

SINGER
INSTRUCTION
BOOK
MODEL
GL220/330

REASONS

- g) The stitch hole in the needle plate is rough or sharp.
- h) Poor quality thread.

If The Machine Stops While Sewing.

The stop motion knob has not been tightened sufficiently.

If The Machine Skips Stitches.

- a) The needle is inserted incorrectly.
- b) The needle is bent or blunt.
- c) The needle is threaded improperly.
- d) Wrong size of needle is used.
- e) Thread is too heavy for needle.
- f) The pressure of presser foot is insufficient especially when sewing heavy material.

If The Needle Breaks

- a) The needle is bent.
- b) The fabric is pulled from behind while sewing.
- c) Change to new needle.
- d) Do not interfere with feeding action of machine.

CORRECTIONS

- g) Polish stitch hole or replace needle plate.
- h) Change thread.

NOTE:

To avoid breaking of needle, tighten thumb screw of needle clamp. Do not sew heavy seams or very thick fabric with fine needle. Heavy needle and thread should be used on heavy fabric. Refer to the list of needle and thread sizes.

REASONS

CORRECTIONS

Makes Loose Stitches And Loops On Underside Of Fabric.

- Threading is incorrect
- Presser-Foot is not completely lowered
- Insufficient tension of needle thread.
- Thread take up spring is bent or broken.
- Poor stitches and bad seams for following reasons:
 - The bobbin is wound unevenly.
 - Upper thread tension is too tight or too loose.
 - Bobbin thread is too coarse for material.
 - The needle is not suited for material.
 - Needle damaged.
 - Uneven thread tension likely to be caused by thread of poor quality.

If The Material Puckers

- The needle thread tension is too tight.
- The needle and the bobbin thread are too tight for the fabric.
- Too much pressure applied to the presser foot.
- Loosen the tension. (See Chap. 2 of Actual Sewing.)
- Looser, both tensions. (See Chap. 2 of Actual Sewing.)
- Release the pressure of presser foot and adjust.

REASONS

CORRECTIONS

If The Machine Jams Or Clogs.

- The machine is not properly threaded.
- Running machine without

- Correct the threading as in Chap. 6 of Basic Information.
- Do not operate the machine without fabric. Clean the shuttle race. See "When the shuttle hook becomes jammed" under "Helpful Hints"
- Do not run the machine in position '0'.

- Sewing with the stitch regulator dial at '0'.

If The Machine Does Not Feed Properly.

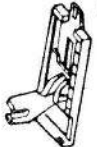
- The stitch regulator dial is at '0'.
- The feed dog is dropped.
- Insufficient pressure is applied to the presser foot.
- Do not set the dial at '0' position.
- Raise the feed mechanism by pushing the right hand button of Drop Feed completely.
- Increase the pressure by pushing the head of the darning.

If The Bobbin Does Not Wind Properly.

- The machine is not threaded correctly.
- The thread is out of the tension discs.
- Correct the threading as in Chap. 2 of Basic Information.
- Check thread to the tension discs.

If The Needle Thread Breaks.

- The needle is inserted incorrectly
- The needle is not threaded correctly.
- The upper tension is too tight.
- Knots in thread.
- The needle is too fine for thread.
- The needle is bent or its point is broken.
- Correct the insertion of needle as in Chap. 5 of Basic Information.
- The needle must be threaded from left to right through needle hole
- Loosen the tension as in Chap. 2 of Actual Sewing.
- Use better quality thread.
- Change to larger size needle.
- Change needle.

Three Metal Bobbins The bobbins are made of metal and hold about 80 yards of thread.	Buttonhole Foot Has measuring lines to insure exact buttonhole length needed.	
Needles All purpose needles size, 14 are included.	Button Sewing Foot To hold button in place for stitching.	
Two Felt Washers Place the felt washers under the spools for best stitching results.	Cording and Zipper Foot For stitching very close to the edge of a cord or zipper.	
Quilting Guide Helps make parallel rows of stitching.	Screw Drivers Small one for use on bobbin tension. Large one for use on thumb screw, needle clamp screw, etc.	
All Purpose Foot Used for all utility sewing.	Tubed Oiler For use in oiling the machine. See page 12.	
Seam Gauge or Cloth Guide	Seam Ripper For cutting open the buttonholes and for removing stitches.	

REASONS

CORRECTIONS

When The Shuttle-Hook Becomes Jammed.

It occasionally happens the loose threads become entangled and impede the free movement of the Shuttle-Race.

- Remove the Bobbin-Case.
- Push the Pins sideways.
- Remove the Shuttle-Race-Cap from the Shuttle.
- Remove the Shuttle-Hook, and brush off all thread, lint, etc.
- Insert the Shuttle-Hook, and the Shuttle Race-Cap which is inserted in its slot to pin of Shuttle.
- Push the Pins back to their original position.

When The Machine Runs Heavily

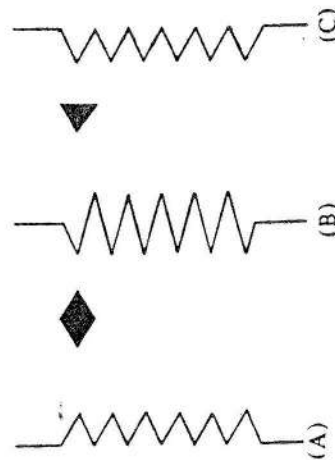
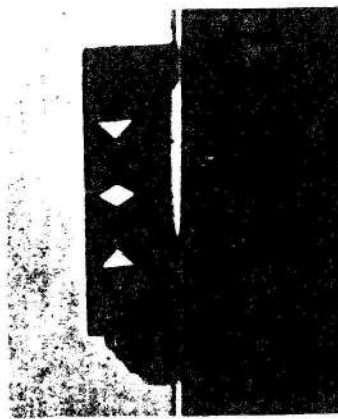
If the machine runs sluggishly after standing idle for some time, apply a drop of kerosine in place of oil. Run the machine rapidly to clean. Then oil the machine.

When The Machine Runs Heavily For Other Reasons.

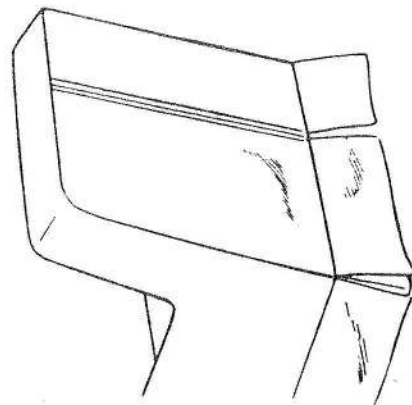
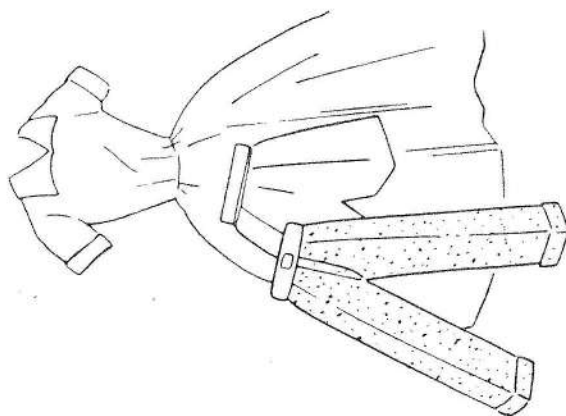
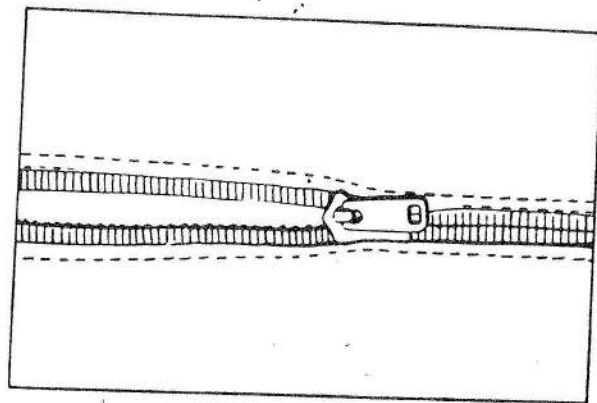
- The motor belt is too tight, or has jumped off the Pulley or Hand-Wheel.
- Bobbin-Winder is not released.
 - Thread is caught in the Shuttle-Race.
 - Machine is lubricated with unsuitable gummy oil.
- Loosen belt by adjusting the motor bracket.
- Pull up release latch of Bobbin-Winder.
 - Clean the Shuttle.
 - (1) Place a few drops of kerosene into each oil hole and run the machine for a few minutes.
(2) Lubricate with proper sewing machine oil.

THREE NEEDLE POSITION

- A. This machine has three basic needle position, LEFT MIDDLE and RIGHT, controlled by a needle position lever to the left of the zigzag stitch regulator as illustrated.
- B. When the needle position lever (▲) is in its LEFT, the stitch direction are as per illustration (A). The width varies and is regulated by the zigzag stitch regulator. The length also varies depending on the setting of the stitch regulator.
- C. In the middle position, the stitch direction in illustration (B).
- D. In the Right Position, the needle starts from right, as illustration(C).



ADJUSTABLE CORDING AND ZIPPER FOOT



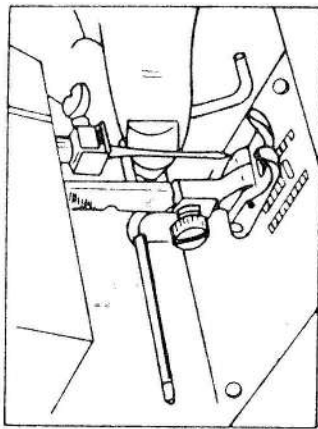
10. QUILTING

Ruler will enable you to sew vertical, horizontal or oblique parallel stitches on the material of jumpers, gowns etc., either in straight or zigzag sewing.

How to insert the ruler:

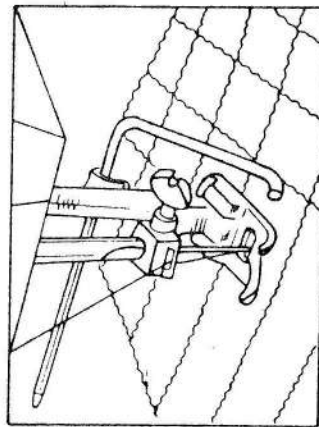
Insert the ruler as shown.

1. The presser foot holder is provided with a spring for fitting the ruler on the back.
2. Since the ruler may be adjusted freely, rightward or leftward, you will be able to obtain any desirable spacing.



How to sew:

Make new stitches tracing the preceding stitches by the ruler.

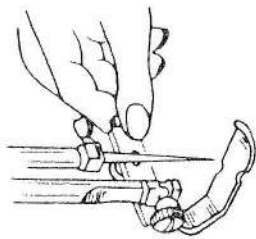


11. THE ADJUSTABLE CORDING AND ZIPPER FOOT

This attachment is used to make and insert covered cording, and to sew in zippers. Loosen thumb screw to slide foot to either right or left of needle.

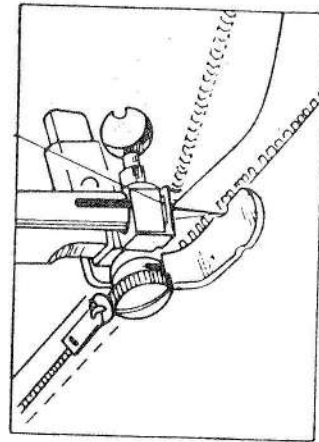
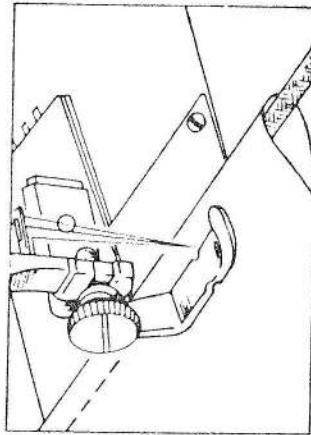
CORDING

Fold bias strip of fabric over cord. Loosen thumb screw and set foot so needle is centered in needle hole. Machine bastes cord in place. To sew covered cord to material, reset adjustable foot so needle stitches closer to cord, and on edge of base fabric.



SEWING IN ZIPPER

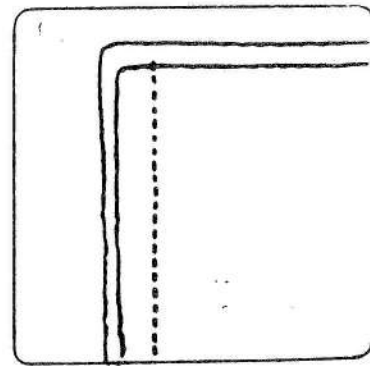
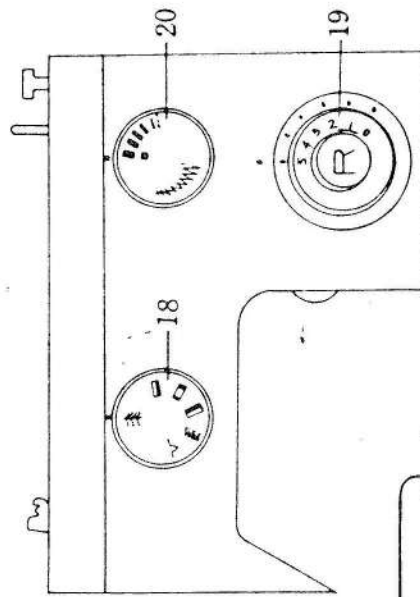
Loosen thumb screw and slide foot so needle enters center of needle hole. Guide of zipper along edge of foot. Stitching should be close to zipper to allow easy opening and closing. Adjust to sew from either right or left side, whichever is more convenient.



8. AUTOMATIC STRAIGHT STRETCH STITCHING

This machine sews automatically the Stretch Stitch which is most useful when sewing jersey and knit materials, etc.

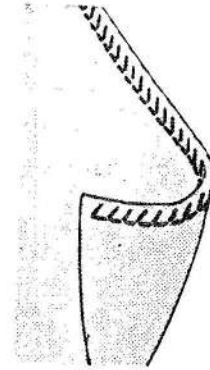
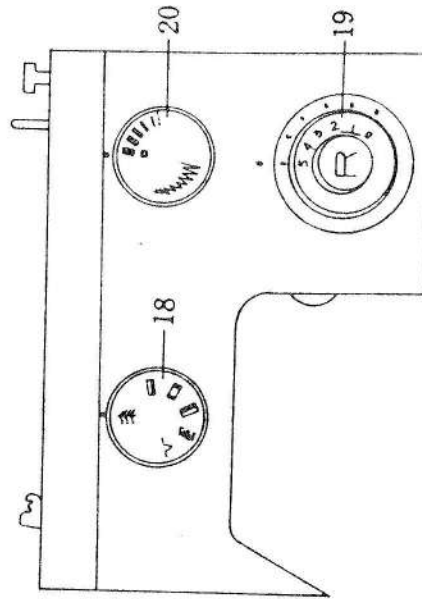
- Set the Selector Dial (18) at the position of stitch design "4" on the Dial.
- Set the Zigzag Width Dial (20) at the "4" position. This is essential.
- Set the Stitch Regulator Dial at the mark of "4" between "4" and "5" position.
- Set Drop Feed dial to "Δ" position. Start sewing, and you will obtain Straight Stretch Stitch Automatically.



9. AUTOMATIC ULTRA OVERLOCK STITCHING

This machine produces automatically the ultra Overlock Stitch which is most useful when sewing the elastic materials such as knit, jersey etc.

- Set the Selector Dial (18) at the position of Stretch Stitch "4" as shown on the Dial.
- Set the Zigzag Width Dial (20) at the widest zig zag.
- Set the Stitch Length Regulator Dial at the longer stitch length.
- Set the Drop Feed Dial to "Δ" position. Start sewing.

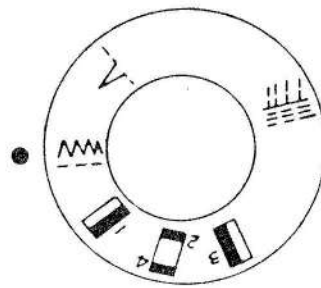
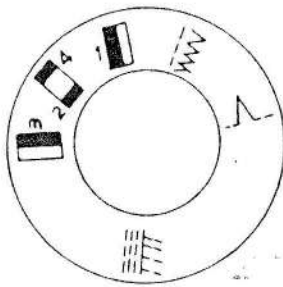


Right Side Stitching

- Turn Selector Dial at  as shown, and start stitching.
- Your machine will stitch in reverse automatically.
- Stitch up to the end of cutting space, and stop the machine when the needle is out of the fabric.



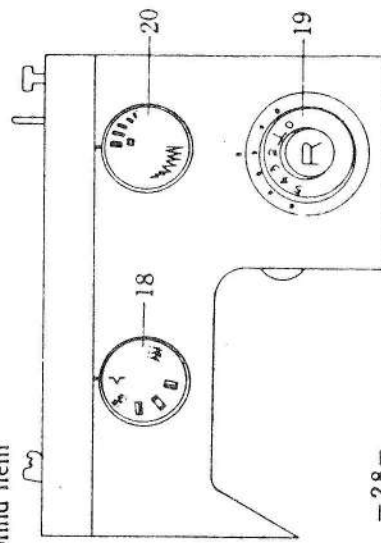
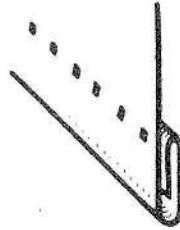
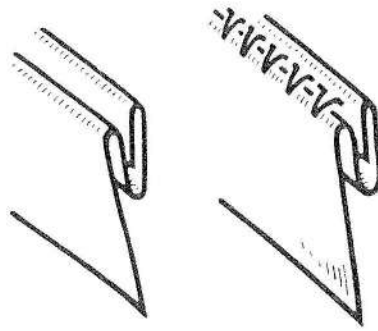
- Stop machine and turn Dial back to "Manual" position, and set Stitch Regulator Dial (18) and Zigzag Width Dial at "1" position.
- Stitch two or four stitches for reinforcement.
- Remove fabric from the machine and cut opening with seam ripper or sharp embroidery scissors.



7. AUTOMATIC BLIND STITCHING

By folding the material and adjusting your machine as outlined below, you can sew hems which are practically invisible, by setting Selector Dial (18) at blind stitch position shown on the Dial.

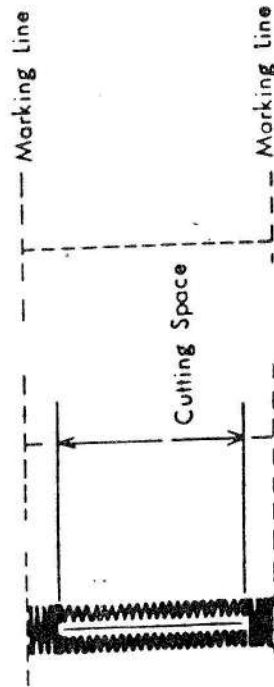
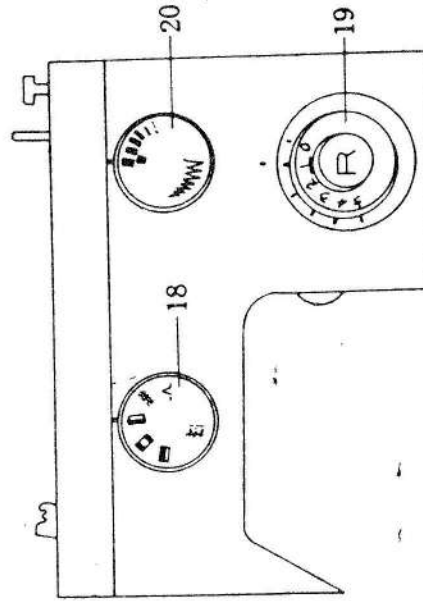
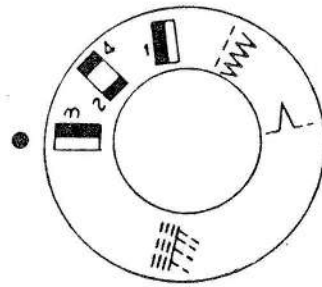
- Prepare and baste hem and, if desired, attach seam binding in same way as for hand hemming and turn garment inside out.
- Fold over hem again with the RIGHT sides of the material facing each other. Allow edge of hem or seam binding to extend about 1/8" beyond edge of fold. Hold in place with pins inserted across folds.
- Set Zigzag Width Dial (20) at desired position from When stitching heavier material set the dial at "1" marking.
- Set Selector Dial at blind stitch position .
- Adjust Stitch Regulator Dial (19) to "2" to "3". Set for smaller stitches if material is very sheer.
- Slightly loosen upper thread tension (set one or two numbers lower) to prevent strain or pull on seam.
- Place material under presser foot of machine so that straight stitching is done on extending portion of fold and blind stitch barely catches edge of fold (by one or two threads) so as to make blind hem as invisible as possible.



6. AUTOMATIC BUTTONHOLER

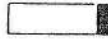
Buttonholes can be made fully automatic, by setting the Selector Dial (18) at BH sewing positions as shown on the dial.

- Change the Regular Presser Foot to the Buttonhole Foot.
- Set the Stitch Regulator Dial (19) in the middle of '0' and '1'.
- Set the zigzag width dial (20) at buttonhole mark.



Bar Tack

- Set the Selector Dial (18) at  as shown, and stitch 4 or 5 stitches.
- Your machine will stitch forward bar tack automatically.
- Stop machine when the needle is out of fabric.



Left Side Stitching

- Turn Selector Dial at  as shown.
- Stitch from bar tack to the end of cutting space. Stop machine when the needle is out of the fabric.



Crossing Bar Tack

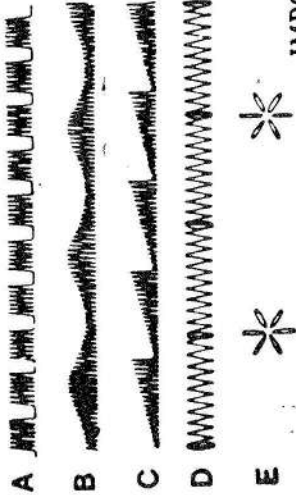
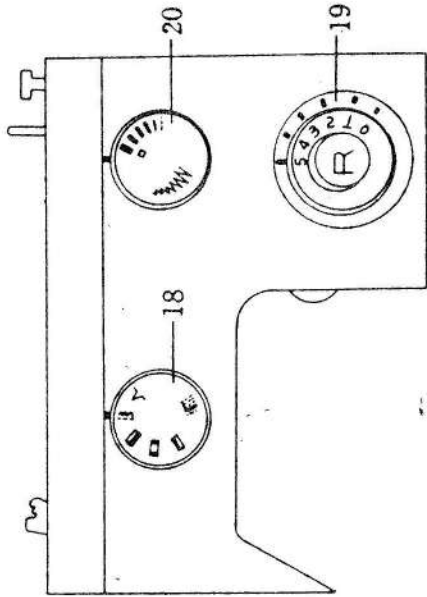
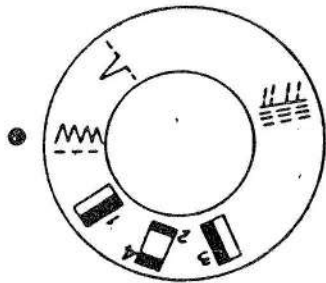
- Turn Selector Dial at  as shown, and stitch 4 or 5 stitches.
- Your machine will stitch back bar tack automatically.



3. ZIG ZAG STITCHING

ZIG ZAG Width Dial (20) regulates the width of zigzag stitch. By turning the Dial clock-wise, you can increase the width of stitch from 1 to 5 millimeters (1/8" is only for straight stitch). When sewing manual zigzag stitches, be sure to set the pattern selector dial (18) at "3" position. Set the zigzag width dial (20) and Stitch regulator dial (19) at your desired.

With the machine set for a short stitch length, different designs can be made by turning the Zigzag Width Dial back and forth between any combination of width.

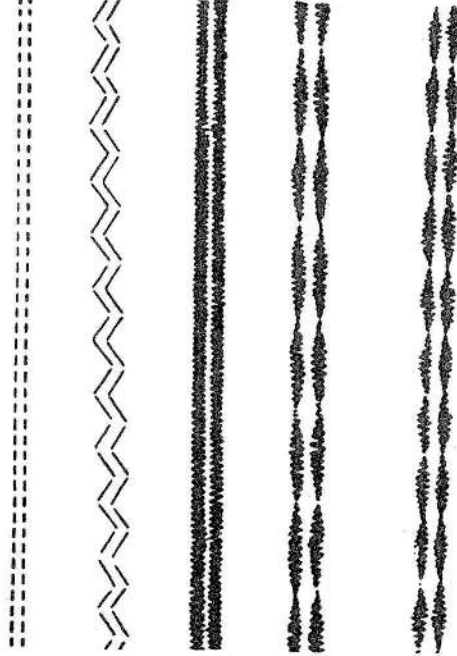
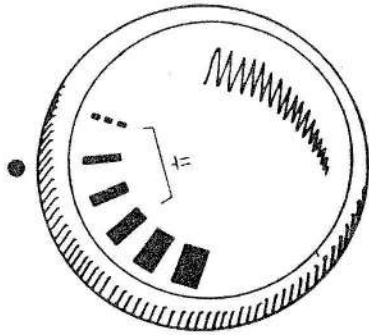


IMPORTANT!!

In sewing *Manual* Zig Zag Stitch, always be sure to set Pattern Selector Dial (18) at "3" position.

5. TWIN NEEDLE STITCHING

In sewing zigzag stitches with twin needle, be sure to set the zigzag width dial at the twin needle zone indicated in below figure so that needle will not break.



NOTE:

Various Zig Zag Patterns in double needle stitching can be obtained by moving the zig zag width control dial however, be sure to sew within the twin needle zone. If the width is too wide, you may break a needle.

ACTUAL SEWING WORK

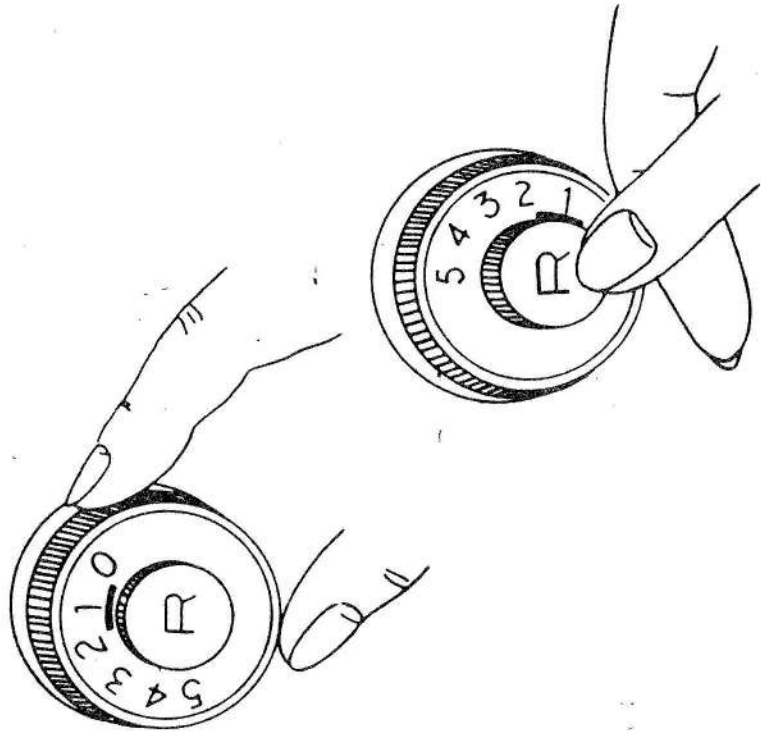
1. STITCH REGULATING AND REVERSE STITCH.

The length of stitch is regulated by the Stitch Regulator Dial (19). Naturally, length of the stitch increases from the 0 (minimum) to 5 (maximum).

The close stitch between 0 and 1 of the dial indicates the normal stitch length for satin stitch and buttonholing.

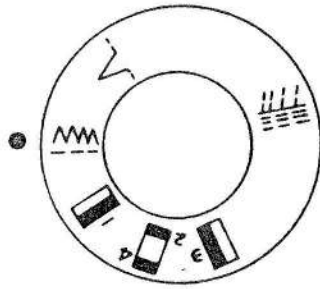
The long stitch between 4 and 5 of the dial indicates the normal stitch length for sewing on stretch material.

To sew in reverse to tie the thread at the beginning or the end of a seam, press the Center Knob of Stitch Regulator Dial as far as it will go.



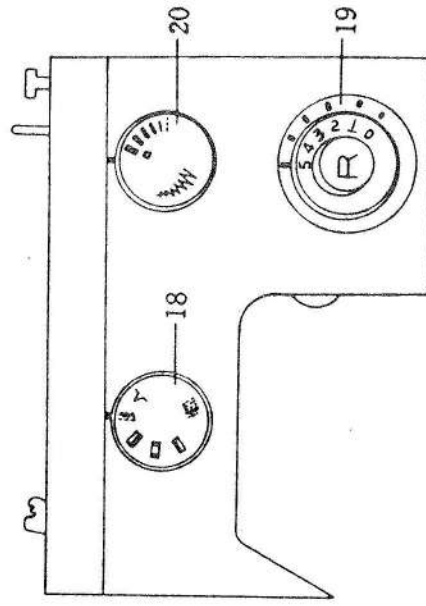
2. STRAIGHT STITCHING

- Set the Zig Zag Width Dial (20) at "0" position.
- Set the Stitch Regulator Dial (19) at desired stitch length.
- Set the Pattern Selector Dial (18) at "3" position.
- Start Sewing.



IMPORTANT!!

In sewing Straight Stitch, always be sure to set Pattern Selector Dial (18) at "3" position

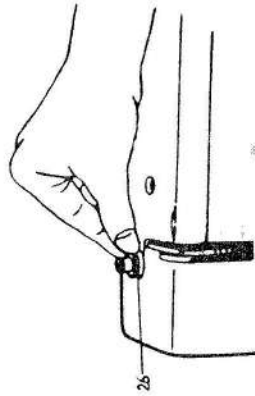


3. ADJUSTING THE PRESSURE.

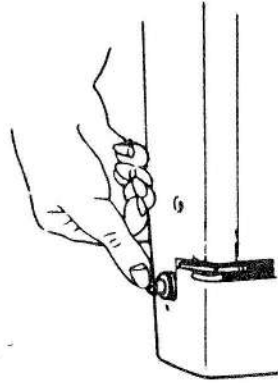
To permit the machine to stitch properly and to feed the fabric past the needle, the Presser-Foot must bear down on the fabric. The Presser-Bar-Lifter controls the raising and lowering of the Presser-Foot.

Depending on the weight of the fabric, particularly when sheer or light weight fabrics are sewn, change in the pressure of the Presser-Foot may be needed.

To reduce the pressure, place the finger of your left hand on the round base of the Darner in order to control its rise. At the same time, with the finger of your right hand on the head of the Darner, (26) permit the head of the Darner to rise either partly or fully, depending on fabric and operation.



To decrease pressure, push the round base.



To increase pressure, press the top of darner.

5. TWO POSITIONS OF DROP FEED

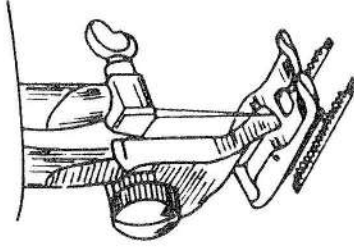
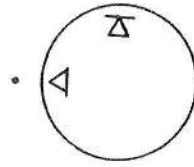
The machine is equipped with the Drop Feed.

When sewing different fabrics, sewing on buttons or sewing free hand embroidery, it is best to have the proper feed adjustment.

The drop Feed dial (17) lowers the Teeth of Feed Dog so that the fabric does not move.

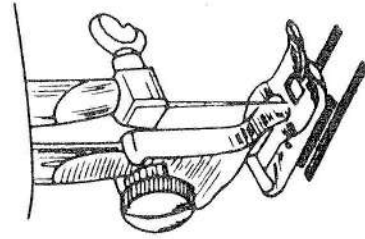
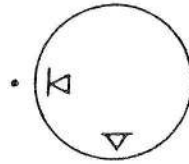
FOR STITCHING ORDINARY FABRICS.

The Feed-Dog is in UP Position.



FOR DARNING, EMBROIDERING
SEWING ON BUTTONS.

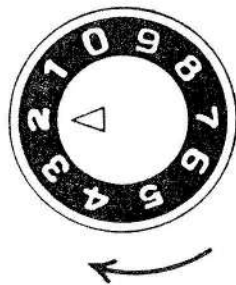
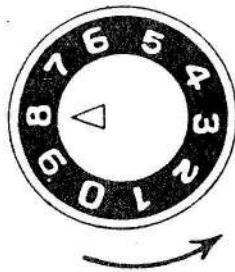
The Feed-Dog is in DOWN Position.



2. ADJUSTING THE THREAD TENSION.

To form a perfect stitch, both (needle thread and bobbin thread) tensions must be balanced.

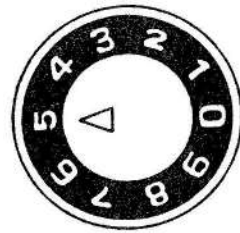
The numbered calibrated scale of the Upper-Thread-Tension-Assembly (5), makes a very fine adjustment of the thread tension possible. "O" is the loosest tension and "9" is the tightest tension.



Needle thread tension is too tight or bobbin thread tension is too loose.



Needle thread tension is too loose or bobbin thread tension is too tight.

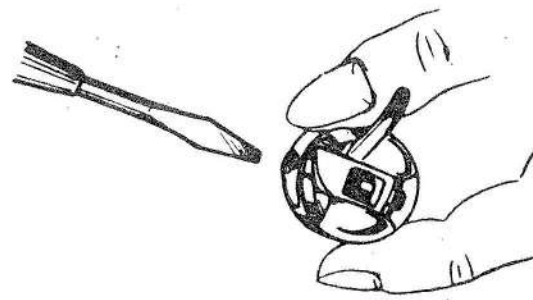


For normal sewing the tension of the needle and bobbin threads should be equal to lock both threads in the center of fabric.

The lower (bobbin) thread tension should not be changed unless absolutely necessary, as this adjustment is very delicate. Should it be necessary to adjust the lower tension, remove Bobbin-Case from the machine. Turn small screw in Bobbin-Case tension spring to the right to tighten tension; to the left to loosen.

Here is a simple test to help you determine the proper bobbin tension for normal stitching.

Life the filled Bobbin in the Bobbin-Case by the thread hanging from it. The tension should be just tight enough to hold its weight.



NOTE:

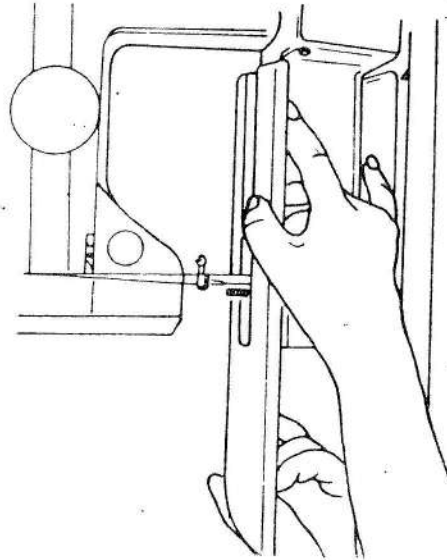
For sewing heavier materials with heavier threads, loosen the tension by turning it to lower numbers. For fine fabrics and fine threads, tighten tension by turning the numbered calibrated scale to higher for general sewing.

NOTE:

Do not turn screw in either direction more than about ONE QUARTER TURN at a time. Then sew and check results.

11. CONVERTIBLE EXTENSION PLATE

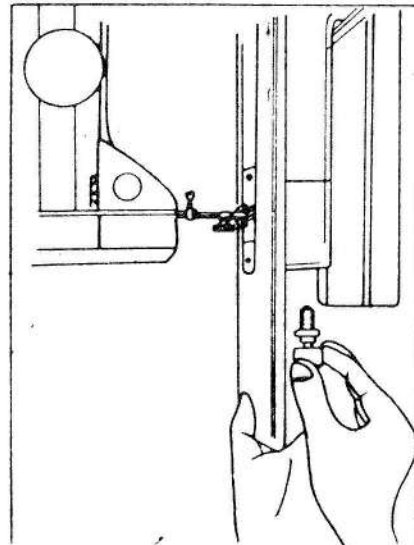
The built-in, snap-up extension plate quickly converts the sewing platform from plat bed to tubular arm.



Attaching the Extension Plate

For ordinary sewing, the extension plate will make your work easier.

Carefully place the extension plate on the free arm, levelling the plate with the free arm, inserting pins on plate into corresponding holes on base of arm.

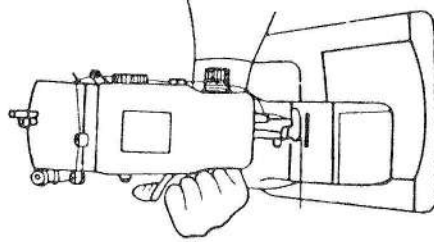


Grasp locking screw on underside of extension plate, press screw toward corresponding hole on end of arm, turn screw to hold plate firmly.

ACTUAL SEWING

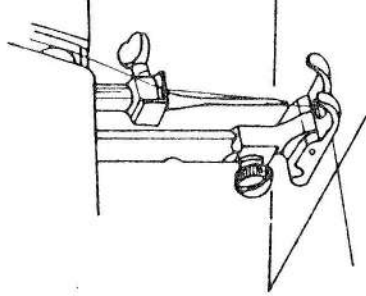
1. STARTING TO SEW

- Place fabric between Presser-Foot (12) and Needle-Plate (13).
- Lower needle into fabric and lower Presser-Foot.
- Hold the end of both threads for about three or four stitches, to prevent the threads from tangling, or clogging shuttle.
- Start machine, do not pull fabric but let the machine feed by itself.



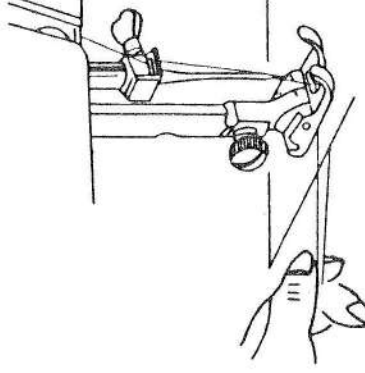
HOW TO TURN A CORNER

- Stop machine while needle is still in fabric.
- Raise Presser-Foot and turn fabric using the Needle as a pivot.
- Lower Presser-Foot and resume stitching.



REMOVING THE MATERIAL

- Stop the machine.
- Turn the Hand-Wheel (1) toward you until Needle is at its highest position.
- Raise Presser Foot.
- Draw fabric directly back from the Needle (away from you).
- Pull out about 4 or 5 inches and snip thread close to fabric.



9. OILING AND CLEANING

The Machine will always work best if properly oiled and cleaned at regular intervals. The illustrations in Figs. A, B and C indicate those places on machine which require one or two drops of a good grade of sewing machine oil once every working day or after about eight hours of use. Should machine stand idle for a prolonged period oil it before you start sewing. Oiling machine excessively will cause soiling of the material. After the machine has been oiled, sew a few stitches on a scrap of material to be sure that the machine sew cleanly. Also wipe off any excess oil from the top of the machine. To clean the machine, remove the Needle-Plate (13) and use a small brush to remove accumulation of lint, fuzz and thread. (Fig. B) Also clean underside of machine, especially around Shuttle mechanism and Feed-Dog.

Fig. A

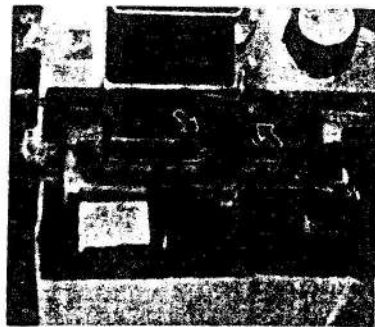


Fig. B

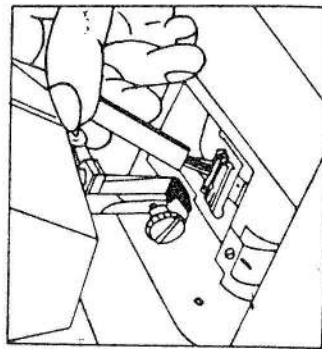
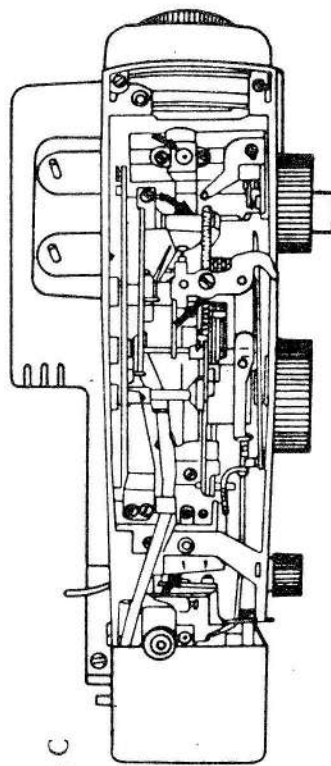
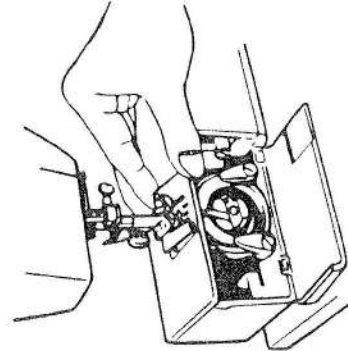
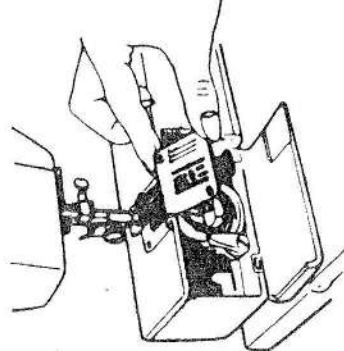
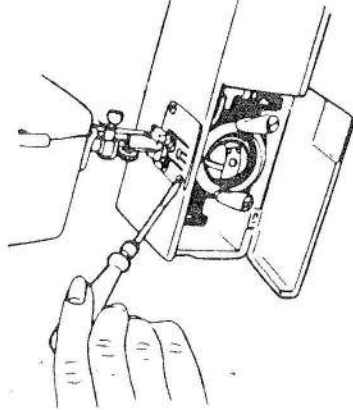


Fig. C



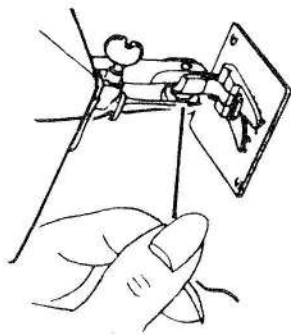
10. HOW TO REMOVE THE NEEDLE-PLATE

- Move the Needle to its highest point by turning the Hand-Wheel (1) toward you.
- Open the Hock-Cover towards you.
- Remove the Needle-Plate by screwing off the screws.

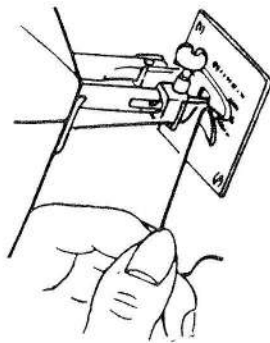


7. DRAWING UP THE LOWER THREAD.

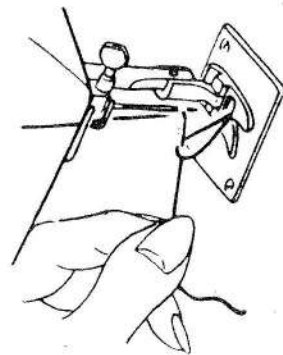
- Hold the end of upper thread loosely with your left hand, so that thread remains slack.



- Turn Hand-Wheel (1) slowly toward you until Needle goes down and comes up again to its highest position. In so doing, the upper thread (needle thread) will catch the lower thread (bobbin thread).

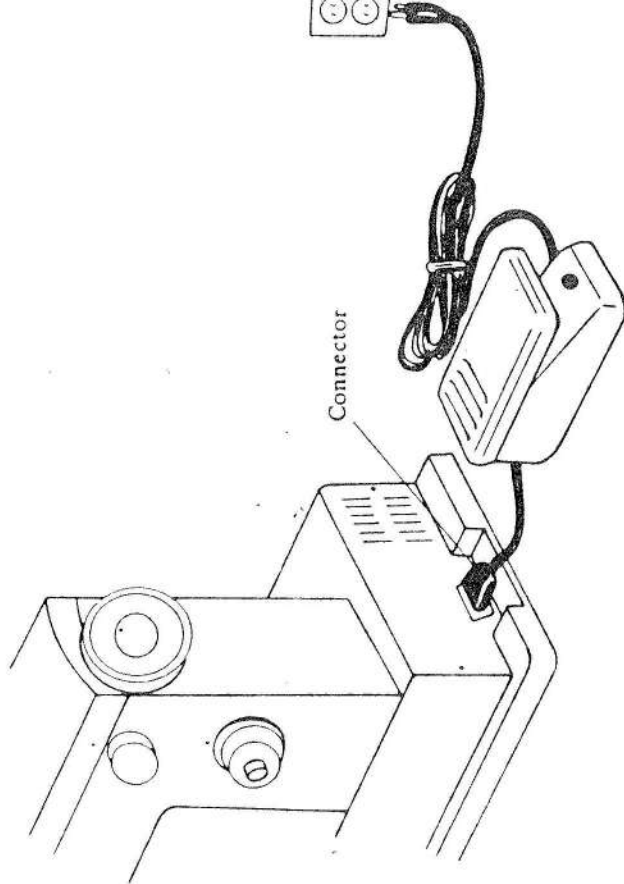


- Then pull up needle thread, and at the same time the lower thread will be pulled up through stitch hole in Needle Plate.
- Both ends of thread must be drawn under and to the rear of Presser-Foot (12).

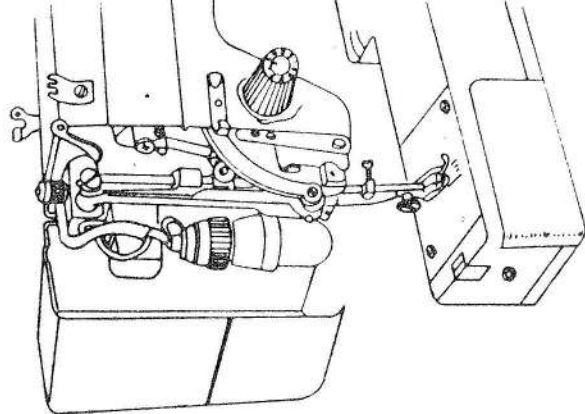


8. ELECTRICAL EQUIPMENT

- Plug Extension cord into your wall outlet, and connector to terminal box on machine as shown.



- Lighting
Turn the Sewlight Switch (23) to switch on or off.
- Changing the Light Bulb.
Swing the Face Plate (7) to the left. Bulb is now easily accessible and can be removed just as you would on ordinary light bulb.



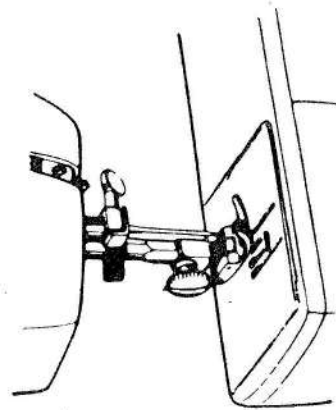
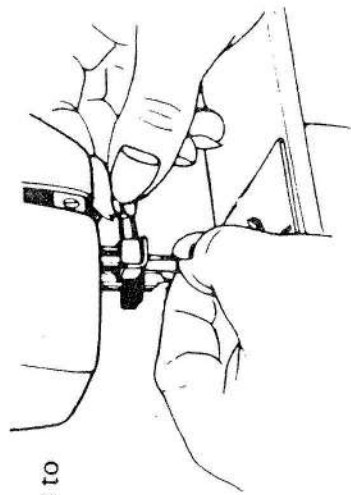
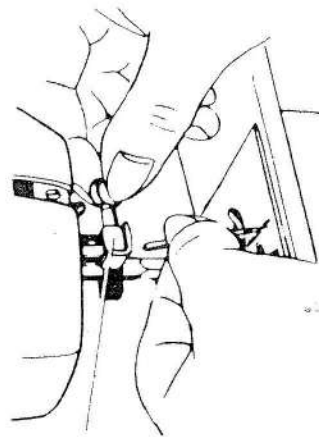
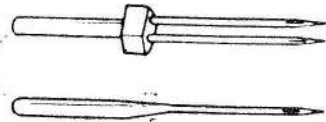
NOTE: When not in use, please be sure to disconnect the cord plug from electrical outlet.

5. INSERTING NEW NEEDLE.

- Move the Needle to its highest point by turning the Hand-Wheel (1) toward you.
- Loosen the Needle-Clamp-Screw (27) slightly, and remove present needle.
- Insert New Needle (long groove toward you) into the Needle Clamp as far up as it will go.
- Then tighten the Needle-Clamp-Screw securely.
- Standard Needle 15X1 (705) is to be used on this machine.



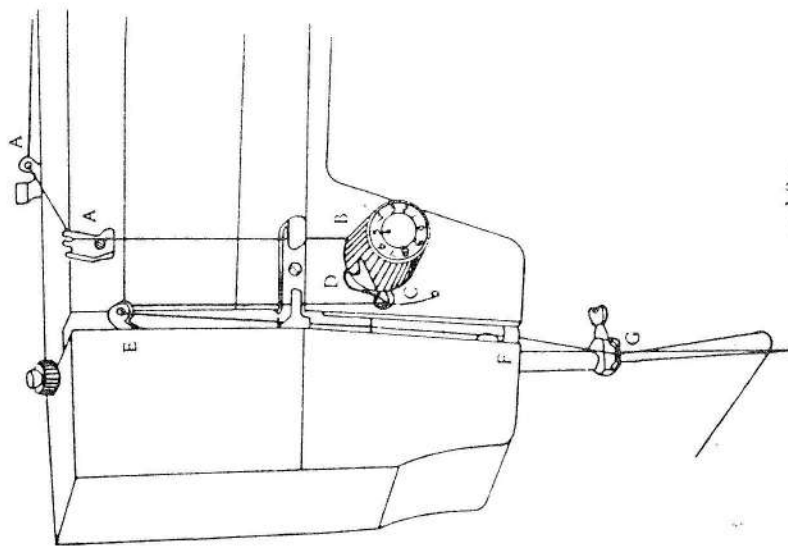
FLAT
SIDE OF
NEEDLE



6. UPPER THREADING

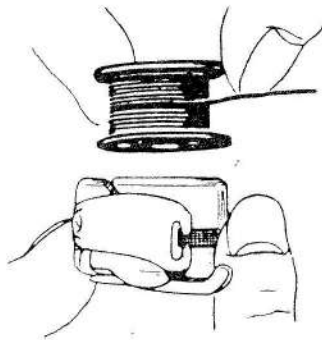
REMEMBER ONE IMPORTANT FACT ——— IF THE MACHINE IS NOT THREADED CORRECTLY, IT WILL NOT SEW PROPERLY.

- Place a spool of thread on the Spool-Pin.
- Turn the Hand Wheel (1) toward you until the Thread Take-up Lever (8) is raised to its highest point.
- Lead thread through the threading points in numerical sequence as shown through the thread guide (A) and Dial tension (B) by pulling down the thread through between the two tension discs.
- Pull thread downward to hook it take-up spring (C) and upward to pass thread from right to left through the groove of Thread Take-up Lever (E), and downward again through the thread guide (F) and for needle thread guide. Then thread needle from front to back.
- Draw about 3-4 inches of thread past the eye of needle.

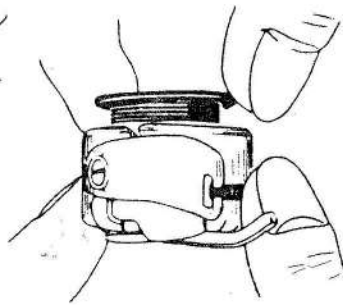


3. PLACING THE BOBBIN IN THE BOBBIN-CASE.

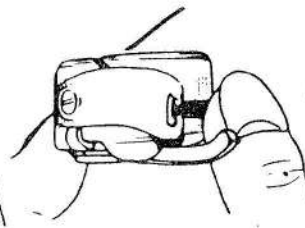
- a) Hold the Bobbin and the Bobbin-Case as shown.



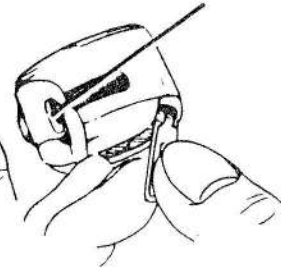
- b) Insert the Bobbin into the Bobbin-Case, with 5 or 6 inches of thread trailing in your palm.



- c) Pull the trailing thread into the slot of the Bobbin-Case.

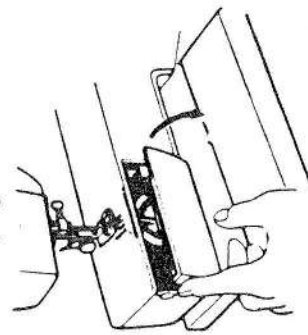
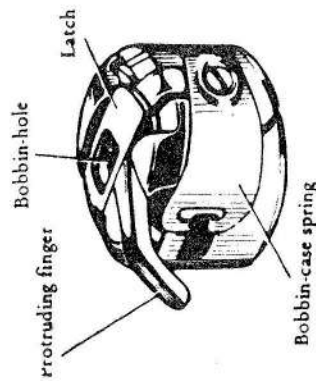
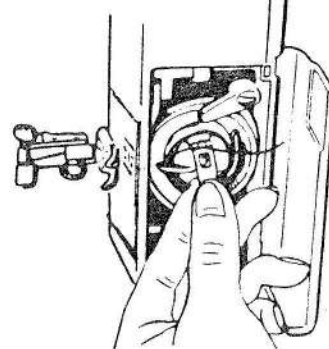
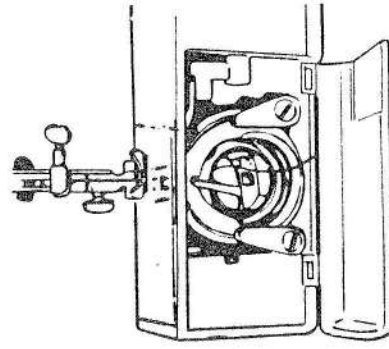
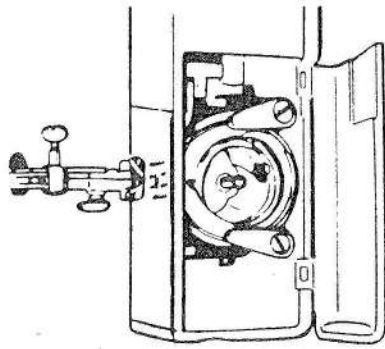


- d) Then draw thread under the Tension Spring between the fork shaped opening of the spring.



4. PLACING THE BOBBIN-CASE INTO THE SHUTTLE.

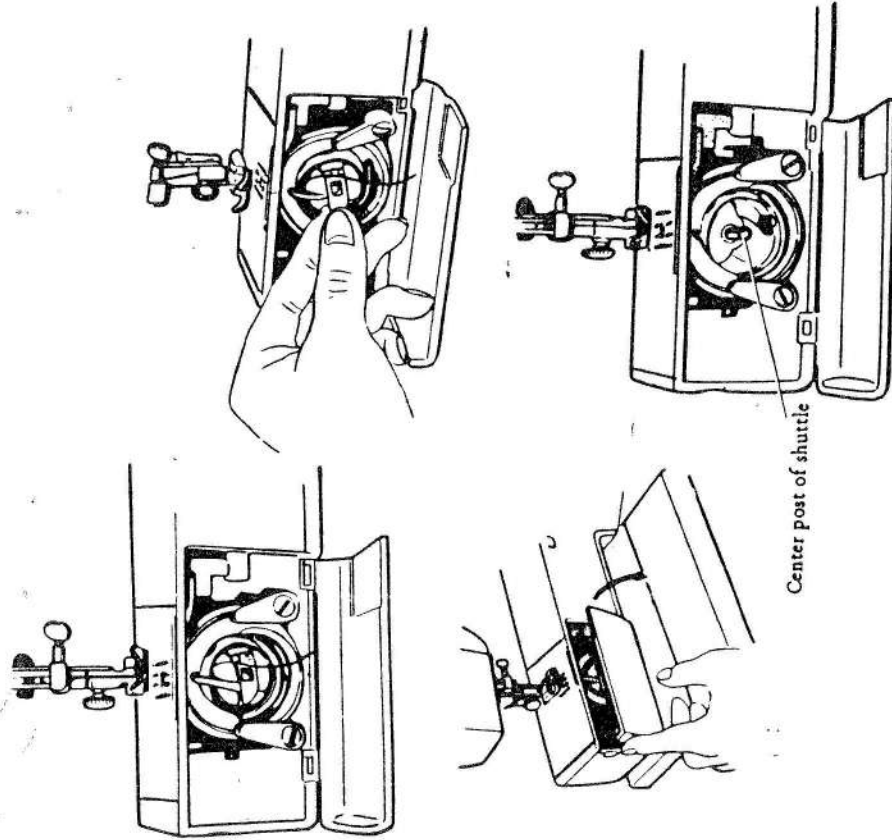
- a) Move the Needle to its highest point, by turning the Hand-Wheel (1) toward you.
- b) Pull down hook cover (14) towards you to open.
- c) Hold the Bobbin-Case-Latch between thumb and forefinger of your left hand.
- d) Place the Bobbin-Case into center post of shuttle, with protruding finger fitting into slot.
- e) Release latch and press Bobbin-Case into the Shuttle until it clicks in.
- f) Allow 4 or 5 inches of thread to hang freely from Bobbin.



BASIC INFORMATION

1. REMOVING THE BOBBIN AND THE BOBBIN-CASE.

- Turn the Hand-Wheel (1) toward you until needle is in its highest position.
- Open the Hook Cover (14) towards you.
- With the thumb and forefinger of your left hand grip the Bobbin-case Latch and remove Bobbin-case.
- Release the Bobbin-Case-Latch and remove the Bobbin.

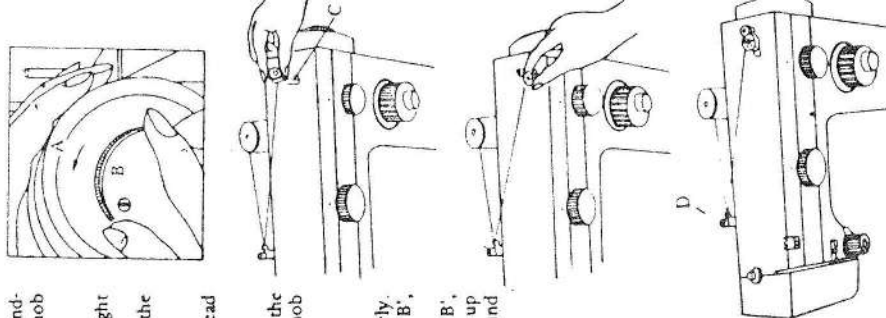


2. WINDING THE BOBBIN

- Hold the Hand-Wheel (A) with left hand, and disconnect the Hand-Wheel from sewing mechanism by turning the Stop-Motion-Knob (B) toward you with right hand.
- Place a spool of thread on the Spool-Pin.
- Wind end of thread by hand around an empty bobbin seven or eight turns.
- Then set the Bobbin on Bobbin-Winder-Shaft (C). Be sure the notch in Bobbin fits over small pin on Shaft.
- Push Bobbin-Winder-Shaft (C) rightward.
- Run the machine until the Bobbin stops winding thread automatically.
- Break off thread and remove the Bobbin from the shaft.
- Hold the Hand-Wheel firmly with your left hand and tighten the Stop-Motion-Knob (B) with your right hand, by turning the Knob away from you.

NOTE

Only an evenly wound bobbin will allow the machine to sew properly. The bobbin having thread piled up on one side as pictured in Fig. 'B', should, therefore, be avoided. To correct a poor and uneven winding such as pictured in Fig. 'B', loosen the set screw of thread guide (D) and move it slightly to the up or down, then tighten the set screw. Fig. 'A' shows a perfectly wound bobbin.



CHOOSING THE RIGHT NEEDLE

Types of Needles

The correct selection of needle to suit the thread and fabric being sewn gives the best stitching results. Fine fabrics should be sewn with fine needles, heavier fabrics with heavier needles. For best results, sewing machine needles should be replaced when they become even slightly dull or bent or at the completion of every other garment.

A *regular needle* is suggested for use with woven fabrics. Needles, style 15 x 1, (European equivalent System 705) are used on the majority of household sewing machines. They range in sizes from 8 to 20 with the lower number indicating the finer needle. The most commonly used sizes are 11 and 14.

An *all purpose needle* is designed to handle knits as well as woven fabrics. It eliminates skipped stitches and the slight ball will not damage delicate fabrics. This is the needle provided with your sewing machine and will be used for most of your sewing. A larger ball point may still be necessary for certain knits, such as bathing suit fabric or power net.

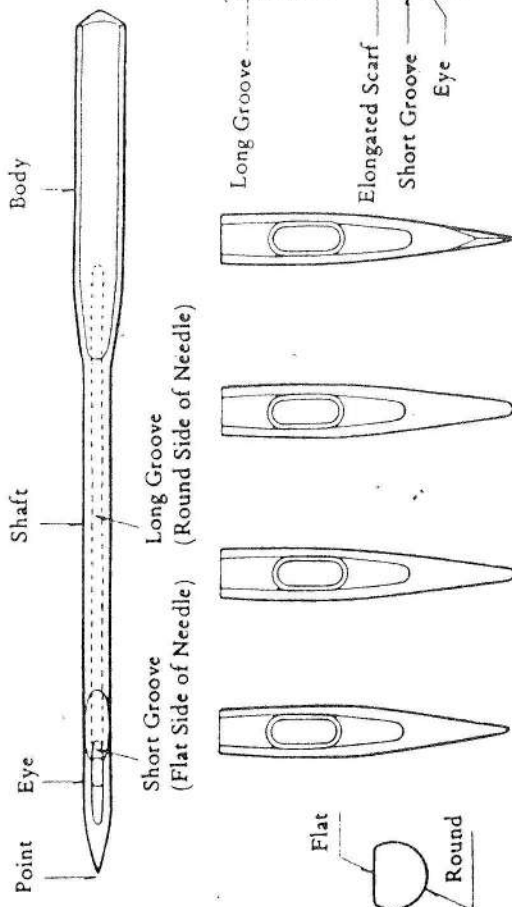
A *ball point needle* is recommended for use with tricot, jerseys, lingerie and power nets. Unlike sharp, pointed needles, which pierce fibers of knit fabrics, destroying elasticity, the ball point slips between fibers, preventing damage to fabric and skipped stitches. These are available in fine, medium, and heavy ball points.

A *wedge point needle* is recommended for use with leather and leather-look vinyls. A wedge cutting point pierces leather more easily than ordinary sewing machine needles, resulting in more satisfactory stitching.

Needle, Thread, Fabric & Stitching Guide

The correct selection of needle and thread to suit the fabric will result in more satisfactory stitching. Fine fabrics should be stitched with fine needles, fine thread and short stitches. For best results on heavier fabrics, use coarser needles, heavier threads and longer stitches. Replace the machine needle when it becomes even slightly dull or bent.

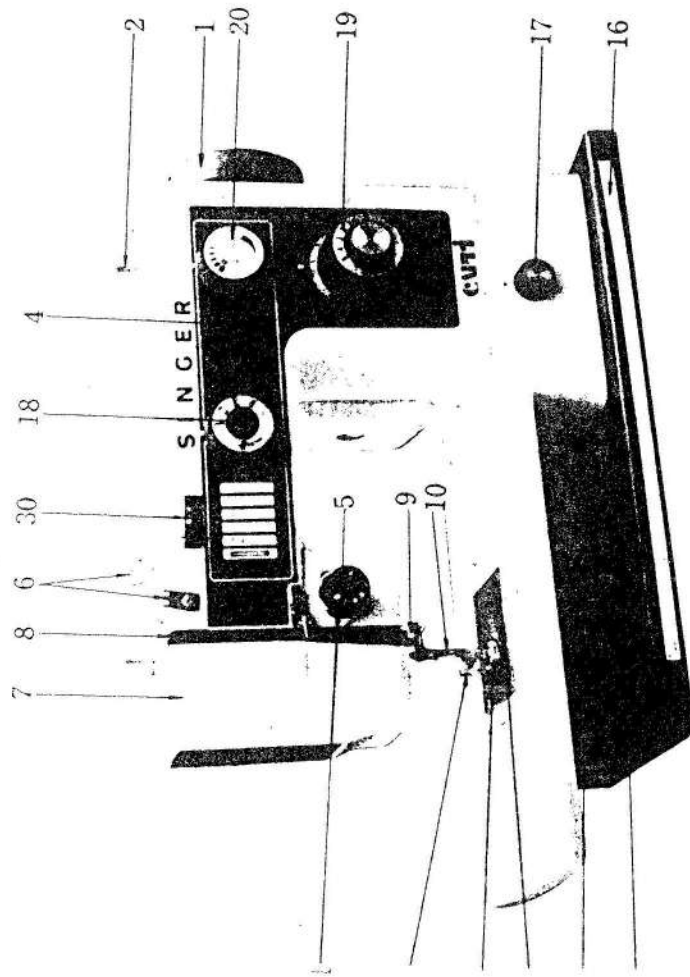
	TYPE OF FABRIC	MACHINE NEEDLE		
		U.S. Size 15 x 1	European 705	Point Style
KNITS	LIGHT WEIGHT: Tricot, Power Net	9	70	Light Ball
	MEDIUM WEIGHT: Jersey, Double Knit, Power Net	9-10	70-80	Light Ball to Medium Ball
	HEAVY WEIGHT: Double Knit, Power Net	11-14	80-90	Medium Ball to Heavy Ball
	FAKE FURS-VELOURS	14-16	90-100	Ball or Sharp
	VERY SHEER: Lace, Net, Chiffon, Voile	9	70	Sharp
WOVEN	SHEER: Lawn, Taffeta, Blouse Crepe, Organdy	9	70	Sharp
	DRESS WEIGHT: Crepe, Wool, Brocade, Velvet	9-11	70-80	Sharp
	MEDIUM: Wool, Silk, Linen, Pique, Faille, Velveteen, Terry cloth	11	80	Sharp
	HEAVY: Denim, Duck, Sailcloth	16	100	Sharp
	EXTRA HEAVY: Canvas, Upholstery, Awning	19	120	Sharp
LEATHER	VINYLS-FILMS	14	90	Leather (Wedge)
	LIGHT TO MEDIUM WEIGHT: Leathers & Suedes	14-16	90-100	Leather (Wedge)
	HEAVY LEATHER	16-18	100-110	Leather (Wedge)
DECORATIVE STITCHING	MACHINE EMBROIDERY	9-11	60-80	
	TOP STITCHING	16-18	100-110	
	METALLIC EMBROIDERY	11	80	



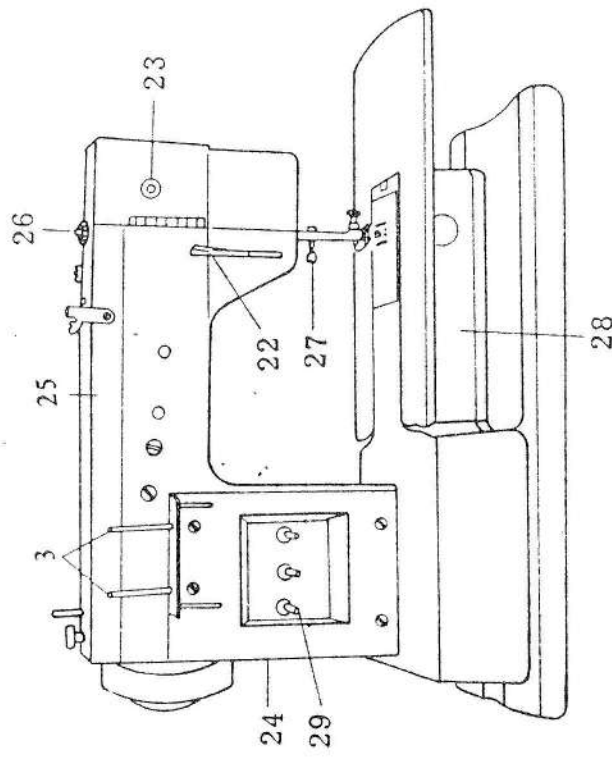
Consult this chart whenever a different type of fabric is to be stitched. Thread and needle size for various kinds and weights of fabrics.

APPROXIMATE STRAIGHT STITCHES PER INCH	HAND NEEDLES	THREAD			
		Mercentized Cotton	European Cotton	Polyester	Silk Nylon
20	10	60	50-70	NO	A-Silk/Nylon
12	9	50	30	YES	A-Silk/Nylon
10-14	4-5	50	30	YES	A-Silk/Nylon
10	4-5	Heavy Duty	30	YES	NO
16-18	10	60	70	NO	A-Silk/Nylon
14-16	10	60	50-70	NO	A-Silk/Nylon
12	9	50	30	NO	A-Silk
12	7-8	50	30	NO	A-Silk
10	6-7	Heavy Duty	30	YES	NO
8	3-4	Heavy Duty	30	YES	NO
10	7-8	50	30	YES	NO
8	3-4	50	30	YES	NO
6-8	3	Heavy Duty	30	YES	NO
Cotton Embroidery Thread Size 50-70					
Silk Buttonhole Twist Size D					
Metallic Thread					

NAME OF EACH PART



1. Hand Wheel
2. Bobbin Winder
3. Spool pin
4. Pattern panel
5. Dial Tension Assembly
6. Thread Guide (A) and Bobbin Winder Thread Tension
7. Face Plate
8. Thread Take-up Lever
9. Thread Guide (B)
10. Needle Bar Thread Guide
11. Presser Foot Bracket Thumb Screw
12. Presser Foot
13. Needle Plate
14. Hook Cover
15. Bottom Plate
16. Ruler (inches and centimeter)
17. Drop feed dial
18. Pattern Selector Dial
19. Stitch Regulator Dial & Reverse Push Button
20. Zig Zag Width Dial
21. Thread Take-up Spring



22. Presser Bar Lifter
23. Sew Light Switch
24. Cover Plate
25. Top Plate
26. Patch-O-Matic Darning Needle Clamp Screw
27. Tubular Arm
28. Bobbin Holder
29. Needle Position Lever
30. Needle Position Lever

INDEX

NAME OF EACH PART	1
CHOOSING THE RIGHT NEEDLE	3
BASIC INFORMATION	
1. Removing the Bobbin and the Bobbin-Case	5
2. Winding the Bobbin	6
3. Placing the Bobbin in the Bobbin-Case	7
4. Placing the Bobbin-Case into the Shuttle	8
5. Inserting New Needle	9
6. Upper Threading	10
7. Drawing up the Lower Thread	11
8. Electrical Equipment	12
9. Oiling and Cleaning	13
10. How to Remove the Needle-Plate	14
11. Convertible Extension Plate	15
ACTUAL SEWING	
1. Starting to Sew	16
2. Adjusting the Thread Tension	17
3. Adjusting the Pressure	19
4. Two Positions of Drop Feed	20
ACTUAL SEWING WORK	
1. Stitch Regulating and Reverse Stitch	21
2. Straight Stitching	22
3. Zigzag Stitching	23
4. Twin Needle stitching	24
5. Automatic Buttonholer	25
6. Automatic Blind Stitching	28
7. Automatic Straight Stretch Stitching	29
8. Automatic Single Overlock Stitching	30
9. Quilting	31
10. The Adjustable Cording and Zipper Foot	32
11. Accessories	35
12. Helpful Hints	36