

SINGER

1280



Instruction Book for the Singer® Sewing Machine

Model 1280

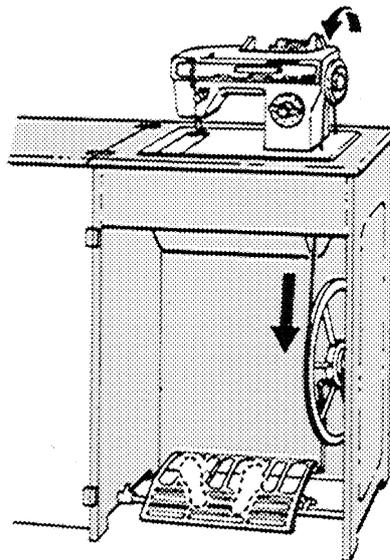
For Treadle Machine Owners

*To adjust your machine for treadle sewing, loosen hand wheel knob **A** by turning it toward you with the right hand while holding hand wheel with the left hand.*

Place both feet on the treadle as illustrated. Turn hand wheel over toward you, allowing your feet to move freely with the motion of the treadle. Practice this motion until you are able to start and keep the machine in operation with the hand wheel turning toward you. Remember that the faster you operate the treadle, the faster the machine will sew.

When you have become accustomed to the treadle motion, tighten the hand wheel knob by turning it away from you. Place a piece of material under the presser foot and lower the presser foot lifter. Now operate the machine (without thread) until you become accustomed to guiding the material.

Enjoy Sewing!



Copyright © 1992 THE SINGER COMPANY
All Rights Reserved Throughout the World
*A Trademark of The Singer Company

For European Territories —

This product is suppressed for radio and television interference in accordance with the International Electrotechnical Commission of the CISPR.

IMPORTANT: Machines for Great Britain and some other countries having similar wiring standards are shipped from the factory without a plug for connection to the mains. The wire in this mains lead are coloured in accordance with the following code:

Blue: neutral (N) Brown: live (L)

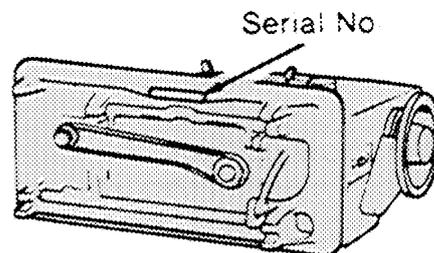
As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black. The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red. If a 13 Amp. (BS 1363) plug is used, a 3 Amp. fuse must be fitted, or if any other type of plug is used, a 5 Amp. fuse must be fitted either in the plug or adaptor or at the distribution board.

Dear Customer:

We recommend that for future reference you record the serial number of your Sewing Machine in the space provided.

Refer to illustration at right for location of serial number on your machine.



Serial No. _____

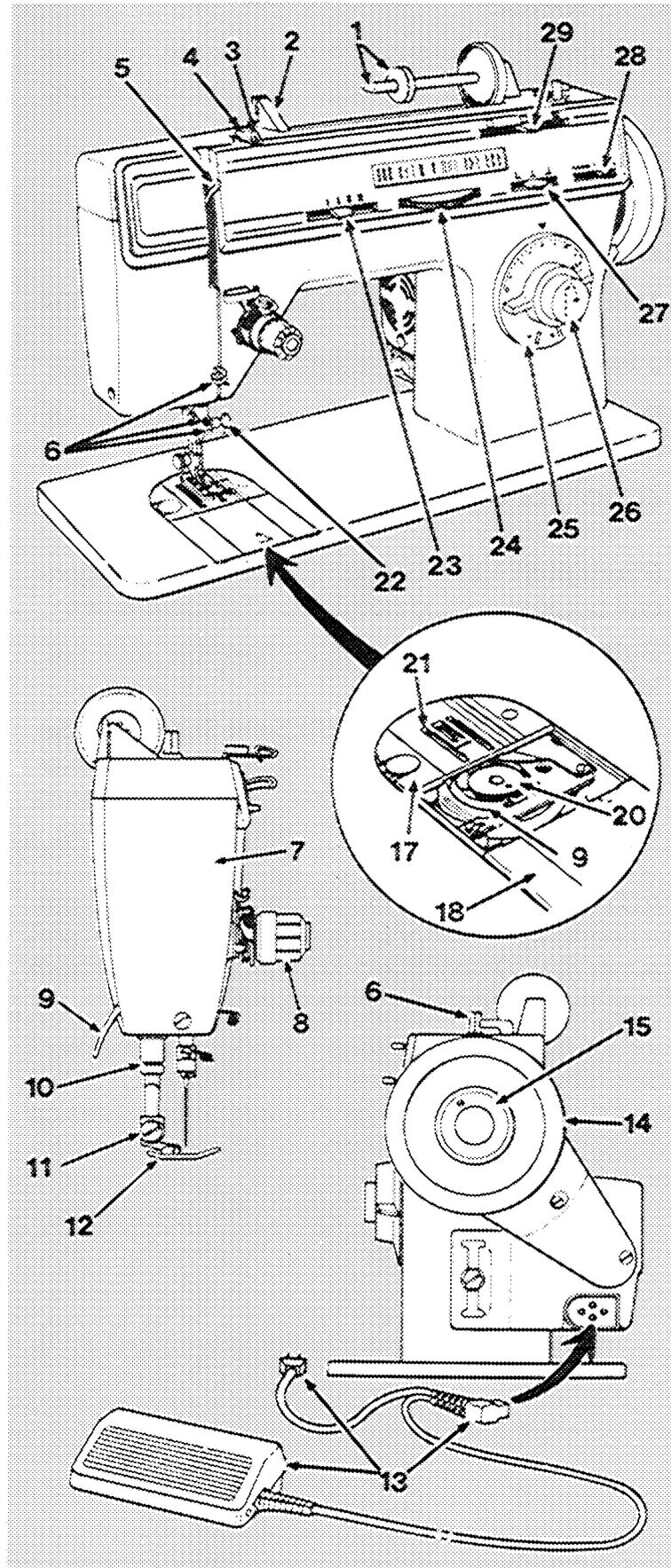
Contents

1. Getting to Know Your Machine	4
Principal Parts	4
Accessories	6
2. Getting Ready to Sew	10
Choosing and Changing Accessories	10
Operating Machine	18
The Bobbin Thread	20
Threading the Machine	24
3. Straight Stitching	28
Setting Selectors	28
Sewing a Seam	32
Applications	34
4. Basic Zig-Zag Stitching	38
Setting Selectors	38
Satin Stitching	40
Stitch Usage	42
5. Pattern Stitching	46
Selecting a Stitch	46
Stitch Pattern Groups	48
Adjusting Stitches for Stretch Fabrics	50
Decorative Stitching	62
6. Buttonholes and Buttons	66
Garment Preparation	66
Four-Step Buttonholing	70
Buttons	74
7. Caring for Your Machine	76
8. Twin Needle Stitching	84
9. Home Service Hints	86
Index	88

1. Getting to Know Your Machine

Principal Parts

1. Spool Pin and Spool Holder
2. Thread Guide Post
3. Thread Guides
4. Bobbin Winder Tension Disc
5. Take-Up Lever
6. Thread Guides
7. Face Plate
8. Needle-Thread Tension Dial
9. Presser Foot Lifter
10. Thread Cutter
11. Presser Foot Screw
12. General Purpose Presser Foot
13. Electrical Connections and Speed Controller
14. Hand Wheel
15. Hand Wheel Knob
16. Bobbin Winder Spindle
17. General Purpose Needle Plate
18. Slide Plate
19. Bobbin Case
20. Bobbin
21. Feed
22. Needle Clamp
23. Stitch Width Selector
24. Stitch Pattern Group Selector
25. Stitch Length Selector
26. Reverse Stitch Push Button and Buttonhole Balance Knob
27. Needle Position Selector
28. Stitch Balance Control
29. Stitch Pattern Selector



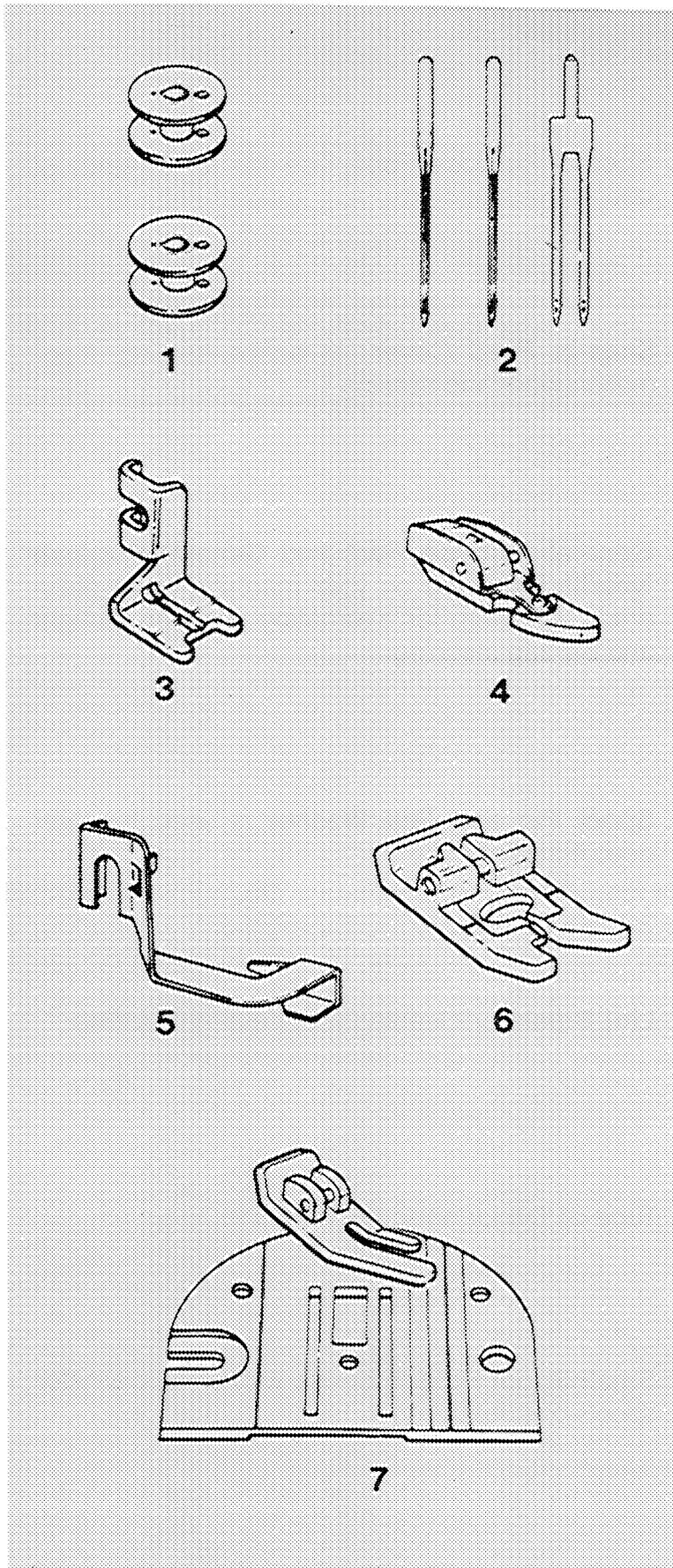
Accessories

The accessories provided with your sewing machine are designed to help you do many kinds of sewing easily.

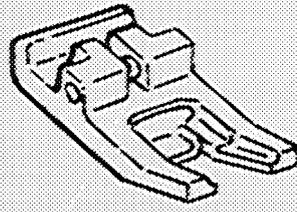
1. **Transparent Bobbins** (No. 172336)
2. **Singer* Needles**
 - Style 2020 for general sewing.
 - Style 2045 for sewing knits, stretch fabrics and elastic.
 - Style 2025 † for twin-needle decorative stitching.
3. **Button Foot** holds most flat buttons securely for fastening.
4. **Zipper Foot** for inserting zippers and stitching corded seams.
5. **Blindstitch Hem Guide.** Use this with the general purpose foot to position and guide the hem.
6. **Buttonhole Foot** is used to make bar tack buttonholes in four steps.
7. **Straight Stitch Foot and Straight Stitch Needle Plate** are used when your fabric or sewing procedure requires close control. These accessories are recommended for all straight stitch sewing.

†**CAUTION:** *Use this needle with the general purpose needle plate and general purpose or special purpose foot only. Do not use any other accessories with this needle as needle breakage will occur.*

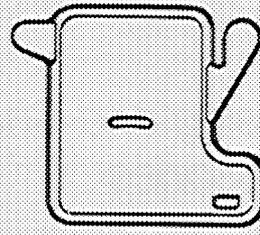
To ensure that you are always provided with the most modern sewing capabilities, THE MANUFACTURER reserves the right to change the appearance, design or accessories of this sewing machine when considered necessary.



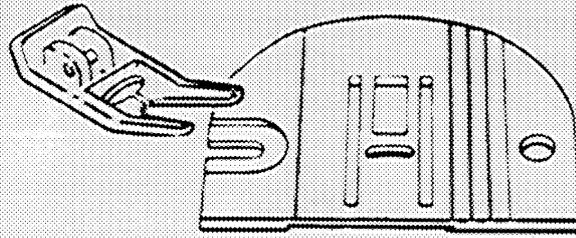
8. **Special Purpose Foot.** Use this for all kinds of decorative stitching.
9. **Snap-in Feed Cover** for button sewing, free-motion work and darning.
10. **General Purpose Foot and General Purpose Needle Plate** are on your machine when delivered. Use them for alternating between straight and zig-zag stitching.
11. **Spool Pin and Felt Washer** is used for twin-needle sewing.
12. **Lint Brush** for cleaning your sewing machine.
13. **Tube of Oil** for oiling the machine.
14. **Small Spool Holder** for use with small diameter spools of thread.



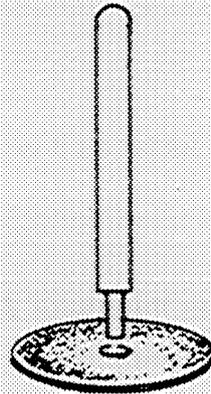
8



9



10



11



12



13



14

2. Getting Ready to Sew

Choosing and Changing Accessories

CAUTION: *Disconnect the power line plug from the socket outlet when changing needles, feet, or needle plates, or when leaving the machine unattended. This eliminates the possibility of starting the machine by accidentally pressing the speed controller.*

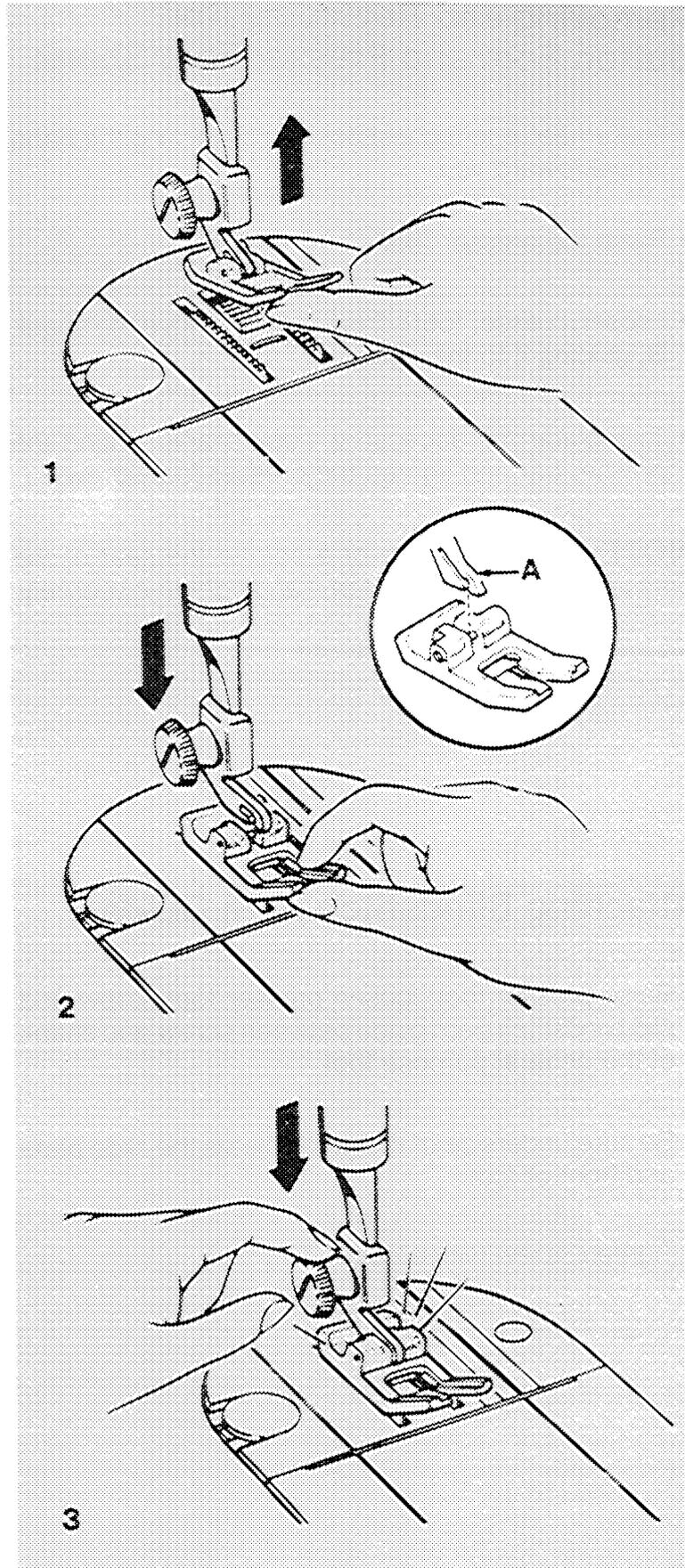
Changing Presser Feet

- Raise needle to highest position by turning the hand wheel *toward you*.
- Raise presser foot.

1. Press toe of presser foot upward as far as it will go until it snaps free.

2. Centre the new presser foot under the shank **A**.
Lower the presser foot lifter so that the shank fits over the presser foot pin.

3. Press presser foot screw down *firmly* until foot snaps into place.



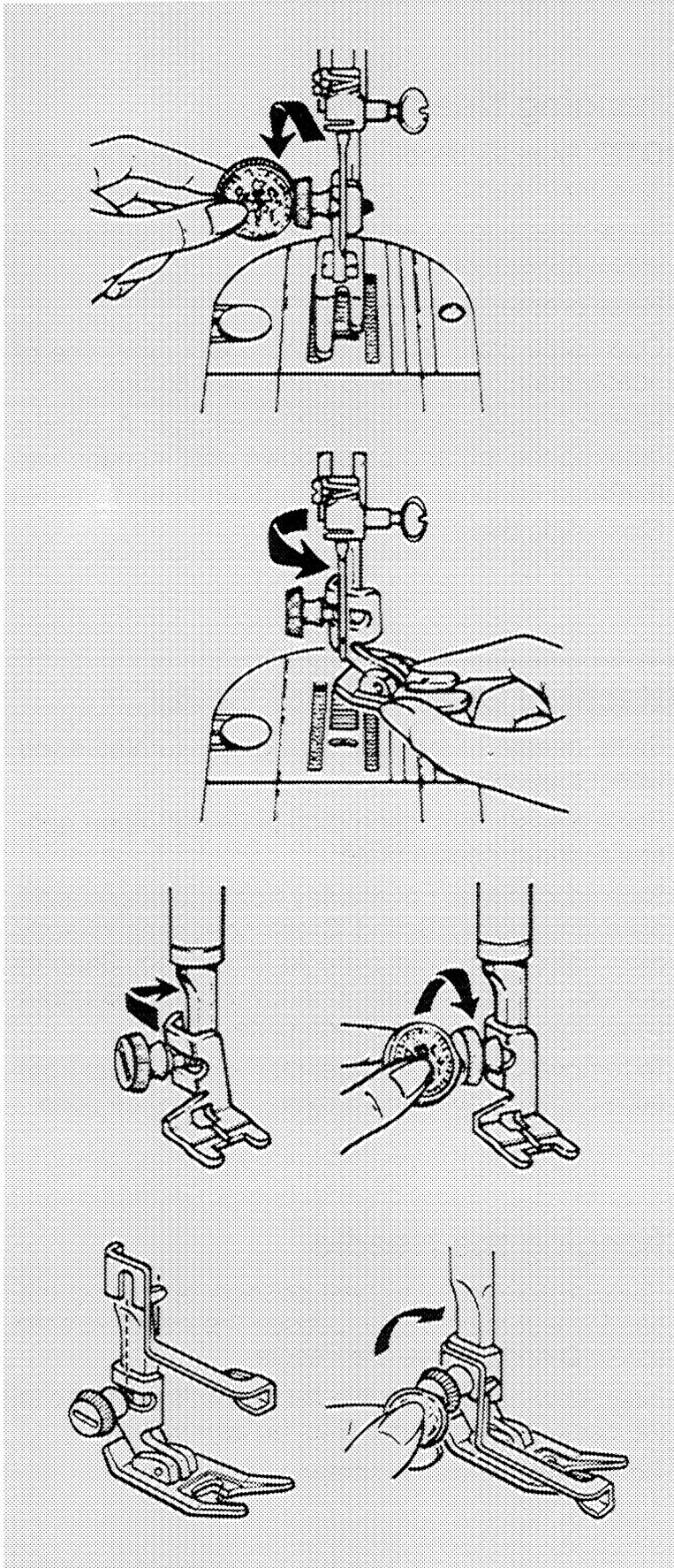
Removing and Replacing the Button Foot and Presser Foot Shank

- Raise needle to highest position by turning the hand wheel *toward you*.
- Raise the presser foot.
- Loosen presser foot screw **A** and remove the shank **B**, guiding it to the right.
- To replace the accessory, hook shank around the presser bar and tighten the presser foot screw.

NOTE: *Insert the edge of a coin in the seat of the presser foot screw to loosen it and tighten it securely.*

Attaching Blindstitch Hem Guide

- Raise presser foot, loosen presser foot screw and slip blindstitch hem guide between screw and shank of the general purpose foot.
- Be sure underside of the guide clears the slide plate and front of foot.
- Tighten screw with a coin.



Changing Needle Plates

NOTE: Remove bobbin if it contains thread in order to prevent thread being caught when plate is replaced.

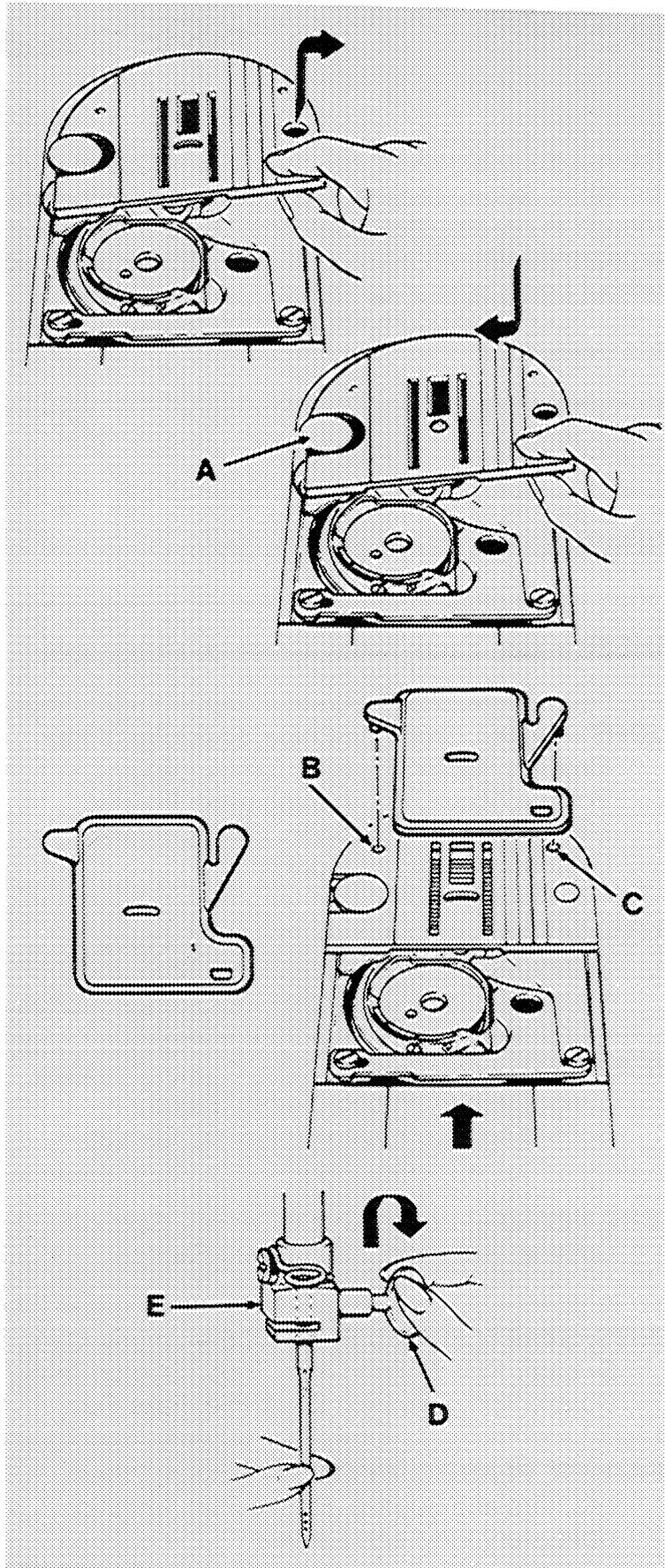
- Raise needle to highest position by turning the hand wheel *toward you*.
- Raise presser foot.
- Open slide plate. Place thumb under right side of needle plate, lift it up and withdraw it to right.
- Replace needle plate under clamping pin **A**, push it *firmly* to the left and press down until it snaps into place.
- Close slide plate.

Attaching Snap-in Feed Cover

- Raise needle to highest position by turning hand wheel *toward you*.
- Raise presser foot, open slide plate and insert general purpose needle plate.
- Slide snap-in feed cover away from you over needle plate until points **B** and **C** are positioned directly over holes in needle plate as illustrated. Snap in point **B**. Then push point **C** in toward point **B** until it snaps into place. Close slide plate.
- To remove, open slide plate, then simply lift up front edge of feed cover and remove. Close slide plate.

Changing the Needle

- Raise needle to its highest position by turning the hand wheel *toward you*. Loosen the needle-clamp screw **D** and remove the needle.
- Insert new needle with the flat side of the needle to the back, up into clamp **E** as far as it will go.
- Tighten needle-clamp screw.



Fabric, Thread

The needle and thread you choose will depend upon the fabric to be stitched. The needle should be fine enough to prevent the fabric from being marred with large punctures, yet heavy enough to pierce the fabric without being bent or deflected.

FABRIC
FILMY —Chiffon, Organza, Tulle, Voile
SHEER —Net, Lace, Ninon, Crepe de Chine, Voile
LIGHT —Velvet, Crepe de Chine, Shantung, Faille, Organdy, Muslin, Batiste, Dimity, Lawn, Percale, Piqué, Poplin Cashmere, Flannel, Mohair, Felt, Taffeta, Satin, Challis, Eyelet, Gingham, Crepe, Broadcloth
MEDIUM —Velvet, Crepe de Chine, Shantung, Suiting, Satin, Crepe, Velveteen, Corduroy, Fleece, Flannel, Gabardine, Felt, Serge, Mohair
HEAVY —Brocade, Taffeta, Satin, Crepe, Corduroy, Linen, Drapery Fabric, Burlap, Suiting, Gabardine, Poplin Denim, Ticking, Canvas
VERY HEAVY —Denim, Duck, Canvas, Sailcloth, Coating, Blanketing, Upholstery Fabric
KNITS, STRETCH AND ELASTICS —Jersey, Ciré, Sweater Knit, Bonded Knit, Tricot, Stretch Terry, Double Knit, Spandex, Deep Pile, Fake Furs
LEATHER, PLASTIC, VINYL —KIDSKIN, Patent Leathers and Suedes, Plastic Film, Imitation Upholstery Vinyl and Leather

and Needle Table

The eye of the needle must be large enough for the thread to pass through it freely; too fine a needle will cause the thread to fray.

The table below is a guide to needle and thread selection. Refer to it before starting a sewing project. *Be sure to use the same size and type of thread in both needle and bobbin.*

THREAD	NEEDLE	
	Style	Size
Fine silk, cotton, merc. or synth.	2020	9,11
Fine silk, cotton, merc. or synth.	2020	9,11
Fine silk, cotton, merc. or synth. Medium cotton, merc. or synth.	2020	11
Medium silk, cotton, merc. or synth.	2020	11 14
Heavy silk, cotton, merc. or synth.	2020	14 16
Heavy silk, cotton, mercerized or synthetic	2020 or 2026	14 16 18
Fine, medium, or heavy synthetic	2045	11 14 16
Fine merc. & synth. Med merc. & synth. Hvy. merc. & synth.	2020 or 2032	11,14,16 11,14,16,18

Operating Machine

Connecting Machine

Before plugging in your machine, be sure that the voltage and number of cycles indicated on the electrical nameplate **A**, conform to your electrical power supply.

If your speed controller cord has a motor disconnect plug, push plug **B** into the receptacle at the right end of machine. Then connect plug **C** to your socket outlet.

If the speed controller cord is wired directly to the motor, simply connect plug **C** to your socket outlet.

CAUTION: *Disconnect the power line plug from the socket outlet when changing needles, feet, or needle plates or when leaving the machine unattended. This eliminates the possibility of starting the machine by accidentally pressing the speed controller.*

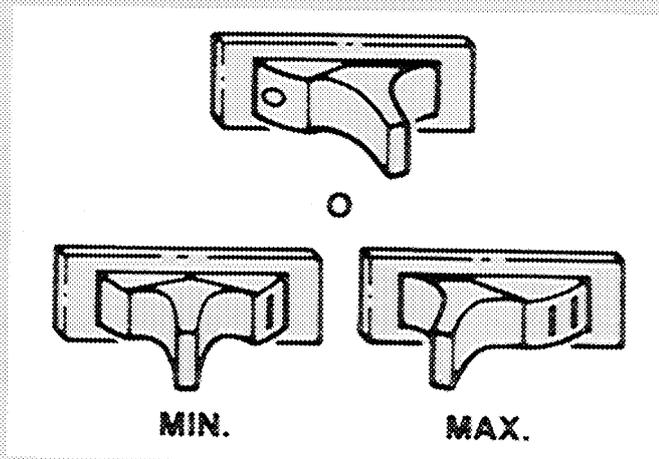
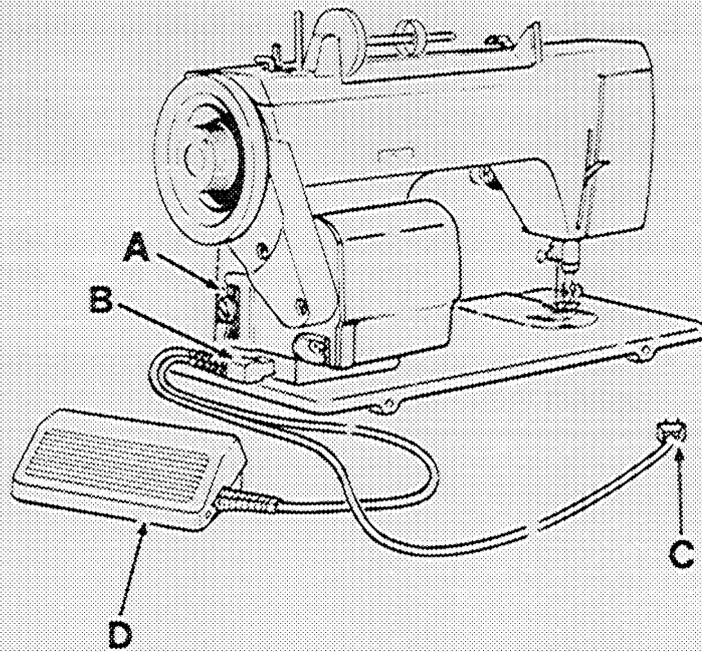
If your machine has a sewing light switch, press or turn switch on the machine, as required.

If machine has a three-position switch:

- The **OFF** setting (switch moved to **O** symbol).
- The **MIN.** setting (switch moved to **I** symbol) allows the maximum control for special jobs.
- The **MAX.** setting (switch moved to **II** symbol) allows for full speed capacity of the machine.

To run the machine and control speed, press the speed controller **D** with your foot. The *harder* you press, the *faster* the machine will sew. To stop machine, remove foot from controller.

CAUTION: *Because of the up and down movement of the needle, you must work carefully and watch the sewing area when operating the machine.*



The Bobbin Thread

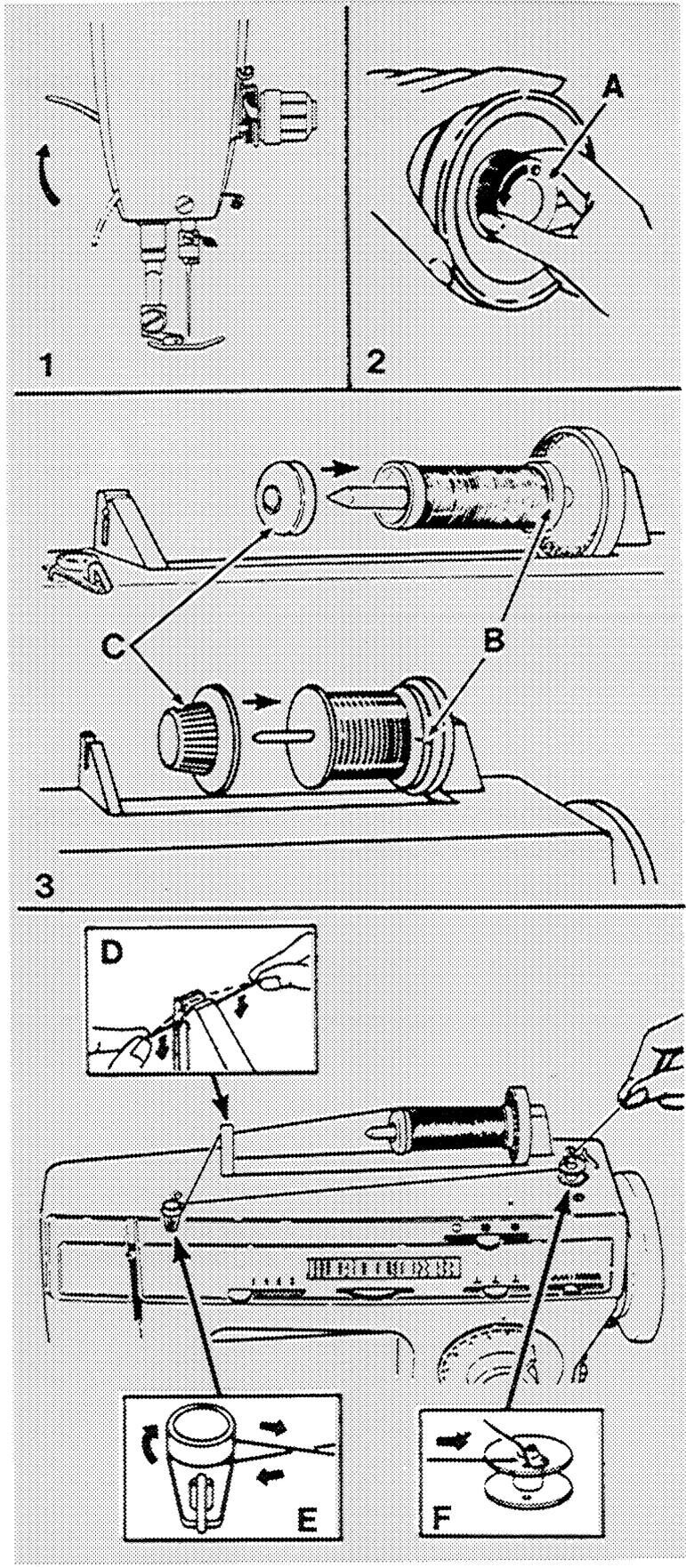
Winding the Bobbin

Preparation Steps

1. Raise the presser foot and turn hand wheel toward you until needle is in highest position.
2. Loosen hand wheel knob **A** by turning it toward you with the right hand while holding hand wheel with the left hand.
3. Place thread spool on spool pin with thread retaining slit **B** to the right. (Break paper at the end of spool if necessary.)
 - Place spool holder **C** on spool pin and press *firmly* against the thread spool.

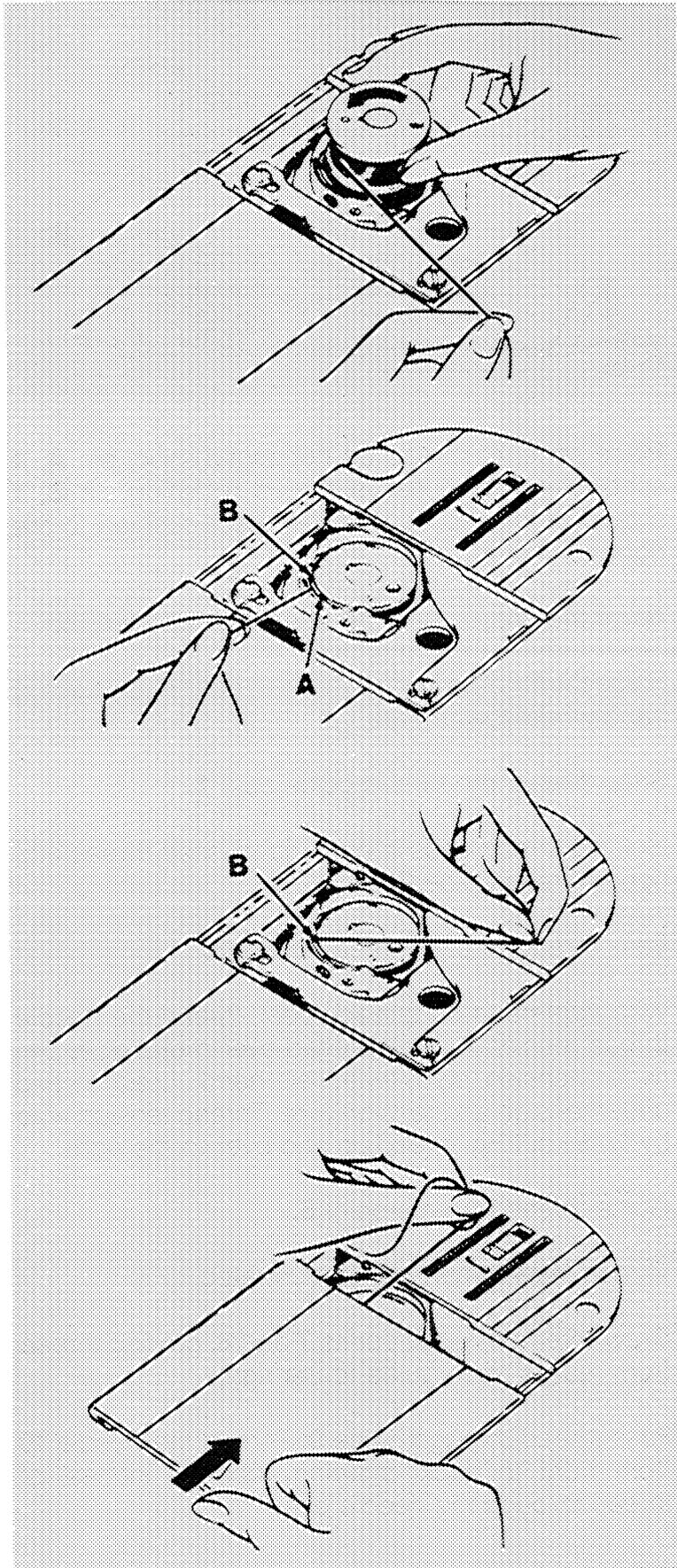
Winding Steps

- Snap thread into thread guide post **D** and open top cover.
- Lead thread around bobbin winder tension disc **E**, as illustrated, and through small hole in bobbin from inside out.
- Place bobbin on spindle and move bobbin winder **F** to right.
- Hold thread end and start the machine. Cut off thread end after a few coils have been wound.
- When required amount of thread has been wound (winding will stop when bobbin is full) stop machine and cut connecting thread.
- Move bobbin winder to the left and remove bobbin.
- Hold hand wheel and tighten hand wheel knob.

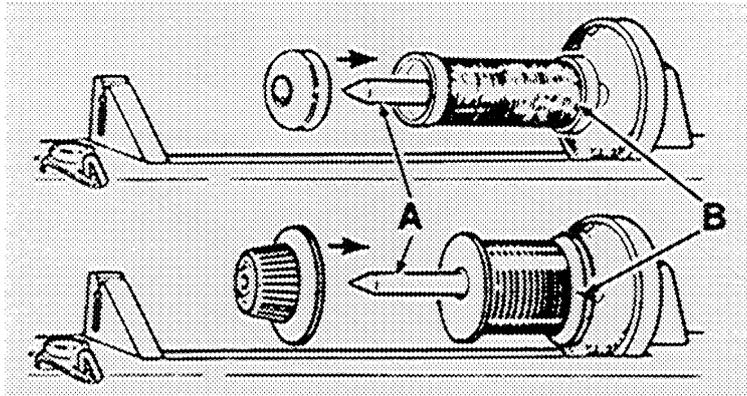


Threading the Bobbin Case

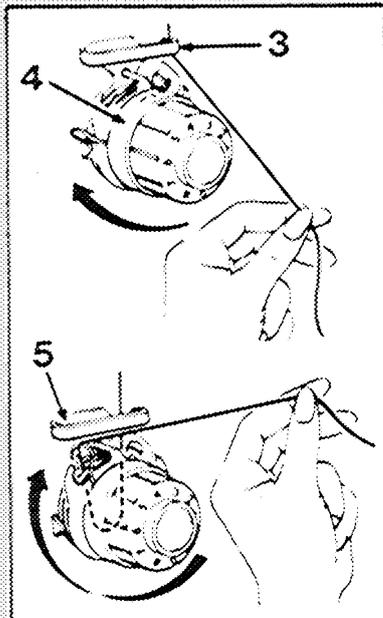
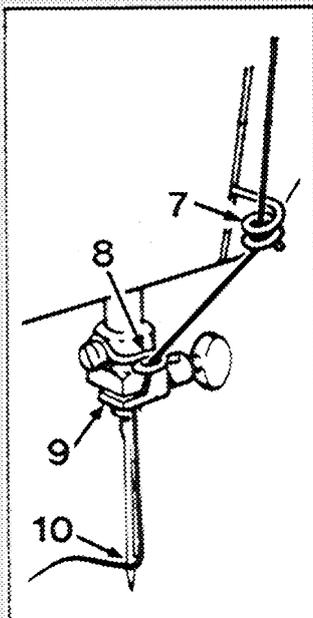
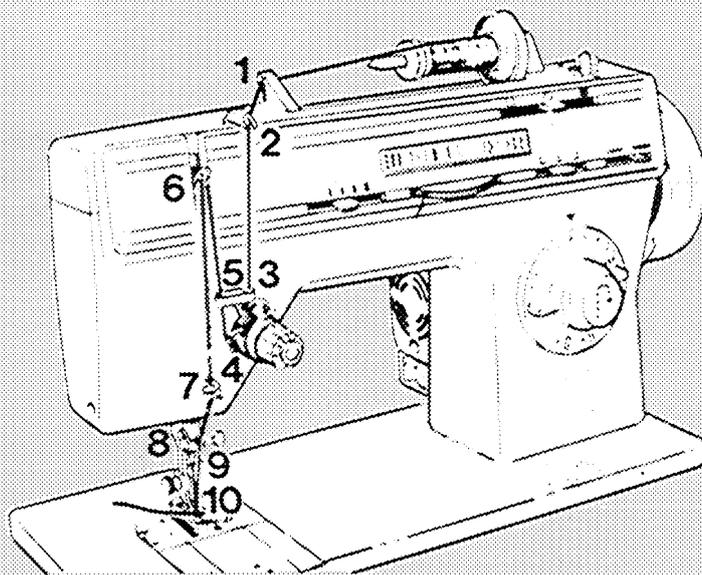
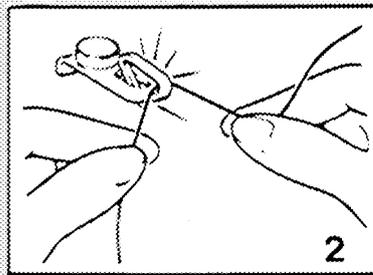
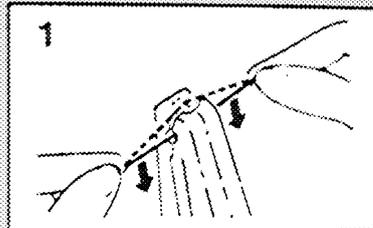
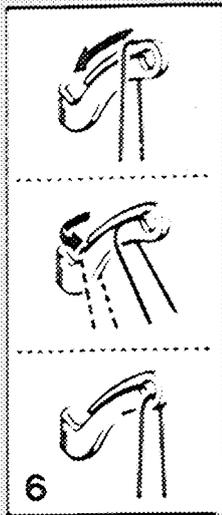
1. Hold bobbin so that thread unwinds in direction shown, and insert bobbin in bobbin case.
2. Pull thread into notch **A** in bobbin case, draw it toward left and into slot **B**.
3. Draw approximately 10cm (4 inches) of thread diagonally across the bobbin.
4. Close slide plate, allowing thread to extend through the slot between the slide plate and the needle plate.



Threading the Machine



- Place spool of thread on horizontal spool pin **A**. If spool being used has a thread retaining slit **B**, it should be placed against the spool cushion to the right.
- *Raise the presser foot*, to release thread tension.
- Raise the take-up lever to highest position by turning hand wheel *toward you*.
- Snap thread into thread guide post **1**.
- Holding thread ends in each hand, snap thread into upper thread guide **2**.
- Pass thread through thread guide **3**.
- With right hand on thread spool, thread the needle thread tension **4**. Slide thread over metal plate between tension discs with left hand. Lead thread under tension and tension wire. Thread tension wire by *firmly* pulling thread up and over to the right.
- Guide thread through point **5**.
- Thread take-up lever **6**, as illustrated.
- Draw thread through points **7** and **8**, guiding thread from rear of each guide to the right.
- Pass thread through guide **9**. Thread the needle **10** from front to back, drawing 10cm (4 inches) of thread through the needle eye.

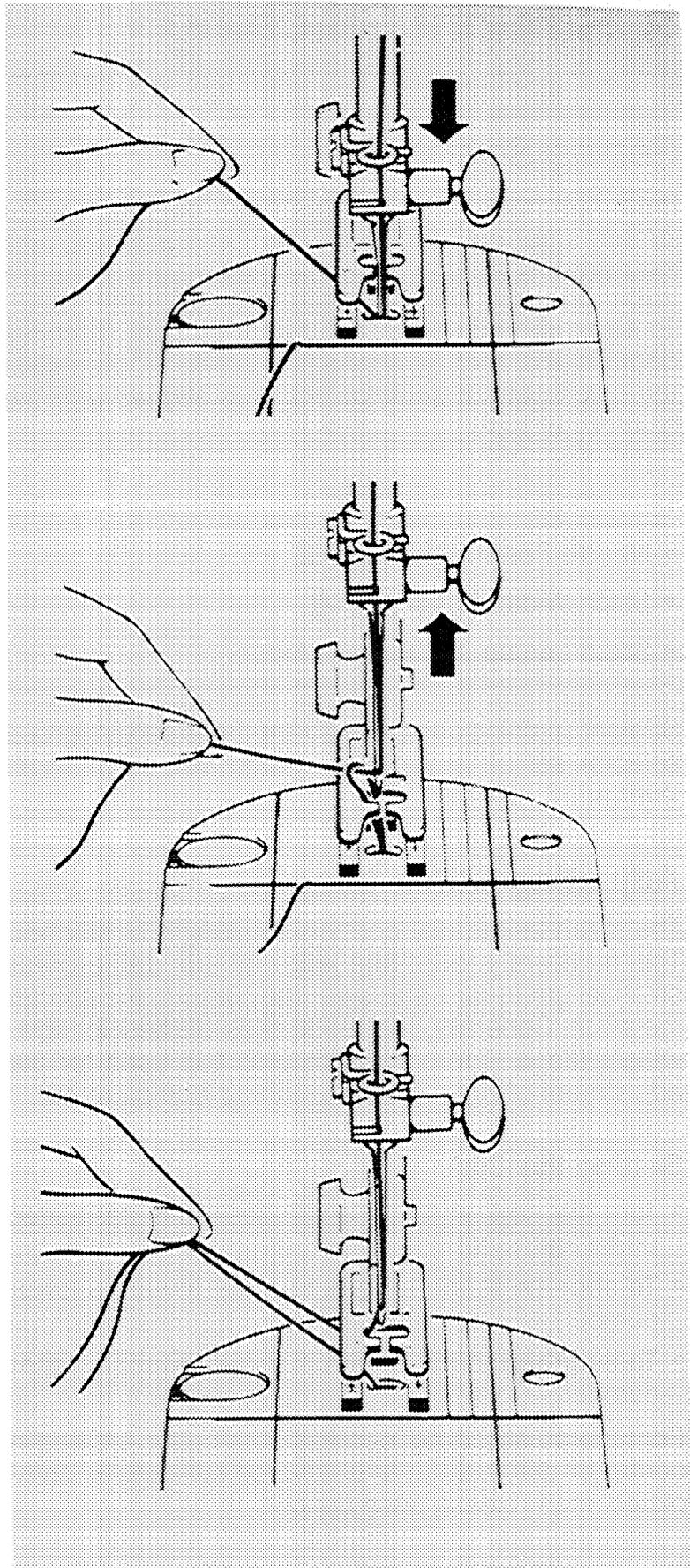


Raising the Bobbin Thread

Hold needle thread lightly with left hand and turn hand wheel slowly *toward you* until the needle enters plate

Continue turning hand wheel and holding needle thread until needle rises. Tighten your hold on the needle thread and bring up bobbin thread in a loop.

Open the loop with your fingers. Draw approximately 10 cm (4 inches) of both threads under the presser foot and place them diagonally to left. Close slide plate.



3. Straight Stitching

Setting Selectors

Before you move the selectors to set your machine for straight stitching, turn the hand wheel *toward you* until the needle is above the needle plate.

To begin setting your machine for straight stitching, depress and hold reverse-stitch button in, then slide the stitch pattern selector until it is aligned with the blue colour bar.

-
- Needle Position: 
 - Stitch Width: 
 - Stitch Length: **1.5-4** to suit fabric
-

Straight stitching can be performed with pattern group selector set on any pattern group and stitch width lever at  only.

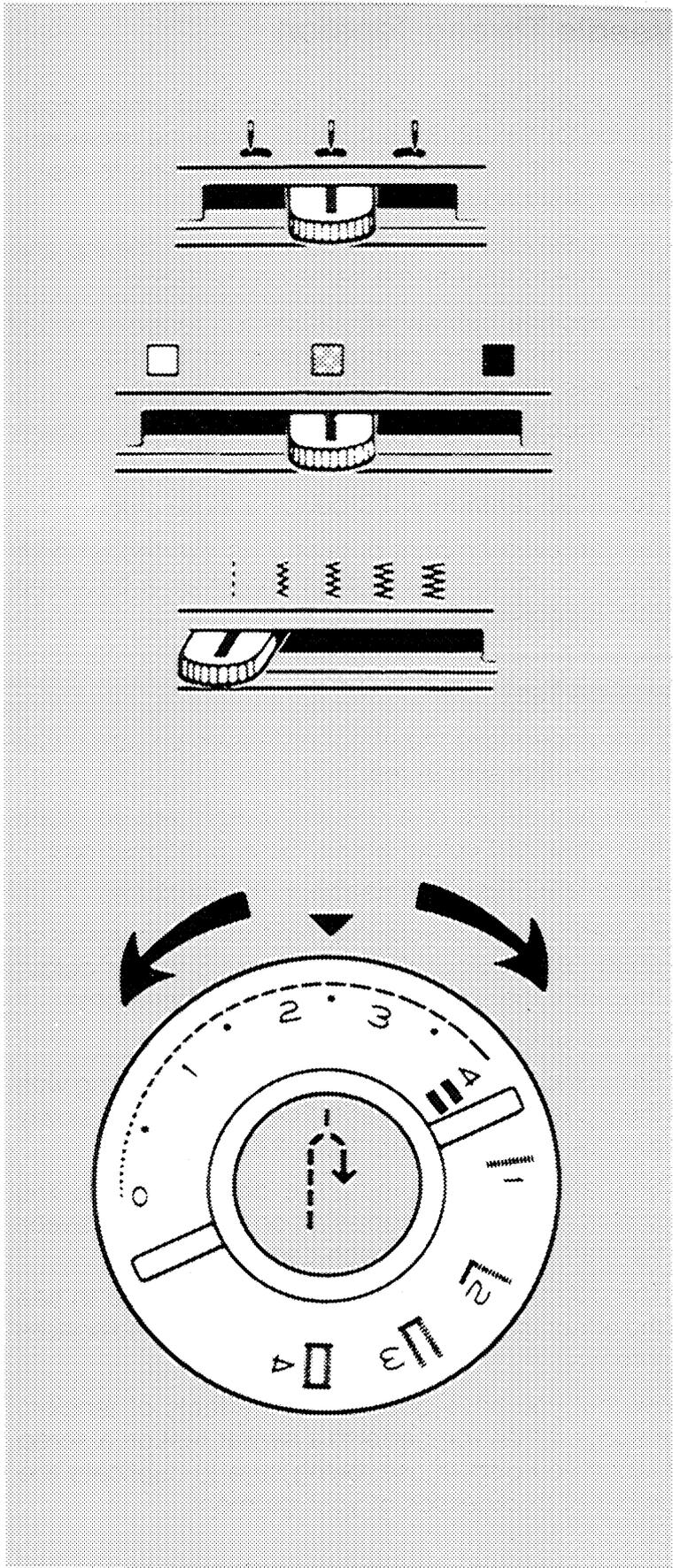
Adjusting Stitch Length

The stitch length dial controls the length of stitches. The numbers around the edge of the dial express stitch length in mm; *the lower the number, the shorter the stitch*. Generally, shorter stitches are best for light-weight fabric. The area from **0** to **1** is used for the adjustment of zig-zag satin stitching (see page 40).

Setting the Dial

- Turn dial so that stitch length desired is positioned under  symbol.
- **To shorten stitch length**, turn dial toward a lower number.
- **To lengthen stitch length**, turn dial toward a higher number.

For reverse stitching, depress push button located in centre of dial, hold in until reverse stitching is completed, then release push button.



Needle Thread Tension

Having selected the correct needle and thread combination for the fabric being used, it may be necessary to adjust the tension of the sewing machine to insure a well-balanced stitch.

A well-balanced stitch is produced when the top and under thread appear the same on the fabric.

Your machine has an adjustable top tension control system. This control exerts tension on the threads as they pass through the machine to form a stitch.

- **Too much tension** will produce a tight stitch which will cause puckered seams.
- **Too little tension** will produce a loose stitch.

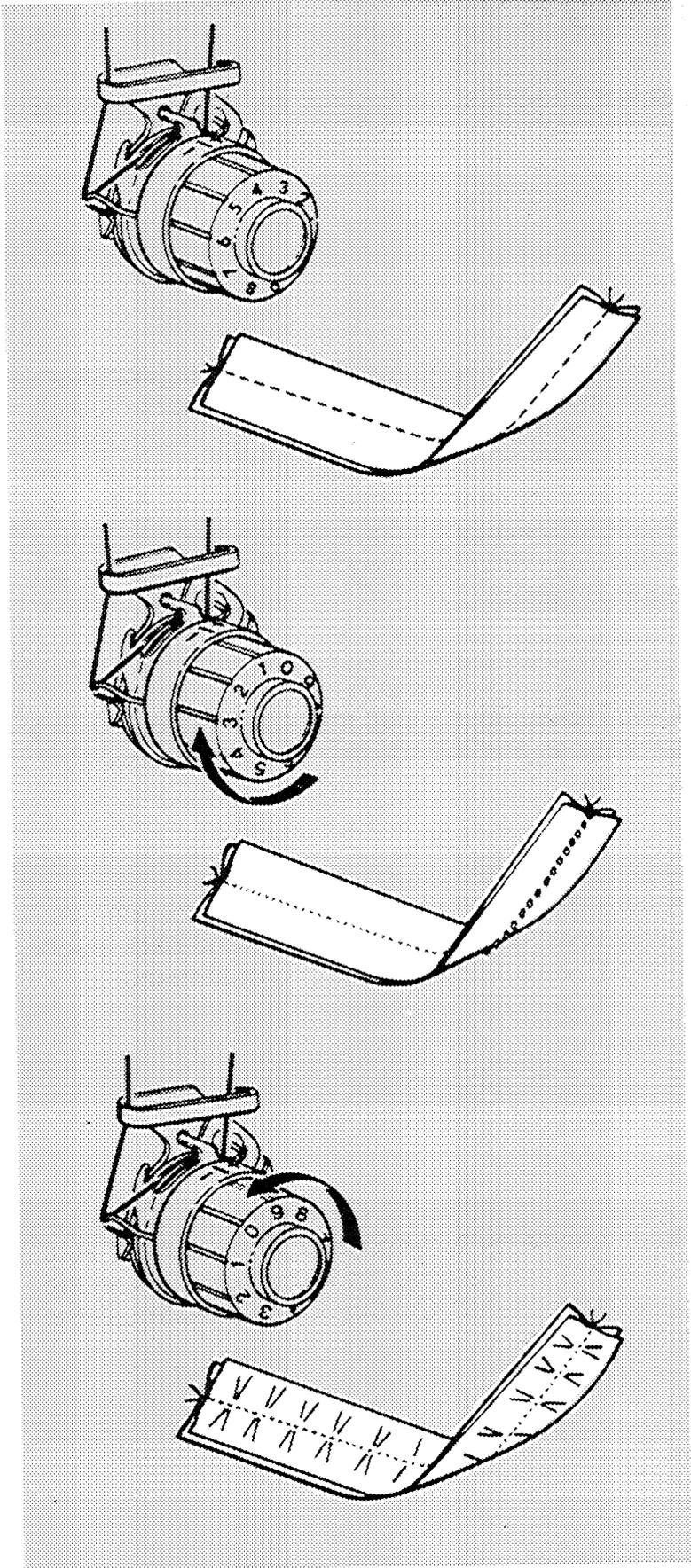
When an even amount of tension is exerted on both threads, a smooth even stitch known as a balanced stitch, is produced.

Tension Test

To help understand the effect of tension on fabric and thread, try this simple test:

- Take two pieces of a medium weight woven fabric in a solid light colour about 15cm (6 inches) long.
- Place a 2020 size 14 needle in the machine.
- Thread the top of your machine with a polyester or cotton dark colour thread and use a lighter colour thread of the same fibre and size in the bobbin.
- Select straight stitch.
- Seam the two pieces of fabric together starting with the top tension control at **1**. Then as you sew, slowly turn the tension control from **1** through **9**.
- Sew another row turning the dial back to **1**. You should have a balanced stitch on each row between the start and finish in each case.
- The different coloured threads will help you to see the effect that the tension has on the top and bottom threads.

Now that you have observed the effects of tension, we suggest that you perform a similar test on a scrap of fabric you plan to use, being sure to duplicate the number of thicknesses of your garment.

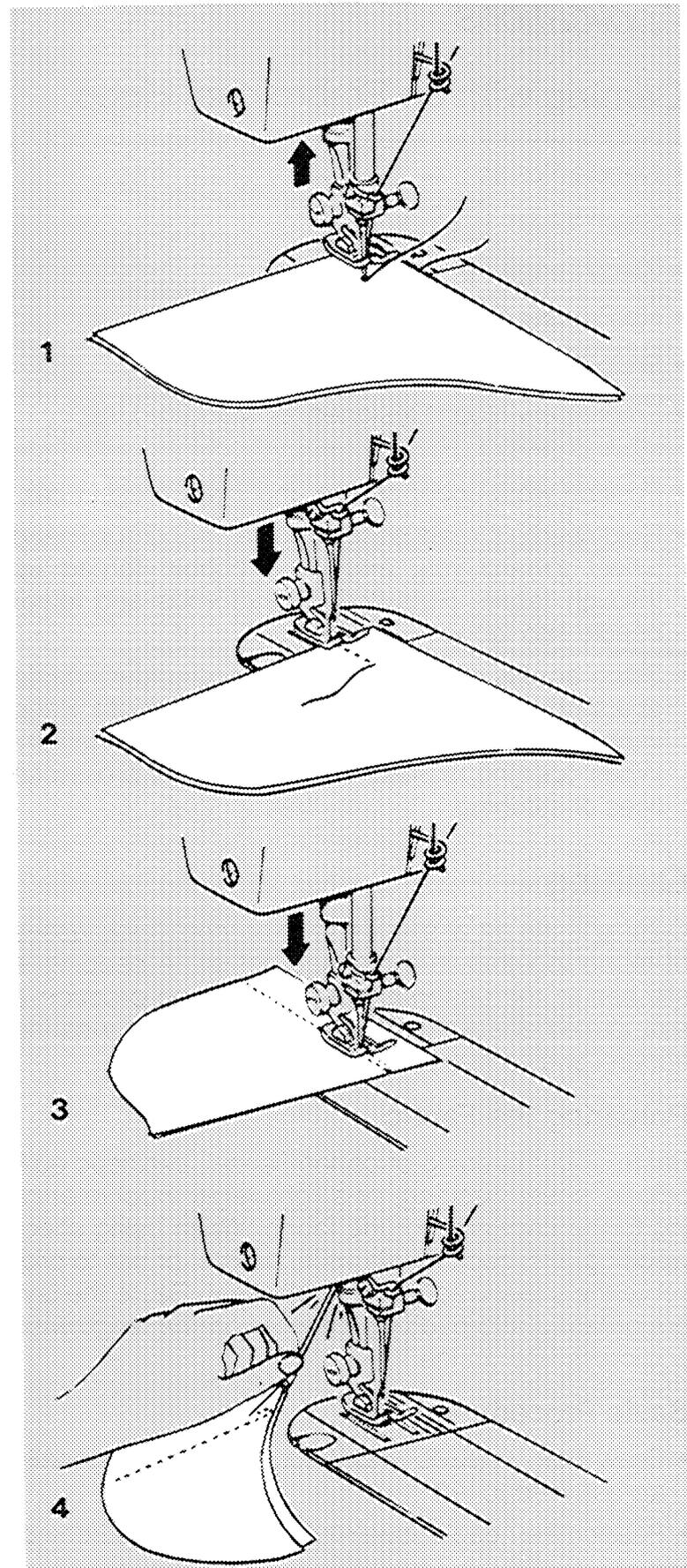


Sewing a Seam

1. Select straight stitch and set the stitch length dial on desired setting. Raise presser foot. Pull thread back under presser foot leaving at least 10cm (4 inches) of thread.
2. Position needle approximately 1.3cm (1/2 inch) from fabric edge. Then lower presser foot and backstitch almost to the edge of the fabric for reinforcement by stitching in reverse direction. For additional information on reverse stitching refer to page 28. Stitch forward to end of seam and stop machine before the end of stitching line. (Do not sew beyond edge of fabric.)

CAUTION: *Do not pull the fabric while you are stitching as this may deflect the needle causing it to break.*

3. Raise needle by turning hand wheel *toward you*. Press reverse stitch push button, and back stitch 1.3cm (1/2 inch) to reinforce end of stitching.
4. Raise needle by turning hand wheel *toward you*. Raise foot and remove fabric by drawing it to the back and to the left. Cut threads on thread cutter at rear of presser bar



Applications

Darning with an Embroidery Hoop

- Needle Position:   
 - Stitch Width:    
 - Stitch Length: 0
 - No Presser Foot
 - Snap-in Feed Cover
 - Embroidery Hoop Designed for Machine Use
-
- Position work under needle and lower presser bar.
 - Hold needle thread loosely with left hand, turn hand wheel toward you, and draw bobbin thread up through fabric. Hold both thread ends and lower needle into fabric.
 - Stitch across opening, moving hoop under needle at a slight angle from lower left to upper right. Keep lines of stitching closely spaced and even in length. When opening is filled, cover area with crosswise lines of stitching.

Quilting

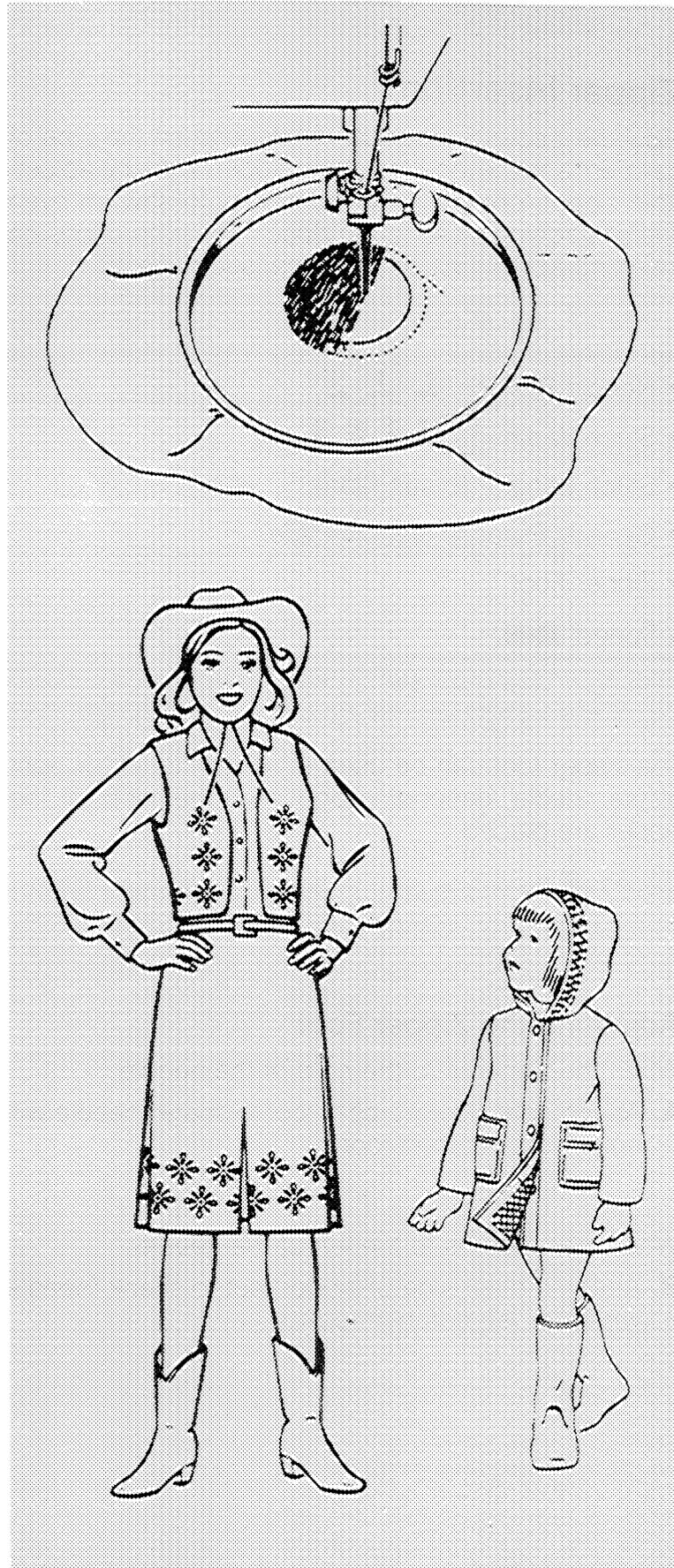
Quilting is the art of stitching two or more thicknesses of fabric together in a planned design. A padding is stitched to the underside of the fabric to produce a soft, puffed effect that is becoming to some wearing apparel and to many fabric furnishings.

Preparing the Fabric

Baste a light padding of cotton flannel, synthetic quilt batting, sheet wadding, or a lightweight wool interlining to the underside of the fabric. When using sheet wadding, first back it with voile, batiste, or net to preserve the sheet wadding through wear. Baste the layers of fabric and padding together on the lengthwise and crosswise grains.

Basic Procedure

- Draw both threads under the foot and diagonally across feed to left.
- Position the needle, lower the foot and start stitching.



Zipper Insertion

How the zipper is inserted will depend on the type of garment and the location of the zipper. With the adjustable zipper foot, you will find it easy to sew an even line of stitching close to the zipper. For instructions on inserting zipper foot on machine, see page 10.

-
- Needle Position: 
 - Stitch Width: 
 - Stitch Length: To suit fabric
 - General Purpose Needle Plate
 - Zipper Foot
 - Speed: **MIN.**
-

The zipper foot can be used either to the left or right of the needle, depending on where the teeth of the zipper are placed.

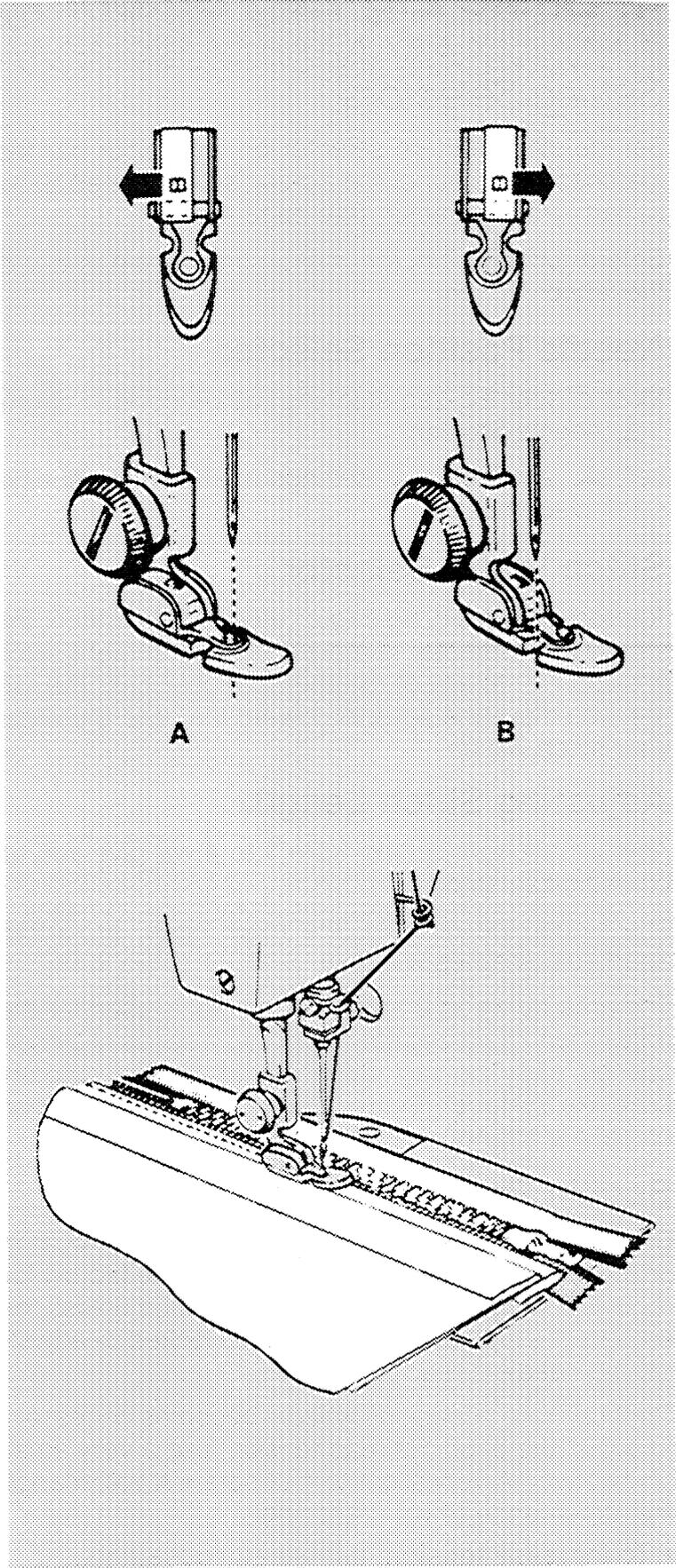
Adjusting the Zipper Foot

When the zipper is to the *right* of the needle:

- A.** Attach right side of zipper foot to shank (needle will enter right notch in foot).

When the zipper is to the *left* of the needle:

- B.** Attach the left side of zipper foot to shank (needle will enter left notch in foot).



4. Basic Zig-Zag Stitching



Setting Selectors

Set the stitch pattern selector on the colour bar that matches the colour of the zig-zag stitch framed by the pattern group selector. See page 46.

Before turning selector, make sure needle is out of the fabric.

Needle Position Selector

Most of your zig-zag stitching will be done in centre  needle position.

Left  and right  settings are used for special stitch placement.

Stitch Width Selector

To produce a plain zig-zag or a decorative stitch, the stitch width selector is moved from its straight stitch position  to any of its other four positions. The further you move the selector toward the right, the wider your stitch will be.

Adjusting Stitch Length

Any stitch length setting from **1** to **4** will give you an open zig-zag stitch.

The higher the number, the more open, or farther apart your stitches will be.

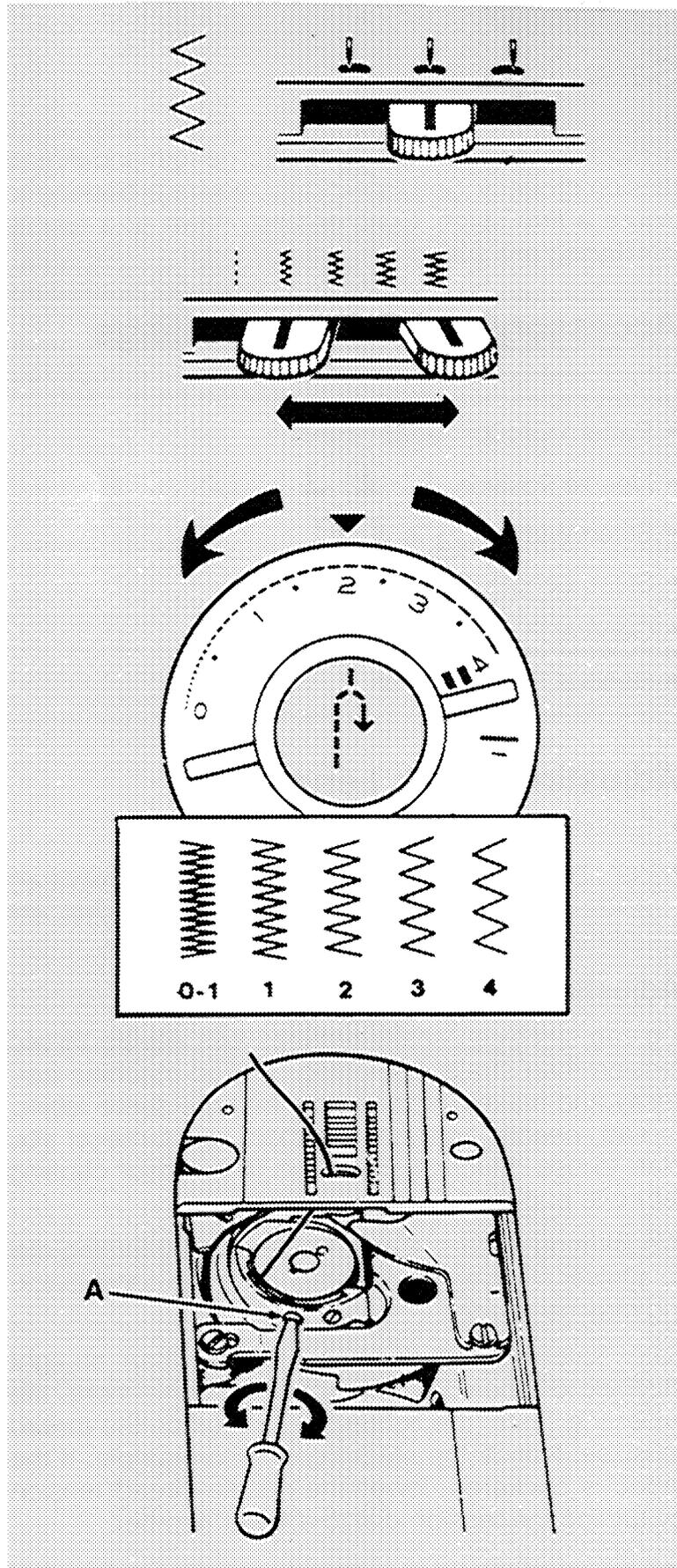
The area between **0** and **1** on the dial is used for the adjustment of zig-zag satin stitching, a series of closely spaced plain zig-zag stitches that form a smooth, satin-like surface. (Refer to page 40 for information on satin stitching.)

Bobbin Thread Tension

Bobbin thread tension is controlled by screw **A** located on the bobbin case. The tension is set at the factory for regular sewing and should not be adjusted unless the corners of a zig-zag stitch cannot be locked by adjusting the needle thread tension.

On those rare occasions when it becomes necessary to adjust the bobbin thread tension, use a very small screwdriver. A very slight turn of screw **A** will change the appearance of your stitching.

- **To increase tension**, turn screw to the right.
- **To decrease tension**, turn screw to the left.



Satin Stitching

When you wish to produce a satin stitch, make a test sample first so you can adjust stitch length and thread tension properly. Soft fabric may require a backing to insure a firm stitch. Crisp organdy, lawn or a fusible interfacing are suitable for this purpose.

Accessory and Selector Settings

- Pattern Group:  (Blue)
 - Needle Position: 
 - Stitch Width: 
 - Stitch Length: 0 to 1
 - General Purpose Needle Plate
 - General Purpose Foot
-

Adjusting Stitch Length

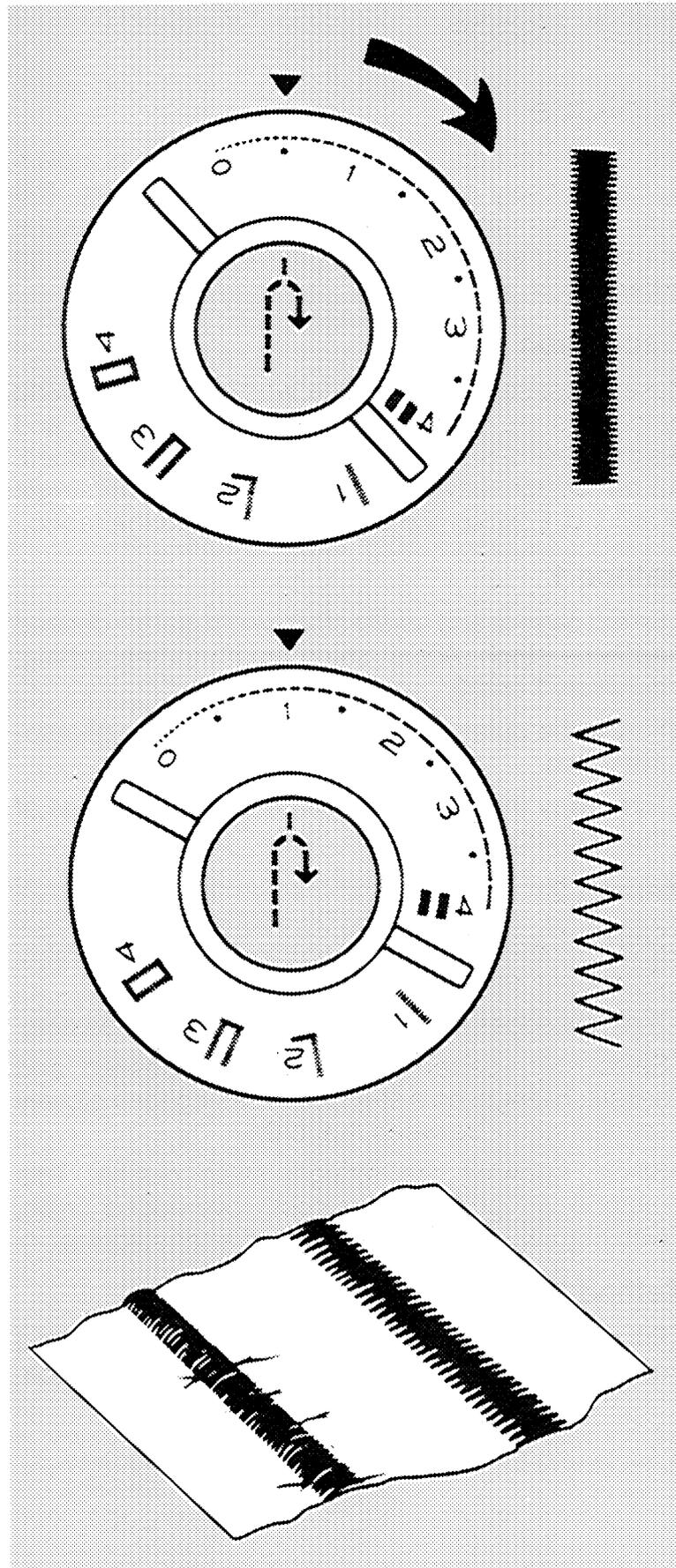
- Turn stitch length selector dial to 1.
- Run the machine at a slow speed and slowly turn stitch length dial toward the right until stitches are closely spaced and form a smooth surface

Adjusting Needle Thread Tension

Zig-zag stitching usually requires less needle thread tension than straight stitching. Thread machine correctly and make a test sample with the same fabric, thread, needle and stitch pattern combination you plan to use. Stitches should lie flat without causing fabric to pucker.

If puckering occurs, lower the tension by turning dial to a lower number. An underlay or tissue paper backing may be needed.

Satin stitching requires less tension than straight stitching or open zig-zag stitching. Furthermore, the wider the stitch, the lighter the tension on the thread must be. Notice the stitching on your sample. If the fabric is puckered, lower the needle-thread tension by turning the tension dial to a lower number.



Stitch Usage

Appliqué

The stitch most commonly used in appliqué is a plain zig-zag, closely spaced to form a satin stitch. The width of this stitch can be varied to accommodate fabrics of different weaves and textures. Other stitch patterns can also be used.

Preparation

Make a test sample to decide which of the following methods is the most appropriate for your fabric and design. Mark design on piece of fabric to be appliquéd. Cut out design leaving about 2 cm (3/4 inch) margin all around. Position the design. Baste it to the fabric.

Method 1

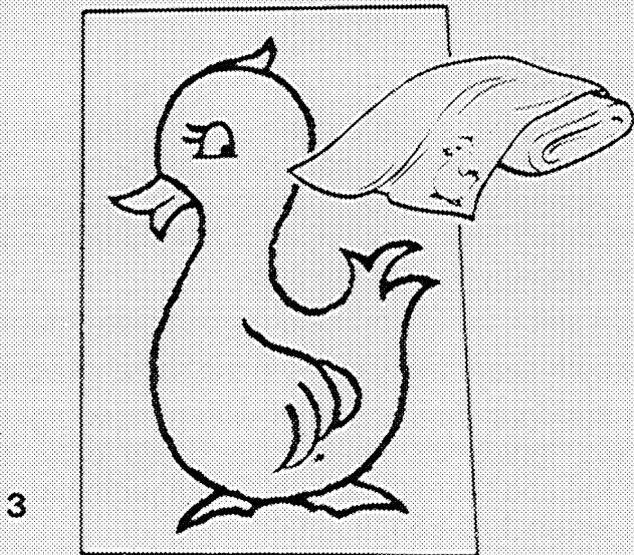
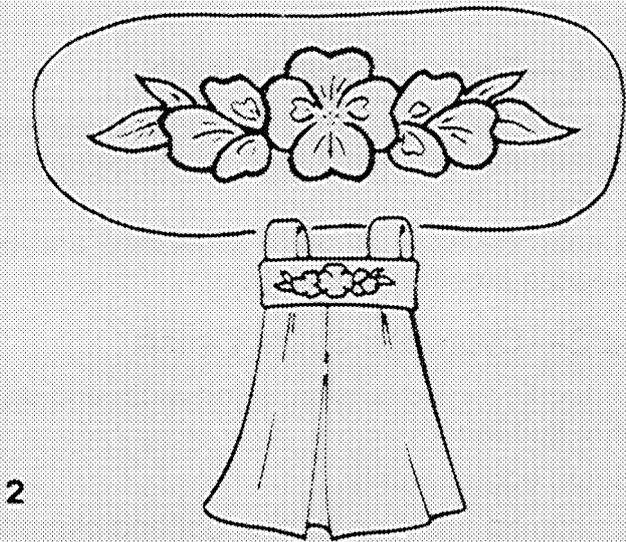
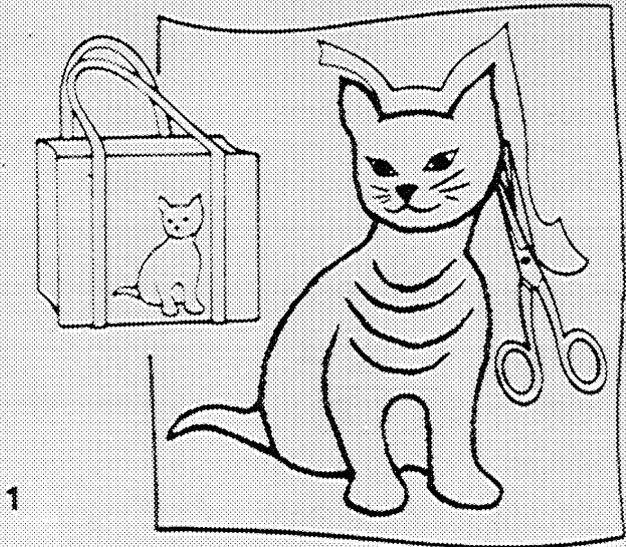
- Select pattern and adjust stitch width dial for desired applique stitch. Adjust stitch length to fine setting, between **1** and **0**.
- Follow the outer edge of the design with a decorative stitch.
- Trim away the excess fabric on the outer edges of the stitching.

Method 2

- Select straight stitch.
- Outline the entire design with a short stitch.
- Trim raw edges to the stitching and remove basting.
- Select stitch pattern and stitch width desired, and set stitch length on a satin stitch setting for a closely spaced stitch, between **1** and **0**.
- Stitch, following the straight stitch outline. This method will produce a smooth overedged finish, with no raw edges to be trimmed after stitching.

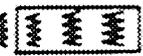
Method 3

- Purchased motifs can be appliquéd quickly and easily by using either a straight or decorative stitch.



Zig-Zag Seam Finishes

Seam edges support the garment and should be given a durable finish if the fabric is likely to ravel. There are two methods of finishing seams in such fabrics: trimming seam edge or overedging. Make a test sample to determine which method best suits your fabric.

- Pattern Group:  (Blue)
 - Needle Position: 
 - Stitch Width: 
 - Stitch Length: **1** to **3** to suit fabric
 - General Purpose Needle Plate
 - General Purpose Foot
-

Method 1—Trimmed Seam Finish

- Adjust stitch width and length to give you the most open stitch that will secure the fabric edge, avoid harsh over stitching.
- Stitch near the edge of seam allowance and trim seam edges evenly after stitching.

Method 2—Overedge Seam Finish

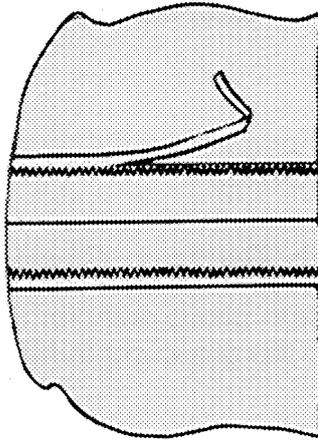
- Adjust needle thread tension, stitch width and stitch length to suit fabric.
- Trim seam edges evenly.
- Place trimmed seam under the foot and overedge the seam allowance as illustrated.

Lingerie Seams

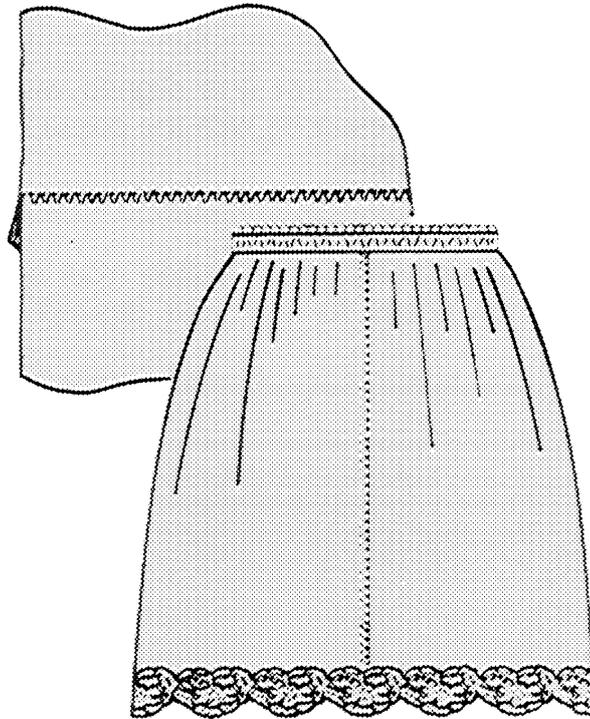
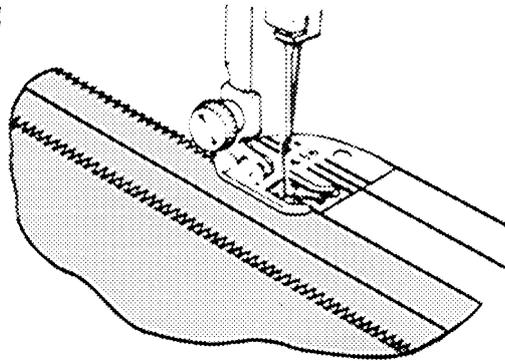
To make a lingerie seam durable and flexible use the plain zig-zag stitch at a narrow width setting. This seam treatment is particularly suitable for bias seams. When seaming nylon tricot insert a 2045 needle in the machine before you begin to sew.

- Straight stitch the seam line on wrong side of fabric.
- Press both seam allowances in the same direction.
- From the right side, topstitch with narrow zig-zag stitching, letting the needle alternately enter the seam line and seam thickness. (Stitch width narrow; stitch length **1** to **1.5**.)

1



2



5. Pattern Stitching

Selecting a Stitch

Setting Stitch Pattern Group Selector

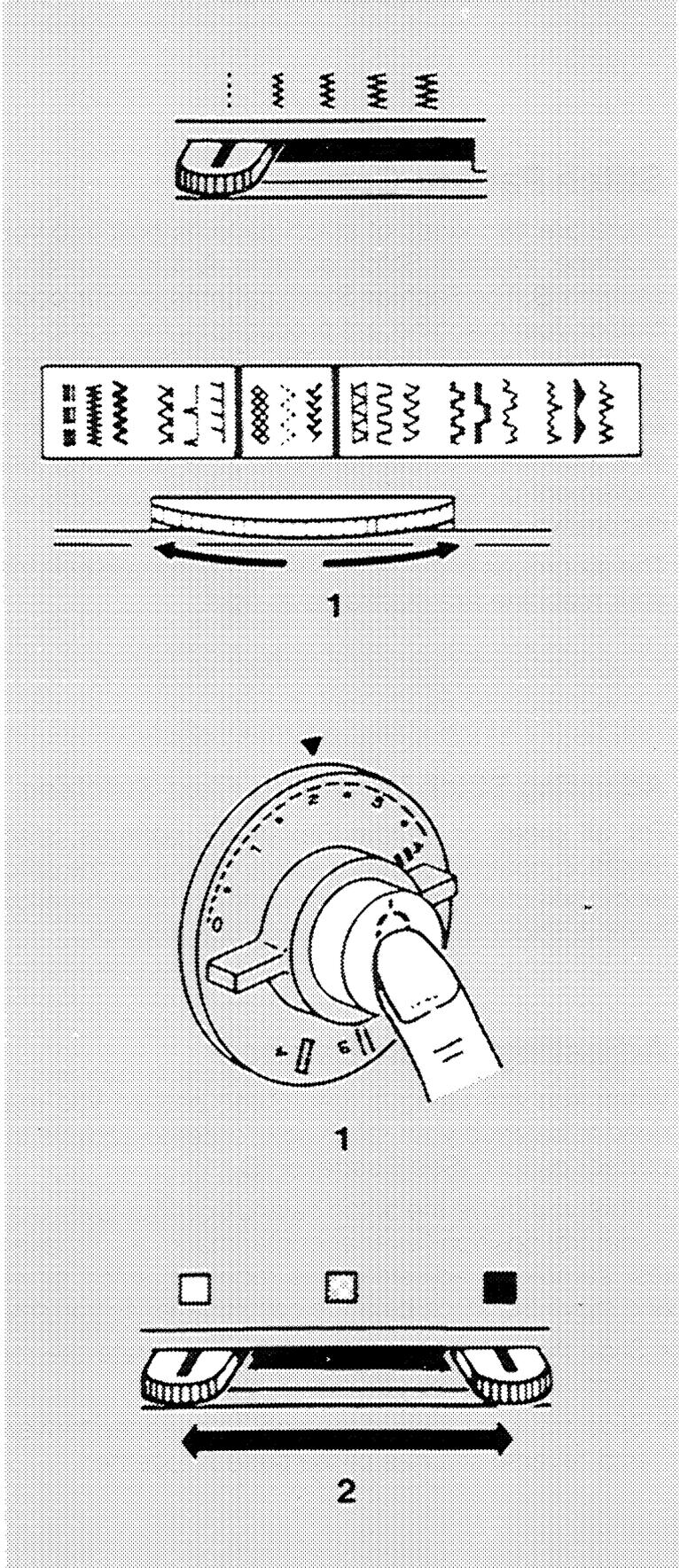
1. Rotate the pattern group selector until the orange frame is behind the group containing the stitch you desire.

Now set the stitch pattern selector for the selected pattern colour.

Setting Stitch Pattern Selector

1. Depress and hold the reverse stitch push button.
2. Slide pattern selector until it is aligned with the colour bar that corresponds with the colour of the stitch you have chosen.

Release the reverse stitch push button. Your sewing machine is now ready to sew your desired stitch pattern.



Stitch Pattern Groups

There are two kinds of stitch patterns built into your machine: Fashion Stitch patterns **A** and *Flexi-Stitch* patterns **B**. The Fashion Stitch patterns, colour-coded blue on your machine, are produced by the side to side movement of the needle. The *Flexi-Stitch* patterns, color-coded green and yellow (identified by † in the illustration at right) are produced by both the side to side movement of the needle and the back and forth movement of the feed to produce multi-purpose and decorative stitch patterns.

The six groups of three stitches each that are built into your machine are illustrated at right.

Adjusting Stitch Length for *Flexi-Stitching*

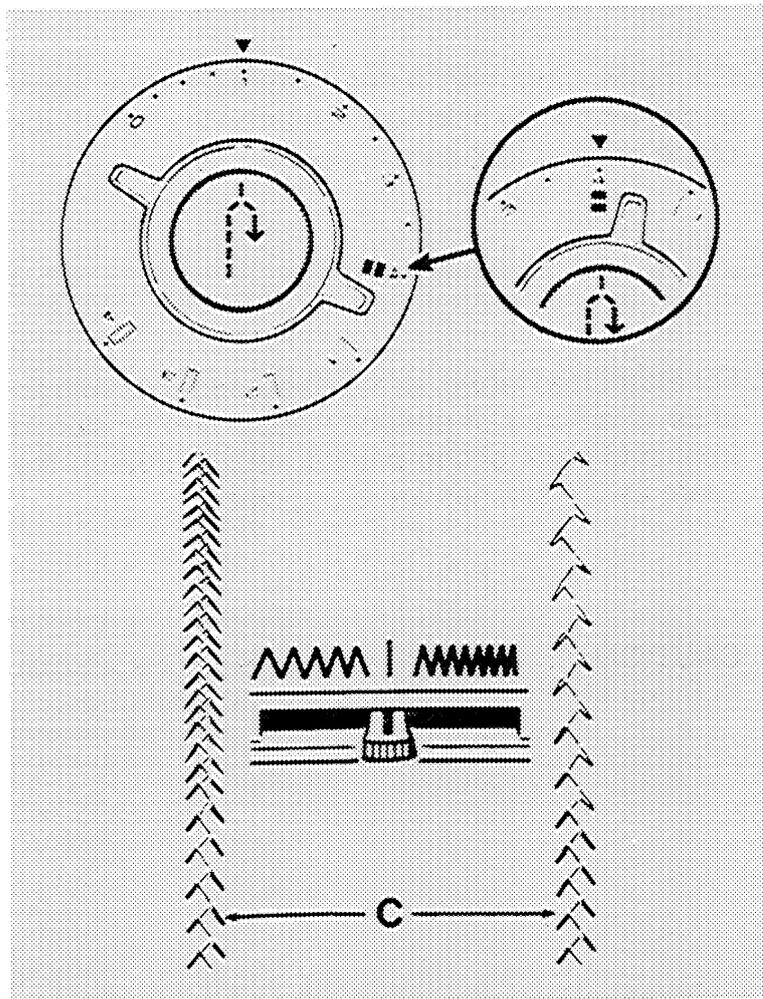
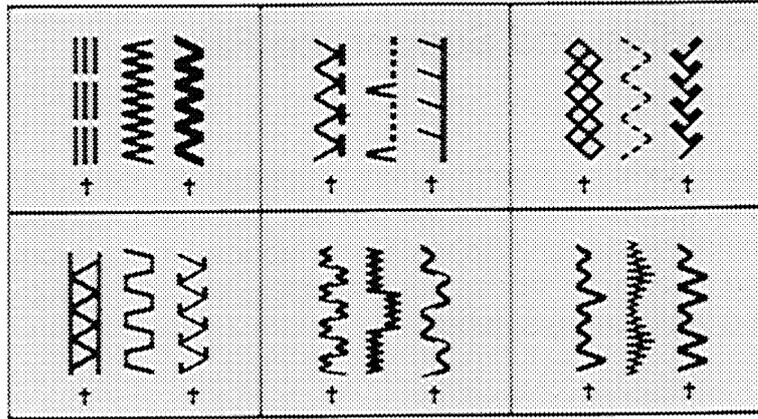
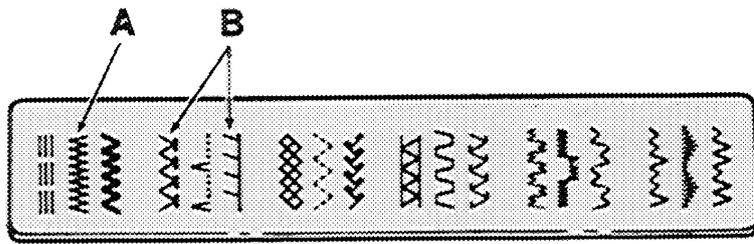
For all green or yellow *Flexi-Stitch* patterns, stitch length is controlled with a single setting of the stitch length selector. Simply rotate it until the (green-yellow) mark is under the triangle above the selector.

Adjusting Stitch Balance

When you are using a *Flexi-Stitch* pattern you may need to balance your stitching in order to achieve the correct pattern (See illustration **C**.)

Before you move the stitch balance control lever from its neutral position (lever at center mark **I**), make a test sample. If adjustment is required, stitch slowly and move the stitch balance control lever as you sew.

- Slide the lever toward the left to separate the forward and reverse stitches of the pattern.
- Slide the lever toward the right to bring the forward and reverse stitches of the pattern together.



Adjusting Stitches for Stretch Fabrics

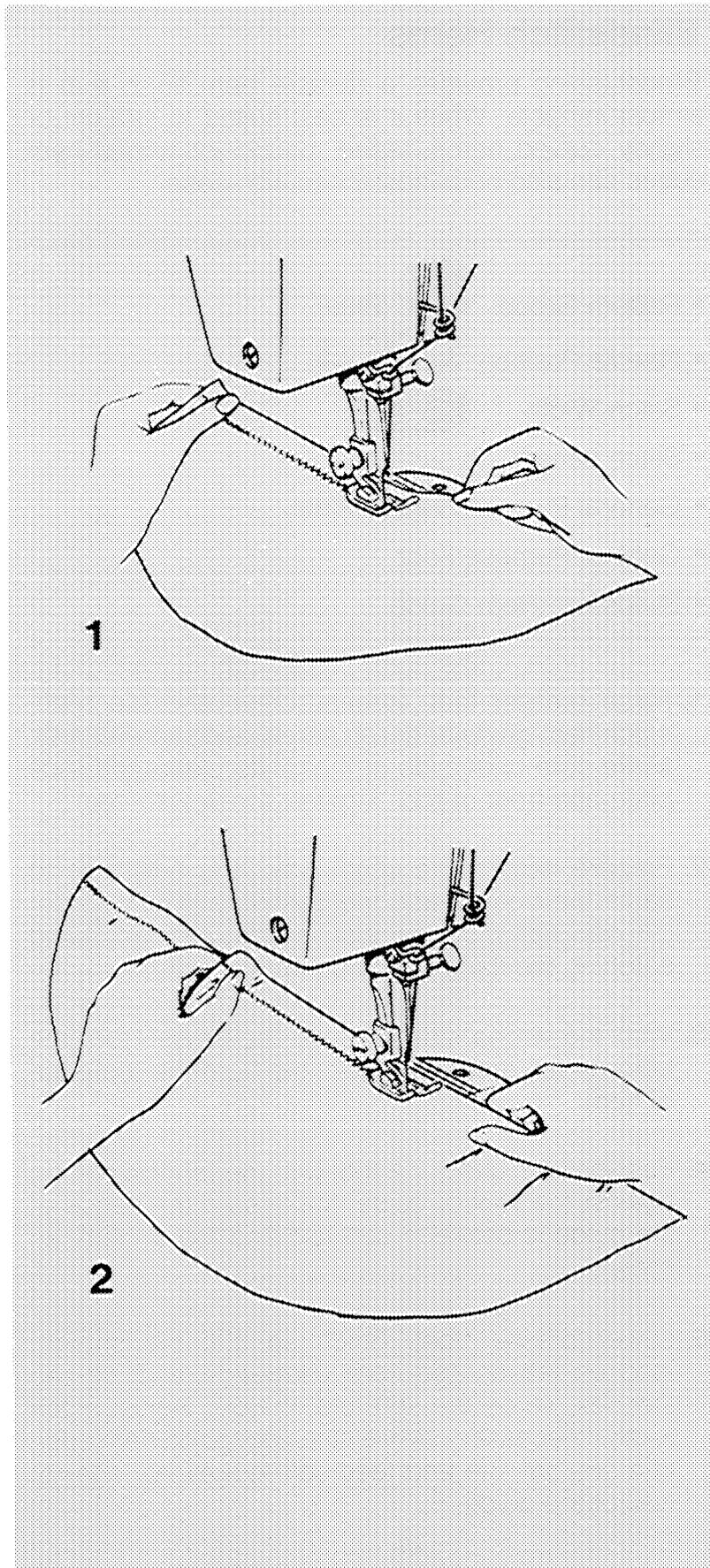
Guiding and Supporting Fabric

Most fabrics of stretch or knit construction need only to be guided in front of the presser foot when you use one of the stretch stitches. Some fabrics—nylon tricot and elasticized fabrics, for example—do require support while being stitched.

1. For nylon tricot and similar synthetic knits, apply *gentle* tension by holding the seam in front and back of the presser foot as you sew.

2. For elasticized fabric, stretch lace, and knits with an unusual amount of elasticity, apply *firm* tension in front and back of the presser foot to stretch the seam as the stitches are being placed.

CAUTION: *Do not pull the fabric while you are stitching as this may deflect the needle, causing it to break.*

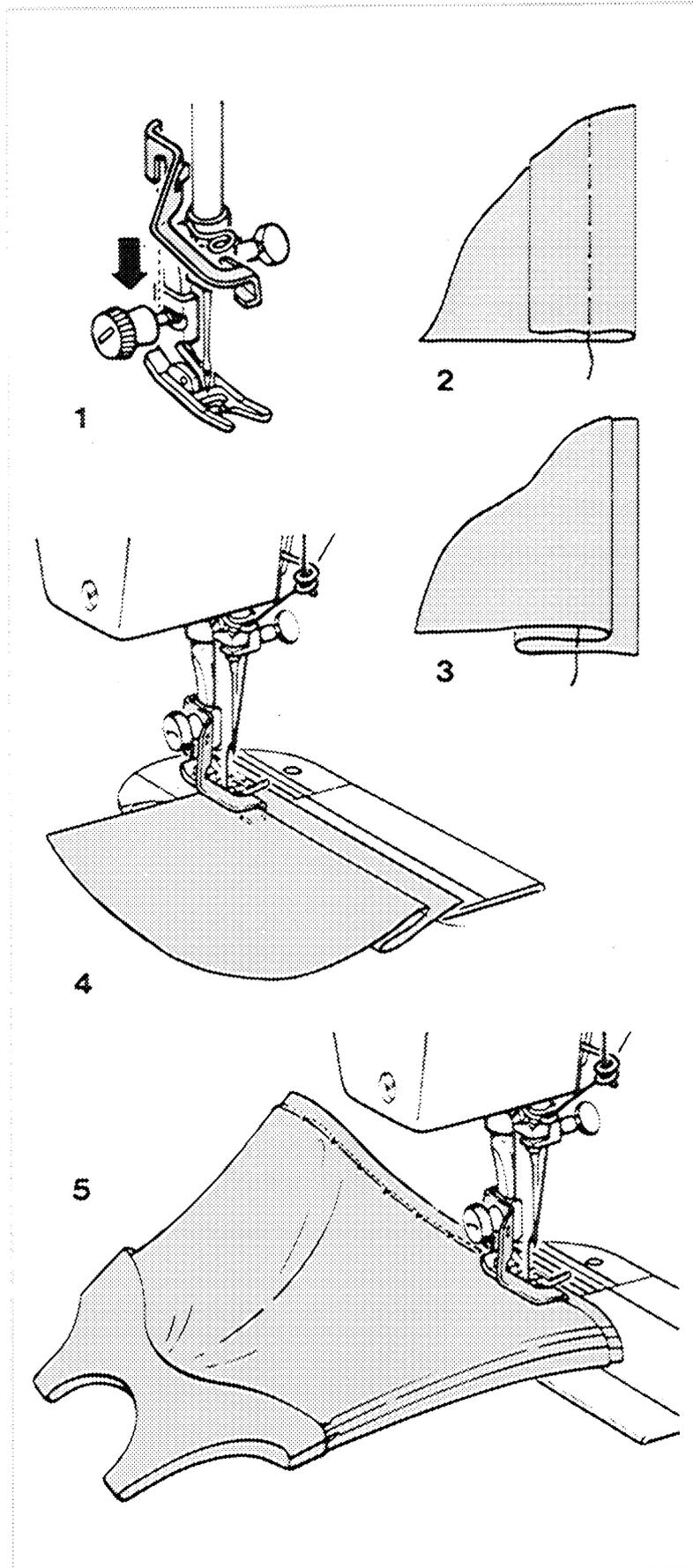


Blindstitch Hems

Blindstitching provides a durable hem finish that is almost invisible. While it is best suited to straight or slightly curved hems, taped, bound, or turned hem edges can also be blindstitched with ease.

-
- Pattern Group:  (Blue)
 - Needle Position:   
 - Stitch Width:   
 - Stitch Length: To suit fabric
 - General Purpose Needle Plate
 - General Purpose Foot
 - Blindstitch Hem Guide
-

1. Raise presser foot, loosen screw, and slip blindstitch hem guide between screw and shank of foot. Make sure underside of the guide clears the slide plate and front of foot. Tighten screw with coin.
2. Prepare hem in the usual way. It is advisable to baste the hem. Place the basting at least 1.3 cm (1/2 inch) below the edge of hem allowance to avoid catching the flange of guide as you stitch.
3. With the wrong side of work uppermost, turn the hem under, creating a soft fold from the top edge of hem.
4. Position hem under the foot with the soft fold resting against the wall of guide. Make sure the flange of the guide is between soft fold and top of hem, as shown.
5. Lower presser foot. Stitch so that the straight stitches fall on the hem allowance and zig-zag stitches pierce the soft fold of work. Adjust stitch width if necessary. While stitching, guide hem edge in a straight line and feed soft fold evenly against wall of the guide.

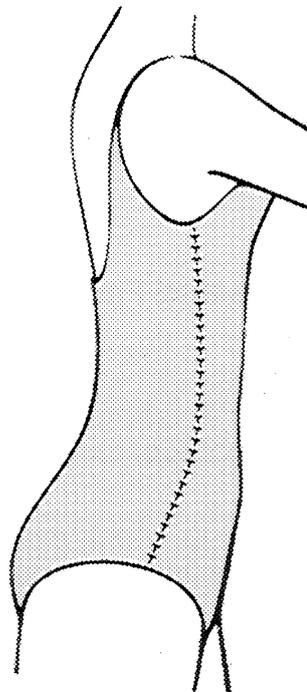
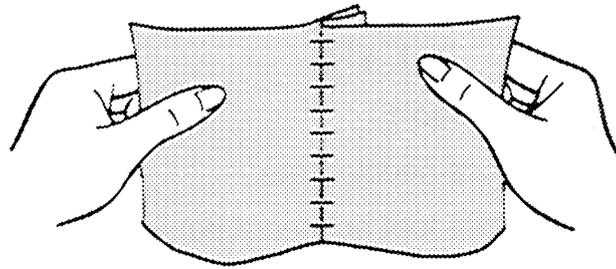
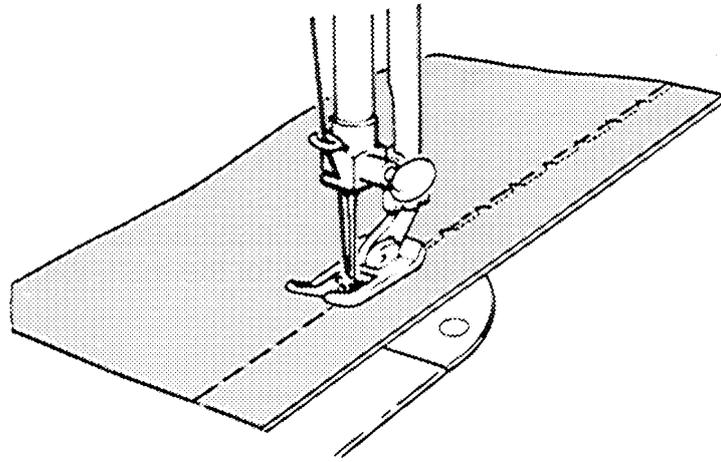


Ladder Seam

The blindstitch ladder seam is particularly appropriate for knit and stretch fabrics. It is ideal for stretchable construction seams, and edge finishes for necklines, pockets and collars in sportswear and swimsuits.

-
- Pattern Group:  (Blue)
 - Needle Position: 
 - Stitch Width: 
 - Stitch Length: 1.5 to 2.5
 - General Purpose Needle Plate
 - General Purpose Foot
-

- Make a test sample to adjust stitch width and length and needle thread tension to suit the fabric. Needle thread tension should be lighter than normal.
- Cut and fit garment, allowing for 1.5 cm (5/8 inch) seam allowance. Baste seam line.
- Place fabric under presser foot so that the straight stitches fall on the seam line basting and the points toward the centre of the garment.
- After stitching, open seam by pulling fabric back on opposite sides of the seam to produce ladder effect. Press seam allowance after opening.



Construction Stitches

Multi-Stitch Zig-Zag

The multi-stitch zig-zag is an extremely versatile stitch. Use it to mend, join, or reinforce without bulk. With this stitch you may attach elastic and stretch lace, construct lingerie and swimsuits, and finish seams. There are many other useful applications for the multi-stitch zig-zag.

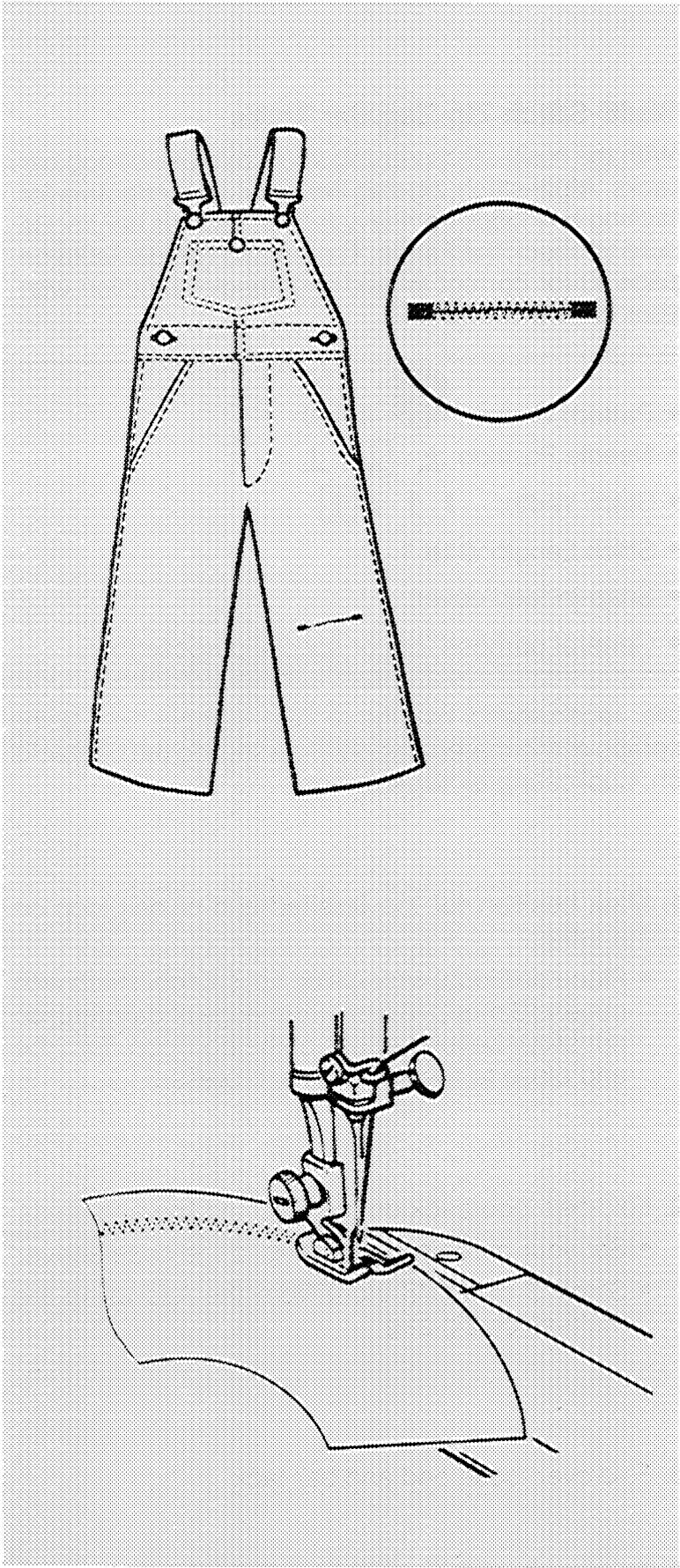
Mending a Tear

- Pattern Group:  (Blue)
 - Needle Position:   
 - Stitch Width:     
 - Stitch Length: .5 to 1
 - General purpose needle plate.
 - General purpose foot or special purpose foot.
-
- Trim ragged edges.
 - Place underlay on the wrong side of tear for reinforcement. Baste one side of underlay in place.
 - Stitch on the right side, bringing the edges of the tear together. Shorten stitch length at ends and corners to give extra strength.
 - Trim underlay.

Finishes for Hems and Facings

Hem and facing edges in knit and stretch fabrics will be less apt to press through and mark when given a flat edge finish. Edge finishing with the multi-stitch zig-zag eliminates the bulk of turned-in edges and retains fabric flexibility.

- Make a test sample to check thread tension and stitch length if you are using the multi-stitch zig-zag.
- Place stitching about 1.3 cm (1/2 inch) from hem or facing edge. Avoid stretching edge while sewing.
- Press after stitching and trim away excess fabric close to the stitching line.



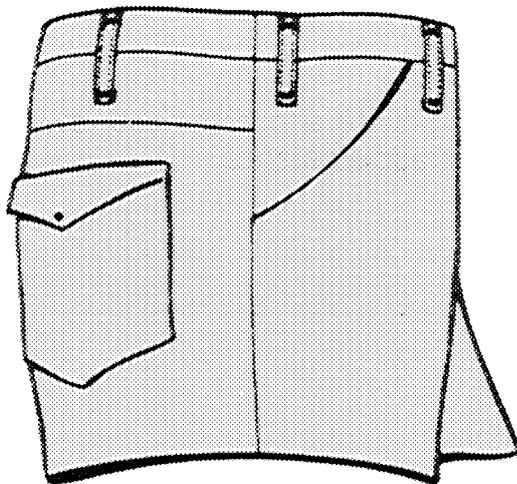
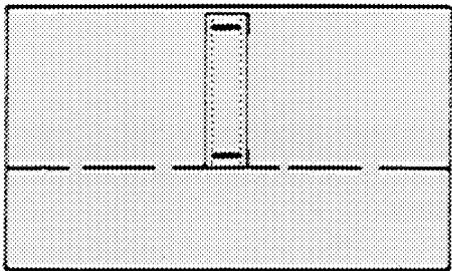
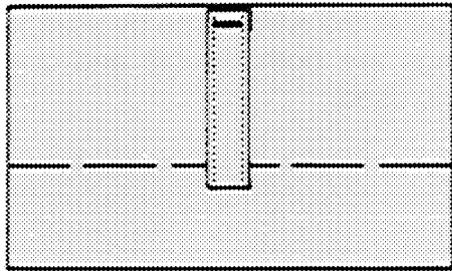
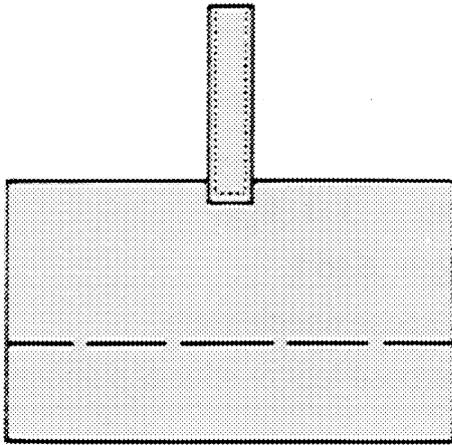
Multi-Stitch Zig-Zag Bar Tacks

With the multi-stitch zig-zag you can make strong bar tacks. Multi-stitch zig-zag bar tacks are effective for tacking belt loops on heavy fabrics such as denim. Be sure to check the Fabric, Thread and Needle Table on page 16 for correct thread and needle selection with your choice of fabric.

- Pattern Group:  (Blue)
 - Needle Position:   
 - Stitch Width:    
 - Stitch Length: **0 to 1**
 - Snap-in feed cover.
 - General purpose foot or special purpose foot.
-

We recommend making a test sample first using scraps of the material you will be sewing the bar tacks on, duplicating all thicknesses.

1. Mark position for the finished end of belt loop on the fabric.
 - Place belt loop, wrong side up, straight stitch with cut end 3 mm (1/8 inch) from edge of garment; do not stitch beyond edges of the belt loop. Trim the end close to the stitching and press.
2. Fold belt loop back on the stitching line and press.
 - Set your machine according to the code above.
 - Stitch 3 mm (1/8 inch) from the fold using the multi-stitch zig-zag.
3. Fold over loose end and bar tack.



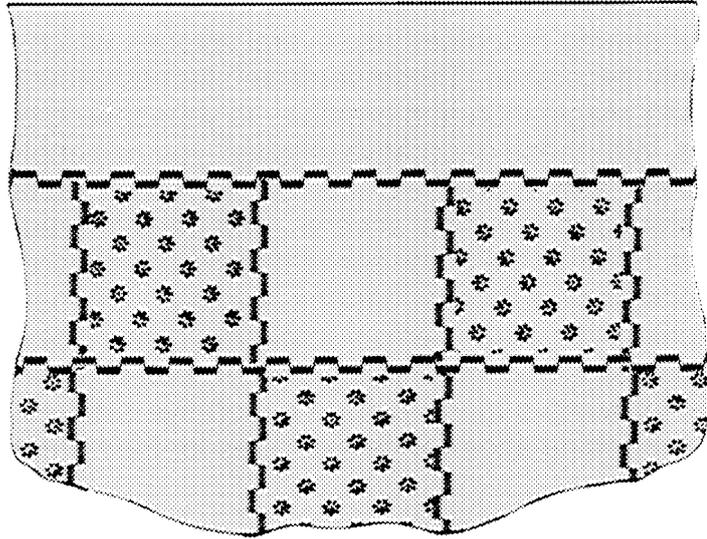
Patchwork Quilting

- Pattern Group:  (Blue)
 - Needle Position:   
 - Stitch Width:     
 - Stitch Length: **.5 to 1**
 - General purpose needle plate.
 - General purpose foot or special purpose foot.
-

Patchwork for quilts and wearing apparel, formerly put together with hand stitching, can be quickly pieced and decorated at the same time by using the domino stitch. Joinings are both flexible and durable when this method is used.

Procedure

- Cut a fabric underlay to size. Baste a light layer of padding to underlay if a quilted effect is desired.
- Prepare patches, turning under 6 mm (1/4 inch) seam allowance. On non-woven fabric this step is not necessary.
- Baste patches to underlay in arrangement desired, butting all edges.
- Stitch in lengthwise and crosswise rows, allowing stitches to straddle patches.



Decorative Stitching

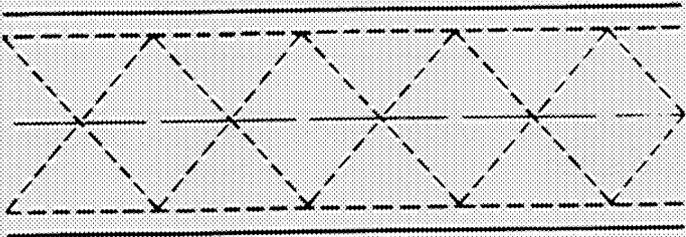
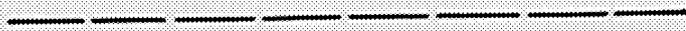
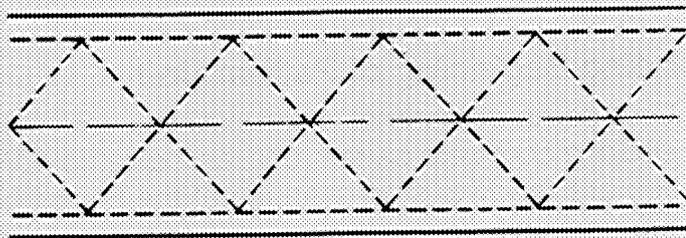
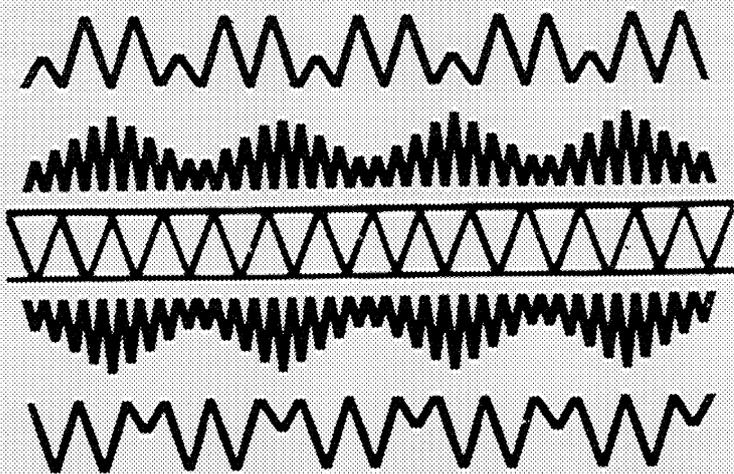
Your sewing machine has several stitches which are purely decorative. These versatile stitches allow you to add imagination and creativity to your sewing projects. With these decorative stitches, you can apply to clothes and household items: interesting details, youthful and feminine accents, and personalized effects. Some of the many applications of the decorative stitches include border designs, appliqué, twin-needle stitching, finished hems, smocking, embroidering, monograms and topstitching accent lines on clothes. The following pages illustrate decorative stitches on your machine and provide examples for their creative use.

Border Designs

Border designs that add a decorative touch to wearing apparel and household items can be created by combining different types of straight stitching and zig-zag stitching. Simple or elaborate, delicate or bold, they can be varied to suit the application. Use them as you would a braid or to simulate horizontal, vertical or bias stripes on plain fabric.

Procedure

Mark or crease fabric for the centre line of first row of stitching. If spacing between rows is not greater than 1.3 cm (1/2 inch), gauge additional rows with the presser foot. If spacing is wider, mark for each line of stitching. Use a backing of crisp lawn, organdy or a fusible interfacing. Be sure to make a test sample on a swatch of your fabric to check stitch settings and thread tension, being sure to duplicate thickness and interfacing or backing if appropriate.



Monograms

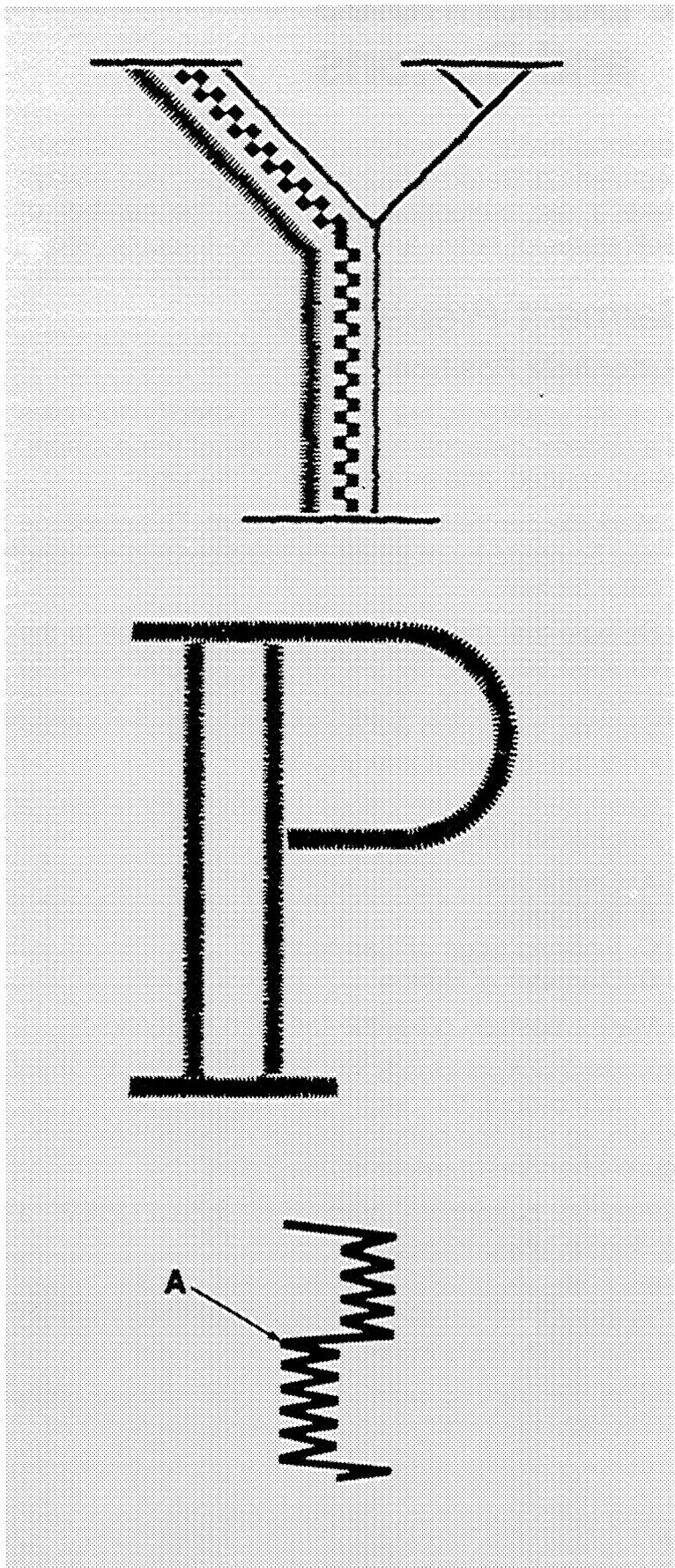
Many decorative stitch patterns can be used for monograms and motifs—to add a personal touch to a blouse collar, for example, or for initialing household linens. You can buy designs or create them yourself to suit the stitch pattern you wish to use.

Very simple straight-line monograms can be made with the plain zig-zag stitch, or you can create a motif by arranging individual pattern units to form a design. Refer to page 46 for information on setting selectors for zig-zag and decorative stitching.

When you use a decorative stitch pattern to form a motif, you will want to start at the beginning of the arrowhead, crescent or whatever pattern you have selected.

Finding Beginning of Pattern Unit

1. On a scrap of material, stitch until you come to the end of a complete pattern unit, as indicated **A**. Now you are ready to start stitching at the beginning of the next unit.
2. Raise presser foot and remove scrap.
3. Position motif under needle, lower the presser foot and stitch.



6. Buttonholes and Buttons

Buttonholes can be made easily with the manual four-step method. Before sewing on your garment, always make a test buttonhole duplicating the number of thicknesses of fabric and interfacing if appropriate.

Garment Preparation

Buttonhole Position

Accurate guidelines are essential to keep buttonholes at a uniform distance from the edge of the garment, evenly spaced, and on the grain of the fabric.

1. Mark the centre line on the garment. This guideline can be made by machine or hand basting or using tailor's chalk.

Be sure that the space from the centre line to the finished edge of the garment is at least equal to three-quarters the diameter of the button. With this spacing, the button will not extend beyond the edge when the garment is buttoned.

Make sure that the centre line marking follows a lengthwise fabric thread.

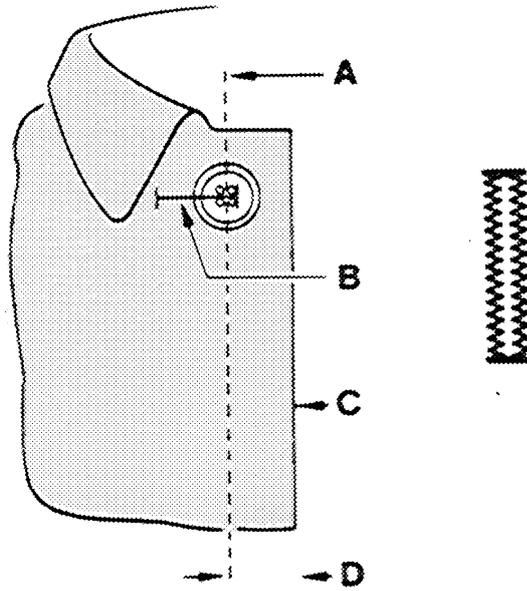
- A. Centre line
- B. Buttonhole
- C. Finished Edge of Garment
- D. Diameter of Button

2. Mark a position guideline for each buttonhole.

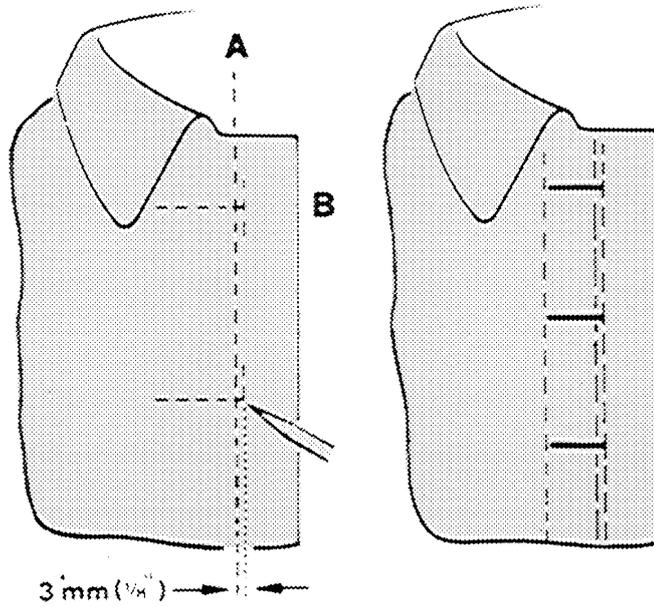
Horizontal buttonholes **B** are placed to extend 3mm (1/8 inch) beyond the centre line **A** of the garment, as shown, so that the buttons will be in the centre of the figure when the garment is fastened.

Horizontal buttonhole guidelines should follow a crosswise fabric thread.

- Mark the horizontal buttonhole guideline for each buttonhole. It should be longer than the finished length of the buttonhole.
- Mark the starting point for each buttonhole 3mm (1/8 inch) beyond the centre line (see illustration).



1



2

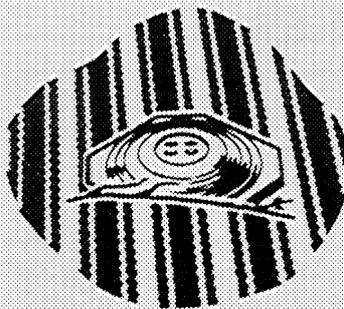
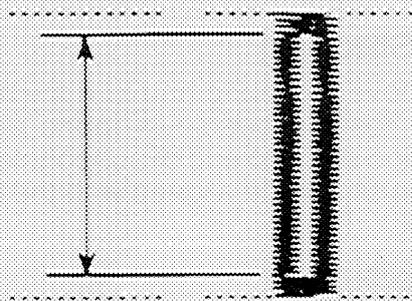
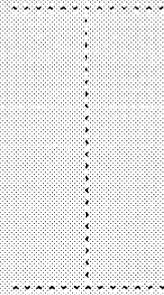
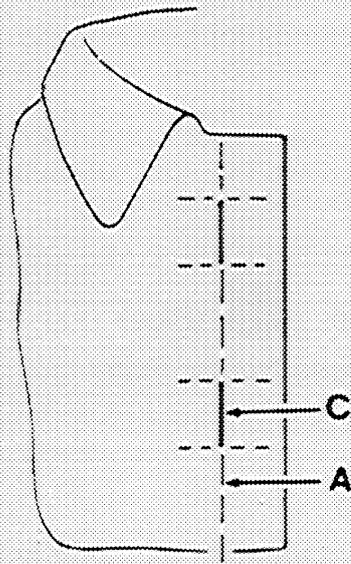
Vertical buttonholes **C** are placed so that the centre line **A** of the garment is in the centre of the buttonhole, as shown.

- Mark the ends of each buttonhole horizontally across the centre line basting and use the centre line marking as the buttonhole guide when stitching.

Buttonhole Length

- The buttonhole length should be just long enough to allow the button to slip through the opening without stretching it.
- To make sure the measurement is correct, cut a slit in a scrap of fabric equal to the diameter of the button you intend to use.
- Increase length of opening until button slips through easily.

This test is particularly advisable for buttons of unusual shape or thickness.



Four-Step Buttonholing

The four dial settings for buttonholing are located on the stitch length selector. As you turn the dial for each step, your machine is automatically set for the correct needle position, stitch width, and stitch length, as well as for stitching direction for that step. You need not turn the fabric during buttonholing.

-
- Pattern Group:  (Blue)
 - General Purpose Needle Plate
 - Buttonhole Foot
-

Preparation

- Prepare and mark your garment, as instructed on page 66
- Position work under needle, aligning centre marking of buttonhole with centre line on the foot. Align end marking of buttonhole with the horizontal lines on the foot.
- Set the buttonhole balance knob **K** in neutral position, as illustrated. The buttonhole balance knob, when turned slightly to the right or left, enables you to balance the stitch density of both sides of the buttonhole. Refer to the next page for information on balancing buttonhole stitch density.

Step 1: Side Stitching

Raise needle above the fabric and turn the buttonhole dial to step **1**. Position needle in fabric at point **A**. Lower the foot and stitch to end of buttonhole (point **B**). The end marking should be aligned with the horizontal lines on the foot.

Step 2: Bar Tack

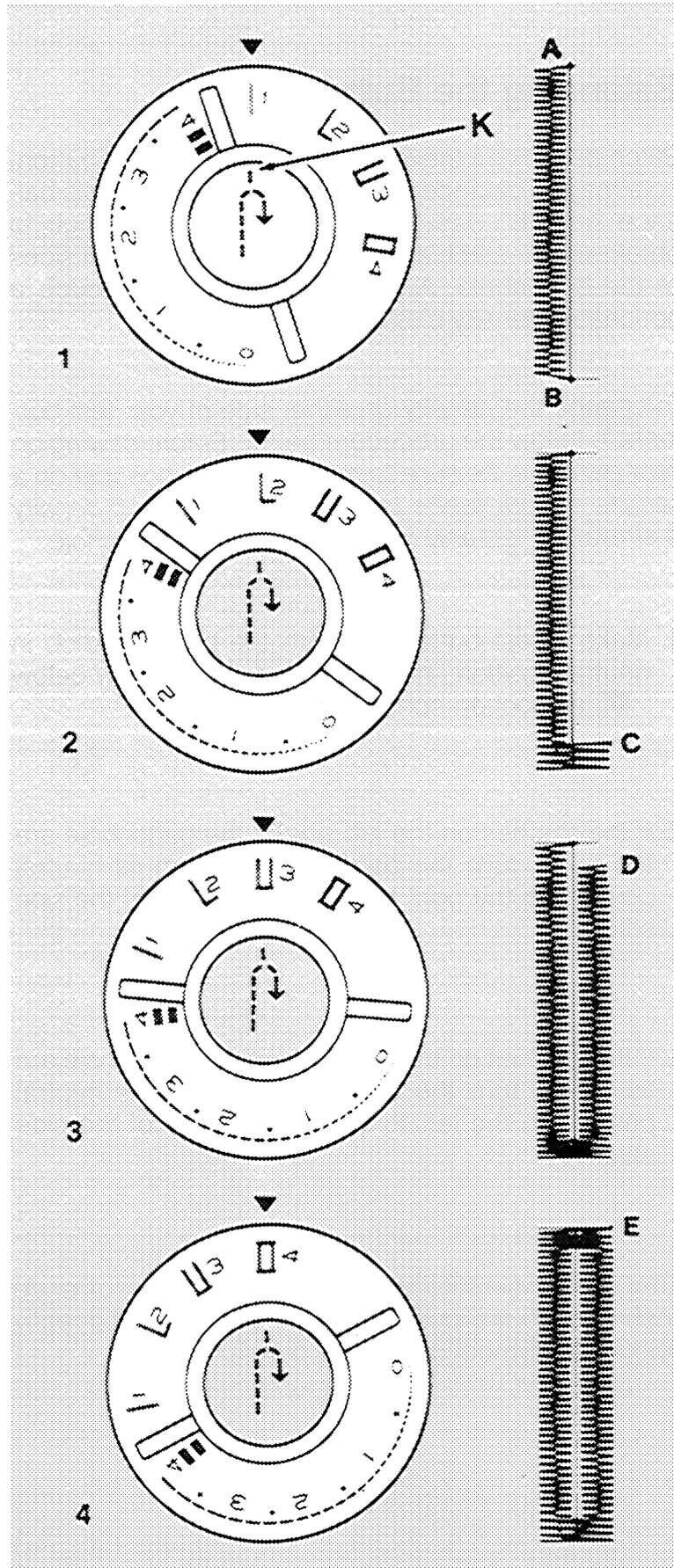
Raise the needle out of the fabric. Turn buttonhole dial to step **2** and take at least four stitches. Stop at point **C**.

Step 3: Side Stitching

Raise the needle out of the fabric. Turn buttonhole dial to step **3**. Complete work to point **D**. Raise needle.

Step 4: Bar Tack

Raise the needle out of the fabric and turn buttonhole dial to step **4**. Take at least four stitches ending at point **E**. For a smooth, satin appearance and greater durability, stitch around the buttonhole a second time by repeating the four-step sequence.



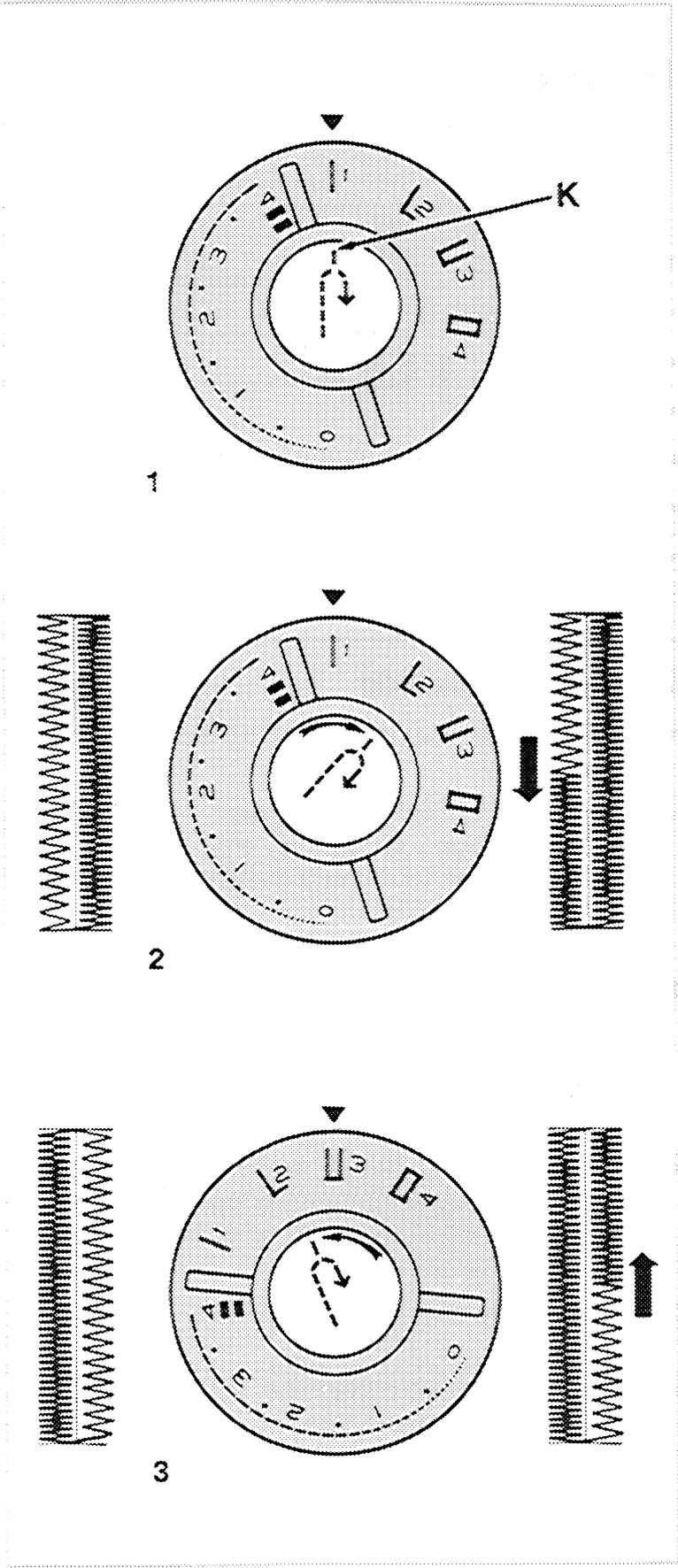
Balancing the Buttonhole

Stitch density on the left and right sides of the buttonhole may be balanced by adjusting the buttonhole balance knob **K**. Use the buttonhole balance knob to obtain similar stitch appearance on left and right sides of the buttonhole. A very slight turn will produce a noticeable density change.

To change the density on either side of your test buttonhole follow the procedure below. *Before sewing on your garment, be sure to make a test buttonhole on a sample of your fabric to check that the stitch density is similar on left and right sides of your buttonhole.*

1. Make a test buttonhole with the balance knob in neutral position (indicator line or dot directly below ▼ symbol on control panel).
2. If the stitches on the left side of the buttonhole are too open, turn the balance knob from its neutral position to the right to increase density of the side stitching.
3. If the stitches on the right side of the buttonhole are too open, turn the balance knob from its neutral position to the left to increase density of the side stitching.

After buttonhole stitching is completed, return balance knob to its neutral position (indicator line or dot directly below ▼ symbol on control panel).



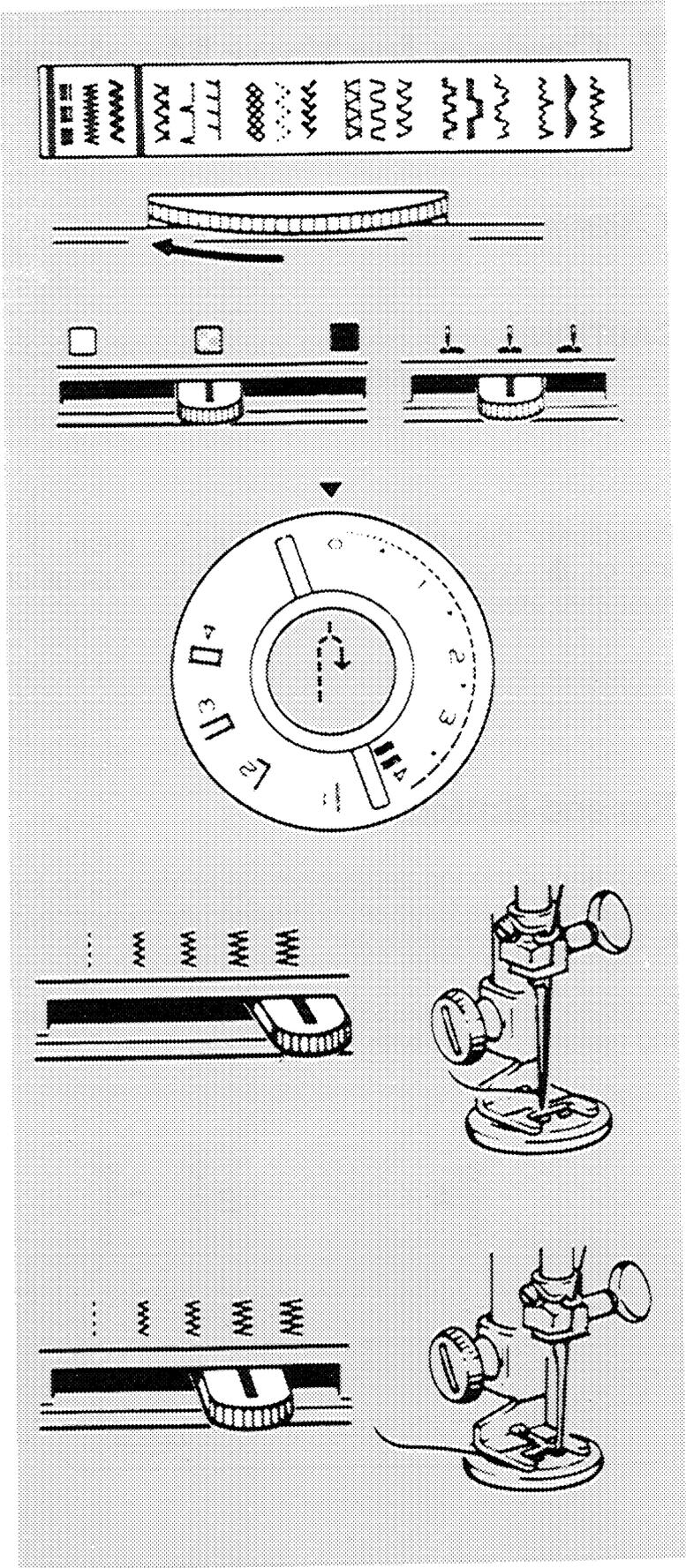
Buttons

Most flat buttons can be sewn quickly and easily using the zig-zag stitch.

- Pattern Group:  (Blue)
 - Needle Position: 
 - Stitch Width: 
 - Stitch Length: 0
 - General Purpose Needle Plate
 - Snap-in Feed Cover
 - Button Foot
-

Sewing on a Button

- Set your machine up according to the code above.
 - Mark position of button on garment. Place garment under foot. Align garment so that the button is directly under the foot. Lower the presser foot to grip button centrally.
1. Turn hand wheel very slowly toward you until needle point aligns with hole of the button. Adjust zig-zag stitch width, if necessary to permit clean entry of the needle.
 2. Continue turning hand wheel one complete revolution and observe that the needle point is properly positioned to enter the other hole.
-
- Take six to twelve stitches.
 - Remove garment from machine. Pull threads to underside of garment and trim



7. Caring for Your Machine

Cleaning the Machine

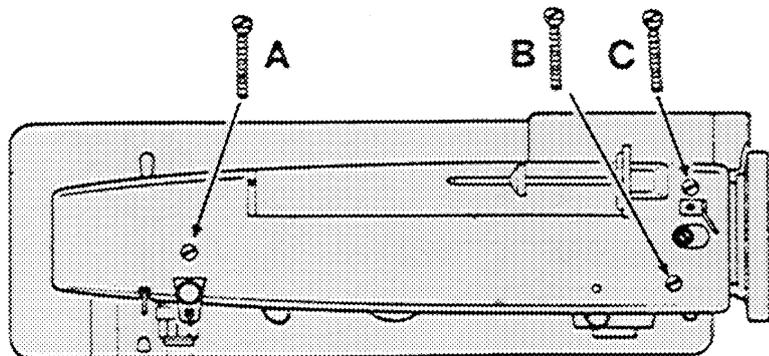
CAUTION: Before cleaning your machine, disconnect the power line plug from the socket outlet.

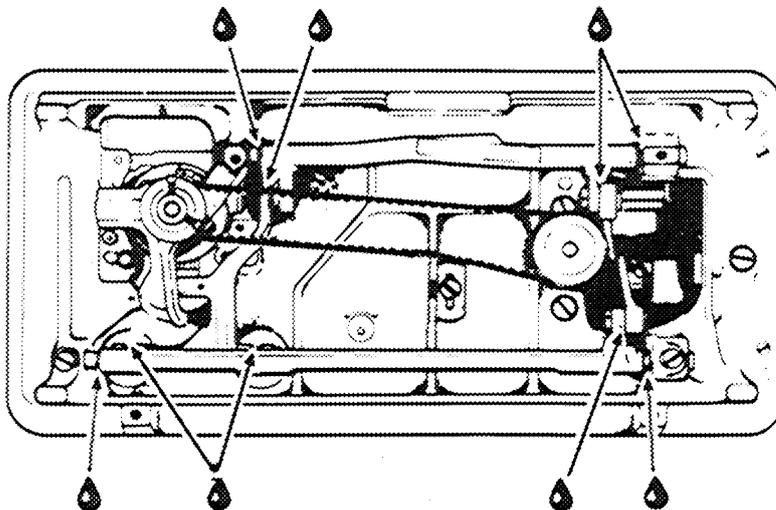
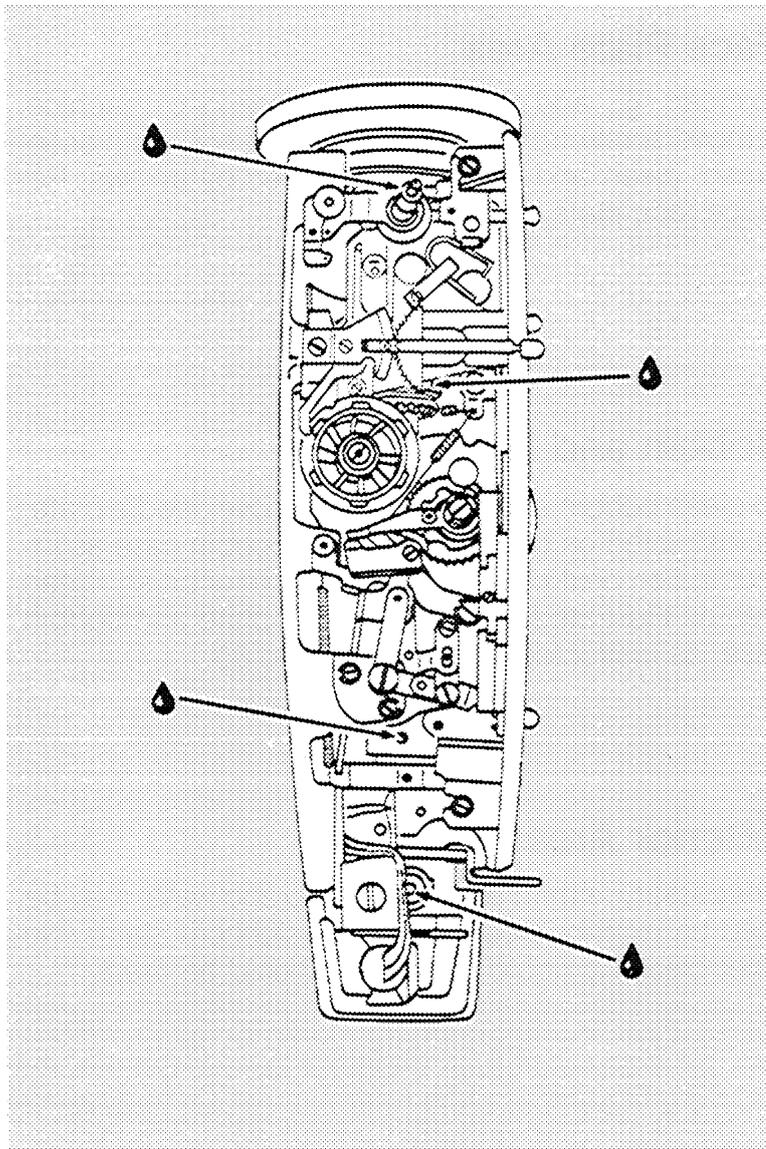
Periodically, depending on machine use, clean and oil your machine, using one drop of oil on illustrated areas.

Top and Bottom

Clean and oil the top and bottom areas marked on the illustration. Use a large screwdriver to remove screws **A**, **B** and **C** from top cover.

To replace the covers, simply line up the screwholes and replace screws with a large screwdriver.





Face Plate Area

To clean  and oil  the front interior of machine, remove screw from face plate. With a soft cloth or lint brush, clean and oil points indicated by arrows. Replace face plate and screw.

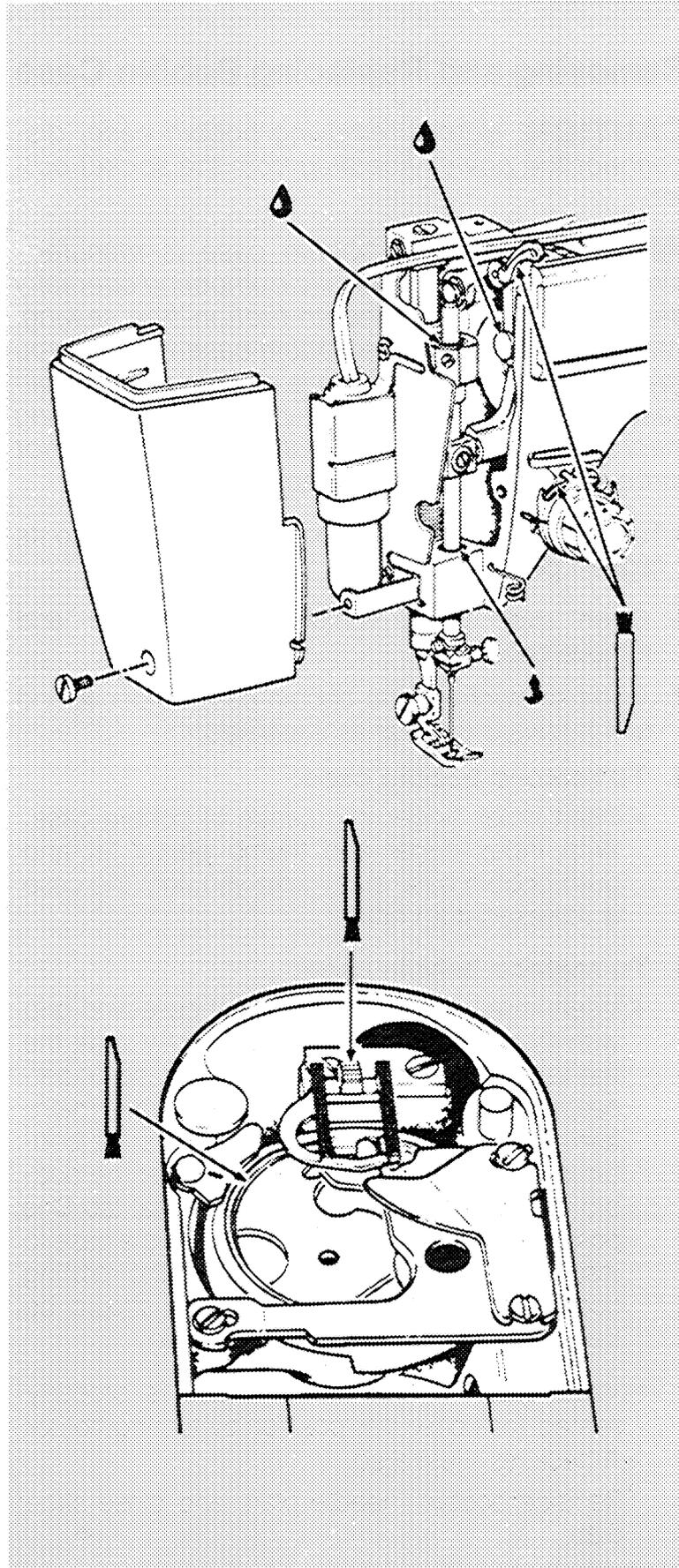
Bobbin and Feed Areas

To clean bobbin and feed areas, remove needle plate, as instructed on page 14 . Remove bobbin case as instructed on next page. Using soft cloth or brush, clean area as illustrated. Replace needle plate and bobbin case, as instructed on pages 14 and 80.

Exterior Areas

If necessary, a mild solution of soap and water may be used on exterior areas to remove stubborn stains. No other cleaning liquid or powder should be used.

CAUTION: *Do not attempt to adjust the motor belt. Contact your nearest Service Centre should any adjustment be required.*

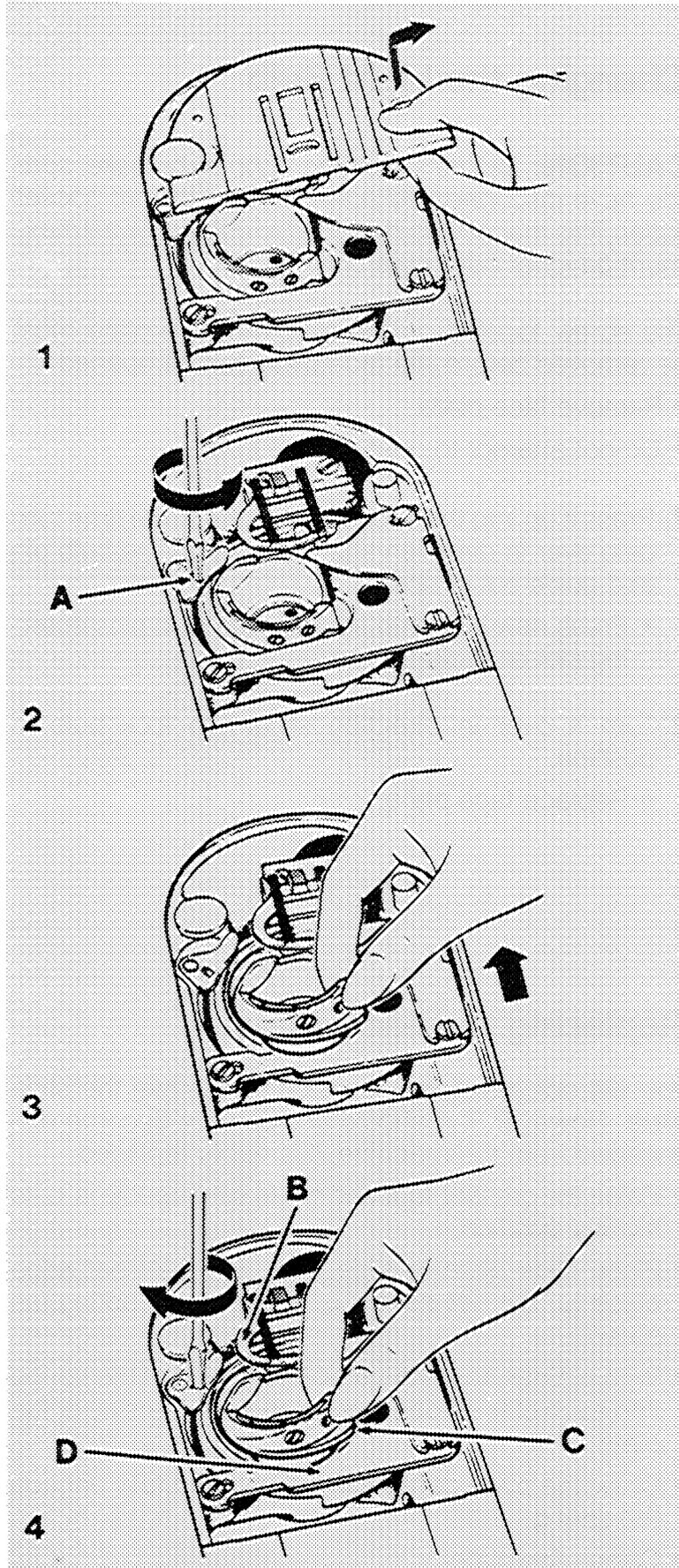


Removing and Replacing Bobbin Case

CAUTION: Before removing bobbin case, disconnect the power-line plug from the socket outlet.

IMPORTANT: The bobbin case is manufactured from a special phenolic compound specially designed to provide smooth friction-free sewing. With proper handling the bobbin case will give you years of reliable, trouble-free sewing. The bobbin case is the most important part of your sewing machine. Please handle with care and do not force when removing and replacing it.

- Turn hand wheel toward you to raise needle to its highest position.
1. Open slide plate, remove needle plate and remove bobbin.
 2. Insert screwdriver into bobbin case holder **A** and turn it toward the rear as illustrated.
 3. **To remove bobbin case:**
 - Insert index finger into centre of bobbin case. With index finger and thumb gently lift and push bobbin case away from you until the case is released from holder.
 4. **To replace bobbin case:**
 - Insert index finger into centre of case and grip with thumb above the screws. Gently slide the flat tab at the rear of the bobbin case underneath the curved section of feed **B** while maintaining *slight* upward pressure, then slide bobbin case all the way to the rear. Lower the bobbin case and draw it toward you so that tab **C** is positioned under plate **D**. Gently wiggle case to insure proper seating in the rim of the rotating hook. In this position bobbin case should be free to float slightly from side to side.
 - When you are sure bobbin case is properly seated lock case into position by turning holder **A** back, as illustrated.
Replace bobbin, needle plate and close slide plate.



Changing the Light Bulb

CAUTION: *Before changing light bulb make sure you have disconnected power line plug from socket outlet. This machine is designed to use a 15-watt maximum bayonet base bulb only.*

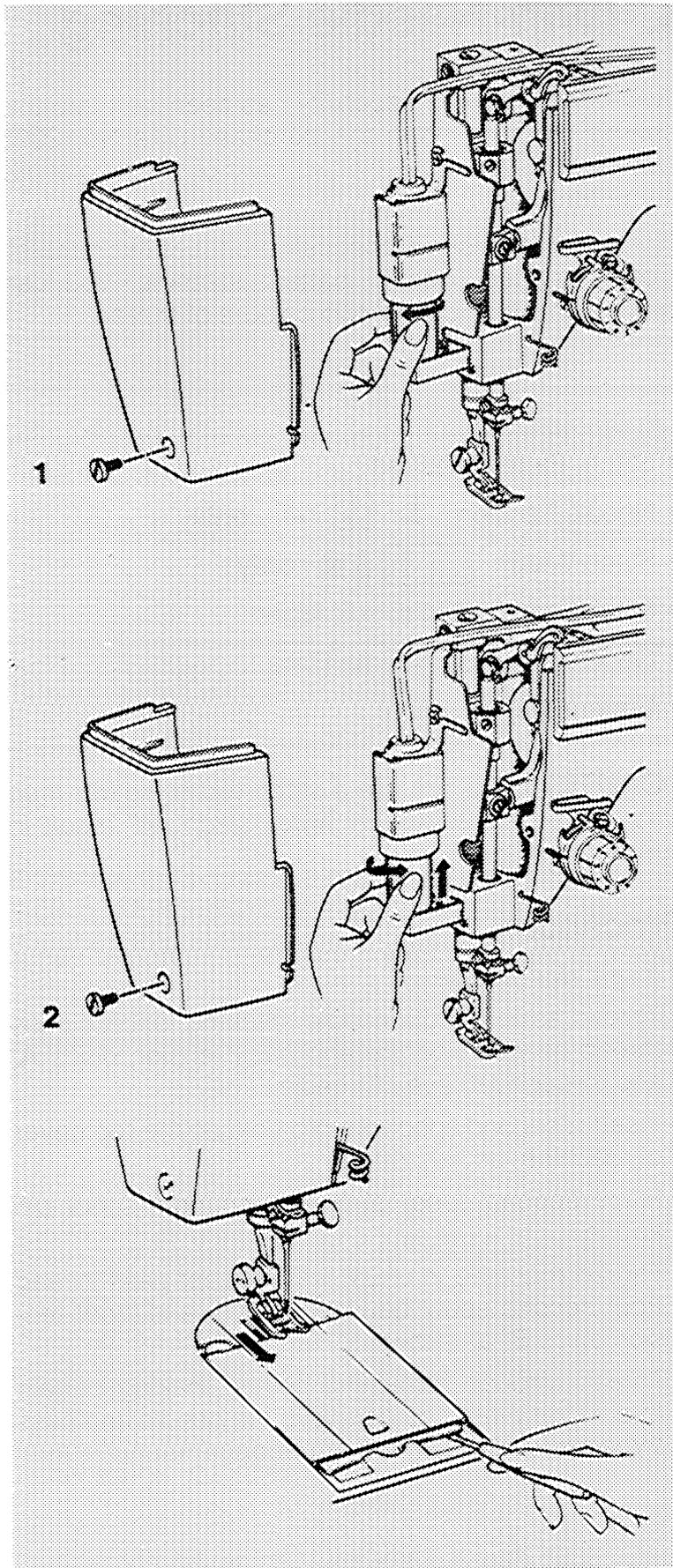
The screw located on the machine face plate must be removed before the face plate can be opened.

- Remove face plate.
 - Do not attempt to unscrew the bulb.
1. Press it up into the socket and at the same time turn bulb over in direction shown to unlock the bulb pin and guide out of socket.
 - Press new bulb into socket, with bulb pins entering slot of socket.
 2. Turn it over in direction shown to lock bulb in position.
 - Replace face plate.

Replacing the Slide Plate

You will not have any occasion to remove the slide plate. However, if it should accidentally become disengaged from the machine, it is easily replaced.

- Raise the presser foot and make sure needle is in its highest position.
- Place slide plate in slide way with the front edge close to, but not covering, the retaining spring (as shown).
- With a small screwdriver, lift each end of the spring into each of the side grooves on the underside of the plate.
- Draw the plate gently toward you and fully engage the spring.
- Close slide plate.



8. Twin-Needle Stitching

Twin-needle sewing capability has been built into this sewing machine. With the purchase of a No. 2025 twin-needle, you may sew two rows of stitching at the same time.

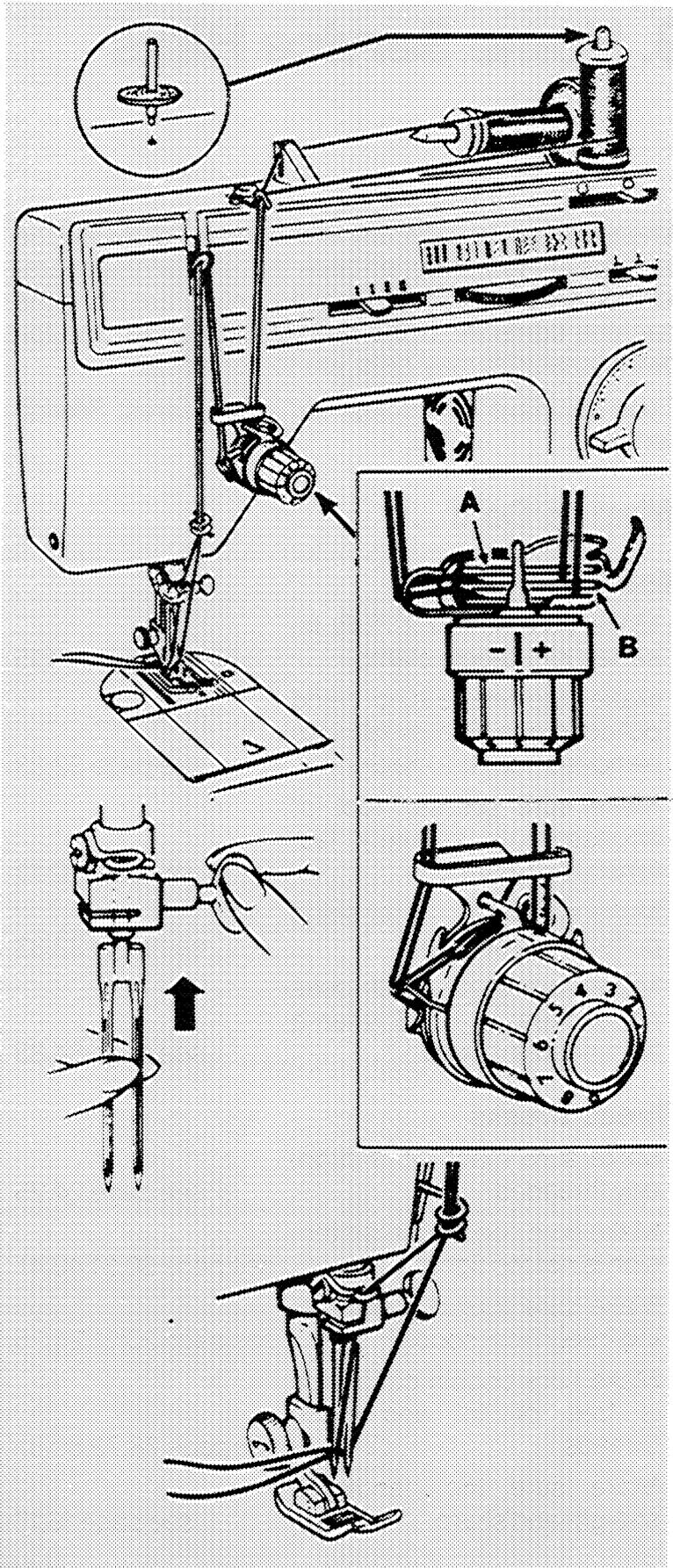
The twin-needle simultaneously produces two parallel, closely spaced lines of pattern stitching. You can stitch with either one or two colours of thread.

-
- Stitch: Pattern desired
 - Needle Position:  only
 - Stitch Width:  only†
 - Stitch Length: .5-4 to suit fabric
 - General Purpose Needle Plate
 - General Purpose Foot
-

†**CAUTION:** Do not use a stitch width greater than what is recommended. A wider stitch will result in needle breakage.

Procedure

- Insert twin-needle.
- Thread as for single-needle stitching, except pass thread between centre and back tension discs **A**, and through left eye of needle.
- Insert a second spool pin into hole on the top cover of machine, as illustrated.
- Place second spool of thread on right spool pin and felt.
- Thread machine in usual way, except pass thread from second spool between centre and front tension discs **B**, as shown.
- Thread through remaining points, making certain to omit the thread guide above the needle and pass thread through right eye of needle.



9. Home Service Hints

Whenever sewing difficulty is encountered, review the sections of the instruction book that explain the operation you are performing to make sure you are using the machine correctly. If the problem still exists, the following checklist may help you to correct it.

If you still have difficulties, call your nearest Sewing Centre.

What to Do If . . .

Needle Breaks

- Make sure needle is fully inserted into needle clamp see page 14,15
- Make sure needle is not being pulled to one side as fabric is removed from the machine see page 32,33
- Make sure presser foot or accessory is securely fastened to presser bar see page 12,13
- Make sure fabric is not being pulled while sewing see page 32,33
- Make sure stitch width does not exceed   when a twin-needle is used see page 84,85

Thread Breaks

- Make sure machine is properly threaded see page 24,25
- Make sure needle-thread tension is not too tight see page 30,31,40,41
- Make sure thread is unwinding freely from spool see page 20,21,24,25
- Make sure bobbin case area is free of lint and loose threads see page 78,79,80,81
- Make sure the needle is straight and sharp see page 16,17

Fabric Does Not Feed Properly

- Make sure presser foot is correctly attached to machine see page 12,13
- Make sure stitch length dial is correctly set see page 28,29,40,41
- Make sure lint has not accumulated around feed see page 78,79

Skipped Stitches

- Make sure needle is correct style for machine and size for thread see page 16,17
- Make sure machine is correctly threaded see page 24,25
- Make sure needle is securely fastened to needle bar see page 14,15
- Make sure the needle is neither bent nor damaged see page 16,17

Fabric Puckers

- Make sure needle-thread tension is not too tight see page 30,31,40,41

Needle Thread Breaks While Winding Bobbin

- Make sure machine is correctly threaded see page 20,21
- Make sure thread is unwinding freely from spool see page 20,21

Index

Accessories	6,7,8,9
Applique	42,43
Bobbin	6,7,20,21
Winding	20,21
Bobbin Case	22,23
Removing	80,81
Threading	22,23
Bobbin Thread	20,21,22,23,26,27
Raising	26,27
Buttons	74,75
Buttonholes	66-73
Position	66-69
Procedure	70-73
Caring for Your Machine	76-83
Cleaning the Machine	76-79
Connecting the Machine	18-19
Construction Stitches	56-57
Darning	34,35
Decorative Stitching	62,63
Fabric, Thread and Needle Table	16-17
Feed Cover	8,9,14,15
Attaching and Removing	14,15
Finishes, Hems and Facing	56,57
Handwheel	4,5
Light Bulb	82,83
Monograms	64,65
Needle	6,7,14-17,24,25,30,31,38,41
Changing	14,15
Position	38,39
Thread Tension	30,31,40,41
Threading	24,25
Needle Plates	6,7,8,9,14,15
Changing Plates	14,15
General Purpose	8,9
Straight Stitch	6,7
Operating the Machine	18,19
Oiling the Machine	76,79
Presser Feet	6-13
Changing Feet	10,11,12,13
Presser Foot Lifter	4,5
Principal Parts	4,5
Quilting	34,35,60,61
Reverse Stitching	28,29,32,33
Satin Stitching	40,41
Seams	32,33,54,55
Seam Finishes	44,45
Speed Controller	4,5,18,19
Stitch Balance Control	48,49
Stitch Length	4,5,28,29,38,39,40,41,48,49
Stitch Pattern Groups	48,49
Stitch Pattern Selectors	46,47
Stitch Pattern Group Selector	46,47
Stitch Width	4,5,38,39
Straight Stitching	28,29
Stretch Fabrics, Adjusting Stitches	50,51
Take-up Lever	4,5
Threading the Machine	24,25
Twin-Needle Stitching	84,85
Zig-Zag Stitching	38