

SINGER
451K1 & 451K5

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 the
451K Machines

TYPE A — MANUFACTURING MACHINE OIL, LIGHT
GRADE

When a stainless oil is desired, use:

TYPE C — MANUFACTURING MACHINE OIL, LIGHT
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: The above oils are available in 1 quart, 1 gallon and 5 gallon tins or in 40 gallon drums

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 K5881

INSTRUCTIONS

FOR USING

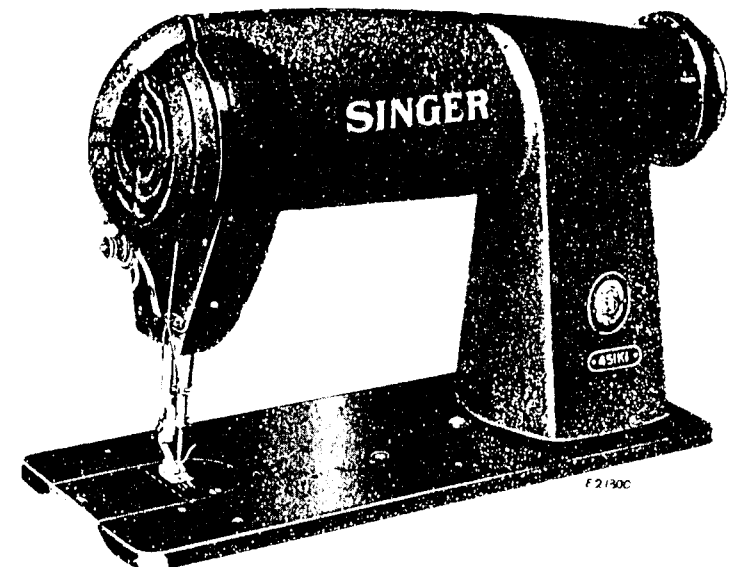
SINGER* SEWING MACHINES

451K1 and 451K5

HIGH SPEED

LOCK STITCH

Single Rotary Thread Take-up



Special attention is called to the lubricating instructions
on page 4

*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 451K1, for stitching light and medium weight fabrics, has the following characteristics:

Single Needle, Lock Stitch.

Single Rotary Thread Take-up.

Belt Driven, Automatically Lubricated Rotary Sewing Hook on a Horizontal Axis.

Drop Feed.

Maximum Length of Stitch 5-1/2 to the inch.

Presser Bar Lift 3/16 inch.

Needle Bar Stroke 1-9/64 inches.

Machine Pulley with outside diameter of belt groove 2.90 inches for 3/8 inch "V" belt. Effective diameter for 5/16 inch round leather belt is 2-3/8 inches. The top of the machine pulley turns over from the operator.

Ball Bearings for both ends of arm shaft and pulley end of hook driving shaft.

Needle Bearings for Needle Bar Connecting Link and Feed Driving and Lifting Connections.

Bed 15-11/16 inches long, 7 inches wide.

Space at right of needle 8 inches.

Machine 451K5 is the same as Machine 451K1, except that it has reverse feed mechanism and the maximum length of stitch is 6 to the inch forward and 7 to the inch reverse.

SPEED

The maximum speed recommended for these machines is 5000 R.P.M. It is advisable to run a new machine slower than the maximum speed for the first few minutes to allow time for the oil to reach the moving parts.

OILING THE MACHINE

Use "TYPE A" or "TYPE C" OIL, sold by Singer Sewing Machine Company. For description of oils, see inside of front cover.

A reservoir in the bed of the machine supplies oil to the sewing hook race and to the bearings and eccentrics on the hook driving shaft (except the rear ball bearing). The other lubrication points are reached by five oil holes, marked with red.

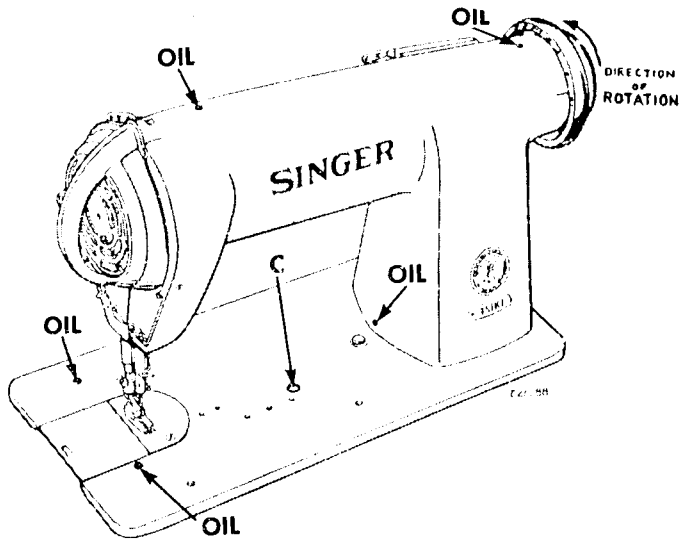


Fig. 3. Showing the Six Oiling Points on the Machine

BEFORE STARTING THE MACHINE, fill the oil reservoir (through the oil gauge hole) to the top mark on the oil gauge C, Fig. 3.

While it may not be necessary to add oil to the reservoir every day, the oil level must be checked DAILY and filled to the high mark. Never allow the oil level to drop below the lower mark on the oil gauge.

AT THE BEGINNING OF EACH WORKING DAY, place A FEW DROPS of oil in each of the five oil holes indicated by the arrows in Fig. 3 as well as the oil hole in the bobbin winder spindle indicated in Fig 6.

NEEDLES

Needles for Machines 451K1 and 451K5 are of Class and Variety 88x1 and are made in sizes 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19 and 21. These needles regularly have nickel finish but can be supplied with chromium finish if so ordered.

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. Rough or uneven thread, or thread which passes with difficulty through the eye of the needle, 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 an x.

The following is an example of an intelligible order:

"100 No. 16, 88x1 Needles."

The best stitching results will be obtained by using the 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.

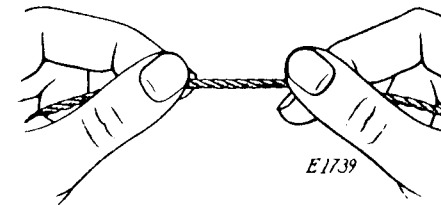


Fig. 4. How to Determine the Twist

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.

TO REMOVE THE BOBBIN

Turn the machine pulley over from you until the needle moves up to its highest position. Draw back the slide in the bed of the machine. Reach under the table and open the bobbin case latch **E**, Fig. 5 and, by means of this latch, remove the bobbin case from the sewing hook.

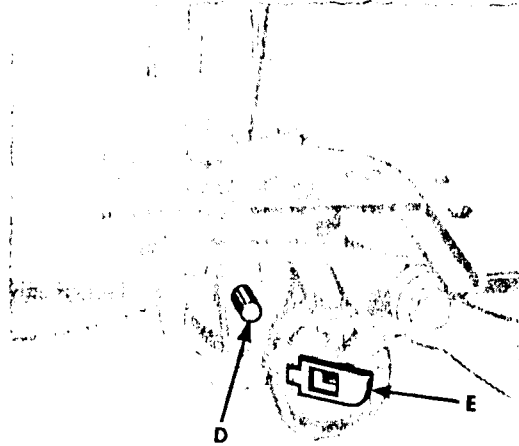


Fig. 5. Removing the Bobbin

While the latch remains open, the bobbin will be retained in 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

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.

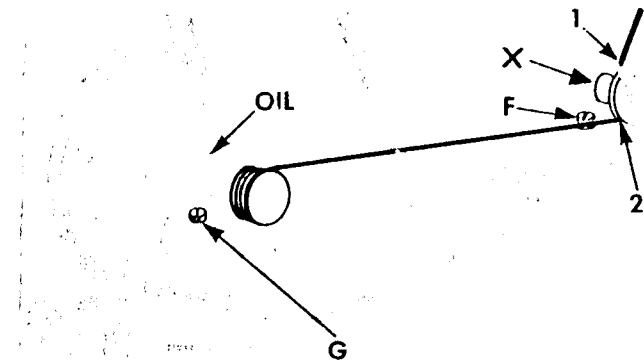


Fig. 6. Winding the Bobbin

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 of, and between, the tension discs **2**. Then wind the end of the thread around the bobbin a few times in the direction shown in Fig. 6, 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 **F** 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 **G**. To wind more thread on the bobbin, turn the screw **G** inwardly. To wind less thread on the bobbin, turn this screw outwardly.

Bobbins can be wound while the machine is stitching.

When winding a bobbin with fine thread, a tight tension should be used. Adjust the knurled nut **X**, Fig. 6, to regulate the tension.

TO THREAD THE BOBBIN CASE

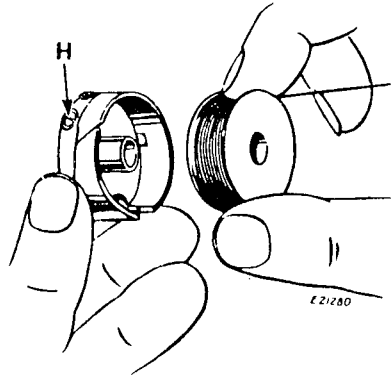


Fig. 7

Hold the bobbin between the forefinger of the right hand, as shown in Fig. 7, the thread drawing on the top from the left toward the right.

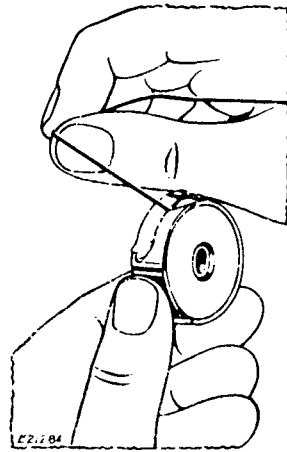


Fig. 8

With the left hand hold the bobbin case as shown in Fig. 7, the slot in the edge being near the top, and place the bobbin into it.



Fig. 9

Then pull the thread into the slot in the edge of the bobbin case as shown in Fig. 8; draw the thread under the tension spring and into the delivery eye at the end of the tension spring. See Fig. 9.

TO REPLACE THE BOBBIN CASE

After threading, take the bobbin case by the latch and place the bobbin case on the center stud D, Fig. 5 of the bobbin case holder; release the latch and press the bobbin case back until the



Fig. 10. Bobbin Case Threaded and Replaced

latch catches the groove near the end of the stud. See Fig. 10. Allow about two inches of thread to hang free, and replace the slide in the bed of the machine.

TO SET THE NEEDLE

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

UPPER THREADING

See Fig. 11

When you have become accustomed to threading the machine, the thread can be passed from the thread retainer J at the top, down to the needle with a single continuous motion.

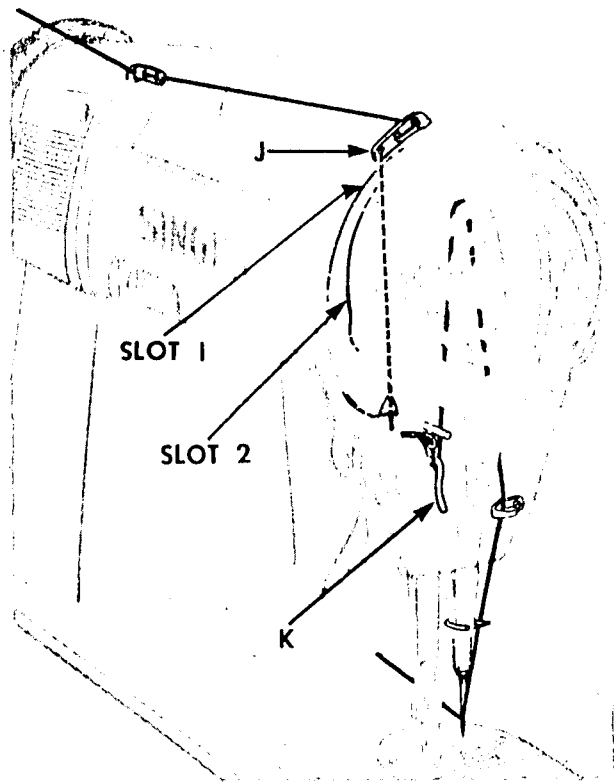


Fig. 11. Rear View of Machine, Showing Upper Threading

Pass the thread through the threading points in the manner shown in Fig. 11. Hold the thread with the right hand near the thread retainer J while passing the thread, with the left hand, downward into the inner slot 1 and on down around and between the tension discs, into the take-up spring and under the thread pull-off K, then over through the slot 2, allowing the thread to fall in place over the take-up disc, as shown in Fig. 11, then release the thread with the right hand and continue to pass it down through the two thread guides and from left to right through the eye of the needle. Leave about three inches of thread with which to commence sewing.

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 from you until the needle moves down and up again to its highest

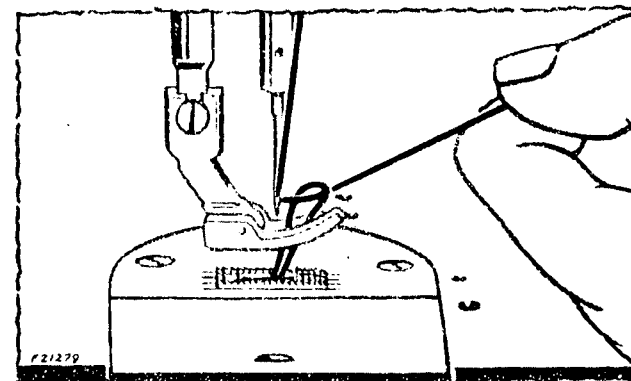


Fig. 12. Drawing Up the Bobbin Thread

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. See Fig. 12. Lay both threads back under the presser foot.

TO COMMENCE SEWING

Place the material beneath the presser foot, lower the presser foot and commence to sew.

TO REMOVE THE WORK

Stop the machine when the needle bar has just started to descend. In this position the upper thread will be free of the sewing hook and the take-up will not unthread the needle when the machine is started. Raise the presser foot, draw the work back and cut the threads close to the work.

TO REMOVE BROKEN THREAD FROM TAKE-UP

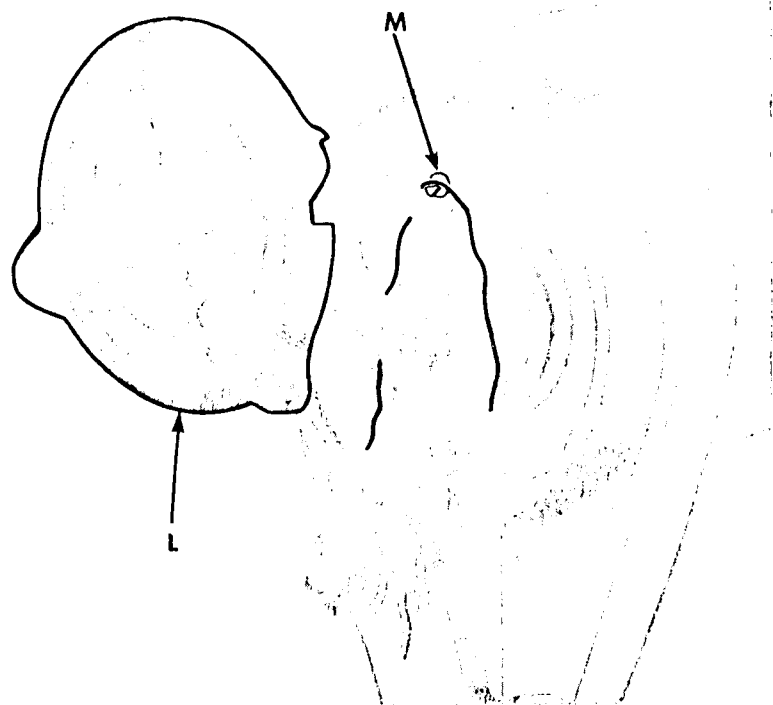


Fig. 13. To Remove Broken Thread from Rotary Take-up

If the thread breaks at operating speeds, an extra piece of thread may be found in the take-up which is visible through grille L. Open the grille and remove the thread, then close the grille and rethread.

CAUTION: When removing end of thread from the take-up, be careful not to cut fingers on the thread cutter M.

If no end of thread is visible around the take-up, just rethread and proceed to sew.

TENSIONS

For ordinary stitching, the needle and bobbin threads should be locked in the center of the thickness of the material, thus:

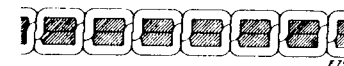


Fig. 14. Perfect Stitch

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. 15. 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. 16. Loose Needle Thread Tension

TO REGULATE THE TENSIONS

THE TENSION ON THE NEEDLE THREAD SHOULD BE REGULATED ONLY WHEN THE PRESSER FOOT IS DOWN. Having lowered the presser foot, turn the small thumb nut at the front of the tension discs over to the right to increase the tension. To decrease the tension, turn this thumb nut over to the left.

The tension on the bobbin thread is regulated by the large screw H, Fig. 7 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.

When the tension on the bobbin thread has been once properly adjusted, it is seldom necessary to change it, as a correct stitch can usually be obtained by varying the tension on the needle thread.

TO REGULATE THE PRESSURE ON THE MATERIAL

The pressure of the presser foot on the material is regulated by the screw **N**, Fig. 17 in the top of the arm. Turn this screw downward, **clockwise**, to increase the pressure or upward, **counter-clockwise**, to decrease the pressure. The pressure should be set only sufficiently strong to satisfactorily feed the work.

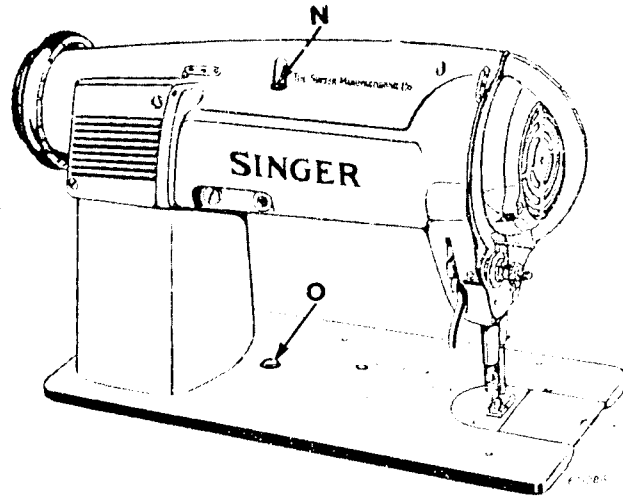


Fig. 17. Screw **N** for Regulating Pressure on Presser Foot and Stud **O** for Regulating Length of Stitch

TO REGULATE THE LENGTH OF STITCH

To change the length of stitch, press down the stud **O**, Fig. 17 in the bed of the machine and at the same time turn the driving pulley slowly over from you until the stud enters a notch in the adjustable feed eccentric cam on the bed shaft. Still holding the stud, turn the driving pulley until the number indicating the number of stitches per inch desired is opposite the mark **P**, Fig. 18, then release the stud. **DO NOT TOUCH THE STUD **O** WHILE THE MACHINE IS RUNNING.**

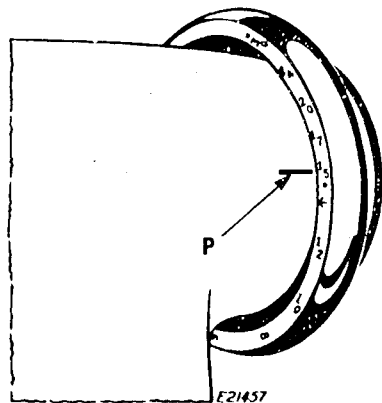


Fig. 18. Stitch Indicator

TO REVERSE THE DIRECTION OF FEED ON MACHINE 451K5

To feed the goods **toward you**, push down the lever **U3**, Fig. 19 as far as it will go. Feeding in this direction continues only as long as lever is held in depressed position. Normal feeding is resumed upon release of lever **U3**, Fig. 19.

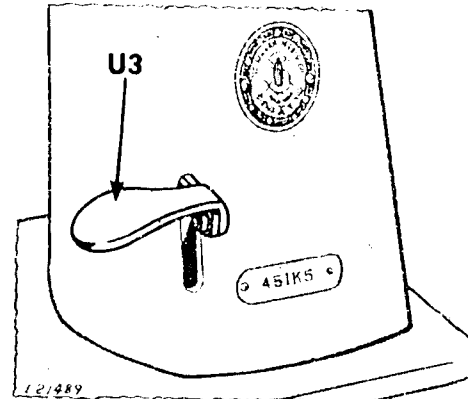


Fig. 19. Showing Lever for Reversing Direction of Feed

The direction of feed can be reversed at any point of a seam while the machine is in operation without removing the work. Back tacking is therefore readily accomplished and the ends of seams are easily fastened.

HINTS FOR PERFECT OPERATION

- Follow instructions and oil machine regularly.
- The driving pulley must always turn away from the operator.
- Do not run machine with bobbin case only partly inserted.
- Do not run the machine with the presser foot resting on the feed without cloth under the presser foot.
- Do not run the machine when both bobbin case and needle are threaded unless there is material under the presser foot.
- Do not try to help the machine by pulling the fabric lest you bend the needle. The machine feeds the work without assistance.
- The slide over the bobbin case should be kept closed when the machine is in operation.
- Do not press on the knee lifter lever while the machine is in operation, as this might prevent the work from feeding properly.
- Occasionally remove the accumulation of lint from around the hook and from between the feed rows beneath the throat plate.
- NEVER TOUCH THE STITCH REGULATOR STUD WHEN THE MACHINE IS RUNNING.**
- Never run machine with the take-up cover open.