controller spring on the thread, loosen the tension stud set screw (X, Fig. 19), located under the tension stud, and turn the tension stud (V, Fig. 19) slightly to the left with a screwdriver, or to decrease the tension, turn it to the right and retighten the stud set screw (X).

To Set the Needle Bar

The needle bar which is in the machine when shipped from the factory has upon it (about 1-1/2 inches from the bottom) two lines 3/32 inch apart. When the needle bar is at its lowest point, the upper mark should be even with the underside of the needle bar frame.

In case the needle bar is not correctly set, loosen the needle bar connecting stud pinch screw (Q, Fig. 6) and place the needle bar in the correct position, as instructed above, then retighten the pinch screw (Q).

TO SET A NEEDLE BAR WHICH HAS NO MARK. Set the needle bar so that when it rises 3/32 inch from its lowest position the point of the hook will be at the centre of the needle and about 1/16 inch above the eye.

To Time the Sewing Hook

Turn the feed regulating spindle head (D, Fig. 2) inwardly for the longest stitch, loosen the set screws (J2, Fig. 23) in the hook shaft connection belt pulley and turn the machine pulley over toward you until the needle bar is at its lowest position and rises until the lower mark across the needle bar is just visible at the end of the needle bar frame, as shown at R in Fig. 6. When the needle bar is in this position, turn the sewing hook until its point is at the centre of the needle - 1/16 inch above the eye - then after eliminating all shaft end play, retighten the pulley set screws.

To Set the Sewing Hook Closer to or Farther from the Needle

Loosen the set screws (J2, Fig. 23) that hold the hook shaft connection belt pulley, also the two set screws in the collar (H2), and the set screw (G2) at the right of the hook that holds the hook shaft bushing (front). Carefully push the hook to the right to set it closer to the needle, or drive the bushing to the left to set the hook farther from the needle. After carefully adjusting and timing the hook to the needle and eliminating all shaft end play, retighten the screws that hold the bushing, collar and pulley.

To Remove the Sewing Hook

Loosen the screws (J2 and H2, Fig. 23) which hold the hook shaft connection belt pulley, remove the throat plate and draw out the sewing hook and shaft.

To Adjust the Relative Height of Lift of the Lifting and Vibrating Presser Feet

The amount of lift of the vibrating and lifting pressers should be regulated according to the thickness of the material being sewn. The feet should lift just high enough to clear the material. As a rule, the vibrating and lifting pressers should lift an equal height, about 1/10 inch above the top surface of the throat plate, but some grades of work may require that they lift an unequal height. Any reduction in the lift of the lifting presser foot increases the lift of the vibrating presser foot.

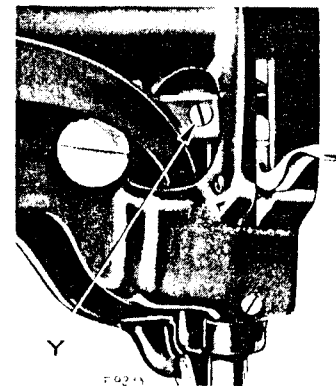


Fig. 20. Adjustment for Regulating Amount of Lift of Presser Feet

To change the relative lift of the presser feet, use the knee lifter to lift the presser foot, then loosen the presser bar lifting bracket pinch screw (Y, Fig. 20) at the back of the machine and move the presser bar upwardly or downwardly, as required, then securely tighten the pinch screw (Y).

To Adjust the Feeding Mechanism

Adjustment of the feeding mechanism should not be undertaken unless an accident has disturbed the correct position of the needle and needle plate in their relation to the throat plate.

When the feed regulating spindle head (D, Fig. 2) is turned so that there is no feeding movement of the needle bar, the distance between the vibrating presser bar and the lifting presser bar should be 17/64 inch, as shown in Fig. 6. When this distance is 17/64 inch, the needle is in the correct position in relation to the throat plate.

If the distance between the vibrating presser bar and the lifting presser bar is more or less than $17/64$ inch, insert a screwdriver in the hole (C, Fig. 2) and loosen the feed driving connection stud set screw (A2, Fig. 22). Then insert a long screwdriver from below up through the upright part of the arm, at F2, Fig. 23, and slightly turn the feed driving connection stud (eccentric) (B2, Fig. 22) in or out, as may be required, until the distance between the vibrating presser bar and the lifting presser bar is $17/64$ inch. When this adjustment has been made, securely tighten the set screw (A2).

CAUTION. Great care must be taken in making the above adjustment.

If the needle does not enter in the centre of the needle hole in the needle plate, adjust the needle plate.

To Adjust the Needle Plate Slide Plate

The surface of the needle plate should move flush with the surface of the throat plate. If it does not, remove the hook and

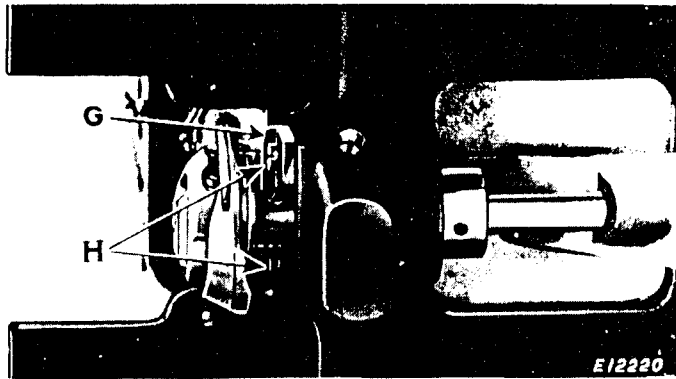


Fig. 21. Adjustment of Needle Plate Slide Plate

shaft (see bottom of page 18). Then loosen the two screws (H, Fig. 21) in the needle plate slide plate and raise or lower the slide plate (G), as required, until the surface of the needle plate moves flush with the surface of the throat plate. Tighten the two screws (H), replace the hook shaft and pulley and time the hook as instructed on page 18.

If the under piece of material next to the needle plate feeds faster than the upper piece, the needle plate should be lowered slightly.

To Adjust the Needle Bar and Needle Plate Carrier Frame Hinge Screw Stud (Lower)

If lost motion develops in the lower hinge screw stud (D2, Fig. 22) of the needle bar and needle plate carrier frame, this can be corrected as instructed below.

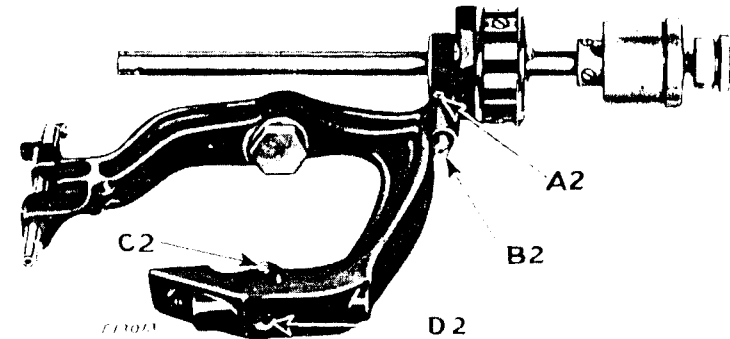


Fig. 22. Adjustments on Needle Bar and Needle Plate Carrier Frame

Loosen the set screws (J2 and H2, Fig. 23) in the hook shaft connection belt pulley, remove the throat plate and draw out the hook and shaft.

Insert a screwdriver in the hole (E2, Fig. 23) and loosen the fillister headed set screw (C2, Figs. 22 and 23) in the carrier frame, tighten the lower hinge screw stud through hole (D2, Figs. 22 and 23) just enough to remove the lost motion, then retighten the set screw (C2). Replace the sewing hook shaft and pulley and time the sewing hook, as instructed on page 18.

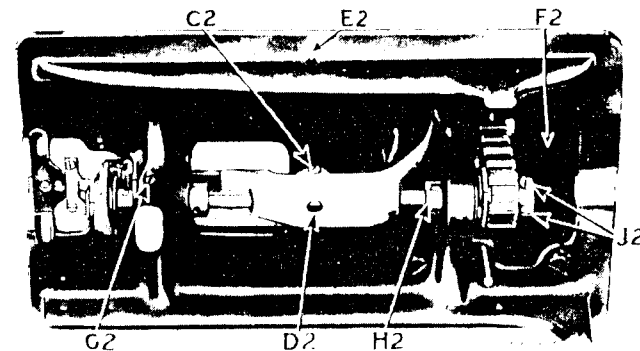


Fig. 23. Adjustments Under Bed of Machine

To Adjust the Feed Regulating Spindle Head

The figure on the feed regulating spindle head, showing through the notch in the machine pulley, indicates the number

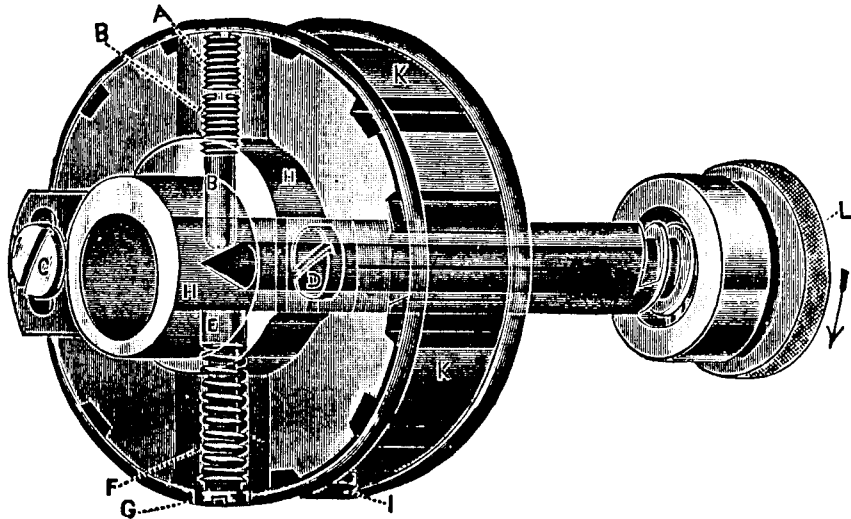


Fig. 24. Transparent view through the arm shaft connection belt pulley and shaft, showing the feed regulating spindle and adjusting screw (B), which comes in contact with the cone of the spindle to gauge the length of stitch.

of stitches to the inch which should be made. If more or less stitches are made, adjust as follows: remove screw (A, Fig. 24), set the indicator at 8, adjust screw (B) until eight stitches to the inch is the result and replace check screw (A) firmly, making the master adjustment, which controls the other numbers of stitches as indicated.

TO SET THE FEED REGULATOR SO THAT A STITCH LONGER THAN THE ONE DESIRED CANNOT BE MADE. Turn spindle head (L, Fig. 24) toward you and make the longest stitch possible; remove check screw (A) and turn screw (B) down until the machine places the desired number of stitches to the inch, then turn screw (A) down tightly on screw (B), as a check. The stitch may then be changed by turning spindle head (L) for a shorter stitch, but operators cannot make longer stitches than the limit that screw (B) is set to produce.

To Remove and Replace the Bobbin Case Base

To remove the bobbin case base, remove the bed slide, throat plate and bobbin case. Take out the two hook gib screws, open the hook gib (N2, Fig. 25) and remove the bobbin case base (M2, Fig. 25).

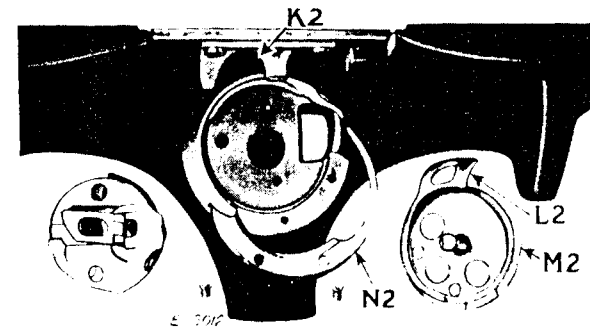


Fig. 25. Hook Gib Open for Removal of Bobbin Case Base

After replacing the bobbin case base replace the hook gib (N2) and fasten it with the two screws. When replacing the throat plate, be sure to have the position finger (L2) on the bobbin case base engage the bobbin case base stop (K2) on the underside of the throat plate.

To Remove the Arm Shaft Connection Belt From Within the Arm

Slide the connection belt off the lower pulley; remove the feed regulating spindle head (L, Fig. 24) and machine pulley. Loosen the bushing (back) screw (E, Fig. 5) at the back of the arm and remove the bushing. Lift the belt up through the arm cap hole as far as possible and draw it out through the space which was occupied by the bushing.

When replacing the belt, see that the sewing hook and needle are in correct time before running the belt on the lower pulley and verify the correctness of the timing, as instructed on page 18, before commencing to sew.

To facilitate the replacing of the belt on the lower pulley, use belt replacer 244005 (Fig.26). Rest the replacer in the

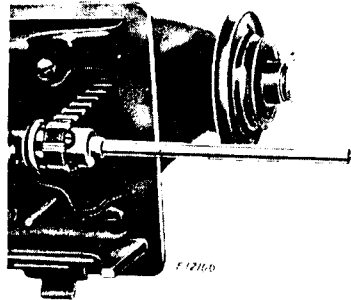


Fig. 26. Putting Belt on Lower Pulley with Belt Replacer 244005

loop of the belt and slide it over the hub of the pulley, as shown in Fig.26, having the notches in the replacer engage the two set screws in the hub of the pulley. Turn the machine pulley toward you until the belt is fully over the pulley, then remove the replacer.

NOTE: As belt replacer 244005 will serve for several machines, it is not regularly furnished with the machine, and must be ordered separately.

To Remove the Arm Shaft

Remove the screws A and B (Fig.24) and the compression screw (G), spring (F) and plunger (E) from the feed eccentric body. Loosen the two set screws in the upper belt pulley and also the two set screws (J, Fig.4) in the collar next to it. Loosen the set screw and remove the position screw from the needle bar crank and draw out the shaft from the machine pulley end of the machine.

To Remove the Front Bushing

After removing the needle bar crank, remove the position screw (F, Fig.5) from the back of the arm, insert a bent rod through the arm cap hole and drive out the bushing.

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