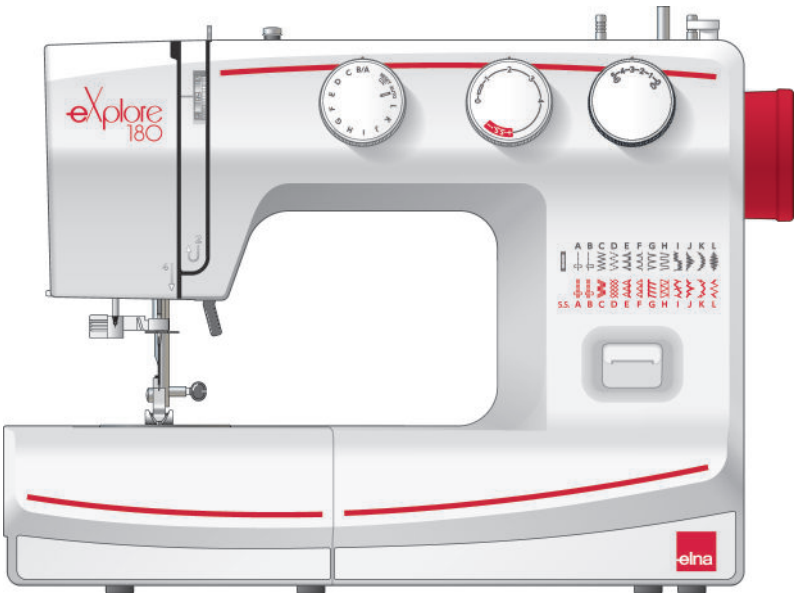
elna
SWISS DESIGN

eXplore 180

| Instruction Manual |



IMPORTANT SAFETY INSTRUCTIONS

When using an electrical appliance, basic safety precautions should always be followed, including the following:
This sewing machine is designed and manufactured for household use only.
Read all instructions before using this sewing machine.

DANGER— To reduce the risk of electric shock:

1. An appliance should never be left unattended when plugged in. Always unplug this sewing machine from the electric outlet immediately after using and before cleaning.

WARNING— To reduce the risk of burns, fire, electric shock, or injury to persons:

1. Do not allow to be used as a toy. Close attention is necessary when this sewing machine is used by or near children.
2. Use this appliance only for its intended use as described in this owner's manual.
   Use only attachments recommended by the manufacturer as contained in this owner's manual.
3. Never operate this sewing machine if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or dropped into water. Return this sewing machine to the nearest authorized dealer or service center for examination, repair, electrical or mechanical adjustment.
4. Never operate the appliance with any air opening blocked. Keep ventilation openings of this sewing machine and foot controller free from accumulation of lint, dust and loose cloth.
5. Never drop or insert any object into any opening.
6. Do not use outdoors.
7. Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
8. To disconnect, turn all controls to the off ("O") position, then remove plug from outlet.
9. Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.
10. Keep fingers away from all moving parts. Special care is required around the sewing machine needle and/or cutting blade.
11. Always use the proper needle plate. The wrong plate can cause the needle to break.
12. Do not use bent needles.
13. Do not pull or push fabric while stitching. It may deflect the needle causing it to break.
14. Switch this sewing machine off ("O") when making any adjustment in the needle area, such as threading the needle, changing the needle, threading the bobbin or changing the presser foot, and the like.
15. Always unplug this sewing machine from the electrical outlet when removing covers, lubricating, or when making any other adjustments mentioned in this owner's manual.

SAVE THESE INSTRUCTIONS

For Europe only:
This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

For outside Europe (except U.S.A.):
This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.



Please note that on disposal, this product must be safely recycled in accordance with relevant National legislation relating to electrical/electronic products. If in doubt please contact your retailer for guidance. (EEA (European Economic Area) and UK)

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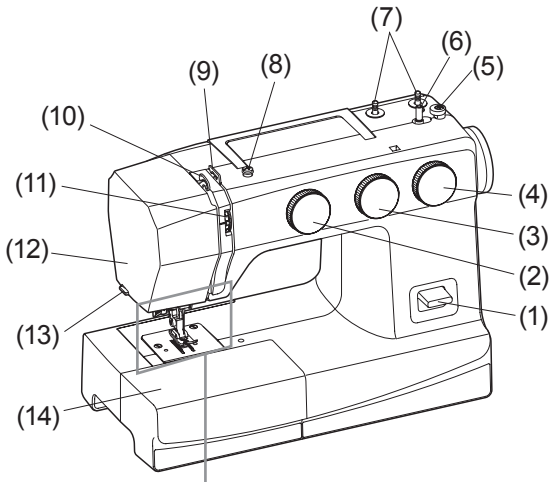
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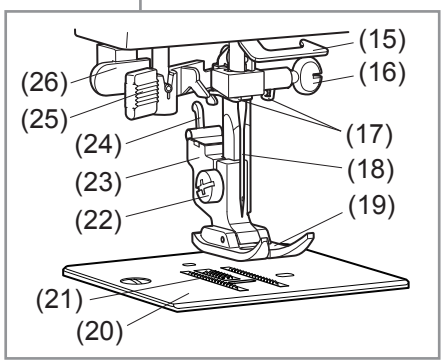
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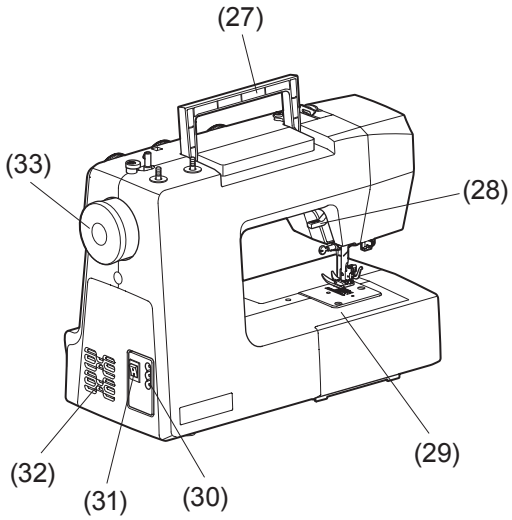
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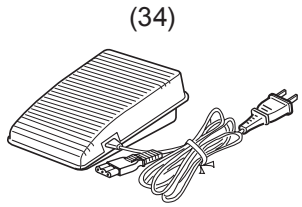
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ESSENTIAL PARTS

Part Names

(1) Reverse stitch lever
(2) Pattern selector dial
(3) Stitch length dial
(4) Stitch width dial
(5) Bobbin winder stopper
(6) Bobbin winder spindle
(7) Spool pin
(8) Bobbin winder thread guide
(9) Thread guide
(10) Thread take-up lever
(11) Thread tension dial
(12) Face cover
(13) Thread cutter
(14) Extension table (Accessory box)

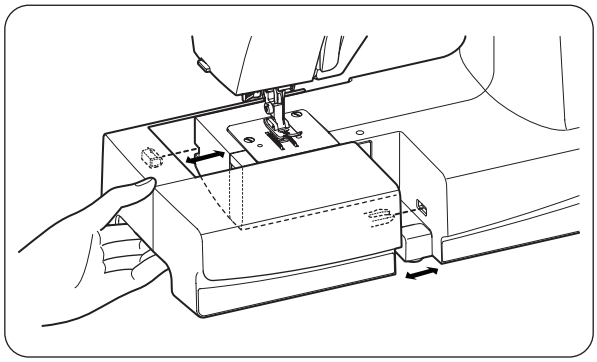
(15) Lower thread guide
(16) Needle clamp screw
(17) Needle bar thread guide
(18) Needle
(19) Presser foot (Zigzag foot)
(20) Needle plate
(21) Feed dogs
(22) Thumbscrew
(23) Foot holder
(24) Lever
(25) Needle threader
(26) Buttonhole lever

(27) Carrying handle
(28) Presser foot lifter
(29) Free-arm
(30) Machine socket
(31) Power switch
(32) Ventilation openings
(33) Handwheel
(34) Foot control*

*The power supply cable attached to the foot control may differ from the illustration.

NOTE:
To carry the sewing machine, hold the carrying handle with one hand, and support the sewing machine with the other hand.

NOTE:
Sewing machine design and specifications are subject to change without prior notice.



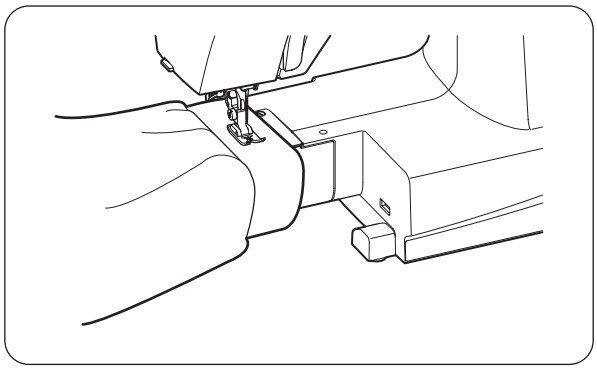
GETTING READY TO SEW

Extension Table

The extension table provides added sewing surface and can be easily removed for free arm sewing.

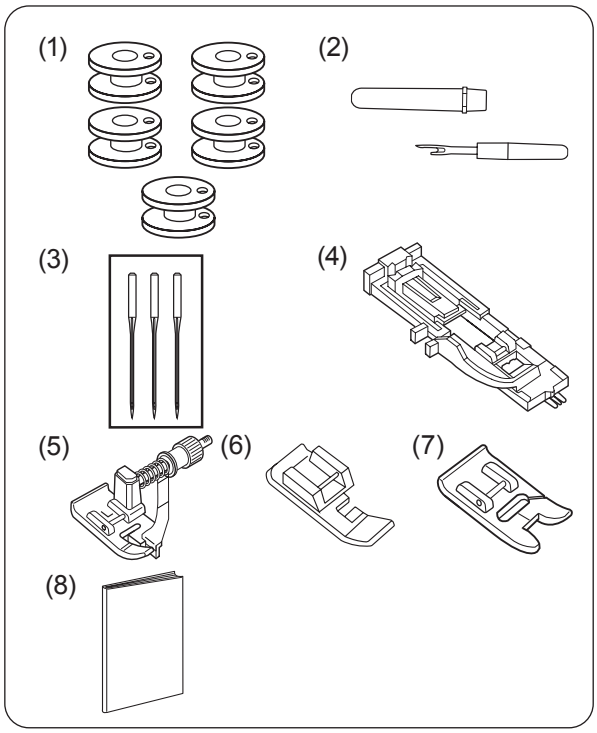
Detaching the table:

Pull the table away from the machine.



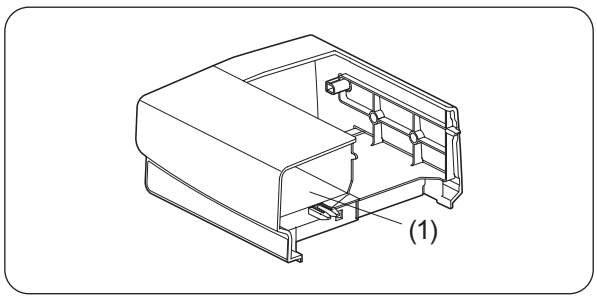
Free Arm Sewing

Avoid fabric bunching around the needle when bartacking to reinforce pockets, plackets and waistlines.
For stitching sleeves, waistbands, pant legs or any circular garment.
For darning socks or mending knees, elbows or areas of wear in children's clothes.



Standard Accessories

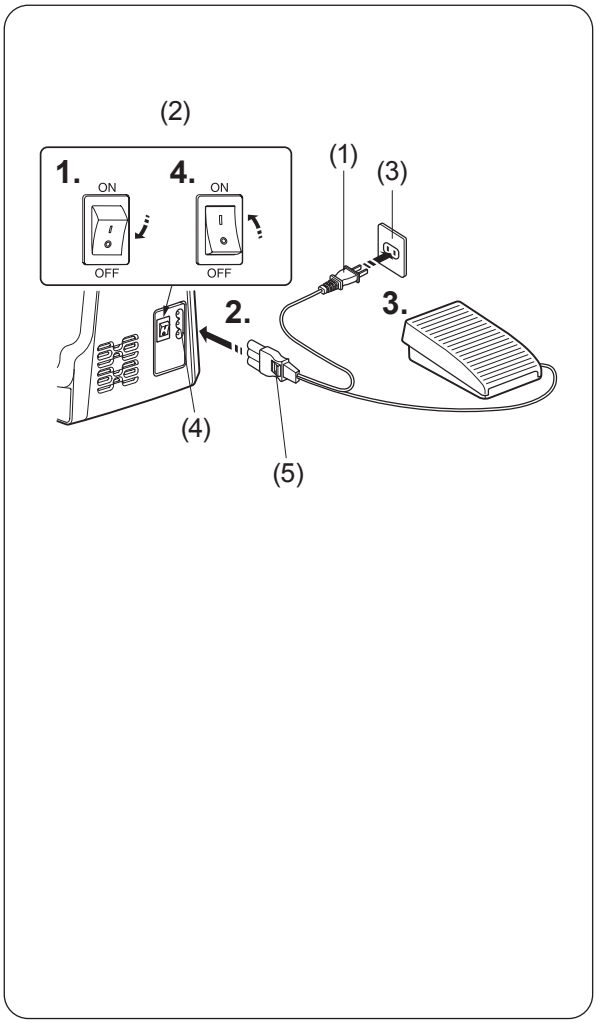
No.	Part Name	Part No.
1	Bobbins x5 (1 is set on the machine)	102261000
2	Seam ripper / Buttonhole opener	647808009
3	Needle set	639804000
4	Automatic buttonhole foot R	740801004
5	Blind hem foot L	743817002
6	Zipper foot	611406002
7	Satin stitch foot	743816001
8	Instruction book	316800176



Accessory Storage Box

Sewing accessories are conveniently located in the extension table.

(1) Accessory storage box



Operating Instructions (for the U.S.A. and Canada only)

This appliance has a polarized plug (one blade wider than the other). To reduce the risk of an electric shock, this plug is intended to fit in a polarized outlet only one way. If the plug does not fit in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install the proper outlet. Do not modify the plug in any way. Foot Controller Model KD-2902 is used with this machine.

Connecting the Machine to the Power Supply

1. Turn the power switch OFF.
2. Insert the machine plug into the machine socket.
3. Insert the power supply plug into the power outlet.
4. Turn on the power switch to turn on the power and sewing light.

(1) Power supply plug
(2) Power switch
(3) Power outlet
(4) Machine socket
(5) Machine plug

⚠ CAUTION:

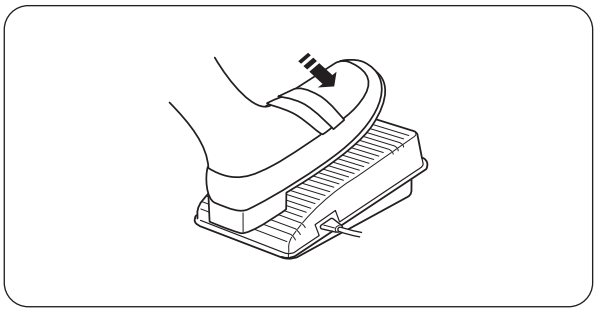
Before connecting the power cord, make sure the voltage and frequency shown on the machine conform to your power supply system.

NOTE:

- The foot control and power supply plug included in this machine may differ from the illustration.
- While in operation, always keep your eyes on the sewing area, and do not touch any moving parts such as the thread take-up lever, handwheel or needle.
- Always turn off the power switch and unplug from the power supply:
  – when leaving the machine unattended.
  – when attaching or removing parts.
  – when cleaning the machine.
- Do not place anything on the foot control, otherwise the machine will run inadvertently.

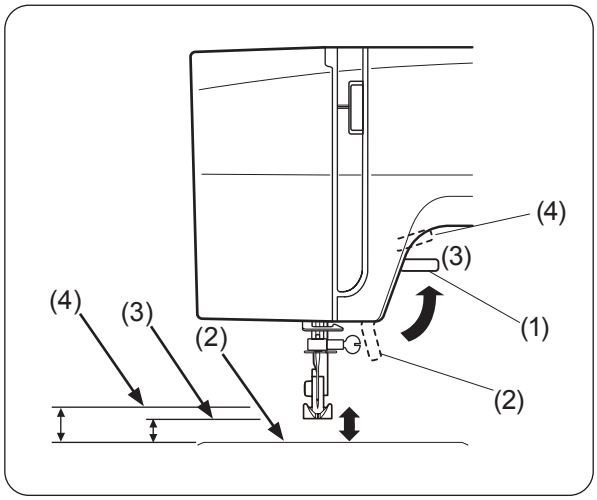
Before using your sewing machine

Before using your sewing machine for the first time, place a scrap of fabric under the presser foot and run the machine for a few minutes. Wipe away any oil which may appear.



Controlling Sewing Speed

Sewing speed can be varied by the foot control. The further you press down on the foot control, the faster the machine runs.

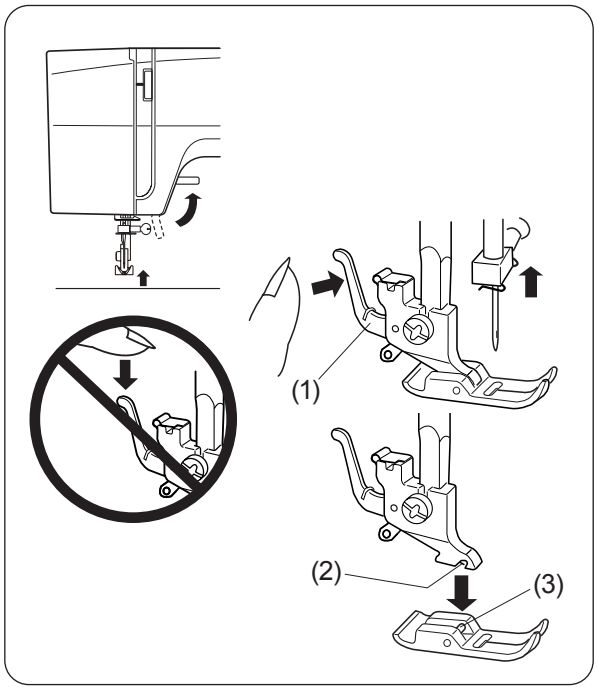


Presser Foot Lifter

The presser foot lifter raises and lowers your presser foot.

You can raise it about 0.6 cm (1/4″) higher than the normal up position for easy removal of the presser foot or to help you to place heavy fabric under the foot.

(1) Presser foot lifter
(2) Down position
(3) Up position
(4) Extra lifted position



Replacing the Presser Foot

Removing the presser foot

Turn the handwheel toward you to raise the needle to its highest position. Raise the presser foot. Press the lever on the back of the foot holder.
The presser foot will drop off.

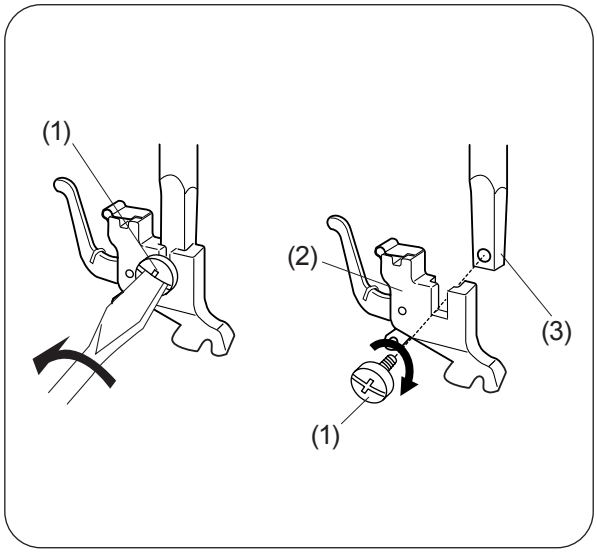
(1) Lever

> **⚠ CAUTION:**
> Turn the power switch OFF when changing the presser foot.

Attaching the presser foot

Place the presser foot so the pin on the foot lines up just under the groove of the foot holder.
Lower the foot holder to lock the foot in place.

(2) Groove
(3) Pin



Removing and Attaching the Foot Holder

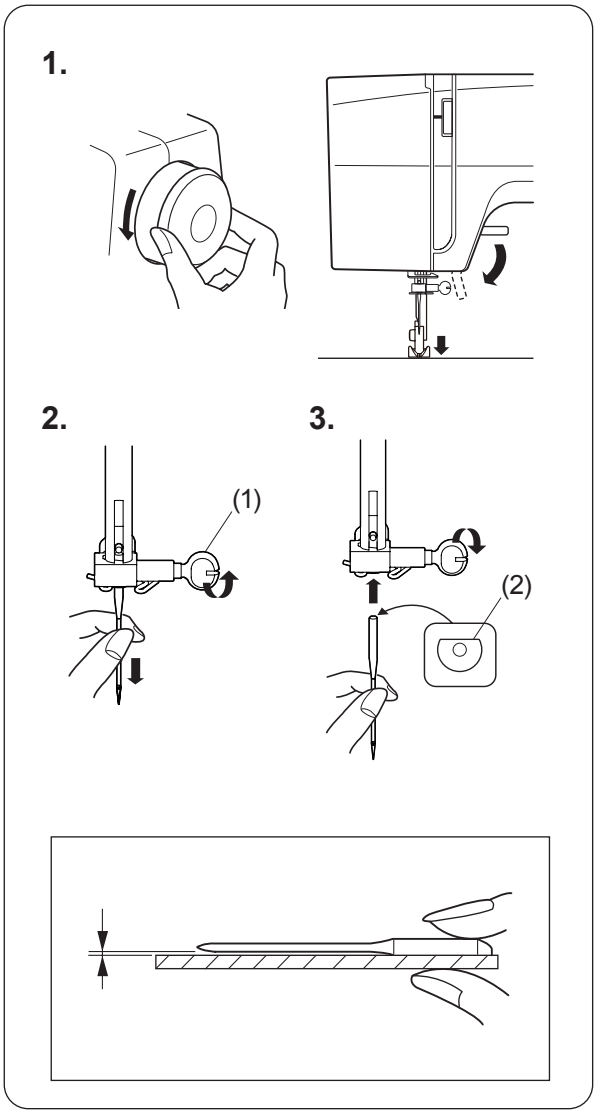
(1) Thumbscrew
(2) Foot holder
(3) Presser bar

Removing the foot holder

Remove the thumbscrew by turning it counterclockwise with a screwdriver.

Attaching the foot holder

Match the hole in the foot holder with the threaded hole in the presser bar. Fit the thumbscrew into the hole. Tighten the thumbscrew by turning it clockwise with a screwdriver.



Changing the Needle

1. Raise the needle by turning the handwheel toward you and lower the presser foot.

2. Loosen the needle clamp screw by turning it counterclockwise.
   (1) Needle clamp screw

   Remove the needle from the clamp.

3. Insert the new needle into the clamp with the flat side away from you.
   (2) Flat side

   When inserting the needle into the clamp, push it up as far as it will go and tighten the clamp screw firmly with a screwdriver.

To check the needle

Place the flat side of the needle on something flat (needle plate, glass etc.). The clearance between the needle and flat surface should be consistent. Never use a bent or blunt needle.

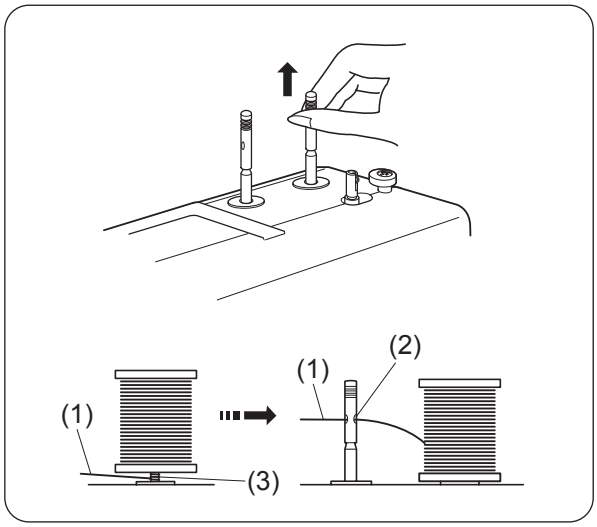
Fabric		Thread	Needle
Fine	Lawn Georgette Tricot Organza Crepe	Cotton #80-100 Synthetic #80-100	#9/65-11/75
Medium	Sheeting Jersey Broadcloth Fleece	Cotton #50-80 Synthetic #50-80	#11/75-14/90
Heavy	Denim Tweed Coating Quilting	Cotton #40-50 Synthetic #40-50	#14/90-16/100

NOTE:
3 x #14/90 needles are included in an envelop. (Part No. 639804000).

Fabric, Thread and Needle Chart

- For general sewing, use needle size 11/75 or 14/90.
- A fine thread and needle should be used for sewing fine fabrics, so the fabric will not be marred.
- Heavy fabrics require a needle large enough to pierce the fabric without fraying the needle thread.
- Always test the needle size on a small scrap of the fabric that will be used for actual sewing.
- In general, use the same thread for the needle and bobbin.

NOTE:
When sewing stretch fabrics, very fine fabrics and synthetics, use a blue tip needle (Part No. 990311000, sold separately). The blue tip needle effectively prevents skipped stitches.



Setting Spool Pins

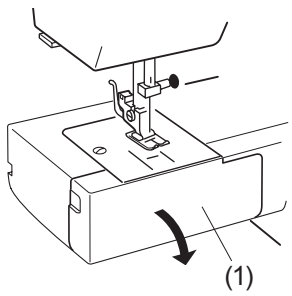
The spool pins are used for holding the spool of thread in order to feed thread to the machine. To use, pull up the spool pin. Push down for storage.

NOTE:
When using thread which has tendency to tangle around spool pin, thread through the hole of spool pin as shown. The hole should face the thread spool.

(1) Upper thread
(2) Hole
(3) Tangle

Removing or Inserting the Bobbin Case

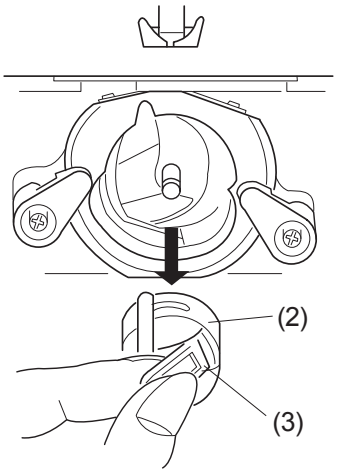
1.



1. Open the hook cover.

(1) Hook cover

2.

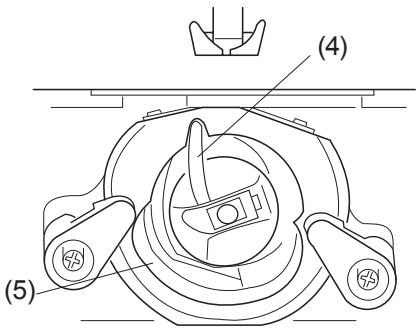


2. Raise the needle by turning the handwheel toward you.

Take out the bobbin case by holding the latch.

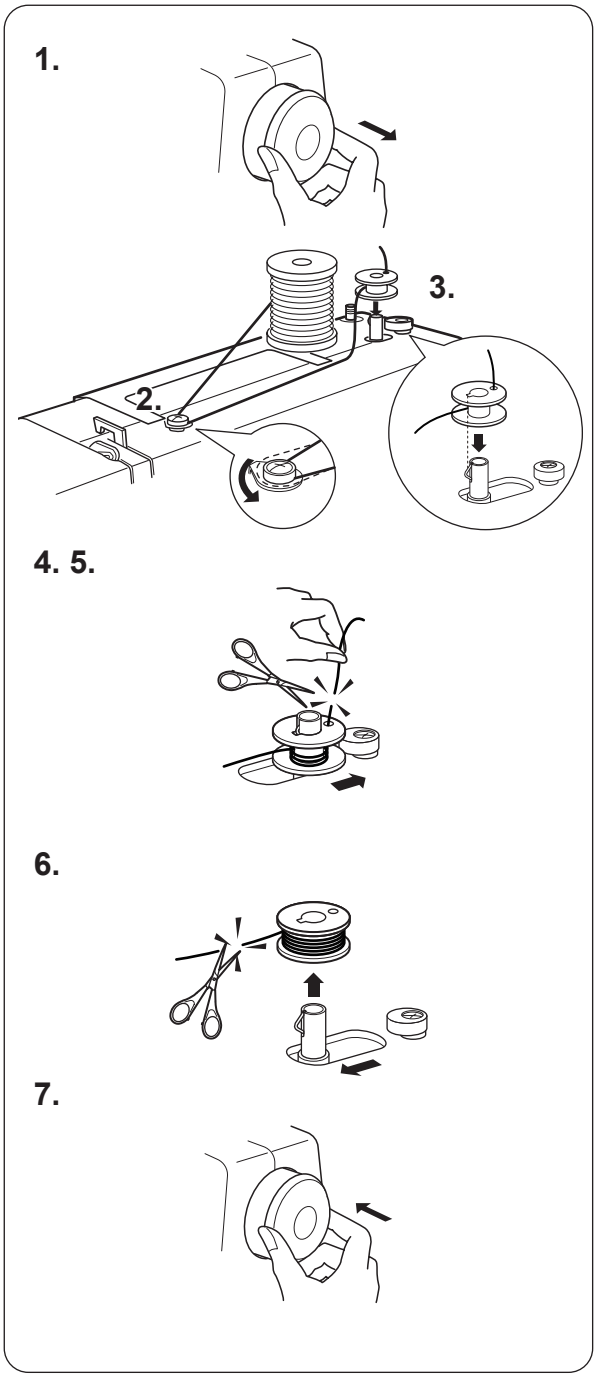
(2) Bobbin case
(3) Latch

3.



3. When inserting the bobbin case, place the horn into the recess of the shuttle race.

(4) Horn
(5) Shuttle race



Winding the Bobbin

1. Pull the handwheel out.
2. Draw the thread from the spool.

   Guide the thread around the bobbin winder thread guide.
3. Insert the thread through the hole in the bobbin from the inside to the outside.

   Put the bobbin on the bobbin winder spindle. Be sure that the bobbin snaps into place.
4. Push it to the right.
5. With the free end of the thread held in your hand, depress the foot control.

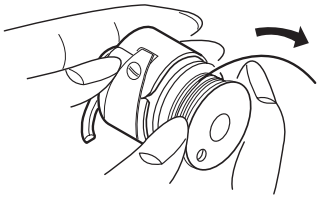
   Stop the machine when it has made a few turns, and cut the thread close to the hole in the bobbin.
6. Depress the foot control again.

   When the bobbin is fully wound, stop the machine.

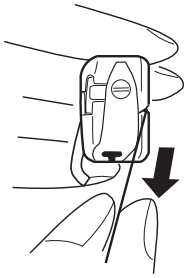
   Return the bobbin winder spindle to its original position by moving the spindle to the left, and cut the thread.
7. Push the handwheel back into the original position.

NOTE:
Return the bobbin winder spindle when the machine stops.

1.



2.



3.



Threading Bobbin Case

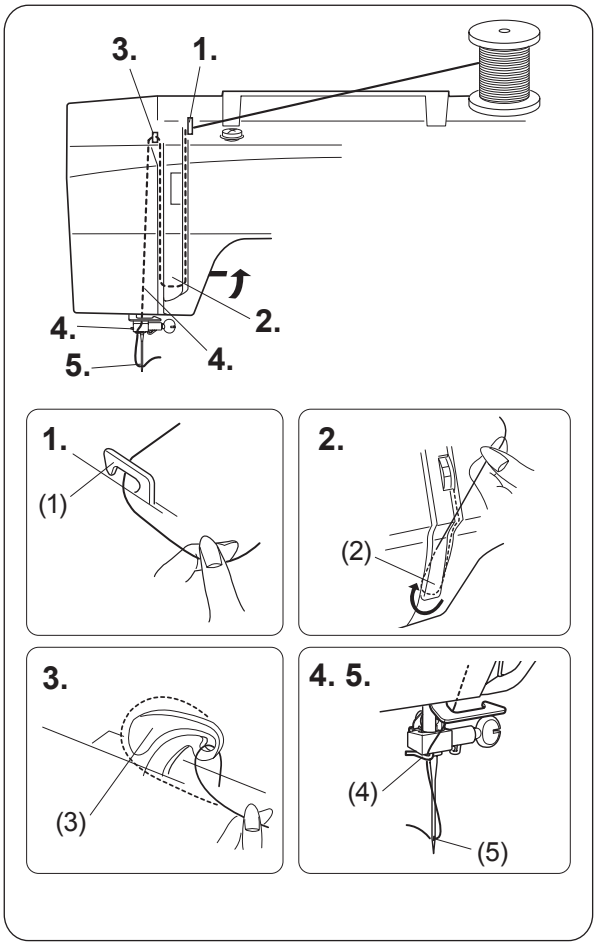
1. Place the bobbin into the bobbin case.

Make sure the thread unwinds in the direction of the arrow.

2. Pull the thread into the bobbin case slot.

3. Draw the thread under the tension spring and into the delivery eye.

*Leave about 10 cm (4″) of free thread.

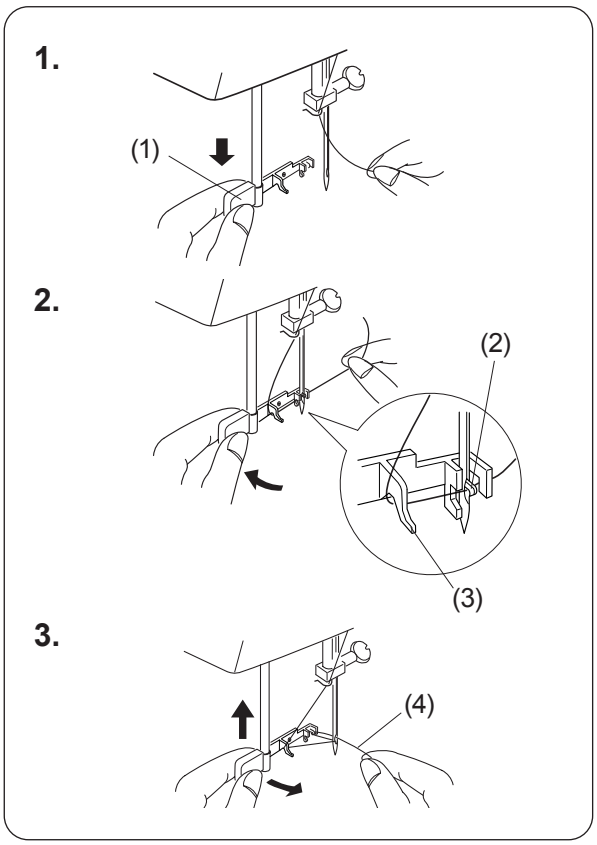


Threading the Machine

Raise the take-up lever to its highest position by turning the handwheel toward you.
Raise the presser foot.
Place a spool on the spool pin as shown, with thread coming from back of the spool.

1. Draw the thread into the thread guide using both hands.
   (1) Thread guide
2. While holding the thread near the spool, draw the thread down into the tension area and then around the bottom of the thread guide plate.
   (2) Thread guide plate.
3. Firmly draw the thread up and through the thread take-up lever from right to left.
   (3) Thread take-up lever
4. Then draw the thread down and slip it into needle bar thread guide on the left.
   (4) Needle bar thread guide
5. Thread the needle eye from front to back.
   (5) Needle eye

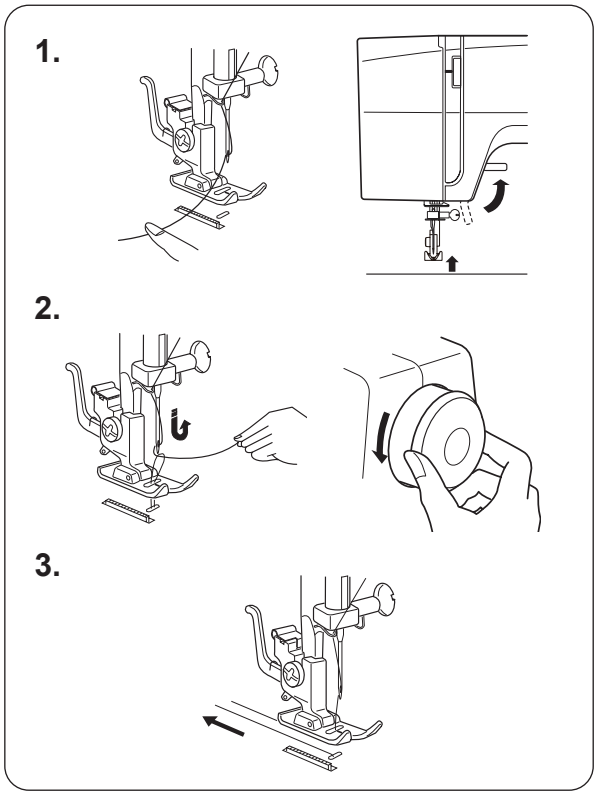
NOTE:
Cut the thread end with sharp scissors for easier needle threading.



Needle threader

1. Turn the handwheel toward you to raise the needle to its highest position.
   Pull down the needle threader knob as far as it will go.
2. Turn the knob away from you so the hook comes out through the needle eye from behind.
   Paying close attention to the needle point, draw the thread around the guide and under the hook.
3. Turn the knob toward you to pull the thread through the needle eye. Release the knob slowly while holding the thread end with your hand. A loop of the thread is pulled up through the needle eye.
   (1) Knob
   (2) Hook
   (3) Guide
   (4) Thread end

NOTE:
The needle threader can be used with a #11 to #16 needle, or a #11 Blue tipped needle.
Thread sizes 50 to 90 are recommended.



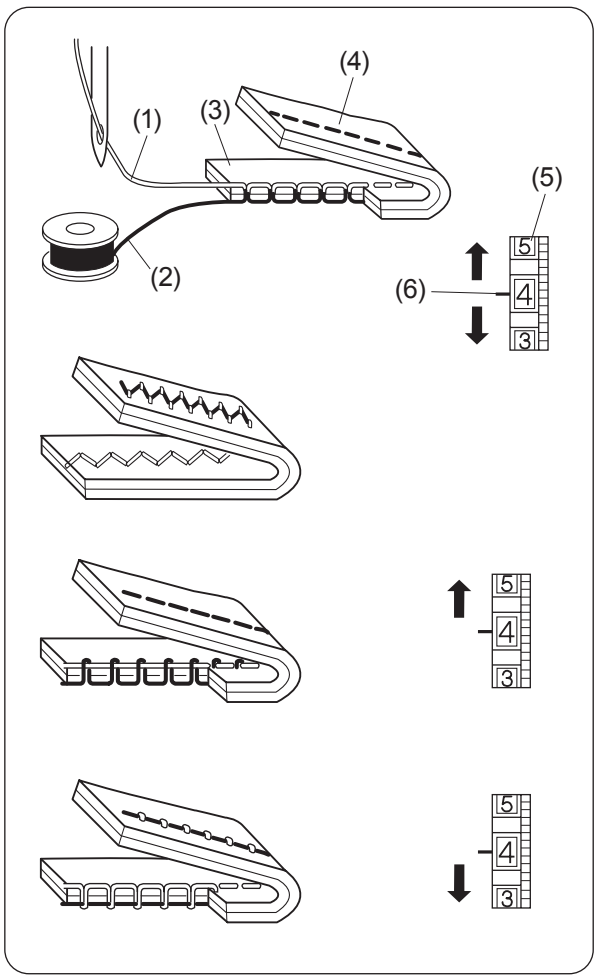
Drawing Up Bobbin Thread

1. Raise the presser foot and hold the needle thread lightly with your left hand.

2. Turn the handwheel slowly toward you with your right hand until the needle goes down and continue turning the handwheel until the take-up lever is at its highest position.

Lightly draw up the needle thread forming a loop of the bobbin thread.

3. Pull 10 cm (4″) of both threads back and under the presser foot.



Thread Tension Dial

Correct tension

The thread tension is adjusted depending on the sewing materials, layers of fabric and sewing method.

For an ideal zigzag stitch, the bobbin thread does not show on the right side (top side) of the fabric, and the needle thread shows slightly on the wrong side (bottom side) of the fabric.

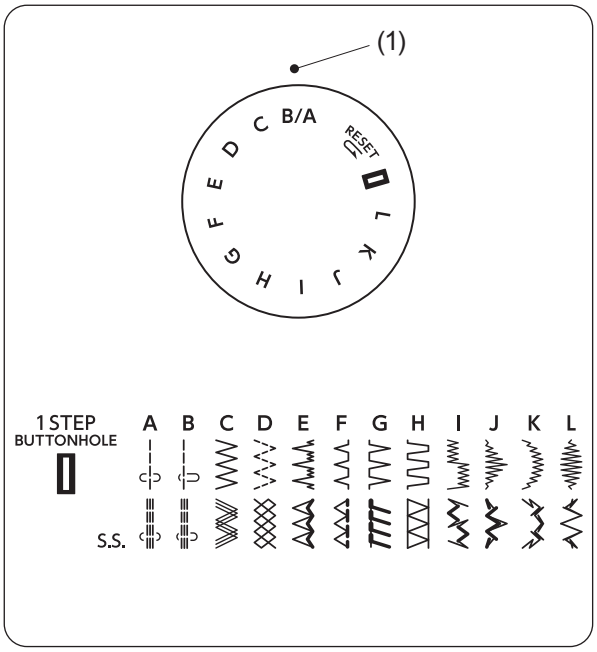
(1) Needle thread (Top thread)
(2) Bobbin thread (Bottom thread)
(3) Right side (Top side) of fabric
(4) Wrong side (Bottom side) of fabric
(5) Thread tension dial
(6) Setting mark

Needle thread tension is too tight

When the bobbin thread (bottom thread) appears on the right side (top side) of the fabric, loosen the needle thread tension by moving the dial to a lower number.

Needle thread tension is too loose

When the needle thread (top thread) appears on the wrong side (bottom side) of the fabric, tighten the needle thread tension by moving the dial to a higher number.



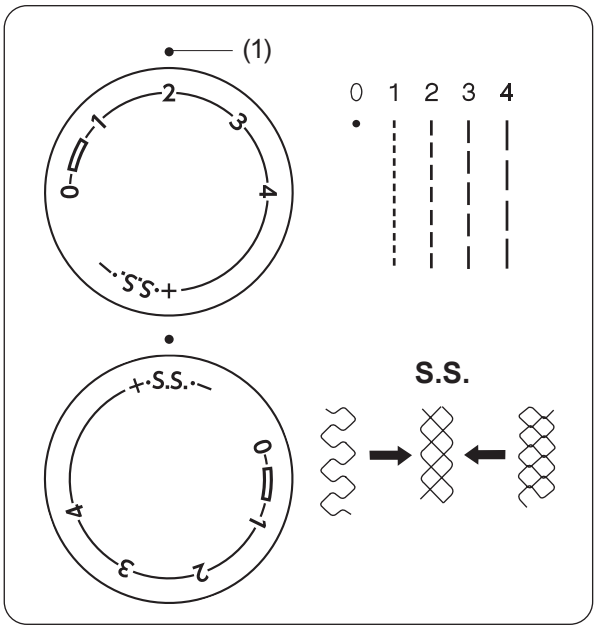
Stitch Selector Dial

Turn the stitch selector dial to set the setting mark with the symbol corresponding to the desired pattern.

(1) Setting mark

⚠ CAUTION:

To avoid needle or fabric damage, make sure the needle is up and out of the fabric when selecting a stitch.

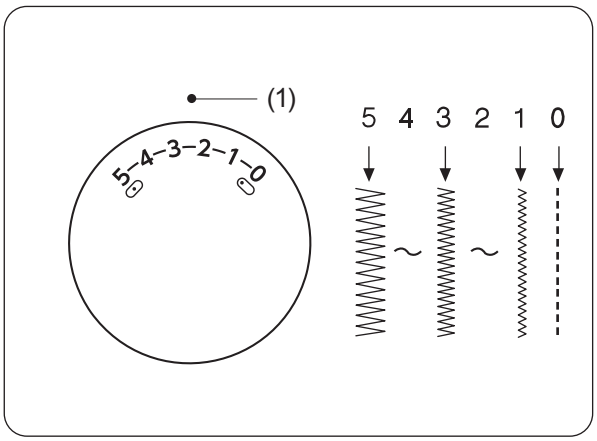


Stitch Length Dial

Turn the stitch length dial to set the setting mark with the desired stitch length.
The higher the number, the longer the stitch length.

(1) Setting mark

- Adjust the dial in the 0.5-4 range when you sew the zigzag stitch.
- Set the dial at “S.S.” to sew the stretch stitch pattern sewing.
- If the stretch stitch pattern is uneven, turn the stitch length dial in the direction of “–” to compress it, or “+” to expand it.



Stitch Width Dial

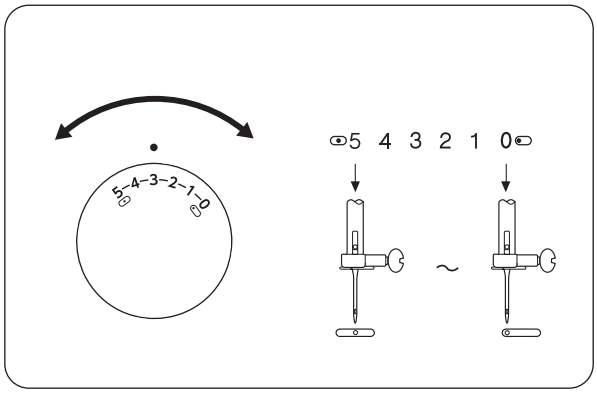
Turn the stitch width dial to set the desired stitch width at the setting mark.

The higher the number, the wider the stitch width.

(1) Setting mark

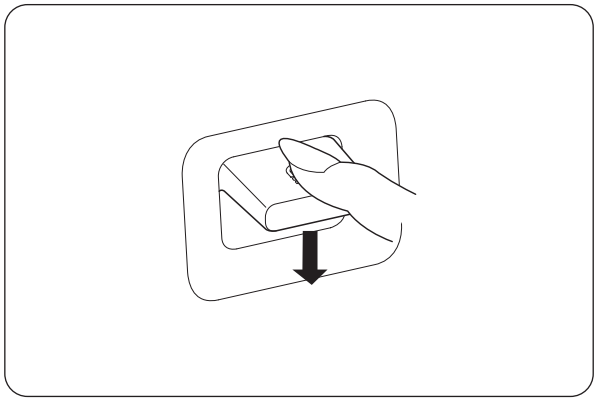
⚠ CAUTION:

Raise the needle above the fabric, when you turn the stitch width dial.



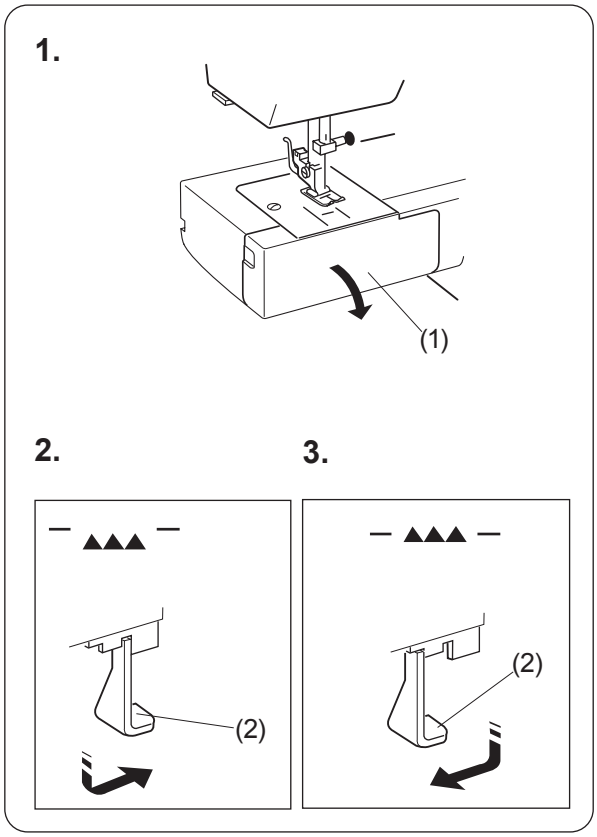
Variable Needle Position

When the straight stitch (stitch selector dial B/A position) is selected, you can move the needle between the center and left needle position by turning the stitch width dial.



Reverse Stitch Lever

As long as you keep the reverse stitch lever depressed, the machine will sew in reverse.



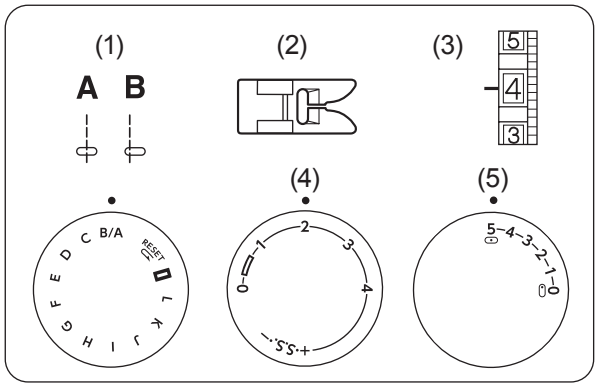
Dropping the Feed Dogs

1. Open the hook cover.
(1) Hook cover

2. To drop the feed dogs, pull down the drop lever and move it to the right, as illustrated.
(2) Drop lever

3. To raise the feed dogs, pull down the drop lever and move it to the left, as illustrated.

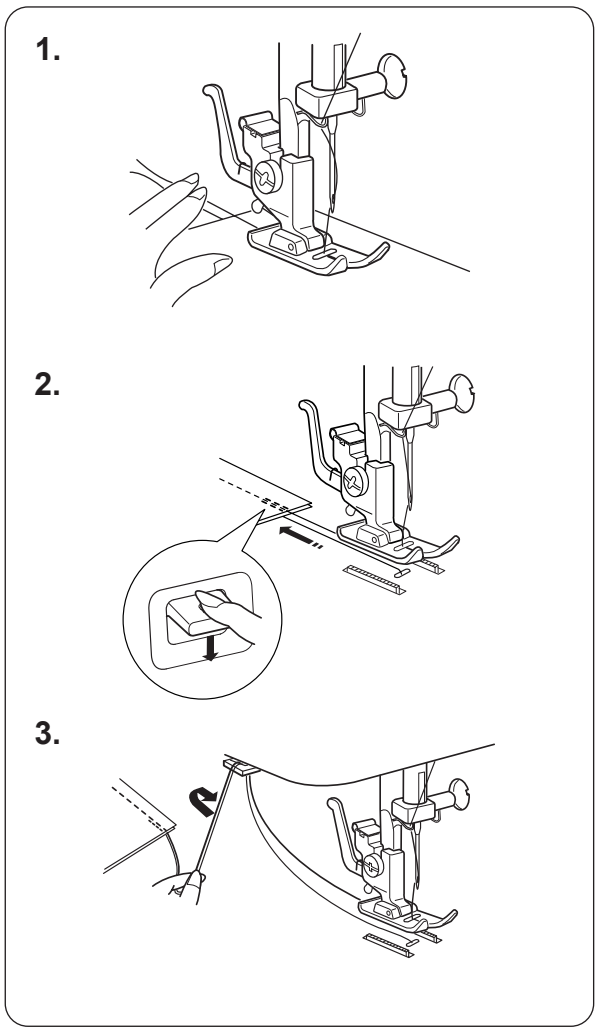
*The feed dogs must be up for normal sewing.
*The feed dogs will return to the up position when the machine starts running.



BASIC SEWING

Straight Stitch Sewing

(1) Pattern selector: B/A
(2) Presser foot: Zigzag foot
(3) Thread tension: 2-6
(4) Stitch length: 1.5-4
(5) Stitch width: 0 or 5



1. Raise the presser foot and position the fabric with its edge lining up with a seam guide line on the needle plate.

Lower the needle into the fabric.

Lower the presser foot and smooth the threads toward the back. Depress the foot control.

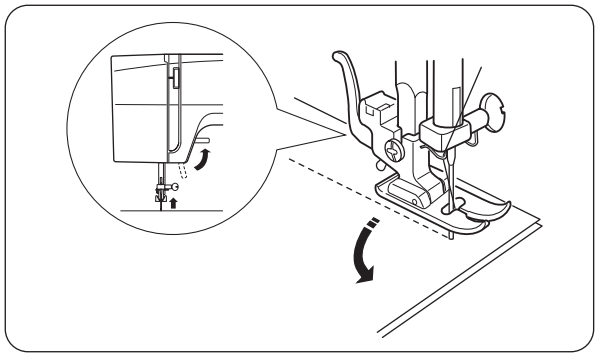
Gently guide the fabric along the guide line letting the fabric feed by itself.

2. For fastening the end of seams, press the reverse stitch lever and sew several reverse stitches.

Raise the presser foot and remove the fabric, drawing the threads to the back.

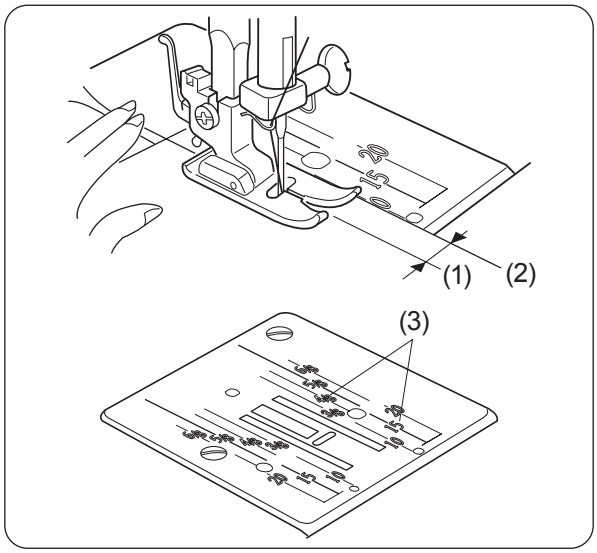
3. Cut the threads with the thread cutter.

The threads are now the proper length to begin sewing the next seam.



To change the sewing direction

Stop the machine and turn the handwheel toward you to bring the needle down into the fabric. Raise the presser foot.
Pivot the fabric around the needle to change sewing direction as desired.
Lower the presser foot and continue sewing.

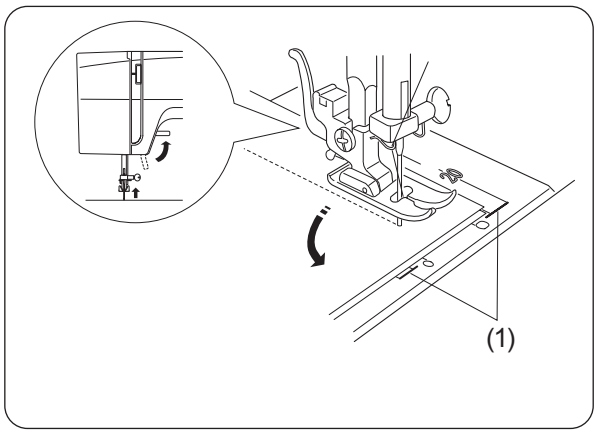


Seam Guide Lines

The numbers on the needle plate indicate the distance between the center needle position and the guideline.
The numbers at the front of the needle plate in front are centimeters.
The numbers at the back of the needle plate are fractions of an inch.

Number	10	15	20	3/8	4/8	5/8	6/8
Distance (cm)	1.0	1.5	2.0	-	-	-	-
Distance (inch)	-	-	-	3/8	4/8	5/8	6/8

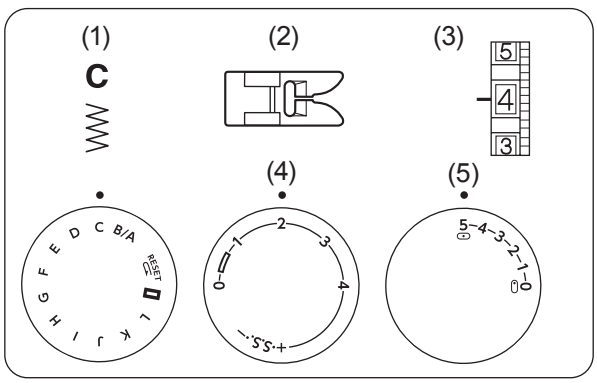
(1) Center needle position
(2) Guide lines
(3) Numbers



Turning a Square Corner

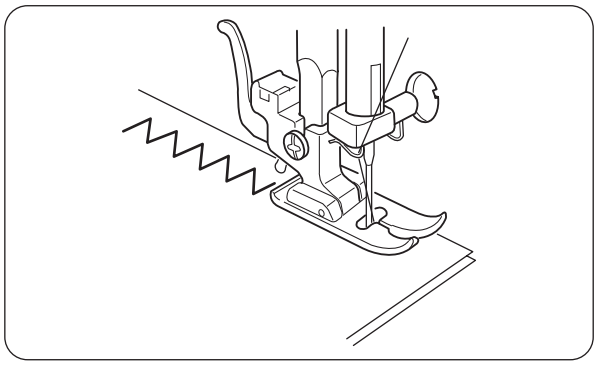
To turn a square corner 5/8″ (1.6 cm) from the fabric edge.
Stop stitching and lower the needle by turning the handwheel counterclockwise.
Raise the presser foot and turn the fabric to align the edge with the 5/8″ (1.6 cm) seam guide.
Lower the presser foot and begin stitching in the new direction.
Line up the fabric edge facing you with the cornering guide shown.

(1) Cornering guide

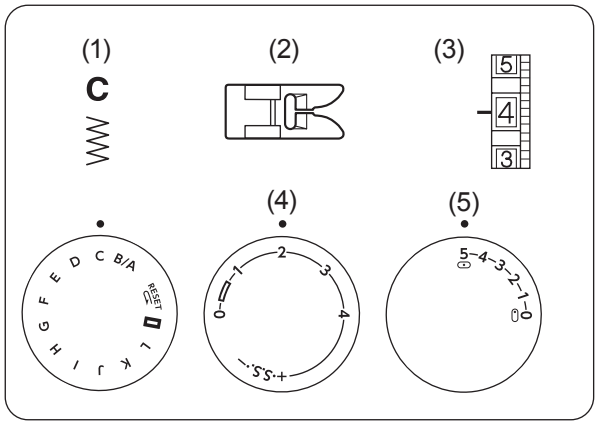


Zigzag Stitch

(1) Pattern selector: C
(2) Presser foot: Zigzag foot
(3) Thread tension: 2-5
(4) Stitch length: 0.5-4
(5) Stitch width: 1-5

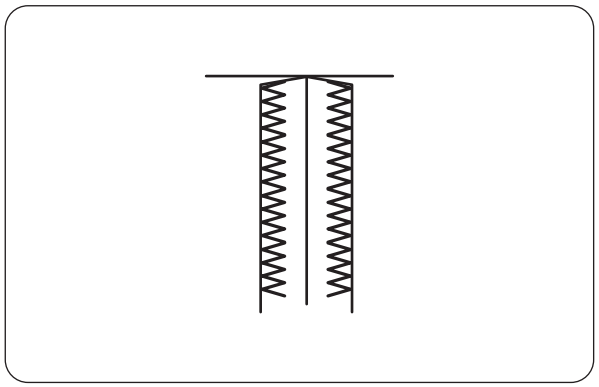


Simple zigzag stitching is widely used for overcasting, sewing on buttons, etc.



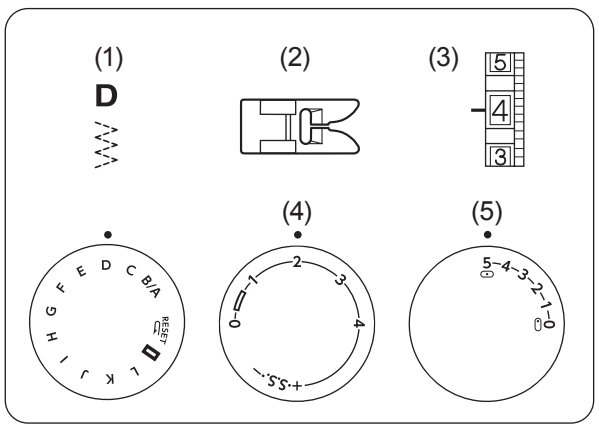
Overcasting

(1) Pattern selector: C
(2) Presser foot: Zigzag foot
(3) Thread tension: 1-4
(4) Stitch length: 1-2
(5) Stitch width: 5



Simple zigzag stitching is used for finishing raw seam edges (overcasting) on most woven fabrics to prevent fabric from unraveling. This is the fastest way to finish an edge.

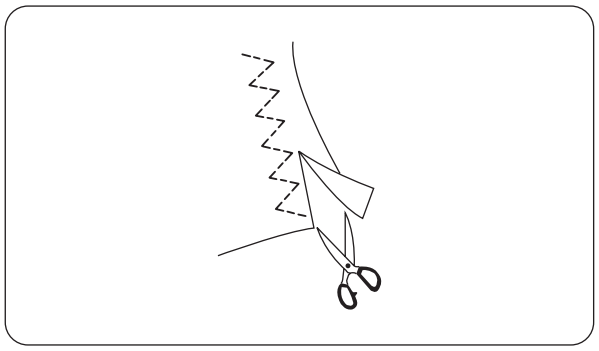
Place the fabric and sew.



UTILITY STITCHING

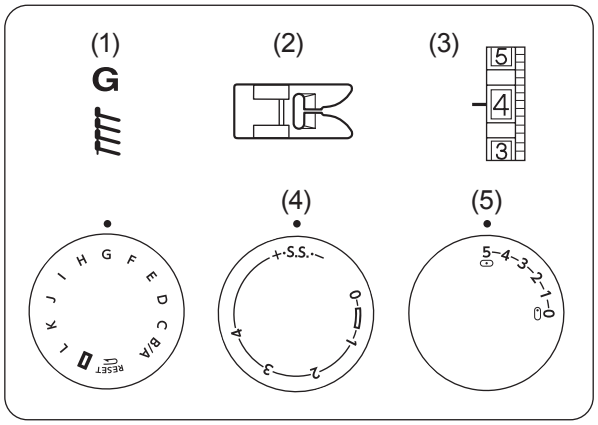
Tricot Stitch (Multiple Zigzag)

(1) Pattern selector: D
(2) Presser foot: Zigzag foot
(3) Thread tension: 1-4
(4) Stitch length: 0.5-4
(5) Stitch width: 5



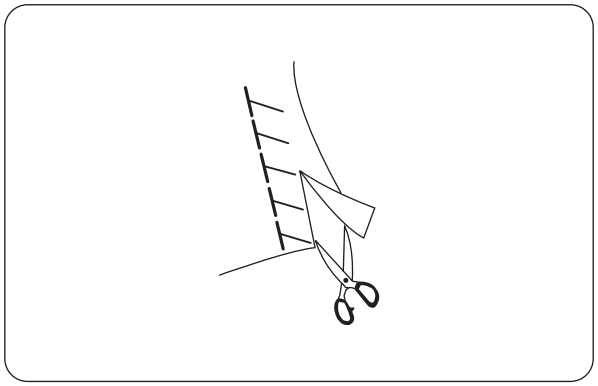
This stitch is used to finish the raw edge on synthetics and other fabrics that tend to pucker. Place your fabric to allow a 1.6 cm (5/8″) seam. Trim the seam allowance with scissors after sewing.

Be careful not to cut the stitches.

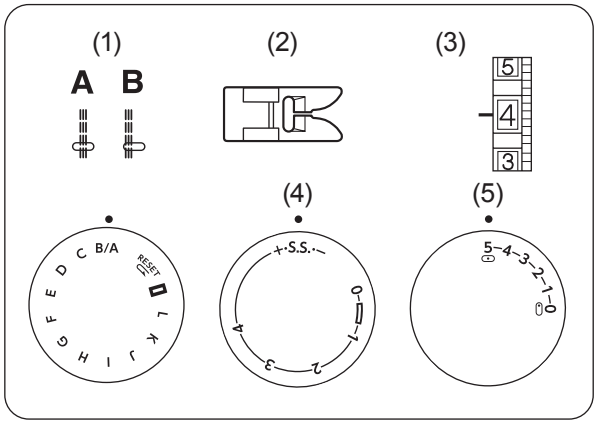


Knit Stitch

(1) Pattern selector: G
(2) Presser foot: Zigzag foot
(3) Thread tension: 1-4
(4) Stitch length: S.S.
(5) Stitch width: 5

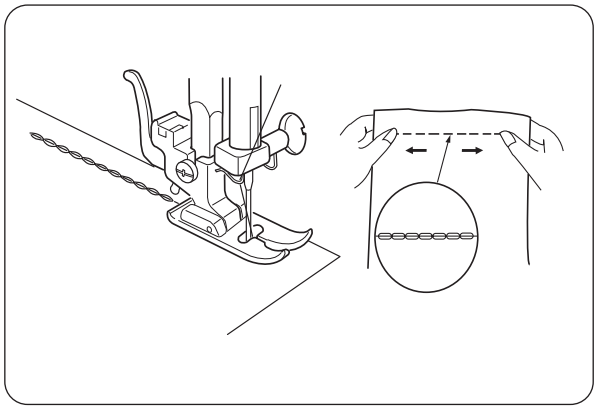


This knit stitch is ideal for sewing swimwear and stretch velour because it provides the greatest amount of elasticity and strength.
Place your fabric to allow a 1.6 cm (5/8″) seam. Trim the seam allowance with scissors after sewing.
Be careful not to cut the stitches.



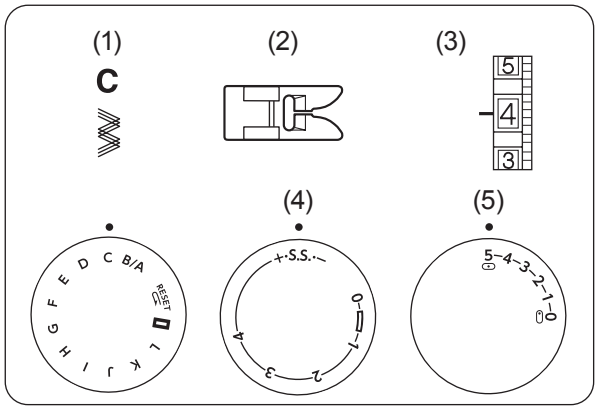
Straight Stretch

(1) Pattern selector: B/A
(2) Presser foot: Zigzag foot
(3) Thread tension: 2-6
(4) Stitch length: S.S.
(5) Stitch width: 0 or 5



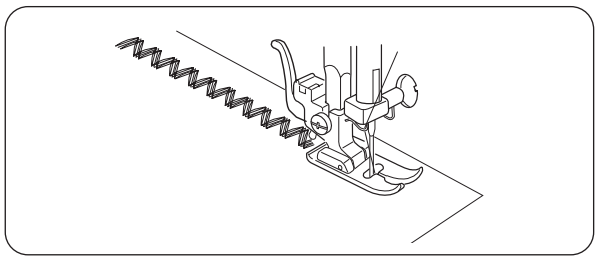
This strong, durable stitch is recommended where both elasticity and strength are necessary to ensure comfort and durability.

Use it to reinforce areas such as crotch and armhole seams as well as to eliminate puckering on knits and stretch fabrics. Also use when constructing items requiring extra strength such as backpacks.

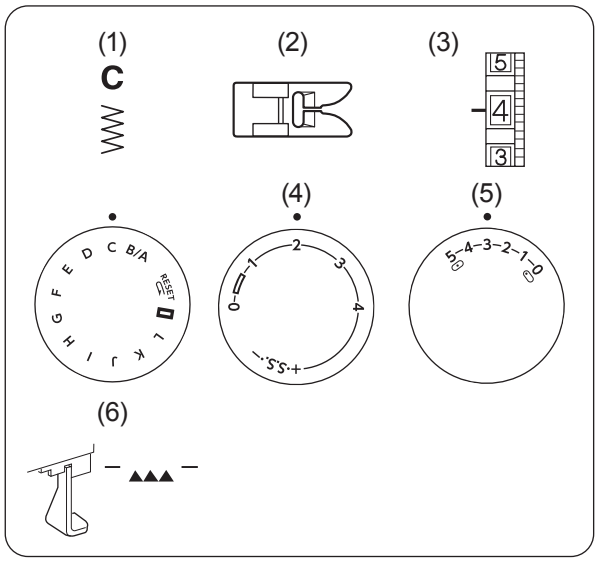


Rick-Rack Stretch

(1) Pattern selector: C
(2) Presser foot: Zigzag foot
(3) Thread tension: 2-6
(4) Stitch length: S.S.
(5) Stitch width: 2-5

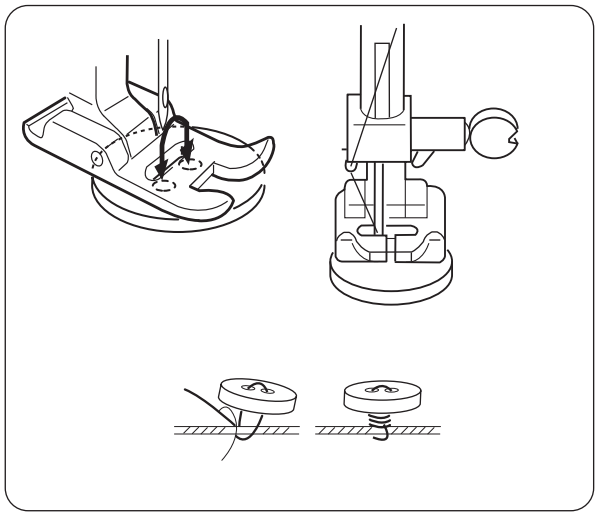


Sew on stretch fabrics in any area that you might use a zigzag stitch. This stitch is also used as a decorative topstitch.



Sewing Buttons

(1) Pattern selector: C
(2) Presser foot: Zigzag foot
(3) Thread tension: 2-6
(4) Stitch length: Any
(5) Stitch width: Adjust as necessary
(6) Feed dogs: Dropped

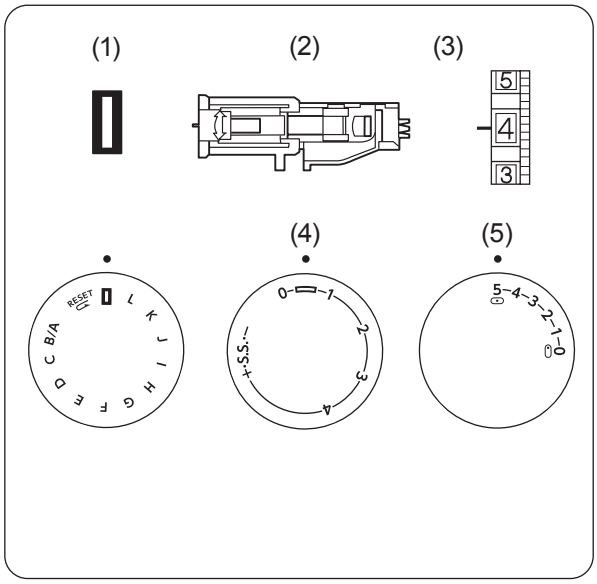


Drop the feed dogs (refer to page 13).

Match the holes in the button with the horizontal slot on the presser foot. Adjust the stitch width to match the distance of the holes in the button. Lower the foot to hold the button in place. Check to see if the needle enters into the holes in the button by turning the handwheel by hand. Sew about 10 stitches.

To strengthen the shank, cut the threads leaving about 4.0″ (10.0 cm). Bring the needle thread down through one of the holes in the button and wind it around the shank. Bring the needle thread to the wrong side (bottom side) and knot.

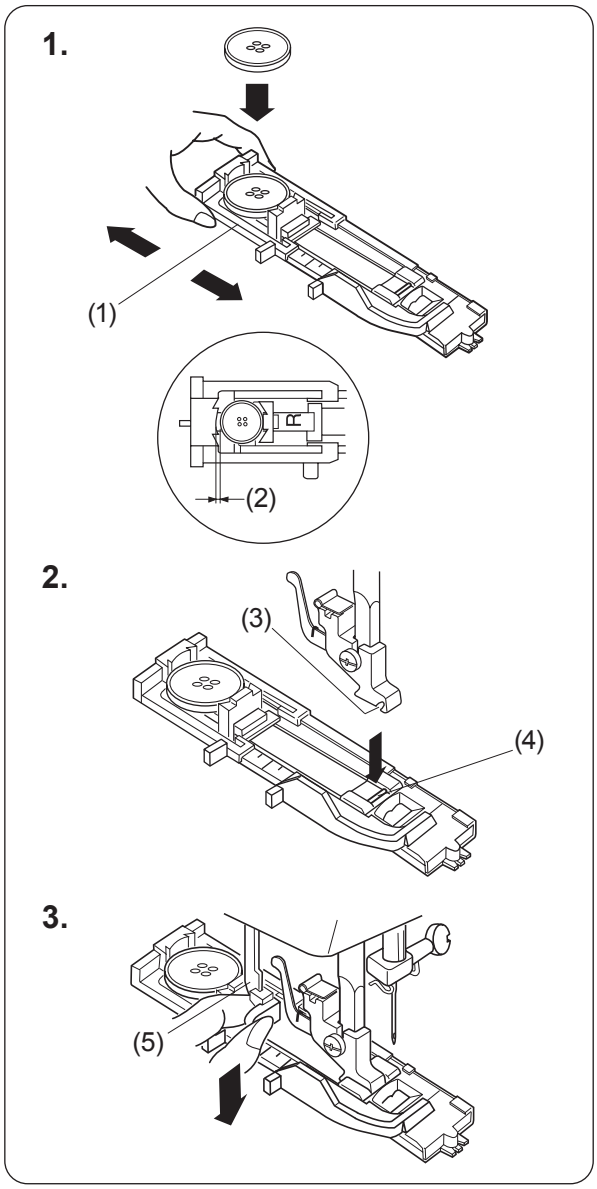
After button sewing is completed, raise the feed dogs for normal sewing.



Automatic Buttonhole

(1) Pattern selector:
(2) Presser foot: Automatic buttonhole foot R
(3) Thread tension: 1-5
(4) Stitch length:
(5) Stitch width: 5

NOTE:
The size of buttonhole is automatically set by placing the button in the rear of the automatic buttonhole foot R.
The button holder of the foot takes a button size up to 1″ (2.5 cm) in diameter.
Make a test buttonhole using the fabric, interfacing and seams of the actual garment.
Use interfacing on stretch fabrics.



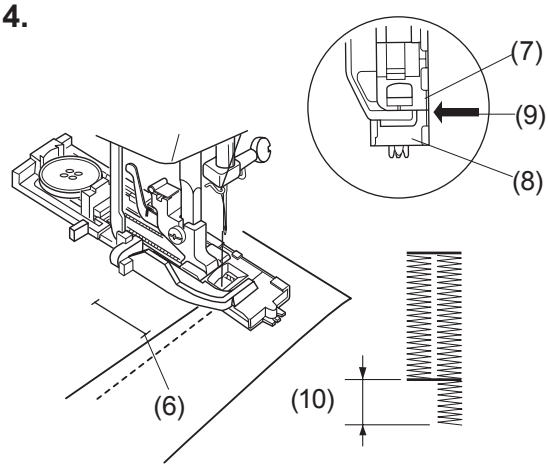
1. Pull the button holder to the back, and place the button in it. Push it together tightly on the button.
(1) Button holder

NOTE:
If the button is extremely thick, make a test buttonhole on an extra piece of the fabric.
If it is difficult to fit the button through the test buttonhole, you can lengthen the buttonhole by pulling the button holder back a little. The length of the buttonhole will be increased.
(2) Gap

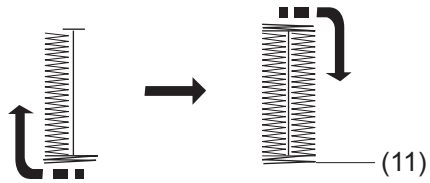
2. Raise the needle by turning the handwheel toward you.
Raise the presser foot lifter.
Attach the automatic buttonhole foot R.
You may lift the presser foot lifter to the extra lifted position when placing the automatic buttonhole foot R under the foot holder (refer to page 5).
(3) Groove
(4) Pin

3. Pull the buttonhole lever downward as far as it will go.
(5) Buttonhole lever

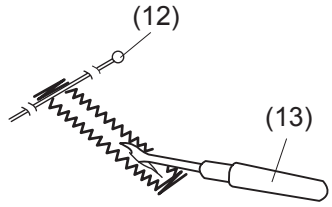
4.



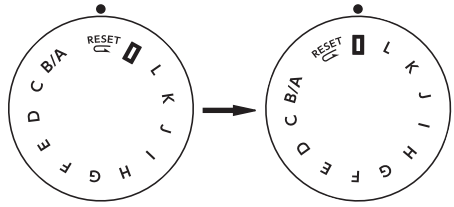
5.



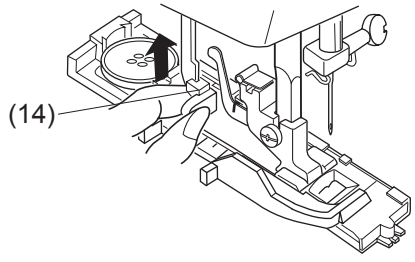
6. 7.



8.



9.



4. Insert the fabric under the foot. Turn the handwheel toward you one rotation and remove the fabric to the left to draw both threads to the left. Insert the garment under the foot, and lower the needle at the starting point. Then lower the automatic buttonhole foot R.

(6) Starting point

NOTE:
Make sure there is no gap between the slider and spring holder, otherwise the left and right length will be different.

(7) Slider
(8) Spring holder
(9) There should be no gap.
(10) Sewing gap

5. Depress the foot control to sew a buttonhole. The machine will sew the front bartack, left row, back bartack and right row automatically. Stop the machine at the ending point.

(11) Ending point

6. Raise the presser foot and cut the both needle and bobbin threads leaving 10 cm (4″) thread ends.
Draw the needle thread to wrong side of the fabric by pulling the bobbin thread.
Then, knot the threads.

7. Insert a pin inside the bartack to prevent cutting bartacks. Cut the opening with the seam ripper.

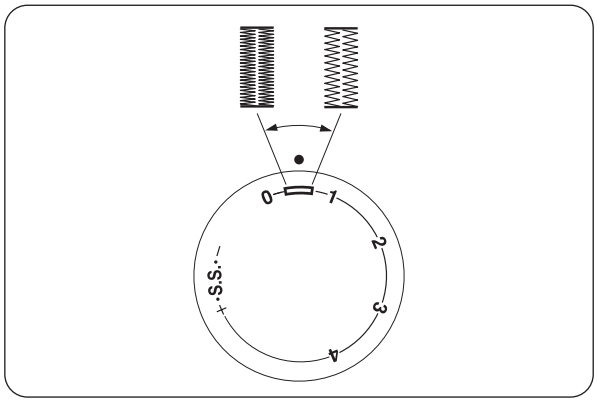
(12) Pin
(13) Seam ripper

To repeat buttonhole sewing

8. To repeat buttonhole sewing, turn the stitch selector to RESET, then back to 0 again, as shown.
Now, simply step on the foot control to sew an identical buttonhole.

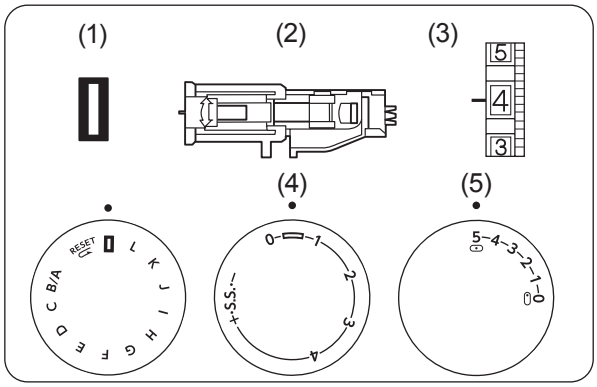
9. When the buttonhole sewing is finished, push the buttonhole lever upward as far as it will go.

(14) Buttonhole lever



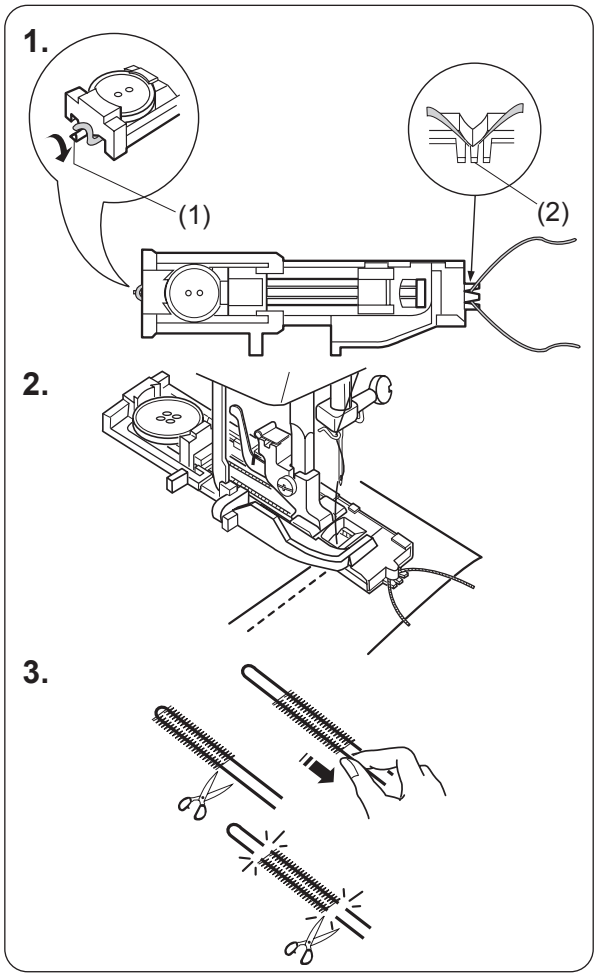
Adjusting buttonhole stitch density

Turn the stitch length dial to the right for a coarser density.
Turn the stitch length dial to the left for a tighter density.



Corded Buttonhole

(1) Pattern selector:
(2) Presser foot: Automatic buttonhole foot R
(3) Thread tension: 1-5
(4) Stitch length:
(5) Stitch width: 5



1. With the buttonhole foot raised, hook the filler cord on the cord spur at the back of the buttonhole foot.
Bring the ends toward you under the buttonhole foot until they clear the front end.
Hook the filler cord into the forks on the front of the buttonhole foot to hold them tight.

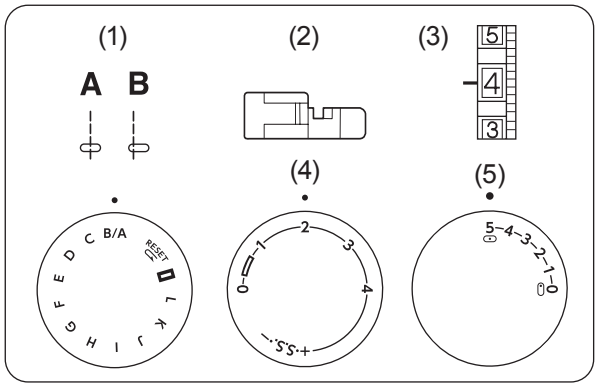
(1) Spur
(2) Forks

2. Lower the needle into the garment where the buttonhole will start and lower the foot.
Depress the foot control gently and sew the buttonhole.
Each side of the buttonhole and the bartacks will be sewn over the cord.

NOTE:
The sewing steps are the same as the automatic buttonhole sewing.

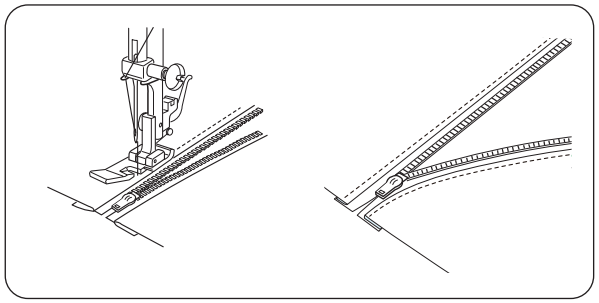
3. Pull the left end of the filler cord to tighten it.

NOTE:
Cut the filler cord at both ends, if the filler cord is stitched on the fabric and cannot be pulled.
To cut the buttonhole opening, refer to the instructions on page 20.

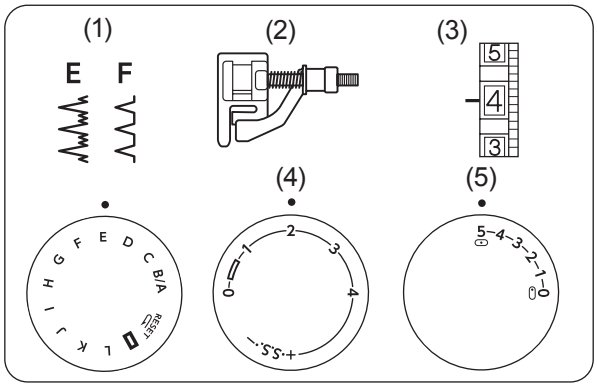


Zipper Application

(1) Pattern selector: B/A
(2) Presser foot: Zipper foot
(3) Thread tension: 2-6
(4) Stitch length: 1.5-4
(5) Stitch width: 5

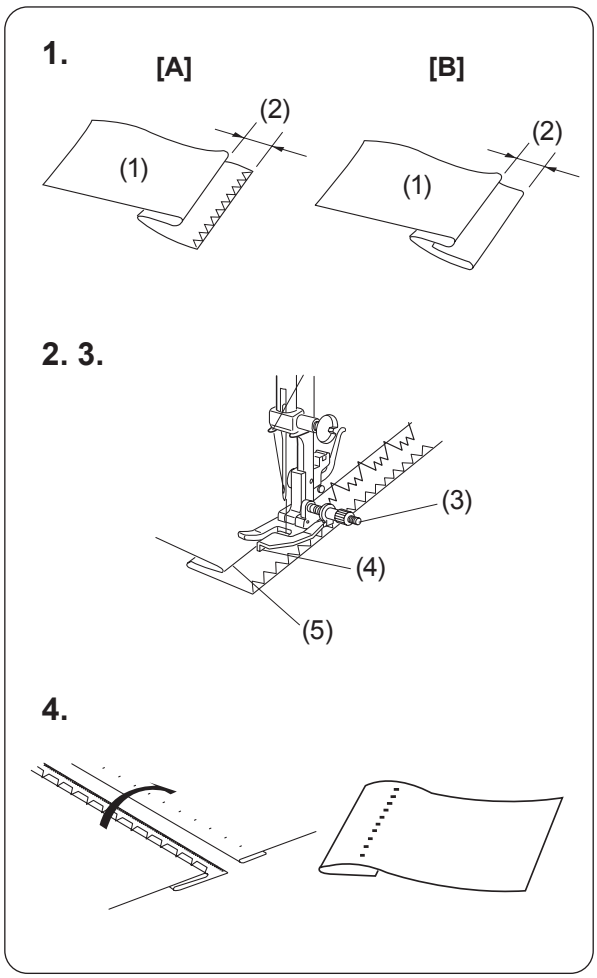


Pin or baste zipper tape to the fabric and place it under the foot.
Smooth the threads toward the back and lower the foot.
To sew the left side of the zipper, guide the zipper teeth along the edge of the foot and stitch through the garment and zipper tape.
Turn the fabric and sew the other side of the zipper in the same way as you did the left side.



Blind Hem Stitch

(1) Pattern selector: E or F
(2) Presser foot: Blind hem foot L
(3) Thread tension: 2-4
(4) Stitch length: 1-3
(5) Stitch width: 5



1. On heavy fabrics that ravel, the raw edge should be overcast first. Then, fold the hem as illustrated, leaving 1/4″ (0.7 cm) of the hem edge showing.

(1) Wrong side of the fabric
(2) 1/4″ (0.7 cm)

[A] Heavy fabrics
[B] Fine or medium fabrics

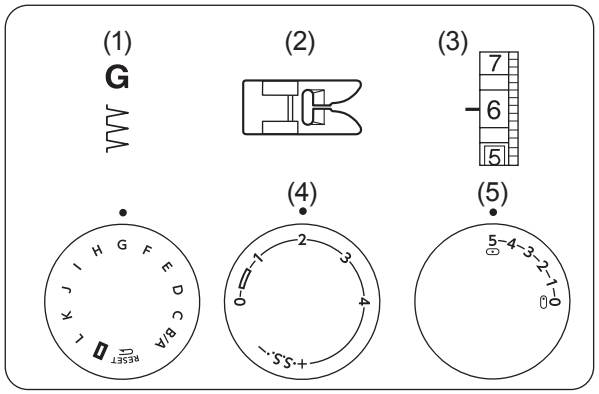
2. Position the fabric, so that the needle at its leftmost position just pierces the edge of the fold.

3. Turn the guide screw to adjust the guide so that it aligns with the folded edge.

Sew along the folded edge guiding the fabric so the needle catches the folded edge.

(3) Guide screw
(4) Guide
(5) Folded edge

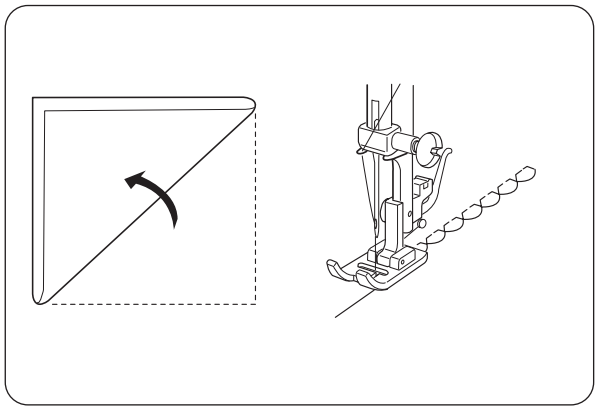
4. After hemming is completed, press together both sides of the finished hem. The top side of the fabric should show only the blind stitches.



DECORATIVE STITCHING

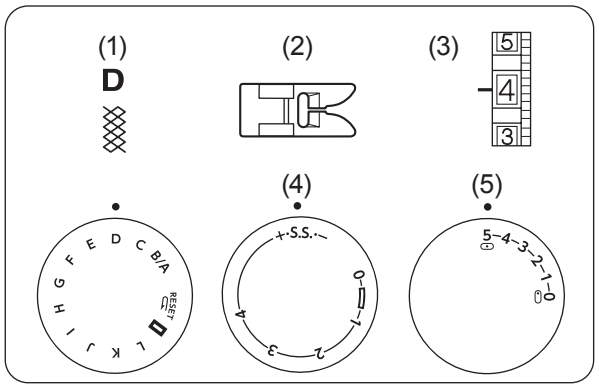
Shell Tuck

(1) Pattern selector: G
(2) Presser foot: Zigzag foot
(3) Thread tension: 6-8
(4) Stitch length: 2-3
(5) Stitch width: 5



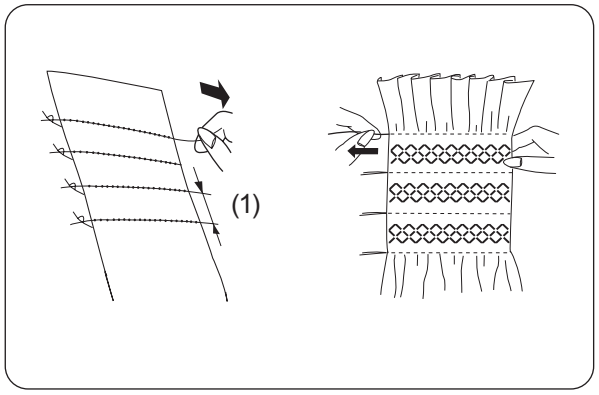
Use a fine fabric (tricot, for example).
Fold and stitch on the bias.
When the needle swings to the right, allow the needle to just clear the folded edge of the fabric.
After stitching, open the fabric and iron press the tucks flat to one side.

NOTE:
Increase the needle thread tension to form more prominent tucks.



Smocking

(1) Pattern selector: D
(2) Presser foot: Zigzag foot
(3) Thread tension: 1-4
(4) Stitch length: S.S.
(5) Stitch width: 5



With the stitch length at “4”, sew straight stitching lines 1 cm (3/8″) apart, across the area to be smocked.

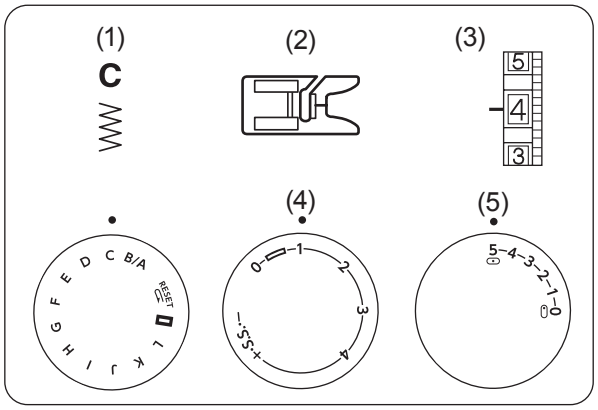
Knot the threads along one edge. Pull the bobbin threads and distribute the gathers evenly.

Secure the threads at the other end.

Sew the decorative stitch between the gathering stitches.

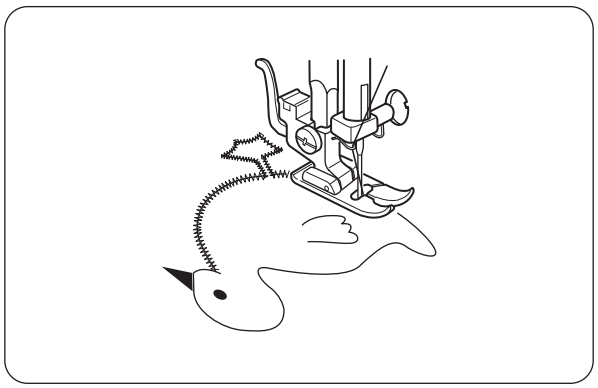
Pull out the gathering stitches.

(1) 3/8″ (1 cm)

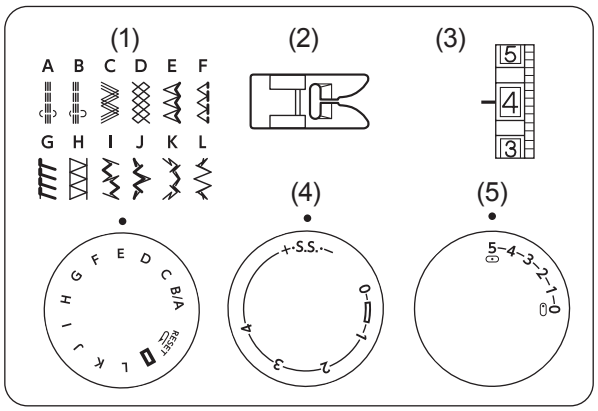


Applique

(1) Pattern selector: C
(2) Presser foot: Satin stitch foot
(3) Thread tension: 1-4
(4) Stitch length: 0.5-1
(5) Stitch width: 5

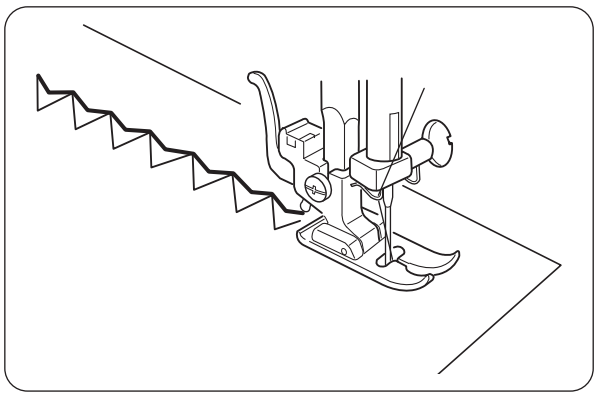


Baste (or fuse with iron-on fabric joiner) applique pieces on the fabric.
Stitch around the applique making sure the needle falls along the outer edge of the applique. When sewing corners, lower the needle down into the fabric.
Raise the presser foot and pivot the fabric to the right or left.

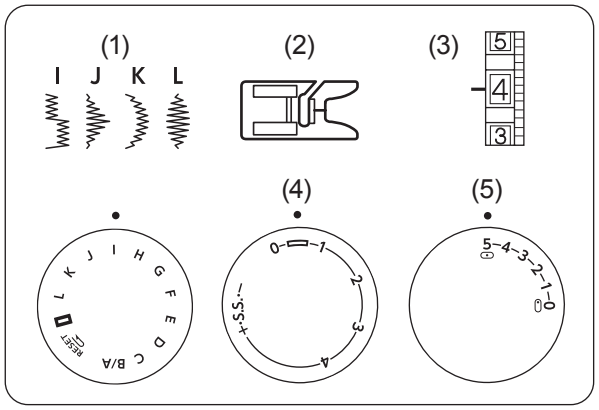


Stretch Stitch Patterns

(1) Pattern selector: A-L
(2) Presser foot: Zigzag foot
(3) Thread tension: 1-4
(4) Stitch length: S.S.
(5) Stitch width: 5

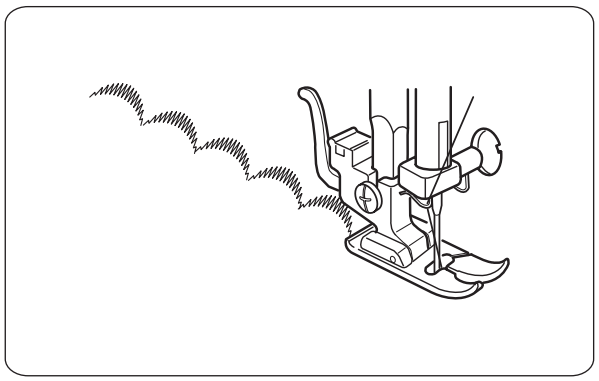


If forward and reverse feeds become unbalanced due to the type of fabric, adjust the balance by turning the stitch length dial as follows:
If patterns are compressed, turn the dial toward "+".
If patterns are drawn out, turn the dial toward "–" (refer to page 12).

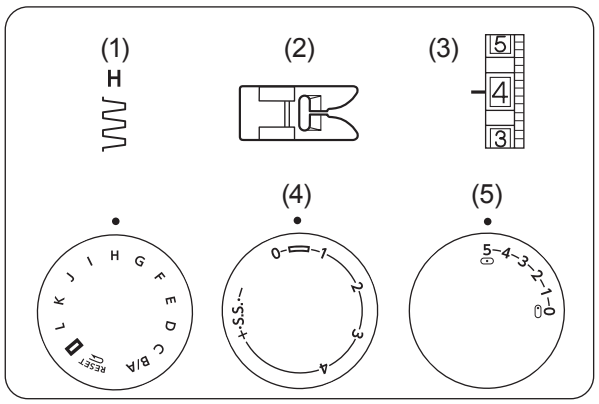


Decorative Satin Stitch Patterns

(1) Pattern selector: I-L
(2) Presser foot: Satin stitch foot
(3) Thread tension: 1-4
(4) Stitch length:
(5) Stitch width: 5

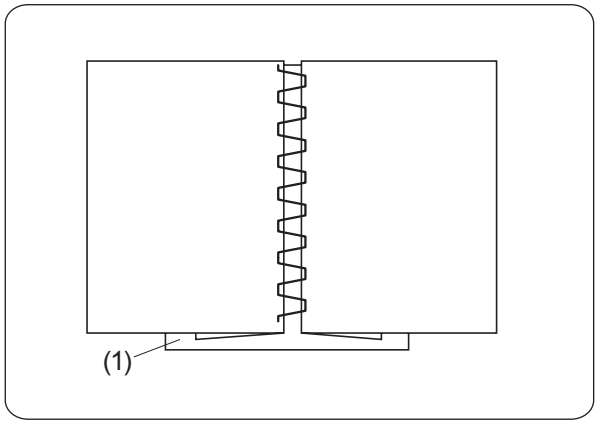


Satin stitches are used as decorative stitches on table linen etc.
Test sew if you reduce the stitch length to ensure smooth feed of the fabric.



Fagoting

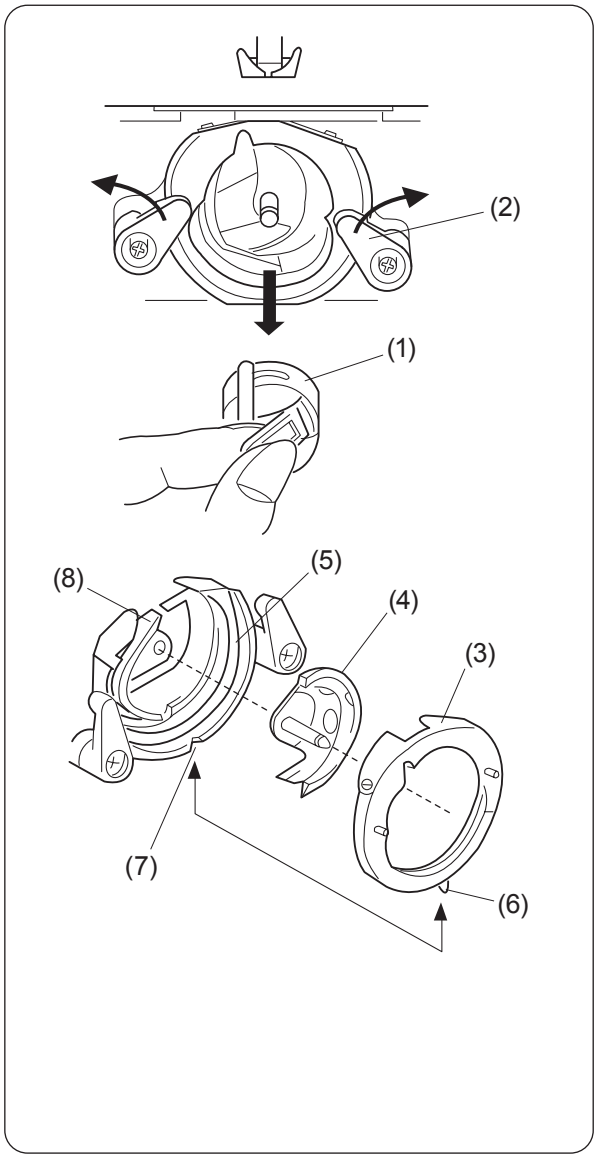
(1) Pattern selector: H
(2) Presser foot: Zigzag foot
(3) Thread tension: 3-6
(4) Stitch length: -1
(5) Stitch width: 3-5

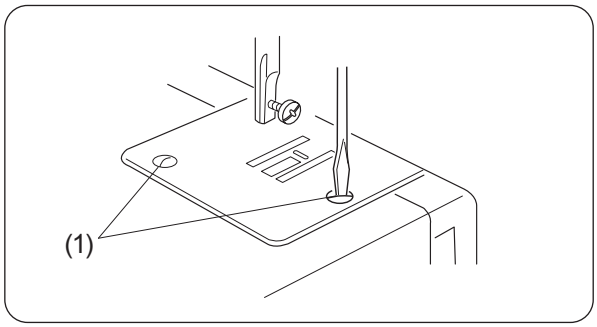


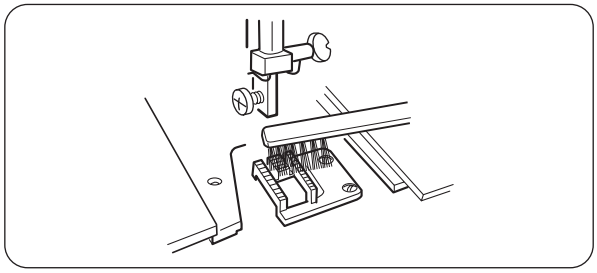
Use this stitch to join two pieces of fabric to create an open work appearance, and add design interest.
Fold under each fabric edge 1/2″ (1.3 cm) and press.
Pin the two edges to a piece of paper or tear away backing 1/8″ (0.3 cm) apart.

(1) Paper

Sew slowly, guiding the fabric so the needle catches the folded edge on each side.
Tear away the backing after sewing is finished.







CARE AND MAINTENANCE

Cleaning the Bobbin Case and the Shuttle Race

> **⚠ CAUTION:**
> Turn the power switch OFF and/or unplug the sewing before dismantling it.

To dismantle shuttle race unit:

Raise the needle to its highest position and open the hook cover.
Open the hinged latch of the bobbin case and take it out of the machine.
Open the shuttle race ring holders and remove the shuttle race ring.
Remove the shuttle.

*Clean the shuttle race with a brush and a soft dry cloth.

(1) Bobbin case
(2) Shuttle race ring holder
(3) Shuttle race ring
(4) Shuttle
(5) Shuttle race

To assemble shuttle race unit:

Hold the shuttle by the center pin and fit it carefully back into the shuttle race, forming a perfect circle with the shuttle driver.
Attach the shuttle race ring making sure the bottom pin fits into the notch.
Lock the shuttle race ring by turning the holders back into position. Insert the bobbin case.

(6) Pin
(7) Notch
(8) Shuttle driver

Cleaning the Feed Dogs

> **⚠ CAUTION:**
> Turn the power switch OFF and/or unplug the machine before cleaning the feed dogs.

Remove the needle and the presser foot.
Remove the needle plate setscrews and remove the needle plate.

(1) Setscrew

With a brush, clean out any dust and lint clogging the feed dogs teeth.
Reset the needle plate.

Troubleshooting

Condition	Cause	Reference
The needle thread breaks.	1. The needle thread is not threaded properly. 2. The needle thread tension is too tight. 3. The needle is bent or blunt. 4. The needle is incorrectly inserted. 5. The needle thread and the bobbin thread are not set properly under the presser foot at the beginning of sewing. 6. The fabric is not drawn to the rear when sewing has finished. 7. The thread is too heavy or too fine for the needle.	Page 10 Page 11 Page 6 Page 6 Page 11 Page 14 Page 6
The bobbin thread breaks.	1. The bobbin thread is not threaded properly in the bobbin case and shuttle. 2. Lint has collected in the shuttle area. 3. The bobbin is damaged and does not turn smoothly.	Page 9 Page 27 Change the bobbin.
The needle breaks.	1. The needle is incorrectly inserted. 2. The needle is bent or blunt. 3. The needle clamp screw is loose. 4. The needle thread tension is too tight. 5. The fabric is not drawn to the rear when sewing has finished. 6. The needle is too fine for the fabric being sewn.	Page 6 Page 6 Page 6 Page 11 Page 14 Page 6
Skipped stitches	1. The needle is incorrectly inserted. 2. The needle is bent or blunt. 3. The needle and/or threads are not suitable for the work being sewn. 4. A blue tipped needle is not being used for sewing stretch, very fine fabrics and synthetics. 5. The needle thread is not threaded properly. 6. The wrong needle is being used.	Page 6 Page 6 Page 6 Page 6 Page 10 Change the needle
Seam puckering	1. The needle thread tension is too tight. 2. The needle thread is not threaded properly. 3. The needle is too heavy for the fabric being sewn. 4. The stitch length is too long for the fabric.	Page 11 Page 10 Page 6 Make stitch denser
The fabric is not feeding smoothly.	1. The feed dogs are packed with lint. 2. The stitches are too fine. 3. The feed dogs are not raised after “drop feed” sewing.	Page 27 Make stitch coarser Page 13
The machine doesn’t work.	1. The machine is not plugged in. 2. There is thread caught in the shuttle race. 3. The handwheel is pulled out (the clutch is disengaged).	Page 4 Page 27 Page 8
Noisy operation	1. There is thread caught in the shuttle race. 2. Lint has built up in the shuttle or the shuttle race.	Page 27 Page 27

EC DECLARATION OF CONFORMITY

This machine complies with the following regulations:

EN 60335-1: 2012 ; A11 ; A13 ; A1 ; A14 ; A2 ; A15
EN 60335-2-28: 2003 ; A1 ; A11
EN 62233: 2008
EN IEC 55014-1: 2021
EN IEC 55014-2: 2021
EN IEC 61000-3-2: 2019 ; A1
EN 61000-3-3: 2013 ; A1 ; A2

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