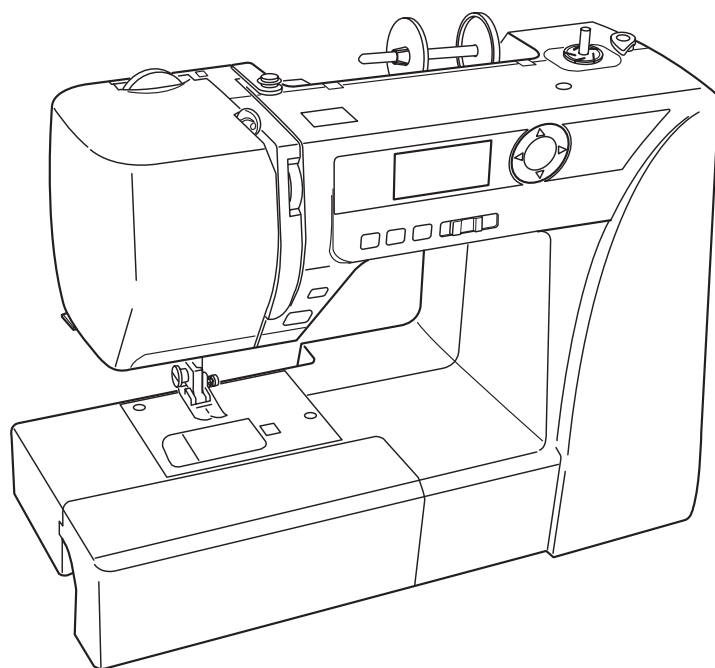


INSTRUCTION BOOK



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 and Canada):

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. (European Union only)

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SECTION I. NAMES OF PARTS

Names of Parts

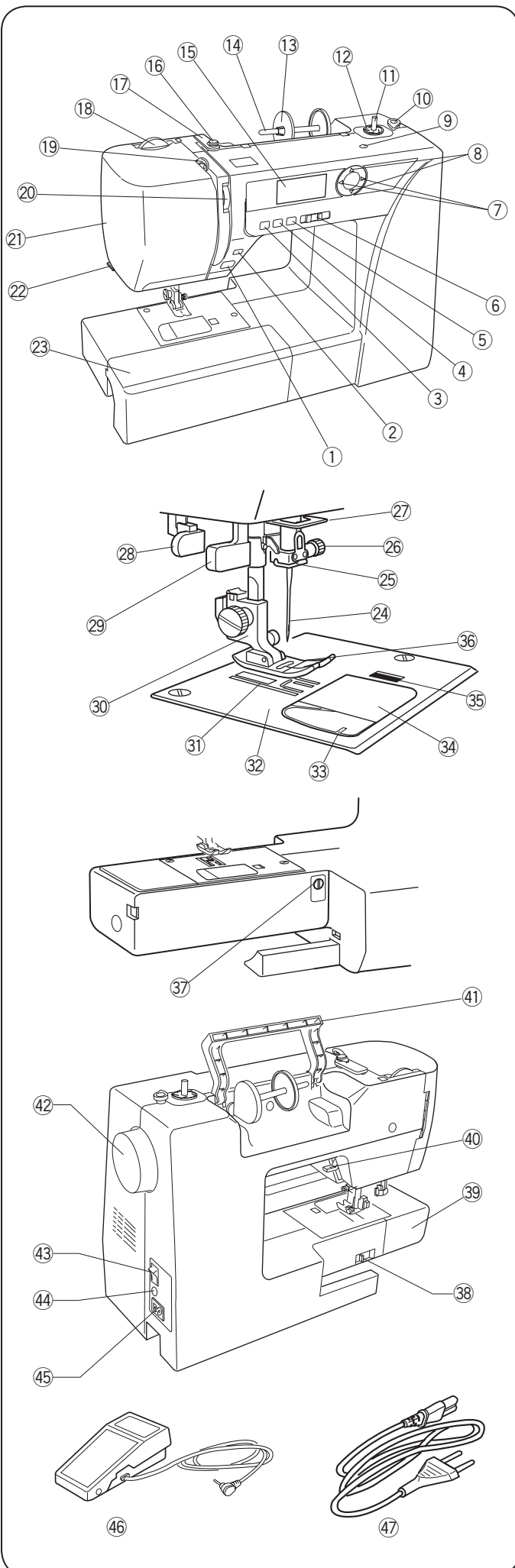
- ① Start/stop button
- ② Reverse stitch button
- ③ Auto-lock button
- ④ Needle up/down button
- ⑤ Thread cutter button
- ⑥ Speed control slider
- ⑦ Cursor buttons
- ⑧ Value set buttons
- ⑨ Hole for additional spool pin
- ⑩ Bobbin winder stopper
- ⑪ Bobbin winder spindle
- ⑫ Flange plate
- ⑬ Spool holder (large)
- ⑭ Spool pin
- ⑮ LCD display
- ⑯ Bobbin winding tension disk
- ⑰ Upper thread guide
- ⑱ Presser foot pressure dial
- ⑲ Thread take-up lever
- ⑳ Thread tension dial
- ㉑ Face cover
- ㉒ Thread cutter
- ㉓ Extension table (Accessory box)
- ㉔ Needle
- ㉕ Needle bar thread guide
- ㉖ Needle clamp screw
- ㉗ Lower thread guide
- ㉘ Buttonhole lever
- ㉙ Needle threader
- ㉚ Foot holder
- ㉛ Feed Dog
- ㉜ Needle plate
- ㉝ Bobbin thread cutter
- ㉞ Hook cover plate
- ㉟ Hook cover release button
- ㊱ Presser foot
- ㊲ Feed balancing dial
- ㊳ Drop feed lever
- ㊴ Free-arm
- ㊵ Presser foot lifter
- ㊶ Carrying handle
- ㊷ Handwheel
- ㊸ Power switch
- ㊹ Foot control jack
- ㊺ Machine socket
- ㊻ Foot control
- ㊼ Power supply cord

NOTE:

To carry the sewing machine, hold the carrying handle with your hand, and support the sewing machine with the other hand.

NOTE:

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



Standard Accessories

- ① Zigzag foot: A (set on the machine)
- ② Overedge foot: C
- ③ Zipper foot: E
- ④ Satin stitch foot: F
- ⑤ Blind hem foot: G
- ⑥ Automatic buttonhole foot: R
- ⑦ Assorted needle set
- ⑧ Spool holder (X 2) (large) (1 set on the machine)
- ⑨ Spool holder (X 2) (small)
- ⑩ Spool holder (X 2) (special)
- ⑪ Additional spool pin
- ⑫ Bobbins (X 4) (1 set on the machine)
- ⑬ Screwdriver
- ⑭ Lint brush
- ⑮ Seam ripper (Buttonhole opener)
- ⑯ Instruction book
- ⑰ Hard cover
- ⑱ Large extension table
- ⑲ Quilt attachment kit

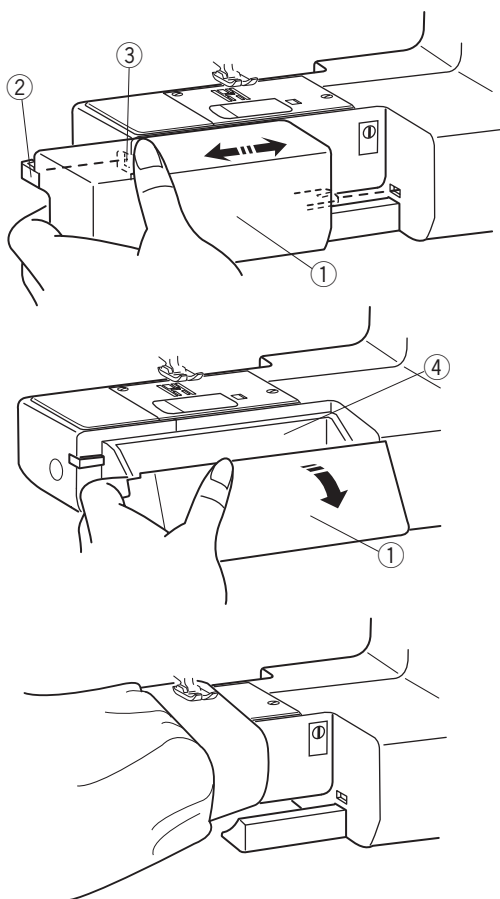
Large Extension Table

• Attaching the table

Pull the table away from the machine.
Spread the legs of large extension table.
Holding the table with both hands and slide it gently to the right.

• Adjusting the table height

Turn setscrews of the table legs with a screwdriver (optional).



Extension Table

The extension table ① provides an extended sewing area and can be easily removed for free-arm sewing.

- ① Extension table
- ② Pin
- ③ Hole

• Detaching the table

Pull the table away from the machine, as illustrated.

• Attaching the table

Push the extension table, inserting the pin ② into the hole ③ until the table snaps into the machine.

• Accessory storage

Accessories are stored inside the extension table. Pull the lid towards you to open the accessory storage ④.

- ④ Accessory storage

• Free-arm sewing

Free-arm sewing is useful for darning socks and mending the knee or cuff areas of children's clothes.

SECTION II. GETTING READY TO SEW

Connecting the Power Supply

• Using the foot control

Turn off the power switch ①.

Insert the foot control plug ② into the foot control jack ③.

Insert the machine plug ④ into the power inlet ⑤.

Insert the power supply plug ⑥ into the wall outlet ⑦.

Turn on the power switch ①.

The foot control sign ⑧ will be displayed when the foot control is connected to the machine.

- ① Power switch
- ② Foot control plug
- ③ Foot control jack
- ④ Machine plug
- ⑤ Power inlet
- ⑥ Power supply plug
- ⑦ Wall outlet
- ⑧ Foot control sign



WARNING:

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.

• Using the start/stop button

Turn off the power switch ①.

Insert the machine plug ② into the power inlet ③.

Insert the power supply plug ④ into the wall outlet ⑤.

Turn on the power switch ①.

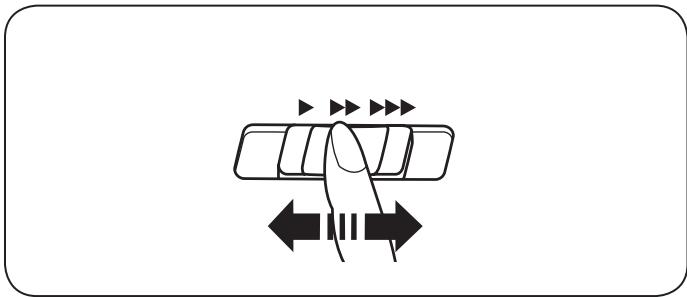
- ① Power switch
- ② Machine plug
- ③ Power inlet
- ④ Power supply plug
- ⑤ Wall outlet

NOTE:

The start/stop button does not work when the foot control is connected.

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 without thread for a few minutes. Wipe away any oil which may appear.



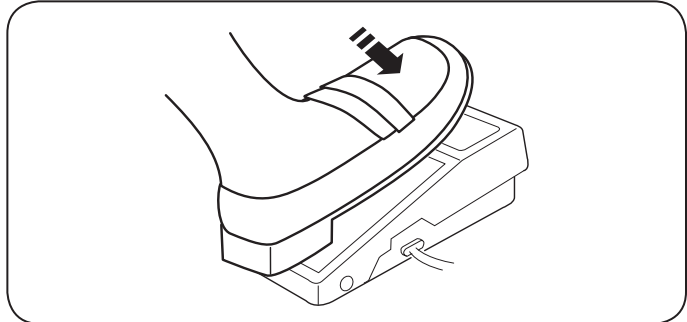
Controlling Sewing Speed

Speed control slider

Sewing speed can be varied by the speed control slider according to your sewing needs.

To increase sewing speed, slide the slider to the right.

To decrease sewing speed, slide the slider to the left.



Foot control

Depress the foot control to start the machine.

The further down you press on the foot control, the faster the machine runs.

The maximum sewing speed can be varied by the speed control slider.

Machine Operating Buttons

① Start/Stop button

Lower the presser foot lifter.

Press the start/stop button ① to start the machine.

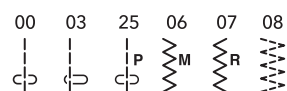
The machine starts running slowly for the first few stitches; it then runs at the speed set by the speed control slider.

Press the start/stop button ① again to stop the machine.

NOTE:

- The machine runs slowly as long as you press and hold the start/stop button ①.
- The start/stop button ① cannot be used when the foot control is connected to the machine.

② Reverse stitch button



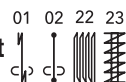
Press and hold the reverse stitch button ② to sew in reverse.

Release the button ② to sew forward.

Press and hold the button ② when the machine is stopped and foot control is disconnected to sew in reverse slowly.

Release the button ② to stop the machine.

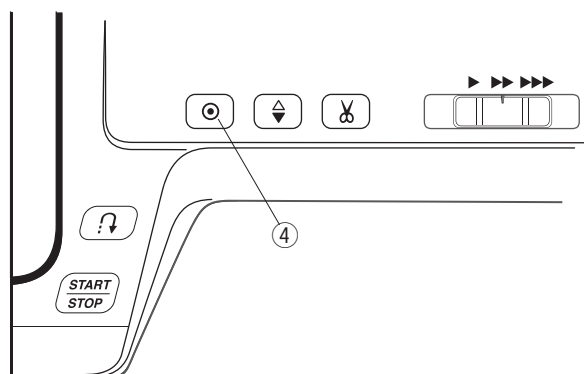
Any other stitches except



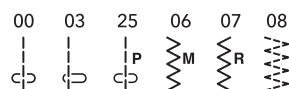
Press the reverse stitch button ② to sew a locking stitch immediately. The machine will automatically stop.



Please refer to pages 24, 40 and 41.



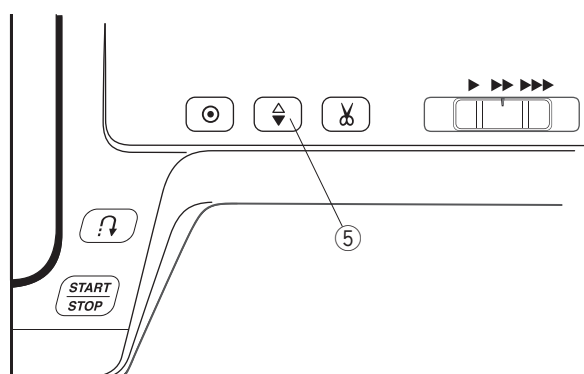
④ Auto-lock button



Press the auto-lock button ④ to sew a locking stitch immediately. The machine will automatically stop.

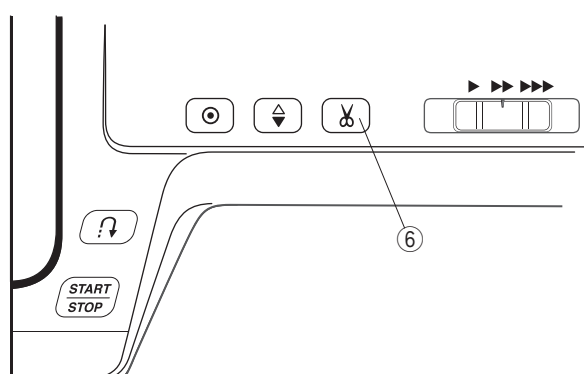
Any other stitches

Press the auto-lock button ④ to sew a locking stitch at the end of current pattern. The machine will automatically stop.



⑤ Needle up/down button

Press the needle up/down button ⑤ to bring the needle up or down.



⑥ Thread cutter button

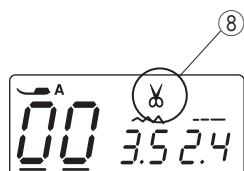
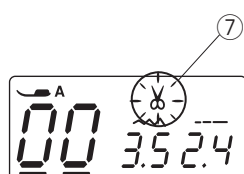
Press the thread cutter button ⑥ to trim the threads after sewing.

The thread cutter mark will blink ⑦ while the machine cuts the threads.

You can continue sewing without pulling the bobbin thread up after trimming the threads.

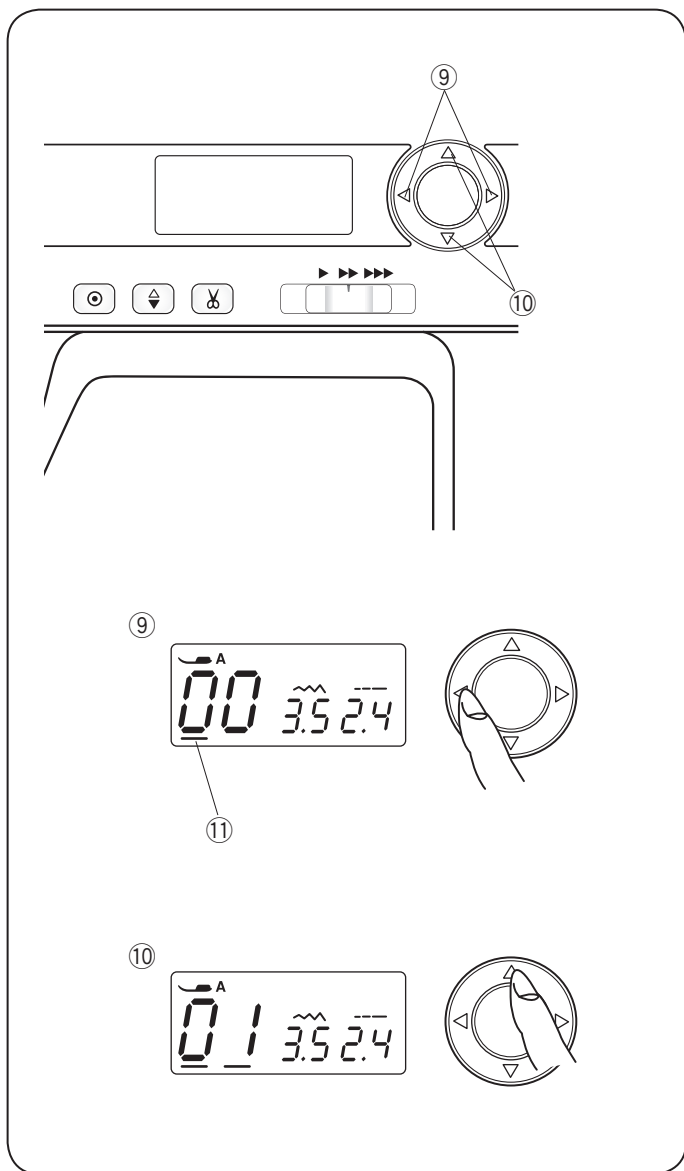
To trim the threads automatically after sewing, select the desired stitch pattern, then press and hold the thread cutter button until the thread cutter mark appears ⑧.

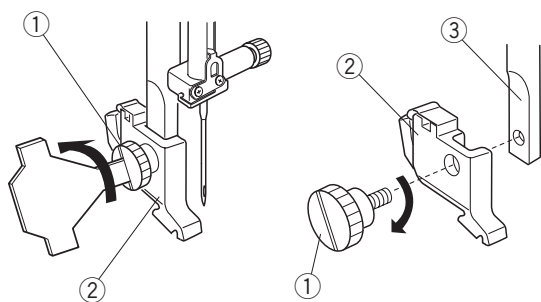
The machine will trim the threads automatically after the locking stitch then stop when the reverse or auto-lock button is pressed, or a pattern has the auto-lock stitch programmed.



NOTE:

Use the thread cutter on the face cover if the thread is #30 or thicker.





Removing and Attaching the Foot Holder



CAUTION:

Turn OFF the power switch before removing or attaching foot holder.

• Removing the foot holder

Raise the needle to its highest position by turning the handwheel counterclockwise. Raise the presser foot, and remove the thumbscrew ① by turning it counterclockwise with a screwdriver.

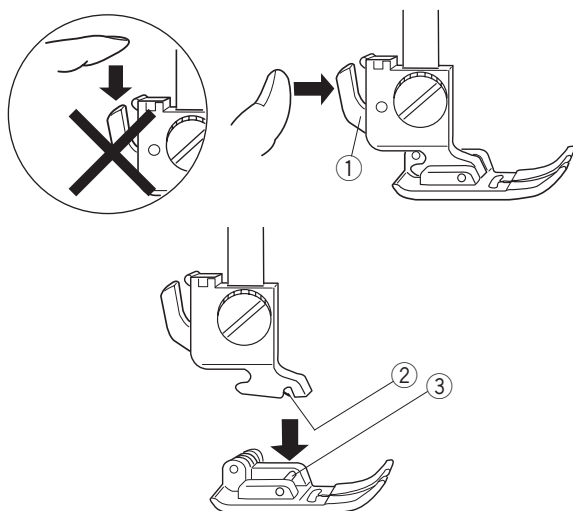
• Attaching the foot holder

Align the hole in the foot holder ② with the threaded hole in the presser bar ③. Fit the thumbscrew ① into the hole. Tighten the thumbscrew ① by turning it clockwise with a screwdriver.

① Thumbscrew

② Foot holder

③ Presser bar



Changing the Presser Foot



CAUTION:

Turn OFF the power switch before changing the foot. Always use the proper foot for the selected pattern. The wrong foot can cause the needle to break.

• Removing the presser foot

Raise the needle to its highest position by turning the handwheel counterclockwise. Raise the presser foot, and press the lever ① on the back of the foot holder.

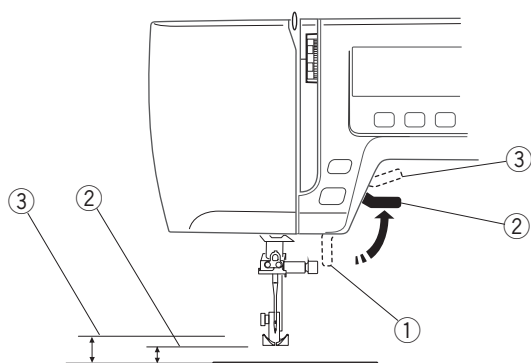
• Attaching the presser foot

Place the selected presser foot so that the pin ③ on the foot lies just under the groove ② in the foot holder. Lower the presser bar to lock the foot into the place.

① Lever

② Groove

③ Pin



Presser Foot Lifter

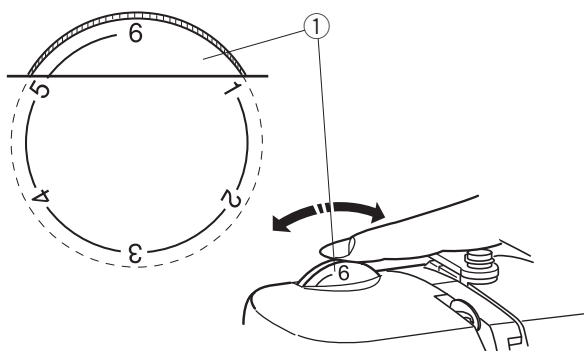
The presser foot lifter ① raises and lowers the presser foot.

You can raise the foot about 0.6 cm higher than the normal up position ② for easy removal of the presser foot, or to help you place thick material under the foot.

① Presser foot lifter

② Normal up position

③ Highest position



Presser Foot Pressure Dial

The presser foot pressure dial should be set at “6” for regular sewing.

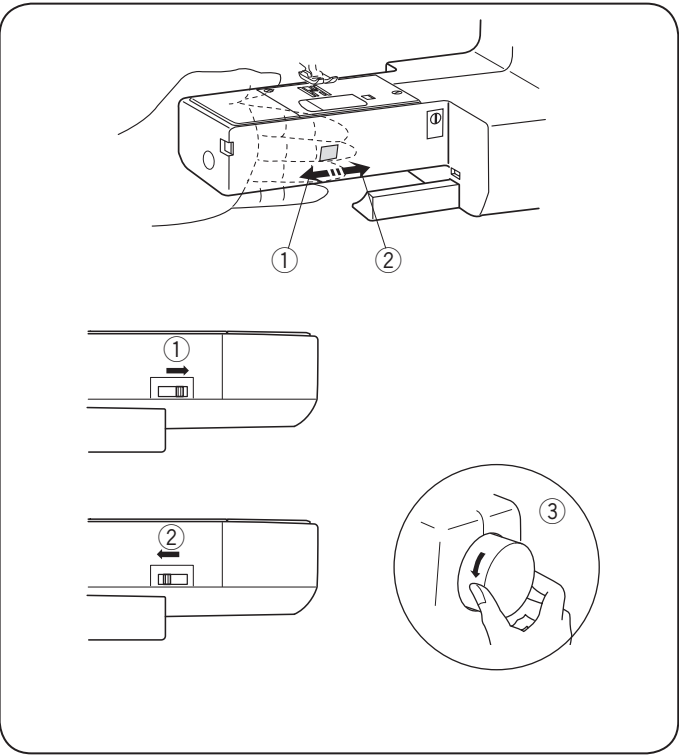
Set the pressure between “3” and “6” for applique, cutwork, drawn work, basting and embroidery.

Set the pressure between “1” and “3” when sewing chiffon, lace, organdy and other fine fabrics.

Velour and knits with a lot of stretch may also require a “1” setting.

Turn the presser foot pressure dial ① and set the desired number.

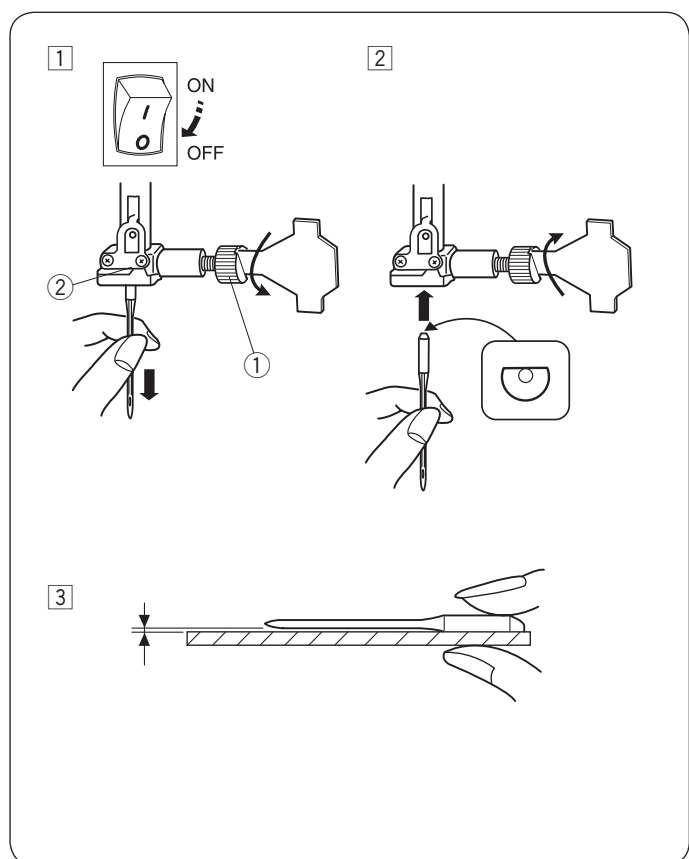
① Presser foot pressure dial



Dropping or Raising the Feed Dog

The drop feed lever is located underneath the free arm bed on the back of the machine.

- ① To drop the feed dog, push the lever in the direction of the arrow ①.
- ② To raise the feed dog, push the lever in the direction of the arrow ②, as illustrated, and turn the handwheel ③ toward you. The feed dog must be up for normal sewing.



Changing the Needle



CAUTION:

Turn OFF the power switch before changing the needle.

- 1 Turn off the power switch.
Raise the needle to its highest position by turning the handwheel counterclockwise, and lower the presser foot. Loosen the needle clamp screw ① by turning it counterclockwise. Remove the needle from the needle clamp ②.
- 2 Insert a new needle into the needle clamp ② with the flat side to the rear. When inserting the needle into the needle clamp ②, push it up as far as it will go. Tighten the needle clamp screw ① firmly by turning it clockwise.
- 3 To see if the needle is in good condition, place the flat side of the needle onto something flat (needle plate, glass, etc.). The gap between the needle and the flat surface should be consistent. Never use a bent or blunt needle.
A damaged needle can cause permanent snags or runs in knits, fine silks and silk-like fabrics.

① Needle clamp screw

② Needle clamp

Fabric and Needle Chart

- For general sewing, use needle size 11/75 or 14/90.
- A fine thread and needle should be used for sewing lightweight 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.

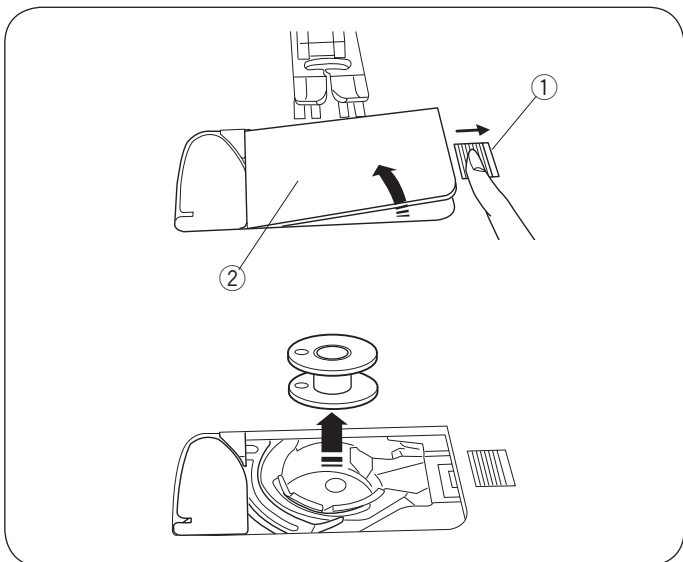
NOTE:

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.

Fabric		Thread	Needle
Fine	Lawn	Silk #80-100 Cotton #80-100 Synthetic #80-100	#9/65-11/75
	Georgette		
	Tricot		
	Organza		
	Crepe		
Medium	Sheeting	Silk #50 Cotton #50-80 Synthetic #50-80	#11/75-14/90
	Jersey		
	Broadcloth		
	Fleece		
Heavy weight	Denim	Silk #30-50 Cotton #40-50 Synthetic #40-50	#14/90-16/100
	Tweed		
	Coating		
	Quilting		

NOTE:

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

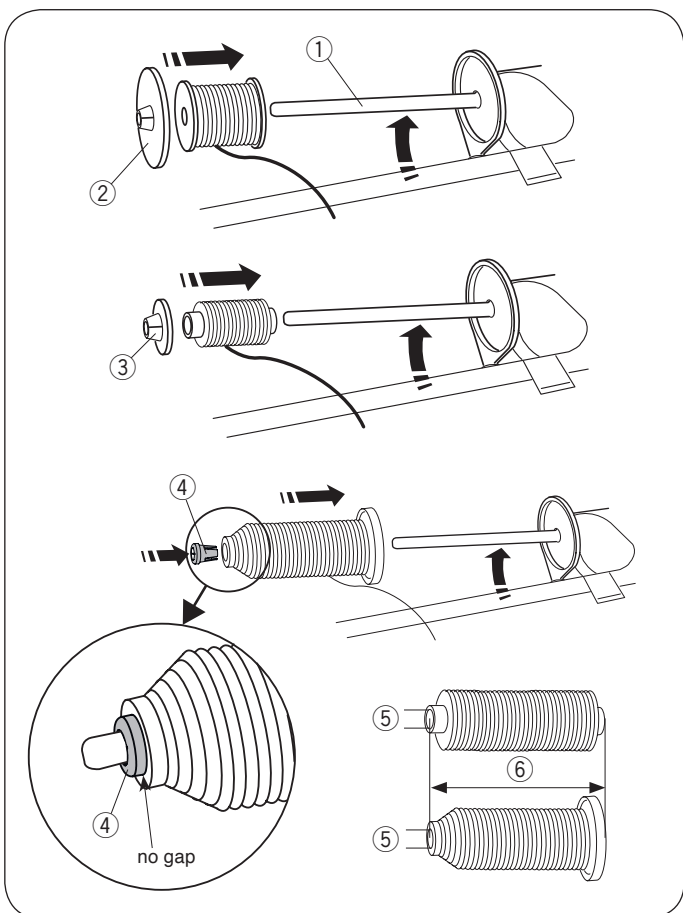


Bobbin Winding

• Removing the bobbin

Gently slide the hook cover release button ① to the right and remove the hook cover plate ②.
Lift out the bobbin.

- ① Hook cover release button
- ② Hook cover plate



• Horizontal spool pin

Lift up the spool pin ①. Place a spool of thread on the spool pin.

Attach the large spool holder ②, and press it firmly against the spool of thread.

The small spool holder ③ is used with narrow or small spools of thread.

Lower the spool pin ①.

- ① Spool pin
- ② Large spool holder
- ③ Small spool holder

• Spool holder (special)

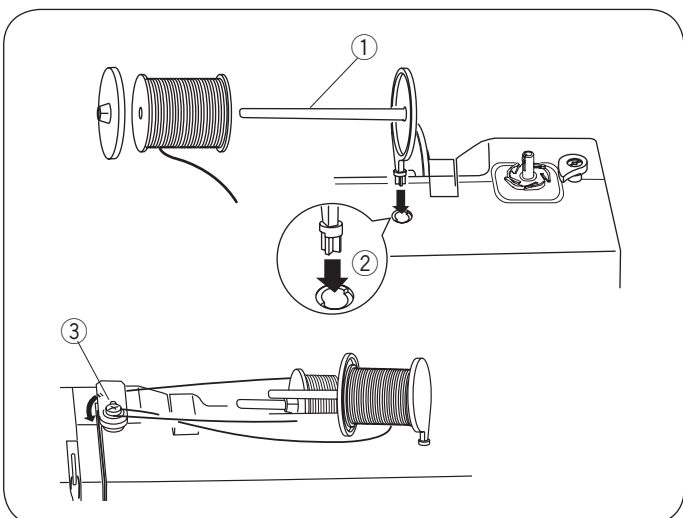
Use the spool holder (special) to hold the specific size of the spool of threads as shown.

The sizes of the spools of thread are as follows:

The hole diameter of the spool has a range of 3/8" to 7/16" (9.5 to 10.5 mm), and the spool length has a range of 2 3/4" to 3" (70 to 75 mm).

- ④ Spool holder (special)
- ⑤ Hole diameter (3/8" to 7/16")
- ⑥ Spool length (2 3/4" to 3")

Firmly insert the spool holder (special) into the hole and hold the spool as illustrated.



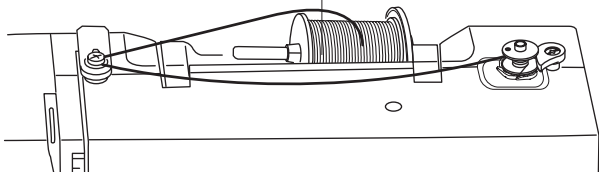
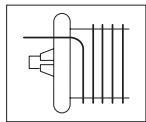
• Additional spool pin

The additional spool pin ① is for winding bobbins without unthreading the machine.

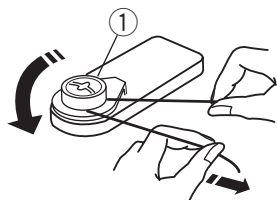
Insert the additional spool pin ① into the hole ②.

The additional spool pin should point to the bobbin winding tension disk ③.

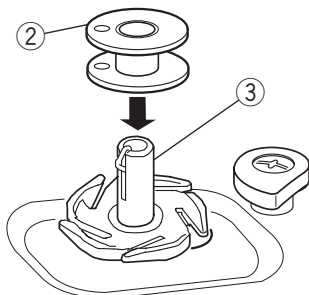
- ① Additional spool pin
- ② Hole for additional spool pin
- ③ Bobbin winding tension disk



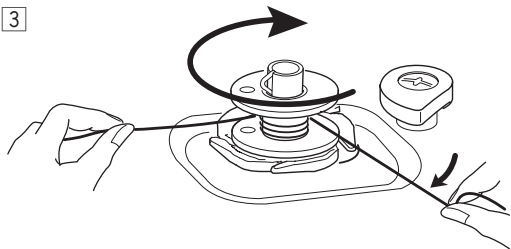
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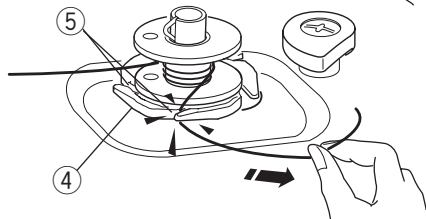
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3



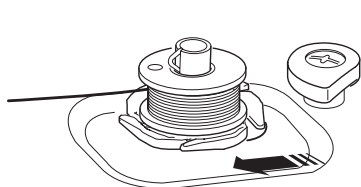
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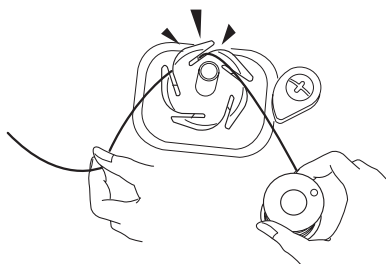
5



6



7



• Winding the bobbin

NOTE:

- Set the speed control slider at its fastest position for bobbin winding.

- 1 Draw the thread from the spool.
Guide the thread around the Bobbin winding tension disk.

① Bobbin winding tension disk

- 2 Put the bobbin on the bobbin winder spindle.

② Bobbin

③ Bobbin winder spindle

- 3 Pass the thread to the bobbin.
Hold the thread with both hands and wind it around the bobbin clockwise several times.

- 4 Insert the thread into one of the slits ⑤ of the flange plate ④ and pull the thread to cut.

④ Flange plate

⑤ Slit

- 5 Push the bobbin to the right.
The bobbin mark ⑥ appears on the LCD display.

⑥ Bobbin mark

- 6 Start the machine. When the bobbin is fully wound, it will stop automatically. Stop the machine and return the bobbin winder to its original position by moving the spindle to the left.

- 7 Insert the thread into one of the slits of the flange plate and pull the thread to cut.

Inserting the bobbin

- 1 Place a bobbin in the bobbin holder with the thread running off counterclockwise as shown on the hook cover plate.

- ① End of thread
- ② Bobbin holder
- ③ Hook cover plate

- 2 Hold the bobbin with your fingertip so it does not rotate. Guide the thread into the front notch of the bobbin holder. Pull the thread to the left to pass it under the guide.

- ④ Front notch
- ⑤ Guide

- 3 Draw the thread to the left to pass it into the guide path marked "1". Make sure that the thread comes out from the side notch of the bobbin holder.

- ⑥ Guide path 1
- ⑦ Side notch

NOTE:

If the thread does not come out from the side notch, rethread from step 1.

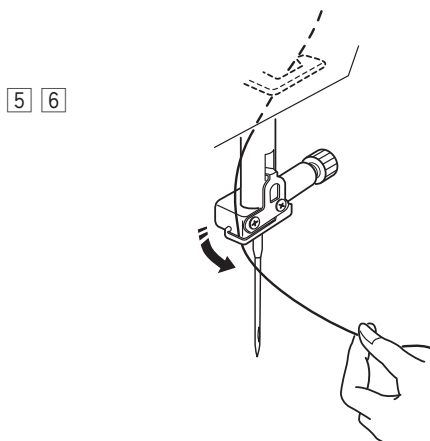
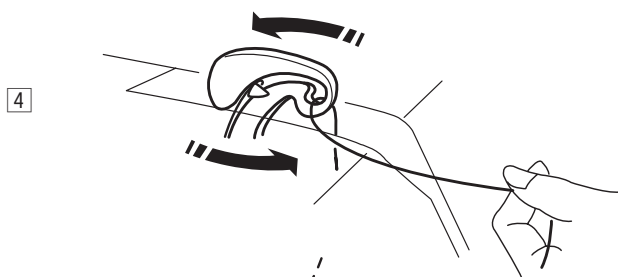
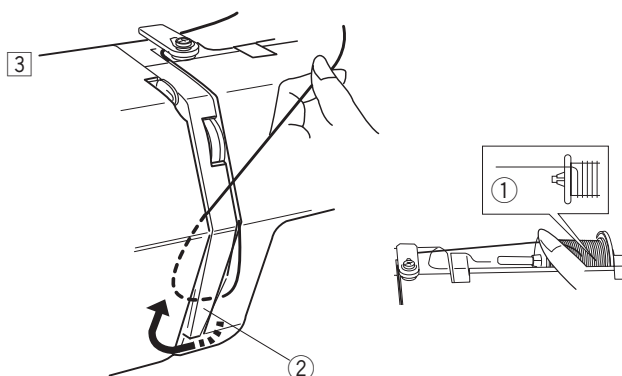
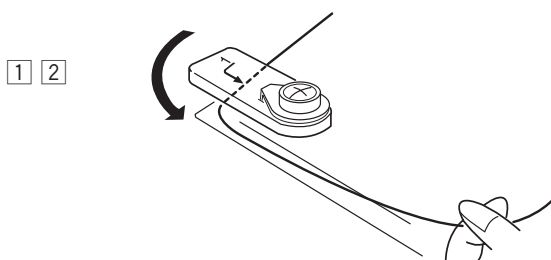
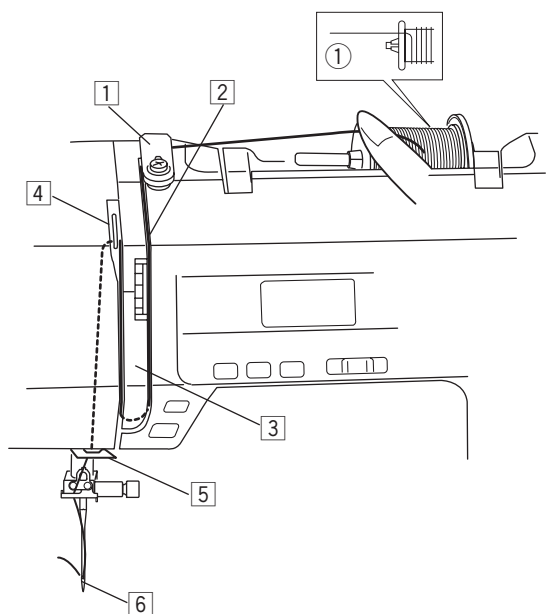
- 4 Continue to draw the thread along the guide path marked "2" and pull the thread to the right through the slit. The thread will be cut to a proper length and held in place.

- ⑧ Guide path 2
- ⑨ Slit (Bobbin thread cutter)

- 5 Set the left edge of the hook cover plate into opening. Push down the hook cover plate to fit in place.

NOTE:

Unless otherwise noted, you can start sewing without drawing up the bobbin thread. Refer to page 17 for how to draw up the bobbin thread.



Threading the Machine

Raise the presser foot. Press the needle up/down button to raise the thread take-up lever to its highest position.



CAUTION:

Turn OFF the power switch before threading the machine.

• Threading the machine

1 2 Draw the end of the thread around the upper thread guide.

3 While holding the thread near the spool ①, draw the end of the thread down around the check spring holder ②.

① Spool

② Check spring holder

4 Firmly draw the thread up from right to left over the take-up lever, and down into the take-up lever eye.

5 Pass the thread through the lower thread guide. Slide the thread behind the needle bar thread guide on the left.

6 Thread the needle from front to back, or use the needle threader.

Needle Threader

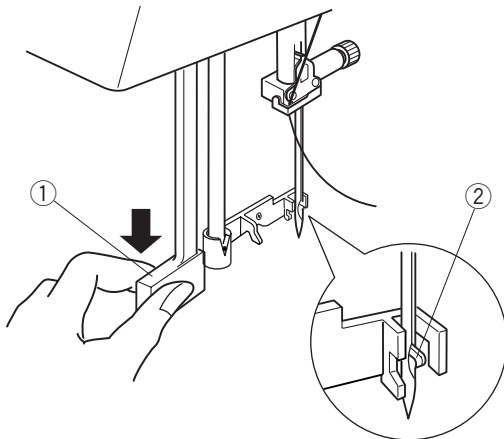


CAUTION:

Turn OFF the power switch when using the needle threader.

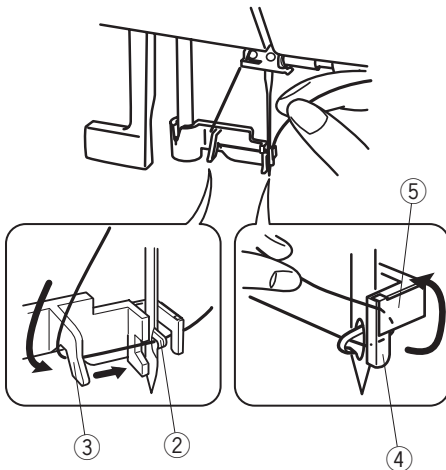
- 1 Lower the presser foot. Raise the needle to its highest position. Pull down the needle threader knob ① as far as it will go. The hook ② comes out through the needle eye from behind.

- ① Knob
- ② Hook

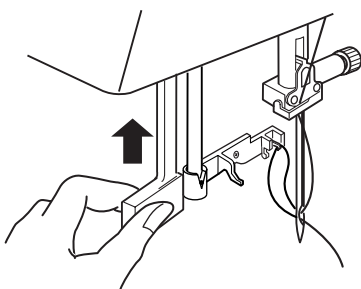


- 2 Draw the thread from guide (a) ③ to guide (b) ④ and under the hook ②. Draw the thread up along the right side of guide (b) ④ and slip the thread in between guide (b) and the holder plate ⑤.

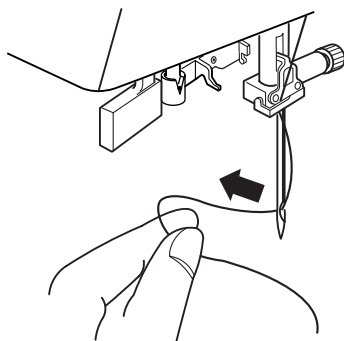
- ③ Guide (a)
- ④ Guide (b)
- ⑤ Holder plate



- 3 Raise the knob in the direction of the arrow, drawing the thread loop through the needle.



- 4 Pull the thread through the needle eye.



NOTE:

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

Drawing up the Bobbin Thread

After using auto thread cutting or threading the bobbin holder, you can start sewing without drawing up the bobbin thread.

However, you need to draw up the bobbin thread when sewing gathering stitches etc.

- 1 Remove the bobbin. Insert the bobbin into the bobbin holder again and rethread the bobbin holder according to the instructions on page 14, but leave a 10 cm tail of bobbin thread as shown.

① Bobbin thread

NOTE:

Do not cut the bobbin thread with the bobbin thread cutter.

② Bobbin thread cutter

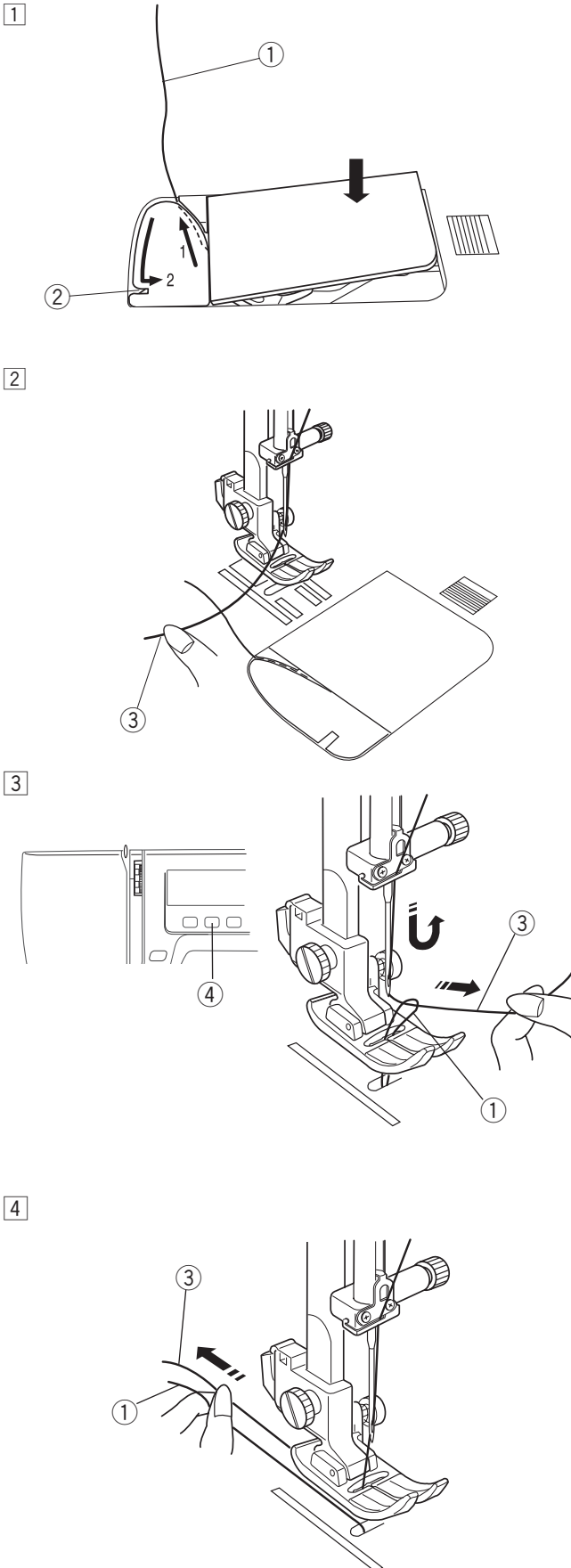
- 2 Raise the presser foot. Hold the needle thread lightly with your left hand.

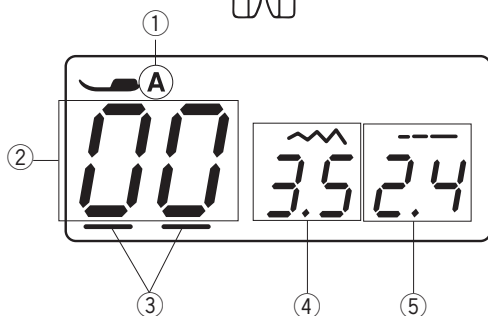
③ Needle thread

- 3 Press the needle up/down button twice to lower and raise the needle and pick up the bobbin thread.

④ Needle up/down button

- 4 Pull both threads 10 cm under and behind the presser foot.

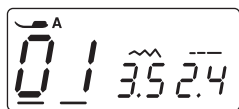




1



2



3



LCD Display

The LCD display shows the following information when the machine is turned on.

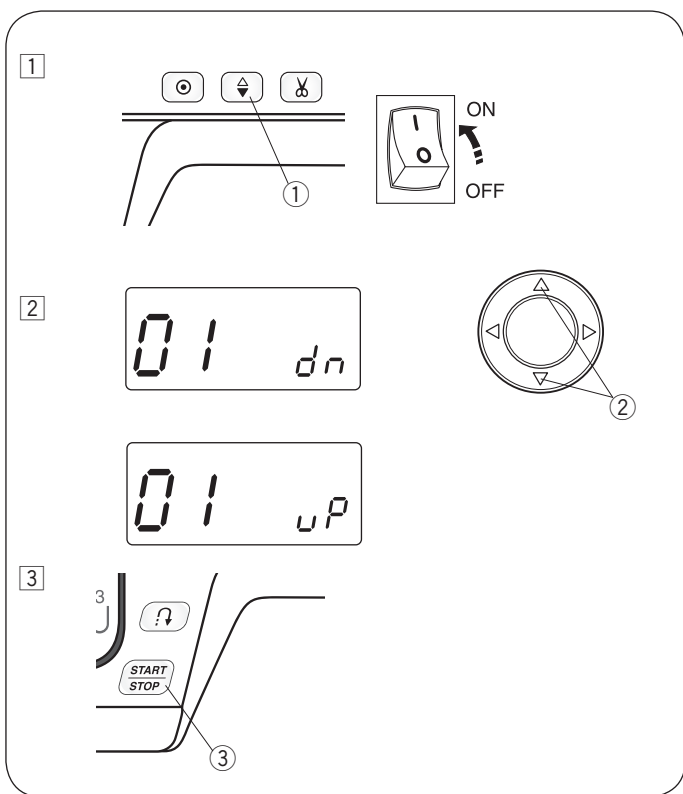
- ① Identification letter for recommended foot
- ② Stitch pattern number
- ③ Cursors
- ④ Stitch width
- ⑤ Stitch length

Selecting Stitch Patterns

- 1 Press the cursor buttons ◀ ▶ to move the cursor under the stitch pattern number. The cursors appear under both digits when turning the power on.
- 2 Press the value set buttons ▲ ▼ to change the stitch pattern number until the pattern number of the desired stitch is indicated. The number will increase or decrease by 1 each time you press the value set button.
- 3 Press the ◀ button to move the cursor under the tens digit of the stitch pattern number. The number will increase or decrease by 10 each time you press the value set button.

Stitch Patterns

00	01	02	03	04	05	06	07	08	09
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59



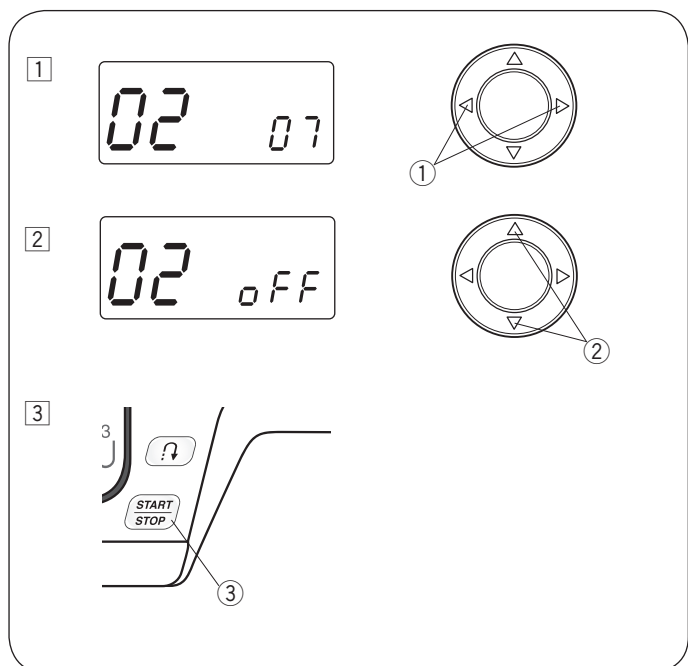
Setting Mode

To enter the setting mode, turn the power off. Press and hold the needle up/down button (1) and turn the power switch on until the setting screen appears as shown.

• Needle stop position setting

- Enter the setting mode.
- The default setting is down and "dn" sign appears on the screen. Press the value set button (2). The "uP" sign appears and the needle stop position is set to up.

- Press the START/STOP button (3) to apply the setting.



• Auto-off timer

- Enter the setting mode. Press the cursor button (1) to enter the Auto-off timer setting mode. The default auto-off timer setting is 7 hours and "07" sign appears on the screen.
- Press the value set button (2) to increase or decrease the setting value. The auto-off timer can be set from 1 to 12 hours. If you wish to turn off the timer, press and hold the value set button until "oFF" sign appears on the screen.
- Press the START/STOP button (3) to apply the setting.

NOTE:

The auto-off timer is available in EU countries and some regions which use 200 - 240 voltage standards.

Adjusting the Needle Thread Tension for a Straight Stitch

• Correct tension

- ① Needle thread (top thread)
- ② Bobbin thread (bottom thread)
- ③ To loosen
- ④ To tighten

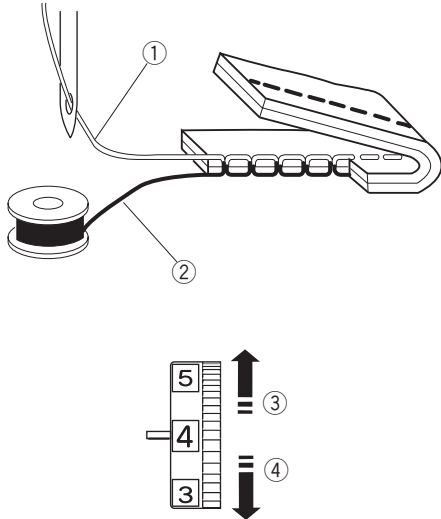
The ideal straight stitch has threads locked between two layers of fabric, as illustrated (magnified to show detail).

If you look at the top and bottom of the seam, notice that the stitches are evenly balanced.

When adjusting the needle thread tension, the higher the number, the tighter the needle thread tension.

Results depend on:

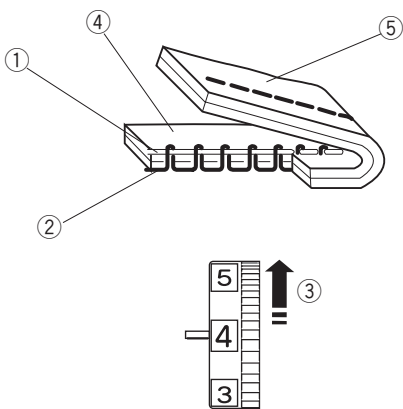
- stiffness and thickness of the fabric
- number of fabric layers
- type of stitch



• Tension is too tight

- ① Needle thread (top thread)
- ② Bobbin thread (bottom thread)
- ③ To loosen tension
- ④ Right side (top side) of fabric
- ⑤ Wrong side (bottom side) of fabric

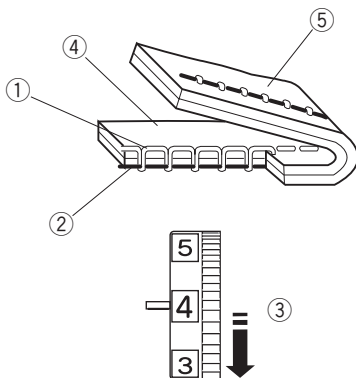
The bobbin thread shows through on the right side of the fabric, and the stitch feels bumpy. Turn the dial to a lower tension setting number to loosen the needle thread tension.



• Tension is too loose

- ① Needle thread (top thread)
- ② Bobbin thread (bottom thread)
- ③ To tighten tension
- ④ Right side (top side) of fabric
- ⑤ Wrong side (bottom side) of fabric

The needle thread shows through on the wrong side of the fabric, and the stitch feels bumpy. Turn the dial to a higher tension setting number to tighten the needle thread tension.

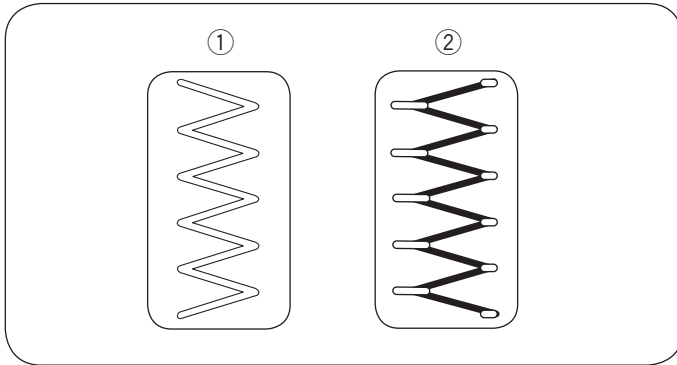


Adjusting the Needle Thread Tension for a Zigzag Stitch

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.

See the illustrations for the correct appearance.

To match this appearance, adjust the needle tension as necessary.

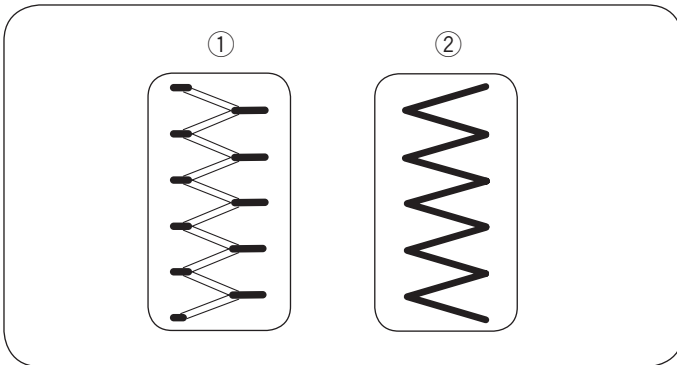


• Correct tension

- ① Right side (top side) of fabric
- ② Wrong side (bottom side) of fabric

Minimize the amount of needle thread visible on the wrong side (bottom side) of the fabric without causing excessive puckering, or causing the bobbin thread to show on the right side (top side) of the fabric.

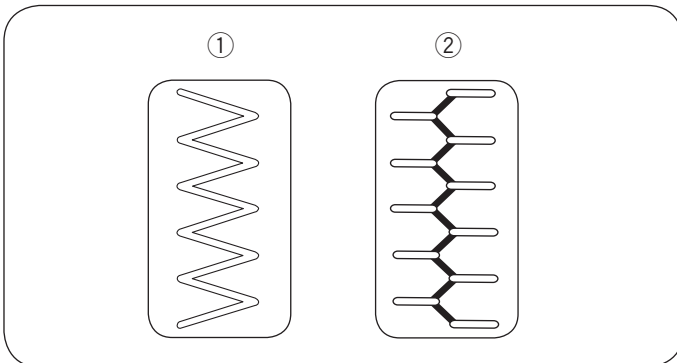
Results vary with fabric, thread and sewing conditions.



• Tension is too tight

- ① Right side (top side) of fabric
- ② Wrong side (bottom side) of fabric

The corner of each zigzag pulls together on the right side of the fabric



• Tension is too loose

- ① Right side (top side) of fabric
- ② Wrong side (bottom side) of fabric

The corner of each zigzag point pulls together on the wrong side of the fabric.

SECTION III. BASIC SEWING

Straight Stitch Sewing

- ① Stitch pattern: 00
- ② Needle thread tension: 2 to 6
- ③ Presser foot: Zigzag foot A

NOTE:

When sewing with a Satin stitch F or automatic buttonhole foot R, pull the thread to the left to hold them.

• Starting to sew

Raise the presser foot and position the fabric next to a seam guide line on the needle plate (1.6 cm is most common). Lower the needle to the point where you want to start. Pull the needle thread toward the back and lower the presser foot. Start the machine. Gently guide the fabric along a seam guide line letting the fabric feed naturally.

• Finishing sewing

To fasten the ends of a seam, press the reverse stitch button ① and sew several reverse stitches. Press the thread cutter button ② to cut the threads.

- ① Reverse stitch button
- ② Thread cutter button

Raise the presser foot.

Use the thread cutter ③ on the face plate to cut thicker threads.

- ③ Thread cutter

Changing sewing direction

Stop the machine and raise the presser foot.

Pivot the fabric around the needle to change the sewing direction as desired.

Lower the foot and start sewing in a new direction.

Turning Square Corners

To sew at the same distance from the edge when turning a corner with the fabric edge at the 5/8" seam guide, stop the machine when the front edge of the fabric reaches the cornering guide lines ① and raise the presser foot. Turn the fabric counterclockwise 90°, lower the presser foot and begin stitching in a new direction.

- ① Cornering guide

Sewing from the Edge of Thick Fabric

The black button ① on the zigzag foot locks the foot in the horizontal position.

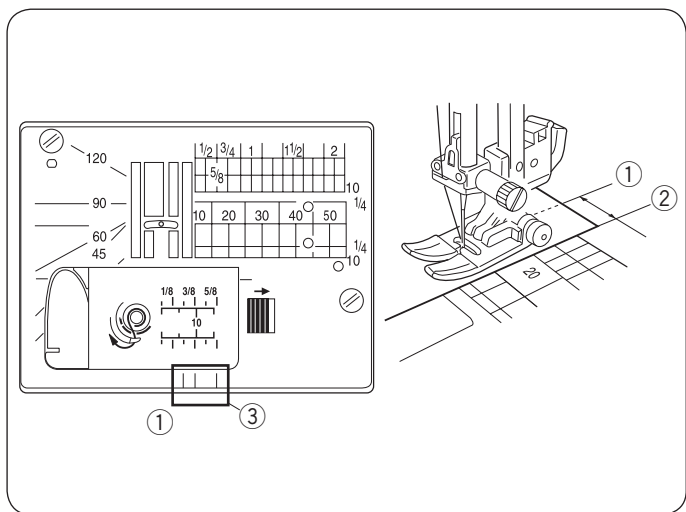
This is helpful when starting to sew from the far edge of thick fabrics ② or sewing across a hem.

Lower the needle into the fabric at the point where you wish to start sewing.

Lower the foot while pushing in the black button ①. The foot is locked in the horizontal position to avoid slipping.

The button is released automatically after sewing a few stitches.

- ① Black button
- ② Thick fabrics



Needle Plate

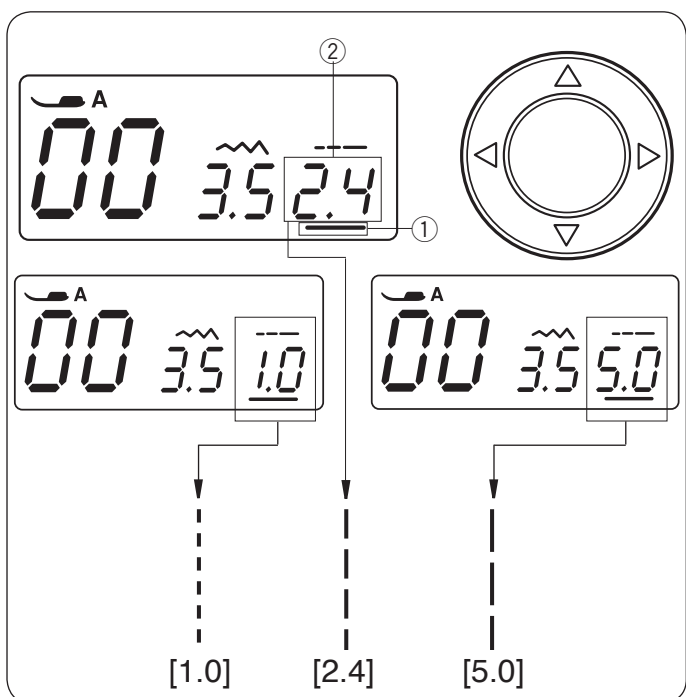
The seam guides on the needle plate and the hook cover help you to measure seam allowance. The numbers on the needle plate indicate the distance between the center needle position ① and the edge of the fabric ②.

- ① Center needle position
- ② Edge of the fabric

Number	10	20	30	40	50	1/2	5/8	3/4	1	1 1/2	2
Distance (cm)	1.0	2.0	3.0	4.0	5.0	—	—	—	—	—	—
Distance (inch)	—	—	—	—	—	1/2	5/8	3/4	1	1 1/2	2

The front seam guides ③ are marked at 1/4", 3/8" and 5/8" from the center needle position ①.

- ③ Front seam guides



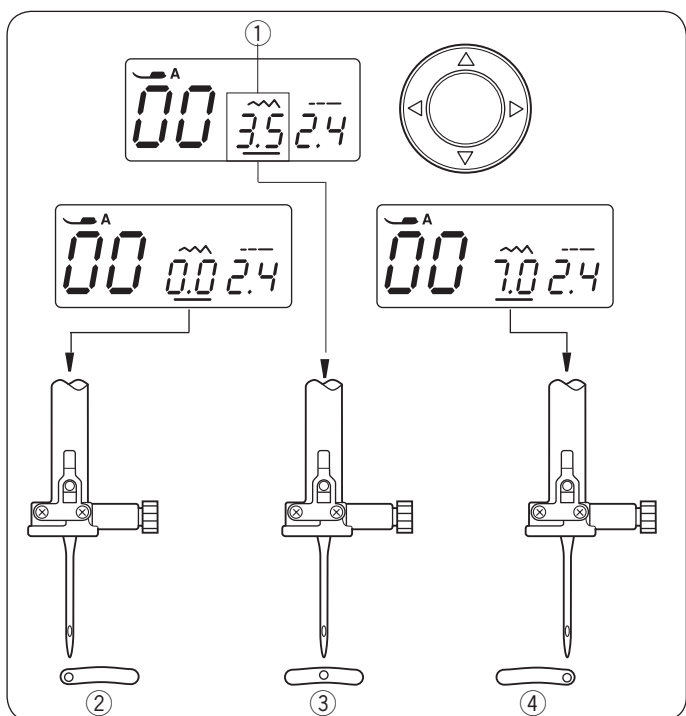
• Adjusting the stitch length

Press the cursor buttons < > to move the cursor ① under the stitch length value "2.4" ② (default setting). Press the ▽ button to decrease stitch length. Press the △ button to increase stitch length. The stitch length can be varied from 0.0 to 5.0.

- ① Cursor
- ② Stitch length (2.4)

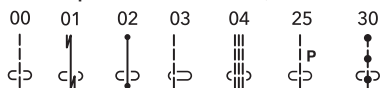
NOTE:

Reverse stitch length cannot be set longer than 4.0.



• Adjusting the needle drop position

The needle drop position can be adjusted for straight stitch patterns 00 - 04, and 30 - 32.

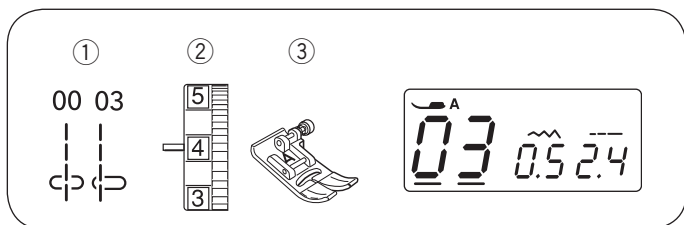


Press the cursor buttons < > to move the cursor under the stitch width value "3.5" ① (default setting).

Press the ▽ button to move the needle to the left ②.

Press the △ button to move the needle to the right ④.

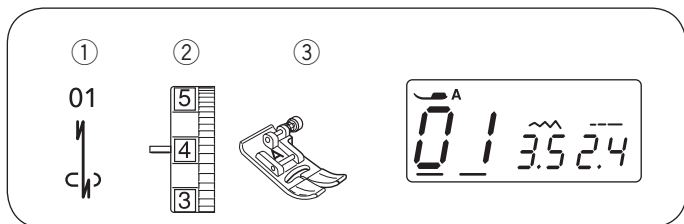
- ① Stitch width (3.5)
- ② Left (0.0)
- ③ Middle (3.5)
- ④ Right (7.0)



Straight Stitch

- ① Stitch pattern: 00 or 03
- ② Needle thread tension: 2 to 6
- ③ Presser foot: Zigzag foot A

For seaming garments, zipper application and more. Pattern 03 is used for seaming fine fabrics.

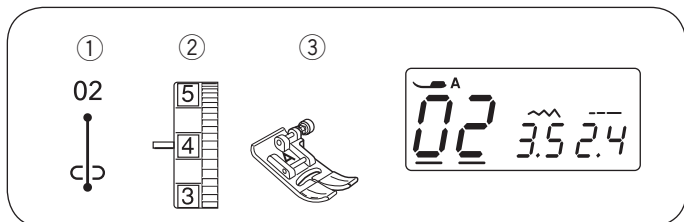
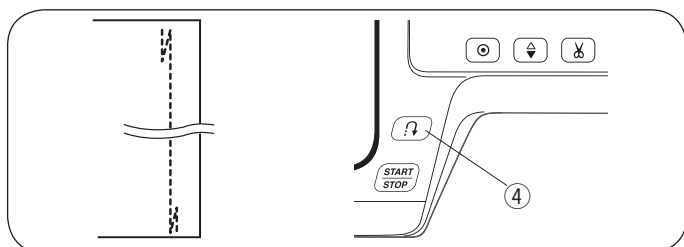


Lock-a-Matic Stitch

- ① Stitch pattern: 01
- ② Needle thread tension: 2 to 6
- ③ Presser foot: Zigzag foot A

Use this stitch to secure the beginning and the end of a seam with backstitching. When you reach the end of the seam, press the reverse stitch button ④ once. The machine will sew four reverse stitches, four forward stitches, and then stop sewing automatically.

- ④ Reverse stitch button



Locking Stitch

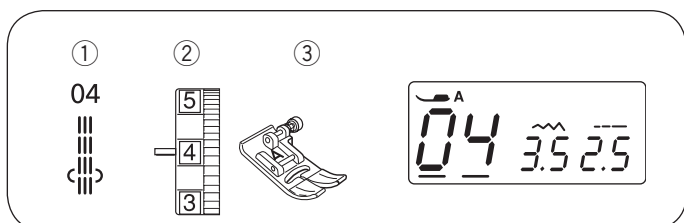
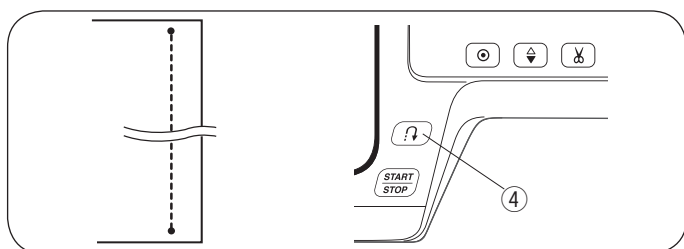
- ① Stitch pattern: 02
- ② Needle thread tension: 2 to 6
- ③ Presser foot: Zigzag foot A

This unique stitch is used where an invisible locking stitch is needed.

Lower the needle close to the front edge of the fabric. The machine will sew several locking stitches in place and continue sewing forward.

When you press the reverse stitch button ④ at the end of the seam, the machine will sew several locking stitches in place, then stop sewing automatically.

- ④ Reverse stitch button

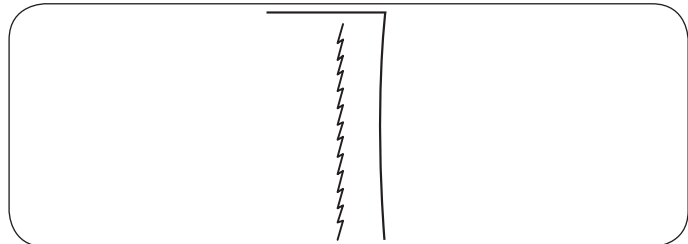
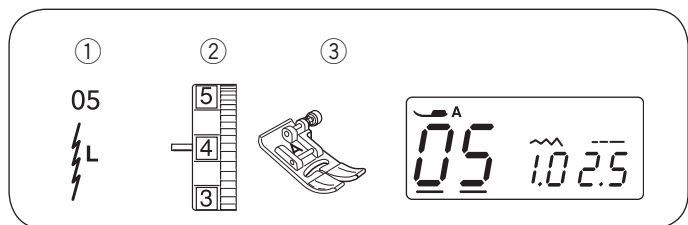


Triple Stretch Stitch

- ① Stitch pattern: 04
- ② Needle thread tension: 2 to 6
- ③ Presser foot: Zigzag foot A

This strong, durable stitch is recommended when both elasticity and strength are necessary in order to ensure comfort and durability. Use it to reinforce areas such as crotch and armhole seams. Also use for extra reinforcement when constructing items such as backpacks.

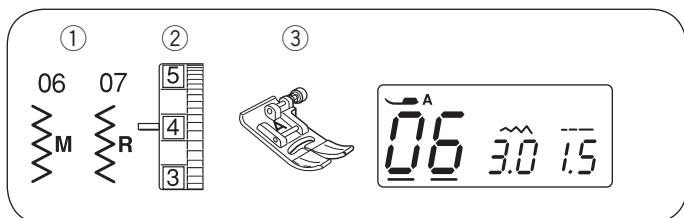




Stretch Stitch

- | | |
|--------------------------|---------------|
| ① Stitch pattern: | 05 |
| ② Needle thread tension: | 3 to 6 |
| ③ Presser foot: | Zigzag foot A |

This stitch is a narrow stretch stitch designed to eliminate puckering on knit fabrics and bias seams, while permitting the seam to be pressed completely open flat.



Zigzag Stitch

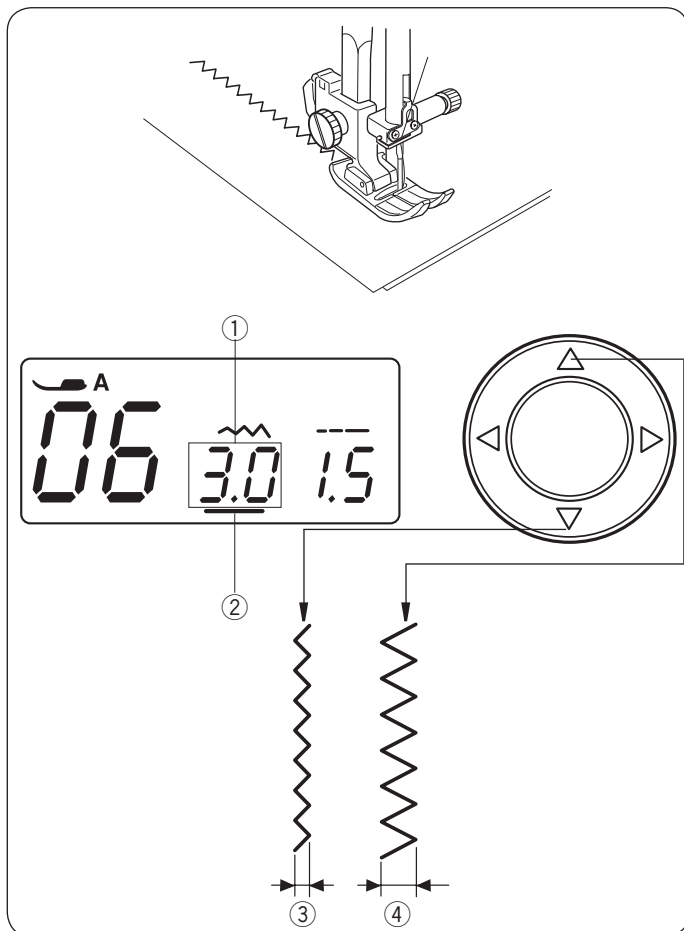
- | | |
|--------------------------|---------------|
| ① Stitch pattern: | 06 or 07 |
| ② Needle thread tension: | 2 to 6 |
| ③ Presser foot: | Zigzag foot A |

The zigzag stitch is one of the most useful and versatile stitches.

It is used for overcasting, mending, applique, and also used as a decorative stitch.

NOTE:

Use an interfacing when sewing on stretch fabrics such as knit, jersey or tricot.



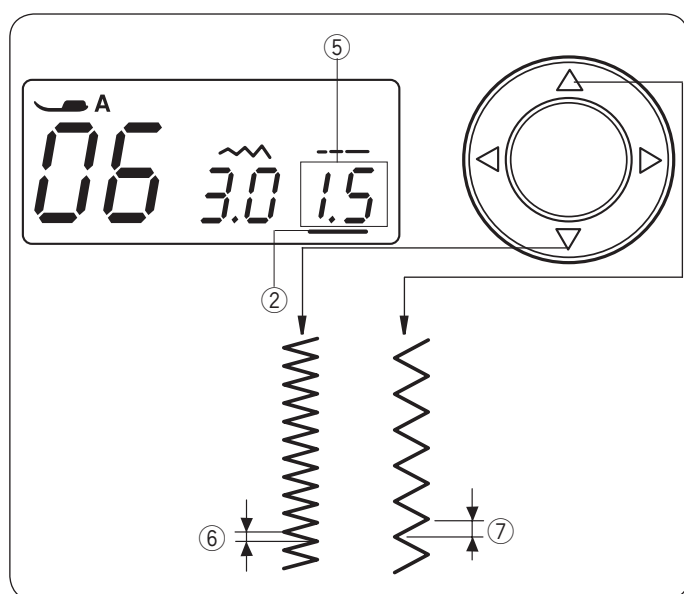
• Adjusting the stitch width

Press the cursor buttons ◀ ▶ to move the cursor ② under the stitch width value “3.0” ① (default setting).

Press the ▼ button to decrease stitch width ③.

Press the ▲ button to increase stitch width ④.

The stitch width can be varied from 0.0 to 7.0.



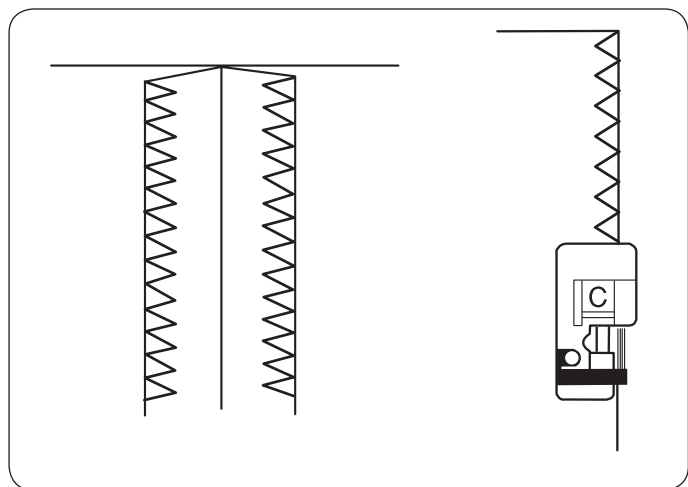
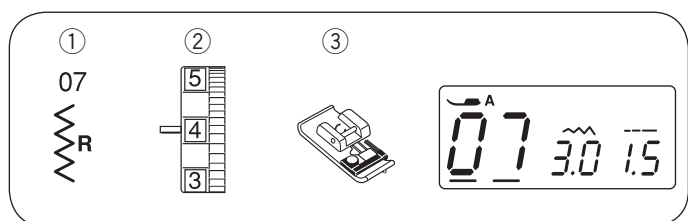
• Adjusting the stitch length

Press the cursor buttons ◀ ▶ to move the cursor ② under the stitch length value “1.5” ⑤ (default setting).

Press the ▼ button to decrease stitch length ⑥.

Press the ▲ button to increase stitch length ⑦.

The stitch length can be varied from 0.2 to 5.0.



Overcasting with Zigzag Stitch

- ① Stitch pattern: 07
- ② Needle thread tension: 3 to 7
- ③ Presser foot: Overedge foot C

This zigzag variation is very useful in garment construction and in finishing raw edges of any sewing project.

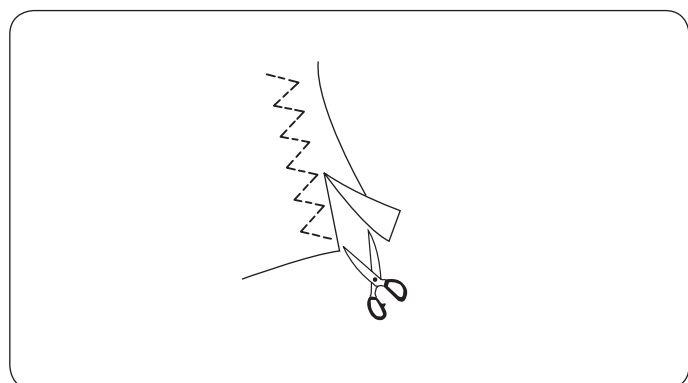
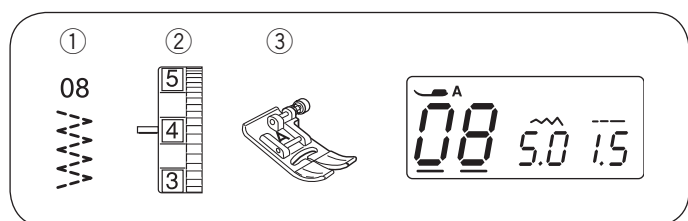
The black ridge and the guide wires on the overedge foot keep the edge neat and the fabric straight. Place your fabric so that the double guide wires come to the edge. The machine will stitch over these wires. The black ridge will keep loose threads in so that the needle can stitch over them.

As you sew, be sure your fabric edge pushes up against the black ridge.



CAUTION:

When using an overedge foot, make sure to set the stitch width between 5.0 and 7.0, otherwise the needle may hit the overedge foot.

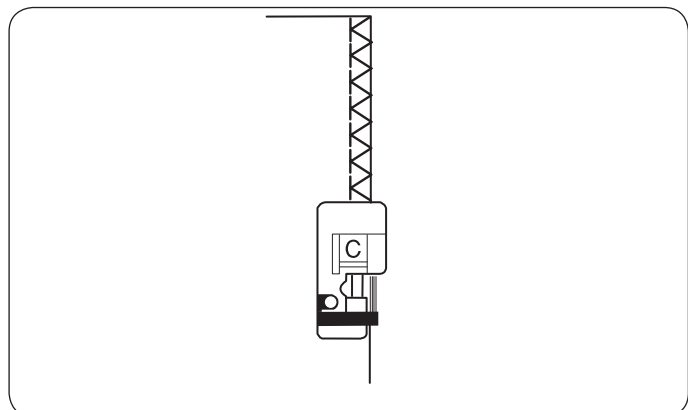
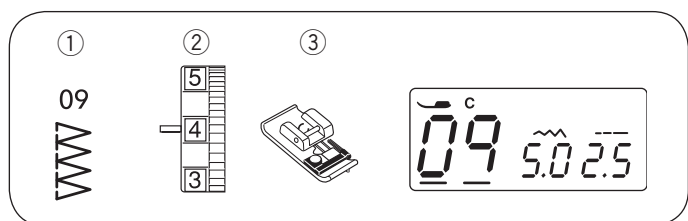


Multiple Zigzag

- ① Stitch pattern: 08
- ② Needle thread tension: 3 to 6
- ③ Presser foot: Zigzag foot A

This stitch is used to finish seams on synthetics and other fabrics that tend to pucker. The stitch is also excellent for darning and mending tears.

Place your fabric to allow a 1.5 cm seam. Trim the excess close to the stitching. Be careful not to cut the stitches.



Overedge Stitch

- ① Stitch pattern: 09
- ② Needle thread tension: 3 to 7
- ③ Presser foot: Overedge foot C

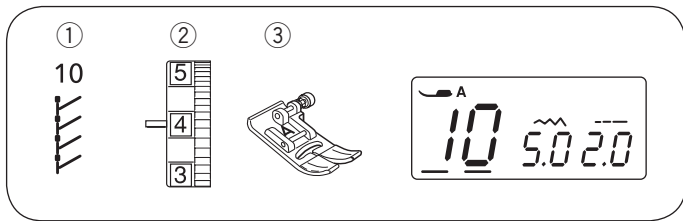
This stitch is used to simultaneously seam and overcast edges of fabrics. Use this stitch when you do not need to open seams flat.

Place the fabric edge next to the black guide and sew.



CAUTION:

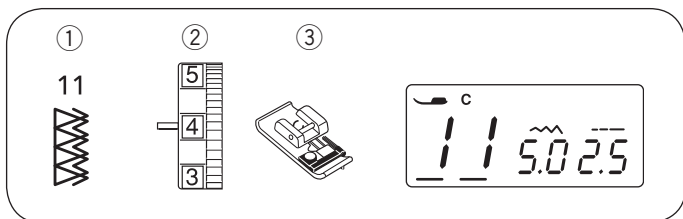
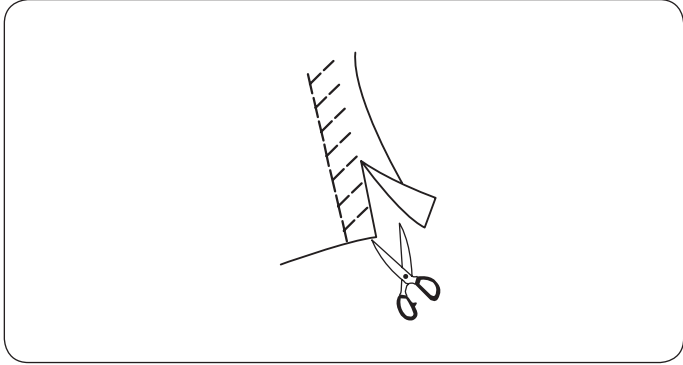
Stitch width should be set between 5.0 and 7.0, otherwise the needle may hit the overedge foot. The blue tipped needle is recommended for stretch materials.



Knit Stitch

- | | |
|--------------------------|---------------|
| ① Stitch pattern: | 10 |
| ② Needle thread tension: | 3 to 6 |
| ③ Presser foot: | Zigzag foot A |

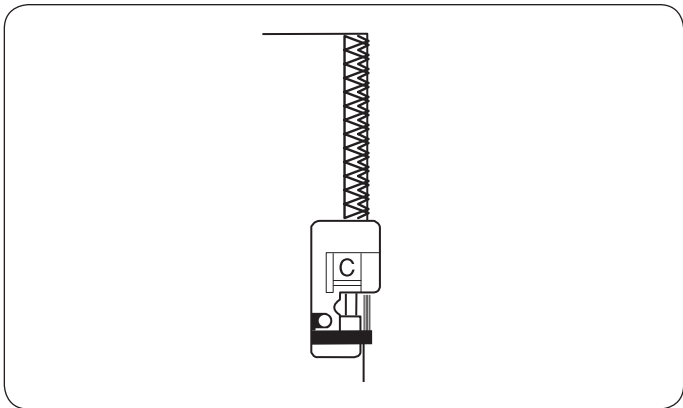
Place your fabric to allow a 1.5 cm seam. Trim excess close to the stitching. Be careful not to cut the stitches.



Double Overedge Stitch

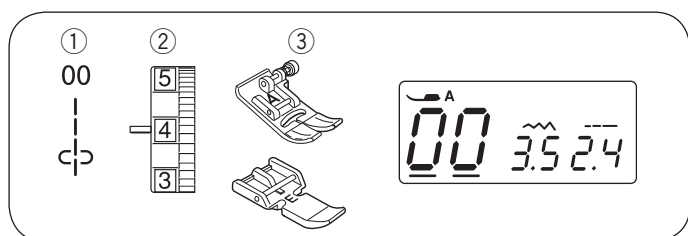
- | | |
|--------------------------|-----------------|
| ① Stitch pattern: | 11 |
| ② Needle thread tension: | 3 to 7 |
| ③ Presser foot: | Overedge foot C |

This stitch can be used for sewing fabrics that tend to fray extensively such as linens and gabardines. Two rows of zigzag stitches are simultaneously sewn over the edge to ensure that your seams will not ravel. Adjust the thread tension so both the needle and bobbin threads meet at the edge of the fabric.



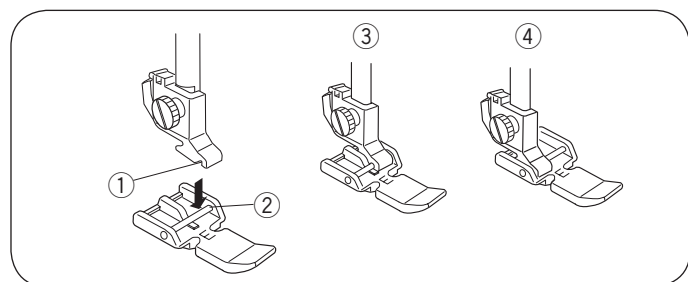
CAUTION:

Stitch width should be set between 5.0 and 7.0, otherwise the needle may hit the overedge foot. The blue tipped needle is recommended for stretch materials.



Zipper Sewing

- ① Stitch pattern: 00
- ② Needle thread tension: 1 to 4
- ③ Presser foot: Zigzag foot A
Zipper foot E



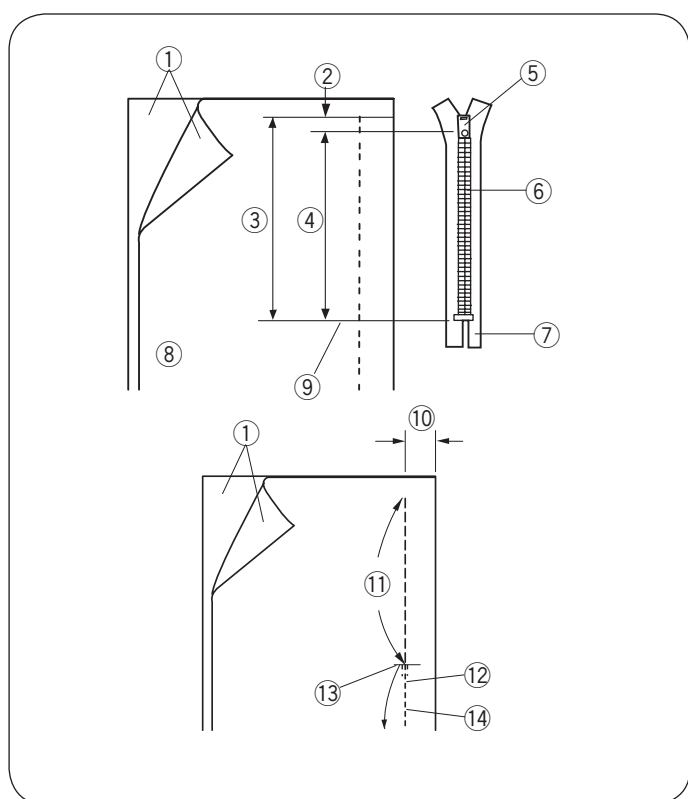
• Attaching the zipper foot

Fit the pin ② on the zipper foot into the groove ① in the foot holder.

To sew the left side of the zipper, attach the zipper foot with the right-hand side of the pin ③.

To sew the right-side of the zipper, attach the zipper foot with the left-hand side of the pin ④.

- ① Groove
- ② Pin
- ③ To sew left side
- ④ To sew right side



• Fabric preparation

Add 1 cm to the zipper length. This is the overall opening size.

- ① Right side of the fabric
- ② 1 cm
- ③ Opening size
- ④ Zipper length
- ⑤ Slider
- ⑥ Zipper teeth
- ⑦ Zipper tape
- ⑧ Wrong side of the fabric
- ⑨ End of the opening

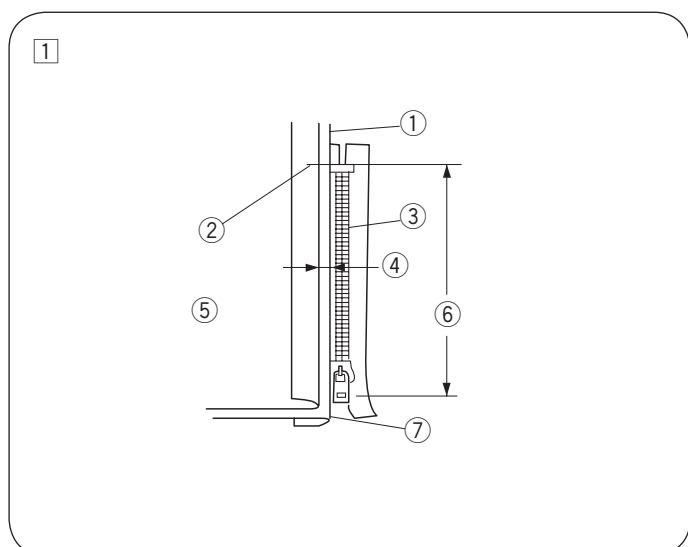
Place the right sides of the fabric together and sew up to the end of the zipper opening, with a 2 cm seam allowance. Reverse the stitch to fasten the seam.

Attach the zigzag foot and baste along the zipper opening with the stitch length 4.5.

- ⑩ 2 cm
- ⑪ Zipper opening (Basting)
- ⑫ Reverse stitches
- ⑬ End of the opening
- ⑭ Seam

NOTE:

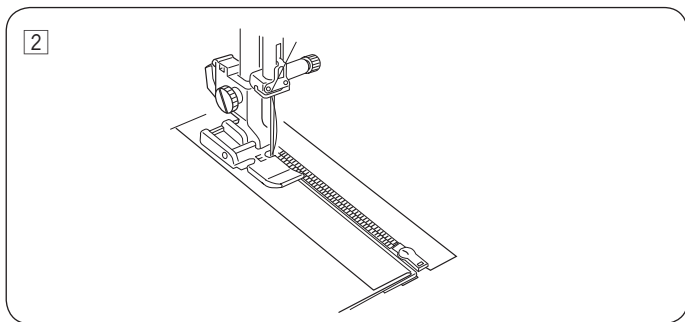
Loosen the thread tension to one (1) for basting.



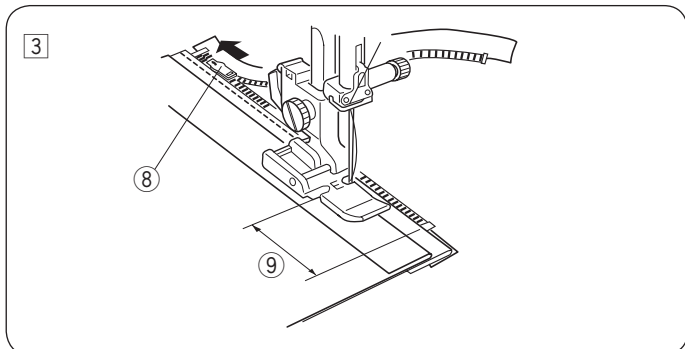
• Start sewing

- ① Fold up the upper seam allowance. Fold back the bottom seam allowance to form a 0.3 cm fold. Place the zipper teeth next to the fold and pin it in place.

- ① Bottom fabric
- ② End of the zipper opening
- ③ Zipper teeth
- ④ 0.3 cm
- ⑤ Wrong side of the upper fabric
- ⑥ Opening size
- ⑦ Fold

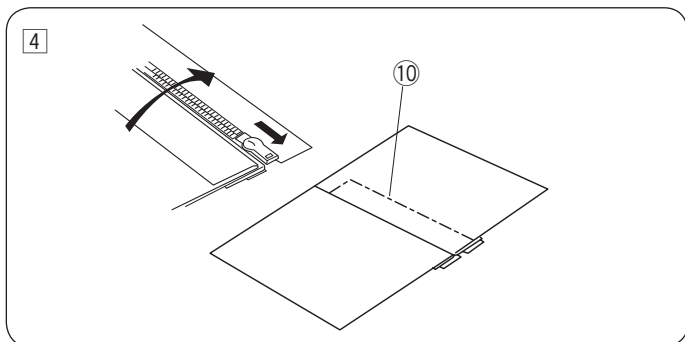


- 2 Attach the zipper foot with the pin on the right. Sew through all the layers from the end of the zipper opening, guiding the zipper teeth along the edge of the foot.



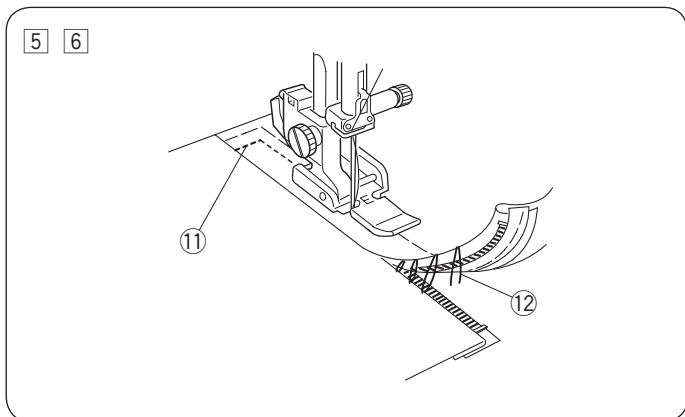
- 3 Stop the machine 5 cm before the foot reaches the slider on the zipper tape. Raise the presser foot. Open the zipper then lower the foot and stitch the remainder of the seam.

- 8 Slider
9 5 cm



- 4 Close the zipper and open the upper fabric flat over the zipper. Baste the upper fabric and zipper tape together.

- 10 Basting stitch

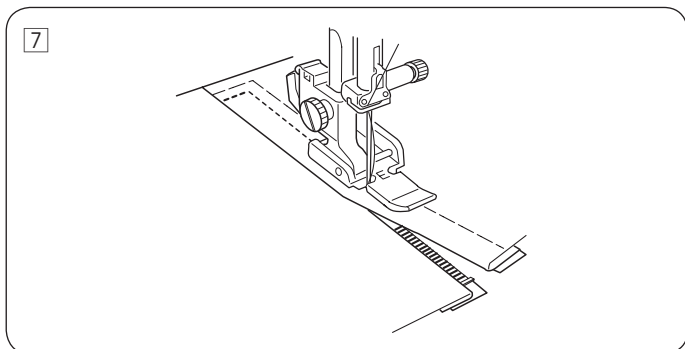


- 5 Detach the foot and attach it with the pin on the left. Backstitch across the end of the opening to 1 cm. Turn the fabric 90 degrees and stitch through the garment and zipper tape.

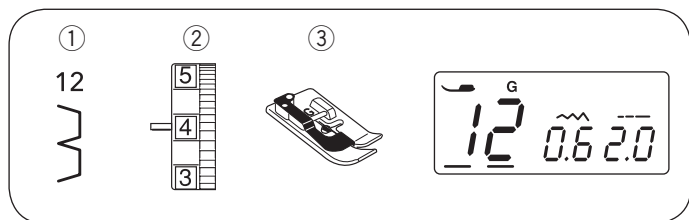
- 11 Backstitch

- 6 Stop the machine 5 cm before the foot reaches the slider on the zipper tape. Raise the presser foot. Remove the basting stitches.

- 12 Basting stitches

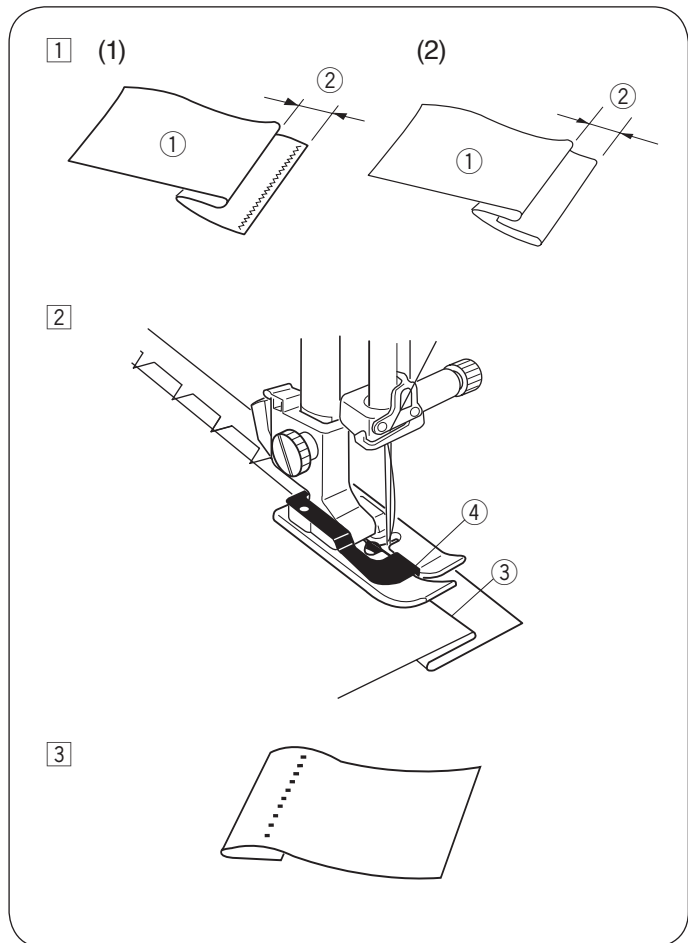


- 7 Open the zipper, then lower the foot and stitch the remainder of the seam. After finished sewing, remove the basting stitches on the upper fabric.



Blind Hemming

- ① Stitch pattern: 12
- ② Needle thread tension: 1 to 4
- ③ Presser foot: Blind hem foot G



- ① Fold a hem with the wrong side of the fabric up to form a 0.4 – 0.7 cm allowance.

- ① Wrong side of fabric
- ② 0.4 – 0.7 cm

(1) On heavyweight fabrics that tend to ravel, the raw edge should be overcast first.

(2) Fold the hem under the fabric for lightweight fabrics.

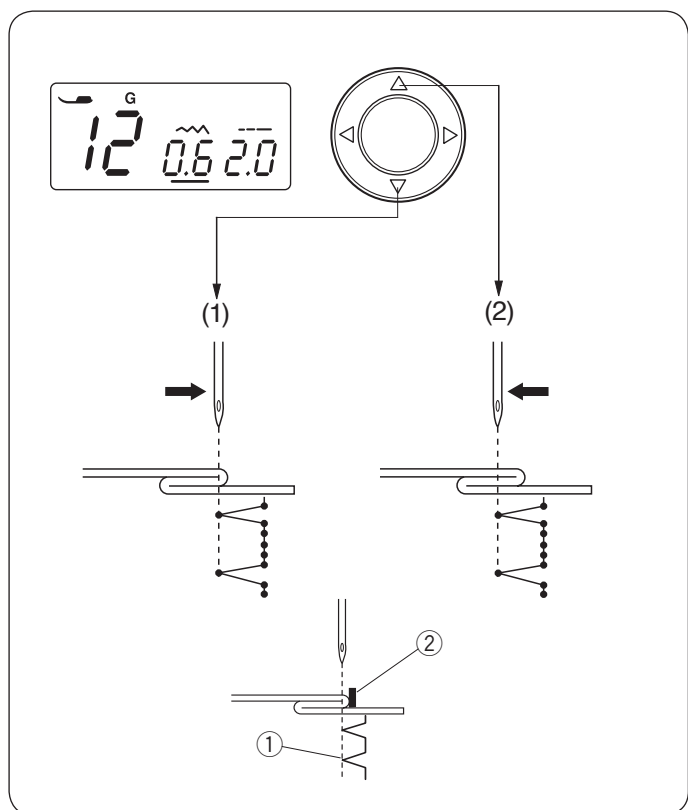
- ② Place the fabric so that the fold is next to the guide on the foot. Lower the presser foot. Adjust the needle drop position if necessary. Sew while guiding the fold along the guide.

- ③ Fold
- ④ Guide

- ③ Open the fabric after sewing is finished.

NOTE:

If the needle pierces too far left, the stitch will show through on the right side of the fabric.



• Adjusting the needle drop position

Press the cursor buttons ◀ ▶ to move the cursor under the stitch width value “0.6” (default setting).

(1) Press the ▽ button to move the needle drop position to the right.

(2) Press the △ button to move the needle drop position to the left.

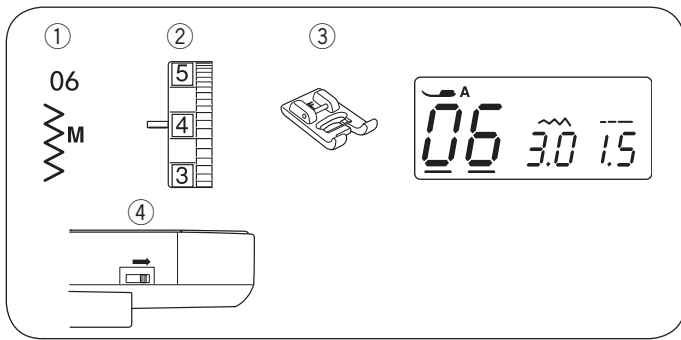
The LCD display shows the distance between the guide and left needle drop position in millimeters.

The needle drop position can be varied from 0.0 to 1.2.

- ① Left needle drop position
- ② Guide

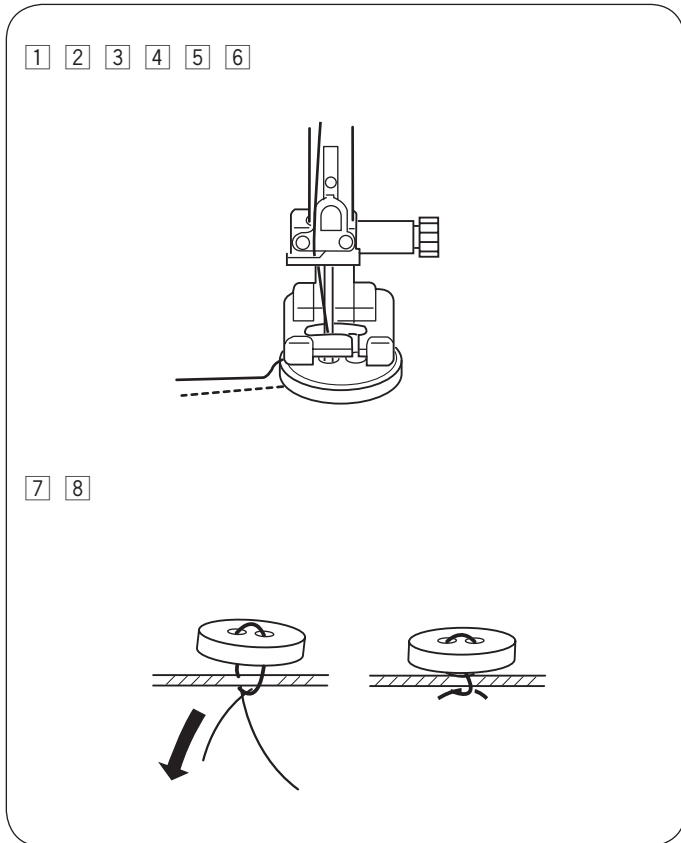
NOTE:

The needle drop position can be varied, but the stitch width will remain the same.



Button Sewing

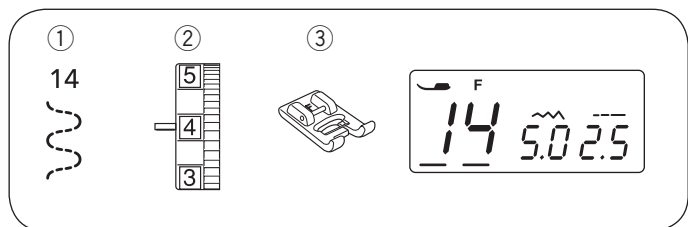
- | | |
|--------------------------|---------------------|
| ① Stitch pattern: | 06 |
| ② Needle thread tension: | 3 to 7 |
| ③ Presser foot: | Satin stitch foot F |
| ④ Feed dog: | Dropped |



- 1 Lower the feed dog.
- 2 Match the holes of button to the horizontal slot on the presser foot.
- 3 Lower the foot to hold the button in place.
- 4 Adjust the stitch width so the needle will enter the left hole of the button.
- 5 Turn the handwheel so that the needle will enter the right hole of the button. Readjust the stitch width if necessary.
- 6 Stitch several times.

- 7 After you finish sewing, cut the threads but leave 8 - 10 cm of threads at the end.
- 8 With a hand sewing needle, draw the top thread to the reverse side of the fabric and knot the threads.

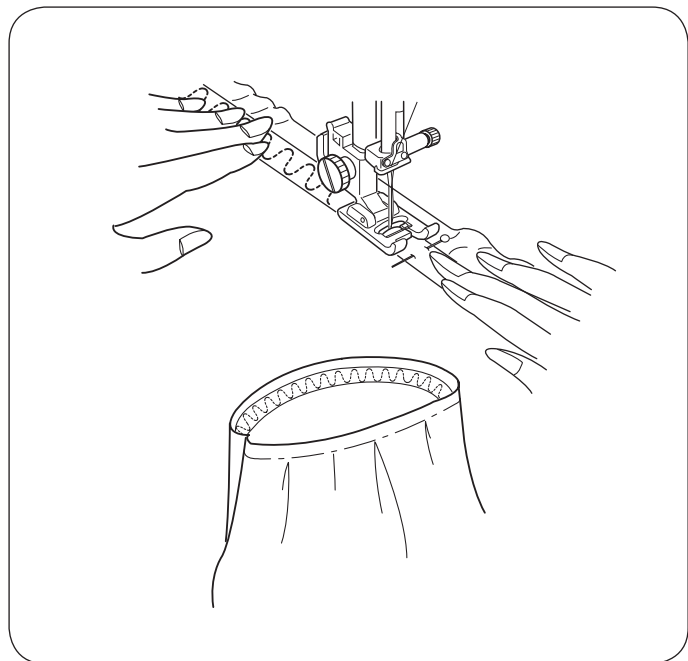
* After the button sewing is completed, raise the feed dog for normal sewing.



Attaching Elastic

- ① Stitch pattern: 14
- ② Needle thread tension: 3 to 7
- ③ Presser foot: Satin stitch foot F

* Stitch pattern ⁰⁸ can also be used.



Mark the elastic into quarters. Match those to the center front, center back and side seams, and pin the elastic to the fabric.

Place the elastic under the foot and stitch into place while stretch the elastic evenly.

① 16



② 17



③ 18



④ 19



⑤ 20



⑥ 21



Various Kinds of Buttonholes and Their Uses

① Square Buttonhole

This square buttonhole is widely used on medium to heavy fabrics. The buttonhole size is automatically determined by placing a button in the foot.

② Round-end Buttonhole

This buttonhole is used on fine to medium weight fabrics, especially for blouses and children's clothes.

③ Fine Fabric Buttonhole

This buttonhole is rounded at both ends and is used on fine, delicate fabrics such as fine silk.

④ Keyhole Buttonhole

The keyhole buttonhole is widely used on medium to heavy fabrics. It is also suitable for larger and thicker buttons.

⑤ Stretch Buttonhole

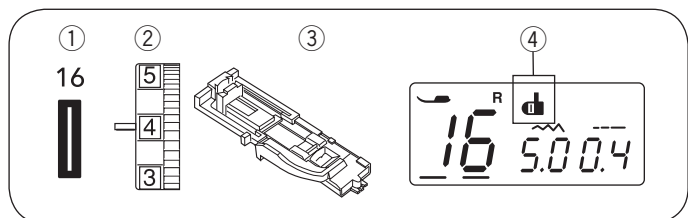
This buttonhole is suitable for knit fabrics. It can also be used as a decorative buttonhole.

⑥ Antique Buttonhole

Resembles a "Hand Worked" buttonhole ideal on fine fabrics featured in Heirloom sewing or for couture fashions.

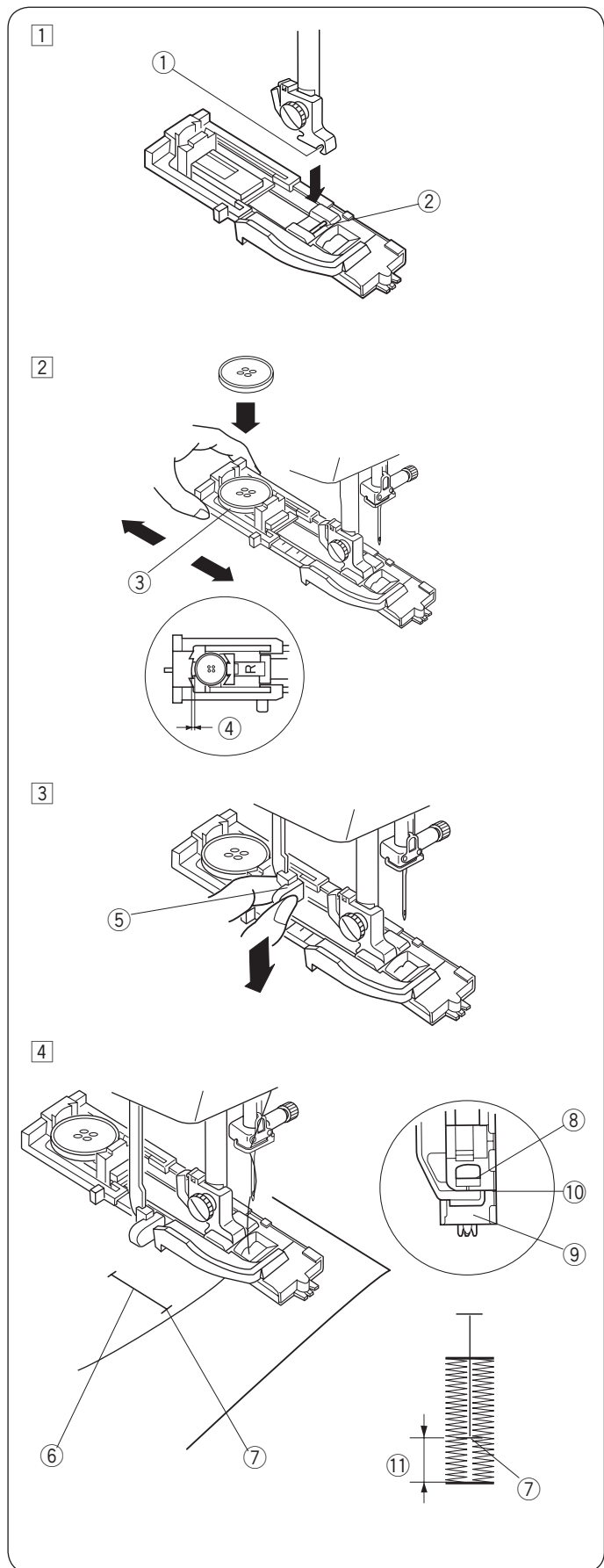
NOTE:

- To sew the buttonholes 16 to 21, follow the same procedure as Square BH (See page 35 to 36).
- The size of a buttonhole is automatically set by placing a button in the rear of the automatic buttonhole foot R.
- The button holder of the foot takes a button size of up to 2.5 cm in diameter.
- It is sometimes necessary to change buttonhole size to match certain heavy or specific materials and threads.
- Make a test buttonhole on an extra piece of the fabric to check your setting.
- Place the button on the fabric and mark the top and bottom to determine the position of the buttonhole on the fabric.
- Use an interfacing on stretch fabrics.



Square Buttonhole

- ① Stitch pattern: 16
- ② Needle thread tension: 1 to 4
- ③ Presser foot: Automatic buttonhole foot R
- ④ Buttonhole lever sign



• To sew

- ① Press the needle up/down button to raise the needle. Attach the automatic buttonhole foot R snapping the pin ② into the groove ① of the foot holder.

- ① Groove
- ② Pin

- ② Pull the button holder ③ to the back, and place the button in it. Push it together tightly against the button.

- ③ 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.

- ④ Extra gap

- ③ Pull the buttonhole lever ⑤ down as far as it will go.

- ⑤ Buttonhole Lever

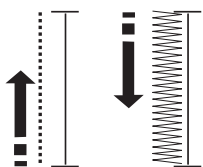
- ④ Insert the corner of the fabric under the foot. Press the needle up/down button twice. Remove the fabric to the left to draw the needle thread through the hole of the foot. Place the fabric under the foot and lower the needle at the starting point of the buttonhole mark ⑥. Then lower the automatic buttonhole foot R.

- ⑥ Buttonhole mark
- ⑦ Starting point
- ⑧ Slider
- ⑨ Stopper
- ⑩ No gap
- ⑪ Sewing gap

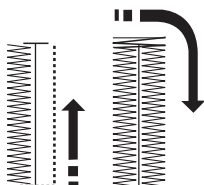
NOTE:

Make sure there is no gap ⑩ between the slider and stopper, otherwise the buttonhole will not be sewn in the required position.

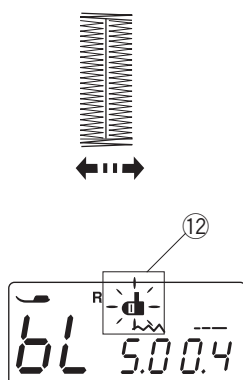
5



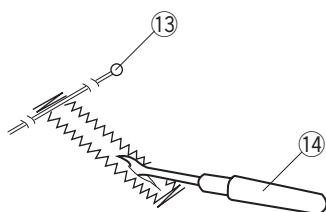
6



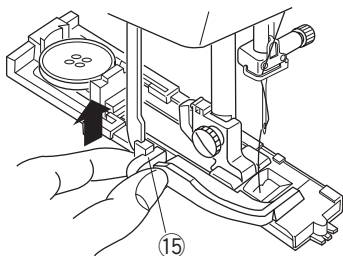
7



8



9



5 Start the machine to sew the buttonhole. The buttonhole will be automatically sewn. The machine will sew the left row first.

6 The machine will sew the back bartack and the right row.

7 The machine will sew the front bartack, then it stops automatically with the needle in the up position. The machine will trim the threads at the end of sewing if the thread cutter sign is indicated on the LCD display.

NOTE:

If you start sewing the buttonhole without lowering the buttonhole lever, the LCD display will show "bL" message and the buttonhole lever sign ⑫ will blink. Lower the buttonhole lever, then restart the machine.

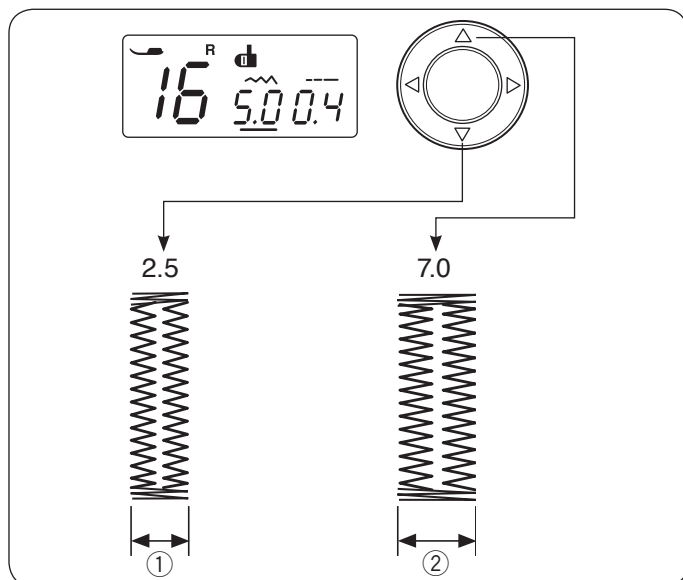
8 Remove the fabric and place a pin ⑬ just below the bartack to prevent accidentally cutting stitches. Cut the opening with the seam ripper ⑭.

⑬ Pin

⑭ Seam ripper

9 When buttonhole sewing is finished, push the buttonhole lever ⑮ upward as far as it will go.

⑮ Buttonhole lever



Adjusting the Stitch Width and Density for Buttonholes

• Adjusting the stitch width

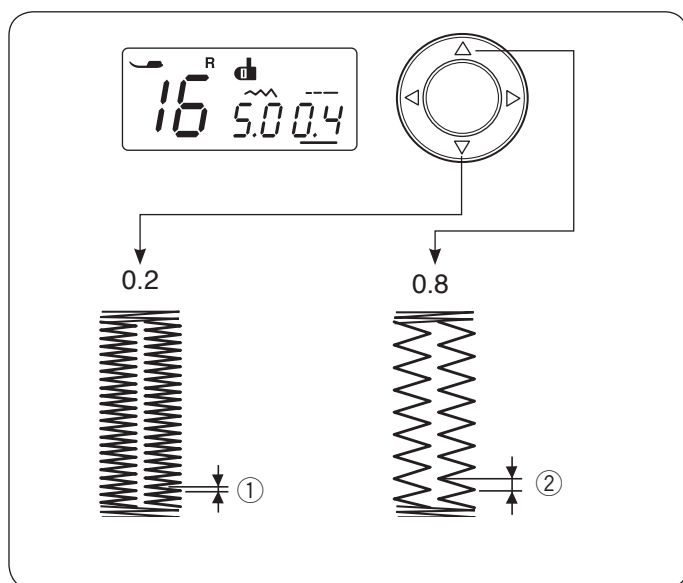
Press the cursor buttons ◀ ▶ to move the cursor under the stitch width value.

Press the ▽ button to decrease buttonhole width ①.

Press the ▲ button to increase buttonhole width ②.

The stitch width can be varied from 2.5 to 7.0 depending on the selected buttonhole.

The default setting is "5.0".



• Adjusting the stitch density

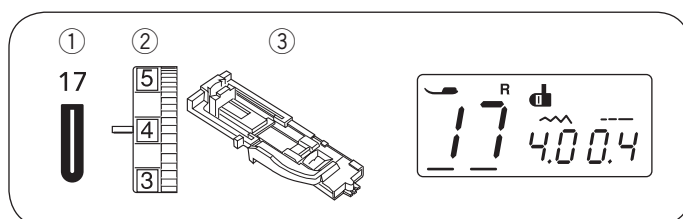
Press the cursor buttons ◀ ▶ to move the cursor under the stitch density (stitch length) value.

Press the ▽ button to make the buttonhole stitch denser ①.

Press the ▲ button to make the buttonhole stitch less dense ②.

The stitch density can be varied from 0.2 to 0.8 depending on the selected buttonhole.

The default setting is "0.4".

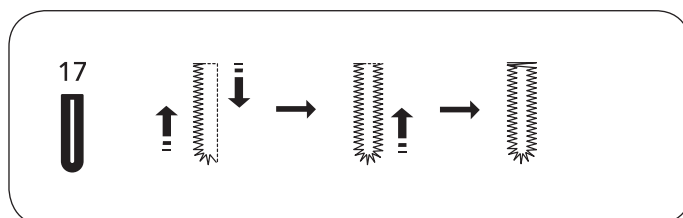


Round-End Buttonhole

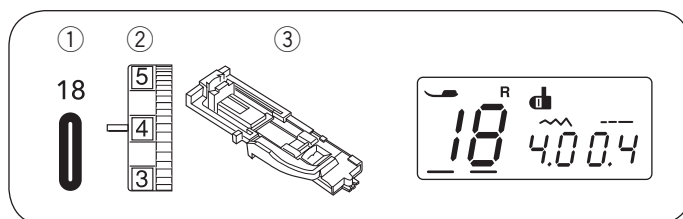
① Stitch pattern: 17

② Needle thread tension: 1 to 5

③ Presser foot: Automatic buttonhole foot R



The sewing procedure is the same as the square buttonhole. The stitch width can be varied from 2.5 to 5.5. To change the stitch width or stitch density, refer to the section above.



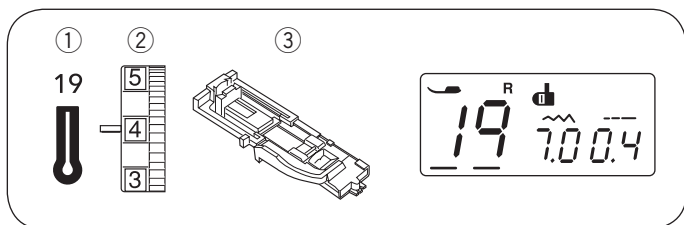
Fine Fabric Buttonhole

① Stitch pattern: 18

② Needle thread tension: 1 to 5

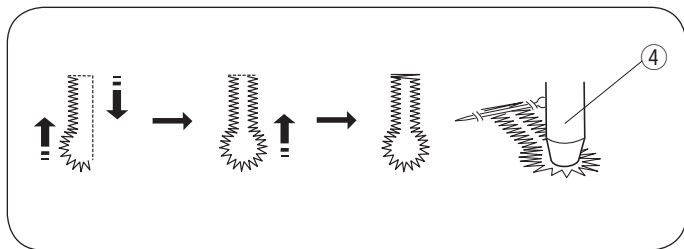
③ Presser foot: Automatic buttonhole foot R

The sewing procedure is the same as the square buttonhole. The stitch width can be varied from 2.5 to 5.5. To change the stitch width or density, refer to the section above.



Keyhole Buttonhole

- ① Stitch pattern: 19
- ② Needle thread tension: 1 to 5
- ③ Presser foot: Automatic buttonhole foot R



The sewing procedure is the same as the square buttonhole. Use the seam ripper and an eyelet punch ④ to open the buttonhole.

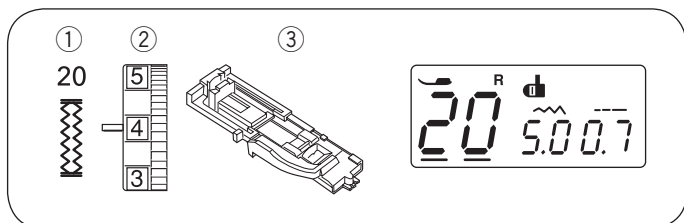
④ Eyelet punch

The stitch density can be varied from 0.3 to 0.8

The stitch width can be varied from 5.5 to 7.0.

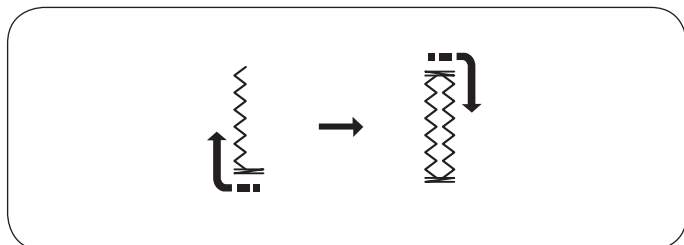
To change the stitch width or density, refer to page 37.

* An eyelet punch is an optional item.



Stretch Buttonhole

- ① Stitch pattern: 20
- ② Needle thread tension: 1 to 5
- ③ Presser foot: Automatic buttonhole foot R



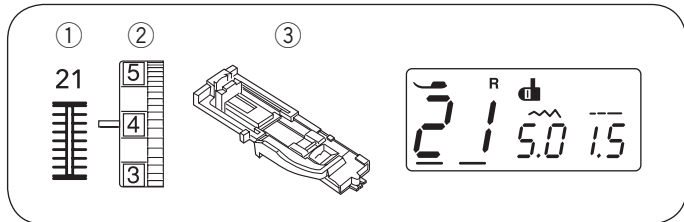
The machine will sew the front bartack and left row first.

The machine will sew the back bartack and right row, then it stops automatically.

The stitch width can be varied from 2.5 to 7.0.

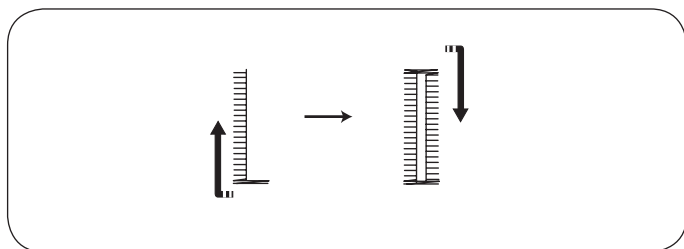
The stitch density can be varied from 0.5 to 1.0.

To change the stitch width or stitch density, refer to page 37.



Antique Buttonhole

- ① Stitch pattern: 21
- ② Needle thread tension: 1 to 5
- ③ Presser foot: Automatic buttonhole foot R



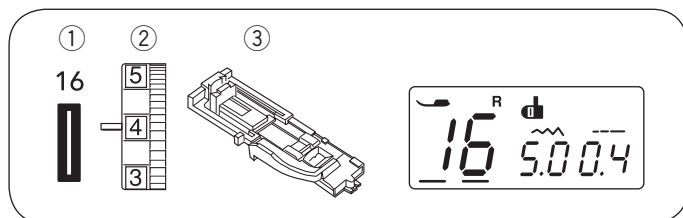
The machine will sew the front bartack and left row first.

The machine will sew the back bartack and right row, then it stops automatically.

The stitch width can be varied from 2.5 to 7.0.

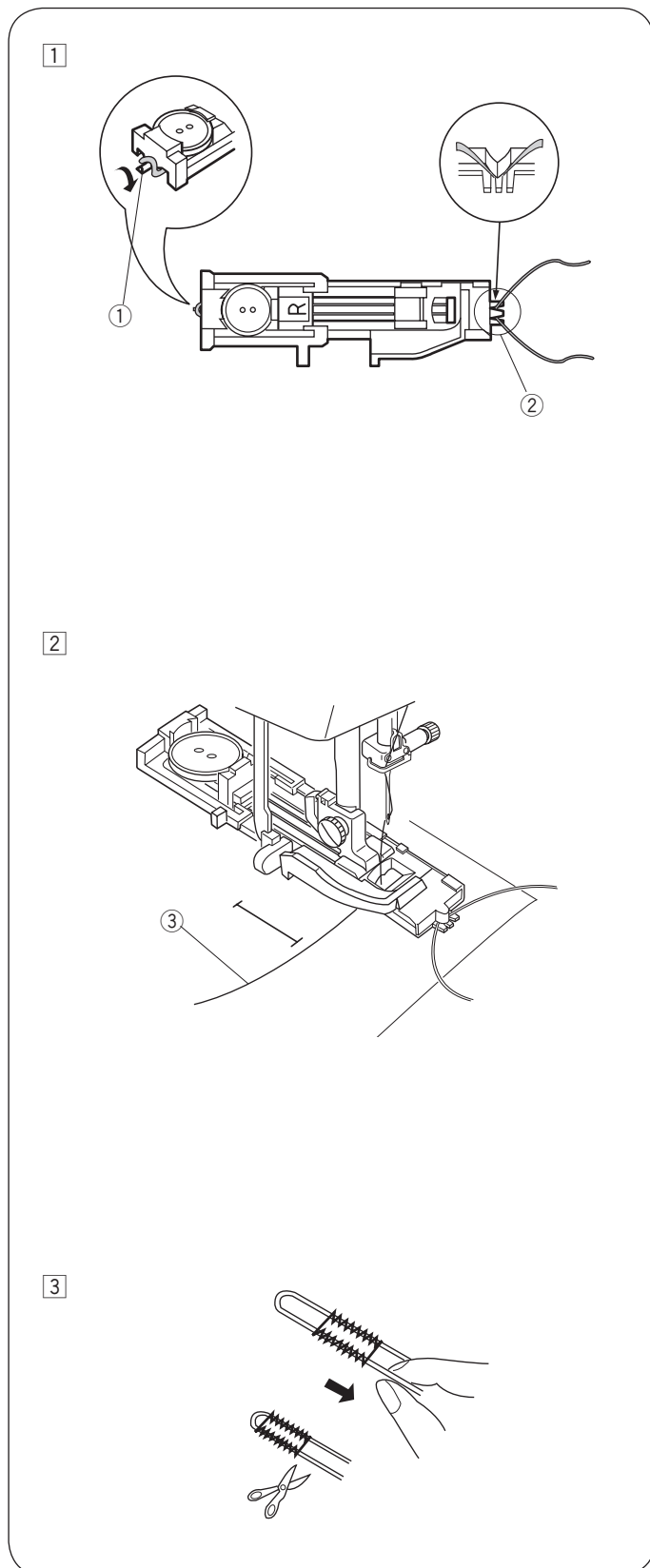
The stitch density can be varied from 0.5 to 2.5.

To change the stitch width or stitch density, refer to page 37.



Coded Buttonhole

- ① Stitch pattern: 16
- ② Needle thread tension: 1 to 5
- ③ Presser foot: Automatic buttonhole foot R



- ① Use the same procedure as the square buttonhole procedure. Set the stitch width to match the thickness of the cord used. With the buttonhole foot raised, hook the filler cord on the spur ① at the back of the buttonhole foot.

Bring the ends toward you under the buttonhole foot, clearing the front end. Hook the filler cord into the forks ② on the front of the automatic buttonhole foot to hold them tight.

Lower the needle into the garment where the buttonhole will start, and lower the foot.

- ① Spur
- ② Forks

- ② Start the machine and sew the buttonhole. Each side of the buttonhole and the bartacks will be sewn over the cord.

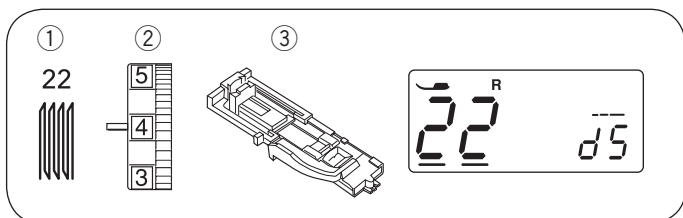
Remove the fabric from the machine, and cut the sewing threads only.

- ③ Needle thread (top thread)

- ③ Pull the loose ends of the filler cord to tighten it. Thread the each end of the cord through a hand-sewing needle. Then draw the both ends to the wrong side of the fabric and knot.

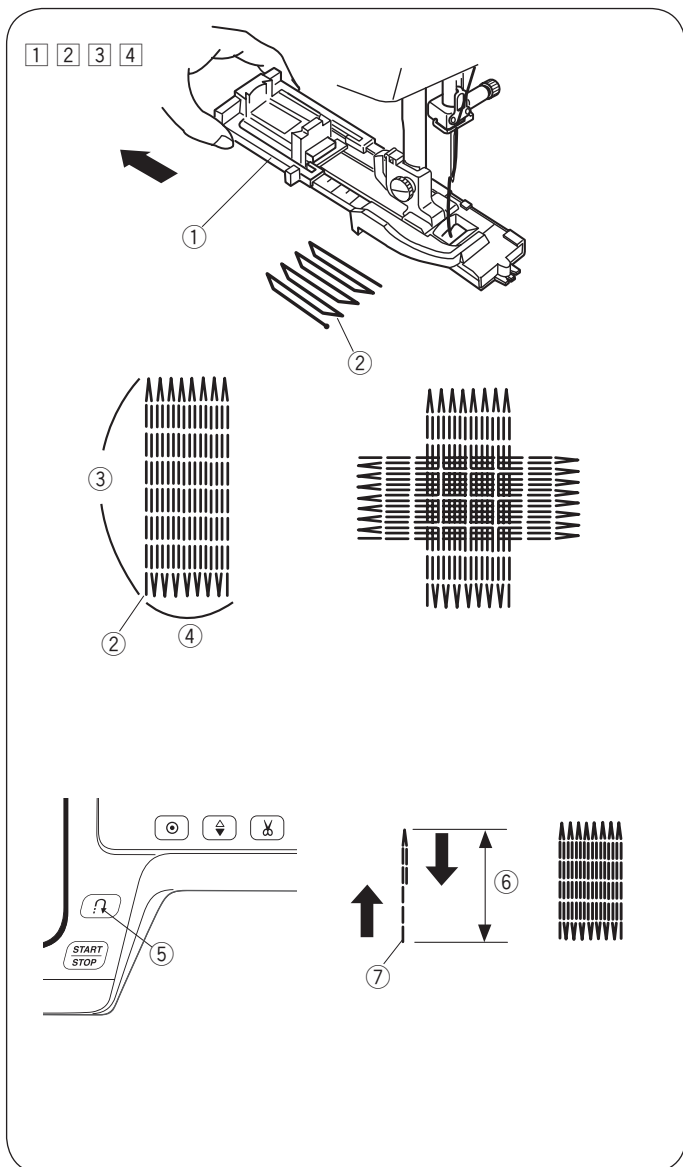
NOTE:

Cut the filler cord at both ends, if the filler cord is stitched on the fabric and cannot be pulled.



Darning Stitch

- ① Stitch pattern: 22
- ② Needle thread tension: 3 to 6
- ③ Presser foot: Automatic buttonhole foot R



• Starting to sew

- ① Pull the button holder ① to the back.
- ② Place the garment under the foot. Press the needle up/down button twice. Move the fabric to the left to draw both threads under the foot.
- ③ Lower the foot. Start the machine. The machine will sew locking stitch, 16 rows of darning, locking stitch again and stop automatically.
- ④ Turn the fabric and repeat sewing in different direction. The machine will trim the threads at the end of sewing automatically if the thread cutter sign is indicated on the LCD display (see page 7).

- ① Button holder
- ② Starting point
- ③ 2 cm
- ④ 0.7 cm

• Sewing a shorter darning

To sew a darning shorter than 2 cm, first stop the machine after sewing the required length ⑥, then press the reverse stitch button ⑤.

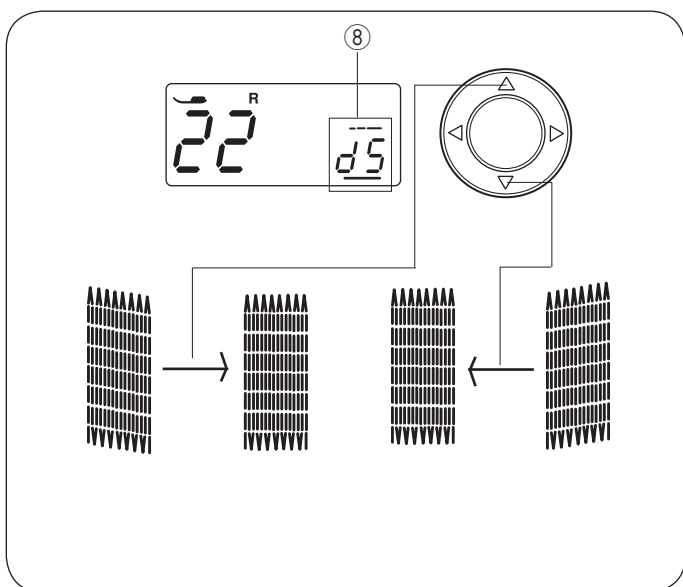
The required length ⑥ has been determined.

Start the machine again and continue sewing until the machine stops automatically.

- ⑤ Reverse stitch button
- ⑥ Required length
- ⑦ Starting point

• Sewing a same-sized darning

Simply start the machine to sew another darning at the same size.



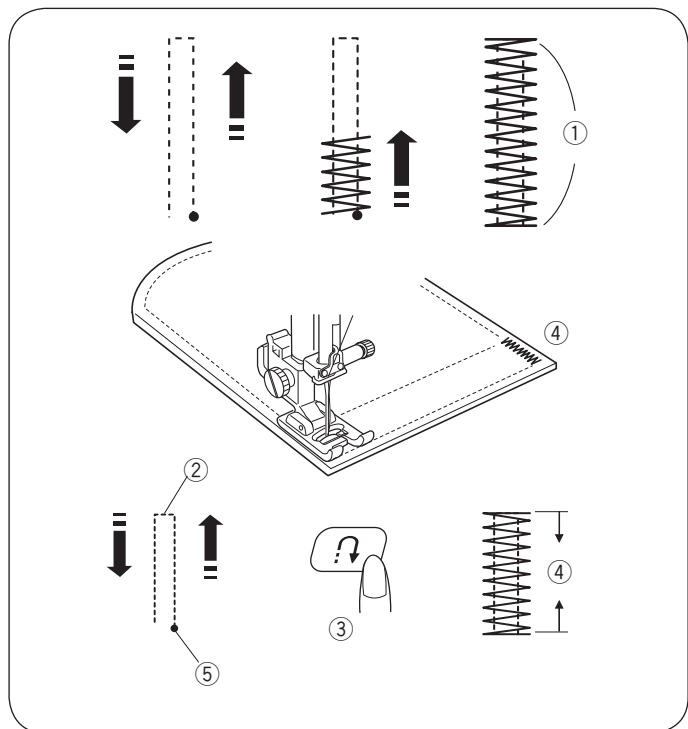
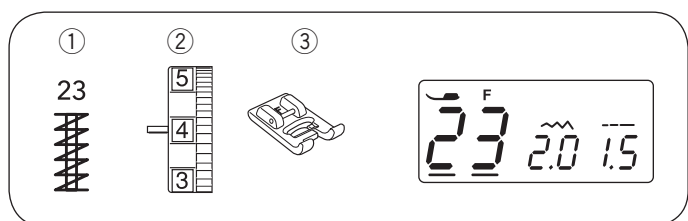
• Adjusting the evenness of the darning

Correct the evenness of the darning as follows:

Press the cursor buttons ◀ ▶ to move the cursor under the value "d5" ⑧ (default setting).

When the right side of the darn is lower than the left side, press the ▲ button to set the value to "d6" – "d9", and make the darn even.

When the left side of the darn is lower than the right side, press the ▼ button to set the value to "d1" – "d4", and make the darn even.



Tacking

- ① Stitch pattern: 23
- ② Needle thread tension: 3 to 6
- ③ Presser foot: Satin stitch foot F

Tacking is used to reinforce pockets, crotch seams and belt carriers where extra strength is needed.

• Start sewing

Start the machine and sew until the machine stops automatically. The machine will sew a tacking 1.5 cm long.

- ① 1.5 cm

The machine will trim the threads at the end of sewing automatically if the thread cutter sign is indicated on the LCD display (see page 7).

• Sewing a shorter tacking

* Set the speed control slider at low speed setting.

To sew a tacking shorter than 1.5 cm, first stop the machine after sewing the required length (2), then press the reverse stitch button (3).

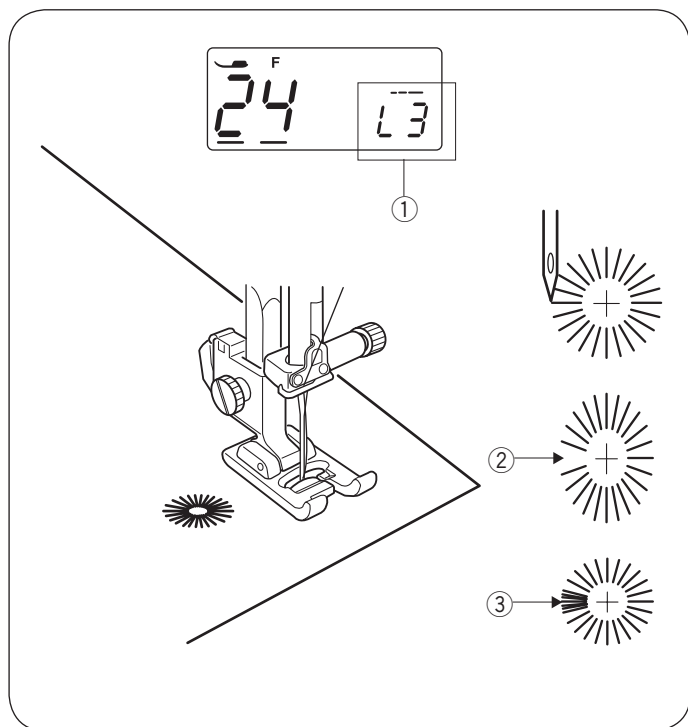
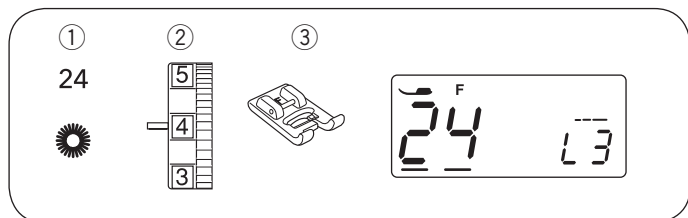
The tacking length (4) has been determined.

Start the machine again and continue sewing until the machine stops automatically.

- ② Required length
- ③ Reverse stitch button
- ④ Tacking length
- ⑤ Starting point

• Sewing a same-size tack

Simply start the machine to sew another tacking at the same size.



Eyelet

- ① Stitch pattern: 24
- ② Needle thread tension: 1 to 4
- ③ Presser foot: Satin stitch foot F

The eyelet is used for belt holes etc.

• Starting to sew

Attach the satin stitch foot F.

Start the machine. The machine will stop automatically when completed.

The machine will trim the threads at the end of sewing automatically if the thread cutter sign is indicated on the LCD display (see page 7).

Open the eyelet with an awl, eyelet punch or pointed scissors.

• Adjusting the shape of an eyelet

Correct the shape of the eyelet as follows:

Press the cursor buttons ◀ ▶ to move the cursor under the value "L3" (default setting) (1).

If the eyelet gap opens (2), press the ▽ button to make the darn even. (L1~L2)

If the eyelet overlaps (3), press the ▲ button to make the darn even. (L4~L5)

NOTE:

The shape can be adjusted within L1 to L5 (default setting is L3).

SECTION IV. DECORATIVE STITCHING

Shelltuck Stitch

- | | |
|--------------------------|---------------------|
| ① Stitch pattern: | 13 |
| ② Needle thread tension: | 6 to 8 |
| ③ Presser foot: | Satin stitch foot F |

Use a lightweight fabric (tricot, for example). Fold the fabric as shown and stitch on the fold. Allow the needle to just clear the folded edge to create a shelled edge. You may need to increase the needle thread tension slightly. If you sew rows of shell stitches, space the rows at least 1.5 cm apart. You can also sew shell stitches on knits or soft silky woven fabrics, in any direction.

Applique

- | | |
|-------------------------------|---------------------|
| ① Stitch pattern: | 26 or 27 |
| ② Needle thread tension: | 1 to 4 |
| ③ Presser foot: | Satin stitch foot F |
| ④ Presser foot pressure dial: | 3 |

* Stitch patterns $\begin{smallmatrix} 06 & 07 & 28 & 29 \\ \text{M} & \text{R} & \text{J} & \text{R} \end{smallmatrix}$ can also be used.

* The stitch width of pattern 26 can be changed without changing its center needle position.

* The stitch width of pattern 27 can be changed without changing its right needle position.

Place an applique on the fabric and baste or pin it in place.

Reduce the foot pressure.

Sew while guiding the fabric so the needle falls along the outer edge of the applique.

- ① Applique
- ② Outer edge

When turning around a corner, stop the machine with the needle at the outer edge of applique.

Raise the presser foot and pivot the fabric around the needle to change the sewing direction.

• Adjusting the stitch width

Select pattern 26.

Press the cursor buttons $\triangleleft \triangleright$ to move the cursor under the stitch width value “3.5” ③ (default setting).

Press the ∇ button to decrease the stitch width.

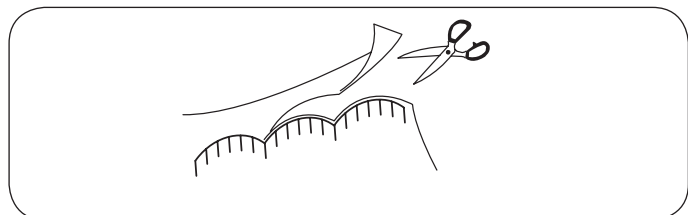
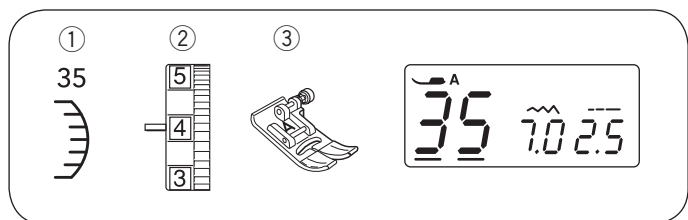
Press the $\triangle$ button to increase the stitch width.

The stitch width will be varied base on the centered needle drop position ⑥.

- ③ Stitch width (3.5)
- ④ Stitch pattern 26 (stitch width decreased)
- ⑤ Stitch pattern 26 (stitch width increased)
- ⑥ Center needle drop position

(A) The stitch patterns 06 and 26 have a fixed center needle drop position. The stitch width changes symmetrically.

(B) The stitch patterns 07, 27, 28 and 29 have a fixed right needle drop position. When you change the stitch width, the left needle drop position will change.



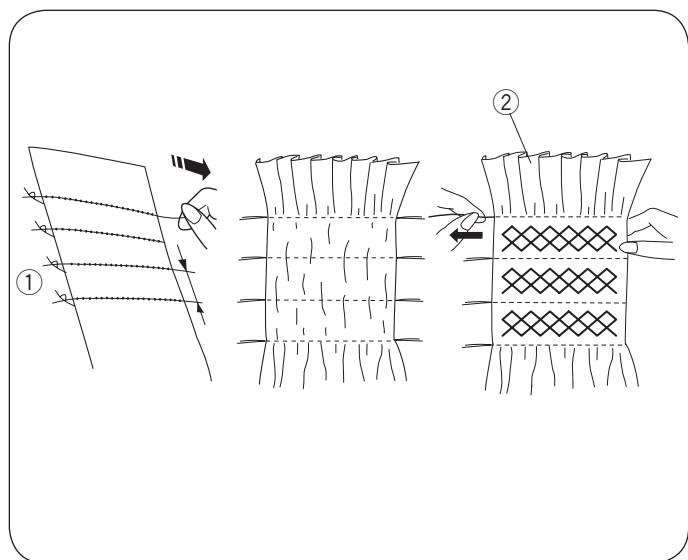
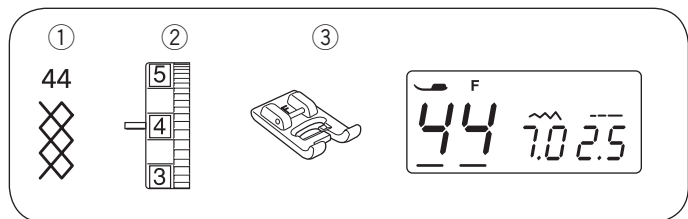
Scallop Stitch

- ① Stitch pattern: 35
 ② Needle thread tension: 3 to 6
 ③ Presser foot: Zigzag foot A

* Stitch patterns  can also be used.

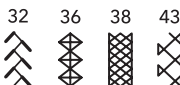
Sew the stitches approximately 1 cm inside the edge of the fabric.

Trim the outside of the stitches as shown. Make sure not to cut the thread.



Smocking

- ① Stitch pattern: 44
 ② Needle thread tension: 3 to 6
 ③ Presser foot: Satin stitch foot F

* Stitch patterns  can also be used.

Smocking is a delicate decorative treatment used on children's clothes or women's blouses.

Choose a soft and lightweight fabric such as batiste, gingham or challis. Cut the fabric three times wider than the projected width. Set stitch length at "5.0", loosen the thread tension to 0 and sew rows of straight stitches 1.0 cm apart across the area to be smocked.

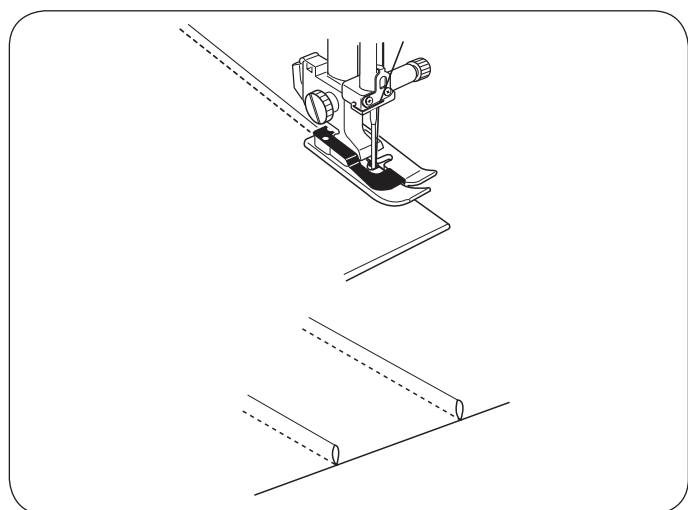
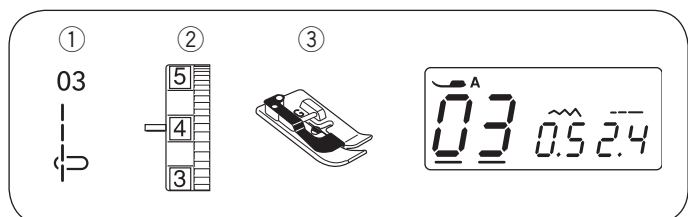
NOTE:

Pull up the bobbin thread and draw a 10 - 15 cm thread tail to the back before start sewing.

Knot the threads along one edge ①. From the other edge, pull the bobbin threads (bottom threads) to distribute the gathers ② evenly.

Sew the smocking stitches between the gathered rows. Remove the straight stitches by pulling them out.

- ① Knotted edge
 ② Gathers



Pintucking

- ① Stitch pattern: 03
 ② Needle thread tension: 1 to 4
 ③ Presser foot: Blind hem foot G

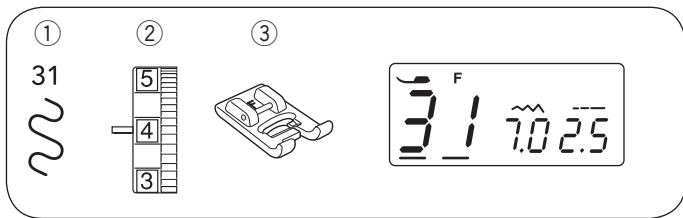
Fold the fabric with the wrong sides together.

Place the folded fabric under the blind hem foot.

Align the edge of the fold with the guide on the foot, and lower the foot.

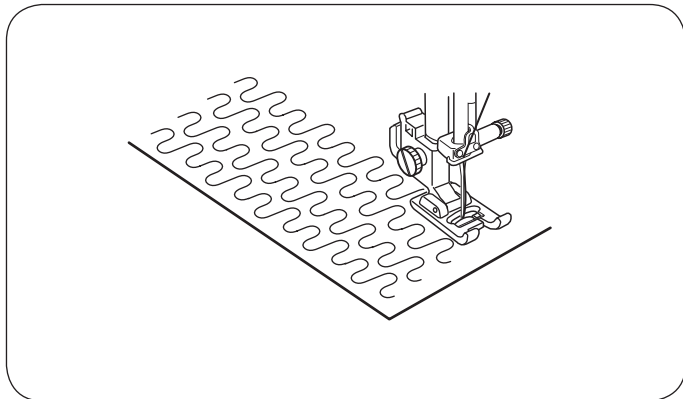
Sew while guiding the edge of the fold along the guide.

Open the fabric and press the tuck to one side.

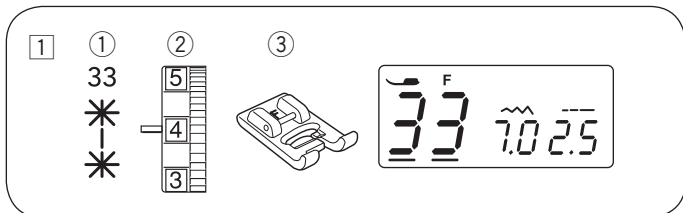


Stippling Stitch

- ① Stitch pattern: 31
- ② Needle thread tension: 3 to 6
- ③ Presser foot: Satin stitch foot F

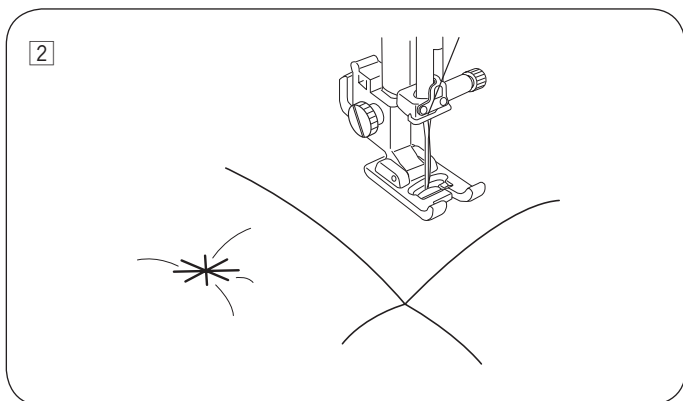


A pre-programmed stippling stitch is a fast and easy method to quilt small areas.
Place a batting (wadding) between quilt top and backing fabric.

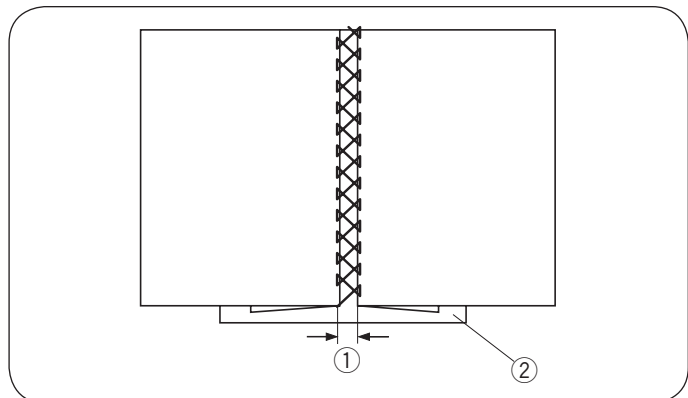
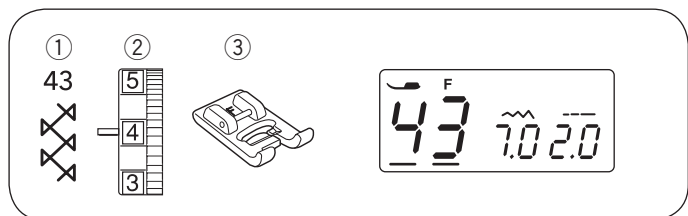


Clasp Stitch

- ① Stitch pattern: 33
- ② Needle thread tension: 3 to 6
- ③ Presser foot: Satin stitch foot F



- 1 Select stitch pattern 33. Press the auto-lock button and start sewing.
- 2 Machine will sew one unit of pattern 33 and stop automatically.



Fagoting

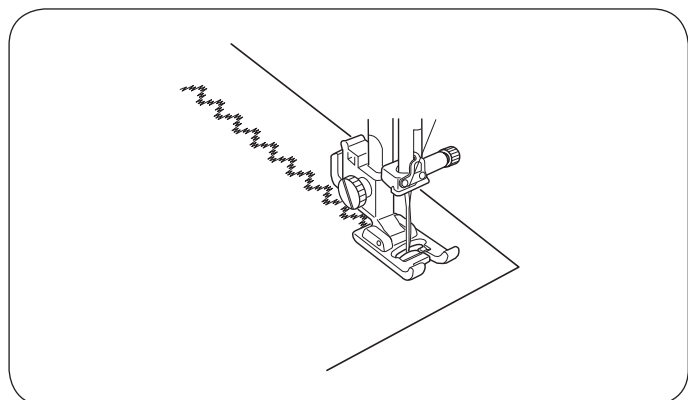
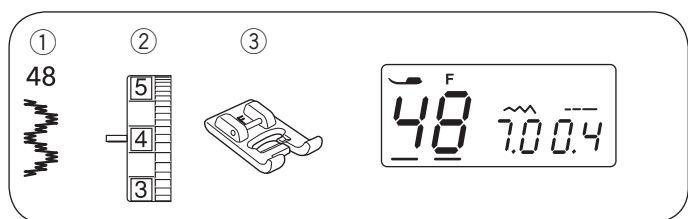
- ① Stitch pattern: 43
- ② Needle thread tension: 3 to 6
- ③ Presser foot: Satin stitch foot F

* Stitch patterns 15, 32, 34, 37 can also be used.

Use this stitch to join two pieces of fabric to create an open work appearance and add design interest. Fold under each fabric edge 1.5 cm and press. Pin the two edges to paper or tear away backing 0.3 to 0.4 cm apart. Sew slowly, guiding the fabric so the needle catches the folded edge on each side.

After finishing the sewing, tear away the paper.

- ① 0.3 to 0.4 cm
- ② Paper

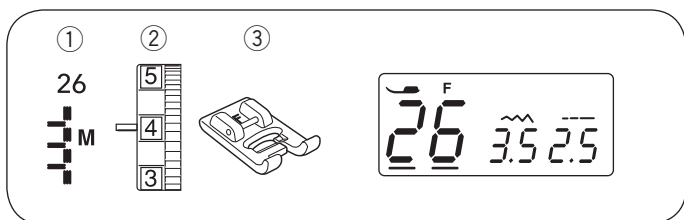


Satin Stitches

- ① Stitch pattern: 48
- ② Needle thread tension: 3 to 6
- ③ Presser foot: Satin stitch foot F

* Stitch patterns 47, 49, 50, 51, 52 can also be used.

For better sewing results, stabilizer should be used on the wrong side of the fabric when you use stretch or elastic fabrics. Press the auto-lock button to finish the end of the pattern.



Fringing

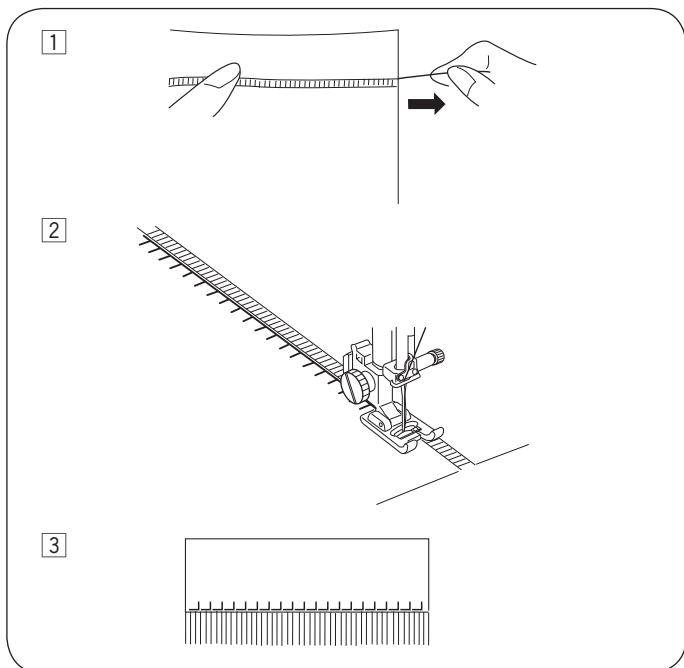
- ① Stitch pattern: 26
- ② Needle thread tension: 3 to 6
- ③ Presser foot: Satin stitch foot F

Fringing adds a special touch on table linens and shawls. Choose a firm, woven fabric like linen where threads can be removed easily.

① Carefully cut the fabric on the grain. Remove a single strand of yarn or thread where the fringing is to begin.

② Sew down the left side so the right hand stitches fall in the open space.

③ Remove all excess yarn located to the right of the stitching and create a fringe.



Drawn work

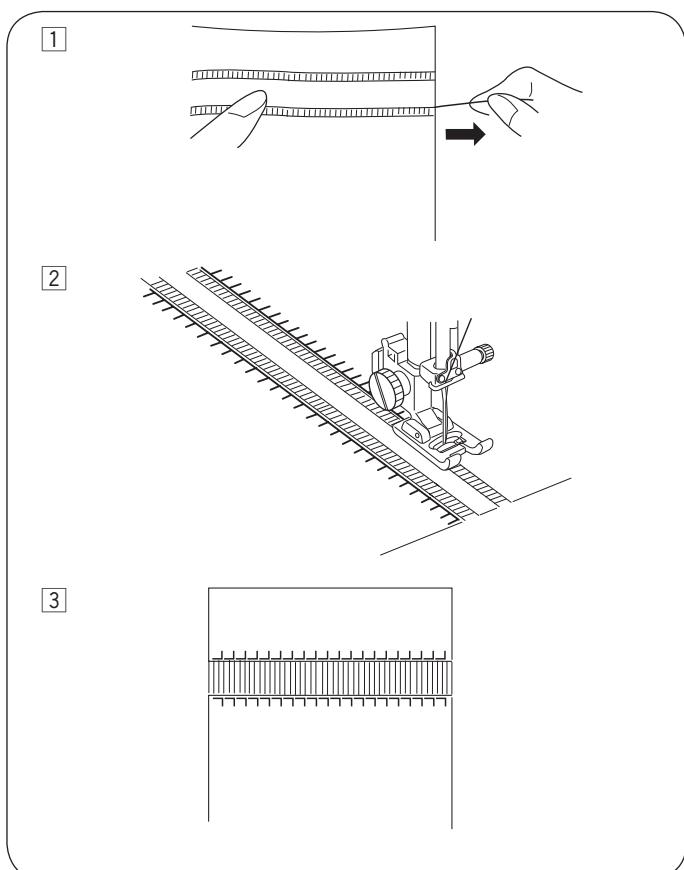
- ① Stitch pattern: 26
- ② Needle thread tension: 3 to 6
- ③ Presser foot: Satin stitch foot F

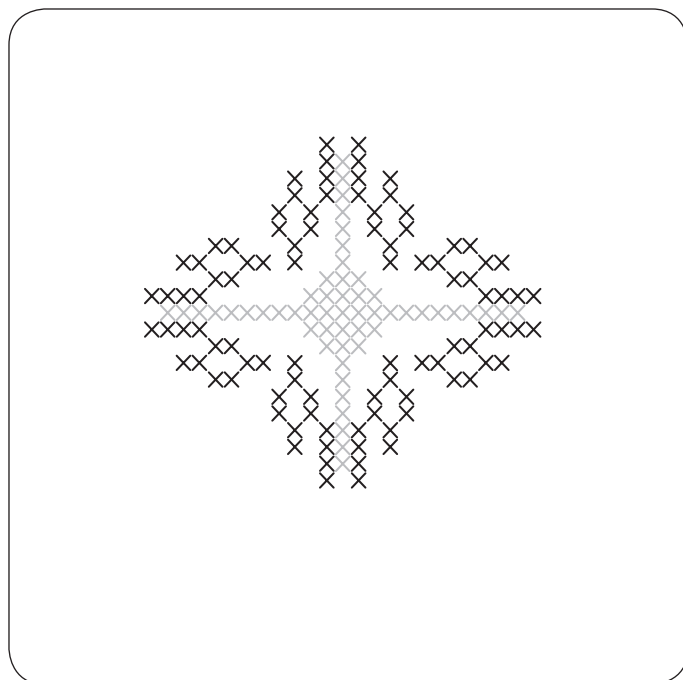
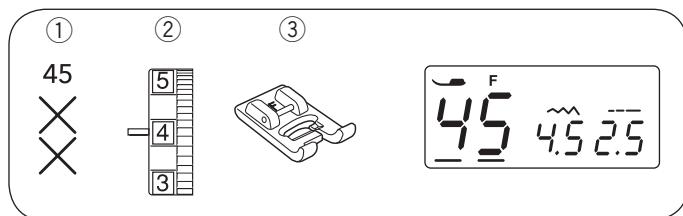
Drawn work uses the same method as fringing. Choose a firm, woven fabric like linen where threads can be removed easily.

① Carefully cut the fabric on the grain. Determine the width of the drawn work and remove one strand of yarn or fabric thread at each end.

② Sew down the left side, guiding the fabric so the right hand stitches fall in open space. After finishing the left side, turn the fabric around 180°. Sew down the other side.

③ Remove the yarn or fabric threads between the stitching.





Cross Stitch

- ① Stitch Pattern: 45
- ② Needle thread tension: 3 to 6
- ③ Presser foot: Satin stitch foot F

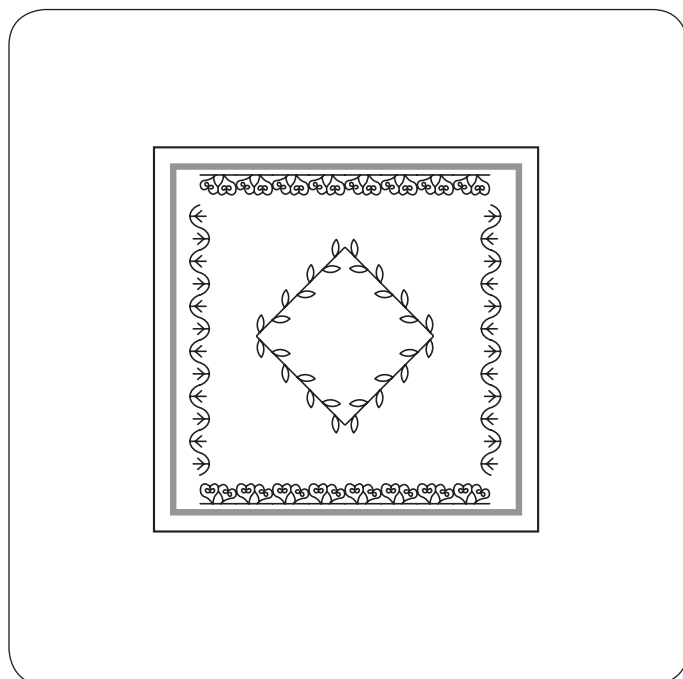
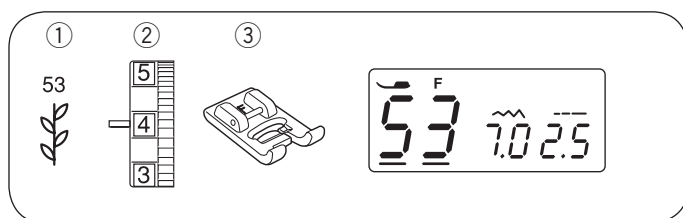
You can make cross stitch designs with these patterns in half the time it would take if embroidered by hand.

* If you press the auto-lock button before sewing, the machine will sew one unit of the cross stitch and stop automatically.

Choose a plain close weave fabric such as linen or wool flannel for the background fabric. If you choose light weight fabric, use a tear away backing for support. Adjust the stitch width and length as you desire to match the pattern.

Find the center of the design, or if the design is a border, choose a starting point.

Count the cross stitches from the center up and program the number. Use auto-lock button to begin and end.

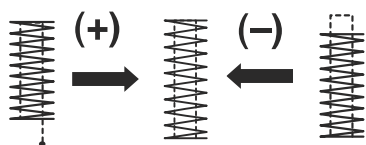
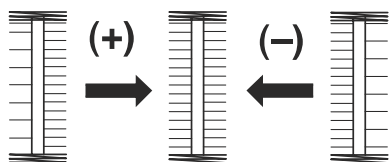
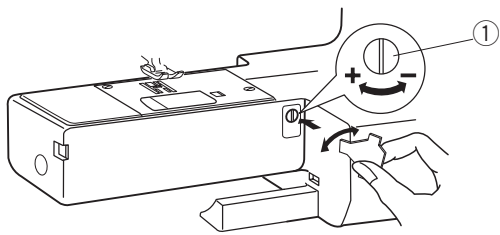


Decorative Stitches

- ① Stitch Pattern: 53
- ② Needle thread tension: 3 to 6
- ③ Presser foot: Satin stitch foot F

* Stitch patterns 54 55 56 57 58 59 can also be used.

For the best sewing results, carefully align and guide the fabric when you sew with decorative stitches. Use a tear-way backing if necessary.



Correcting Distorted Stitch Patterns

The sewing results of the stretch patterns may vary depending upon the sewing conditions, such as sewing speed, type of fabric, number of layers etc.

Always test sew on a scrap piece of the fabric that you wish to use.

If stretch patterns are distorted, correct them with the feed balancing dial.

① Feed balancing dial

• Stretch stitch pattern (Example: stitch pattern ³²)

If the pattern is compressed, turn the feed balancing dial in the direction of “+”.

If the pattern is drawn out, turn the feed balancing dial in the direction of “-”.

• Stitch balance of buttonhole 21

If the right row is denser, turn the feed balancing dial in the direction of “+”.

If the left row is denser, turn the feed balancing dial in the direction of “-”.

• Evenness of tacking

If the stitch does not meet the start position, turn the feed balancing dial in the direction of “+”.

If the stitch does not meet the return position, turn the feed balancing dial in the direction of “-”.

SECTION V. CARE OF YOUR MACHINE

Cleaning the Hook Race and Feed Dog



WARNING:

- Turn the power switch off and unplug the machine before cleaning.
- Do not dismantle the machine other than as explained in this section.



CAUTION:

Do not store the machine in a high-humidity area, near a heat radiator, or in direct sunlight.

NOTE:

Clean the outside of the machine with a soft cloth and neutral soap.

After cleaning the machine, make sure the needle and presser foot are attached.

Press the needle up/down button to raise the needle, then unplug the sewing machine. Remove the needle and presser foot. Remove the cover plate by sliding the cover plate release button to the right. Take out the bobbin. Brush out dust and lint. (You may also use a vacuum cleaner.)

- 1 Remove the setscrews ② on the left hand side of the needle plate ③ with the screwdriver ① supplied with the machine. Remove the needle plate ③.
- 2 Lift up the bobbin holder ⑥ and remove it.
- 3 Clean the bobbin holder ⑥ with a lint brush.
- 4 Clean the feed dog ⑦, thread cutter mechanism ⑤ and hook race ⑧ with the lint brush ④.
- 5 Clean the center of the hook race with a dry cloth.

- ① Screwdriver
- ② Setscrews
- ③ Needle plate
- ④ Lint brush
- ⑤ Thread cutter mechanism
- ⑥ Bobbin holder
- ⑦ Feed dog
- ⑧ Hook race

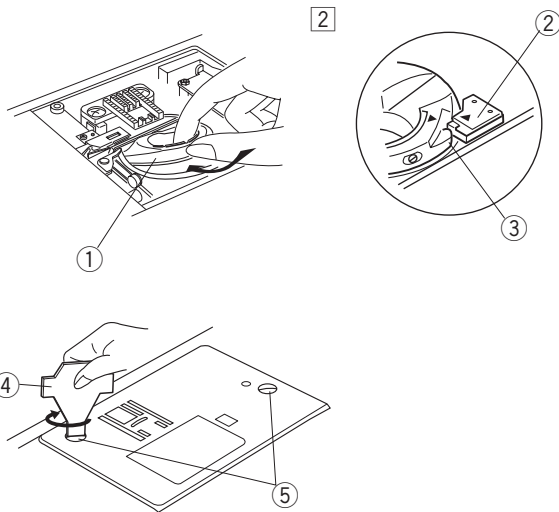
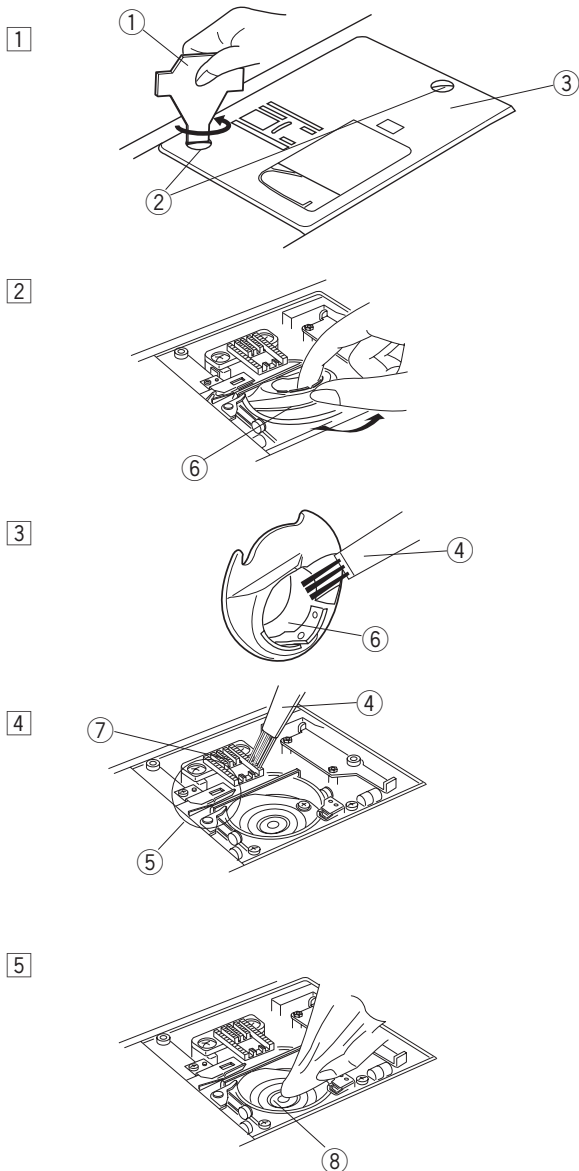
* You may also use a vacuum cleaner.

* This machine does not require oiling.

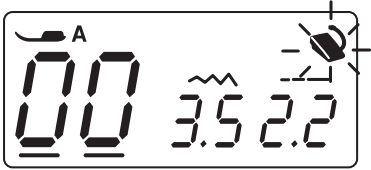
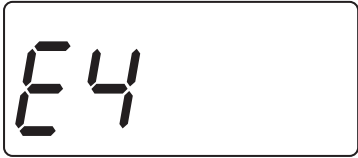
Installing the Bobbin Holder

- 1 Insert the bobbin holder ① so that the knob ③ fits next to the stopper ② in the hook race.
- 2 Insert the bobbin.
- 3 Attach the needle plate with the setscrews ⑤. After cleaning the machine, make sure the needle and presser foot are attached.

- ① Bobbin holder
- ② Stopper
- ③ Knob
- ④ Screwdriver
- ⑤ Setscrews



Problems and Warning Signs

Warning sign	Cause	Try this
	1. The start/stop button is pressed with the foot control connected. 2. The foot control is out of order. (The foot control sign keeps blinking.)	Disconnect the foot control. Contact the service center or the store from whom the machine was purchased.
	The bobbin winder spindle is moved to the right.	Move the bobbin winder spindle to the left.
	The machine is restarted too soon after it has halted due to the overload.	Wait for at least 15 seconds to restart. If threads are jamming, remove the jammed threads.
	Auto thread cutting error due to a problem in the electronic components or tangled in hook area.	Remove the jammed threads in the hook area. If the error occurs again after cleaning the hook area, contact the service center or the store from where the machine was purchased.

Audible signal	The buzzer sounds when:
Pip	Normal operation
Pip-pip-pip	Invalid operation
Pip-pip-peep	Buttonhole sewing completed
Peep	Malfunction

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 is not set under the presser foot when start sewing. 6. The threads were not drawn to the rear after sewing. 7. The thread is either too heavy or too fine for the needle.	See pages 15, 16 See pages 20, 21 See page 11 See page 11 See page 17 See page 22 See page 11
The bobbin thread breaks.	1. The bobbin thread is not threaded properly in the bobbin holder. 2. Lint has collected in the bobbin holder. 3. The bobbin is damaged and doesn't turn smoothly. 4. The thread is wound loosely on a bobbin.	See page 14 See page 49 Replace the bobbin. See page 13
The needle breaks.	1. The needle is incorrectly inserted. 2. The needle clamp screw is loose. 3. The threads were not drawn to the rear after sewing. 4. The needle is too fine for the fabric being used. 5. The presser foot is not appropriate for the stitch pattern being sewn.	See page 11 See page 11 See page 22 See page 11 Change the presser foot.
Skipped stitches	1. The needle is incorrectly inserted, bent or blunt. 2. The needle and/or threads are not suitable for the work being sewn. 3. A Blue Tipped needle is not being used for sewing stretch, very fine fabrics and synthetics. 4. The needle thread is not threaded properly. 5. A poor quality needle is used.	See page 11 See page 11 See page 11 See pages 15, 16 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.	See pages 20, 21 See pages 15, 16 See page 11 Make the stitches shorter.
The cloth is not feeding smoothly.	1. The feed dog is packed with lint. 2. The stitches are too fine. 3. The feed dog is not raised after "drop feed" sewing.	See page 49 Make the stitches longer. See page 10
Stitches form loops below the works.	1. The needle thread tension is too loose. 2. The needle is either too heavy or too fine for the thread.	See pages 20, 21 See page 11
The machine does not work.	1. The machine is not plugged in. 2. Thread has been caught in the hook race. 3. The bobbin winder spindle is not returned to the left after bobbin winding.	See page 4 See page 49 See page 13
Buttonhole sewing is not sewn properly.	1. The stitch density is not suitable for the fabric being sewn. 2. Suitable interface material has not been used for the stretch or synthetic fabric.	See page 37 Use an interfacing.
The machine does not run smoothly and is noisy.	1. Thread has been caught in the hook race. 2. Lint has built up in the hook race or bobbin holder.	See page 49 See page 49

