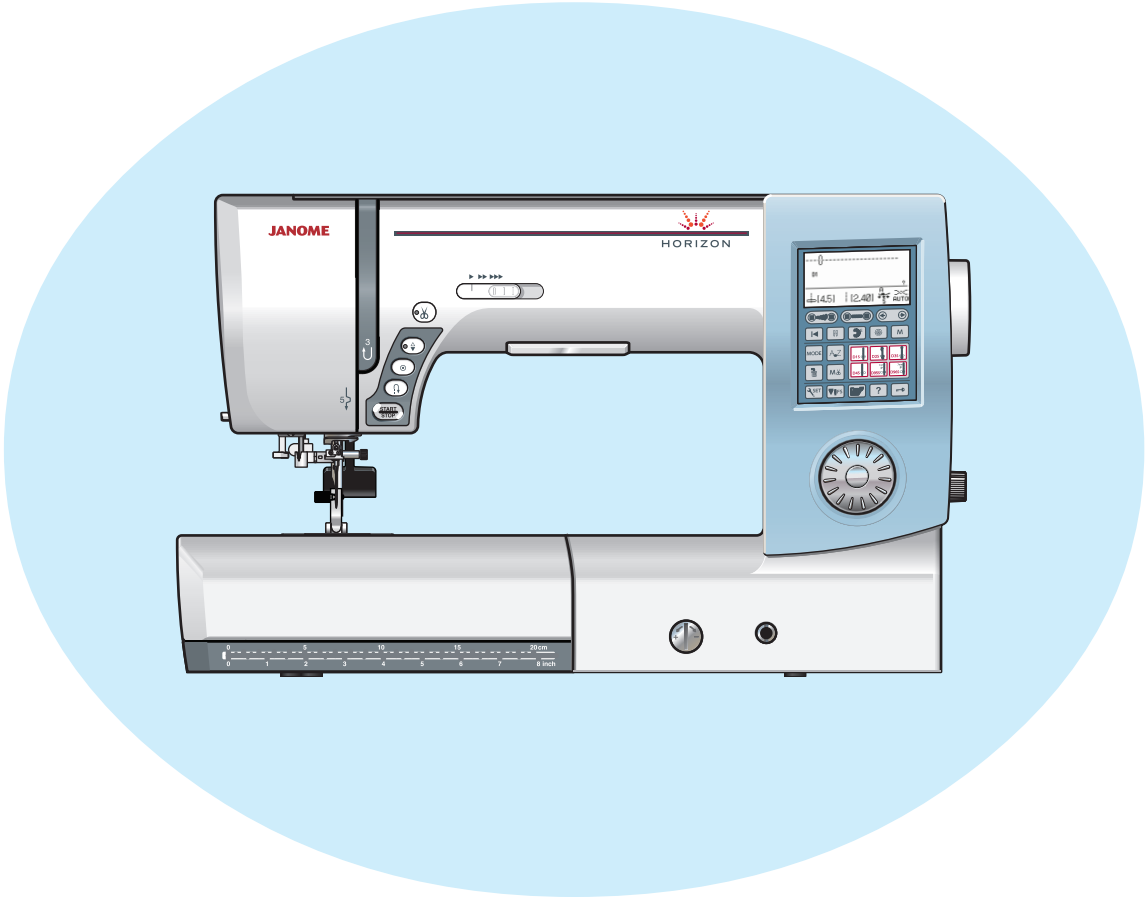
Instruction Book



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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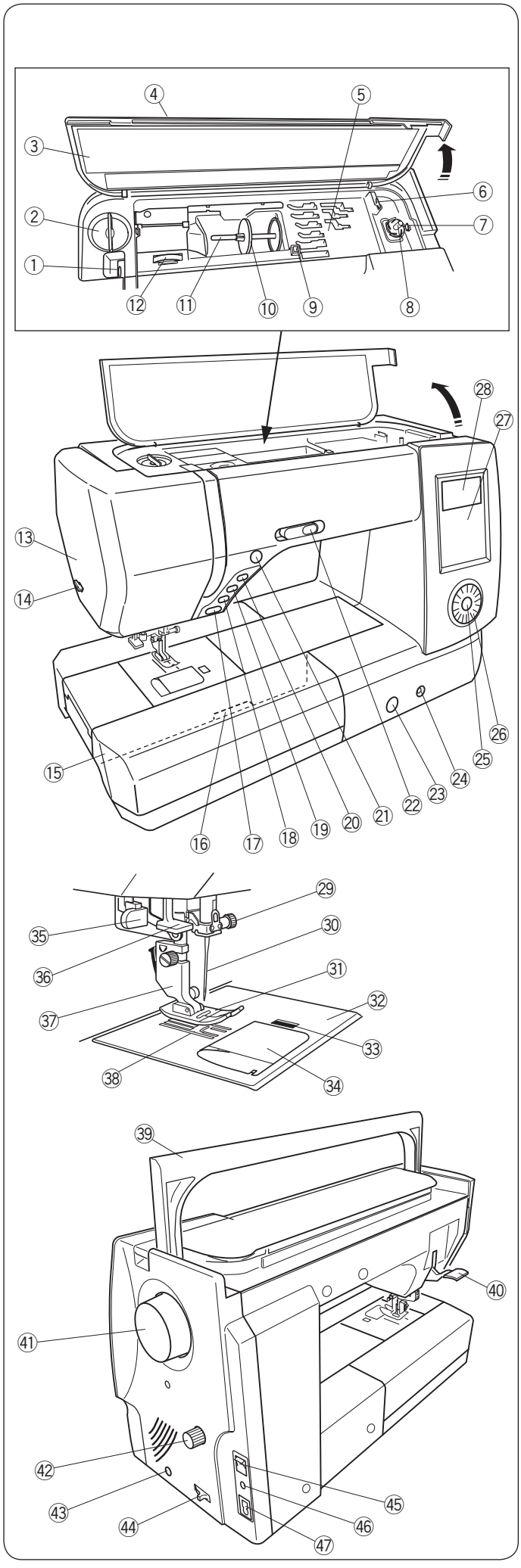
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NAMES OF PARTS

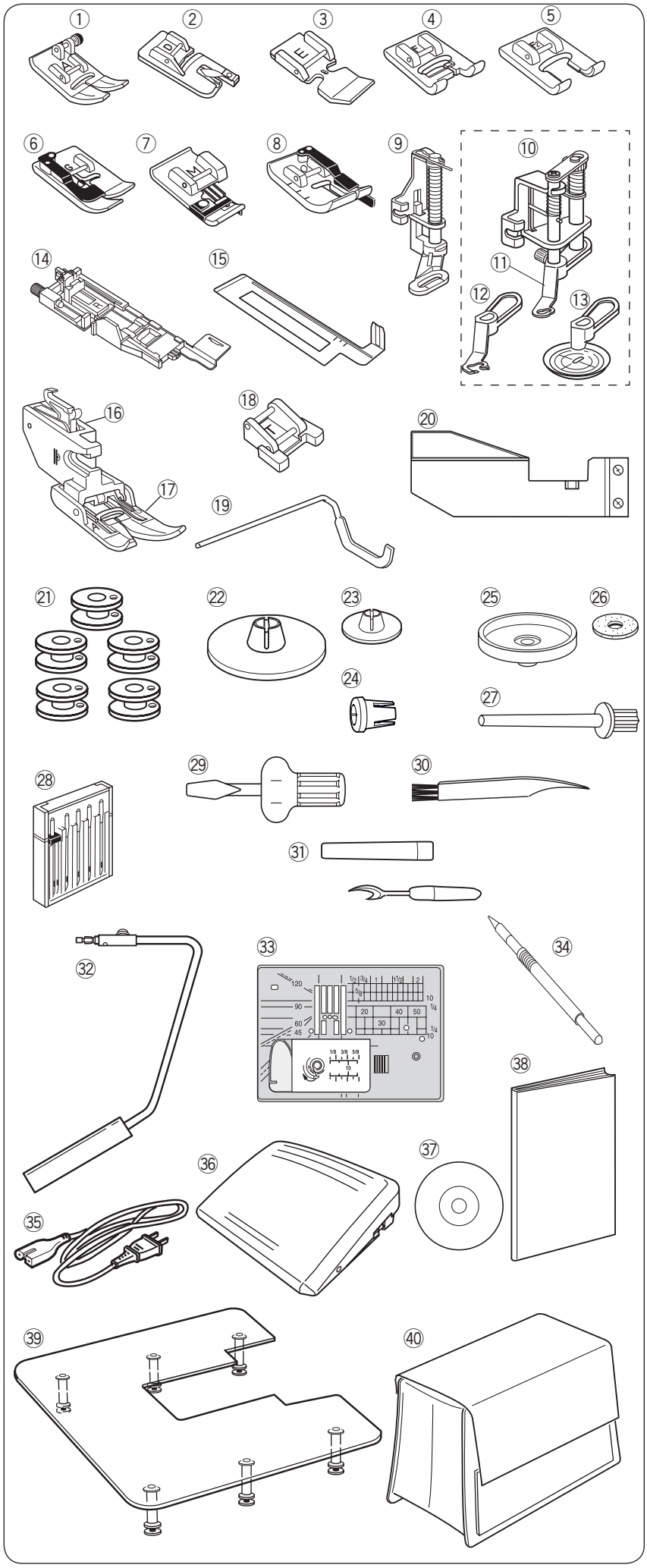
Names of Parts

① Thread take-up lever
② Foot pressure dial
③ Reference chart
④ Top cover
⑤ Foot storage compartment
⑥ Bobbin thread cutter
⑦ Bobbin winder stopper
⑧ Bobbin winder spindle
⑨ Hole for extra spool pin
⑩ Spool holder (large)
⑪ Spool pin
⑫ Thread tension dial
⑬ Face cover
⑭ Thread cutter
⑮ Extension table (accessory storage)
⑯ Needle plate release lever
⑰ Start/stop button
⑱ Reverse button
⑲ Auto-lock button
⑳ Needle up/down button
㉑ Thread cutter button
㉒ Speed control slider
㉓ Feed balancing dial
㉔ Knee lifter socket
㉕ Confirmation button
㉖ Jog dial
㉗ Function keys
㉘ LCD screen
㉙ Needle clamp screw
㉚ Needle
㉛ Zigzag foot A
㉜ Needle plate
㉝ Hook cover release button
㉞ Hook cover plate
㉟ Buttonhole lever
㊱ Needle threader
㊲ Foot holder
㊳ Feed dog
㊴ Carrying handle
㊵ Presser foot lifter
㊶ Handwheel
㊷ Dual feed balancing dial
㊸ Connector for external thread cutter switch
㊹ Drop feed lever
㊺ Power switch
㊻ Foot control jack
㊼ Machine socket

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

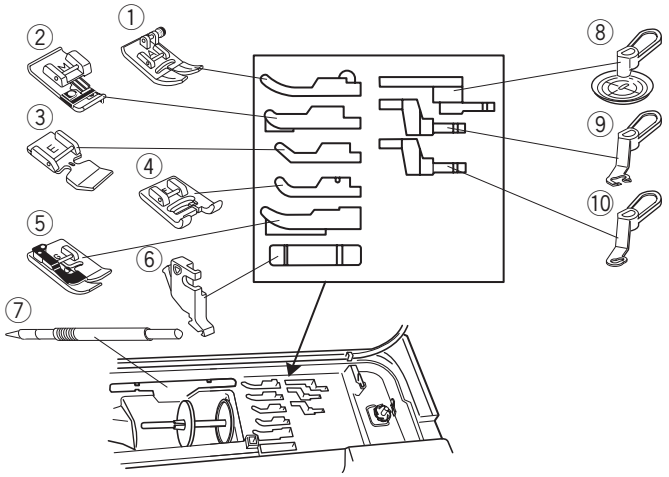
NOTE:
Sewing machine design and specifications are subject to change without prior notice.

* Thread cutter switch is an optional item.



Standard Accessories

① Zigzag foot A (set on the machine)
② Rolled hem foot D
③ Zipper foot E
④ Satin stitch foot F
⑤ Open-toe satin stitch foot F2
⑥ Blind hemming foot G
⑦ Overcast foot M
⑧ 1/4″ seam foot O
⑨ Darning foot PD-H
⑩ Convertible free motion quilting foot QB-S
⑪ Close-toe foot
⑫ Open-toe foot
⑬ Clear view foot
⑭ Automatic buttonhole foot R
⑮ Buttonhole stabilizer plate
⑯ Dual feed foot holder
⑰ Dual feed foot AD
⑱ Button sewing foot T
⑲ Quilting guide bar
⑳ Cloth guide
㉑ Bobbin (5 pcs.) (1 set on the machine)
㉒ Spool holder (large, set on the machine)
㉓ Spool holder (small)
㉔ Spool holder (special)
㉕ Spool supporter
㉖ Felt
㉗ Extra spool pin
㉘ Needle case
㉙ Screwdriver
㉚ Lint brush
㉛ Seam ripper (Buttonhole opener)
㉜ Knee lifter
㉝ Straight stitch needle plate
㉞ Touch panel stylus
㉟ Power cable
㊱ Foot control
㊲ Instructional video DVD
㊳ Instruction book
㊴ Extra wide table
㊵ Semi-hard fabric cover

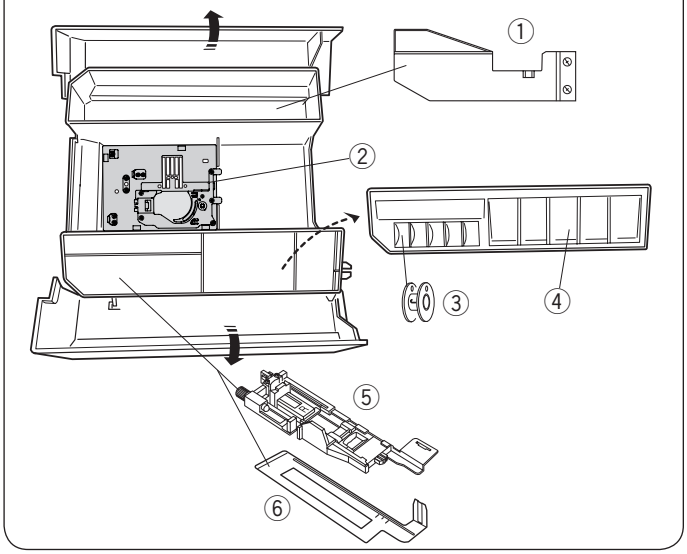


Accessories Storage

The accessories can be conveniently stored in the foot storage compartment under the top cover and in the extension table.

Under top cover:

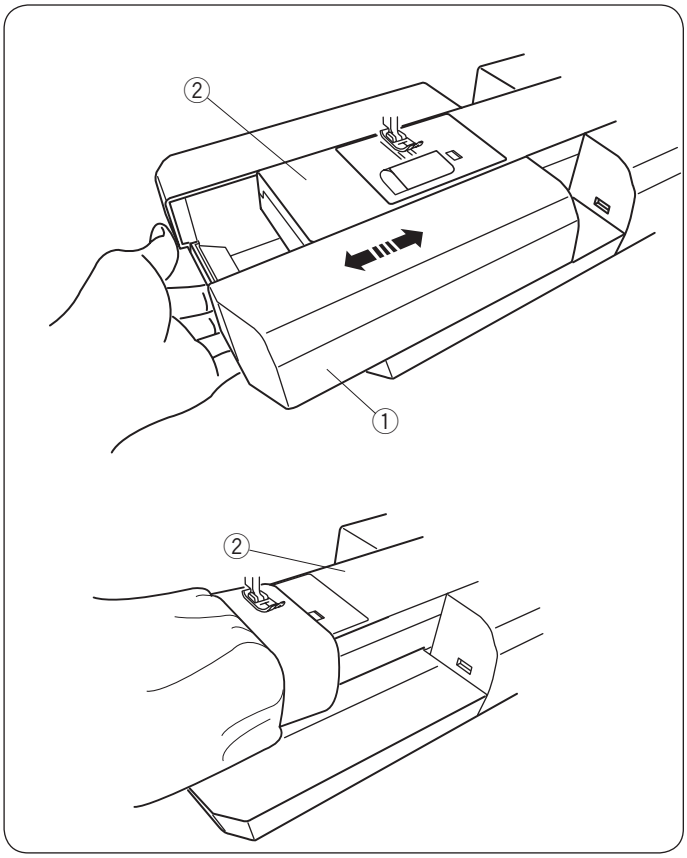
① Zigzag foot A
② Overcast foot M
③ Zipper foot E
④ Satin stitch foot F
⑤ Blind hemming foot G
⑥ Foot holder
⑦ Touch panel stylus
⑧ Clear view foot
⑨ Open-toe foot
⑩ Close-toe foot



In extension table:

① Cloth guide
② Straight stitch needle plate
③ Bobbin
④ Presser foot
⑤ Automatic buttonhole foot R
⑥ Buttonhole stabilizer plate

Other accessories can be also stored in the compartment.



Extension Table

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

① Extension table
② Free-arm

To detach:

Draw the table out to the left.

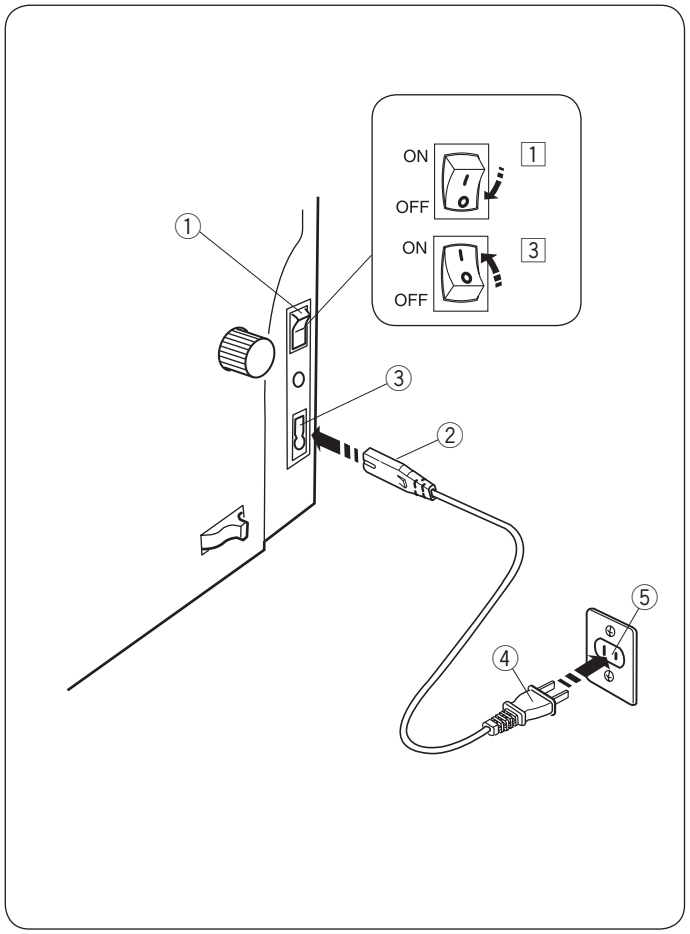
To attach:

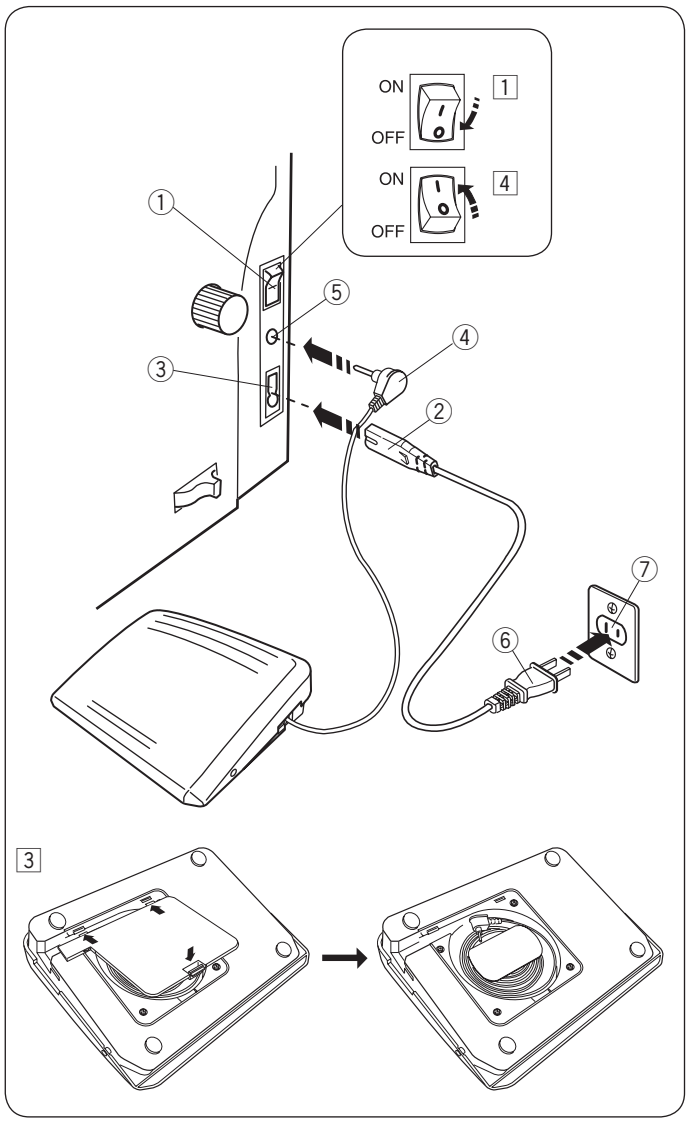
Slide the table on the base and push the table to the right.

Free-arm sewing

Free-arm sewing is used for stitching sleeves, waistbands, pant legs or any other tubular garments. It is also useful for darning socks or mending knees or elbows.

② Free-arm





GETTING READY TO SEW

Connecting the Power Supply

1 First make sure the power switch ① is off.
2 Insert the machine plug ② of the power supply cord into the machine socket ③.
3 Insert the power supply plug ④ into the wall outlet ⑤, and turn the power switch ① on.

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

NOTE:
Make sure to use the power supply cable that came with the machine.
If you turn off the power switch, wait for 5 seconds before turning it on again.

⚠ 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 the machine 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.

If you wish to use the foot control, pull out the cord from the foot control and insert the pin connector into the jack on the machine.

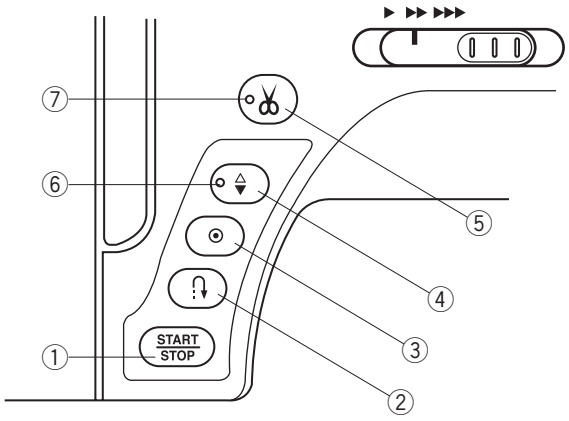
1 First make sure the power switch ① is off.
2 Insert the machine plug ② of the power supply cord into the machine socket ③.
3 Draw out the cord from the foot control and insert the pin connector ④ into the jack ⑤ on the machine.
4 Insert the power supply plug ⑥ into the wall outlet ⑦, and turn the power switch on.

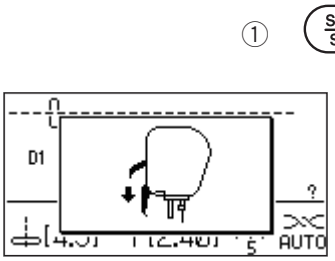
① Power switch
② Machine plug
③ Machine socket
④ Pin connector
⑤ Jack
⑥ Power supply plug
⑦ Wall outlet

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

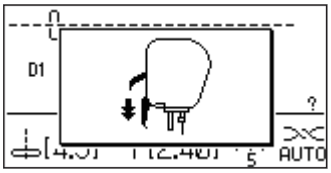
Operating Instructions:
The symbol “O” on a switch indicates the “off” position of the switch.

For the U.S.A. and Canada only
Polarized plug (one blade wider than the other):
To reduce the risk of electric shock, this plug is intended to fit in a polarized outlet only one way. If it does not fit fully 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.





(A)



(B)

Machine Operating Buttons

① Start/stop button

Press this button to start or stop the machine.
The machine starts running slowly for the first few stitches, it then runs at the speed set by the speed control slider. The machine runs slowly as long as this button is pressed.
The button will turn red when the machine is running, and green when it has been stopped.

Pressing and holding this button while sewing will slow down the sewing speed and the machine will stop when the button is released.

NOTE:
- The start/stop button cannot be used when the foot control is connected to the machine.
- The machine will not start if the presser foot is up and the LCD screen shows message (A) or (B). Lower the presser foot and start the machine
- You can select the desired start-up speed from slow, normal or high (refer to page 29).

② Reverse button

When sewing stitch pattern D1 (D1S), D4 (D4S), 9, 10, 11, D96, D97 (D97S), D98 (D98S), 164, 165, 166 or 167, the machine will sew in reverse as long as the reverse button is pressed.

If stitch pattern D1 (D1S), D4 (D4S), 9, 10, 11, D94, D95 (D95S), D96 (D96S), 164, 165, 166 or 167 has been selected and the foot control is not connected, the machine will start sewing in reverse as long as the reverse button is pressed.

If you press the reverse button when sewing any other patterns, the machine will immediately sew locking stitches and automatically stop.

③ Auto-lock button

When sewing stitch pattern D1 (D1S), D4 (D4S), 9, 10, 11 D94, D95 (D95S), D96 (D96S), 164, 165, 166 or 167, the machine will immediately sew locking stitches and automatically stop when the auto-lock button is pressed.

When sewing all other patterns, the machine will sew to the end of the current pattern, sew locking stitches and stop automatically.

The machine will trim the threads automatically after locking the stitch when the auto thread cutting option is turned on.

④ Needle up/down button

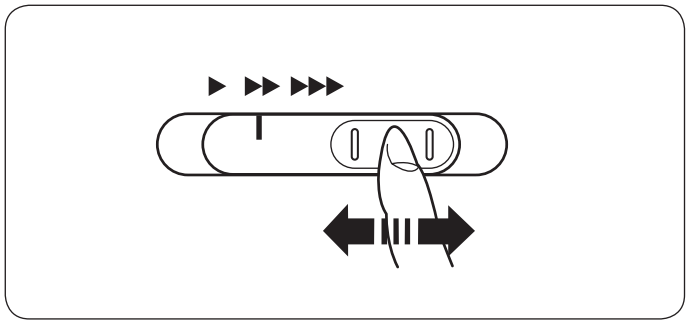
Press this button to bring the needle bar up or down.
The machine will stop with the needle in down position. However, you can change the needle stop position in the setting mode (refer to page 29).

NOTE:
The LED signal ⑥ is turned on when the down position is selected and vice versa.

⑤ Thread cutter button

Press this button when you finish sewing to trim the threads. The needle bar automatically rises after trimming the threads (refer to page 33).

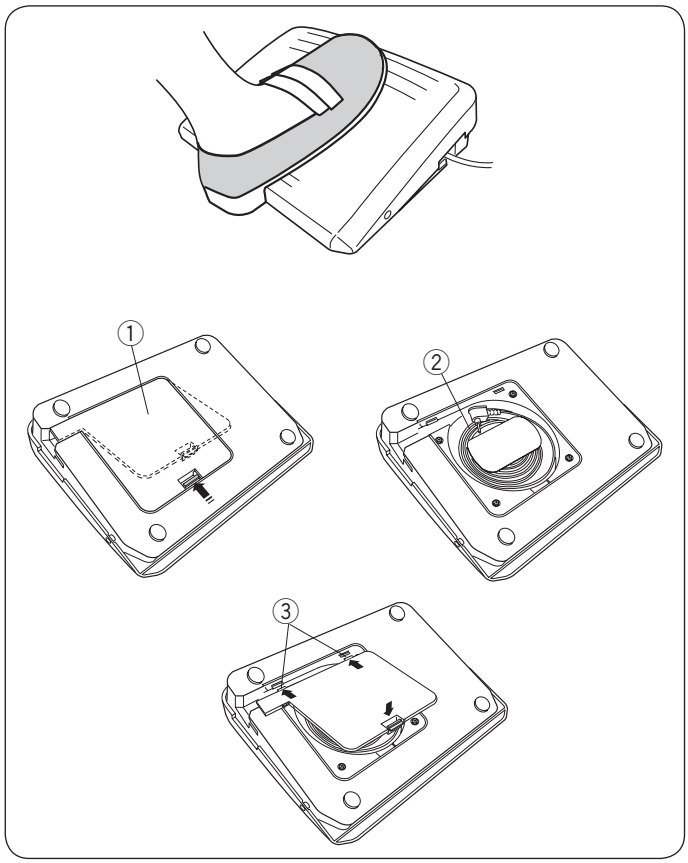
NOTE:
The LED signal ⑦ is turned on when the auto thread cutter is selected (refer to page 85).
Use the thread cutter on the face cover if the thread is #30 or thicker.



Controlling Sewing Speed

Speed control slider

You can limit the maximum sewing speed with the speed control slider according to your sewing needs.
To increase the sewing speed, move the slider to the right.
To decrease the sewing speed, move the slider to the left.



Foot Control

Pressing on the foot control can vary sewing speed. The harder you press the foot control, the faster the machine runs.

> **NOTE:**
> The machine runs at the maximum speed set by the speed control slider when the foot control is fully depressed.

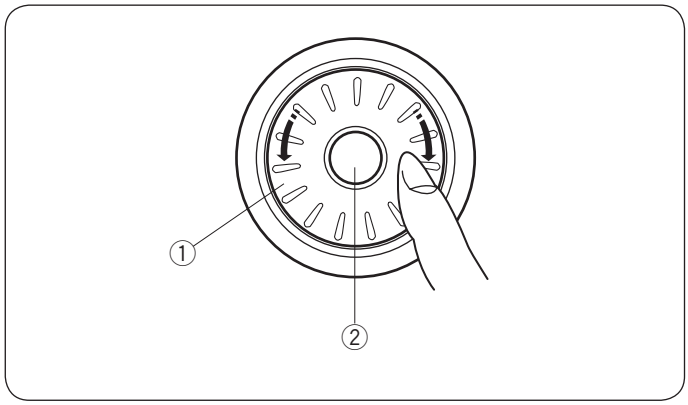
Cord storage

The cord of the foot control can be conveniently stored in the cord storage under the base cover of the foot control.

① Base cover
② Cord
③ Hook

Operating Instructions:

Foot control model 21380 is for use with this sewing machine.



Jog Dial

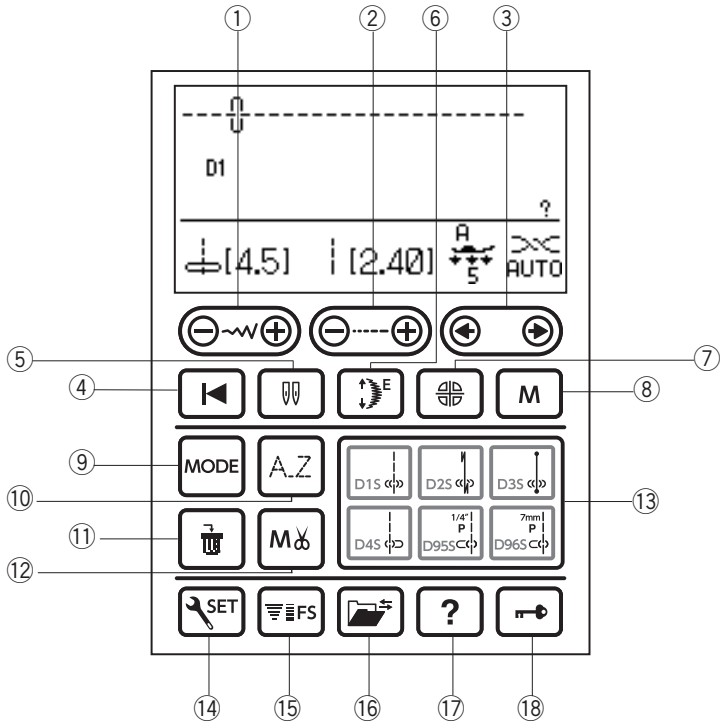
① **Jog dial**

The jog dial is used for selecting stitch patterns, characters and certain settings.

Turn the jog dial clockwise or counterclockwise with your fingertip to browse patterns or settings.

② **Confirm button**

Press the confirm button to select the desired pattern or settings.



Function Keys

① **Stitch width adjusting key** (refer to pages 34, 46, 57)
Press this key to alter the stitch width or needle drop position.

② **Stitch length adjusting key** (refer to pages 34, 46, 57)
Press this key to alter the stitch length.

③ **Edit key** (refer to pages 24, 57, 94)
Press this key to edit the programmed pattern combinations.

④ **Startover key** (refer to page 88)
Press this key to sew a pattern combination from the beginning.

⑤ **Twin needle key** (refer to pages 81-82)
Press this key when sewing with a twin needle.

⑥ **Elongation key** (refer to page 80)
Press this key to elongate satin stitch patterns.

⑦ **Mirror image key** (refer to pages 86-87)
Press this key to sew a mirror image of the selected pattern.

⑧ **Memory key** (refer to pages 36, 69)
Press this key to register programmed pattern combinations.
Up to 50 stitch patterns combination can be memorized.
This key is also used to customize the default settings of stitch length and width.

⑨ **Mode key** (refer to page 24)
Press this key to open the group selection window.

⑩ **Monogram key** (refer to pages 91-92)
Press this key to select one of 5 letter styles available.

⑪ **Clear key** (refer to pages 30, 36, 95, 99)
Press this key to delete the last memorized pattern.
Press and hold this key until the buzzer sounds to delete the whole pattern combination.

⑫ **Auto thread cutter key** (refer to page 85)
Press this key before sewing, if you wish to cut the threads automatically after finishing sewing with a locking stitch.
When programming a pattern combination, press this key after the last programmed pattern to cut the threads automatically after finishing sewing.
The LED signal on the thread cutter button will turn on when the auto thread cutter key is pressed.

⑬ **Direct pattern selection keys** (refer to page 25)
Press one of 6 keys to select a stitch pattern directly.

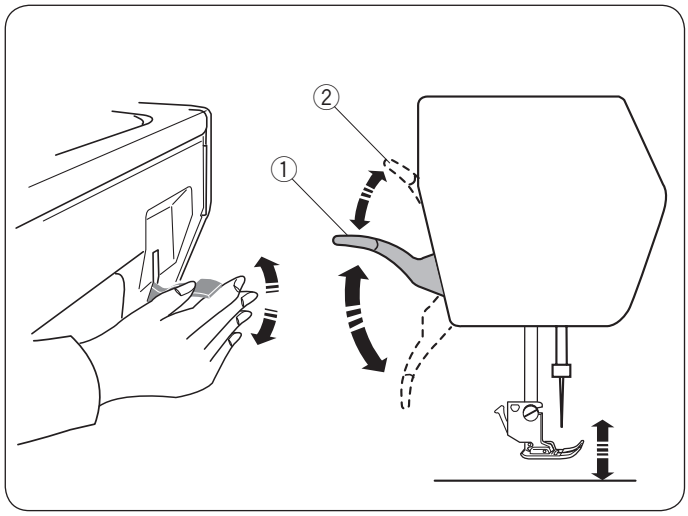
⑭ **Set key** (refer to page 27)
Press this key to open the machine setting window for customizing the machine settings.

⑮ **Favorite setting key** (refer to page 36)
Press this key to view information on the selected pattern.

⑯ **Memory recall key** (refer to pages 98-99)
Press this key to memorize the selected pattern or recall the memorized pattern.

⑰ **Help key** (refer to page 26)
Press this key to view information on the selected pattern.

⑱ **Lockout key** (refer to page 13)
Press this key to lockout the machine when threading the machine, replacing the accessories etc.
To reduce the risk of injury, all the buttons and keys are deactivated.
To unlock the machine, press this key again.



Raising and Lowering the Presser Foot

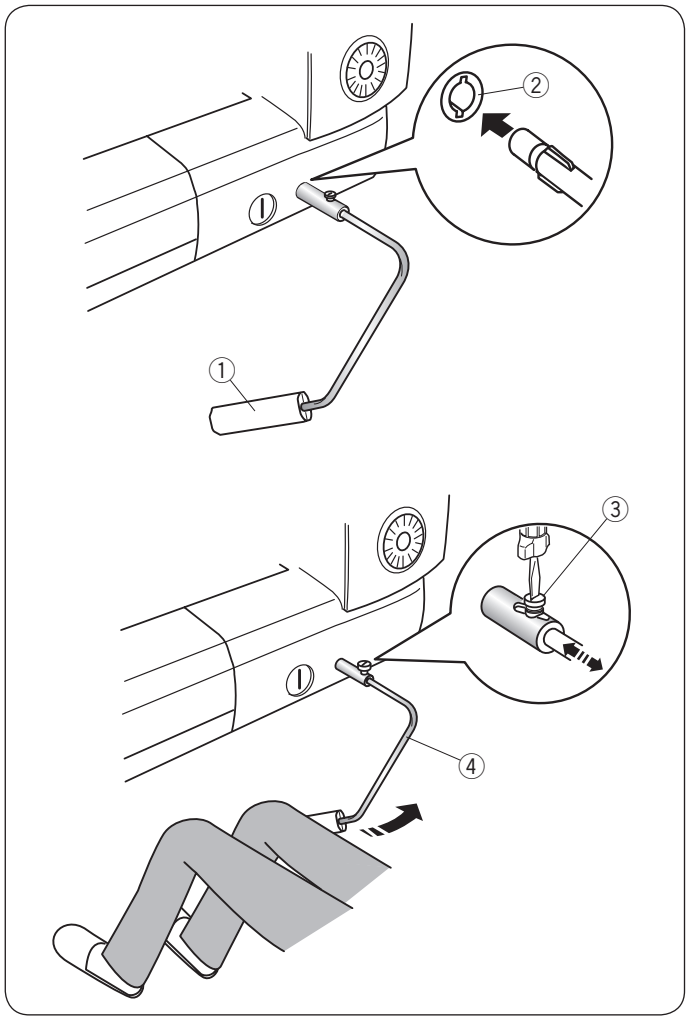
The presser foot lifter raises and lowers the presser foot.

① Presser foot lifter

You can raise the presser foot higher than the normal up position. This allows for changing the needle plate, and also helps you to place thick layers of fabrics under the foot.

② Extra lifted position

NOTE:
Do not turn the hand wheel of press the up/down needle button when the presser foot is in the extra lifted position.



Knee Lifter

The knee lifter is extremely helpful when sewing patchwork, quilting etc, since it allows you to handle the fabric while your knee controls the presser foot.

Attaching the knee lifter

Match the ribs on the knee lifter with the notches in the knee lifter socket and insert the knee lifter.

① Knee lifter
② Knee lifter socket

Adjusting the knee lifter

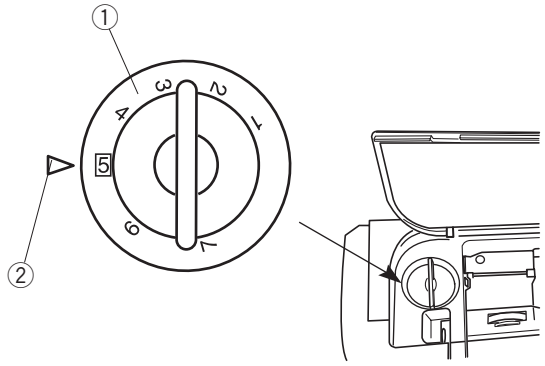
The angle of the knee lifter can be adjusted to fit you. Loosen the setscrew and slide the angle bar in or out to adjust the angle of the knee lifter.
Tighten the setscrew to secure the angle bar.

③ Setscrew
④ Angle bar

Using the knee lifter

Push the knee lifter with your knee to easily move the presser foot up and down.
You can control how high the foot rises by the amount of knee pressure you exert.

NOTE:
Do not touch the knee lifter while stitching, otherwise the fabric will not be fed smoothly.



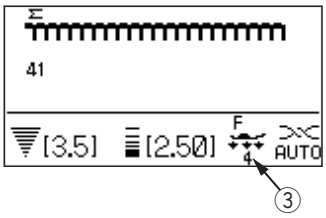
Adjusting the Foot Pressure

The foot pressure can be adjusted with the foot pressure dial located under the top cover.

The dial has 7 setting positions from 1 to 7.
For ordinary sewing, set 5 at the setting mark.

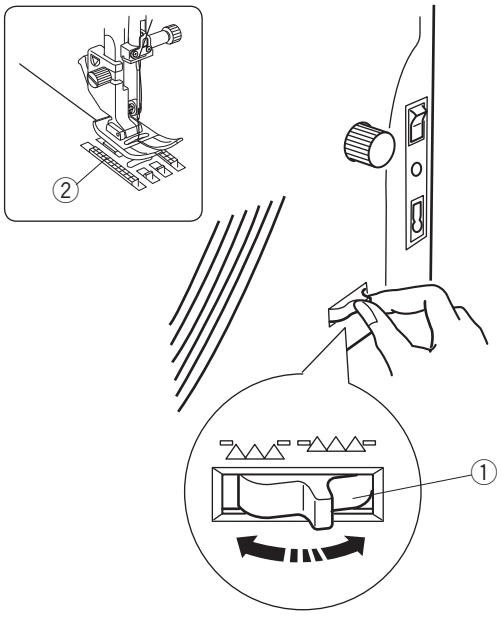
① Foot pressure dial
② Setting mark

Reduce the pressure when sewing fine synthetics and stretch fabrics.
To reduce the pressure, set the dial at a lower number.



The recommended dial setting for the selected pattern will be show on the LCD screen.
For example, set the dial at 4 for applique stitches.

③ Recommended setting



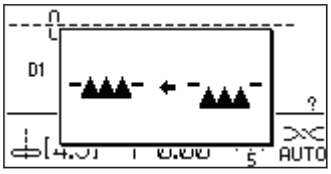
Dropping the Feed Dog

The feed dog can be lowered for basting, sewing on buttons, free motion quilting etc.

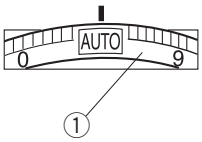
Shift the drop feed lever toward you to lower the feed dog.

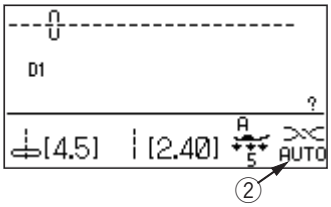
① Drop feed lever
② Feed dog

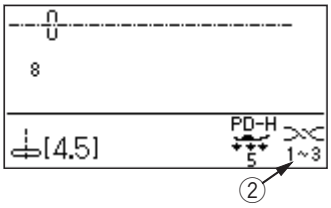
Shift the drop feed lever away from you to raise the feed dog, it will return to the up position when you start the machine.



NOTE:
If you start the machine with the feed dog lowered, a message will appear on the LCD screen.
The machine will not run with the feed dog lowered when pattern number 23-33, 35-40 or monogram is selected.







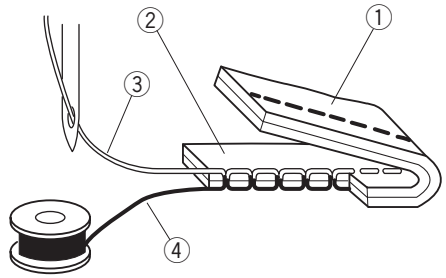
Balancing Thread Tension

Auto-thread tension

For general sewing, set the thread tension dial at AUTO, which covers a wide range of sewing conditions. Recommended tension setting for the selected pattern is indicated on the LCD screen.

① Thread tension dial
② Recommended tension setting

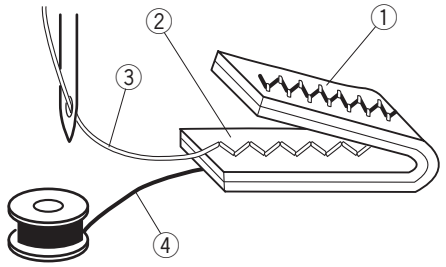
NOTE:
Manual thread tension adjustment may be required when the stitch width is set more than “7.0” (see below).



Balanced thread tension

For straight stitch sewing, both needle and bobbin threads will join at the middle of the fabrics.

① Wrong side of fabric
② Right side of fabric
③ Needle thread
④ Bobbin thread



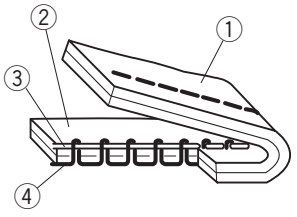
For zigzag stitch sewing, the needle thread will appear slightly on the wrong side of the fabric.

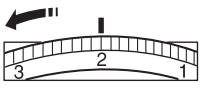
① Wrong side of fabric
② Right side of fabric
③ Needle thread
④ Bobbin thread

Manual thread tension adjustment

You should adjust the tension manually if the LCD screen shows a tension setting other than AUTO.

You may also need to adjust tension manually depending on the sewing conditions such as the type of fabric and number of layers.

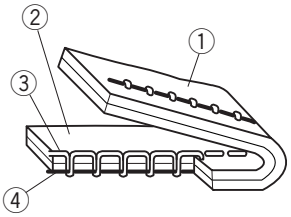


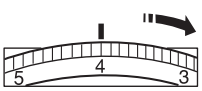


If the needle thread is too tight, the bobbin thread appears on the right side of the fabric.

① Wrong side of fabric
② Right side of fabric
③ Needle thread
④ Bobbin thread

Turn the thread tension dial to a lower number to decrease the thread tension.

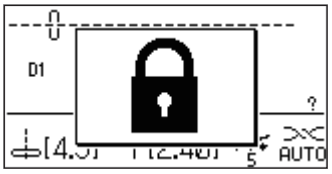


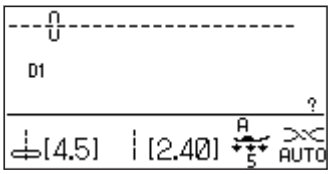


If the needle thread is too loose, the needle thread loops on the underside of the fabric.

① Wrong side of fabric
② Right side of fabric
③ Needle thread
④ Bobbin thread

Turn the thread tension dial to a higher number to increase the thread tension.

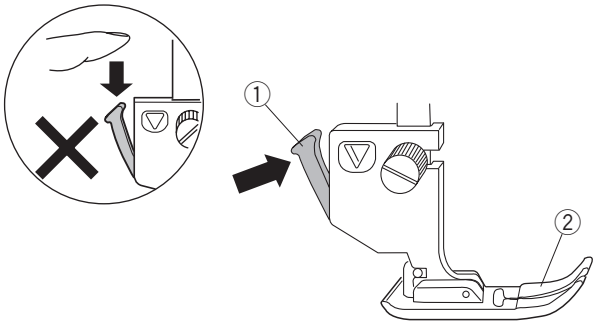


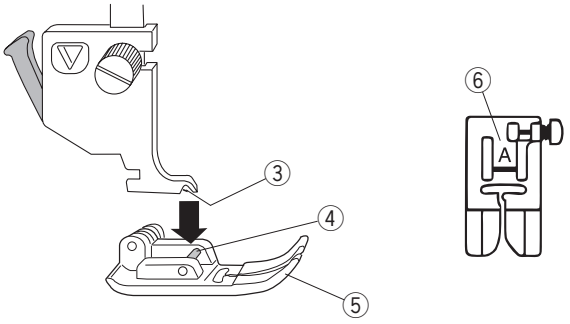


Lockout Key

Press this key to lockout the machine when threading the machine, replacing the accessories etc.
To reduce the risk of injury, all the buttons and keys are deactivated.

To unlock the machine, press this key again.





Changing the Presser Foot

⚠ CAUTION:
Always make sure to press the lockout key to lockout the machine or turn the power switch off before replacing the presser foot.

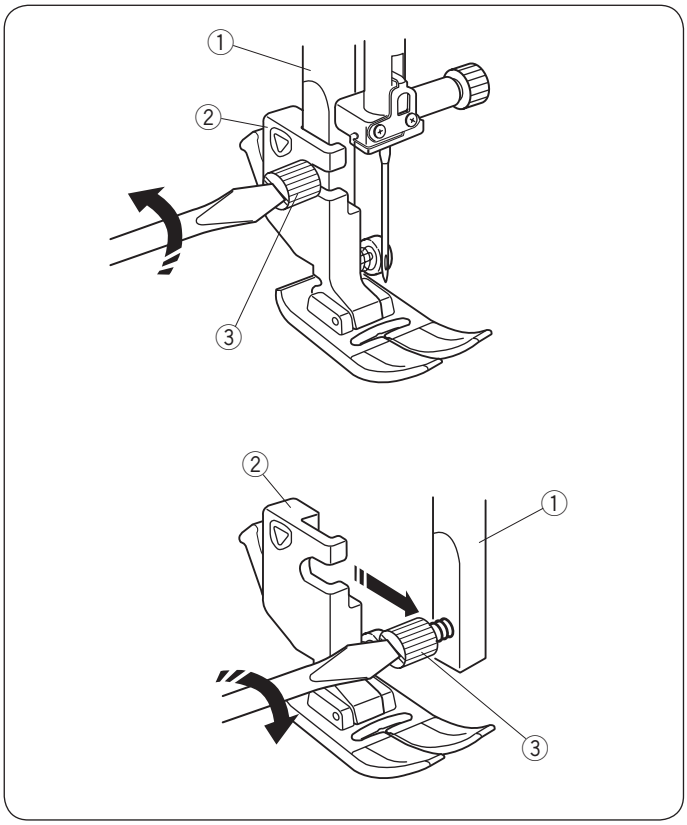
Raise the needle to its highest position and raise the presser foot lifter.
Press the black lever on the back of the foot holder.
The presser foot will drop off.

① Lever
② Presser foot

Attaching the presser foot

Place the presser foot so that the pin on the foot lies just under the groove of the foot holder.
Lower the presser bar to lock the foot in place.
Each foot is marked with an identification letter.

③ Groove
④ Pin
⑤ Presser foot
⑥ Identification letter



Removing and Attaching the Foot Holder

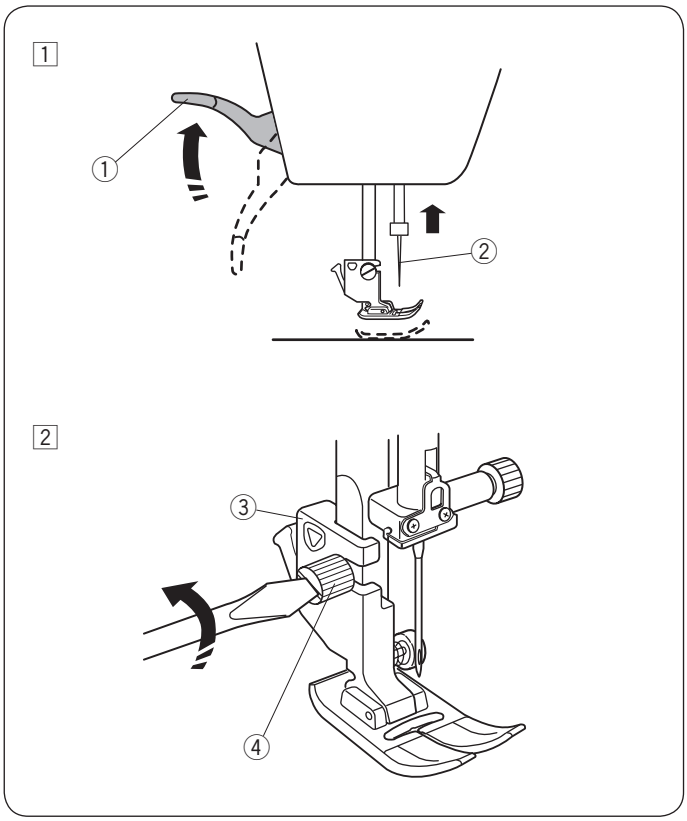
⚠ CAUTION:
Always make sure to press the lockout key to lockout the machine or turn the power switch off before replacing the presser foot.

Removing the foot holder
Raise the needle to the highest position.
Raise the presser foot and loosen the setscrew.
Remove the foot holder.

① Presser bar
② Foot holder
③ Setscrew

Attaching the foot holder
Attach the foot holder to the presser bar from the rear.
Tighten the thumbscrew securely with the screwdriver.

NOTE:
Lower the presser foot when loosening and tightening the thumbscrew if it is hard to access.

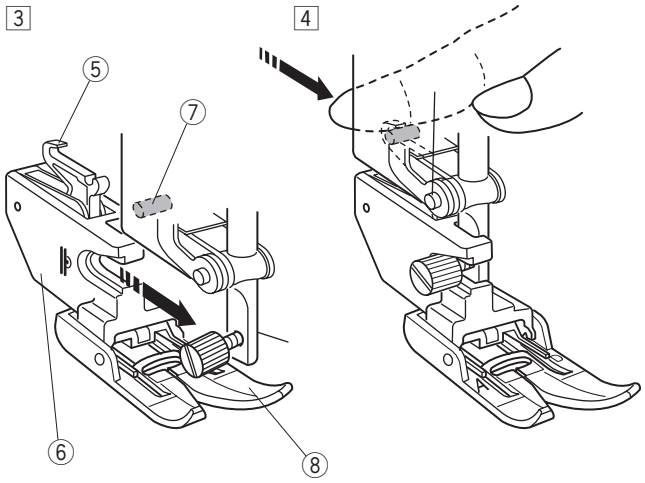


Dual Feed Foot

⚠ CAUTION:
Always make sure to press the lockout key to lockout the machine or turn the power switch off before replacing the presser foot.

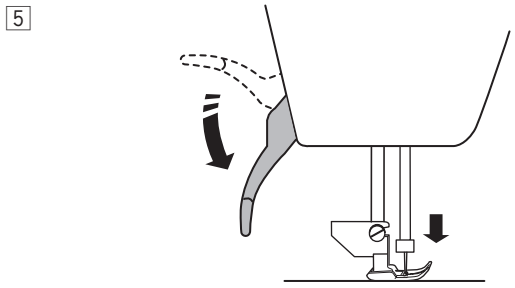
1 Raise the needle to its highest position.
Raise the presser foot lifter.
① Presser foot lifter
② Needle

2 Loosen the setscrew.
Remove the foot holder.
③ Foot holder
④ Setscrew

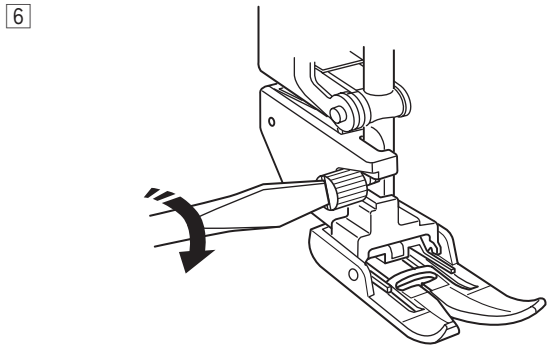


3 Attach the dual feed foot holder to the presser bar. Tighten the setscrew lightly with your finger.
- ⑤ Dual feed link
- ⑥ Dual feed foot holder
- ⑦ Upper feed drive
- ⑧ Dual feed foot

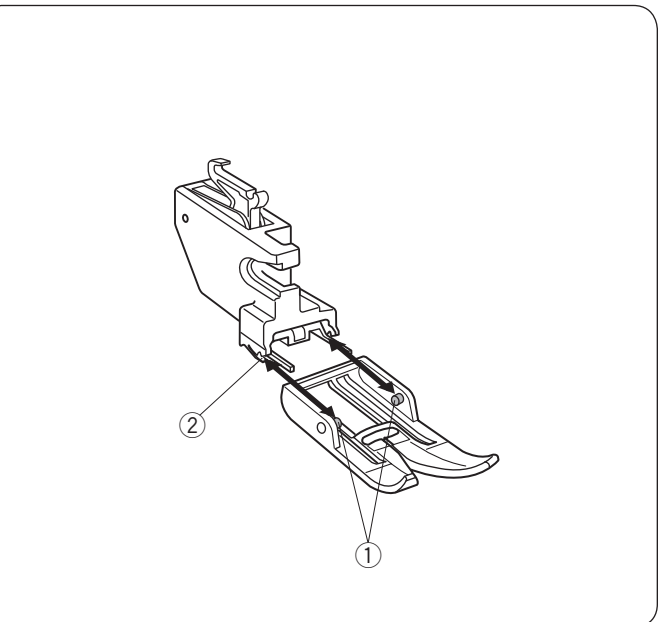
4 Push the dual feed link to engage it with upper feed drive.



5 Lower the presser foot lifter. Lower the needle to the lowest position by turning the handwheel.



6 Tighten the setscrew securely with the screwdriver.



Replacing the dual feed foot

Pull the foot toward you to remove it.

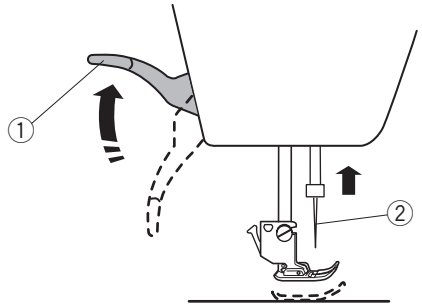
Insert the pins of the foot into the slits of the foot holder and gently push the foot until it snaps into place.
- ① Pin
- ② Slit

Replacing the Needle Plate

Use the straight stitch needle plate when sewing fine fabrics or sewing with the dual feed foot.

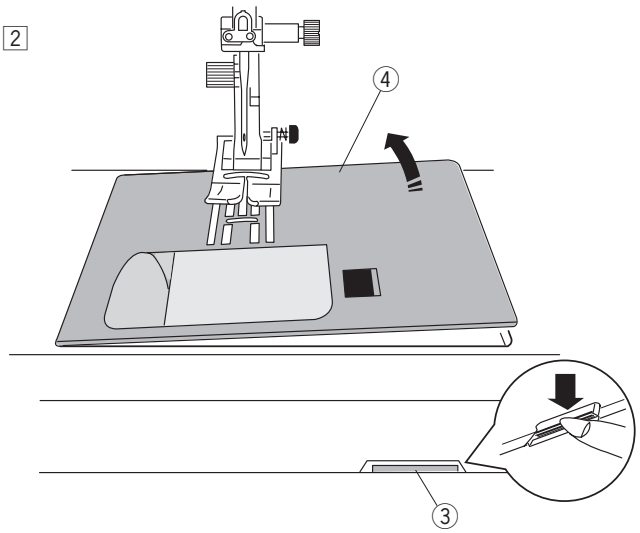
⚠ CAUTION:
Always make sure to press the lockout key to lockout the machine or turn the power switch off before replacing the needle plate.

1



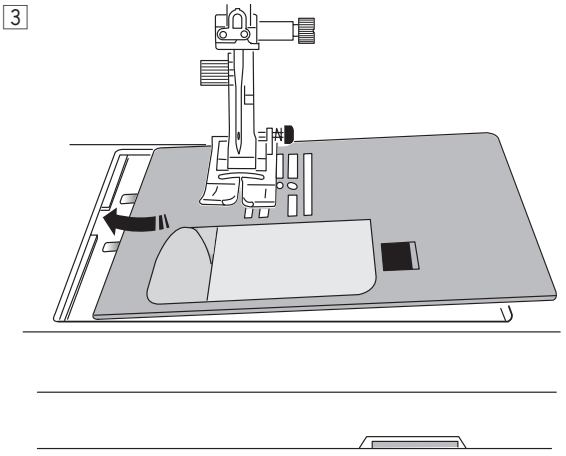
1 Raise the needle to the highest position.
Raise the presser foot lifter to the extra lifted position.
① Presser foot lifter
② Needle

2



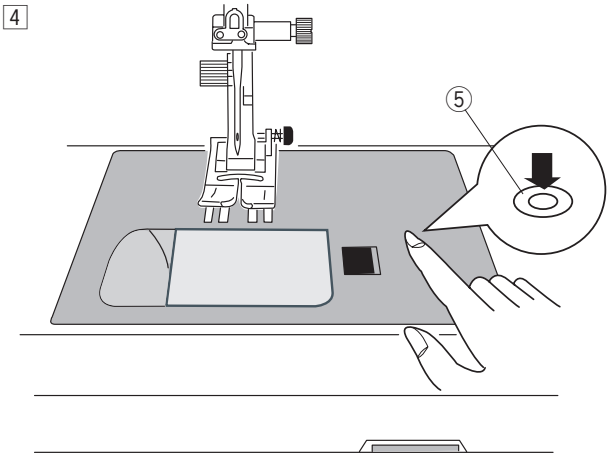
2 Slide the extension table to the left to remove it.
Push down the needle plate release lever and the needle plate will snap off.
③ Needle plate release lever
④ Needle plate

3



3 Place the straight stitch needle plate on the machine.
Set the left edge of the needle plate into the opening.

4

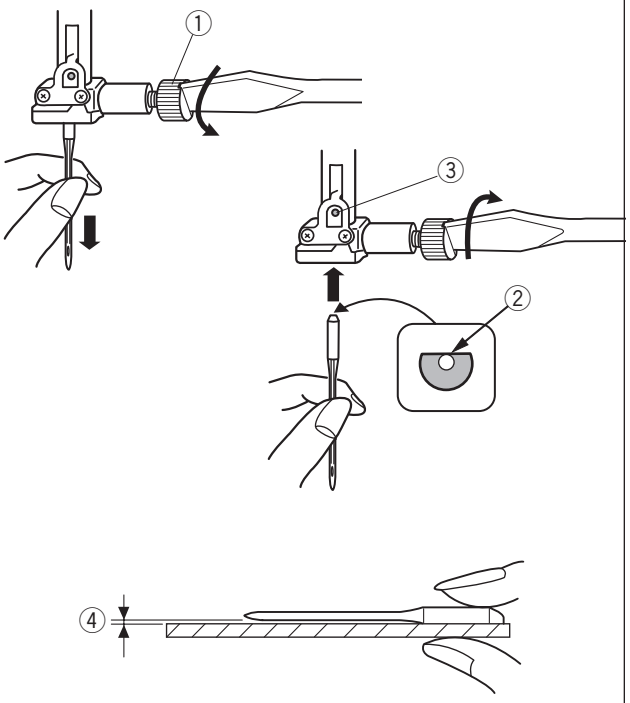


4 Push down on the needle plate mark until the needle plate locks in place.

Lower the presser foot to the normal up position. Press the lockout key to unlock or turn the power switch on. Make sure the straight stitch is automatically selected.

Turn the hand wheel slowly and make sure that the needle does not hit the needle plate.
⑤ Needle plate mark

⚠ CAUTION:
Never press the needle plate release lever while running the machine.



Changing Needles

⚠ CAUTION:
Always make sure to press the lockout key to lockout the machine or turn the power switch off before changing the needle.

Raise the needle by pressing the needle up/down button and lower the presser foot.
Turn the power switch off.

Loosen the needle clamp screw and remove the needle from the clamp.
① Needle clamp screw

Insert a new needle into the needle clamp with the flat side of the needle to the rear.
When inserting the needle into the needle clamp, push it up against the stopper pin and tighten the needle clamp screw firmly with a screwdriver.
② Flat side
③ Stopper pin

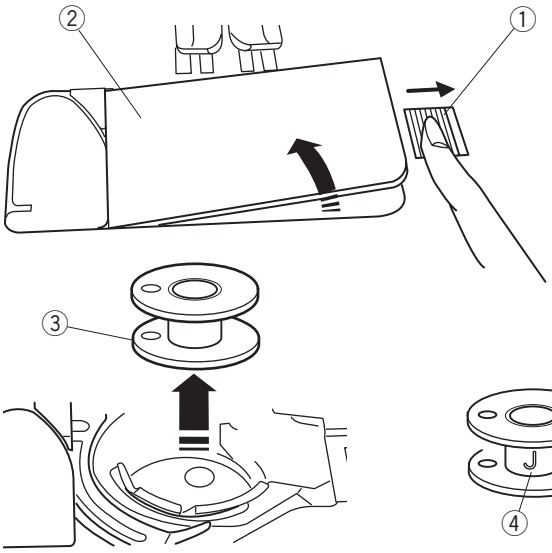
To check needle straightness, place the flat side of the needle onto something flat (a needle plate, glass etc.)
The gap between the needle and the flat surface should be consistent.
Never use a blunt needle.
④ Gap

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

NOTE:
1 x twin needle, 2 x blue tip needle (#11/75), 1 x red tip needle (#14/90) and 1 x purple tip needle (#14/90) are included in the needle case (Part No. 859856005).

Fabric and Needle Chart

- For general sewing, use red needle.
- Fine threads and needles should be used for sewing fine fabrics.
- In general, use the same thread for both needle and bobbin.
- Use a blue tip needle for sewing fine fabrics, stretch fabrics, tricot and buttonholes to prevent skipped stitches.
- Use a purple tip needle for sewing knits, free quilting and across the hem to prevent skipped stitches.
- Use a stabilizer or interface to stretch or fine fabrics to prevent seam puckering.
- Always test the thread and needle size on a small piece of the same fabric you will use for actual sewing.



Winding the Bobbin

Removing the Bobbin

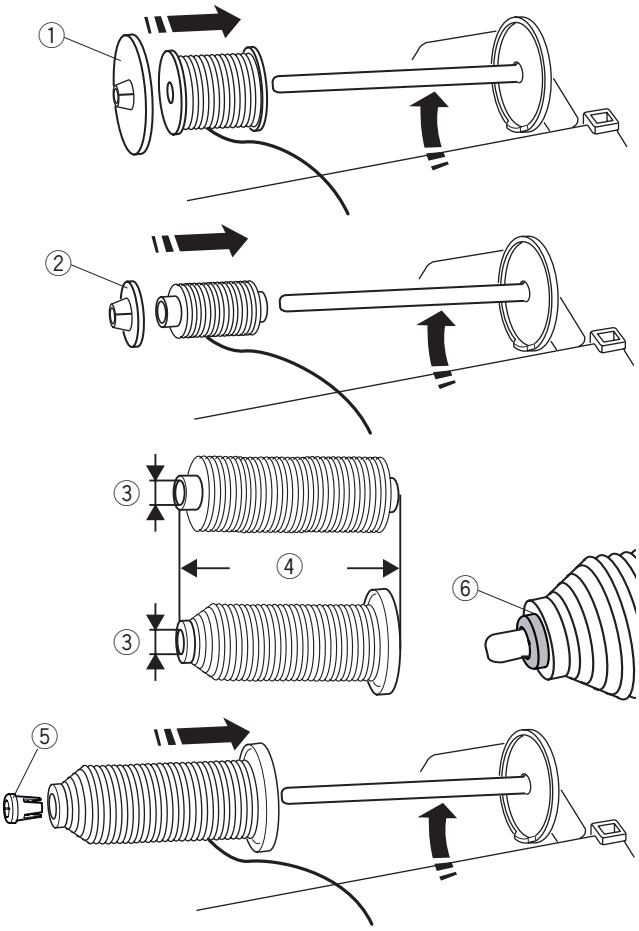
Slide the hook cover release button to the right, and remove the hook cover plate.

① Hook cover release button
② Hook cover plate

Lift out the bobbin from the bobbin holder.

③ Bobbin

NOTE:
Use the J plastic bobbins for horizontal hook (marked with "J" ④). Using other bobbins, such as pre-wound paper bobbins, may cause stitching problems and/ or damage to the bobbin holder.



Setting the spool of thread

Lift up the spool pin. Place the spool of thread on the spool pin with the thread coming off the spool as shown. Attach the large spool holder, and press it firmly against the spool of thread.

① Large spool holder

NOTE:
Use the small spool holder to hold narrow or small spools of thread.

② Small spool holder

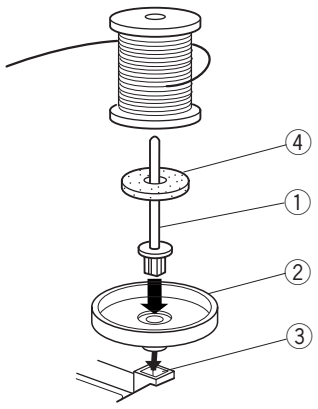
Spool Holder (special)

Use the spool holder (special) when using a long spool of thread as shown.

③ 9.5 - 10.5mm (3/8 - 7/16inch)
④ 70 - 75mm (2-3/4 - 3inch)

Attach the spool holder (special) by inserting it into the hole of the spool of thread. Make sure there is no gap between the spool holder and the spool of thread.

⑤ Spool holder (special)
⑥ No gap

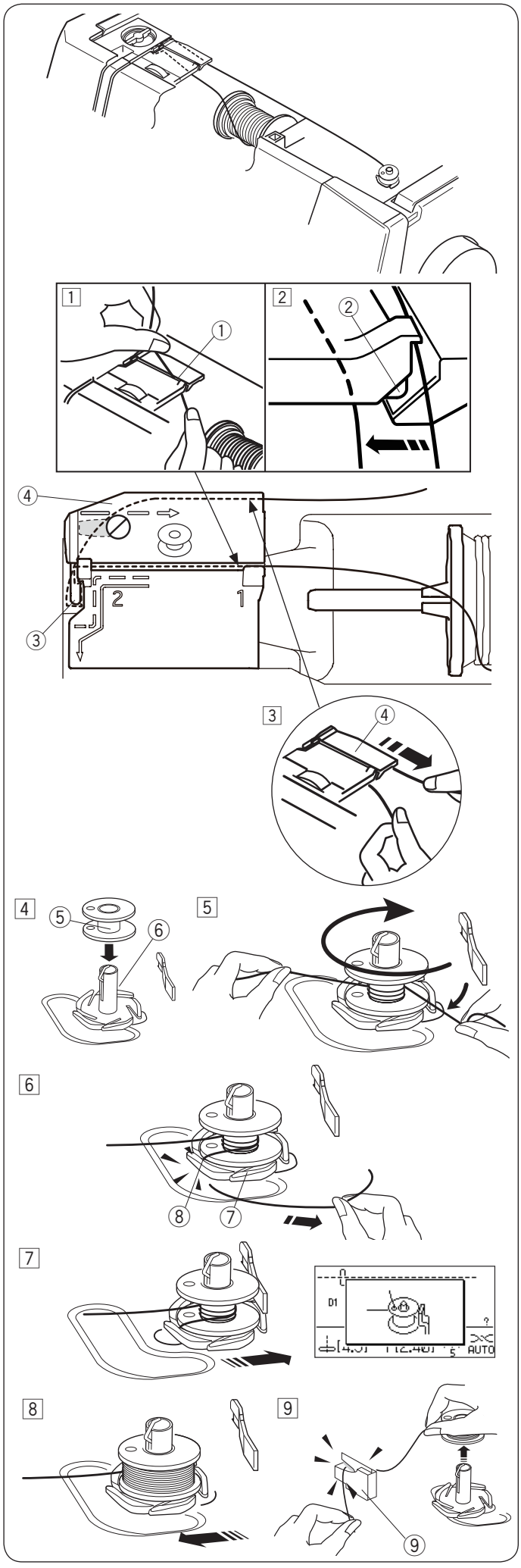


Extra spool pin

Use the extra spool pin when you need to wind a bobbin without unthreading the machine while working on a sewing project.
Insert the extra spool pin into the spool supporter and then into the hole beside the horizontal spool pin.
Place the felt on the spool pin and place a spool of thread on it as shown.

① Extra spool pin
② Spool supporter
③ Hole for extra spool pin
④ Felt

NOTE:
The extra spool pin is also used for twin needle sewing.



Winding the bobbin

NOTE:
Set the speed control slider at the fastest position.

1 Pull the thread from the spool.
Hold the thread with both hands and pass the thread into the guide slot.
① Guide slot

2 Be sure that the thread is pulled down under the notch and into the space below the guide slot as shown.
② Notch

3 Draw the thread to the left and forward around the thread guide.
Draw the thread to the rear and to the right around and under the guide plate.
Firmly pull the thread to the right while holding it with both hands.
③ Thread guide
④ Guide plate

4 Put the bobbin on the bobbin winder spindle.
⑤ Bobbin
⑥ Bobbin winder spindle

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

6 Insert the thread into one of the slits of the flange plate and pull the thread to cut.
⑦ Flange plate
⑧ Slit

7 Push the bobbin to the right. The bobbin winding window appears.

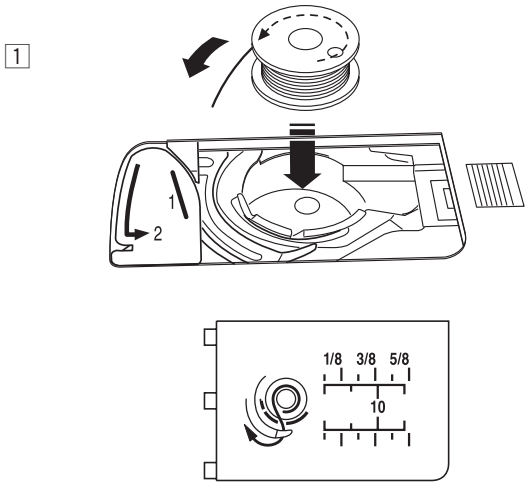
8 Start the machine. When the bobbin is fully wound, it will stop spinning automatically.
Stop the machine and return the bobbin winder to its original position by moving the spindle to the left.

9 Remove the bobbin. Cut the thread with thread cutter.
⑨ Thread cutter

NOTE:
For safety purposes, the machine will automatically stop approximately 90 seconds after starting bobbin winding.

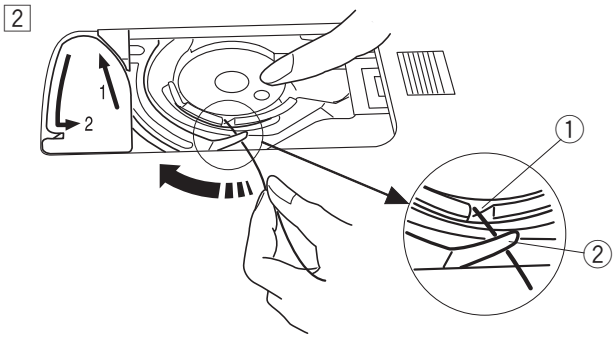
Inserting the Bobbin

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

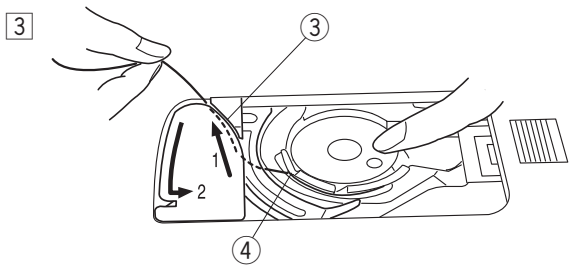


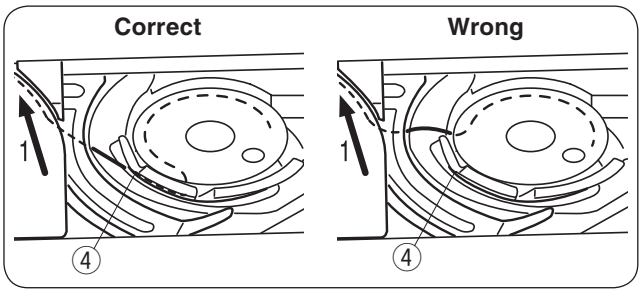
⚠CAUTION:
Always make sure to press the lockout key to lockout the machine or turn the power switch off before threading the machine.

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.
① Front notch
② Guide



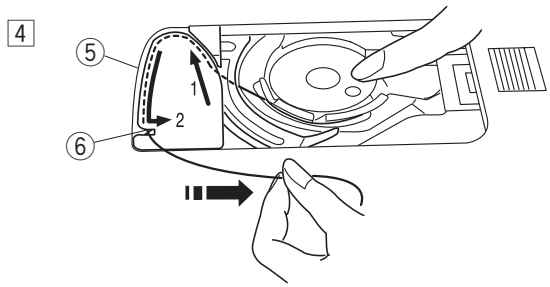
3 Draw the thread to the left to pass it into the guide path marked “1”.
Make sure that the thread comes out from the side notch of the bobbin holder.
③ Guide path 1
④ Side notch



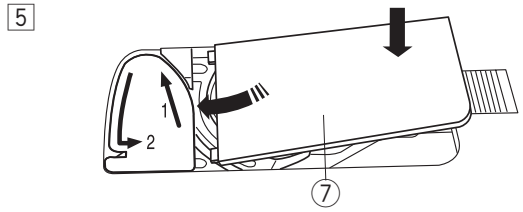


NOTE:
If the thread does not come out from the side notch, rethread from step 1.

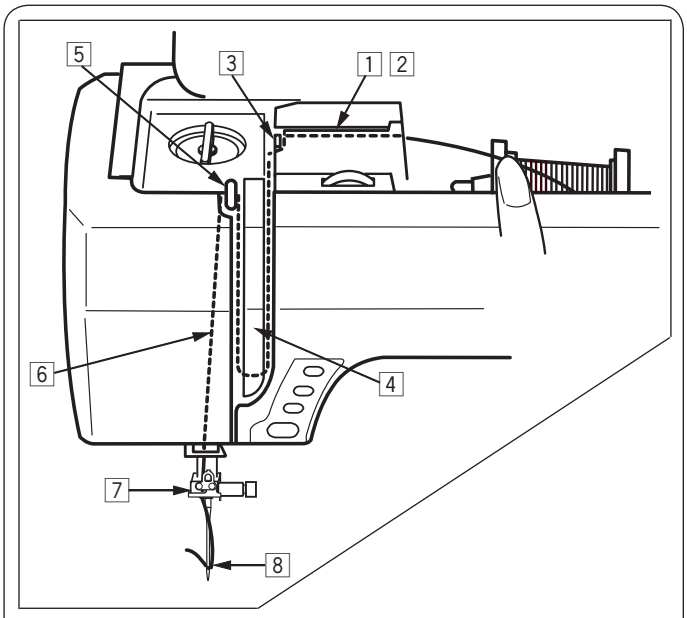
4 Continue to draw the thread along the guide path marked “2” and pull the thread to the right through the slit. The thread will be cut to a proper length and held in place.
⑤ Guide path 2
⑥ Slit (Thread cutter)

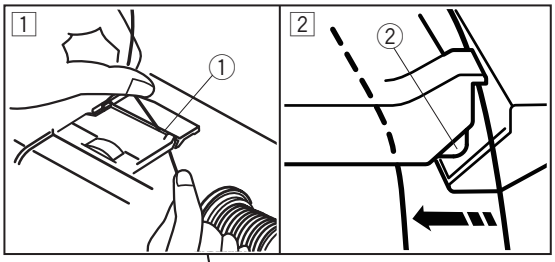


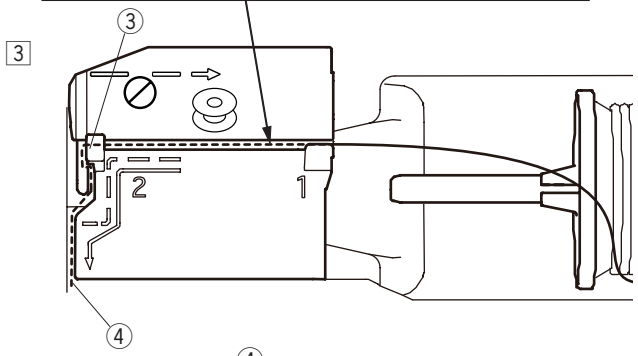
5 Set the left edge of the hook cover plate into opening. Push down the hook cover plate to fit in place.
⑦ Hook cover plate

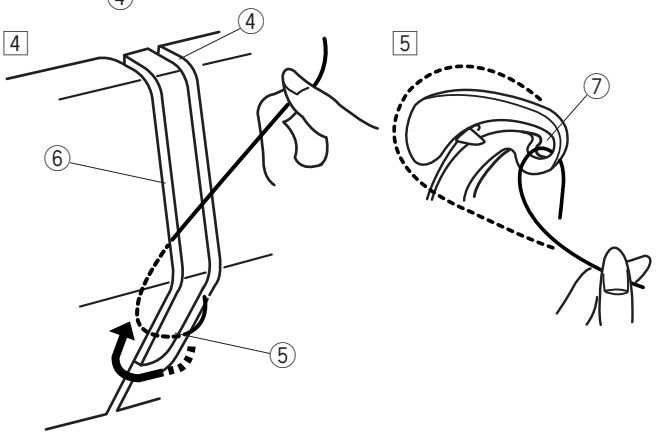


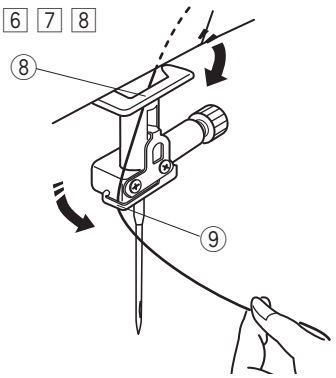
NOTE:
Unless otherwise noted, you can start sewing without drawing up the bobbin thread.
Refer to page 23 for how to draw up the bobbin thread.











Threading the Machine

Raise the presser foot lifter to raise the presser foot.
Turn the power switch on.
Press the needle up/down button to raise the take-up lever to the highest position.
Press the lockout key or turn the power switch off.
Pass the thread in the order from 1 to 8.

⚠CAUTION:
Always make sure to press the lockout key to lockout the machine or turn the power switch off before threading the machine.

1 Hold the thread with both hands and pass the thread into the guide slot.
① Guide slot

2 Be sure that the thread is pulled down under the notch and into the space below the guide slot as shown.
② Notch

3 Hold the thread with both hands and draw the thread around the corner of the guide.
Firmly pull the thread toward you along the right channel until the thread snaps.
③ Corner of the guide
④ Right channel

4 Draw the thread down along the right channel and around the bottom of the thread guide plate. Pull the thread up along the left channel.
④ Right channel
⑤ Thread guide plate
⑥ Left channel

5 While holding the thread at the spool, firmly draw the thread up and to the back of the take-up lever. Draw the thread forward to slip it into the eye of the take-up lever.
⑦ Eye of the take-up lever

6 Then pull the thread down along the left channel and through the lower thread guide.
⑧ Lower thread guide

7 Slide the thread behind the needle bar thread guide from the right.
⑨ Needle bar thread guide

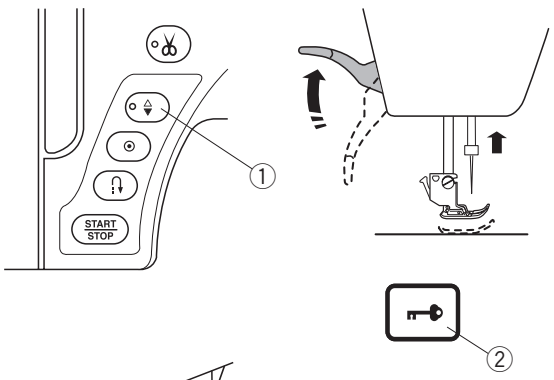
8 Thread the needle with the needle threader (refer to the next page).

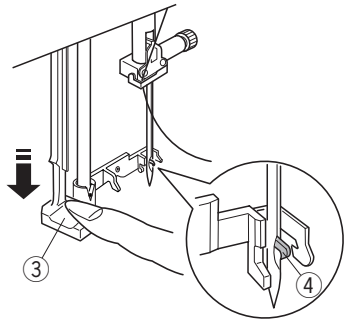
Built-in Needle Threader

NOTE:
- The needle threader can be used with a #11 to #16 needle.
  Thread size 50 to 90 is recommended.
- The needle threader cannot be used with the twin needle.

⚠CAUTION:
Always make sure to press the lockout key to lockout the machine before using the built-in needle threader.

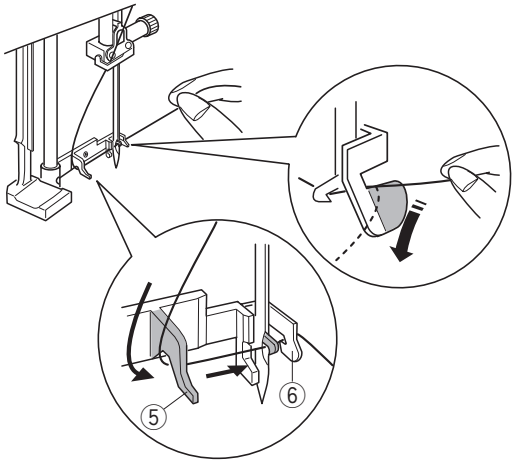
1





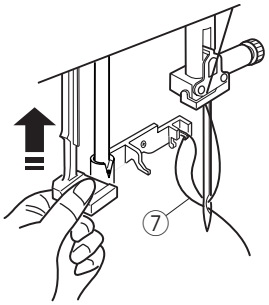
1 Turn the power switch ON.
Press the needle up/down button to raise the needle.
Press the lockout key to lock the machine.
Pull down the needle threader knob as far as it will go.
The threader hook comes out through the needle eye from behind.
① Needle up/down button
② Lockout key
③ Threader knob
④ Threader hook

2



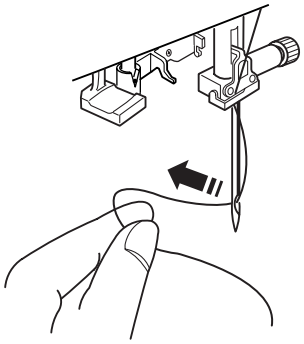
2 Draw the thread from left to right, under the left guide, threader hook and right guide.
Draw the thread around the right guide toward you.
⑤ Left guide
⑥ Right guide

3



3 Raise the threader slowly so a loop of the thread is pulled up through the needle eye.
⑦ Thread loop

4

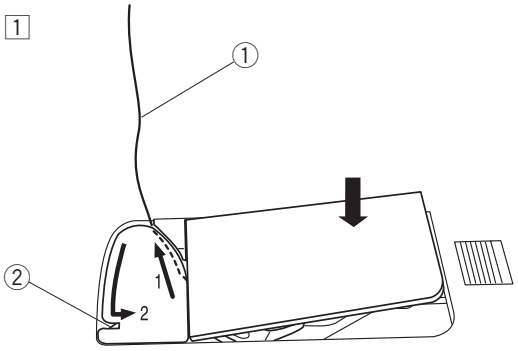


4 Remove the thread end through the needle eye to the rear.

NOTE:
The needle threader cannot be used with the twin needle.

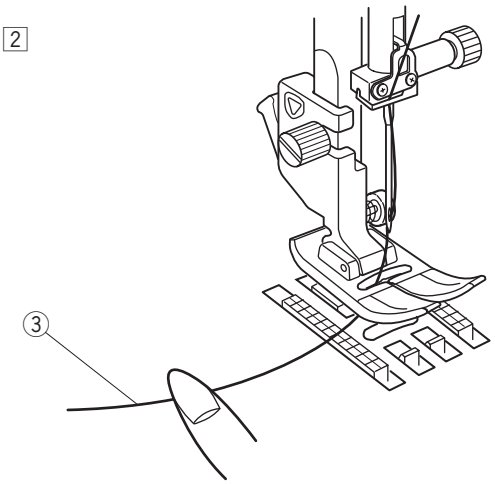
Drawing up the Bobbin Thread

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.

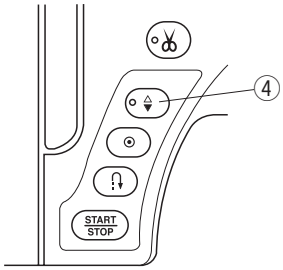
1 

1 Remove the bobbin. Insert the bobbin into the bobbin holder again and rethread the bobbin holder according to the instructions on page 20, but leave a 10 cm (4˝) tail of bobbin thread as shown.
① Bobbin thread

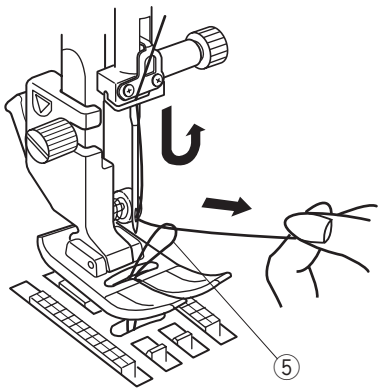
NOTE:
Do not cut the bobbin thread with the thread cutter.
② Thread cutter

2 

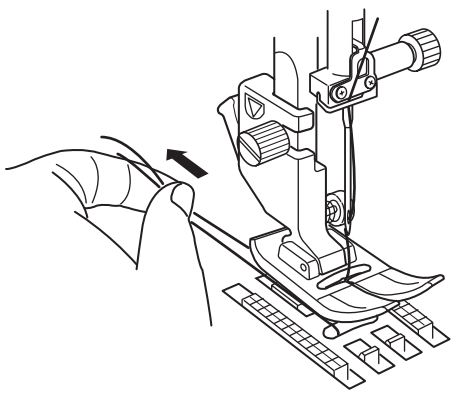
2 Raise the presser foot. Hold the needle thread lightly with your left hand.
③ Needle thread

3 

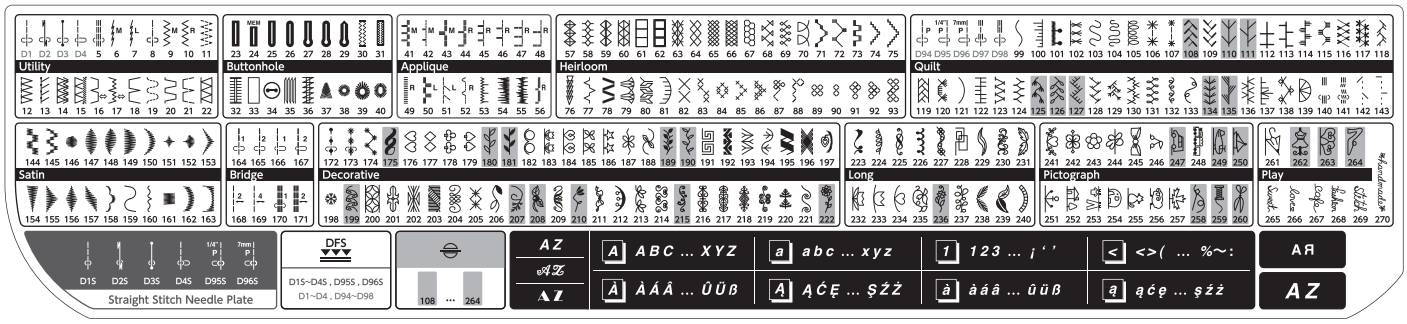
3 Press the needle up/down button twice to lower and raise the needle.
④ Needle up/down button

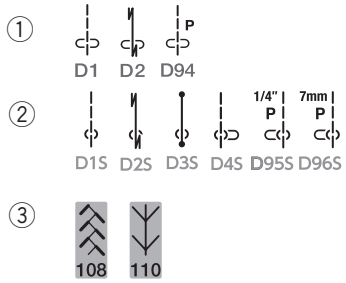
4 

4 Pull the needle thread to bring up the loop of bobbin thread.
⑤ Loop of bobbin thread

5 

5 Pull both threads 10 cm (4˝) under and behind the presser foot.

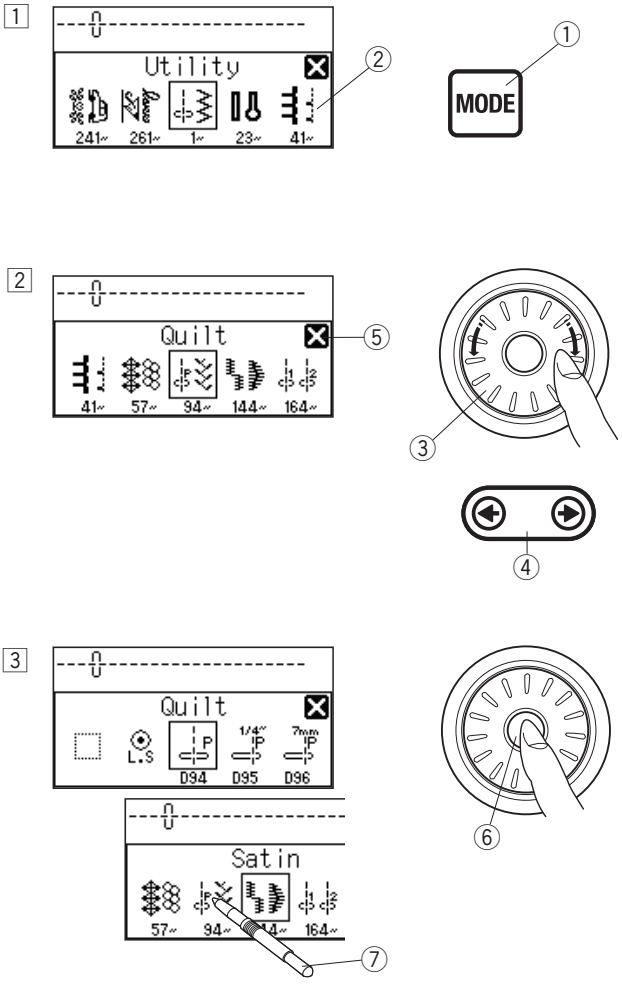




The stitch patterns are classified into 11 groups and monogramming.
To select the desired stitch pattern, refer to the reference chart inside the top cover to identify the stitch group and pattern number.

① The stitch patterns that start with “D” (for example, D1, D2 or D94) can be sewn with the dual feed foot AD.
② The stitch patterns end with “S” (D1S, D2S, D3S, D4S, D95S or D96S) can be sewn with the straight stitch needle plate.
③ The stitch patterns shaded with red can be turned over vertically (refer to page 86).

NOTE:
When the straight stitch needle plate is attached to the machine, the patterns not suitable for the straight stitch needle plate cannot be selected.



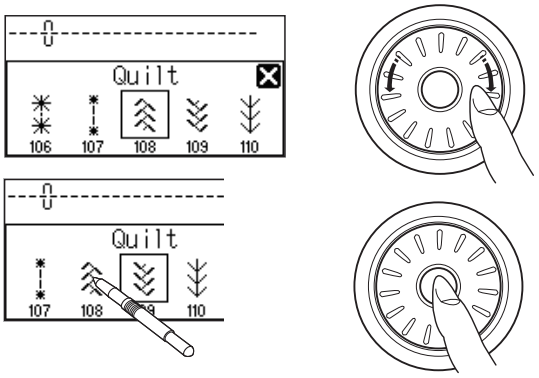
1 When turning the power switch on, the LCD screen will show the straight stitch D1 selected.
Press the mode key and the group selection window will open.
① Mode key
② Group selection window

2 Turn the jog dial or press the edit key to browse through the groups.
③ Jog dial
④ Edit key

NOTE:
To close the group selection window, press the cross mark with the touch panel stylus.
⑤ Cross mark

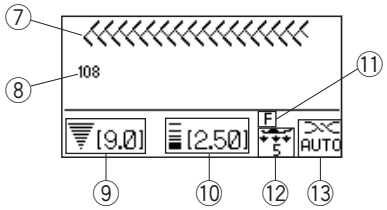
3 Press the confirm button in the center of the jog dial to select the group enclosed with a frame, or press the icon of the desired group with the touch panel stylus.
⑥ Confirm button
⑦ Touch panel stylus

4



4 The pattern selection window will open.
Turn the jog dial and press the confirm button, or press the stitch icon to select the desired stitch pattern.

5

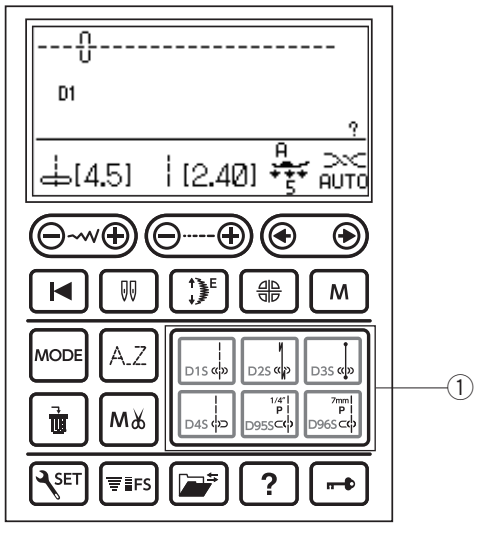


5 The LCD screen will display the pattern number and stitch image, along with information such as stitch width and length, recommended foot, foot pressure and tension setting.

⑦ Stitch image
⑧ Pattern number
⑨ Stitch width
⑩ Stitch length
⑪ Recommended presser foot type
⑫ Foot pressure
⑬ Tension setting

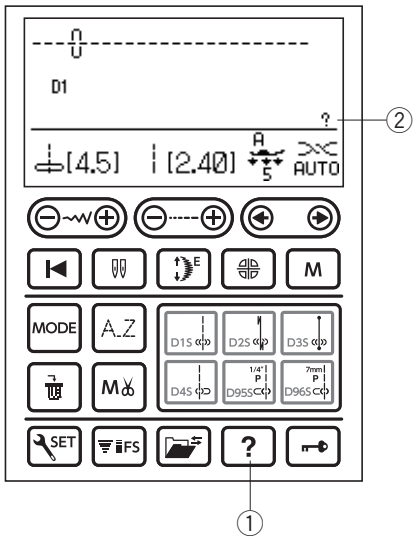
NOTE:
A message window will be displayed briefly when certain stitch pattern is selected.

⚠ CAUTION:
Do not press the surface of the LCD screen with hard or sharp objects like pencils, screwdrivers or the like. Use the touch panel stylus to press the LCD screen.



Direct pattern selection
You can select the stitch patterns D1-D4, D95, and D96 directly.
When attaching the straight stitch needle plate, you can select the stitch patterns D1S-D4S, D95S and D96S directly.

① Direct pattern selection keys



Help Key

Pressing this key will show alternative applications and useful information for the following stitch patterns:



D1 (D1S) D2 (D2S) D3 (D3S) D4 (D4S) 24 35 36 D94 D95 (D95S) D96 (D96S) D97 D98

① Help key

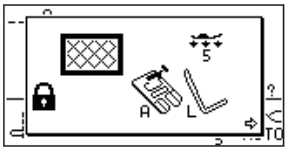
When one of the above patterns is selected, the "?" mark is displayed.

② "?" mark

Example: Stitch pattern D1 is selected.

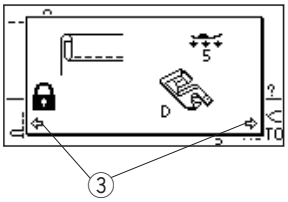
When you press the help key, the following will be displayed on the LCD screen as you turn the jog dial.

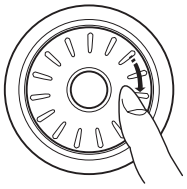
1



1 The first page shows the zigzag foot A and quilting guide bar for quilting.

2

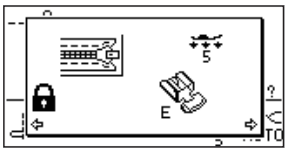




2 The second page shows the rolled hem foot D for rolled hemming applications.

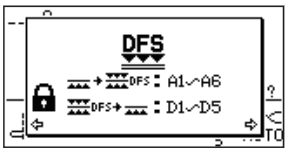
NOTE:
Arrow marks indicate that there are previous and next pages to be displayed.
③ Arrow marks

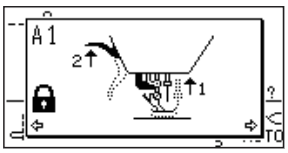
3

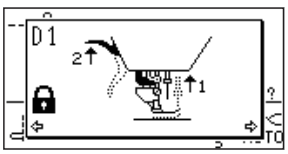


3 The third page shows the zipper foot E for zipper sewing applications.

4

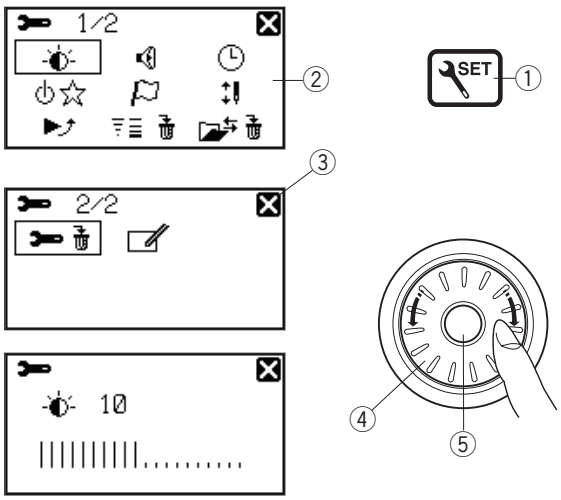






4 Pages A1 to A6 and D1 to D5 show step-by-step instructions on how to engage and disengage the dual feed device.

NOTE:
Use the jog dial to scroll through the pages.
To close the help window, press the help key again.



Customizing Machine Settings

You can customize the machine settings to your preference.

Press the set key and the LCD screen will show the machine setting window.

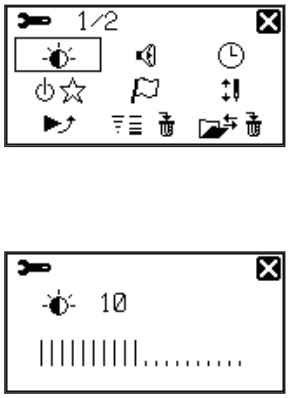
① Set key
② Machine setting window

To close the machine setting window, press the cross mark.

③ Cross mark

Turn the jog dial to select the desired item to set and press the confirm button

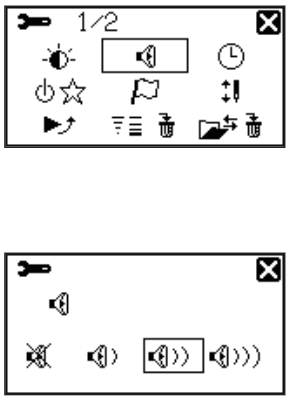
④ Jog dial
⑤ Confirm button



Screen brightness

The screen brightness can be adjusted from level 0 to 20. The preset level is 10.

Turn the jog dial to adjust the screen brightness.
Press the confirm button to register the new setting.

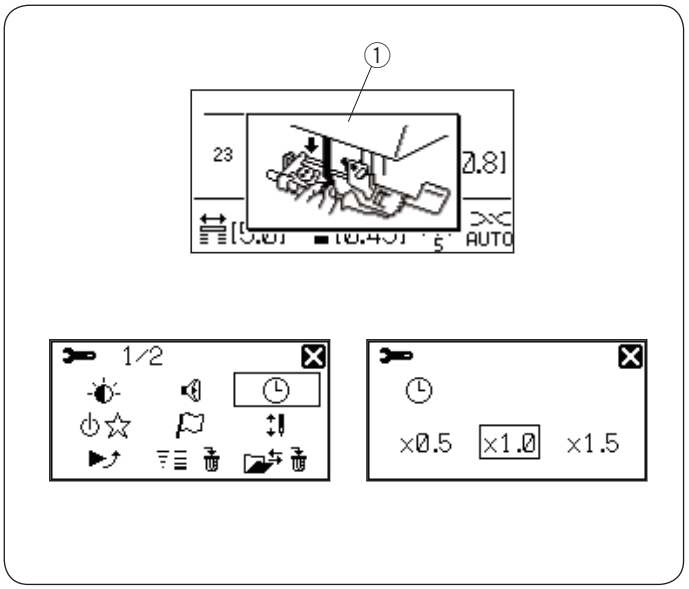


Buzzer sound

The level of the buzzer sound can be adjusted and you can mute the buzzer in normal operation.

Turn the jog dial to select the desired sound level; mute, low normal or loud.
Press the confirm button to register the new setting.
You can select the desired level by also pressing a sound level icon with the touch panel stylus.

NOTE:
Items and settings can also be selected by pressing the relevant icon on the LCD screen.

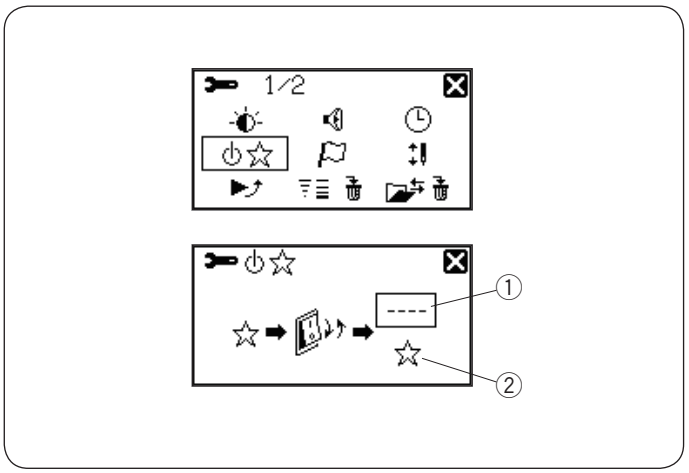


Sub window display time

A sub window will appear when selecting certain patterns such as buttonholes.
The duration of the sub window display can be altered.

① Sub window

Turn the jog dial to select x0.5 (1 second), x1.0 (2 seconds) or x1.5 (3 seconds).
The preset time is x1.0 (2 seconds).
Press the confirm button to register the new setting.

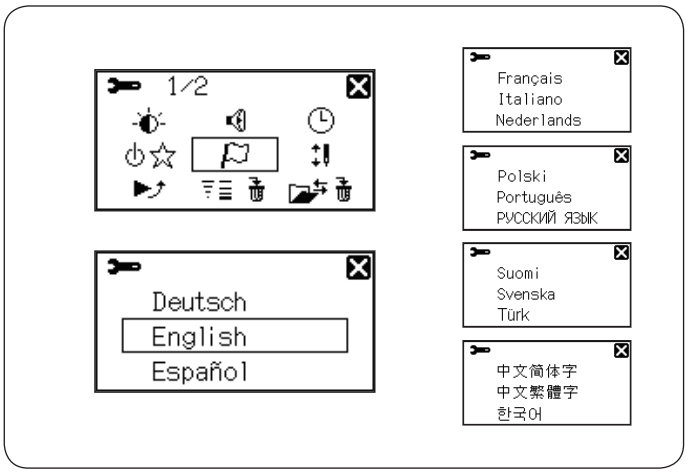


Resumption setting

The last pattern sewn before turning the power off can be recalled when turning the power on again by setting the resumption setting on.

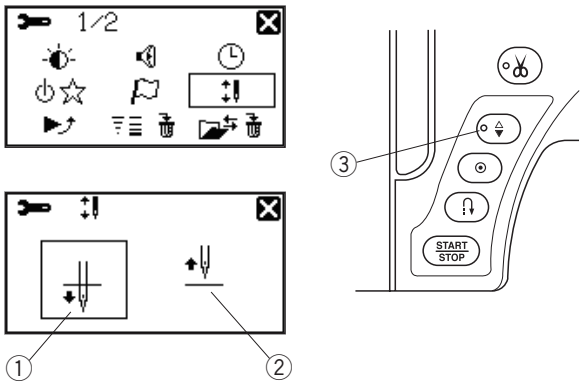
Turn the jog dial to select the normal set or resumption set. Press the confirm button to register the new setting.

① Normal set
② Resumption set



Language selection

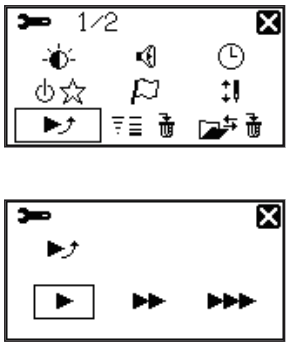
You can choose one of the 15 languages for screen display.
Turn the jog dial to select the desired language.
Press the confirm button to register the new setting.



Needle stop position setting

The machine always stops with the needle in the down position except when sewing buttonholes, specialty stitches, monograms, etc. However you can select the needle stop position to up or down.
Turn the jog dial to select down or up position. Press the confirm button to register the new setting.
The LED signal ③ is turned on when the down position is selected.
The LED signal ③ is turned off when the up position is selected.

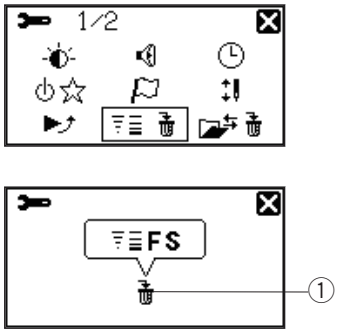
① Needle down position
② Needle up position
③ LED signal



Start-up speed setting

The machine will start running slowly and the sewing speed will gradually increase to maximum when pressing the start/stop button.
You can select the desired start-up speed from slow, normal or high.

Turn the jog dial to select the speed. Press the confirm button to register the new setting.

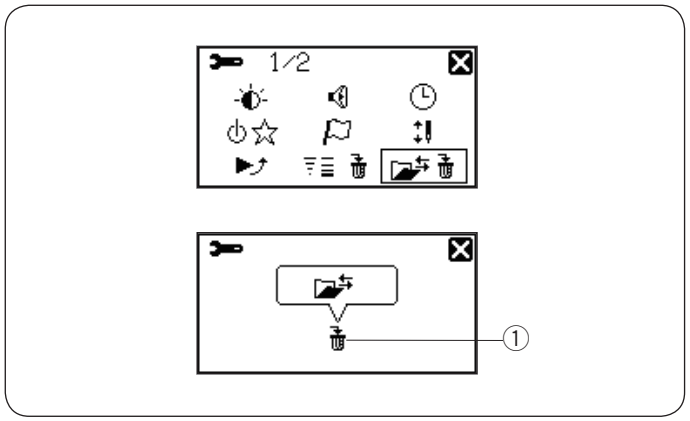


Resetting favorite stitch length and width to default

All the customized stitch length and width settings can be reset to the original settings.

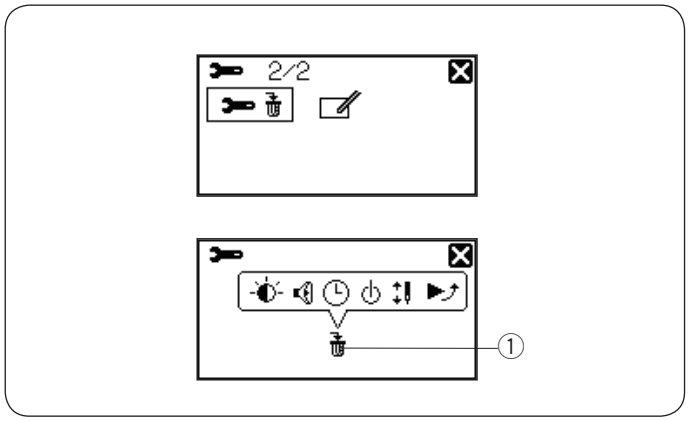
Press and hold the clear key or clear icon to reset all the settings to default.

① Clear icon



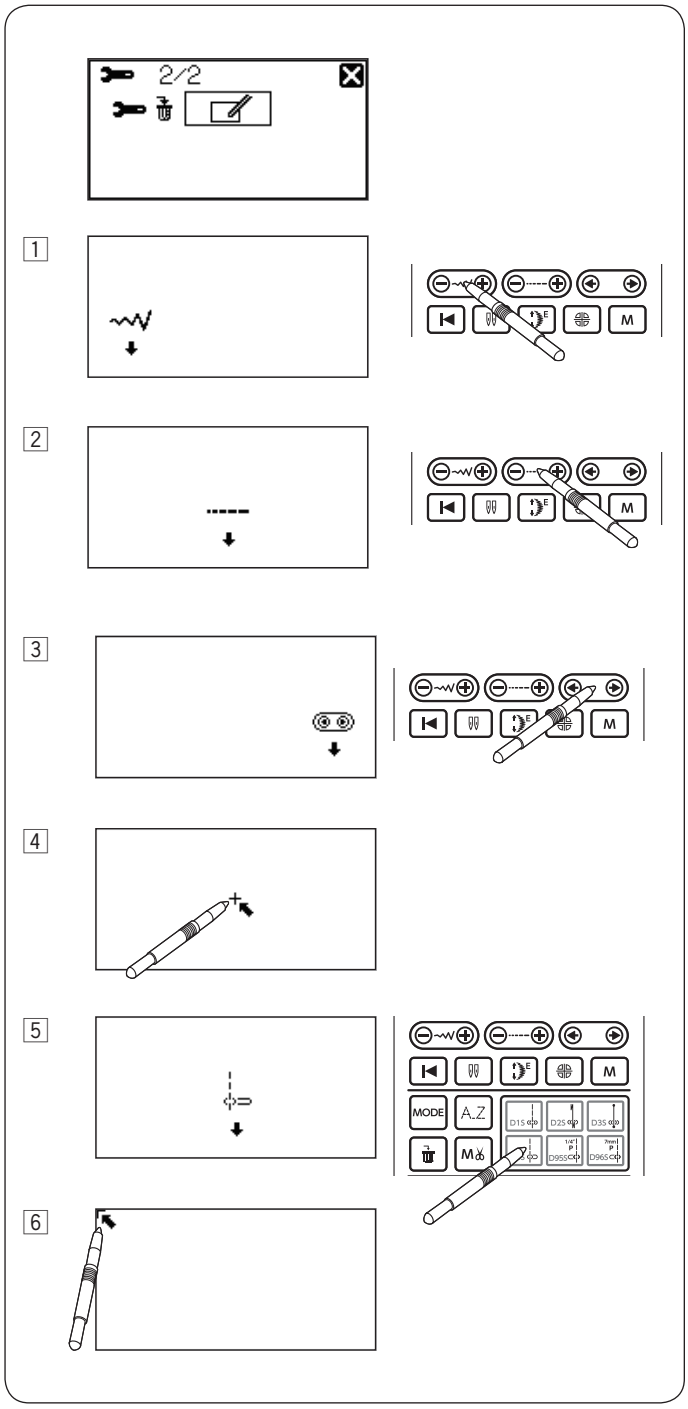
Deleting stored pattern combinations
All the pattern combinations stored in the memory bank can be deleted at one time.

Press and hold the clear key or clear icon to delete all the stored pattern combinations.
① Clear icon



Resetting all to default
The following customized settings can be reset to the original settings.
- Brightness of the screen
- Buzzer sound
- Sub window display time
- Resumption setting
- Needle stop position
- Start up speed setting

Press and hold the clear key to reset all the settings to default.
① Clear icon



Touch panel calibration

If the touch panel keys seem out of alignment, calibrate the key position as follows.

1 Press the center of the stitch width adjusting key with the touch panel stylus.

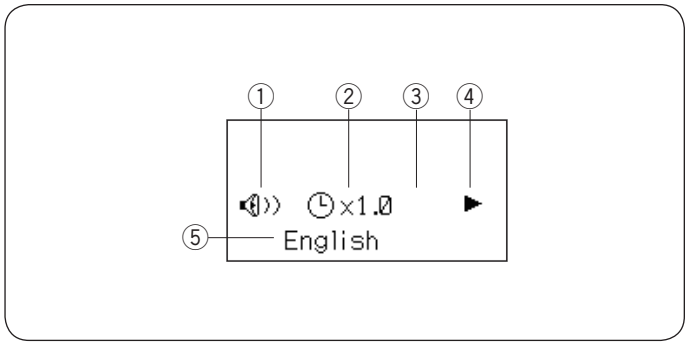
2 Press the center of the stitch length adjusting key with the touch panel stylus.

3 Press the center of the edit key with the touch panel stylus.

4 Press the "+" sign that appears on the LCD screen with the touch panel stylus.

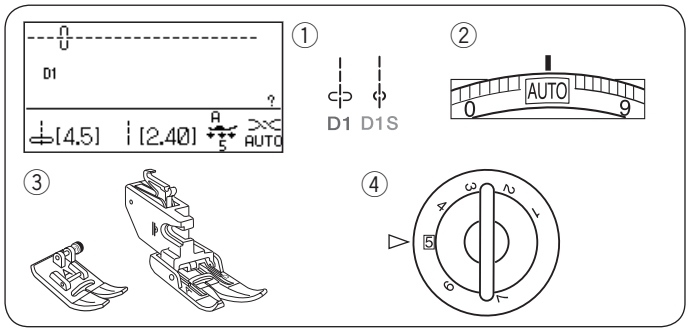
5 Press the center of the D4S key with the touch panel stylus.

6 Press the " ⌐ " sign that appears on the LCD screen with the touch panel stylus.
The new settings are registered.



When turning the power on, the opening window shows the customized settings that you have made.

① Buzzer sound
② Sub window display time
③ Resumption setting
(⏻ mark appears when the setting is on.)
④ Start up speed setting
⑤ Language selection

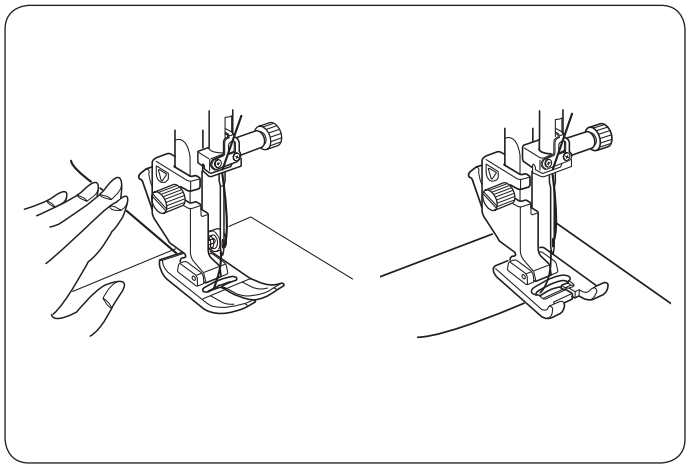


TRADITIONAL SEWING

Straight Stitch

Machine settings

① Pattern: D1 or D1S
② Thread tension: AUTO
③ Presser foot: Zigzag foot A or Dual feed foot AD
④ Foot pressure: 5



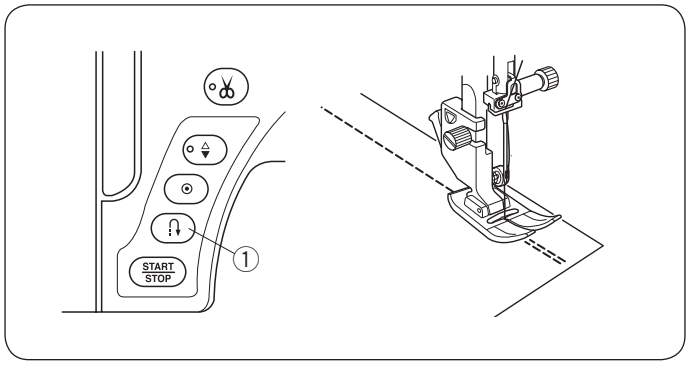
Starting to sew

Raise the presser foot and position the fabric next to a seam guide on the needle plate. Lower the needle at the point where you wish to start.

Pull the needle thread towards the rear and lower the presser foot.

NOTE:
Pull the needle thread to the left when using satin stitch foot F, open-toe satin stitch foot F2 or automatic buttonhole foot R.

Depress the foot control or press the start/stop button to start sewing.
Gently guide the fabric along the seam guide letting the fabric feed naturally.

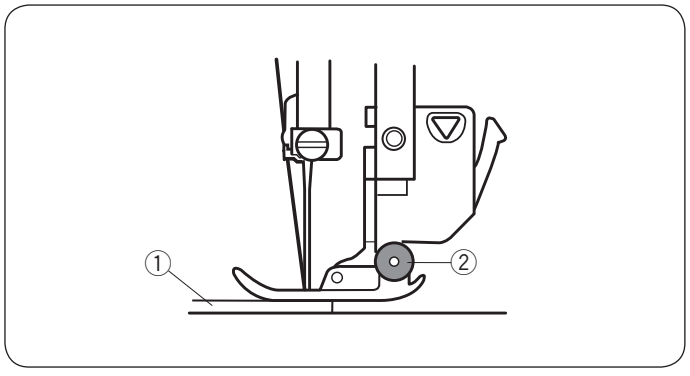


Securing seams

For fastening the ends of seams, press the reverse button and sew several reverse stitches.
The machine sews in reverse as long as you press and hold the reverse button.

① Reverse button

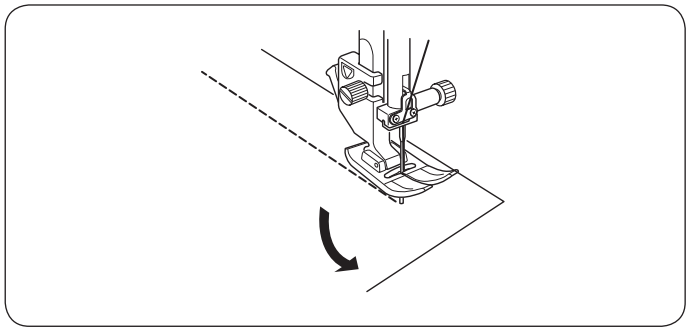
Press the reverse button once when sewing the lock-a-matic stitch (pattern D2) or locking stitch (pattern D3) and the machine will lock the stitches off and stop automatically.



Sewing from the edge of thick fabric

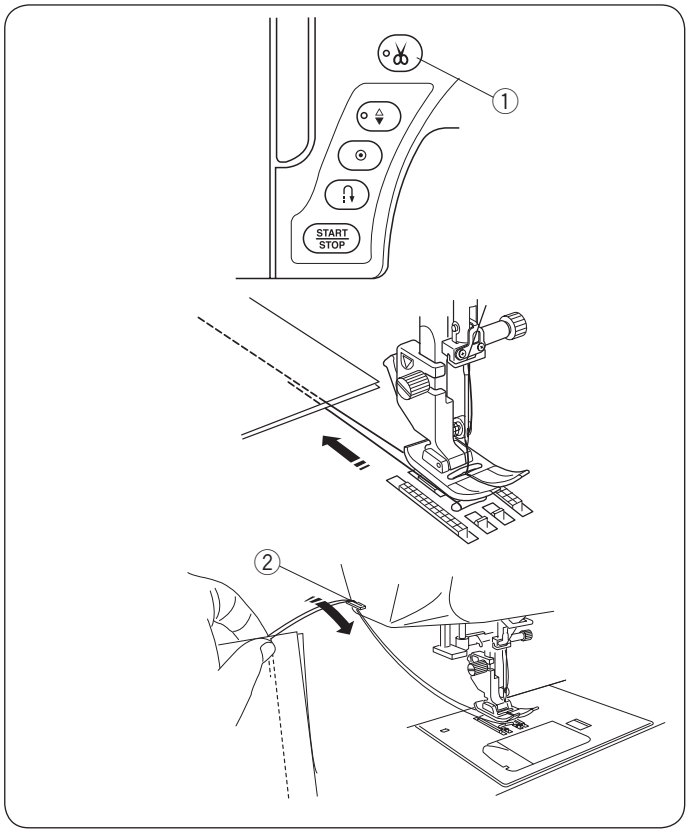
The black button on the zigzag foot locks the foot in the horizontal position.
This is helpful when you start sewing from extreme edge of thick fabrics or sewing across a hem.
Lower the needle into the fabric at the point where you wish to start sewing.
Lower the foot while pushing the black button in. The foot is locked in the horizontal position to avoid slipping.

① Thick fabrics
② Black button



Changing sewing direction

Stop the machine.
Raise the presser foot.
Pivot the fabric around the needle to change the sewing direction as desired.
Lower the presser foot and start sewing in a new direction.



Cutting threads

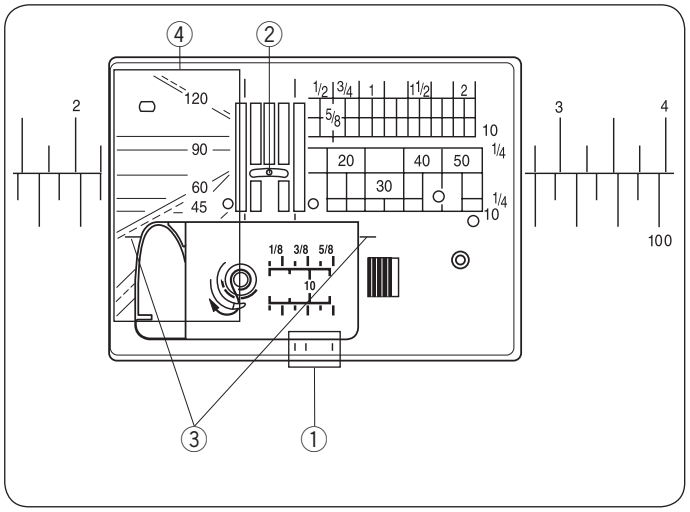
To cut the threads after finishing sewing, press the thread cutter button. The needle bar will automatically go up after trimming the threads.

① Thread cutter button

NOTE:
The thread cutter button does not function when the presser foot is up.
Use the thread cutter on the face cover to cut specialized or thick threads if the auto thread cutter does not work well.

To use the thread cutter on the face cover, remove the fabric and draw it to the back.
Pull the threads up and slip them between the thread cutter and face cover from behind.
Pull the threads toward you to cut.

② Thread cutter



Needle plate guides

The seam guides are marked on the needle plate, free arm and hook cover.
The seam guides for 1/4″, 3/8″ and 5/8″ are also marked on the front of the needle plate.

① Seam guides on the front of the needle plate

The numbers on the needle plate indicate the distance from the center needle position in millimeters and inches.

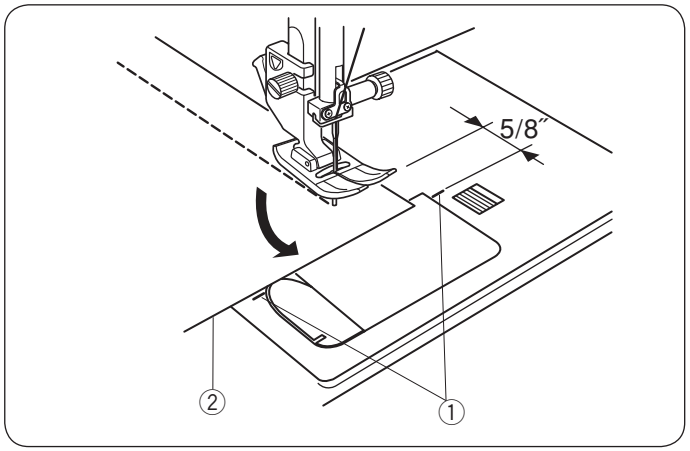
② Center Needle Position

The cornering guides are very useful when turning a square corner.

③ Cornering guide

The angle scales on the needle plate are useful for patchwork piecing. (refer to page 76)

④ Angle scales



Cornering guide

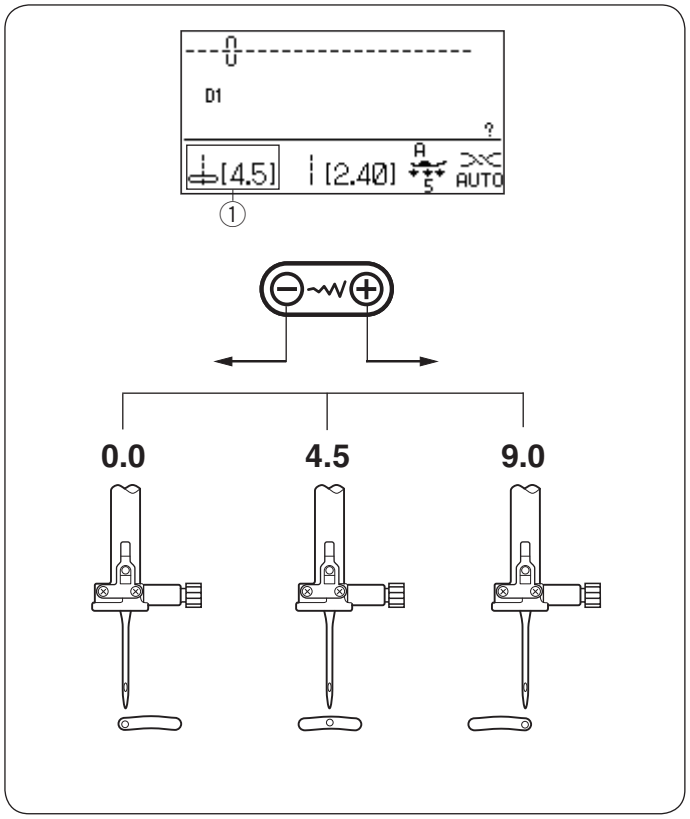
To maintain a 5/8″ seam allowance after turning a square corner, use the cornering guide on the needle plate.

Stop sewing when the front edge of fabric reaches the cornering guide lines.

Raise the presser foot and turn the fabric 90 degrees.

Lower the presser foot, and begin stitching in the new direction.

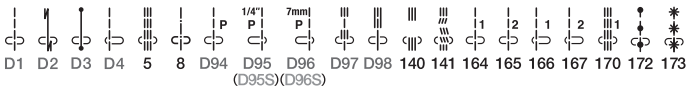
① Cornering guide
② Fabric edge



Adjusting the needle drop position
The needle drop position of the straight stitches can be altered by pressing the stitch width adjusting key.

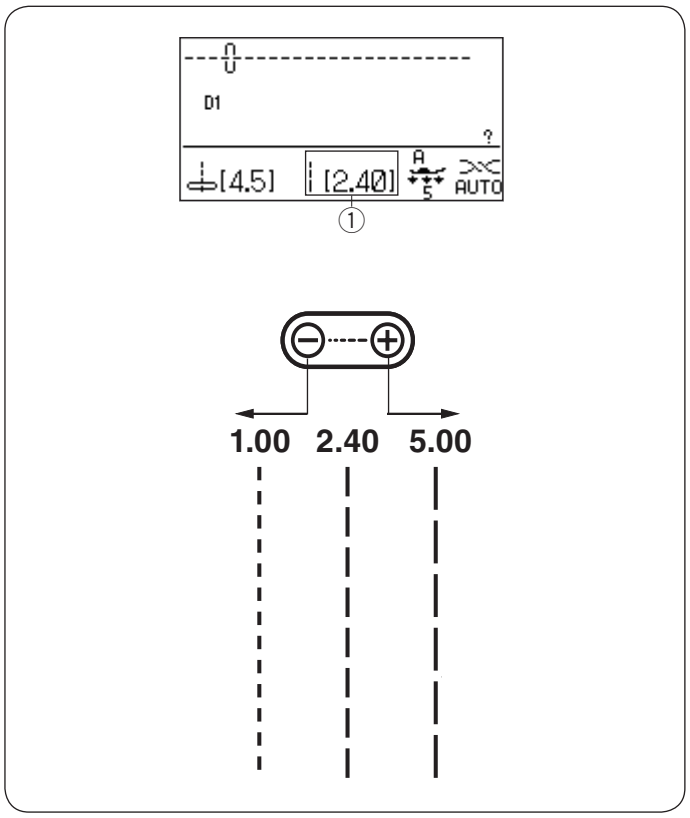
NOTE:
The value in brackets ① indicates the preset setting.

The needle drop position can be adjusted for straight stitch patterns D1–D4, 5, 8, D94–D98, D95S, D96S, 140, 141, 164–167, 170, 172 and 173.



Press the "⊕" sign on the key to move the needle bar to the right.

Press the "⊖" sign on the key to move the needle bar to the left.



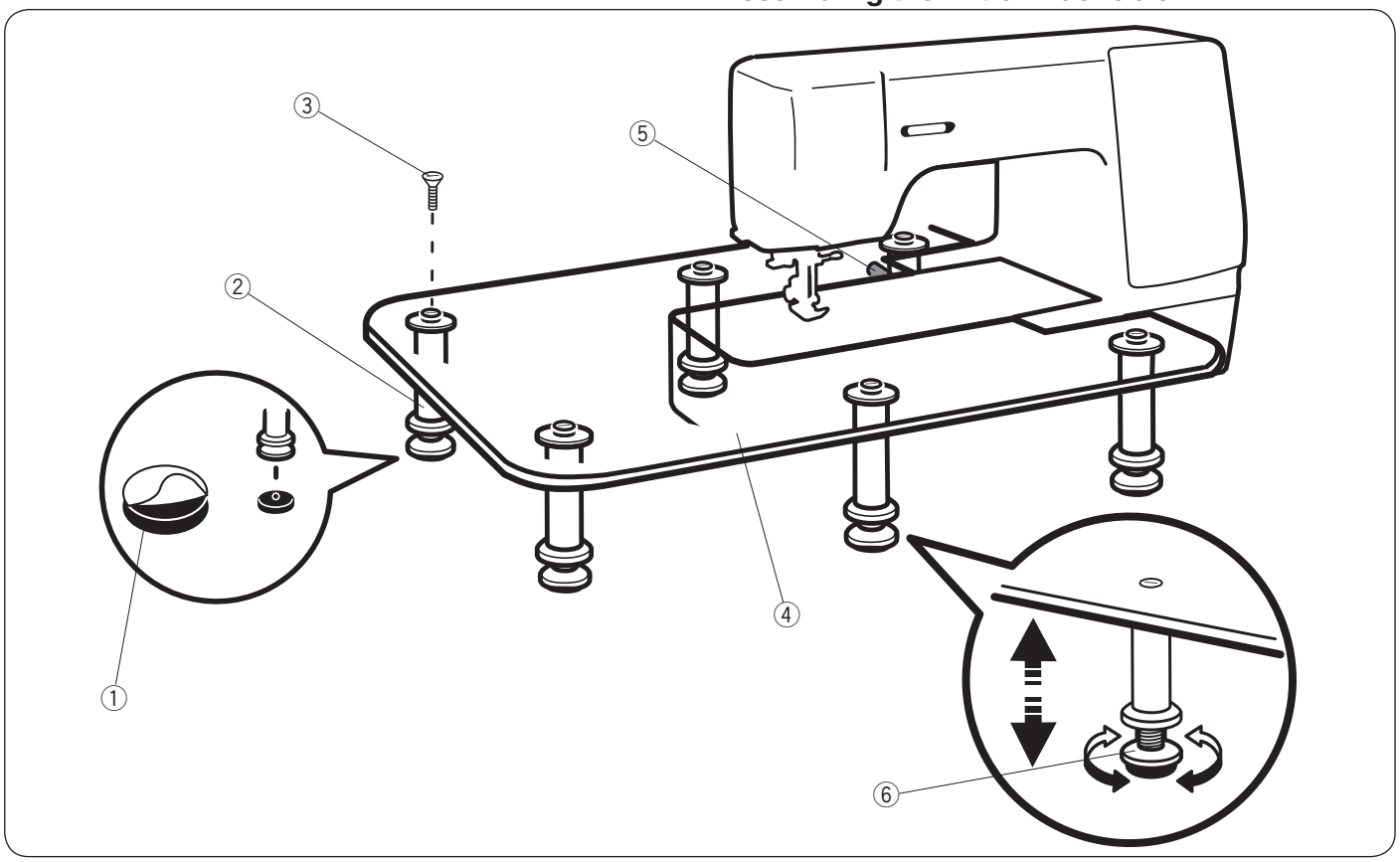
Adjusting the stitch length
The stitch length can be altered by pressing the stitch length adjusting key.
The stitch length indication will change as the key is pressed.

NOTE:
The value in the brackets ① indicates the preset setting.

Press the "⊕" sign on the key to increase the stitch length.

Press the "⊖" sign on the key to decrease the stitch length.

Assembling the Extra Wide Table



Peel off the backing paper from the rubber soles and attach to the bottom of the legs.

① Rubber sole
② Leg

Attach the 6 legs to the table top with the setscrews.

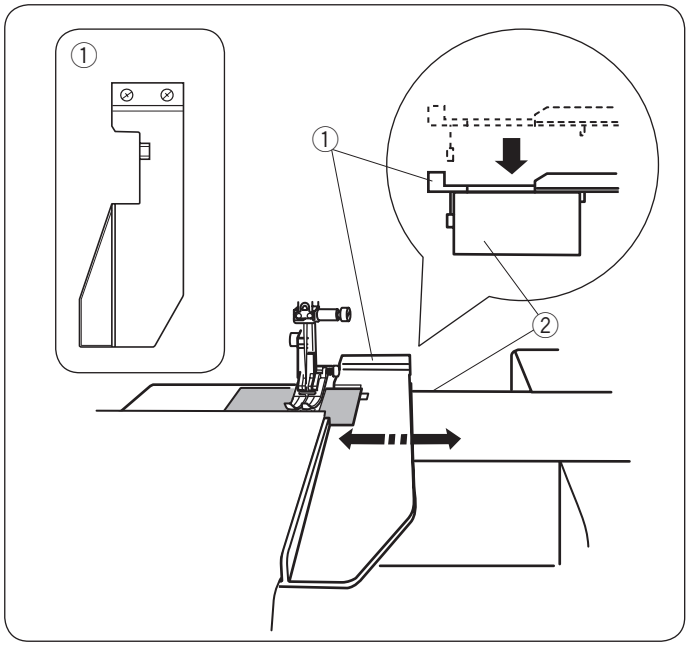
③ Setscrew
④ Table top

Remove the extension table.
Place the assembled table on the machine as shown so the table catches the pin on the backside of the free arm.

⑤ Pin

Adjust the height of the table top by turning the adjusting screw.

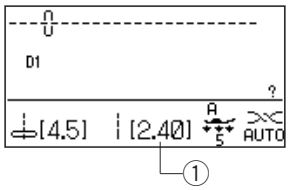
⑥ Adjusting screw



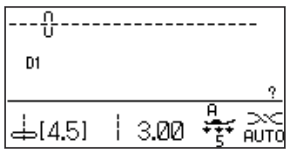
Using the Cloth Guide

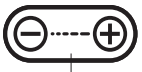
Remove the extension table and attach the extra wide table.
Attach the cloth guide to the free arm by pushing the cloth guide down to snap it in place.
Slide the cloth guide to the desired position.
Place the fabric with its edge against the cloth guide and sew.

① Cloth guide
② Free arm

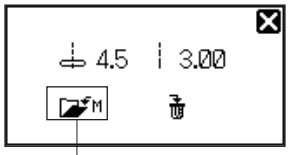


①





②



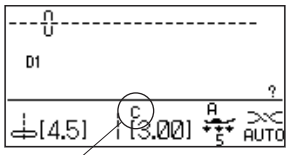


③



④

⑤



⑥

Customizing the Preset Values of the Stitch Length and Width

The preset values of the stitch length and width are optimized for each pattern.
However, you can change the preset values to suit your sewing preferences.

Example: To change the preset value of the stitch length “2.40” to “3.00”.
Select the stitch pattern you wish to change the preset value.
The indication of stitch width and length are in the brackets.

① Custom setting value

Press the stitch length adjusting key to adjust the stitch length to “3.00”.

② Stitch length adjusting key

Press the favorite setting key. The LCD screen will display the custom setting window.

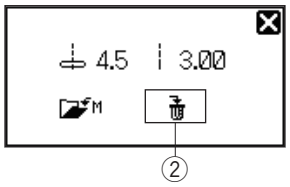
③ Favorite setting key

Press the memory key ④ or its icon ⑤ on the LCD screen to save the favorite settings.

④ Memory key
⑤ Memory icon

The LCD screen will return to the previous window and the symbol “C” will appear on the screen to indicate that the preset values have been changed.

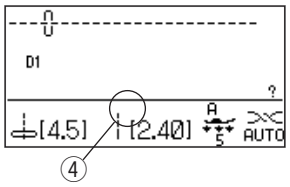
⑥ Symbol “C”

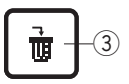




①

②





③

④

Restoring the default settings

Select a pattern for which you have changed the preset settings.

Press the favorite setting key ①. The LCD screen will show the custom setting window with the customized settings.

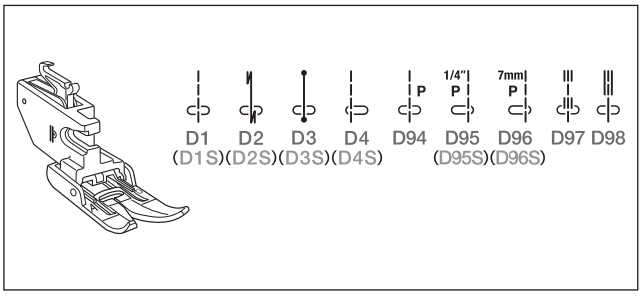
① Favorite setting key

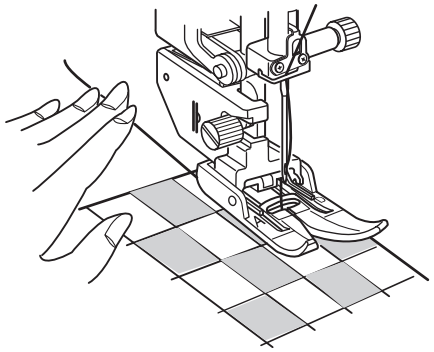
Press the clear key ③ or its icon ② on the LCD screen to restore the default settings.

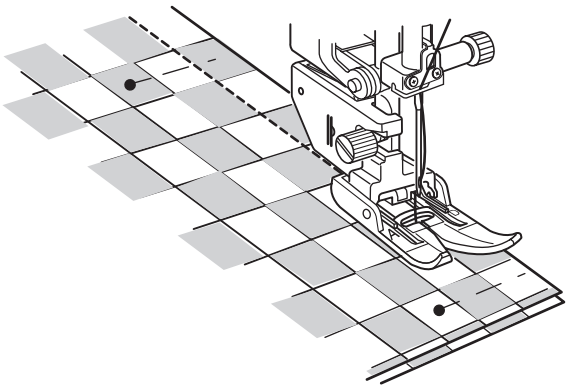
② Clear icon
③ Clear key

The LCD screen will return to the previous window and the symbol “C” will disappear ④.
The preset values will return to the default setting (the same settings as when you purchased the machine).

NOTE:
To restore all of the custom stitch settings, refer to page 29.







Sewing with the Dual Feed Device

Patterns number D1, D2, D3, D4, D94, D95, D96, D97, D98, D1S, D2S, D3S, D4S,D95S and D96S can be sewn with the dual feed device.

The dual feed device is extremely effective for sewing with hard to feed material such as vinyl or leather. It also eliminates layer slippage.

NOTE:
See page 14–15 for how to attach the dual feed foot and to engage the dual feed device.

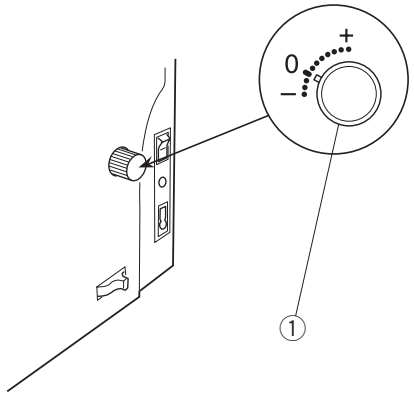
Sewing

Raise the presser foot and position the fabric next to a seam guide on the needle plate. Lower the needle at the point where you wish to start.

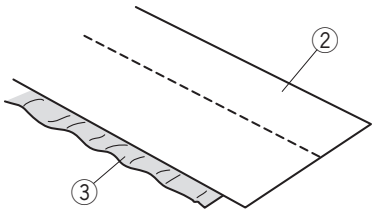
Pull the needle thread toward the rear.
Lower the presser foot.

Start sewing at medium speed. Gently guide the fabric along the seam guide letting the fabric feed naturally.

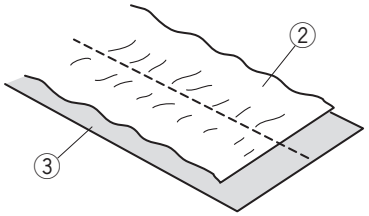
When seaming plaid fabrics, match the plaids of the upper and lower layers and pin them together.



(A)



(B)



Dual Feed Balancing Dial

The dual feed balancing dial should be set at “0”. However, you may need to adjust the dual feed balance with this dial since the effect of the dual feed varies depending on the type of fabric.

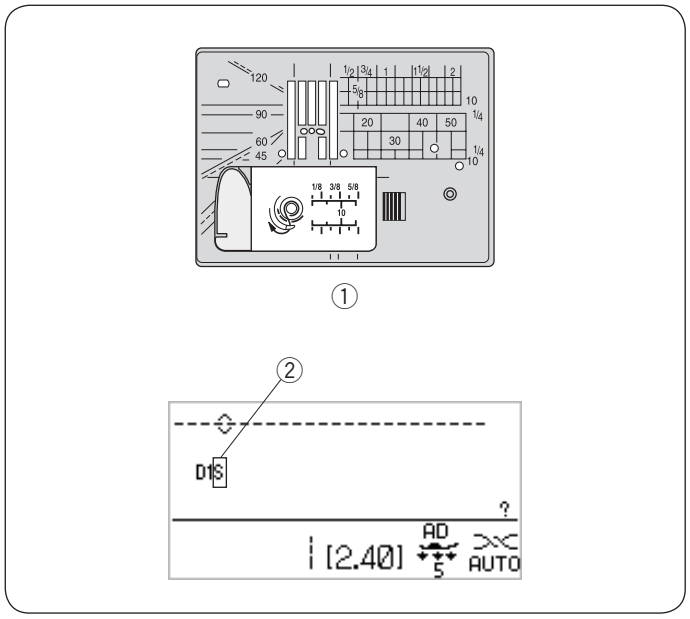
Test sew on scrap piece of the fabric you intended to sew to check the feed balance.

(A): If the lower layer puckers, turn the dual feed balancing dial toward “+”.
(B): If the upper layer puckers, turn the dual feed balancing dial toward “–”.

① Dual feed balancing dial
② Upper layer
③ Lower layer

Set the feed balancing dial to “0” after the dual feed sewing.

NOTE:
Reducing the foot pressure will also improve the feed balance.



Straight Stitch Needle Plate

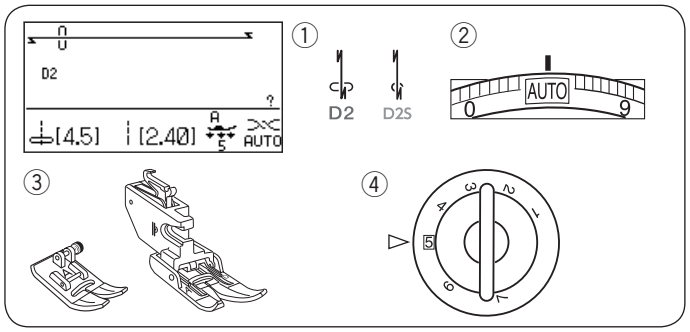
The stitch patterns end with “S” (D1S, D2S, D3S, D4S, D95S or D96S) can be sewn with the straight stitch needle plate.



Replace the needle plate with the straight stitch needle plate (refer to page 16).
“S” mark will appear at the end of the pattern number when the straight stitch needle plate is attached.

① Straight stitch needle plate
② S mark

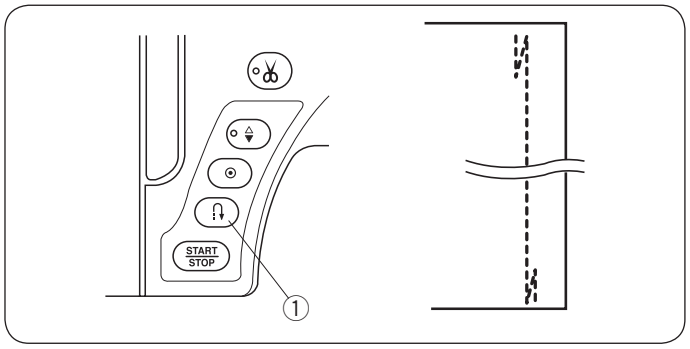
NOTE:
When the straight stitch needle plate is attached to the machine, the patterns not suitable for the straight stitch needle plate cannot be selected.



Lock-a-Matic Stitch

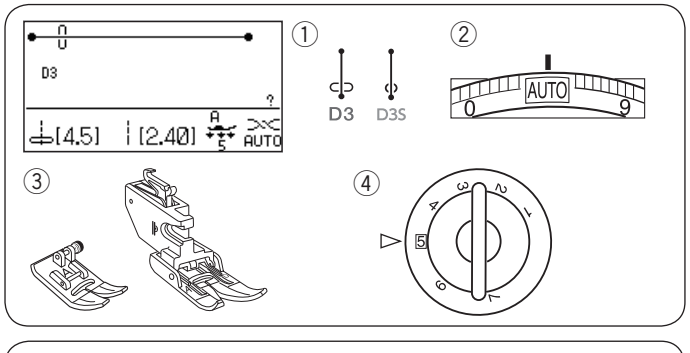
Machine settings

①	Pattern:	D2 or D2S
②	Thread tension:	AUTO
③	Presser foot:	Zigzag foot A or Dual feed foot AD
④	Foot pressure:	5



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 button ① once. The machine will sew four reverse stitches, four forward stitches, and then stop sewing automatically.

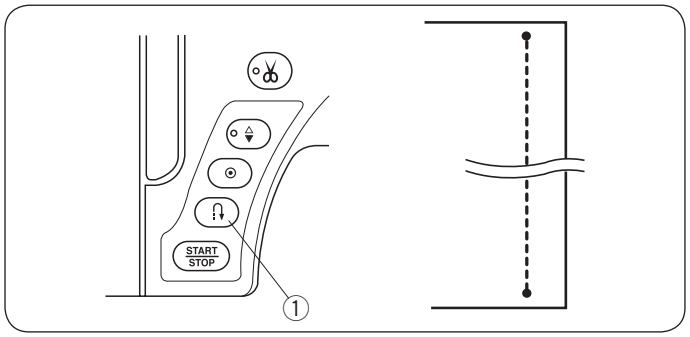
① Reverse button



Locking Stitch

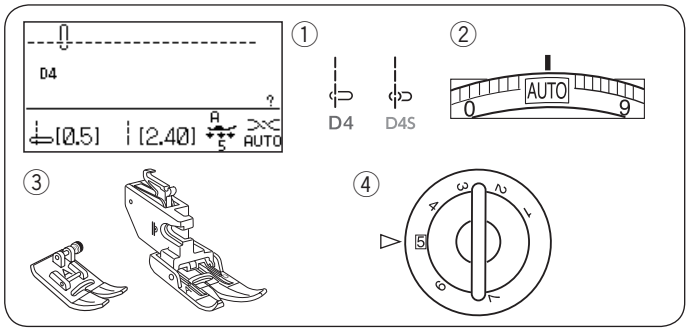
Machine settings

①	Pattern:	D3 or D3S
②	Thread tension:	AUTO
③	Presser foot:	Zigzag foot A or Dual feed foot AD
④	Foot pressure:	5



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 button ① at the end of the seam, the machine will sew several locking stitches in place, then stop sewing automatically.

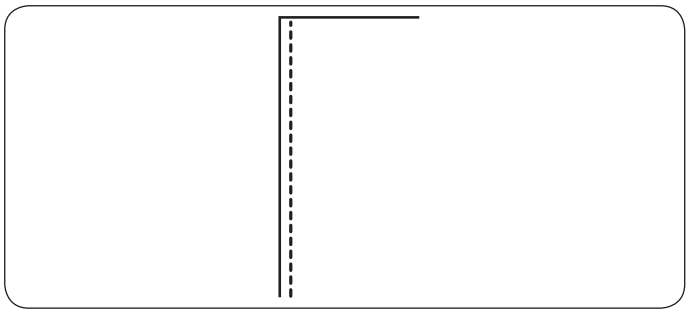
① Reverse button



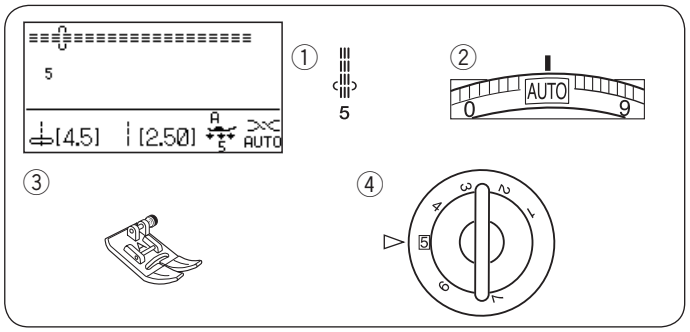
Straight Stitch with Left Needle Position

Machine settings

① Pattern: D4 or D4S
② Thread tension: AUTO
③ Presser foot: Zigzag foot A or Dual feed foot AD
④ Foot pressure: 5



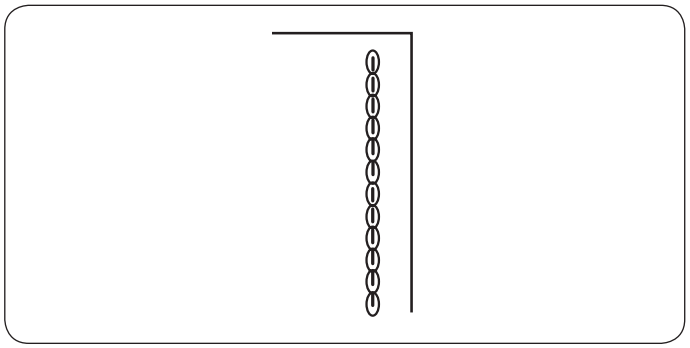
Use this stitch to seam the edge of fabrics.



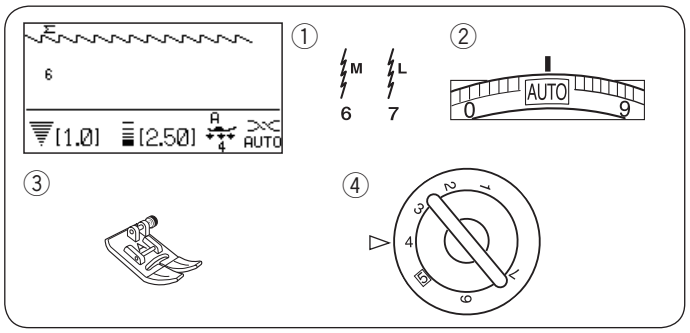
Triple Stretch Stitch

Machine settings

① Pattern: 5
② Thread tension: AUTO
③ Presser foot: Zigzag foot A
④ Foot pressure: 5



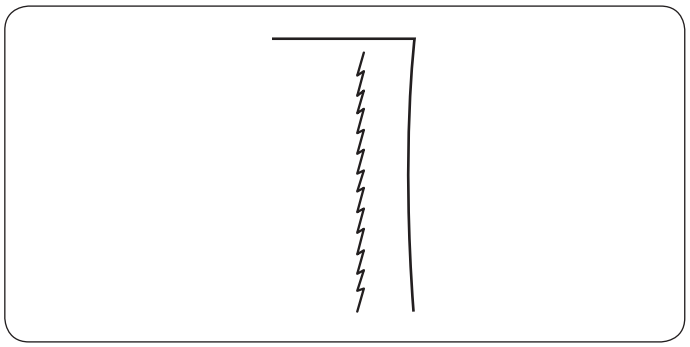
This strong, durable stitch is recommended for areas where both elasticity and strength are needed to ensure comfort and durability. Use it to reinforce areas such as crotch and armhole seams. Also use it when constructing items such as backpacks for extra strength.



Knit Stitch

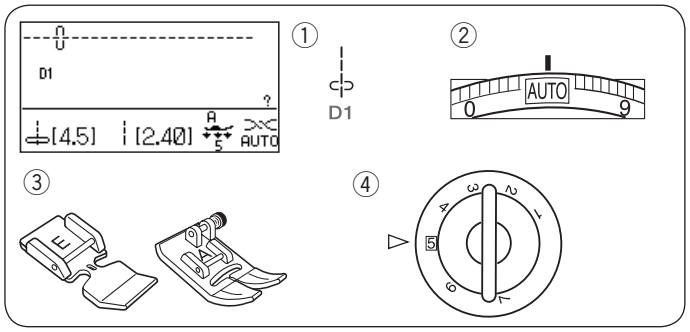
Machine settings

① Pattern: 6 or 7
② Thread tension: AUTO
③ Presser foot: Zigzag foot A
④ Foot pressure: 4



This 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.

Stitch pattern 7 is a stretch stitch in the left needle position.
Use this stitch when seaming thin fabrics such as tricot and fine jersey.

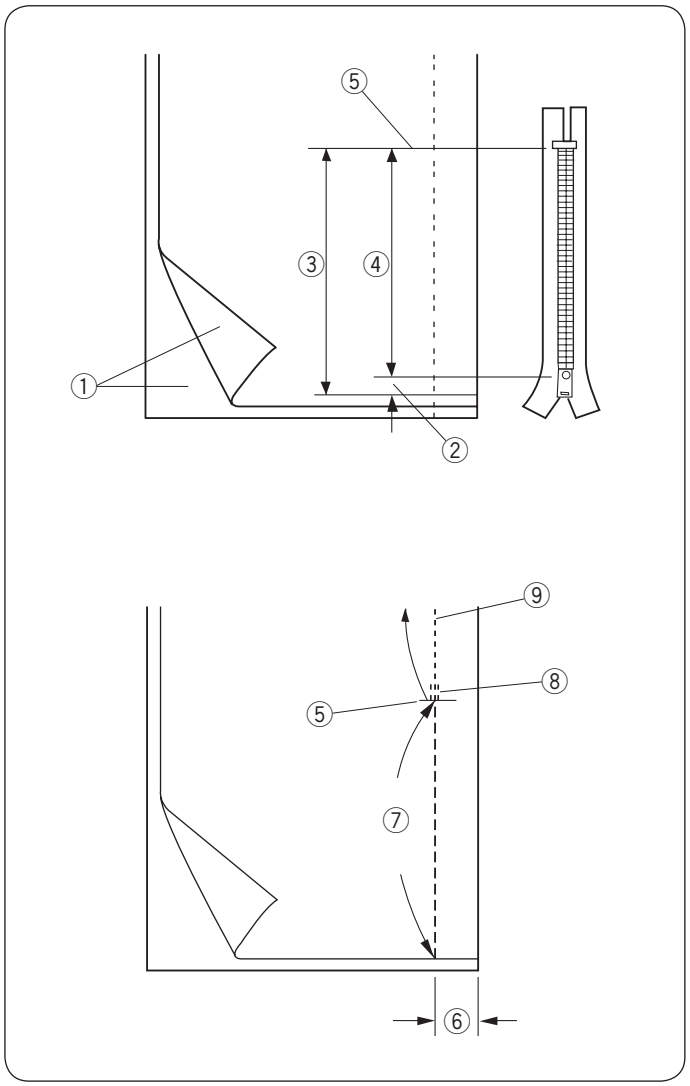


Zipper Sewing

Machine settings

① Pattern: D1
② Thread tension: AUTO
③ Presser foot: Zipper foot E
Zigzag foot A
④ Foot pressure: 5

NOTE:
The needle drop position should be adjusted when sewing with the zipper foot E.



Fabric preparation

Add 1 cm (3/8“) to the zipper size. This is the overall opening size.

① Right sides of the fabric
② 1 cm (3/8“)
③ Opening size
④ Zipper size
⑤ End of the zipper opening

Place the right sides of the fabric together and sew to the end of the opening with a 2 cm (5/8˝) seam allowance. Reverse stitch to lock the seams.
Manually increase the stitch length to 5.0 and baste the zipper opening with the thread tension loosened to 1-3.

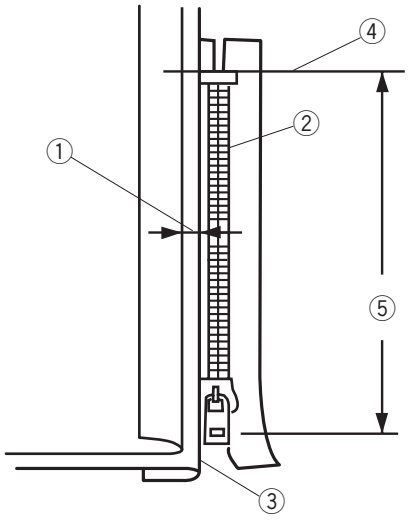
⑤ End of the zipper opening
⑥ 2 cm (5/8“) seam allowance
⑦ Basting
⑧ Reverse stitches
⑨ Seam stitches

Sewing

1 Fold back the left seam allowance. Turn the right seam allowance under to form a 0.2 to 0.3 cm (1/8″) margin. Place the zipper teeth next to the fold and pin in place.
Set the stitch length and thread tension back to the original setting.

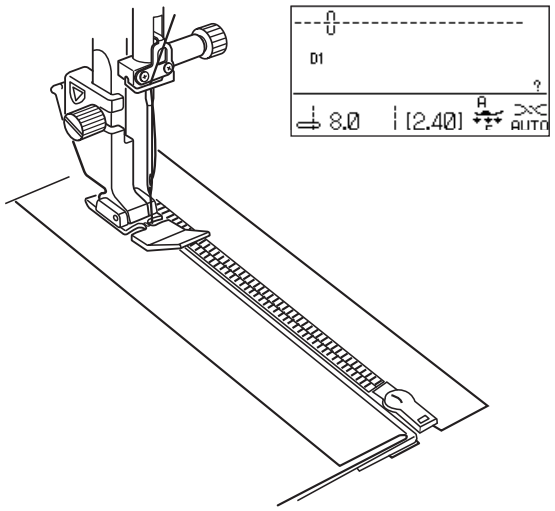
① 0.2 to 0.3 cm (1/8″) margin
② Zipper teeth
③ Fold
④ End of the zipper opening
⑤ Opening size

1



2 Attach the zipper foot E.
Adjust the stitch width to 7.5–8.5.
Lower the foot onto the topside at the end of the zipper opening so that the needle pierces the fabric next to the fold and the zipper tape.
Sew along the zipper guiding the zipper teeth along the side edge of the foot.

2

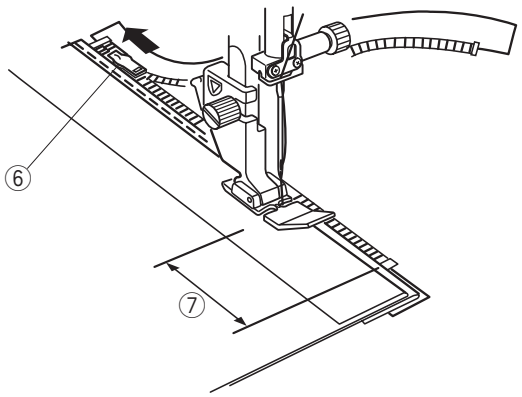


⚠ CAUTION:
Be sure that the needle do not strike the presser foot when the zipper foot or zipper teeth is attached and stitch width is adjusted.

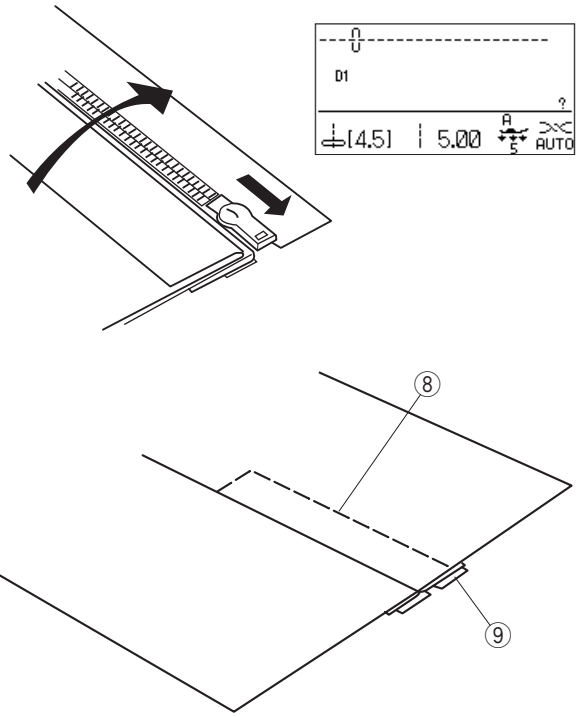
3 Sew through all layers next to the fold.
Stop 5 cm (2″) before zipper foot E reaches the slider on the zipper tape.
Lower the needle slightly into the fabric.
Raise the foot and open the zipper to clear the slider.
Lower the foot and stitch the remainder of the seam.

⑥ Slider
⑦ 5 cm (2″)

3

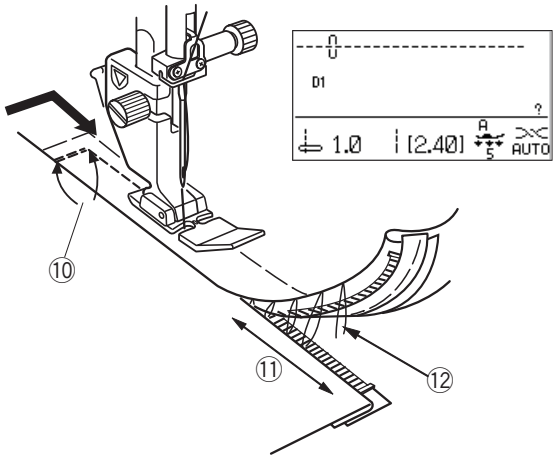


4



4 Close the zipper and spread the fabric open flat with the right side facing up.
Attach the Zigzag foot A.
Adjust the stitch length to 5.0, stitch width to 4.5 (default value) and thread tension dial to 1.
Baste the opened fabric and zipper tape together.
⑧ Basting
⑨ Zipper tape

5 6

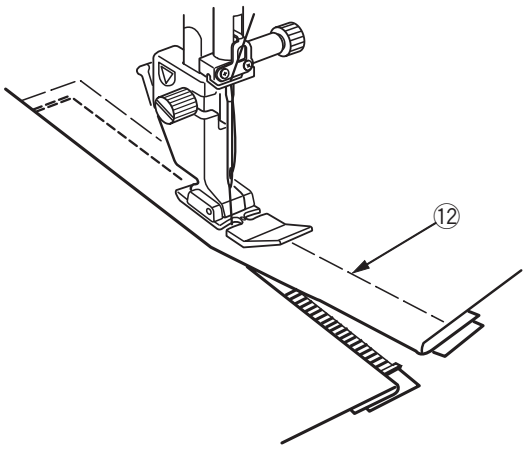


5 Attach the zipper foot E.
Adjust the stitch length to default value, stitch width to 0.5–1.5, thread tension dial to “AUTO”.
Backstitch across the end of the opening 0.7-1 cm (3/8″) and turn the fabric 90 degrees.
⑩ 0.7-1 cm (3/8″)

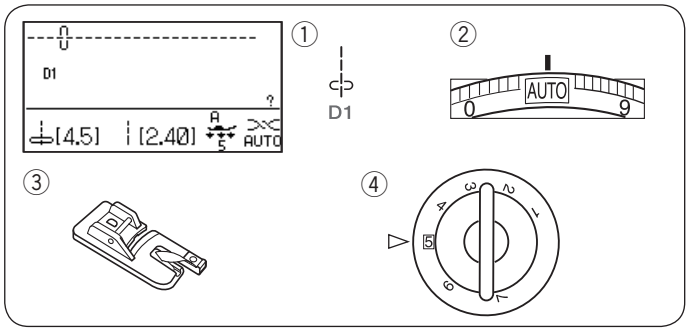
⚠ CAUTION:
Be sure that the needle do not strike the presser foot when the zipper foot or zipper teeth is attached and stitch width is adjusted.

6 Stitch through the garment and zipper tape, guiding the zipper teeth along the side edge of the foot.
Stop about 5 cm (2″) from the top of the zipper.
Unfasten the basting stitches.
⑪ 5 cm (2″)
⑫ Basting stitches

7



7 Lower the needle into the fabric, raise the foot, and open the zipper.
Lower the foot and stitch the remainder of the seam, making sure the fold is even.
Remove the basting threads after seaming.



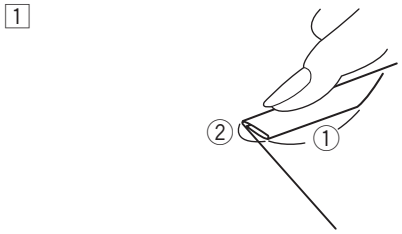
Rolled Hem

Machine settings

① Pattern: D1
② Thread tension: AUTO
③ Presser foot: Rolled hem foot D
④ Foot pressure: 5

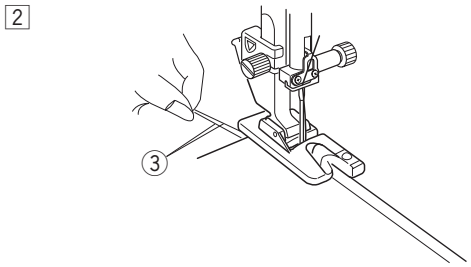
Sewing

1 Fold the edge of the fabric twice, 6 cm (2 - 3/8″) in length and 0.3 cm (1/8″) in width.



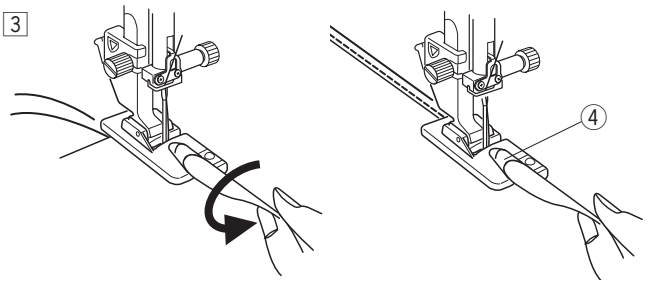
① 6 cm (2 - 3/8″)
② 0.3 cm (1/8″)

2 Place the fabric aligning the edge of the hem with the guide on the foot.
Lower the foot and sew 1-2 cm (1/2″-1″) while pulling both thread to the back.

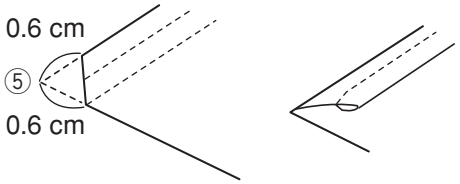


③ Threads

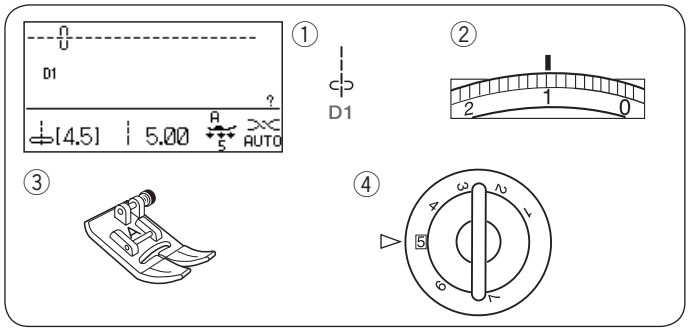
3 Stop the machine and lower the needle into the fabric. Raise the foot and insert the folded portion of the fabric into the curl of the foot.
Lower the foot, and then sew by lifting up the edge of the fabric to keep it feeding smoothly and evenly.



④ Curl of the foot



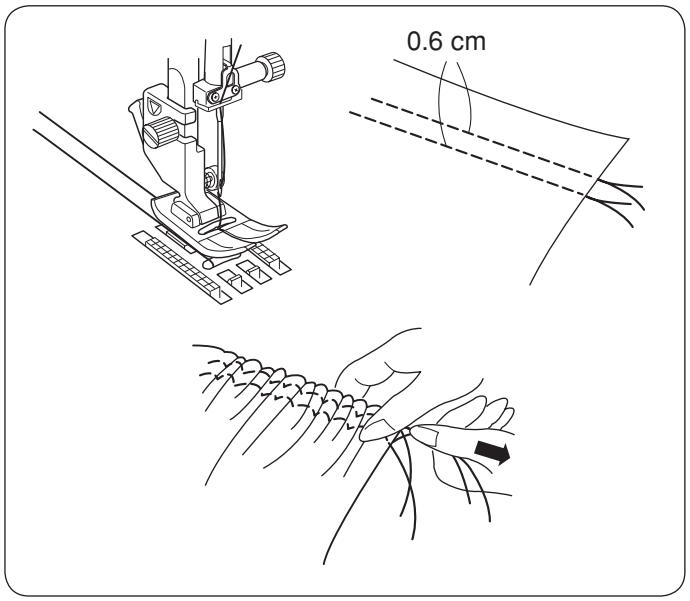
NOTE:
Trim the corner 0.6 cm (1/4″) to reduce bulk.
⑤ 0.6 cm (1/4″)



Gathering

Machine settings

① Pattern: D1
② Thread tension: 1
③ Presser foot: Zigzag foot A
④ Foot pressure: 5

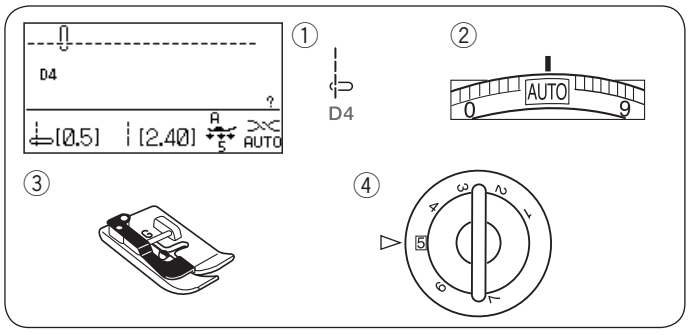


Loosen the thread tension to “1” and increase the stitch length to 5.0.

NOTE:
Pull up the bobbin thread and draw a 10 cm (4˝) thread tail to the back before starting to sew.
Use the thread cutter on the face cover.

Sew two rows of straight stitches 0.6 cm (1/4˝) apart.
Knot the threads at the beginning.
Pull the bobbin threads at the end to gather the fabric.

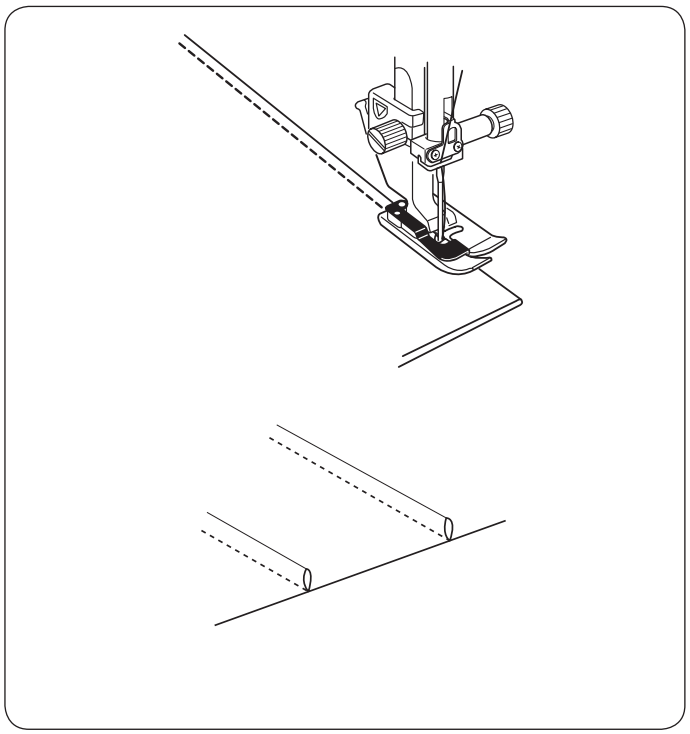
Knot the threads at the end and distribute the gathers evenly.



Pintucking

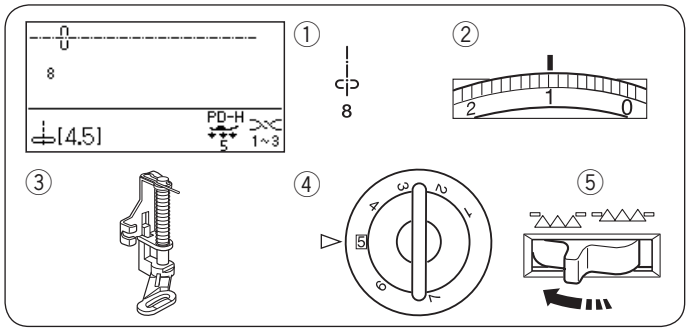
Machine settings

① Pattern: D4
② Thread tension: AUTO
③ Presser foot: Blind hem foot G
④ Foot pressure: 5



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.

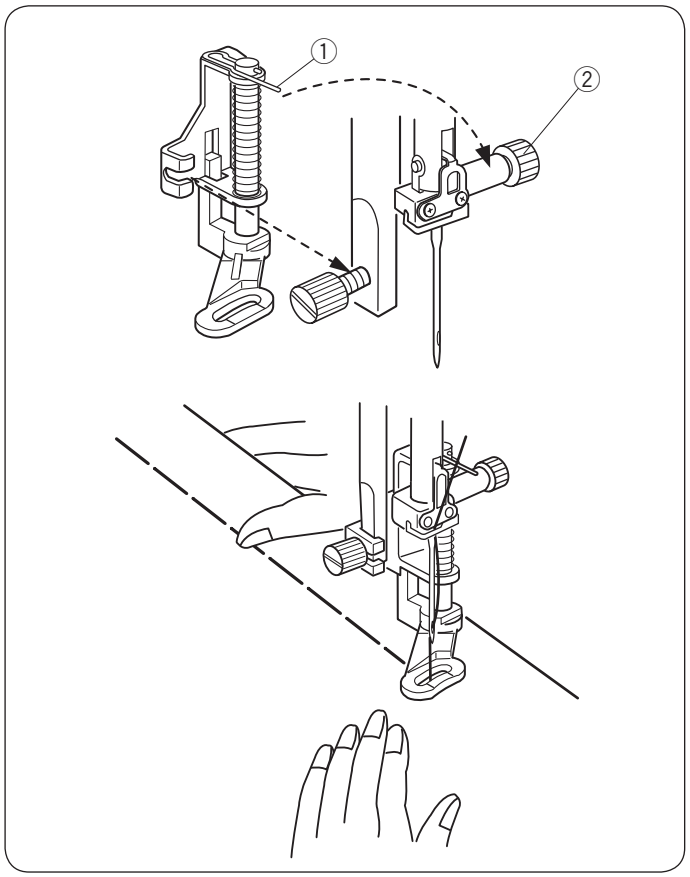
Open the fabric and press the tuck to one side.



Basting

Machine settings

①	Pattern:	8
②	Thread tension:	1–3
③	Presser foot:	Darning foot PD-H
④	Foot pressure:	5
⑤	Feed dog:	Lowered



Attaching the darning foot PD-H

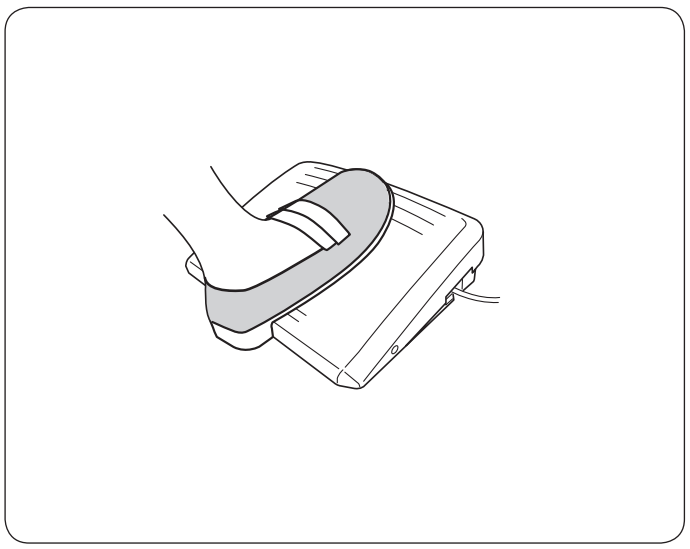
Attach the darning foot PD-H to the presser bar by putting the pin on the needle clamp screw.

① Pin
② Needle clamp screw

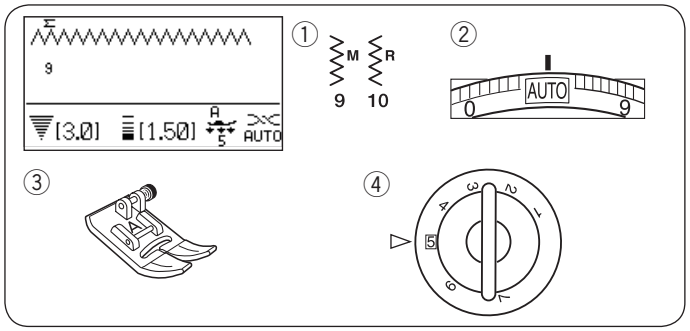
Tighten the thumbscrew firmly with the screwdriver.

To sew

Hold the fabric taut and depress the foot control.
The machine will make one stitch and stop automatically.
Slide the fabric to the rear for the next stitch.



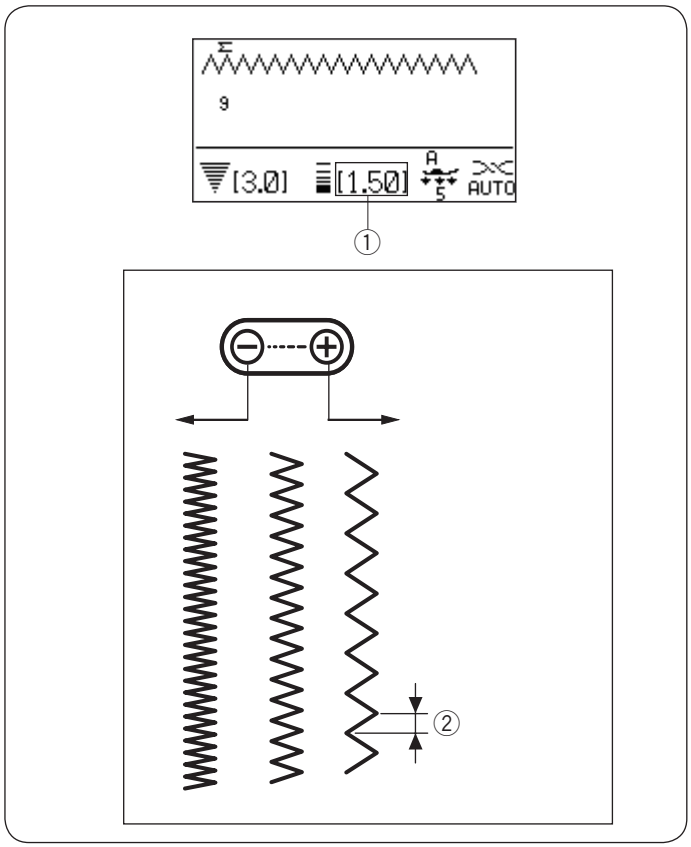
NOTE:
Use foot control for your convenience when basting.



Zigzag Stitch

Machine settings

① Pattern: 9 or 10
② Thread tension: AUTO
③ Presser foot: Zigzag foot A
④ Foot pressure: 5



Zigzag stitch is used for various sewing needs including overcasting. It can be used on most woven fabrics.
A dense zigzag stitch can also be used for applique.

Adjusting the stitch length

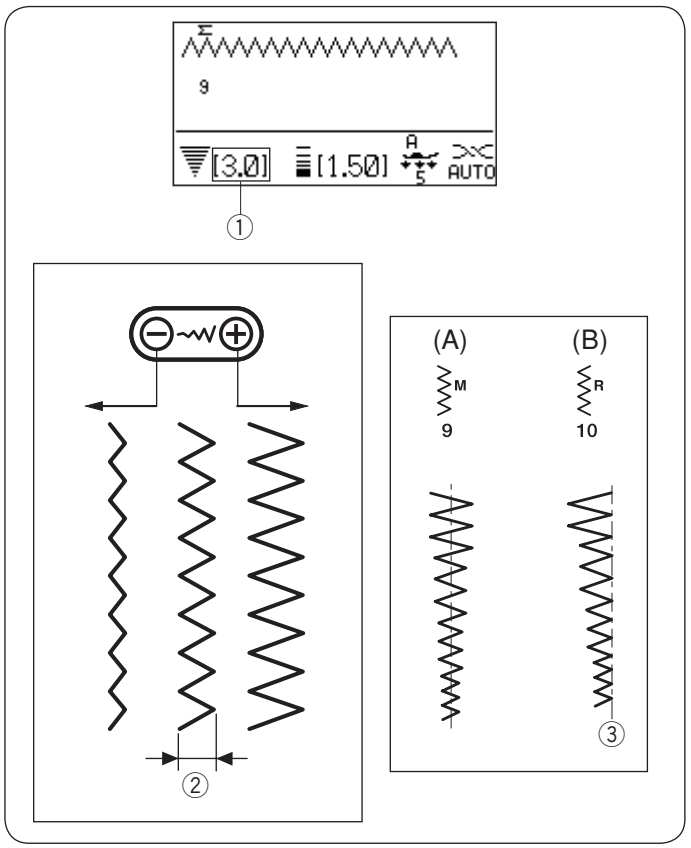
The stitch length of the zigzag stitches can be altered by pressing the stitch length adjusting key.

NOTE:
The value in brackets ① indicates the preset setting.

Press the "⊕" sign on the stitch length adjusting key to increase the stitch length.

Press the "⊖" sign on the stitch length adjusting key to decrease the stitch length.

② Stitch length



Adjusting the stitch width

The stitch width of the zigzag stitches can be altered by pressing the stitch width adjusting key.

NOTE:
The value in brackets ① indicates the preset setting.

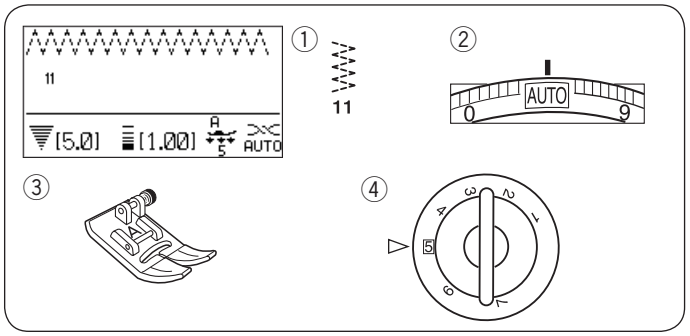
Press the "⊕" sign on the stitch width adjusting key to increase the stitch width.
Press the "⊖" sign on the stitch width adjusting key to decrease the stitch width.

② Stitch width

(A): The pattern number 9 has a fixed center needle drop position. The stitch width changes symmetrically.

(B): The pattern number 10 has a fixed right needle drop position. When you change the stitch width, the left needle drop position will change.

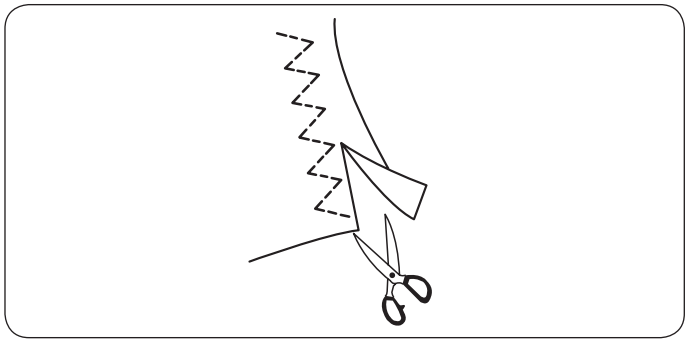
③ Fixed right needle position



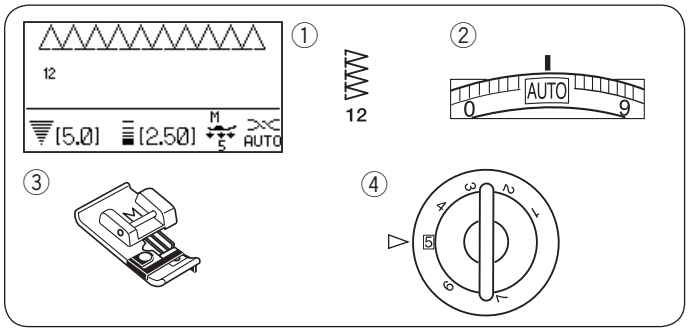
Multiple Zigzag Stitch (Tricot stitch)

Machine settings

① Pattern: 11
② Thread tension: AUTO
③ Presser foot: Zigzag foot A
④ Foot pressure: 5



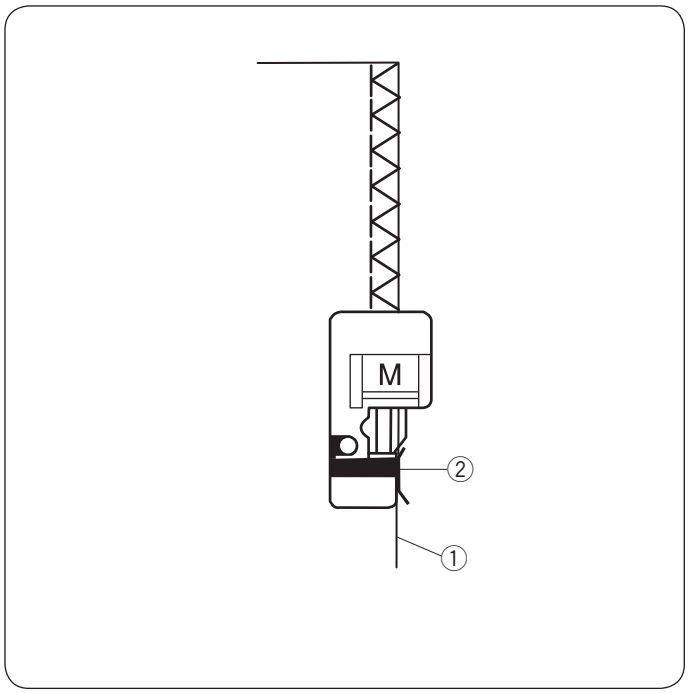
This stitch is used to finish a raw edge of synthetics and other stretch fabrics that tend to pucker.
Sew along the fabric edge leaving an adequate seam allowance.
After sewing, trim the seam allowance close to the stitches.



Overcasting Stitch

Machine settings

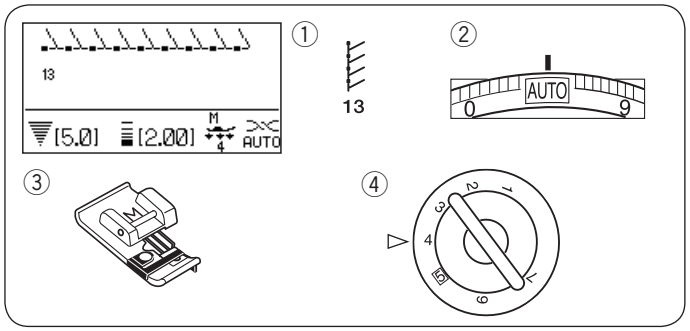
① Pattern: 12
② Thread tension: AUTO
③ Presser foot: Overcast foot M
④ Foot pressure: 5



This stitch can be 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 guide of the foot and then sew.

① Edge of fabric
② Guide

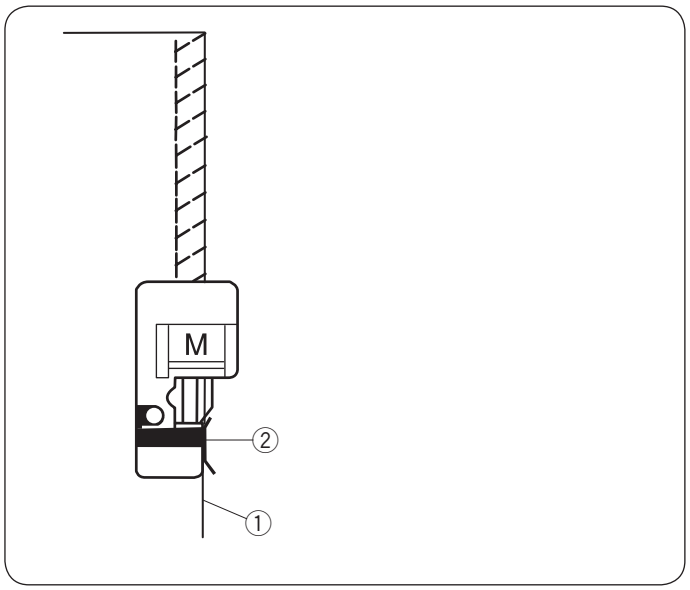
NOTE:
The stitch width cannot be changed.



Knit Stitch

Machine settings

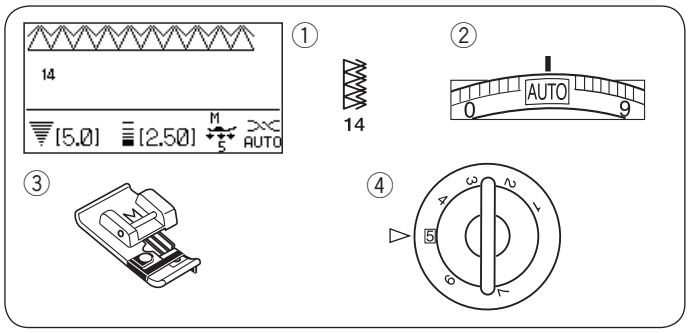
① Pattern: 13
② Thread tension: AUTO
③ Presser foot: Overcast foot M
④ Foot pressure: 4



This stitch is recommended for sewing such fabrics as synthetic knits and stretch velour as it provides the greatest amount of elasticity and strength.
Place the fabric edge next to the guide of the foot and then sew.

① Edge of fabric
② Guide

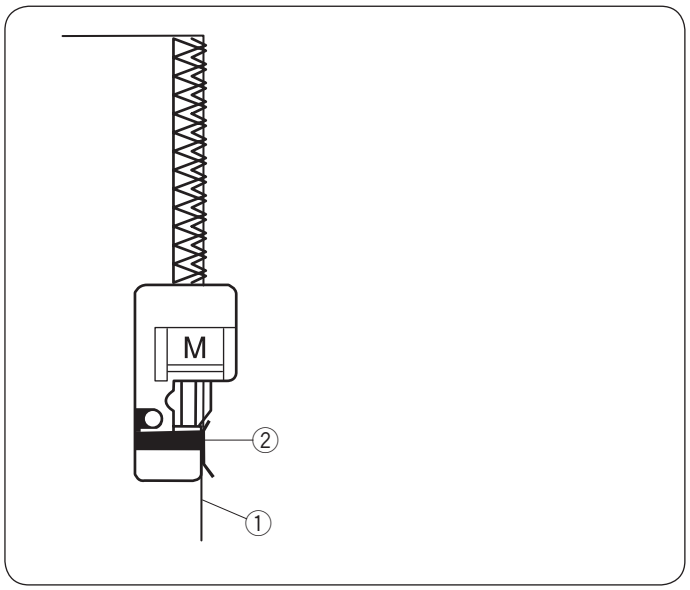
NOTE:
The stitch width cannot be changed.



Double Overcasting Stitch

Machine settings

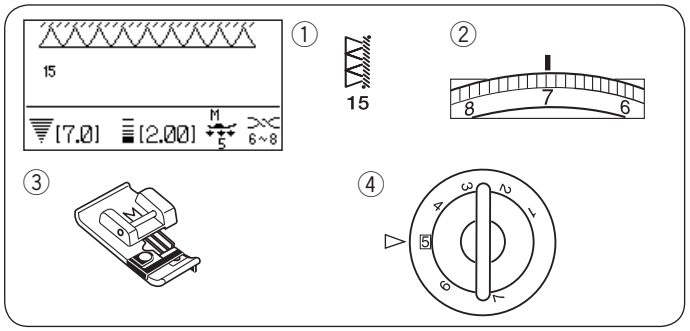
① Pattern: 14
② Thread tension: AUTO
③ Presser foot: Overcast foot M
④ Foot pressure: 5

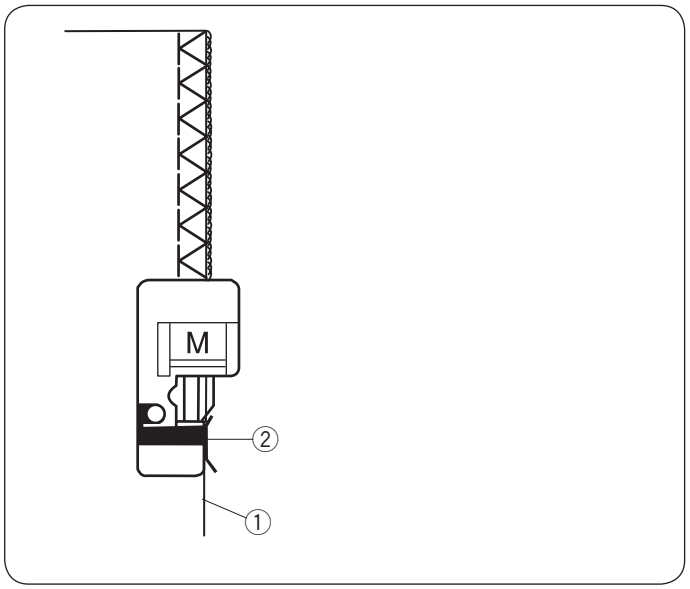


This is an excellent stitch for fabrics that tend to fray extensively such as linens and gabardines.
Two rows of zigzag stitches are simultaneously sewn over the edge to insure that fabric will not ravel.
Place the fabric edge next to the guide of the foot and then sew.

① Edge of fabric
② Guide

NOTE:
The stitch width cannot be changed.





Overlocking Stitch

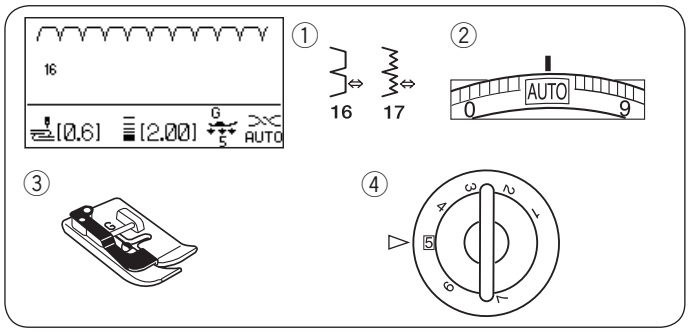
Machine settings

① Pattern: 15
② Thread tension: 6–8
③ Presser foot: Overcast foot M
④ Foot pressure: 5

This stitch finishes the edges of fabric similar to a commercial overlocking machine for a professional look. Place the fabric edge next to the guide of the foot and then sew.

① Edge of fabric
② Guide

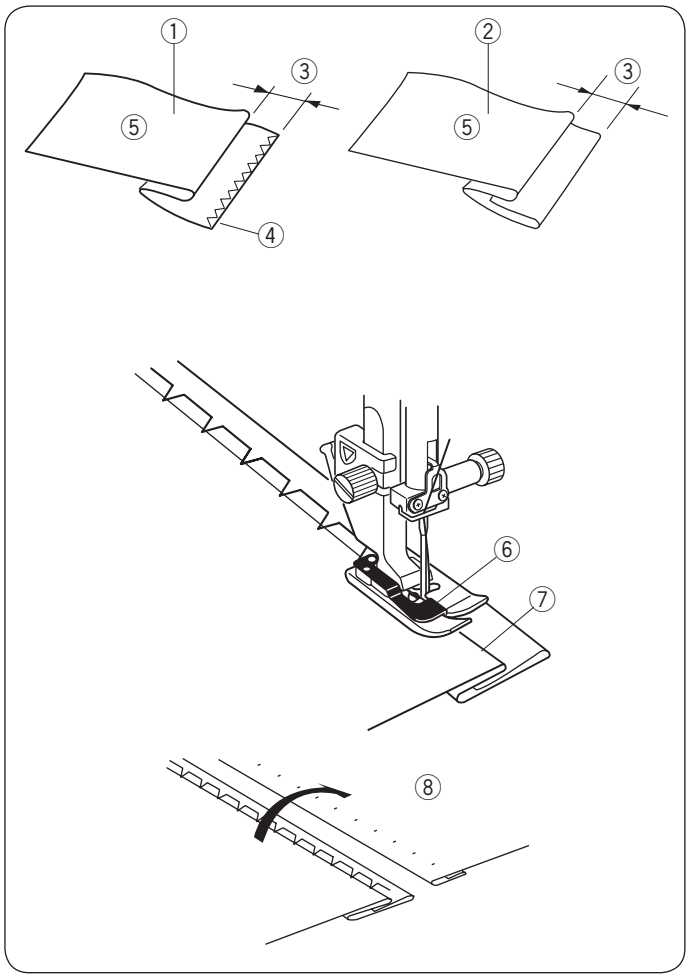
NOTE:
The stitch width cannot be changed.



Blind Hemming

Machine settings

①	Pattern:	16 or 17
②	Thread tension:	AUTO
③	Presser foot:	Blind hemming foot G
④	Foot pressure:	5



Select pattern 16 for woven fabrics or pattern 17 for elastic fabrics.

Folding the fabric

Fold the fabric to make a hem as shown.

① Heavy fabric
② Fine to medium fabric
③ 0.4 – 0.7 cm (3/16″–1/4″)
④ Overcasting
⑤ Wrong side of fabric

Sewing

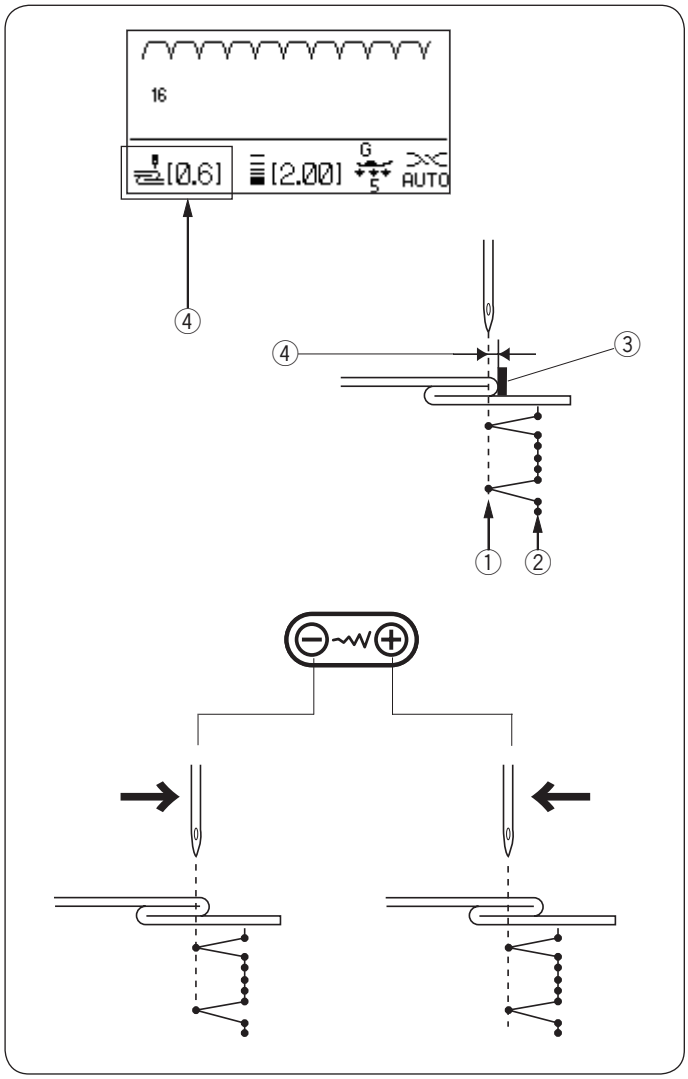
Position the fabric so that the fold comes to the left side of the guide on the foot.
Lower the presser foot.
Adjust the position of the needle swing with the stitch width adjusting key so that the needle just pierces the folded edge of the fabric when the needle comes over to the left side.

Sew guiding the fold along the guide.

⑥ Guide on the foot
⑦ Fold

Open the fabric with the right side up.
The stitches on the right side of the fabric will be almost invisible.

⑧ Right side of fabric

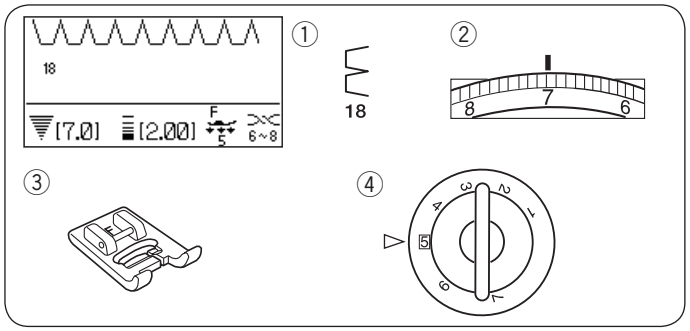


Changing the needle drop position
Press the stitch width adjusting key.
The LCD screen shows the distance between the left needle position and the guide in millimeters ④.

Press the "⊖" sign to move the needle to the right.
Press the "⊕" sign to move the needle to the left.

① Left needle drop position
② Right needle drop position
③ Guide on foot
④ Distance between the left needle position and the guide

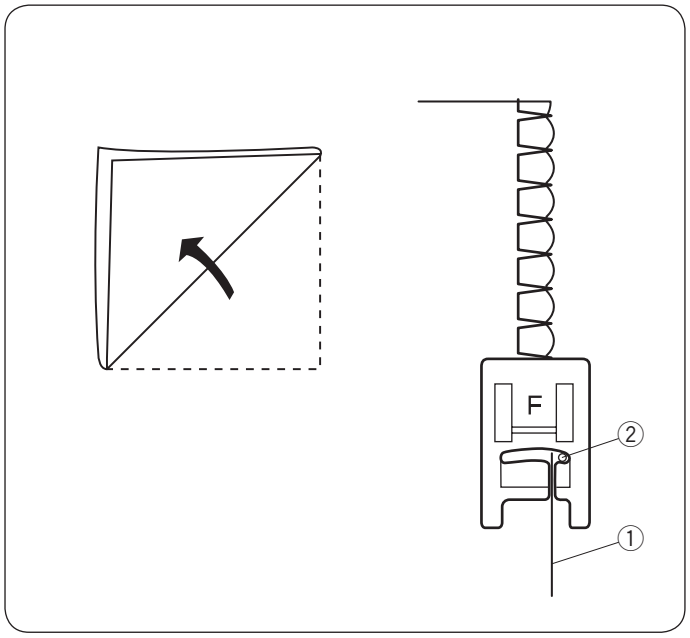
NOTE:
The stitch width of patterns 16 and 17 cannot be changed, but the needle drop position will move.



Shell Tuck

Machine settings

① Pattern: 18
② Thread tension: 6–8
③ Presser foot: Satin stitch foot F
④ Foot pressure: 5

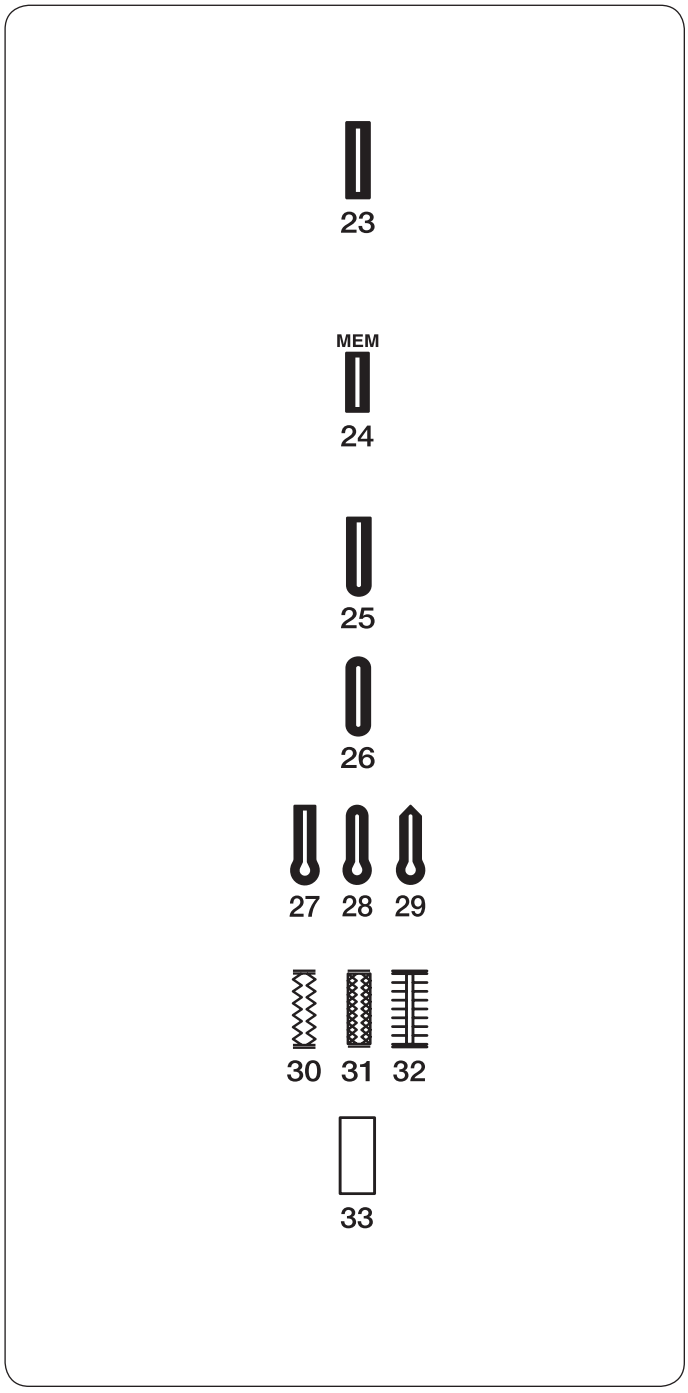


Use a light weight fabric (tricot, for example). Fold the fabric as shown and stitch on the fold.

Allow the needle to just clear the folded edge to create a shelled edge. You may need to increase the needle thread tension.

① Folded edge
② Right needle drop position

If you sew rows of shell stitches, space the rows at least 1.5 cm (5/8″) apart.
You can also sew shell stitches on knits or soft silky woven fabrics in any direction.



Buttonholes

Variety of buttonholes

23 Square (Sensor) buttonhole
This square buttonhole is widely used on medium to heavy weight fabrics.
The buttonhole size is automatically determined by placing a button in the foot.

24 Square (Memory) buttonhole
This is also a square buttonhole similar to the sensor buttonhole, but you can manually set and memorize the buttonhole size to sew buttonholes of the same size. This buttonhole is useful for bulky fabrics or when sewing on uneven layers.

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

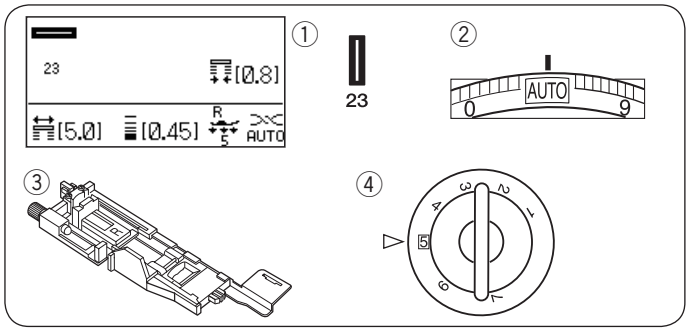
26 Fine fabric buttonhole
This buttonhole is rounded at both ends and is used on fine, delicate fabrics such as fine silk.

27-29 Keyhole buttonholes
The Keyhole Buttonhole is widely used on medium to heavy weight fabrics. It is also suitable for larger and thicker buttons.

30-32 Stretch buttonholes
This buttonhole can be used on stretch fabrics. It can also be used as a decorative buttonhole.

33 Welted buttonhole
This is a template pattern for the hand sewn welted (bound) buttonhole.

NOTE:
Patterns number 25-33 are sensor buttonholes and the sewing procedure is the same as pattern number 23.



Square (Sensor) Buttonholes

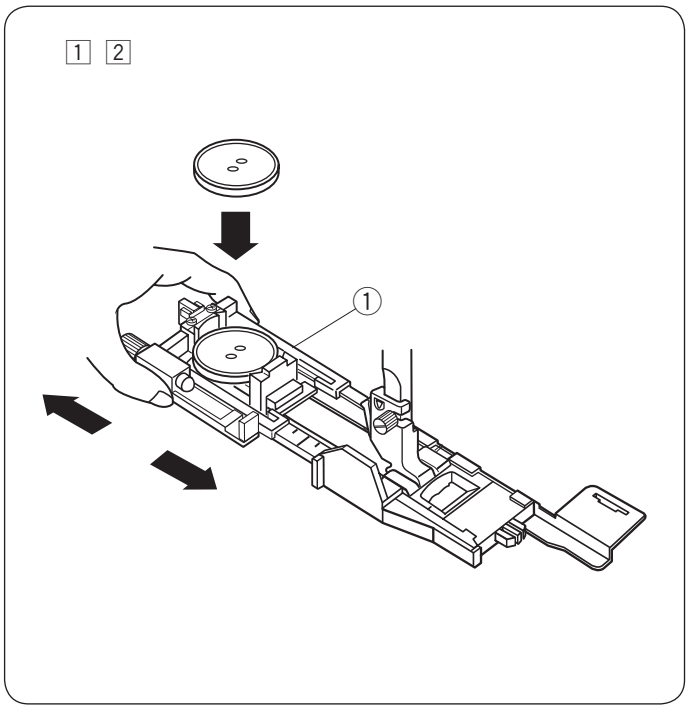
Machine settings

① Pattern: 23
② Thread tension: AUTO
③ Presser foot: Automatic buttonhole foot R
④ Foot pressure: 5

Sensor buttonhole

Patterns number 23 and 25 to 33 are sensor buttonholes. The size of a buttonhole is automatically set by placing a button in the rear of automatic buttonhole foot R.
The button holder of the foot takes a button size of 1 cm (3/8″) to 2.5 cm (1″) in diameter.
When selecting the sensor buttonholes, the LCD screen advise you to lower the buttonhole lever.

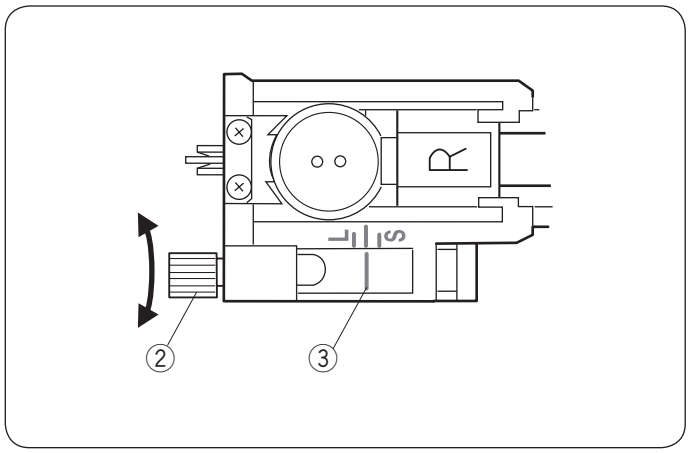
NOTE:
It is sometimes necessary to change buttonhole size to match certain heavy or specific fabrics and threads. Make a test buttonhole on an extra piece of the fabric to check your settings.
The preset width of the buttonhole is suited for ordinary buttons.
Apply an interfacing to stretch or fine fabrics.



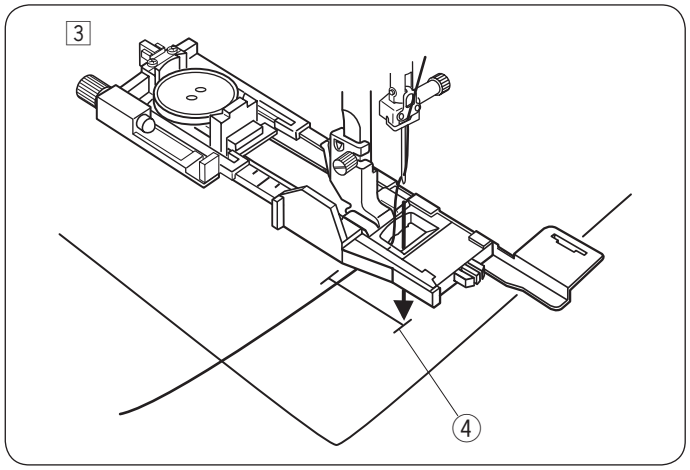
Sewing

1 Pull open the button holder of the automatic buttonhole foot R, and place the button in the button holder. Push it tightly against the button.
① Button holder

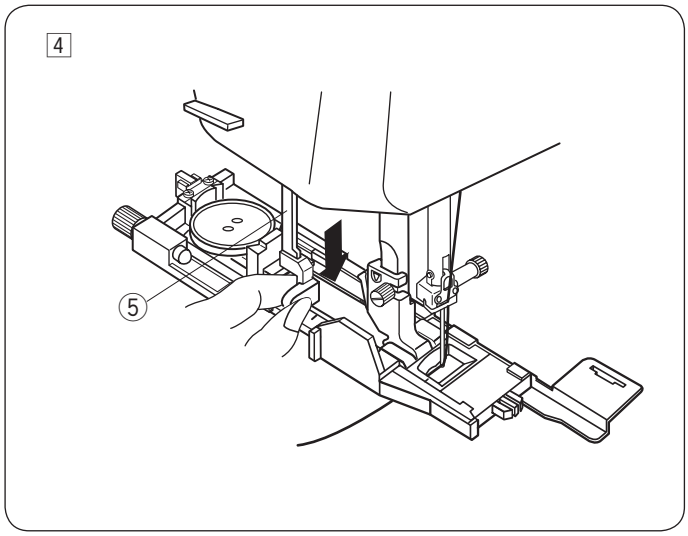
2 Attach the buttonhole foot. Raise the presser foot.



NOTE:
The buttonhole size is automatically set by placing a button into the button holder on the foot.
The button holder of the foot takes button sizes up to 2.5 cm (1″) in diameter.
Check the length of the test buttonhole, and adjust the buttonhole length if necessary by turning the adjusting screw on the buttonhole foot.
To increase the buttonhole length, turn the adjusting screw to move the marker toward “L”.
To decrease the buttonhole length, turn the adjusting screw to move the marker toward “S”.
② Adjusting screw
③ Marker

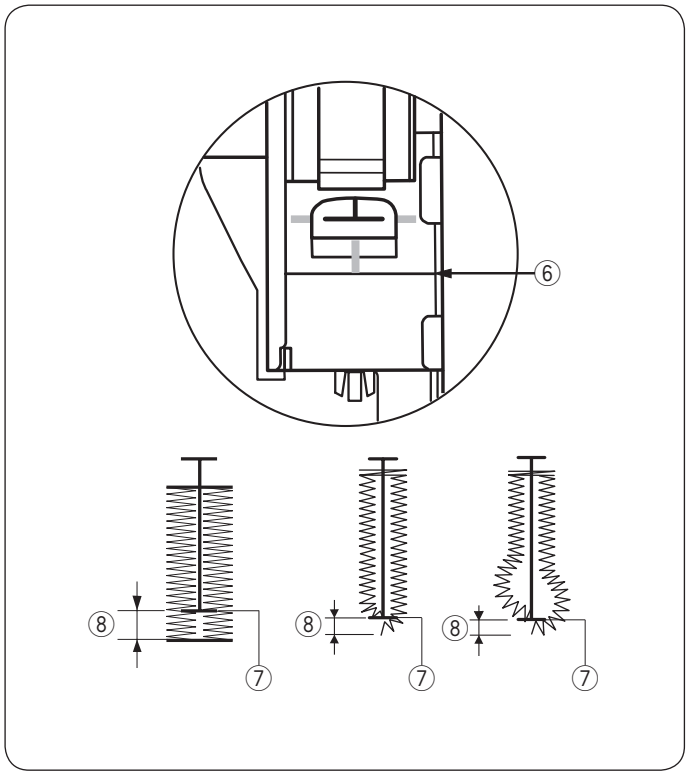


3 Draw the needle thread to the left through the hole of the foot.
Mark the buttonhole position on the fabric and place it under the buttonhole foot. Lower the needle at the starting point by turning the hand wheel.
④ Starting point

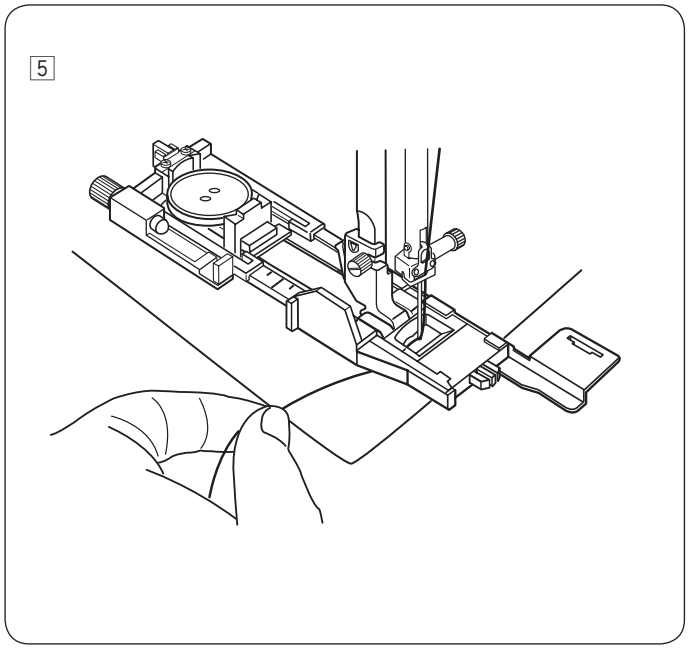


4 Lower the buttonhole foot and pull down the buttonhole lever as far as it will go.
⑤ Buttonhole lever

NOTE:
Use the stabilizer plate when sewing thick fabrics or sewing across hems (refer to page 58).

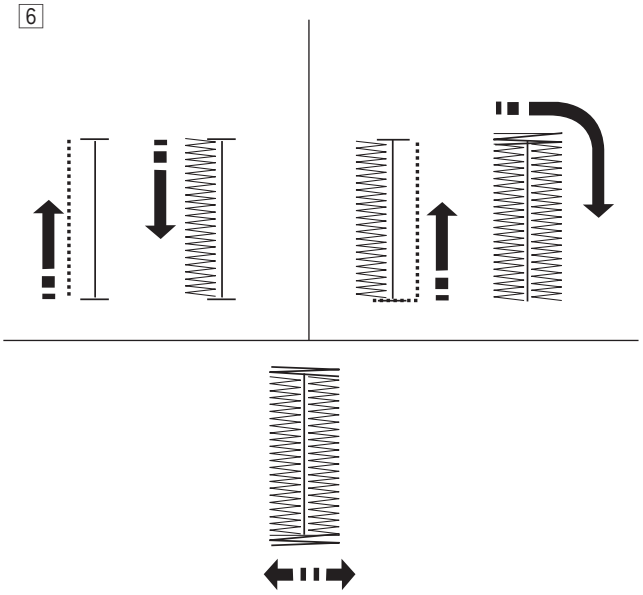


NOTE:
Make sure there is no gap between the slider and front stopper, otherwise the buttonhole will be out of position or the left and right lengths will be different.
⑥ No gap
⑦ Starting point
⑧ Gap

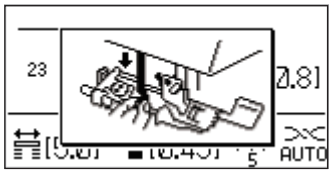


5 Start sewing while pulling the needle thread lightly to the left. After sewing a few stitches, free the thread and continue sewing.

6

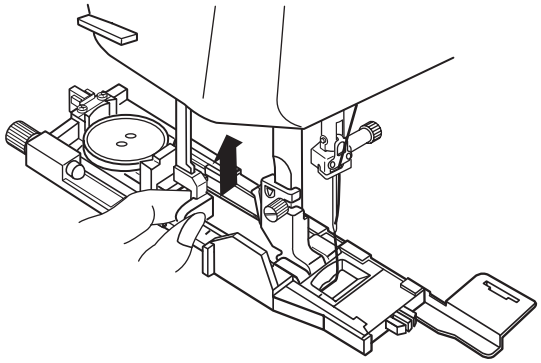


6 The buttonhole is sewn automatically in the sequence shown. When the buttonhole is finished, the machine will stop automatically with the needle in the up position.
Press the thread cutter button and remove the fabric.



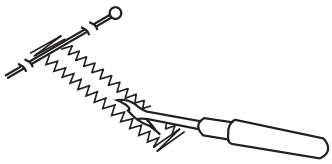
NOTE:
If you start sewing without pulling down the buttonhole lever, the LCD screen will show a warning and the machine will stop after a few stitches. Pull the buttonhole lever down and start sewing.

7



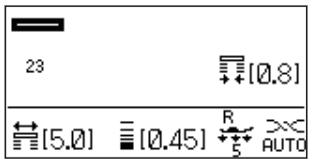
7 After you finish buttonhole sewing, push the buttonhole lever up as far as it will go.

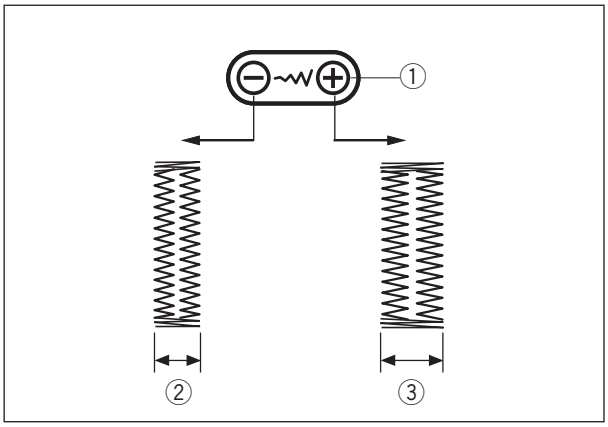
8



8 Place a pin just below the bartack at each end to prevent accidentally cutting the threads. Cut the opening with the seam ripper. Use an eyelet puncher to open a keyhole buttonhole.

Double layer buttonhole
To make a sturdy buttonhole, sew another layer of buttonhole stitches over the previous stitches.
After the buttonhole is finished, do not raise the foot or buttonhole lever, simply start the machine again.





Manual settings

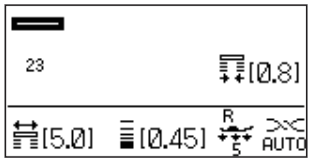
The buttonhole width can be adjusted by pressing the stitch width adjusting key.

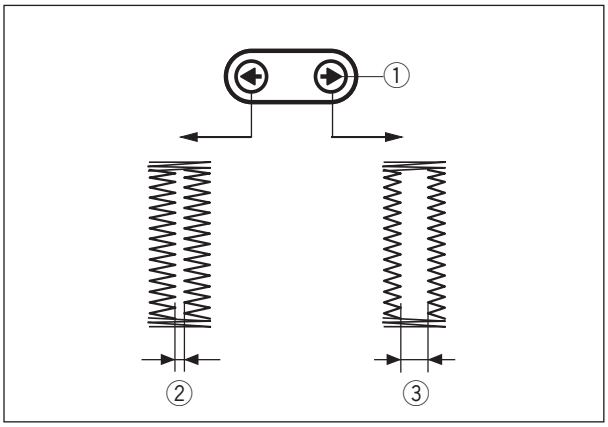
Press the " ⊕ " sign on the stitch width adjusting key to increase the buttonhole width.

Press the " ⊖ " sign on the stitch width adjusting key to decrease the buttonhole width.

① Stitch width adjusting key
② Narrower buttonhole
③ Wider buttonhole

NOTE:
The buttonhole width can be adjusted from 2.6 to 9.0.





Adjusting the buttonhole opening width

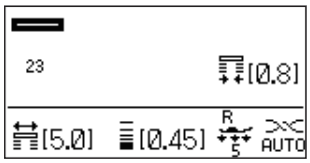
The buttonhole opening can be adjusted by pressing the edit key.

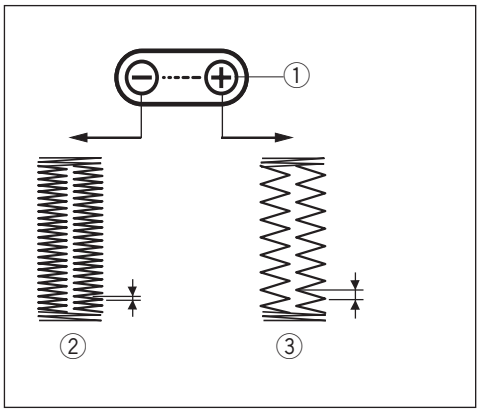
Press the " ⊕ " sign on the edit key to make the opening width wide.

Press the " ⊖ " sign on the edit key to make the opening width narrower.

① Edit key
② Narrower opening buttonhole
③ Wider opening buttonhole

NOTE:
The buttonhole opening can be adjusted from 0.2 to 2.0.





Adjusting the buttonhole stitch density

The buttonhole stitch density can be adjusted by pressing the stitch length adjusting key.

Press the " ⊕ " sign on the stitch length adjusting key to make the buttonhole stitch less dense.

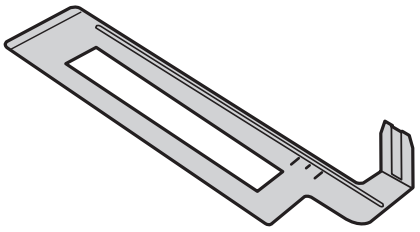
Press the " ⊖ " sign on the stitch length adjusting key to make the buttonhole stitch denser.

① Stitch length adjusting key
② Denser buttonhole
③ Less dense buttonhole

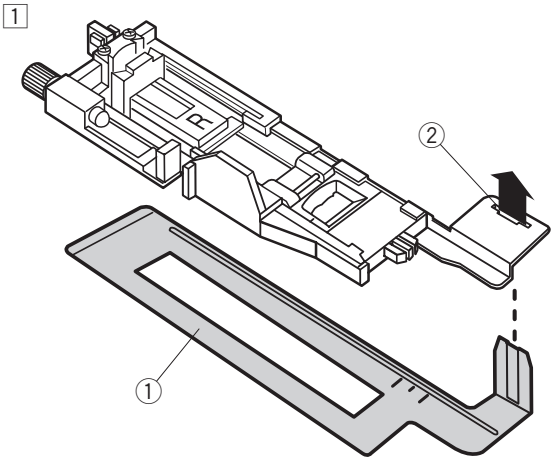
NOTE:
The stitch density can be adjusted from 0.20 to 1.00.

Using the Stabilizer Plate

The stabilizer plate holds and supports the fabric so it is helpful when sewing buttonholes over the hem of thick fabrics.

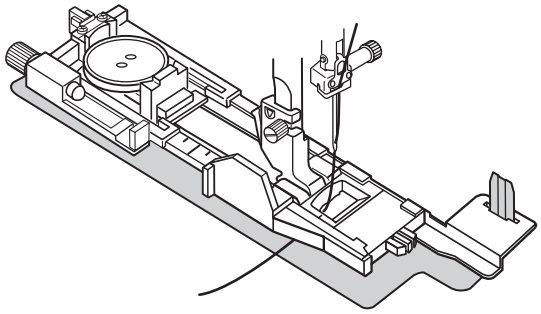


1



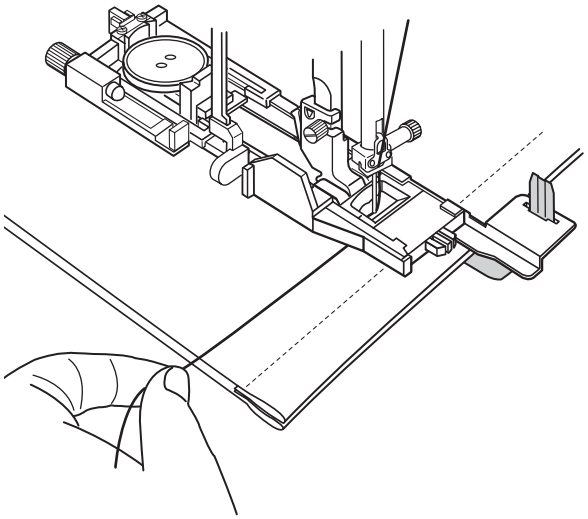
1 Insert the tab of the stabilizer plate ① into the slot ② of the buttonhole foot.
① Stabilizer plate
② Slot

2



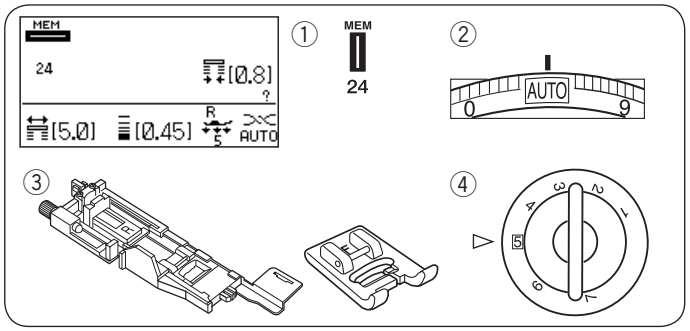
2 Place the button on the button holder of the foot. Attach the buttonhole foot to the machine.Insert the fabric between buttonhole foot and stabilizer plate. Press the needle up/down button twice and remove the fabric to the left to draw the needle thread between the foot and stabilizer plate.

3



3 Place the fabric between the buttonhole foot and stabilizer plate. Lower the needle into the starting point by turning the hand wheel.
Lower the foot and buttonhole lever.
Start the machine while pulling the needle thread lightly to the left. After sewing a few stitches, free the thread and continue sewing.

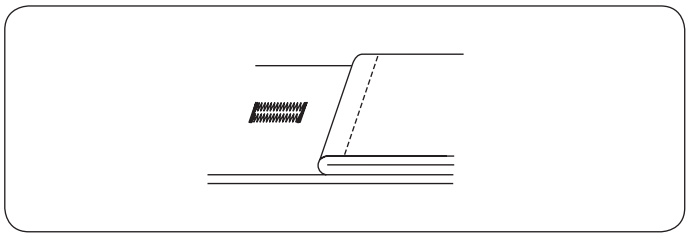
NOTE:
The sewing procedure is exactly the same as that for B1 sensor (square) buttonholes.



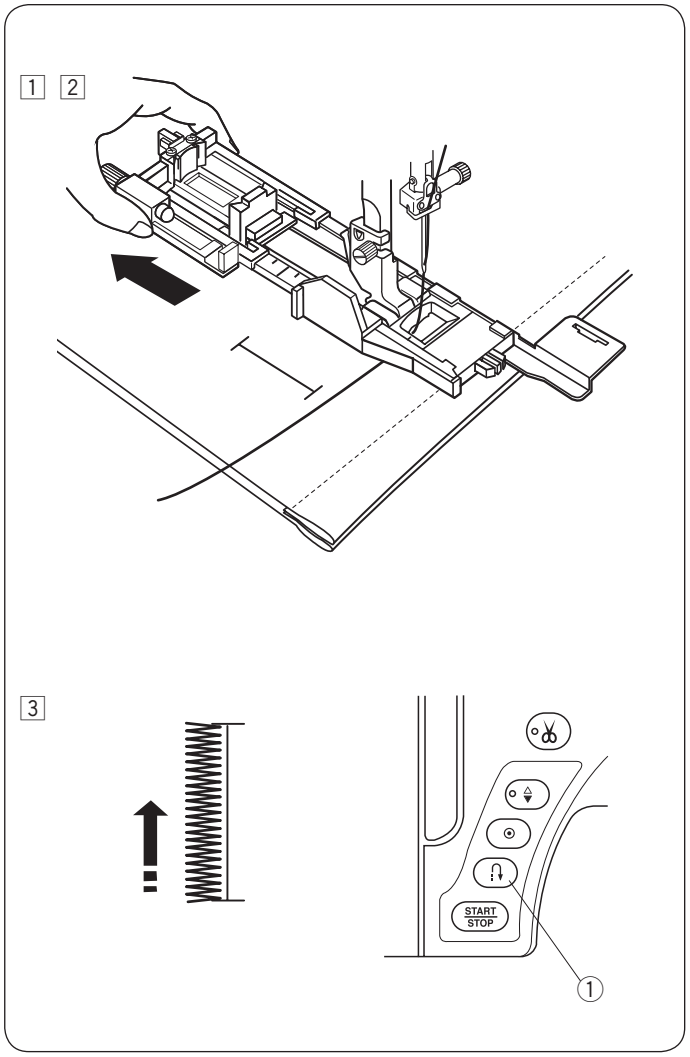
Memory buttonholes

Machine settings

① Pattern: 24
② Thread tension: AUTO
③ Presser foot: Automatic buttonhole foot R or Satin stitch foot F
④ Foot pressure: 5



NOTE:
Use satin stitch foot F where the automatic buttonhole foot R cannot be used.



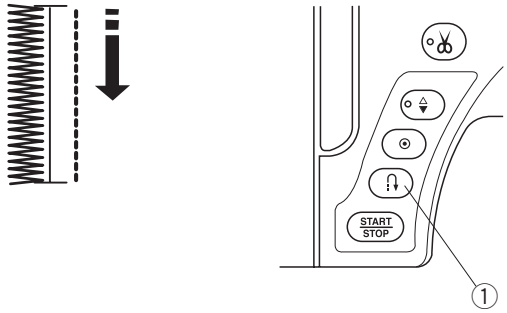
NOTE:
You do not need to pull down the buttonhole lever.
If you wish to sew a buttonhole longer than the size permitted by the automatic buttonhole foot R, use satin stitch foot F.

1 Pull the button holder all the way out.

2 Mark the buttonhole position on the fabric.
Place the fabric under the foot, and lower the needle at the starting point.
Lower the foot and start sewing while pulling the needle thread lightly to the left. After sewing a few stitches, free the thread and continue sewing.

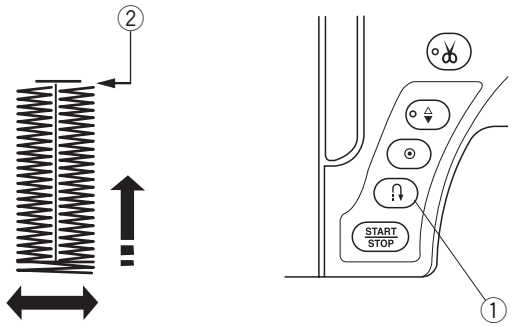
3 Sew the left side up to the required buttonhole length and stop the machine. Then press the reverse button.
① Reverse button.

4



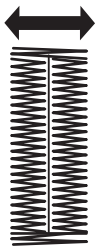
4 Start sewing again, and the machine sews back with a straight stitch.
Stop the machine when you reach the starting point.
Then press the reverse button.
① Reverse button

5



5 Start sewing again, and the machine sews the front bartack and right side of the buttonhole.
Stop the machine when you reach the ending point.
Then press the reverse button.
② Ending point

6

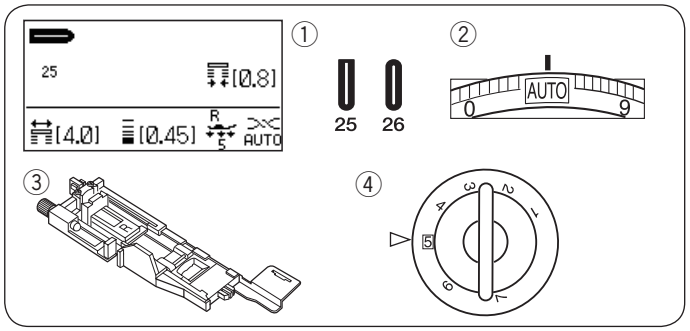


6 Start sewing again, and machine sews the back bartack and locking stitches then stops automatically with the needle in the up position.

7



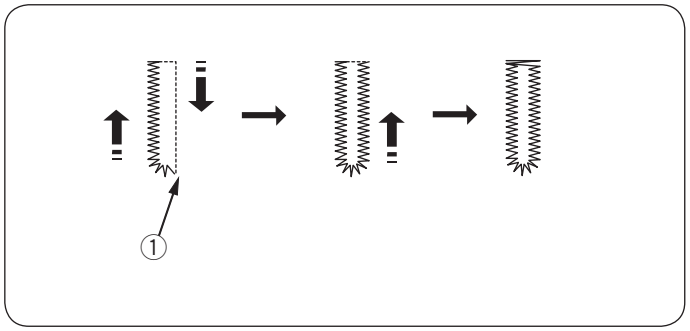
7 When the buttonhole is finished, a message will appear.
To make the next buttonhole, position the fabric and start sewing again. The message disappears and the machine sews another buttonhole identical to the first one then stops automatically.
To sew another buttonhole in a different size press the memory key.



Round End and Fine Fabric Buttonholes

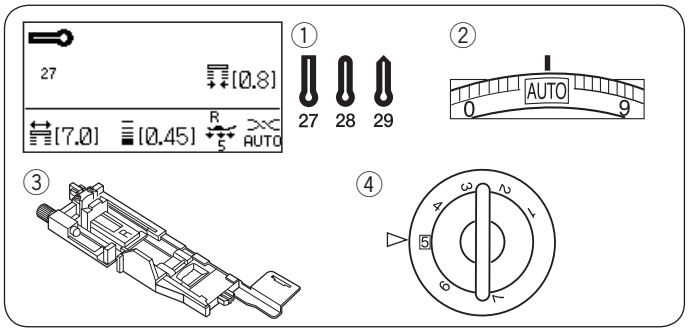
Machine settings

① Pattern: 25 or 26
② Thread tension: AUTO
③ Presser foot: Automatic buttonhole foot R
④ Foot pressure: 5



The sewing procedure is the same as the square (sensor) buttonhole (refer to pages 54-56).
The machine will sew a buttonhole in the order shown.
① Starting point

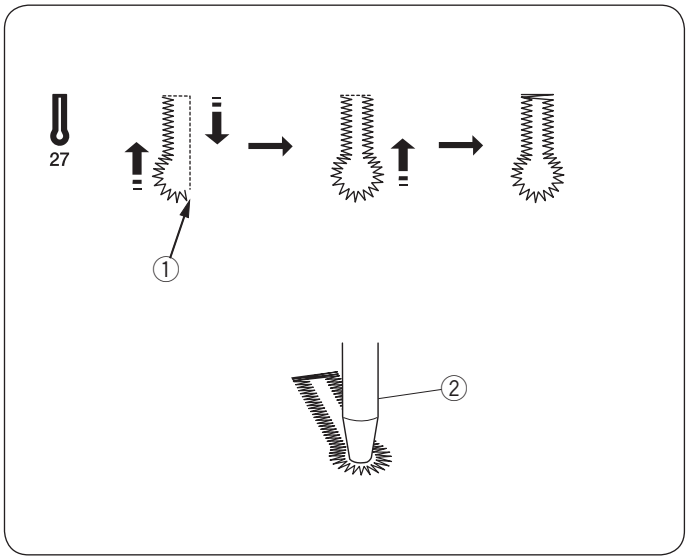
NOTE:
The buttonhole width can be adjusted from 2.6 to 9.0.
The buttonhole opening can be adjusted from 0.2 to 2.0.
The stitch density can be adjusted from 0.20 to 1.00.



Keyhole Buttonholes

Machine settings

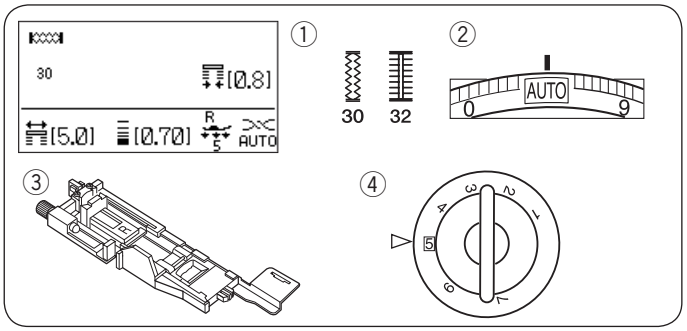
① Pattern: 27, 28 or 29
② Thread tension: AUTO
③ Presser foot: Automatic buttonhole foot R
④ Foot pressure: 5



The sewing procedure is the same as the square (sensor) buttonhole (refer to pages 54-56).
The machine will sew a buttonhole in the order shown.

Use an eyelet puncher to open a keyhole buttonhole.
① Starting point
② Eyelet puncher

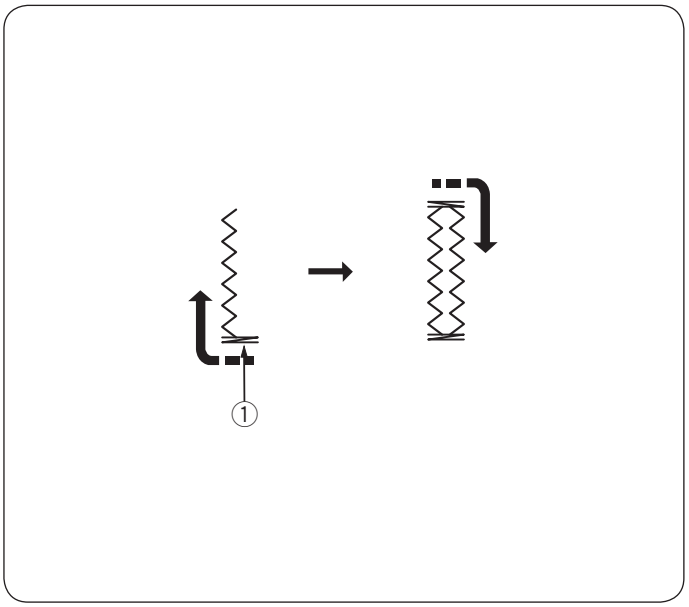
NOTE:
The buttonhole width can be adjusted from 5.6 to 9.0.
The buttonhole opening can be adjusted from 0.2 to 2.0.
The stitch density can be adjusted from 0.20 to 1.00.



Stretch Buttonhole

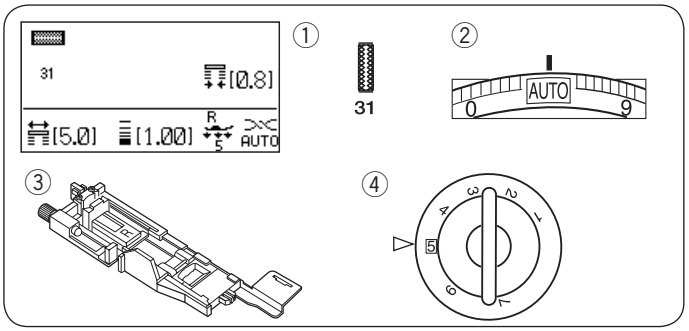
Machine settings

①	Pattern:	30 or 32
②	Thread tension:	AUTO
③	Presser foot:	Automatic buttonhole foot R
④	Foot pressure:	5



The sewing procedure is the same as the square (sensor) buttonhole (refer to pages 54-56).
The machine will sew a buttonhole in the order shown.
① Starting point

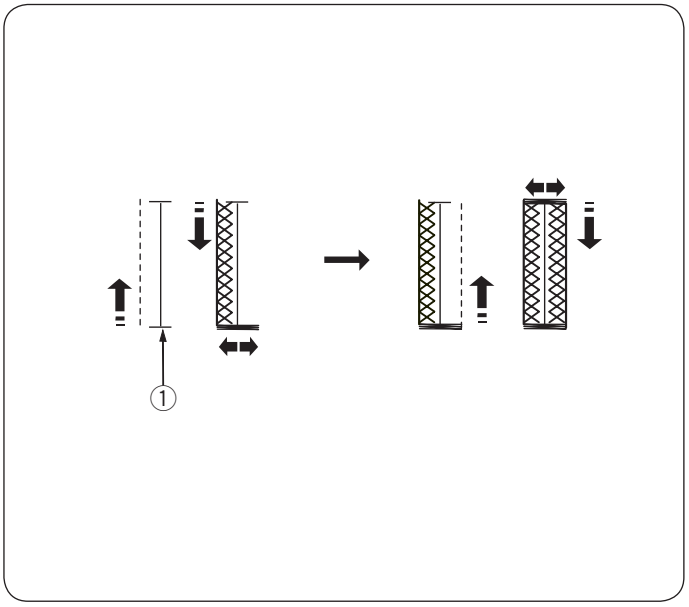
NOTE:
The buttonhole width can be adjusted from 2.6 to 9.0.
The buttonhole opening can be adjusted from 0.2 to 2.0.
The stitch density can be adjusted from 0.50 to 1.00 for pattern 30 and 0.50 to 2.50 for pattern 32.
If the stitch balance of the left and right row is not even, correct it by turning the feed balancing dial (refer to page 100).



Stretch Buttonhole

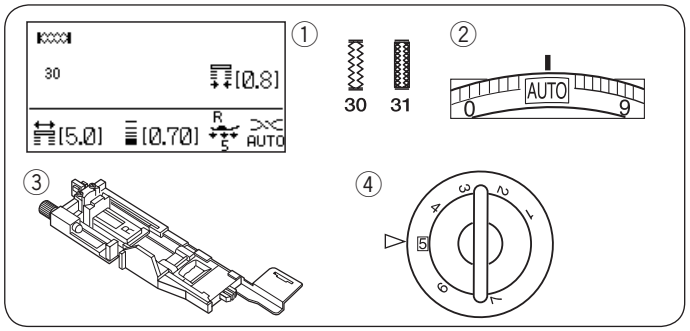
Machine settings

①	Pattern:	31
②	Thread tension:	AUTO
③	Presser foot:	Automatic buttonhole foot R
④	Foot pressure:	5



The sewing procedure is the same as the square (sensor) buttonhole (refer to pages 54-56).
The machine will sew a buttonhole in the order shown.
① Starting point

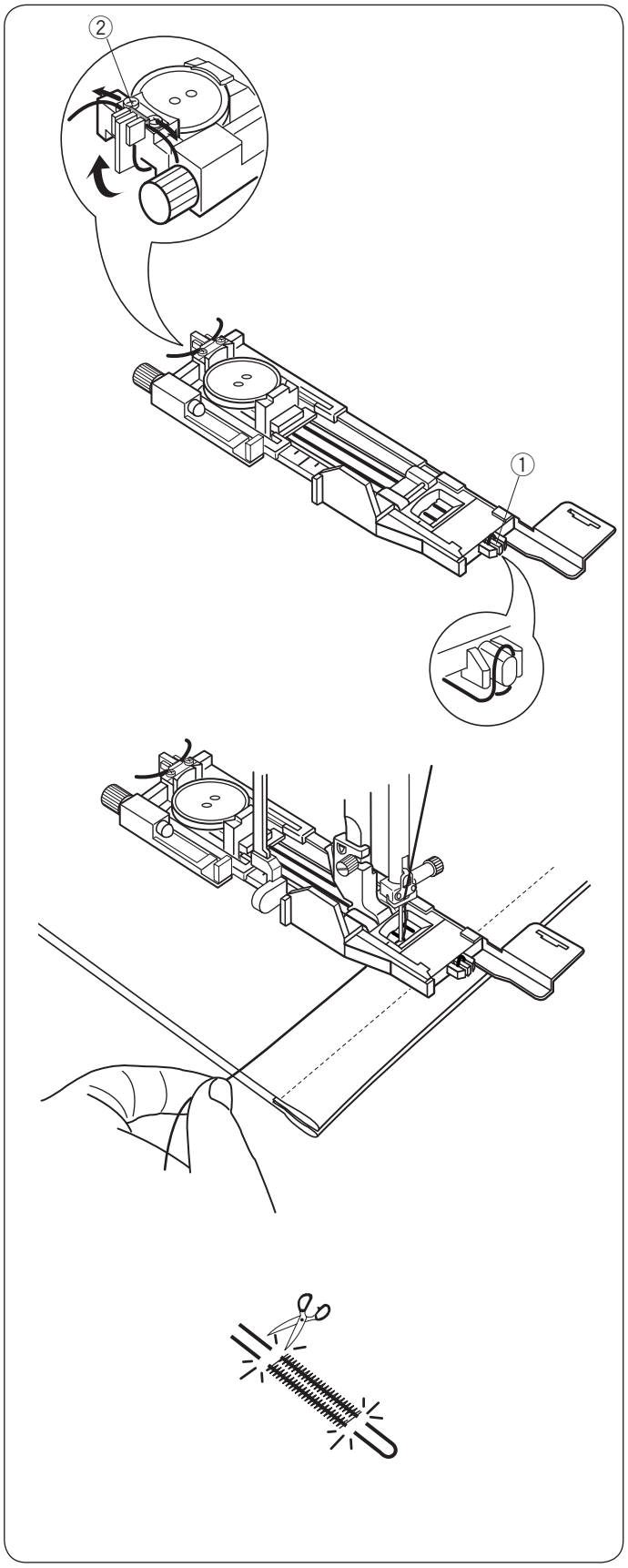
NOTE:
The buttonhole width can be adjusted from 2.6 to 9.0.
The buttonhole opening can be adjusted from 0.2 to 2.0.
The stitch density can be adjusted from 0.70 to 1.20.



Corded Buttonhole

Machine settings

① Pattern: 30 or 31
② Thread tension: AUTO
③ Presser foot: Automatic buttonhole foot R
④ Foot pressure: 5



Place the button on the button holder on the buttonhole foot.
Hook a filler cord on the spur on the front of the foot.
Bring the ends of cord toward the back and under the foot.
Bring up the ends of the cord and insert both ends between the ribs and metal plate.

① Spur
② Metal plate

To sew a corded buttonhole, follow the same procedure as a square buttonhole.

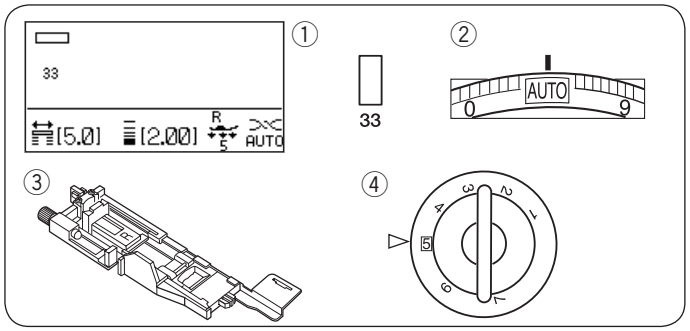
Lower the needle into the fabric where the buttonhole will start.
Lower the foot and buttonhole lever.
Pull the needle thread lightly to the left.
Start the machine to sew the buttonhole over the cord.
The machine stops automatically when finished.

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

Cut the filler cord at both ends as close to the buttonhole as possible.

To cut the buttonhole opening, refer to page 56.

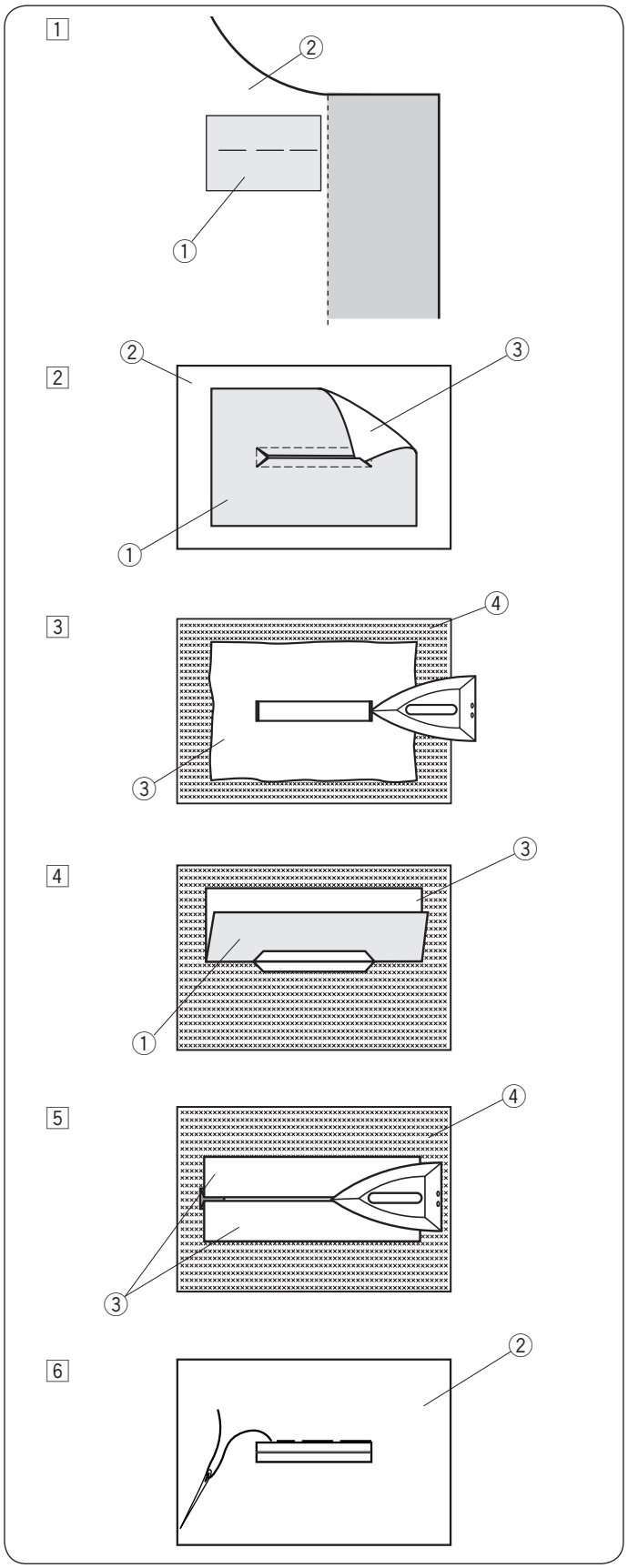
NOTE:
Set the stitch width in accordance with the thickness of filler cord used.



Welted Buttonhole

Machine settings

① Pattern: 33
② Thread tension: AUTO
③ Presser foot: Automatic buttonhole foot R
④ Foot pressure: 5



A welted buttonhole is made by stitching a strip or patch of fabric to the buttonhole.
Welted buttonholes are particularly suitable for tailored garments, but are not recommended for sheer or delicate fabrics where the patch might show through or add bulk.

1 Baste a patch to the garment fabric with the right sides together.
① Wrong side of patch
② Right side of garment fabric

2 Select pattern 33.
Sew the welted buttonhole on both fabrics together. Cut the buttonhole opening as illustrated then pull the patch out through the slit to the other side.
① Wrong side of patch
② Right side of garment fabric
③ Right side of patch

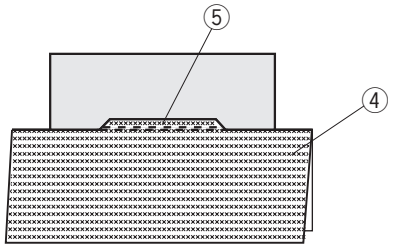
3 Pull out the patch until the right side of the patch is showing. Use an iron to press both corner ends until they are squared off.
③ Right side of patch
④ Wrong side of garment fabric

4 Fold back each side of the patch to form buttonhole lips.
① Wrong side of patch
③ Right side of patch

5 Press both folds with an iron.
③ Right side of patch
④ Wrong side of garment fabric

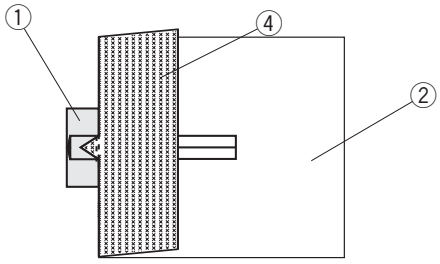
6 Baste both edges of the seam with a needle and thread by hand.
② Right side of garment fabric

7



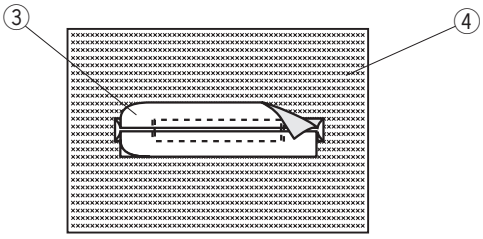
7 Fold over the length of the garment fabric, sew back and forth beside the original seam to secure flaps of the patch.
④ Wrong side of garment fabric
⑤ Sew back and forth

8



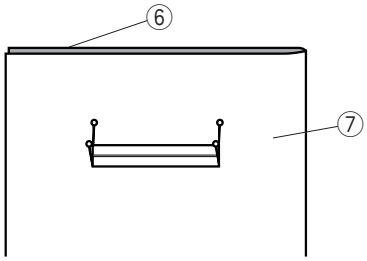
8 Fold over the end of fabric and sew back and forth three times over the triangular end.
① Wrong side of patch
② Right side of garment fabric
④ Wrong side of garment fabric

9



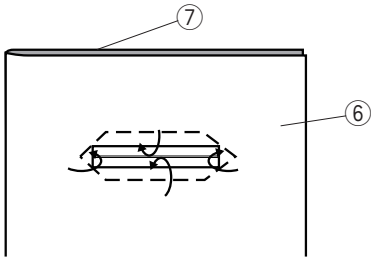
9 The patch should be cut 1 to 1.5 cm (7/16″ – 5/8″) away from the hole. The corners should be cut rounded off as shown.
③ Right side of patch
④ Wrong side of garment fabric

10



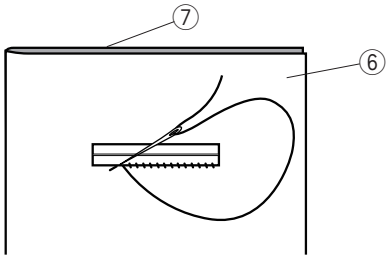
10 Place the facing on the wrong side of the garment fabric. Mark the 4 corners with pins as shown.
⑥ Facing
⑦ Garment fabric

11



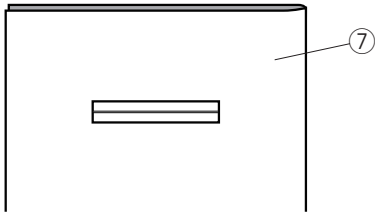
11 Turn all the layers over and cut the buttonhole opening on the facing in the same way as step 2.
Four marker pins show you the corner points on the facing. Fold back each flap between the facing and patch.
⑥ Facing
⑦ Garment fabric

12

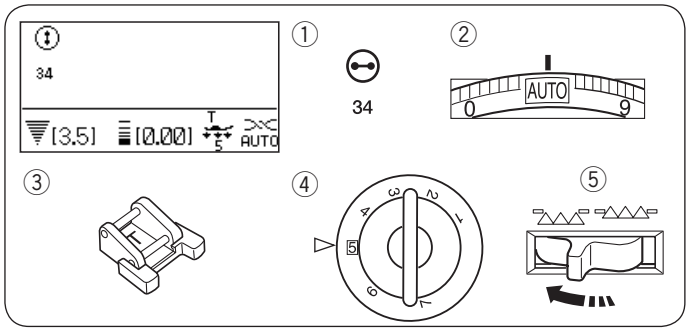


12 Stitch around the opening with a needle and thread as shown.
⑥ Facing
⑦ Garment fabric

13



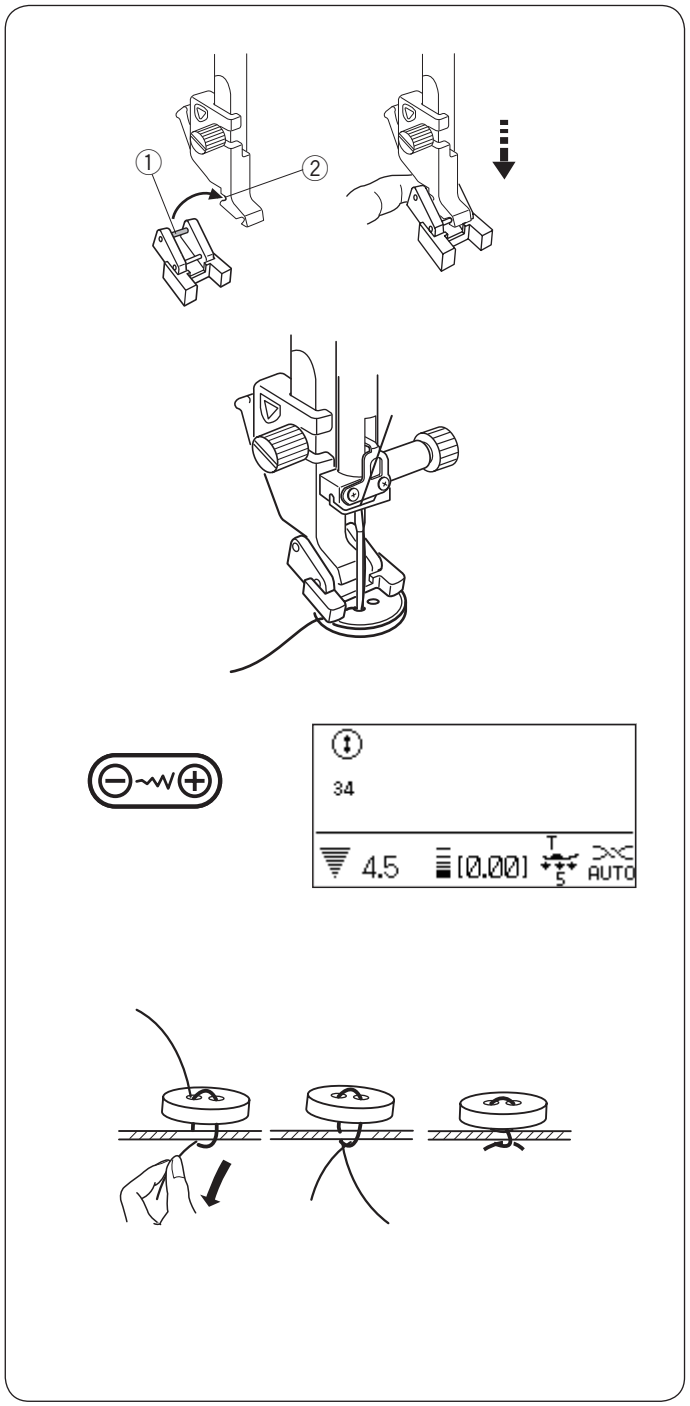
13 The welted buttonhole is complete.
⑦ Garment fabric



Button Sewing

Machine settings

①	Pattern:	34
②	Thread tension:	AUTO
③	Presser foot:	Button sewing foot T
④	Foot pressure:	5
⑤	Feed dog:	Lowered



Attaching the button sewing foot T

Insert the rear pin on the foot into the rear groove of the foot holder.

① Rear pin

② Rear groove

Gently lower the presser bar while holding the foot with your fingers.

Sewing

Lower the feed dog.

Place a button on the fabric and lower the needle into the left hole of the button by turning the handwheel with your hand.

Lower the foot to hold the button in place, aligning the direction of the button.

Raise the needle by turning the handwheel until the needle bar swings to the right.

Press the stitch width adjusting key so the needle enters into the right hole of the button.

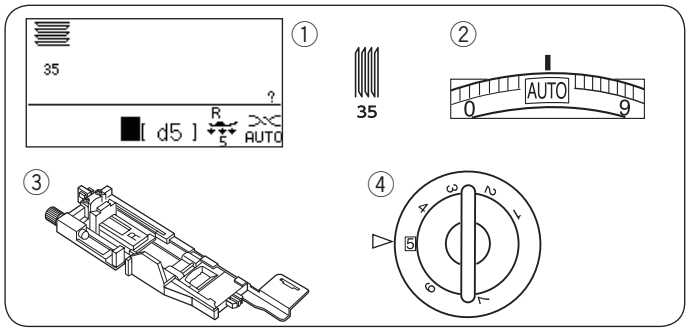
Start sewing and continue until the machine stops automatically.

Remove the fabric from the machine.

Pull the bobbin threads to bring the needle threads down to the wrong side of the fabric.

Tie the threads together.

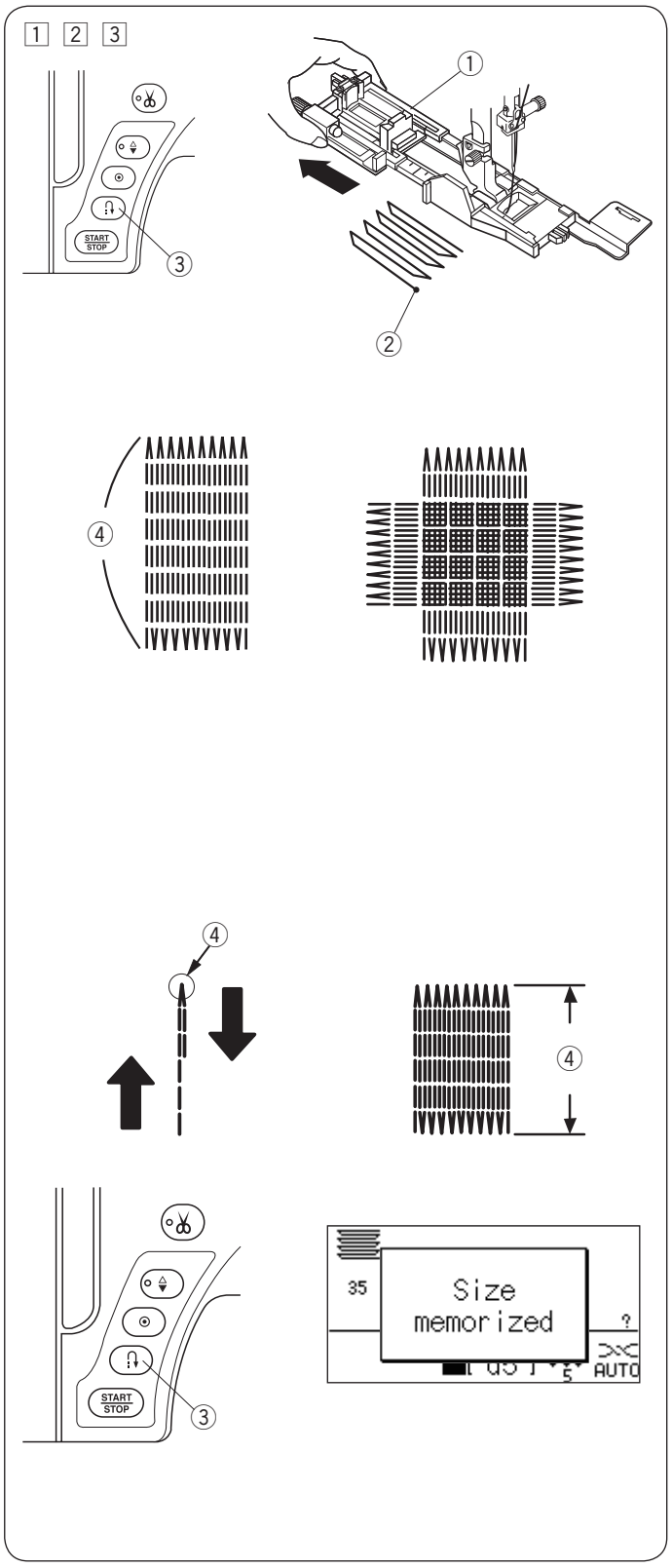
NOTE:
Do not use the thread cutter button to cut the threads. Otherwise, you cannot tie the threads.



Darning

Machine settings

①	Pattern:	35
②	Thread tension:	AUTO
③	Presser foot:	Automatic buttonhole foot R
④	Foot pressure:	5



1 Attach the Automatic buttonhole foot R and pull the button holder all the way out.
Place the fabric under the foot, and lower the needle at the starting point. Then lower the foot.
① Button holder
② Starting point

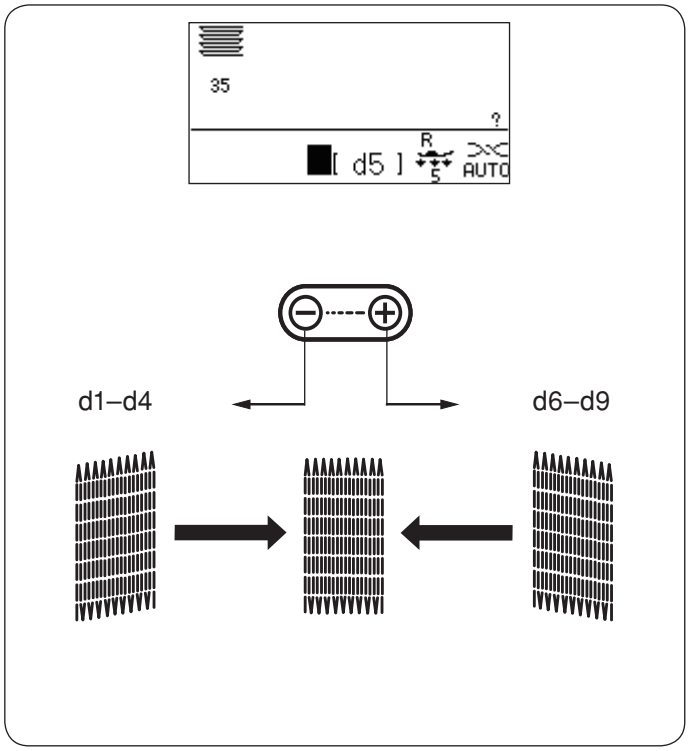
2 Start the machine and sew to the required length, then press the reverse button. This sets the darning length. Continue sewing until the machine stops automatically.
③ Reverse button
④ Required length

3 Sew another layer of darning over the first layer, at a right angle to it.

NOTE:
The maximum darning length is 2 cm (3/4˝) and the maximum width is 0.9 cm (3/8˝).

To sew the same size darning
When finished sewing, a confirmation message will appear.
Simply start the machine to sew another darning in the same size.
To sew the next darning in a different size, press the memory key.

To sew a shorter darning
Sew the first line to the desired length and stop the machine.
Press the reverse button and start the machine again. The machine will sew the rest of the darning and stop automatically.

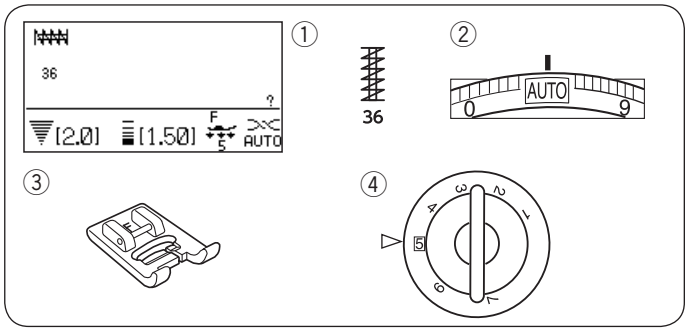


To adjust the evenness of darning stitches

You can correct unevenness of darning stitches by pressing the "⊖" or "⊕" key of the stitch length adjusting key.

If the left corner is lower than the right side, press the "⊖" key to correct it, and vice versa.

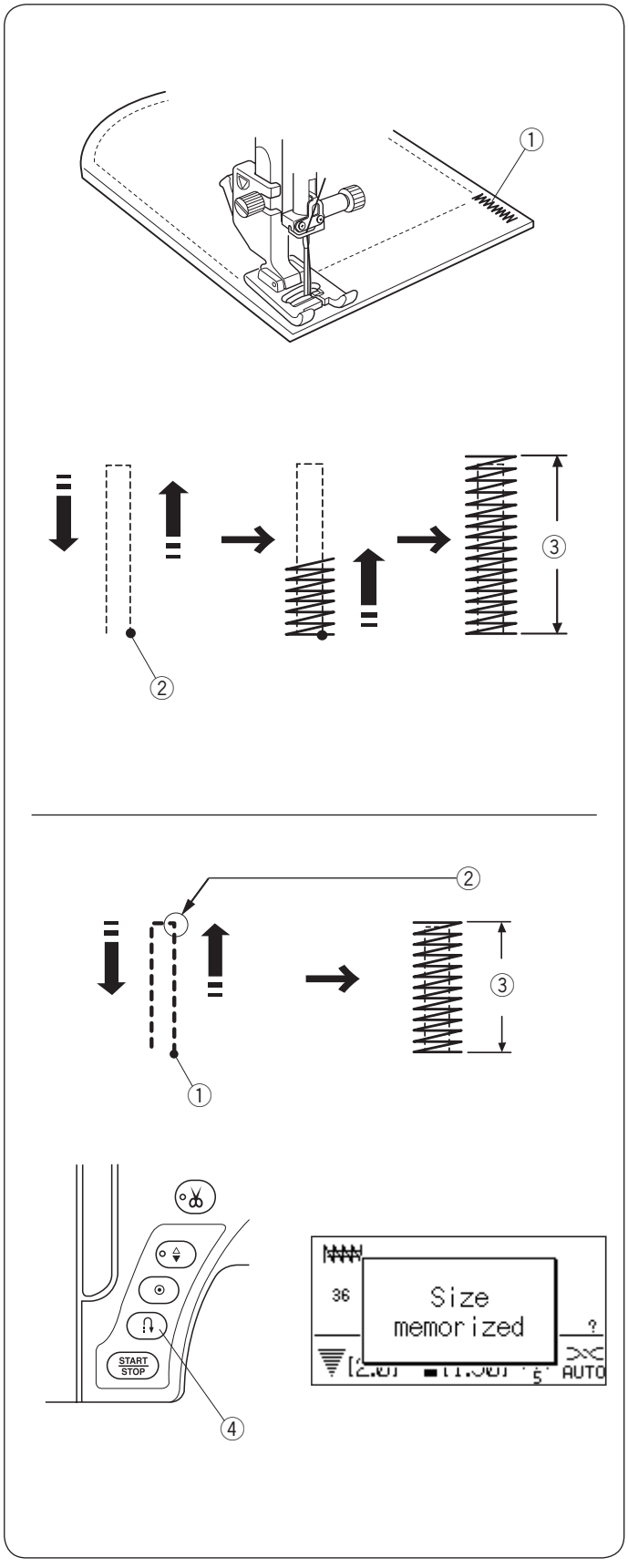
NOTE:
The evenness can be adjusted within d1 to d9 (default setting is d5).



Tacking

Machine settings

①	Pattern:	36
②	Thread tension:	AUTO
③	Presser foot:	Satin stitch foot F
④	Foot pressure:	5



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

Sewing

Lower the needle at the starting point.
Lower the foot and sew until the machine stops automatically.
The machine will sew a tacking 1.5 cm (9/16˝) long automatically.

① Tacking
② Starting point
③ 1.5 cm (9/16˝)

Sewing a shorter tack

To sew a tack shorter than 1.5 cm (9/16˝), first stop the machine after sewing the required length, and then press the reverse button.
The required length has been determined.

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

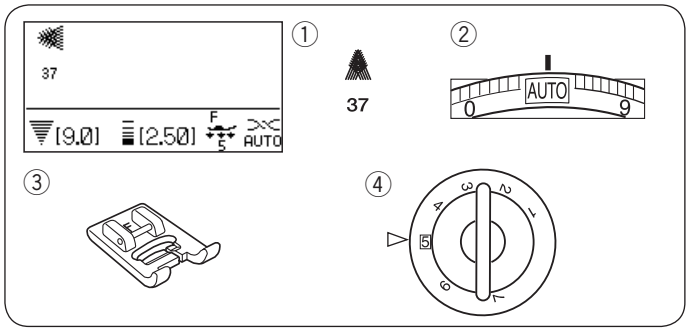
① Starting point
② Required length
③ Tack length
④ Reverse button

Sewing the same size tack

To sew another tack at the same size, simply start the machine and it will stop automatically when finishing sewing.

Sewing the tack at a different size

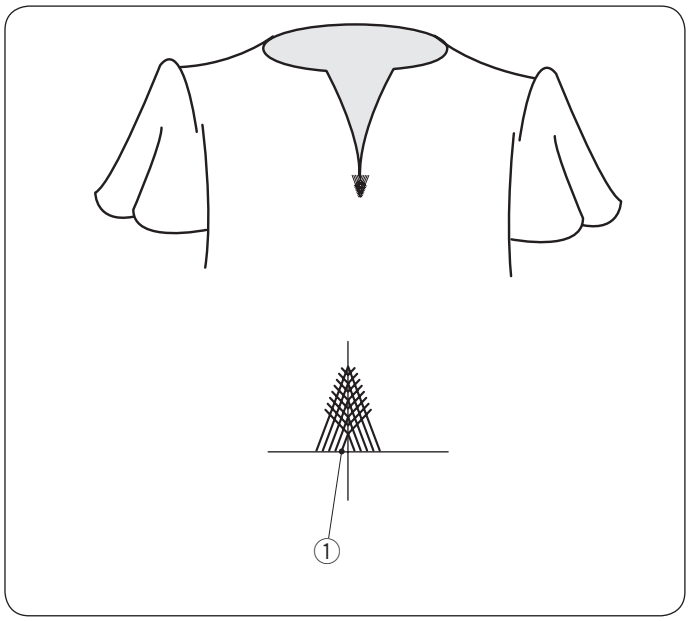
To sew the next tack at a different size, press the memory key to memorize a new size and start sewing from the beginning.



Fly Stitches

Machine settings

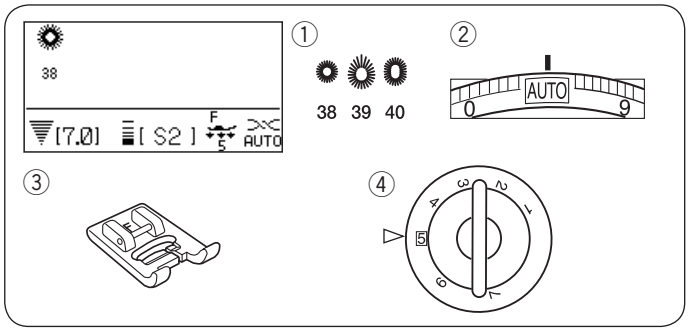
① Pattern: 37
② Thread tension: AUTO
③ Presser foot: Satin stitch foot F
④ Foot pressure: 5



The fly stitch is a triangle tacking stitch for use on a zipper fly bottom and on the side pockets of men's pants.

Attach the satin stitch foot F.

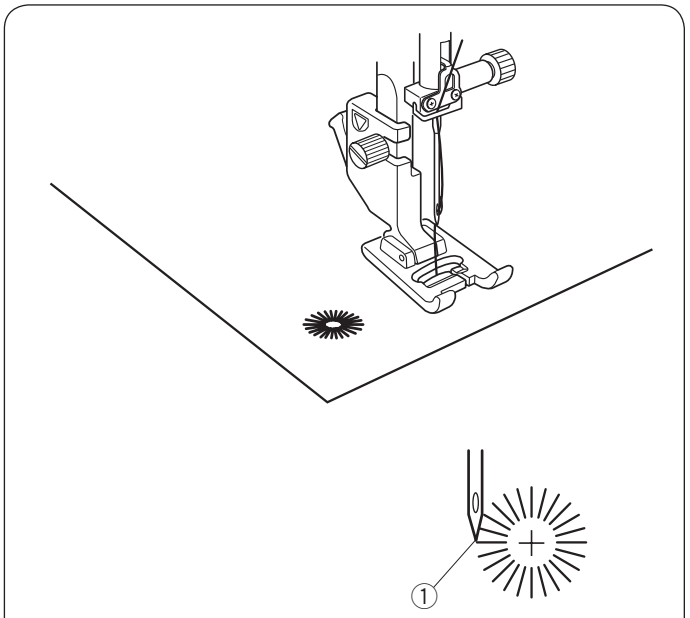
To sew:
Place the garment under the foot and lower the needle at the starting point.
Sew the stitch until the machine stops automatically.
① Starting point



Eyelet

Machine settings

① Pattern: 38-40
② Thread tension: AUTO
③ Presser foot: Satin stitch foot F
④ Foot pressure: 5

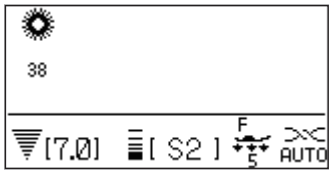


The eyelet is used for belt holes etc.

Sewing

Sew until the machine stops automatically.
Open the eyelet with an eyelet puncher or pointed scissors.

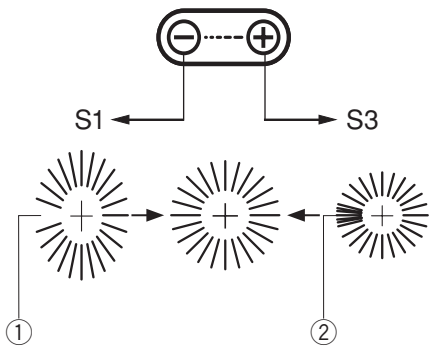
① Starting point



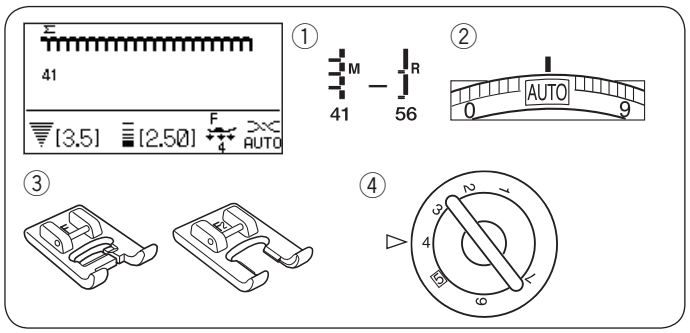
Adjusting the shape of an eyelet

Correct the shape of the eyelet as follows:
If the eyelet gap opens, press "⊖" on the stitch length adjusting key.
If the eyelet overlaps, press "⊕" on the stitch length adjusting key.

① Eyelet gap opens
② Eyelet overlaps



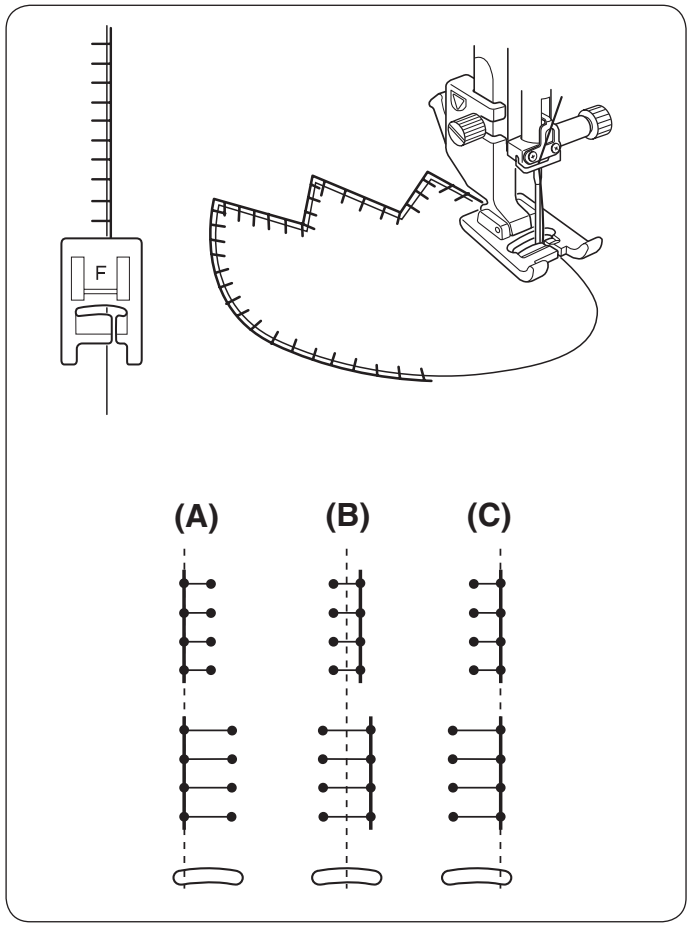
NOTE:
The shape can be adjusted within S1 to S3 (default setting is S2).



Applique

Machine settings

① Pattern: 41–56
② Thread tension: AUTO
③ Presser foot: Satin stitch foot F or
Open-toe satin stitch foot F2
④ Foot pressure: 4

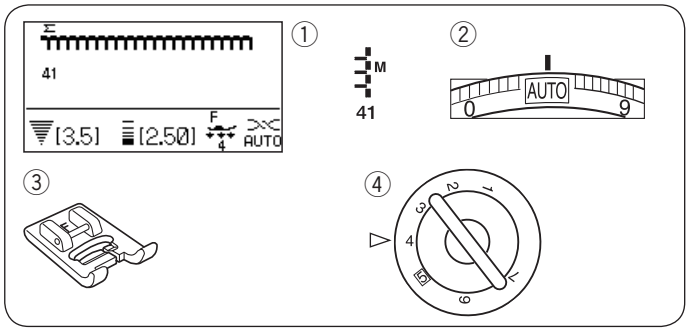


Place an applique on the fabric and baste it in place or use a fusible web to secure the applique in place. Guide the applique fabric, so that the needle falls off the edge of the applique when the needle swings to the right.

(A): The patterns number 50 and 51 have a fixed left needle drop position. When you change the stitch width, the right needle drop position will change.

(B): The patterns number 41 to 43 have a fixed center needle drop position.
The stitch width changes symmetrically.

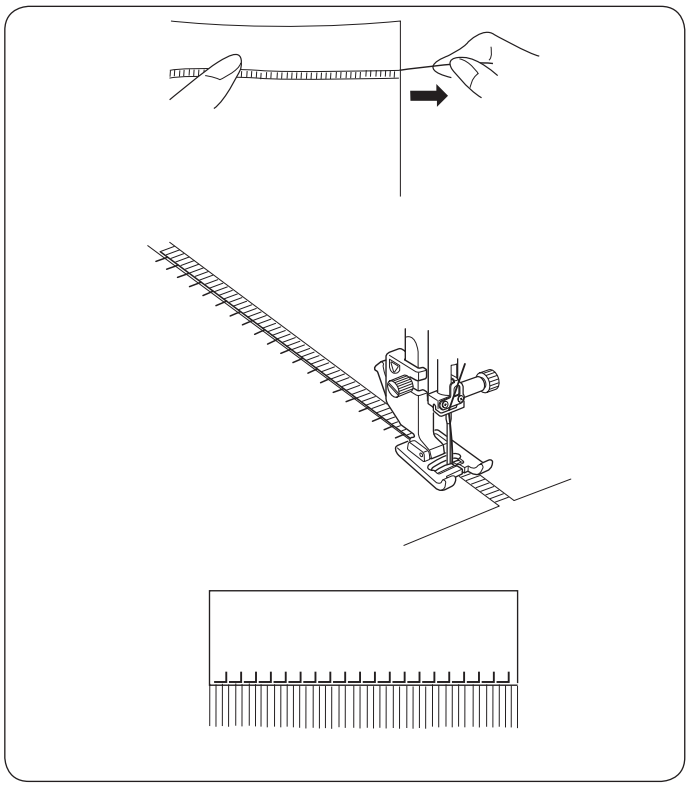
(C): The patterns number 44 to 49 and 52 have a fixed right needle drop position. When you change the stitch width, the left needle drop position will change.



Fringing

Machine settings

① Pattern: 41
② Thread tension: AUTO
③ Presser foot: Satin stitch foot F
④ Foot pressure: 4

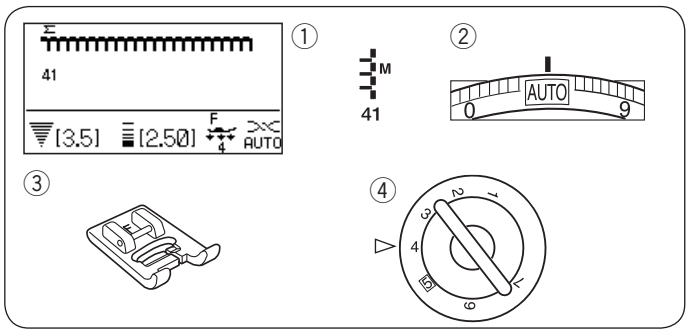


Fringing adds a special touch on table linens and shawls. Choose a firm, woven fabric like linen where threads can be removed easily.

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

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

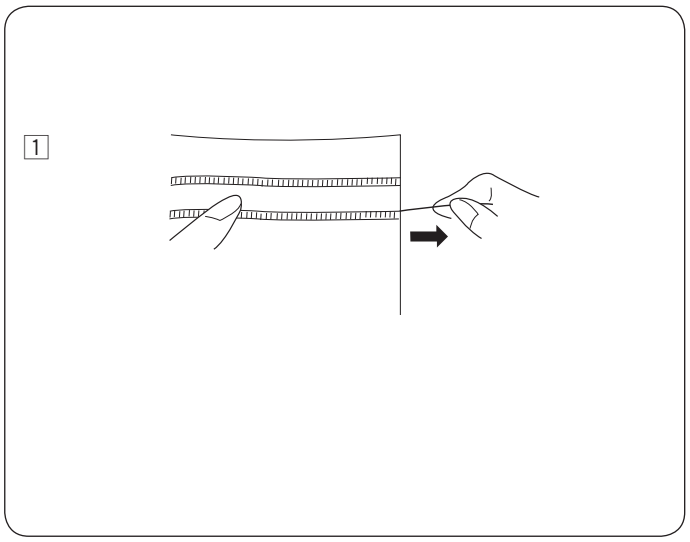
Remove all excess yarn located to the right of the stitching and create a fringe.



Drawn Work

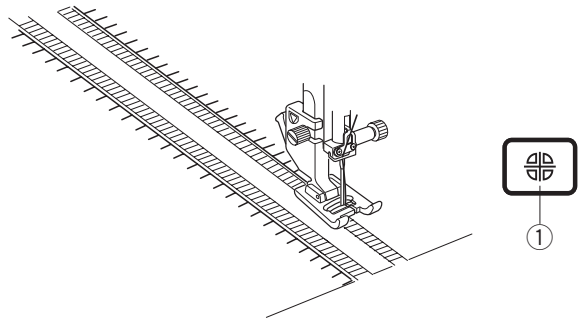
Machine settings

① Pattern: 41
② Thread tension: AUTO
③ Presser foot: Satin stitch foot F
④ Foot pressure: 4

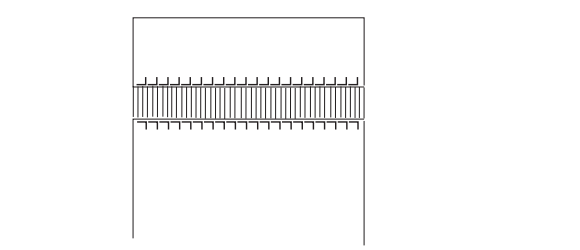


Drawn work uses the same method as fringing. Choose a firm, woven fabric like linen where threads can be removed easily.

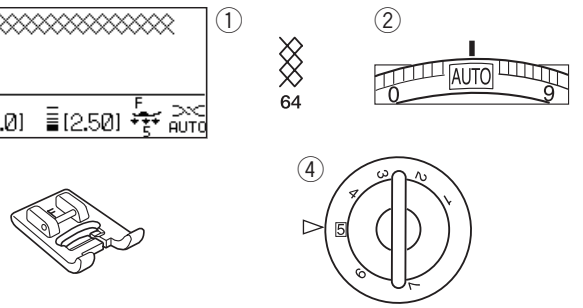
1 Carefully cut the fabric on the grain. Determine the width of the drawn work and remove one strand of yarn or fabric thread at each end.



2 Sew down the left side, guiding the fabric so the right hand stitches fall in open space. After finishing the left side, press the mirror key. Sew down the other side (refer to page 86 for mirror image sewing).
① Mirror image key



3 Remove the yarn or fabric threads between the stitching.

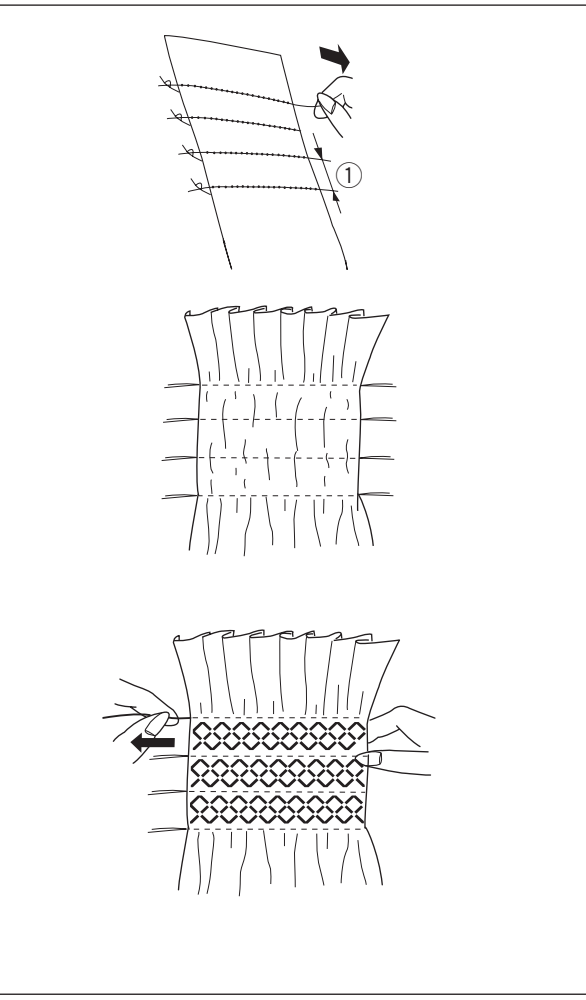


Smocking

Machine settings

① Pattern: 64
② Thread tension: AUTO
③ Presser foot: Satin stitch foot F
④ Foot pressure: 5

* Stitch patterns 57 58 59 65 67 68 69 can also be used.



Choose a soft, lightweight fabric such as batiste, gingham or challis. Cut the fabric three times wider than the projected width.

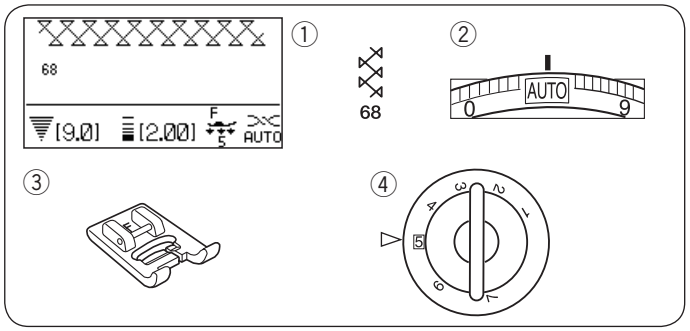
Sew rows of straight stitches, 1 cm (3/8″) apart with the stitch length “3.0” to “5.0” and thread tension dial at “1” to across the area to be smocked.
① 1 cm (3/8″)

Tie the threads along one edge. From the other edge, pull the bobbin threads to distribute the gathers evenly.

NOTE:
Pull up the bobbin thread and draw a 10 cm (4″) thread tail to the back before starting to sew.
Use the thread cutter on the face plate.

Select a smocking stitch and return the thread tension dial to “AUTO”.
Sew the smocking stitches between the gathered rows.

Remove the straight stitches between the gathered rows.

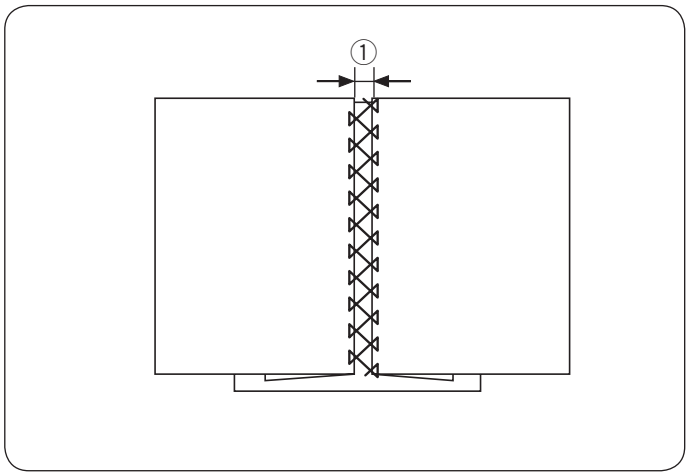


Fagoting

Machine settings

① Pattern: 68
② Thread tension: AUTO
③ Presser foot: Satin stitch foot F
④ Foot pressure: 5

* Stitch patterns 69 108 can also be used.



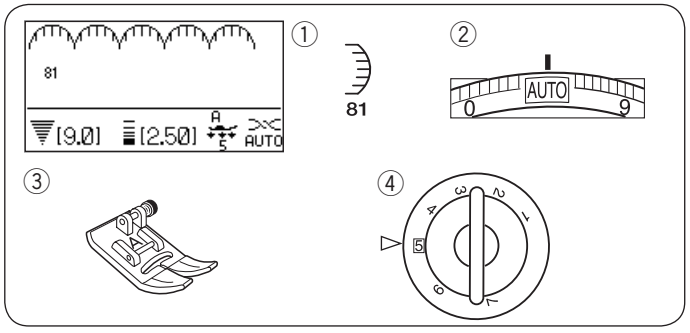
Use this stitch to join two pieces of fabric to create an open work appearance and add design interest.

Fold under each fabric edge 1.5 cm (5/8″) and press. Pin the two edges to paper or tear away backing 0.3 cm (1/8″) apart.

① 0.3 cm (1/8″)

Sew slowly, guiding the fabric so the needle catches the folded edge on each side.

After finishing sewing, tear away the paper.

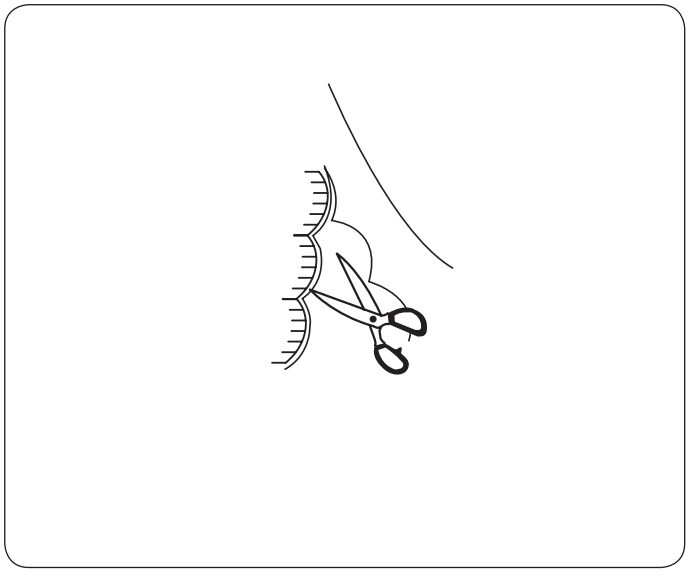


Scallop

Machine settings

① Pattern: 81
② Thread tension: AUTO
③ Presser foot: Zigzag foot A
④ Foot pressure: 5

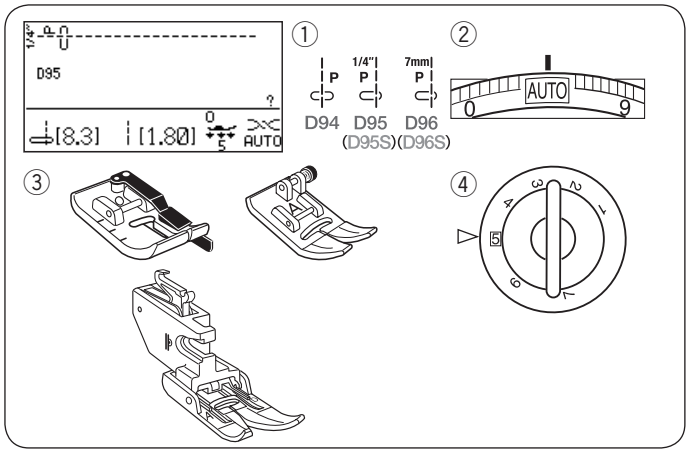
* Stitch patterns 121 150 can also be used.



Sew scallops 1 cm (3/8″) from the fabric edge.

Trim the allowance close to the stitches.

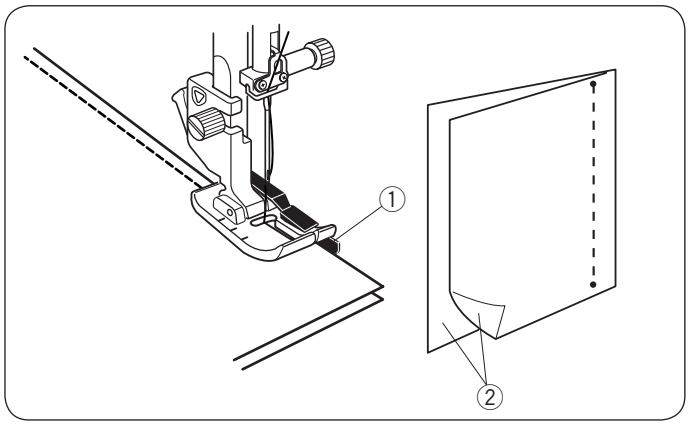
Make sure not to cut the stitches.



Patchwork Piecing

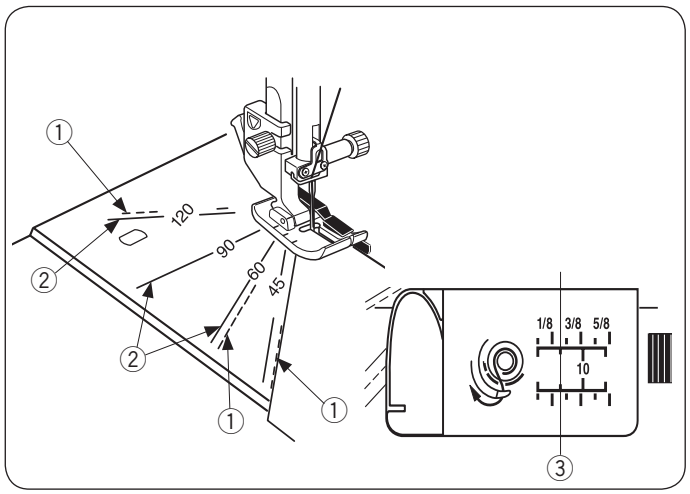
Machine settings

① Pattern: D94-D96, D95S or D96S
② Thread tension: AUTO
③ Presser foot: 1/4″ seam foot O or
Zigzag foot A or
Dual feed foot AD
④ Foot pressure: 5



Select pattern D95.
Place the patchwork pieces right sides together. Sew while guiding the edge of the fabric along the guide on the foot to keep a precise 1/4″ seam allowance.

① Guide
② Right sides of the fabric



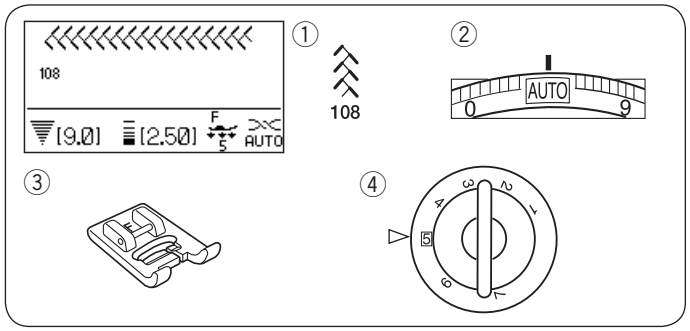
Angle scales on the needle plate

You can easily seam patchwork pieces at the desired angle without marking, by using the angle scales on the needle plate.
The angle scales are marked at 45, 60, 90 and 120 degrees.
Use the broken lines when piecing the patchwork pieces with the 1/4″ seam foot O as illustrated.

① Broken line

NOTE:
Use the solid lines when piecing the patchwork pieces with the zigzag foot A. Align the edge of the fabric to the 1/4″ seam guide line.

② Solid line
③ 1/4″ seam guide line

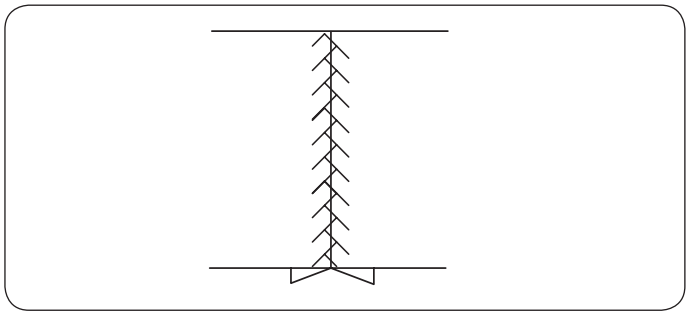


Patchwork

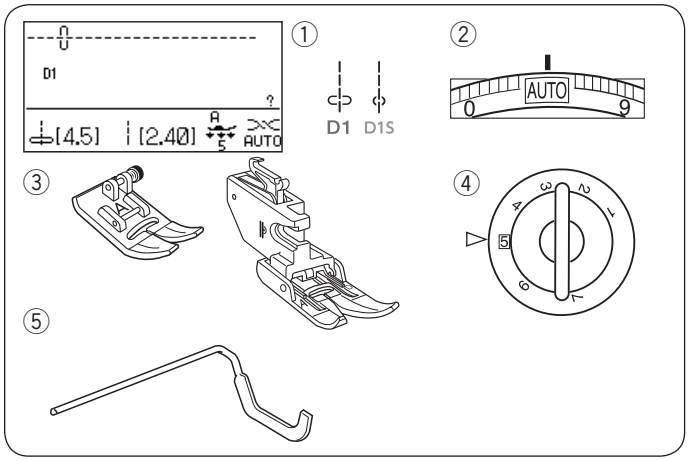
Machine settings

① Pattern: 108
② Thread tension: AUTO
③ Presser foot: Satin stitch foot F
④ Foot pressure: 5

* Stitch patterns 22 68 109 110 111 112 113 can also be used.



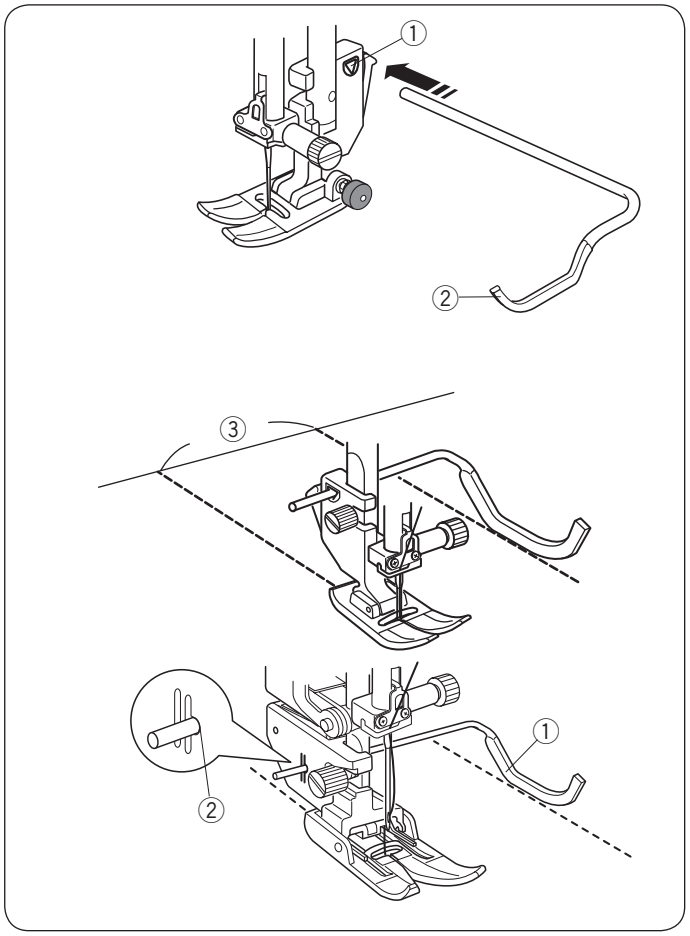
Open the seam flat with the right side up and sew patchwork stitch along the seam line.



Quilting

Machine settings

①	Pattern:	D1 or D1S
②	Thread tension:	AUTO
③	Presser foot:	Zigzag foot A or Dual feed foot AD
④	Foot pressure:	5
⑤	Quilting guide bar	



Attaching the quilting guide bar

The quilting guide bar is helpful when sewing parallel, evenly spaced rows of stitching.

Insert the quilting guide bar into the opening and slide the quilting guide bar to the position according to the desired space between seams.

① Opening on the foot holder
② Quilting guide bar
③ Space between seams

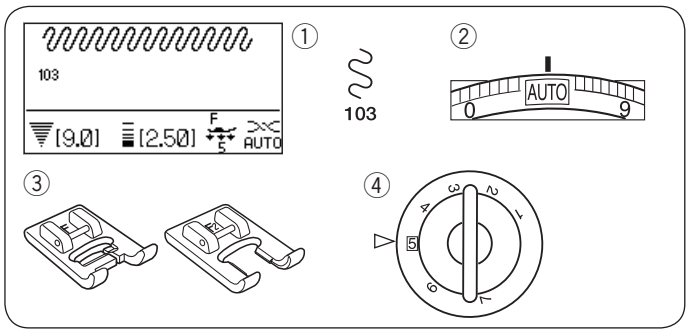
Sewing

Sew while tracing the previous seam with the quilting guide bar.

Quilting guide bar for dual feed foot

Insert the quilting guide bar into the hole in the rear of the foot holder.
Shift the quilting guide bar to the desired spacing.

① Quilting guide bar
② Hole

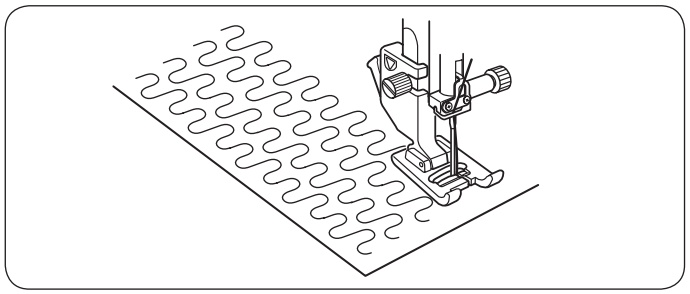


Stippling

Machine settings

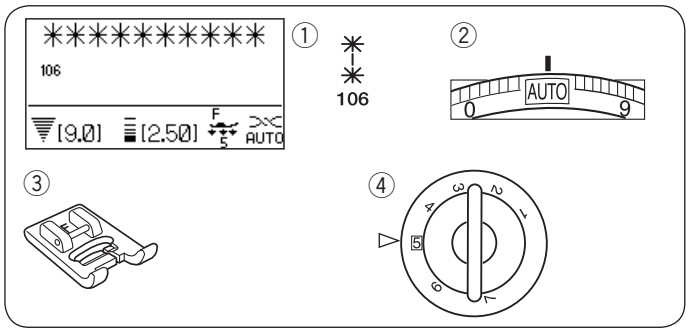
① Pattern: 103
② Thread tension: AUTO
③ Presser foot: Satin stitch foot F or Open-toe satin stitch foot F2
④ Foot pressure: 5

* Stitch patterns 104 105 can also be used.



A pre-programmed stippling stitch is a fast and easy method to quilt small areas.

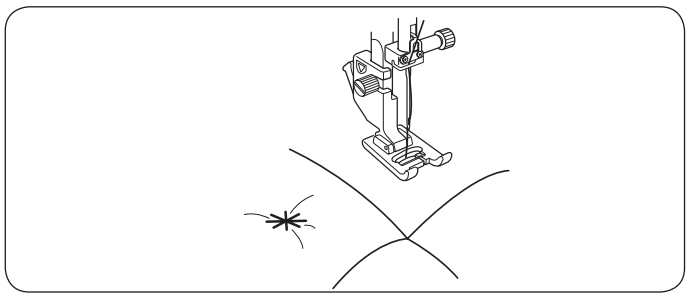
Place a quilt layer and sew.



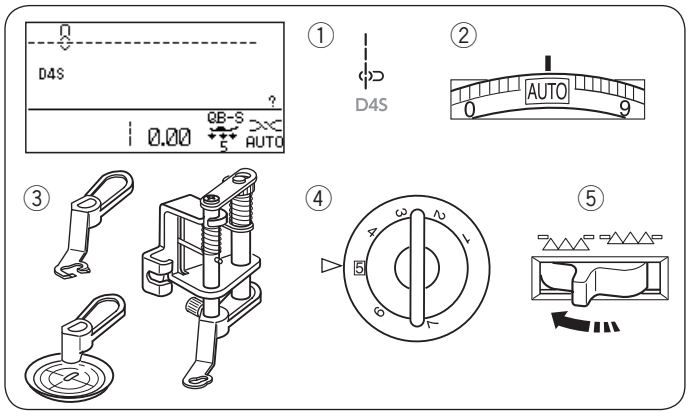
Clasp Stitches

Machine settings

① Pattern: 106
② Thread tension: AUTO
③ Presser foot: Satin stitch foot F
④ Foot pressure: 5



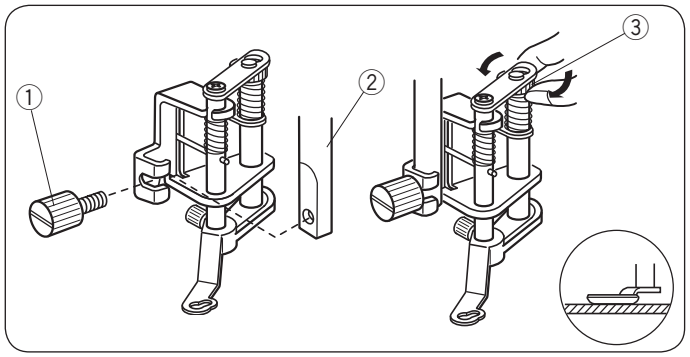
You can close quilt layers and using the clasp stitch.
Select stitch pattern 106. Press the memory key.
Select pattern L.S.
Start sewing.
The machine sews clasp stitch and locking stitch then stops automatically.



Free Motion Quilting (1)

Machine settings

① Pattern: D4S
② Thread tension: AUTO
③ Presser foot: Convertible free motion quilting foot QB-S
④ Foot pressure: 5
⑤ Feed dog: Lowered

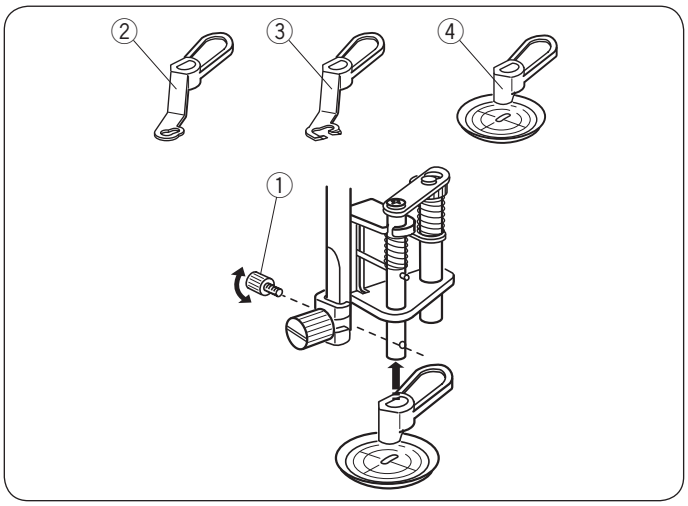


Attaching the convertible free motion quilting foot

Attach the straight stitch needle plate (refer to page 16).
Loosen the setscrew and remove the foot holder.

Attach the convertible free motion quilting foot to the presser bar and tighten the setscrew firmly with the screwdriver.
Place the fabric under the foot.
Adjust the height of the foot by turning the round nut until bottom of the foot barely touches top of the fabric.

① Setscrew
② Presser bar
③ Round nut



Changing the foot

This foot is comes with the closed-toe foot attached, however, it is convertible to the open-toe foot and clear view foot.

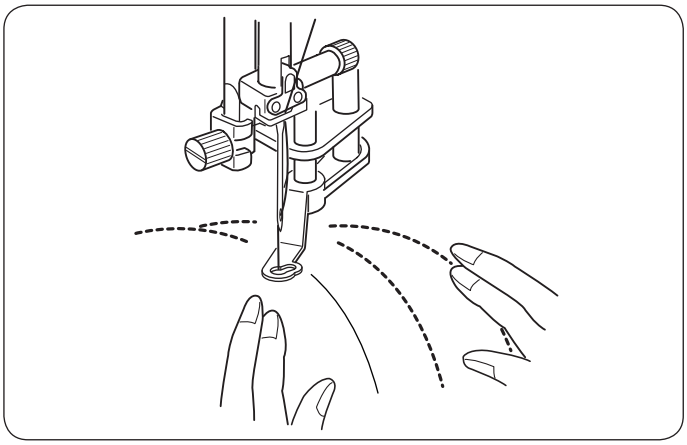
To change the foot, raise the foot and turn the round nut to bring the foot to the lowest position.

Remove the setscrew and remove the closed-toe foot.

Attach the desired foot and secure it with the setscrew.

Adjust the height of the foot (see above).

① Setscrew
② Closed-toe foot
③ Open-toe foot
④ Clear view foot



Sewing

Baste or pin the quilt layers. Draw a quilt design on the top fabric with a washable maker.

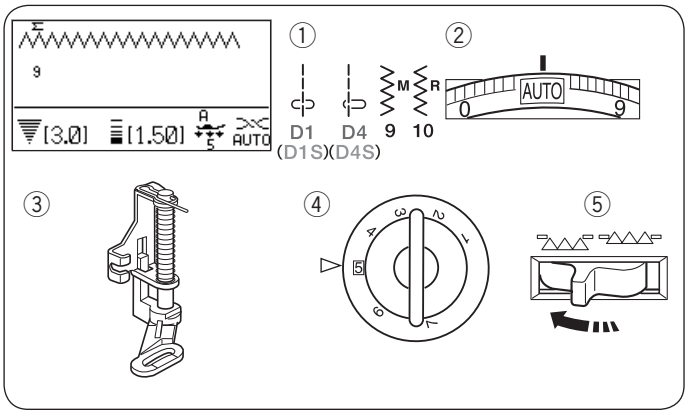
Sew at medium speed while guiding the quilt layers with your hands.

Move the quilt layers 3 mm (1/8˝) or less per stitch.

⚠ CAUTION:

Do not select any pattern other than the straight stitch with left needle position.

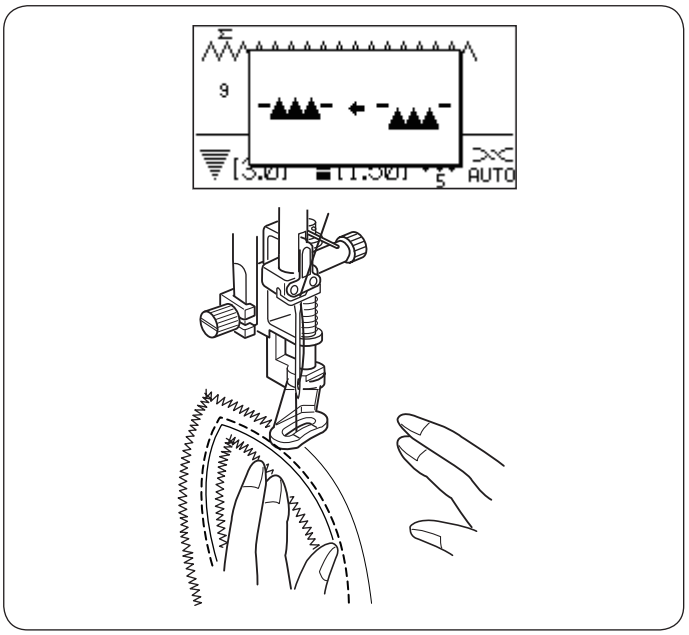
Do not move the quilt layers toward you when the open-toe foot is attached.



Free Motion Quilting (2)

Machine settings

① Pattern:	D1, D4, D1S, D4S, 9 or 10
② Thread tension:	AUTO
③ Presser foot:	Darning foot PD-H
④ Foot pressure:	5
⑤ Feed dog:	Lowered



Free-quilting with darning foot PD-H

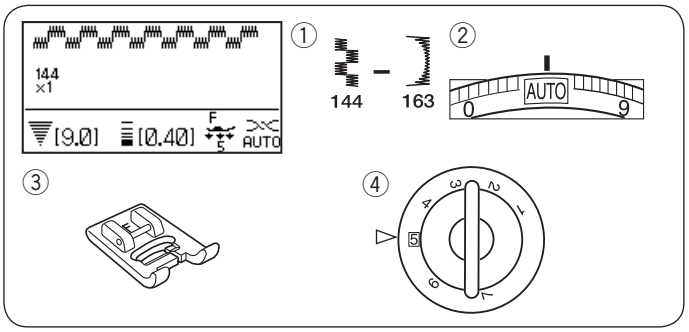
Stitch patterns D1, D4, D1S, D4S, 9 and 10 can also be used for the free motion quilting. Use the darning foot PD-H when sewing those patterns.

NOTE:

A message appears when starting the machine with the feed dog lowered.

Start sewing again to proceed sewing.

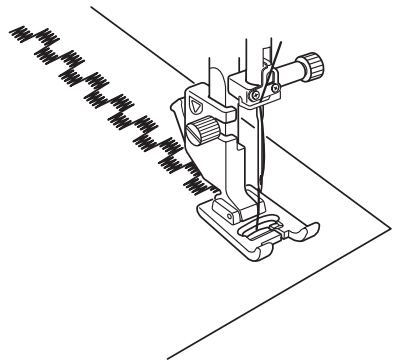
The sewing procedure is the same as the free motion quilting (1) (see above).



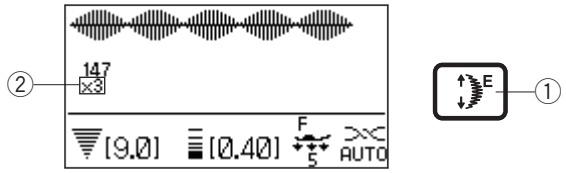
Satin Stitches

Machine settings

① Pattern: 144 – 163
② Thread tension: AUTO
③ Presser foot: Satin stitch foot F
④ Foot pressure: 5



The stitches in this group can be elongated up to 5 times their original length while the stitch density remains the same.

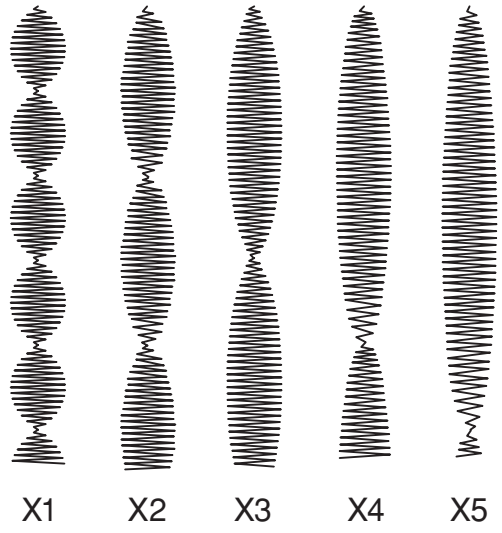


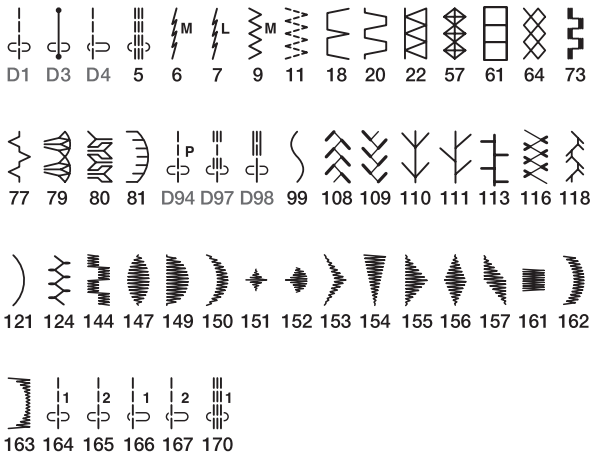
Elongation ratio
Example: Pattern number 147

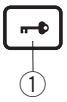
Select pattern number 147.
Press the elongation key to select the desired elongation ratio.
Elongation ratio is indicated in multiples of the original pattern length; X1 (original length) to X5.

① Elongation key
② Elongation ratio

The stitch length and width can also be changed.







Twin Needle Sewing

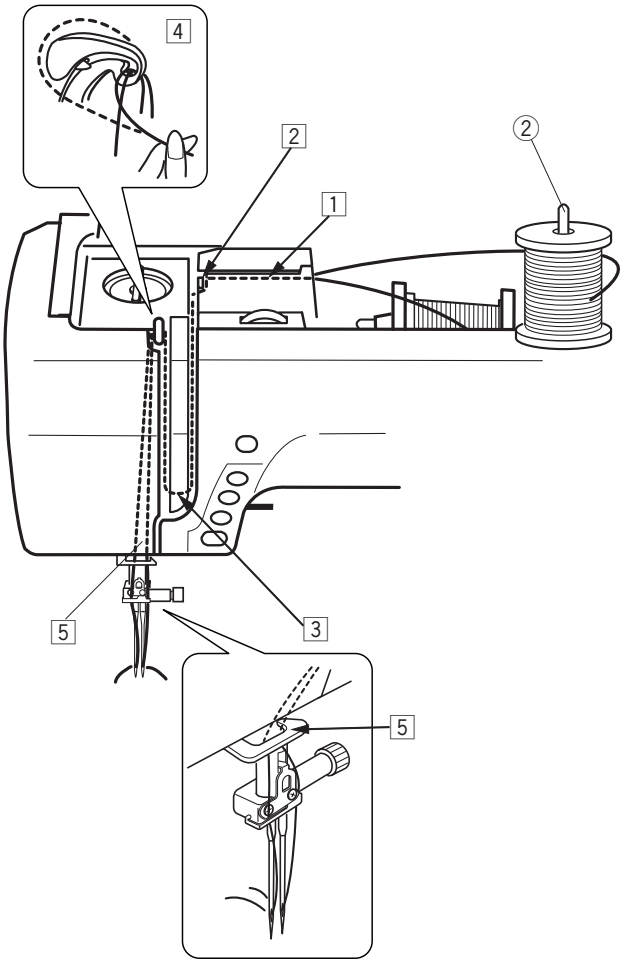
The utility stitches and decorative stitches shown on the left can be sewn with a twin needle.

Replace the needle with the twin needle supplied with the standard accessories.

⚠ CAUTION:

Turn the power switch off or press the lockout key before changing the needle.
Do not use twin needles other than one included in the standard accessories, otherwise the needle may hit the needle plate, foot or hook and break.

① Lockout key



Insert the extra spool pin into the hole in the foot storage compartment.
Place a spool of thread on the extra spool pin and fix the spool with the spool holder.

② Extra spool pin

Draw both threads from the spools and pass them through the threading points from 1 to 5.
Make sure that the two strands of thread from the spools do not get tangled.

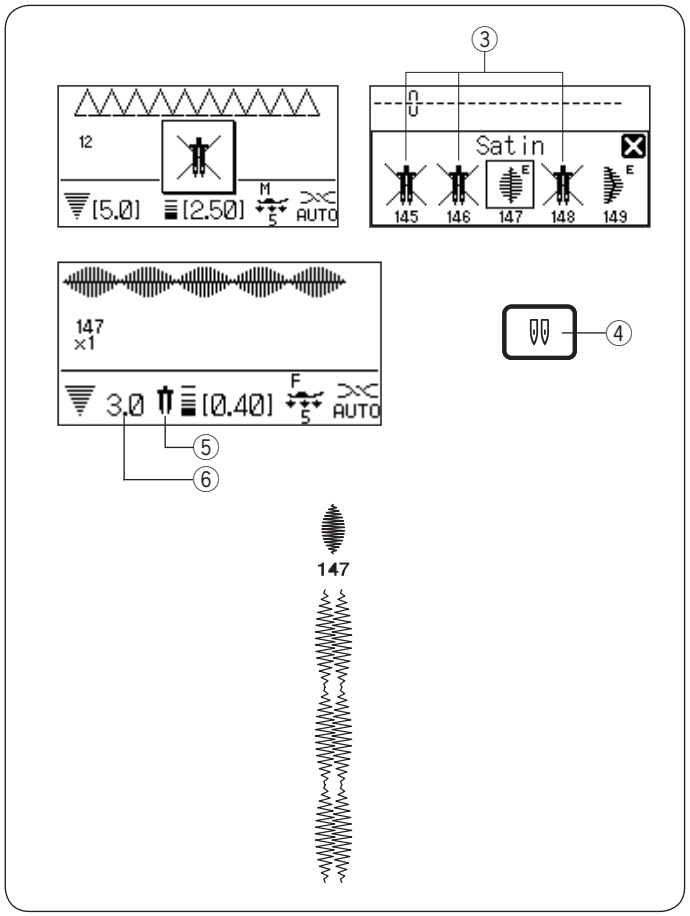
NOTE:

Threading from points 1 to 5 is the same as for a single needle (refer to page 21).

Slip one of the threads through the needle bar thread guide on the left, and the other one on the right.
Thread the needles from front to back.

NOTE:

The needle threader cannot be used with the twin needle.



Press the twin needle key and select the desired pattern. Patterns not suitable for twin needle sewing cannot be selected.
Buttonholes and specialty stitches such as darning or eyelet, and monogram cannot be selected.

③ Patterns not suitable for twin needle sewing
④ Twin needle key
⑤ Twin needle icon
⑥ Maximum width (3.0)

NOTE:
When you sew patterns with the twin needle, test the stitches first before you sew on the garment.
Use the zigzag foot A or satin stitch foot F for twin needle sewing.
Use the threads #60 or finer.
When changing the sewing direction, raise the needle and presser foot then turn the fabric.

Select the desired pattern suitable for twin needle sewing.
Press the twin needle key.
The LCD screen shows a twin needle icon and the maximum permissible stitch width is restricted to 3.0 mm.
The needle drop position of straight stitches is restricted to between 3.0 and 6.0.

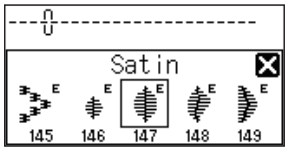
After twin needle sewing is finished, replace the twin needle with a single needle.

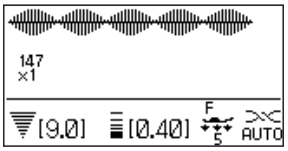
PROGRAMMING A PATTERN COMBINATION

Pattern Combination

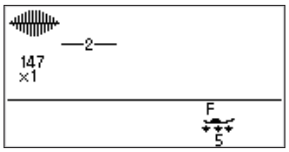
Example: Programming patterns 147 and 151.

NOTE:
- Patterns in the different groups, letters and numbers can also be programmed.
- Check tension balance by test sewing. Manual tension adjustment may be required when sewing a pattern combination.
- Up to 50 stitch patterns combination can be memoried.

1 

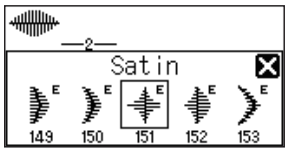


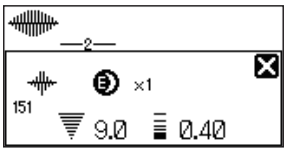
1 Select pattern 147.

2 

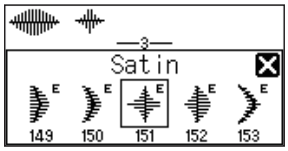


2 Press the memory key.

3 

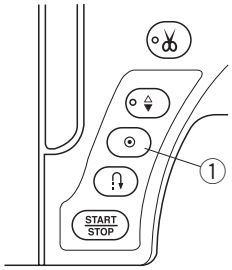


3 Select pattern 151.

4 

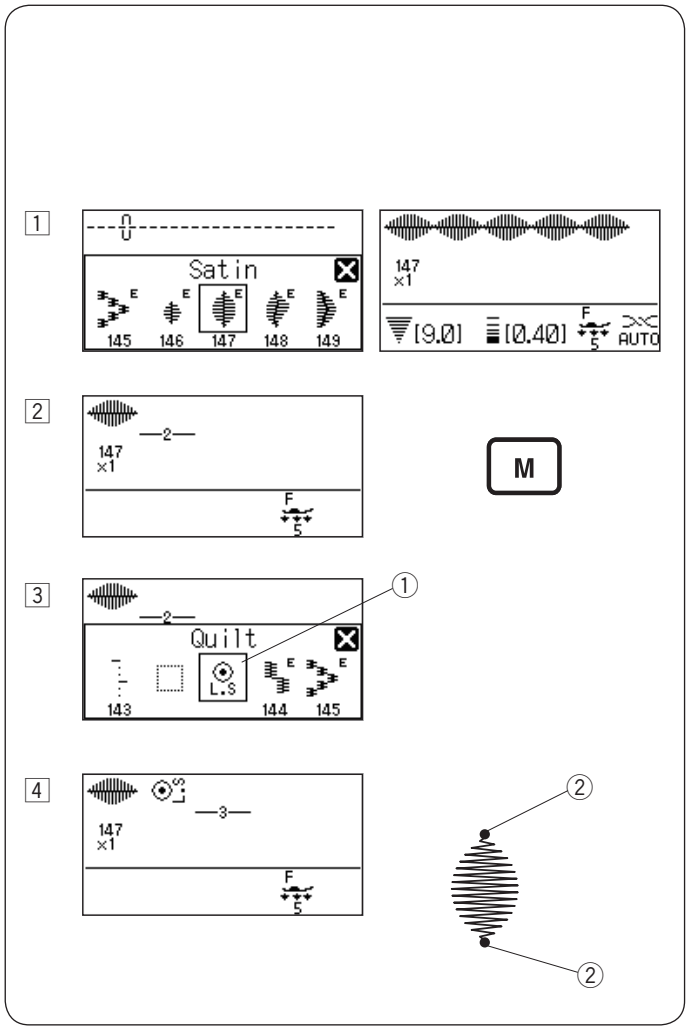


4 Press the memory key or confirm button.

5 


5 Start sewing. Combination of patterns 147 and 151 will be sewn continuously.

NOTE:
If you press the auto-lock button in the middle of sewing, the machine will sew to the end of the current pattern, sew locking stitches and stop automatically.
① Auto-lock button



Programming Auto-lock Stitch

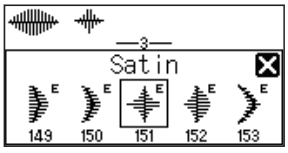
Example: Programming patterns 147 and auto-lock stitch. The machine will sew the pattern, auto-lock stitch, and stop automatically.

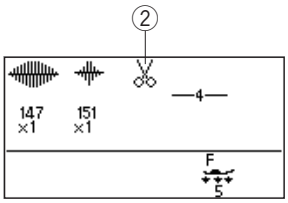
1 Select pattern 147.

2 Press the memory key.

3 Select pattern “L.S”.
① Auto-lock sign

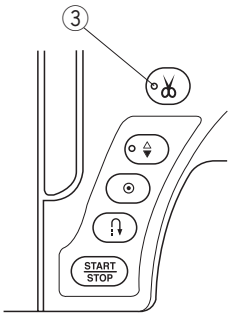
4 Start sewing. Pattern 147 and auto-lock stitch will be sewn automatically.
The auto-lock stitch will be sewn to the beginning and end of the stitch pattern.
② Auto-lock stitch











Programming Automatic Thread Cutting

To cut the threads automatically after sewing the pattern combination, press the auto thread cutter key after programming the pattern combination.
The cutter sign will be indicated on the LCD screen and the LED signal on the thread cutter button will turn on.

① Auto thread cutter key
② Cutter sign
③ LED signal

1 Select pattern 147.

2 Press the memory key.

3 Select pattern 151.

4 Press the memory key.

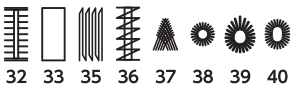
5 Press the auto thread cutter key.

6 Start sewing.
The machine will sew the pattern combination, auto-lock stitch and cut the threads, then stop automatically.

---

④





NOTE:
If you wish to cut the threads automatically after sewing the desired pattern, press the auto thread cutter key after selecting the desired pattern.

When a pattern in the buttonhole group is selected, the machine will cut the threads and stop automatically after the pattern is completed.

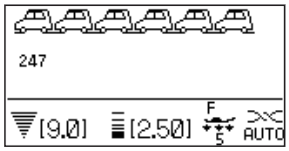
④ Buttonhole group

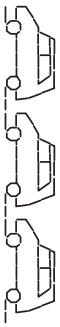
When a pattern in any other group is selected, pressing the auto-lock button or reverse button will cause the machine to cut the threads and stop automatically.

Patterns 8 and 34 cannot be used for the auto thread cutting.

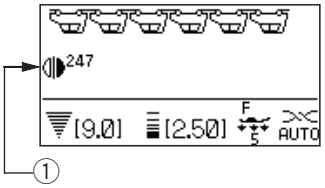
Mirror Image

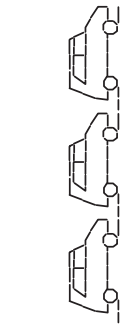
Example: Pattern 247 and its mirror image

1 

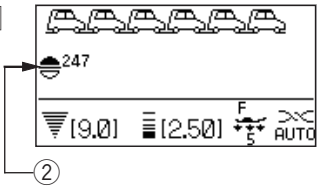


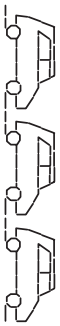
1 Select pattern 247.

2 

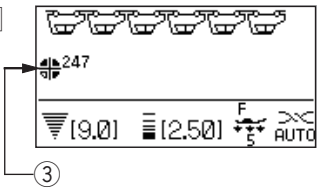


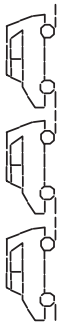
2 Press the mirror image key to turn over the pattern horizontally. The vertical mirror sign is displayed.
① Vertical mirror sign

3 

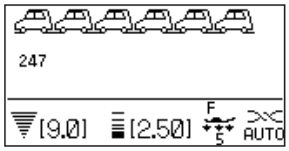


3 Press the mirror image key again to turn over the pattern vertically.
The horizontal mirror sign is displayed.
The stitch pattern will be back to normal if the pattern cannot be turned over horizontally.
② Horizontal mirror sign

4 



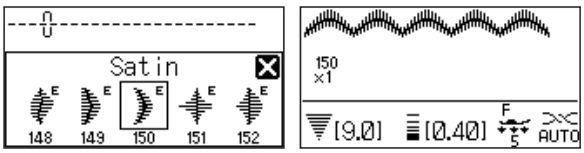
4 Press the mirror image key again to turn over the pattern vertically and horizontally.
The mirror image (vertical and horizontal) sign is displayed.
③ Mirror image sign (Vertical and horizontal)

5 

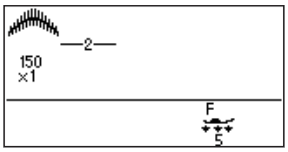
5 Press the mirror image key again to back to the original orientation.

Pattern Combination with a Mirror Image

Example: Pattern 150 and its mirror image

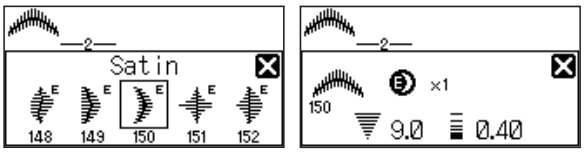
1 

1 Select pattern 150.

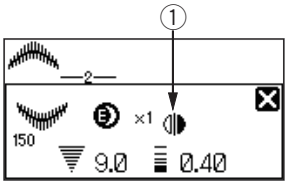
2 

M

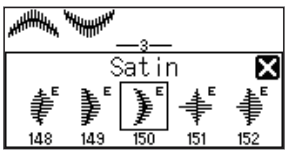
2 Press the memory key.

3 

3 Select pattern 150 again.

4 

4 Press the mirror image key to turn over the pattern.
① Vertical mirror sign

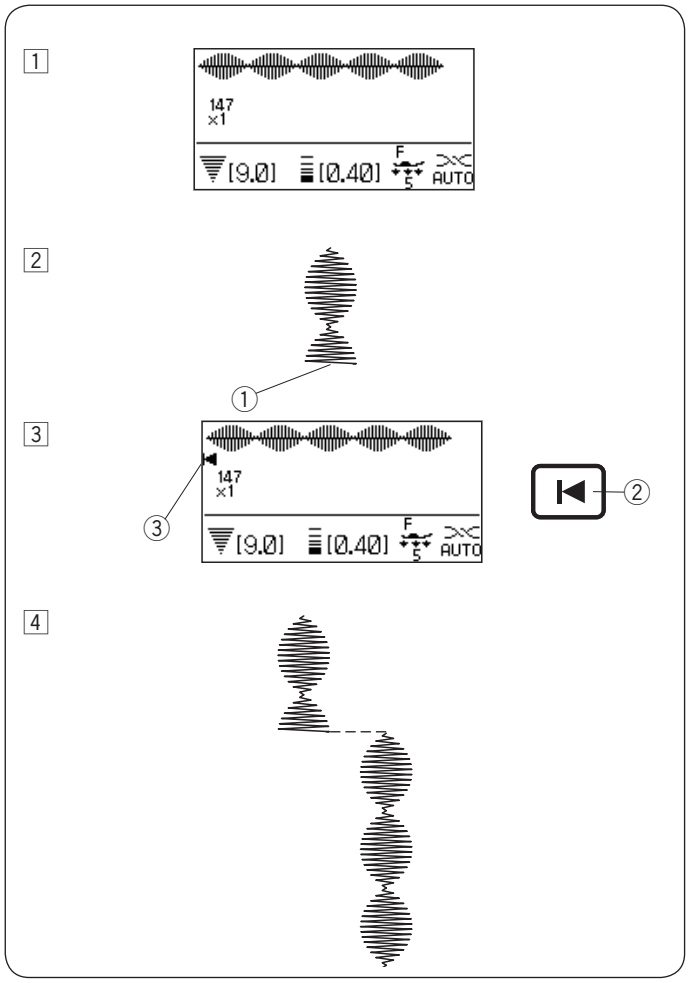
5 

M

5 Press the memory key.

6 

6 Start sewing.
The machine will sew the pattern combination repeatedly.



Sewing the Pattern from the Beginning

If you have to stop sewing in the middle of a pattern and wish to sew it over again, press the startover key to sew the pattern from the beginning.

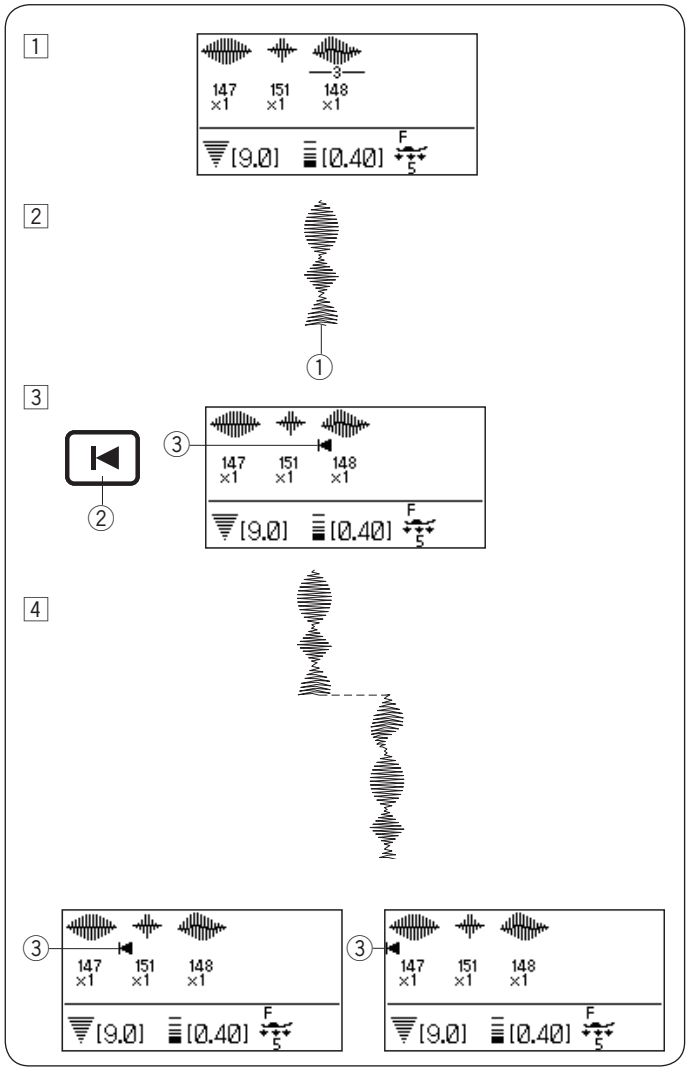
Example: Pattern 147

1 Select pattern 147. Start sewing.

2 Sewing stopped.
① Stopped position

3 Press the startover key.
② Startover key
③ Startover sign

4 Sewing starts from the beginning of the pattern.



Sewing the Pattern Combination from the Beginning

If you have to stop sewing in the middle of a pattern combination and wish to start sewing again from the incomplete pattern, press the startover key to select the pattern you wish to start over from.

Example: Pattern combination 147, 151 and 148

1 Program the pattern combination 147, 151 and 148. Start sewing.

2 Sewing stopped.
① Stopped position

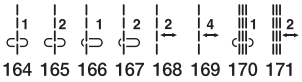
3 Press the startover key. The start over sign appears.
② Startover key
③ Startover sign

4 Sewing starts from the pattern with the start over sign.

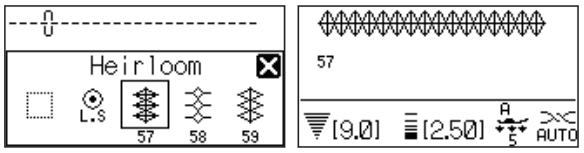
NOTE:
If you press the startover key again, the startover sign will move forward one by one.
Move the startover sign you wish to start over from.

Bridge Stitches

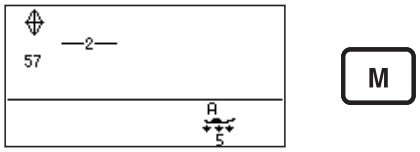
Stitch patterns number 164 to 171 are bridge stitches, which are used to insert straight stitches after a stitch pattern.



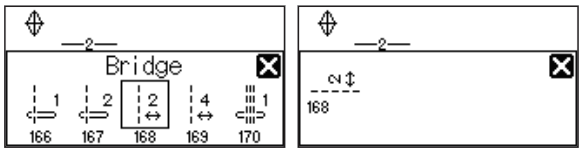
Example: Combination of pattern 57 and pattern 168

1 

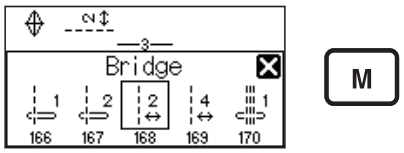
1 Select pattern 57.

2 

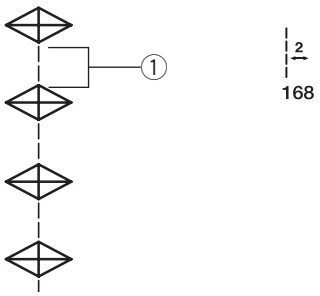
2 Press the memory key.

3 

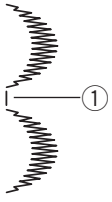
3 Select pattern 168.

4 

4 Press the memory key.

5 

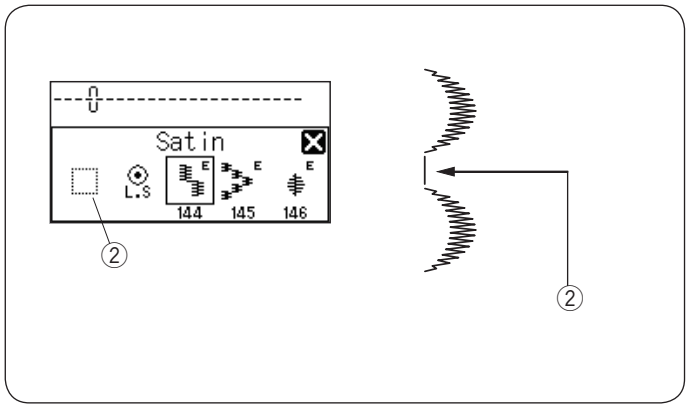
5 Two counts of the straight stitch are added to pattern 57.
① Bridge stitch



NOTE:
The number on the right of the stitch image indicates stitch counts to be inserted.
The stitch length and needle drop position of patterns 164 to 167 and 170 are independent from those of the combined pattern.
Patterns 168, 169 and 171 will inherit the stitch length and needle drop position of a previous pattern in the programmed pattern combination.

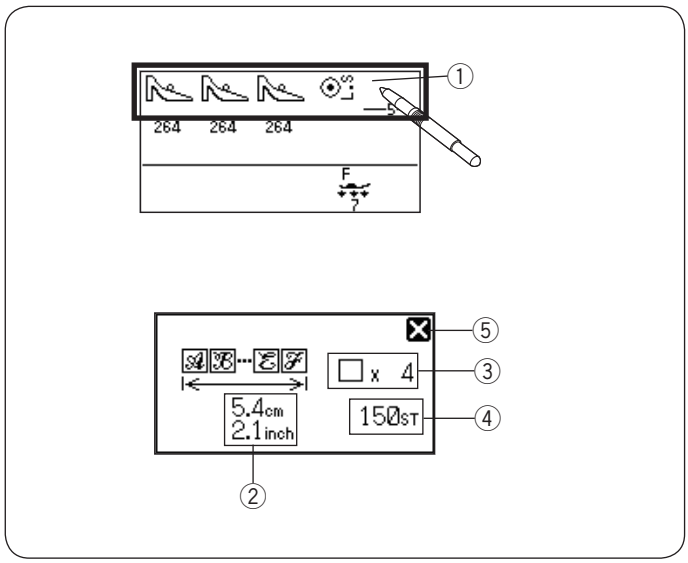
Use patterns 164-167 with satin stitches.
① Pattern 166

Use pattern 170 if you wish to add straight stretch stitches.



Use a blank space if you wish to insert a space between stitch patterns.

② Blank space



Checking Pattern Combination Length

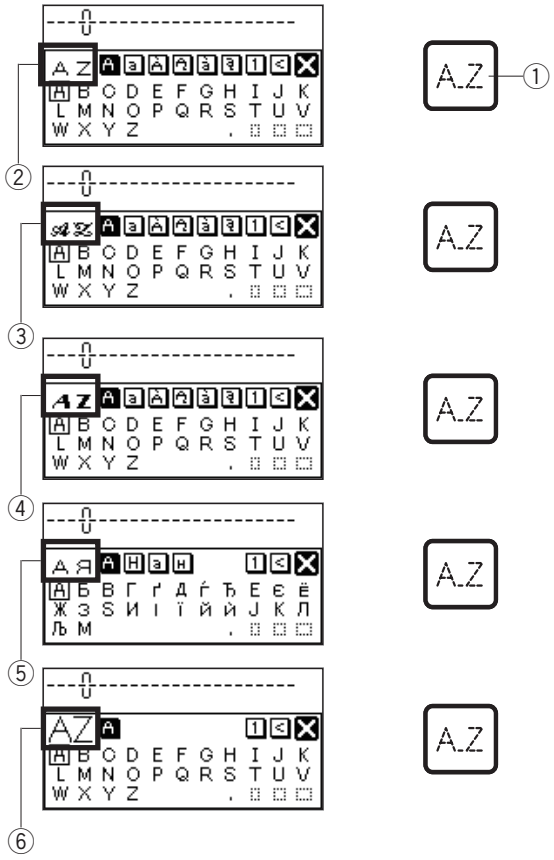
You can check the total length of the pattern combination by pressing on the stitch image window.

① Stitch image window

The readout of the total length is a theoretical value and the actual length may vary depending on sewing conditions.

Press the close key to close the window.

② Total length of the pattern combination
③ Total number of the stitch pattern
④ Total stitch number of the pattern combination
⑤ Close key



Monogramming

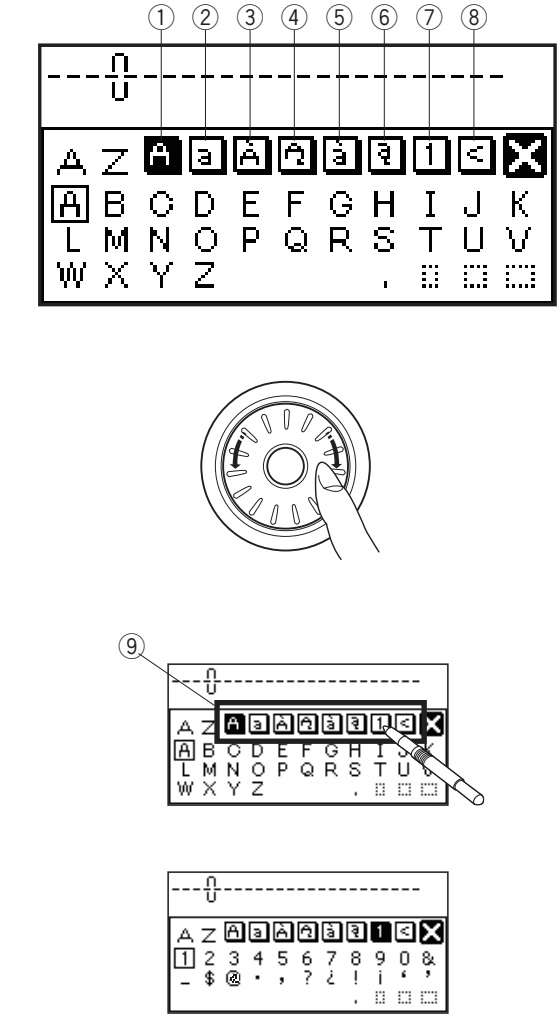
Selecting a letter style

Press the monogram key.

① Monogram key

The monogram selection window will open.
Press the monogram key to select the letter style.
The following 5 styles are available.

② Block
③ Script
④ Broadway
⑤ Russian
⑥ 9 mm monogram



Selecting a character

Turn the jog dial clockwise or counterclockwise to select the desired character and press the confirm button.
You can also select the desired character by pressing the icon of the font.

The LCD screen shows the upper case alphabet, lower case alphabet, upper case European letters 1 and 2, lower case European letters 1 and 2, and numbers in this order.

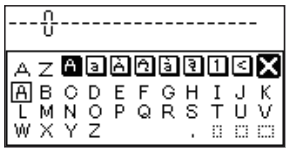
① Upper case alphabet
② Lower case alphabet
③ Upper case European letters 1
④ Upper case European letters 2
⑤ Lower case European letters 1
⑥ Lower case European letters 2
⑦ Numbers and Symbols
⑧ Symbols

You can also select a character by pressing the icon of the desired case group and the character with the touch panel stylus.

⑨ Icons

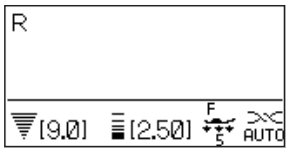
Programming a monogram

Example: To program “**R&B**”

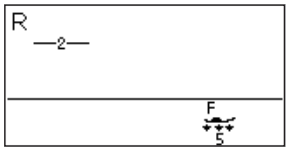
1 

A.Z

1 Press the monogram key.

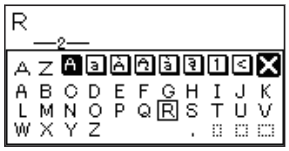
2 

2 Select letter “**R**”.

3 

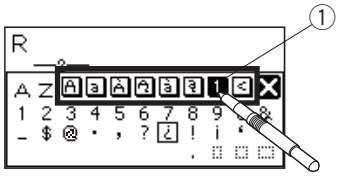
M

3 Press the memory key.

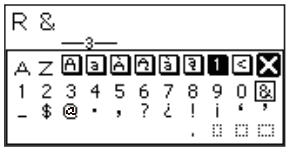
4 

A.Z

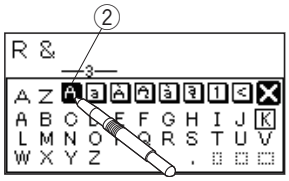
4 Press the monogram key.

5 

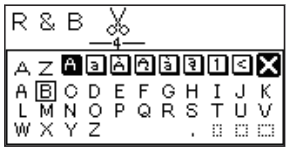
5 Press the numbers and symbols icon ①.

6 

6 Select letter “**&**”.

7 

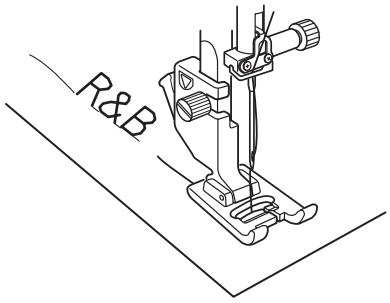
7 Press the Upper case alphabet icon ②.

8 9 

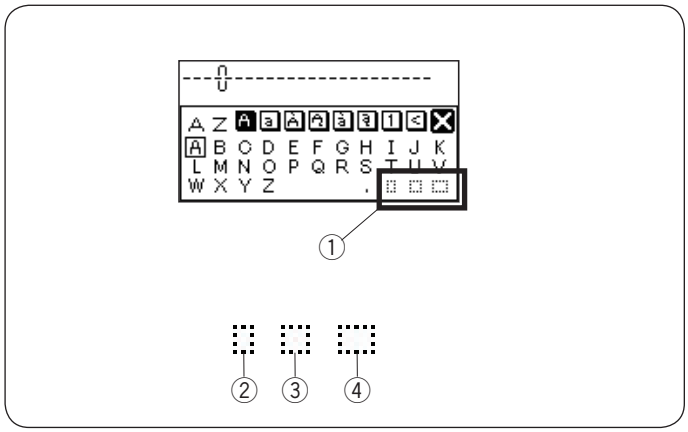
M✂

8 Select letter “**B**”.

9 Press the auto thread cutter key.

10 

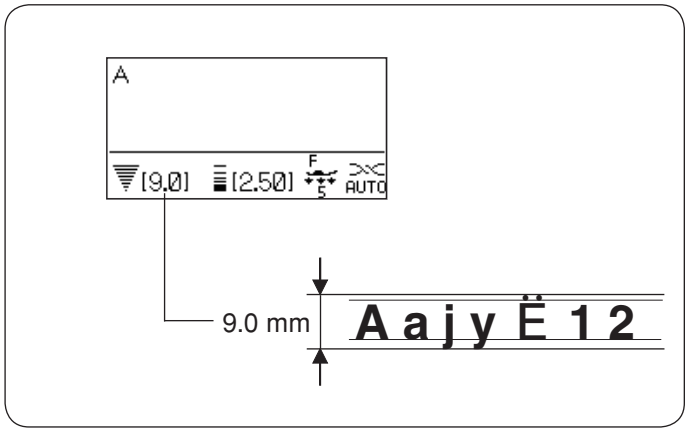
10 The machine will sew “R&B”, cut the threads and stop automatically.



Spacing

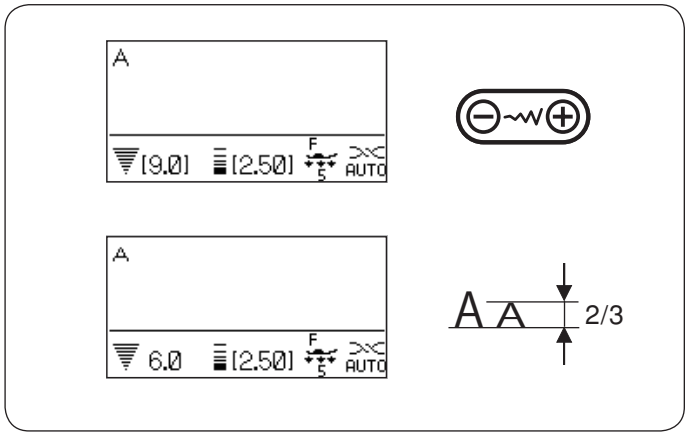
To enter the space in monogramming, press one of the three space icons on the lower right corner of the monogram selection window.

① Space icons
② Small-size space
③ Medium-size space
④ Large-size space



Monogram size

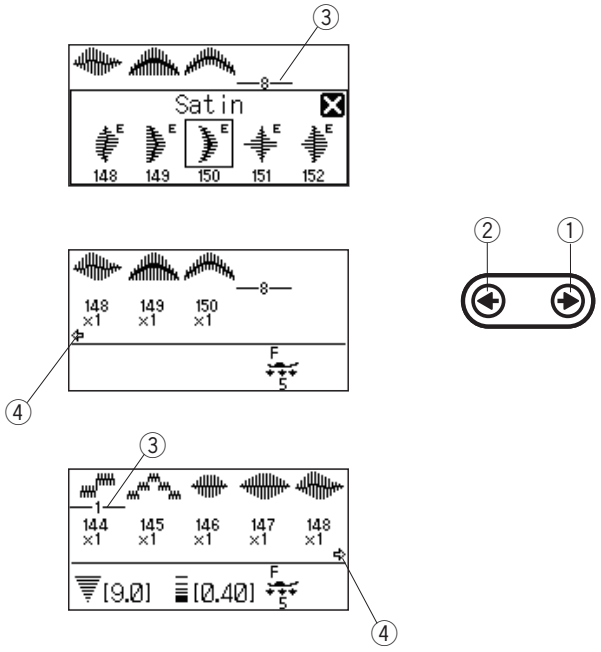
When the stitch width is set at “9.0”, the actual sewing result of monogramming size will be slightly smaller than 9 mm.
To sew monogramming of full 9 mm height (uppercase alphabet only), select 9 mm monogram from the letter style (see page 91).



Reducing the size of letters

To reduce the height of character to approximately 2/3 of its original size, select the character with the edit key and press “ ⊖ ” of the stitch width adjusting key.

NOTE:
The size of 9 mm monogram cannot be reduced.



Editing a Pattern Combination

Viewing a long combination

The LCD screen only shows up to 5 patterns or 10 characters at a time.
If the entire combination is not displayed, press the edit key to view the rest of the combination.

Press the right arrow " ⊕ " on the edit key to shift the cursor to the right.
Press the left arrow " ⊖ " on the edit key to shift the cursor to the left.

NOTE:
Arrow signs (⇦ , ⇨) on the LCD screen indicate that there is the rest of the combination in that direction.

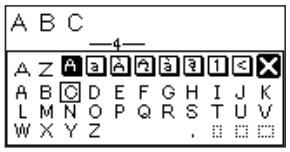
Once sewing has started, the cursor appears under the first pattern and will shift to the right as you sew.

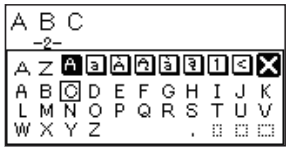
Press the edit key again to view the hidden patterns or to edit the pattern combination.
The cursor will blink and can be moved to the desired position.

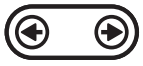
① Right arrow
② Left arrow
③ Cursor
④ Arrow sign

Deleting and inserting the patterns

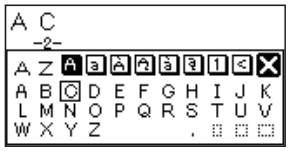
Example: Deleting pattern “B” and inserting “W” from “ABC”.



1 

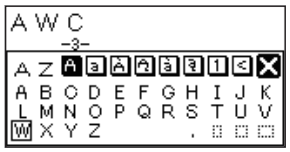


1 Press the edit key to shift the cursor under pattern “B”.

2 



2 Press the clear key.
Pattern “B” will be deleted.

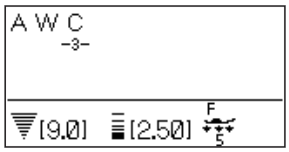
3 

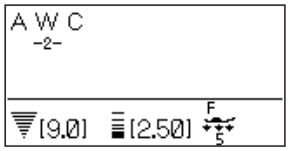
3 Enter “W”.
Pattern “W” will be inserted between “A” and “C”.

NOTE:
Pressing and holding the clear key will delete all the programmed patterns and the LCD screen will return to the display prior to programming.

Duplicating a pattern

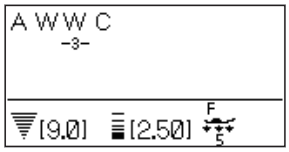
Example: Duplicating a “W”.



1 

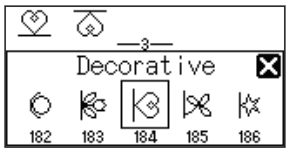


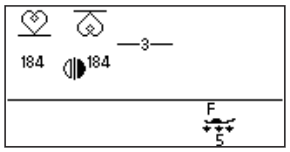
1 Press the edit key to shift the cursor under the pattern to be duplicated.

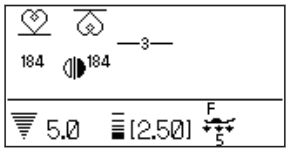
2 



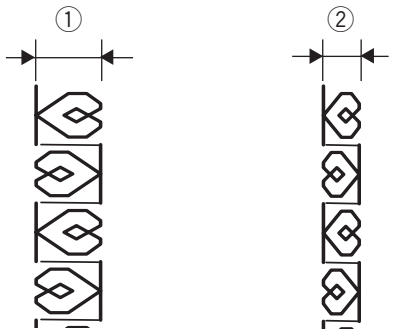
2 Press the memory key and a “W” will be duplicated after the pattern “W”.











Uniform Stitch Adjustment

The stitch width and length of the programmed patterns can be uniformly adjusted.

Example 1: Adjusting the stitch width of the programmed pattern 184 and its mirror image

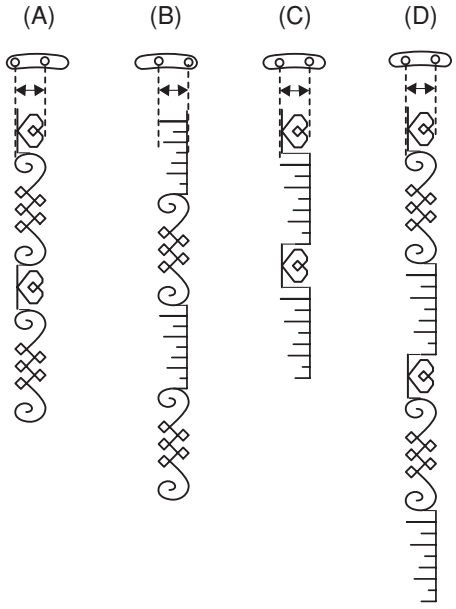
Shift the cursor to the right of the last programmed pattern.

Press the stitch width adjusting key to adjust the stitch width.

NOTE:
Stitch length can be uniformly adjusted if the programmed patterns in the same category (satin stitches or stretch stitches) have been programmed.

The stitch width of the programmed patterns will be adjusted uniformly.

① Original width
② Uniformly adjusted width



Unified needle drop position

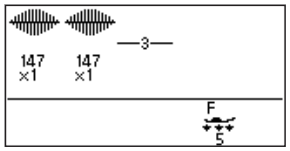
The needle drop position of the programmed patterns will vary depending on the pattern combination:

(A) Unified to the left when combining the patterns with the left needle position and the center needle position.

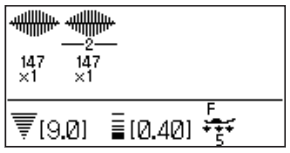
(B) Unified to the right when combining the patterns with the center needle position and the right needle position.

(C) Unified to the center when combining the patterns with the left needle position and the right needle position.

(D) Unified to the center when combining the patterns with the left, center and right needle positions.

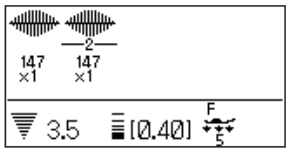


1





2







Individual Stitch Adjustment

The stitch width and length can be individually adjusted for each pattern in a programmed combination.

Example: Changing the stitch width of the one pattern in the combination

1 Press the edit key to shift the cursor under the pattern you wish to adjust.

2 Press the stitch width adjusting key to adjust the width to “3.5”.

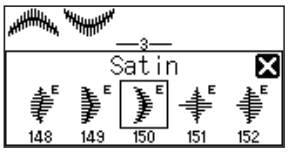
NOTE:
To view the stitch settings of each pattern, shift the cursor under the desired pattern then press the stitch width or length adjusting key. The settings will be displayed at the bottom of the LCD screen.
If you press the stitch width or length adjusting key when the cursor is to the right of the last programmed pattern, individual adjustments will be cancelled and uniform adjustment will be applied.

Storing and Recalling a Pattern combination

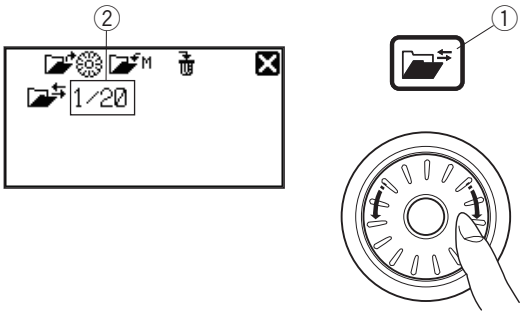
Up to 20 pattern combinations can be stored in the memory for future use even after turning the power off. The stored pattern combination can be recalled by pressing the memory recall key.

Storing a pattern combination

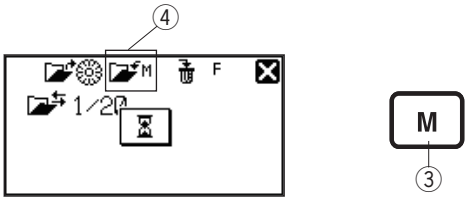
1 Program a pattern combination.

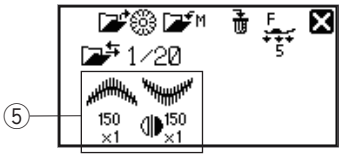


2 Press the memory recall key.
The LCD screen will show memory address 1 and the key function assignment.
Press the memory recall key or turn the jog dial to select the desired address.
① Memory recall key
② Memory address

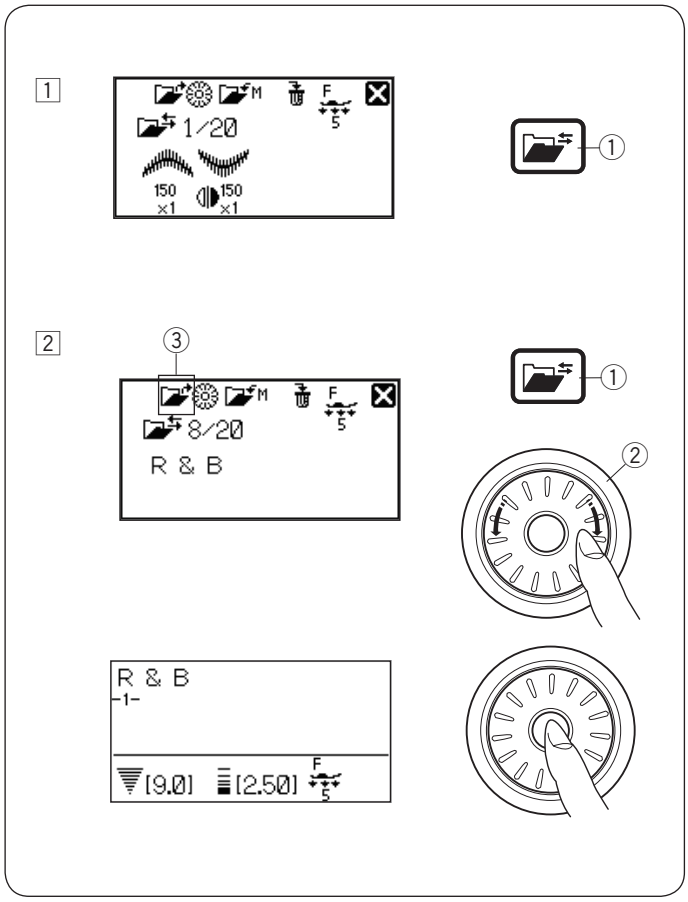


3 Press the memory key or memory key icon M on the LCD screen.
The pattern combination will be stored in the selected memory address.
③ Memory key
④ Memory key icon
⑤ Stored pattern combination





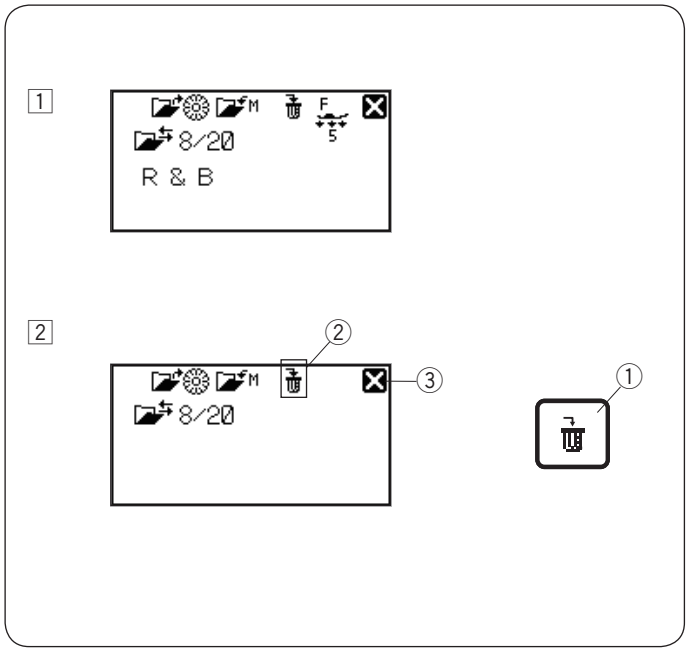
NOTE:
The machine beeps and an hourglass appears on the LCD screen while the machine is storing the pattern combination.
Do not turn the power switch off while the machine is beeping.
If a pattern combination has been already stored, the stored combination will be replaced with the new one.



Recalling a stored combination

1 Press the memory recall key.
① Memory recall key

2 Press the memory recall key or turn the jog dial to select the memory address where the desired pattern combination is stored.
Press the confirm button or confirm button icon on the LCD screen to recall the stored combination.
① Memory recall key
② Jog dial
③ Confirm button icon

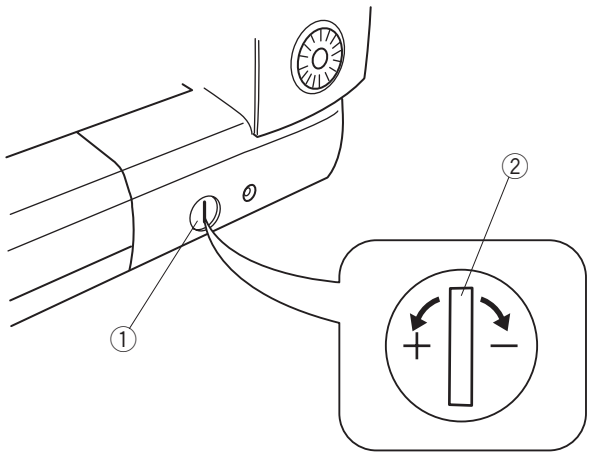


Deleting a stored combination

1 Press the memory recall key to select the memory address storing the pattern combination you wish to delete.

2 Press and hold the clear key ① or clear key icon ② on the LCD screen to delete the stored combination.
① Clear key
② Clear key icon

NOTE:
To close the memory recall window, press the cross mark.
③ Cross mark



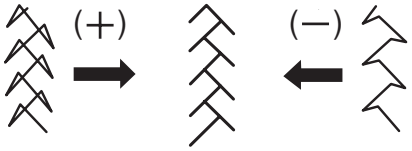
Correcting Distorted Stitch Patterns

The sewing results of the stitch patterns may vary depending upon sewing conditions, such as sewing speed, type of the fabric, number of layers etc.
Always test sew on a scrap piece of the fabric that you wish to use.

If stretch stitch patterns, monogram or the stretch buttonhole is distorted, correct it with the feed balancing dial.
Set the feed balancing dial at the neutral position for normal sewing.

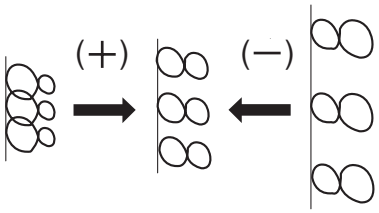
① Feed balancing dial
② Neutral position

NOTE:
Return the feed balancing dial to its neutral position when the sewing is finished.



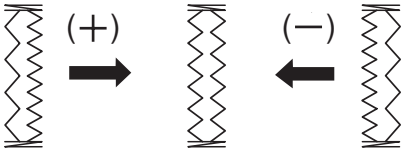
Stretch stitch pattern

Example: Pattern 108 (Quilt)
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 “–”.



Letters and numbers

Example: Pattern “8” (Monogram)
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 the stretch buttonholes

Example: Patterns 30 (Buttonhole)
If the right row is denser, turn the dial in the direction of “+”.
If the left row is denser, turn the dial in the direction of “–”.

CARE AND MAINTENANCE

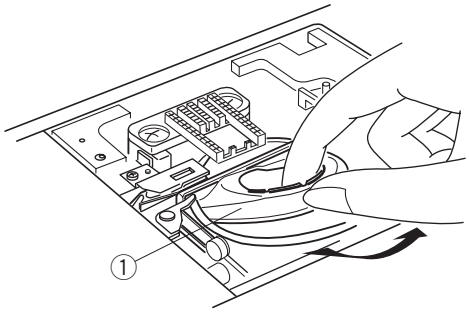
⚠ WARNING:
Turn the power switch off and unplug the machine before cleaning.

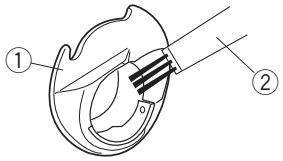
Cleaning the Hook Area

Clean the hook area at least once a month.
Turn the power switch off and unplug the machine.
Remove the needle plate (refer to page 16).
Remove the needle and presser foot.

NOTE:
Do not dismantle the machine in any way other than as explained in this section.

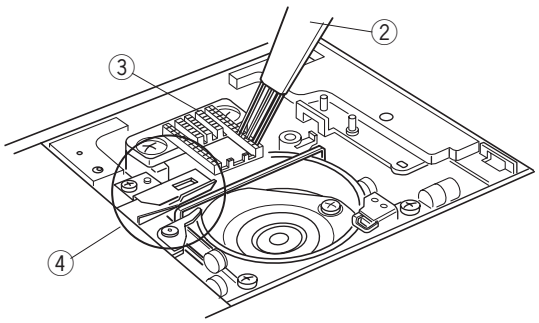
1





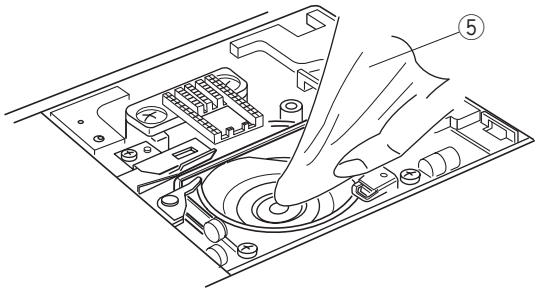
1 Take out the bobbin and bobbin holder.
① Bobbin holder

2



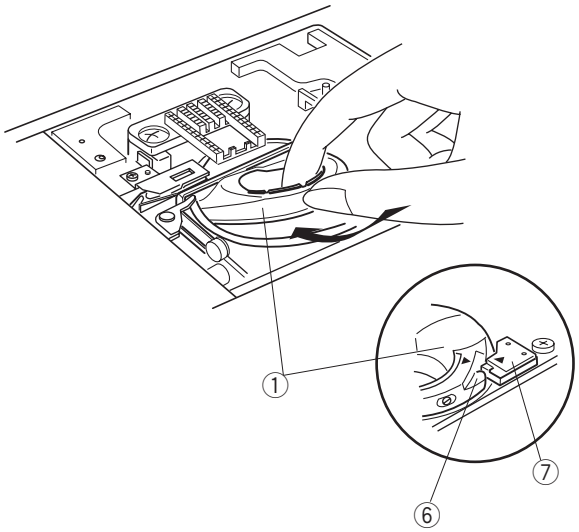
2 Clean the bobbin holder with a lint brush.
Clean the feed dog and auto thread cutter device with the lint brush.
② Lint brush
③ Feed dog
④ Auto thread cutter device

3



3 Clean the hook race with a soft cloth.
⑤ Soft cloth

4

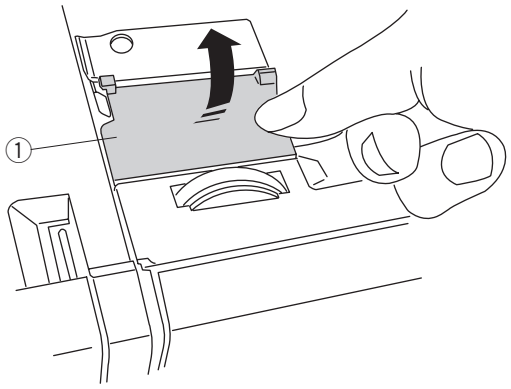


4 Insert the bobbin holder so that the knob fits next to the stopper in the hook race.
Insert the bobbin.
Attach the needle plate, presser foot and needle.
⑥ Knob
⑦ Stopper

Cleaning the Inside of the Thread Guide

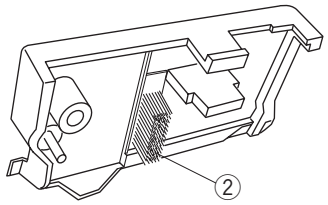
Clean the inside of the thread guide plate under the top cover at least once a month.

1



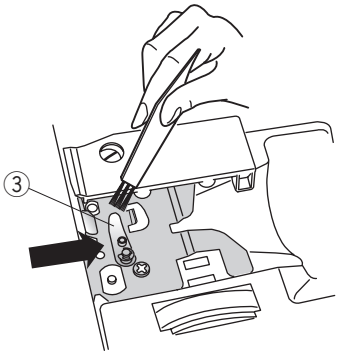
1 Remove the needle thread and remove the thread guide plate by pulling it up.
① Thread guide plate

2



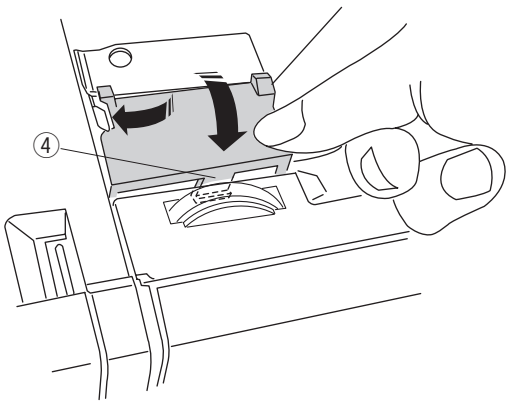
2 Remove lint and dust from the brush on the underside of the thread guide plate using a lint brush.
② Brush on the thread guide plate

3



3 Clean the area around and under the pre-tension leaf with the lint brush.
③ Pre-tension leaf

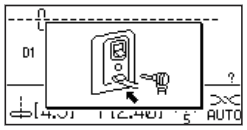
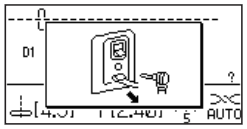
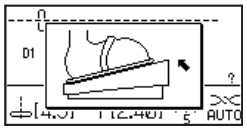
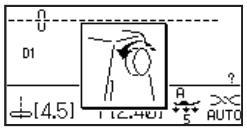
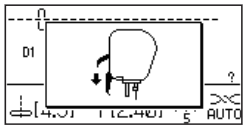
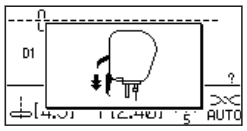
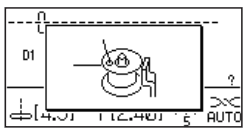
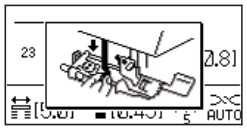
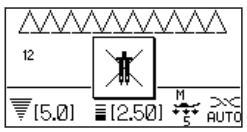
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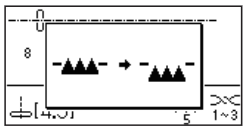
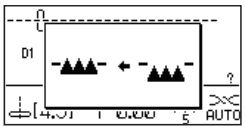
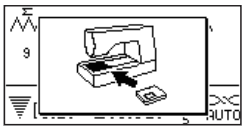
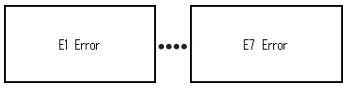


4 Set the thread guide plate on the machine, inserting the tenons into the slots. Push the thread guide plate down to snap it in place.
④ Tenon

Problems and Warning Signals

If a buzzer sounds and the LCD screen shows a warning sign, follow the guidance below.

Warning Sign	Cause	Try this
	The foot control is disconnected while sewing.	Connect the foot control and start the machine again.
	The start/stop button is pressed with the foot control connected.	Disconnect the foot control.
	The power is turned on while depressing the foot control.	Release the foot control.
	The power is turned on with the needle in the down position.	Turn the hand wheel to raise the needle.
 	The machine is started without lowering the presser foot. The machine will stop if the presser foot is raised while sewing.	Lower the presser foot and start the machine. Lower the presser foot and start the machine again.
	The bobbin winder spindle is shifted to the right.	Shift the bobbin winder spindle to the left for stitching.
	The machine will stop if the buttonhole is sewn without lowering the buttonhole lever.	Lower the buttonhole lever and start the machine again.
	The foot control is released or the start/stop button is pressed while sewing a locking stitch.	Start the machine again to let the machine stop automatically.
	The auto thread cutter button is pressed while the machine is still initializing after turning the power on. Or, the thread cutter button is pressed 4 times in a row.	Press the thread cutter button after the machine stops.
	The twin needle button is pressed when a pattern unsuitable for twin needle sewing has been selected.	Select the pattern suitable for twin needle sewing.

Warning Sign	Cause	Try this
	The elongation key is pressed when a pattern that cannot be elongated has been selected.	Elongation is applicable only to satin stitches.
	The memory key is pressed when a pattern that cannot be memorized has been selected.	Select a pattern that can be memorized.
	The startover key is pressed when a pattern that cannot be started over has been selected.	Select a pattern that can be started over.
	The mirror image key is pressed when a pattern that cannot be turned over has been selected.	Select a pattern that can be turned over.
	The machine is started without lowering the feed dog with basting or button sewing selected.	Lower the feed dog.
	The machine is started with the feed dog lowered.	Raise the feed dog.
	The machine is started without the needle plate. The machine is started when the straight stitch needle plate is attached and a pattern that cannot be used for the needle plate has been selected.	Attach the needle plate. Replace the needle plate.
	The machine is started after halting due to overload. The feed dog is lowered while the machine is running. The presser foot is raised while the machine is running. The bobbin winder spindle is shifted to the left while winding a bobbin.	Wait for at least 15 seconds to restart. Press the lockout key to lockout the machine or turn the power switch off. Remove tangled threads around take-up lever, hook race and automatic thread cutting mechanism. Do not lower the feed dog, raise presser foot or shift bobbin winder spindle while the machine is running.
	The machine does not work properly due to a problem in the control circuit.	Contact the service center or the store from whom the machine was purchased.
The LCD screen shows an abnormal display.	Turn the power off and turn it on again.	

Audible Signal	The Buzzer sounds when:
pip	Normal operation.
pip-pip	Deleting a pattern combination with the clear key.
pip-pip-pip	Invalid operation or malfunction.
peep	E1-E7 error occurred.
pip pi-pi-pi-peep	Buttonhole is completed.

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 fabric is moved too fast when stitching free motion quilting. 8. The thread is tangled around the spool.	Page 21 Page 12 Page 17 Page 17 Page 32 Page 32 Page 79 Use the spool holder.
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 does not turn smoothly.	Page 20 Page 101 Change the bobbin.
The needle breaks	1. The needle is incorrectly inserted. 2. The needle clamp screw is loose. 3. The fabric is pulled forward when using the open-toe foot. 4. The needle is too fine for the fabric being used. 5. An inappropriate presser foot is used.	Page 17 Page 17 Page 79 Page 17 Use the correct 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 stretch stitch 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.	Page 17 Page 17 Use the stretch stitch needle. Page 21 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. 5. The foot pressure is not adjusted properly. A stabilizer is not used when sewing very fine fabrics.	Page 12 Page 21 Page 17 Make stitch shorter. Page 11 Apply a stabilizer.
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.	Page 101 Make stitch longer. Page 11
Loops on the seams	1. The needle thread tension is too loose. 2. The needle is too thick or too fine for the fabric.	Page 12 Page 17
The machine does not work	1. The machine is not plugged in or foot control is not connected. 2. Thread has been caught in the hook race. 3. The presser foot is not lowered.	Page 6 Page 101 Page 10
Buttonhole sewing is not sewn properly	1. The stitch density is not suitable for the fabric being sewn. 2. The interfacing has not been used for the stretch or synthetic fabric. 3. The buttonhole lever is not lowered.	Page 57 Apply an interfacing. Page 55
The machine is noisy	1. Thread has been caught in the hook race. 2. Lint has built up in the hook race or bobbin holder.	Page 101 Page 101
Layers shift	1. The foot pressure is not suitable for fabrics being sewn.	Page 11
Auto thread cutting failed	1. Thread is too thick for the auto thread cutting. 2. Threads have been caught in the thread cutter mechanism.	Page 7 Page 101
The stitch pattern cannot be selected.	1. The needle plate for straight stitch is attached to the machine. 2. The stitch pattern is 168, 169 and 171 (Bridge stitches).	Page 38 Page 89
The needle thread appears on the wrong side of the fabric when the stitch width value is larger than “7.0”.	1. Thread tension is not balanced.	Page 12

It is not abnormal for a faint humming sound to be heard from the internal motors.

The LCD screen and function key area may become warm after several hours of continuous use.