

# *Serenade™*

## *Instruction and Reference Guide*

Model BLSN



**FOR THE LOVE OF SEWING**

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To register your machine warranty and receive Baby Lock product updates and offers, go to [www.babylock.com/profile](http://www.babylock.com/profile). If you have questions with registration, visit your Authorized Baby Lock Retailer.

Baby Lock Consumer Helpline: 800-313-4110  
[www.babylock.com](http://www.babylock.com)

# SAFETY INSTRUCTIONS

When using an electrical appliance, basic safety should always be followed, including the following:  
Read all instructions before using this sewing machine.

## **DANGER** -To reduce the risk of electrical shock:

1. An appliance should never be left unattended when plugged in.
2. Always unplug this appliance from the electrical outlet immediately after using and before cleaning.
3. Always unplug before checking and re-lamping. Contact the authorized retailer or service center for repair in the event of failure if the machine is with 200mW, 300mW and 200mW LED lamp, which is not user-replaceable.

## **WARNING** -To reduce the risk of burns, fire, electrical shock, or injury to persons:

1. Do not allow to be used as a toy. Close attention is necessary when this appliance is used by or near children.
2. Use this appliance only for its intended use as described in this manual. Use only the attachments recommended by the manufacturer as contained in this manual.
3. Never operate this appliance 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 the appliance to the nearest authorized retailer or service center for examination, repair, electrical or mechanical adjustment.
4. Never operate the appliance with any air openings blocked. Keep ventilation openings of the sewing machine and foot control free from accumulation of lint, dust, and loose cloth.
5. Keep fingers away from all moving parts. Special care is required around the sewing machine needle.
6. Always use the proper needle plate, as a wrong needle plate can cause the needle to break.
7. Do not use bent needles.
8. Do not pull or push fabric while stitching. It may deflect the needle causing it to break.
9. Switch the sewing machine off ("O") when making any adjustments in the needle area, such as threading the needle, changing the needle, threading the bobbin, changing the presser foot or changing the light.
10. Always unplug sewing machine from the electrical outlet when removing covers, lubricating, or when making any other user servicing adjustments mentioned in the instruction manual.
11. Never drop or insert any object into any opening.
12. Do not use outdoors.
13. Do not operate where aerosol spray products are being used or where oxygen is being administered.
14. To disconnect, turn all controls to the off ("O") position, then remove plug from outlet.
15. Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.
16. The sound pressure level under normal operating conditions is 75dB(A).
17. Please turn off the machine or unplug when the machine is not operating properly.
18. Never place anything on the foot controller.
19. 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.

## SAVE THESE INSTRUCTIONS

**This sewing machine is intended for household use only.**

# PLEASE READ BEFORE USING THIS MACHINE

## For safe operation

1. Be sure to keep your eye on the needle while sewing. Do not touch the handwheel, thread take-up lever, needle or other moving parts.
2. Remember to turn OFF the power switch and unplug the cord when:
  - Operation is completed.
  - Replacing or removing the needle or any other parts.
  - A power failure occurs during use.
  - Maintaining the machine.
  - Leaving the machine unattended.
3. Do not store anything on the foot controller.
4. Plug the machine directly into the wall. Do not use extension cords.
5. Do not place or store the machine near heaters or other hot appliances, in any location exposed to extremely high or low temperatures, high humidity or dusty locations. Doing so could cause the machine to malfunction.
6. Never operate the machine if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or water is spilled on the unit. Return the machine to the nearest authorized retailer or service center for examination, repair, electrical or mechanical adjustment.

## For a longer service life

1. When storing this machine, avoid direct sunlight and high humidity locations. Do not use or store the machine near a space heater, iron, halogen lamp, or other hot objects.
2. Use only neutral soaps or detergents to clean the machine. Benzene, thinner, and scouring powder can damage the machine, and should never be used.
3. Do not drop or hit the machine.
4. Always consult this operation manual when replacing or installing any assemblies, the presser feet, needle or other parts to assure correct installation.

## For repair or adjustment

In the event a malfunction occurs or adjustment is required, first follow the troubleshooting guide in the back of this operation manual to inspect and adjust the machine yourself. If the problem persists, please consult your local authorized retailer.

**For additional product information visit our website located at [www.babylock.com](http://www.babylock.com).**

**The contents of this manual and specifications of this product are subject to change without notice.**



Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available.

If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being.

When replacing old appliances with new ones, the retailer is legally obligated to take back your old appliance for disposal at least for free of charge.

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## **DECORATIVE PATTERNS**

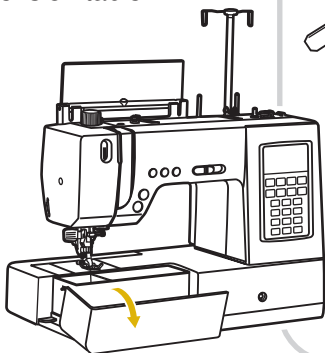
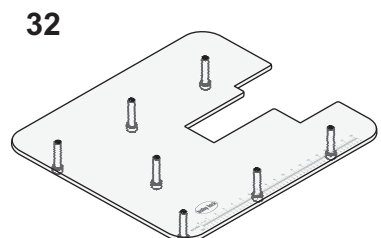
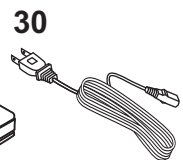
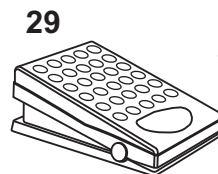
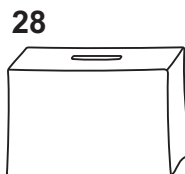
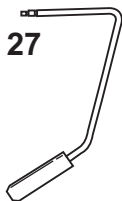
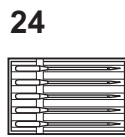
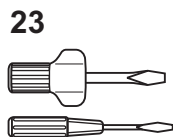
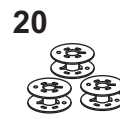
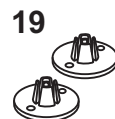
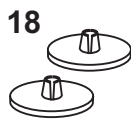
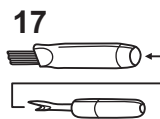
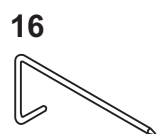
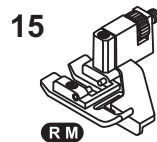
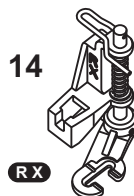
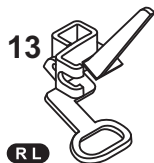
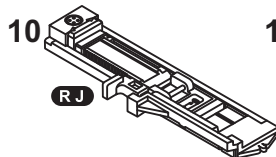
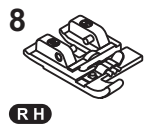
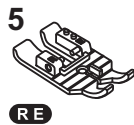
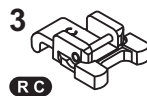
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## ACCESSORIES

1. All purpose foot (RA)
2. Zipper foot (RB)
3. Button sewing foot (RC)
4. Gathering foot (RD)
5. 1/4" quilting foot (RE)
6. Quilting foot (RF)
7. Hemmer foot (RG)
8. Cording foot (RH)
9. Overcasting foot (RI)
10. Buttonhole foot (RJ)
11. Satin stitch foot (RK)
12. Open toe foot (RN)
13. Free-motion darning/embroidery foot (RL)
14. Free-motion open toe quilting foot (RX)
15. Blind hem foot (RM)
16. Edge/quilting guide
17. Brush/ Seam ripper
18. Spool cap (Large)(2X)
19. Spool cap (Small)(2X)
20. Bobbin (3X)
21. Cone holder (2X)
22. Net
23. Screwdriver (L & S)
24. Needle set
25. Instruction and Reference Guide
26. Quick Reference Guide
27. Knee lifter
28. Soft cover
29. Foot control
30. Power cord
31. Touch panel stylus
32. Extension table



## OPTIONAL ACCESSORIES

No.	Part Name	Part Code
1	Adjustable guide foot	BLQ2-AGF
2	Braiding foot	BLQ2-BF
3	Chenille foot	BLQ2-CHF
4	Decorative stitch foot	BLQ2-DSF
5	Decorative tape foot	BLQ2-DTF
6	Edge joining foot	BLQ2-EJF
7	1/4" foot with guide	BLQ2-QGF
8	Stitch-in-the-ditch foot	BLQ2-SDF
9	Edge guide foot - 5/8"	BLQ2-EGF

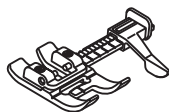


### Memo

All specifications are correct at the time of printing.

Please be aware that some specifications may change without notice.

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2



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4



5



6



7



8



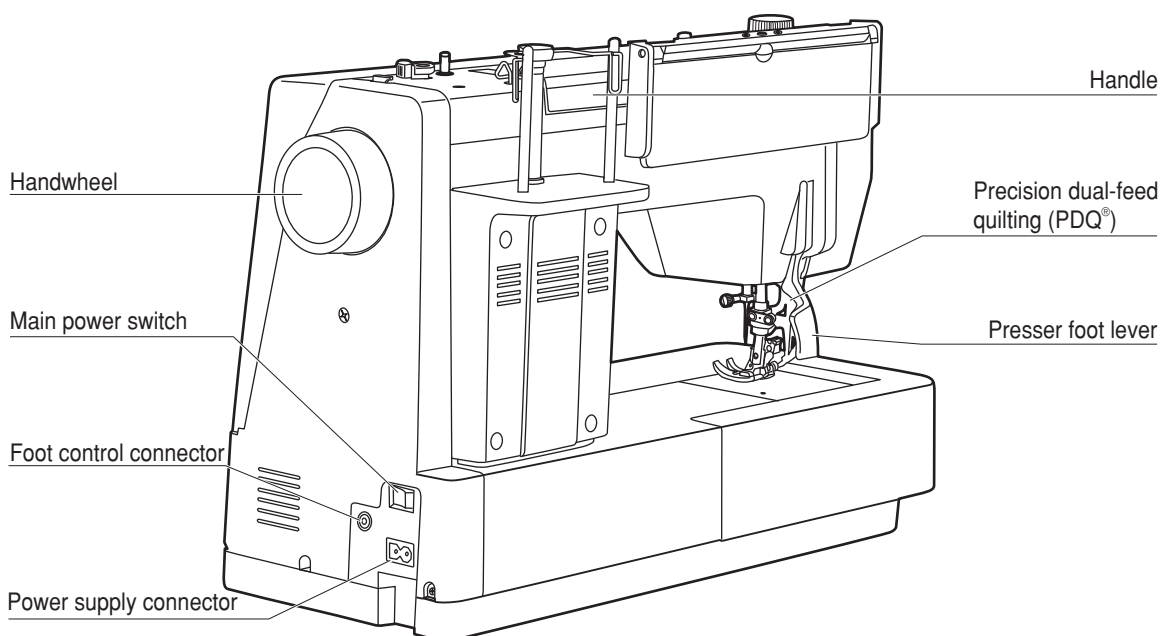
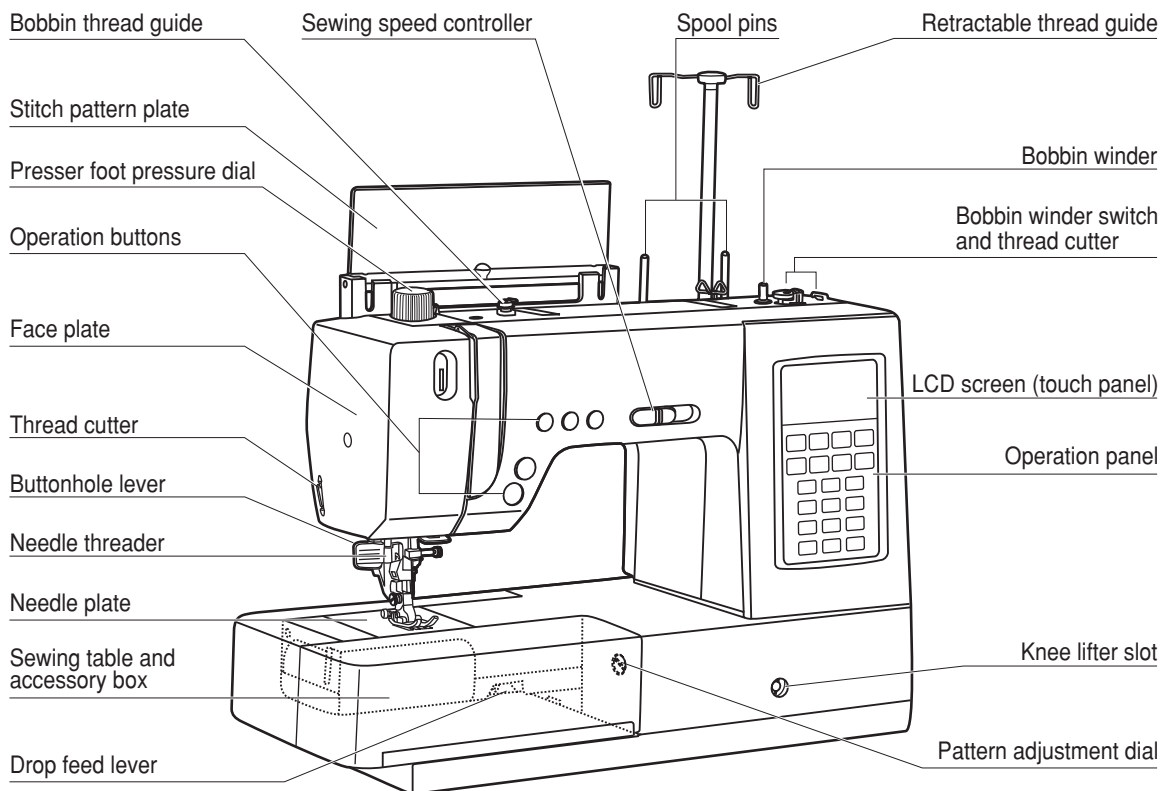
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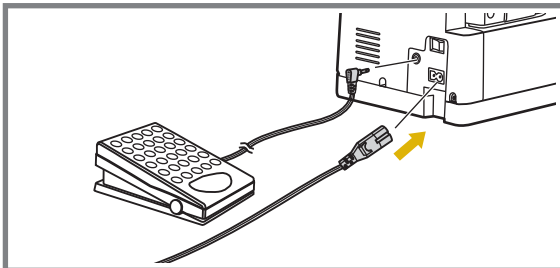
**Note:** Visit your authorized Baby Lock retailer for complete listing of optional accessories available for your machine.



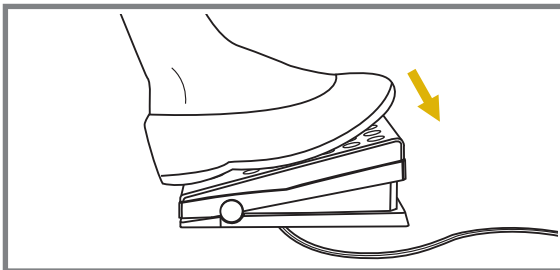
## PRINCIPAL PARTS OF THE MACHINE



## FOOT CONTROL



With the sewing machine turned off, insert the foot control plug and the power supply cord into their appointed connectors on the sewing machine.



Turn on the sewing machine, and then slowly depress the foot control to start sewing.

Release the foot control to stop the sewing machine.

By tapping the foot control one time will allow the needle to go up or down.



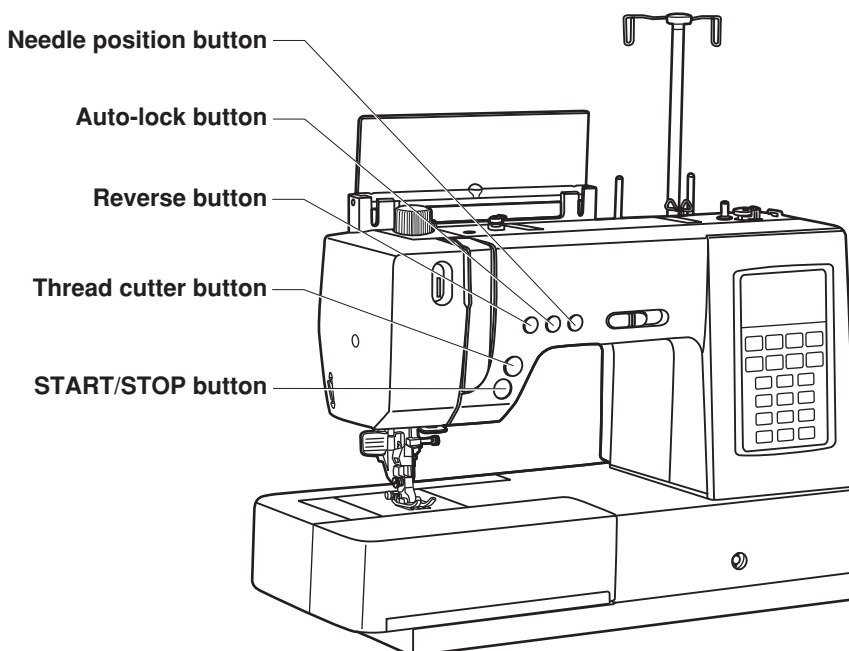
**Note:** The setting of the sewing speed controller will limit the maximum speed of the machine when using the foot control.



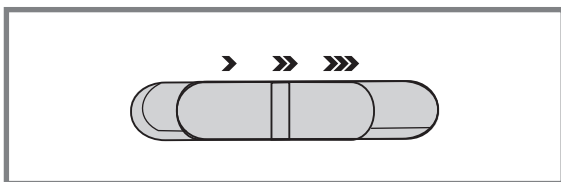
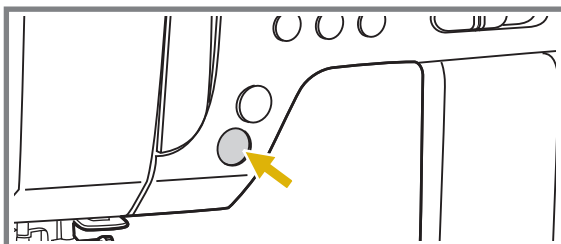
**Attention:** Consult a qualified electrician if in doubt as how to connect the machine to the power source. Unplug the power cord when the machine is not in use.

The appliance must be used with the foot control C-9001 manufactured by CHIEN HUNG TAIWAN., LTD.

## OPERATION BUTTONS



### ■ START/STOP button



The machine will start running when the START/STOP button is pressed and will stop when pressed the second time. The machine will stitch slowly at the beginning of the sewing. The sewing speed can be controlled by the sewing speed controller.

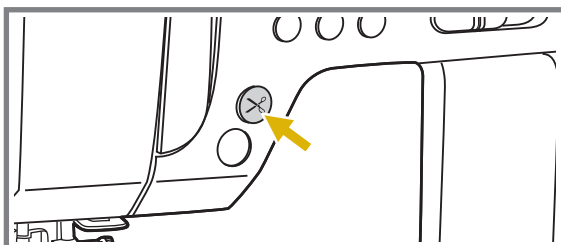


**Note:** The Reverse button function will work with the foot controller either connected or disconnected. The START/STOP button functions will also work with the foot controller either connected or disconnected.

Use the sewing speed controller to adjust the sewing speed.

To increase the speed, slide the lever to the right; to decrease the sewing speed, slide the lever to the left.

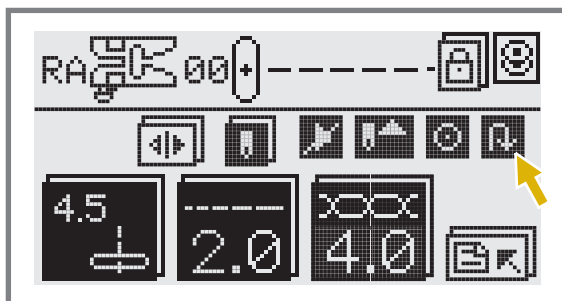
### ■ Thread cutter button



Press this button after finishing sewing and the machine will automatically trim the threads.

## OPERATION BUTTONS

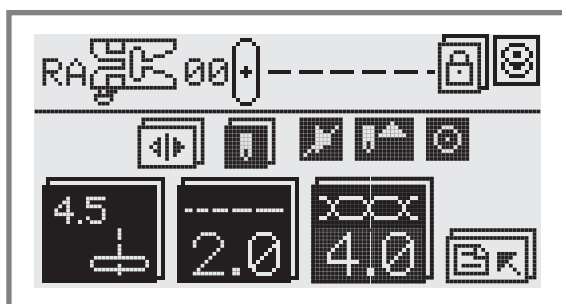
### Reverse button



The following stitches can be sewn in reverse: Group A Patterns 00-05, 23-25; Group B Patterns 00-02. After selecting the stitch, press the reverse button. An arrow "↴" will display on the LCD screen while stitching in reverse. The machine will sew forward after the button is released.

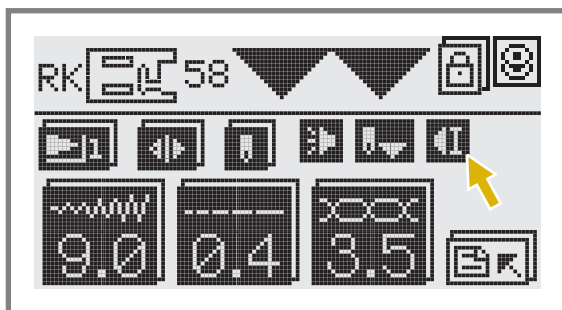
The reverse button can be used to sew a reinforcement stitch for the following stitches: Group A Patterns 06-22, 46-93; Group B Patterns 03-50; Group C Patterns 00-76. After selecting the stitch, press the reverse button. A reinforcement stitch sews at a low speed and the machine will automatically stop.

### Auto-lock button



When the Group A Patterns 00-04, 41 and Group B Patterns 01-02 are selected, the machine will immediately sew 3 locking stitches when the Auto-lock button is pressed, then will automatically stop.

The LCD screen will display the figure "Ⓢ" until the locking stitches stop.



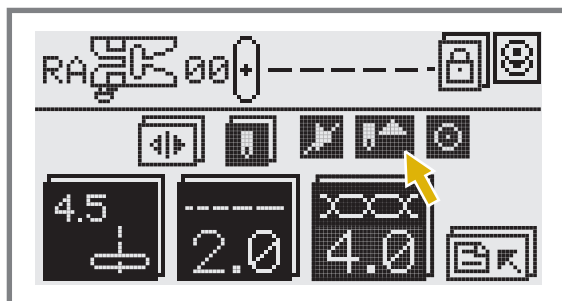
To stop machine at the end of the current pattern or to sew a single pattern (except Group A Patterns 05-22, 46-93; Group B Patterns 03-50 and Group C Patterns 00-76), press the Auto-lock button, the machine will sew 3 locking stitches at the end of the current pattern and automatically stop.


The LCD screen will display the Auto-stop figure "Ⓢ" until the feature is cancelled.


The function will be cancelled if you press the button once again or select another pattern.

## OPERATION BUTTONS

### ■ Needle position button

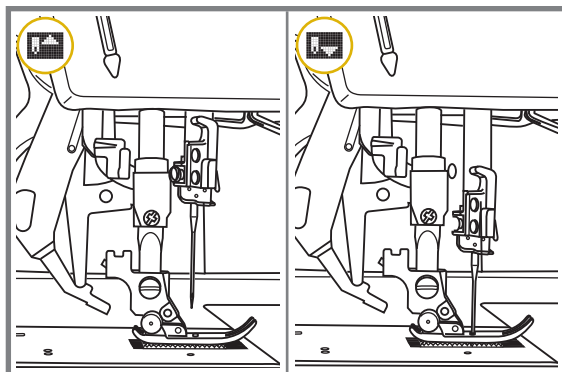


Press the needle position button so that the arrow "  " (on the LCD screen) will point upward and the needle will stop in the highest position.

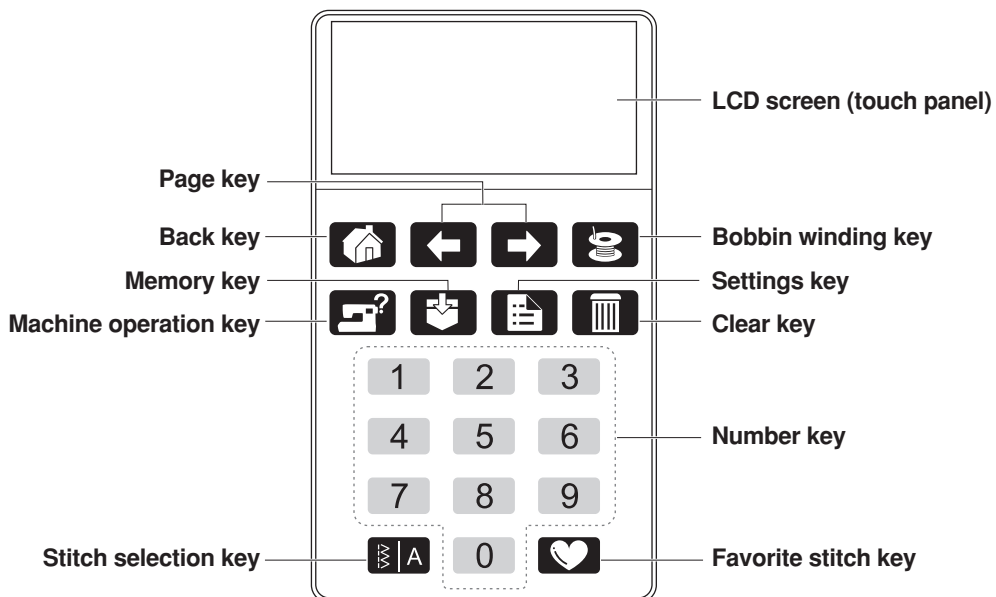
When you press the button so that the arrow points downward "  ", the machine will stop with the needle in the lowest position.

Pressing the needle position button once will raise or lower the needle.

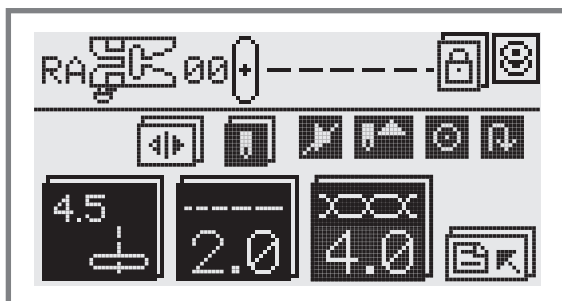
Pressing the needle position button twice will sew one stitch.



## OPERATION PANEL

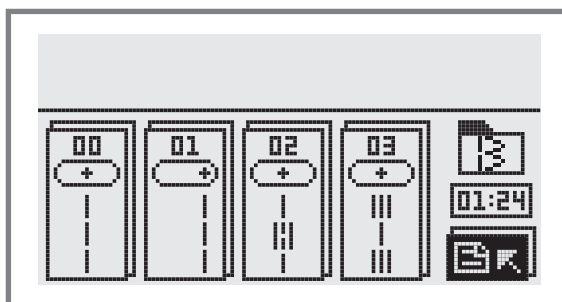




### ■ LCD screen (touch panel)



Selected pattern settings and messages are displayed. Touch the keys displayed on the LCD to perform operations. For detailed instructions, refer to "Understanding the LCD screen" on page 19.

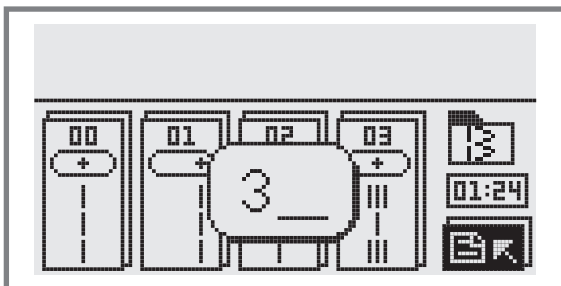
### ■ Page key



Press "" to view the previous stitch list page. Press "" to view the next stitch list page.

## OPERATION PANEL

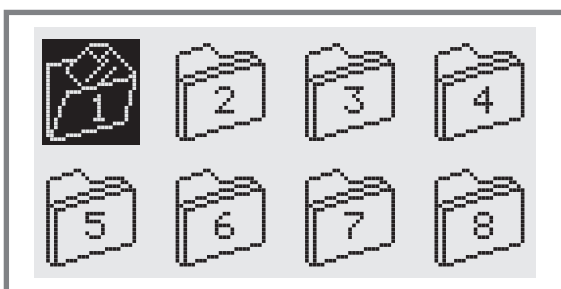
### ■ Back key



Press " " to return to the previous edit screen and the settings will not change.

If incorrect number is entered, press " " to delete the number.

### ■ Memory key

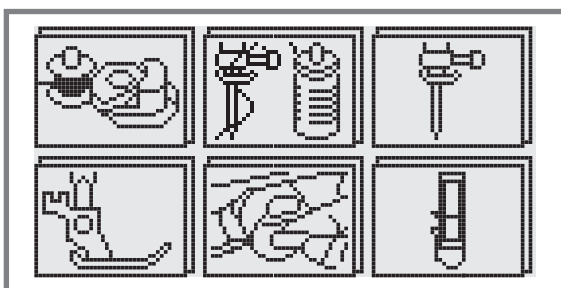


Press memory key " " to enter the memory mode. Select up to 8 memories for storing combinations of characters and decorative stitches. Up to 20 patterns can be combined in each memory. Use the page key " " and " " to scroll through the memorized pattern combination. Press the memory key " " again to exit the memory mode. For detailed instructions, refer to "Memory Function" on page 91.



**Note:** Group A patterns 23-45 and Group B pattern 00 cannot be memorized.

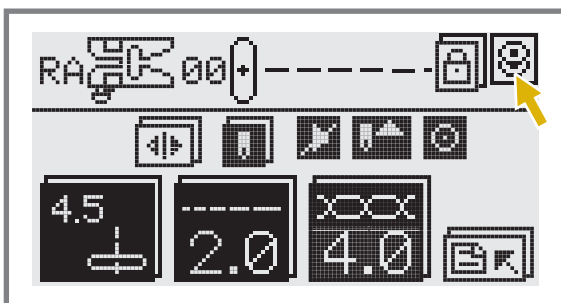
### ■ Machine operation key



Press Machine operation key " " to get help on using the sewing machine. The LCD will display simple explanations of bobbin winding, threading the upper thread, replacing the needle, changing the presser foot, inserting the bobbin and buttonhole stitching.

For detailed instructions, refer to "Instruction animation message display" on page 98.

### ■ Bobbin winding key



Put the empty bobbin on the bobbin winder shaft. Push the bobbin winder switch to the left.

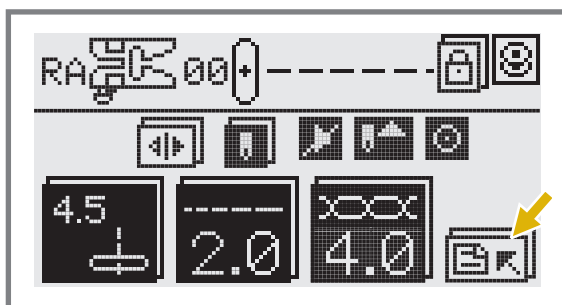
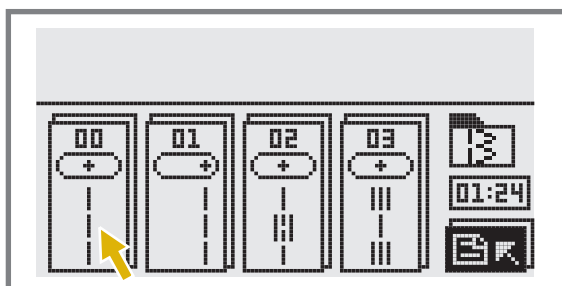
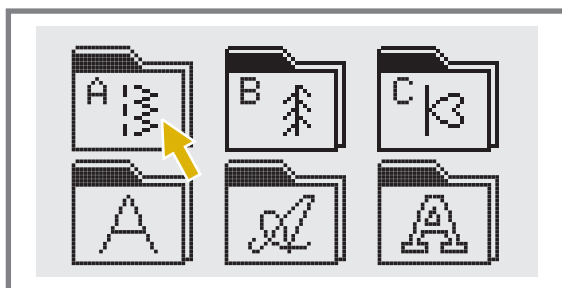
Press bobbin winding key " " to wind the bobbin.




The icon will highlight " " on the LCD while the bobbin is winding.


The bobbin can be wound in any operation mode.

## OPERATION PANEL


### ■ Stitch selection key



The LCD screen will be automatically set at Group A, pattern 00 when the machine is turned on. Press the stitch selection key "  A " and the LCD screen enters the pattern group screen automatically. Press one of the folders on the LCD to select a pattern mode and to enter the pattern list. Use the page key "  ", "  " to scroll through the pattern list or enter the pattern number to select the stitch.

Press the pattern list key "  " to return to the pattern list in order to select the other stitches in the same mode.


 Group A : Utility pattern mode

 Group B : Quilt pattern mode

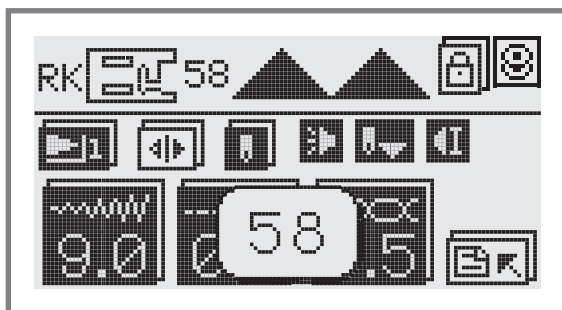
 Group C : Decorative pattern mode


 Block style group : Block letter mode

 Script style group : Script letter mode

 Outline style group : Outline letter mode

### ■ Number key



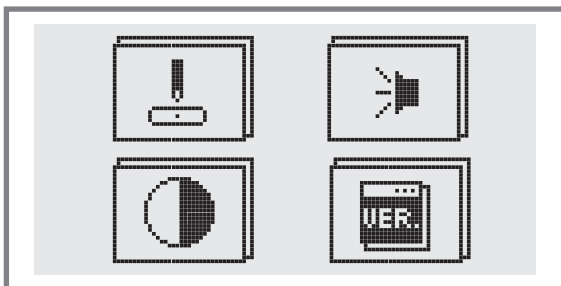
Press the stitch selection key "  A " and select a pattern group. Using the number keys, press the two numbers for the desired pattern from the pattern chart located on page 43 or from the stitch pattern plate.


For example: For Group A press "  " then Press 58.



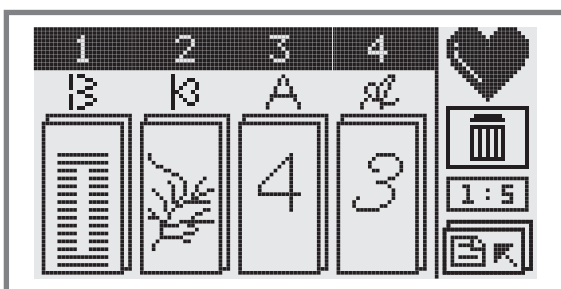
## OPERATION PANEL


### ■ Settings key



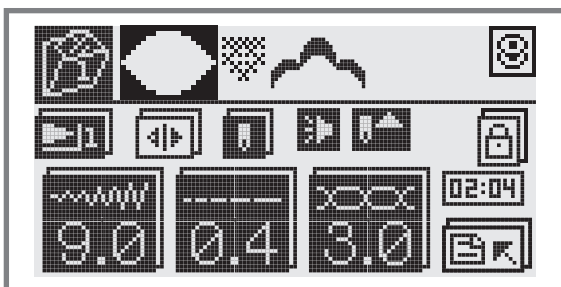
Press the settings key "  " to set the initial needle position, beep sound, LCD brightness and display the software version. For detailed instructions, refer to "Machine Settings" on page 23.


### ■ Favorite stitch key

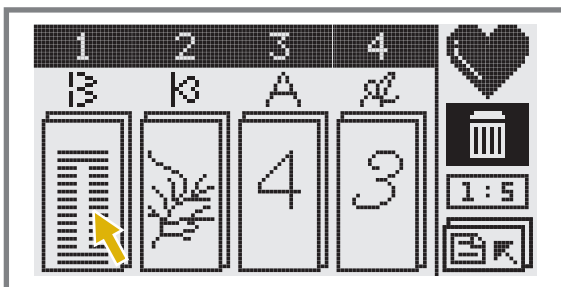



Press the favorite stitch key "  " to set your favorite stitches and alphabets. For detailed instructions, refer to "Favorite stitch" on page 24.

### ■ Clear key



When combining characters or decorative patterns, press the clear key "  " to clear one character or pattern. For detailed instructions, refer to "Memory Function" on page 91.

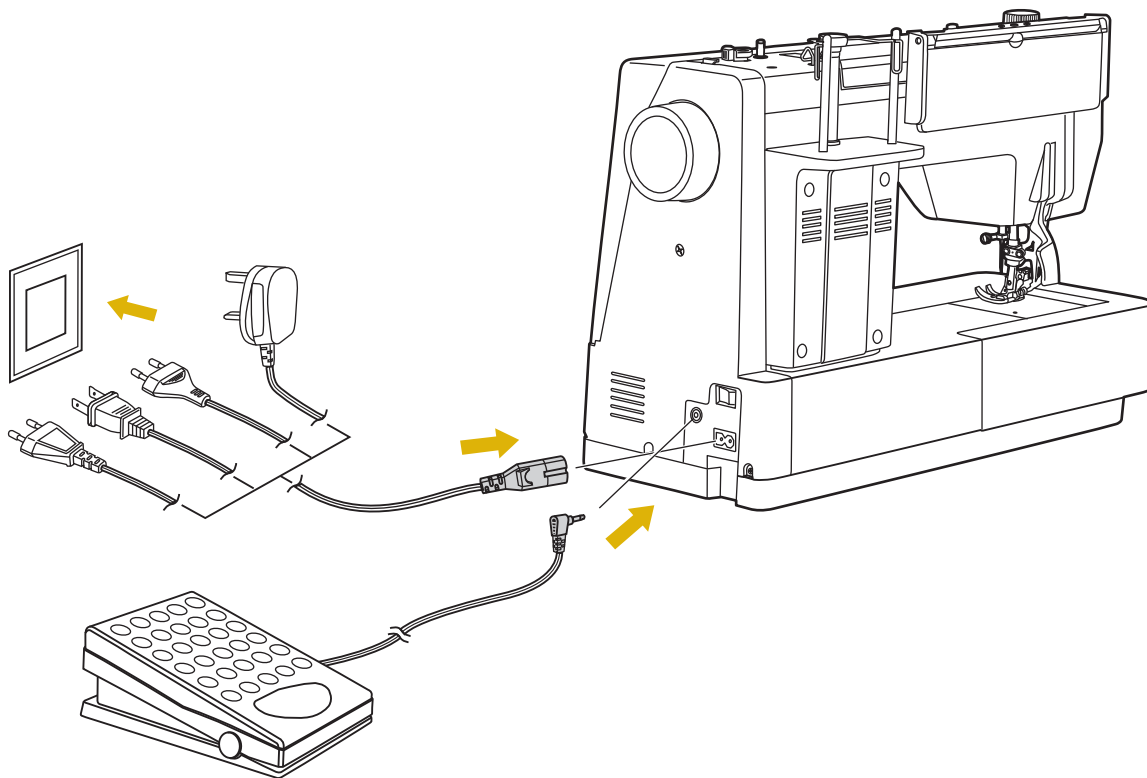


Press the clear key "  " to enter the clear function and the icon will display in reverse in the Favorite stitch screen.

Select the tabs to clear stitches.

Press the clear key "  " again, to exit the clear function.

## CONNECTING THE MACHINE TO THE POWER SOURCE



### ■ Connecting the machine

Before connecting the power supply, make sure that the voltage and the frequency shown on the machine is conforming to your electrical power.

Place the machine on a stable table.

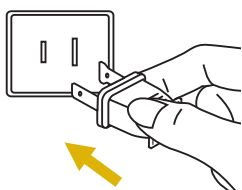
1. Connect the power cord to the machine by inserting the plug into the power supply connector.
2. Connect the power cord plug to the electrical outlet.
3. Insert foot control plug into the foot control connector on machine.

\* The appliance must be used with foot control C-9001.



**Caution:** Never leave machine unattended when plugged in.

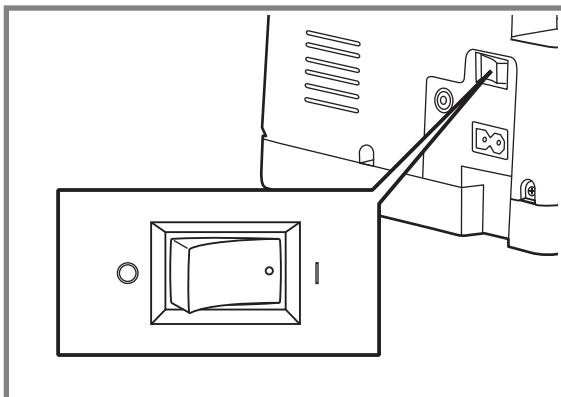
Always unplug this machine from the electrical outlet immediately after using and before maintenance.



### Polarized plug information

This appliance has a polarized plug (one blade wider than the other), to reduce the risk of electrical shock; this plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician. Do not modify the plug in any way. (For U.S.A. only)

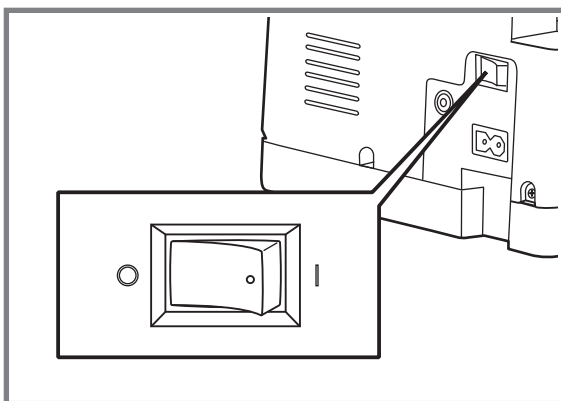
## TURN MACHINE ON/ OFF



### Turn on the machine

Press the right side of the main power switch on the right side of the machine, the power switch is ON ("I").

The lamp comes on when the machine is turned on.



### Turn off the machine

When you are finished using the machine, turn it off. In addition, before transporting the machine to another location, be sure to turn it off.

1. Make sure the machine is not sewing.
2. Press the left side of the main power switch on the right of the machine, the power switch is OFF ("O").  
The lamp goes off when the machine is turned off.
3. Unplug the power supply cord from the power supply jack.



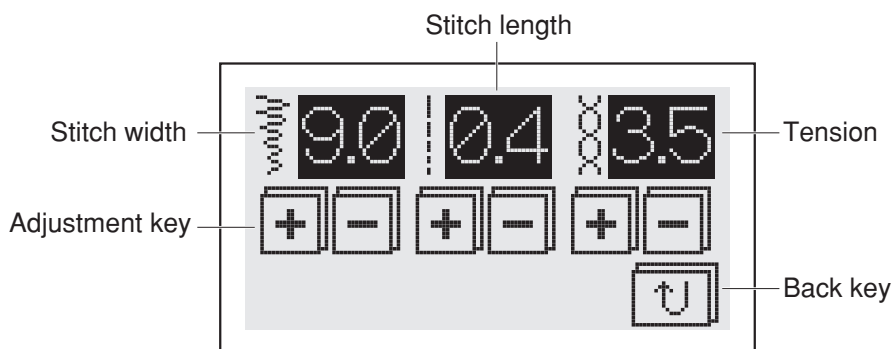
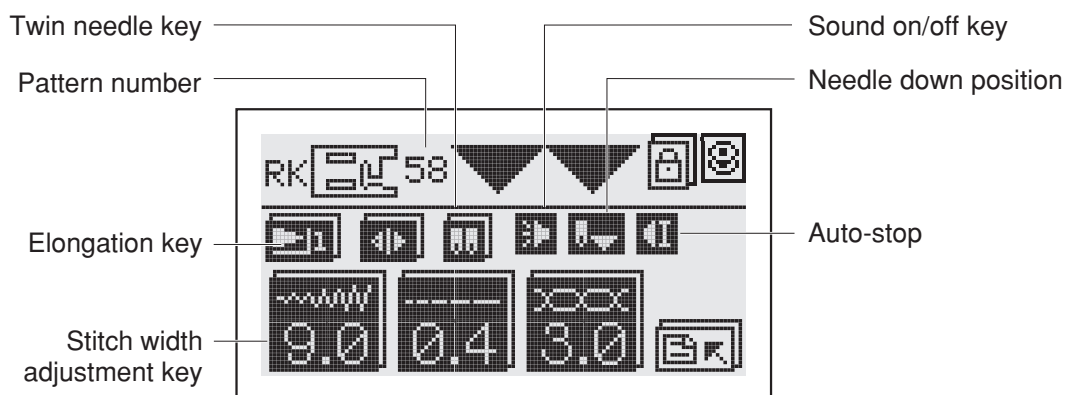
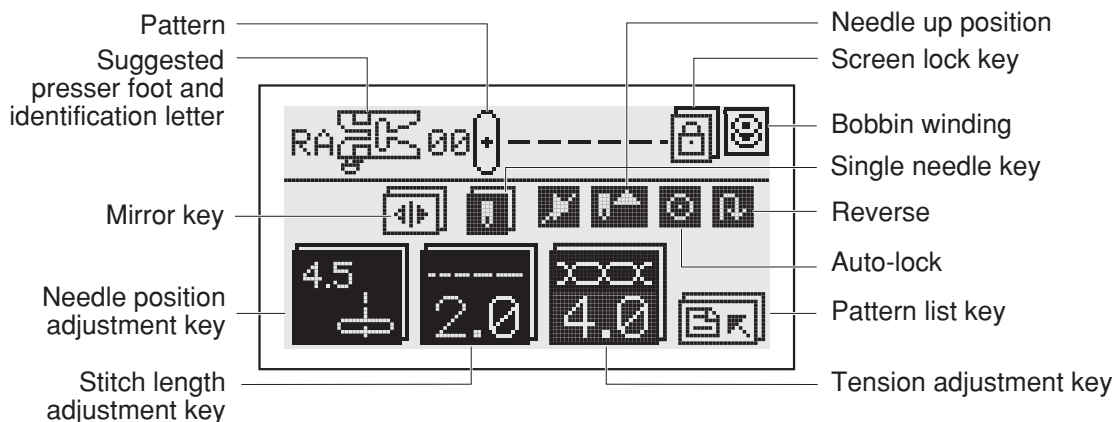
**Note:** If a power outage occurs while the machine is being operated, turn off the machine and unplug the power supply cord.

When restarting the machine, follow the necessary procedure to correctly operate the machine.

## UNDERSTANDING THE LCD SCREEN

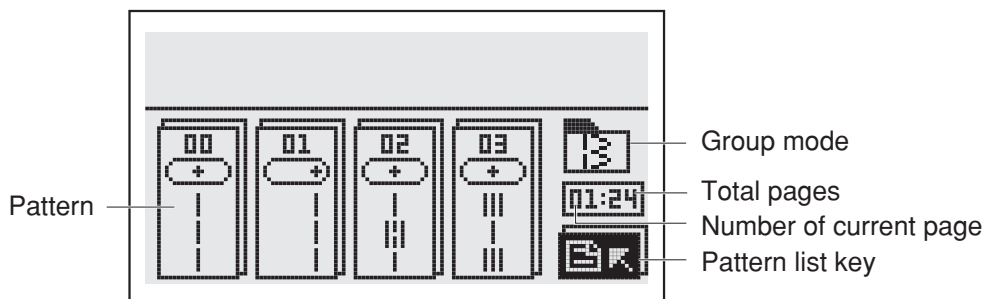
The screen can be changed by using the keys below the screen, and operations performed can be changed by directly touching the icons on the LCD screen. Icons showing two layers indicate that the operation can be changed by touching the icon directly.

### ■ Pattern

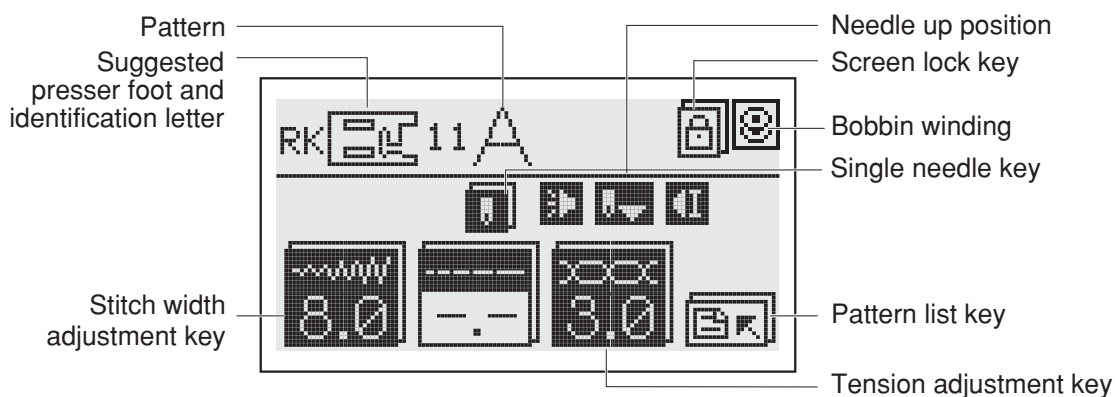


## UNDERSTANDING THE LCD SCREEN

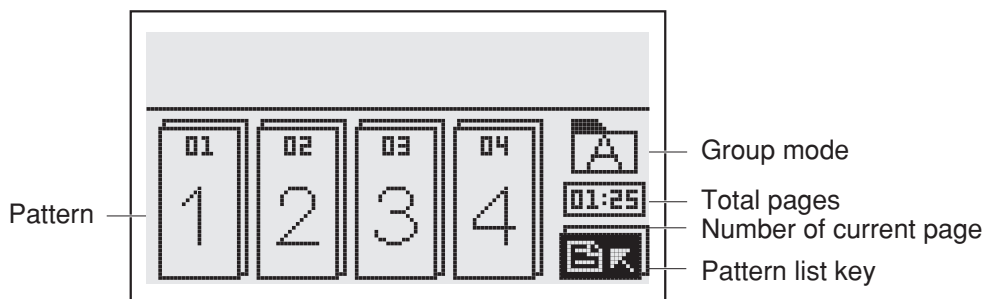
### ■ Pattern list



### ■ Alphabet

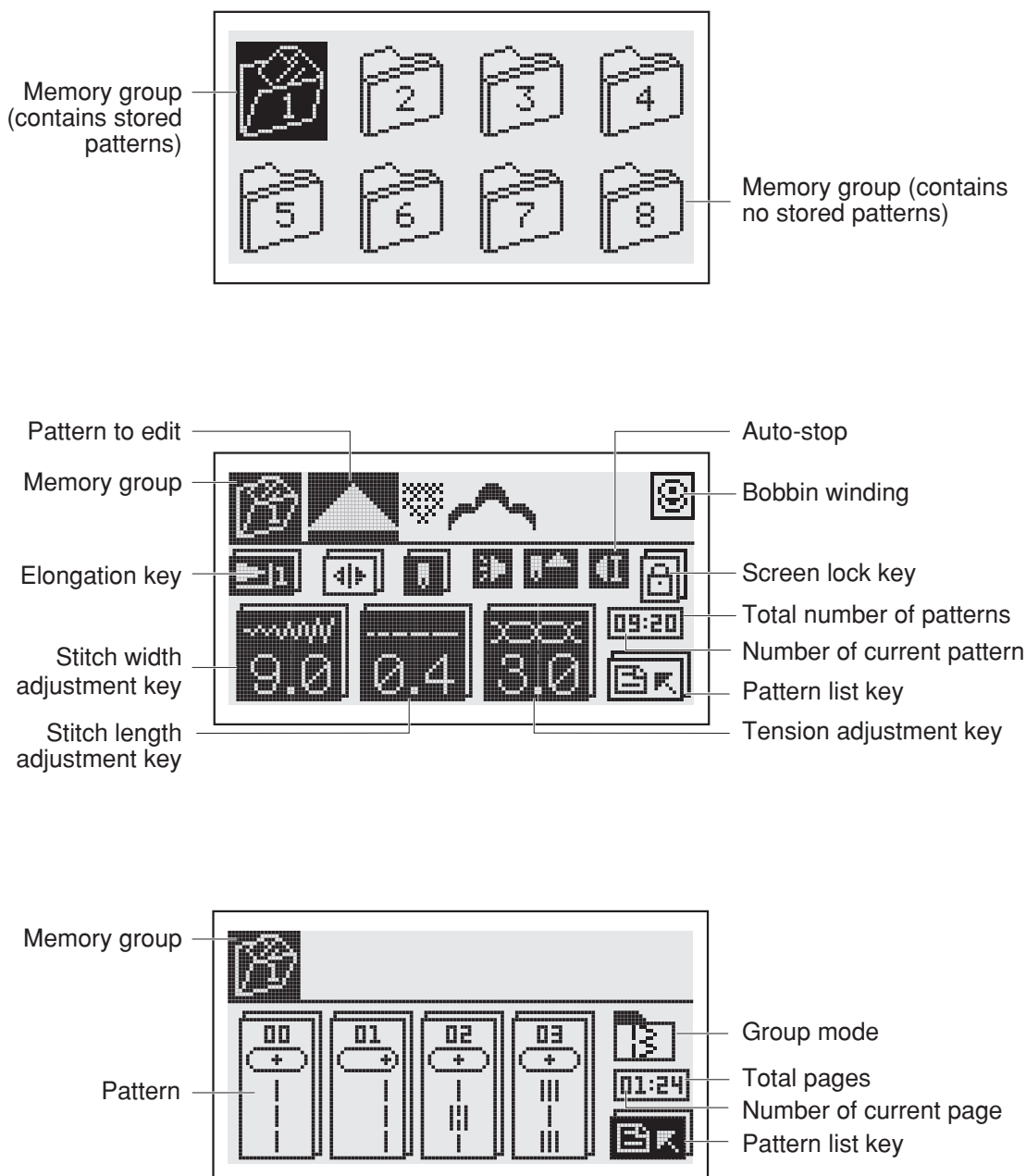



### ■ Alphabet list



## UNDERSTANDING THE LCD SCREEN

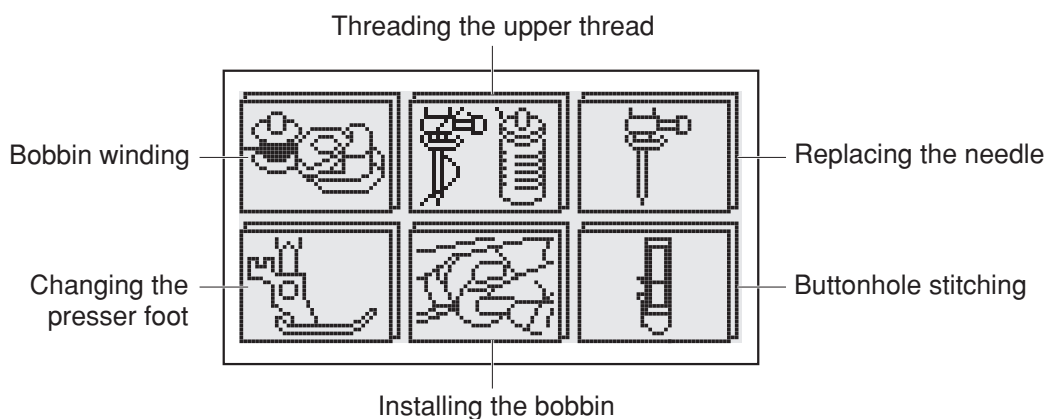
### Memory



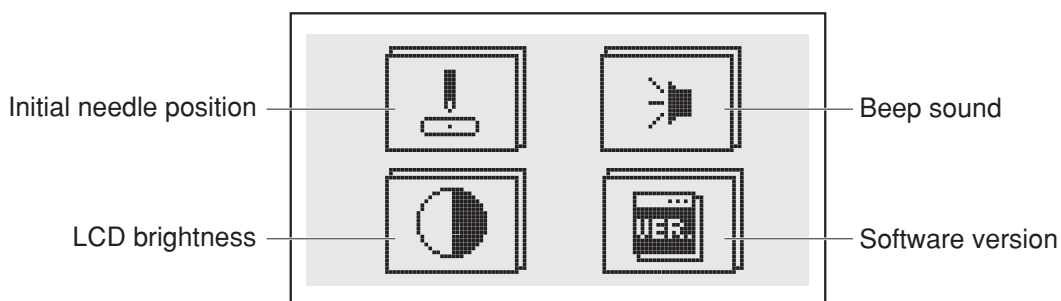
 **Note:** For patterns saved in Memory mode please refer to the Stitch Reference Chart for the recommended presser foot to be used.

## UNDERSTANDING THE LCD SCREEN

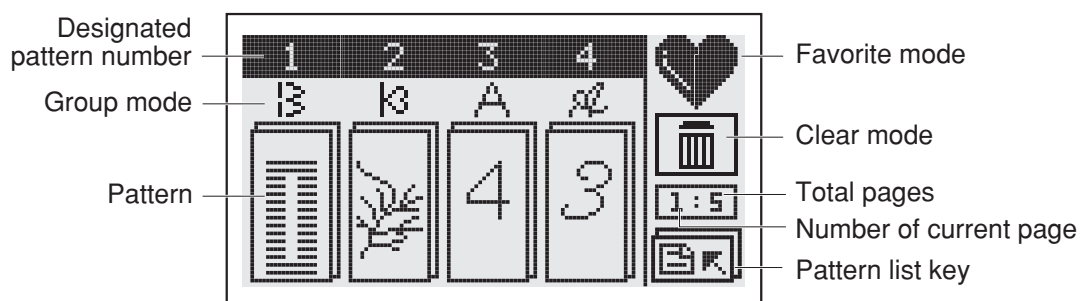
### Machine operation



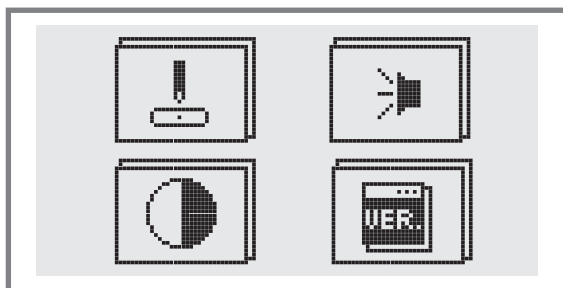
### Machine settings



### Favorite stitch




## MACHINE SETTINGS



Press the settings key " " and the settings screen appears.

Press the icons to set the Initial needle position, beeping sound, LCD brightness and to display the software version.


After setting, press " " to return to the settings screen.


Press " " to return to the previous edit screen.

### ■ Initial needle position



Select the straight stitch (Group A pattern 00 or Group A pattern 01) that is automatically selected when the machine is turned on.

Press " " to set center needle position (Group A pattern 00).


Press " " to set right needle position (Group A pattern 01).

### ■ Beeping sound



You can mute the beeping sound in normal operation.


Press " " to set sound off.

Press " " to set sound on.

### ■ LCD screen brightness control



If no indication is shown on the screen after switching on the power, press the icons to adjust the LCD screen brightness.

Press " " to adjust LCD screen darkness.


Press " " to adjust LCD screen brightness.



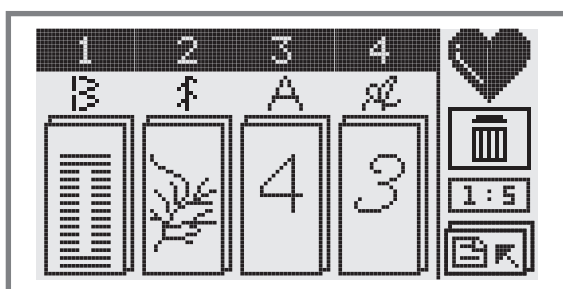
## MACHINE SETTINGS


### ■ Software version display



Press the tab "", the LCD will show the version of the software installed on this machine.

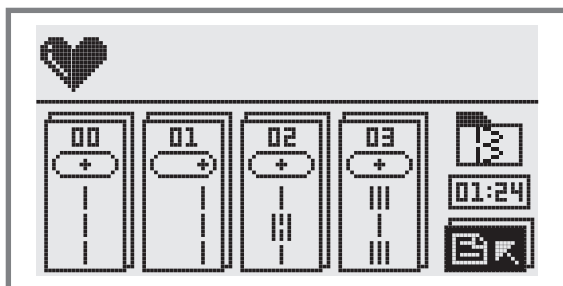
## FAVORITE STITCH





Press the favorite stitch key " " to set your favorite stitches and alphabets that you use most. There are twenty patterns that can be set on the LCD screen, which creates quick and easy access at all times.

Use the page key "", " " to scroll through the favorite pattern list.

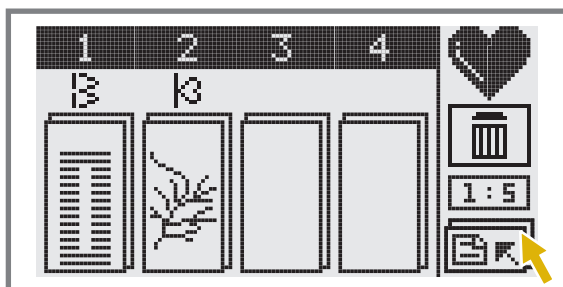
### ■ Selecting stitches or letters





Press the favorite stitch key " " to enter the favorite stitches screen.

Press the stitch selection key " A" to select stitches or letters. (e.g. Group A pattern 26)

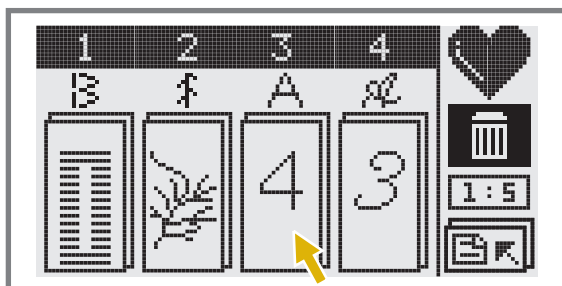
 **Note:** The icon " " will show on the screen when entering the pattern list mode.




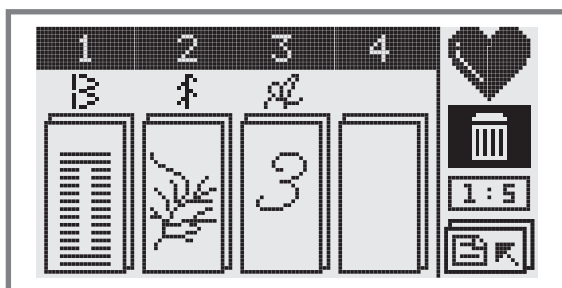
Press the pattern list key " " to return to the pattern list and select the other stitches in the same mode or press the stitch selection key " A" again to select another pattern mode. (e.g. Group C pattern 04)

## FAVORITE STITCH

### ■ Clearing stitches or letters



Press the clear key "  " to enter the clear function and the icon will display in reverse on the favorite stitch screen.






Select the tabs to clear stitches and all remaining stitches will move forward to fill the space.



Press the clear key "  " again, to exit the clear function.


### ■ Storing stitches and exit




After editing favorite stitch, press the favorite stitch key "  " again to save or exit favorite stitch screen.

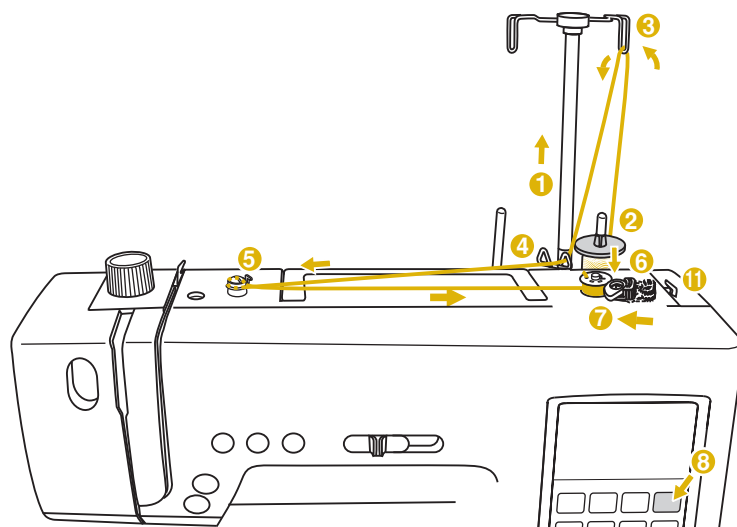
Press "  &  " to save and exit favorite stitch screen.

Press "  " to save favorite stitch and press the favorite stitch key "  " again to return to the favorite stitch screen.

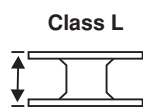
Press "  " to exit favorite stitch screen without anything being saved.

## WINDING THE BOBBIN

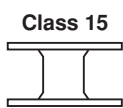
 **Note:** Due to the independent bobbin winder motor, you can wind the bobbin during sewing. Follow the steps for "Winding The Bobbin" except place the thread for the bobbin through the thread guide opening not in use being careful not to tangle thread.



8.95 mm  
(approx.  
3/8 inch)



This model



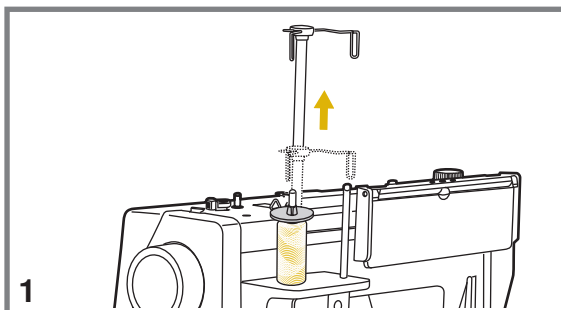
Other models

Actual Size

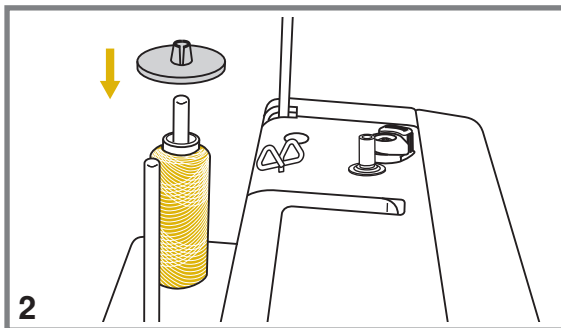


**Attention:** The included bobbin was designed specifically for this sewing machine. If bobbins from other models are used, the machine will not operate correctly. Use only the included bobbin or bobbins of the same type / class.

### ■ Bobbin winding



1. Bring the hinged thread guide up and forward into the upright position.

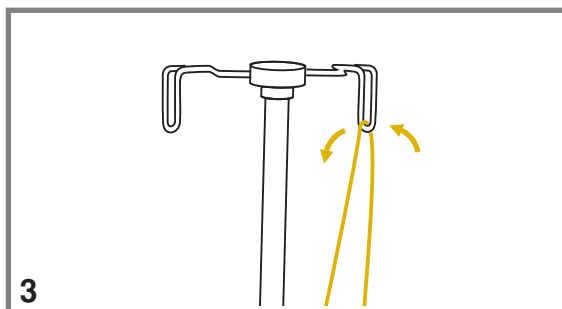


2. Place the spool of thread and spool cap onto the spool pin. For smaller spools of thread, use the small spool cap. Spool cap should be close in size to the thread spool, however should not be any smaller. If the spool cap is smaller than thread spool, thread may get caught in the slit on end of spool and cause damage.

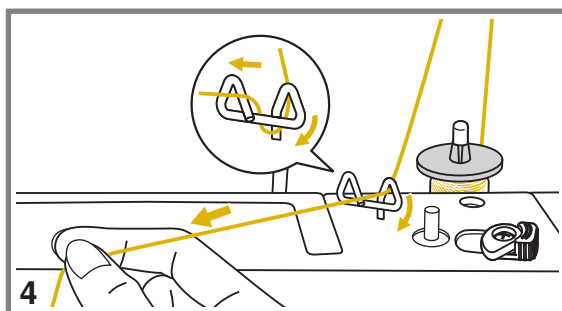


**Note:** If the thread spool does have a slit on the end, it is recommended to place this end of the spool toward the bottom, so it doesn't get caught while sewing or bobbin winding.

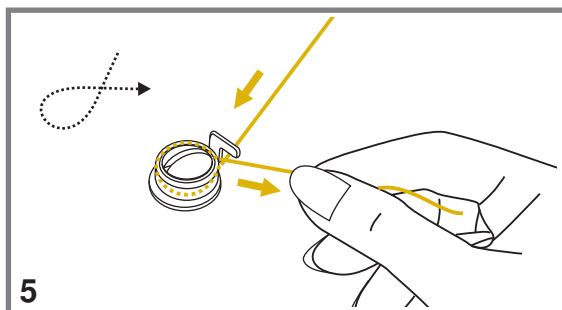
## WINDING THE BOBBIN



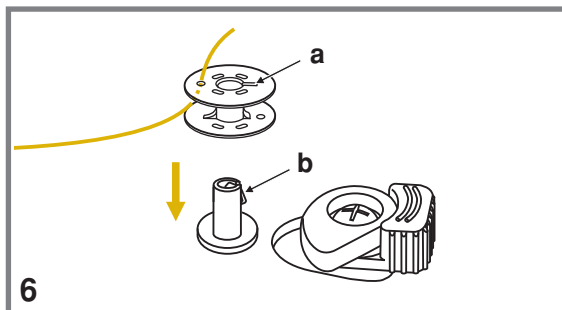
3. Place the thread through the thread guide above the spool of thread from back to front.



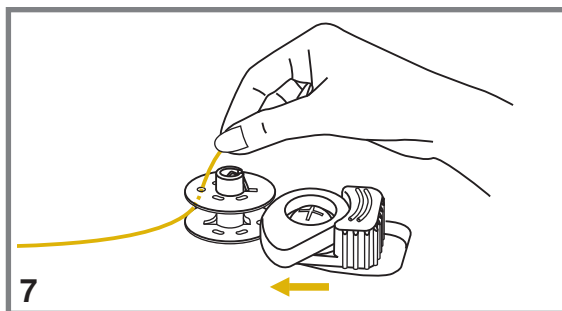
4. Place the thread through the appropriate thread guide opening for the spool pin that is being used.



5. Pass the thread clockwise around the bobbin winder tension disc, as illustrated. Make sure the thread is under the disc securely.

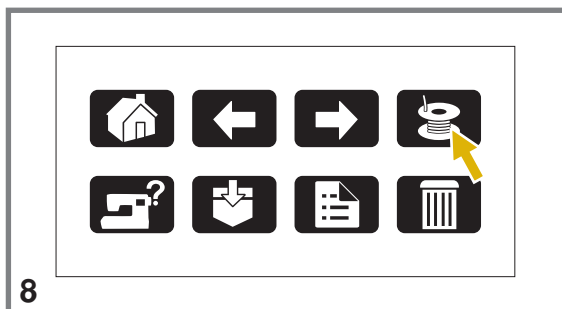


6. Place the thread end through one of the inner holes in the bobbin as illustrated. Align the groove (a) in the bobbin with the spring (b) on the bobbin winder shaft, and then place the empty bobbin on the bobbin winder shaft.

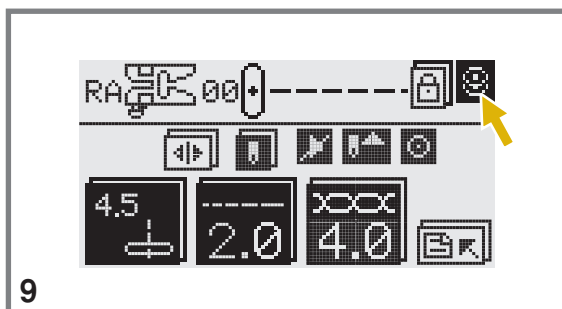


7. While holding the thread tail securely in one hand, push the bobbin winder switch to the left.

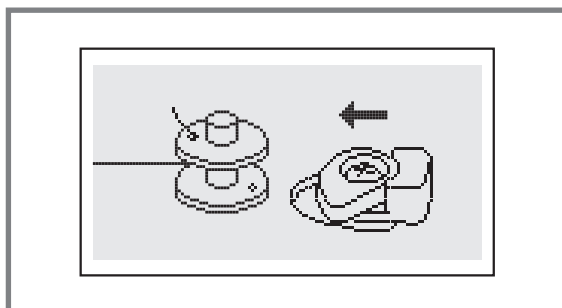
## WINDING THE BOBBIN




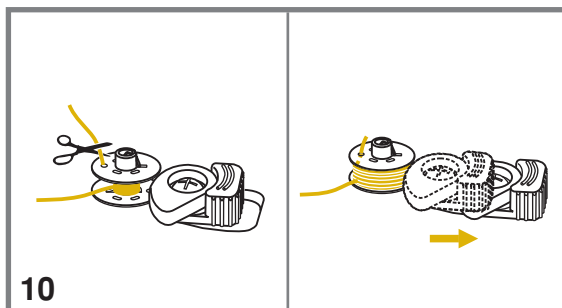
8. Press the bobbin winding key.



9. When the bobbin winder switch is pushed to the left and bobbin winder key is pressed, the bobbin winding icon will display in reverse highlight.

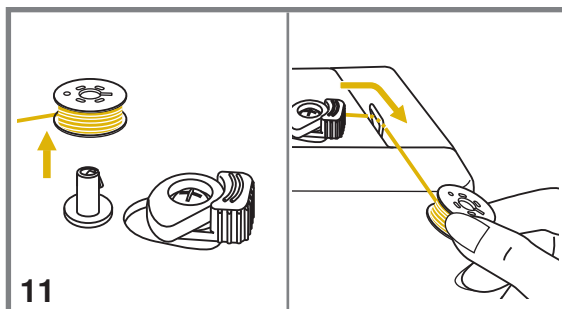


 **Note:** When the bobbin winder key is pressed without pushing the bobbin winder switch to the left, the following screen is displayed for a few seconds.




10. After the bobbin has wound a few turns stop the machine and cut the thread near the hole of the bobbin. Continue winding the bobbin until it is full.

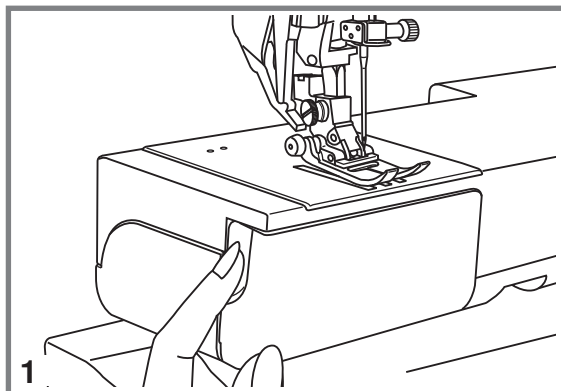
The bobbin stops spinning automatically when it is full, and the bobbin winder switch returns to its original position.



11. Remove the bobbin then cut the thread on the thread cutter.

 **Attention:** Since this machine is equipped with an independent bobbin winder the sewing speed controller does not effect the winding speed. Keep fingers clear of the needle area while winding the bobbin.

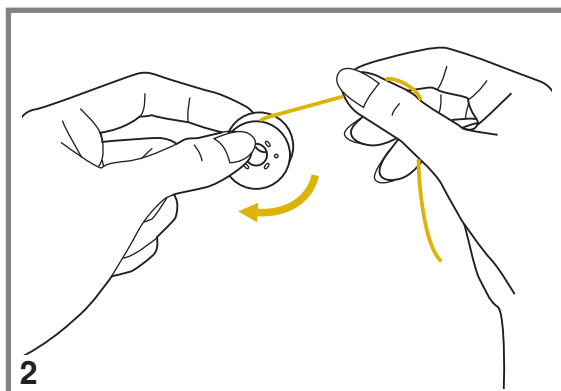
## INSERTING THE BOBBIN



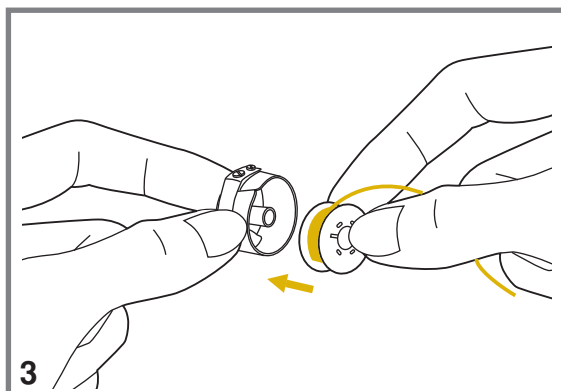
**⚠ Attention:** Turn power switch OFF ("O") before inserting or removing the bobbin.

**Press the needle position button to raise the needle before inserting or removing the bobbin.**

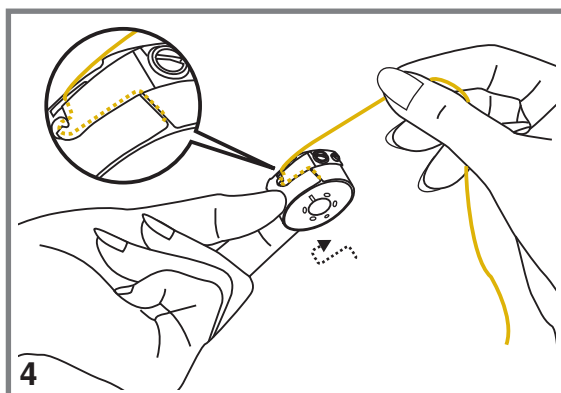
1. Open the hinged cover.



2. It is important to be sure that the bobbin is turning in a clockwise direction (arrow).

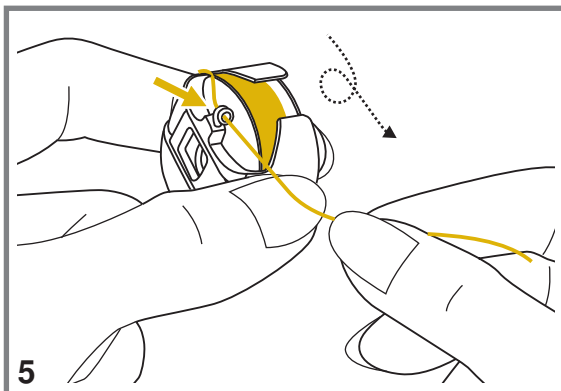


3. Hold the bobbin case with one hand. Insert the bobbin so that the bobbin turns in a clockwise direction.

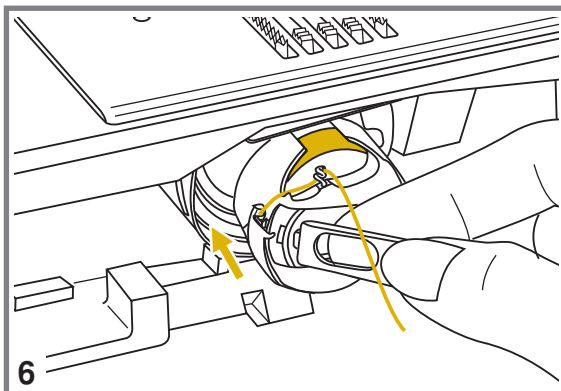


4. Pull the thread through the slot, to the left and then right until it enters the delivery eyelet under the tension spring.

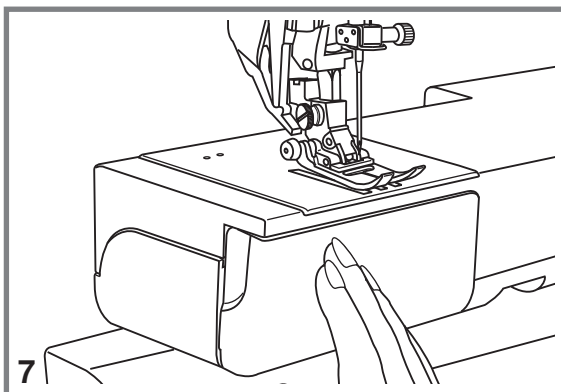
## INSERTING THE BOBBIN



5. Pull the bobbin thread through the metal hook using a clockwise motion.




6. Hold the bobbin case by the hinged latch. Insert the bobbin case fully into the shuttle race and release the latch.

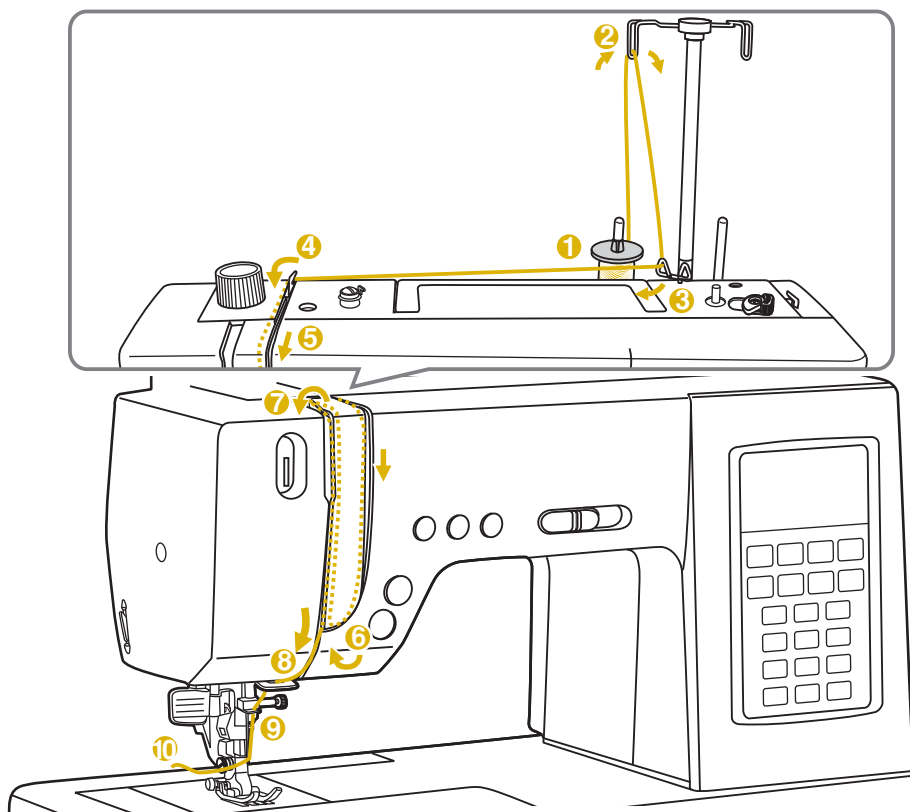


7. Close the hinged cover.

## UPPER THREADING

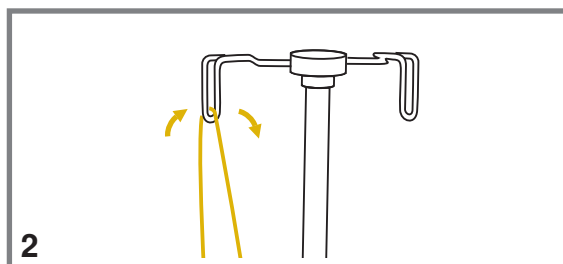
### ■ Threading the upper thread

 **Note:** It is important to thread the machine correctly. Improper threading could result in several sewing problems.



**Before threading the machine, raise the needle to its highest point and raise the presser foot to release the tension discs.**

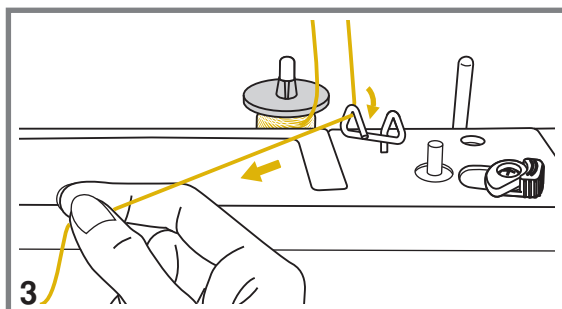
1. Slide the spool of thread onto the spool pin so the thread unwinds clockwise from the thread spool. Then position the spool cap on the spool pin to secure the spool of thread.



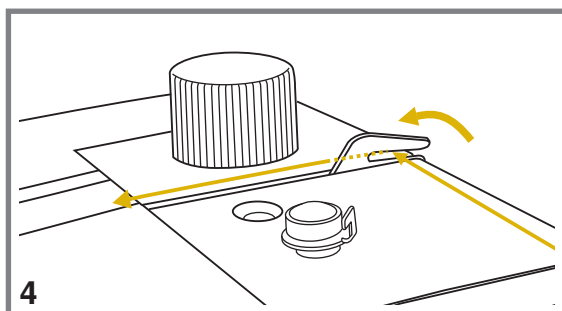
2. Place thread in the thread guide above the spool of thread.



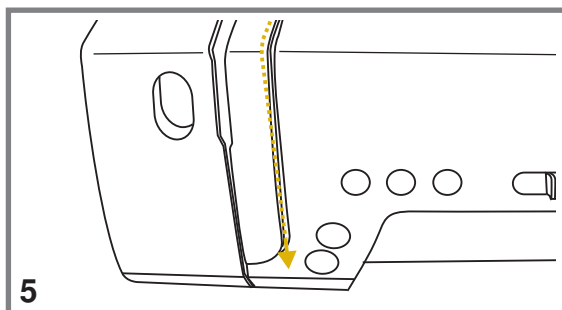
## UPPER THREADING



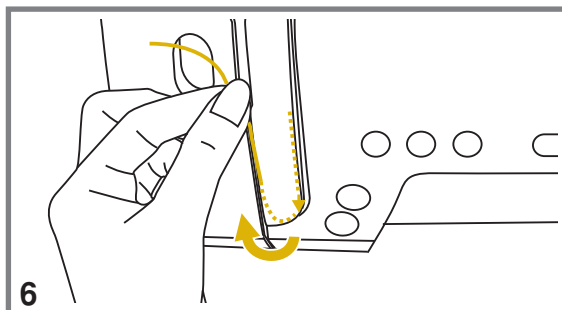
3. Place the thread through the appropriate thread guide opening for the spool pin that is being used.



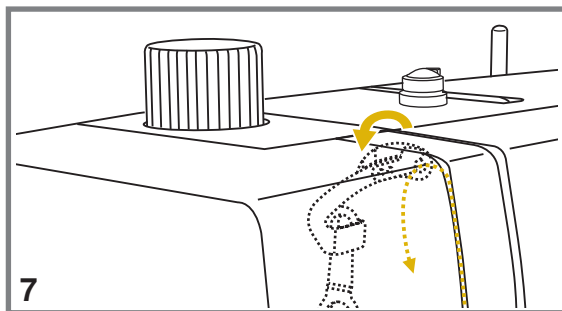
4. Guide the thread into the pre-tension thread guide pulling the thread through the pre-tension spring as illustrated.



5. Pull the thread downward from the pre-tension thread guide.

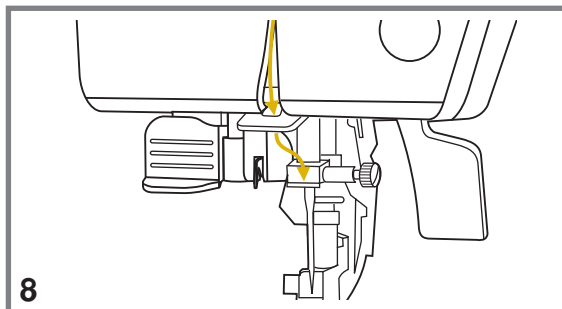


6. Draw the thread down through the right slot, pulling into the tension discs. Bring it down, around the U-turn from right to left, then pull the thread upward.

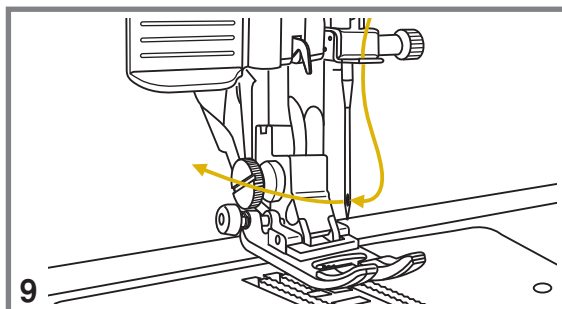


7. Bring the thread up through the left slot and then into the slotted eye of the take-up lever from right to left. Continue by bringing the thread back down through the left slot.

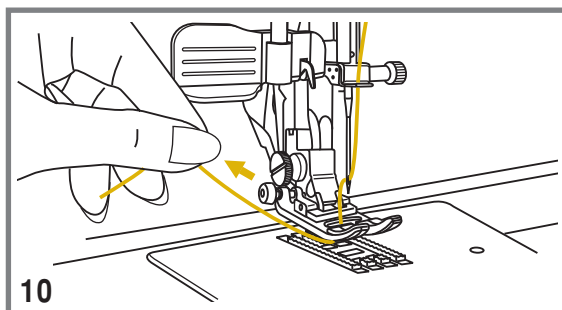
## UPPER THREADING



8. Pass the thread behind the flat, horizontal thread guide and then through the thread guide above the needle.




9. Insert the end of the thread through the eye of the needle from front to back or use the needle threader to thread the needle. (See next page for needle threader instructions.)



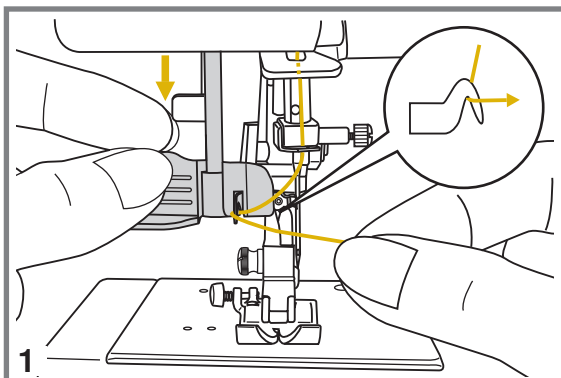
10. Place the thread under the foot and pull out approximately 15 cm (6 inches) of thread to the back of the machine.

## UPPER THREADING

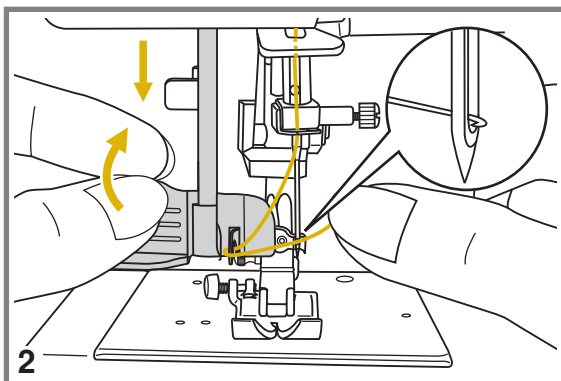
### ■ Using the needle threader

 **Attention:** Turn power switch to the OFF position ("O").

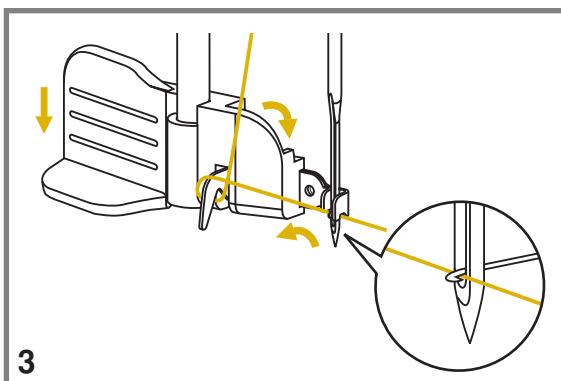
**Raise the needle to its highest position and lower the presser foot.**



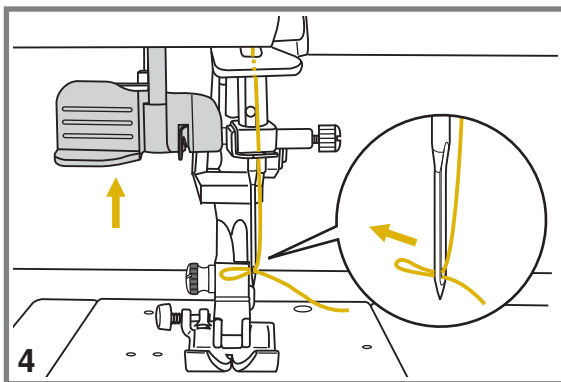
1. Lower the needle threader lever slowly and draw the thread through the thread guide as illustrated and then to the right.



2. Pivot the needle threader into the threading position so the hook pin passes through the needle eye.



3. Pass the thread in front of the needle to catch the hook of the threader.

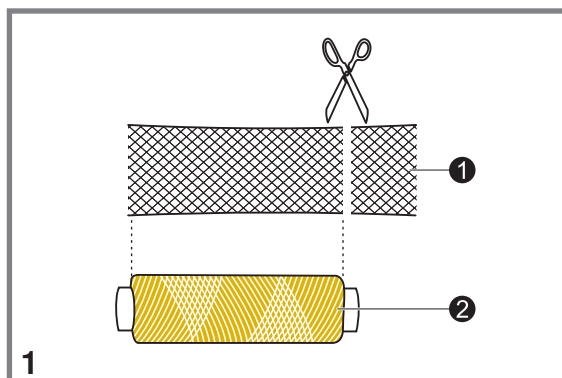


4. Hold the thread loosely and return the threader to its original position. The hook will turn and pull the thread through the needle eye forming a loop.

Pull the loop of thread through the needle eye.

## UPPER THREADING

### ■ Using the thread net

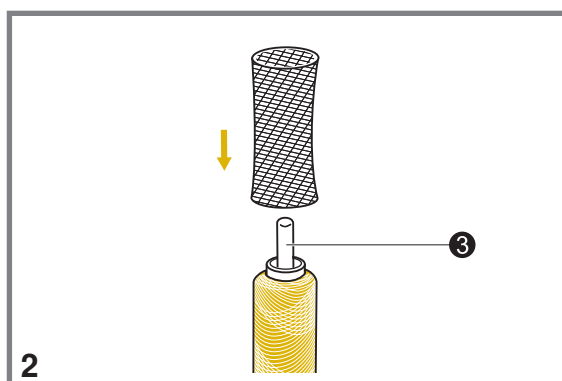


If using special threads which wind quickly off the thread spool, attach a net to the spool before using.

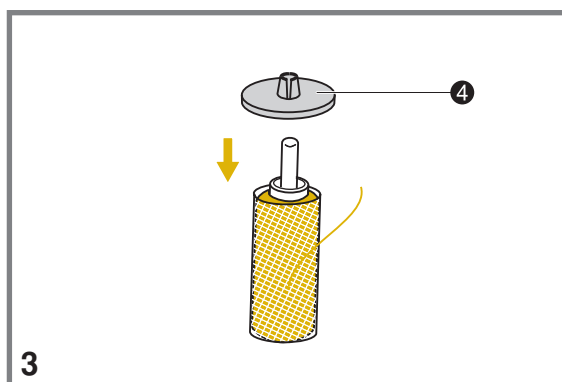
\* Cut the net to match the size of the spool.

① NET

② Thread spool



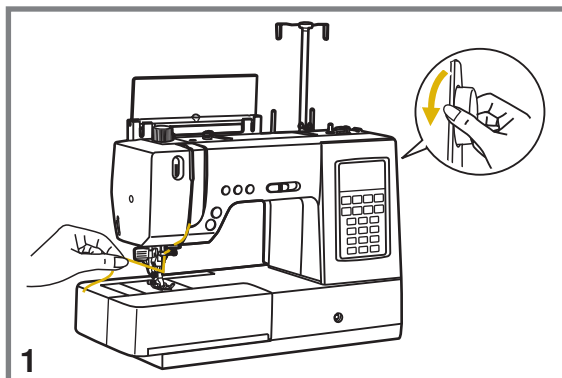
③ Spool pin



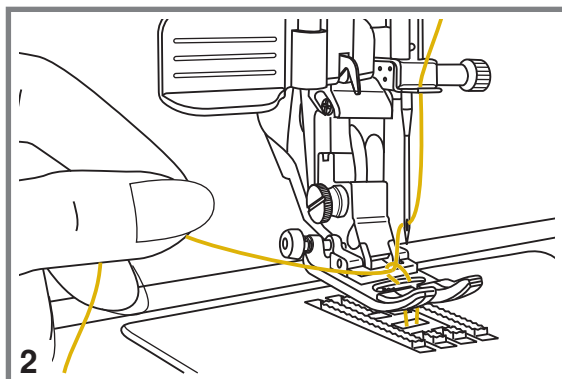
④ Spool cap

## UPPER THREADING

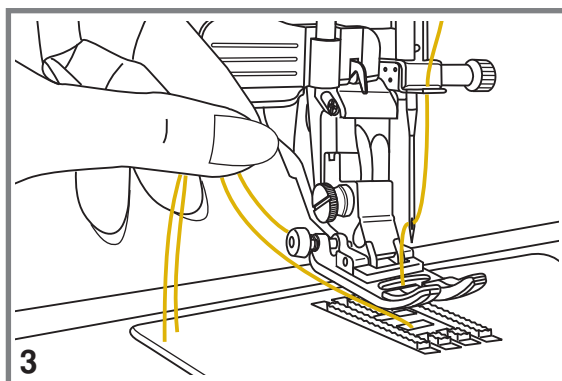
### ■ Raising up the lower thread



1. Hold the upper thread with the left hand. Turn the handwheel towards you (counterclockwise) lowering, then raising the needle.

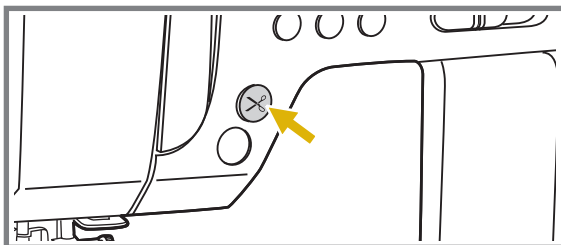


2. Gently pull on the upper thread to bring the bobbin thread up through the needle plate hole. The bobbin thread will come up in a loop.

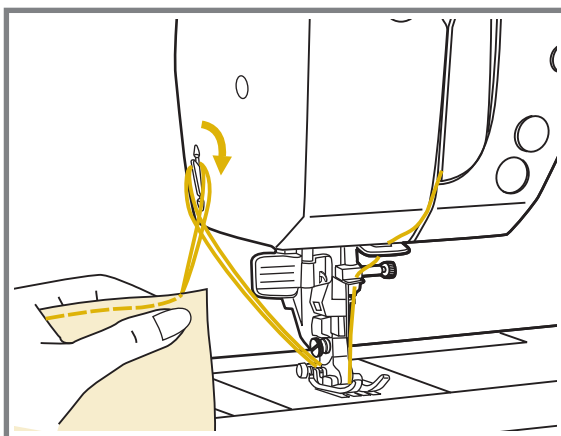


3. Pull both threads to the back under the presser foot.

## CUTTING THE THREAD



Press thread cutter button after finishing sewing and the machine will automatically trim the threads.

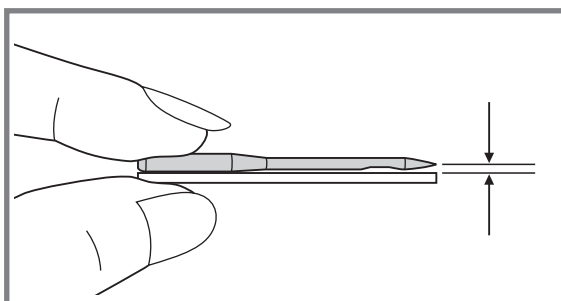


To manually cut the threads use the thread cutter on the left side of the face plate.

Raise the presser foot. Remove the fabric, draw the threads to the left side of the face plate and cut using the thread cutter.

The threads are cut at the proper length to start the next seam.

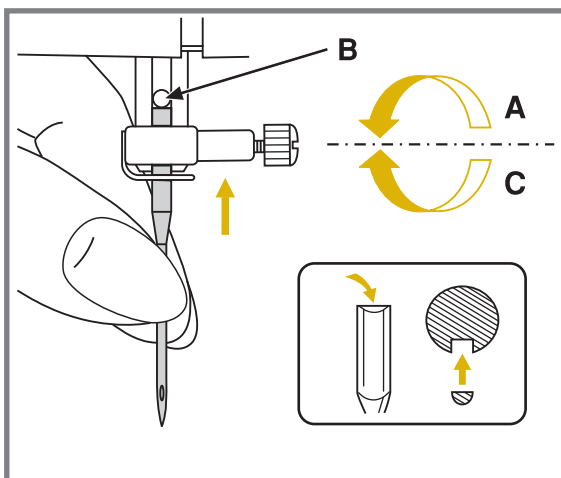
## REPLACING THE NEEDLE



**⚠ Attention:** Turn power switch to OFF ("O") when replacing the needle !

Change the needle regularly. A bent or damaged needle can cause skipped stitches, damage fabric or break while sewing.

To check the needle, place the flat side of the needle on a flat surface. Discard any damaged or bent needles.



Before changing the needle, press the needle position button to raise the needle to its highest position.

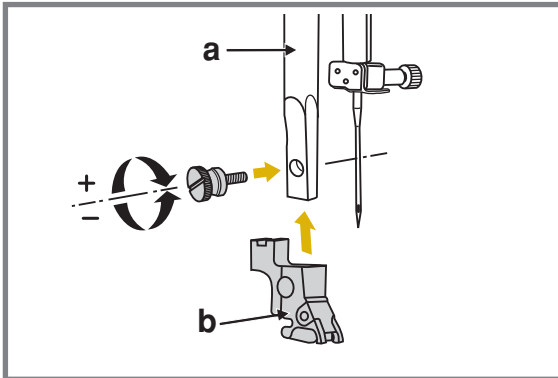
A. Loosen the needle clamp screw and remove the damaged needle.

B. With the flat side of the needle facing the back, insert a new needle up as far as it will go.

C. Securely tighten the needle clamp screw.

## CHANGING THE PRESSER FOOT

### ■ Attaching the presser foot holder

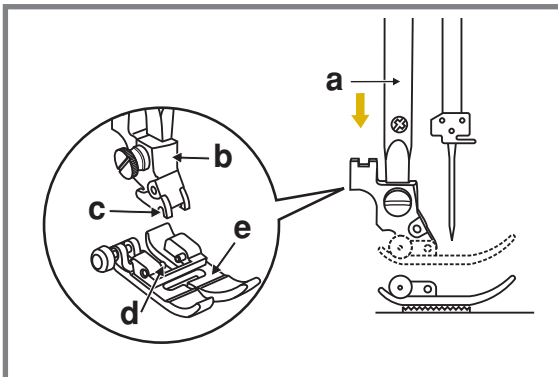


**⚠ Attention:** Turn power switch to OFF ("O") when carrying out any of the following operations!

Raise the presser foot bar (a).

Position the presser foot holder (b) in place and attach as illustrated.

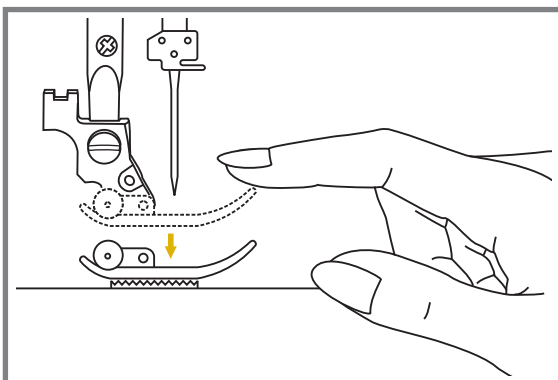
### ■ Attaching the presser foot



Lower the presser foot holder (b) until the notch (c) is directly above the pin (d).

Lower the presser foot holder (b) and the presser foot (e) will engage automatically.

### ■ Removing the presser foot










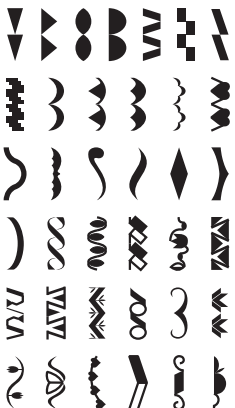




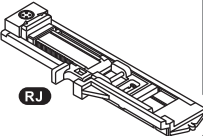















Raise the presser foot.

Press down on the front of the presser foot by hand.  
The foot will disengage.

## CHANGING THE PRESSER FOOT

### ■ Type of presser foot chart

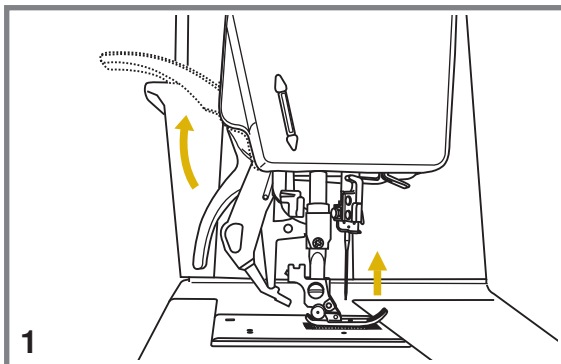
(twin needle is shown below, suggesting opportunities for more creativity)

PRESSER FOOT	APPLICATION	NEEDLE	PRESSER FOOT	APPLICATION	NEEDLE
 <p><b>RA</b> All-purpose foot with PDQ®</p>	General sewing, Patchwork stitches, Decorative stitching, Smocking, Fagoting, etc.		 <p><b>RK</b> Satin stitch foot</p>	Satin stitch sewing, Decorative stitching.	
 <p><b>RB</b> Zipper foot with PDQ®</p>	Inserting zippers		 <p><b>RN</b> Open toe foot with PDQ®</p>		
 <p><b>RH</b> Cording foot with PDQ®</p>	Cording		 <p><b>RF</b> Quilting foot with PDQ®</p>	Quilting	
 <p><b>RJ</b> Buttonhole foot</p>	Buttonhole & Darning sewing		 <p><b>RX</b></p>	Free-motion darning Free-motion embroidery Monogramming	
 <p><b>RI</b> Overcasting foot with PDQ®</p>	Overcasting		 <p><b>RD</b> Gathering foot</p>	Gathering	
 <p><b>RM</b> Blind hem foot with PDQ®</p>	Blind hem stitching		 <p><b>RC</b> Button sewing foot</p>	Button sewing	
 <p><b>RG</b> Hemmer foot with PDQ®</p>	Narrow hemming		 <p><b>RE</b> 1/4" quilting foot with PDQ®</p>	Quilt and patchwork sewing	

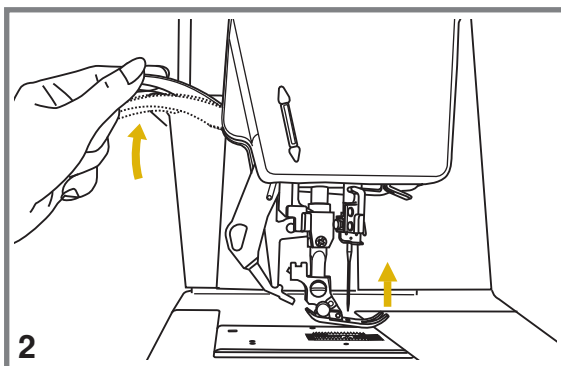


## CHANGING THE PRESSER FOOT

### ■ Two-step presser foot lifter



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

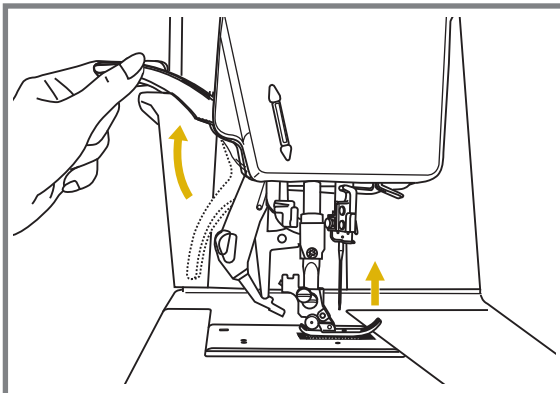


2. When sewing several layers or thick fabrics, the presser foot can be raised a second stage for easy positioning of the work.

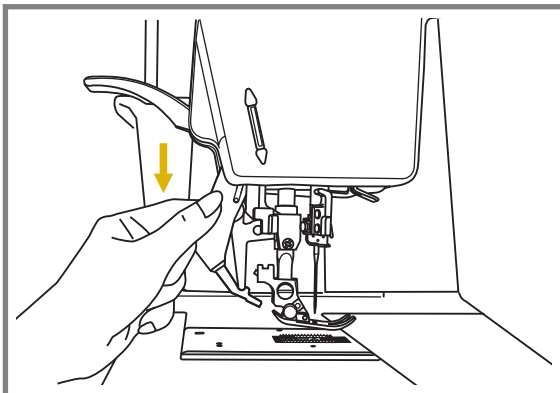
## PRECISION DUAL-FEED SYSTEM (PDQ®)

The PDQ® system will feed fabrics from the top and bottom simultaneously, ensuring that the fabric layers feed evenly. Use this when sewing checked, striped or plaid fabrics, as well as quilt layers. It is also helpful when sewing lightweight or difficult-to-handle fabrics such as silk or rayon, as the PDQ® system prevents puckering.

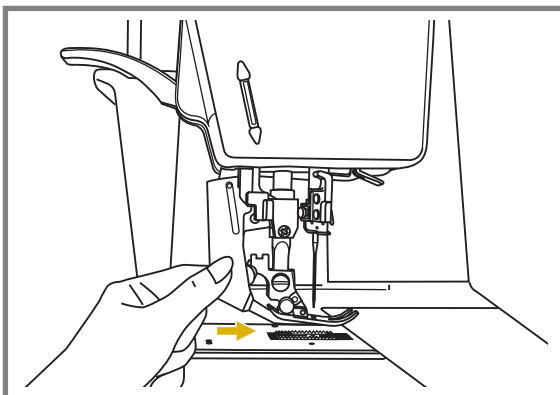
### ■ To engage the PDQ® system



Raise the presser foot.



Lower the PDQ® mechanism slowly.



Swing the PDQ® mechanism forward under the back of the presser foot until it is engaged and stays in the lowered position.

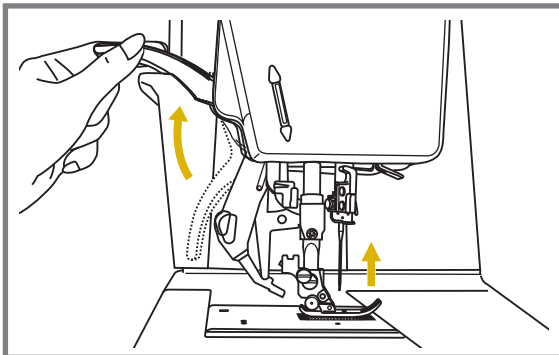


**Attention:** Only use presser feet with the back opening when engaging the PDQ® mechanism.

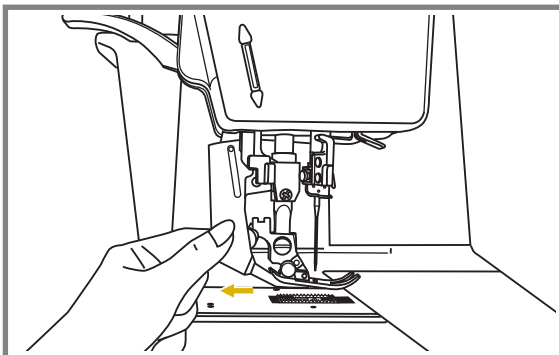


## PRECISION DUAL-FEED SYSTEM (PDQ®)

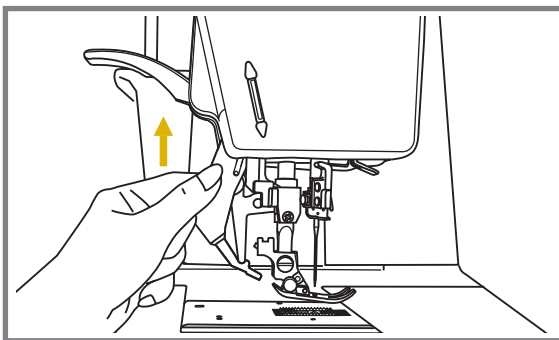
### ■ To disengage the PDQ® system



Raise the presser foot.

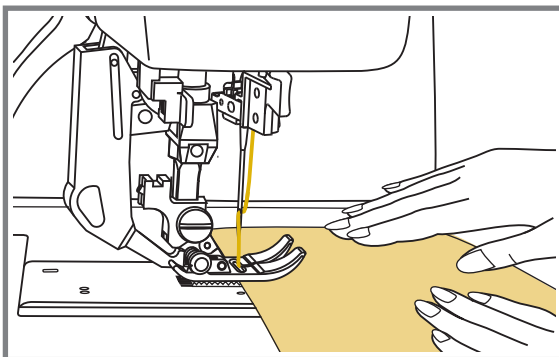


Pull down the PDQ® mechanism and swing it to the rear to disengage.



Push the PDQ® mechanism up.

### ■ Fabric positioning



Place fabric flat on top of needle plate and position the fabric under presser foot.

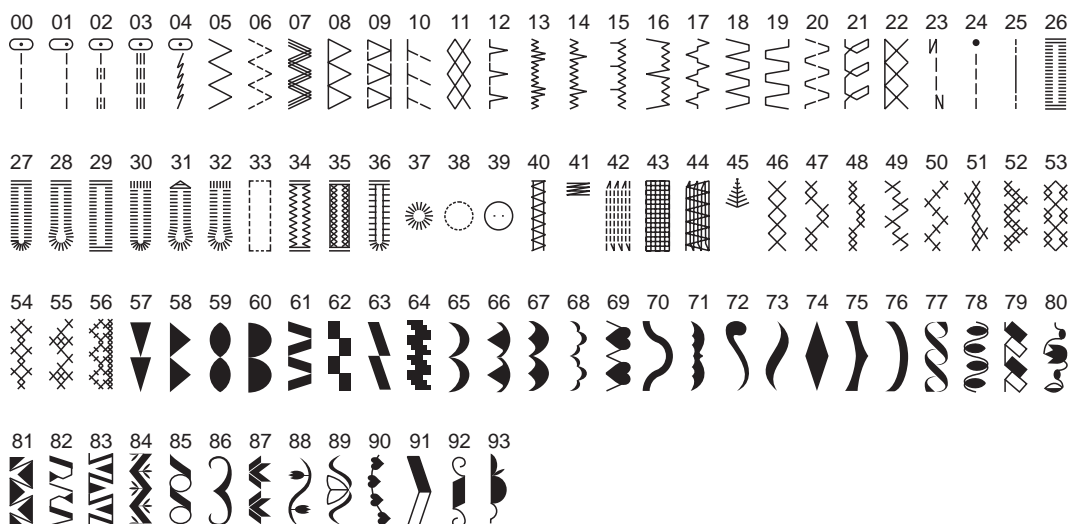
While holding the thread tails with left hand turn handwheel counterclockwise with right hand to insert the needle into the fabric. Lower the presser foot and make 3-4 stitches.

Place hands on each side of the presser foot and gently guide the fabric while sewing.

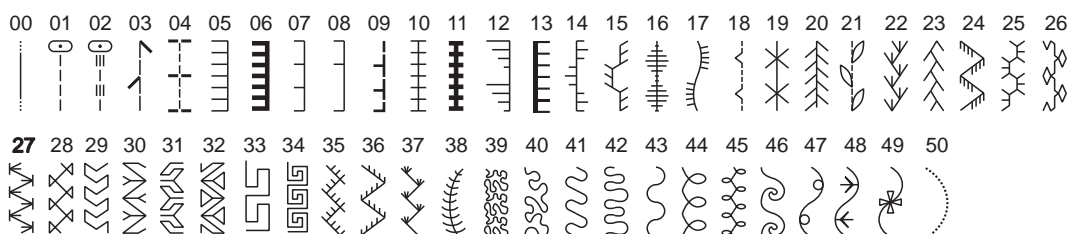
# PATTERN CHART

## ■ Patterns

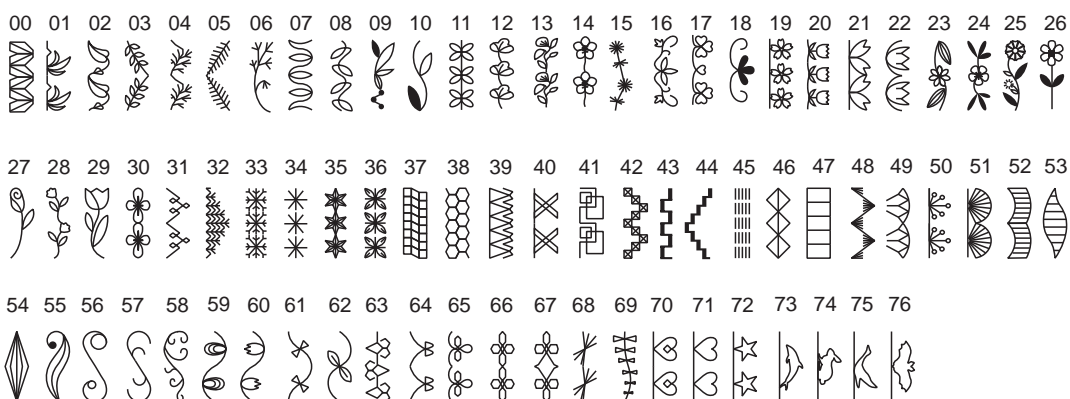
### Group A patterns "A" -94



### Group B patterns "B" -51



### Group C patterns "C" -77



# PATTERN CHART

## Alphabets

### Block style group "A" patterns -97

01	02	03	04	05	06	07	08	09	10																												
1	2	3	4	5	6	7	8	9	0																												
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36												
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z												
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62												
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z												
Ä	Å	Æ	Ñ	Ö	Ø	Ç	Ü	ä	å	æ	ë	è	é	ê	ñ	ö	õ	ø	ì	ç	ü	û	ß	&													
89	90	91	92	93	94	95	96	97																													
?	!	_	'	,	.	-	(	)																													

### Script style group "A" patterns -97

01	02	03	04	05	06	07	08	09	10																												
1	2	3	4	5	6	7	8	9	0																												
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36												
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z												
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62												
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z												
Ä	Å	Æ	Ñ	Ö	Ø	Ç	Ü	ä	å	æ	ë	è	é	ê	ñ	ö	õ	ø	ì	ç	ü	û	ß	&													
89	90	91	92	93	94	95	96	97																													
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### Outline style group "A" patterns -97

01	02	03	04	05	06	07	08	09	10																												
1	2	3	4	5	6	7	8	9	0																												
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36												
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z												
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62												
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z												
Ä	Å	Æ	Ñ	Ö	Ø	Ç	Ü	ä	å	æ	ë	è	é	ê	ñ	ö	õ	ø	ì	ç	ü	û	ß	&													
89	90	91	92	93	94	95	96	97																													
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## MATCHING NEEDLE/ FABRIC/ THREAD

### NEEDLE, FABRIC, THREAD SELECTION GUIDE





NEEDLE SIZE	FABRICS	THREAD
9-11 (70-75)	Lightweight fabrics-thin cottons, voile, serge, silk, muslin, interlocks, cotton knits, tricot, jerseys, crepes, woven polyester, shirt & blouse fabrics.	Light-duty thread in cotton, nylon, polyester or cotton wrapped polyester.
12-14 (80-90)	Medium weight fabrics-cotton, satin, sailcloth, double knits, lightweight woollens.	Most threads sold are medium size and suitable for these fabrics and needle sizes. Use polyester threads on synthetic materials and cotton on natural woven fabrics for best results. Always use the same thread on top and bottom.
14 (90)	Medium weight fabrics-cotton duck, woolen, heavier knits, terrycloth, denims.	
16 (100)	Heavyweight fabrics-canvas, woollens, quilted fabrics, denims, upholstery material (light to medium).	Heavy duty thread.

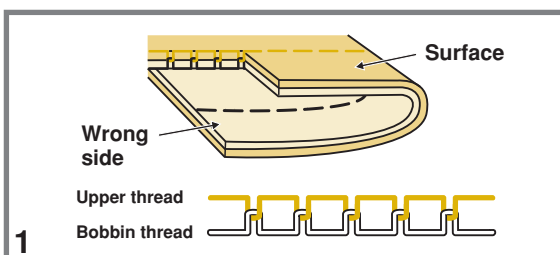
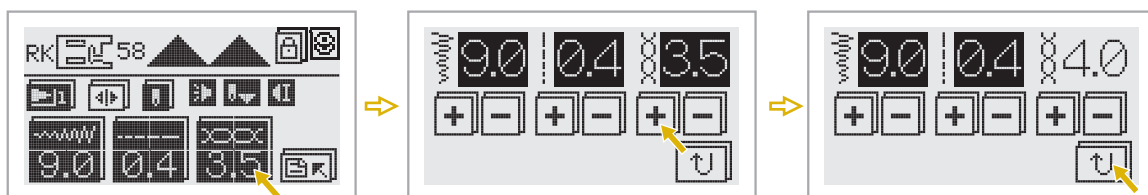


#### **Note:**

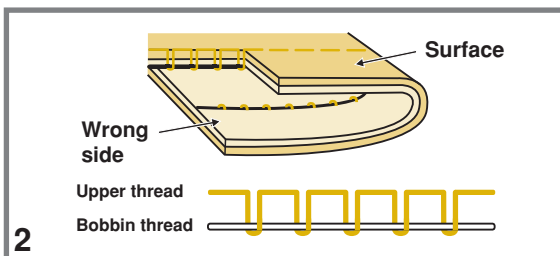
- In general, fine threads and needles are used for sewing fine fabrics, and thicker threads are used for sewing heavy fabrics.
- Always test thread and needle size on a small piece of fabric which will be used for actual sewing.
- It is recommended that the same thread be used in the needle as in the bobbin.


## THREAD TENSION

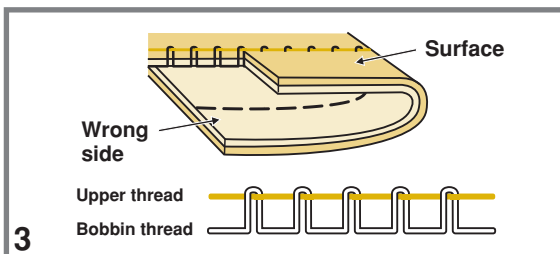
- Press "  " to enter tension adjustment screen.
- To increase the tension, press the adjustment key "  " to a higher number. To reduce the tension, press the adjustment key "  " to a lower number.
- Press back key "  ", the normal screen appears again.
- Proper setting of tension is important for good sewing results.
- There is no single tension setting appropriate for all the stitch functions and fabrics.
- For all decorative sewing you will always obtain a nicer stitch and less fabric puckering when the upper thread appears slightly on the bottom side of your fabric.




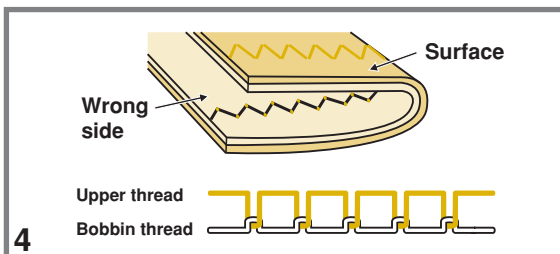
1. Normal thread tension for straight stitch sewing.



2. Upper thread tension is too loose for straight stitch sewing. Press the key "  " to higher number to tighten the upper tension.



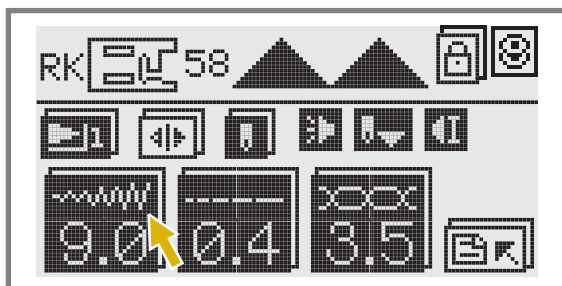
3. Upper thread tension is too tight for straight stitch sewing. Press the key "  " to lower number to reduce the upper tension.




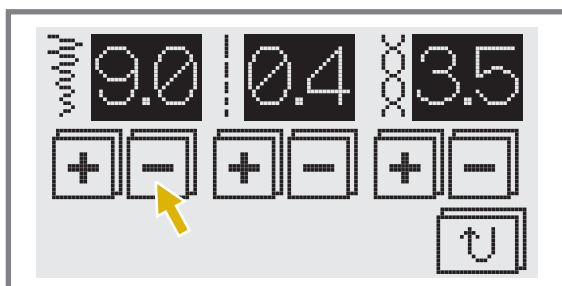
4. Thread tension for zigzag and decorative sewing should be slightly looser on the upper thread stitching for the fabric to lay flat and to avoid puckering of fabric.



## LENGTH & WIDTH ADJUSTMENT

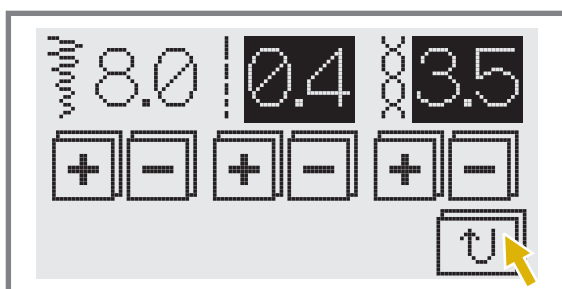
### ■ Stitch width adjustment




Press " " to enter the stitch width adjustment screen.



For a narrower stitch, press the adjustment key " ". For a wider stitch, press the adjustment key " ". The stitch width can be adjusted between "0.0-9.0".



Press back key " ", the normal screen appears again.

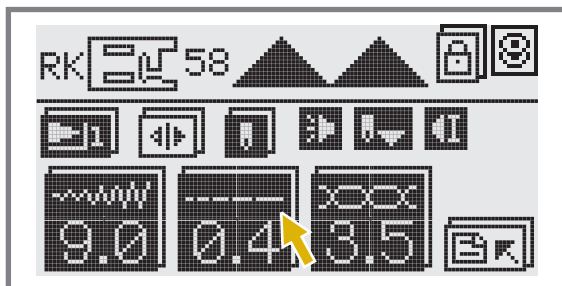



**Note:** Certain stitches have a limited stitch width. (For detailed instructions, refer to the "Stitch reference chart" on page 103.)

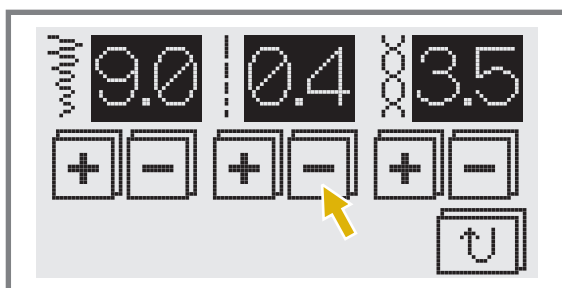




## LENGTH & WIDTH ADJUSTMENT

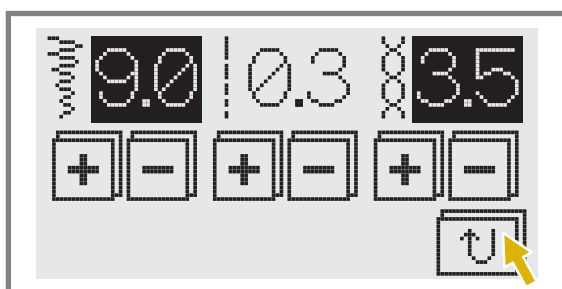
### ■ Stitch length adjustment





Press "  " to enter the stitch length adjustment screen.

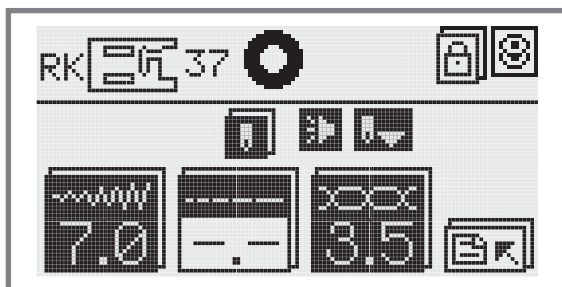




For a shorter stitch, press the adjustment key "  ". For a longer stitch, press the adjustment key "  ". The stitch length can be adjusted between "0.0-5.0".



Press back key "  ", the normal screen appears again.

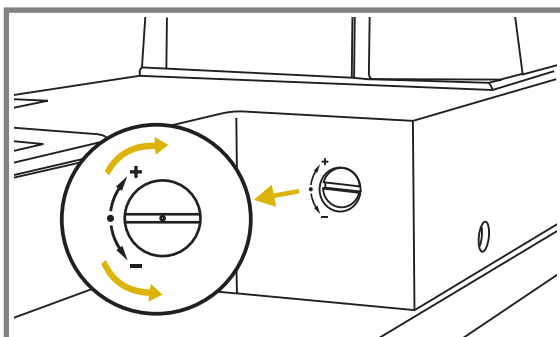
 **Note:** Certain stitches have a limited stitch length range. (For detailed instructions, refer to "Stitch reference chart" on page 103.)



 **Note:** "  " means the setting can not be adjusted.

## PATTERN BALANCE ADJUSTMENT

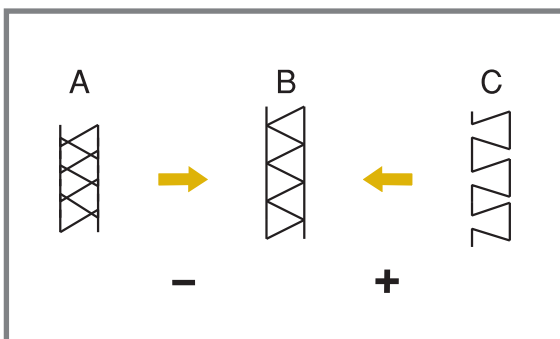
If decorative stitch patterns, letter, numbers or the manual buttonhole are uneven when sewn on a particular fabric, adjust them with the pattern adjustment dial. Use a coin or screwdriver to turn the dial slightly toward the "+" or "-".



The pattern adjustment dial normally should be in the horizontal position.

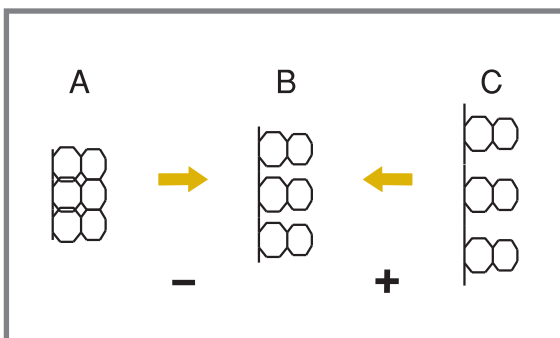
### Adjusting distorted stretch stitch patterns

- A. When Patterns are too compressed, correct by turning the dial in the direction of "-".
- B. Correct setting.
- C. When Patterns are too drawn out, correct by turning the dial in the direction of "+".



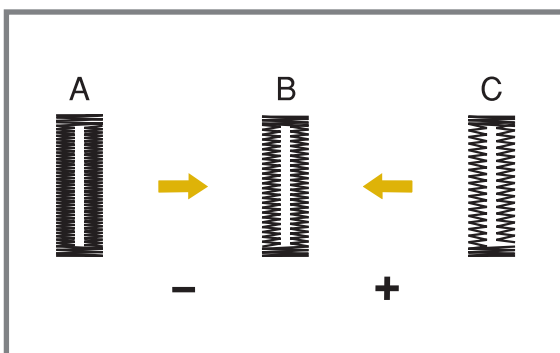
### Adjusting distorted letters or numbers

- A. When the letters or numbers are overlap, turn the dial to "-".
- B. Correct setting.
- C. When the patterns are too drawn out, correct by turning the dial to "+".



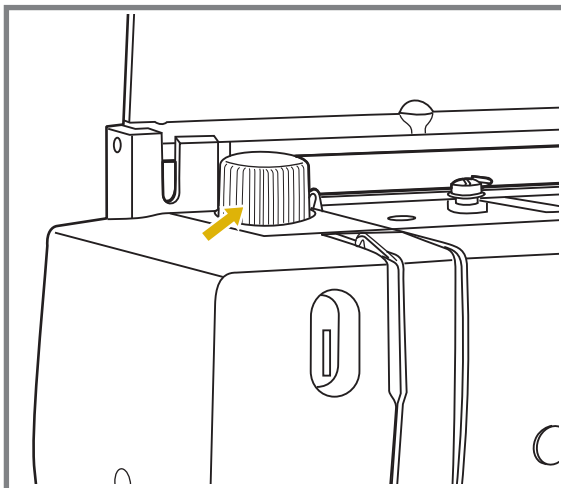
### Adjusting the stitch density for buttonhole

- A. Buttonhole is too dense, correct by turning the dial to "-".
- B. Correct setting.
- C. Buttonhole is less dense, correct by turning the dial to "+".

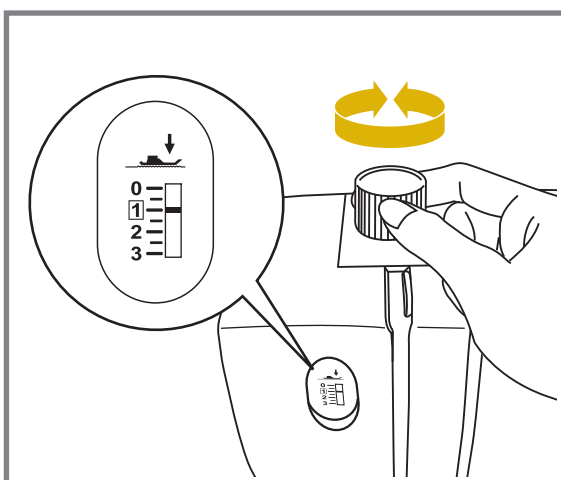


**Note:** Always test sew the pattern on a piece of fabric that is the same as the fabric used for your project.

## PRESSER FOOT PRESSURE ADJUSTMENT



Presser foot pressure controls the amount of pressure placed on the fabric by the presser foot. The presser foot pressure dial is on the top of the face plate, and can be used to adjust the presser foot pressure.

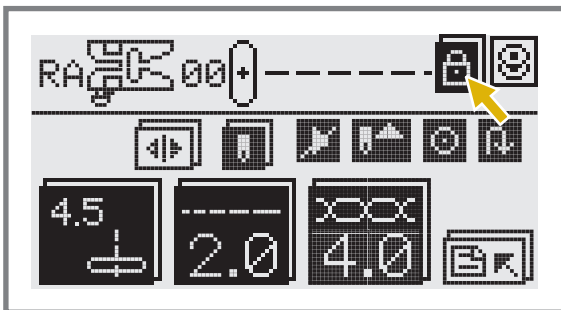


The presser foot pressure of the machine has been preset and usually requires no particular adjustment.

For regular sewing of most fabrics, the dial should be set near "1". However, when working with heavyweight or thicker fabrics, the pressure can be adjusted between "0" and "2". When working with lightweight/fine fabrics or applique, the pressure can be adjusted between "1" and "2".

## USEFUL FUNCTIONS

### ■ Locking the Screen



Press screen Lock key "🔒", all the keys can not be operated and the LCD screen will highlight the icon.

When the screen is locked, the various settings, such as the stitch width and stitch length, are locked and cannot be changed.

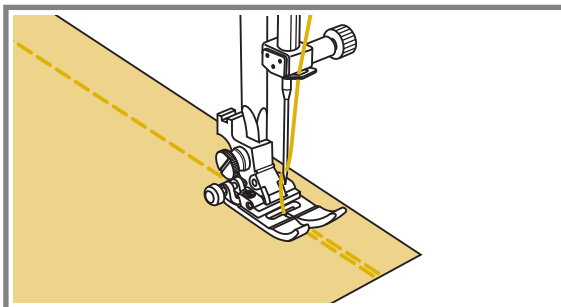
Press this key "🔒" again to unlock the settings.



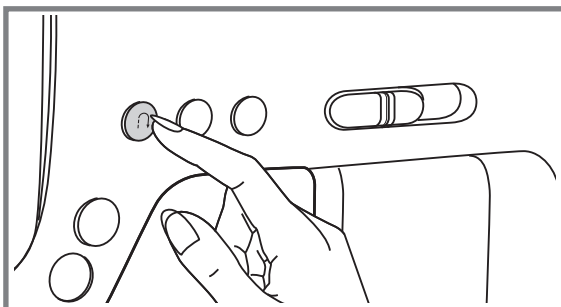
The screen is unlocked when the machine is turned off.

## USEFUL FUNCTIONS

### ■ Reverse



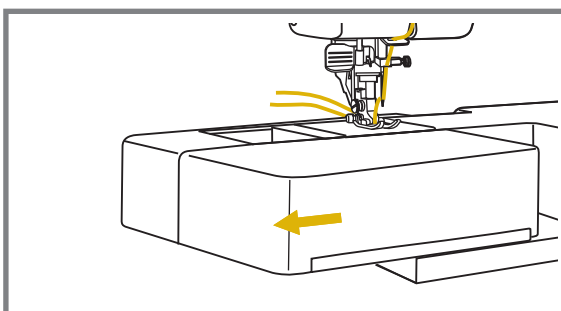
Reverse stitching is used to secure the threads at the beginning and at the end of a seam.



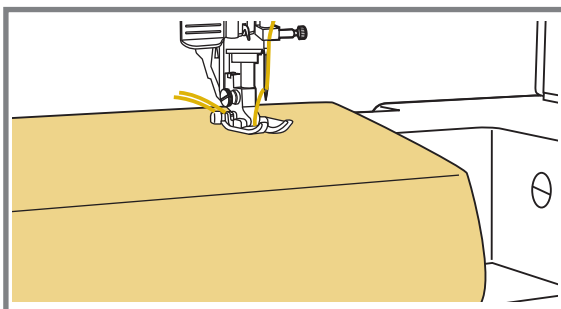
Press the reverse key and sew 4-5 stitches.

The machine will sew forward when the button is released.

### ■ Free arm sewing

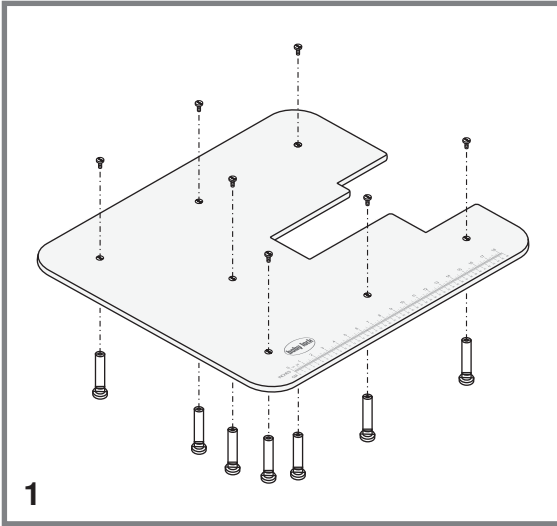


Free-arm sewing is convenient for sewing tubular areas such as pant hems and cuffs.



## USEFUL FUNCTIONS

### ■ Installing the extension table

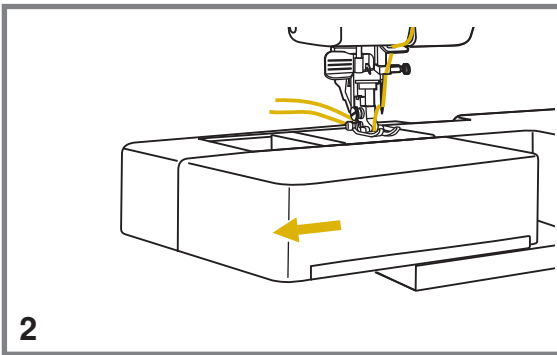


1. Take out the extension table and seven extension table feet from the packaging.

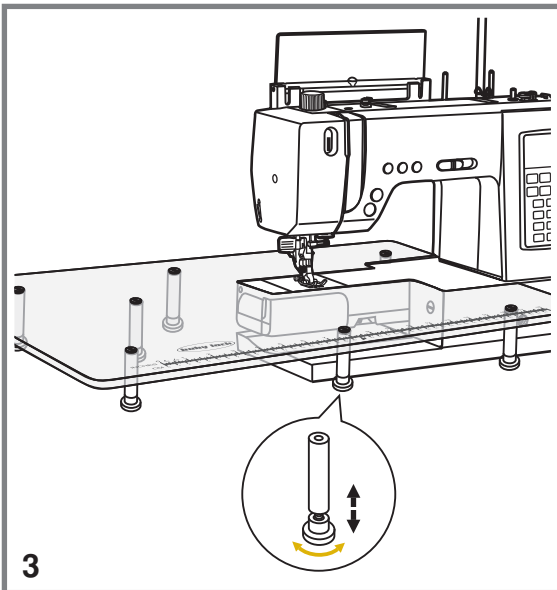
Remove the screws from each of the feet with the large slotted screwdriver.

Place one of the feet under one of the holes in the extension table and tighten the top screw with the large slotted screwdriver.

Repeat for the remaining feet.



2. Pull the sewing table and accessory box off by sliding it to the left.



3. Keeping the extension table level, slide it up against the sewing machine.

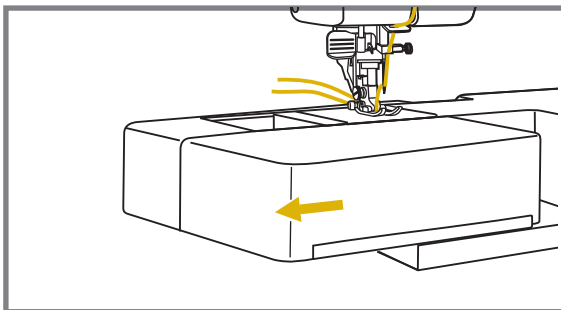
To adjust the height of the extension table, turn the rubber knobs under each of the feet to the proper height.



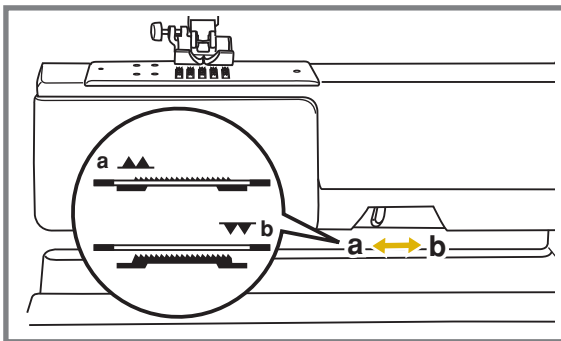
**Attention:** Do not move the sewing machine while the extension table is attached, otherwise damage and/or injury may occur.

## USEFUL FUNCTIONS

### ■ To raise or lower the feed dogs



With the sewing table off the machine, the feed dog adjustment lever is located at the base of the free-arm in the front of the machine.

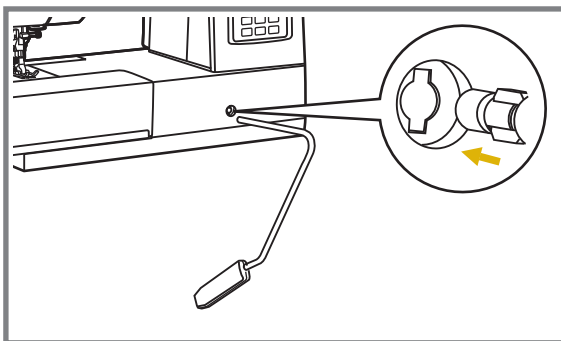


Sliding the lever to the " ▼▼ " (b) will lower the feed dog, for example during button sewing. If you wish to continue sewing normally, slide the lever to the " ▲▲ " (a) in order to raise the feed dogs.



**Note:** Turn the handwheel one complete cycle to return the feed dog to the raised position.

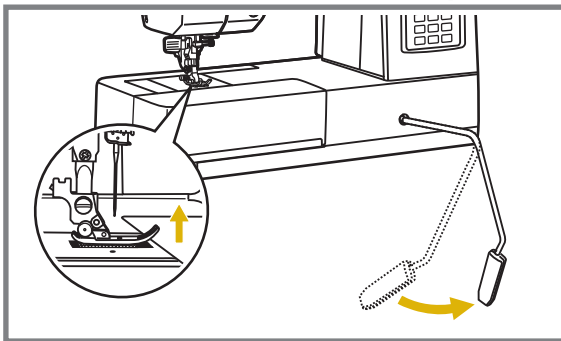
### ■ Attaching the knee lifter



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

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

### ■ Knee lifter to raise/ lower presser foot



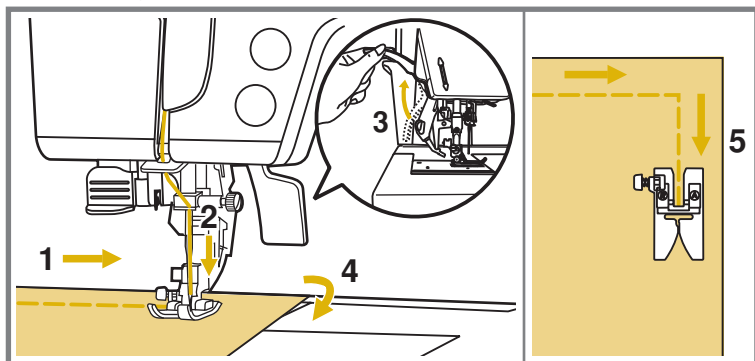
Move the knee lifter to the right to raise the presser foot. Release the knee lifter to lower the presser foot.



**Attention:** Do not touch the knee lifter while sewing, otherwise the fabric will not be fed correctly.

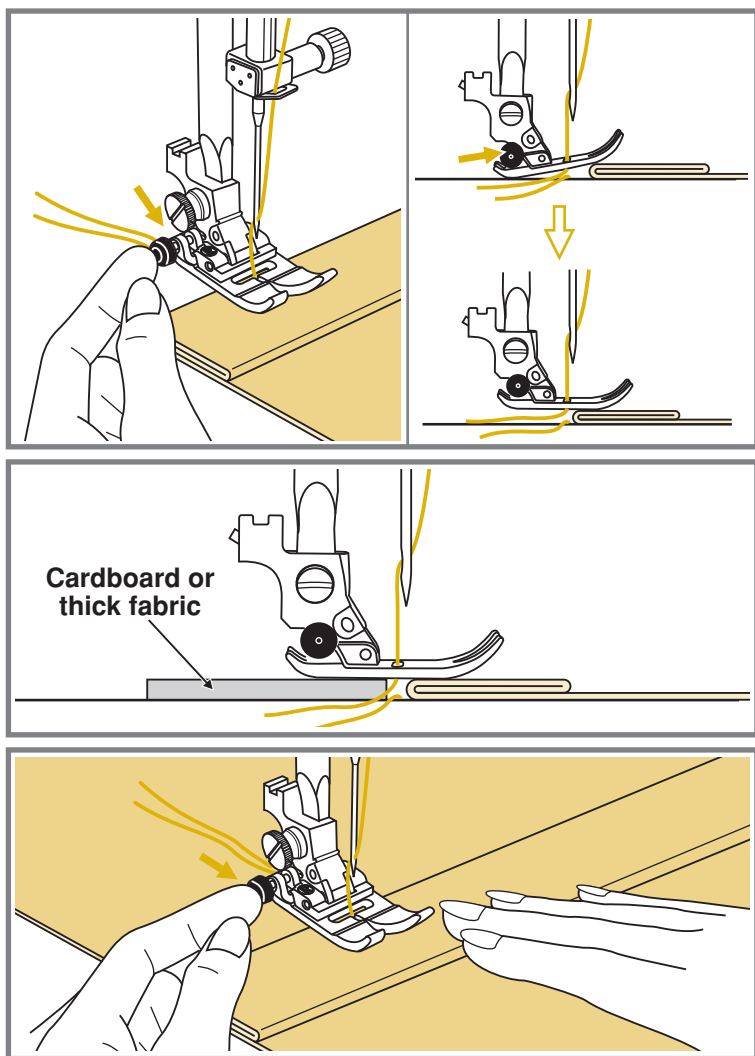
## USEFUL SEWING TIPS

### ■ Sewing corners



1. Stop the sewing machine when you reach a corner.
2. Lower the needle into the fabric manually or by pressing the needle up/down button till needle is in down position.
3. Raise the presser foot.
4. Use the needle as a pivot and turn the fabric.
5. Lower the presser foot and resume sewing.

### ■ Sewing on heavy fabric



The black button on the left side of the All-purpose foot (RA) will lock the presser foot in a horizontal position if you push it in before lowering the presser foot.

This ensures even feeding at the beginning of a seam and helps when sewing multiple layers of fabric such as sewing over seams when hemming jeans.

When you reach the point of an increased thickness, lower the needle and raise the presser foot. Press the toe of the presser foot and push in the black button, then lower the foot and continue sewing.

The black button releases automatically after sewing few stitches.

You also can place another piece of fabric with the same thickness at the back of the seam.

Or support the presser foot while feeding by hand and sewing toward the folded side.

## SELECTING STITCHES

1. Determine the stitch that you wish to use.

\* Refer to Pattern Chart on page 43.

2. Determine which presser foot should be used with the selected stitch.

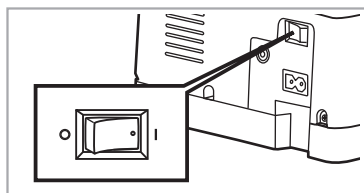
The presser feet can be stored inside the accessory compartment.

\* For details on the stitches that can be sewn with a twin needle, refer to "Stitch Reference Chart" beginning on page 103.

3. Attach the correct presser foot for the selected stitch.

\* For detailed instructions, refer to "Changing the Presser Foot" on page 38.

4. Turn on the sewing machine.

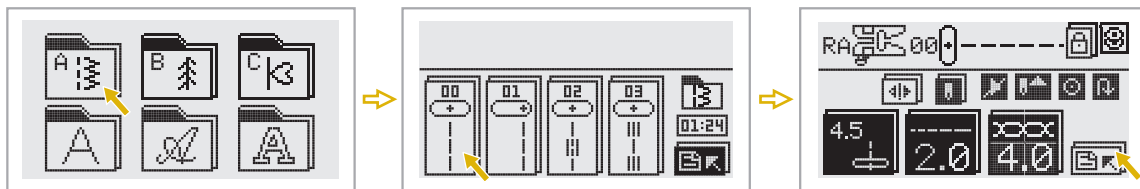


\* The straight stitch is shown selected within the LCD.

5. Press stitch selection key " " and the pattern group screen will automatically appear on the LCD screen. Press one of the folders on the LCD screen to select a pattern mode and to enter the pattern list.

6. Use the page key " ", " " to scroll through the pattern list or enter 2 digit pattern number from the selected group on the stitch pattern plate.

7. Press the pattern list key " " to return to the pattern list to select the other stitches in the same group mode.



**Note:** When a stitch is selected, the icon for the presser foot that should be used appears in the screen. Check that the correct presser foot is attached before starting to sew. If the wrong presser foot is installed, turn off the sewing machine, attach the correct presser foot, and then select the desired stitch again.

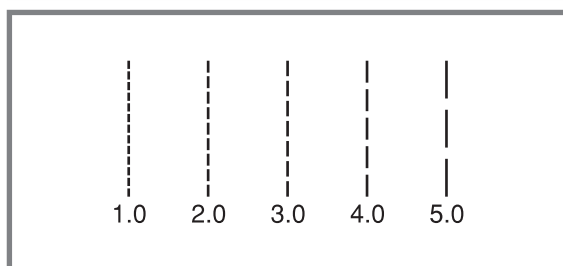
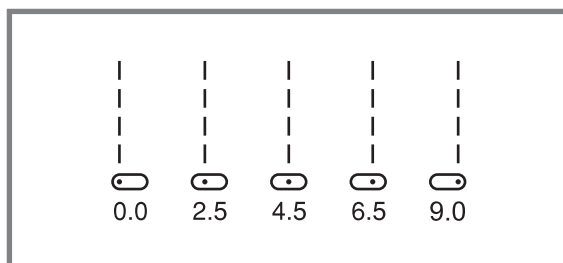
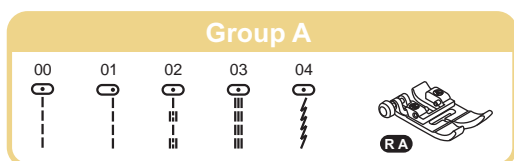
### ■ Using the Favorite stitch key

After setting your favorite stitches and alphabets, twenty of the most frequently used stitches can quickly be selected using the favorite stitch key " ". Select the desired stitch from the favorite pattern list. For setting detailed instructions, refer to "Favorite stitch" on page 24.



# BASIC STITCHING

## ■ Straight stitches and needle position



### Changing the needle position

This setting can be applied only to patterns 00-04, 23-24 from Group 1-A, Group 2-B Patterns 00-02, Group 3-C Patterns 45.

The preset position is "4.5", center position. When you press the stitch width adjustment key " $\square$ ", the needle position will move to the left. When you press the stitch width adjustment key " $\oplus$ ", the needle position will move to the right.

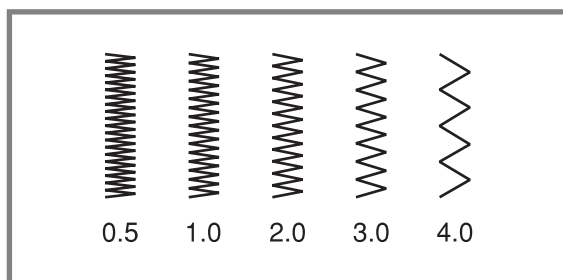
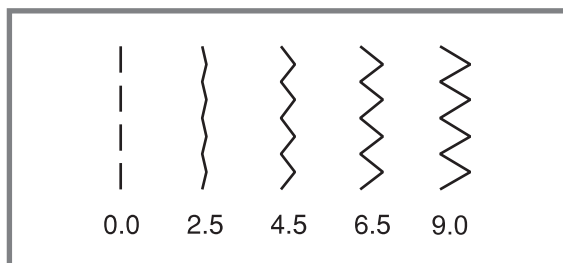
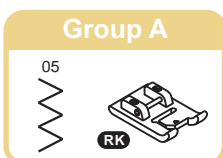
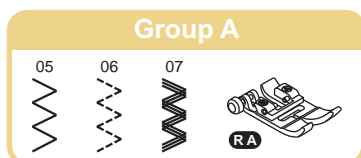
The LCD screen width illustration indicates the position of needle and number for easy reference.

### Changing the stitch length

To shorten the stitch length, press the stitch length adjustment key " $\square$ ". For a longer stitch length, press the stitch length adjustment key " $\oplus$ ".

Generally speaking, the thicker the fabric, thread and needle, the longer the stitch should be.

## ■ Zigzag stitches



### Adjusting the stitch width

The maximum zigzag stitch width for zigzag stitching is "9.0". However, the width can be reduced on any pattern. The width can be increased or decreased as you press the stitch width adjustment key " $\oplus$ " or " $\square$ " from "0.0-9.0".



**Note:** Some stitches have a limited stitch width range.

### Adjusting the stitch length

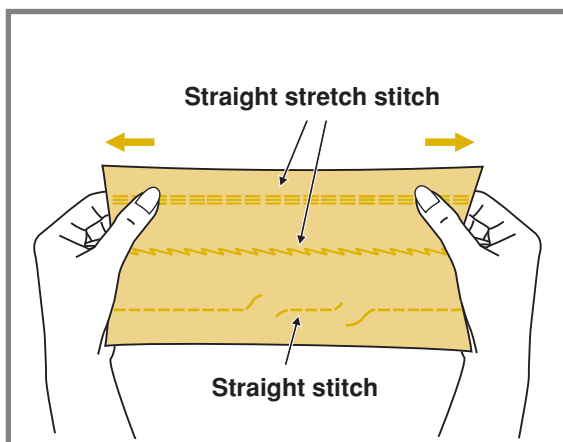
The density of zigzag stitches increase as the setting of stitch length approaches "0.0". Neat zigzag stitches are usually achieved at "1.0-2.5".

Zigzag stitches with a short length (approximately 0.4) are referred to as a satin stitch. The cutout on the underside of the RK satin stitch foot is designed to accommodate dense stitch formation.

# BASIC STITCHING

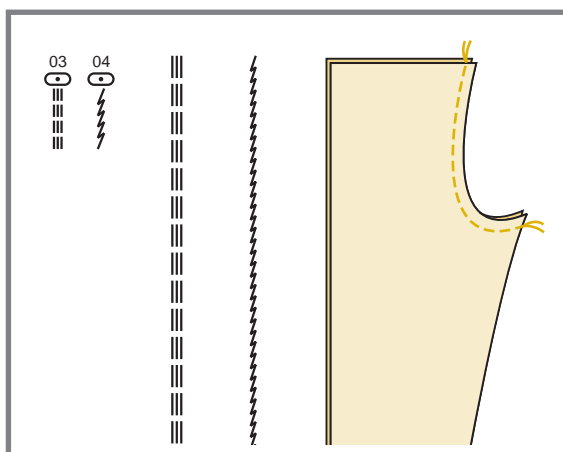
## ■ Stretch stitch

### Group A

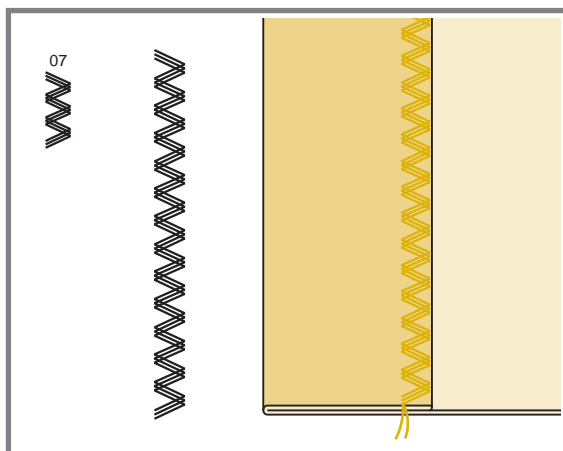


Stretch stitches ensure you of a stitch that is strong and flexible and will give with the fabric without breaking. The flexibility of the straight stretch stitch makes it ideal for seaming heavy, knit or easy to ravel fabrics.

These stitches can also be used as a bold, decorative top stitch.



Straight stretch stitch is used to add triple reinforcement to stretch and hardwearing seams. Use it to sew stress areas such as the crotch seams in pants or the sleeve underarm area.



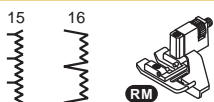
Triple zigzag stretch stitch is suitable for medium to heavyweight stretch fabrics in any area you would normally use a zigzag stitch or decorative rickrack trim.



**Note:** Reinforce points that will be subject to strain such as inseams and attaching sleeves.

## BLIND HEM/ LINGERIE STITCH

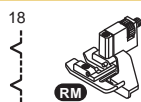
### Group A



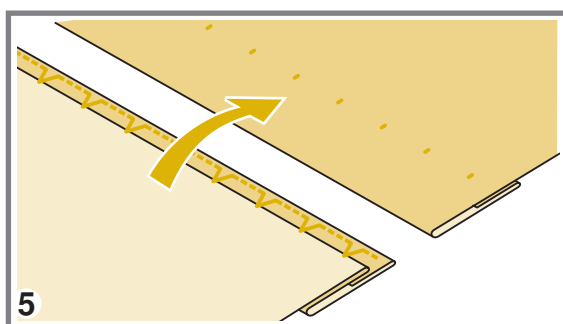
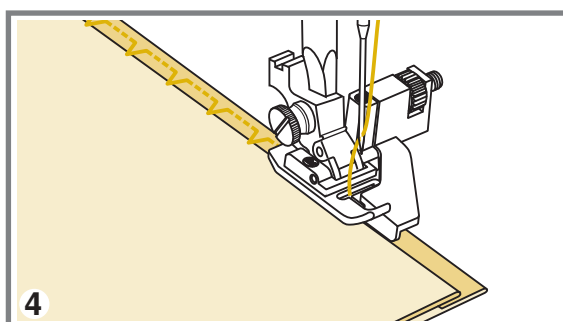
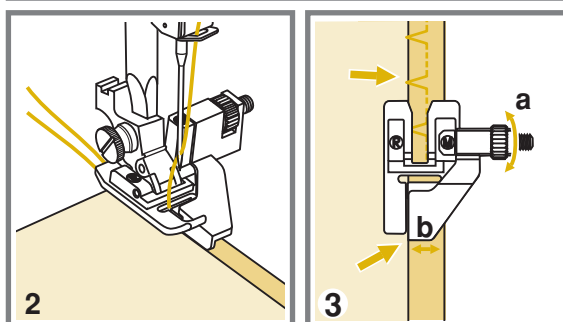
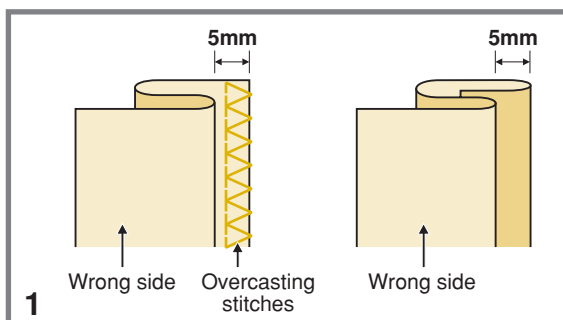
### Recommended



### Group B



### Recommended



**15:** Blind hem for stretch fabrics

**16:** Blind hem for stretch fabrics

**18:** Blind hem/ lingerie for firm fabrics

**Note:** It takes practice to sew blind hems. Always make a sewing test first.




1. Fold the fabric as illustrated with the wrong side facing up.
2. Attach the blind hem foot.  
Place the fabric under the foot.  
Turn the handwheel toward you (counter clockwise) by hand until the needle swings fully to the left. It should just pierce the fold of the fabric. If it does not, adjust the stitch width or guide on the presser foot accordingly.
3. Adjust the guide (b) by turning the knob (a) so that the guide just rests against the folded edge of the fabric and the needle just barely catches the fold as you sew.
4. Sew slowly, guiding the fabric carefully along the edge of the guide.

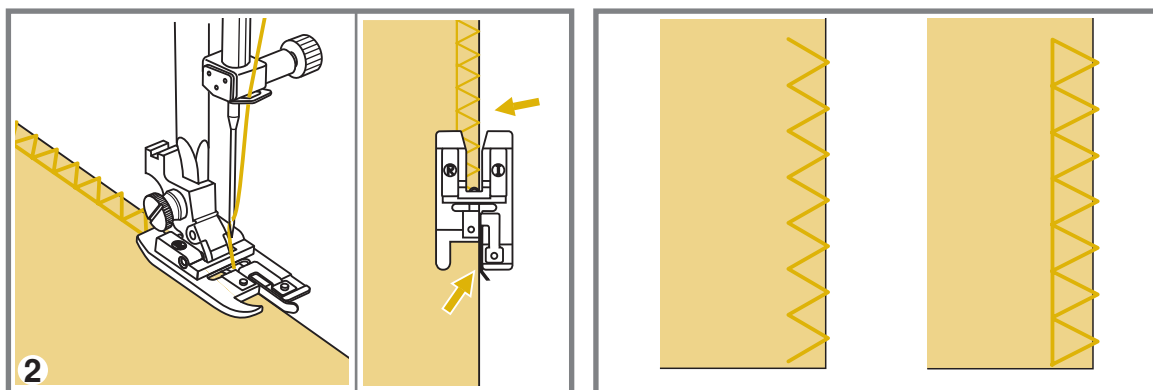
5. Turn the fabric over.

**Note:** If the stitches are too visible on the right side of the fabric, decrease the width of the stitch or move the guide to the right.  
If the stitches are not catching the fold of the fabric, increase the width or move the guide to the left.

# OVERCASTING STITCHES

## ■ Using the overcasting foot




Group A		Recommended	
05	08		
1		4.0~6.0	2.0~3.0

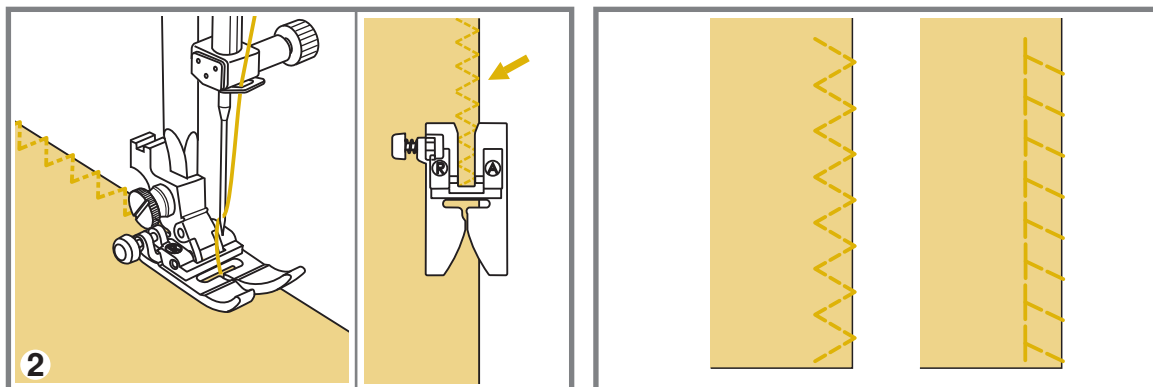


1. Change the presser foot to the overcasting foot.
2. Sew the fabric with the fabric edge against the guide of the overcasting foot.

**⚠ Attention:** The overcasting foot should be used to sew patterns 05 and 08 from Group A patterns only and do not set the stitch width narrower than "4.0". It is possible that the needle could hit the presser foot and break when sewing other patterns and widths.

## ■ Using the all purpose foot

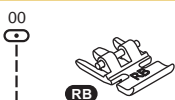
Group A		Recommended	
06	10		
1		2.5~4.5	2.0~3.0



1. Change the presser foot to the all purpose foot.
2. Sew the overcasting along the edge of the fabric so that the needle drops over the edge of the fabric on the right side.

## ZIPPER INSERTION

### Group A



### Recommended



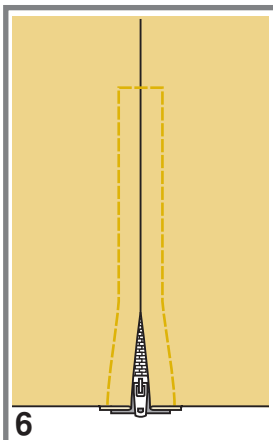
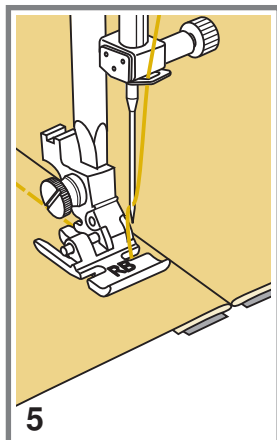
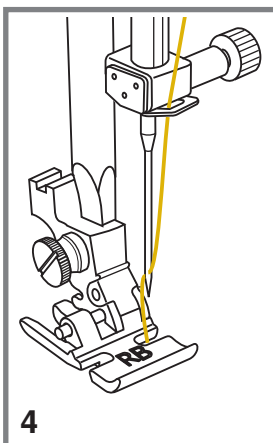
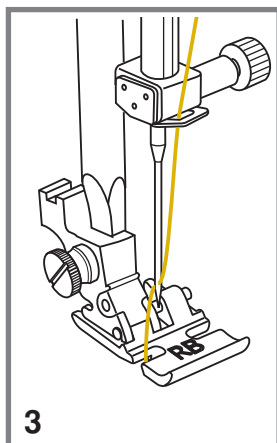
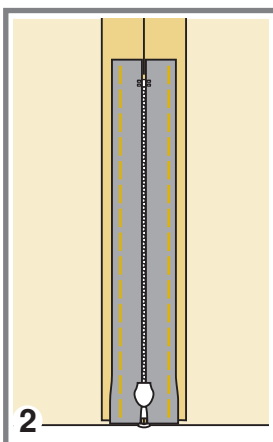
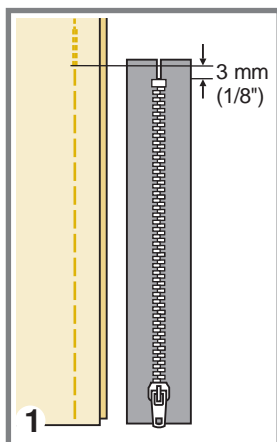
4.5



1.5~3.0

**Attention:** Zipper foot should be used for sewing with the centered needle position straight stitch only. It is possible that the needle could hit the presser foot and break when sewing other patterns.

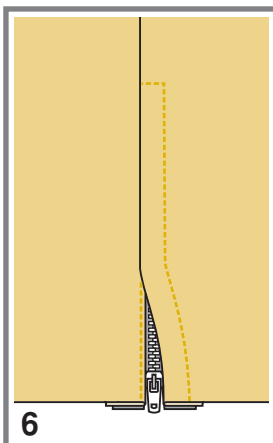
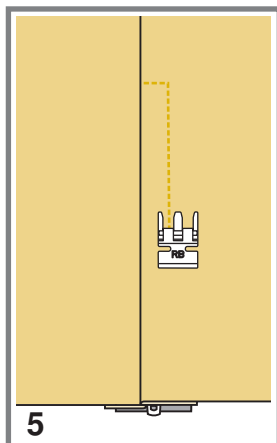
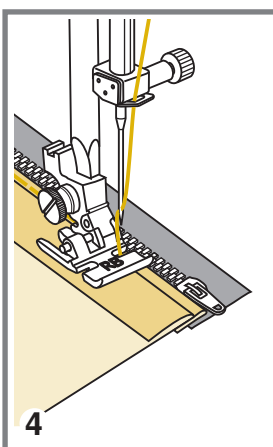
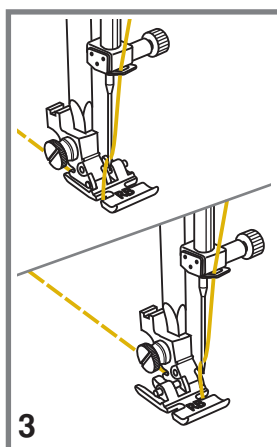
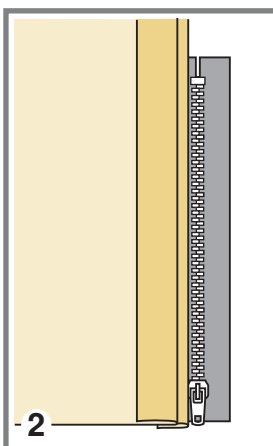
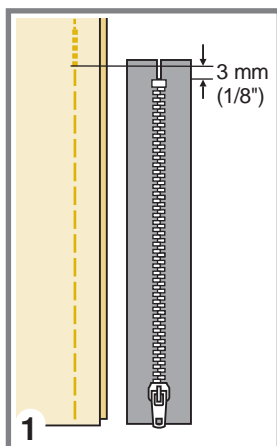
### ■ Inserting a centered zipper



1. Baste the zipper opening on the garment.
2. Press open the seam allowance. Place the zipper face down on the seam allowance with the teeth against the seam line. Baste the zipper tape.
3. Attach the zipper foot. Attach the left side of the presser foot pin to the presser foot holder when sewing the right side of the zipper.
4. Attach the right side of the presser foot pin to the presser foot holder when sewing the left side of the zipper.
5. Stitch left side of the zipper from bottom to top.
6. Stitch across the lower end and right side of zipper. Remove the basting stitches and press.

## ZIPPER INSERTION

### ■ Inserting a side zipper



1. Baste the zipper opening on the garment.

2. Fold the garment back to the left seam allowance. Turn under the right seam allowance to form a 3mm (1/8 inch) fold.

3. Attach the zipper foot. Attach the left side of the presser foot pin to the presser foot holder when sewing the right side of the zipper. Attach the right side of the presser foot pin to the presser foot holder when sewing the left side of the zipper.

4. Stitch the left side of the zipper from bottom to top.

5. Turn the fabric right side out, stitch across the lower end and right side of zipper.

6. Stop about 5cm (2 inches) from the top of zipper. Remove the basting and open the zipper. Stitch the remainder of the seam.

# BUTTON SEWING

## Group A

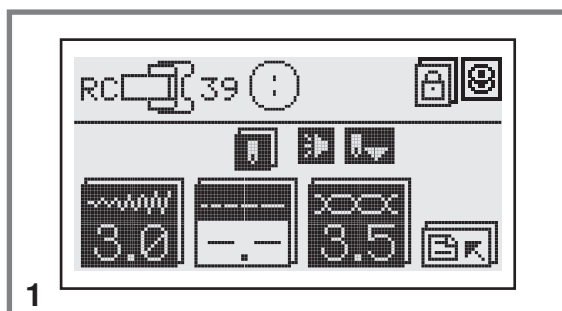
39



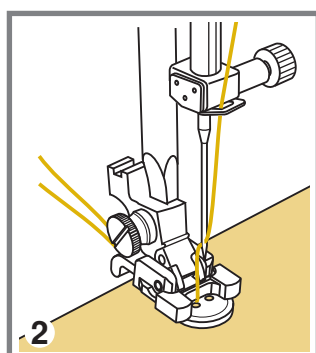
## Recommended



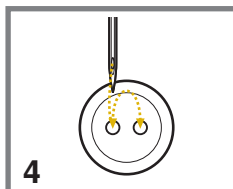
2.5~4.5



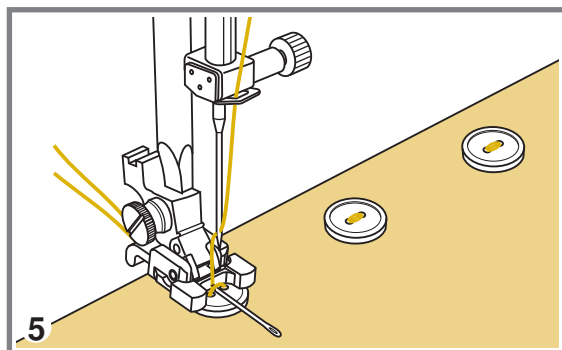
1. Select the pattern 39 from the Group B Patterns to get the button sewing stitch.  
Change the presser foot to the button sewing foot "RC" and lower feed dogs.



2. Position the fabric under the foot. Place the button in the desired position, lower the presser foot lever.
3. Adjust the stitch width to "2.5-4.5" according to the distance between the two holes of the button.
4. Turn the handwheel counterclockwise to check that the needle goes cleanly into the left and right holes of the button.



**Note:** Sew at a slow speed to avoid hitting the button.

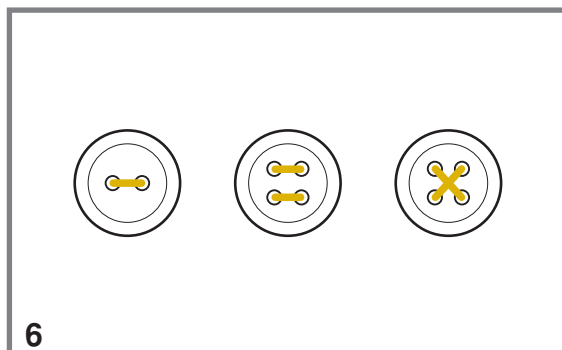


5. Hold the end of the upper thread gently, and begin sewing. Once sewing is completed, the machine automatically sews reinforcement stitches, then stops.

**Note:** Repeat this procedure to attach the button more securely.

With scissors, cut the upper and bobbin threads at the beginning of the stitching, pull the upper thread at the end of the stitching to the wrong side of the fabric, and then tie it with the bobbin thread.

**Note:** The auto thread cutter is not to be used for button sewing.

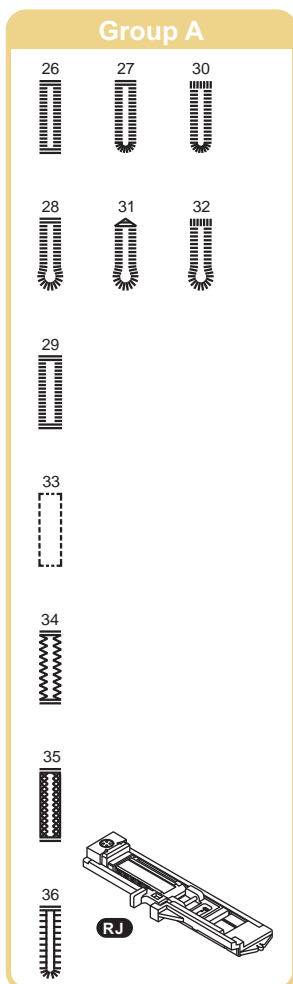


6. For 4-hole buttons, sew the two holes towards the front. Then, raise the presser foot, move the fabric so that the needle goes into the back two holes, and then sew them in the same way.

**Note:** If a shank is required, place a needle or straight pin on top of the button and sew.

# BUTTONHOLE STITCHING

## ■ Making a one-step buttonhole



Recommended	
2.5~7.0	0.3~1.0
5.5~7.0	0.3~1.0
3.0~7.0	0.3~1.0
2.5~7.0	1.5~3.0
2.5~7.0	1.0~2.0
3.5~7.0	2.0~3.0
2.5~9.0	1.0~2.0

**26:** For thin or medium fabric.

**27:** For thin or medium fabric.

**28:** For suits or overcoats.

**29:** For horizontal holes on blouses or shirts made from thin or medium fabric.

**30:** For horizontal buttonholes on thick fabrics.

**31:** For jeans or trousers.

**32:** For thick coats.

**33:** For bound button holes.

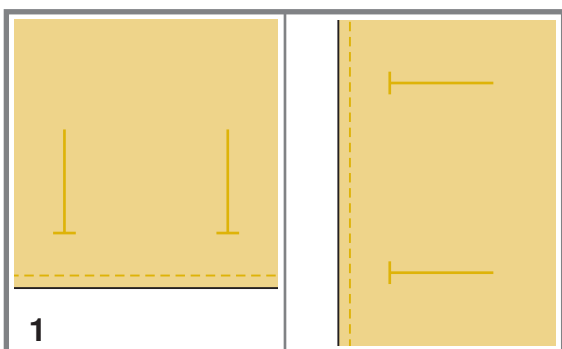
**34:** For jeans or stretch fabric with a coarse weave.

**35:** For stretch fabric.

**36:** For embellishing fabric.



**Note:** Before sewing a buttonhole on your project, practice on a scrap piece of the same type of fabric.

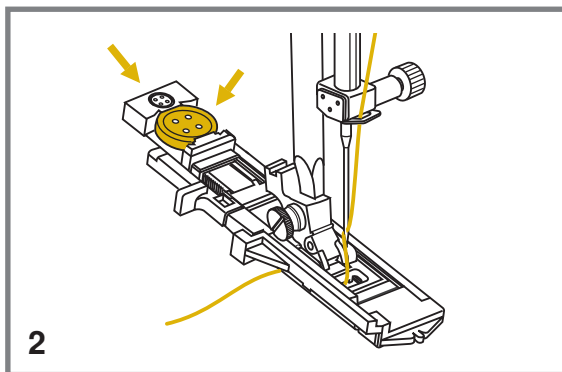


1. Mark the position of the buttonholes on the fabric.

The maximum buttonhole length is 3cm (1 3/16 inch). (Total of diameter + thickness of button.)

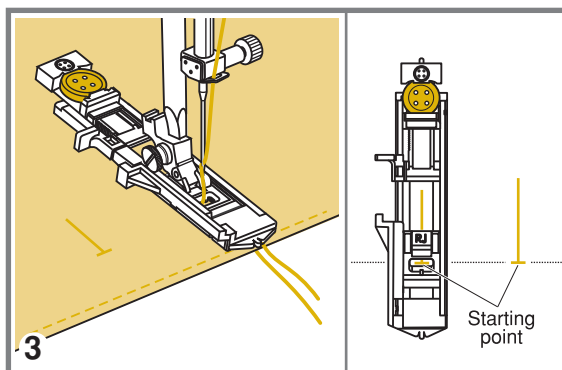


## BUTTONHOLE STITCHING



2. Attach the buttonhole foot, then extend the button guide plate and insert the button. The size of the buttonhole is determined by the button inserted in the button plate.

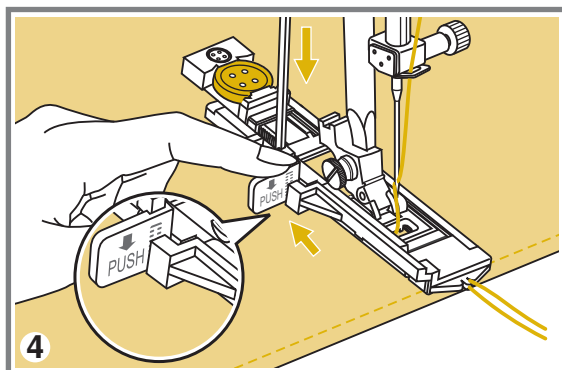
The upper thread should be passed through the needle opening in the buttonhole foot, then the thread placed under the foot as illustrated.



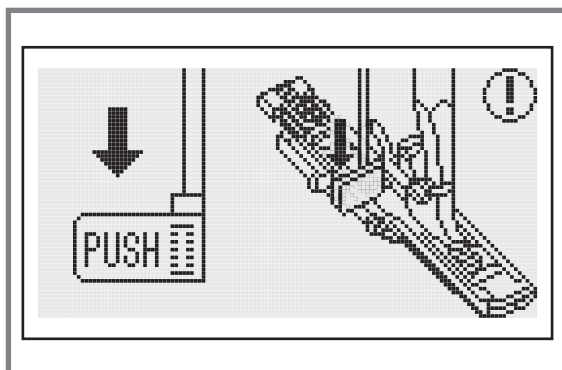
3. Select the buttonhole stitch.

Adjust the stitch width and the stitch length to the desired width and density.

Position the fabric under the presser foot with the front end of the buttonhole mark aligned with the center line on the buttonhole foot.

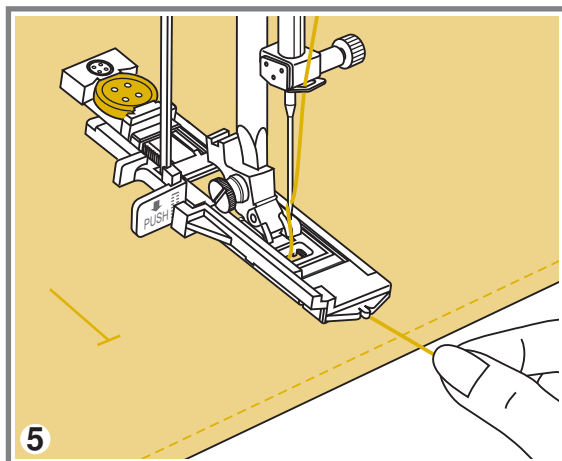


4. Pull the buttonhole lever all the way down and position it behind the bracket on the buttonhole foot.



**Note:** When you start to sew any buttonhole pattern before the buttonhole lever is lowered, the LCD screen will show the warning message to remind you to lower the buttonhole lever.

## BUTTONHOLE STITCHING

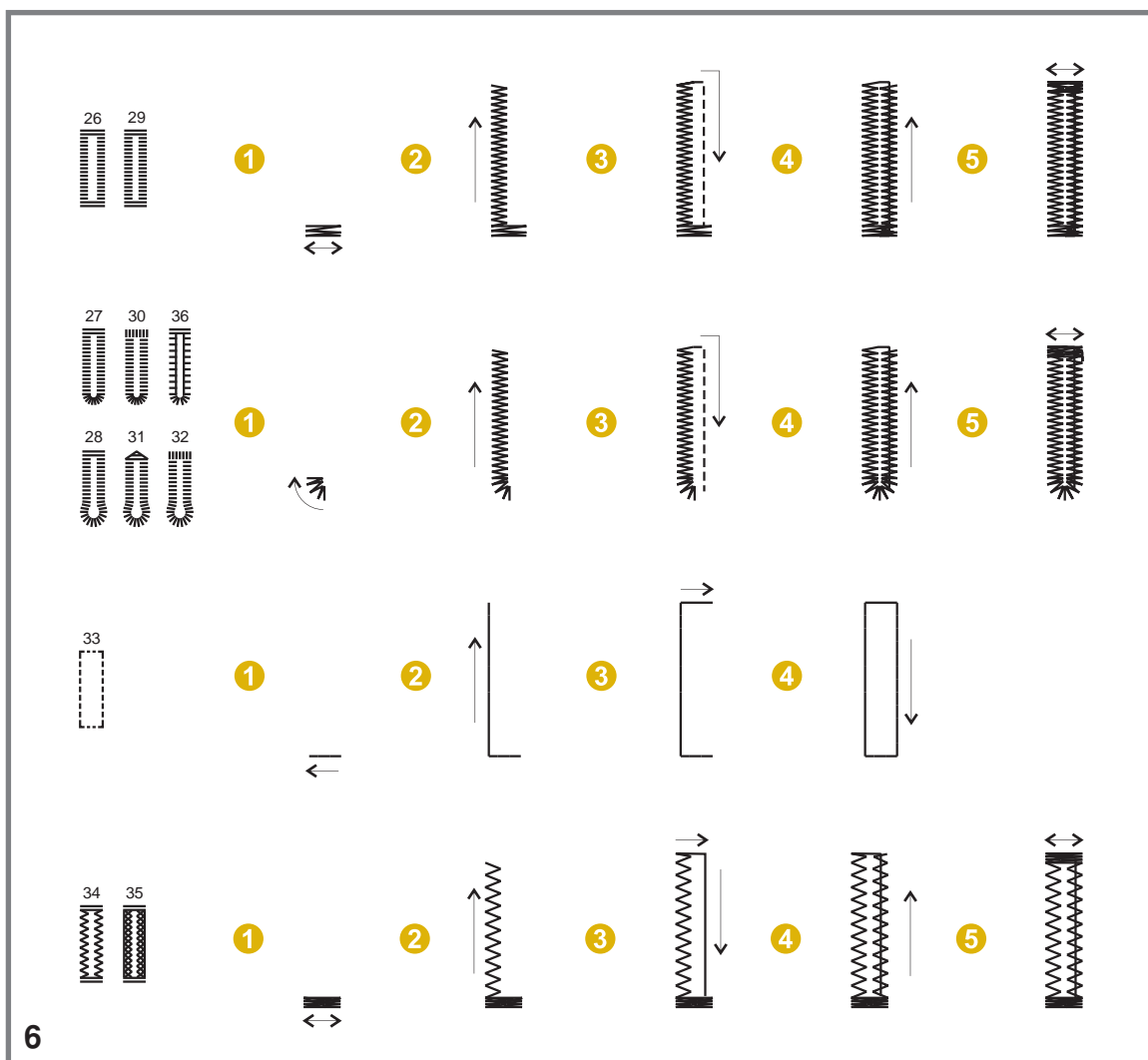


5. While lightly holding the end of the upper thread, start sewing.

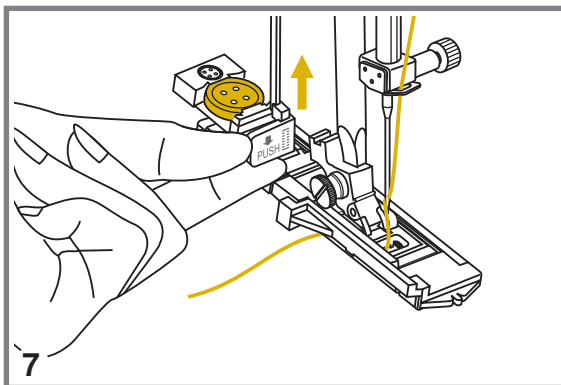


**Note:** Gently guide the fabric by hand. Before stopping, the machine will automatically sew a reinforcement stitch after the buttonhole is sewn.

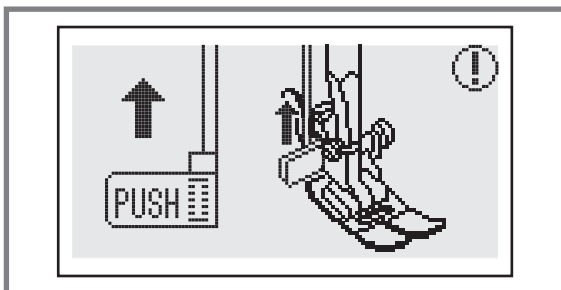
6. Buttonholes are sewn from the front of the presser foot to the back, as shown.




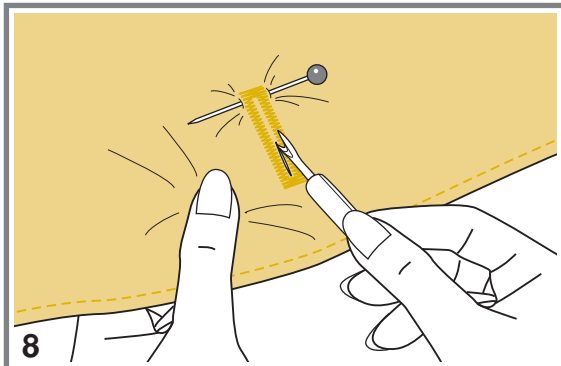
## BUTTONHOLE STITCHING



7. Raise the presser foot and cut thread. To restart the same buttonhole at the beginning, raise the presser foot to return to the starting position. After sewing the buttonholes, raise the buttonhole lever all the way up to its original position for other sewing.



-  **Note:** If the buttonhole lever is in the down position and a stitch other than a buttonhole is selected a warning message to raise the lever will appear on the LCD screen when the START/STOP button or foot control is pressed.

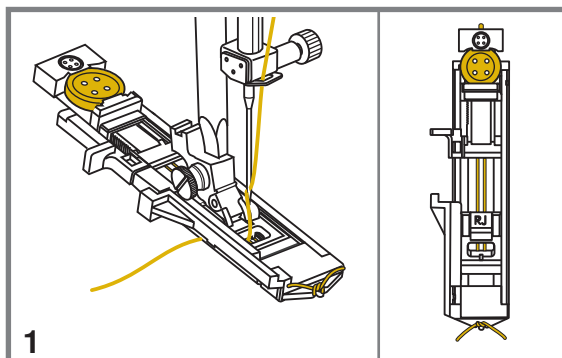


8. Cut the center of the buttonhole being careful not to cut any buttonhole stitches on either side. Use a pin as a stopper at the bartack to prevent the stitching from being cut.

## BUTTONHOLE STITCHING

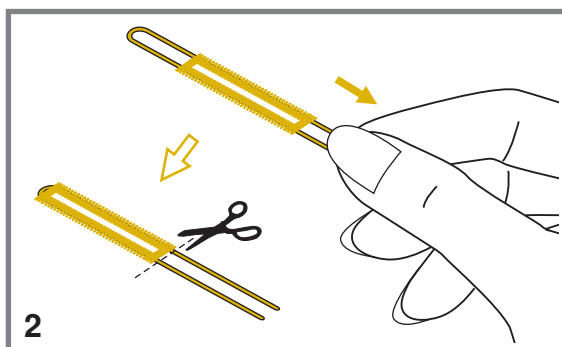
### ■ Making a buttonhole on stretch fabrics

When sewing buttonholes on stretch fabric, hook gimp thread under the buttonhole foot.



1. Attach the buttonhole foot and hook the gimp thread onto the back spur of the presser foot. Bring the two gimp thread ends parallel to the front of the foot and insert them into the grooves, then temporarily tie them there.

Set the stitch width to match the diameter of the gimp thread. Stitches will sew over top of thread. Lower the presser foot and begin sewing.

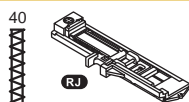


2. Once sewing is completed, carefully remove gimp thread from buttonhole foot. Pull the gimp thread gently to remove any slack, then trim off any excess.
3. Pull the gimp thread to the wrong side of the fabric using a hand sewing needle and tie.
4. Using a seam ripper, cut the middle part of the gimp thread remaining at the top of the buttonhole. Then trim off any excess.

 **Note:** It is suggested that you use interfacing on the backside of the fabric.

# BAR TACK STITCH

## Group A



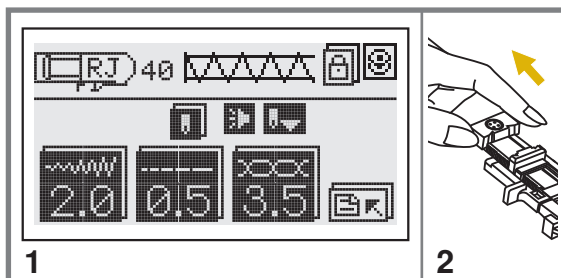
## Recommended



1.0~3.0

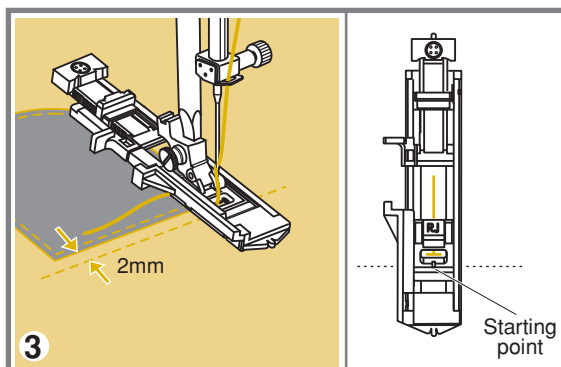


0.4~1.0

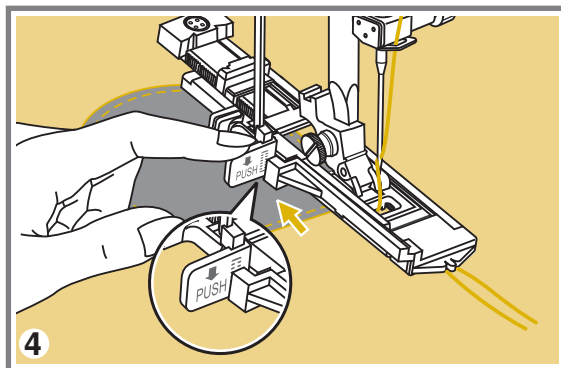


1. Select pattern 40 from the Group A Patterns to get the bar tack stitch. Change the presser foot to the buttonhole foot.

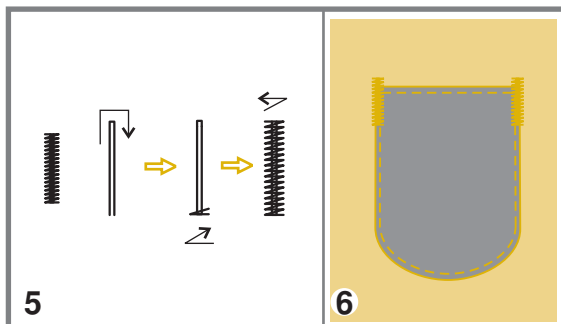
2. Extend the button guide plate and set to the desired bartack length. Adjust the stitch width and stitch length to personalize the stitches.



3. Position the fabric so that the needle is 2mm (1/16 inch) in front of the pocket opening, and then lower the presser foot lever.



4. Pass the upper thread down through the hole in the presser foot. Pull down the buttonhole lever and position behind the bracket on the buttonhole foot. Gently hold the end of the upper thread in your left hand, and start sewing.



5. Sewing procedure for bar tack is illustrated.

6. This is an example of sewn bar tacks at pocket corners.

## BAR TACK STITCH

### Group A

41



RK

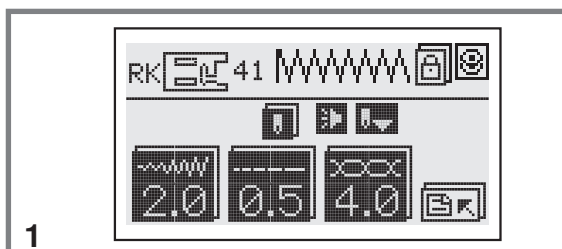
### Recommended



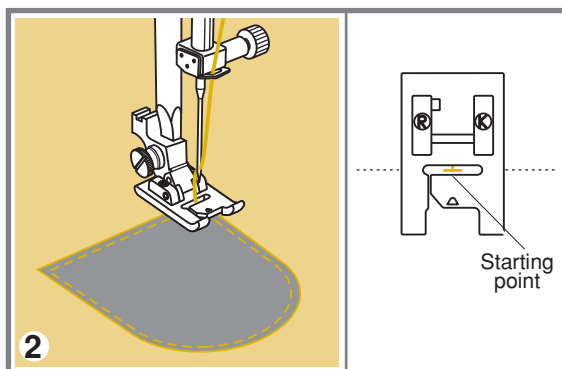
1.0~3.0



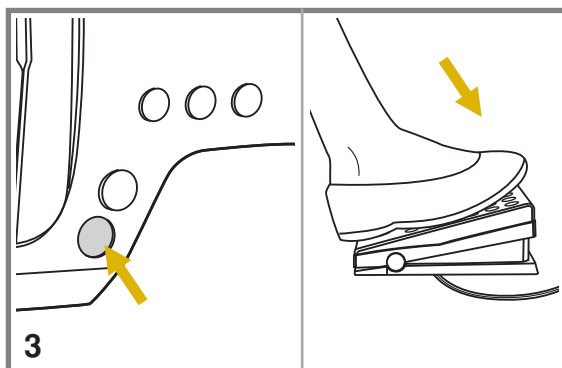
0.4~1.0



1. Select pattern 41 from the Group A Patterns to get the bar tack stitch. The stitch width and stitch length can be adjusted. Change to the satin stitch presser foot "RK".

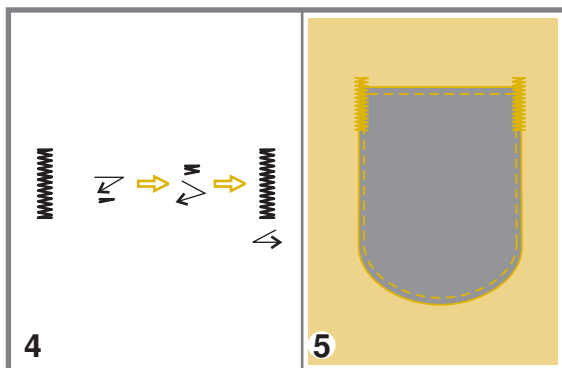


2. Position the needle at the top edge of the pocket opening.



3. Press the START/STOP button or push on the foot control to start sewing.

When the bar tack has reached the desired length push the Auto-lock button. Machine will sew locking stitches and stop.



4. Illustration shows sewing procedure for bar tack.

5. Example of sewn bar tacks at pocket corners is shown.

**Note:** Reinforce points that will be subject to strain such as pocket corners.

# EYELET STITCH

## Group A

37

38



RK

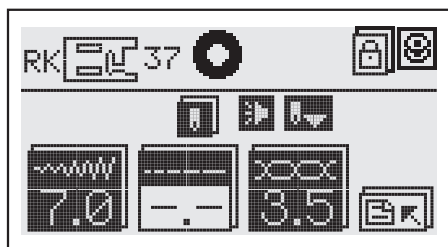
## Recommended



5.0~8.0

**37:** Select for sewing eyelets on belts, doll clothes, heirloom sewing, etc.

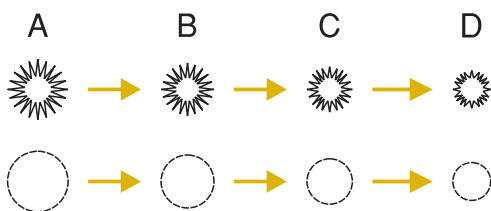
**38:** Select for sewing eyelets on belts, doll clothes, heirloom sewing, etc.





1

1. Select pattern 37 or 38 from Group A Patterns to get the eyelet stitch.

Attach the satin stitch presser foot "RK".



2

2. Press the stitch width adjustment key "" or "" to select the eyelet size.

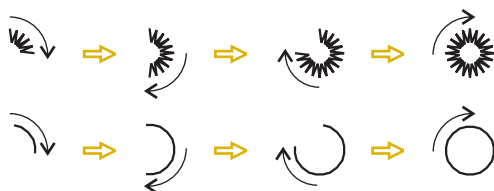
Size of eyelet.

A. 8.0mm (5/16 inch).

B. 7.0mm (1/4 inch).

C. 6.0mm (15/64 inch).

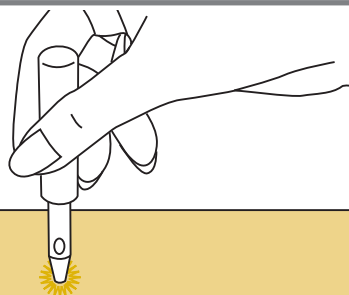
D. 5.0mm (3/16 inch).



3

3. Lower the needle into the fabric at the beginning of the stitching, and then lower the presser foot lever.

Once sewing is completed, the machine automatically sews reinforcement stitches, then stops.



4

4. Make a hole in the center using an eyelet punch.

\* Eyelet punch is not included with the machine.



**Note:** If fine thread is used, the stitching may be sparse. If this occurs, sew the eyelet twice; one on top of the other.

# DARNING STITCH

## Group A

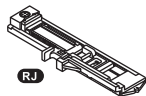
42



43



44



## Recommended

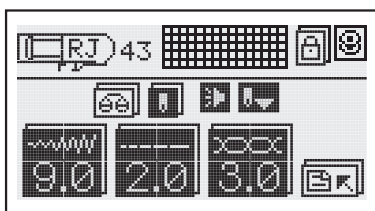


3.5~9.0



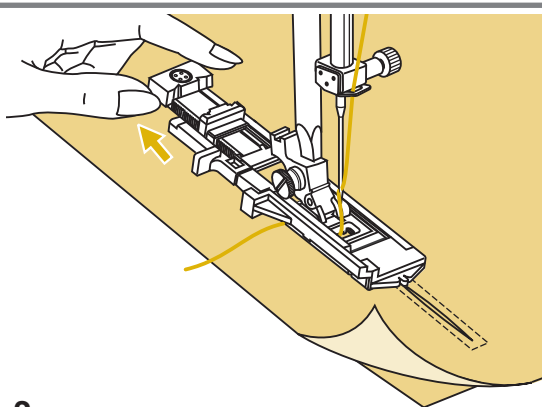
1.5~2.0

1



1. Select pattern 42, 43 or 44 from Group A Patterns to get the darning stitch. Change the presser foot to the buttonhole foot "RJ".

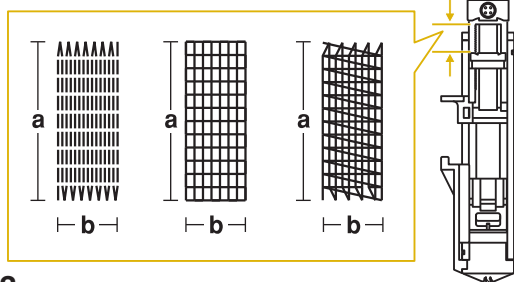
2



2. Baste the upper fabric and the reinforcement fabric together. Select the width of the pattern by using the stitch width button. Lower the presser foot over the center of the tear.

Determine the desired length of the darning then extend the button guide plate on the buttonhole foot "RJ" to the desired length.

3

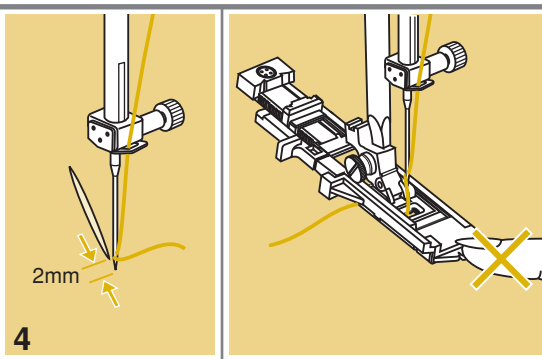


3. The size of one darning pattern cycle is variable. However, the maximum pattern length is 3.5cm (approx. 1-1/8 inch) and the maximum pattern width is 9mm (approx. 3/8 inch).

a. The length of darning pattern.

b. The width of darning pattern.

4

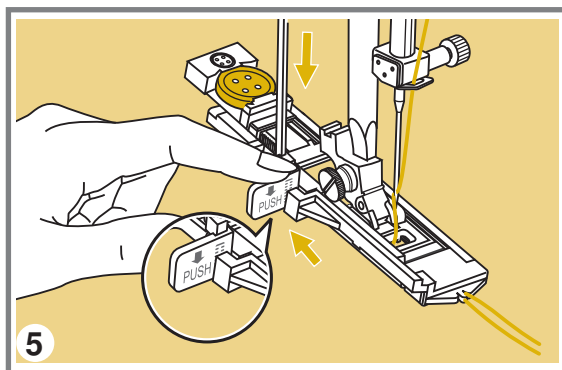


4. Position the fabric so that the needle is 2mm (approx. 1/16 inch) in front of the area to be darned, and then lower the presser foot lever.


**Note:** When lowering the presser foot, do not push on the front of the presser foot, otherwise the darning pattern will not be sewn with the correct size.

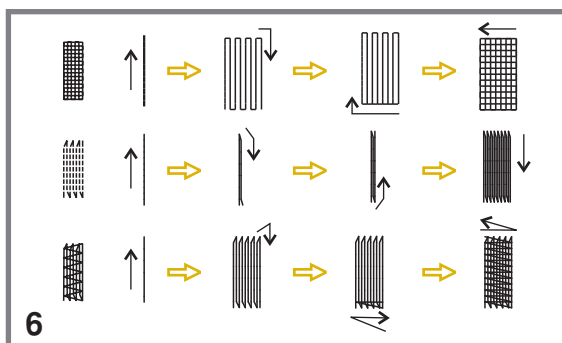


## DARNING STITCH

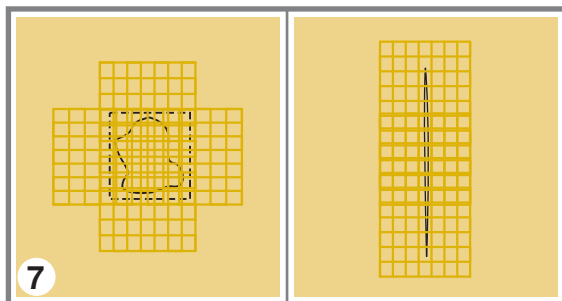


5. Pass the upper thread down through the hole in the presser foot. Pull down the buttonhole lever and position it behind the bracket on the buttonhole foot. Gently hold the end of the upper thread in your left hand, and then start sewing.

 **Note:** When you start to sew darning pattern before the buttonhole lever is lowered, LCD screen will show the animated warning message to remind you to lower the buttonhole lever.



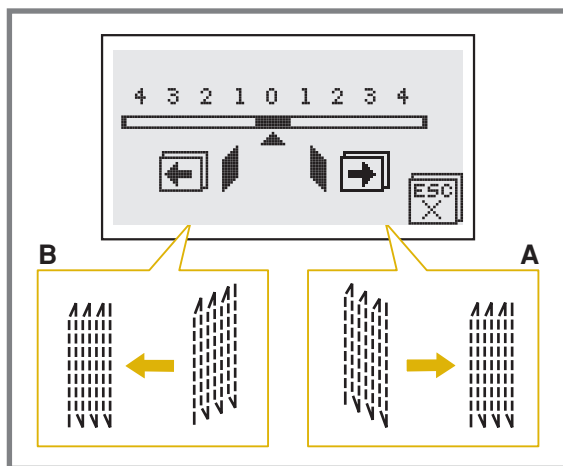
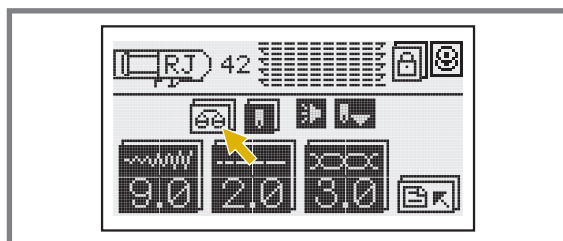
6. Darning stitches are sewn from the front of the presser foot to the back, as shown.







7. If the tear is too large to cover with one darning pattern, reposition the fabric and sew additional darning patterns for better coverage.

## DARNING STITCH

### ■ To adjust the evenness of darning stitch



The evenness of darning stitch may vary depending on the sewing condition, i.e. type of fabrics. You can correct the unevenness of darning stitch.

- Press the "  " key.
  - A. If the left corner is lower than the right side, press the left adjusting key "  ".
  - B. If the right corner is lower than the left side, press the right adjusting key "  ".
- Press the "  " key after adjusting to return to the normal LCD screen.

 **Note:** Only Group A patterns 42-44 can be adjusted.

## NARROW HEMMING

### Group A



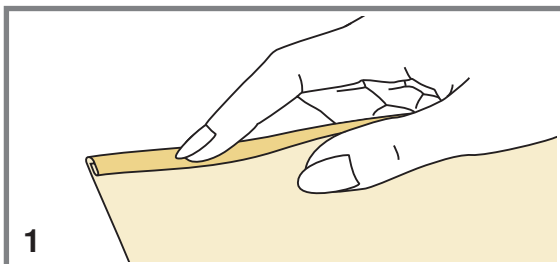
### Recommended



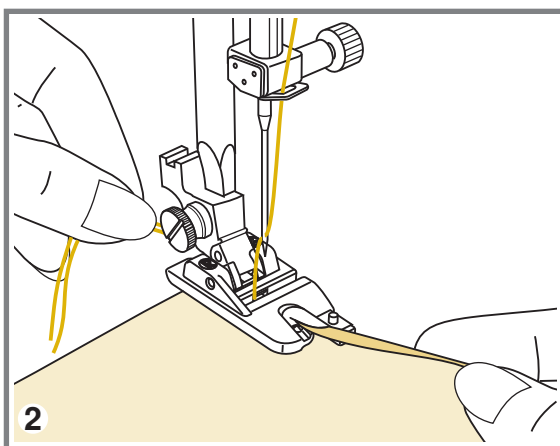
4.5



1.5~3.0

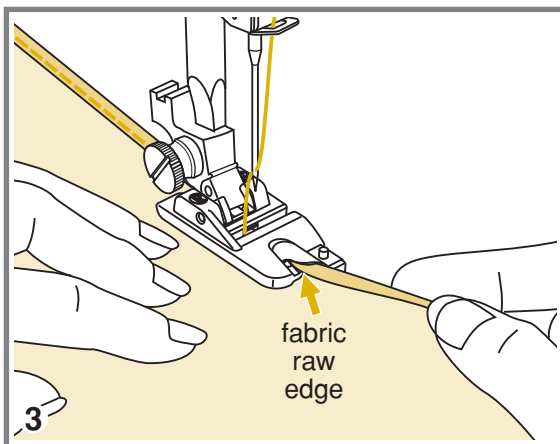


1. Fold the edge of the fabric over about 3mm (1/8 inch), then fold it over again 3mm (1/8 inch) for about 5cm (2 inches) along the edge of the fabric.



2. Insert the needle into the fold by rotating the handwheel toward you, and lower the presser foot. Sew several stitches and raise the presser foot.

Insert the fabric fold into the spiral opening of hemmer foot. Adjust the fabric back until the fold forms a scroll shape.



3. Lower the presser foot and start sewing slowly guiding the fabric raw edge against the recess in front of the hemmer foot and the fabric into the scroll of the foot.

# QUILTING

## ■ Patchwork stitching

### Group A



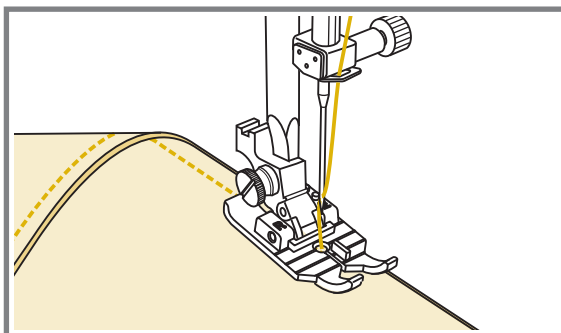
### Recommended



4.5



1.8~2.5

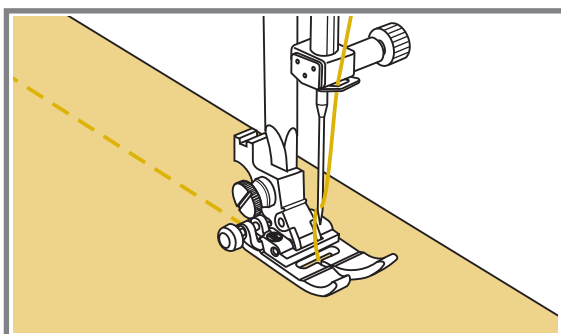


Use the right edge of the presser foot as a guide for a 1/4" seam. There are markings on the foot which serve as 1/4" and 1/8" pivot points, both in front and behind the needle.

Place fabric under the 1/4" quilting foot and lower the presser foot lever. Sew while keeping the fabric edge(s) lined up evenly with the right edge of the presser foot. To pivot, when the edge of the fabric reaches the foot's 1/4" turning mark (the first marking toward the front of the foot), leave the needle down in the fabric, pivot the fabric and continue sewing the next 1/4" seam.

## ■ Hand-look quilting stitch

### Group B



You can duplicate the look of a hand quilted stitch by using monofilament thread in the needle, 50 to 60 weight cotton thread in the bobbin, and increasing the needle tension. The needle tension and stitch length will need to be determined based on the thickness of the fabrics and batting.

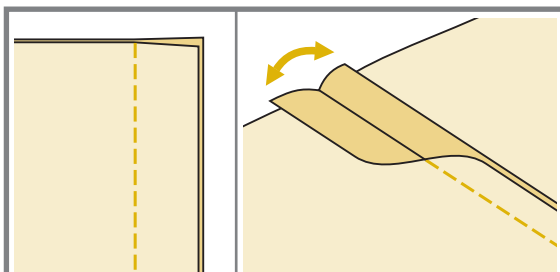
# QUILTING

## ■ Decorative patchwork stitching

Group A

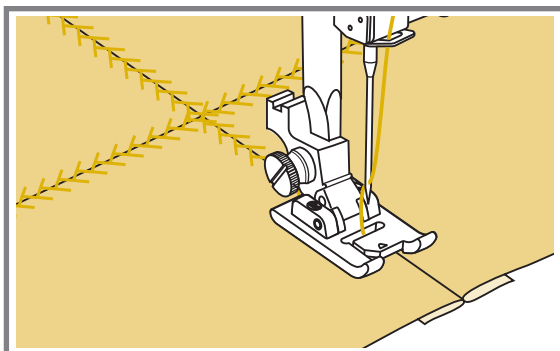


Group B



Place the two pieces of fabric with the right sides together and sew with the straight stitch.

Open the seam allowances and press it flat.



On the right side of the joined pieces of fabric place the center of the presser foot on the seam line and sew over the seam with decorative stitching.

# QUILTING

## ■ Free motion darning, embroidery and monogramming

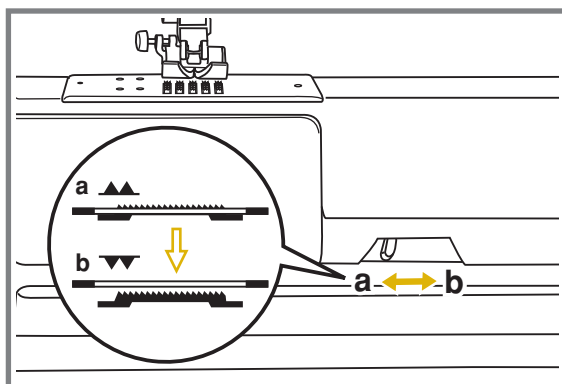
### Group A



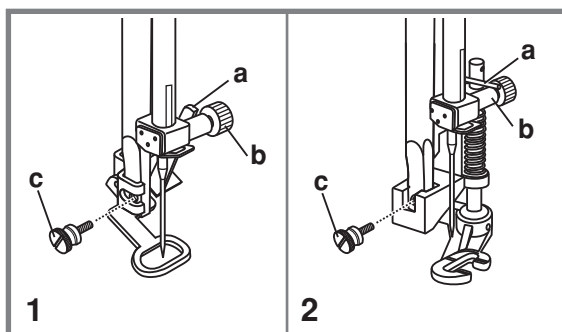
### Recommended



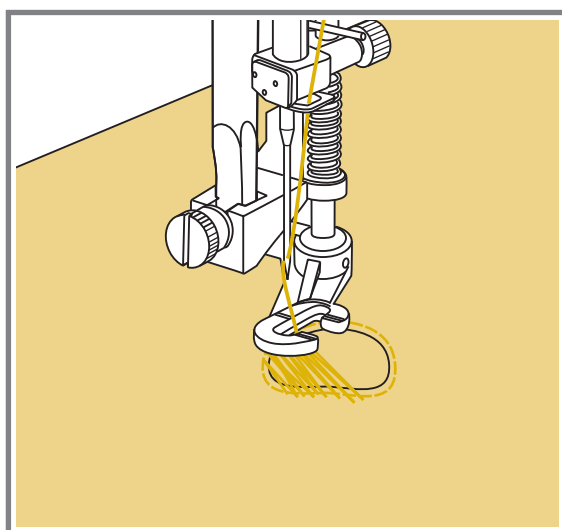
3.5~5.0



Move the drop feed lever to " ▼▼ " to lower the feed dogs.



Remove the presser foot holder and attach the free-motion darning/embroidery foot or the free-motion open toe quilting foot to the presser foot holder bar. The pin (a) of the free-motion foot should lay on the top of the needle clamp screw (b). Press the free-motion foot on firmly from behind with your index finger and tighten the screw (c).



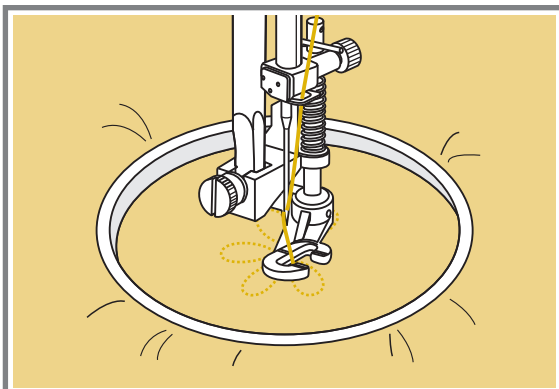
### Darning

Place a piece of stabilizer under the fabric to be mended.

First sew around the edges of the hole (to secure the threads). Working from front to back, sew over the hole in a constant and continuous movement. Turn the fabric 1/4 turn and sew over the first stitching moving the work slower over the hole to separate the threads. This will help to prevent large gaps between the threads.



**Note:** Free-motion darning is accomplished with the feed dog in the lowered position. Movement of the fabric is controlled by the operator; therefore it is necessary to coordinate sewing speed and the movement of fabric.



### Free-motion embroidery

Mark the design to be embroidered on the fabric with wash-out marker. Place fabric and stabilizer in an embroidery hoop. Raise the needle to its highest position and slide the hoop under the needle. Lower the presser foot lever.

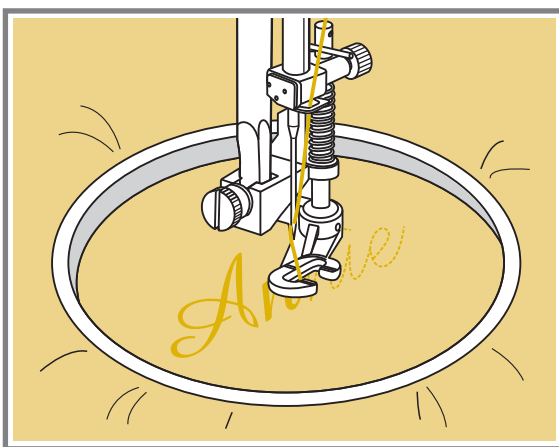
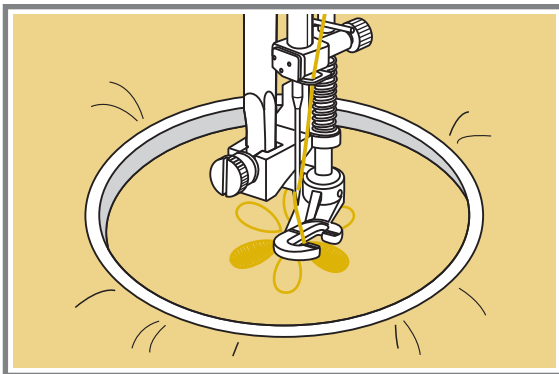
Hold the needle thread in the left hand; turn the handwheel (counterclockwise) toward you to bring the bobbin thread above the fabric surface. While holding both threads firmly, take three to five straight stitches in the same area.

Select zigzag stitch pattern and adjust the stitch width as desired. Stitch along the outline of the design by moving the embroidery hoop. Make sure to maintain a consistent speed.

Fill the design area by working from the outline toward the inside. Keep the stitches close together.

You will get longer stitches by moving the hoop faster and shorter stitches by moving the hoop more slowly.

Secure with reinforcement stitches at the end by pressing the auto-lock button.



### Free-motion monogramming

Mark the letter or letters to be monogrammed on the fabric with wash-out marker. Place fabric and stabilizer in an embroidery hoop. Raise the needle to its highest position and slide the hoop under the needle. Lower the presser foot lever.

Hold the needle thread in the left hand; turn the handwheel toward you to bring the bobbin thread above the fabric surface. While holding both threads firmly, take three to five straight stitches in the same area.

Select zigzag stitch pattern and adjust the stitch width as desired. Sew at a consistent speed along the lettering.

Moving the hoop faster will produce a more loosely stitched monogram. However, moving the hoop more slowly will result in a more densely stitched monogram.

Secure with reinforcement stitches at the end by pressing the auto-lock button.

\* Embroidery hoop is not included with the machine.

## ATTACHING THE EDGE/ QUILTING GUIDE

### Group A



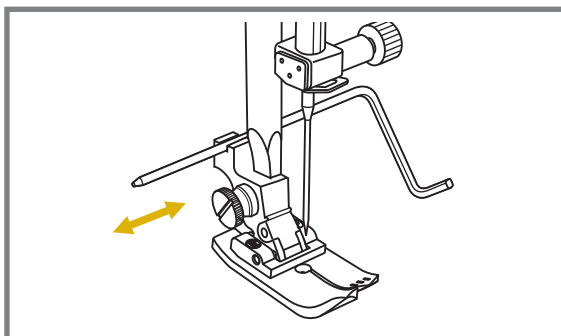
### Recommended



4.5



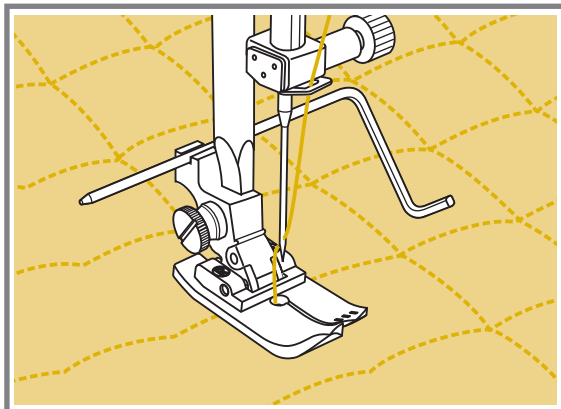
1.0~3.0



Use the edge/quilting guide to sew parallel stitches that are equally spaced.

Insert the bar of the edge/quilting guide into the slot at the rear of the presser foot holder as illustrated.

Adjust the bar of the edge/quilting guide to the width from the needle that you desire.



Sew the first row of stitching then move the fabric over placing the bar over the previous line of stitching.

Continue to sew each consecutive row in this manner for equal distance between rows.



**Note:** When using the straight stitch foot "RF", only use center needle position stitches (4.5 width setting) to prevent machine damage.



## CORDING

Sew over one, two or three strands of cording to create embellishments or surface texture on all kinds of projects. Pearl cotton, lightweight yarns, embroidery floss, etc, can be used for cording.

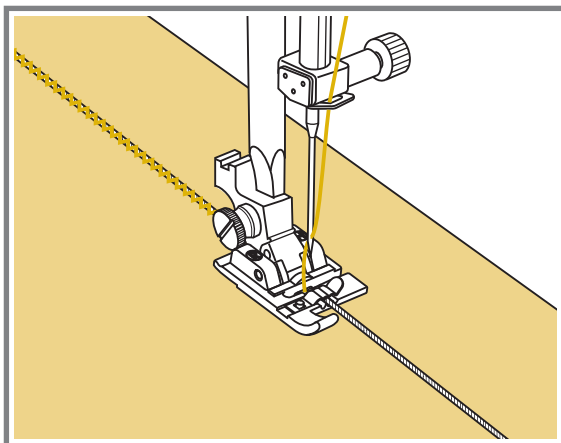
### ■ Single cording

#### Group A

05



RH



To create gathering with the cording foot, place a single strand of pearl cotton or similar type of cord in the center groove, then place the back end of the cord under the foot. Secure the cord by tying a knot at the back of the foot.

Select a narrow zig-zag, medium-long stitch length. Test to ensure that the stitches are formed over the cord, not into the cord.

Place the fabric under the foot and sew. Once the stitching is completed, pull the cord, which will draw up or gather the fabric. Adjust the gathers evenly, then sew a straight stitch to secure the gathers in place.

### ■ Triple cording

#### Group A

06



RH

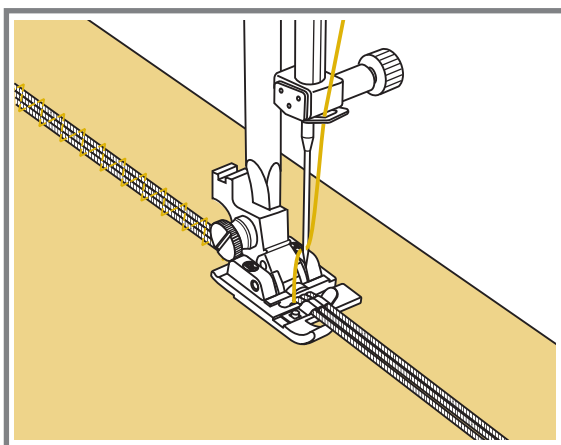


#### Group B

23



RH

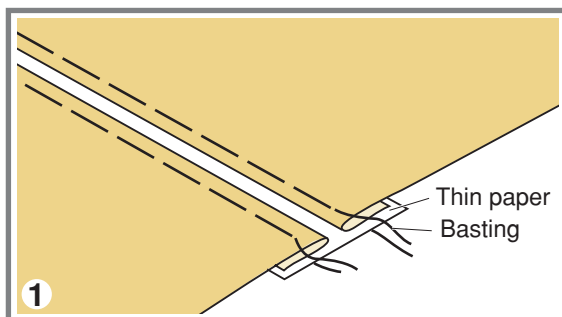


Push the sewing thread to the left and insert three cords into the grooves of the foot and pull about 5cm (2 inches) of the cords behind the foot.

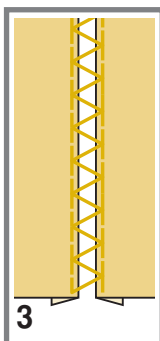
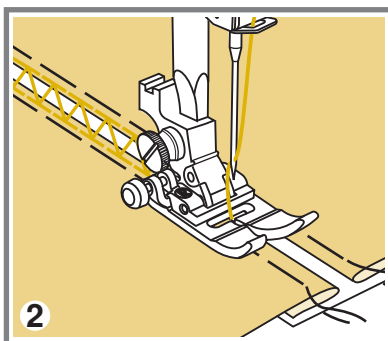
Select the desired pattern and adjust the stitch width so that the stitches are just covering the cords. Lower the foot and sew slowly guiding the cords.

# FAGOTING

## Group A



1. Separate the folded edges of the fabric pieces with a gap of 4mm (1/8 inch) and baste them onto a piece of thin paper or water-soluble stabilizer sheet.



2. Align the center of the presser foot with the center of the two pieces of fabric and begin sewing.
3. After sewing, remove the paper.

# GATHERING

## Group A



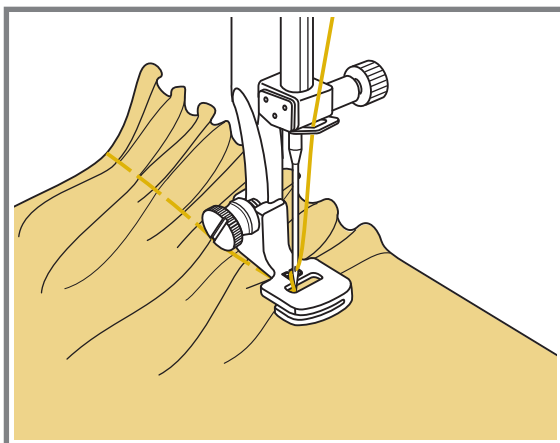
## Recommended



1.0



4.5



Gather a single layer of fabric or gather one layer while simultaneously attaching it to another fabric using the gathering foot. This foot works best when on light to medium weight fabrics. It is usually necessary to use an alternative sewing technique for gathering heavier fabrics.

1. Remove the presser foot holder and attach the gathering foot. For "Changing the presser foot" see page 38.
2. For gathering a single layer, just place a piece of fabric under the foot and adjust your stitch length and/or tighten the needle tension to automatically gather as you sew. The smaller sole on the bottom of the gathering foot causes the fabric to gather up behind the presser foot.
3. To get results by increasing stitch length. Test stitch length and tension adjustments to get the amount of gathers desired. Starting with the stitch length, begin by increasing the length; the longer the length the fuller the gathers.
4. To get results by tighten needle tension. Using a stitch length of 2.5-3mm, increase the needle tension as you sew to get the results you desire.
5. To get results by increasing stitch length and needle tension. Combine an increased stitch length with a tightened needle tension for a fuller gather. Always test your results before sewing to achieve the effect you desire.



**Note:** You can also use the all purpose foot to gather fabric by hand. First lower the tension setting to below 2 and pull the bobbin thread to gather the fabric.



**Attention:** Sew slow to medium speed for better fabric control.

# GATHERING

## Group A



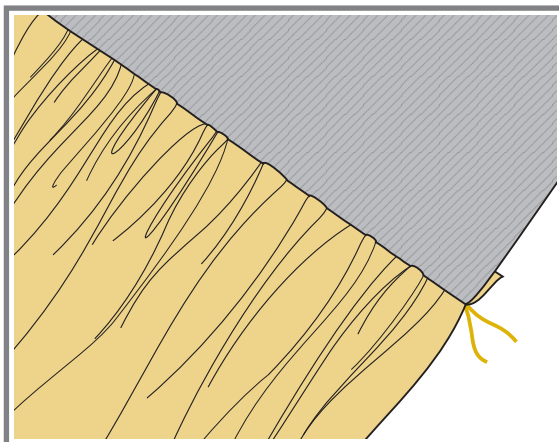
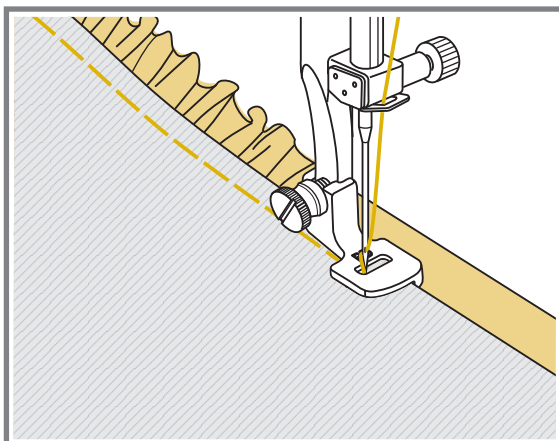
## Recommended



1.0



4.5



Look closely at the gathering foot and you will notice a slot at the side of the foot.

When using the slot, you can gather the bottom layer of the fabric while attaching it to a flat top layer, such as the waistband on a dress bodice.

1. Remove the presser foot holder and attach gathering foot.
2. Place the fabric to be gathered with right side up under the foot.
3. Place top layer of the fabric right side down in the slot.
4. Guide the two layers as illustrated.



**Note:** When testing machine for adjustments to achieve desired fullness, work with 10" increments of the fabric, trims or elastic. This makes it easier to determine the adjustments and how much change is needed for your project. Always test on your project fabric and on the same grainline as will be used in your finished project.

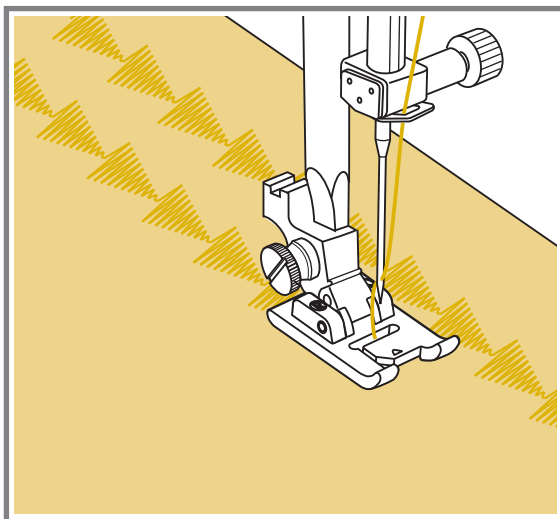
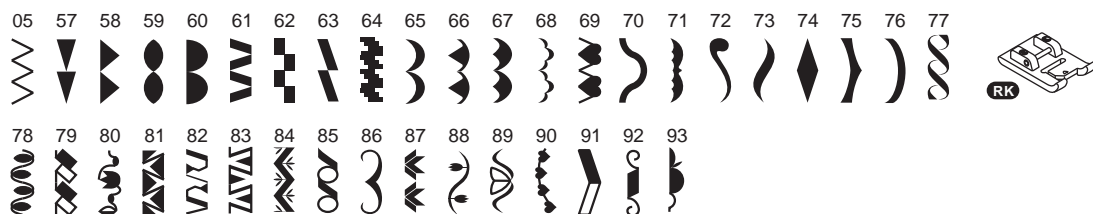
Using the crossgrain of the fabric will make prettier gathers than the straight of grain.



**Note:** Sew slow to medium speed for better fabric control.

## SATIN STITCH SEWING

### Group A



See Stitch Reference Chart on page 103 for stitch length and stitch width ranges.

Use the satin stitch foot for satin stitching and sewing decorative stitches. This foot has a full indentation on the underside which allows dense stitching to pass freely underneath, so fabric feeds smoothly.

To tailor the satin or decorative stitch pattern, you may adjust the length and width of the pattern by pressing the stitch length and width adjustment keys. Experiment with fabric scraps until you get the desired length and width.



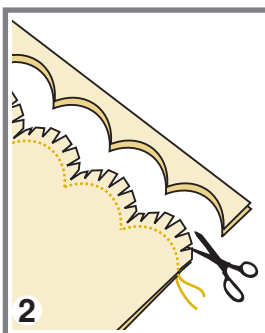
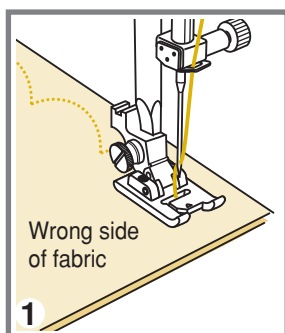
**Note:** When sewing very fine or light weight fabrics, it is suggested that you use interfacing or appropriate stabilizer on the backside of the fabric.

# SCALLOP STITCH

## ■ Scallop hem

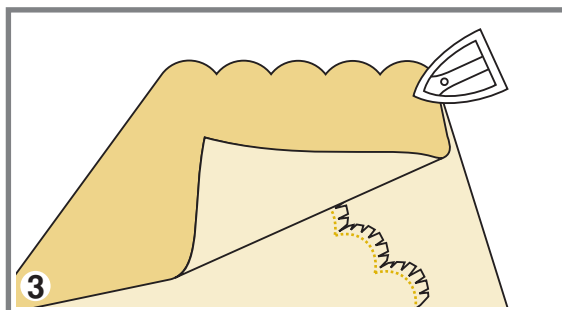
### Group B

50



1. Place the fabric right sides together and sew along the edge.

2. Cut the fabric along the seam leaving an allowance of 3mm (1/8 inch) for seaming. Notch the allowance.

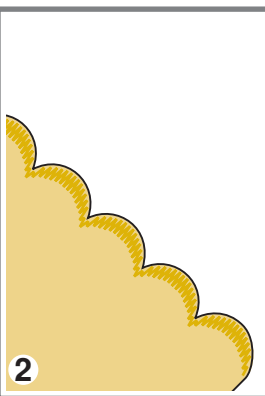
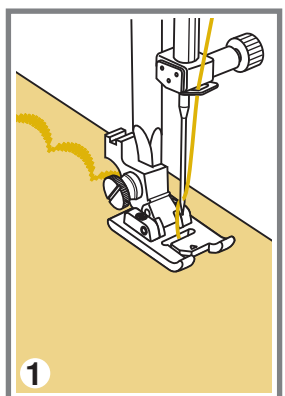


3. Turn the fabric over and push out the curved seam to the surface and press flat with iron.

## ■ Scallop edging

### Group A

65



1. Place the fabric wrong sides together and stitch along the edge of the fabric, making sure not to sew directly on the edge of the fabric.

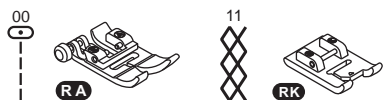
\* For better results, apply spray starch onto the fabric and press with an iron (set at the appropriate temperature for the fabric) before it is sewn.

2. Trim along the stitches.

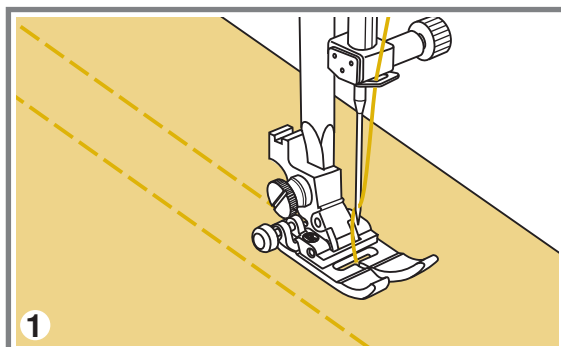
\* Be careful not to cut the stitches.

# SMOCKING

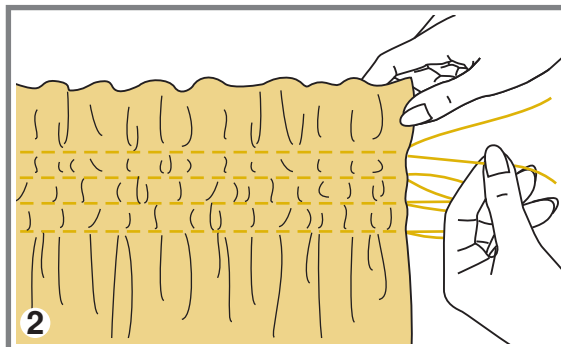
## Group A



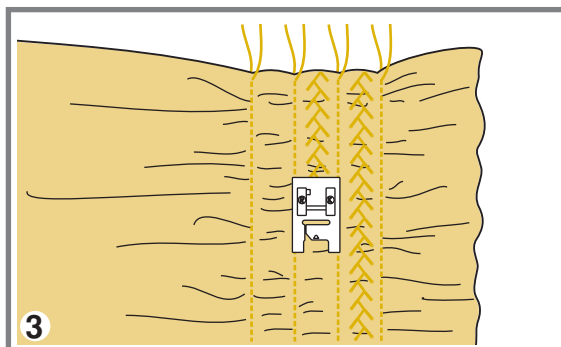
## Group B



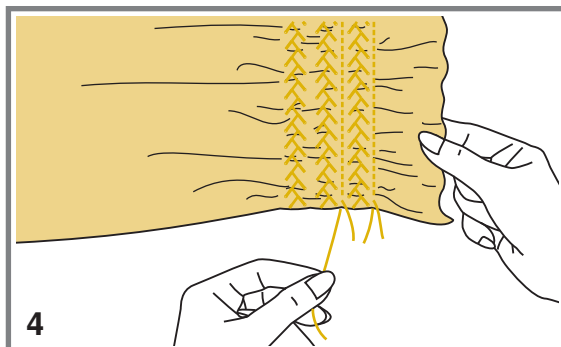
1. Use the all purpose foot (RA) to sew straight, parallel lines 1cm (3/8 inch) apart, across the area to be smocked.



2. Knot the threads at the beginning of the stitching. Pull the bobbin threads and distribute the gathers evenly. Secure the threads at end of the stitching.



3. Reduce the tension, if necessary and sew decorative pattern stitches between the straight seams.



4. Pull out the gathering straight stitches.

## TWIN NEEDLE SEWING

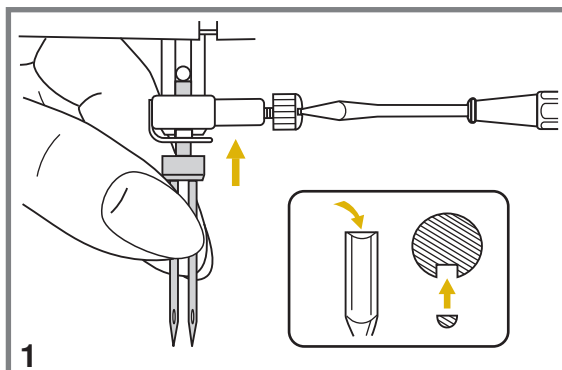


Recommended



2.0~7.0

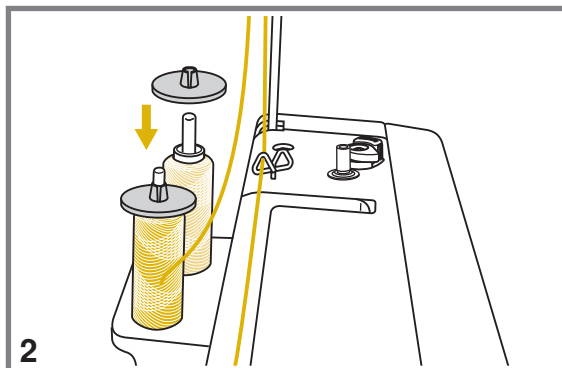
\* Twin needle is not included with the machine.



With a twin needle, you can sew two parallel lines of the same stitch using two different threads; however make sure that the two threads are of the same weight and quality for balanced stitching.

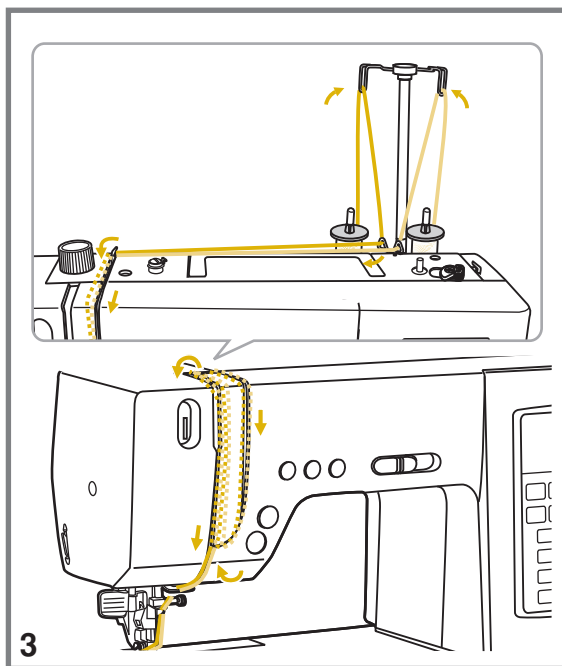
The needle distance of the twin needle can not exceed 5.0mm. If using a 5.0mm twin needle it is recommended to only use with the straight stitch patterns. 2.0mm twin needle is recommended for use with decorative patterns.

**Note:** Always use the all purpose foot (RA) or the satin stitch foot (RK) when sewing with a twin needle.



1. Insert the twin needle with flat side of the needle facing the back. See instructions for changing the needle on page 37.

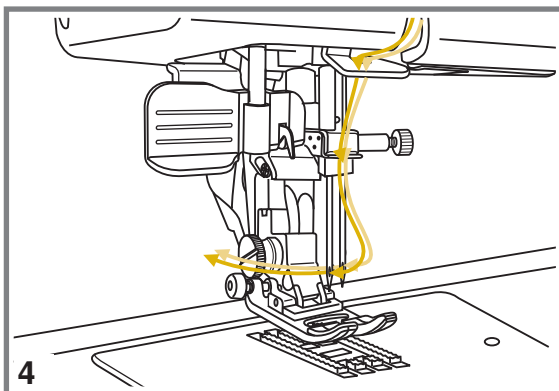
2. Place one spool of thread on each spool pin. Thread the left spool of thread through the upper thread path, by pass the needle clamp thread guide and then into the left needle eye manually. (The needle threader cannot be used with twin needle.)



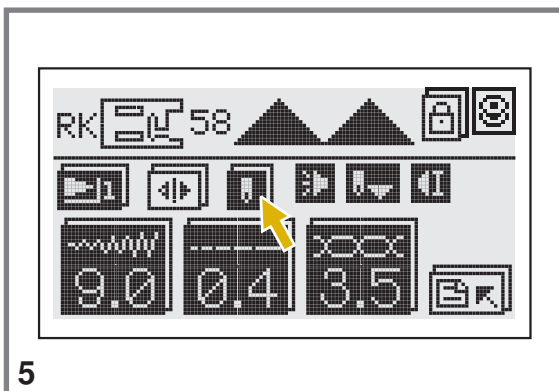
3. Thread the right spool of thread through the upper thread path, into the needle clamp thread guide, and then into the right needle eye manually. (The needle threader cannot be used with twin needle.)





## TWIN NEEDLE SEWING

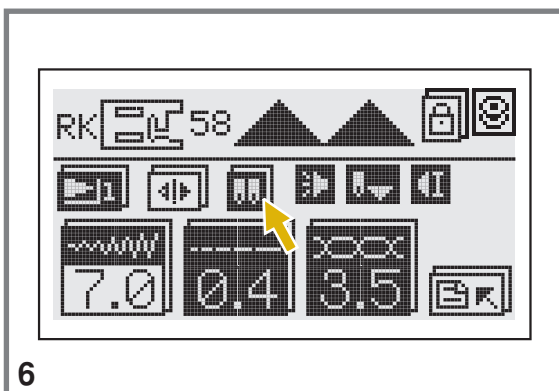



4. Make sure that you pass one thread to the left and one thread to the right of the thread guide.

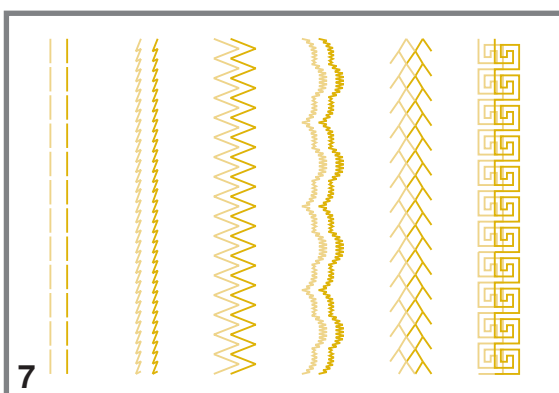


5. Select a stitch pattern.  
Press the twin needle key "  " the machine automatically reduces the maximum width for twin needle sewing by 2mm.


 **Attention:** Group A patterns 23-45, Group C patterns 25-26, and the three letter styles should not be used with a twin needle.




6. The LCD screen will display the twin needle "  " symbol.  
Touch the twin needle button for twin needle sewing each time a different stitch is selected.



7. Two rows of stitching are sewn parallel to each other.

 **Note:** Before sewing, always turn the handwheel (counterclockwise) to make sure the needles do not hit the foot.

 **Note:** When sewing with twin needle, always proceed slowly, and make sure to maintain a slow speed to insure quality stitching.

# ELONGATION

## Group A

57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76



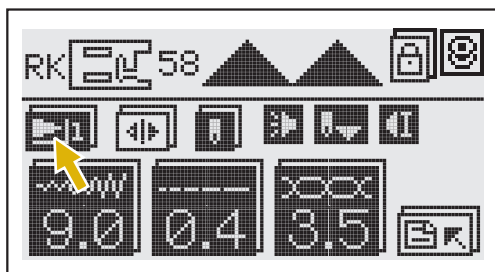
## Recommended



3.0~9.0




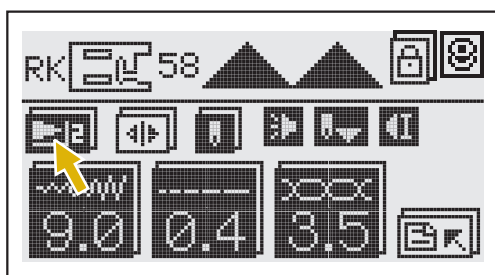
0.0~1.0



1

1. Select one of the satin stitch patterns. (Group A pattern 57-76)

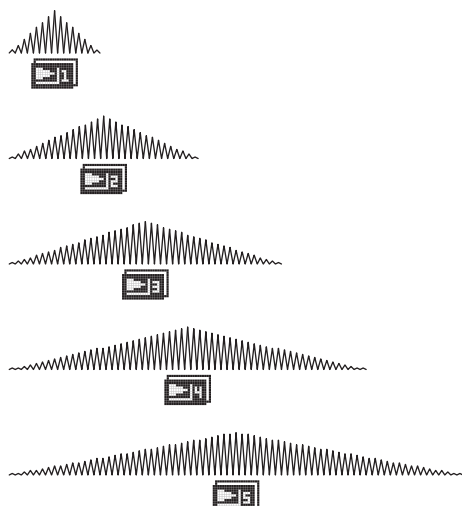
Press the elongation key "  " to select from five settings for changing the pattern length without changing the zigzag width or stitch length.



2

2. Each time you press the elongation key the number will change.

You can select from  through .



3

3. The stitch can be elongated up to five times its original size.

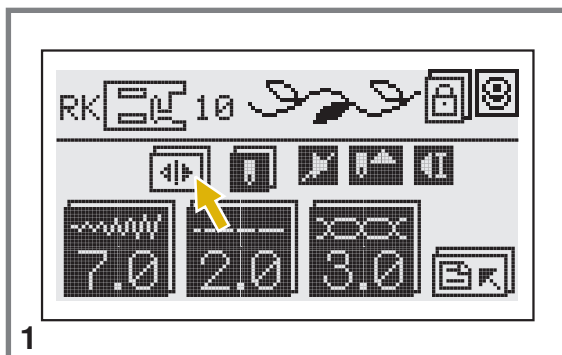
Original stitch density remains the same after the selected pattern is elongated. The stitch length on the LCD screen indicates the length of the actual stitch; however the elongation icon represents the pattern length.


Changing the width or length adds to the variety of patterns.




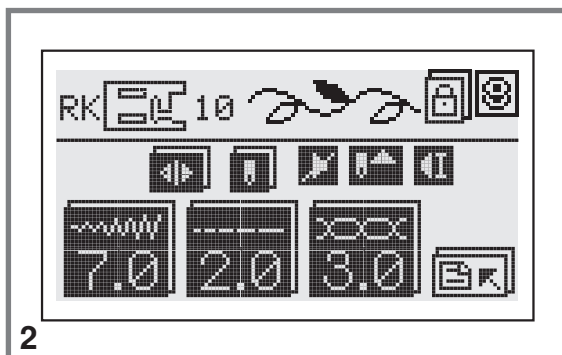
**Note:** Only Group A patterns 57-76 can be elongated and mirrored simultaneously.

## MIRROR IMAGE




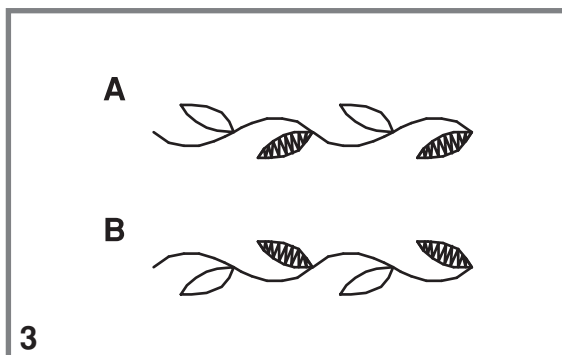
1. Select a pattern and press the mirror key "  " on the screen.

 **Note:** Patterns 26-45 from Group A Patterns and the three letter style modes cannot be mirror imaged.



2. The icon changes to "  ", and the pattern is mirrored.

 **Note:** Mirror imaged patterns can also be combined with other patterns.



3. Press the mirror key again to turn the mirrored pattern off.

A. Normal pattern sewing.  
B. Mirror pattern sewing.

## MEMORY FUNCTION

Combined patterns can be stored for later use. Since stored patterns are not lost after the sewing machine is turned off, they can be recalled at any time. This is convenient for patterns, such as names, that will be used often.




### Note:

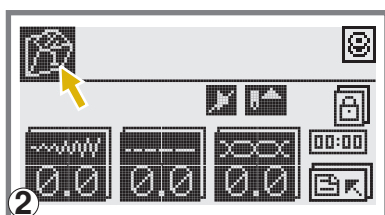
- Except group A patterns 23-45 and group B pattern 00, multiple patterns selected from pattern groups can be combined and sewn together.
- 20 patterns can be combined in each of the 8 memory pockets.
- Stitch length, stitch width, elongation, mirror, and auto-lock for each pattern in the memory can be edited.
- The twin needle cannot be set in memory mode.
- When adjusting the thread tension, all pattern tensions will also be changed.

### Combining patterns or letters

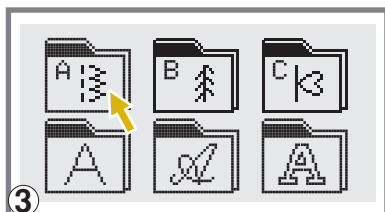



1. Press the memory key " " to enter the screen for selecting memory pockets. The memory function can be accessed through most screens.

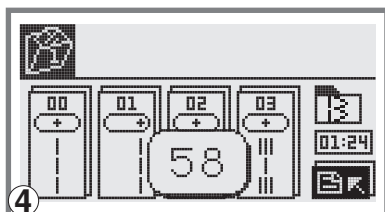
Press one of the folders, 1 through 8, for the desired memory pocket and the memory screen will automatically open. (e.g. 1)



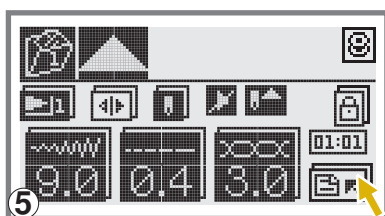
2. Upper left corner of LCD shows the memory pocket number which is currently opened.




3. Press stitch selection key " ", LCD screen enters the pattern group screen automatically. Press one of the folders on the LCD screen to select the desired pattern mode. (e.g. A)



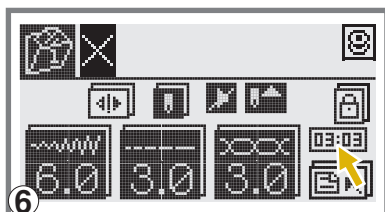
4. Use the page key " ", " " to scroll through the pattern list or press the desired pattern number to select stitch.(e.g. 58)



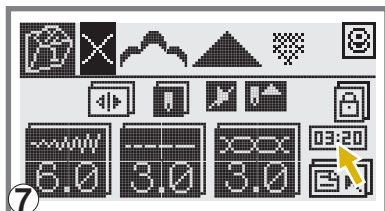
5. The selected pattern displays in reverse highlight on the LCD screen.

Press the other desired pattern number or press " " to return the pattern list in the same pattern mode.


## MEMORY FUNCTION

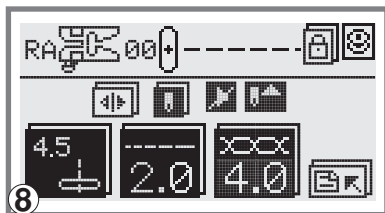


6. Repeat step 3~5 for additional patterns to be stored in the memory. Illustration shows the 3rd pattern position; and 3 patterns have been entered.





7. When 20 patterns have been selected, the memory will be full. Illustration shows the 3rd pattern position; and 20 patterns have been entered.

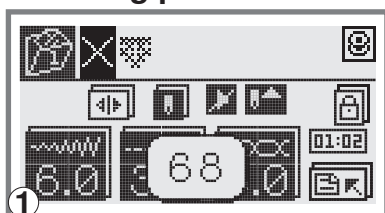
 **Note:** If another pattern is selected after the memory is full the machine will signal with three short beep.






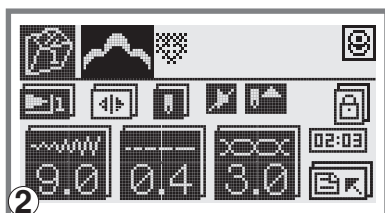
8. Press the memory key "  " again to save the pattern combination and return to the normal screen.

 **Attention:** The selected pattern combination will not be stored within the selected memory if the machine is turned off before pressing the memory key "  " after you have completed your pattern selection(s).

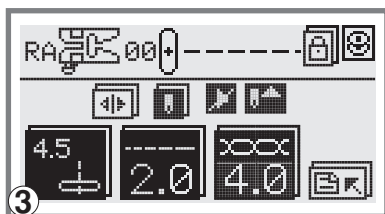
### ■ Adding patterns or letters





1. Press the memory key "  " and select the number of the memory pocket you wish to edit. Press the page key "  ", "  " to select stitch. New pattern will be inserted after the selected pattern displays in reverse highlight.



2. Press pattern number. (e.g. Group A, 68 ) The selected pattern will be inserted.

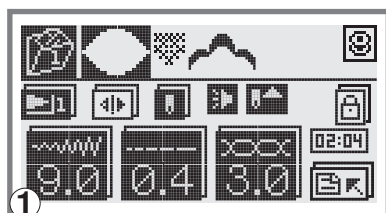





3. Press "  " to save the new pattern combination and return to normal screen.

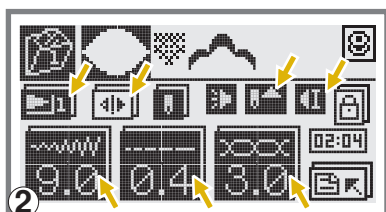
 **Attention:** The selected memory has to contain less than 20 patterns before selected pattern or letter can be inserted.

## MEMORY FUNCTION


### ■ Editing patterns

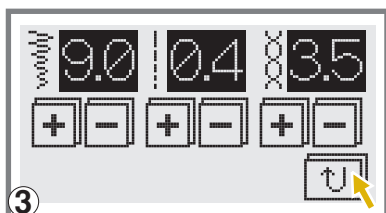



1. Press the memory key " " and select the number of the memory pocket you wish to edit. Press the page key " ", " " to select stitch. The selected pattern displays in reverse highlight.

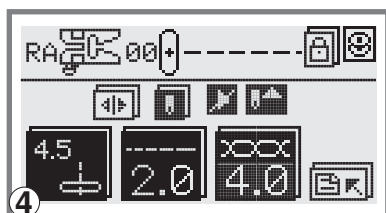



2. The stitch length, stitch width, tension, elongation, mirror imaging, needle position and auto-lock of the patterns can be adjusted.

 **Note:** When adjusting the thread tension, all pattern tensions will also be changed.

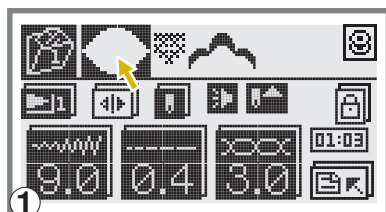





3. Press " " when selected pattern has been edited in order to return to the browse status. This will allow additional patterns to be edited if so desired.

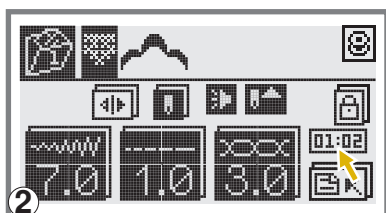



4. Press the " " button to save the edited pattern combination and return to the normal screen.


### ■ Clearing patterns or letters



1. Press the memory key " " and select the number of the memory pocket you wish to clear. Press the page key " ", " " to select stitch. The selected pattern displays in reverse highlight.

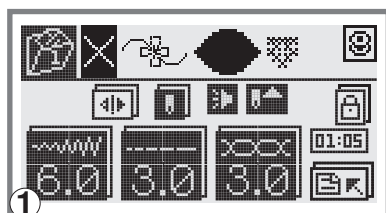


2. Press the clear key " " to delete the selected pattern and the next pattern will move forward. Patterns are erased one at a time.

Press the " " button to save the new pattern combination and return to normal screen.

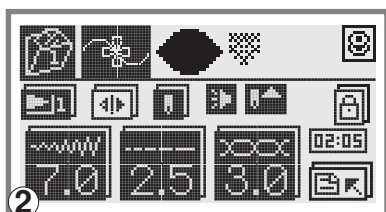
## MEMORY FUNCTION

### ■ Recalling and sewing the memorized pattern

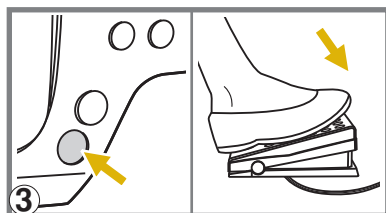


1. Press the memory key "" and select the number of the memory pocket you wish to recall or sew.

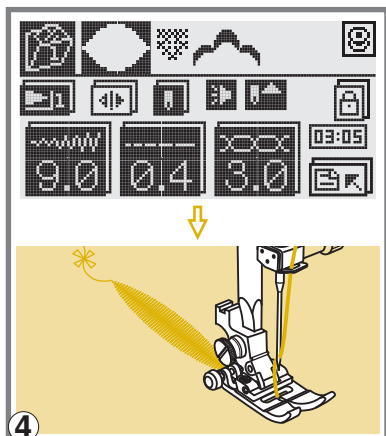
The LCD screen containing the various types of saved stitches will open and start from the first pattern of the memory.



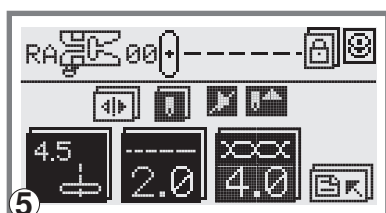
2. Press the page key "", "" and select a stitch to start sewing. The selected pattern displays in reverse highlight.



3. Press on the foot control or press the START/STOP button to start the sewing machine.



4. The pattern displayed in reverse highlight on the LCD screen will move along with the sequential pattern while sewing.



5. Press the memory key "" to save the existing pattern combination and return to normal screen.

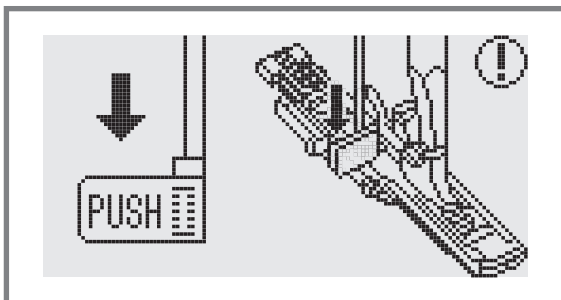
## WARNING FUNCTIONS

### ■ Warning message display



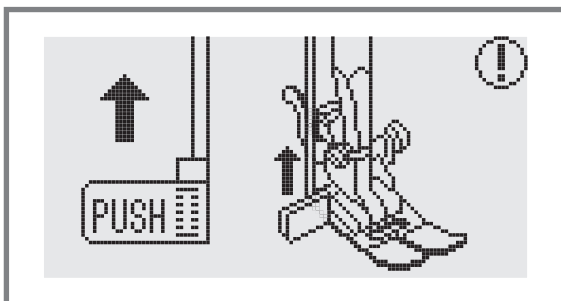
#### **Presser foot is not lowered**

The START/STOP button or reverse button was pressed with the presser foot in the "UP" position. Lower presser foot lever.



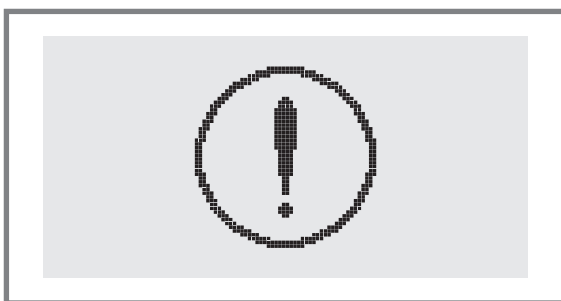
#### **BH lever is not lowered**

The buttonhole or darning stitch was selected and the START/STOP button was pressed while the buttonhole lever is raised. To sew a buttonhole or darning stitch, lower the buttonhole lever.



#### **BH lever has not been raised**

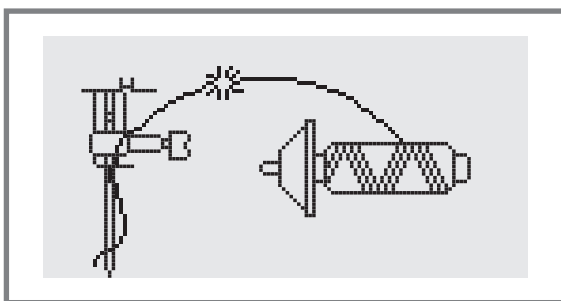
A stitch other than the buttonhole or darning stitch was selected and the START/STOP button was pressed while the buttonhole lever is down. To continue sewing, move the buttonhole lever up to the raised position.



#### **The sewing machine is in trouble**

This message means that the thread is twisted or jammed and the handwheel cannot move.

Please look through the "Trouble shooting" section on page 101/102 to find the solution. After the problem has been solved, the machine will continue to sew. If the problem persists, please consult your local authorized retailer.



#### **The upper thread is broken**

This message is displayed when the upper thread is broken.

Please check and rethread the upper thread.

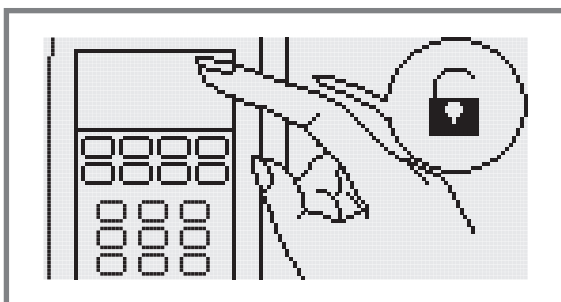


## WARNING FUNCTIONS



### **Bobbin thread is low**

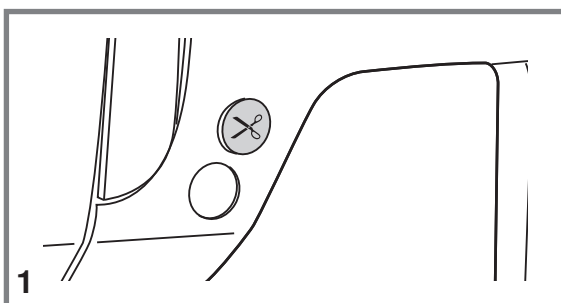
This message is displayed when the bobbin thread is running out.



### **Unlock**

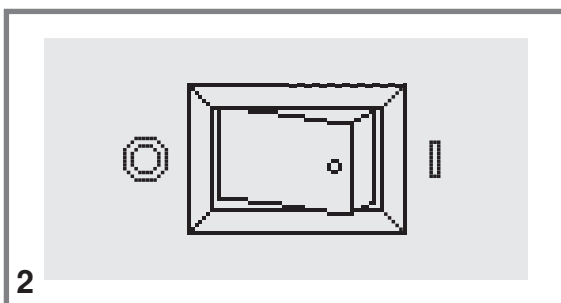
This illustration appears on LCD screen while the operation panel and screen are locked.

Press the " " key to unlock.

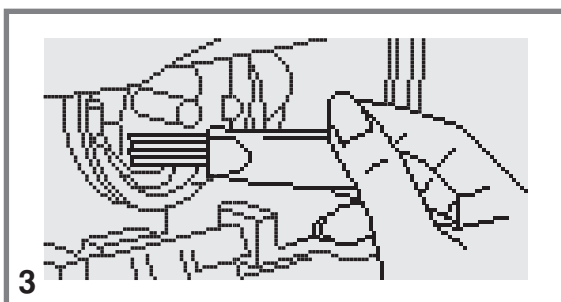


### **The auto thread cutter is in trouble**

When using the auto thread cutter pieces of thread or lint can get caught in the hook area. This can cause the machine to jam. If this occurs, caution illustrations will appear repeatedly on the LCD screen along with the sound of three warning tones.

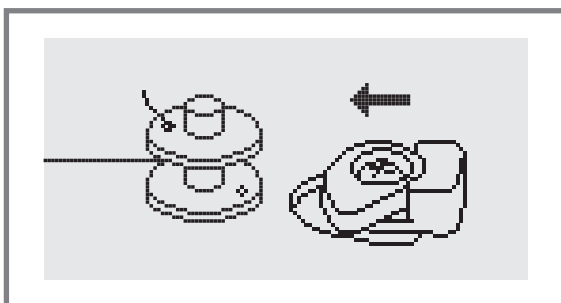


Turn off the machine and see detailed instructions for "Cleaning the hook" on page 99.



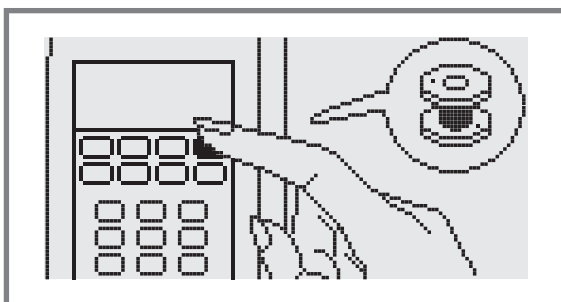
If the jam has not been solved after cleaning, the caution status will remain on the LCD screen. Please contact your local authorized retailer.

## WARNING FUNCTIONS



### Push the bobbin winder stopper to the left

This message appears when the bobbin winding button is pressed without pushing the bobbin winder stopper to the left. To wind a bobbin, push the bobbin winder stopper to the left and press the bobbin winder button again.



### Press the bobbin winding key

Push the bobbin winder stopper to left and this message will show the next step to wind a bobbin. Press the bobbin winding button to continue.



**Attention:** If the thread gets jammed inside the bobbin area stopping the needle from moving and you continue pressing the foot control, the security switch will stop the machine completely. Turn OFF the machine, clean all thread and lint from the bobbin area. Rethread the machine completely; turn ON the machine to continue sewing.

## ■ Warning beeping sound

- When operating correctly: 1 beep.
- When the memory is full with 20 units of pattern: 3-short beeps.
- When operating incorrectly: 3-short beeps.
- When the sewing machine is in trouble and can't sew: 3-short beeps.

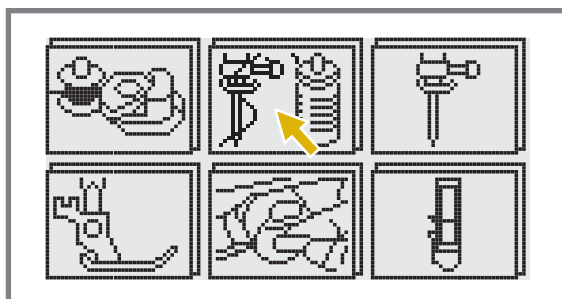
This means that the thread is twisted or jammed and the handwheel can't move.


Please look through the "Trouble shooting" on pages 101/102 to find the solution. After the problem has been solved, the machine will continue to sew.



**Note:** If the problem is still not solved, please contact your local authorized retailer.

## INSTRUCTION ANIMATION MESSAGE DISPLAY



Press machine operation key " " to get assistance on using the sewing machine. Press icons to play simple explanations of bobbin winding, threading the upper thread, replacing the needle, changing the presser foot, installing the bobbin and buttonhole stitching.



Bobbin winding



Threading the upper thread



Replacing the needle



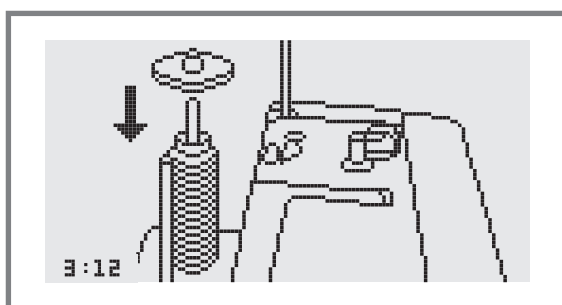
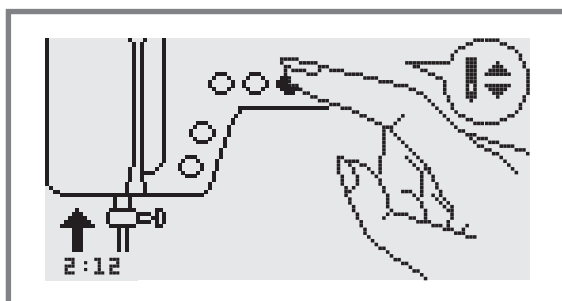
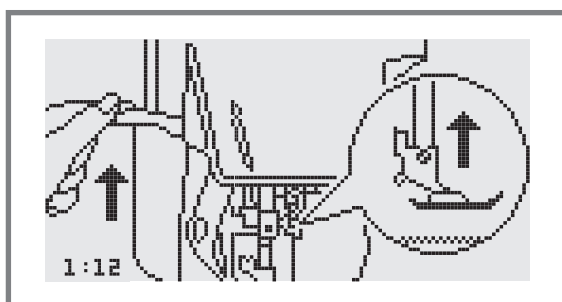
Changing the presser foot



Installing the bobbin






Buttonhole stitching





### While the screen is playing

Press the page key " ", " " to stop automatic playing and switch to pictures.

Press the page key " ", " " and machine operation key " " to return to the selection screen.

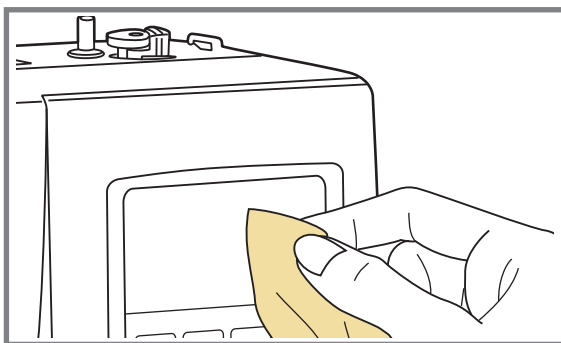
Press the page key " ", " " and press the back key " " to return to the normal screen.

### After the screen stop playing

After you have finished viewing, press the machine operation key " " to return to the selection screen or press the back key " " to return to the normal screen.

## MAINTENANCE

### ■ Cleaning the LCD screen



**Attention:** Disconnect the power cord from the wall socket before cleaning the LCD screen and sewing machine surface, otherwise injury or electrical shock may result.

If the front panel is dirty, wipe it gently with a soft, dry cloth.

Do not use any organic solvents or detergents.

### ■ Cleaning the sewing machine surface

If the surface of the sewing machine is dirty, lightly soak a cloth in mild detergent, squeeze it out firmly and then wipe the surface. After cleaning it once in this way, wipe the surface again with a dry cloth.



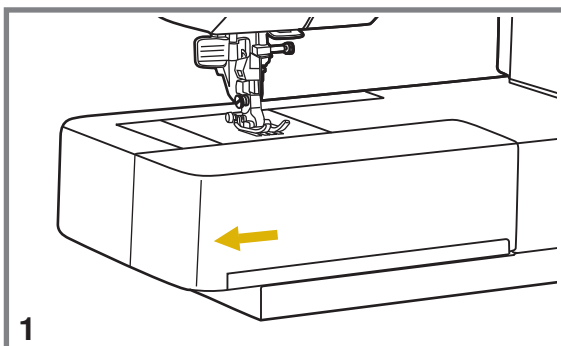
**Attention:** This machine is equipped with a 200mW, 300mW and 200mW LED lamp. If lamp replacement is needed, please contact nearest authorized retailer.

### ■ Cleaning the hook

If lint and bits of thread accumulate in the hook, this will interfere with the smooth operation of the machine. Check and clean regularly.

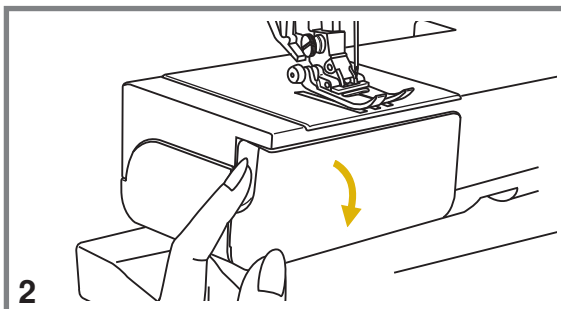


**Attention:** Disconnect the machine from the wall outlet before cleaning.

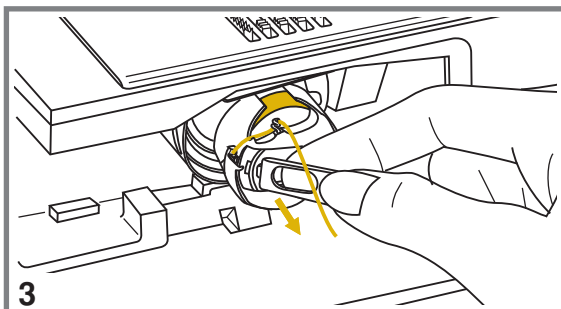


1. Remove the sewing table and accessory box.

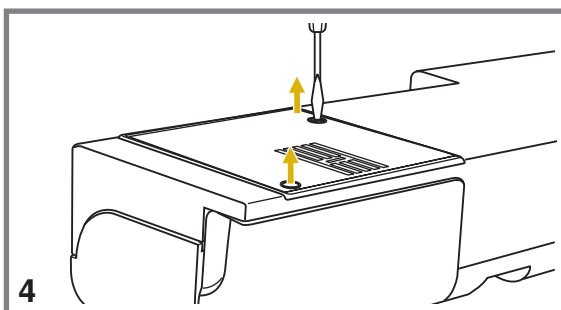
## MAINTENANCE



2. Open the hinged cover.

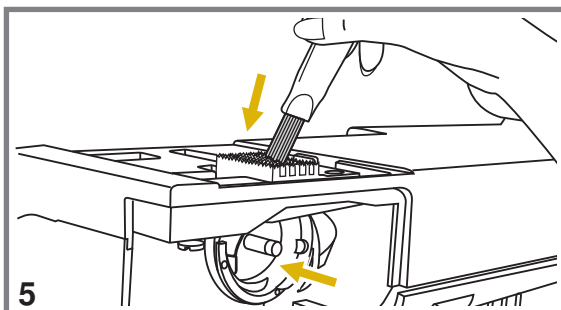


3. Remove the bobbin.

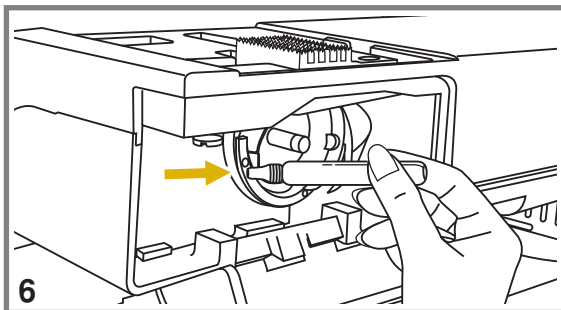


4. Remove the needle, presser foot, and presser foot holder.

Remove the screws holding the needle plate and remove the needle plate.



5. Clean the hook race, feed dog and bobbin case with a brush. Also clean them, using a soft, dry cloth.



6. Apply a drop of oil (every 15 to 20 hours of operation) to the hook as shown in the illustration.



**Note:** Use good quality sewing machine oil only!

## TROUBLE SHOOTING

Before calling for service, check the following items.

If the problem still persists, contact the place of purchase or your nearest authorized retailer.








































Problem	Cause	Correction	Reference
Upper thread breaks	1. The machine is not threaded correctly.	1. Rethread the machine.	page 31
	2. The thread tension is too tight.	2. Reduce the thread tension to a lower number.	page 46
	3. The thread is too thick for the needle.	3. Select a larger needle.	page 45
	4. The needle is not inserted correctly.	4. Remove and reinsert the needle (flat side towards the back).	page 37
	5. The thread is wound around the spool holder pin.	5. Remove the spool of thread and rethread machine.	page 31
	6. The needle is damaged.	6. Replace the needle.	page 37
Lower thread breaks	1. The bobbin case is not inserted correctly.	1. Remove and reinsert the bobbin case and pull on the thread. The thread should pull easily.	page 29
	2. The bobbin case is threaded wrong.	2. Rethread both bobbin and bobbin case.	page 29
	3. The lower thread tension is too tight.	3. Loosen lower thread tension.	page 46
Skipped stitches	1. The needle is not inserted correctly.	1. Remove and reinsert needle (flat side towards the back).	page 37
	2. The needle is damaged.	2. Insert a new needle.	page 37
	3. The wrong size needle has been used.	3. Choose a needle to match the thread.	page 45
	4. The foot is not attached correctly.	4. Check and attach correctly.	page 35
	5. The machine is not threaded correctly.	5. Rethread the machine.	page 31
	6. The presser foot pressure is not strong enough.	6. Adjusting the presser foot pressure.	page 46
Needle breaks	1. The needle is damaged.	1. Insert a new needle.	page 37
	2. The needle is not correctly inserted.	2. Insert the needle correctly (flat side towards the back).	page 37
	3. Wrong needle size for the fabric.	3. Choose a needle to match the thread and fabric.	page 45
	4. The wrong foot is attached.	4. Select the correct foot.	page 103
	5. The needle clamp screw is loose.	5. Use the screwdriver to firmly tighten the screw.	page 37
	6. The presser foot that is used is not appropriate for the type of stitch that you wish to sew.	6. Attach the presser foot that is appropriate for the type of stitch that you wish to sew.	Page 103
	7. The upper thread tension is too tight.	7. Loosen the upper thread tension.	page 46
Loose stitches	1. The machine is not correctly threaded.	1. Rethread the machine.	page 31
	2. The bobbin case is not correctly threaded.	2. Rethread the bobbin case.	page 29
	3. Needle/fabric/thread combination is wrong.	3. The needle size must match the fabric and thread.	page 45
	4. Thread tension is wrong.	4. Correct the thread tension.	page 46
Seams gather or pucker	1. The needle is too thick for the fabric.	1. Select a finer needle.	page 45
	2. The stitch length is adjusted wrong.	2. Readjust the stitch length.	page 48
	3. The thread tension is too tight.	3. Loosen the thread tension.	page 46

## TROUBLE SHOOTING

Problem	Cause	Correction	Reference
Seam puckering	1. The needle thread tension is too tight.	1. Loosen the thread tension.	page 46
	2. The needle thread is not threaded correctly.	2. Rethread the machine.	page 31
	3. The needle is too heavy for the fabric being sewn.	3. Choose a needle to match the thread and fabric.	page 45
	4. The stitch length is too long for the	4. Change the stitch length.	page 48
	5. The presser foot pressure is not correctly adjusted.	5. Adjust the presser foot pressure.	page 46
Patterns are distorted	1. The correct presser foot is not used.	1. Select the correct foot.	page 103
	2. The needle thread tension is too tight.	2. Loosen the thread tension .	page 46
	3. The stitch length is not suitable for the fabric being sewn.	3. Change stitch length.	page 48
	4. Feed balancing dial is not set properly.	4. Adjusting pattern balance.	page 49
The machine jams	1. Thread is caught in the hook.	Remove the upper thread and bobbin case, turn the handwheel backwards and forwards by hand and remove the thread remnants.	page 99
	2. The feed dogs are packed with lint.		
The machine is noisy	1. Lint or oil have collected on the hook or needle bar.	1. Clean the hook and feed dog.	page 99
	2. Poor quality oil has been used.	2. Only use good quality sewing machine oil.	--
	3. The needle is damaged.	3. Replace the needle.	page 37
	4. Slight humming sound coming from internal motor.	4. Normal.	--
	5. Thread is caught in the hook.	Remove the upper thread and bobbin case, turn the handwheel backwards and forwards by hand and remove the thread remnants.	page 99
	6. The feed dogs are packed with lint.		
Uneven stitches, uneven feed	1. Poor quality thread.	1. Select a better quality thread.	page 45
	2. The bobbin case is threaded wrong.	2. Remove the bobbin case, then thread and reinsert correctly.	page 27
	3. Fabric has been pulled.	3. Do not pull on the fabric while sewing, let it be taken up by the machine.	--
The sewing machine doesn't operate	1. The machine is not turned on.	1. Turn on the machine.	page 18
	2. The START/STOP button or foot control pedal was not pressed.	2. Press the START/STOP button or the foot control pedal.	page 9/10
	3. The presser foot lever is raised.	3. Lower the presser foot lever.	page 37
	4. A thread is caught in the hook race.	4. Remove the upper thread and bobbin case, turn the handwheel backwards and forwards by hand and remove the thread remnants.	page 99
	5. The machine is not plugged in.	5. Connect the power cord plug to the electrical outlet.	page 17










































# STITCH REFERENCE CHART

## ■ Group A patterns " "-94















Stitch Pattern		Width (mm)		Length (mm)		Presser Foot	Functions						
		Auto	Manual	Auto	Manual		Reverse	Auto-lock	Elongation	Mirror	Presser foot	Twin needle	Memory
Utility stitches	00 	4.5	0.0~9.0	2.0	0.0~5.0	RA	*	*		*	RA	*	*
	01 	9.0	0.0~9.0	3.0	0.0~5.0	RA	*	*		*	RA	*	*
	02 	4.5	0.0~9.0	2.0	1.5~3.0	RA	*	*		*	RA	*	*
	03 	4.5	0.0~9.0	2.5	1.0~3.0	RA	*	*		*	RA	*	*
	04 	4.5	1.0~8.0	2.0	1.0~3.0	RA	*	*		*	RA	*	*
	05 	6.0	0.0~9.0	3.0	0.0~5.0	RA	*	*		*	RA	*	*
	06 	6.0	1.0~9.0	1.0	0.3~5.0	RA	*	*		*	RA	*	*
	07 	6.0	2.5~9.0	2.5	1.0~3.0	RA	*	*		*	RA	*	*
	08 	6.0	4.0~6.0	3.0	1.0~3.0	RI	*	*		*	RA	*	*
	09 	6.0	2.5~9.0	3.0	1.0~3.0	RA	*	*		*	RA	*	*
	10 	6.0	2.5~9.0	3.0	2.0~3.0	RA	*	*		*	RA	*	*
	11 	6.0	2.5~9.0	3.0	1.0~3.0	RK	*	*		*	RK	*	*
	12 	4.0	2.5~9.0	2.0	1.0~5.0	RA	*	*		*	RA	*	*
	13 	3.0	2.5~9.0	1.5	1.0~5.0	RA	*	*		*	RA	*	*
	14 	3.0	2.5~9.0	1.0	1.0~3.0	RA	*	*		*	RM	*	*
	15 	4.0	2.5~6.0	1.0	1.0~5.0	RM	*	*		*	RA	*	*
	16 	6.0	2.5~6.0	1.0	1.0~5.0	RM	*	*		*	RA	*	*
	17 	6.0	2.5~9.0	1.0	1.0~5.0	RA	*	*		*	RA	*	*
	18 	6.0	2.5~9.0	1.5	1.0~5.0	RA	*	*		*	RA	*	*
	19 	4.0	2.5~9.0	1.0	1.0~5.0	RA	*	*		*	RA	*	*
	20 	4.0	2.5~9.0	2.0	1.5~3.0	RA	*	*		*	RA	*	*
	21 	6.0	2.5~9.0	2.0	2.0~3.0	RA	*	*		*	RA	*	*
	22 	4.0	3.5~9.0	3.0	1.0~5.0	RA	*	*		*	RA	*	*
Securing stitches	23 	4.5	0.0~9.0	2.0	1.0~5.0	RA	*			*	RA		
Piecing straight stitches	24 	4.5	0.0~9.0	2.0	1.0~5.0	RA	*			*	RA		
Basting stitch	25 	4.5	0.0~9.0	5.0	0.3~1.0	RA	*			*	RA		
Buttonhole stitches	26 	5.0	2.5~7.0	0.4	0.3~1.0	RJ					RJ		
	27 	5.0	3.5~7.0	0.4	0.3~1.0	RJ					RJ		
	28 	7.0	5.5~7.0	0.4	0.3~1.0	RJ					RJ		
	29 	5.4	3.0~7.0	0.4	0.3~1.0	RJ					RJ		
	30 	5.0	3.5~7.0	0.4	0.3~1.0	RJ					RJ		
	31 	7.0	5.5~7.0	0.4	0.3~1.0	RJ					RJ		
	32 	7.0	5.5~7.0	0.4	0.3~1.0	RJ					RJ		
	33 	5.0	2.5~7.0	2.0	1.5~3.0	RJ					RJ		
	34 	6.0	2.5~7.0	1.0	1.0~2.0	RJ					RJ		
	35 	6.0	3.5~7.0	2.0	2.0~3.0	RJ					RJ		
	36 	5.0	2.5~9.0	2.0	1.0~2.0	RJ					RJ		
Eyelet stitches	37 	7.0	5.0~8.0			RK					RK		
	38 	7.0	5.0~8.0	--		RK					RK		



# STITCH REFERENCE CHART




















Stitch Pattern		Width (mm)		Length (mm)		Presser Foot	Functions						
		Auto	Manual	Auto	Manual		Reverse	Auto-lock	Elongation	Mirror	Presser foot	Twin needle	Memory
Button sewing stitch	39 	3.0	2.5~4.5			RC							
Bar tack stitch	40 	2.0	1.0~3.0	0.5	0.4~1.0	RJ							
	41 	2.0	1.0~3.0	0.5	0.0~1.0	RK		*					
Darning stitches	42 	9.0	3.5~9.0	2.0	1.5~2.0	RJ							
	43 	9.0	3.5~9.0	2.0	1.5~2.0	RJ							
	44 	9.0	3.5~9.0	2.0	1.5~2.0	RJ							
	45 	9.0	3.5~9.0	1.0	1.0~3.0	RK							
Cross stitches	46 	6.0	2.5~9.0	3.0	1.0~3.0	RK	*	*		*	RK	*	*
	47 	4.0	3.0~9.0	1.0	1.0~3.0	RA	*	*		*	RA	*	*
	48 	4.0	3.0~9.0	1.0	1.0~3.0	RK	*	*		*	RK	*	*
	49 	4.0	3.0~9.0	1.0	1.0~3.0	RK	*	*		*	RK	*	*
	50 	6.0	2.5~9.0	1.0	1.0~3.0	RA	*	*		*	RA	*	*
	51 	6.0	3.0~9.0	1.5	1.0~3.0	RK	*	*		*	RK	*	*
	52 	6.0	3.0~9.0	1.0	1.0~3.0	RK	*	*		*	RK	*	*
	53 	6.0	3.0~9.0	1.0	1.0~3.0	RK	*	*		*	RK	*	*
	54 	6.0	3.0~9.0	1.0	1.0~3.0	RK	*	*		*	RK	*	*
	55 	6.0	3.0~9.0	1.0	1.0~3.0	RK	*	*		*	RK	*	*
	56 	7.0	3.0~9.0	1.0	1.0~3.0	RK	*	*		*	RK	*	*
Satin stitches	57 	9.0	3.0~9.0	0.4	0.0~1.0	RK	*	*	*	*	RK	*	*
	58 	9.0	3.0~9.0	0.4	0.0~1.0	RK	*	*	*	*	RK	*	*
	59 	9.0	3.0~9.0	0.4	0.0~1.0	RK	*	*	*	*	RK	*	*
	60 	9.0	3.0~9.0	0.4	0.0~1.0	RK	*	*	*	*	RK	*	*
	61 	9.0	3.0~9.0	0.4	0.0~1.0	RK	*	*	*	*	RK	*	*
	62 	9.0	3.0~9.0	0.4	0.0~1.0	RK	*	*	*	*	RK	*	*
	63 	9.0	3.0~9.0	0.4	0.0~1.0	RK	*	*	*	*	RK	*	*
	64 	9.0	3.0~9.0	0.4	0.0~1.0	RK	*	*	*	*	RK	*	*
	65 	9.0	3.0~9.0	0.4	0.0~1.0	RK	*	*	*	*	RK	*	*
	66 	9.0	3.0~9.0	0.4	0.0~1.0	RK	*	*	*	*	RK	*	*
	67 	9.0	3.0~9.0	0.4	0.0~1.0	RK	*	*	*	*	RK	*	*
	68 	9.0	3.0~9.0	0.4	0.0~1.0	RK	*	*	*	*	RK	*	*
	69 	9.0	3.0~9.0	0.4	0.0~1.0	RK	*	*	*	*	RK	*	*
	70 	9.0	3.0~9.0	0.4	0.0~1.0	RK	*	*	*	*	RK	*	*
	71 	9.0	3.0~9.0	0.4	0.2~1.0	RK	*	*	*	*	RK	*	*
	72 	9.0	3.0~9.0	0.4	0.0~1.0	RK	*	*	*	*	RK	*	*
	73 	9.0	3.0~9.0	0.4	0.0~1.0	RK	*	*	*	*	RK	*	*
	74 	9.0	3.0~9.0	0.4	0.0~1.0	RK	*	*	*	*	RK	*	*
	75 	9.0	3.0~9.0	0.4	0.0~1.0	RK	*	*	*	*	RK	*	*
	76 	9.0	3.0~9.0	0.4	0.0~1.0	RK	*	*	*	*	RK	*	*
Decorative satin stitches	77 	9.0	3.0~9.0	1.0	1.0~2.0	RK	*	*		*	RK	*	*
	78 	9.0	3.0~9.0	1.0	1.0~3.0	RK	*	*		*	RK	*	*
	79 	9.0	3.5~9.0	2.0	2.0~3.0	RK	*	*		*	RK	*	*

# STITCH REFERENCE CHART

































Stitch Pattern		Width (mm)		Length (mm)		Presser Foot	Functions						
		Auto	Manual	Auto	Manual		Reverse	Auto-lock	Elongation	Mirror	Presser foot	Twin needle	Memory
Decorative satin stitches	80 	9.0	4.0~9.0	2.0	1.0~3.0	RK	*	*		*	RK	*	*
	81 	9.0	2.5~9.0	1.0	1.0~2.0	RK	*	*		*	RK	*	*
	82 	7.0	3.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	83 	7.0	3.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	84 	9.0	4.0~9.0	2.0	1.8~3.0	RK	*	*		*	RK	*	*
	85 	9.0	4.0~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	86 	9.0	2.5~9.0	2.0	2.0~3.0	RK	*	*		*	RK	*	*
	87 	9.0	3.5~9.0	1.0	1.0~3.0	RK	*	*		*	RK	*	*
	88 	9.0	3.5~9.0	2.0	1.8~3.0	RK	*	*		*	RK	*	*
	89 	9.0	3.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	90 	9.0	3.5~9.0	2.0	1.0~3.0	RK	*	*		*	RK	*	*
	91 	6.0	3.5~9.0	1.5	1.0~3.0	RK	*	*		*	RK	*	*
	92 	9.0	2.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	93 	9.0	3.5~9.0	3.0	2.5~3.0	RK	*	*		*	RK	*	*

\* : Features may be applicable.

## Group B patterns "B" "-51

Stitch Pattern		Width (mm)		Length (mm)		Presser Foot	Functions						
		Auto	Manual	Auto	Manual		Reverse	Auto-lock	Elongation	Mirror	Presser foot	Twin needle	Memory
Quilt stitches	00 	4.5	0.0~9.0	2.5	1.0~5.0	RA	*	*		*	RA	*	*
	01 	4.5	0.0~9.0	2.5	0.0~5.0	RA	*	*		*	RA	*	*
	02 	4.5	0.0~9.0	2.0	1.5~3.0	RA	*	*		*	RA	*	*
	03 	4.0	2.0~9.0	2.5	1.0~3.0	RA	*	*		*	RA	*	*
	04 	4.0	2.5~9.0	2.0	1.0~3.0	RA	*	*		*	RA	*	*
	05 	2.5	2.0~9.0	2.5	2.5~3.0	RA	*	*		*	RA	*	*
	06 	2.5	2.0~9.0	2.5	1.5~3.0	RA	*	*		*	RA	*	*
	07 	2.0	1.5~9.0	2.0	1.0~3.0	RA	*	*		*	RA	*	*
	08 	3.0	2.0~9.0	2.0	1.0~3.0	RA	*	*		*	RA	*	*
	09 	3.0	2.0~9.0	2.0	1.0~3.0	RA	*	*		*	RA	*	*
	10 	5.0	2.5~9.0	3.0	1.5~5.0	RA	*	*		*	RA	*	*
	11 	5.0	2.5~9.0	3.0	2.0~3.0	RK	*	*		*	RK	*	*
	12 	5.0	3.5~9.0	3.0	1.0~5.0	RK	*	*		*	RK	*	*
	13 	5.0	3.0~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	14 	5.0	3.5~9.0	3.0	1.0~5.0	RK	*	*		*	RK	*	*
	15 	5.0	3.5~9.0	3.0	1.0~3.0	RK	*	*		*	RK	*	*
	16 	9.0	3.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	17 	5.0	3.0~9.0	2.5	1.0~5.0	RK	*	*		*	RK	*	*
	18 	3.0	2.5~6.0	2.0	1.0~5.0	RM	*	*		*	RA	*	*








































# STITCH REFERENCE CHART

Stitch Pattern		Width (mm)		Length (mm)		Presser Foot	Functions						
		Auto	Manual	Auto	Manual		Reverse	Auto-lock	Elongation	Mirror	Presser foot	Twin needle	Memory
Quilt stitches	19 	4.0	3.0~9.0	1.0	1.0~3.0	RK	*	*		*	RK	*	*
	20 	6.0	2.5~9.0	3.0	1.0~3.0	RK	*	*		*	RK	*	*
	21 	7.0	3.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	22 	6.0	3.5~9.0	3.0	1.5~3.0	RA	*	*		*	RA	*	*
	23 	6.0	2.5~9.0	3.0	1.0~3.0	RK	*	*		*	RK	*	*
	24 	9.0	3.5~9.0	3.0	2.5~3.0	RA	*	*		*	RA	*	*
	25 	9.0	3.5~9.0	2.0	1.0~3.0	RA	*	*		*	RA	*	*
	26 	5.0	3.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	27 	7.0	4.0~9.0	2.0	1.0~3.0	RK	*	*		*	RK	*	*
	28 	5.0	2.5~9.0	2.0	1.0~3.0	RK	*	*		*	RK	*	*
	29 	5.0	2.5~9.0	2.0	1.0~3.0	RK	*	*		*	RK	*	*
	30 	7.0	2.5~9.0	3.0	1.5~3.0	RK	*	*		*	RK	*	*
	31 	7.0	3.5~9.0	2.0	1.0~3.0	RK	*	*		*	RK	*	*
	32 	7.0	2.5~9.0	3.0	1.5~3.0	RK	*	*		*	RK	*	*
	33 	7.0	3.5~9.0	2.0	1.0~3.0	RK	*	*		*	RK	*	*
	34 	7.0	3.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	35 	9.0	3.5~9.0	2.0	1.0~3.0	RA	*	*		*	RA	*	*
	36 	9.0	3.5~9.0	2.5	2.0~3.0	RA	*	*		*	RA	*	*
	37 	5.0	2.0~9.0	1.0	1.0~3.0	RA	*	*		*	RA	*	*
	38 	7.0	3.0~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	39 	6.0	4.5~9.0	1.0	1.0~2.5	RA	*	*		*	RA	*	*
	40 	9.0	3.5~9.0	2.0	1.5~3.0	RA	*	*		*	RA	*	*
	41 	7.0	3.5~9.0	1.4	1.0~3.0	RA	*	*		*	RA	*	*
	42 	7.0	3.5~9.0	1.0	1.0~3.0	RA	*	*		*	RA	*	*
	43 	6.0	3.5~9.0	1.0	1.0~5.0	RA	*	*		*	RA	*	*
	44 	7.0	2.5~9.0	2.0	1.0~3.0	RK	*	*		*	RK	*	*
	45 	7.0	3.0~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	46 	5.0	3.5~9.0	1.0	1.0~3.0	RK	*	*		*	RK	*	*
	47 	5.0	4.0~9.0	1.0	1.0~3.0	RK	*	*		*	RK	*	*
	48 	7.0	3.0~9.0	2.0	1.0~3.0	RK	*	*		*	RK	*	*
	49 	7.0	4.5~9.0	2.5	1.5~3.0	RK	*	*		*	RK	*	*
	50 	7.0	3.5~9.0	1.0	1.0~3.0	RK	*	*		*	RK	*	*







































\* : Features may be applicable.

# STITCH REFERENCE CHART

## ■ Group C patterns " "-77

Stitch Pattern		Width (mm)		Length (mm)		Presser Foot	Functions						
		Auto	Manual	Auto	Manual		Reverse	Auto-lock	Elongation	Mirror	Presser foot	Twin needle	Memory
Decorative stitches	00 	5.0	3.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	01 	5.0	3.5~9.0	3.0	1.5~3.0	RK	*	*		*	RK	*	*
	02 	5.0	3.5~9.0	3.0	2.0~3.0	RK	*	*		*	RK	*	*
	03 	7.0	3.5~9.0	3.0	2.0~3.0	RK	*	*		*	RK	*	*
	04 	6.0	3.5~9.0	3.0	2.0~3.0	RK	*	*		*	RK	*	*
	05 	7.0	3.5~9.0	2.0	2.0~3.0	RK	*	*		*	RK	*	*
	06 	7.0	3.5~9.0	3.0	1.5~3.0	RK	*	*		*	RK	*	*
	07 	6.0	2.5~9.0	1.0	1.0~3.0	RK	*	*		*	RK	*	*
	08 	5.0	2.5~9.0	1.0	1.0~3.0	RK	*	*		*	RK	*	*
	09 	7.0	4.5~9.0	3.0	2.5~3.0	RK	*	*		*	RK	*	*
	10 	7.0	3.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	11 	7.0	2.5~9.0	1.5	1.0~3.0	RK	*	*		*	RK	*	*
	12 	7.0	4.5~9.0	2.0	1.0~3.0	RK	*	*		*	RK	*	*
	13 	9.0	4.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	14 	9.0	5.0~9.0	2.0	2.0~3.0	RK	*	*		*	RK	*	*
	15 	9.0	5.0~9.0	3.0	2.5~3.0	RK	*	*		*	RK	*	*
	16 	7.0	3.0~9.0	1.5	1.5~3.0	RK	*	*		*	RK	*	*
	17 	6.0	3.0~9.0	1.5	1.5~3.0	RK	*	*		*	RK	*	*
	18 	6.0	2.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	19 	7.0	3.5~9.0	1.5	1.5~3.0	RK	*	*		*	RK	*	*
	20 	9.0	3.5~9.0	3.0	1.5~3.0	RK	*	*		*	RK	*	*
	21 	7.0	2.5~9.0	2.0	1.0~3.0	RK	*	*		*	RK	*	*
	22 	9.0	4.0~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	23 	9.0	5.0~9.0	2.0	2.0~3.0	RK	*	*		*	RK	*	*
	24 	9.0	5.0~9.0	3.0	2.5~3.0	RK	*	*		*	RK	*	*
	25 	9.0	9.0	3.0	3.0	RK	*	*		*	RK		*
	26 	9.0	9.0	3.0	3.0	RK	*	*		*	RK		*
	27 	9.0	5.0~9.0	3.0	2.0~3.0	RK	*	*		*	RK	*	*
	28 	7.0	4.0~9.0	1.5	1.5~3.0	RK	*	*		*	RK	*	*
	29 	9.0	3.5~9.0	3.0	1.5~3.0	RK	*	*		*	RK	*	*
	30 	9.0	5.0~9.0	2.0	2.0~3.0	RK	*	*		*	RK	*	*
	31 	7.0	3.5~9.0	3.0	1.5~3.0	RK	*	*		*	RK	*	*
	32 	9.0	5.0~9.0	1.8	1.0~2.5	RK	*	*		*	RK	*	*
	33 	9.0	4.5~9.0	3.0	2.5~3.0	RK	*	*		*	RK	*	*
	34 	7.0	3.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	35 	9.0	4.5~9.0	3.0	2.0~3.0	RK	*	*		*	RK	*	*
	36 	9.0	4.5~9.0	3.0	1.5~3.0	RK	*	*		*	RK	*	*
	37 	9.0	4.5~9.0	3.0	1.5~3.0	RK	*	*		*	RK	*	*
	38 	7.0	3.0~9.0	2.0	2.0~3.0	RK	*	*		*	RK	*	*

# STITCH REFERENCE CHART

Stitch Pattern		Width (mm)		Length (mm)		Presser Foot	Functions						
		Auto	Manual	Auto	Manual		Reverse	Auto-lock	Elongation	Mirror	Presser foot	Twin needle	Memory
Decorative stitches	39 	5.0	3.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	40 	7.0	3.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	41 	7.0	4.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	42 	9.0	3.5~9.0	3.0	1.5~3.0	RK	*	*		*	RK	*	*
	43 	5.0	3.5~9.0	3.0	1.5~3.0	RK	*	*		*	RK	*	*
	44 	9.0	3.5~9.0	3.0	1.5~3.0	RK	*	*		*	RK	*	*
	45 	4.5	0.0~9.0	3.0	2.0~3.0	RK	*	*		*	RK	*	*
	46 	7.0	3.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	47 	7.0	3.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	48 	7.0	5.0~9.0	3.0	2.0~3.0	RK	*	*		*	RK	*	*
	49 	6.0	4.5~9.0	2.0	2.0~3.0	RK	*	*		*	RK	*	*
	50 	7.0	5.0~9.0	3.0	2.0~3.0	RK	*	*		*	RK	*	*
	51 	7.0	5.0~9.0	3.0	2.0~3.0	RK	*	*		*	RK	*	*
	52 	7.0	5.0~9.0	1.5	1.5~3.0	RK	*	*		*	RK	*	*
	53 	7.0	5.0~9.0	3.0	1.0~3.0	RK	*	*		*	RK	*	*
	54 	7.0	3.5~9.0	2.0	1.0~3.0	RK	*	*		*	RK	*	*
	55 	7.0	5.0~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	56 	7.0	5.0~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	57 	5.0	2.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	58 	7.0	5.0~9.0	3.0	2.0~3.0	RK	*	*		*	RK	*	*
	59 	7.0	5.0~9.0	2.0	2.0~3.0	RK	*	*		*	RK	*	*
	60 	7.0	2.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	61 	7.0	4.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	62 	7.0	3.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	63 	7.0	4.5~9.0	3.0	1.5~3.0	RK	*	*		*	RK	*	*
	64 	7.0	3.5~9.0	2.0	1.0~3.0	RK	*	*		*	RK	*	*
	65 	7.0	3.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*
	66 	7.0	4.0~9.0	3.0	2.0~3.0	RK	*	*		*	RK	*	*
	67 	7.0	4.0~9.0	2.5	2.0~3.0	RK	*	*		*	RK	*	*
	68 	7.0	5.0~9.0	3.0	2.0~3.0	RK	*	*		*	RK	*	*
	69 	7.0	5.0~9.0	3.0	2.0~3.0	RK	*	*		*	RK	*	*
	70 	7.0	5.0~9.0	2.0	2.0~3.0	RK	*	*		*	RK	*	*
	71 	5.0	2.5~9.0	2.0	1.0~3.0	RK	*	*		*	RK	*	*
	72 	5.0	2.5~9.0	2.0	1.0~3.0	RK	*	*		*	RK	*	*
	73 	5.0	3.0~9.0	2.0	1.0~3.0	RK	*	*		*	RK	*	*
	74 	6.0	4.5~9.0	2.0	2.0~3.0	RK	*	*		*	RK	*	*
	75 	5.0	3.5~9.0	2.0	1.0~3.0	RK	*	*		*	RK	*	*
	76 	5.0	2.5~9.0	2.0	1.5~3.0	RK	*	*		*	RK	*	*

\* : Features may be applicable.

# STITCH REFERENCE CHART

## ■ Block style group "A" patterns-97

Stitch Pattern			Width (mm)		Length (mm)		Presser Foot	Functions						
			Auto	Manual	Auto	Manual		Reverse	Auto-lock	Elongation	Mirror	Presser foot	Twin needle	Memory
Block style	01	1	8.0	6.0,8.0		-----	RK		*					*
	02	2	8.0	6.0,8.0		-----	RK		*					*
	03	3	8.0	6.0,8.0		-----	RK		*					*
	04	4	8.0	6.0,8.0		-----	RK		*					*
	05	5	8.0	6.0,8.0		-----	RK		*					*
	06	6	8.0	6.0,8.0		-----	RK		*					*
	07	7	8.0	6.0,8.0		-----	RK		*					*
	08	8	8.0	6.0,8.0		-----	RK		*					*
	09	9	8.0	6.0,8.0		-----	RK		*					*
	10	0	8.0	6.0,8.0		-----	RK		*					*
	11	A	8.0	6.0,8.0		-----	RK		*					*
	12	B	8.0	6.0,8.0		-----	RK		*					*
	13	C	8.0	6.0,8.0		-----	RK		*					*
	14	D	8.0	6.0,8.0		-----	RK		*					*
	15	E	8.0	6.0,8.0		-----	RK		*					*
	16	F	8.0	6.0,8.0		-----	RK		*					*
	17	G	8.0	6.0,8.0		-----	RK		*					*
	18	H	8.0	6.0,8.0		-----	RK		*					*
	19	I	8.0	6.0,8.0		-----	RK		*					*
	20	J	8.0	6.0,8.0		-----	RK		*					*
	21	K	8.0	6.0,8.0		-----	RK		*					*
	22	L	8.0	6.0,8.0		-----	RK		*					*
	23	M	8.0	6.0,8.0		-----	RK		*					*
	24	N	8.0	6.0,8.0		-----	RK		*					*
	25	O	8.0	6.0,8.0		-----	RK		*					*
	26	P	8.0	6.0,8.0		-----	RK		*					*
	27	Q	8.0	6.0,8.0		-----	RK		*					*
	28	R	8.0	6.0,8.0		-----	RK		*					*
	29	S	8.0	6.0,8.0		-----	RK		*					*
	30	T	8.0	6.0,8.0		-----	RK		*					*
	31	U	8.0	6.0,8.0		-----	RK		*					*
	32	V	8.0	6.0,8.0		-----	RK		*					*
	33	W	8.0	6.0,8.0		-----	RK		*					*
	34	X	8.0	6.0,8.0		-----	RK		*					*
	35	Y	8.0	6.0,8.0		-----	RK		*					*
	36	Z	8.0	6.0,8.0		-----	RK		*					*
	37	a	8.0	6.0,8.0		-----	RK		*					*
	38	b	8.0	6.0,8.0		-----	RK		*					*
	39	c	8.0	6.0,8.0		-----	RK		*					*

# STITCH REFERENCE CHART

Stitch Pattern			Width (mm)		Length (mm)		Presser Foot	Functions						
			Auto	Manual	Auto	Manual		Reverse	Auto-lock	Elongation	Mirror	Presser foot	Twin needle	Memory
Block style	40	d	8.0	6.0,8.0		-----	RK		*					*
	41	e	8.0	6.0,8.0		-----	RK		*					*
	42	f	8.0	6.0,8.0		-----	RK		*					*
	43	g	8.0	6.0,8.0		-----	RK		*					*
	44	h	8.0	6.0,8.0		-----	RK		*					*
	45	i	8.0	6.0,8.0		-----	RK		*					*
	46	j	8.0	6.0,8.0		-----	RK		*					*
	47	k	8.0	6.0,8.0		-----	RK		*					*
	48	l	8.0	6.0,8.0		-----	RK		*					*
	49	m	8.0	6.0,8.0		-----	RK		*					*
	50	n	8.0	6.0,8.0		-----	RK		*					*
	51	o	8.0	6.0,8.0		-----	RK		*					*
	52	p	8.0	6.0,8.0		-----	RK		*					*
	53	q	8.0	6.0,8.0		-----	RK		*					*
	54	r	8.0	6.0,8.0		-----	RK		*					*
	55	s	8.0	6.0,8.0		-----	RK		*					*
	56	t	8.0	6.0,8.0		-----	RK		*					*
	57	u	8.0	6.0,8.0		-----	RK		*					*
	58	v	8.0	6.0,8.0		-----	RK		*					*
	59	w	8.0	6.0,8.0		-----	RK		*					*
	60	x	8.0	6.0,8.0		-----	RK		*					*
	61	y	8.0	6.0,8.0		-----	RK		*					*
	62	z	8.0	6.0,8.0		-----	RK		*					*
	63	Ä	8.0	6.0,8.0		-----	RK		*					*
	64	Å	8.0	6.0,8.0		-----	RK		*					*
	65	Æ	8.0	6.0,8.0		-----	RK		*					*
	66	Ñ	8.0	6.0,8.0		-----	RK		*					*
	67	Ö	8.0	6.0,8.0		-----	RK		*					*
	68	Ø	8.0	6.0,8.0		-----	RK		*					*
	69	Ç	8.0	6.0,8.0		-----	RK		*					*
	70	Ü	8.0	6.0,8.0		-----	RK		*					*
	71	ä	8.0	6.0,8.0		-----	RK		*					*
	72	ã	8.0	6.0,8.0		-----	RK		*					*
	73	å	8.0	6.0,8.0		-----	RK		*					*
	74	æ	8.0	6.0,8.0		-----	RK		*					*
	75	ë	8.0	6.0,8.0		-----	RK		*					*
	76	è	8.0	6.0,8.0		-----	RK		*					*
	77	é	8.0	6.0,8.0		-----	RK		*					*
	78	ê	8.0	6.0,8.0		-----	RK		*					*
	79	ñ	8.0	6.0,8.0			RK		*					*
	80	ö	8.0	6.0,8.0		-----	RK		*					*

## STITCH REFERENCE CHART

Stitch Pattern		Width (mm)		Length (mm)		Presser Foot	Functions						
		Auto	Manual	Auto	Manual		Reverse	Auto-lock	Elongation	Mirror	Presser foot	Twin needle	Memory
Block style	81 Õ	8.0	6.0,8.0		-----	RK		*					*
	82 Ø	8.0	6.0,8.0		-----	RK		*					*
	83 ì	8.0	6.0,8.0		-----	RK		*					*
	84 Ç	8.0	6.0,8.0		-----	RK		*					*
	85 Ü	8.0	6.0,8.0		-----	RK		*					*
	86 Û	8.0	6.0,8.0		-----	RK		*					*
	87 ß	8.0	6.0,8.0		-----	RK		*					*
	88 &	8.0	6.0,8.0		-----	RK		*					*
	89 ?	8.0	6.0,8.0		-----	RK		*					*
	90 !	8.0	6.0,8.0		-----	RK		*					*
	91 —	8.0	6.0,8.0		-----	RK		*					*
	92 ’	8.0	6.0,8.0		-----	RK		*					*
	93 ’	8.0	6.0,8.0		-----	RK		*					*
	94 ■	8.0	6.0,8.0		-----	RK		*					*
	95 —	8.0	6.0,8.0		-----	RK		*					*
	96 (	8.0	6.0,8.0		-----	RK		*					*
	97 )	8.0	6.0,8.0		-----	RK		*					*

\* : Features may be applicable.



# STITCH REFERENCE CHART

## ■ Script style group " " patterns-97

Stitch Pattern		Width (mm)		Length (mm)		Presser Foot	Functions						
		Auto	Manual	Auto	Manual		Reverse	Auto-lock	Elongation	Mirror	Presser foot	Twin needle	Memory
Script style	01 <i>1</i>	8.0	6.0,8.0		-----	RK		*					*
	02 <i>2</i>	8.0	6.0,8.0		-----	RK		*					*
	03 <i>3</i>	8.0	6.0,8.0		-----	RK		*					*
	04 <i>4</i>	8.0	6.0,8.0		-----	RK		*					*
	05 <i>5</i>	8.0	6.0,8.0		-----	RK		*					*
	06 <i>6</i>	8.0	6.0,8.0		-----	RK		*					*
	07 <i>7</i>	8.0	6.0,8.0		-----	RK		*					*
	08 <i>8</i>	8.0	6.0,8.0		-----	RK		*					*
	09 <i>9</i>	8.0	6.0,8.0		-----	RK		*					*
	10 <i>0</i>	8.0	6.0,8.0		-----	RK		*					*
	11 <i>A</i>	8.0	6.0,8.0		-----	RK		*					*
	12 <i>B</i>	8.0	6.0,8.0		-----	RK		*					*
	13 <i>C</i>	8.0	6.0,8.0		-----	RK		*					*
	14 <i>D</i>	8.0	6.0,8.0		-----	RK		*					*
	15 <i>E</i>	8.0	6.0,8.0		-----	RK		*					*
	16 <i>F</i>	8.0	6.0,8.0		-----	RK		*					*
	17 <i>G</i>	8.0	6.0,8.0		-----	RK		*					*
	18 <i>H</i>	8.0	6.0,8.0		-----	RK		*					*
	19 <i>I</i>	8.0	6.0,8.0		-----	RK		*					*
	20 <i>J</i>	8.0	6.0,8.0		-----	RK		*					*
	21 <i>K</i>	8.0	6.0,8.0		-----	RK		*					*
	22 <i>L</i>	8.0	6.0,8.0		-----	RK		*					*
	23 <i>M</i>	8.0	6.0,8.0		-----	RK		*					*
	24 <i>N</i>	8.0	6.0,8.0		-----	RK		*					*
	25 <i>O</i>	8.0	6.0,8.0		-----	RK		*					*
	26 <i>P</i>	8.0	6.0,8.0		-----	RK		*					*
	27 <i>Q</i>	8.0	6.0,8.0		-----	RK		*					*
	28 <i>R</i>	8.0	6.0,8.0		-----	RK		*					*
	29 <i>S</i>	8.0	6.0,8.0		-----	RK		*					*
	30 <i>T</i>	8.0	6.0,8.0		-----	RK		*					*
	31 <i>U</i>	8.0	6.0,8.0		-----	RK		*					*
	32 <i>V</i>	8.0	6.0,8.0		-----	RK		*					*
	33 <i>W</i>	8.0	6.0,8.0		-----	RK		*					*
	34 <i>X</i>	8.0	6.0,8.0		-----	RK		*					*
	35 <i>Y</i>	8.0	6.0,8.0		-----	RK		*					*
	36 <i>Z</i>	8.0	6.0,8.0		-----	RK		*					*
	37 <i>a</i>	8.0	6.0,8.0		-----	RK		*					*
	38 <i>b</i>	8.0	6.0,8.0		-----	RK		*					*
	39 <i>c</i>	8.0	6.0,8.0		-----	RK		*					*

# STITCH REFERENCE CHART

Stitch Pattern			Width (mm)		Length (mm)		Presser Foot	Functions						
			Auto	Manual	Auto	Manual		Reverse	Auto-lock	Elongation	Mirror	Presser foot	Twin needle	Memory
Script style	40	<i>d</i>	8.0	6.0,8.0		-----	RK		*					*
	41	<i>e</i>	8.0	6.0,8.0		-----	RK		*					*
	42	<i>f</i>	8.0	6.0,8.0		-----	RK		*					*
	43	<i>g</i>	8.0	6.0,8.0		-----	RK		*					*
	44	<i>h</i>	8.0	6.0,8.0		-----	RK		*					*
	45	<i>i</i>	8.0	6.0,8.0		-----	RK		*					*
	46	<i>j</i>	8.0	6.0,8.0		-----	RK		*					*
	47	<i>k</i>	8.0	6.0,8.0		-----	RK		*					*
	48	<i>l</i>	8.0	6.0,8.0		-----	RK		*					*
	49	<i>m</i>	8.0	6.0,8.0		-----	RK		*					*
	50	<i>n</i>	8.0	6.0,8.0		-----	RK		*					*
	51	<i>o</i>	8.0	6.0,8.0		-----	RK		*					*
	52	<i>p</i>	8.0	6.0,8.0		-----	RK		*					*
	53	<i>q</i>	8.0	6.0,8.0		-----	RK		*					*
	54	<i>r</i>	8.0	6.0,8.0		-----	RK		*					*
	55	<i>s</i>	8.0	6.0,8.0		-----	RK		*					*
	56	<i>t</i>	8.0	6.0,8.0		-----	RK		*					*
	57	<i>u</i>	8.0	6.0,8.0		-----	RK		*					*
	58	<i>v</i>	8.0	6.0,8.0		-----	RK		*					*
	59	<i>w</i>	8.0	6.0,8.0		-----	RK		*					*
	60	<i>x</i>	8.0	6.0,8.0		-----	RK		*					*
	61	<i>y</i>	8.0	6.0,8.0		-----	RK		*					*
	62	<i>z</i>	8.0	6.0,8.0		-----	RK		*					*
	63	<i>À</i>	8.0	6.0,8.0		-----	RK		*					*
	64	<i>Á</i>	8.0	6.0,8.0		-----	RK		*					*
	65	<i>Â</i>	8.0	6.0,8.0		-----	RK		*					*
	66	<i>Ã</i>	8.0	6.0,8.0		-----	RK		*					*
	67	<i>Ä</i>	8.0	6.0,8.0		-----	RK		*					*
	68	<i>Å</i>	8.0	6.0,8.0		-----	RK		*					*
	69	<i>Æ</i>	8.0	6.0,8.0		-----	RK		*					*
	70	<i>Ů</i>	8.0	6.0,8.0		-----	RK		*					*
	71	<i>ü</i>	8.0	6.0,8.0		-----	RK		*					*
	72	<i>ā</i>	8.0	6.0,8.0		-----	RK		*					*
	73	<i>à</i>	8.0	6.0,8.0		-----	RK		*					*
	74	<i>æ</i>	8.0	6.0,8.0		-----	RK		*					*
	75	<i>ë</i>	8.0	6.0,8.0		-----	RK		*					*
	76	<i>è</i>	8.0	6.0,8.0		-----	RK		*					*
	77	<i>é</i>	8.0	6.0,8.0		-----	RK		*					*
	78	<i>ê</i>	8.0	6.0,8.0		-----	RK		*					*
	79	<i>ñ</i>	8.0	6.0,8.0		-----	RK		*					*
	80	<i>ö</i>	8.0	6.0,8.0		-----	RK		*					*

## STITCH REFERENCE CHART

Stitch Pattern		Width (mm)		Length (mm)		Presser Foot	Functions							
		Auto	Manual	Auto	Manual		Reverse	Auto-lock	Elongation	Mirror	Presser foot	Twin needle	Memory	
Script style	81	<i>ẽ</i>	8.0	6.0,8.0		-----	RK		*					*
	82	<i>ø</i>	8.0	6.0,8.0		-----	RK		*					*
	83	<i>ı</i>	8.0	6.0,8.0		-----	RK		*					*
	84	<i>ç</i>	8.0	6.0,8.0		-----	RK		*					*
	85	<i>ü</i>	8.0	6.0,8.0		-----	RK		*					*
	86	<i>û</i>	8.0	6.0,8.0		-----	RK		*					*
	87	<i>ß</i>	8.0	6.0,8.0		-----	RK		*					*
	88	<i>ℓ</i>	8.0	6.0,8.0		-----	RK		*					*
	89	<i>¿</i>	8.0	6.0,8.0		-----	RK		*					*
	90	<i>!</i>	8.0	6.0,8.0		-----	RK		*					*
	91	<i>—</i>	8.0	6.0,8.0		-----	RK		*					*
	92	<i>'</i>	8.0	6.0,8.0		-----	RK		*					*
	93	<i>,</i>	8.0	6.0,8.0		-----	RK		*					*
	94	<i>.</i>	8.0	6.0,8.0		-----	RK		*					*
	95	<i>—</i>	8.0	6.0,8.0		-----	RK		*					*
	96	<i>/</i>	8.0	6.0,8.0		-----	RK		*					*
	97	<i>/</i>	8.0	6.0,8.0		-----	RK		*					*

\* : Features may be applicable.

# STITCH REFERENCE CHART

## ■ Outline style group "A" patterns-97

Stitch Pattern			Width (mm)		Length (mm)		Presser Foot	Functions						
			Auto	Manual	Auto	Manual		Reverse	Auto-lock	Elongation	Mirror	Presser foot	Twin needle	Memory
Outline style	01	1	8.0	6.0,8.0		-----	RK		*					*
	02	2	8.0	6.0,8.0		-----	RK		*					*
	03	3	8.0	6.0,8.0		-----	RK		*					*
	04	4	8.0	6.0,8.0		-----	RK		*					*
	05	5	8.0	6.0,8.0		-----	RK		*					*
	06	6	8.0	6.0,8.0		-----	RK		*					*
	07	7	8.0	6.0,8.0		-----	RK		*					*
	08	8	8.0	6.0,8.0		-----	RK		*					*
	09	9	8.0	6.0,8.0		-----	RK		*					*
	10	0	8.0	6.0,8.0		-----	RK		*					*
	11	A	8.0	6.0,8.0		-----	RK		*					*
	12	B	8.0	6.0,8.0		-----	RK		*					*
	13	C	8.0	6.0,8.0		-----	RK		*					*
	14	D	8.0	6.0,8.0		-----	RK		*					*
	15	E	8.0	6.0,8.0		-----	RK		*					*
	16	F	8.0	6.0,8.0		-----	RK		*					*
	17	G	8.0	6.0,8.0		-----	RK		*					*
	18	H	8.0	6.0,8.0		-----	RK		*					*
	19	I	8.0	6.0,8.0		-----	RK		*					*
	20	J	8.0	6.0,8.0		-----	RK		*					*
	21	K	8.0	6.0,8.0		-----	RK		*					*
	22	L	8.0	6.0,8.0		-----	RK		*					*
	23	M	8.0	6.0,8.0		-----	RK		*					*
	24	N	8.0	6.0,8.0		-----	RK		*					*
	25	O	8.0	6.0,8.0		-----	RK		*					*
	26	P	8.0	6.0,8.0		-----	RK		*					*
	27	Q	8.0	6.0,8.0		-----	RK		*					*
	28	R	8.0	6.0,8.0		-----	RK		*					*
	29	S	8.0	6.0,8.0		-----	RK		*					*
	30	T	8.0	6.0,8.0		-----	RK		*					*
	31	U	8.0	6.0,8.0		-----	RK		*					*
	32	V	8.0	6.0,8.0		-----	RK		*					*
	33	W	8.0	6.0,8.0		-----	RK		*					*
	34	X	8.0	6.0,8.0		-----	RK		*					*
	35	Y	8.0	6.0,8.0		-----	RK		*					*
	36	Z	8.0	6.0,8.0		-----	RK		*					*
	37	a	8.0	6.0,8.0		-----	RK		*					*
	38	b	8.0	6.0,8.0		-----	RK		*					*
	39	c	8.0	6.0,8.0		-----	RK		*					*

# STITCH REFERENCE CHART

Stitch Pattern			Width (mm)		Length (mm)		Presser Foot	Functions						
			Auto	Manual	Auto	Manual		Reverse	Auto-lock	Elongation	Mirror	Presser foot	Twin needle	Memory
Outline style	40	d	8.0	6.0,8.0		-----	RK		*				*	
	41	e	8.0	6.0,8.0		-----	RK		*				*	
	42	f	8.0	6.0,8.0		-----	RK		*				*	
	43	g	8.0	6.0,8.0		-----	RK		*				*	
	44	h	8.0	6.0,8.0		-----	RK		*				*	
	45	i	8.0	6.0,8.0		-----	RK		*				*	
	46	j	8.0	6.0,8.0		-----	RK		*				*	
	47	k	8.0	6.0,8.0		-----	RK		*				*	
	48	l	8.0	6.0,8.0		-----	RK		*				*	
	49	m	8.0	6.0,8.0		-----	RK		*				*	
	50	n	8.0	6.0,8.0		-----	RK		*				*	
	51	o	8.0	6.0,8.0		-----	RK		*				*	
	52	p	8.0	6.0,8.0		-----	RK		*				*	
	53	q	8.0	6.0,8.0		-----	RK		*				*	
	54	r	8.0	6.0,8.0		-----	RK		*				*	
	55	s	8.0	6.0,8.0		-----	RK		*				*	
	56	t	8.0	6.0,8.0		-----	RK		*				*	
	57	u	8.0	6.0,8.0		-----	RK		*				*	
	58	v	8.0	6.0,8.0		-----	RK		*				*	
	59	w	8.0	6.0,8.0		-----	RK		*				*	
	60	x	8.0	6.0,8.0		-----	RK		*				*	
	61	y	8.0	6.0,8.0		-----	RK		*				*	
	62	z	8.0	6.0,8.0		-----	RK		*				*	
	63	À	8.0	6.0,8.0		-----	RK		*				*	
	64	Á	8.0	6.0,8.0		-----	RK		*				*	
	65	Æ	8.0	6.0,8.0		-----	RK		*				*	
	66	Ñ	8.0	6.0,8.0		-----	RK		*				*	
	67	Ö	8.0	6.0,8.0		-----	RK		*				*	
	68	Ø	8.0	6.0,8.0		-----	RK		*				*	
	69	Ç	8.0	6.0,8.0		-----	RK		*				*	
	70	Ü	8.0	6.0,8.0		-----	RK		*				*	
	71	ä	8.0	6.0,8.0		-----	RK		*				*	
	72	å	8.0	6.0,8.0		-----	RK		*				*	
	73	à	8.0	6.0,8.0		-----	RK		*				*	
	74	æ	8.0	6.0,8.0		-----	RK		*				*	
	75	ë	8.0	6.0,8.0		-----	RK		*				*	
	76	è	8.0	6.0,8.0		-----	RK		*				*	
	77	é	8.0	6.0,8.0		-----	RK		*				*	
	78	ê	8.0	6.0,8.0		-----	RK		*				*	
	79	ñ	8.0	6.0,8.0			RK		*				*	
	80	ö	8.0	6.0,8.0		-----	RK		*			Ö	*	

## STITCH REFERENCE CHART

Stitch Pattern			Width (mm)		Length (mm)		Presser Foot	Functions						
			Auto	Manual	Auto	Manual		Reverse	Auto-lock	Elongation	Mirror	Presser foot	Twin needle	Memory
Outline style	81		8.0	6.0,8.0		-----	RK		*					*
	82		8.0	6.0,8.0		-----	RK		*					*
	83		8.0	6.0,8.0		-----	RK		*					*
	84		8.0	6.0,8.0		-----	RK		*					*
	85		8.0	6.0,8.0		-----	RK		*					*
	86		8.0	6.0,8.0		-----	RK		*					*
	87		8.0	6.0,8.0		-----	RK		*					*
	88		8.0	6.0,8.0		-----	RK		*					*
	89		8.0	6.0,8.0		-----	RK		*					*
	90		8.0	6.0,8.0		-----	RK		*					*
	91		8.0	6.0,8.0		-----	RK		*					*
	92		8.0	6.0,8.0		-----	RK		*					*
	93		8.0	6.0,8.0		-----	RK		*					*
	94		8.0	6.0,8.0		-----	RK		*					*
	95		8.0	6.0,8.0		-----	RK		*					*
	96		8.0	6.0,8.0		-----	RK		*					*
	97		8.0	6.0,8.0		-----	RK		*					*

\* : Features may be applicable.

