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to use
and
enjoy
your

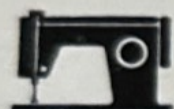
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SEWING MACHINE



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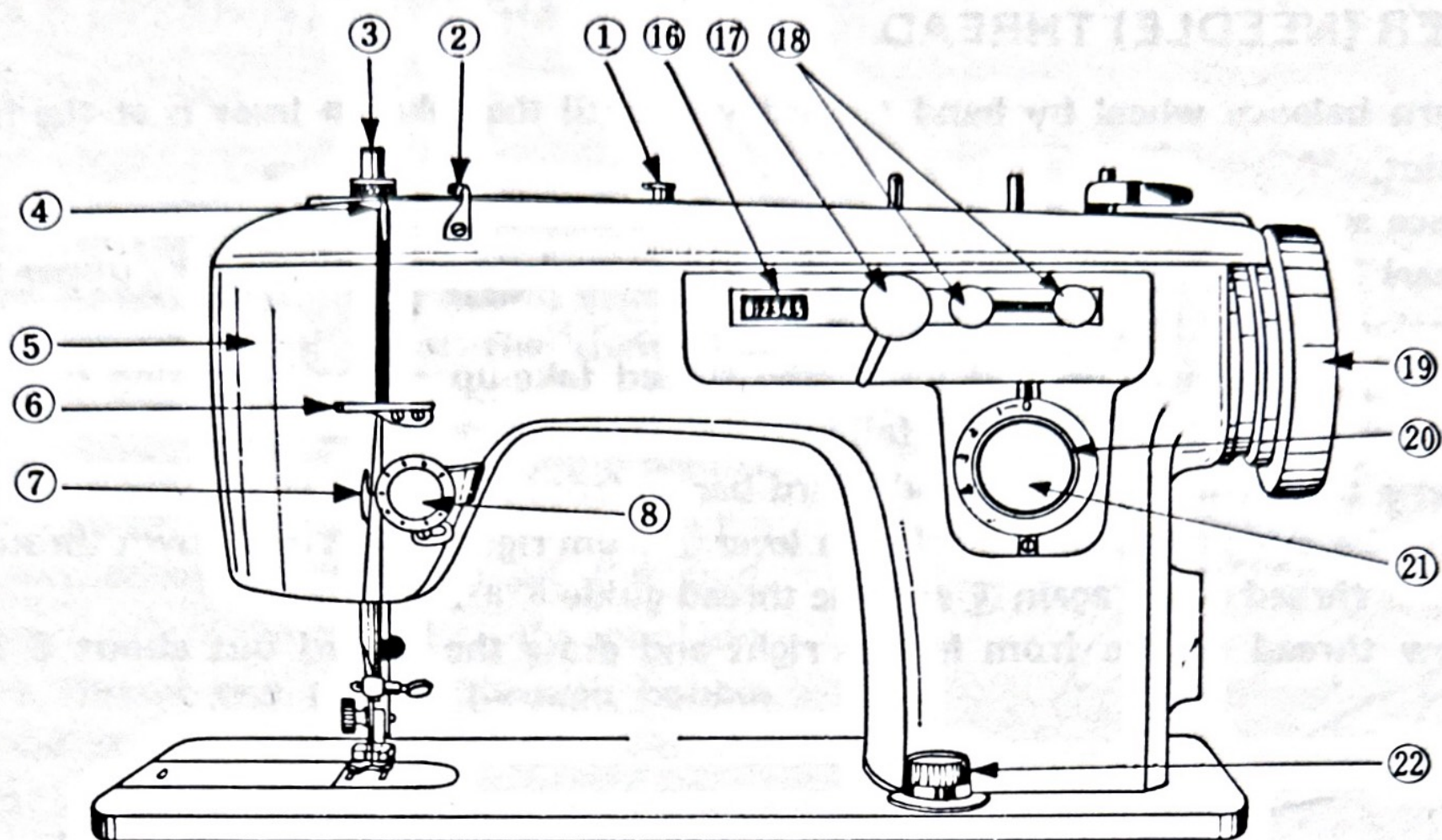
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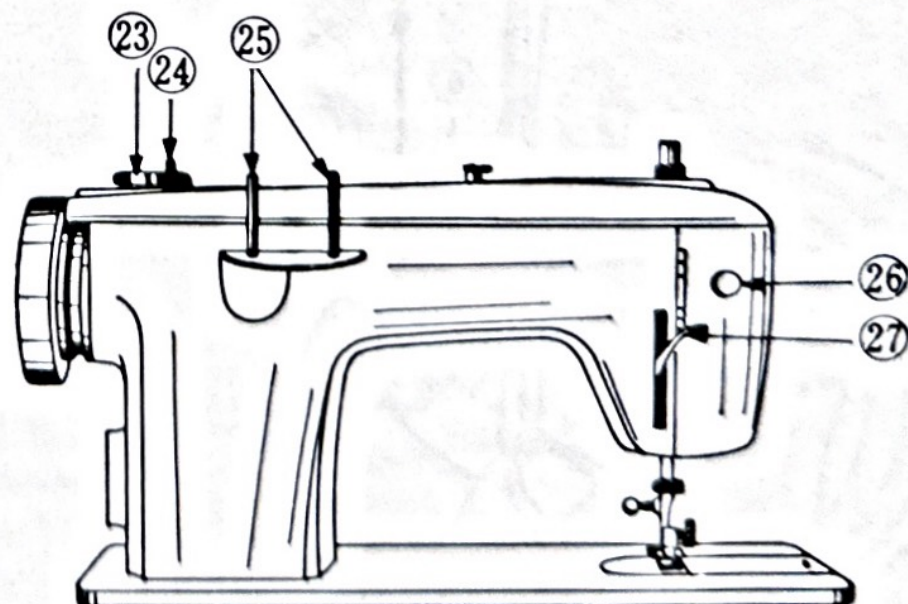
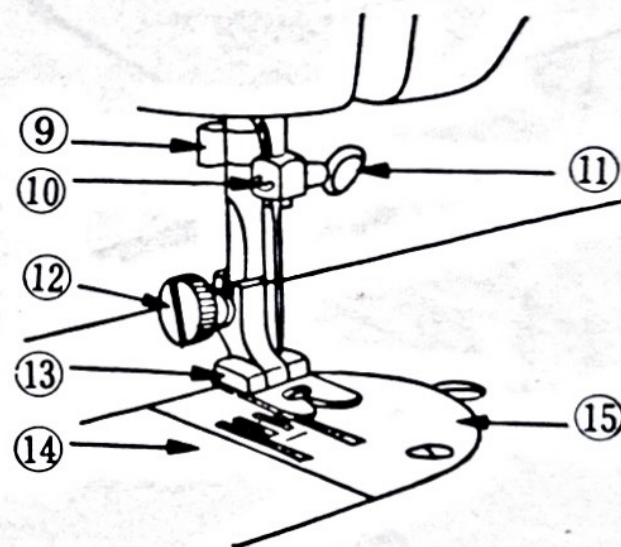
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KNOW THE PARTS OF YOUR SEWING MACHINE



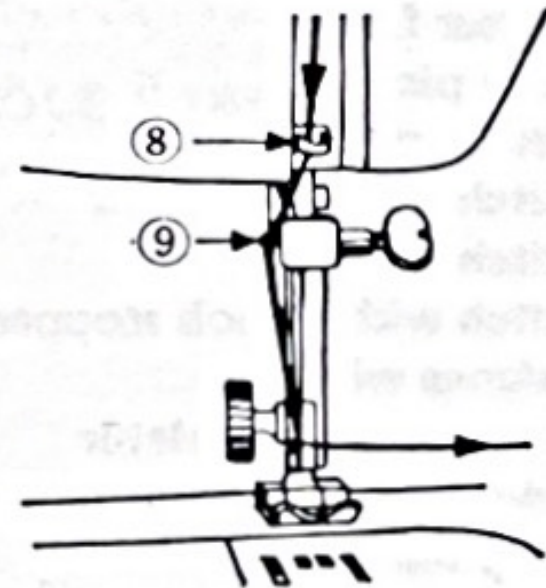
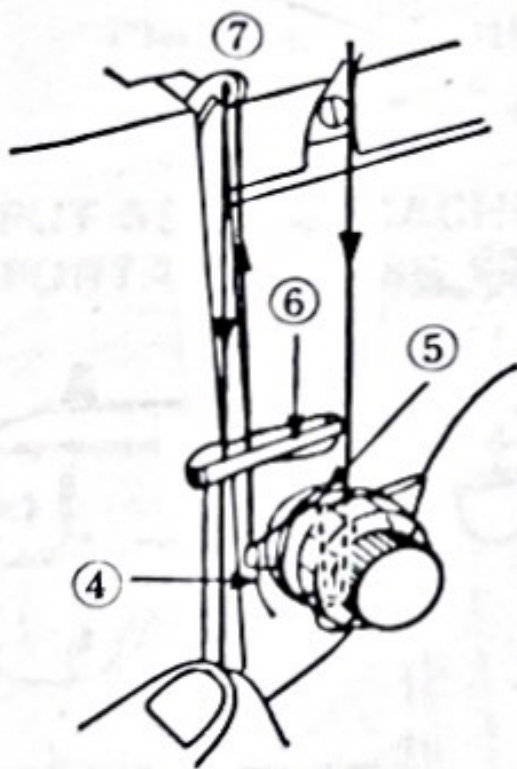
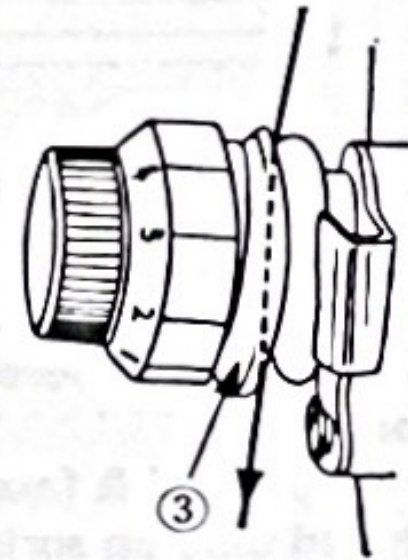
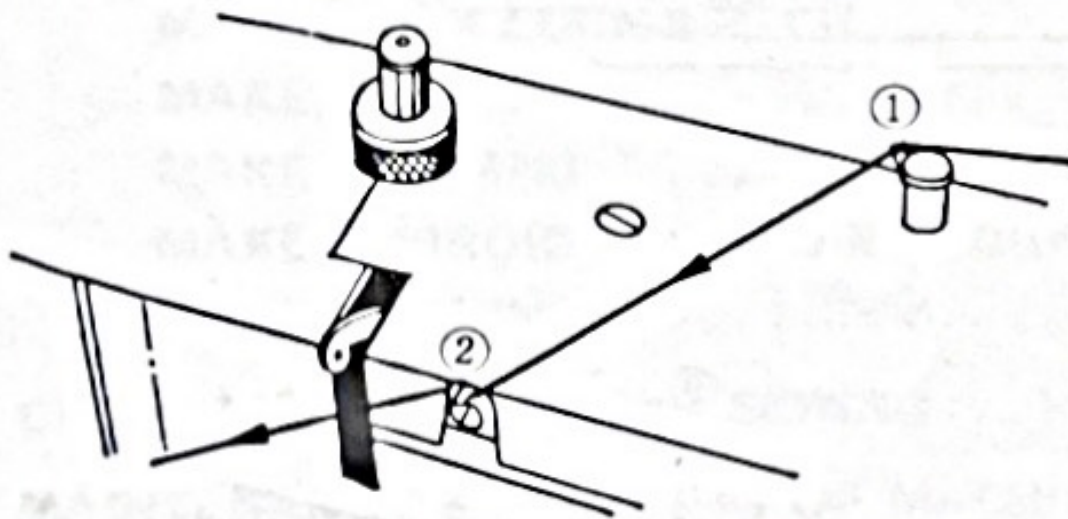
1. Bobbin winder tension disc
2. Thread guide
3. Pressure adjuster
4. Thread take-up lever
5. Face plate
6. Thread guard & face plate latch
7. Thread take-up spring
8. Upper thread tension dial
9. Thread cutter
10. Thread guide
11. Needle clamp screw
12. Presser foot thumb screw
13. Presser foot
14. Slide plate
15. Needle plate
16. Stitch width indicator
17. Stitch width knob
18. Stitch width knob stoppers
19. Balance wheel
20. Stitch length regulator
21. Reverse sewing button
22. Drop feed knob
23. Bobbin winder finger
24. Bobbin winder stud
25. Spool pins
26. Light switch
27. Presser foot lifter



■ THREADS AND NEEDLE

UPPER (NEEDLE) THREAD

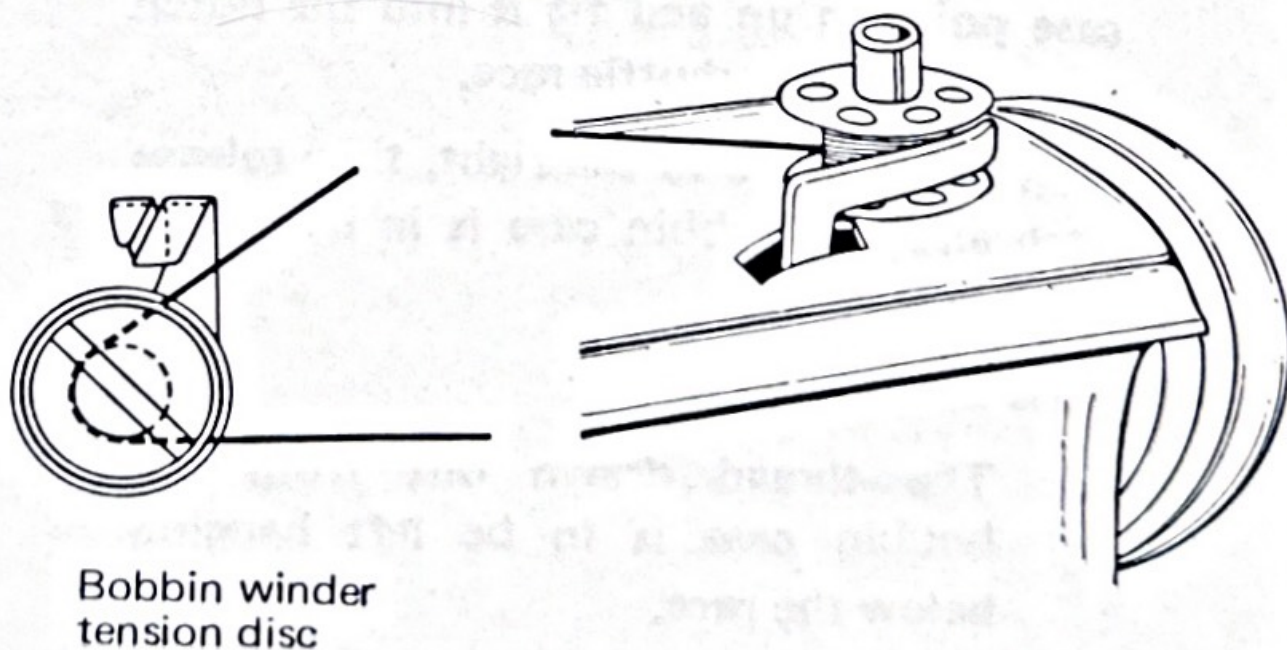
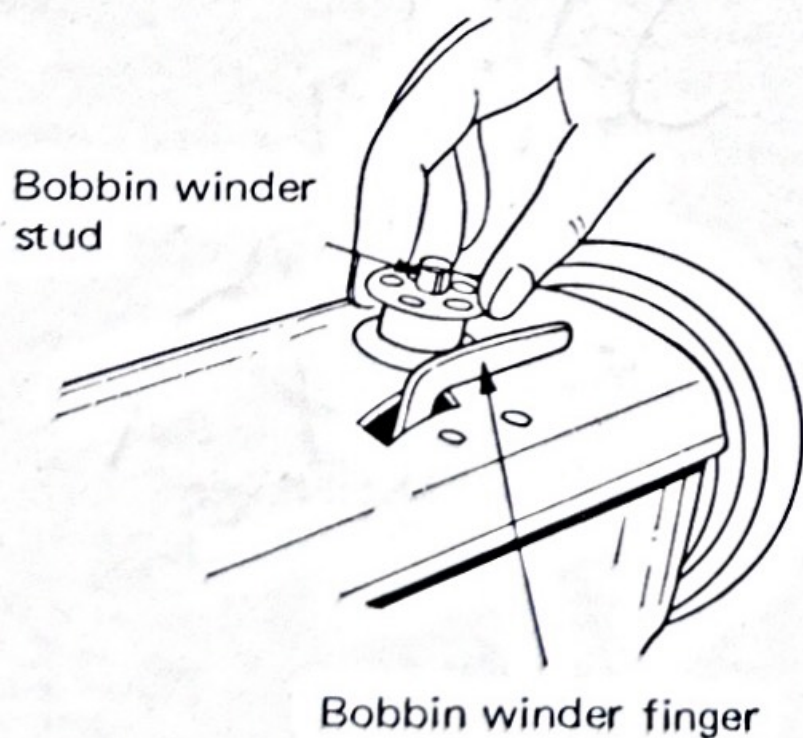
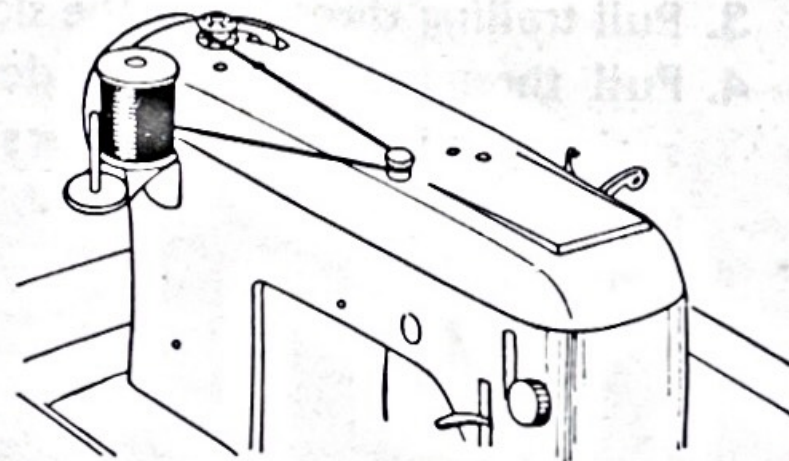
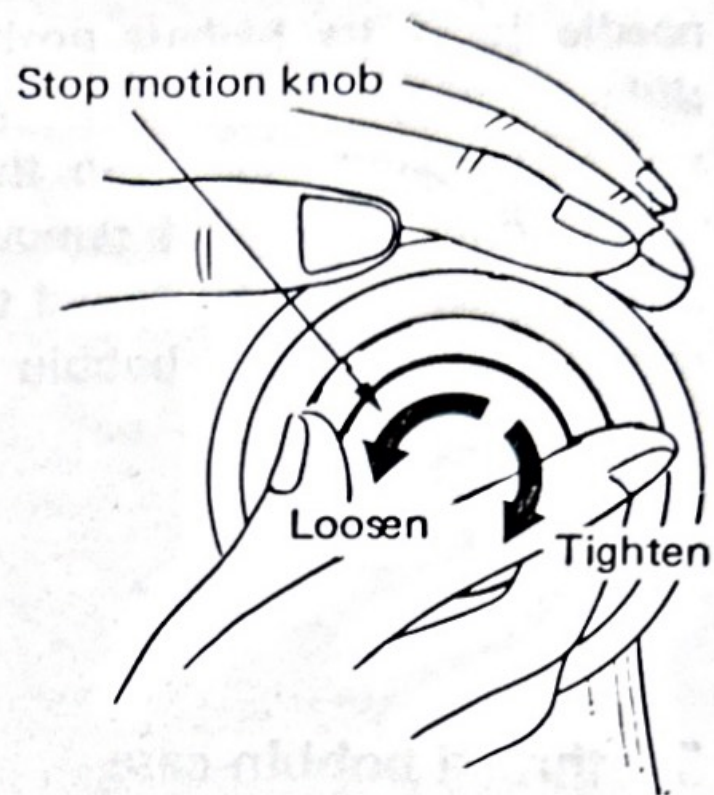
1. Turn balance wheel by hand toward you until the take-up lever is at the highest point.
2. Place spool of thread on the spool pin. Pass thread through the upper thread guide (rear) ① and upper thread guide (front) ② and down between the upper thread tension discs ③ from the right hand side.
3. Now bring thread up and under the thread take-up spring ④ raising it (take-up spring) so that the thread will fall into the hook shaped guide ⑤.
4. Carry thread under the thread guard bar ⑥ from right to left and then up to and into the eye of the thread take-up lever ⑦ from right to left and down through the upper thread guard again ⑥ and the thread guide ⑧ ⑨.
5. Now thread needle from left to right and draw the thread out about 6 inches.



LOWER (BOBBIN) THREAD

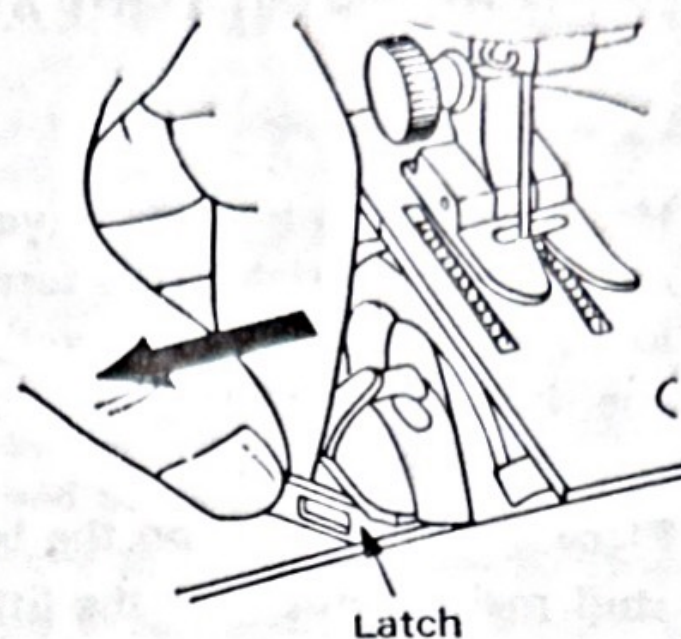
To wind bobbin

1. Hold balance wheel with your left hand and with your right hand turn stop-motion knob toward you. This action disengages the balance wheel from the shaft that operates the machine.
2. Place empty bobbin on the bobbin winder stud making sure that the little slot in the bobbin engages the spring on the stud.
3. Place spool of the thread on the spool pin. Take thread and pass it through bobbin winder tension disc from the back of the stud.
4. Wind seven or eight turns of thread around the bobbin.
5. Push bobbin winder finger into bobbin.
6. Turn balance wheel a few times toward you and start to wind gently.
7. When the bobbin winder is fully wound, it will stop automatically.
8. Break thread and remove bobbin.
9. Tighten stop motion knob.



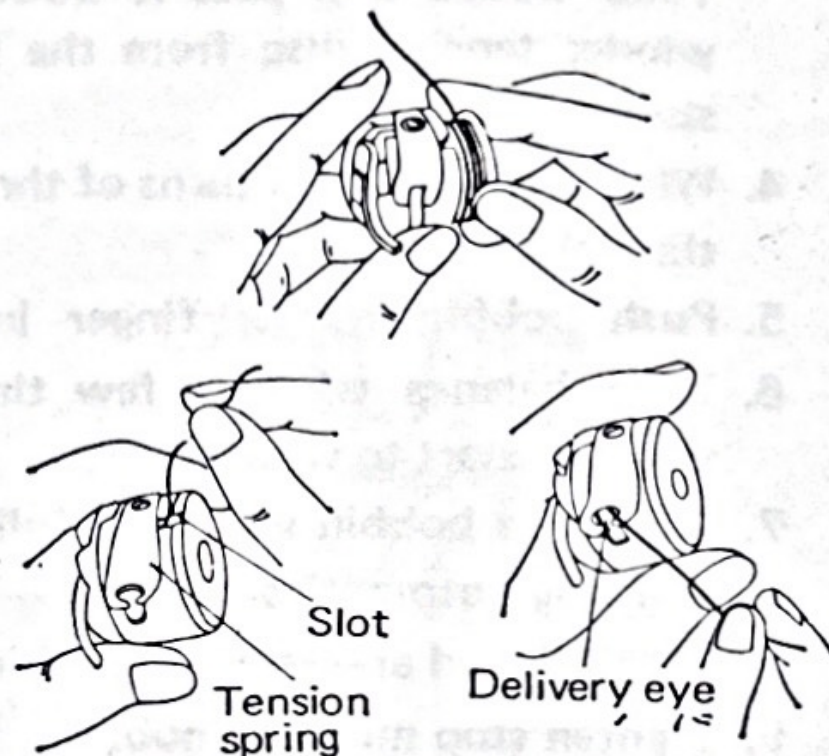
To remove bobbin case

Turn balance wheel toward you until the needle is at its highest position. Pull out slide plate and reach into the opening with your left hand, and with thumb and forefinger, open latch and remove bobbin case. If you release the latch and turn the bobbin case downward, the bobbin will drop out.



To thread bobbin case

1. Unwind about 3 or 4 inches of thread from the bobbin.
2. Insert wound bobbin into the bobbin case.
3. Pull trailing thread into the slot.
4. Pull thread to the left under the tension spring until the thread enters into delivery eye.

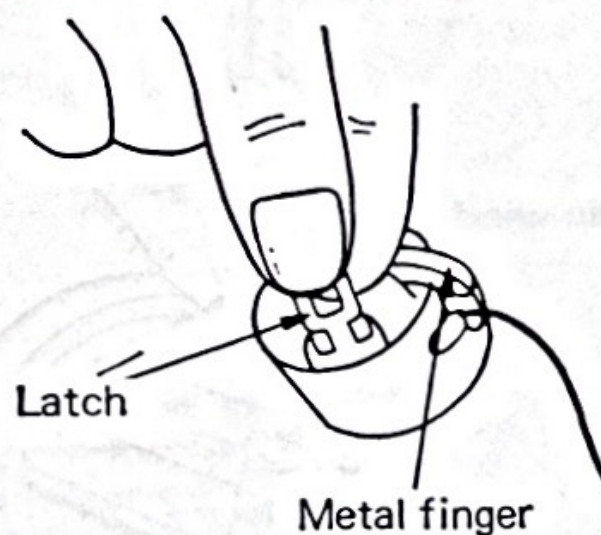


To replace bobbin case

1. Hold bobbin case latch with your left hand, with the metal finger of bobbin case pointing up and fit it into the notch at the top of the shuttle race.
2. Push bobbin case to the right, then release latch and the bobbin case is in its proper position.
3. Close slide plate.

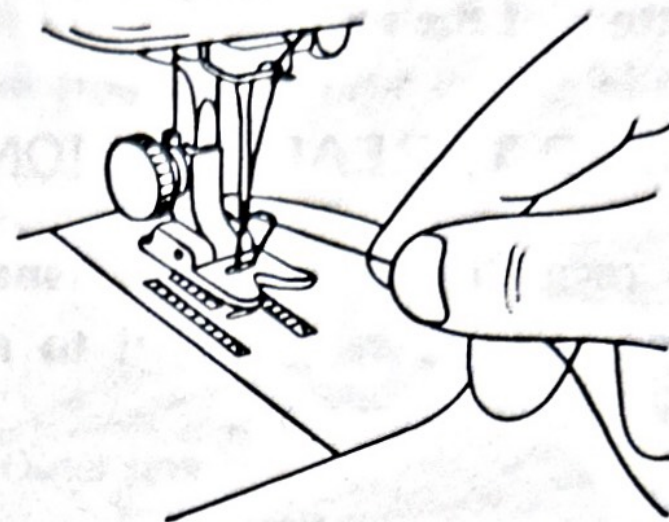
NOTE: The thread drawn out from the bobbin case is to be left hanging below the race.

Leave approx. 5-6 inches hanging.



To pull lower thread

1. Raise needle to its highest position.
2. Raise presser foot by presser foot lifter.
3. With your left hand, hold end of the upper thread and with your right hand, turn balance wheel toward you until the needle moves down and up again to its highest position, thus catching the lower thread.
4. Pull upper thread you are holding gently and it will bring up the lower thread.
5. Pull both threads between toes of the presser foot and to the rear leaving approx. 3-4 inches behind the presser foot.

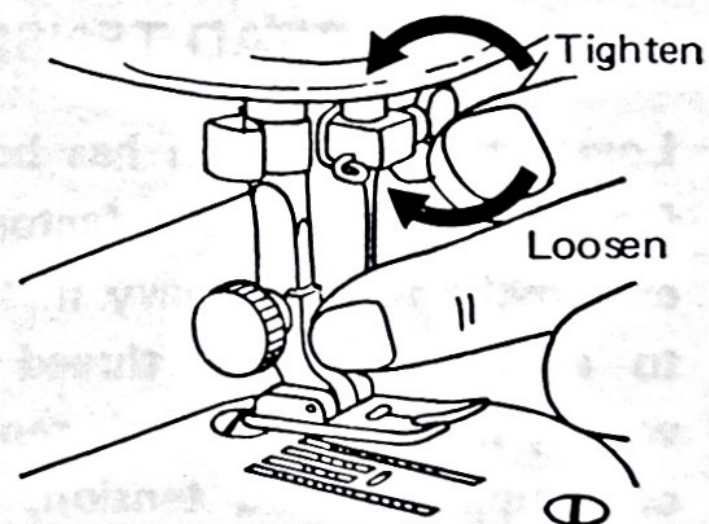
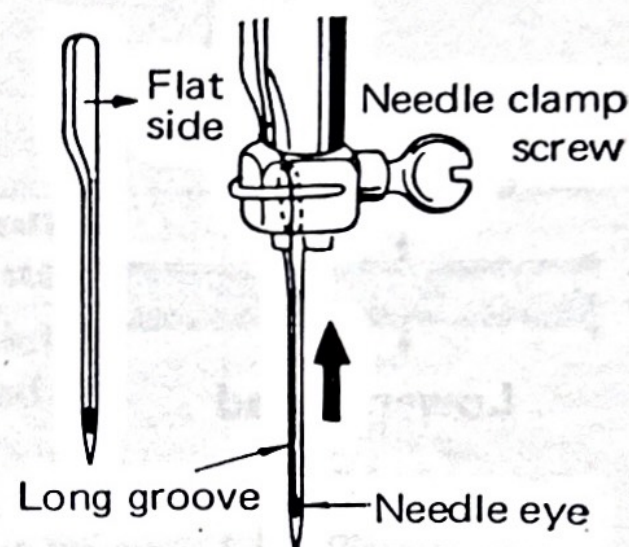


REPLACEMENT OF NEEDLE

- 1 Raise needle to its highest position.
- 2 Loosen needle clamp screw by turning toward you and remove old needle.
- 3 Insert new needle upward into needle clamp hole as far as it will go tightly against the needle stop.

Make sure flat side of needle faces to right side (long groove faces to left side).

- 4 Tighten needle clamp screw securely.



NEEDLE, THREAD SIZES AND CLOTH

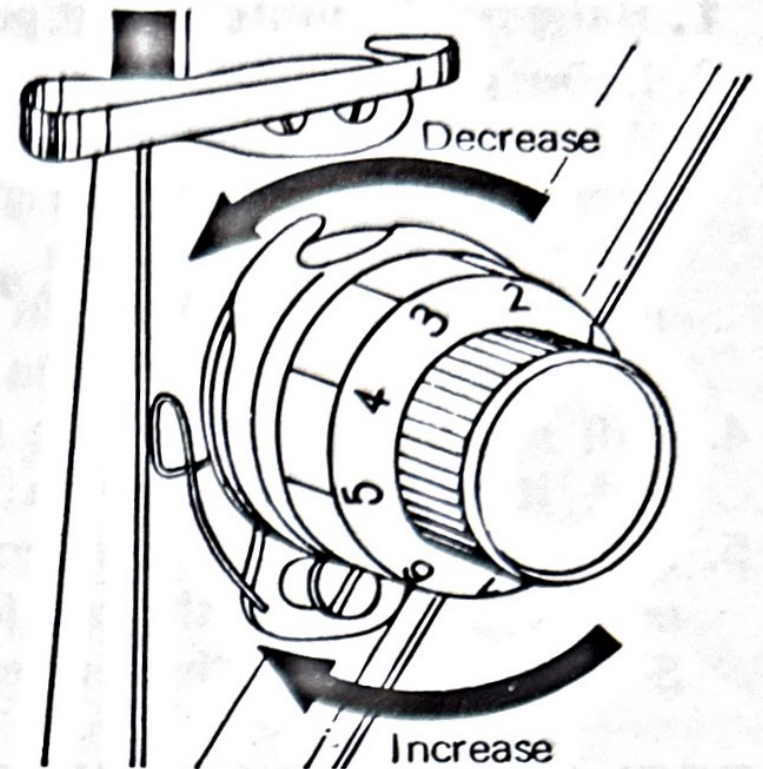
Needle Sizes	Thread	Cloth	Remarks
9	Silk & 100 Cotton	Thin Linen, Silk	Thread should be always thinner than the needle eye. When you must use heavier thread than those shown here, select thicker needle.
11	80, 100 Cotton	Calico, Shirting	
14	50, 60 Cotton	Cotton, Poplin	
16	30, 40 Cotton	Wool, Suiting	

■ THREAD TENSIONS

The tension on upper (needle) and lower (bobbin) threads should be equal so that both threads are drawn into the center of the work without loops on the top or bottom of the work.

UPPER THREAD TENSION

To regulate upper thread tension, merely turn upper thread tension dial to right or left after lower the presser foot.



CORRECT

Upper thread



Lower thread

Upper thread too tight



Decrease tension by turning dial to lower number.

Upper thread too loose



Increase tension by turning dial to higher number.

LOWER THREAD TENSION

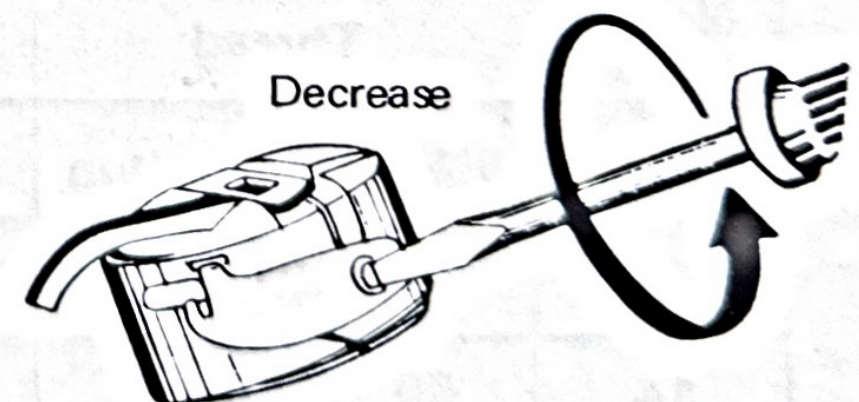
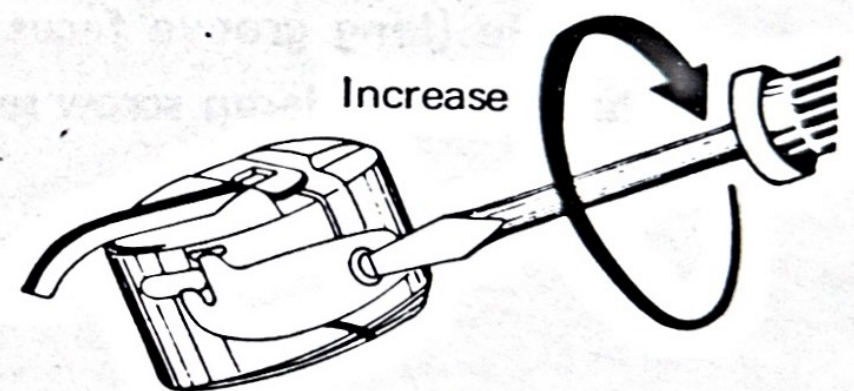
Lower thread tension has been already adjusted for normal use at the factory but when sewing extremely thin or heavy material, it is necessary to adjust the lower thread tension. In other words, if a perfect stitch can not be obtained by only upper thread tension, adjust lower thread tension too.

To regulate the lower thread tension, turn small screw on the tension spring of the bobbin case with the small screw driver.

To increase, tighten screw by turning it clockwise slightly.

To decrease, loosen screw slightly.

NOTE: When making the satin stitch, it requires less upper tension than straight stitch sewing.

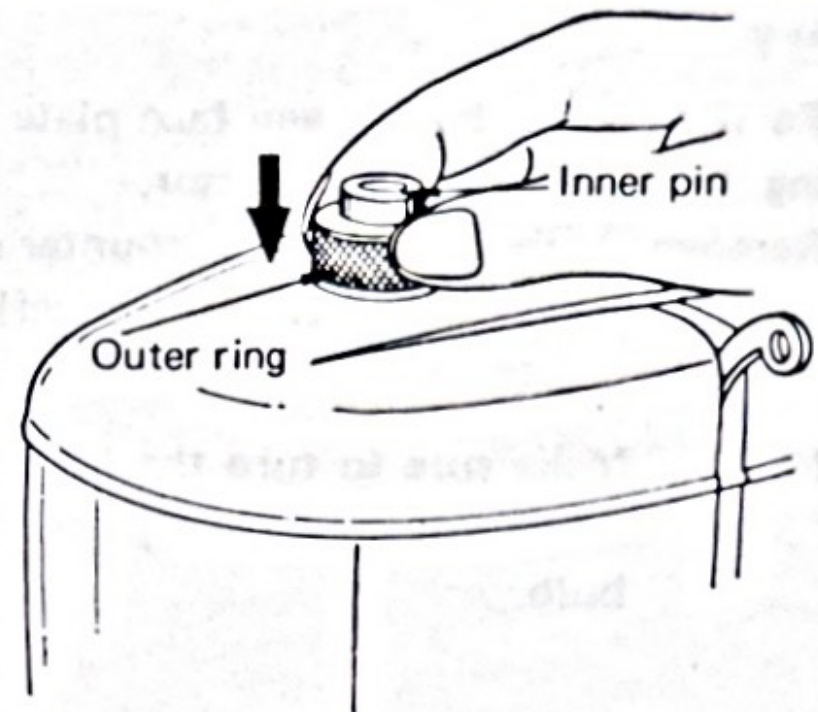


■ PRESSURE AND FEED DOG

PRESSURE ON PRESSER FOOT

Correct pressure on presser foot is important to obtain the smooth sewing. Pressure on presser foot requires to be regulated according to the type and thickness of the material to be sewn.

1. To regulate the pressure, lower presser foot.
2. Push outer ring of pressure adjuster down and inner pin will spring up to its highest position.
In this position, pressure is completely released from the presser foot.
3. To increase pressure, push inner pin down with your thumb finger.



Drop Feed	Height of Feed dog	Pressure Adjuster	
Darn 	Completely dropped 	Completely released 	Darning Embroidering Mending Monogramming
Silk 			Lighter material such as silk and nylon
Norm 			Normal use, thick and heavier materials

HEIGHT OF FEED DOG

According to the sewing material, it is necessary to regulate the height of feed dog as well as pressure of presser foot.

* To regulate, turn drop feed knob following the chart.

■ SEWING LIGHT

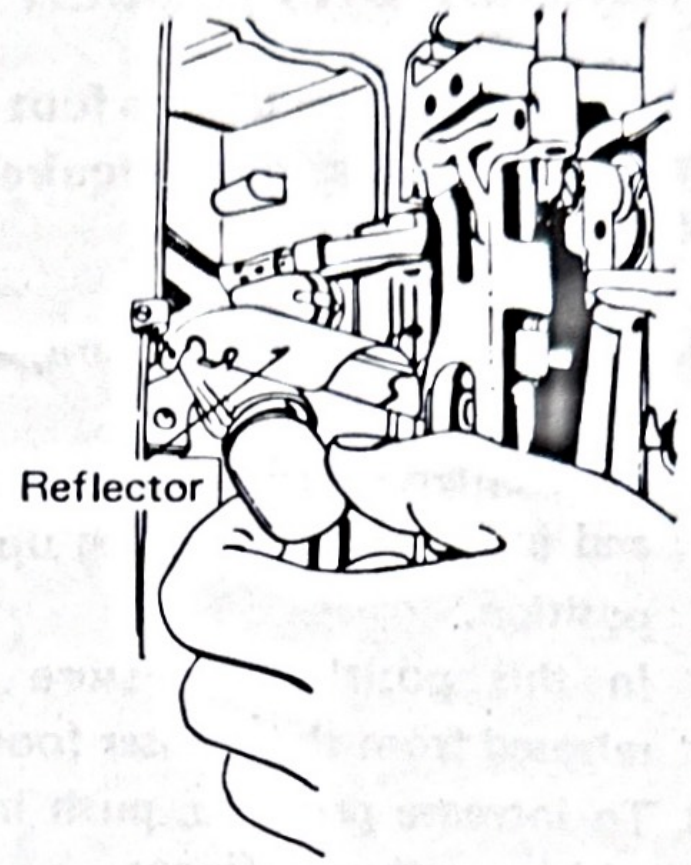
To change bulb

By turning the switch on the back side of the face plate, you can turn the light on and off as you wish.

To change the bulb, open face plate by swinging it open and lift up reflector.

Remove bulb by turning counter-clockwise. After replacement, push down reflector and close face plate.

NOTE: Make sure to turn the light switch off when you make a replacement of the bulb.



■ STITCH CONTROLS

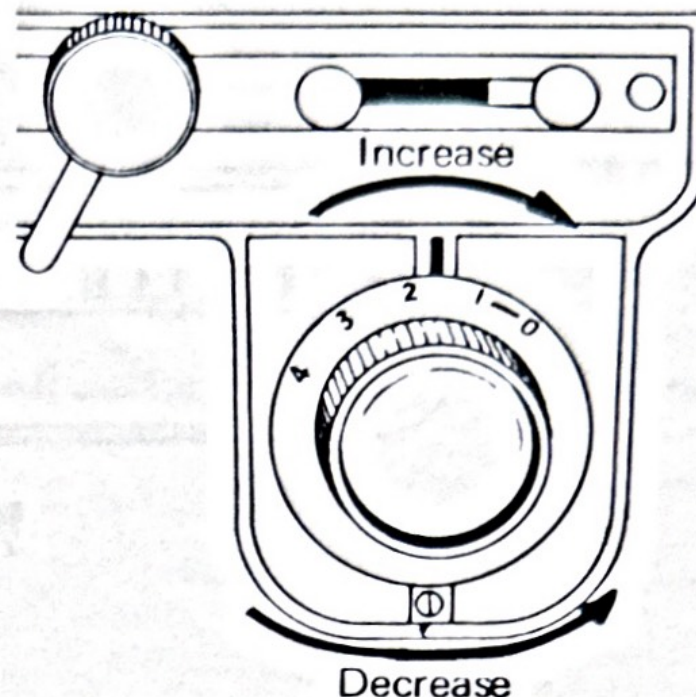
STITCH LENGTH

The stitch length is regulated by turning the stitch length regulator knob.

Numerals on the dial represent the stitch length.

- * To increase the stitch length, turn stitch length regulator knob clockwise to larger number on the dial.
- * To decrease the stitch length, turn knob counter-clockwise to smaller number on the dial.

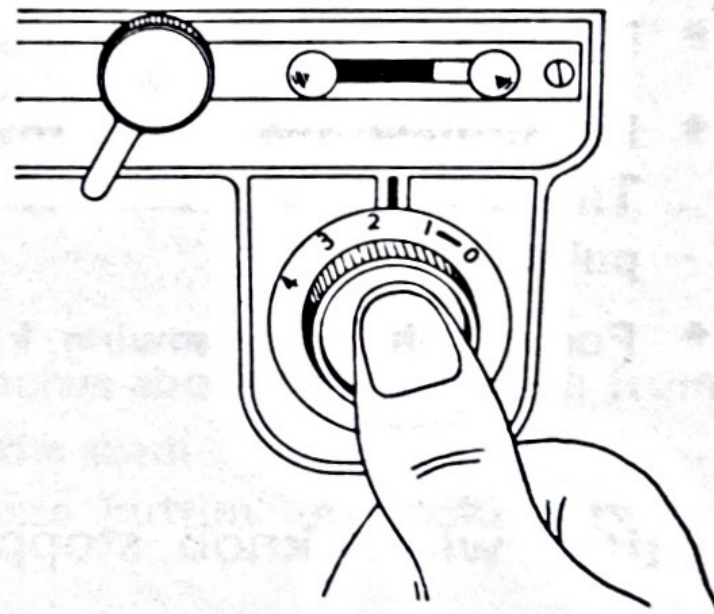
NOTE: The '0' on the dial means that the material is not fed.



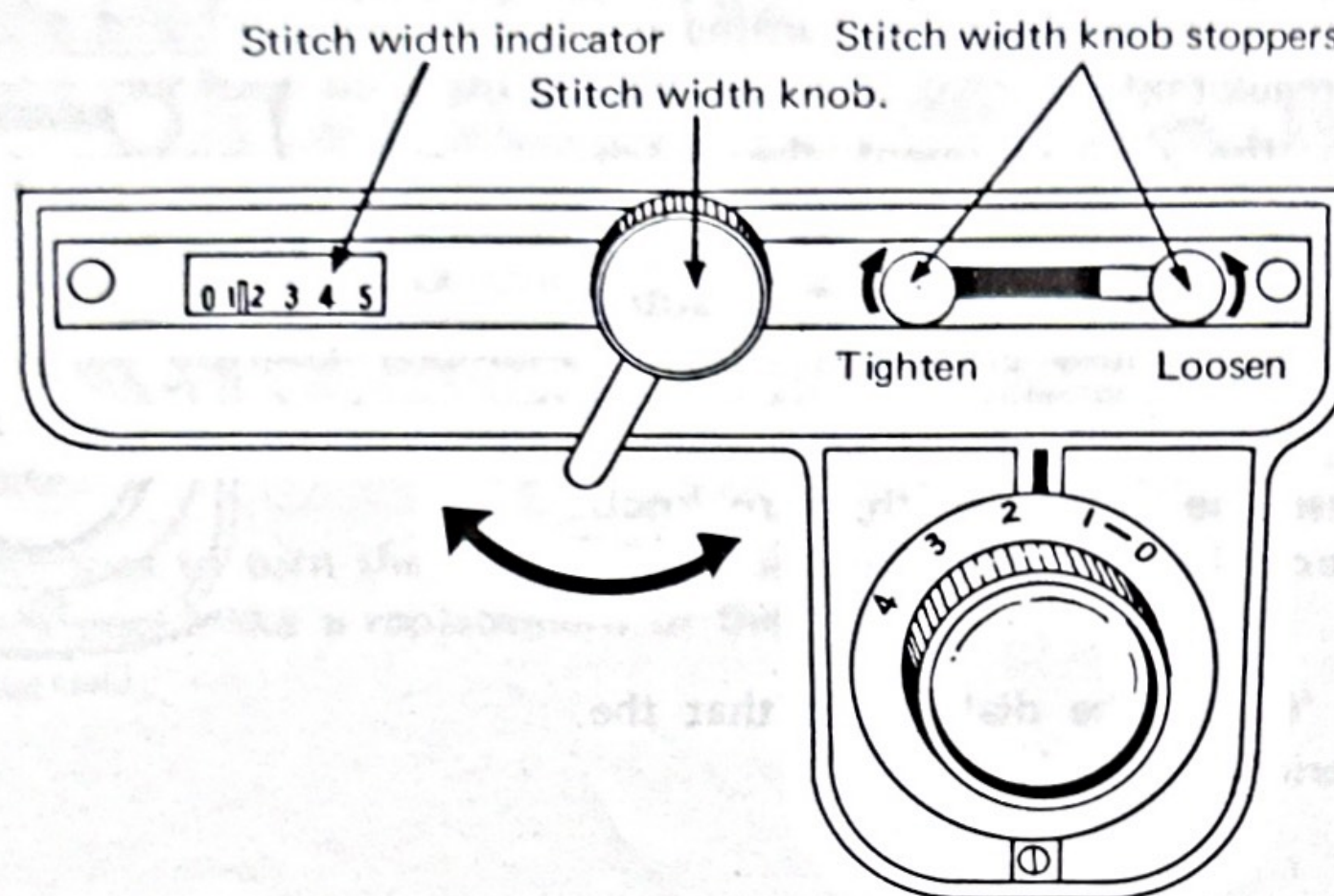
TO SEW REVERSE STITCHING

Push reverse sewing button as far as it will go and keep it in this position until you wish to sew forward.

Reverse stitching is used for reinforcing and finishing all seams.



STITCH WIDTH



To regulate the stitch width, turn stitch width knob to right and left.

- * Numerals 0 to 5 in the indicator represent the width of zigzag stitch.
- * By turning the knob toward 5, stitch width will be increased accordingly. This knob springs back to 0 when you release your finger from it for easy manipulation.
- * For straight stitch sewing, keep this knob at 0.

Stitch width knob stoppers

These stoppers, left and right limit the movement of the knob.

To move the stopper, loosen thumb nut on it by turning left.

When you wish to sew a definite stitch width, turn knob to the number you wish and set 'left' side stopper.

- * To set the stopper, loosen thumb nut and move it to right until it stops and then fasten it by turning to right.

The 'right' side stopper is provided to regulate the maximum stitch width. For instance, when you wish to limit the stitch width at 3, turn knob to 3 and move 'right' side stopper to left, and fix it as same manner as 'left' side stopper. The knob can be turned only between 0 and 3.

NOTE: Make sure not to turn the knob while the needle is in the material you are sewing.

■ BASIC KNOWLEDGE OF SEWING

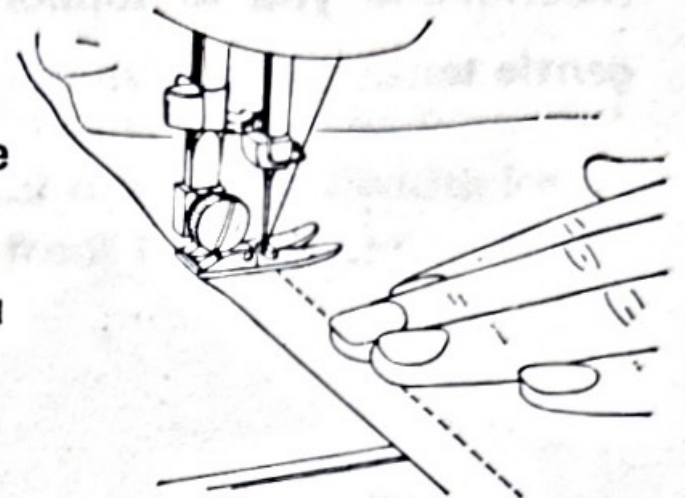
TO START SEWING

1. Raise needle and presser foot to the highest position.
2. Place material under the presser foot and the needle.
3. Turn balance wheel toward you slowly so that the needle pierces into the material at the point which you wish to start.
4. Lower presser foot down and start sewing.

NOTE: The material will feed by itself, so do not pull material. By pulling, you may bend or break the needle.

TO CHANGE THE SEWING DIRECTION

1. Stop your machine at the turning point while the needle is in the material.
2. Lift presser foot and turn material to the direction you wish to sew while the needle acts as the axis.
3. Lower presser foot again and start sewing.



TO FASTEN THE SEAM

1. Push reverse sewing button and make backward stitches about one half inch from beginning of seam until needle reaches beginning of the seam.
2. When you reach the beginning of the seam, release button and make forward stitches.
3. After you finish up sewing, push button again and make backward stitches about one half inch from the end of the seam.

TO REMOVE WORK

1. Stop machine.
2. Raise needle to the highest position and make certain that the thread take-up lever is in the highest position also.
3. Lift presser foot and pull out material gently to the left side diagonally.
4. Cut both threads on the thread cutter.
5. Leave 3–4 inches of threads between toes of the presser foot to the rear while the thread take-up lever is at highest position, and you are ready to sew again without any chance of thread running out of needle.

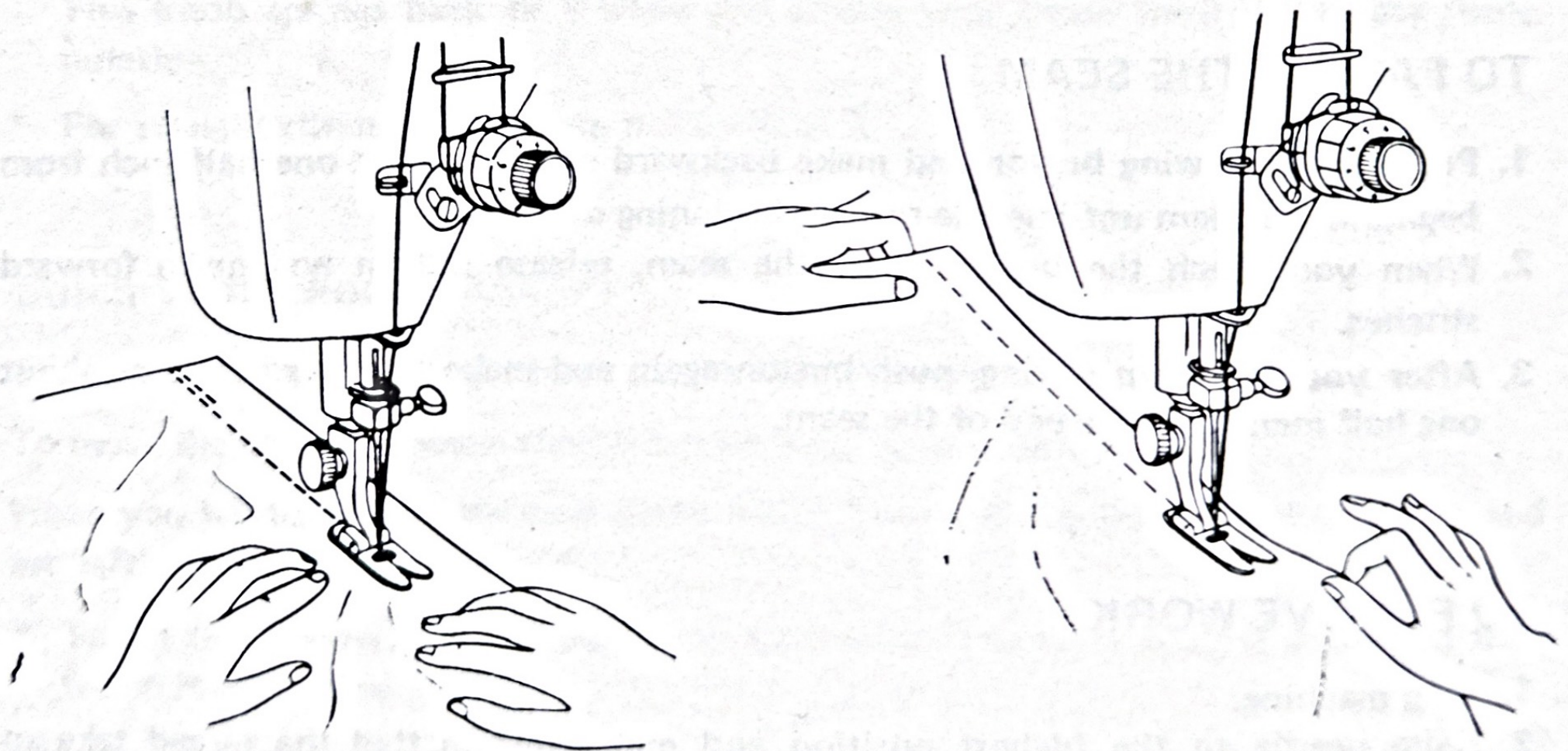
TO SEW VERY THIN MATERIAL

Very thin material is liable to become creasy. Then sew together with a thin paper that will make the sewing easier.

After finish, break paper away from the material.

TO GUIDE AND SUPPORT THE MATERIAL

Generally it is enough to guide the material in front of presser foot only as shown in left figure, however in case of special materials such as tricots, crepes, knits, etc., we recommend you to support the material in front and back of the presser foot with gentle tension as shown in right figure.

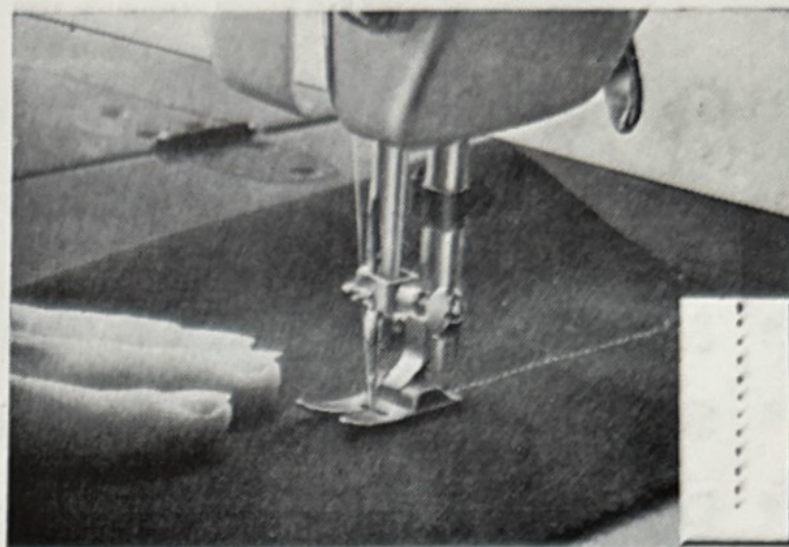


■ STRAIGHT AND ZIGZAG STITCHINGS

STRAIGHT STITCHING

- * Stitch width : 0
- * Stitch length : 1 – 4
- * Drop feed : NORM

NOTE: Make sure not to move Stitch Width Knob when needle is in the material.



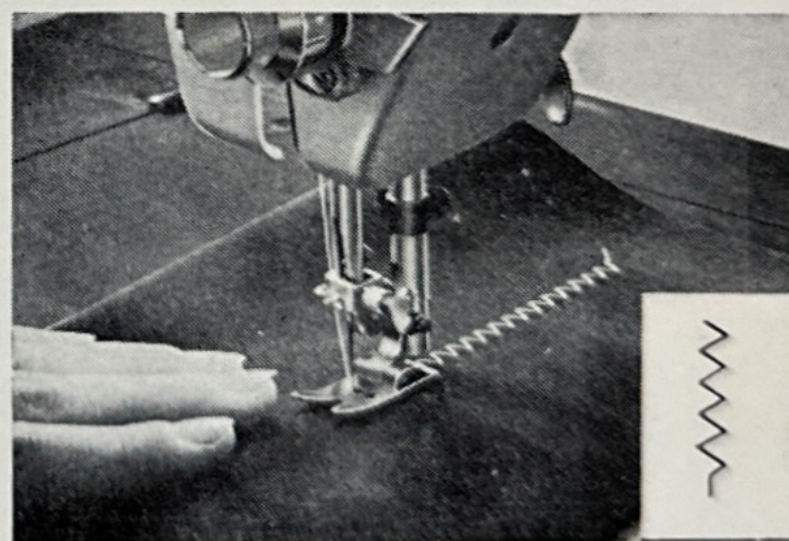
ZIGZAG STITCHING

Your sewing machine enables you to sew not only straight stitch but also beautiful zigzag stitch by operating the stitch width knob. When you move stitch width knob toward right from 0, you will see that the needle swings from left to right to make the zigzag stitch.

- * Stitch width : 1 – 5
- * Stitch length : See following instruction
- * Drop feed : NORM

Simple zigzag stitch

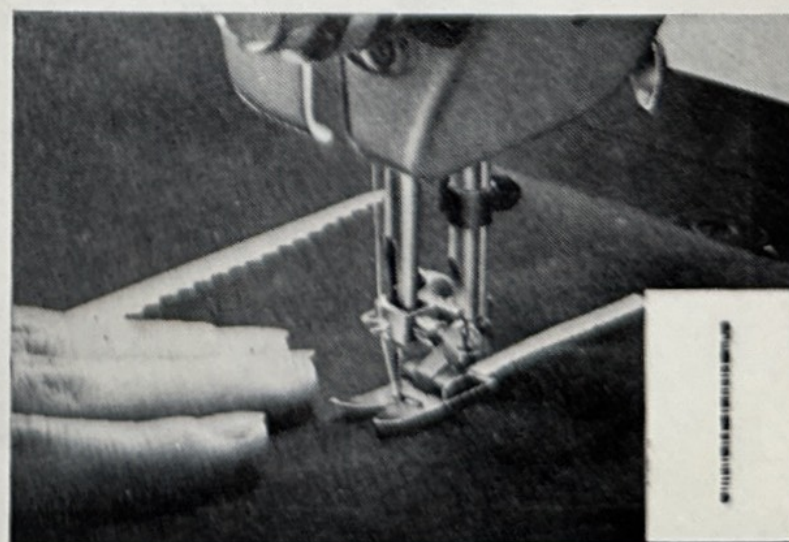
When you set the stitch length regulator between 1 and 4 on the indicator, you can obtain 'SIMPLE ZIGZAG STITCH'.



Satin stitch

When you set the stitch length regulator between 0 and 1, you can obtain the closest zigzag stitch. We call this stitch 'SATIN STITCH'. This stitch is used for making many decorative stitches.





NOTE: Position of the regulator to get the satin stitch is variable according to the material and thread size.



Decorative stiches

Using the 'SATIN STITCH', you can obtain following beautiful decorative stiches by controlling the stitch width knob.

- * Stitch width : See following table
- * Stitch length : Satin stitch
- * Drop feed : NORM

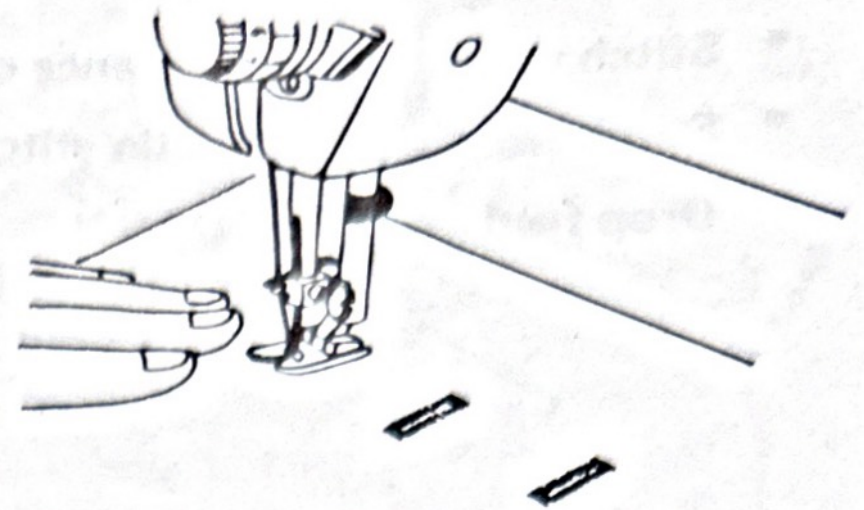
Patterns	How to move knob
	At even speed from 0 to 5 and from 5 to 0. Repeat this.
	Control the speed in moving from 0 to 5 and from 5 to 0. This will produce uniform curves. Repeat this.
	Set knob stopper 'left' to 2. Turn knob quickly and alternately from 2 to 5 and from 5 to 2.
	Slowly from 0 to 5 and quickly back to 0. Repeat the movement.

■ HOW TO.....

MAKE BUTTONHOLE

Using the tailors chalk, mark buttonhole on the material.

- * Stitch width : 2.5 and 5 (Set both stoppers 'left' and 'right' to 2.5 and 5 respectively.)
- * Stitch length : Satin stitch
- * Drop feed : NORM and DARN



Step 1

- (a) Stitch width : 2.5
- (b) Drop Feed : NORM
- (c) Sew first row of buttonhole from A to B.
- (d) Stop machine at B position (right side of the row) with the needle in the material.



Step 2

- (a) Lift presser foot up.
- (b) Turn material 180° while the needle acts as the axis.
- (c) Lower presser foot



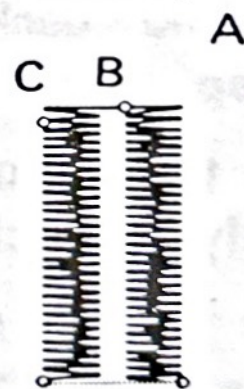
Step 3

- (a) Raise needle from the material.
- (b) Stitch width : 5
- (c) Drop feed : DARN
- (d) Sew a few stitches from B to C.



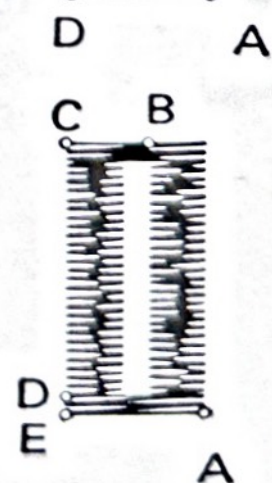
Step 4

- (a) Raise needle from material.
- (b) Stitch width : 2.5
- (c) Drop Feed : NORM
- (d) Sew second row of buttonhole from C to D.



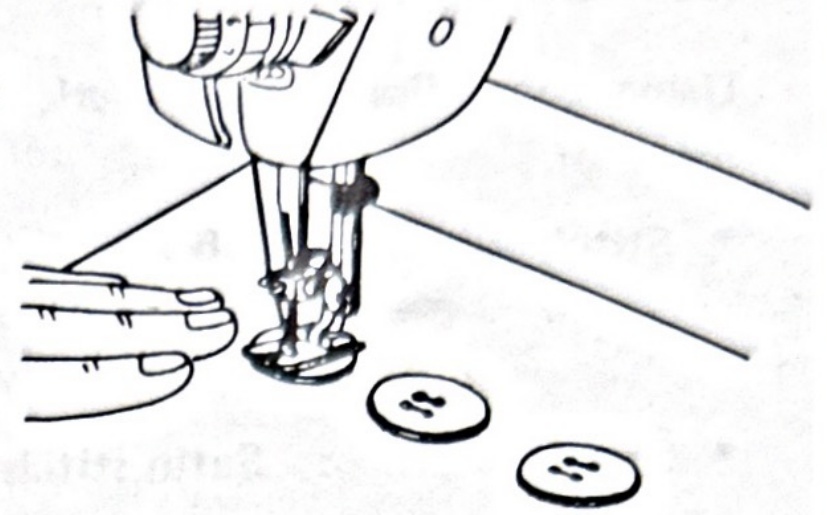
Step 5

- (a) Raise needle.
- (b) Stitch width : 5
- (c) Drop feed : DARN
- (d) Sew a few stitches from D to E as same manner as step 3.
- (e) Separate two sewn rows.



SEW ON BUTTON

- * Stitch width : Distance of hole of the button
- * Stitch length : Satin stitch
- * Drop feed : DARN

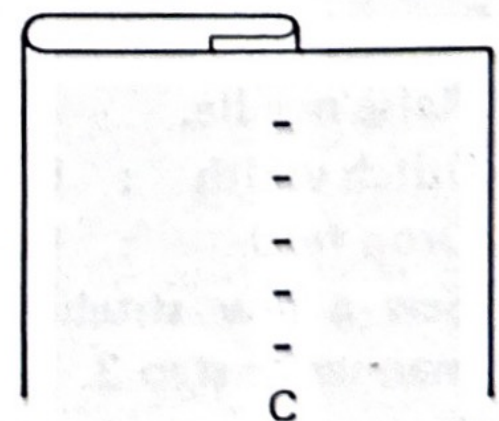
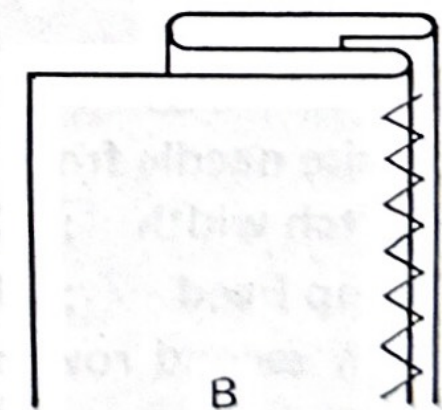
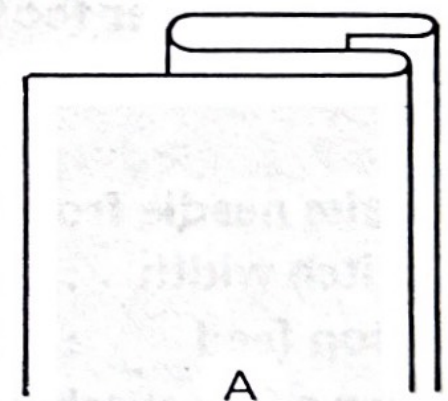


1. Place button between the presser foot and the material, with the holes in a horizontal line.
2. Lower presser foot.
3. Turn balance wheel toward you, making sure the needle enters into the hole of button without any obstruction.
4. Start sewing slowly and make 8–12 stitches at least.
5. Raise presser foot and set stitch width knob to 0.
6. Lower presser foot and sew 5–6 stitches to fasten the seam.

MAKE BLIND STITCH HEM

- * Stitch width : 2 or 3
- * Stitch length : 3
- * Drop feed : NORM

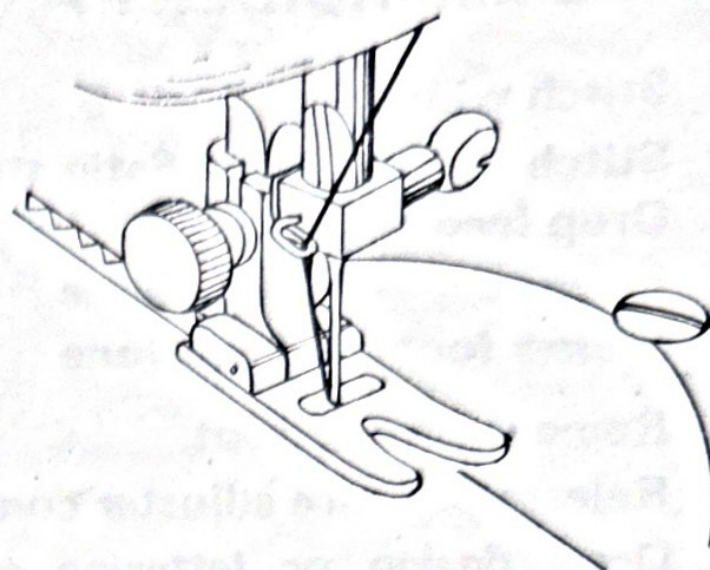
1. Fold material into the size of the hem desired and fold back as shown in A with 1/4" overlap on the bottom fold of the edge.
2. Start to sew on the fold, making the needle slightly to touch the folded top.
3. After finish, unfold material and you will have a blind stitch hem.



MAKE OVER LOCK STITCH

- * Stitch width : 5
- * Stitch length : 3-4
- * Drop feed : NORM

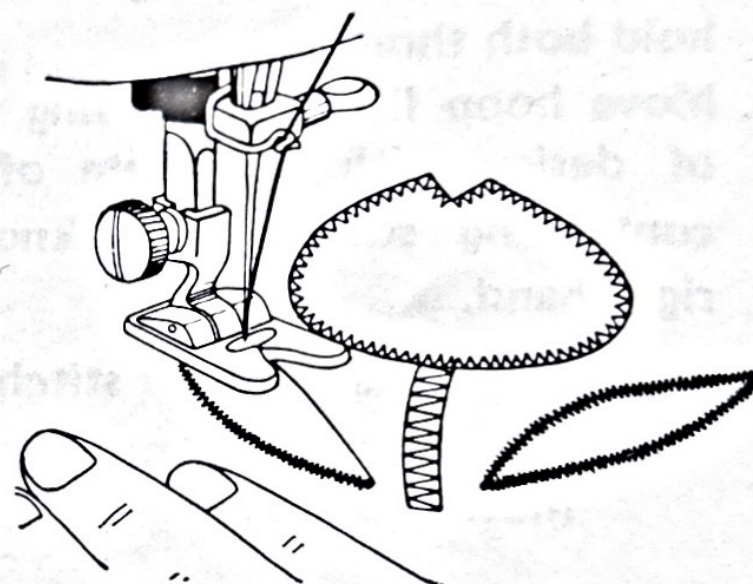
1. Place edge of the material under presser foot so that the needle sews material with its left side of zigzag stitch and just misses the edge of material with its right side of zigzag.



MAKE APPLIQUE

- * Stitch width : 2
- * Stitch length : Satin stitch - 1
- * Drop feed : NORM

1. Baste cut design to the material.
2. Following the design, commence to sew carefully.
3. Cut away surplus material close to the design.
4. Remove basting.



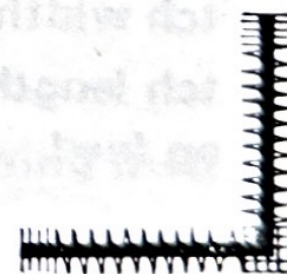
MAKE MENDING

- * Stitch width : 4
- * Stitch length : 2
- * Drop feed : NORM

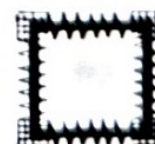
1. Place underlay to the wrong side of the tear for reinforcement.
2. Following the line of tear, sew edges together.
3. Shorten stitch length at ends and corners by moving the stitch length regulator.



Straight tear



L-shaped tear



Hole

■ CHECK LIST FOR BETTER SEWING

Machine won't feed material

1. Feed dog is down.
2. Needle plate out of position.
3. Presser foot pressure too weak.
4. Stop motion screw loose.
5. Stitch length regulator at 0.

Needle breaks

1. Needle fitted wrong way or bent needle is used.
2. Material pulled excessively.
3. Wrong needle and thread for cloth being sewn. (Refer to table showing matching needles, threads and cloth.)

Upper thread breaks

1. Wrong "upper threading".
2. Defective needle eye. (For example, needle eye has burrs)
3. Upper thread too large for needle eye.
4. Upper thread tension too tight.
5. Upper thread caught by something.

Lower thread breaks

1. Lower thread entangled in shuttle.
2. Tension spring of bobbin case tightened excessively.
3. Bobbin case threaded wrong way.

Stitch skipping

1. Needle fitted wrong way or bent needle is used.
2. Poor quality needle is used.
3. Wrong threading.
4. Lint clinging to under-side of needle plate.
5. Wrong needle and thread for cloth being sewn. (Refer to table showing matching needles, threads and cloth.)

Loops form on fabric

1. Tension of upper or lower thread is wrong.

Material gets wrinkled

1. Thread tension too strong.
2. Wrong threading, or thread is caught by something.
3. Lower thread unevenly wound on bobbin.

MAINTENANCE AND OILING OF MACHINE

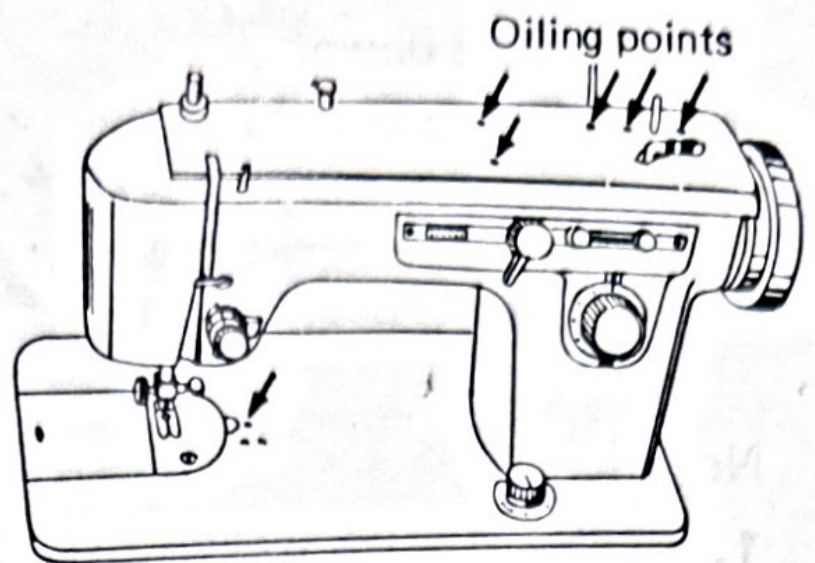
OILING

Moving parts of the machine, if always oiled well, do not wear out.

Noise is minimized during the working of the machine.

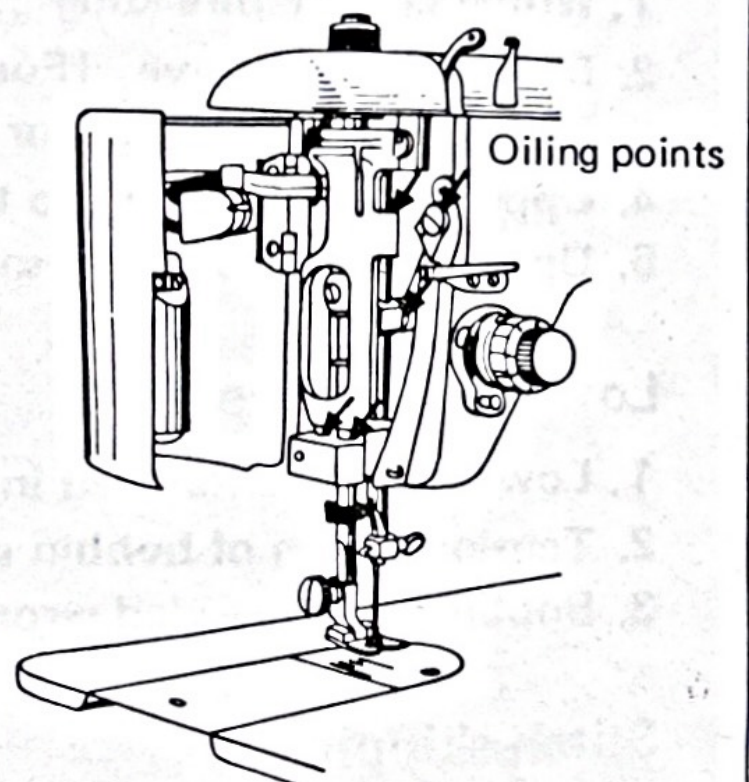
OIL ONCE A WEEK, IF THE MACHINE IS USED FOR ONE HOUR A DAY.

OIL EVERY DAY, IF THE MACHINE IS USED FOR MANY HOURS A DAY.



If the machine is not used for a long time, oil will coagulate and the rotation of the machine becomes heavy.

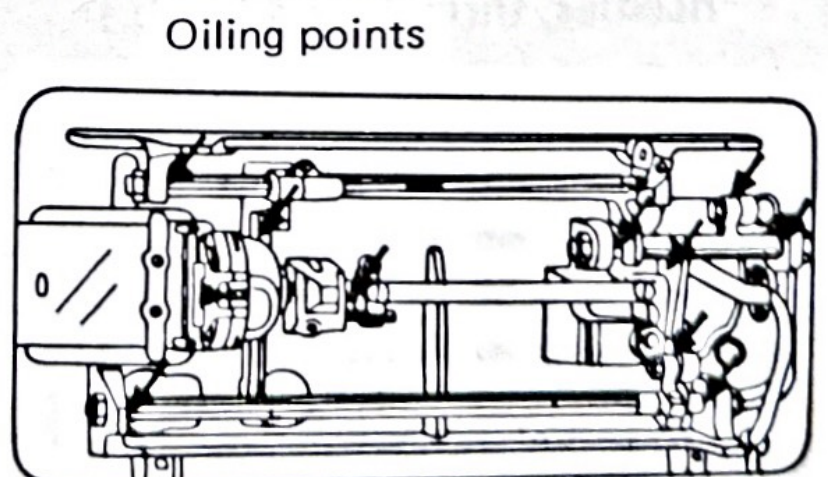
Apply a small amount of benzine to oiling points. Run the machine fast (without thread and with presser foot up) and wipe the machine.



After wiping it cleanly, apply machine oil to all points marked by arrows.

Make sure excess oil is wiped off completely to avoid oil stain. Sew on waste cloth before work.

NOTE: Over oiling of motor is not recommended. One or two drops twice a year will suffice.



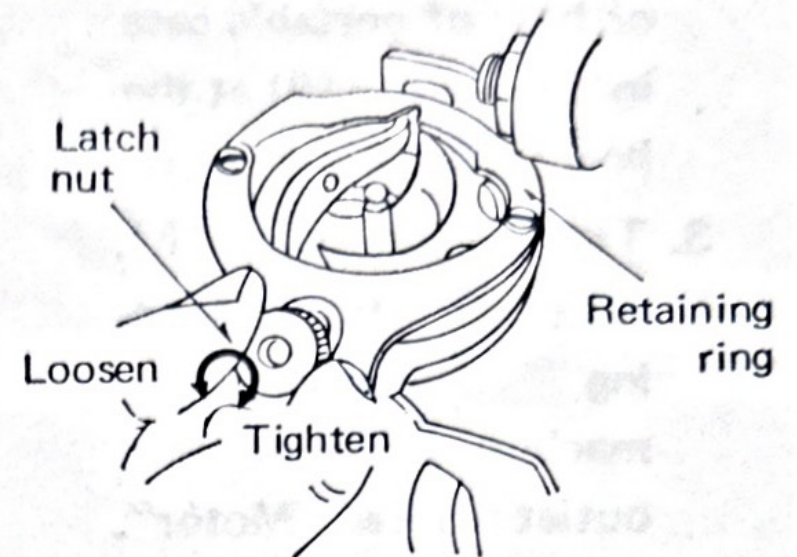
CLEANING

The sliding parts of the shuttle race body and the hook must be clean always so that lint does not accumulate.

To take out the hook

1. Raise needle to its highest position.
2. Raise the head away from you.
3. Take out bobbin case.
4. Turn latch nut to the left.
5. Loosen spring and open the retaining ring. (The retaining ring will open without taking off the latch nut)
6. Remove hook by grasping center post of hook.

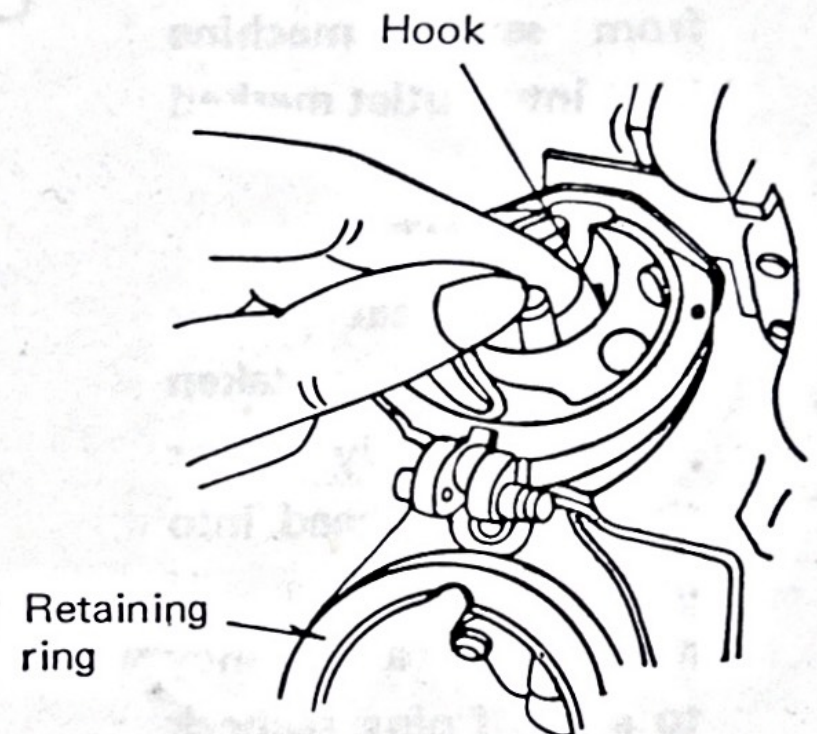
NOTE: When needle is lowered down, the hook cannot be taken out.



Cleaning of shuttle race body

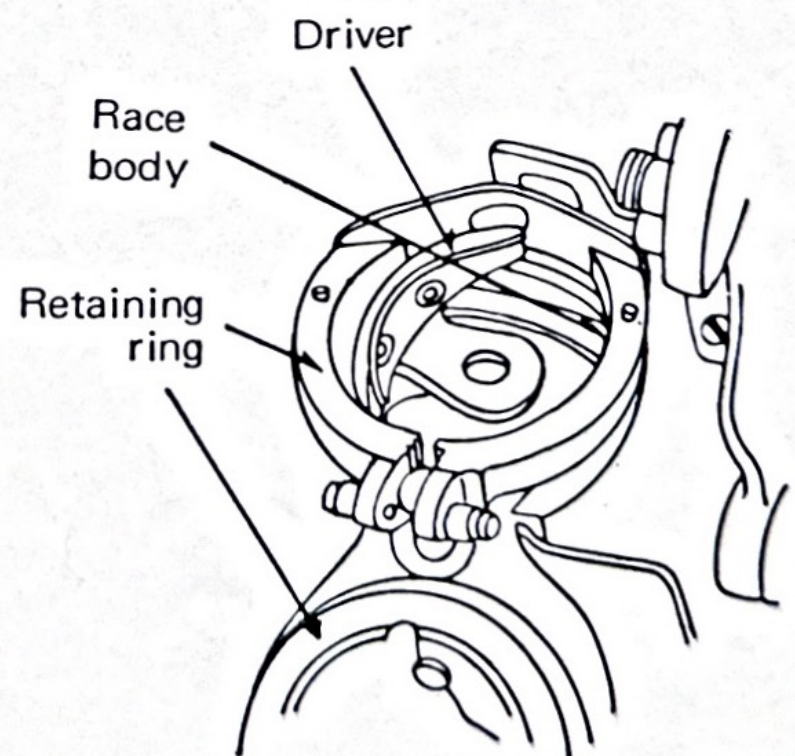
1. Remove accumulated lint and thread from the retaining ring, hook, driver and race body with brush.
2. Wipe them cleanly with cloth imbued slightly with machine oil.
3. The hook, too, may be cleaned in the same way.

For assembling the parts, follow the same order in reverse.



Cleaning of feed dog

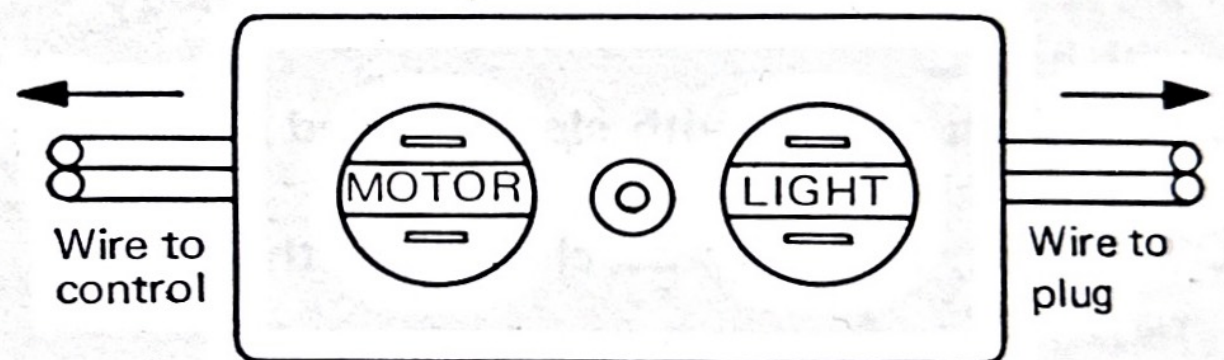
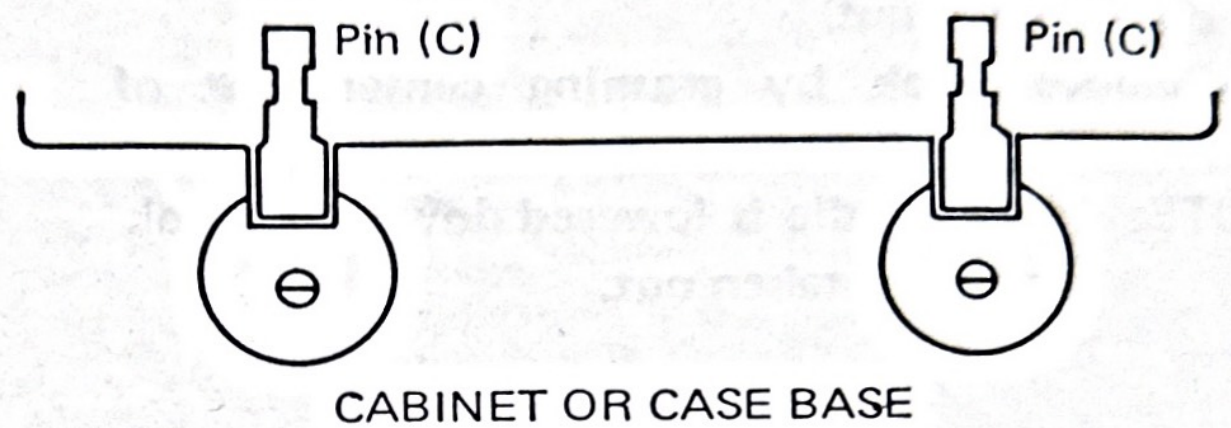
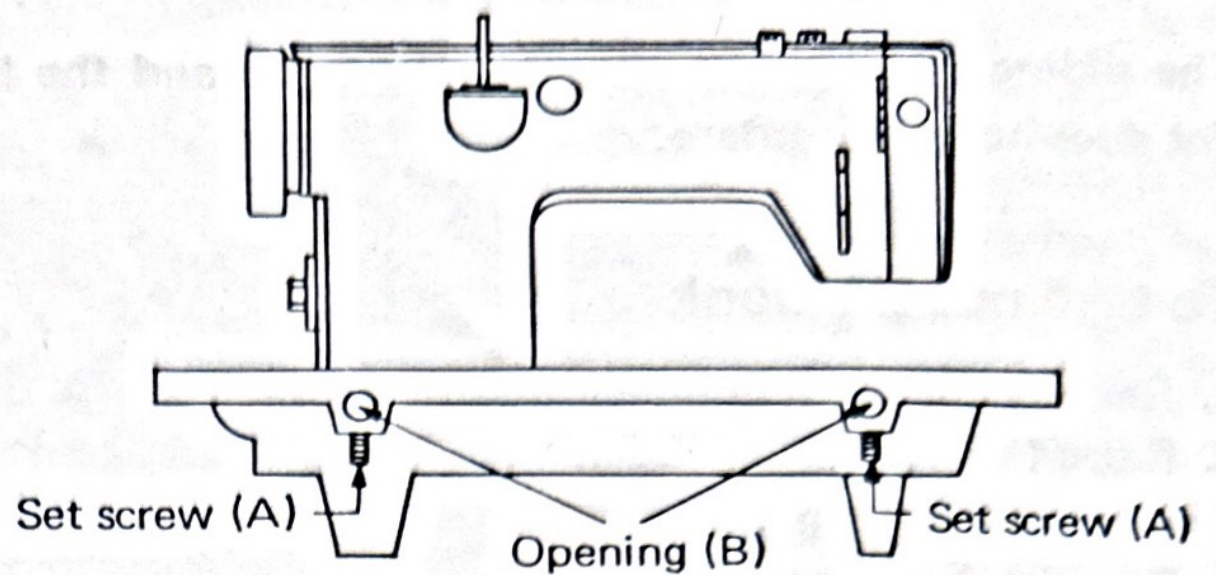
1. Take out needle plate.
2. Clean upper part of feed dog and shuttle race body with brush.



TO PUT SEWING MACHINE HEAD INTO CONSOLE CABINET OR PORTABLE CASE

1. Loosen set screws (A) to permit pin (C) to enter.
2. Insert pins (C) located in the back of the cabinet or base of portable case into openings (B) at the back of sewing machine.
3. Tighten set screws (A).
4. Insert electric plug leading from sewing machine motor into outlet marked "Motor".
5. Insert electric plug from sewing machine light into outlet marked "Light".
6. **IMPORTANT**

To insure that proper installation has taken place, carefully lower the machine head into inside of console. If machine has a tendency to slip off pins, recheck step "3".



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