

# Allegro™

## Instruction and Reference Guide

Instruction et Guide de Référence

**Model BLMAG**



**FOR THE LOVE OF SEWING**

To register your machine warranty and receive Baby Lock product updates and offers, go to [babylock.com/profile](http://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)



# IMPORTANT SAFETY INSTRUCTIONS

When using this sewing machine, basic safety precautions should always be followed, including the following:

**Read all instructions before using.**

## **DANGER— — To reduce the risk of electric shock.**

- 1 This sewing machine should never be left unattended when plugged in . Always unplug this sewing machine from the electrical outlet immediately after using and before cleaning.
2. Do not reach for this sewing machine that has fallen into water. Unplug immediately.
3. Do not place or store sewing machine where it can fall or be pulled into a tub or sink. Do not place or drop into water or other liquid.


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

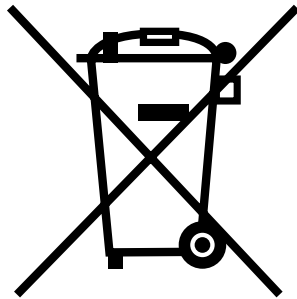
- 1 Do not allow to be used as a toy. Close attention is necessary when this sewing machine is used by or near children.
2. Use this sewing machine only for its intended use as described in this manual. Use only attachments recommended by the manufacturer as contained in this manual.
3. Never operate this sewing machine if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, dropped into water. Return this sewing machine to the nearest authorized Baby Lock retailer for examination, repair, electrical or mechanical adjustment.
4. Never operate this sewing machine with any air openings blocked. Keep ventilation openings of this sewing machine and foot control free from the accumulation of lint, dust, and loose cloth.
5. Never drop or insert any object into any opening.
6. Do not use outdoors.
7. Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
8. To disconnect, turn all controls to the off ( O ) position, then remove plug from outlet.
9. Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.
10. Keep fingers away from all moving parts. Special care is required around this sewing machine needle.
11. Always use proper needle plate. The incorrect or damaged plate can cause the needle to break.
12. Do not use bent needles.
13. Do not pull or push fabric while stitching. It may deflect the needle causing it to break.
14. Switch this sewing machine OFF( O ) when making any adjustments in the needle area, such as threading needle , changing needle ,threading bobbin, or changing presser foot, etc.
15. Always unplug sewing machine from the electrical outlet when removing covers, lubricating, or when making any other user servicing adjustments mentioned in this instruction manual.
16. Never operate on a soft surface such as a bed or couch where the air openings may be blocked.
17. Do not use the machine near a heat source, such as a stove or iron; otherwise, the machine power cord or garment being sewn may ignite, resulting in fire or an electric shock.
18. When storing this machine, avoid direct sunlight and high humidity location. Do not use or store the machine near a space heater, iron, halogen lamp, or other hot objects in order to have a longer service life.
19. The sewing machine's rating is 100-120Vac
- 20.If one of the LED lamps is damaged or broken, it must be replaced by the manufacture or its service agent, in order to avoid a hazard.
- 21.Never place anything on the foot controller.
- 22.Use only the foot controller type YC-485EC manufactured by Yamamoto Electric Co., Ltd.
- 23.The supply cord connected with the foot controller cannot be replaced. If the cord is damaged the foot controller should be scrapped.
- 24.This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.
- 25.Children shall not play with the appliance.
- 26.Cleaning and user maintenance shall not be made by children without supervision.

**CAUTION-** Moving parts- To reduce risk of injury, switch off before servicing.  
Close cover before operating machine.

## **SAVE THESE INSTRUCTIONS**

This product is intended for household use.

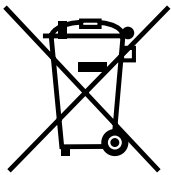
 **WARNING:**Cancer and Reproductive Harm -  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)



**DO NOT THROW AWAY!**

**EU ONLY**

**RECYCLING**



**We are committed to the protection of the environment. We strive to minimize the environmental impact of our products by continuously improving product design and our manufacturing methods.**

At end of life please dispose of this product in an environmentally responsible way.

The crossed-out wheeled bin symbol featured above and on the product's data-plate means that this product falls under the scope of the E.U. "Waste Electrical and Electronic Equipment" (WEEE) directive and "Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment" (ROHS) directive and should not be disposed of with your household waste. At end of life, you must ensure that this product is disposed of in accordance with national and local legislation and that it is sorted as Category 2 "Small Domestic Appliances" WEEE. You may be liable under local and national laws for improper disposal of this product. Please consult the web, or a competent national or local body, for the return and collections systems available to you and the locations of your nearest recycling points. If you purchase a new product direct from us we will take your old product back, irrespective of the brand, if it is a like for like sale.

As an individual you can make a positive impact on reuse, recycling and other forms of recovery of WEEE. This will reduce use of landfill and minimize the environmental impact of the products you use.

Hazardous substances in electronic and electrical products can have a harmful impact on human health and on the environment.

## INTRODUCTION

Thank you for purchasing this machine.

Before using this machine, carefully read the "IMPORTANT SAFETY INSTRUCTIONS", and then study this manual for the correct operation of the various functions.

In addition, after you have finished reading this manual, store it where it can quickly be accessed for future reference.

## UNPACKING/REPACKING INSTRUCTIONS

Keep the carton and packing materials. You may have to take or send the machine to be repaired. If you do not pack it properly, or do not use the right packing material, the machine could be damaged.

### IMPORTANT

- This packing material is designed to prevent damage. Save this packing material if you need to take or send this machine to be repaired.

## PLEASE READ THESE INSTRUCTIONS BEFORE YOU USE THE MACHINE.

### To use the machine safely

1. Make sure you watch the needle carefully while you are sewing. Do not touch the handwheel, thread take-up lever, needle, or other moving parts.
2. Turn off the main power and unplug the cord in the following circumstances :  
When you have stopped using the machine  
When you are replacing or removing the needle or any other part  
If there is a power failure while you are using the machine  
If you are checking or cleaning 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.

### To give your machine a longer life

1. Do not store this machine in direct sunlight or in high humidity conditions. Do not use or store the machine near a heater, iron, halogen lamp or other hot objects.
2. Use only mild soaps or detergents to clean the case. Benzene, thinner, and scouring powders can damage the case and machine, and should never be used.
3. Do not drop or hit the machine.
4. Always consult this manual before you replace or attach presser feet, the needle, or any other parts to make sure you attach them correctly.

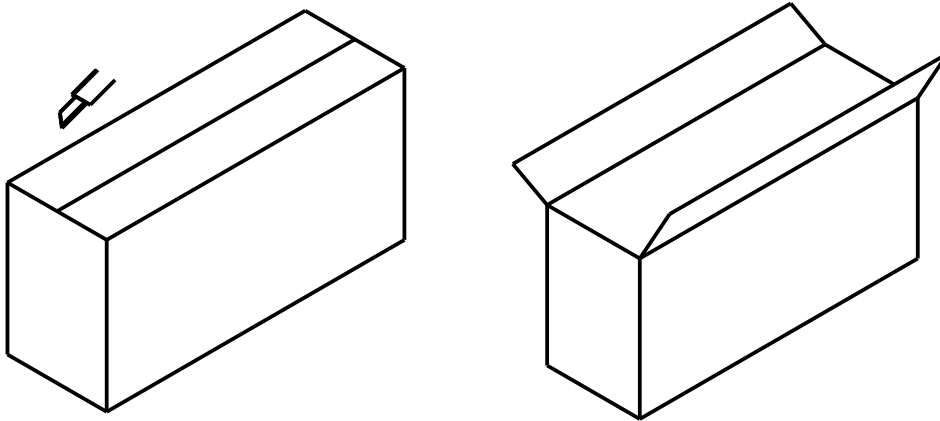
### To repair or adjust the machine

If the machine is malfunctioning or needs adjustment, refer to the troubleshooting table (page. 46) for assistance, If the problem is still there, consult your local authorized retailer.

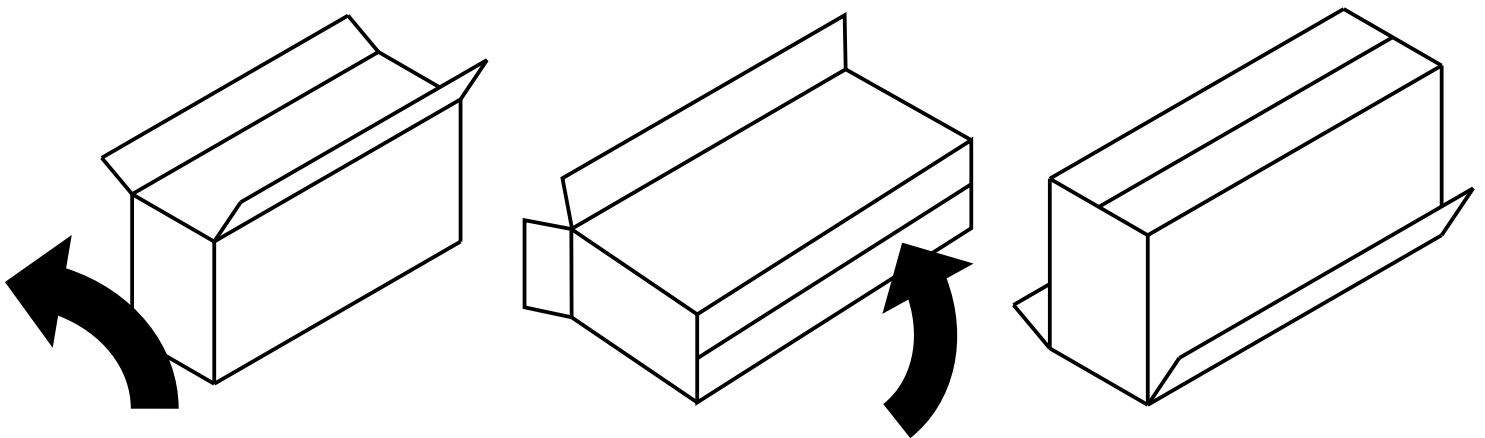
# INSTRUCTION OF UNPACKING

Keep the carton and packing materials. You may have to take or send the machine to be repaired. If you do not pack it properly, or do not use the right packing material, the machine could be damaged.

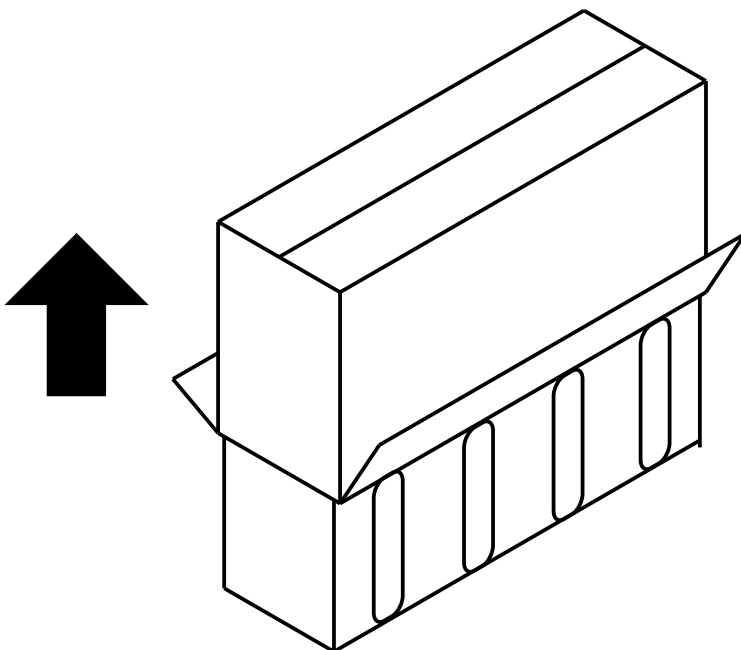
1. Open the carton from top side



2. Turn the carton over



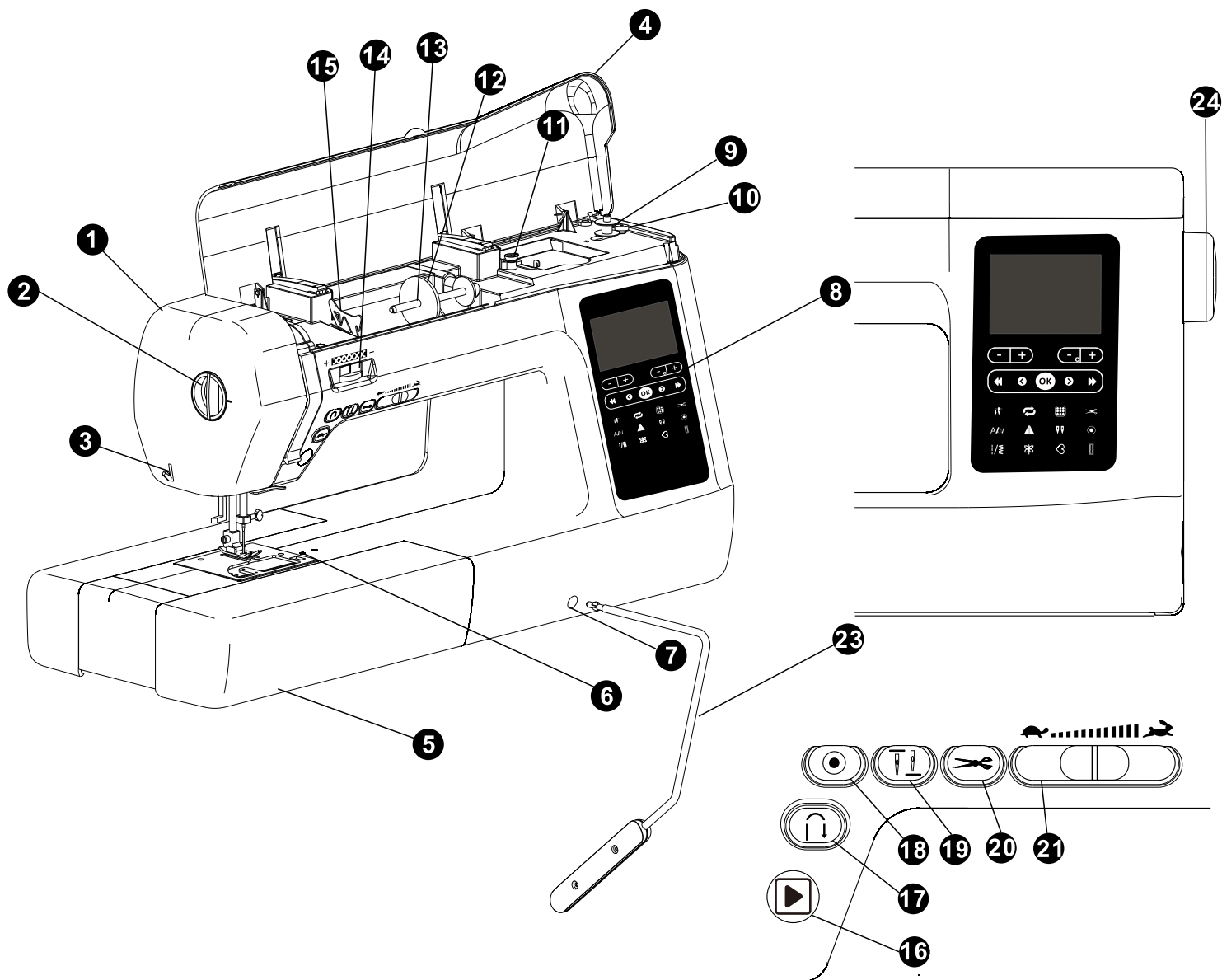
3. Take the carton off.



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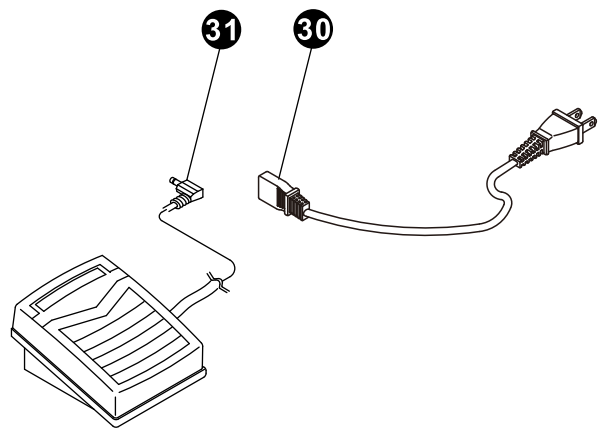
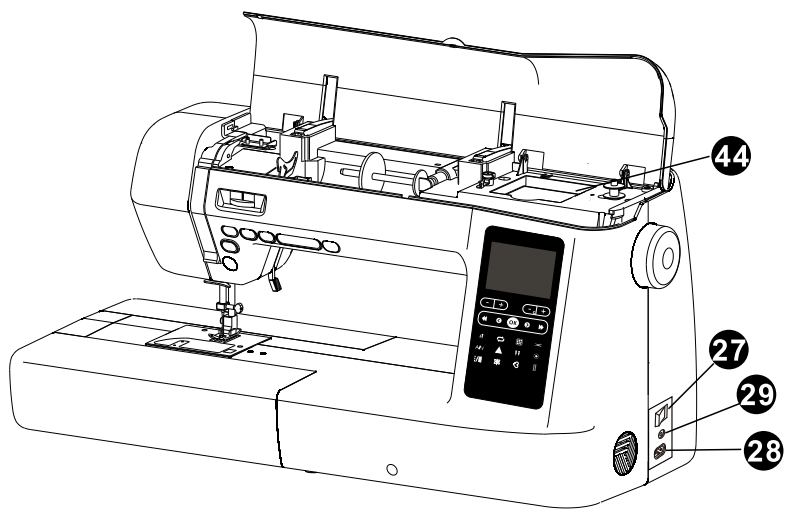
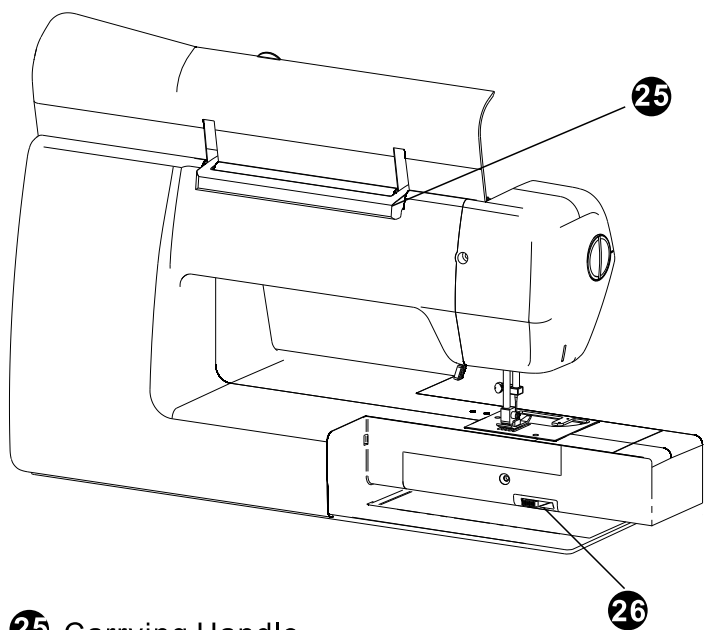
# MAIN PARTS



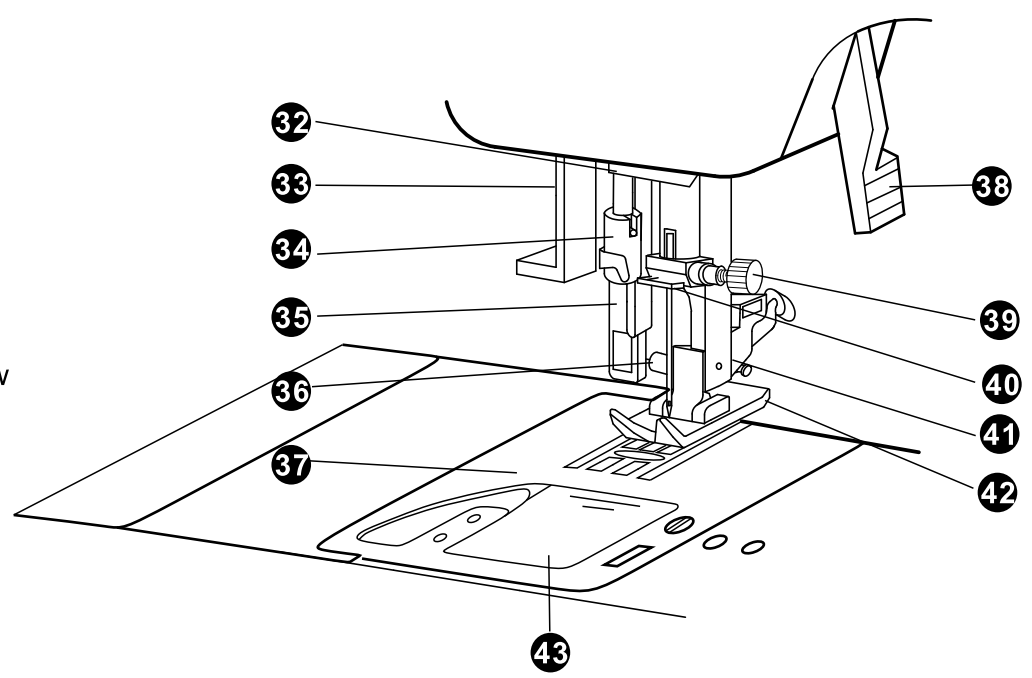
- |  |   |
|--|---|
| <b>1</b> Face Cover                                      | <b>14</b> Thread Tension Regulator      |
| <b>2</b> Presser Foot Pressure Adjustment Dial           | <b>15</b> Thread Guide Plate            |
| <b>3</b> Thread Cutter                                   | <b>16</b> Start/Stop Button             |
| <b>4</b> Top Lid   | <b>17</b> Reverse Button                |
| <b>5</b> Flat Bed Attachment With Accessory Compartments | <b>18</b> Lock Stitch Button            |
| <b>6</b> Thumb Screw Holes                               | <b>19</b> Needle Up/Down Button         |
| <b>7</b> Knee Lifter Mounting Slot                       | <b>20</b> Thread Trimmer Button         |
| <b>8</b> Touch Control & Display Panel                   | <b>21</b> Speed Control Sliding Button  |
| <b>9</b> Bobbin Winder Shaft                             | <b>22</b> Thread Take-Up Lever (inside) |
| <b>10</b> Bobbin Winder Stop                             | <b>23</b> Knee Lift                     |
| <b>11</b> Bobbin Winder Pretension Disc                  | <b>24</b> Handwheel                     |
| <b>12</b> Spool Cap                                      |   |
| <b>13</b> Spool Pin                                      |   |



# MAIN PARTS

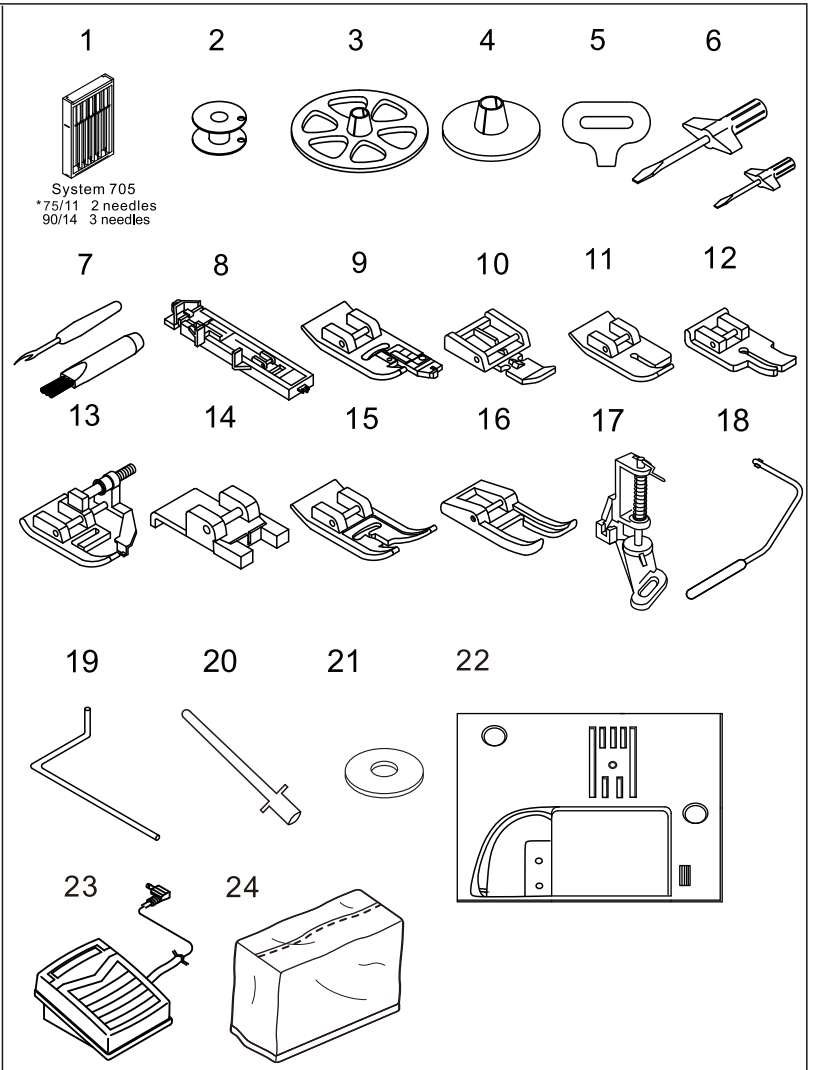


- 25** Carrying Handle
- 26** Drop Feed Dog Lever
- 27** Main Power Switch
- 28** Foot Control Jack
- 29** Power Cord Receptacle
- 30** Power Cord
- 31** Foot Controller
- 32** Lower Thread Guide
- 33** Needle Threader Lever
- 34** Needle Threader
- 35** Buttonhole Lever
- 36** Presser Foot Holder Screw
- 37** Needle Plate
- 38** Presser Foot Lever
- 39** Needle Clamp Screw
- 40** Needle Bar Thread Guide
- 41** Presser Foot Holder
- 42** Presser Foot
- 43** Bobbin Cover
- 44** Accessory storage



# ACCESSORIES

1. Needle Set
2. Bobbin(4)  
(one in machine)
3. Spool Cap(large)
4. Spool Cap(small)
5. Needle Plate Screwdriver
6. Screwdrivers
7. Seam Ripper with Brush
8. Buttonhole Foot
9. Overcasting Foot
10. Zipper Foot
11. Straight Stitch Foot
12. 1/4 Inch Quilting Foot
13. Blind Hem Foot
14. Sew-On Button Foot
15. All Purpose Foot (on machine)
16. Open Toe Foot
17. Darning/Free Motion Quilting Foot
18. Knee Lifter
19. Quilting Guide
20. Extra Spool Pin
21. Spool Pin Felt
22. Straight Stitch Needle Plate
23. Foot Control Pedal
24. Dust Cover

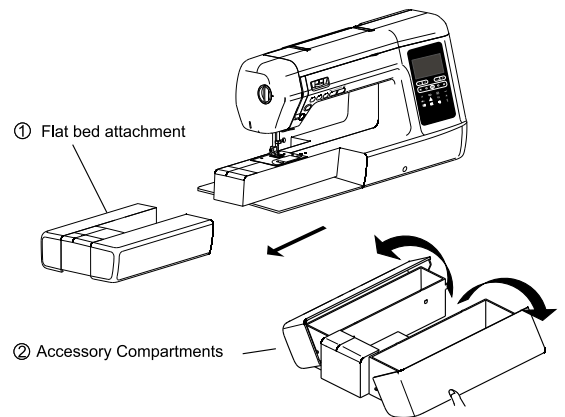


## FLAT BED ATTACHMENT

### Removing The Flat Bed Attachment

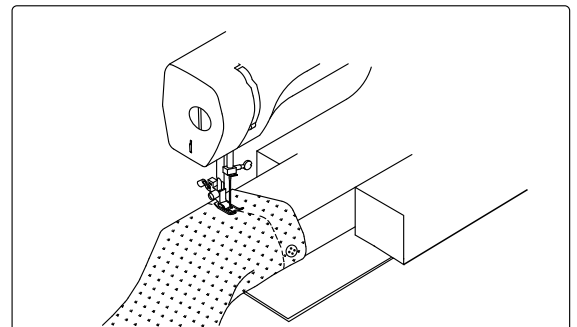
The accessories are stored in the compartments inside the flat bed attachment.

- ① Slide the flat bed attachment to the left to release it.
- ② Pull the top of the flat bed attachment to open the accessory compartments.



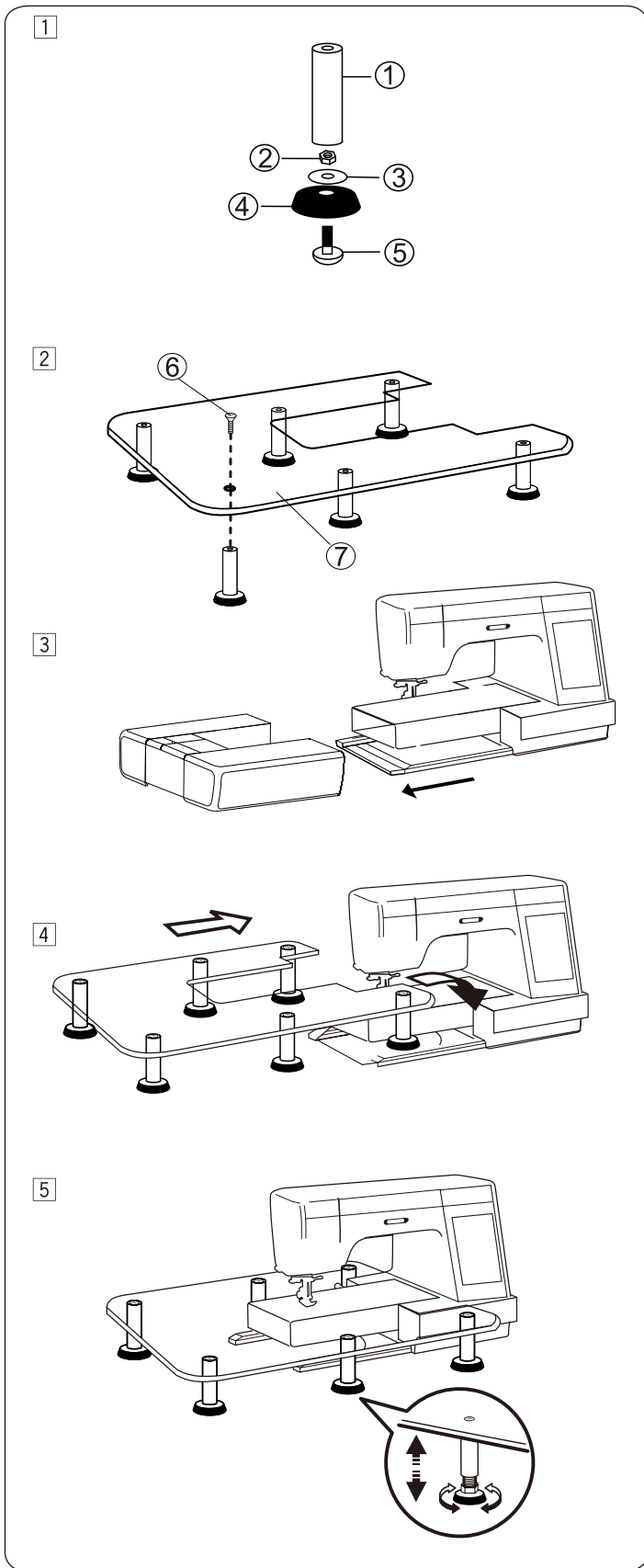
### Free-Arm Style

Free-arm sewing is convenient for sewing tubular and hard to reach areas. To change your machine to the free arm style, remove the flat bed attachment.



# INSTALLATION OF TABLE

This items is optional, if you want to purchase this table, please contact local authorized dealer.



## Extra Wide Table

### To attach:

1 Install the adjusting screws into the legs with below parts.

- ① Acrylic Cylinder
- ② Hexagon Nut
- ③ Washer
- ④ Rubber Cushion
- ⑤ Adjusting Screw

2 Attach the 6 legs to the table with setscrews.

- ⑥ Setscrew
- ⑦ Table

3 Remove the flat bed attachment.

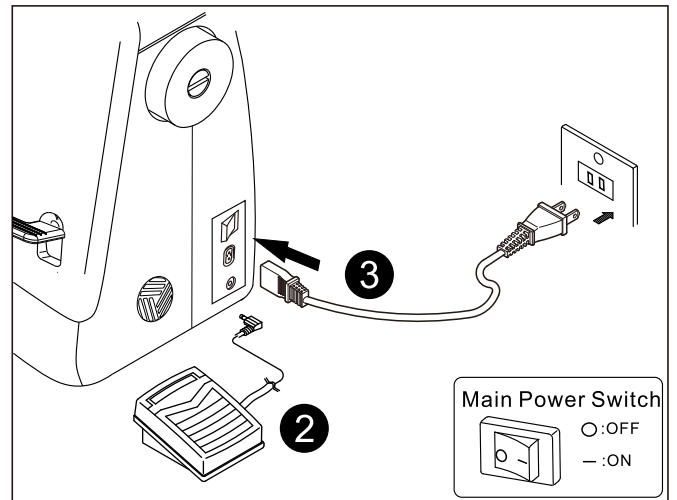
4 Place the assembled table on the machine.

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

# CONNECTING THE MACHINE

## Power Connection

- 1 Place machine on a sturdy table and make sure the main power switch is in the OFF position.
- 2 Connect the foot controller plug to the machine.
- 3 Connect the power cord to the machine & plug to a wall outlet.

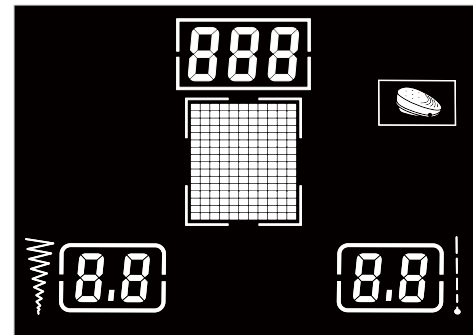


## WARNING

- Use regular household electricity for power source. Using other power sources may result in fire, electric shock, or damage to the machine.
- Turn off the main power and remove the plug in the following circumstance:
  - When you are away from the machine
  - After using the machine
  - When the power fails during use
  - When the machine does not operate correctly due to a bad connection or a disconnection
  - During electrical storms

## CAUTION

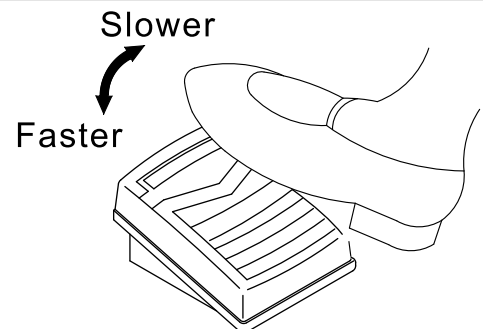
- Do not use extension cords or multi-plug adapters with many other appliances plugged in to them. Fire or electric shock may result.
- Do not touch the plug with wet hands. Electric shock may result.
- When unplugging the machine, always turn off the main power first. Always grasp the plug to remove it from the outlet. Pulling on the cord may damage the cord, or lead to fire or electric shock.
- Do not allow the power cord to be cut, damaged, modified, forcefully bent, pulled, twisted, or bundled. Do not place heavy object on the cord. Do not subject the cord to heat. These behaviors may damage the cord and cause fire or electric shock. If the cord or plug is damaged, take the machine to your authorized retailer for repairs before continuing use.
- Unplug the power cord if the machine is not to be used for a long period of time, otherwise a fire may result.



When foot control is connected to the machine, a sign of foot control is shown on LCD display. When foot control is disconnected the sign is off.

## Foot Controller

- 1 Connect the foot control to the machine by inserting the plug into its jack located on the right side of sewing machine.
- 2 When you press the foot controller lightly, the machine will run at a low speed.
  - When you press harder, the speed of machine will increase. When you take your foot off the foot controller, the machine will stop. You should make sure that no items are placed on the foot controller when the machine is not in use.



## Note

Use only foot controller provided with this machine. Foot Controller: Model YC-485EC



When foot control is connected to the machine, some buttons will have change. (Refer to page 16)

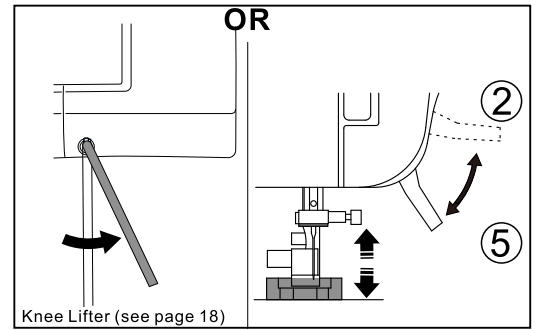
## CAUTION

- Do not allow pieces of cloth and dust to build up on the foot controller. Doing so could cause a fire or an electric shock.

## CHANGING THE PRESSER FOOT

### CAUTION

- Always turn off the power before you change the presser foot. If you leave the power on and step on the controller, the machine will start and you may be injured.
- Always use the correct presser foot for the stitch pattern you have chosen. If you use the wrong presser foot, the needle may strike the presser foot and bend or break, causing injury.
- Only use presser feet that have been designed to be used with this machine. Using any other presser foot may damage the machine or cause personal injury.



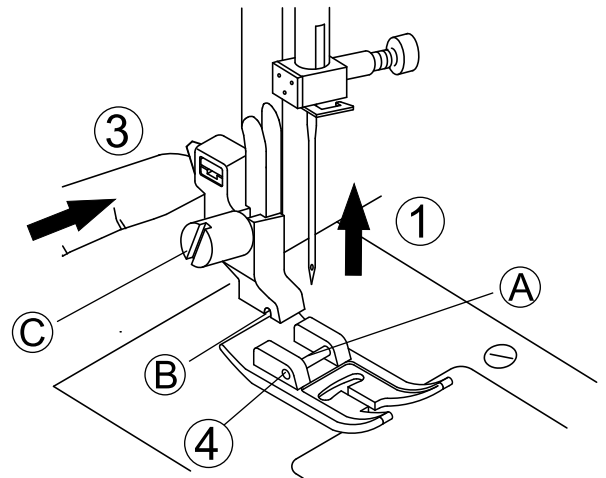
1. Use the Needle Up/Down Button to raise the needle to its highest position.
2. Raise the presser foot lever.
3. Remove the presser foot by pushing the presser foot release lever toward you.
4. Place desired foot with its pin (A) directly under the notch (B) in presser foot holder.
5. Lower the presser foot lever and presser foot will snap into the place

## REMOVING THE PRESSER FOOT HOLDER

You may need to remove the presser foot holder to use other presser feet.

To remove, raise the presser foot lever and loosen the presser foot holder screw ( C ).

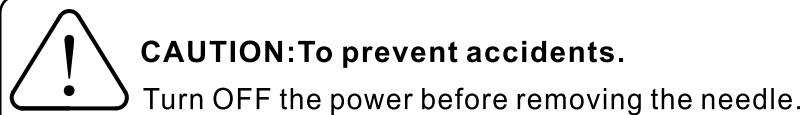
To re-attach, tighten the screw after aligning the presser foot holder with lower left side of presser bar.



- (A) Presser foot pin
- (B) Presser foot holder notch
- (C) Presser foot holder screw

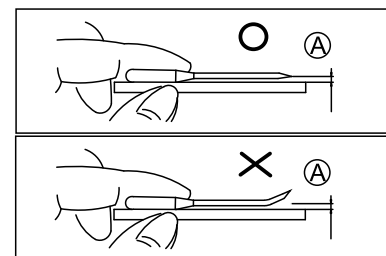
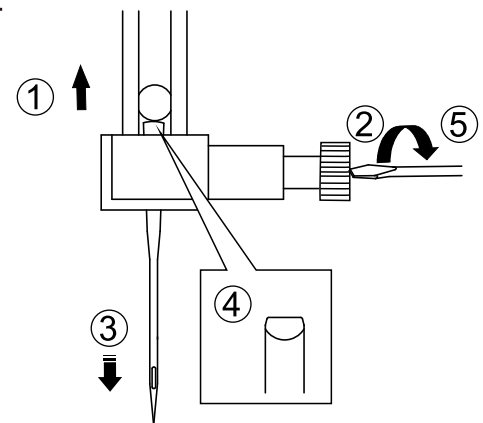
## CHANGING THE NEEDLE

Select a needle of the right type and size for the fabric to be sewn. (See Fabric, Thread and Needle Table on page 20.)



1. Use the Needle Up/Down Button to raise the needle to its highest position.
2. Loosen the needle clamp screw with screwdriver.
3. Remove the needle.
4. Insert new needle into needle clamp with the flat side to the back and push it up as far as it will go.
5. Tighten the needle clamp screw.

- A. Place needle on a flat surface and check to see if bent.  
Do Not use any bent or blunt needles.

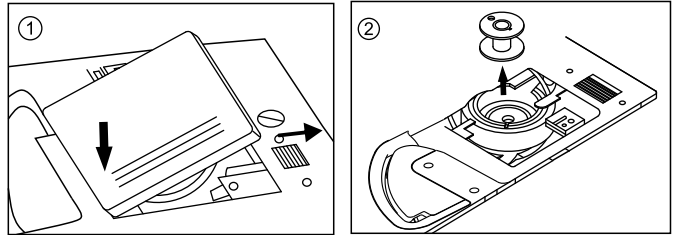


# THREADING THE MACHINE

## Bobbin Winding

### REMOVING THE BOBBIN

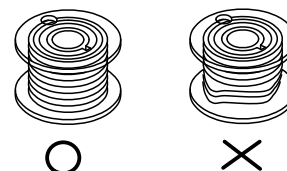
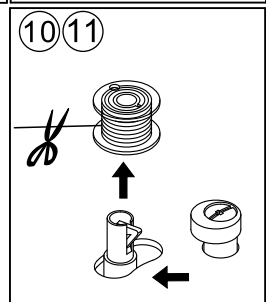
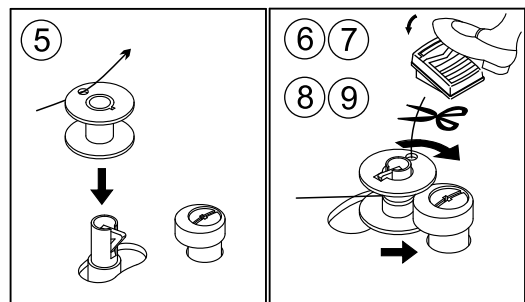
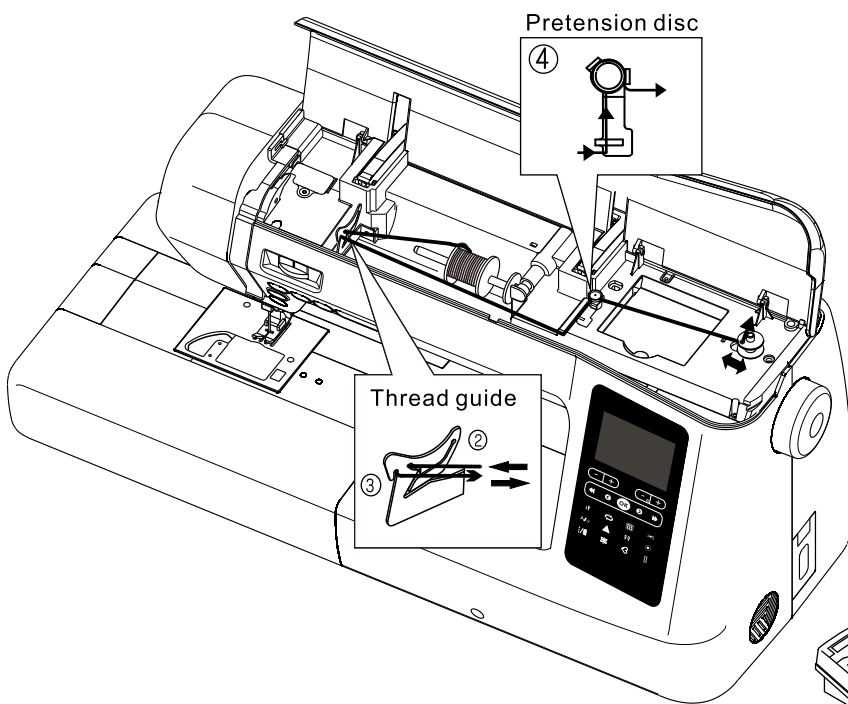
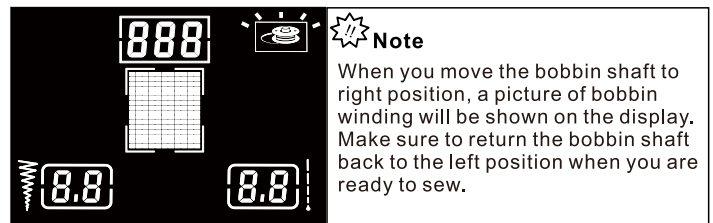
1. Remove the bobbin cover by sliding the bobbin cover latch to right and push down the left lower corner of this cover at same time.
2. Remove the bobbin from the machine.



### WINDING THE BOBBIN

1. Place a spool of thread onto the spool pin with thread winding off counterclockwise and slide the appropriate spool cap on spool pin until it's against the spool of thread.
2. Pass thread through the thread guide as shown.
3. Pass thread through the bobbin winder thread guide.
4. Guide thread from bobbin winder thread guide through pretension disc as shown.
5. Insert thread through hole in bobbin from inside-out.
6. Place the bobbin on bobbin winder shaft and push to the right to engage bobbin winder.
7. Hold the end of thread and start the machine.

8. After the bobbin winds a few turns, stop the machine and cut the thread as close to the hole as possible.
9. Start the machine again by pressing foot control and wind bobbin at medium speed.
10. The bobbin winding will stop when bobbin is full.
11. Push the bobbin and shaft to the left. Remove the bobbin from the shaft and cut the thread.



### CAUTION

- If the spool of thread is not correctly placed, the thread may tangle on the spool.
- Make sure you follow the instructions carefully. If you do not cut the excess thread completely before winding the bobbin, when the bobbin thread runs low it may tangle around the bobbin and cause the needle to break.

**CAUTION** Use a bobbin that has been correctly wound with thread, otherwise the needle may break or the thread tension will be incorrect.

## Lower Threading

### INSERTING THE BOBBIN

1. Insert the bobbin into bobbin case with the thread unwinding counterclockwise.

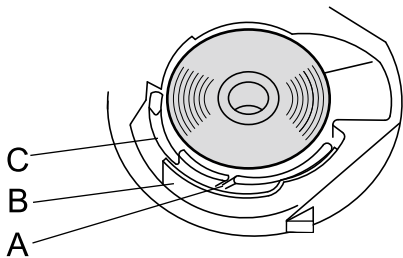


#### Note

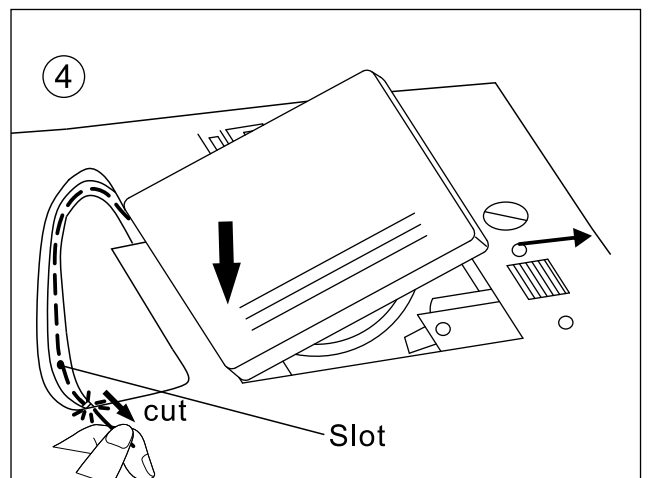
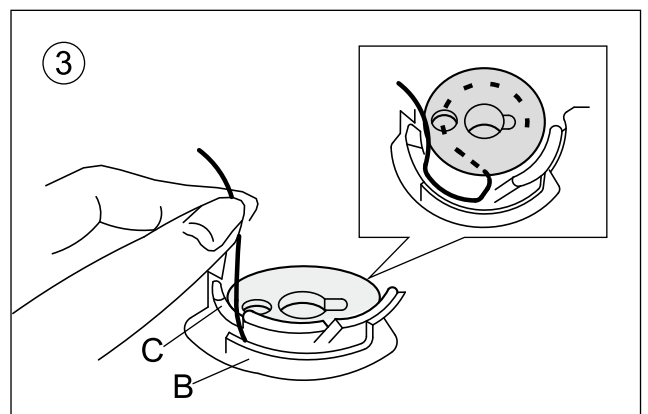
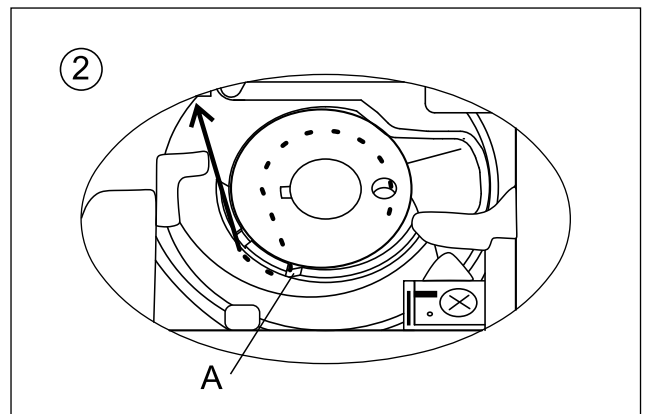
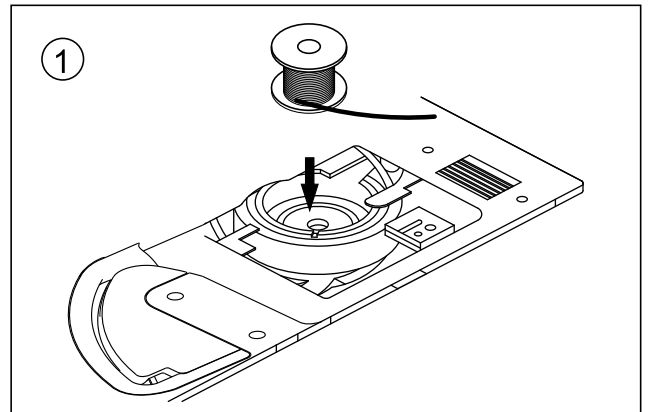
This machine uses Class 15 bobbins. To purchase additional bobbins, please see your local retailer.

2. Draw thread into notch (A).

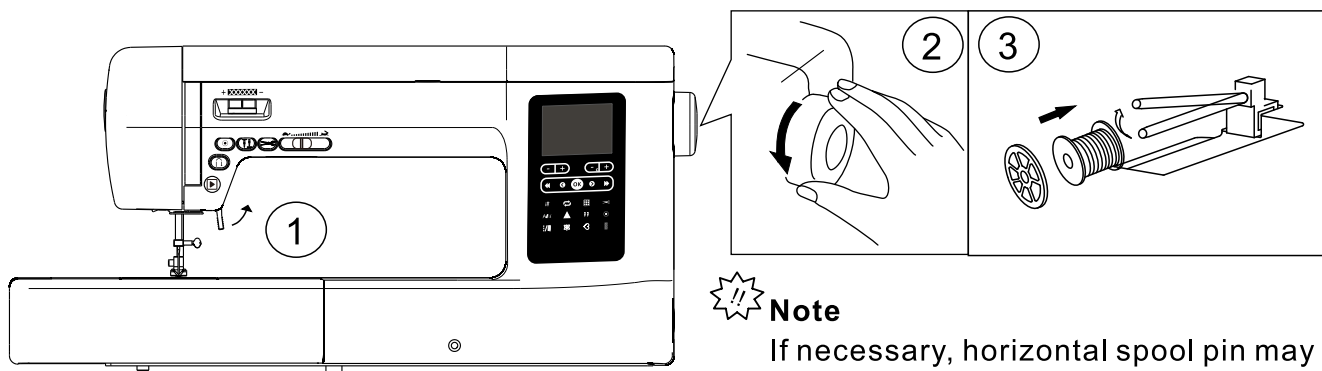
3. Pull thread toward the left and along the inside of spring (B) until it slips into notch (C) being sure that thread does not slip out of notch (A).



4. While lightly holding down bobbin with your right hand, guide the thread through the slot, pull the thread toward you to cut it with cutter as shown, and then replace the bobbin cover and close.



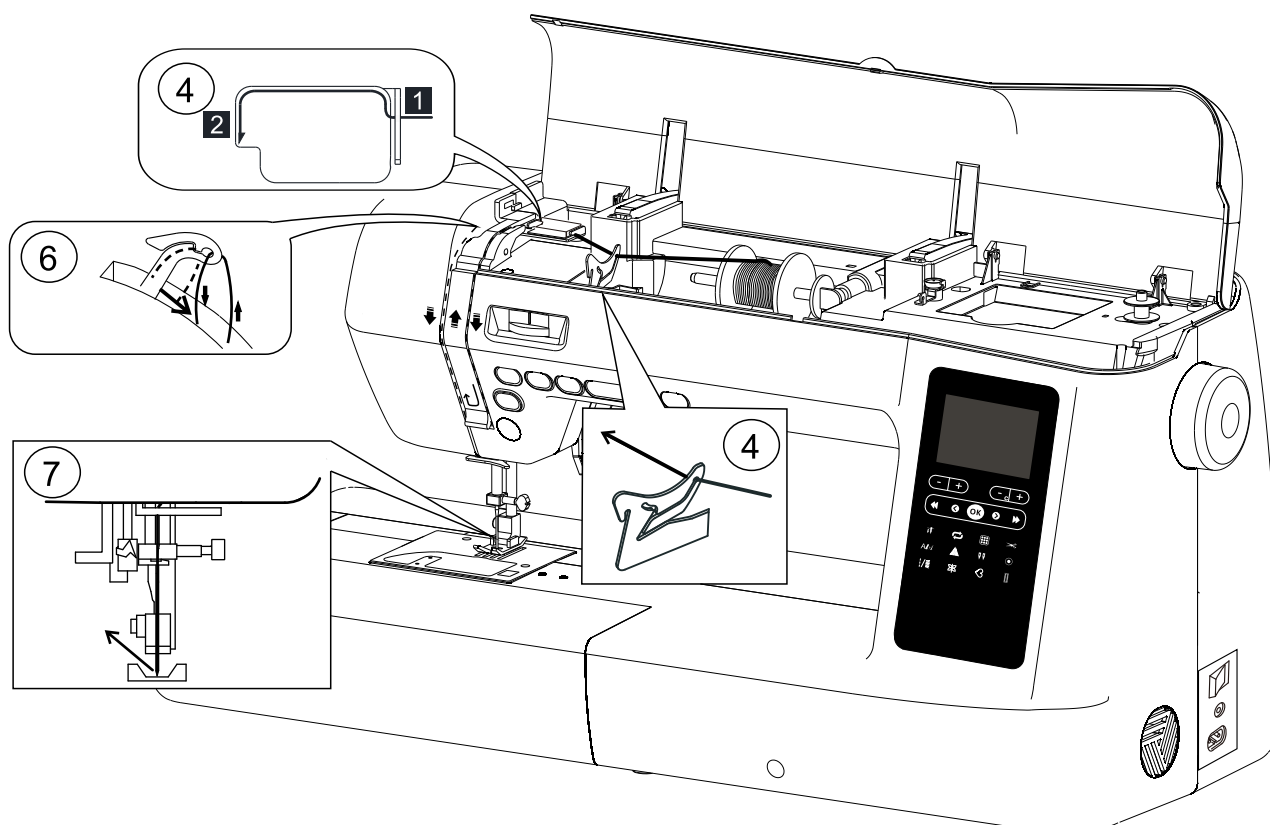
## Upper Threading



### Note

If necessary, horizontal spool pin may be raised so it can be used in a vertical position.

- 1 Raise presser foot lever.
- 2 Rotate the handwheel toward you to raise the take-up lever into the highest position.
- 2-1 Press Needle Up/down button to raise the take-up lever into the highest position.
- 3 Place a spool of thread onto the spool pin and secure with proper size spool cap.
- 4 Pass the thread under thread guide and around pretension disc for upper threading.
- 5 Bring thread forward and down the right channel, then to the left and up the left channel.
- 6 Pull the thread through and into the take-up lever from right to left.
- 7 Pass the thread down the left channel and into the lower thread guide. Slide the thread from right to left into the thread guide on the needle clamp.
- 8 Thread the needle from front to back or follow directions for using the needle threader. (Please refer to page 15)

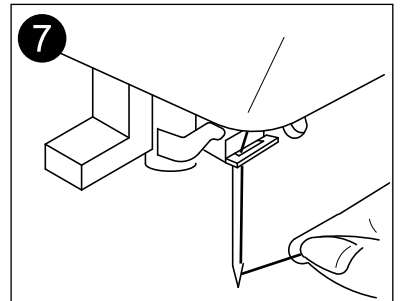
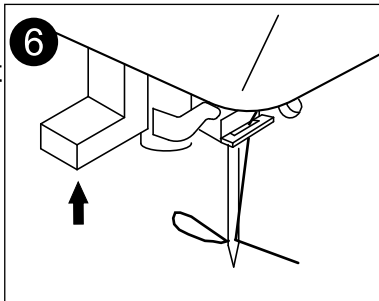
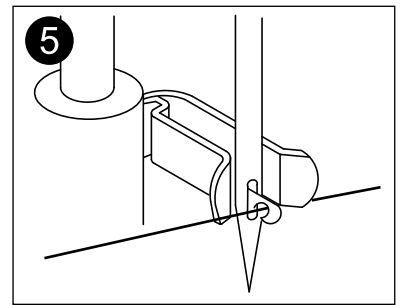
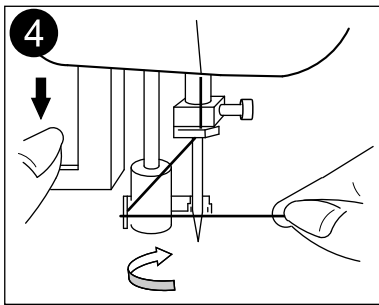
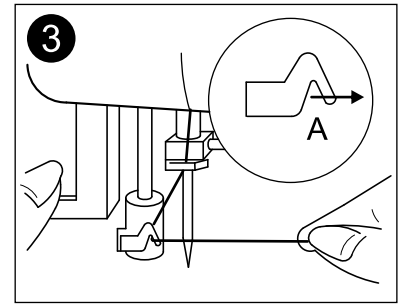
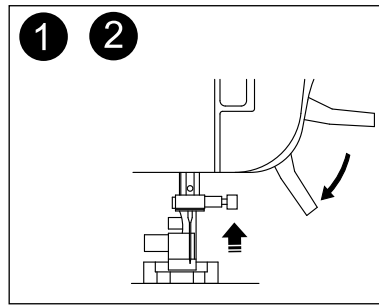




## Using Needle Threader

### NEEDLE THREADER

- 1 Lower the presser foot.
- 2 Set needle in highest position.
- 3 Lower the threader slowly and draw thread through thread guide(A) and pull toward the right.
- 4 Lower the lever as far as it will go so the threader turns and the hook pin will go through the needle eye.
- 5 Position thread below the needle eye and under the hook pin.
- 6 Hold thread loosely and release the lever. Hook will turn and pass thread through needle eye while making a loop.
- 7 Raise the presser foot and pull thread out about 10 inches from needle eye.  
Note: The needle threader is used for needle sizes 11, 12, 14 and 16.

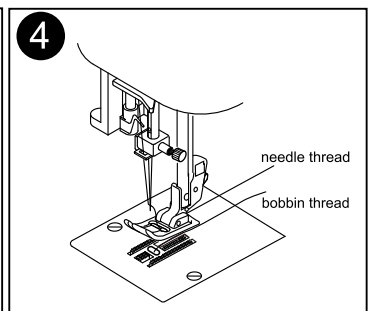
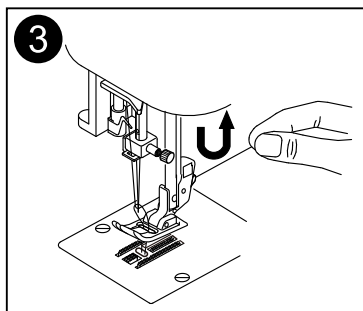
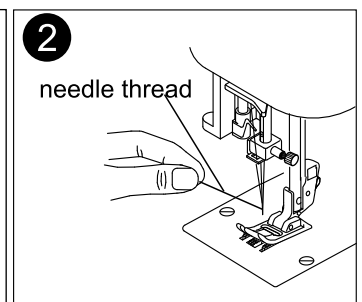
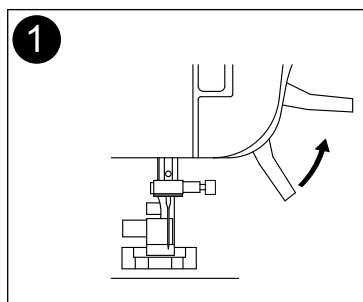


**CAUTION: To prevent accidents.**

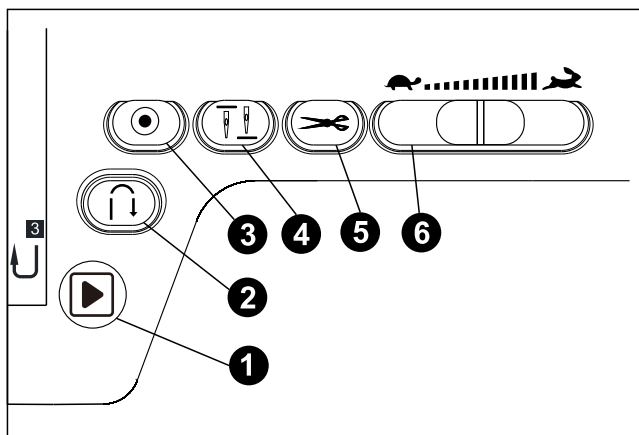
Do not lower the threader lever while machine is operating.

## Drawing Up the Lower Thread


- 1 Raise the presser foot lever.
- 2 Hold the needle thread loosely with your left hand and turn the handwheel toward you until the needle goes down into the needle plate and back up to the highest position.
- 3 Lightly pull the top thread upward until a loop of bobbin thread comes up.
- 4 Grasp the bobbin thread and pull both top and bobbin threads under the presser foot and to the back leaving about 5 inches of thread.




# CONTROLS



## 1 Start/stop button

Press this button  to start or stop the machine. The machine starts running slowly for the first few stitches, then it runs at speed set on the speed control slider.

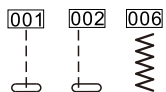
### NOTE:

The  button cannot be used when the foot control is connected to the machine.



## 2 Reverse button

• When stitch patterns are selected as below:



The machine will sew in reverse as long as the reverse button is pressed and held. Release the button to sew forward.

• When other stitch patterns are selected;

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

### NOTE:

Foot control is connected to the machine;



The reverse button will continue to sew in reverse at low speed while this button is pressed. Release the button, the machine will continue to sew forward.

## 3 Lock Stitch button

Lock Stitch button to sew 4 tie-off stitches at same position and machine will stop running.

## 4 Needle Up/Down button

Press this button to bring the needle bar up or down.


### Note

When presser foot is lifted the needle Up & Down function can be used by pressing this button.

## 5 Thread Trimmer button

After finish sewing, press this button to trim the threads. The needle bar automatically rises after trimming the threads.

### NOTE:

The thread trim button does not function:  
- when the presser foot is raised with presser foot lever.  
- when  button turns to red light except buttonhole sewing.

## 6 Speed Control Button

The machine will sew faster when the button is moved to the right, and slower when button is moved to the left.

### NOTE:

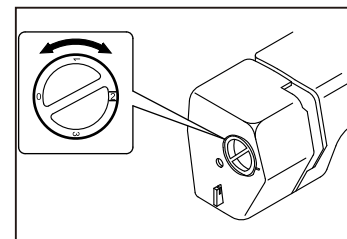
Foot control is connected to the machine;

This button can be used while the foot control is plugged in.

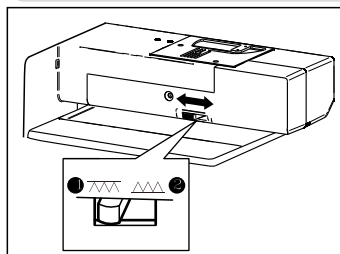


## Presser Foot Pressure Adjustment Dial

You can adjust the presser foot pressure (the amount of pressure applied to the fabric with the presser foot) by adjusting the Presser Foot Pressure Adjustment Dial. The higher the number, the greater the pressure will be. Set the pressure at "2" for normal sewing.



## Drop Feed Dog Lever



The feed dogs should be up for all general sewing. Lower the feed dogs for free motion darning, embroidery, monogramming and stipple quilting. When the feed dogs are lowered, you must move the fabric as you sew.

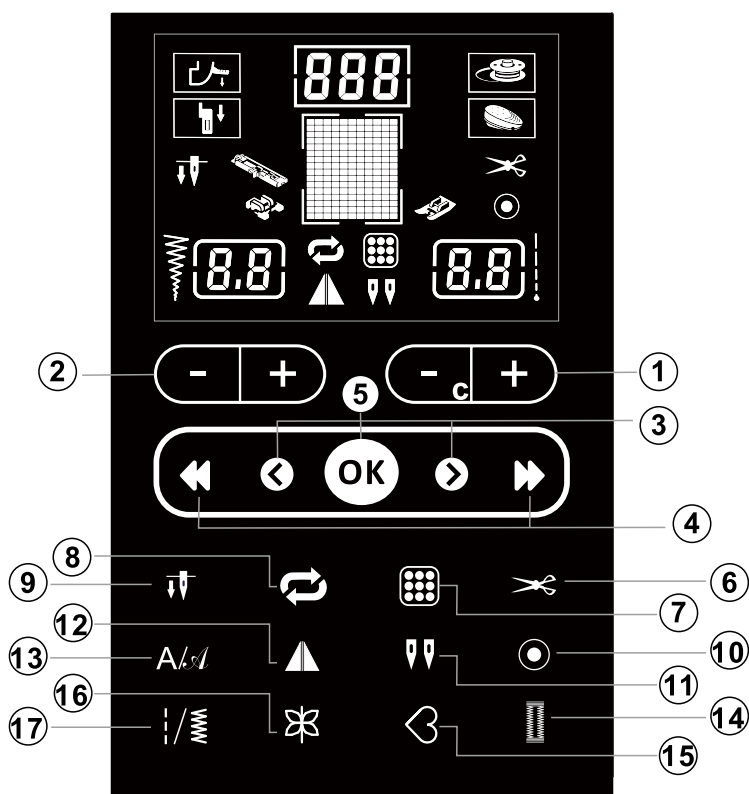
- 1 To lower the feed dogs, remove flat bed attachment and then slide the lever to the left.
- 2 To raise the feed dogs, slide the lever to the right.

### Note

Feed dogs will raise once a stitch is completed or by turning handwheel toward you.

# CONTROLS

## Touch Panel Keys



### ① Stitch Length Set Key

Touch key to set the stitch length value up or down.

### ② Stitch Width Set Key/ pattern selection keys

Touch key to set the stitch width value up or down. You can also use this key to select the previous or next pattern while in memory mode.

### ③ Left & Right Key

Touch Left & Right key for selecting number of pattern.

### ④ Left & Right Forward Key

Move forward or backward 10 patterns when using this key. This helps you select number of pattern more easier.

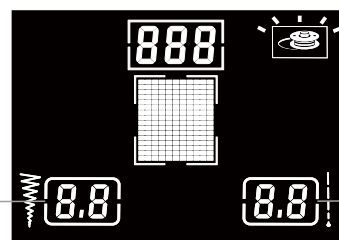
### ⑤ OK Key

### ⑥ Auto Thread Trimmer Key

When you stop sewing, pressing this key will automatically stitch 4 tie-offs and then trim the thread.

### ⑦ Memory Mode Key

When Memory key is touched memory mode is initiated. You can select desired pattern by touching left and right key, then touch OK to save your pattern(s).



### ⑧ Repeat Mode Key

Touch stitch width setting button to select desired saved patten. Select the [-] button on the stitch length setting (marked with a small c) for deleting and correction. (Refer to touch panel keys in ① & ②).

### ⑨ Auto Needle Stop Down Position Key

When repeat key is touched the pattern is repeated and automatically sewn until the [▶] button is pressed for stopping the machine.

### ⑩ Lock-Stitch Key





When this key is selected, the needle will automatically stop in the down position when you stop sewing.

### ⑪ Twin Needle Key

When you touch this key and the icon for Twin needle is on, only some of utility & decorative stitches can be selected and sewn. (Please refer to page 38.)

### ⑫ Mirror Stitch Key

When you touch this key the icon for Mirror stitch is on. Some of utility & decorative stitches are mirrored.

Pattern		become to	
Character	B	become to	B
Pattern		become to	

### Note

In Mirror mode, some patterns will flip in the proper direction following the shape of pattern. With some stitches, mirroring may not be flipped; for example, buttonhole stitch. When the machine is turned off, the mirroring setting is cancelled

## CONTROLS

⑬ ~ ⑰

### Alphabets lettering/Buttonhole/Decorative/

Use these keys to quickly move through the available patterns in each category.

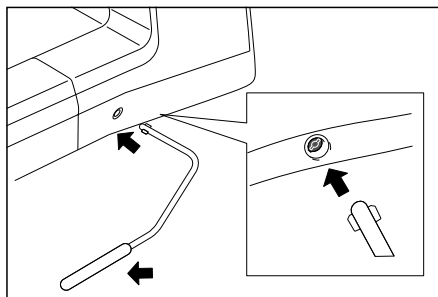
#### Note

- The operation keys of this machine are capacitive touch sensors. Operate the keys by directly touching them with your finger.
- The response of the keys will vary with users. The pressure exerted on the keys does not affect the response.
- When using an electrostatic touch pen, make sure that its point is 8mm or more. Do not use a touch pen with a thin point or unique shape.

## Knee Lift

Using the knee lift, you can raise and lower the presser foot with your knee, leaving both hands free to handle the fabric.

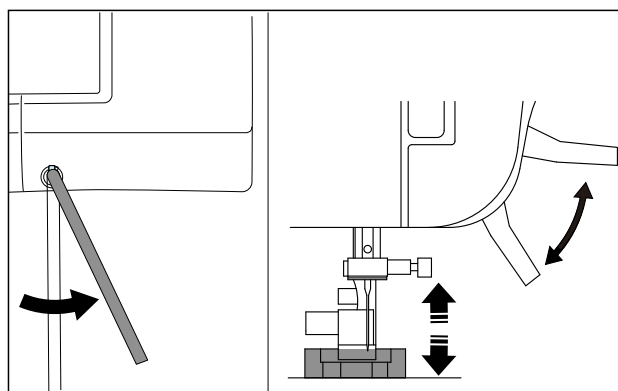
- 1 Align the tabs on the knee lift with the notches in the knee lift mounting slot on the front of the machine. Insert the knee lift bar as far as possible.



#### Note

If the knee lift bar is not pushed into the mounting slot as far as possible, it may come out during use.

- 2 Lower presser foot lever.
- 3 Use your knee to move the knee lift to the right in order to raise the presser foot. Release the knee lifter to lower the presser foot.



## CAUTION

Be sure to keep your knee away from the knee lift during sewing. If the knee lift is pushed during machine operation, the needle may break or thread tension may loosen.

## SETTING THE THREAD TENSION

The thread tension must be properly balanced. If adjustment is required, it can be made by changing the upper thread tension.

### A. Correct Thread Tension

Upper and bobbin threads should interlock approximately in the middle of fabric.

**Note:** Before you do free motion sewing, you may need to adjust the upper thread tension. Do a test stitch on the same type and thickness of fabric. Adjust the tension according to the results from your test stitching.

### B. When bobbin thread appears on top side of fabric.

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

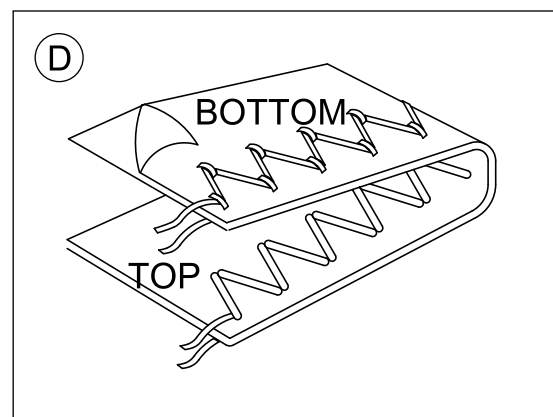
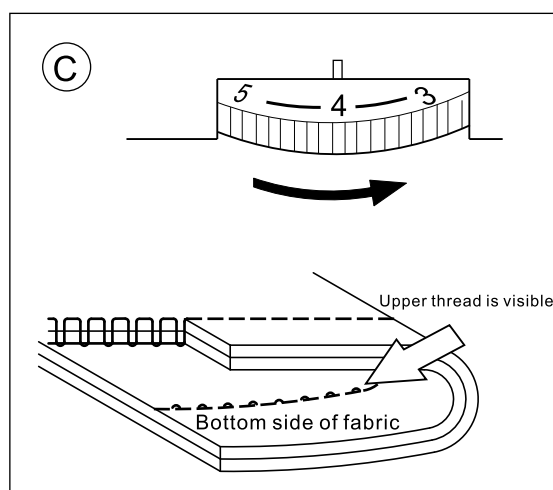
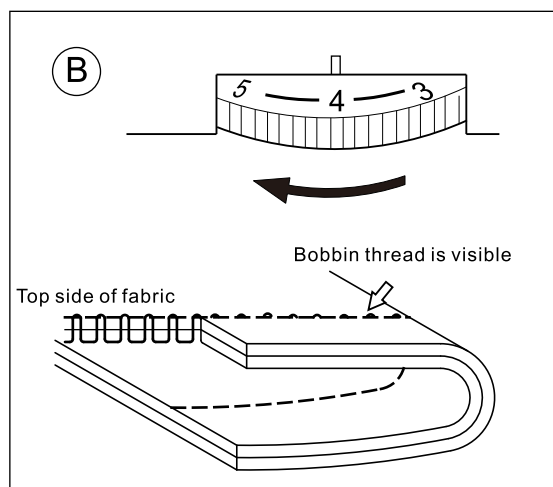
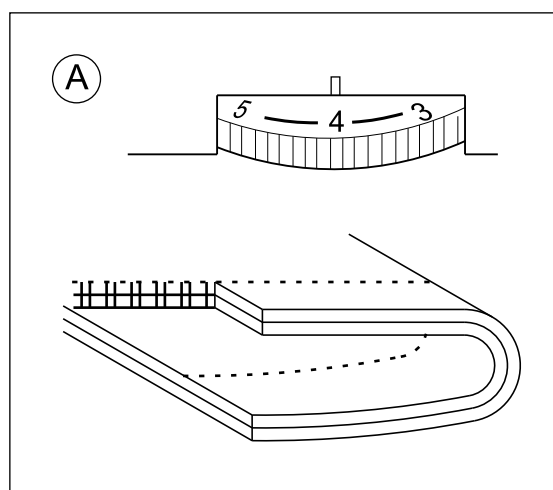
### C. When upper thread appears on the bottom side of fabric.

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

### D. Thread Tension for Zigzag Stitches

To sew zigzag stitches, the upper thread tension should be set to a slightly weaker tension than when sewing straight stitches.

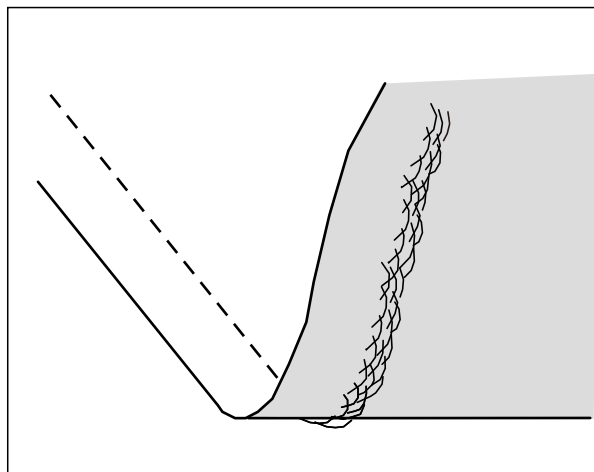
You will obtain a nicer stitch when upper thread appears slightly on bottom side of fabric.



## FABRIC, THREAD AND NEEDLE COMBINATIONS

### • Helpful Hint

Like shown in drawing, stitches on top side of fabric are good but bottom side tends to have a bunch of thread, it usually means that the upper thread is not threaded correctly or thread tension regulator may not be set correctly. Refer to page 12 for correct upper threading.



**CAUTION:** To prevent accidents.

The feed dog will feed the fabric automatically. Do not pull or push on fabric with hands. It will cause needle breakages or poor quality stitches.

## FABRIC, THREAD AND NEEDLE TABLE

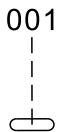
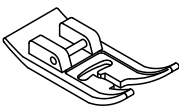
Needle system	Needle size										
	5	7	8	9	10	11	12	13	14	16	18
Ha×1											
System 705	45	55	60	65	70	75	80	85	90	100	110

Select size of thread and needle in accordance with fabric to be sewn.

Type of Fabric	Thread Size	Needle Size
<ul style="list-style-type: none"> <li>● Lightweight Fabric -thin georgette, organdy, viole, taffeta, silk, etc.</li> </ul>	Ctn.# 80 - 100 Silk 60 - 80 Syn. 80 - 100	70/10-75/11 70/10-80/12
<ul style="list-style-type: none"> <li>● Medium Weight Fabric-gingham, pique, linen, cotton, satin, thin corduroy, velvet.</li> </ul>	Ctn.# 50- 80 Silk 50 Syn. 50 - 80	80/12-90/14
<ul style="list-style-type: none"> <li>● Heavyweight Fabric-gabardine, tweed, denim, corduroy</li> </ul>	Ctn.# 40 -50 Silk 50 Syn. 50 - 60	90/14-100/16
<ul style="list-style-type: none"> <li>● Stretch Fabric-double knit, tricot, spandex, jersey</li> </ul>	Ctn.# 50 - 80 Silk 50 Thread for knit	80/12-90/14 Needle for knit and synthetic fabric


To change needle see page 11.

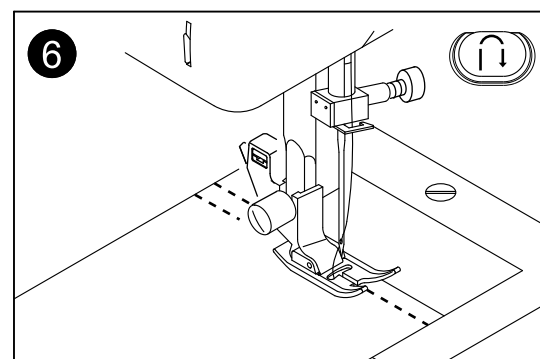
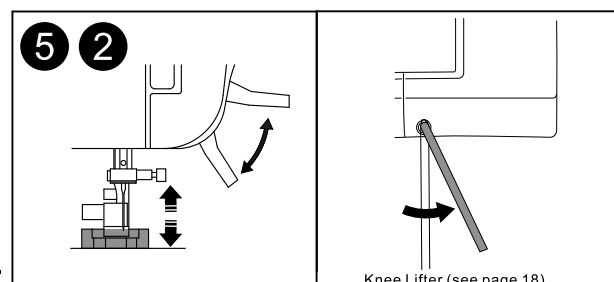
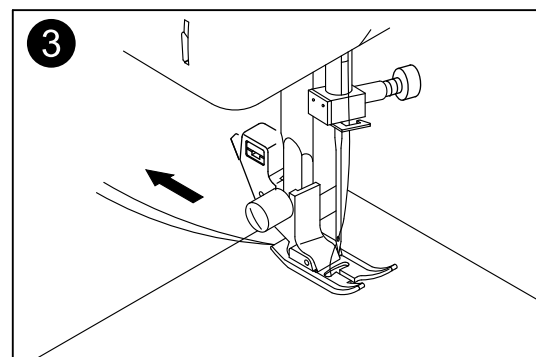
# STRAIGHT STITCH SEWING

Stitch Name	Pattern	Stitch Length [mm(inch)]	Stitch Width [mm(inch)]	All Purpose Foot
Straight Stitch	001 	0.0~5.0 (0~3/16)	0.0	

Stitch width is 0 when the needle position is in the center.

## Starting to sew

- 1 Set the pattern selection to the Straight Stitch pattern.  
**Note:** By inputting 001 on numeric keys you are able to choose your desired stitch pattern.
- 2 Raise the needle to its highest position and lift the presser foot lever.
- 3 Guide the upper and bobbin threads under the presser foot and toward the back of the machine.
- 4 Place the fabric under the presser foot and position the needle 1cm (3/8 inch) from the edge of the fabric.
- 5 Lower the presser foot.
- 6 To back tack, press and hold the reverse button and then press  button or foot controller to start reverse sewing.
- 7 Release the reverse button to begin sewing in a forward direction.

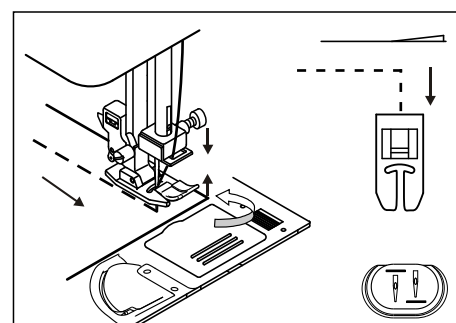


## CAUTION

- Make sure the needle does not hit a pin or any other object during sewing. The thread could tangle or the needle could break, causing damage to machine or personal injury.

## Changing Sewing Direction

- 1 Stop the machine at point where you want to change direction with the needle still in the fabric.
- 2 Raise the presser foot and turn the fabric to its new direction using the needle as a pivot.
- 3 Lower the presser foot and start sewing in the new direction.



## ■ Finishing Sewing

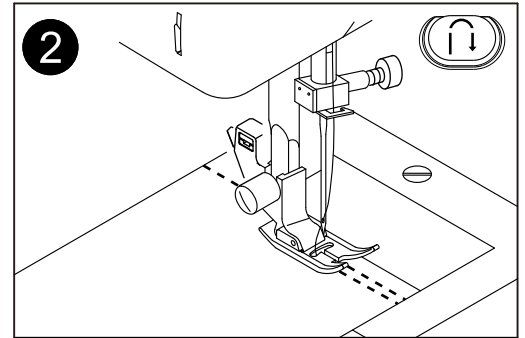
You can use stitches to lock the threads at the end of the seam.

- 1 To lock stitches, stitch to the end of seam and stop.
- 2 Press and hold on the reverse button and stitch backwards for 1 cm (3/8 inch) from the fabric edge.



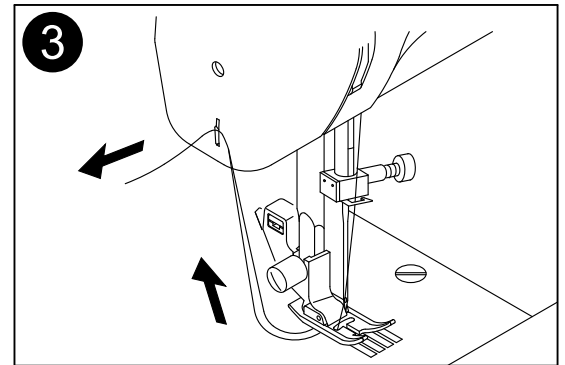
### Note

Press Lock stitch button for reinforcement.



## ■ Removing the Material from the Machine

- 1 Stop the machine.  
Raise the needle to its highest position and make sure that the thread take-up lever is also in its highest position.
- 2 Lift the presser foot and pull the fabric out gently to the left side of the machine.
- 3 Cut both threads with the thread cutter on the left hand side of the machine.

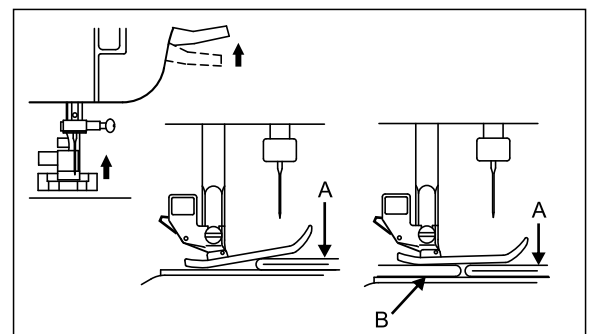


## ■ Sewing Heavy Fabric

When sewing heavy fabrics, the front of presser foot may lift up and the machine may hesitate at the point where the fabric is thicker, such as a cross seam. In this case, place a piece of cardboard or fabric of same thickness under the rear section of the presser foot to level presser foot.


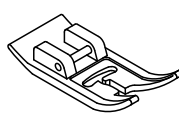
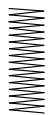
The presser foot lever can be raised 1 step higher for placing heavy materials more easily under the presser foot.

Carefully guide the fabric with your hand when sewing over thick fabric areas.



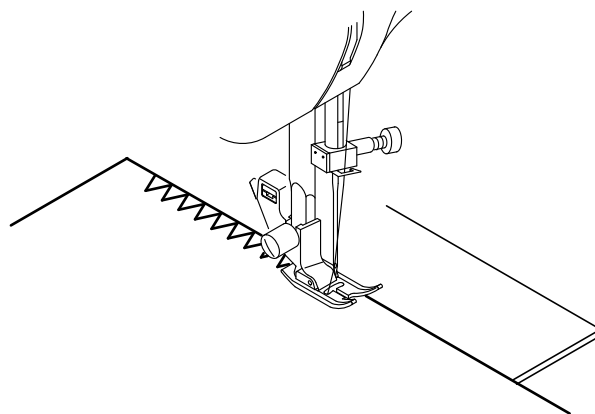


## ZIGZAG STITCH SEWING



Stitch Name	Pattern	Stitch Length [mm(inch)]	Stitch Width [mm(inch)]	All Purpose Foot
Zigzag Stitch	006 	0.0-4.5 (0-3/16)	0.0-7.0 (0-1/4)	
Satin Stitch	023 	0.3-3.5 (1/64-1/8)	1.0-7.0 (1/16-1/4)	

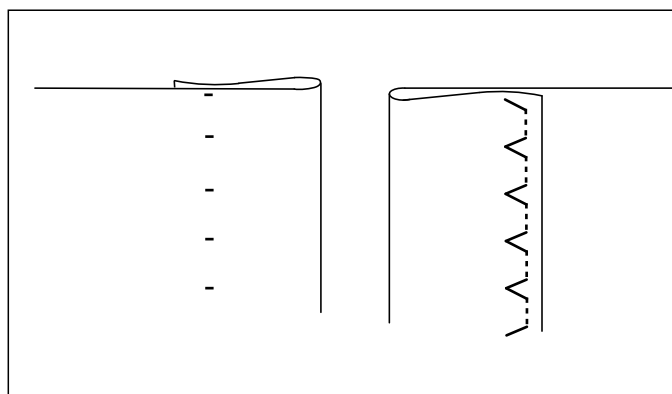
### ■ Zigzag Stitch

- Zigzag stitches are used for various sewing needs including overcasting. These stitches can be used on most woven fabrics. A dense zigzag stitch can also be used for applique. Select the Zigzag stitch, and then start sewing.

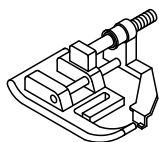


## BLIND HEM STITCH SEWING

Stitch Name	Pattern	Stitch Length [mm(inch)]	Stitch Width [mm(inch)]
Blind Hem Stitch	028 	0.4-5.0 (1/64-3/16)	1.0-6.0 (1/16-1/4)
Blind Hem Stretch Stitch	029 	0.4-3.5 (1/64-1/8)	2.5-7.0 (1/8-1/4)

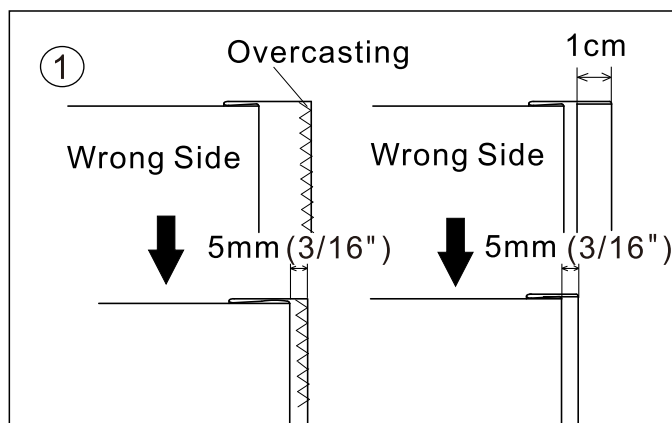


### Using the Blind Hem Foot

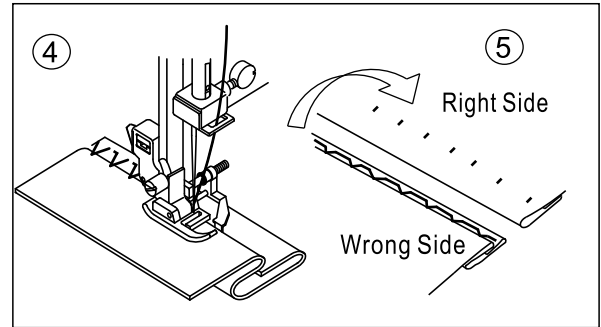
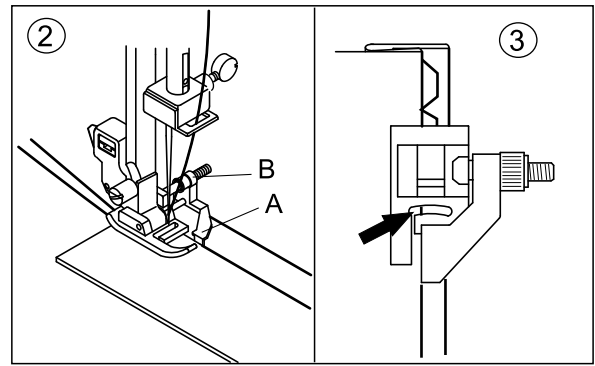


- Fold the fabric as shown on drawing; leaving 5 mm (approximately 3/16 inch) extended past the folded edge.

**CAUTION**  
 • Make sure the needle does not hit a pin or any other object during sewing. The thread could tangle or the needle could break, causing damage to machine or personal injury.





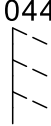

- 2 The guide (A) on the blind hem foot ensures even feeding of the fabric when blind hem stitching. The guide (A) is adjusted by turning the adjusting screw (B).
- 3 Place fabric so that the straight stitches are on the extended hem edge and the zigzag stitches just catch one thread of the folded edge. Turn the screw so that the guide barely touches the folded edge of fabric.
- 4 Lower the presser foot and sew hem, guiding fabric evenly along the guide.
- 5 Turn the fabric over when you have completed sewing.



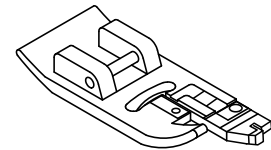
### Note

- The Blind Hem Stretch Stitch is useful for stretch fabric.
- If too much of the stitching shows on the right side of the fabric, change to a narrower stitch width or move the guide on the foot to the right. If the zigzag does not meet the fold, widen the stitch width or move the guide on the foot to the left.

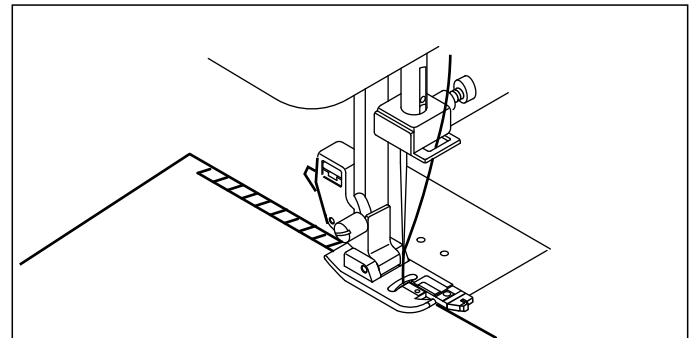
## OVERCASTING-OVERLOCKING

Stitch Name	Pattern	Stitch Length [mm(inch)]	Stitch Width [mm(inch)]
Over-lock	025 	1.0-3.0 (1/16-1/8)	2.5-7.0 (1/8-1/4)
Shell	027 	0.4-5.0 (0-3/16)	1.0-6.0 (1/16-1/4)
Overcasting	044 	1.5-3.5 (1/16-1/8)	2.5-7.0 (1/8-1/4)
Decorative Overcasting	047 	1.5-3.0 (1/16-1/8)	2.5-7.0 (1/8-1/4)

### USING THE OVERCASTING FOOT

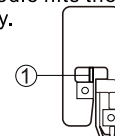


Max. stitch width 7mm



## CAUTION

- After the stitch width is adjusted, rotate the handwheel toward you (counterclockwise). Check that the needle does not touch the presser foot. If the needle hits the presser foot, the needle may break and cause injury.

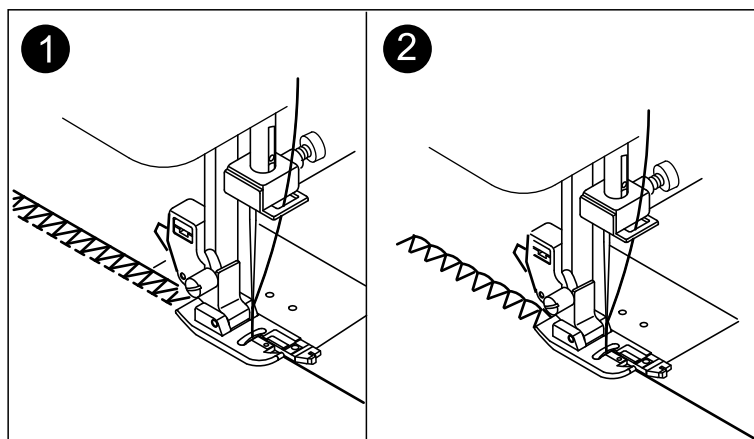


① The needle should not touch the center bar

- If the presser foot is raised to its highest level, the needle may strike the presser foot.



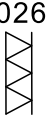
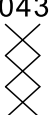
Position the fabric against the guide plate of the overcasting foot so that the needle falls near the edge of the fabric.

- 1 Some stitches can sew the seam and overcasting at the same time. Therefore, it is convenient for sewing easy to ravel and stretch fabrics.
- 2 Overcasting stitches (width 5.0-7.0) are used for preventing raveling of fabrics.



### CAUTION

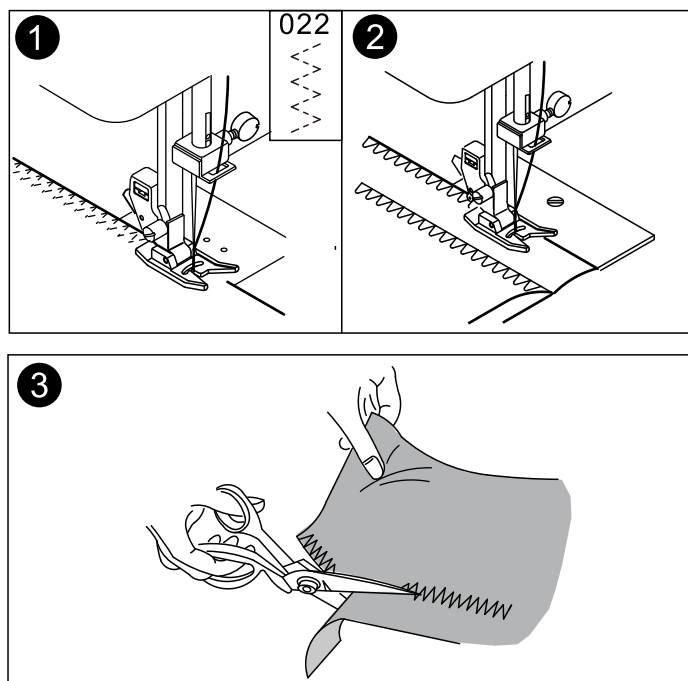
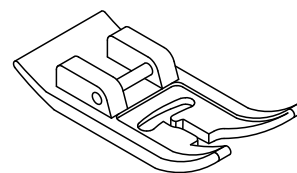
Overcasting foot should be used for sewing pattern 25, 27, 44 and 47 only. Do not change the stitch width to narrower than 5.0. It is possible that needle could hit the presser foot and break if you attempt to use other patterns and stitch widths.

Stitch Name	Pattern	Stitch Length [mm(inch)]	Stitch Width [mm(inch)]
Zigzag Stitch	006 	0.0-4.5 (0-3/16)	0.0-7.0 (0-1/4)
3-Steps Elastic Zigzag Stitch	022 	0.3-2.0 (1/64-1/16)	3.0-7.0 (3/16-1/4)
Double Overlock	026 	1.0-3.0 (1/16-1/8)	2.5-7.0 (1/8-1/4)
Hemstitching	043 	1.0-3.0 (1/16-1/8)	2.5-7.0 (1/8-1/4)

When using the all purpose foot, place the fabric so that the needle will fall near the edge of fabric.

- 1 Use a narrow zigzag width for lightweight fabrics.
- 2 Adjust the width and length for various weights of knit and stretch fabrics. (When using overcasting foot, do not change the width any narrower than 5.0mm.)
- 3 For allotted seam allowances, sew then trim the excess fabric close to the stitching. Be careful not to cut thread when cutting the fabric edge.

### USING THE ALL-PURPOSE FOOT

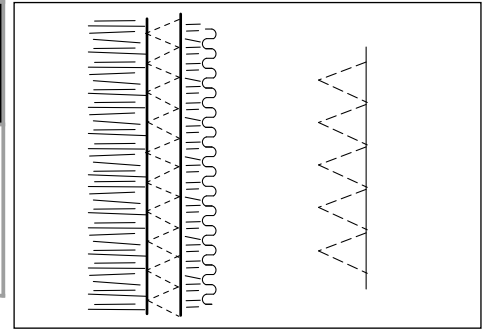


### Note

- Overcasting stitches (width 5.0-7.0) are used for preventing raveling of fabrics.

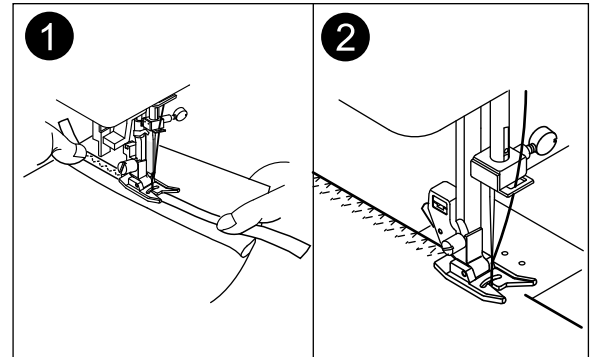
## MULTI-STITCH ZIGZAG

Stitch Name	Pattern	Stitch Length [mm(inch)]	Stitch Width [mm(inch)]	All Purpose Foot
3-Step Elastic Zigzag Stitch	022 	0.3-2.0 (0-1/16)	3.0-7.0 (1/8-1/4)	



Used for sewing on elastic band and overcast stitching on knit fabrics.

- 1 Elastic Sewing  
Stretch elastic in front and back of needle while sewing. Be careful not to bend needle while stitching.
- 2 Overcasting stitching  
Used for easy to ravel and knit fabrics. Guide fabric so stitch on right side is at the edge on the fabric. (see page 24)

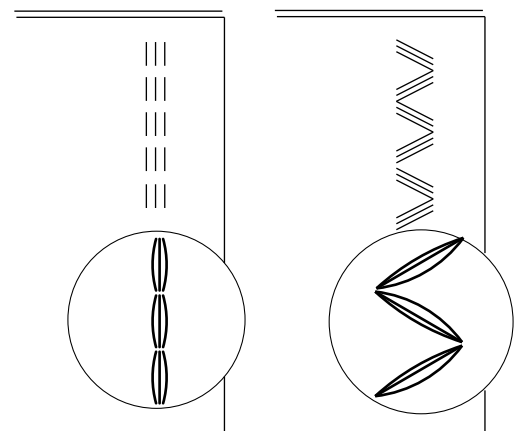


## STRETCH STITCH SEWING

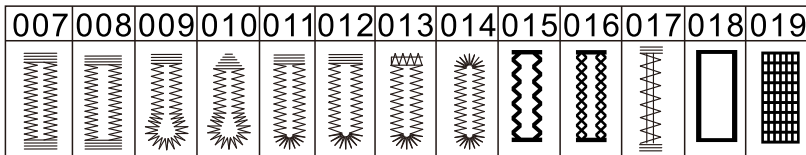
Stitch Name	Pattern	Stitch Length [mm(inch)]	Stitch Width [mm(inch)]	All Purpose Foot
Triple stretch Stitch	005 	1.0-4.0 (1/16-3/16)	0.0-3.5-7.0 (0-1/4)	
Rick-Rack	24 	2.0-4.0 (1/16-3/16)	2.5-7.0 (1/8-1/4)	

Stretch stitch sewing assures you of a stitch that is strong and flexible and will give with the fabric without breaking. Good for stretch or knit fabrics and seams that require flexibility. It is also good for joining durable fabrics such as denims.

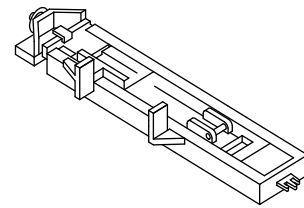
We recommend that you use a needle for knit and synthetic fabrics to prevent skipped stitches and thread breakages.



# SEWING BUTTONHOLES



## Using the Buttonhole Foot



**1** Mark position and length of buttonhole on fabric.

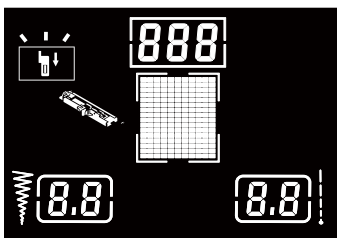
**2** Set button on the base and slide base forward to secure button.  
 \* If button does not fit on the base, adjust slide on base to diameter of button plus thickness of button.  
 a = Length of button + thickness

**3** Pass upper thread through the needle opening of buttonhole foot and attach buttonhole foot to machine. Bring upper and bobbin threads to the left under foot.

**4** Position fabric under buttonhole foot so that the center line mark is in the center of the needle opening in the buttonhole foot. With the main part of the foot pushed to the back lower the presser foot lever.

**5** Pull the buttonhole lever down as far as possible.

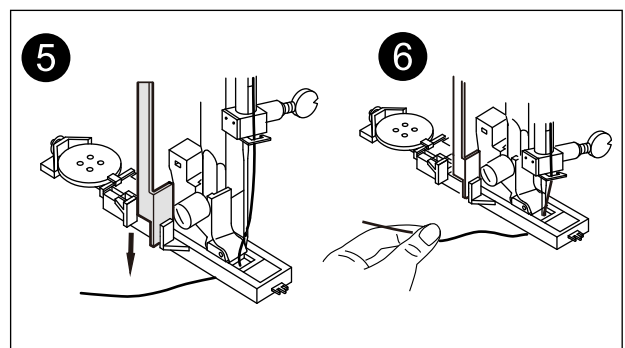
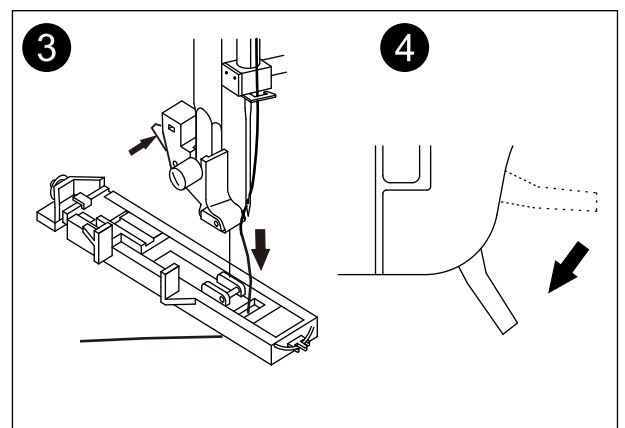
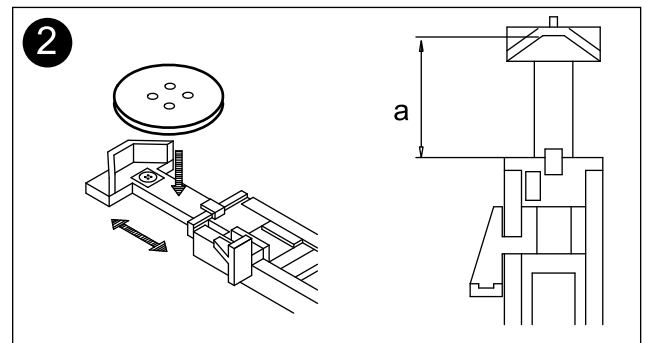
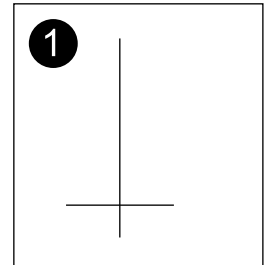
**6** Hold upper thread lightly and start the machine.



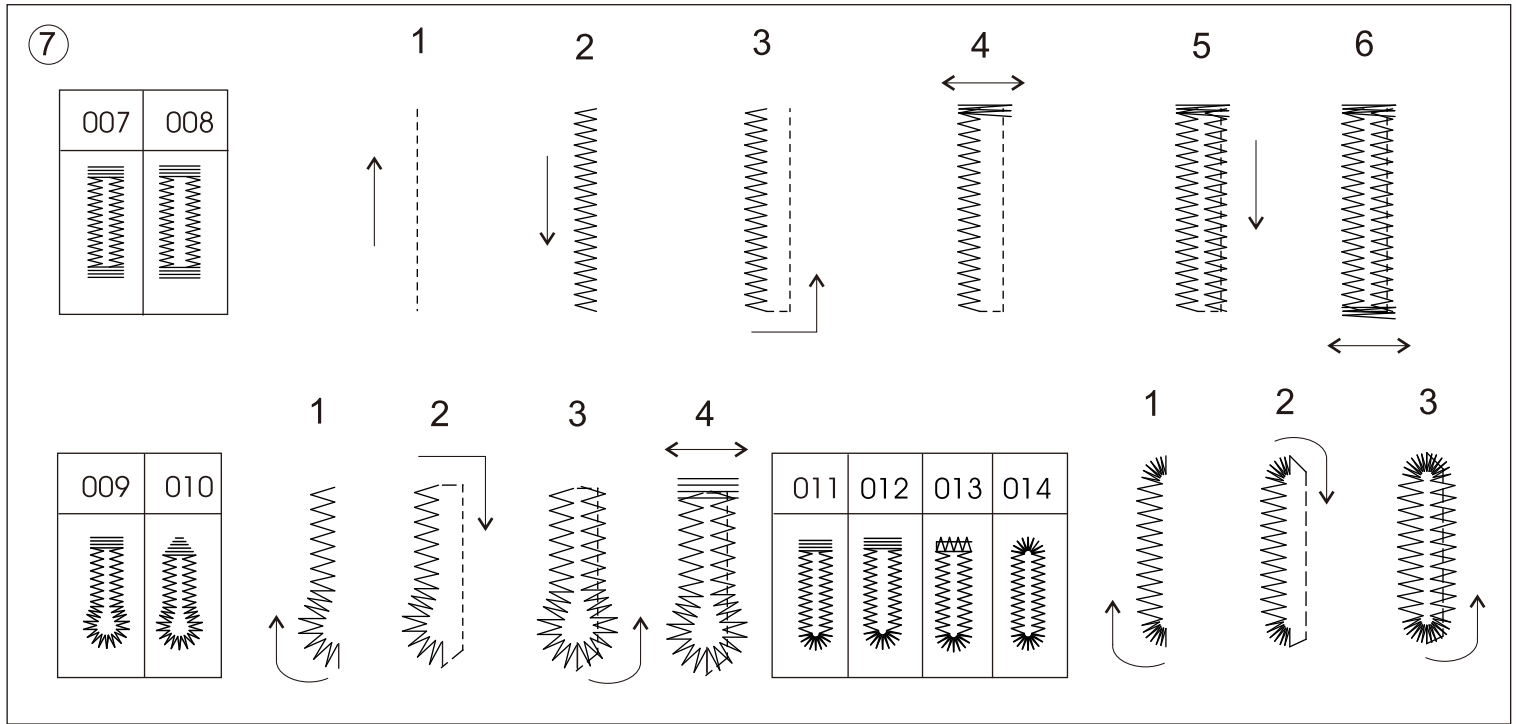
### Note

- Machine will not start to sew if buttonhole lever is not lowered properly and the sign of warning is blinking.

**7** When buttonhole sewing is finished, the will turn red. Press the thread Thread Trimmer button.

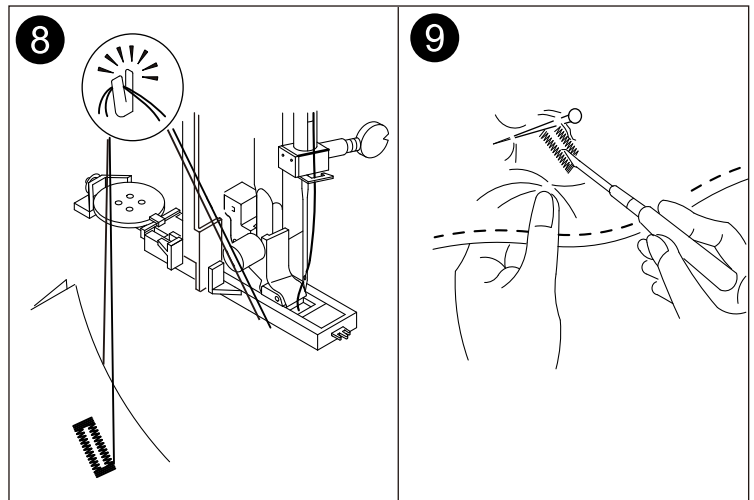


# SEWING BUTTONHOLES



**8** Raise the presser foot and cut threads. To sew same buttonhole, raise presser foot to return to buttonhole starting position.

**9** With buttonhole cutter, cut center of buttonhole being careful not to cut stitches on either side. Use a pin as a stopper.



## CAUTION: To prevent accidents.

When using seam ripper, do not put your finger in the path of ripper.

### A. WHEN SEWING STRETCH FABRIC

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

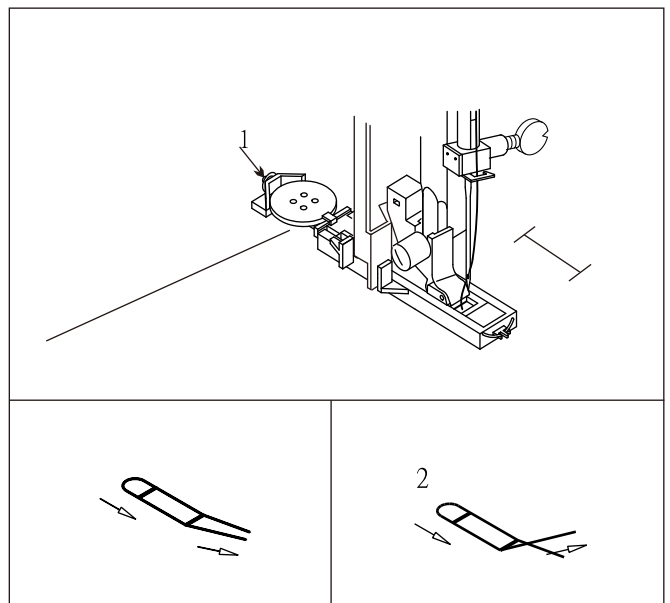
Note: Density of buttonhole legs may be adjusted with stitch length control.

### CORDED BUTTONHOLES

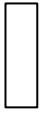
Hook the filler cord (crochet thread or buttonhole twist) to the spur in the back of the foot. Pull both ends of the cord forward and parallel under the guide.

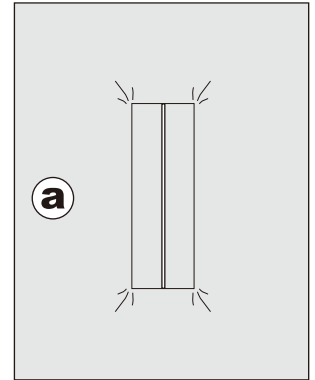
Sew buttonhole so that zigzag stitches cover the cord. When completed, release the cord from foot.

Pull ends of the cord forward and snip off extra length.



# BOUND BUTTONHOLE

Stitch Name	Pattern	Stitch Length [mm(inch)]	Stitch Width [mm(inch)]	Buttonhole Foot
Bound Buttonhole Stitch	018 	0.3-0.8	5.0-7.0 (3/16-1/4)	



A bound buttonhole provides a professional tailored touch to women's dresses, suits and coats.

1. Cut a patch of fabric 2.5 cm wide, 1 cm longer than the finished buttonhole. Mark a center line on the patch.

Baste a patch so that the center line of patch will align with the center line mark of buttonhole.

- a. Right side of fabric
- b. Wrong side of patch

2. Lower the buttonhole lever and sew buttonhole. (See previous page)  
Machine will sew the buttonhole in the order as shown and stop automatically after sewing.

3. Carefully cut through the center of buttonhole to within 3 mm of each end. Cut diagonally to each corner as shown.  
Remove the basting.

4. Draw the patch through the opening to the underside.

5. Turn the fabric and pull the patch through the buttonhole rectangle.  
Press the patch.

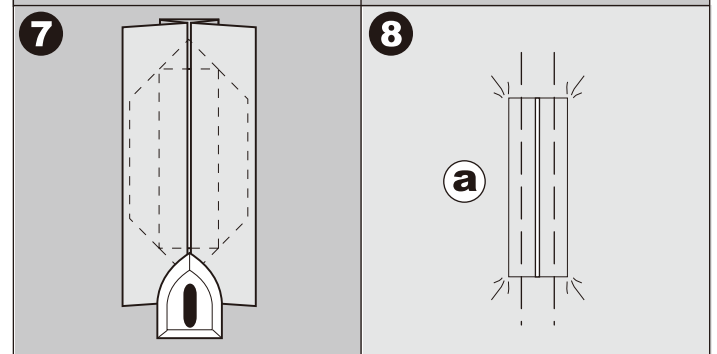
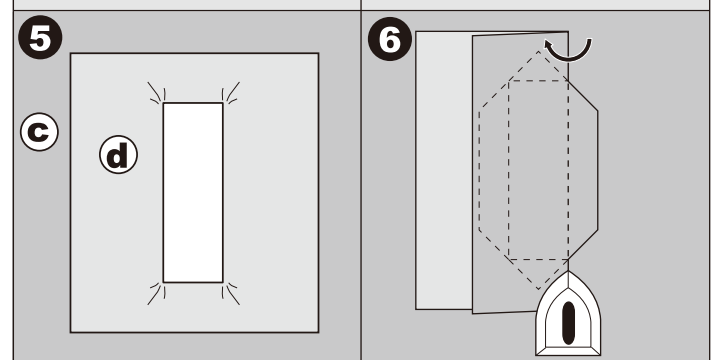
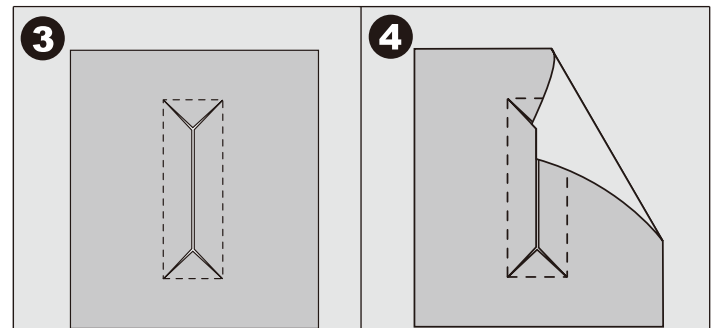
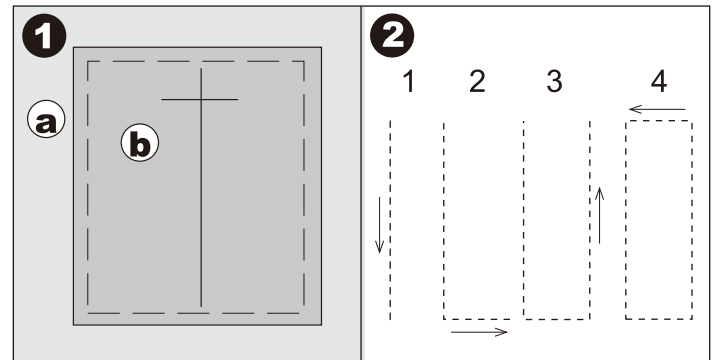
- c. Wrong side of fabric
- d. Right side of patch

6. Turn the patch and press the side seam allowance.

7. Fold each side of the patch to form pleats that meet at the center of the buttonhole and cover the opening. Press the patch.

8. Turn the fabric to right side and baste along the center of each fold.

- a. Right side of fabric



9. Fold the fabric and stitch along the seams on each side, just a needle width from the original stitching line. Remove the basting.

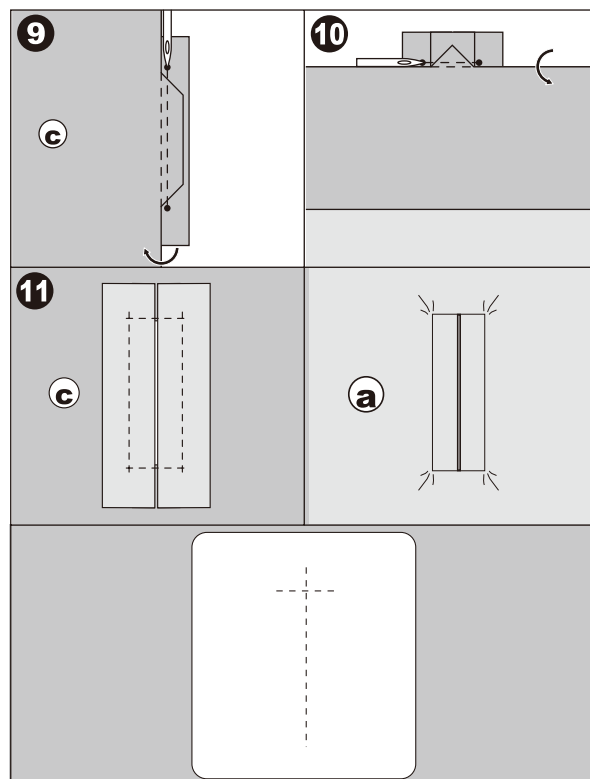
c. Wrong side of fabric

10. Fold the fabric along the buttonhole end and stitch triangular ends on the original stitching line.

11. Press and trim the patch to within 5 mm of the stitching.

a. Right side of fabric

c. Wrong side of fabric



**Note**

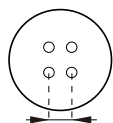
When sewing lightweight fabric, reinforce the buttonhole area. Cut a patch of fusible interfacing 3 cm wider and 2 cm longer than the buttonhole. Fuse to wrong side over each buttonhole marking.

## BUTTON SEWING

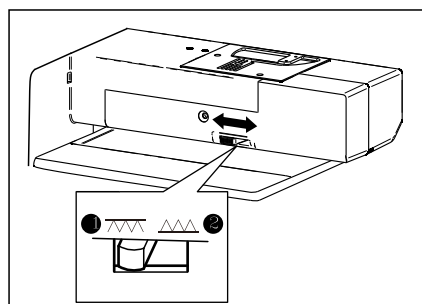
Stitch Name	Pattern	Stitch Length [mm(inch)]	Stitch Width [mm(inch)]	Sew-on Button Foot
Button Sewing Stitch	021 	0.0	0.0-7.0 (0-1/4)	

Buttons with two or four holes can be attached by machine.

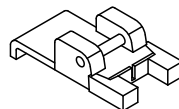
1 Measure the distance between the holes in the



2 Raise the presser foot lever, and then slide the feed dog position switch, located at the rear of the machine on the base, to (to left as seen from the rear of the machine).



3 Attach sew-on button foot.



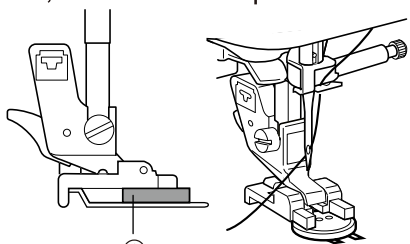
4 Select stitch

Since the end of the thread will be tied off later, do not set machine for programmed thread cutting.

5 Adjust the stitch width so that it is the same as the distance between the holes in the button.

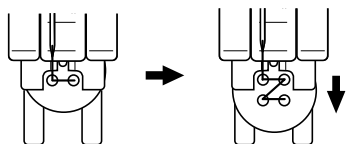


- 6** Place the button in the position where it will be sewn, and lower the presser foot lever.



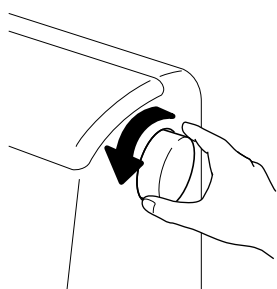
① Button

When attaching four-hole buttons, first sew the two holes closest to you. Then, slide the button so that the needle goes into the two holes toward the rear of the machine, and then sew them in the same way.




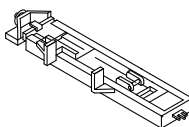
- 7** Turn the handwheel toward you (counterclockwise) to check that the needle correctly goes into the two holes of the button

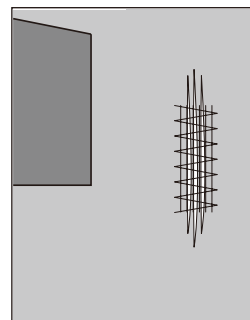
If it seems as if the needle will hit the button, remeasure the distance between the holes in the button. Adjust the stitch width to the distance between the buttonholes



**CAUTION**  
• When sewing, be sure that needle does not touch the button, otherwise the needle may bend or break

## AUTOMATIC DARNING

Stitch Name	Pattern	Stitch Length [mm(inch)]	Stitch Width [mm(inch)]	Buttonhole Foot
Darning Stitch	019 	0.3-0.8	0.0	

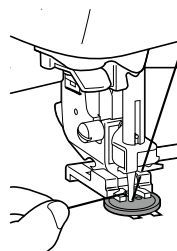


You can sew automatic bar-tack and darning using the buttonhole foot.

Darning, mending and other applications.

- Adjust slide on base according to the length of darning  
a=Length of darning
- Pass upper thread through the hole of buttonhole foot and attach buttonhole foot to machine. Bring upper and bobbin threads to the left under foot.

- 8** Start sewing.  
Set the sewing speed controller to the left (so that the speed will be slow).

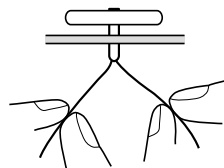



The machine automatically stops after sewing reinforcement stitches.

-  Do not press the Thread Trimmer button.

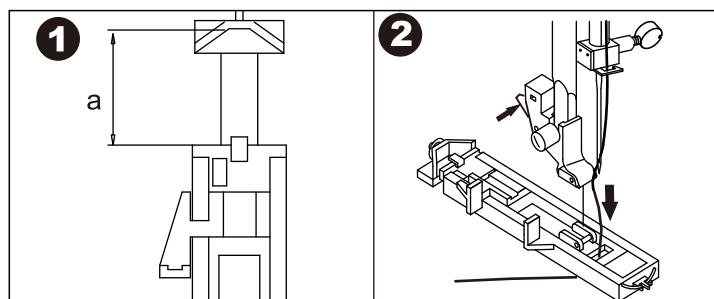
- 9** Use scissors to cut the upper thread and the bobbin thread at the beginning of the stitching.

Pull the upper thread at the end of the stitching to the wrong side of the fabric, and then tie it with bobbin thread.



- 10** When you are finished attaching the button, slide the drop feed dog lever, to  (to the right as seen from the rear of the machine) and turn the handwheel to raise the feed dogs.

**Note**  
The feed dogs come up when you start sewing.

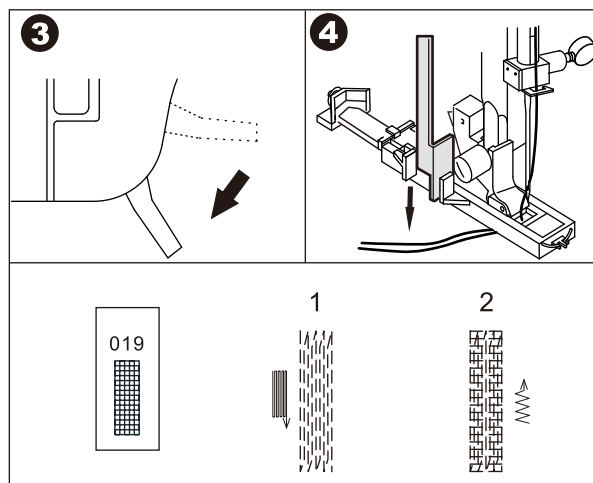


3. Position fabric under presser foot so that the center line mark is in the center of the needle opening in the buttonhole foot. With the main part of the foot pushed to the back lower the presser foot lever.


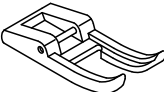
4. Lower the buttonhole foot lever so it is positioned behind the raised finger on the foot. If this lever is not in the correct position, a flash BH foot mark will be alarmed on LCD screen.

**Note**

If the fabric does not feed, for example, because it is too thick, increase the stitch length. For details, refer to "Setting the stitch length" please refer to "control" in page 17



## Eyelet Stitching

Stitch Name	Pattern	Stitch Length [mm(inch)]	Stitch Width [mm(inch)]	Open Toe Foot
Eyelet	020 	0.0	4.0-7.0 (3/16-1/4)	

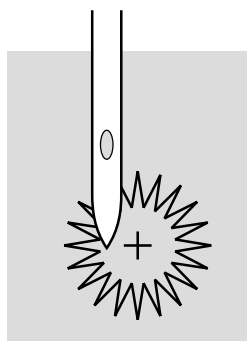
1 Select Stitch 020 

2 Adjust either the stitch width or the stitch length to select the desired eyelet size.



- ① 7mm (approx. 1/4 inch)
- ② 6mm (approx. 15/64 inch)
- ③ 5mm (approx. 3/16 inch)

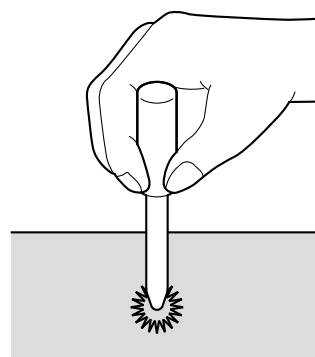
3 Lower the needle into the fabric at the beginning of the stitching, and then lower the presser foot lever.



4 Start Sewing

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

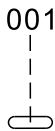
5 Use the eyelet punch to cut a hole in the center of the eyelet.



- When using the eyelet punch, place thick paper or some other protective sheet under the fabric before punching the hole in the fabric.

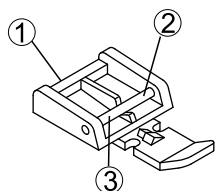
**Note**  
If thin thread is used, the stitching may be too open. If this occurs, sew the eyelet twice before removing the fabric.

## INSERT ZIPPERS AND PIPING

Stitch Name	Pattern	Stitch Length [mm(inch)]	Stitch Width [mm(inch)]
Straight Stitch	001 	0.0-5.0 (0-3/16)	0.0 (Center)

You can use the zipper foot to sew different types of zippers, and can easily position it to the right or left side of the needle.

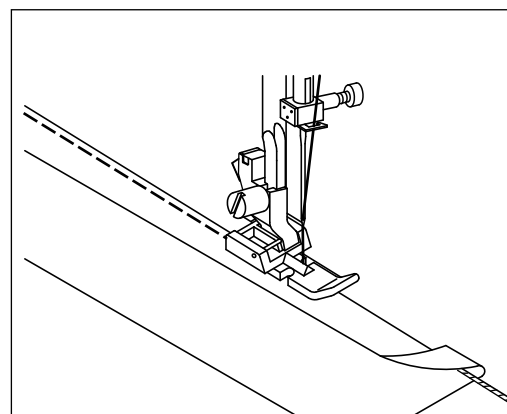
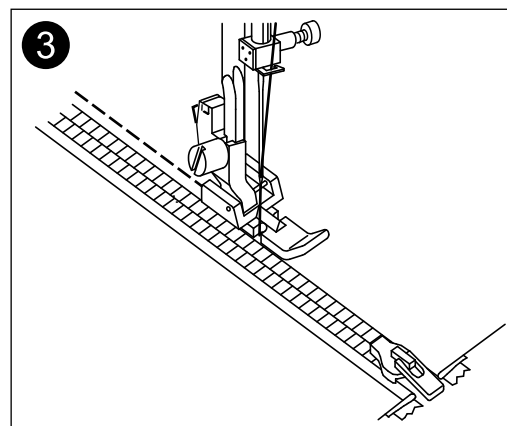
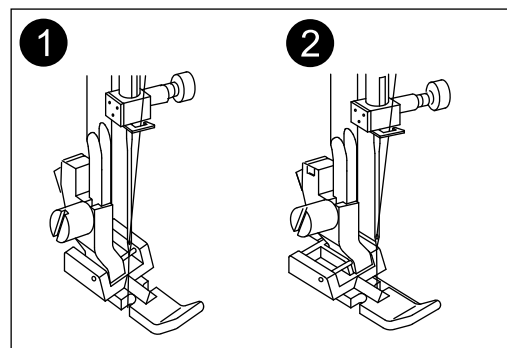
When sewing the right side of the zipper, attach the presser foot holder to the left pin of zipper foot. When sewing the left side of the zipper, attach the presser foot holder to the right pin of the zipper foot.



- ① Zipper Foot
- ② Right pin for sewing the left side of the zipper
- ③ Left pin for sewing the right side of the zipper

Align the right side or the left side of the zipper foot pin with the presser foot holder, lower the presser foot lever to attach the foot.

- ① Needle stitches to the left of foot.
- ② Needle stitches to the right of foot.
- ③ To insert zippers, consult the zipper package for instructions on how to prepare zipper placket and place zipper.




### PIPING

To insert piping, purchase pre-made piping or cover cording with a bias strip of fabric using the zipper foot snapped on to the right side of the presser foot holder. Place the piping between two layers of fabric. Stitch with the piping next to the foot, so the stitching is tight against the cord.

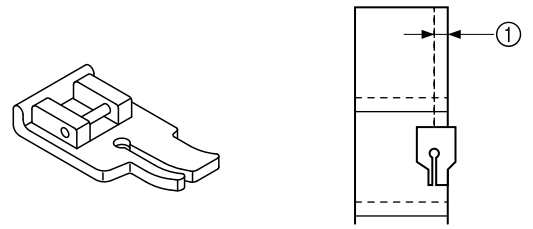
### CAUTION

- Turn the handwheel by hand to make sure the needle does not hit the zipper foot before you start sewing. Choosing a different stitch will cause the needle to hit the presser foot and break, which may damage machine or cause personal injury.
- Make sure the needle does not hit the zipper during sewing. If the needle hits the zipper, the needle may break, which may damage machine or cause personal injury.

# STRAIGHT STITCH SEAMING AND QUILTING

Stitch Name	Pattern	Stitch Length [mm(inch)]	Stitch Width [mm(inch)]
Straight Stitch	001 	0.0-5.0 (0-3/16)	0.0 (center)

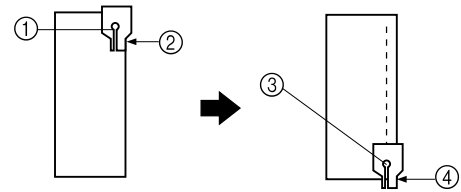
## Using the 1/4 Inch Quilting Foot



① Seam allowance 6.5 mm (1/4 inch)

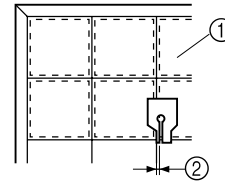
- 1 Set the pattern number to the 001 Straight Stitch. Set the stitch length between 0 (0 inch) and 5 (3/16 inch). The stitch width is auto set at 0.0 (center needle position).
- 2 Attach the 1/4 Inch Quilting Foot.
- 3 Position the presser foot over the fabric and sew as shown in the right side of illustration.

### ■ Achieving an accurate seam allowance



- ① Beginning of stitching
- ② Align this side of foot with the edge of the fabric
- ③ End of stitching
- ④ Align this side of foot with the edge of the fabric

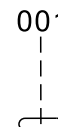
### ■ Quickly Stitch together a Quilt



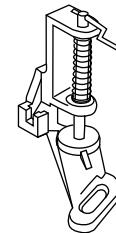
- ① Top of fabric
- ② Seam 3.2 mm (1/8 inch)


**CAUTION**  
 Only use the Straight Stitch pattern when stitching with straight stitch foot or 1/4 inch quilting foot. Choosing a different stitch pattern will cause the needle to hit the presser foot and break, which may damage machine or cause personal injury.

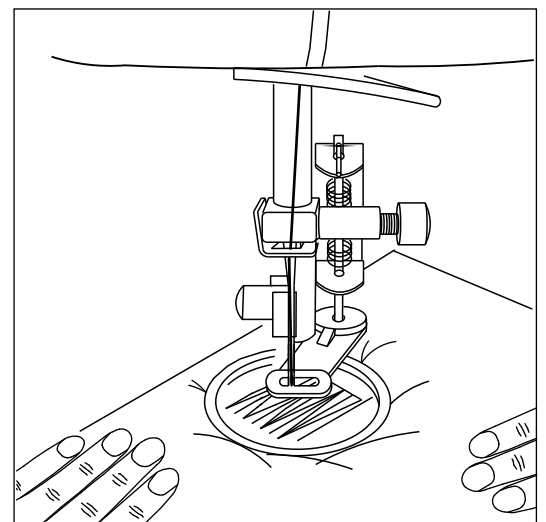
## Darning/Free Motion Quilting

Stitch Name	Pattern	Stitch Length [mm(inch)]	Stitch Width [mm(inch)]
Straight Stitch	001 	0.0-5.0 (0-3/16)	0.0 (center)

## Using Darning/Free Motion Quilting Foot



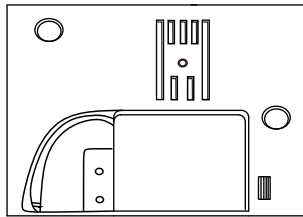
- Select straight stitch. Set needle in the center needle position.
- Using drop feed lever lower feed dog. 
- Remove the presser foot and presser foot holder. Screw the darning/free motion quilting foot onto the presser bar with the extended arm of the foot resting above the needle clamp screw.
- Holding the needle thread, take one stitch and pull up bobbin thread through the fabric.
- Lower presser foot lever and start sewing at a slow to medium speed, moving the fabric back and forth with a steady rhythm.
- Turn fabric and sew another layer of stitching across the first layer of stitching



## CAUTION

When using the free motion quilting foot, be sure to use the straight stitch needle plate and sew with the needle in the middle (center) needle position. If the needle is moved to any position other than the middle (center) needle position, the needle may break, which may result in injuries.

### 1 The straight stitch needle plate.

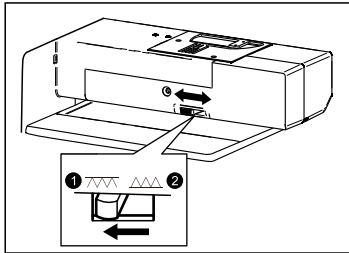


① Round hole

### Note

Notice this needle plate has a round hole for needle. When straight stitch needle plate is installed only straight stitch can be used.

### 2 Slide the feed dog position lever, located at the rear of the machine on the base, to (to the left as seen from the rear of the machine).

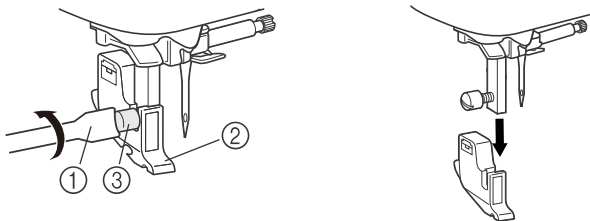


### 3 Select



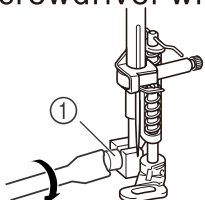
### 4 Remove the presser foot holder.

- The presser foot holder screw can also be loosened or tightened with the flathead screwdriver.


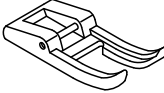
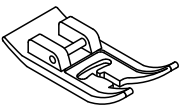

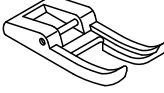
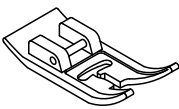

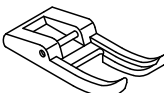
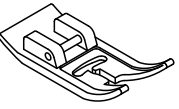

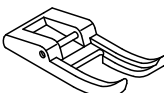
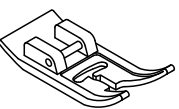

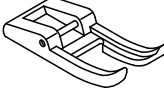
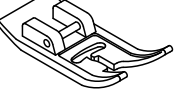

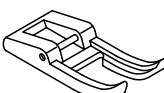
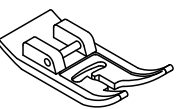


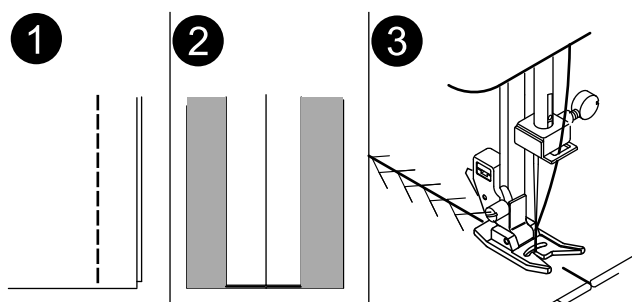
- ① Screwdriver
- ② Presser foot holder
- ③ Presser foot holder screw

### 5 Hold the quilting foot in place with your right hand, and tighten the presser foot holder screw using the screwdriver with your left hand.



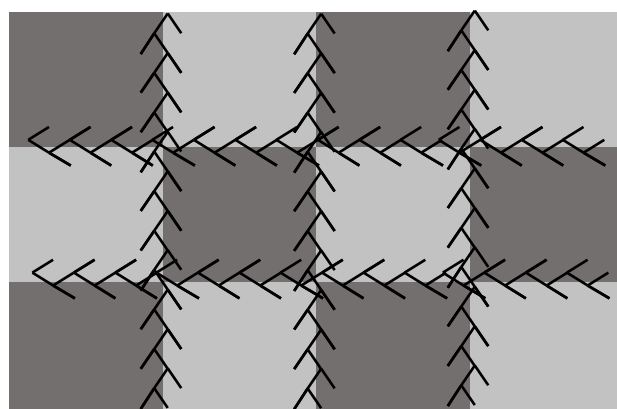
## Patch Work


Stitch Name	Pattern	Stitch Length [mm(inch)]	Stitch Width [mm(inch)]	Open Toe Foot	All Purpose Foot
Fagoting Stitch	033 	1.0-3.0 (1/16-1/8)	3.0-7.0 (1/8-1/4)		
Fagoting Stitch	035 	0.9-1.5 (1/16)	4.0-7.0 (3/16-1/4)		
Fagoting Cross Stitch	041 	1.0-2.0 (1/16)	2.5-7.0 (1/8-1/4)		
HemStitching	043 	1.0-3.0 (1/16-1/8)	2.5-7.0 (1/8-1/4)		
HoneyComb Stitch	094 	1.5-3.0 (1/16-1/8)	2.5-7.0 (1/8-1/4)		
Decorative Stippling Stitch	054 	0.8-2.0 (1/16)	3.0-7.0 (3/16-1/4)		



For additional decorative purposes, use a variety of different fabrics.

- 1 Place two piece of fabric right sides together and sew a basting stitch.
- 2 Press the seam open.
- 3 Place fabric right side up and stitch with the seam line in the center of the foot. Stitches should fall on both sides of the seam line.



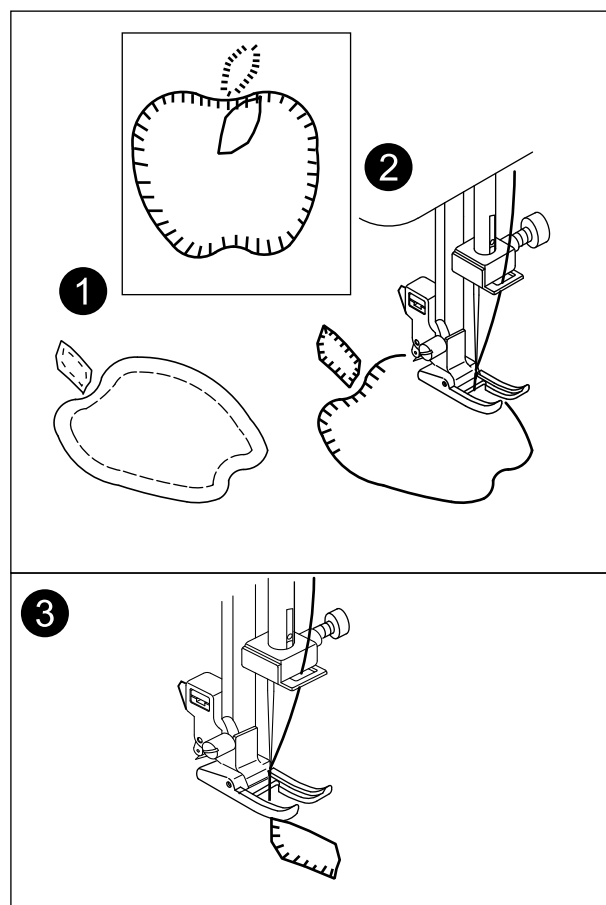
**CAUTION**  
 Make sure the needle does not hit open toe foot when the foot is used for decorative stitches. Otherwise needle may deflect and hit the foot causing damage to machine or personal injury.

# APPLIQUE


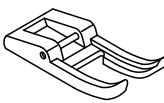
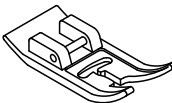

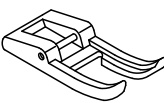
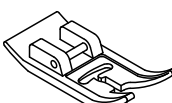

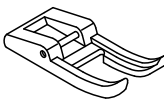
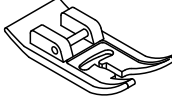
Stitch Name	Pattern	Stitch Length [mm(inch)]	Stitch Width [mm(inch)]	Open Toe Foot	All Purpose Foot
Overcasting stitch	047 	1.5-3.0 (1/16-1/8)	2.5-7.0 (1/8-1/4)		
HemStitching	046 	0.4-5.0 (1/16-3/16)	1.0-7.0 (1/16-1/4)		

- 1 Position the applique on fabric with fabric glue, fusible iron on stabilizer or basting stitches. (When using fabric with frayed edges for the applique, press under 1/4 inch on all the edges)
- 2 Sew along the edge of the applique. Align the straight part of the stitch with the edge of the applique to give this project a hand-made appearance.
- 3 When pivoting corners, lower the needle in the right side of stitch. Raise the presser foot and use the needle to pivot and turn the fabric.

**CAUTION**  
 • Make sure the needle does not hit open toe foot when the foot is used for decorative stitches. Otherwise needle may deflect and hit the foot causing damage to machine or personal injury.



# SCALLOP STITCH

Stitch Name	Pattern	Stitch Length [mm(inch)]	Stitch Width [mm(inch)]	Open Toe Foot	All Purpose Foot
Scallop Stitch	036 	0.9-2.0 (1/16)	0.0		
Scallop Stitch	037 	1.0-2.0 (1/16)	0.0		
Satin Scallop Stitch	136 	0.3-1.0 (0-1/16)	0.0		

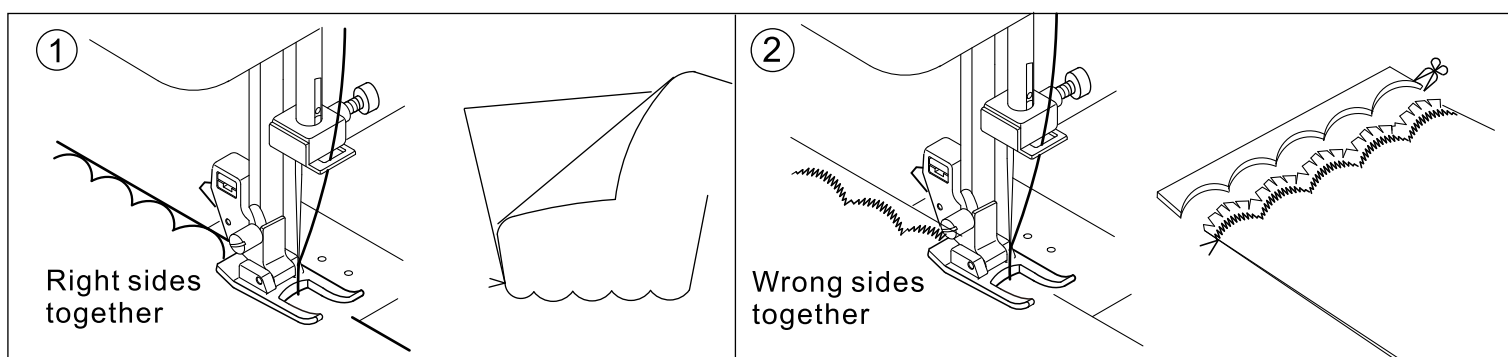
These stitches are used to sew a decorative edge on garments and table cloths using the Opening Toe Foot or the All Purpose Foot.

## 1 SCALLOP HEM

- (1) Fold the fabric with right sides together and sew near the edge.
- (2) Cut the fabric along the seam leaving an allowance of 3 mm (1/8") for seaming. Notch the allowance.
- (3) Turn fabric with right sides out and gently push out the curved seam then press.

## 2 DECORATIVE SCALLOP EDGE

- (1) Place the fabric with wrong sides together and stitch near the edge.
- (2) Trim along the outside edge of the stitching; being careful not to cut the stitching.
- (3) Use seam sealant or fabric glue to secure edges of the scallop stitching.



**CAUTION**  
 Make sure the needle does not hit open toe foot when the foot is used for decorative stitches. Otherwise needle may deflect and hit the foot causing damage to machine or personal injury.



# TWIN NEEDLE SEWING (OPTIONAL)

## Using Twin Needles

With the twin needle, you can sew parallel lines of the same stitch with two different colored threads. Both upper threads should have the same thickness and quality. Use the vertical spool pin and spool pin felt. (Refer to “C” below)



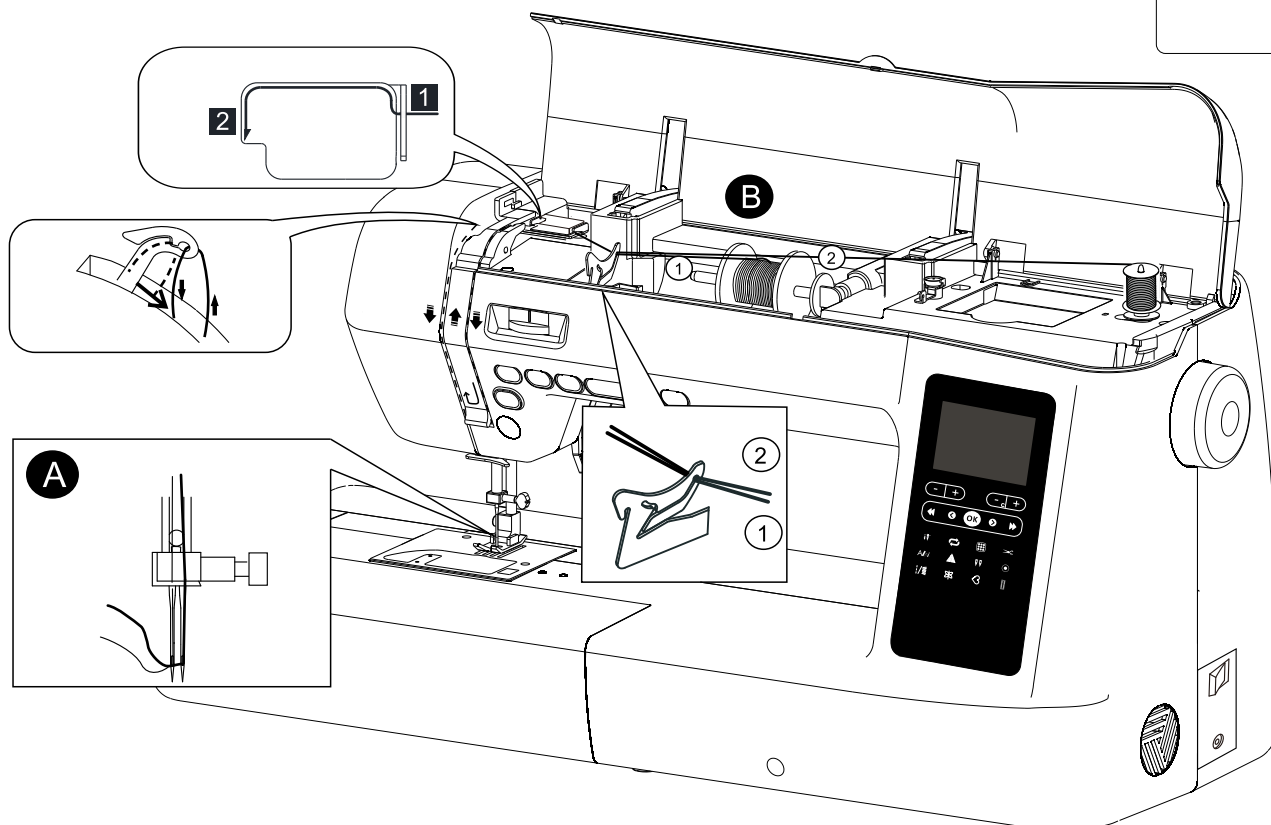
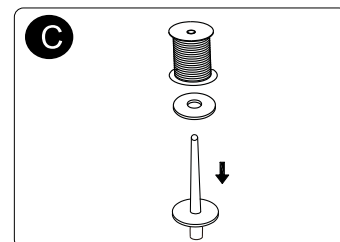
Never use bent needles. Bent needles can easily break, possibly resulting in injuries.

## Installing Twin Needle & Threading

1. Remove the single needle and insert twin needle(A). (See page 11)
2. Guide spool thread from horizontal spool pin (1) using normal threading procedure (B). (See page 12)
3. Thread the left needle eye by hand from needle front to back (A).
4. Insert vertical spool pin with spool pin felt and thread spool on the bobbin winding shaft located at the right side of the horizontal spool pin (1).
5. Guide spool thread from vertical spool pin (2) and thread machine same as Step 2 above.
6. For better sewing results, do not pass second thread through needle bar threading guide, thread right needle eye by hand from front to back (A).
7. Refer to twin needle procedures as outlined in illustrations.



Needle threader cannot be used with twin needle, it may cause damage to machine.



# TWIN NEEDLE SEWING

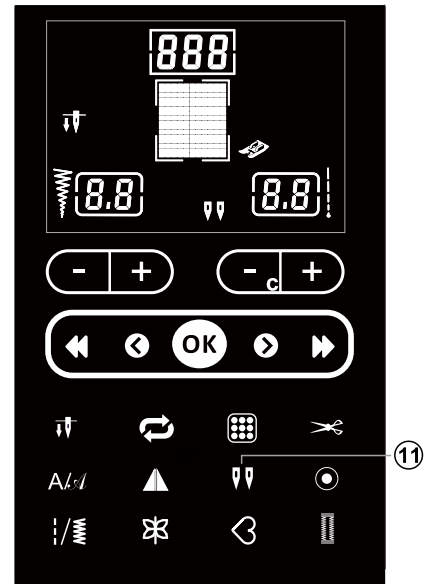
## Twin Needle Setting

Set Twin Needle mode on, please see detail refer to page 17.

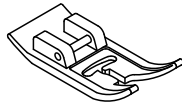
### ⑪ Twin Needle Key

When this button is touched a sign of Twin needle will be shown on the screen, and then this mode is activated.

When Twin Needle setting is On, the only the patterns that can be selected are shown in the tables on page 41-42. All maximum stitch widths are limited to 3.5mm.



## All Purpose Presser Foot



For detail on changing the presser foot, please refer to page 11. The stitch width must be adjusted to 3.5 mm **only**, for safety reasons. The needle must be checked to make sure it safely clears the presser foot, and needle plate, by slowly turning the handwheel manually.



When using twin needle, be sure to attach All Purpose foot and always check that the needles do not touch needle plate and presser foot, otherwise, the needle may break or damage the machine.

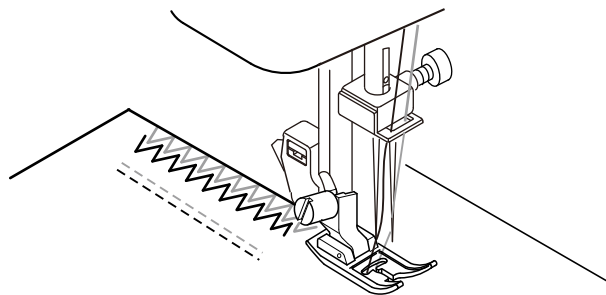


When using the twin needle be sure Twin Needle mode is on and Stitch Width is set within 4.5mm. Otherwise the needle may break or the machine may be damaged.

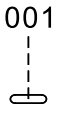

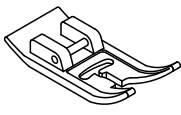
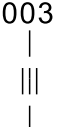






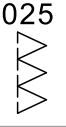
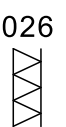
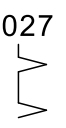


## Start to sew


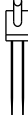
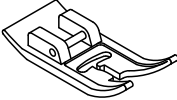












Two lines of stitching are sewn parallel to each other.

(Please refer to page 21 for details for Starting to sew)



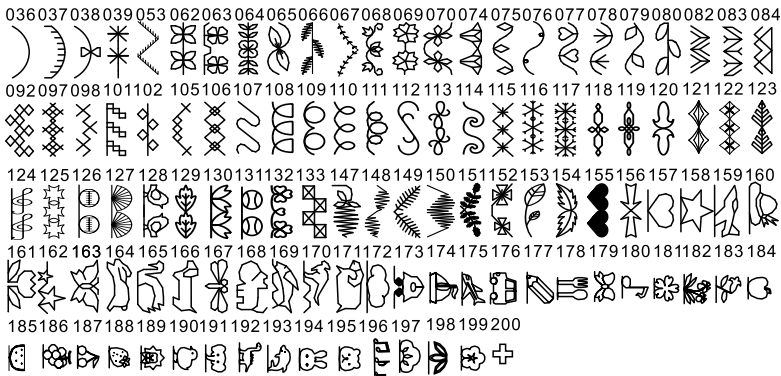
When changing the sewing direction raise the needles from the fabric by turning handwheel or pressing Needle position button, and then raise the presser foot lever and turn direction of the fabric. Do not try turning the fabric while twin needle is still in the fabric, otherwise the needle may break or the machine may be damaged.

Stitch Name	Pattern	Stitch Length [mm(inch)]	Stitch Width [mm(inch)]	Needle Type	All Purpose Foot
Straight Stitch	001 	0.0-5.0 (0-3/16)	0.0	 2.0/90 3.0/90 4.0/90 5.0/90	
Quilt stitch	003 	1.0-4.0 (1/16-3/16)	3.5 (1/8)		
Stem stitch	004 	0.5-4.5 (0-3/16)	1.0-3.0 (1/16-1/8)		
Triple stretch stitch	005 	1.0-4.0 (1/16-3/16)	3.5 (1/8)		
Zigzag	006 	0.0-4.5 (0-3/16)	0.0-3.5 (0-1/8)		
3-step elastic zigzag stitch	022 	0.3-2.0 (0-1/16)	3.0 (1/8)		
Satin zigzag stitch	023 	0.3-3.5 (0-1/8)	1.0-3.0 (1/16-1/8)		
Rick-rack	024 	2.0-4.0 (1/16-3/16)	2.5-3.5 (1/8)		
Overlock	025 	1.0-3.0 (1/16-1/8)	2.5-3.5 (1/8-3/16)		
Double over lock	026 	1.0-3.0 (1/16-1/8)	2.5-3.5 (1/8)		
Shell	027 	0.4-5.0 (0-3/16)	1.0-3.5 (1/16-1/8)		
Blind hem	028 	0.4-5.0 (0-3/16)	1.0-3.5 (1/16-1/8)		
Blind hem stretch stitch	029 	0.4-3.5 (0-1/8)	2.5-3.5 (1/8)		

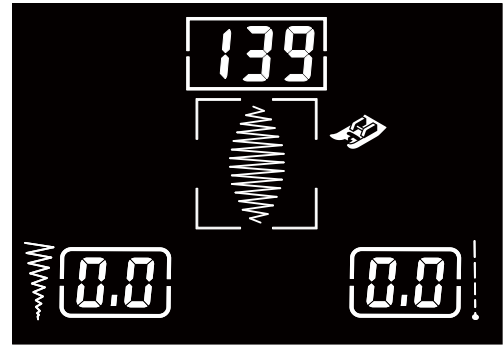
Stitch Name	Pattern	Stitch Length [mm(inch)]	Stitch Width [mm(inch)]	Needle Type	All Purpose Foot
Double action	030 	0.4-3.5 (0-1/8)	2.5-3.5 (1/8)	 2.0/90 3.0/90 4.0/90 5.0/90	
Bridging	031 	0.4-3.5 (0-1/8)	2.5-3.5 (1/8)		
Feather	032 	1.0-3.0 (1/16-1/8)	2.5-3.5 (1/8)		
Fagoting stitch	033 	1.0-3.0 (1/16-1/8)	3.0 (1/8)		
Fagoting cross stitch	041 	1.0-2.0 (1/16)	2.5-3.5 (1/8)		
Ladder stitch	042 	1.0-3.0 (1/16-1/8)	2.5-3.5 (1/8)		
Hemstitching	043 	1.0-3.0 (1/16-1/8)	2.5-3.5 (1/8)		
Overcasting	044 	1.5-3.5 (1/16-1/8)	2.5-3.5 (1/8)		
Decorative applique	045 	0.4-5.0 (0-3/16)	1.0-1.5 (1/16)		
Decorative applique	046 	0.4-5.0 (0-3/16)	1.0-1.5 (1/16)		
Decorative overcasting	047 	1.5-3.0 (1/16-1/8)	2.5-3.5 (1/8)		
Decorative	048 	1.5-3.0 (1/16-1/8)	2.5-3.5 (1/8)		
Hemstitching	049 	1.5-3.0 (1/16-1/8)	2.5-3.5 (1/16-1/8)		

# DECORATIVE SEWING

## 7.0mm Decorative Stitches



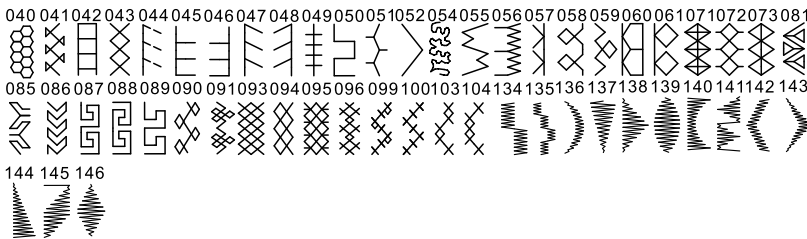
- 1 Select a 7.0mm decorative stitch by inputting numeric keys.



- 2 Stitch Width cannot be adjusted, the 7.0mm all purpose foot must be used.

Stitch Name	Stitch Length mm	Stitch Width mm	Open Toe Foot
Decorative Stitches	0.0 (Nonadjustable)	0.0 (Nonadjustable) Max.7.0mm	

## Adjustable Decorative Stitches

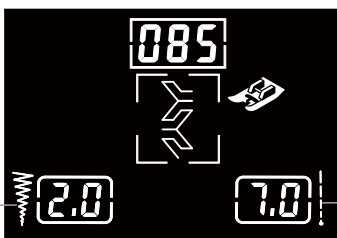


### Note

Stitches 157-200 are single motifs. To stitch a continuous line of these motifs, choose the Memory Mode button and use the OK button to increase the number of repeats.

Stitch Name	Stitch Length mm	Stitch Width mm	Open Toe Foot
Decorative Stitches	0.3 (Adjustable)	7.0 (Adjustable)	

- 1 Select a adjustable decorative stitch by inputting numeric keys.



- 1 Stitch Width
- 2 Stitch Length

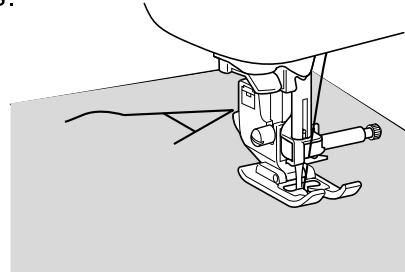
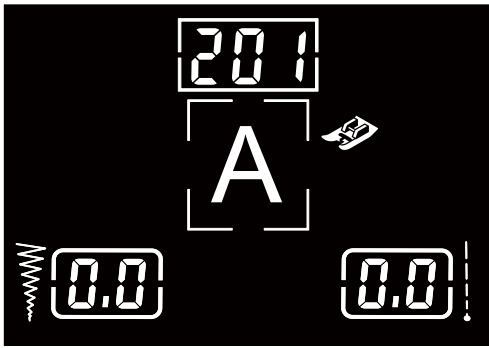
- 2 Touch stitch length or width key can enter to adjusting mode, and touching Up & Down key for adjustment.

## Character Stitches

Stitch Name	Stitch Length mm	Stitch Width mm	Open Toe Foot
Character Stitches	0.0 (Nonadjustable)	0.0 (Nonadjustable)	



201	Arial
A	
301	Handwriting
	

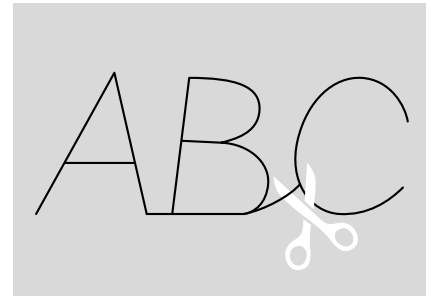
- 1 Select a character stitch by inputting numeric keys.



- When sewing is completed, trim any excess

## Combining patterns

- 1 Touch Memory button into Memory mode, the user start memory function.  

- 2 Press left or right arrow for selecting pattern.
- 3 When OK button is touched the selected pattern is saved.
- 4 Press  button to start sewing when all desired patterns are saved.



- When sewing is completed, trim any excess



### Note

Buttonhole stitches/Sew-on button cannot be set in Memory mode.

Operation of Memory Mode refers to page 17 for more detail.

## CARING FOR YOUR MACHINE

To ensure the best possible operation of your machine, it is necessary to keep the essential parts clean at all times. Always disconnect the machine from power supply by removing the plug from the electric outlet.

### CAUTION

- Please switch off the main power switch and then disconnect plug from electric outlet before you start cleaning.

### CLEANING THE FEED DOG AND HOOK AREA

- 1 Raise the needle to its highest position.
- 2 Remove the bobbin cover and bobbin.
- 3 Remove the needle plate (1).
- 4 Remove the bobbin case (2).
- 5 Clean the feed dog and hook area with the lint brush.

### Note

- Put a drop of good quality sewing machine oil on the hook race as indicated by arrow A.
- 6 Replace the bobbin case with the projection (3) positioned against the spring (4). Replace the needle plate.

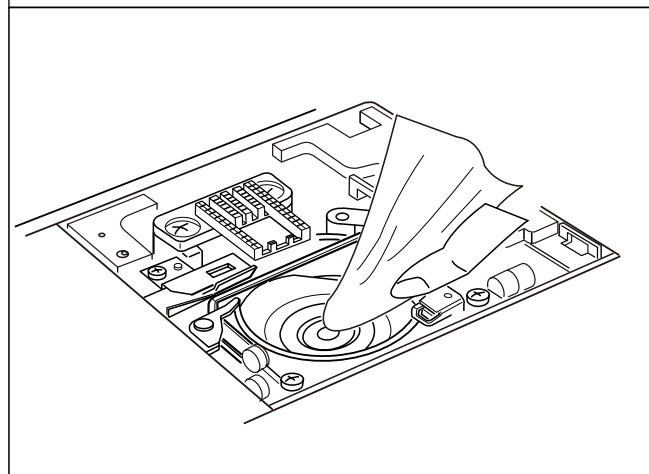
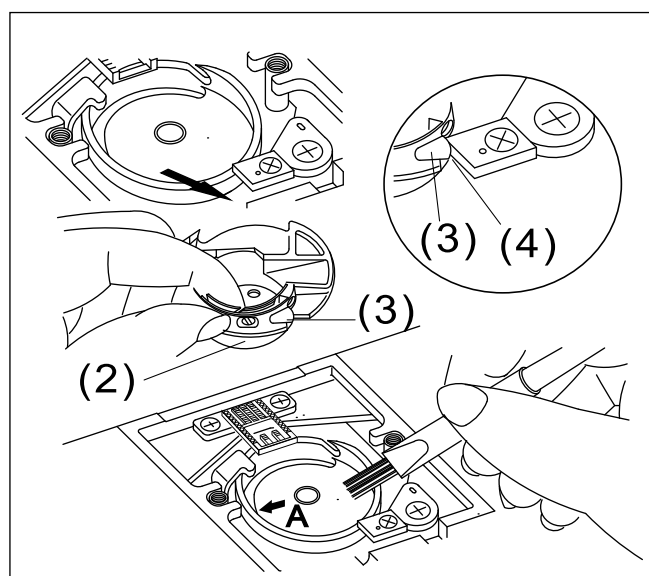
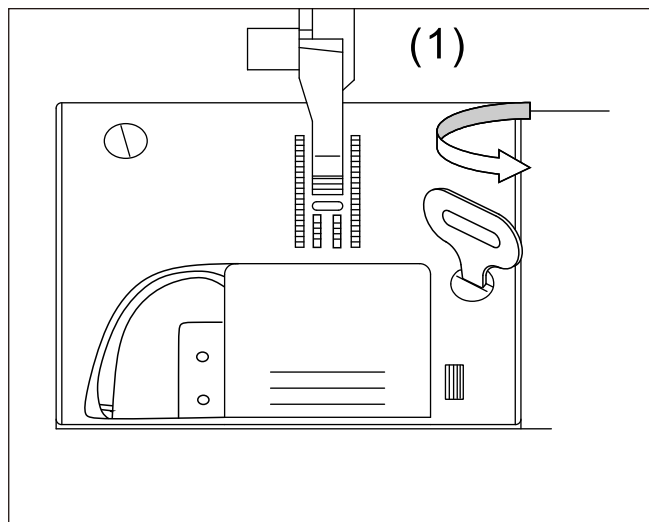
### CAUTION

- Never use a bobbin case that is scratched; otherwise the upper thread may become tangled, the needle may break, or sewing performance may suffer.
- Make sure that you fit the bobbin case properly, otherwise the needle may break and damage machine or cause personal injury.

### Important Maintenance Message

It is recommended to take your machine to an authorized retailer for regular maintenance.

Such steps will help to ensure you receive continued, uninterrupted hours of machine operation for the future.



## TROUBLESHOOTING

If the machine stops working properly, check the following possible causes and corrections. If the problem is still there, contact your authorized retailer.



















PROBLEM	CAUSE	CORRECTION	PAGE
Upper thread breaks	<ul style="list-style-type: none"> <li>● Machine not properly threaded.</li> <li>● Thread entwined around bobbin.</li> <li>● Needle inserted incorrectly.</li> <li>● Thread tension too tight.</li> <li>● Thread of incorrect size or poor quality.</li> </ul>	Re-thread machine.	14
		Remove entwined thread.	13
		Re-insert needle.	11
		Readjust thread tension.	19
		Choose correct thread.	20
Lower thread breaks	<ul style="list-style-type: none"> <li>● Bobbin threaded incorrectly.</li> <li>● Bobbin wound unevenly or too full.</li> <li>● Dirt in the bobbin and hook area.</li> </ul>	Re-thread the bobbin.	13
		Rewind the bobbin.	12
		Clean the bobbin and hook area.	44
Machine skips stitches	<ul style="list-style-type: none"> <li>● Needle inserted incorrectly.</li> <li>● Bent or blunt needle.</li> <li>● Incorrect size of needle on stretch fabric.</li> </ul>	Re-insert needle.	11
		Insert new needle.	11
		Choose correct size of needle for fabric.	20
		Use stretch needle	20
Fabric puckers	<ul style="list-style-type: none"> <li>● Machine not properly threaded.</li> <li>● Bobbin threaded incorrectly.</li> <li>● Blunt needle.</li> <li>● Thread tension too tight.</li> </ul>	Re-thread machine.	14
		Re-thread the bobbin.	13
		Insert new needle.	11
		Readjust thread tension.	19
Machine makes loose stitches or loops	<ul style="list-style-type: none"> <li>● Bobbin threaded incorrectly.</li> <li>● Machine not properly threaded.</li> <li>● Tension not adjusted properly.</li> </ul>	Re-thread the bobbin.	13
		Re-thread machine.	14
		Readjust thread tension.	19
Threader does not thread needle eye	<ul style="list-style-type: none"> <li>● Needle is not raised to highest position.</li> <li>● Needle inserted incorrectly.</li> <li>● Bent needle.</li> <li>● Eye of needle too small</li> <li>● Hook pin on threader bent</li> </ul>	Raise the needle.	14
		Re-insert needle.	11
		Insert new needle.	11
		Insert needle size 11 or higher	20
		See authorized retailer	15
Machine does not feed properly	<ul style="list-style-type: none"> <li>● Feed dog is lowered.</li> <li>● Lint and dust accumulated around feed dog.</li> <li>● Presser foot is not lowered.</li> <li>● Buttonhole Sewing Mode: <ul style="list-style-type: none"> <li>– Buttonhole lever is not lowered completely.</li> <li>– Buttonhole foot is not attached.</li> </ul> </li> </ul>	Raise the feed dog.	16
		Clean the feed dog area.	44
		Lower the presser foot.	11
		–Lower the buttonhole lever.	27
Needle breaks	<ul style="list-style-type: none"> <li>● Fabric pulled while sewing.</li> <li>● Needle is hitting the presser foot.</li> <li>● Needle inserted incorrectly.</li> <li>● Incorrect size needle or thread for fabric being sewn.</li> <li>● Needle is bent.</li> </ul>	Do not pull fabric.	20
		Select correct foot, pattern and needle position.	20
		Re-insert needle.	11
		Choose correct size needle and thread.	20
Machine runs with difficulty	<ul style="list-style-type: none"> <li>● Dirt or lint accumulated in the hook race and feed dog.</li> </ul>	Insert new needle.	11
		Remove the needle plate and bobbin case and clean the hook race and feed dog.	44
Machine will not run	<ul style="list-style-type: none"> <li>● Cord not plugged into electrical outlet.</li> <li>● Main power switch is not turned on.</li> <li>● Bobbin winder shaft is pushed to the right.</li> </ul>	Insert plug fully into outlet.	10
		Turn on the main power switch.	10
		Push shaft to the left.	12





















## TROUBLESHOOTING

PROBLEM	CAUSE	CORRECTION	PAGE
Nothing appears in the LCD	<ul style="list-style-type: none"> <li>• Main Power switch is not turned on.</li> <li>• The plug of the power cord is not inserted into an electrical outlet.</li> <li>• Hot source is near the LCD such as direct sunlight or heating items.</li> </ul>	<ul style="list-style-type: none"> <li>• Turn the main power on.</li> <li>• Insert the plug of the power cord into an electrical outlet.</li> <li>• Switch off the power until machine temperature has cooled.</li> </ul>	<p>10</p> <p>10</p> <p>10</p>
LCD screen is fogged up.	<ul style="list-style-type: none"> <li>• Condensation has formed on the LCD screen.</li> </ul>	<ul style="list-style-type: none"> <li>• After a while, the cloudiness will disappear.</li> </ul>	–
The operation keys do not respond.	<ul style="list-style-type: none"> <li>• The keys are pressed with a fingernail.</li> <li>• A non-electrostatic touch pen is used.</li> </ul>	<ul style="list-style-type: none"> <li>• Directly touch the operation keys with your finger.</li> <li>• When using a commercially available touch pen, make sure that it is compatible with capacitive sensing.</li> </ul>	<p>18</p> <p>18</p>

# STITCH REFERENCE CHART

Stitch Name	Pattern	Application	Stitch Length [mm]		Stitch Width [mm]		REF. PAGE NO.
			Auto	Manual	Auto	Manual	
Straight stitch (Center Position)	001 	Attaching Zippers, basic stitch and sewing gathers or pintucks, etc	2.5	0.0~5.0	0.0	0.0	P.21, 22, 33,34, 35,41
Straight Stitch (Left-Center-Right Needle position)	002 	Basic stitching, Sewing gathers or pintucks, etc	2.5	0.0~5.0	0.0	0.0-3.5-7.0	P.21
Quilt Stitch [Left-Centre-Right Needle position]	003 	Straight stitch quilting that looks hand-sewn	3.0	1.0~4.0	3.5	0.0-3.5-7.0	P.41
Stem Stitch	004 	Sewing stretch fabrics and decorative stitching	3.0	0.5~4.5	2.0	1.0~7.0	P.41
Triple stretch Stitch	005 	Attaching sleeves, sewing in seams, sewing stretch fabric and decorative stitching.	3.0	1.0~4.0	3.5	0.0-3.5-7.0	P.26,41
Zigzag	006 	Overcasting and attaching applique's	2.5	0.0~4.5	5.5	0.0~7.0	P.23,25,41
Bartack Buttonhole	007 	Buttonhole for stretch fabric	0.4	0.2~0.8	0.0	0.0	P.27,28
Buttonhole	008 	Buttonhole for stretch fabric	0.4	0.2~0.8	0.0	0.0	P.27,28
Keyhole Buttonhole	009 	Keyhole buttonhole for thick or furry fabric	0.4	0.3~0.8	0.0	0.0	P.27,28
Keyhole Buttonhole	010 	Keyhole buttonhole for thick or furry fabric	0.4	0.3~0.8	0.0	0.0	P.27,28
Buttonhole	011 	Buttonhole on thin, medium weight fabric	0.4	0.3~0.8	0.0	0.0	P.27,28
Buttonhole	012 	Buttonhole on thin, medium weight fabric	0.4	0.3~0.8	0.0	0.0	P.27,28
Buttonhole	013 	Horizontal buttonholes on thin, medium weight fabric	0.4	0.3~0.8	0.0	0.0	P.27,28
Buttonhole	014 	Buttonhole on thin, medium weight fabric	0.4	0.3~0.8	0.0	0.0	P.27,28
Buttonhole	015 	Buttonholes for stretch or knit fabric	0.5	0.3~0.8	6.0	5.0-6.0-7.0	P.27
Buttonhole	016 	Buttonholes for stretch fabric	0.5	0.3~0.8	6.0	5.0-6.0-7.0	P.27
Bar tack Stitch	017 	Reinforcing openings and areas where the seam easily comes loose	0.4	0.3~1.0	2.0	1.0-5.0	P.27
Bound buttonhole stitch	018 	Bound buttonholes	0.5	0.3~0.8	6.0	5.0-6.0-7.0	P.27,29



















# STITCH REFERENCE CHART

Stitch Name	Pattern	Application	Stitch Length [mm]		Stitch Width [mm]		REF. PAGE NO.
			Auto	Manual	Auto	Manual	
Darning Stitch	019 	Darning thick fabrics	0.5	0.3~0.8	0.0	0.0	P.27,31
Eyelet stitch	020 	Sewing eyelets, for example, on belts	0.0	0.0	6.0	4.0~7.0	P.32
Button sewing stitch	021 	Button sewing	0.0	0.0	5.0	0.0~7.0	P.30
3-Step elastic zigzag stitch	022 	Overcasting and medium weight or stretch fabric, attaching elastic, darning, etc	1.0	0.3~2.0	6.0	3.0~7.0	P.25,26,41
Satin stitch	023 	Satin stitching	0.7	0.3~3.5	5.5	1.0~7.0	P.23,41
Rick-rack	024 	Decorative stitching, elastic stitching	3.5	2.0~4.0	5.5	2.5~7.0	P.26,41
Over-lock	025 	Overcasting on thin or medium weight fabric	3.0	1.0~3.0	5.5	2.5~7.0	P.24,41
Double-overlock	026 	Decorative hemming on thin, medium weight and plain weave fabric, heirloom stitching, etc.	2.5	1.0~3.0	5.5	2.5~7.0	P.25,41
Shell	027 	Overcasting on thin or medium weight fabrics	2.0	0.4~5.0	3.5	1.0~6.0	P.24,41
Blind hem	028 	Blind hem stitching on medium weight fabric	2.0	0.4~5.0	3.5	1.0~6.0	P.23,41
Blind hem stretch stitch	029 	Blind hem stitching on stretch fabric	2.0	0.4~3.5	4.5	2.5~7.0	P.23,41
Double action	030 	Attaching elastic to stretch fabrics	2.0	0.4~3.5	5.5	2.5~7.0	P.42
Bridging	031 	Patchwork stitching and decorative stitching	2.0	0.4~3.5	5.5	2.5~7.0	P.42
Feather	032 	Decorative stitching, patchwork	2.0	1.0~3.0	5.5	2.5~7.0	P.42
Fagoting stitch	033 	Fagoting, patchwork and decorative stitching	2.5	1.0~3.0	7.0	3.0~7.0	P.36,42
Decorative	034 	Decorative stitching	2.5	1.0~3.0	7.0	3.0~7.0	
Fagoting stitch	035 	Decorative stitch	1.5	0.9~1.5	7.0	4.0~7.0	P.36
Scallop stitch	036 	Decorative stitching	1.5	0.9~2.0	0.0	0.0	P.38,43



















# STITCH REFERENCE CHART

Stitch Name	Pattern	Application	Stitch Length [mm]		Stitch Width [mm]		REF. PAGE NO.
			Auto	Manual	Auto	Manual	
Scallop stitch	037 	Decorative stitching	2.0	1.0~2.0	0.0	0.0	P.38,43
Scallop stitch	038 	Decorative stitching	1.5	1.0~2.0	0.0	0.0	P.43
Decorative	039 	Decorative stitching	0.0	0.0	0.0	0.0	P.43
Decorative	040 	Decorative stitching	2.0	1.0~2.0	7.0	5.0~7.0	P.43
Fagoting cross stitch	041 	Decorative stitching	2.0	1.0~2.0	5.5	2.5~7.0	P.36,42,43
Ladder stitch	042 	Decorative stitching	3.0	1.0~3.0	5.5	2.5~7.0	P.42,43
Hemstitching	043 	Decorative stitching	2.0	1.0~3.0	4.5	2.5~7.0	P.25,36,42,43
Overcasting	044 	Overcasting on thick or stretch fabrics, applique	2.5	1.5~3.5	4.5	2.5~7.0	P.24,42,43
Decorative applique	045 	Applique, decorative stitching	3.0	0.4~5.0	4.0	1.0~7.0	P.42,43
Decorative	046 	Applique, decorative stitching	3.0	0.4~5.0	4.0	1.0~7.0	P.37,42,43
Decorative overcasting	047 	Applique, decorative stitching	2.2	1.5~3.0	4.5	2.5~7.0	P.24,37,42,43
Decorative	048 	Applique, decorative stitching	2.2	1.5~3.0	4.5	2.5~7.0	P.42,43
Hemstitching	049 	Decorative hemming on thick medium weight and plain weave fabrics, heirloom stitching, etc	2.6	1.5~3.0	5.5	2.5~7.0	P.42,43
Quilting stitch	050 	Patchwork stitches, decorative stitching	2.5	1.0~3.5	5.5	2.5~7.0	P.43
Hemstitching	051 	Decorative hems and bridging stitch	3.0	1.5~3.5	7.0	2.5~7.0	P.43
Decorative stitch	052 	Decorative stitching	3.0	1.0~3.5	5.5	2.5~7.0	P.43
Decorative stitch	053 	Decorative stitching	0.0	0.0	0.0	0.0	P.43
Decorative stippling stitch	054 	Decorative stitching	2.0	0.8~2.0	5.5	3.0~7.0	P.36,43



















# STITCH REFERENCE CHART

Stitch Name	Pattern	Application	Stitch Length [mm]		Stitch Width [mm]		REF. PAGE NO.
			Auto	Manual	Auto	Manual	
Hemstitching	055 	Decorative stitch	2.5	1.5~3.5	5.5	4.0~7.0	P.43
Blind hem stretch stitch	056 	Decorative stitch	1.0	0.3~2.0	5.5	2.5~7.0	P.43
Decorative stitch	057 	Decorative stitch	3.0	1.5~3.5	5.0	2.0~6.0	P.43
Decorative stitch	058 	Decorative stitch	3.0	1.5~3.5	7.0	2.5~7.0	P.43
Decorative stitch	059 	Decorative stitch	3.0	1.5~3.5	7.0	2.5~7.0	P.43
Decorative stitch	060 	Decorative stitch	3.0	1.5~3.5	7.0	2.5~7.0	P.43
Decorative stitch	061 	Decorative stitch	3.0	1.5~3.5	5.5	2.5~7.0	P.43
Decorative stitch	062 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	063 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	064 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	065 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	066 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	067 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	068 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	069 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	070 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	071 	Decorative stitch	3.0	1.0~3.0	7.0	2.5~7.0	P.43
Decorative stitch	072 	Decorative stitch	2.0	1.0~2.0	7.0	4.0~7.0	P.43



















# STITCH REFERENCE CHART

Stitch Name	Pattern	Application	Stitch Length [mm]		Stitch Width [mm]		REF. PAGE NO.
			Auto	Manual	Auto	Manual	
Decorative stitch	073 	Decorative stitch	3.5	1.5~3.5	7.0	2.5~7.0	P.43
Decorative stitch	074 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	075 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	076 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	077 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	078 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	079 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	080 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	081 	Decorative stitch	2.0	1.0~2.0	7.0	4.0~7.0	P.43
Decorative stitch	082 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	083 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	084 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	085 	Decorative stitch	2.0	1.0~2.0	7.0	4.0~7.0	P.43
Decorative stitch	086 	Decorative stitch	2.0	1.0~2.0	7.0	4.0~7.0	P.43
Decorative stitch	087 	Decorative stitch	3.5	1.5~3.5	7.0	3.0~7.0	P.43
Decorative stitch	088 	Decorative stitch	3.5	1.5~3.5	7.0	3.0~7.0	P.43
Decorative stitch	089 	Decorative stitch	3.5	1.5~3.5	7.0	3.0~7.0	P.43
Decorative stitch	090 	Decorative stitch	2.0	1.0~2.0	7.0	4.0~7.0	P.43

# STITCH REFERENCE CHART



















Stitch Name	Pattern	Application	Stitch Length [mm]		Stitch Width [mm]		REF. PAGE NO.
			Auto	Manual	Auto	Manual	
Decorative stitch	091 	Decorative stitch	2.0	1.0~2.0	7.0	4.0~7.0	P.43
Honeycomb stitch	092 	Heirloom, decorative hems	2.0	1.0~2.0	0.0	0.0	P.43
Honeycomb stitch	093 	Heirloom, decorative hems	3.0	1.0~3.0	7.0	4.0~7.0	P.43
Honeycomb stitch	094 	Heirloom, decorative hems	3.0	1.5~3.0	5.5	2.5~7.0	P.36,34
Decorative stitch	095 	Decorative stitch	3.0	1.0~3.0	7.0	4.0~7.0	P.43
Decorative stitch	096 	Decorative stitch	1.5	0.9~2.0	7.0	5.0~7.0	P.43
Decorative stitch	097 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	098 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	099 	Decorative stitch	1.5	0.9~1.5	7.0	4.0~7.0	P.43
Decorative stitch	100 	Decorative stitch	1.5	0.9~1.5	7.0	4.0~7.0	P.43
Decorative stitch	101 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	102 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	103 	Decorative stitch	1.5	1.0~2.0	7.0	4.0~7.0	P.43
Decorative stitch	104 	Decorative stitch	1.5	1.0~2.0	7.0	4.0~7.0	P.43
Decorative stitch	105 	Decorative stitch	2.0	1.0~2.0	0.0	0.0	P.43
Decorative stitch	106 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	107 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	108 	Decorative stitch	0.0	0.0	0.0	0.0	P.43

# STITCH REFERENCE CHART



















Stitch Name	Pattern	Application	Stitch Length [mm]		Stitch Width [mm]		REF. PAGE NO.
			Auto	Manual	Auto	Manual	
Decorative stitch	109 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	110 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	111 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	112 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	113 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	114 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	115 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	116 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	117 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	118 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	119 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	120 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	121 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	122 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	123 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	124 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	125 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	126 	Decorative stitch	0.0	0.0	0.0	0.0	P.43





















# STITCH REFERENCE CHART

Stitch Name	Pattern	Application	Stitch Length [mm]		Stitch Width [mm]		REF. PAGE NO.
			Auto	Manual	Auto	Manual	
Decorative stitch	127 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	128 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	129 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	130 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	131 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	132 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	133 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	134 	Decorative stitch	0.6	0.3~1.0	7.0	4.0~7.0	P.43
Decorative stitch	135 	Decorative stitch	0.6	0.3~1.0	7.0	4.0~7.0	P.43
Satin Scallop stitch	136 	Decorative stitch	0.6	0.3~1.0	0.0	0.0	P.38,34
Decorative stitch	137 	Decorative stitch	0.6	0.3~0.8	0.0	0.0	P.43
Decorative stitch	138 	Decorative stitch	0.6	0.3~0.8	0.0	0.0	P.43
Decorative stitch	139 	Decorative stitch	0.6	0.3~0.8	0.0	0.0	P.43
Decorative stitch	140 	Decorative stitch	0.6	0.3~0.8	0.0	0.0	P.43
Decorative stitch	141 	Decorative stitch	0.6	0.3~0.8	0.0	0.0	P.43
Decorative stitch	142 	Decorative stitch	0.6	0.3~0.8	0.0	0.0	P.43
Decorative stitch	143 	Decorative stitch	0.6	0.3~0.8	0.0	0.0	P.43
Decorative stitch	144 	Decorative stitch	0.6	0.3~0.8	0.0	0.0	P.43



















# STITCH REFERENCE CHART

Stitch Name	Pattern	Application	Stitch Length [mm]		Stitch Width [mm]		REF. PAGE NO.
			Auto	Manual	Auto	Manual	
Decorative stitch	145 	Decorative stitch	0.6	0.3~0.8	0.0	0.0	P.43
Decorative stitch	146 	Decorative stitch	0.6	0.3~0.8	0.0	0.0	P.43
Decorative stitch	147 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	148 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	149 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	150 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	151 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	152 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	153 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	154 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	155 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	156 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	157 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	158 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	159 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	160 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	161 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	162 	Decorative stitch	0.0	0.0	0.0	0.0	P.43

# STITCH REFERENCE CHART

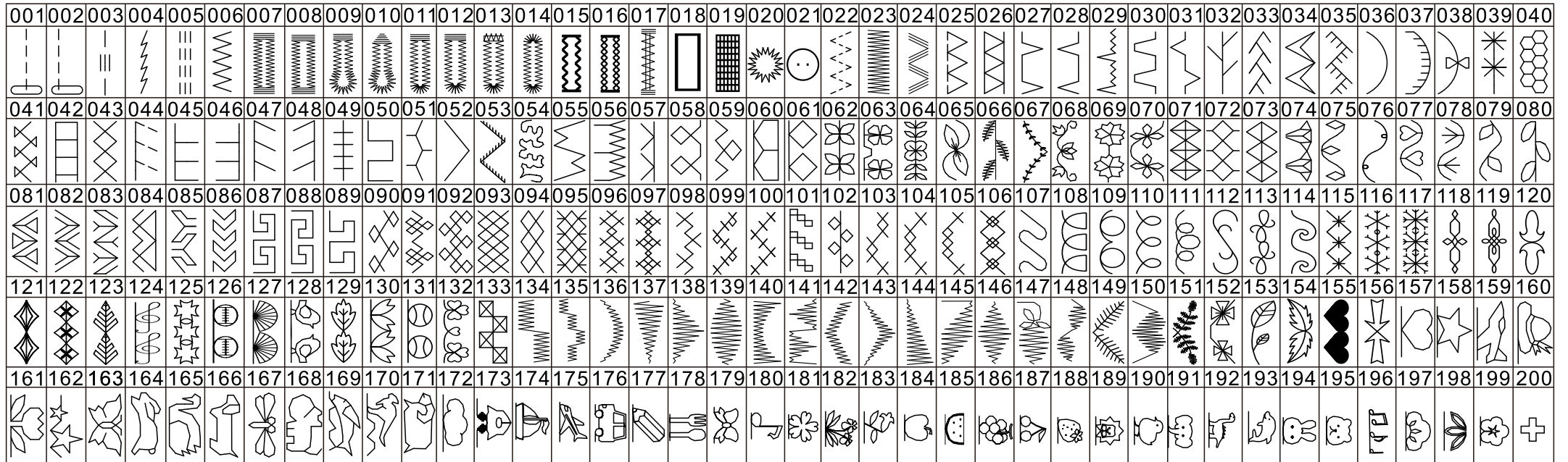
Stitch Name	Pattern	Application	Stitch Length [mm]		Stitch Width [mm]		REF. PAGE NO.
			Auto	Manual	Auto	Manual	
Decorative stitch	163 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	164 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	165 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	166 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	167 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	168 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	169 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	170 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	171 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	172 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	173 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	174 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	175 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	176 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	177 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	178 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	179 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	180 	Decorative stitch	0.0	0.0	0.0	0.0	P.43

# STITCH REFERENCE CHART

Stitch Name	Pattern	Application	Stitch Length [mm]		Stitch Width [mm]		REF. PAGE NO.
			Auto	Manual	Auto	Manual	
Decorative stitch	181 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	182 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	183 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	184 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	185 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	186 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	187 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	188 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	189 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	190 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	191 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	192 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	193 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	194 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	195 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	196 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	197 	Decorative stitch	0.0	0.0	0.0	0.0	P.43
Decorative stitch	198 	Decorative stitch	0.0	0.0	0.0	0.0	P.43



# STITCH CHART



201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240		
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	Á	Ä	Å	Æ	Ç	È	É	Ë	Í	Ö	Ø	Ó	Ü	Ñ		
241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280		
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	á	ä	å	æ	ç	è	é	ë	í	ö	ø	ó	ü	ñ		
281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300																						
0	1	2	3	4	5	6	7	8	9	[ ]	-	.	@	'	/	~	?	!	&																						
301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340		
<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>	<i>I</i>	<i>J</i>	<i>K</i>	<i>L</i>	<i>M</i>	<i>N</i>	<i>O</i>	<i>P</i>	<i>Q</i>	<i>R</i>	<i>S</i>	<i>T</i>	<i>U</i>	<i>V</i>	<i>W</i>	<i>X</i>	<i>Y</i>	<i>Z</i>	<i>Á</i>	<i>Ä</i>	<i>Å</i>	<i>Æ</i>	<i>Ç</i>	<i>È</i>	<i>É</i>	<i>Ë</i>	<i>Í</i>	<i>Ö</i>	<i>Ø</i>	<i>Ó</i>	<i>Ü</i>	<i>Ñ</i>		
341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380		
<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>h</i>	<i>i</i>	<i>j</i>	<i>k</i>	<i>l</i>	<i>m</i>	<i>n</i>	<i>o</i>	<i>p</i>	<i>q</i>	<i>r</i>	<i>s</i>	<i>t</i>	<i>u</i>	<i>v</i>	<i>w</i>	<i>x</i>	<i>y</i>	<i>z</i>	<i>á</i>	<i>ä</i>	<i>å</i>	<i>æ</i>	<i>ç</i>	<i>è</i>	<i>é</i>	<i>ë</i>	<i>í</i>	<i>ö</i>	<i>ø</i>	<i>ó</i>	<i>ü</i>	<i>ñ</i>		
381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400																						
0	1	2	3	4	5	6	7	8	9	[ ]	-	.	@	'	/	~	?	!	&																						

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