brother

Operation Manual

Sewing Machine

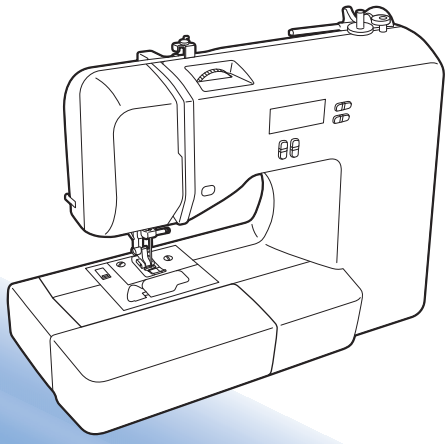
Product Code: 885-E44/E45/E46

1 KNOWING YOUR SEWING MACHINE

2 SEWING BASICS

3 UTILITY STITCHES

4 APPENDIX



Be sure to read this document before using the machine.
We recommend that you keep this document nearby for future reference.

IMPORTANT SAFETY INSTRUCTIONS

Please read these safety instructions before attempting to use the machine.

⚠DANGER - To reduce the risk of electric shock:

1 Always unplug the machine from the electrical outlet immediately after using, when cleaning, when making any user servicing adjustments mentioned in this manual, or if you are leaving the machine unattended.

⚠WARNING - To reduce the risk of burns, fire, electric shock, or injury to persons.

2 Always unplug the machine from the electrical outlet when making any adjustments mentioned in the instruction manual:

- To unplug the machine, switch the machine to the symbol "O" position to turn it off, then grasp the plug and pull it out of the electrical outlet. Do not pull on the cord.
- Plug the machine directly into the electrical outlet. Do not use an extension cord.
- Always unplug your machine if the power is cut.

3 Electrical Hazards:

- This machine should be connected to an AC power source within the range indicated on the rating label. Do not connect it to a DC power source or inverter. If you are not sure what kind of power source you have, contact a qualified electrician.
- This machine is approved for use in the country of purchase only.

4 Never operate this machine if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or water is spilled on the unit. Return the machine to the nearest authorized dealer or service center for examination, repair, electrical or mechanical adjustment.

- While the machine is stored or in use if you notice anything unusual, such as an odor, heat, discoloration or deformation, stop using the machine and immediately unplug the power cord.
- When transporting the machine, be sure to carry it by its handle. Lifting the machine by any other part may damage the machine or result in the machine falling, which could cause injuries.
- When lifting the machine, be careful not to make any sudden or careless movements, otherwise you may injure your back or knees.

5 Always keep your work area clear:

- Never operate the machine with any air openings blocked. Keep ventilation openings of the machine and foot control free from the build up of lint, dust, and loose cloth.
- Do not store objects on the foot controller.
- Do not use extension cords. Plug the machine directly into the electrical outlet.
- Never drop or insert any object into any opening.
- Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
- 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.
- Do not place this machine on an unstable surface, such as an unsteady or slanted table, otherwise the machine may fall, resulting in injuries.

6 Special care is required when sewing:

- Always pay close attention to the needle. Do not use bent or damaged needles.
- Keep fingers away from all moving parts. Special care is required around the machine needle.
- Switch the machine to the symbol “O” position to turn it off when making any adjustments in the needle area.
- Do not use a damaged or incorrect needle plate, as it could cause the needle to break.
- Do not push or pull the fabric when sewing, and follow careful instruction when freehand stitching so that you do not deflect the needle and cause it to break.

7 This machine is not a toy:

- Your close attention is necessary when the machine is used by or near children.
- The plastic bag that this machine was supplied in should be kept out of the reach of children or disposed of. Never allow children to play with the bag due to the danger of suffocation.
- Do not use outdoors.

8 For a longer service life:

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

9 For repair or adjustment:

- If the light unit (light-emitting diode) is damaged, it must be replaced by authorized dealer.
- In the event a malfunction occurs or adjustment is required, first follow the troubleshooting table in the back of the operation manual to inspect and adjust the machine yourself. If the problem persists, please consult your local authorized Brother dealer.

Use this machine only for its intended use as described in this manual.

Use accessories recommended by the manufacturer as contained in this manual.

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

For additional product information, visit our web site at www.brother.com

SAVE THESE INSTRUCTIONS

This machine is intended for household use.

FOR USERS IN COUNTRIES EXCEPT EUROPEAN COUNTRIES
This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

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

FOR USERS IN THE UK, EIRE, MALTA AND CYPRUS ONLY

IMPORTANT

- In the event of replacing the plug fuse, use a fuse approved by ASTA to BS 1362, i.e. carrying the ASTA mark, rating as marked on plug.
- Always replace the fuse cover. Never use plugs with the fuse cover omitted.
- If the available electrical outlet is not suitable for the plug supplied with this equipment, you should contact your authorized dealer to obtain the correct lead.

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1 KNOWING YOUR SEWING MACHINE

ACCESSORIES

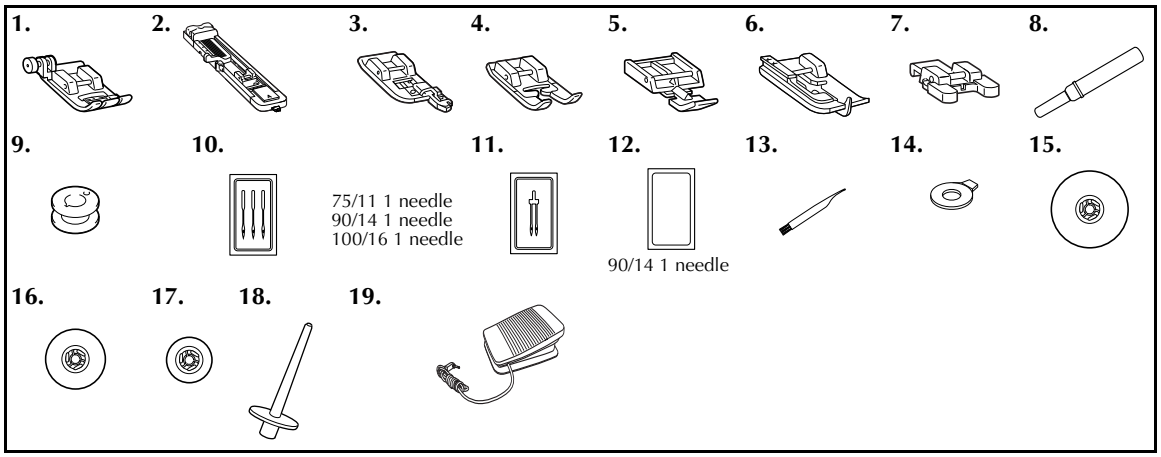
Included accessories

After opening the box, check that the following accessories are included. If any item is missing or damaged, contact your dealer.

Note

(For U.S.A. only)

- Foot controller: Model T
  This foot controller can be used on the machine with product code 885-E44/E45/E46. The product code is mentioned on the machine rating plate.
- The screw of the presser foot holder is available through your authorized dealer. (Part code: 132730-122)
- The included accessories vary depending on the machine model.



No.	Part Name	Part Code	
		Americas	Others
1	Zigzag foot “J” (on machine)	XZ5134-001	
2	Buttonhole foot “A”	XC2691-033	
3	Overcasting foot “G”	XC3098-031	
4	Monogramming foot “N”	XD0810-031	
5	Zipper foot “I”	X59370-021	
6	Blind stitch foot “R”	XE2650-001	
7	Button fitting foot “M”	XE2137-001	
8	Seam ripper	XZ5082-001	
9	Bobbin (4) (One is on machine.)	SA156	SFB: XA5539-151
10	Needle set	XC8834-021	

No.	Part Name	Part Code	
		Americas	Others
11	Twin needle	131096-121	
12	Ball point needle (gold colored)	XD0360-021	
13	Cleaning brush	X59476-021	
14	Disc-shaped screwdriver	XC1074-051	
15	Spool cap (large)	130012-024	
16	Spool cap (medium) (on machine)	XE1372-001	
17	Spool cap (small)	130013-124	
18	Extra spool pin	XE2241-001	
19	Foot controller	XD0501-121 (EU area) XC8816-071 (Other areas)	

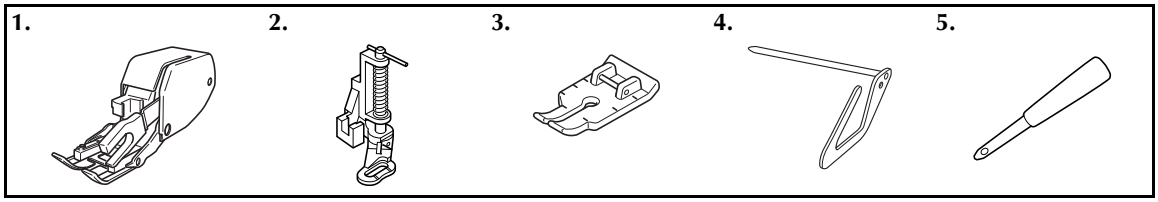
Memo

- About zigzag foot “J”;
  Press the black button on the left side of the foot when it is difficult for thick seams to be fed, for example, at the beginning of sewing thick fabrics. (page 45)

①Black button

Optional accessories

The following are available as optional accessories to be purchased separately. Depending on the model you purchased, the following accessory may be included with your machine.

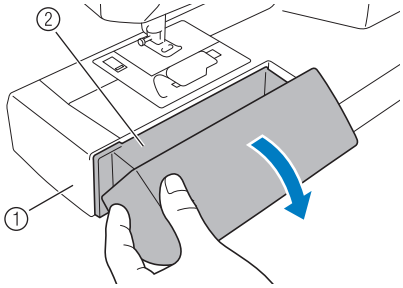


No.	Part Name	Part Code	
		Americas	Others
1	Walking foot	SA140	F033N: XC2214-052
2	Quilting foot	SA129	F005N: XC1948-052
3	1/4-inch quilting foot	SA125	F001N: XC1944-052

No.	Part Name	Part Code	
		Americas	Others
4	Quilting guide	SA132	F016N: XC2215-052
5	Eyelet punch	XZ5051-001	

Accessory compartment

The accessories are stored in a compartment inside the flat bed attachment. Open the compartment as shown in the figure below.



① Flat bed attachment
② Storage compartment

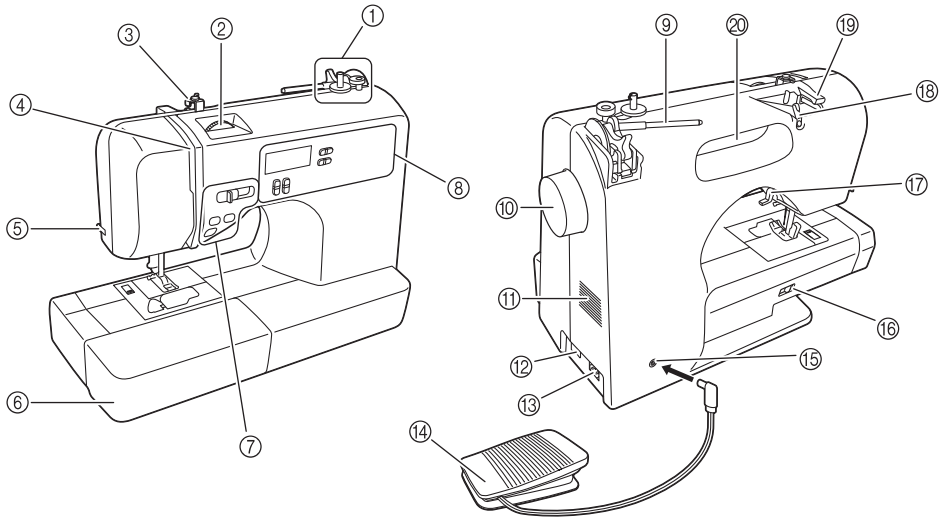
Note

- Store the accessories in the compartment when they are not used.

NAMES OF MACHINE PARTS AND THEIR FUNCTIONS

The illustrations in this operation manual may differ from the actual machine.

The main parts



① **Bobbin winder (page 17)**
This winds the thread onto the bobbin for use as the lower thread.

② **Upper tension-control dial (page 43)**
This controls the tension of the upper thread.

③ **Bobbin-winding thread guide and pre-tension disc (page 19)**
Pass the thread under this thread guide and around the pre-tension disc when winding the bobbin thread.

④ **Thread take-up lever (page 27)**

⑤ **Thread cutter (page 42)**
Pass the threads through the thread cutter to cut them.

⑥ **Flat bed attachment with accessory compartment (page 7 and 46)**

⑦ **Operation buttons (page 9)**
The operation buttons differ depending on the sewing machine model.

⑧ **Operation panel (page 10)**
This is used to select the stitch and specify the various settings. Design and position of the operation panel differs depending on the sewing machine model.

⑨ **Spool pin (page 10, 17 and 25)**
This holds the spool of thread.

⑩ **Handwheel**
This is used to manually raise and lower the needle.

⑪ **Air vent**
This vent allows the air surrounding the motor to circulate. Do not cover the air vent while the sewing machine is being used.

⑫ **Main power and sewing light switch (page 14)**
You can turn the main power and sewing light switch on and off.

⑬ **Jack/socket connector (page 14)**
Insert the plug on the power supply cord into the jack/socket connector.

⑭ **Foot controller (page 14)**
You can use this to control the sewing speed, and to start and stop sewing.

⑮ **Foot controller jack/socket (page 14)**
Plug in the foot controller plug.

⑯ **Feed dog position lever (page 57 and 67)**
Use the feed dog position lever to lower the feed dogs.

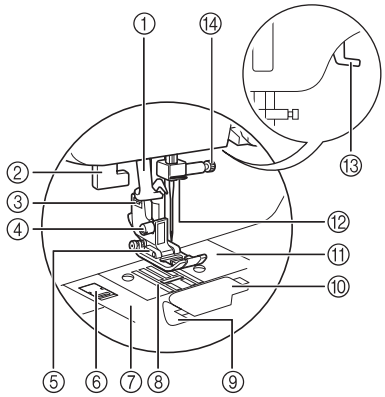
⑰ **Presser foot lever (page 25)**
This is used to raise and lower the presser foot.

⑱ **Thread guide (page 18 and 27)**
This is used when winding the thread onto the bobbin and then threading the machine.

⑲ **Thread guide cover (page 18 and 27)**
Pass the thread under this thread guide when winding the bobbin thread and threading the machine.

⑳ **Handle**
Carry the sewing machine by its handle when transporting the machine.

Needle and presser foot section



① **Needle threader (for models equipped with the needle threader) (page 28)**

② **Buttonhole lever**
Lower the buttonhole lever when sewing buttonholes and bar tacks.

③ **Presser foot holder**
The presser foot is installed onto the presser foot holder.

④ **Presser foot holder screw**
Use the presser foot holder screw to hold the presser foot holder in place.

⑤ **Presser foot**
The presser foot applies pressure consistently on the fabric as the sewing takes place. Attach the appropriate presser foot for the selected stitching.

⑥ **Needle plate cover release**
Use when removing the needle plate cover.

⑦ **Needle plate cover**
Remove the needle plate cover to clean the race.

⑧ **Feed dogs**
The feed dogs feed the fabric in the sewing direction.

⑨ **Quick-set bobbin (for models equipped with the quick-set bobbin)**
You can start sewing without pulling up the bobbin thread.

⑩ **Bobbin cover**
Open the bobbin cover to set the bobbin.

⑪ **Needle plate**
The needle plate is marked with guides for sewing straight seams.

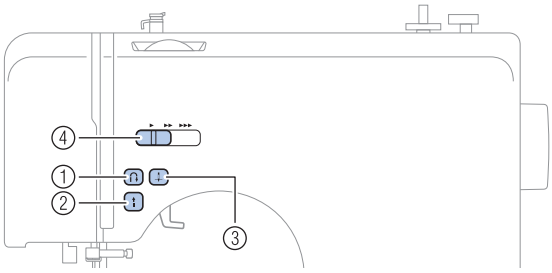
⑫ **Needle bar thread guide**
Pass the upper thread through the needle bar thread guide.

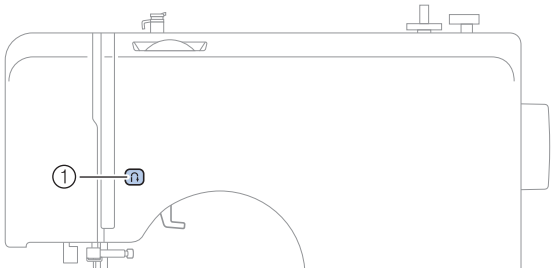
⑬ **Presser foot lever**
Raise and lower the presser foot lever to raise and lower the presser foot.

⑭ **Needle clamp screw**
Use the needle clamp screw to hold the needle in place.

Operation buttons

The operation buttons help you to easily perform various basic sewing machine operations.
The operation buttons differ depending on the sewing machine model.





① **Reverse/reinforcement stitch button**
Press the reverse/reinforcement stitch button to sew reverse stitches. Reverse stitches are sewn by keeping the button pressed down to sew in the opposite direction. For details, refer to “Sewing reinforcement stitches” (page 42).

■ Buttons provided on some models

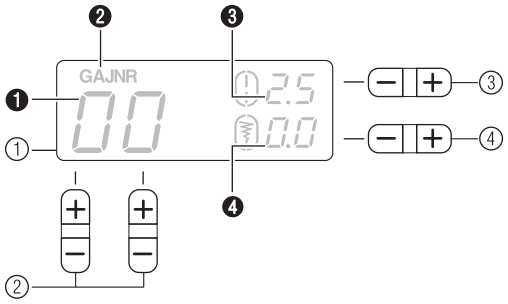
② **Start/stop button**
Press the start/stop button to start or stop sewing. The machine sews at a slow speed at the beginning of sewing while the button is depressed. When sewing is stopped, the needle is lowered in the fabric. For details, refer to “Starting to sew” (page 41).

③ **Needle position button**
Press the needle position button to raise or lower the needle. Be sure to raise the needle before threading the needle. Use this button to change the sewing direction or for detailed sewing in small areas. Pressing the button twice sews one stitch.

④ **Sewing speed controller**
Slide the sewing speed controller to adjust the sewing speed.

Operation panel

The operation panel, located on the front of the sewing machine, allows you to select a stitch and specify how the stitch will be sewn.
The operation panel differs depending on the sewing machine model.



① **LCD (liquid crystal display)**
The number of the selected stitch (❶), the presser foot type to be used (❷), the stitch length (mm) (❸), and the stitch width (mm) (❹) are displayed here.

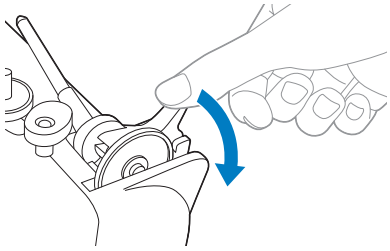
② **Stitch selection keys**
Press the stitch selection keys, and then select the number for the stitch that you wish to use. For details, refer to “Selecting a stitch” (page 39).

③ **Stitch length adjustment key**
Press this key to adjust the stitch length. (Press the “–” side to reduce the stitch length; press the “+” side to increase the stitch length.)

④ **Stitch width adjustment key**
Press this key to adjust the stitch width. (Press the “–” side to reduce the stitch width; press the “+” side to increase the stitch width.)

Spool pin

As shown, press down on the spool pin lever with your finger to raise the spool pin.

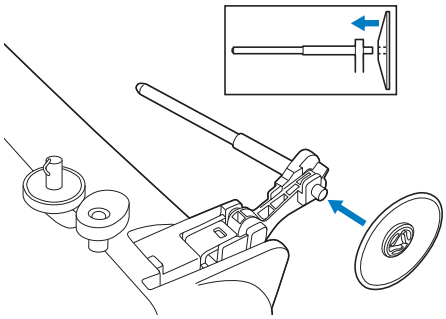


CAUTION

- **Do not grab the bar to raise the spool pin, otherwise, the spool pin may bend or break.**

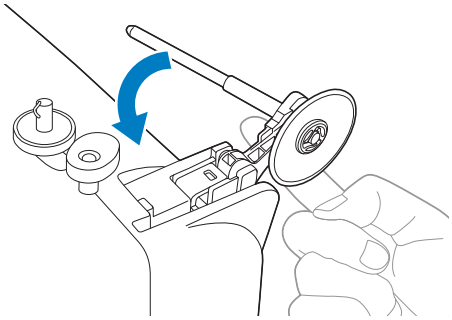
■ Storing the spool cap

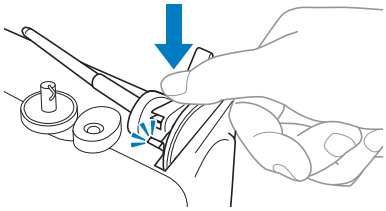
The enclosed spool cap (large, medium, small) can be stored by attaching it to the spool pin as shown in the illustration. When attaching the spool cap, position it with the rounded side toward the spool pin.



■ Storing the spool pin

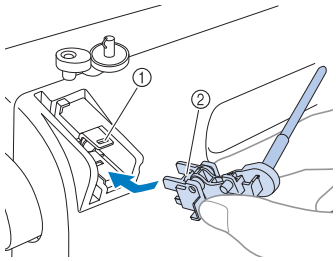
When placing the cover on the sewing machine before storing or if the spool pin will not be used, return the spool pin to its storage position. Remove the spool from the spool pin, and then fold up the spool pin, as shown in the illustration, until it snaps into place to secure it.





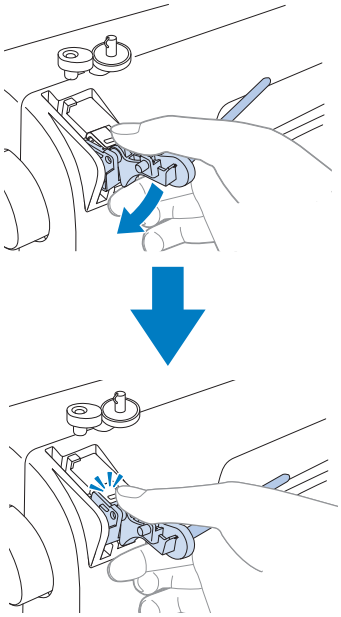
■ Installing the spool pin

1 If the spool pin has been removed from the machine, insert the tab on the spool pin into the hole on the back of the machine, as shown.



① Hole
② Tab

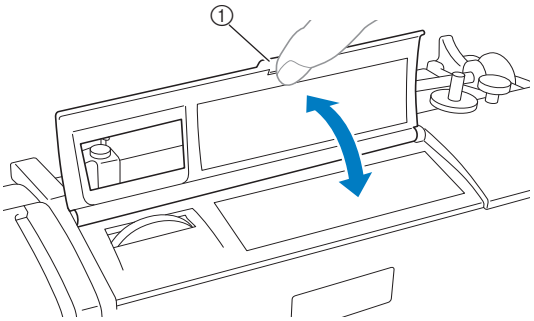
2 Push the spool pin down until it locks into place.



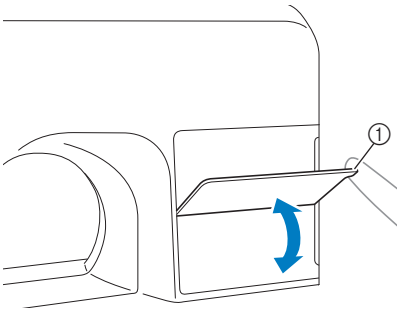
Flip chart

Hold the notch with your finger to flip the chart.

For models equipped with a flip chart on the top panel



For models equipped with a flip chart on the front panel



① Notch

USING YOUR SEWING MACHINE

Power supply precautions

Be sure to observe the following precautions concerning the power supply.

WARNING

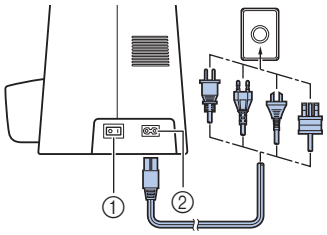
- **Use only regular household electricity for the power source. Using other power sources may result in fire, electric shock, or damage to the machine.**
- **Make sure that the plugs on the power cord are firmly inserted into the electrical outlet and the power supply jack on the machine. Otherwise, a fire or electric shock may result.**
- **Do not insert the plug on the power cord into an electrical outlet that is in poor condition.**
- **Turn off the main power and remove the plug in the following circumstances:**
  - **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

- **Use only the power cord included with this machine.**
- **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 objects on the cord. Do not subject the cord to heat. These things may damage the cord and cause fire or electric shock. If the cord or plug is damaged, take the machine to your authorized dealer 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.**

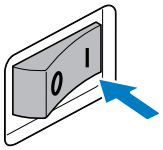
Power supply

1 Insert the plug into a wall outlet.



① Main power switch
② Jack/socket connector

2 Set the main power switch to "I".



▶ The sewing light comes on when the machine is turned on.

Memo

- When the machine is turned on, the needle and the feed dogs will make sound when they move; this is not a malfunction.

3 To turn off the machine, set the main power switch to "O".

▶ The sewing light goes off when the machine is turned off.

Note

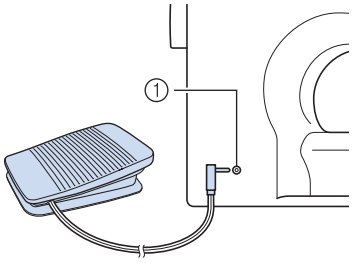
- If a power outage occurs while the sewing machine is being operated, turn off the sewing machine and unplug the power supply cord. When restarting the sewing machine, follow the necessary procedure to correctly operate the machine.

(For U.S.A. only)

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

Foot controller

Insert the foot controller plug into its jack/socket on the rear side of the sewing machine.

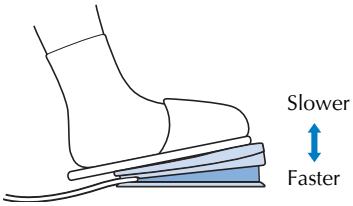


① Foot controller jack/socket

CAUTION

- **When connecting the foot controller, be sure to turn off the sewing machine in order to prevent the machine from accidentally being started.**

When you press the foot controller down lightly, the machine will run at a low speed. When you press harder, the machine's speed will increase. When you take your foot off the foot controller, the machine will stop.



You should make sure that nothing is placed on the foot controller when the machine is not in use.

CAUTION

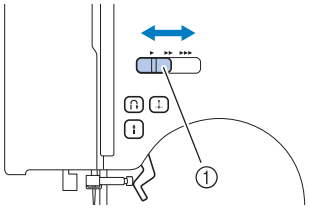
- **Do not allow pieces of cloth and dust to build up on the foot controller. Doing so could cause a fire or an electric shock.**

Note

- When the foot controller is plugged in, the start/stop button cannot be used to start sewing (only for models equipped with the start/stop button).

Sewing speed controller (for models equipped with the start/stop button)

1 Slide the sewing speed controller to the left or right to select the desired sewing speed.
Slide the sewing speed controller to the left to sew at a slower speed, or slide the speed controller to the right to sew at a faster speed.



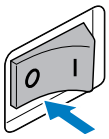
① Sewing speed controller

- The speed set using the sewing speed controller is the foot controller's maximum sewing speed.

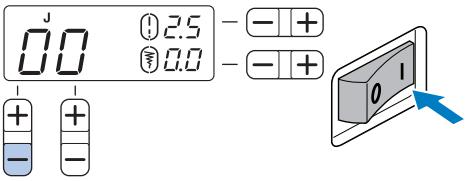
Changing the needle stop position

Normally, the sewing machine is set to leave the needle in the fabric when sewing is stopped. Instead, the machine can be set to leave the needle raised when sewing is stopped.

1 Turn off the sewing machine.



2 Hold down the "–" side of (stitch selection key) on the left and turn on the sewing machine.
After turning on the sewing machine, release the "–" side of (stitch selection key).



▶ The needle stop position changes to the raised position.

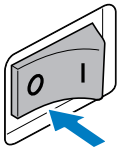
Memo

- Perform the same operation to change the needle stop position to the lowered position.

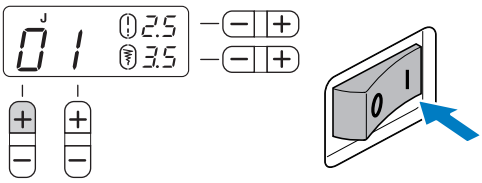
Changing the initial needle position

Normally, the straight stitch (left needle position) is automatically selected when the sewing machine is turned on. The machine can be set so that the straight stitch (center needle position) is automatically selected when it is turned on.

1 Turn off the sewing machine.



2 Hold down the "+" side of (stitch selection key) on the left and turn on the sewing machine.
After turning on the sewing machine, release the "+" side of (stitch selection key).



▶ The initial needle position changes to the center needle position.

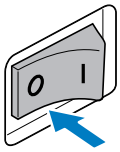
Memo

- The specified initial needle position is maintained even after the machine is turned off.
- Perform the same operation to change the initial needle position to the left needle position.

Cancelling the operation beep

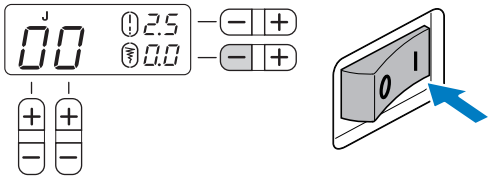
When the sewing machine is purchased, it is set to beep each time a key is pressed. This setting can be changed so that the machine does not beep.

1 Turn off the sewing machine.



2 Hold down the "–" side of (stitch width adjustment key) and turn on the sewing machine.

After turning on the sewing machine, release the "-" side of (stitch width adjustment key).



▶ The machine is now set so that it will not beep.

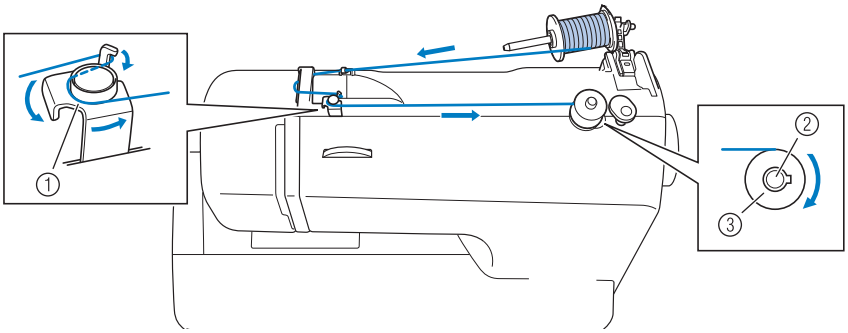
Memo

- Perform the same operation to change the setting so that machine beeps.

THREADING THE MACHINE

Winding the bobbin

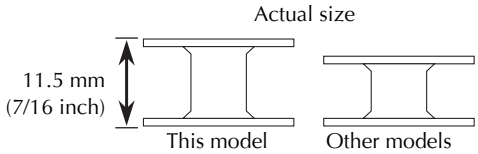
This section describes how to wind the thread onto the bobbin.
• For details on the fast bobbin winding, see page 20.



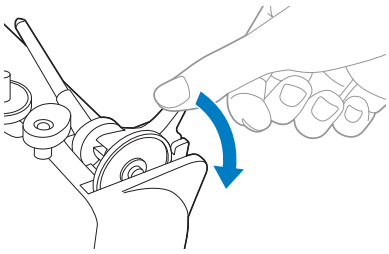
① Bobbin-winding thread guide
② Bobbin winder shaft
③ Bobbin

⚠ CAUTION

- **Only use bobbins (part code: SA156, SFB: XA5539-151) that have been designed for this sewing machine. Using other bobbins may cause damage to the machine.**
- **We designed the bobbin that comes with this machine. If you use bobbins from other models, the machine will not work properly. Only use the bobbin that comes with this machine or bobbins of the same type (part code: SA156, SFB: XA5539-151).**



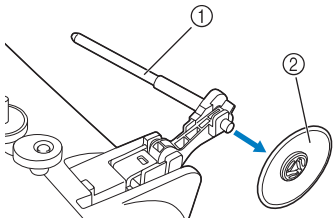
1 **As shown, press down on the spool pin lever with your finger.**
▶ The spool pin swings up.



⚠ CAUTION

- **Do not grab the bar to raise the spool pin, otherwise, the spool pin may bend or break.**

2 **Remove the spool cap.**

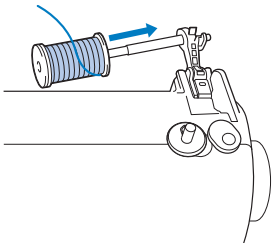


① Spool pin
② Spool cap

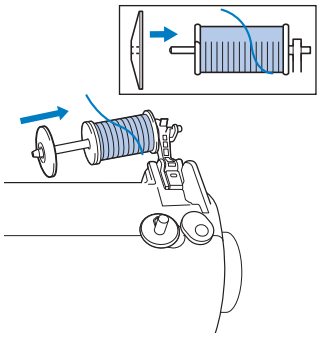
⚠ CAUTION

- **Be sure to raise the spool pin when winding the bobbin. The thread may become tangled if the bobbin winder is used without raising the spool pin.**

3 Fully insert the spool of thread for the bobbin onto the spool pin.
Slide the spool onto the pin so that the spool is horizontal and the thread unwinds to the front at the bottom.

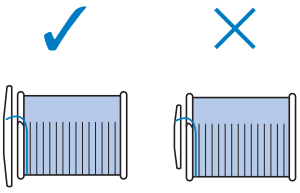


4 Slide the spool cap onto the spool pin.
With the slightly rounded side of the spool cap positioned toward the left, slide the spool cap onto the spool pin as far as possible to the right so that the spool is moved to the right end of the spool pin.



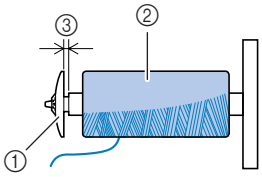
CAUTION

- **If the spool or the spool cap is not positioned correctly, the thread may become tangled around the spool pin or the machine may be damaged.**
- **Three spool cap sizes are available, allowing you to choose a spool cap that best fits the size of spool being used. If the spool cap is too small for the spool being used, the thread may catch on the slit in the spool or the machine may be damaged.**



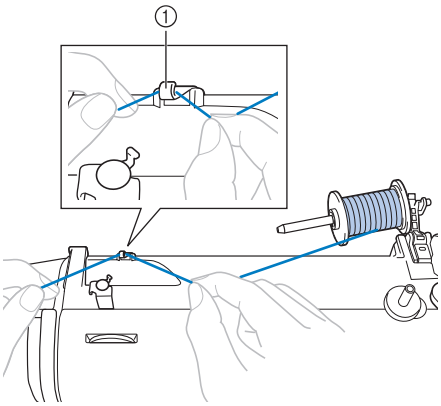
Memo

- When sewing with fine, cross-wound thread, use the small spool cap, and leave a small space between the cap and the spool.



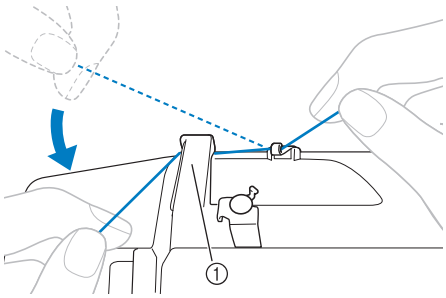
① Spool cap (small)
② Spool (cross-wound thread)
③ Space

5 While holding the spool with your right hand, and then pass the thread under the thread guide.



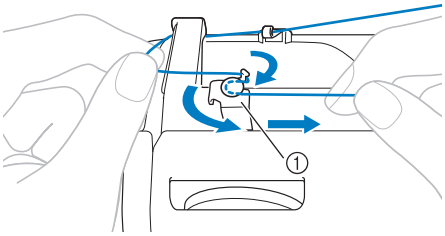
① Thread guide

6 Pass the thread under the thread guide cover from the back to the front.
Hold the thread with your right hand so that there is no slack in the thread that is pulled out, and then pass the thread under the thread guide cover with your left hand.



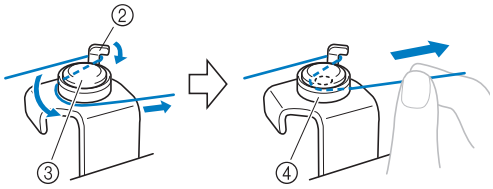
① Thread guide cover

7 Pull the thread to the right, pass it under the hook of the bobbin-winding thread guide, and then wind the thread counterclockwise between the discs, pulling it in as far as possible.



① Bobbin-winding thread guide

Make sure that the thread passes under the pre-tension disk.



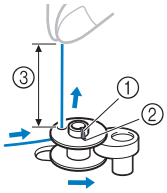
② Hook
③ Pre-tension disk
④ Pull it in as far as possible.

Note

- Make sure that the thread is pulled as far as possible into the pre-tension disk, otherwise the bobbin may not be wound cleanly.

8 Put the bobbin onto the bobbin winder shaft and slide the bobbin winder shaft to the right. Turn the bobbin clockwise, by hand, until the spring on the shaft slides into the notch in the bobbin.

- Make sure to pull out 7 to 10 cm (2-3/4 to 3-15/16 inches) of thread from the hole on the bobbin.



① Spring on the shaft
② Notch
③ 7 – 10 cm (3 – 4 inches)

CAUTION

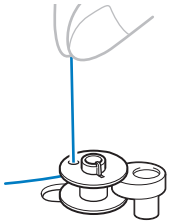
- **Pull the thread taut and hold the end of the thread straight up. If the thread is too short, not pulled taut or held at an angle, injuries may occur when the thread is wound around the bobbin.**

9 Turn on the sewing machine.

10 While holding the end of the thread, gently press the foot controller or press (start/stop button) (for models equipped with the start/stop button) to wind the thread around the bobbin a few times. Then stop the machine.

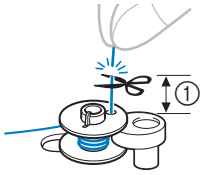
Note

- If the sewing machine is to be operated using the foot controller, connect the foot controller before turning on the machine.
- When the foot controller is plugged in, the start/stop button cannot be used to start sewing (only for models equipped with the start/stop button).



11 Trim the excess thread above the bobbin.

- Pull 1 cm (3/8 inch) of thread from the hole on the bobbin.

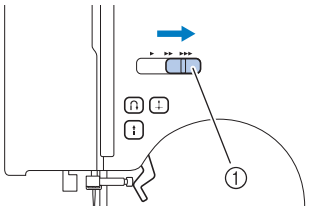


① 1 cm (3/8 inch)

CAUTION

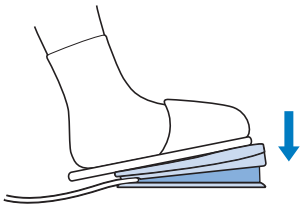
- **Make sure you follow the instructions carefully. If you do not cut the thread completely, and the bobbin is wound, when the thread runs low it may tangle around the bobbin and cause the needle to break.**

12 **Slide the sewing speed controller to the right (to set the speed to fast). (For models equipped with the sewing speed controller.)**



① Sewing speed controller

13 **Press the foot controller or press (start/stop button) (for models equipped with the start/stop button) to start.**



14 **When the bobbin seems full and begins spinning slowly, take your foot off the foot controller or press (start/stop button) (for models equipped with the start/stop button).**

15 **Cut the thread, slide the bobbin winder shaft to the left and remove the bobbin.**

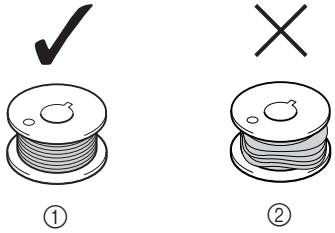
16 **Slide the sewing speed controller back to its original position (for models equipped with the sewing speed controller).**

Memo

- When the sewing machine is started or the handwheel is turned after winding the thread around the bobbin, the machine will make a clicking sound; this is not a malfunction.
- The needle bar does not move when you slide the bobbin winding shaft to the right.

CAUTION

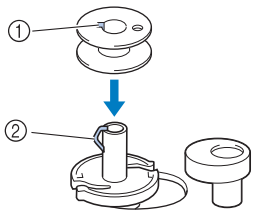
- **Not winding the bobbin properly may cause the thread tension to loosen, and may break the needle.**



① Wound evenly
② Wound poorly

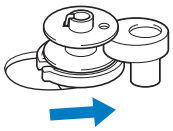
■ For models equipped with the fast bobbin winding system

1 **Place the bobbin on the bobbin winder shaft so that the spring on the shaft fits into the notch in the bobbin.**



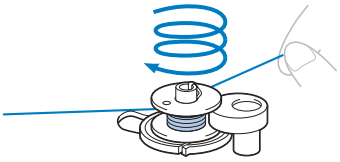
① Notch
② Bobbin winder shaft spring

2 **Slide the bobbin winder shaft to the right.**

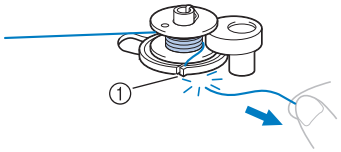


3 **Follow steps ❶ through ❼ of the procedure in "Winding the bobbin" to pass the thread around the pre-tension disk (page 17).**

4 **While holding the thread that wraps around the pre-tension disk with your left hand, use your right hand to wind the free end of the thread clockwise around the bobbin five or six times.**



5 **Pull the thread to the right and pass it through the slit in the bobbin winder seat.**

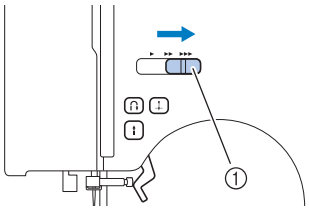


① Slit in bobbin winder seat (with built-in cutter)
▶ The thread is cut to a suitable length.

⚠ CAUTION

- **Be sure to cut the thread as described. If the bobbin is wound without cutting the thread using the cutter built into the slit in the bobbin winder seat, the thread may become tangled in the bobbin or the needle may bend or break when the bobbin thread starts to run out.**

6 **Slide the sewing speed controller to the right (to set the speed to fast) (for models equipped with the sewing speed controller).**



① Sewing speed controller

7 **Turn on the sewing machine.**

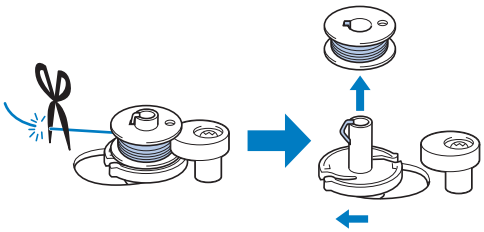
8 **Press the foot controller or press (start/stop button) (for models equipped with the start/stop button) to start.**

Note

- If the sewing machine is to be operated using the foot controller, connect the foot controller before turning on the machine.
- When the foot controller is plugged in, the start/stop button cannot be used to start sewing (only for models equipped with the start/stop button).

9 **When the bobbin begins spinning slowly, take your foot off the foot controller or press (start/stop button) (for models equipped with the start/stop button).**

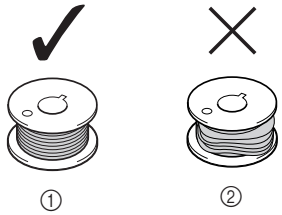
10 **Cut the thread, slide the bobbin winder shaft to the left, and then remove the bobbin from the shaft.**



11 **Slide the sewing speed controller back to its original position (for models equipped with the sewing speed controller).**

⚠ CAUTION

- **Not winding the bobbin properly may cause the thread tension to loosen, and may break the needle.**



① Wound evenly
② Wound poorly

Memo

- When the sewing machine is started or the handwheel is turned after winding the thread around the bobbin, the machine will make a clicking sound; this is not a malfunction.
- The needle bar does not move when you slide the bobbin winding shaft to the right.

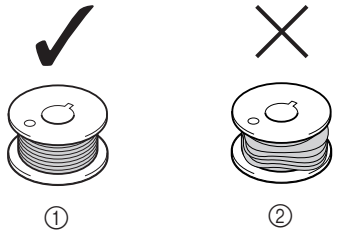
Lower threading

Install the bobbin wound with thread.

- For more details on quick-set bobbin, see page 23.

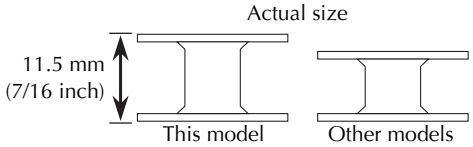
CAUTION

- **Winding the bobbin improperly may cause the thread tension to loosen, breaking the needle and resulting in injury.**



① Wound evenly
② Wound poorly

- **The bobbin was designed specifically for this sewing machine. If bobbins from other models are used, the machine will not operate correctly. Use only the enclosed bobbin or bobbins of the same type (part code: SA156, SFB: XA5539-151).**

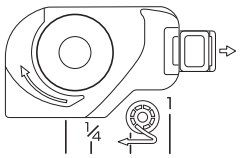


CAUTION

- **Make sure you turn the power off while threading the machine. If you accidentally step on the foot controller and the machine starts to sew, you could be injured.**

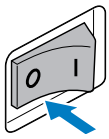
Memo

- The direction for feeding the bobbin thread is indicated by marks on the needle plate cover. Be sure to thread the machine as indicated.

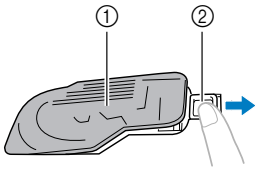


1 **Raise the needle to its highest position by turning the handwheel toward you (counterclockwise) or press [↑] (needle position button) (for models equipped with the needle position button), and raise the presser foot lever.**

2 **Turn off the sewing machine.**

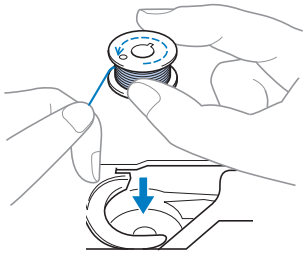


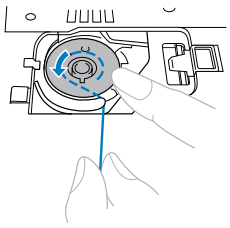
3 **Slide the button and open the cover.**



① Cover
② Slide button

4 **Put the bobbin in so the thread comes out in the direction shown by the arrow.**



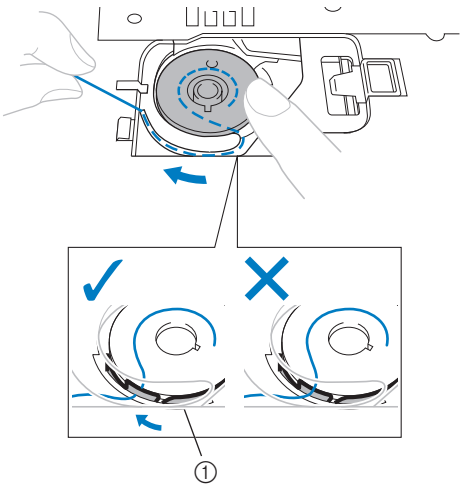


CAUTION

- **Make sure you set the bobbin so the thread unrolls in the right direction. If the thread unrolls in the wrong direction, it may cause the thread tension to be incorrect or break the needle.**

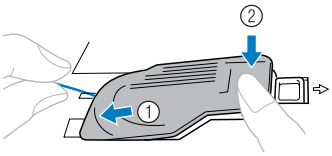
5 **Hold the end of the thread, push the bobbin down with your finger, and then pass the thread through the slit, as shown.**

- If the thread is not correctly inserted through the tension-adjusting spring of the bobbin case, it may cause incorrect thread tension (page 43).



① Tension-adjusting spring

6 **Replace the bobbin cover. Put the left tab in place (see arrow ①), and then press lightly on the right side (see arrow ②) until the cover clicks into place.**

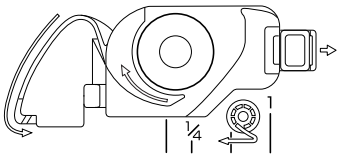


- Replace the cover so that the end of the thread comes out from the left side of the cover (as shown by the line in the diagram).

■ For models equipped with the quick-set bobbin

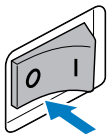
Memo

- The direction for feeding the bobbin thread is indicated by marks on the needle plate cover. Be sure to thread the machine as indicated.

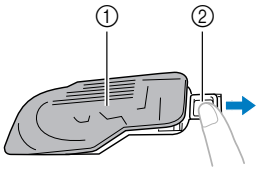


1 **Raise the needle to its highest position by turning the handwheel toward you (counterclockwise) or press [↑] (needle position button) (for models equipped with the needle position button), and raise the presser foot lever.**

2 **Turn off the sewing machine.**

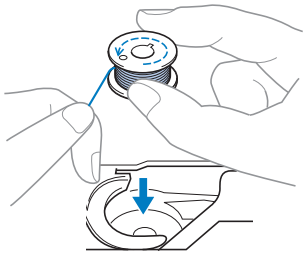


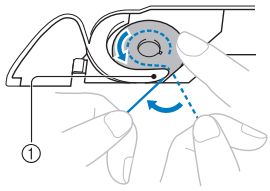
3 **Slide the button and open the cover.**



① Cover
② Slide button

4 **Insert the bobbin with your right hand so that the end of the thread is on the left, and then, after pulling the thread firmly around the tab with your left hand as shown, lightly pull the thread to guide it through the slit.**





① Tab

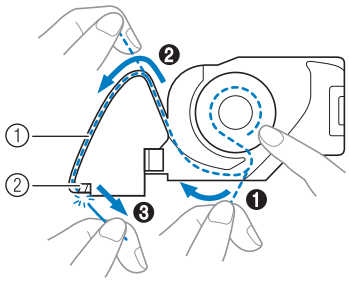
⚠ CAUTION

- **Make sure you set the bobbin so the thread unrolls in the right direction. If the thread unrolls in the wrong direction, it may cause the thread tension to be incorrect or break the needle.**

5 **While lightly holding down the bobbin with your right hand as shown, guide the thread through the slit (❶ and ❷).**

- At this time, check that the bobbin easily rotates counterclockwise.

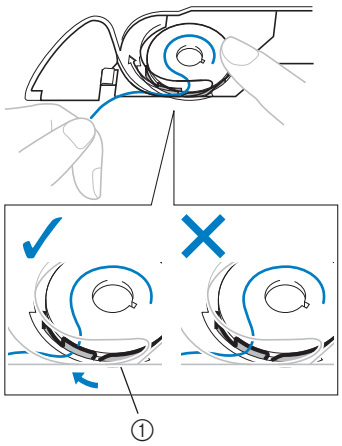
Then, pull the thread toward you to cut it with the cutter (❸).



① Slit
② Cutter (Cut the thread with the cutter.)

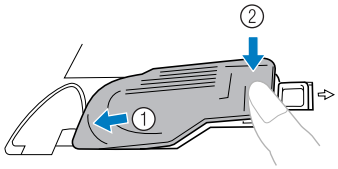
Note

- If the thread is not correctly inserted through the tension-adjusting spring of the bobbin case, it may cause incorrect thread tension (page 43).



① Tension-adjusting spring

6 **Replace the bobbin cover. Put the left tab in place (see arrow ①), and then press lightly on the right side (see arrow ②) until the cover clicks into place.**



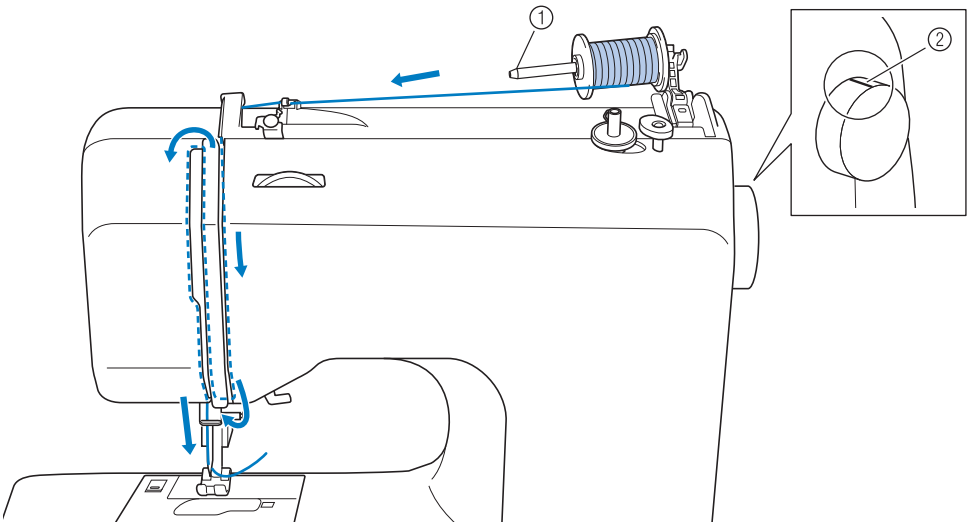
Memo

- You can begin sewing immediately without drawing up the bobbin thread. If you want to draw up the bobbin thread before you start to sew, follow to the procedure in "Drawing up the lower thread" (page 30).

Upper threading

Set the upper thread and thread the needle.

- For details on the needle threader, see page 28.



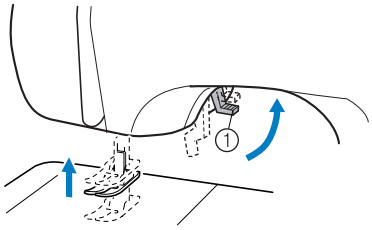
① Spool pin
② Mark on the handwheel

CAUTION

- **When threading the upper thread, carefully follow the instructions. If the upper threading is not correct, the thread may become tangled or the needle may bend or break.**
- **Never use a thread weight of 20 or lower.**
- **Use the needle and the thread in the correct combination. For details on the correct combination of needles and threads, refer to "Needle types and their uses" (page 31).**

1 **Turn on the sewing machine.**

2 **Raise the presser foot using the presser foot lever.**

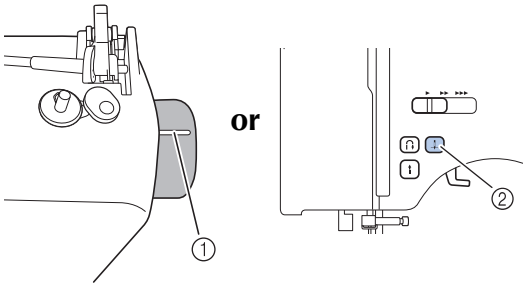


① Presser foot lever

CAUTION

- **If the presser foot is not raised, the sewing machine cannot be threaded correctly.**

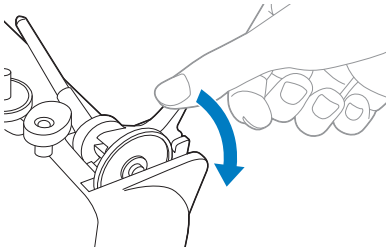
3 **Raise the needle by turning the handwheel toward you (counterclockwise) so that the mark on the wheel points up, or press (needle position button) (for models equipped with the needle position button) once or twice to raise the needle.**



① Mark ② Needle position button

- If the needle is not correctly raised, the sewing machine can not be threaded. Be sure to turn the handwheel so that the mark on the wheel points up before threading the sewing machine.

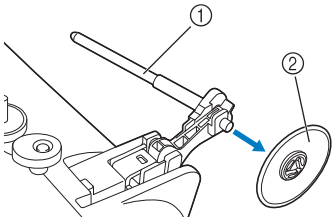
4 **As shown, press down on the spool pin lever with your finger.**
▶ The spool pin swings up.



⚠ CAUTION

- **Do not grab the bar to raise the spool pin, otherwise, the spool pin may bend or break.**

5 **Remove the spool cap.**

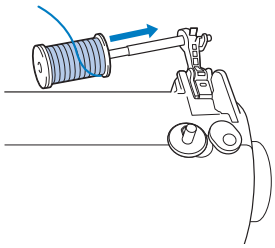


① Spool pin
② Spool cap

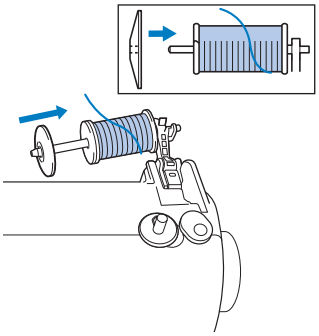
⚠ CAUTION

- **Be sure to raise the spool pin before use. If the spool of thread is in the wrong place, or is set incorrectly, the thread may tangle on the spool pin and cause the needle to break.**

6 **Fully insert the spool for the upper thread onto the spool pin.**
Slide the spool onto the pin so that the spool is horizontal and the thread unwinds to the front at the bottom.

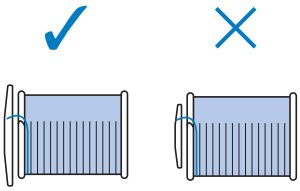


7 **Slide the spool cap onto the spool pin.**
With the slightly rounded side of the spool cap positioned toward the left, slide the spool cap onto the spool pin as far as possible to the right so that the spool is moved to the right end of the spool pin.



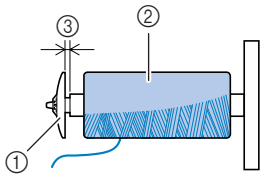
⚠ CAUTION

- **If the spool or the spool cap is not positioned correctly, the thread may become tangled around the spool pin or the needle may break.**
- **Three spool cap sizes are available, allowing you to choose a spool cap that best fits the size of spool being used. If the spool cap is too small for the spool being used, the thread may catch on the slit in the spool or the needle may break.**



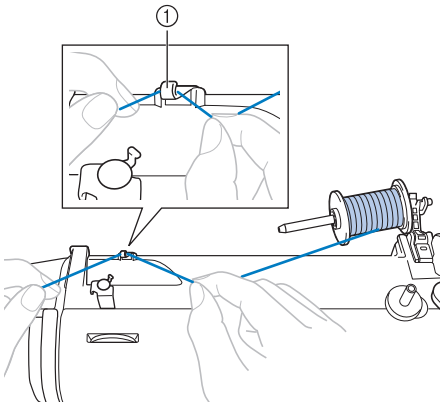
Memo

- When sewing with fine, cross-wound thread, use the small spool cap, and leave a small space between the cap and the spool.



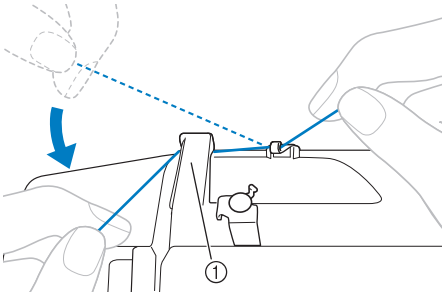
① Spool cap (small)
② Spool (cross-wound thread)
③ Space

8 While holding the spool with your right hand, and then pass the thread under the thread guide.



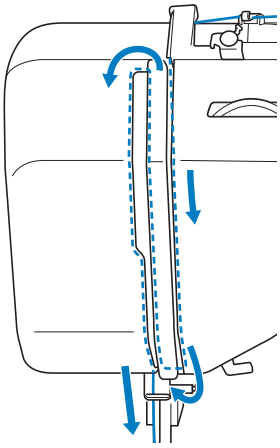
① Thread guide

9 Pass the thread under the thread guide cover from the back to the front.
Hold the thread with your right hand so that there is no slack in the thread that is pulled out, and then pass the thread under the thread guide cover with your left hand.

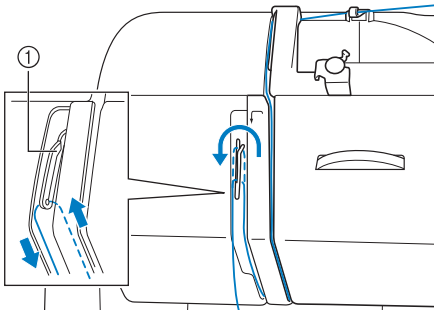


① Thread guide cover

10 Feed the upper thread as shown in the illustration below.



11 Make sure you guide the thread through the thread take-up lever from right to left as shown in the illustration below.

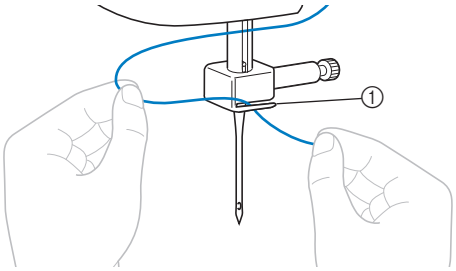


① Thread take-up lever

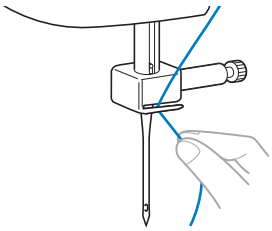
Memo

- If the needle is not raised, the thread take-up lever cannot be threaded. Be sure to press the needle position button to raise the needle before threading the thread take-up lever.

⓬ Put the thread behind the needle bar thread guide above the needle.
The thread can easily be passed behind the needle bar thread guide by holding the thread in your left hand, then feeding the thread with your right hand.



① Needle bar thread guide

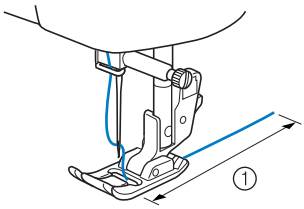


⓭ Turn off the sewing machine.

⚠ CAUTION

- **Make sure you turn the power off while threading the machine without using the needle threader (for models equipped with the needle threader). If you accidentally step on the foot controller and the machine starts to sew, you could be injured.**

⓮ Thread the needle from front to back and pull out about 5 cm (2 inches) of thread.



① 5 cm (2 inches)

Note

- If the thread take-up lever is lowered, the upper thread cannot be wrapped around the thread take-up lever. Make sure you raise the presser foot lever and the thread take-up lever before you feed the upper thread.
- If you incorrectly feed the thread you may cause sewing problems.

■ Using the needle threader (for models equipped with the needle threader)

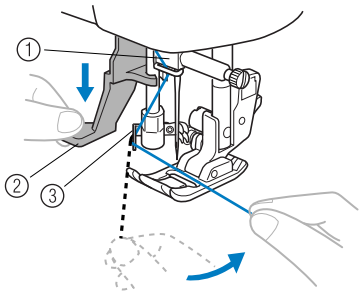
⚠ CAUTION

- **The needle threader can be used with a 75/11 through 100/16 home sewing machine needle. However, the needle threader cannot be used with a 65/9 home sewing machine needle. When using special thread such as transparent nylon thread or metallic thread, the needle threader cannot be used.**
- **Thread with a thickness of 130/120 or thicker cannot be used with the needle threader.**
- **The needle threader cannot be used with the wing needle or the twin needle.**
- **If the needle threader cannot be used, refer to "Upper threading" (page 25).**

❶ Follow steps ❶ through ⓭ of the procedure in "Upper threading" to thread the machine to the needle bar thread guide.

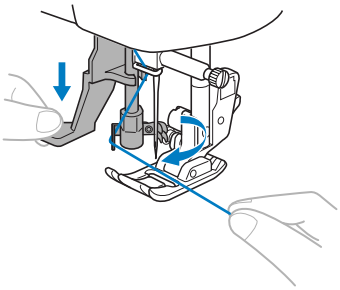
❷ Lower the presser foot lever.

❸ While lowering the needle threader lever, hook the thread onto the guide.



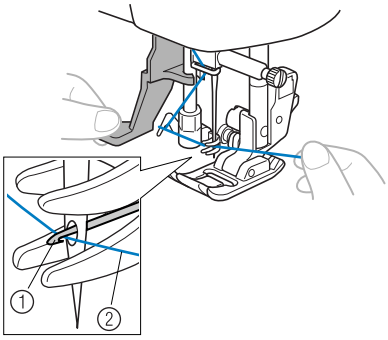
① Needle holder
② Needle threader lever
③ Guide

4 **Fully lower the needle threader lever.**



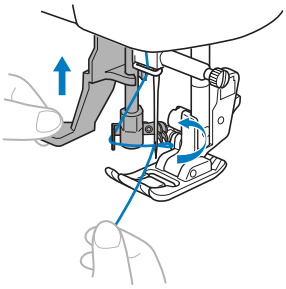
▶ The end of the needle threader rotates toward you and the hook passes through the eye of the needle.

5 **Catch the thread on the hook as shown below.**

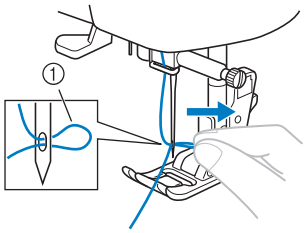


① Hook
② Thread

6 **While lightly holding the thread, release the needle threader lever. The hook will pull the thread through the needle.**



7 **Pull the loop of the thread passed through the eye of the needle toward the rear of the machine.**

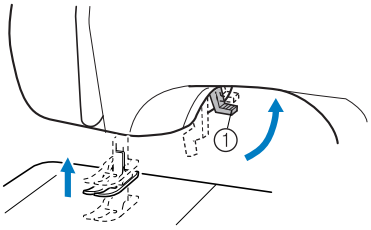


① Loop of thread

⚠ CAUTION

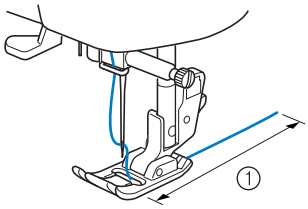
- **Be careful not to pull on the thread with force or it may bend the needle.**
- **If the thread does not pass through the eye of the needle, start from step ❸ again.**

8 **Raise the presser foot lever.**



① Presser foot lever

9 **Pass the end of the thread through the presser foot, and then pull out about 5 cm (2 inches) of thread toward the rear of the machine.**



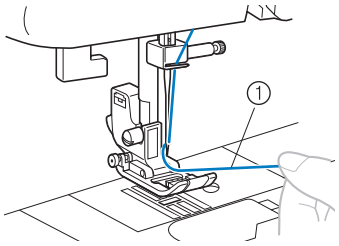
① 5 cm (2 inches)

Note

- If you incorrectly feed the thread you may cause sewing problems.

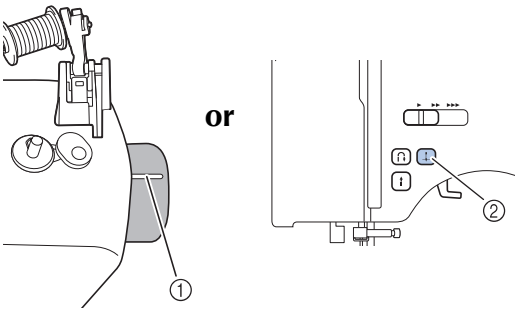
Drawing up the lower thread

1 Lightly hold the end of the upper thread.



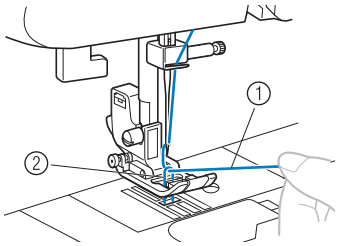
① Upper thread

2 While holding the end of the upper thread, raise the needle either by turning the handwheel toward you (counterclockwise) so that the mark on the wheel points up or by pressing (needle position button) (for models equipped with the needle position button) once or twice.



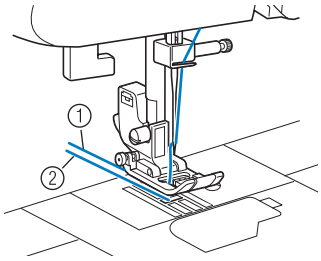
① Mark ② Needle position button

3 Pull on the upper thread to draw up the lower thread.



① Upper thread
② Lower thread

4 Pull out about 10 cm (4 inches) of both threads and pull them toward the back of the machine under the presser foot.

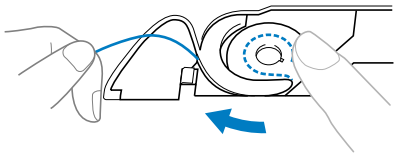


① Upper thread
② Lower thread

■ For models equipped with the quick-set bobbin

You can begin sewing immediately without drawing up the bobbin thread. When sewing gathers or darts, you can draw up the lower thread by hand so that some thread will be left over. Before you draw up the lower thread, put the bobbin back in.

1 Pass the thread along the slit in the direction of the arrow, and leave it there without cutting it.



- The bobbin cover should still be removed.

2 Draw up the lower thread as described in steps 1 to 4.

3 Replace the bobbin cover.

REPLACING THE NEEDLE

This section provides information on sewing machine needles.

Needle precautions

Be sure to observe the following precautions concerning the handling of the needle. Failure to observe these precautions is extremely dangerous. Be sure to read and carefully follow the instructions below.

⚠ CAUTION

- **Only use home sewing machine needles. Use of any other needle may bend the needle or damage the machine.**
- **Never use bent needles. Bent needles can easily break, possibly resulting in injury.**

Needle types and their uses

The sewing machine needle that should be used depends on the fabric and thread thickness. Refer to the following table when choosing the thread and needle appropriate for the fabric that you wish to sew.

Fabric Type/Application		Thread		Size of Needle
		Type	Size	
Medium weight fabrics	Broadcloth	Cotton thread	60–90	75/11–90/14
	Taffeta	Synthetic thread		
	Flannel, Gabardine	Silk thread	50	
Thin fabrics	Lawn	Cotton thread	60–90	65/9–75/11
	Georgette	Synthetic thread		
	Challis, Satin	Silk thread	50	
Thick fabrics	Denim	Cotton thread	30	100/16
			50	90/14–100/16
	Corduroy	Synthetic thread	50–60	
	Tweed	Silk thread		
Stretch fabrics	Jersey	Thread for knits	50–60	Ball point needle 75/11–90/14 (gold colored)
	Tricot			
Easily frayed fabrics		Cotton thread	50–90	65/9–90/14
		Synthetic thread		
		Silk thread	50	
For top-stitching		Synthetic thread Silk thread	30	100/16
			50–60	75/11–90/14

Note

- Never use a thread of weight 20 or lower. It may cause malfunctions.

Memo

- The smaller the thread number, the thicker the thread; and the larger the needle number, the thicker the needle.

■ Ball point needle

Use the ball point needle when sewing on stretch fabrics or fabrics where skipped stitches easily occur.
Use the ball point needle for best results when sewing patterns using monogramming foot "N".
The factory recommended needle is "HG-4BR" (Organ). Schmetz needles "JERSEY BALL POINT" 130/705H SUK 90/14 may be used as a substitute.

■ Transparent nylon thread

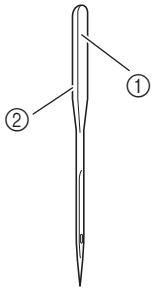
Use a 90/14 to 100/16 needle, regardless of the fabric or thread.

⚠ CAUTION

- **The appropriate fabric, thread and needle combinations are shown in the table on the previous page. If the combination of the fabric, thread and needle is not correct, particularly when sewing thick fabrics (such as denim) with thin needles (such as 65/9 to 75/11), the needle may bend or break. In addition, the stitching may be uneven or puckered or there may be skipped stitches.**

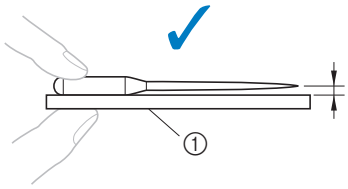
Checking the needle

Sewing with a bent needle is extremely dangerous since the needle may break while the machine is being operated.
Before using the needle, place the flat side of the needle on a flat surface and check that the distance between the needle and the flat surface is even.



① Flat side
② Needle type marking

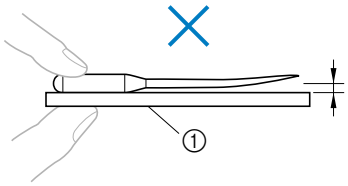
■ Correct needle



① Flat surface

■ Incorrect needle

If the distance between the needle and the flat surface is not even, the needle is bent. Do not use a bent needle.

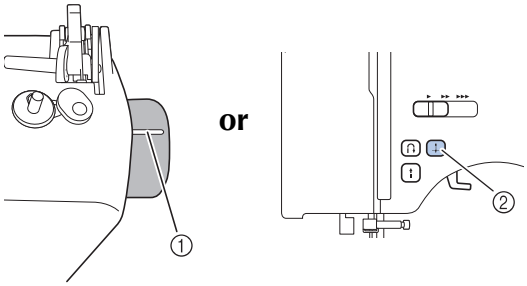


① Flat surface

Replacing the needle

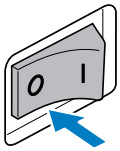
Replace the needle as described below. Use the disc-shaped screwdriver and a needle that has been determined to be straight according to the instructions in "Checking the needle".

1 **Raise the needle by turning the handwheel toward you (counterclockwise) so that the mark on the wheel points up. (With models equipped with (needle position button), raise the needle by pressing once or twice.)**



① Mark ② Needle position button

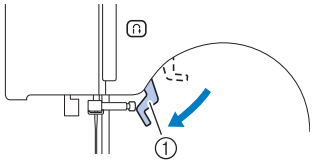
2 **Turn off the sewing machine.**



⚠ CAUTION

- **Before replacing the needle, be sure to turn off the sewing machine, otherwise injuries may occur if the foot controller or the start/stop button is accidentally pressed and the machine starts sewing.**

3 **Lower the presser foot lever.**



① Presser foot lever

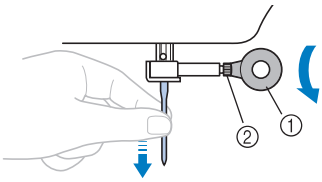
CAUTION

- **Before replacing the needle, place fabric or paper under the presser foot to prevent the needle from falling into the hole in the needle plate.**

4 **Hold the needle with your left hand, and then use a disc-shaped screwdriver to turn the needle clamp screw counterclockwise to remove the needle.**

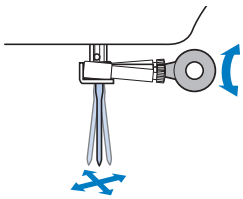
Note

- The needle can be removed by simply loosening the needle clamp screw about one turn. (If the needle clamp screw is loosened too much, the needle clamp (which holds the needle) may fall off. Therefore, do not loosen the needle clamp screw too much.)

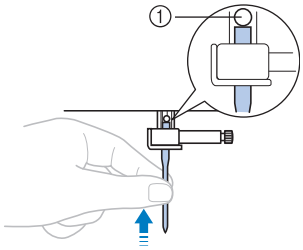


① Disc-shaped screwdriver
② Needle clamp screw

- Do not apply strong force when loosening or tightening the needle clamp screw, otherwise certain parts of the sewing machine may be damaged.

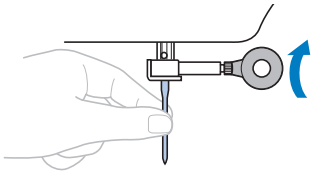


5 **With the flat side of the needle toward the rear of the machine, insert the needle until it touches the needle stopper.**

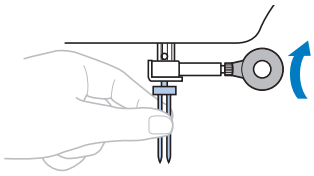


① Needle stopper

6 **While holding the needle with your left hand, use the disc-shaped screwdriver to tighten the needle clamp screw by turning it clockwise.**



Install the twin needle in the same way.

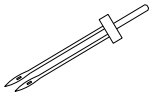


CAUTION

- **Be sure to insert the needle until it touches the needle stopper and securely tighten the needle clamp screw with the disc-shaped screwdriver, otherwise the needle may break or damage may result.**

Sewing with the twin needle

We have designed your machine so you can sew with this needle and two top threads. You can use the same color or two different colors of thread for making decorative stitches.
For details on the stitches that can be sewn with the twin needle, refer to “STITCH SETTINGS” (page 75).



① Twin needle

② Extra spool pin

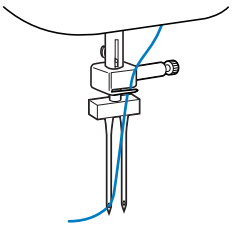
CAUTION

- **Use only twin needles that have been made for this machine (part code: 131096-121). Other needles could break, and damage the machine.**
- **Do not sew with bent needles. The needle could break and injure you.**
- **You can not use the needle threader to thread the twin needle. Instead, thread the twin needle by hand, from front to back. Using the needle threader may damage the machine.**
- **When using the twin needle, be sure to select an appropriate stitch, otherwise the needle may break or the machine may be damaged.**
- **Select a stitch width of 5.0 mm (3/16 inch) or less, otherwise the needle may break or the machine may be damaged.**

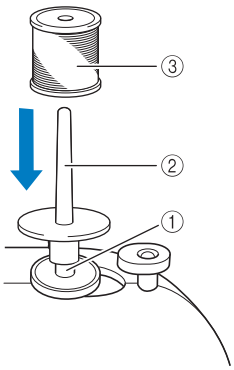
1 Install the twin needle.
- For details on installing a needle, refer to “Replacing the needle” (page 32).

2 Thread the upper thread for the left needle.
- For details, refer to steps ❶ through ⓬ of “Upper threading” (page 25).

3 Manually thread the left needle with the upper thread.
Pass the thread through the eye of the needle from the front to the back.



4 Insert the extra spool pin onto the end of the bobbin winder shaft.



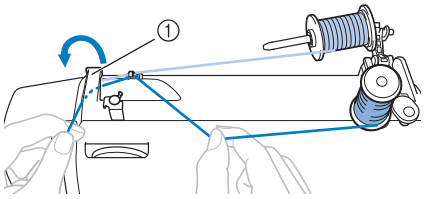
① Bobbin winder shaft
② Extra spool pin
③ Thread spool

5 Install the thread spool and thread the upper thread.

Memo

- When setting the thread spool, set it so that the thread winds off from the front of the spool.

6 **Thread the upper thread for the right side in the same way that the upper thread for the left side was threaded.**

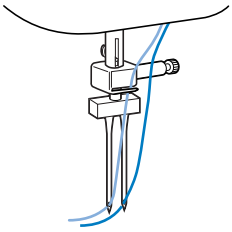


① Thread guide cover

- For details, refer to step ❽ through ⓫ of "Upper threading" (page 25).

7 **Without passing the thread through the needle bar thread guide, manually thread the right needle.**

Pass the thread through the eye of the needle from the front to the back.



8 **Attach zigzag foot "J".**

- For details on changing the presser foot, refer to "Replacing the presser foot" (page 36).

Note

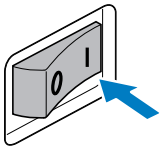
Models equipped with a needle threader

- You cannot use the needle threader to thread the twin needle. Instead, thread the twin needle by hand, from front to back. Using the needle threader may damage the machine.

CAUTION

- **When using the twin needle, be sure to attach zigzag foot "J", otherwise the needle may break or the machine may be damaged.**

9 **Turn on the sewing machine.**



10 **Select a stitch.**

- For details on selecting a stitch, refer to "Selecting a stitch" (page 39).
- For details on the stitches that can be sewn with the twin needle, refer to "STITCH SETTINGS" (page 75).

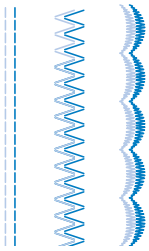
CAUTION

- **After adjusting the stitch width, slowly turn the handwheel toward you (counterclockwise) and check that the needle does not touch the presser foot. If the needle hits the presser foot, the needle may bend or break.**

11 **Start sewing.**

For details on starting to sew, refer to "Starting to sew" (page 41).

▶ Two lines of stitching are sewn parallel to each other.



Note

- When using the twin needle, the stitches may become bunched together, depending on the types of thread and fabric that are used. If this occurs, increase the stitch length. For details on adjusting the stitch length, refer to "Adjusting the stitch length and width" (page 40).

CAUTION

- **When changing the sewing direction, be sure to raise the needle from the fabric, and then raise the presser foot lever and turn the fabric. Otherwise the needle may break or the machine may be damaged.**
- **Do not try turning the fabric with the twin needle left down in the fabric, otherwise the needle may break or the machine may be damaged.**

REPLACING THE PRESSER FOOT

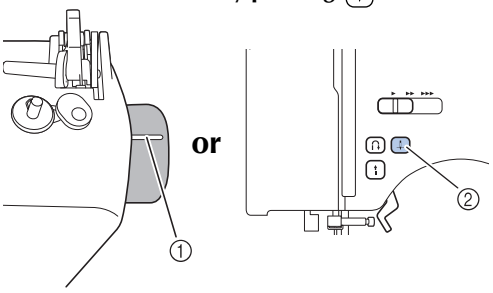
CAUTION

- **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, and may cause injury.**
- **Only use presser feet that have been designed to be used with this machine. Using other any presser feet may cause an accident or injury.**

Replacing the presser foot

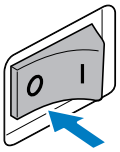
Replace the presser foot as described below.

1 Raise the needle by turning the handwheel toward you (counterclockwise) so that the mark on the wheel points up. (With models equipped with (needle position button), raise the needle by pressing once or twice.)



① Mark ② Needle position button

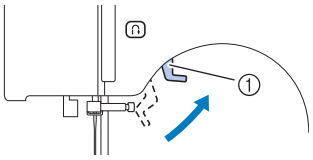
2 If the sewing machine has been turned on, turn it off.



CAUTION

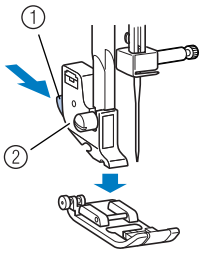
- **Before replacing the presser foot, be sure to turn off the sewing machine, otherwise injuries may occur if the foot controller or the start/stop button is accidentally pressed and the machine starts sewing.**

3 Raise the presser foot lever.



① Presser foot lever

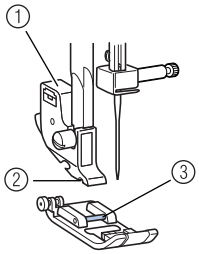
4 Press the black button at the back of the presser foot holder to release the presser foot.



① Black button
② Presser foot holder

5 Place a different presser foot below the holder so that the presser foot pin is aligned with the shank in the holder.

Position the presser foot so the letter indicating the presser foot type (J, A, etc.) is positioned to be read.

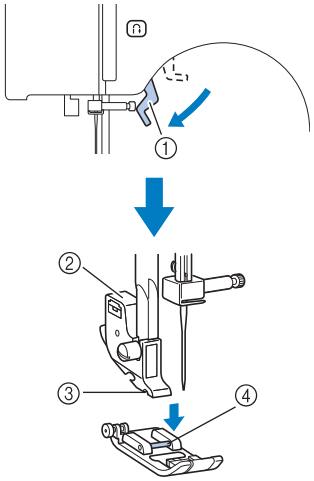


① Presser foot holder
② Shank
③ Pin

Note

- The presser foot to be used with each stitch appears in the LCD. To select a stitch, refer to “Selecting a stitch” (page 39).

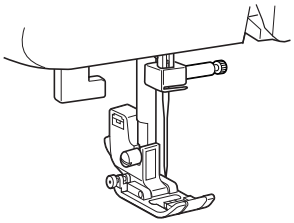
6 **Slowly lower the presser foot lever so that the presser foot pin snaps into the shank in the presser foot holder.**



① Presser foot lever
② Presser foot holder
③ Shank
④ Pin

▶ The presser foot is attached.

7 **Raise the presser foot lever to check that the presser foot is securely attached.**



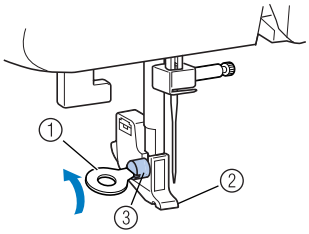
Removing the presser foot holder

Remove the presser foot holder when cleaning the sewing machine or when installing a presser foot that does not use the presser foot holder, such as the quilting foot. Use the disc-shaped screwdriver to remove the presser foot holder.

1 **Remove the presser foot.**

- For details, refer to “Replacing the presser foot” (page 36).

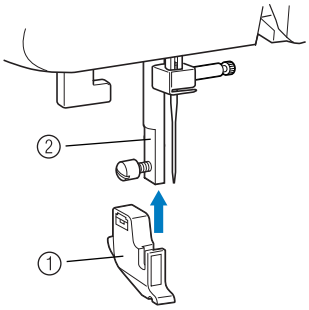
2 **Use the disc-shaped screwdriver to loosen the presser foot holder screw.**



① Disc-shaped screwdriver
② Presser foot holder
③ Presser foot holder screw

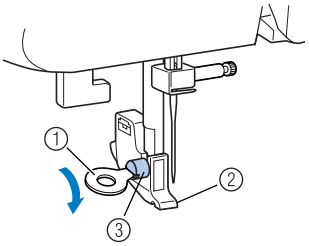
■ Attaching the presser foot holder

1 **Align the presser foot holder with the lower-left side of the presser bar.**



① Presser foot holder
② Presser bar

2 **Hold the presser foot holder in place with your right hand, and then tighten the screw using the disc-shaped screwdriver in your left hand.**



① Disc-shaped screwdriver
② Presser foot holder
③ Presser foot holder screw

Note

- If the presser foot holder is not correctly installed, the thread tension will be incorrect.

CAUTION

- **Be sure to securely tighten the presser foot holder screw, otherwise the presser foot holder may fall off and the needle may strike it, causing the needle to bend or break.**

2 SEWING BASICS

SEWING

Basic sewing operations are described below.
Before operating the sewing machine, read the following precautions.

⚠ CAUTION

- **While the machine is in operation, pay special attention to the needle location. In addition, keep your hands away from all moving parts such as the needle and handwheel, otherwise injuries may occur.**
- **Do not pull or push the fabric too hard while sewing, otherwise injuries may occur or the needle may break.**
- **Never use bent needles. Bent needles can easily break, possibly resulting in injuries.**
- **Make sure that the needle does not strike basting pins, otherwise the needle may break or bend.**

General sewing procedure

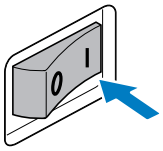
Follow the basic procedures below to sew.

1	**Turn on the machine.**	Turn on the sewing machine. For details on turning on the machine, refer to “Power supply” (page 14).
2	**Select the stitch.**	Select the stitch appropriate for the area to be sewn. For details on selecting a stitch, refer to “Selecting a stitch” (page 39).
3	**Attach the presser foot.**	Attach the presser foot appropriate for the stitch. For details on replacing the presser foot, refer to “Replacing the presser foot” (page 36).
4	**Start sewing.**	Position the fabric, and then start sewing. When sewing is finished, cut the threads. For details on starting to sew, refer to “Starting to sew” (page 41).

Selecting a stitch

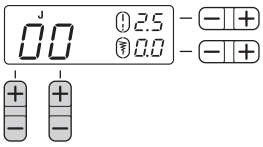
Using the stitch selection keys, select the desired stitch.
When the sewing machine is turned on, the straight stitch (left needle position) is selected.

1 Turn on the sewing machine.



2 Press (stitch selection keys). The number of the selected stitch is displayed.

Press the "+" or "–" side of to increase or reduce the number by one. Pressing on the right changes the digit on the right and pressing on the left changes the digit on the left.



▶ The stitch is selected.

Memo

- The pattern numbers of the stitches are displayed on the machine.

3 Attach the presser foot indicated in the LCD.

① Presser foot type

- For details, refer to "Replacing the presser foot" (page 36).

Memo

- The presser foot to be used is indicated by the letter (J, A, etc.) that appears above or beside the stitch number.

4 If necessary, adjust the stitch length and width.

- For details on sewing with each of the stitches, refer to the following example.

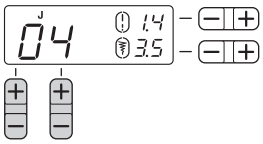
2

Adjusting the stitch length and width

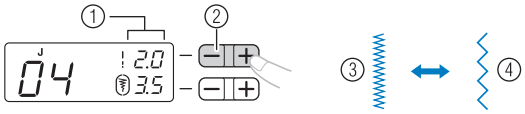
■ **[Example] Selecting stitch .**

1 **Press the stitch selection keys to select stitch 04.**

With on the right, select "4", and with on the left, select "0".

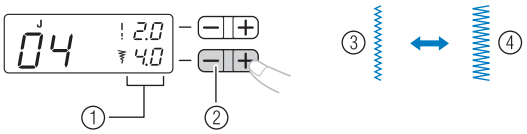


2 **Press the "+" or "–" side of (stitch length adjustment key) to increase or reduce the stitch length.**



① Stitch length
② Stitch length adjustment key
③ Short
④ Long

3 **Press the "+" or "–" side of (stitch width adjustment key) to increase or reduce the stitch width.**



① Stitch width
② Stitch width adjustment key
③ Narrow
④ Wide

Note

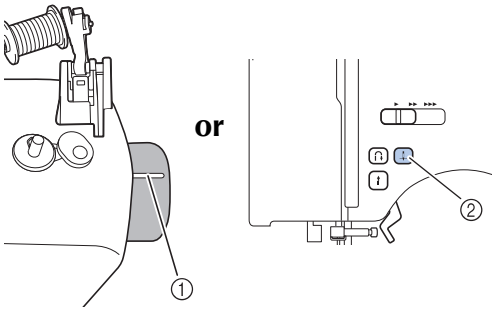
- When the stitch length or stitch width is changed from the standard setting, around or disappears from the LCD. When the stitch length or stitch width is reset back to the standard setting, reappears around or in the LCD.

CAUTION

- **After adjusting the stitch width, slowly turn the handwheel toward you (counterclockwise) and check that the needle does not touch the presser foot. If the needle hits the presser foot, the needle may bend or break.**
- **If the stitches are bunched together, increase the stitch length. Continuing to sew with the stitches bunched together may result in the needle bending or breaking.**

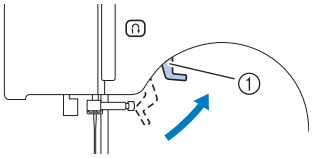
Starting to sew

1 **Raise the needle by turning the handwheel toward you (counterclockwise) so that the mark on the wheel points up. (With models equipped with (needle position button), raise the needle by pressing once or twice.)**



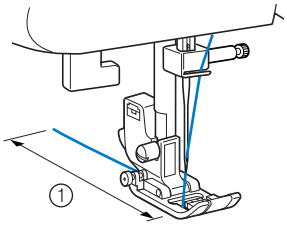
① Mark ② Needle position button

2 **Raise the presser foot lever.**



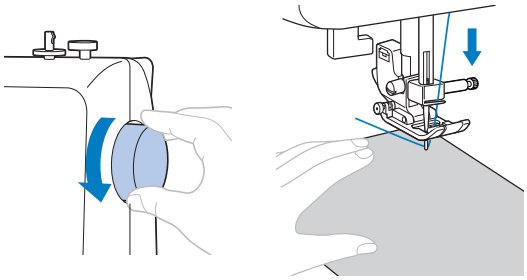
① Presser foot lever

3 **Place the fabric under the presser foot, pass the thread under the presser foot, and then pull out about 5 cm (2 inches) of thread toward the rear of the machine.**

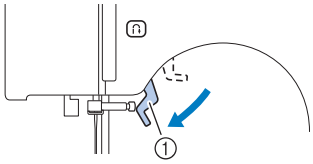


① 5 cm (2 inches)

4 **While holding the end of the thread and the fabric with your left hand, turn the handwheel toward you (counterclockwise) with your right hand to lower the needle to the starting point of the stitching.**

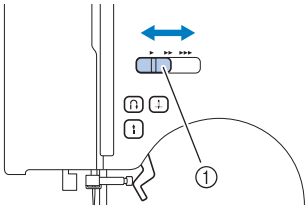


5 **Lower the presser foot lever.**



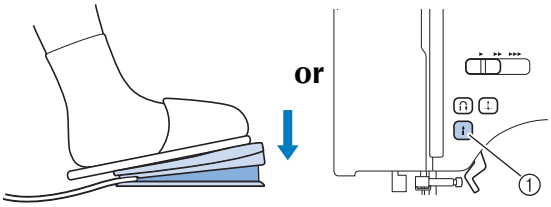
① Presser foot lever

6 **On models equipped with a sewing speed controller, slide the sewing speed controller to the left or right to adjust the sewing speed. Refer to "Sewing speed controller (for models equipped with the start/stop button)" (page 15).**



① Sewing speed controller

7 **Slowly press down on the foot controller. (With models equipped with (start/stop button), if the foot controller is not connected, press once.)**



①Start/stop button

▶ The machine starts sewing.

8 **Take your foot off the foot controller, or press (start/stop button) once (if the machine was started by pressing (start/stop button)) (for models equipped with the start/stop button).**

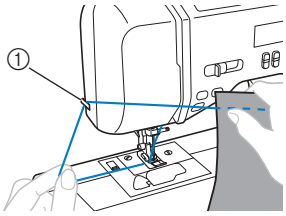
▶ The machine stops sewing.

9 **Raise the needle by turning the handwheel toward you (counterclockwise) so that the mark on the wheel points up. (With models equipped with (needle position button), raise the needle by pressing once or twice.)**

This procedure is not necessary if the needle stop position has been set to the raised position (page 15).

10 **Raise the presser foot lever.**

11 **Pull the fabric to the left side of the machine, and then pass the threads upward from below through the thread cutter to cut them.**



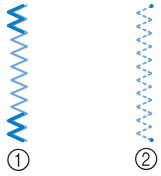
① Thread cutter

Memo

- When the foot controller is plugged in, start/stop button cannot be used to start sewing (for models equipped with the start/stop button).
- When sewing is stopped, the needle remains lowered (in the fabric). The machine can be set so that the needle will stay up when sewing is stopped. For details on setting the machine so that the needles stay up when sewing is stopped, refer to "Changing the needle stop position" (page 15).

■ **Sewing reinforcement stitches**

When sewing stitches other than straight or zigzag stitches that are secured with reverse stitching, pressing (reverse/reinforcement stitch button) sews reinforcement stitches, 3 to 5 stitches on top of each other.



① Reverse stitching
② Reinforcement stitching

Memo

- Whether reverse stitches or reinforcement stitches are sewn depends on the stitch that is selected. For details, refer to "STITCH SETTINGS" (page 75).

Thread tension

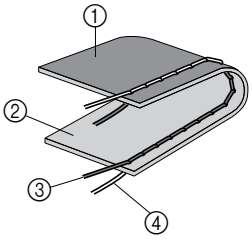
The thread tension will affect the quality of your stitches. You may need to adjust it when you change fabric or thread.

Memo

- We recommend that you do a test sample on scrap of a fabric before you start to sew.

■ Correct tension

Correct tension is important as too much or too little tension will weaken your seams or cause puckers on your fabric.



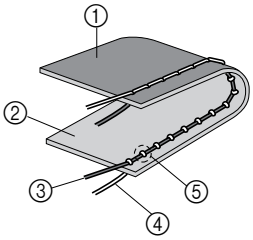
① Wrong side
② Surface
③ Upper thread
④ Lower thread

■ Upper tension is too tight

Loops will appear on the surface of the fabric.

Note

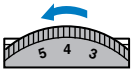
- If the bobbin thread was incorrectly threaded, the upper thread may be too tight. In this case, refer to "Lower threading" (page 22) and rethread the bobbin thread.



① Wrong side
② Surface
③ Upper thread
④ Lower thread
⑤ Loops appear on surface of fabric

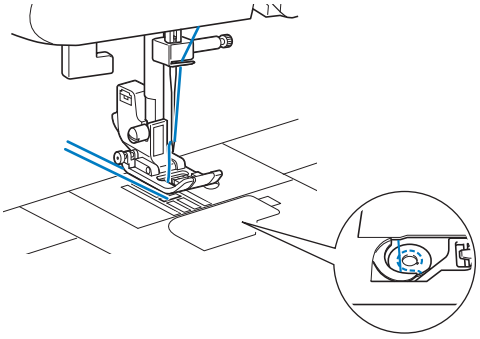
Solution

Reduce the tension by turning the upper tension-control dial to a lower number.



Memo

- When you finish sewing, remove the bobbin cover and then make sure that the thread is shown as below. If the thread is not shown as below, the thread is not inserted through the tension-adjusting spring of the bobbin case correctly. Reinsert the thread correctly. For details, refer to page 22, 23.

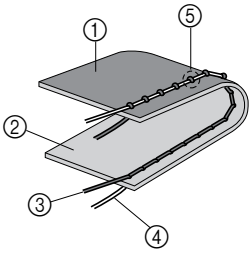


■ Upper tension is too loose

Loops appear on the wrong side of the fabric.

Note

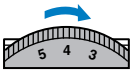
- If the upper thread was incorrectly threaded, the upper thread may be too loose. In this case, refer to "Upper threading" (page 25) and rethread the upper thread.



① Wrong side
② Surface
③ Upper thread
④ Lower thread
⑤ Loops appear on wrong side of fabric

Solution

Increase the tension by turning the upper tension-control dial to a higher number.



USEFUL SEWING TIPS

Various ways to achieve better results for your sewing projects are described below. Refer to these tips when sewing your project.

Trial sewing

After you select a stitch, the machine automatically sets the stitch width and length for the stitch that is selected.
However, a trial piece of fabric should be sewn since, depending on the type of fabric and stitching being sewn, the desired results may not be achieved.
For the trial sewing, use a piece of fabric and thread that are the same as those used for your project, and check the thread tension and stitch length and width.
Since the results differ depending on the type of stitching and the number of layers of fabric sewn, perform the trial sewing under the same conditions that will be used with your project.

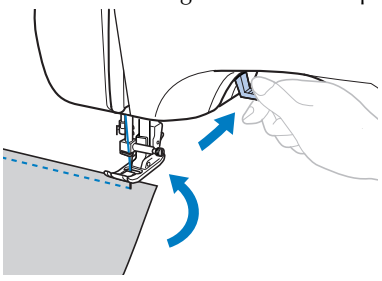
Changing the sewing direction

1. **When the stitching reaches a corner, stop the sewing machine.**
   Leave the needle lowered (in the fabric). If the needle was raised, lower the needle either by turning the handwheel toward you (counterclockwise) or by pressing (needle position button) once (for models equipped with the needle position button).

CAUTION

- **When using the twin needle, be sure to raise the needle before changing the sewing direction. If the fabric is turned while the needle is lowered, the needle may bend or break.**

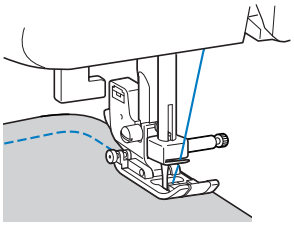
2. **Raise the presser foot lever, and then turn the fabric.**
   Turn the fabric using the needle as a pivot.



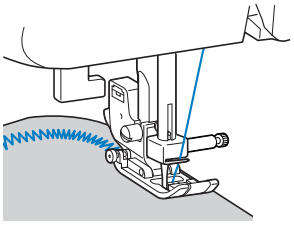
3. **Lower the presser foot lever and continue sewing.**

Sewing curves

Stop sewing, and then slightly change the sewing direction to sew around the curve.

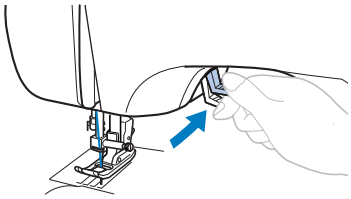


When sewing along a curve while using a zigzag stitch, select a shorter stitch length in order to obtain a finer stitch.

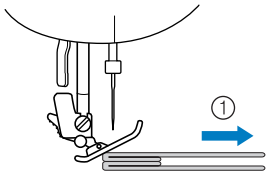


Sewing thick fabrics

■ **If the fabric does not fit under the presser foot**
If the fabric does not fit easily under the presser foot, raise the presser foot lever even higher to bring the presser foot to its highest position.

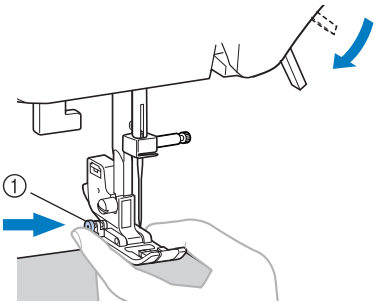


■ **If thick seams are being sewn and the fabric does not feed at the beginning of stitching**
The fabric may not feed when thick seams are being sewn and the presser foot is not level, as shown below. In this case, use the presser foot locking pin (black button on the left side of zigzag foot "J") so that the presser foot remains level while sewing, allowing the fabric to be fed smoothly.



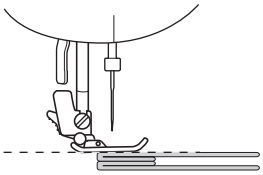
① Sewing direction

1. **Raise the presser foot lever.**
2. **Align the beginning of stitching, and then position the fabric.**
3. **While holding zigzag foot "J" level, hold the presser foot locking pin (black button on the left side) pressed in, and lower the presser foot lever.**



① Presser foot locking pin (black button)

4. **Release the presser foot locking pin (black button).**
   ▶ The presser foot remains level, allowing the fabric to be fed.



- After the seam is sewn, the presser foot will return to its original angle.

⚠ CAUTION

- **If fabric more than 6 mm (15/64 inch) thick is sewn or if the fabric is pushed with too much force, the needle may bend or break.**

Sewing hook-and-loop fastener

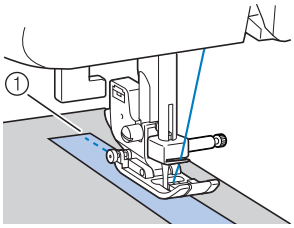
⚠ CAUTION

- **Use only the ungummed hook-and-loop fastener which is for sewing. If the glue is attached to the needle or the bobbin hook race, it may cause malfunction.**
- **If the hook-and-loop fastener is sewn with the thin needle (65/9 – 75/11), the needle may bend or break.**

Note

- Before start sewing, baste together the fabric and the hook-and-loop fastener.

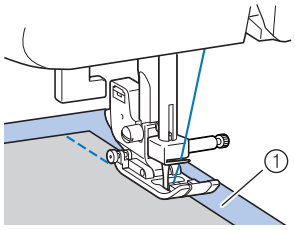
Make sure that the needle passes through the hook-and-loop fastener by turning the handwheel and lower the needle into the hook-and-loop fastener before sewing. And then, sew the edge of the hook-and-loop fastener at a slow speed.
If the needle does not pass through the hook-and-loop fastener, replace the needle with the needle for thick fabrics (page 31).



① Edge of the hook-and-loop fastener

Sewing thin fabrics

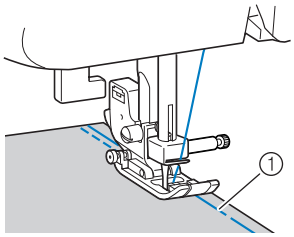
When sewing thin fabrics, the stitching may become misaligned or the fabric may not feed correctly. If this occurs, place thin paper or stabilizer material under the fabric and sew it together with the fabric. When you have finished sewing, tear off any excess paper.



① Stabilizer material or paper

Sewing stretch fabrics

First, baste the pieces of fabric together, and then sew without stretching the fabric.

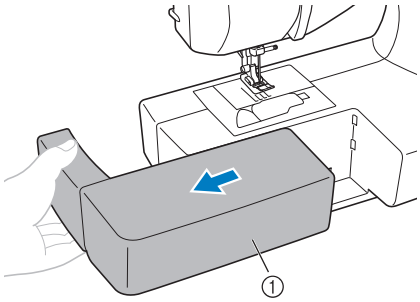


① Basting

Stitching cylindrical pieces

Removing the flat bed attachment makes it easier to sew cylindrical pieces such as cuffs and pant legs, or hard-to-reach areas.

1 Pull the flat bed attachment to the left to release it.



① Flat bed attachment

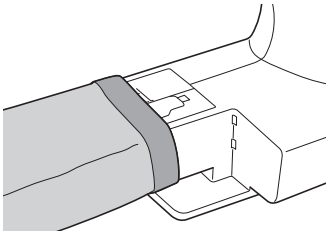
▶ With the flat bed attachment removed, free-arm sewing is possible.

- When sewing cylindrical pieces, follow the next step.

Note

- When you are finished with free-arm sewing, install the flat bed attachment back in its original position.

2 Slide the part that you wish to sew onto the arm, and then sew from the top.



3 UTILITY STITCHES

OVERCASTING STITCHES

You can use the overcasting stitches to join together seams and finish them in one operation. They are also useful for sewing stretch materials.

Stitch Name	Pattern	Presser Foot	Pattern No.							Application	Stitch Width [mm (inch.)]	Stitch Length [mm (inch.)]	Twin Needle	Walking Foot	Reverse (Rev.)/ Reinforcement (Rfc.) Stitching
			100 stitches model	90 stitches model	80 stitches model	70 stitches model	60 stitches model	50 stitches model	40 stitches model		Auto Manual	Auto Manual			
Zigzag stitch		J	04	04	04	04	04	04	04	Overcasting and attaching appliqués	**3.5 (1/8)** 0.0–7.0 (0–1/4)	**1.4 (1/16)** 0.0–4.0 (0–3/16)	** Yes (J)	* Yes	Rev.
3-point zigzag stitch		J	05	05	05	05	05	05	05	Overcasting on medium weight or stretch fabrics, attaching elastic, darning, etc.	**5.0 (3/16)** 1.5–7.0 (1/16–1/4)	**1.0 (1/16)** 0.2–4.0 (1/64–3/16)	** Yes (J)	No	Rfc.
Overcasting stitch		G	06	06	06	06	06	06	06	Overcasting on thin or medium weight fabrics	**3.5 (1/8)** 2.5–5.0 (3/32–3/16)	**2.0 (1/16)** 1.0–4.0 (1/16–3/16)	No	No	Rfc.
		G	07	07	07	07	07	07	07	Overcasting on thick fabrics	**5.0 (3/16)** 2.5–5.0 (3/32–3/16)	**2.5 (3/32)** 1.0–4.0 (1/16–3/16)	No	No	Rfc.
		J	08	08	08	08	08	08	08	Overcasting on stretch fabrics	**5.0 (3/16)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 0.5–4.0 (1/32–3/16)	** Yes (J)	No	Rfc.
		J	09	09	09	-	-	-	-	Overcasting on thick or stretch fabrics	**5.0 (3/16)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 0.5–4.0 (1/32–3/16)	** Yes (J)	No	Rfc.

*Do not use reverse stitching. **Select a stitch width of 5.0 mm (3/16 inch) or less.

⚠ CAUTION

- **Be sure to turn off the main power before replacing the presser foot. Otherwise, injuries may occur if the foot controller or (start/stop button) is accidentally pressed and the machine starts sewing.**

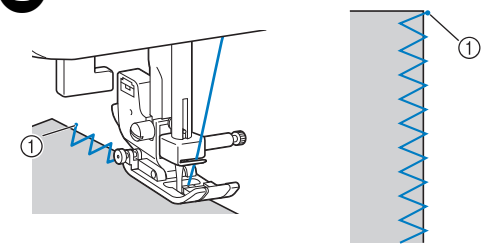
Using zigzag foot

1 Attach zigzag foot "J".

2 Select a stitch.

- For details, refer to "Selecting a stitch" (page 39).

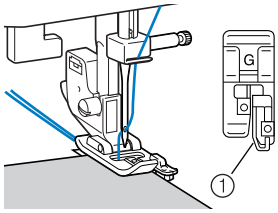
3 Sew with the edge of the fabric.



① Needle drop point

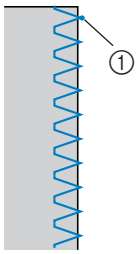
Using overcasting foot

1. **Attach overcasting foot "G".**
2. **Select stitch or .**
   - For details, refer to "Selecting a stitch" (page 39).
3. **Position the fabric with the edge of the fabric against the guide of the presser foot, and then lower the presser foot lever.**



① Guide

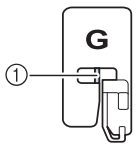
4. **Slowly turn the handwheel toward you (counterclockwise) and check that the needle does not touch the presser foot.**
5. **Sew with the edge of the fabric against the presser foot guide.**



① Needle drop point

⚠ CAUTION

- **After adjusting the stitch width, slowly turn the handwheel toward you (counterclockwise) and check that the needle does not touch the presser foot. If the needle hits the presser foot, the needle may bend or break.**



① Check that the needle does not touch the presser foot.

BASIC STITCHING

Straight stitches are used for sewing plain seams. Three stitches are available for basic stitching.

Stitch Name		Pattern	Presser Foot	Pattern No. 100 stitches model	90 stitches model	80 stitches model	70 stitches model	60 stitches model	50 stitches model	40 stitches model	Application	Stitch Width [mm (inch.)] Auto / Manual	Stitch Length [mm (inch.)] Auto / Manual	Twin Needle	Walking Foot	Reverse (Rev.)/ Reinforcement (Rfc.) Stitching
Straight	Left		J	00	00	00	00	00	00	00	Basic stitching, sewing gathers or pintucks, etc.	**0.0 (0)** / 0.0–7.0 (0–1/4)	**2.5 (3/32)** / 0.2–5.0 (1/64–3/16)	** Yes (J)	Yes *	Rev.
Straight	Center		J	01	01	01	01	01	01	01	Attaching zippers, basic stitching, and sewing gathers or pintucks, etc.	**3.5 (1/8)** / 0.0–7.0 (0–1/4)	**2.5 (3/32)** / 0.2–5.0 (1/64–3/16)	** Yes (J)	Yes *	Rev.
Triple stretch stitch			J	02	02	02	02	02	02	02	Attaching sleeves, sewing inseams, sewing stretch fabrics and decorative stitching	**0.0 (0)** / 0.0–7.0 (0–1/4)	**2.5 (3/32)** / 1.5–4.0 (1/16–3/16)	** Yes (J)	No	Rfc.

*Do not use reverse stitching. **Select a stitch width of 5.0 mm (3/16 inch) or less.

⚠ CAUTION

- **Be sure to turn off the main power before replacing the presser foot. Otherwise, injuries may occur if the foot controller or (start/stop button) is accidentally pressed and the machine starts sewing.**

Basic stitching

1 Baste or pin together the fabric pieces.

2 Attach zigzag foot "J".

3 Select a stitch.

- For details, refer to "Selecting a stitch" (page 39).

4 Lower the needle into the fabric at the beginning of the stitching.

5 Start sewing.

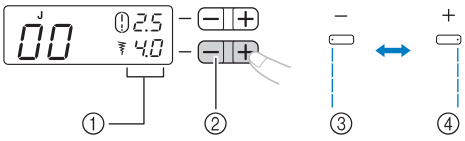
- For details, refer to "Starting to sew" (page 41).
- For details on sewing reverse/reinforcement stitches, refer to "Sewing reinforcement stitches" (page 42).

6 When sewing is finished, cut the thread.

- For details, refer to "Starting to sew" (page 41).

■ Changing the needle position

With the straight stitch (left needle position) and the triple stretch stitch, the needle position can be adjusted. Pressing the "+" side of the stitch width adjustment key moves the needle to the right; pressing the "–" side of the stitch width adjustment key moves the needle to the left.



① Stitch width
② Stitch width adjustment key
③ Left needle position
④ Right needle position

BLIND HEM STITCHING

You can use the Blind Hem Stitch to finish the edge of a project, like the hem of a pair of trousers, without the stitch showing.

Stitch Name	Pattern	Presser Foot	Pattern No.							Application	Stitch Width [mm (inch.)]	Stitch Length [mm (inch.)]	Twin Needle	Walking Foot	Reverse (Rev.)/ Reinforcement (Rfc.) Stitching
			100 stitches model	90 stitches model	80 stitches model	70 stitches model	60 stitches model	50 stitches model	40 stitches mod		Auto Manual	Auto Manual			
Blind hem stitch		R	10	10	10	09	09	09	09	Blind hem stitching on medium weight fabrics	**0 (0)** -3← →3	**2.0 (1/16)** 1.0–3.5 (1/16–1/8)	No	No	Rfc.
		R	11	11	11	10	10	10	10	Blind hem stitching on stretch fabrics	**0 (0)** -3← →3	**2.0 (1/16)** 1.0–3.5 (1/16–1/8)	No	No	Rfc.

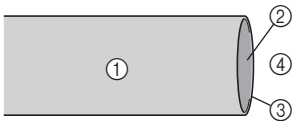
CAUTION

- **Be sure to turn off the main power before replacing the presser foot. Otherwise, injuries may occur if the foot controller or (start/stop button) is accidentally pressed and the machine starts sewing.**

Memo

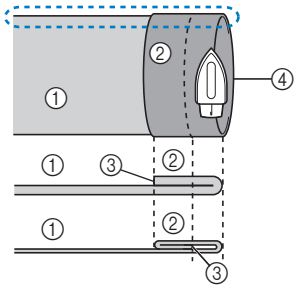
- When selecting stitch or . Stitch numbers “0”, “-1”, “-2” or “-3” may be displayed on the LCD by pressing “-” side of the stitch width adjustment key, then the needle drop point will be changed to the left. Stitch numbers “0”, “1”, “2” or “3” may be displayed on the LCD by pressing “+” side of the stitch width adjustment key, then the needle drop point will be changed to the right.
- When the size of cylindrical pieces is too small to slide onto the arm or the length is too short, the fabric will not feed and desired results may not be achieved.

1 **Reverse the skirt or pants.**



① Wrong side of fabric
② Right side of fabric
③ Edge of fabric
④ Bottom side

2 **Fold the fabric along the desired edge of the hem, and press.**



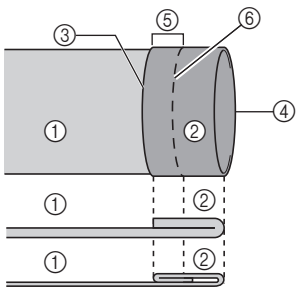
① Wrong side of fabric
② Right side of Fabric
③ Edge of fabric
④ Desired edge of hem

<Thick fabric>

<Normal fabric>

<Seen from the side>

3 **Use a chalk to mark on the fabric about 5 mm (3/16 inch) from the edge of the fabric, and then baste it.**



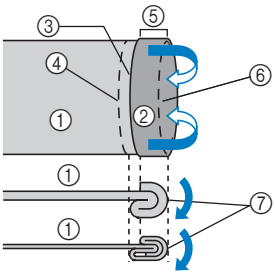
① Wrong side of fabric
② Right side of fabric
③ Edge of fabric
④ Desired edge of hem
⑤ 5 mm (3/16 inch)
⑥ Basting

<Thick fabric>

<Normal fabric>

<Seen from the side>

4 **Fold back the fabric inside along the basting.**



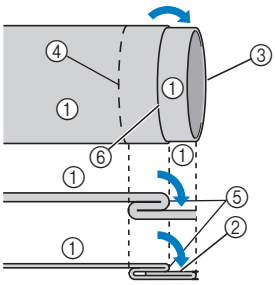
① Wrong side of fabric
② Right side of fabric
③ Edge of fabric
④ Desired edge of hem
⑤ 5 mm (3/16 inch)
⑥ Basting
⑦ Basting point

<Thick fabric>

<Normal fabric>

<Seen from the side>

5 **Unfold the edge of fabric, and position the fabric with the wrong side facing up.**



① Wrong side of fabric
② Right side of fabric
③ Edge of fabric
④ Desired edge of hem
⑤ Basting point
⑥ Basting

<Thick fabric>

<Normal fabric>

<Seen from the side>

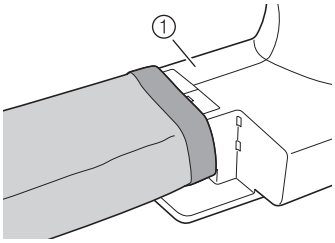
6 **Attach blind hem foot "R".**

7 **Select a stitch.**

8 **Remove the flat bed attachment and make free-arm sewing possible.**

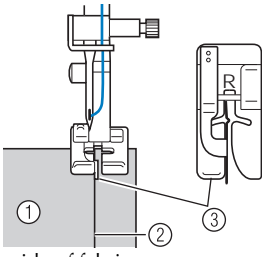
- For details on free-arm sewing, refer to "Stitching cylindrical pieces" (page 46).

9 **Slide the part that you wish to sew onto the arm, make sure that the fabric feeds correctly, and then start sewing.**



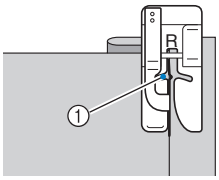
① Arm

10 **Position the fabric with the edge of the folded hem against the guide of the presser foot, and then lower the presser foot lever.**



① Wrong side of fabric
② Fold of hem
③ Guide

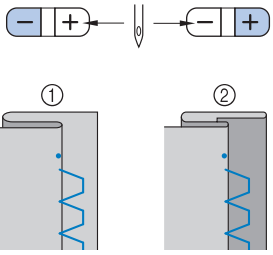
11 **Adjust the stitch width until the needle slightly catches the fold of the hem.**



① Needle drop point

When you change the needle drop point, raise the needle, and then change the stitch width.

Stitch width



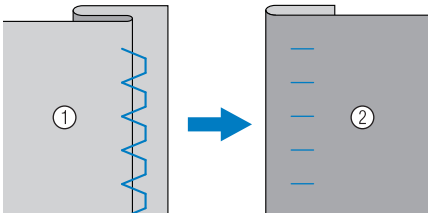
① Thick fabric
② Normal fabric

3

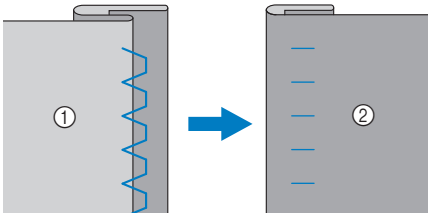
■ If the needle catches too much of the hem fold

If the needle catches too much of the hem fold, adjust the stitch width so that the needle slightly catches the fold by pressing the "+" side of the stitch width adjustment key.

<Thick fabric>



<Normal fabric>

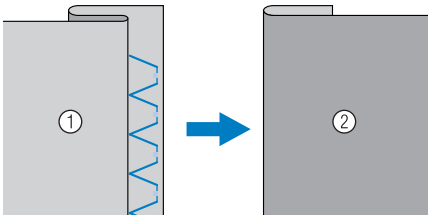


① Wrong side of fabric ② Right side of fabric

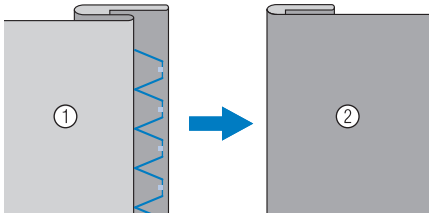
■ If the needle does not catch the hem fold

If the needle does not catch the hem fold, adjust the stitch width so that the needle slightly catches the fold by pressing the "-" side of the stitch width adjustment key.

<Thick fabric>



<Normal fabric>

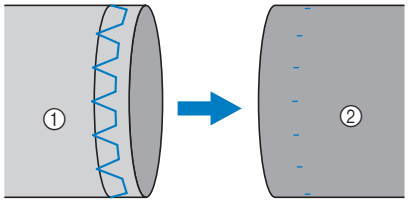


① Wrong side of fabric ② Right side of fabric

- For details on changing the stitch width, refer to "Selecting a stitch" (page 39).

12 Sew with the fold of the hem against the presser foot guide.

13 Remove the basting stitching and turn the fabric right side up.



① Wrong side of fabric ② Right side of fabric

BUTTONHOLE SEWING

Buttonholes can be sewn and buttons can be sewn on.

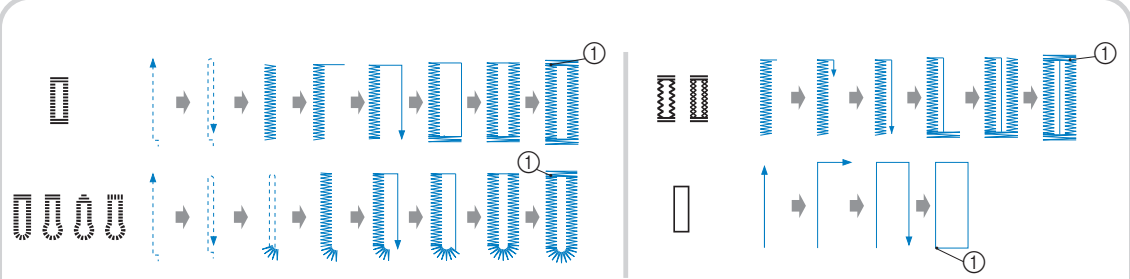
Stitch Name	Pattern	Presser Foot	Pattern No.							Application	Stitch Width [mm (inch.)]	Stitch Length [mm (inch.)]	Twin Needle	Walking Foot	Reverse (Rev.)/ Reinforcement (Rfc.) Stitching
			100 stitches model	90 stitches model	80 stitches model	70 stitches model	60 stitches model	50 stitches model	40 stitches model		Auto Manual	Auto Manual			
Buttonhole stitch		A	34	34	34	29	29	29	25	Horizontal buttonholes on thin and medium weight fabrics	**5.0 (3/16)** 3.0-5.0 (1/8-3/16)	**0.5 (1/32)** 0.2-1.0 (1/64-1/16)	No	No	Auto Rfc. *
		A	35	35	35	30	30	30	26	Secured buttoholes for fabrics that have backings	**5.0 (3/16)** 3.0–5.0 (1/8-3/16)	**0.5 (1/32)** 0.2–1.0 (1/64-1/16)	No	No	Auto Rfc. *
		A	36	36	36	31	31	31	27	Buttonholes for stretch or knit fabrics	**6.0 (15/64)** 3.0–6.0 (1/8-15/64)	**1.0 (1/16)** 0.5–2.0 (1/32-1/16)	No	No	Auto Rfc. *
		A	37	37	37	32	32	32	28	Buttonholes for stretch fabrics	**6.0 (15/64)** 3.0–6.0 (1/8-15/64)	**1.5 (1/16)** 1.0–3.0 (1/16-1/8)	No	No	Auto Rfc. *
		A	38	38	38	–	–	–	–	Bound buttonholes	**5.0 (3/16)** 0.0–6.0 (0–15/64)	**2.0 (1/16)** 0.2–4.0 (1/64-3/16)	No	No	Auto Rfc. *
		A	39	39	39	33	33	33	29	Keyhole buttonholes for thick or furry fabrics	**7.0 (1/4)** 3.0–7.0 (1/8-1/4)	**0.5 (1/32)** 0.3–1.0 (1/64-1/16)	No	No	Auto Rfc. *
		A	40	40	40	34	34	–	–	Keyhole buttonholes for medium weight and thick fabrics	**7.0 (1/4)** 3.0–7.0 (1/8-1/4)	**0.5 (1/32)** 0.3–1.0 (1/64-1/16)	No	No	Auto Rfc. *
		A	41	41	41	35	35	–	–	Keyhole buttonholes for thick or furry fabrics	**7.0 (1/4)** 3.0–7.0 (1/8-1/4)	**0.5 (1/32)** 0.3–1.0 (1/64-1/16)	No	No	Auto Rfc. *
Zigzag stitch (for quilting)		J	46	46	46	40	40	–	–	Appliqué quilting, free-motion quilting, satin stitching, button sewing	**3.5 (1/8)** 0.0–7.0 (0–1/4)	**1.4 (1/16)** 0.0-4.0 (0-3/16)	No	Yes	Rfc.

*Auto Reinf.: Automatic Reinforcement

⚠ CAUTION

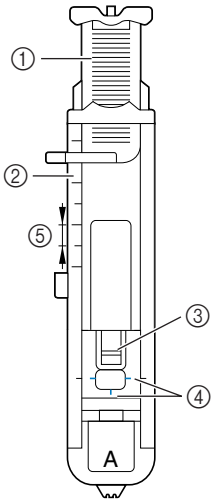
- **Be sure to turn off the main power before replacing the presser foot. Otherwise, injuries may occur if the foot controller or (start/stop button) is accidentally pressed and the machine starts sewing.**

The maximum buttonhole length is about 28 mm (1-1/8 inches) (diameter + thickness of the button).
Buttonholes are sewn from the front of the presser foot to the back, as shown below.



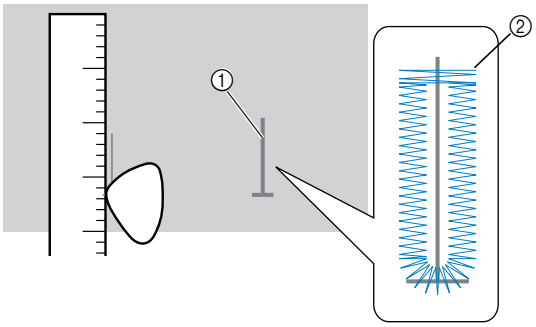
① Reinforcement stitching

The names of parts of buttonhole foot “A”, which is used for sewing buttonholes, are indicated below.



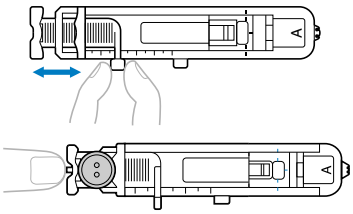
① Button guide plate
② Presser foot scale
③ Pin
④ Marks on buttonhole foot
⑤ 5 mm (3/16 inch)

1 Use chalk to mark the position and length of the buttonhole on the fabric.



① Marks on fabric
② Buttonhole sewing

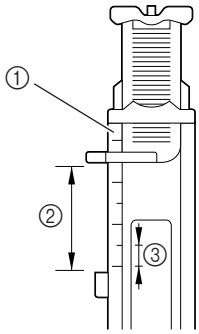
2 Pull out the button guide plate of buttonhole foot “A”, and then insert the button that will be put through the buttonhole.



▶ The size of the buttonhole is set.

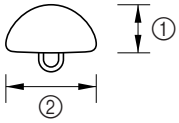
■ **If the button does not fit in the button guide plate**

Add together the diameter and thickness of the button, and then set the button guide plate to the calculated length. (The distance between the markings on the presser foot scale is 5 mm (3/16 inch).)



① Presser foot scale
② Length of buttonhole
(Diameter + thickness of button)
③ 5 mm (3/16 inch)

Example: For a button with a diameter of 15 mm (9/16 inch) and a thickness of 10 mm (3/8 inch), the button guide plate should be set to 25 mm (1 inch) on the scale.

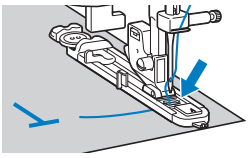


① 10 mm (3/8 inch)
② 15 mm (9/16 inch)

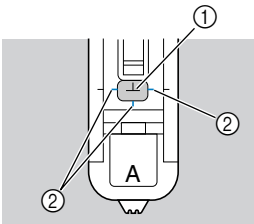
3 Attach buttonhole foot “A”.

4 Select a stitch.

5 Pass the upper thread down through the hole in the presser foot.

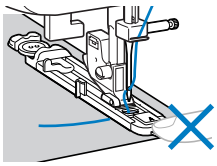


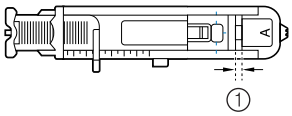
6 **Position the fabric with the front end of the buttonhole mark aligned with the red marks on the sides of the buttonhole foot, and then lower the presser foot lever.**



① Mark on fabric
② Red marks on buttonhole foot

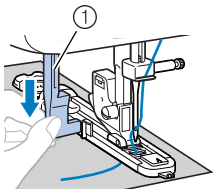
- When lowering the presser foot, do not push in the front of the presser foot, otherwise the buttonhole will not be sewn with the correct size.





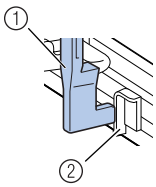
① Do not reduce the gap.

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



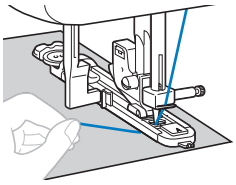
① Buttonhole lever

The buttonhole lever is positioned behind the bracket on the buttonhole foot.



① Buttonhole lever
② Bracket

8 **Gently hold the end of the upper thread in your left hand, and then start sewing.**



Note

- If thick seams are being sewn and the fabric does not feed, sew with the coarser (longer) stitch.

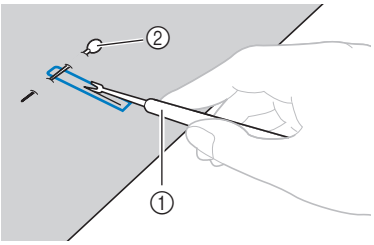
▶ Once sewing is completed, the machine automatically sews reinforcement stitches, then stops.

9 **Raise the needle and the presser foot lever, remove the fabric, and cut the thread.**

10 **Raise the buttonhole lever to its original position.**

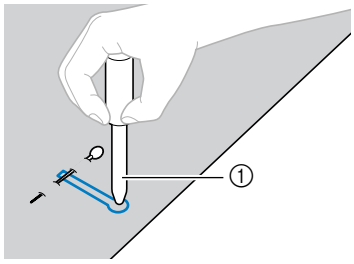
3

11 Insert a pin at the end of the buttonhole stitching to prevent the stitching from being cut, and then use a seam ripper to cut towards the pin and open the buttonhole.



① Seam ripper
② Pin

For keyhole buttonholes, use a commercial eyelet punch to make a hole in the rounded end of the buttonhole, and then use the seam ripper to cut open the buttonhole.



① Eyelet punch

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

⚠ CAUTION

- **When opening the buttonhole with the seam ripper, do not place your hands in the cutting path, otherwise injuries may result if the seam ripper slips. Do not use the seam ripper in any other way than how it is intended.**

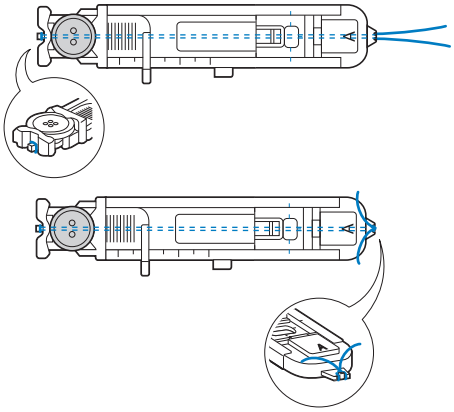
Memo

- Before sewing buttonholes, check the stitch length and width by sewing a trial buttonhole on a scrap piece of fabric.

■ Sewing buttonholes on stretch fabrics

When sewing buttonholes on stretch fabrics, use a gimp thread.

1 Hook the gimp thread onto the part of buttonhole foot "A" shown in the illustration so that it fits into the grooves, and then loosely tie it.



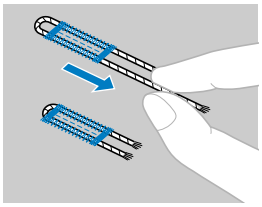
2 Attach buttonhole foot "A".

3 Select a stitch ▒ or ▒.

4 Adjust the stitch width to the thickness of the gimp thread.

5 Lower the presser foot lever and the buttonhole lever, and then start sewing.

6 When sewing is finished, gently pull the gimp thread to remove any slack.



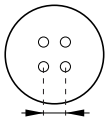
7 Use a handsewing needle to pull the gimp thread to the wrong side of the fabric, and then tie it.

8 With a seam ripper, cut the middle part of the gimp thread remaining at the top end of the buttonhole.
Trim off any excess of the gimp thread.

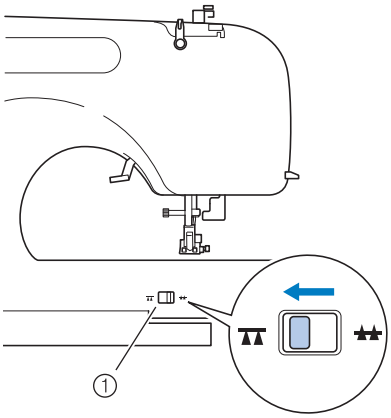
Button sewing

Buttons can be sewn on with the sewing machine. Buttons with 2 or with 4 holes can be attached.

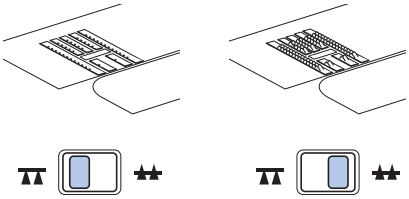
1 Measure the distance between the holes in the button to be attached.



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

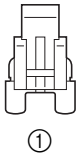


① Feed dog position lever
(as seen from the rear of the machine)



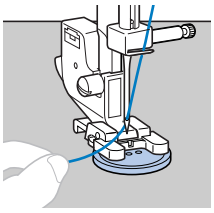
▶ The feed dogs are lowered.

3 Attach presser foot "M".

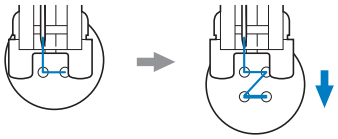


① Button fitting foot "M"

4 Place a button between the presser foot and the fabric.



- 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 sewing machine, and then sew them in the same way.



5 Select a stitch . (With models not provided with stitch , select stitch .)

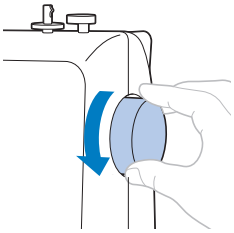
6 Adjust the stitch width so that it is the same as the distance between the holes in the button.

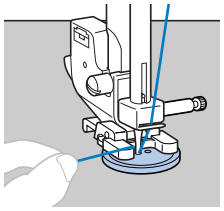
7 Set the stitch length to the shortest setting by pressing the stitch length adjustment key.

3

8 Turn the handwheel toward you (counterclockwise) to check that the needle correctly goes into the two holes of the button.

Adjust the stitch width to the distance between the button holes.





⚠ CAUTION

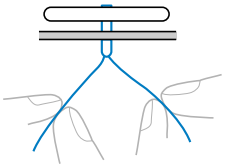
- **When sewing, be sure that the needle does not touch the button, otherwise the needle may bend or break.**

9 Start sewing.

- After sewing for about 10 seconds at low speed, press (reverse/reinforcement stitch button) to sew reinforcement stitches.

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

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



11 When you are finished attaching the button, slide the feed dog position lever to (to the left as seen from the front of the machine) and turn the handwheel to raise the dogs.

- Normally, the feed dog position lever is positioned at .

ZIPPER INSERTION

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.

Stitch Name	Pattern	Presser Foot	Pattern No.							Application	Stitch Width [mm (inch.)]	Stitch Length [mm (inch.)]	Twin Needle	Walking Foot	Reverse (Rev.)/ Reinforcement (Rfc.) Stitching
			100 stitches model	90 stitches model	80 stitches model	70 stitches model	60 stitches model	50 stitches model	40 stitches model		Auto Manual	Auto Manual			
Straight stitch (center)		I	01	01	01	01	01	01	01	Attaching zippers, basic stitching, and sewing gathers or pintucks, etc.	**3.5 (1/8)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 0.2–5.0 (1/64–3/16)	** Yes (J)	* Yes	Rev.

*Do not use reverse stitching. **Select a stitch width of 5.0 mm (3/16 inch) or less.

3

CAUTION

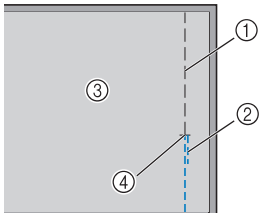
- **Be sure to turn off the main power before replacing the presser foot. Otherwise, injuries may occur if the foot controller or (start/stop button) is accidentally pressed and the machine starts sewing.**

1 Attach zigzag foot "J".

2 Place the two pieces of fabric with their right sides facing each other.

3 Sew basic stitches to the end of the zipper opening, and then sew reverse stitches at the end of the stitching.

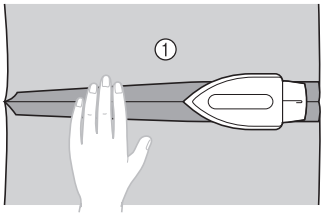
- Use basting stitching to sew the zipper opening (where the zipper will be inserted).



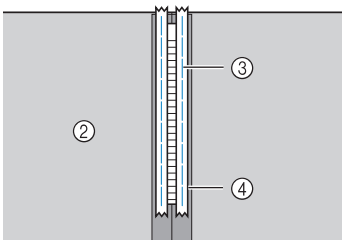
① Basting stitching
② Reverse stitches
③ Wrong side of fabric
④ End of zipper opening

- Refer to "Basic stitching" on page 49.

4 Open the seam allowance, press it from the wrong side of the fabric with an iron, align the center of the zipper with the stitching, and then baste the zipper in place.

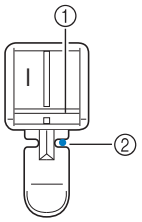


① Wrong side of fabric



② Wrong side of fabric
③ Basting stitching
④ Zipper

5 **Attach the presser foot holder to the right side of the pin on zipper foot "I".**



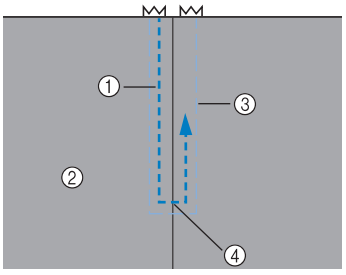
① Pin on the right side
② Needle drop point

6 **Select stitch** .

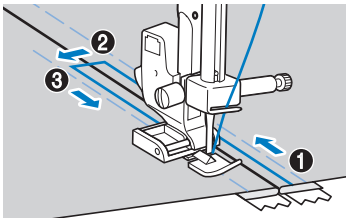
CAUTION

- **Turn the handwheel by hand to make sure the needle does not hit the presser foot before you start sewing. If you choose a different stitch, the needle will hit the presser foot and break the needle. You may also be injured.**

7 **With the right side of the fabric facing up, continue sewing with the zipper on the right side of the presser foot.**



① Stitching
② Right side of fabric
③ Basting stitching
④ End of zipper opening



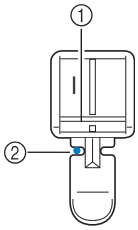
Sew the stitching in order, from ❶ to ❸.

CAUTION

- **Make sure the needle does not hit the zipper during sewing. If the needle hits the zipper, the needle may break and you may be injured.**

Memo

- If the presser foot contacts the zipper slider, leave the needle lowered (in the fabric) and raise the presser foot. After moving the slider so it will not contact the presser foot, lower the presser foot and continue sewing.
- To sew with the zipper on the left side of the presser foot, attach the presser foot holder to the left side of the pin on zipper foot "I" in step ❺.



① Left side of the pin
② Needle drop point

8 **When you have finished sewing, remove the basting stitching.**

SEWING STRETCH FABRICS AND ELASTIC TAPE

Stretch fabrics can be sewn and elastic tape can be attached.

Stitch Name	Pattern	Presser Foot	Pattern No.							Application	Stitch Width [mm (inch.)]	Stitch Length [mm (inch.)]	Twin Needle	Walking Foot	Reverse (Rev.)/ Reinforcement (Rfc.) Stitching
			100 stitches mode	90 stitches mode	80 stitches mode	70 stitches model	60 stitches model	50 stitches model	40 stitches model		Auto Manual	Auto Manual			
Stretch stitch		J	03	03	03	03	03	03	03	Sewing stretch fabrics and decorative stitching	**1.0 (1/16)** 1.0–3.0 (1/16–1/8)	**2.5 (3/32)** 1.0–4.0 (1/16–3/16)	Yes (J)	No	Rfc.
3-point zigzag stitch		J	05	05	05	05	05	05	05	Overcasting on medium weight or stretch fabrics, attaching elastic, darning, etc.	**5.0 (3/16)** 1.5–7.0 (1/16–1/4)	**1.0 (1/16)** 0.2–4.0 (1/64–3/16)	* Yes (J)	No	Rfc.
Elastic-attaching stitch		J	21	21	21	-	-	-	-	Attaching elastic to stretch fabrics	**4.0 (3/16)** 0.0-7.0 (0-1/4)	**1.0 (1/16)** 0.2-4.0 (1/64-3/16)	* Yes (J)	No	Rfc.

*Select a stitch width of 5.0 mm (3/16 inch) or less.

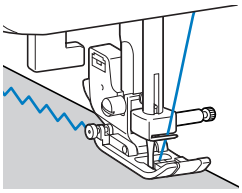
⚠ CAUTION

- **Be sure to turn off the main power before replacing the presser foot. Otherwise, injuries may occur if the foot controller or (start/stop button) is accidentally pressed and the machine starts sewing.**

Observe the corresponding precautions when performing each of the following stitching operations.

Stretch stitching

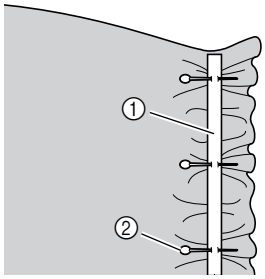
1. **Attach zigzag foot "J".**
2. **Select stitch .**
3. **Sew the fabric without stretching it.**



Elastic attaching

When elastic tape is attached to the cuff or waist of a piece of clothing, the finished dimensions will be that of the stretched elastic tape. Therefore, it is necessary that a suitable length of the elastic tape be used.

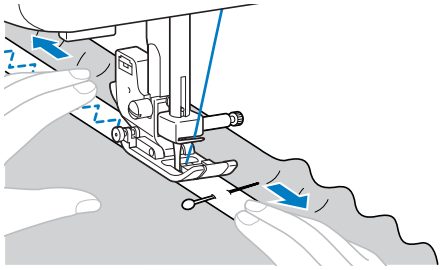
1. **Pin the elastic tape to the wrong side of the fabric.**
   Pin the elastic tape to the fabric at a few points to make sure that the tape is uniformly positioned on the fabric.

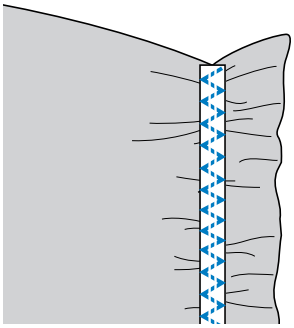


① Elastic tape
② Pin

2. **Attach zigzag foot "J".**
3. **Select a stitch.**

4 **Sew the elastic tape to the fabric while stretching the tape so that it is the same length as the fabric.**
While pulling the fabric behind the presser foot with your left hand, pull the fabric at the pin nearest the front of the presser foot with your right hand.





CAUTION

- **When sewing, be sure that the needle does not touch any pins, otherwise the needle may bend or break.**

APPLIQUÉ, PATCHWORK AND QUILT STITCHING

The stitches that can be used for sewing appliqués, patchwork and quilts are described below.

Stitch Name	Pattern	Presser Foot	Pattern No.							Application	Stitch Width [mm (inch.)]	Stitch Length [mm (inch.)]	Twin Needle	Walking Foot	Reverse (Rev.)/ Reinforcement (Rfc.) Stitching
			100 stitches mode	90 stitches mode	80 stitches mode	70 stitches model	60 stitches model	50 stitches model	40 stitches model		Auto Manual	Auto Manual			
Zigzag stitch		J	04	04	04	04	04	04	04	Overcasting and attaching appliqués	**3.5 (1/8)** 0.0–7.0 (0–1/4)	**1.4 (1/16)** 0.0–4.0 (0–3/16)	** Yes (J)	* Yes	Rev.
Zigzag stitch (for quilting)	Q	J	46	46	46	40	40	-	-	Appliqué quilting, free-motion quilting, satin stitching	**3.5 (1/8)** 0.0–7.0 (0–1/4)	**1.4 (1/16)** 0.0–4.0 (0–3/16)	No	Yes	Rfc.
Appliqué stitch		J	12	12	12	11	11	11	11	Appliqué stitching	**3.5 (1/8)** 2.5–7.0 (3/32–1/4)	**2.5 (3/32)** 1.6–4.0 (1/16–3/16)	** Yes (J)	No	Rfc.
Appliqué stitch (for quilting)	Q	J	47	47	47	41	41	-	-	Attaching appliqués and binding	**1.5 (1/16)** 0.5–3.5 (1/32–1/8)	**1.8 (1/16)** 1.0–4.0 (1/16–3/16)	No	No	Rfc.
	Q	J	48	48	48	42	42	-	-	Attaching appliqués and binding	**1.5 (1/16)** 0.5–3.5 (1/32–1/8)	**1.8 (1/16)** 1.0–4.0 (1/16–3/16)	No	No	Rfc.
Piecing straight stitch	P	J	43	43	43	37	37	-	-	Piecing straight stitching (with a seam allowance of 6.5mm from the right edge of the presser foot)	**5.5 (7/32)** 0.0–7.0 (0–1/4)	**2.0 (1/16)** 0.2–5.0 (1/64–3/16)	No	Yes	Rfc.
	P	J	44	44	44	38	38	-	-	Piecing straight stitching (with a seam allowance of 6.5mm from the left edge of the presser foot)	**1.5 (1/16)** 0.0–7.0 (0–1/4)	**2.0 (1/16)** 0.2–5.0 (1/64–3/16)	No	Yes	Rfc.
Joining stitch		J	15	15	15	14	14	14	14	Patchwork stitching and decorative stitching	**4.0 (3/16)** 0.0–7.0 (0–1/4)	**1.2 (1/16)** 0.2–4.0 (1/64–3/16)	** Yes (J)	No	Rfc.
		J	16	16	16	15	15	15	15	Patchwork stitching, decorative stitching and sewing overcasting on both pieces of fabrics, such as with tricot	**5.0 (3/16)** 2.5–7.0 (3/32–1/4)	**2.5 (3/32)** 1.0–4.0 (1/16–3/16)	** Yes (J)	No	Rfc.
		J	17	17	17	16	16	16	16	Patchwork stitching and decorative stitching	**5.0 (3/16)** 0.0–7.0 (0–1/4)	**1.2 (1/16)** 0.2–4.0 (1/64–3/16)	** Yes (J)	No	Rfc.
Hand-look quilting	Q	J	45	45	45	39	39	35	31	Straight stitch quilting that looks hand-sewn	**0.0 (0)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 1.0–4.0 (1/16–3/16)	No	No	Rfc.
Quilting stippling	Q	J	49	49	49	43	43	-	-	Quilting background stitching (stippling)	**7.0 (1/4)** 1.0–7.0 (1/16–1/4)	**1.6 (1/16)** 1.0–4.0 (1/16–3/16)	No	No	Rfc.

*Do not use reverse stitching.

**Select a stitch width of 5.0 mm (3/16 inch) or less.

⚠ CAUTION

- **Be sure to turn off the main power before replacing the presser foot. Otherwise, injuries may occur if the foot controller or (start/stop button) is accidentally pressed and the machine starts sewing.**

Appliqués

You can create an appliqué by cutting a different piece of fabric into a shape and using it as a decoration.

1. **Baste the cut design to the fabric.**

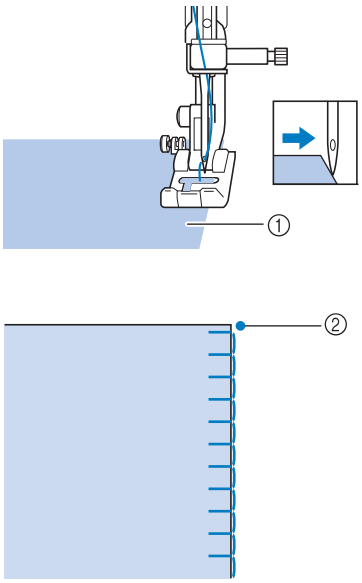
CAUTION

- **If glue is used to hold the cut design in place on the fabric, do not apply glue to areas that will be sewn with the machine. If glue is attached to the needle or race, the machine may be damaged.**

2. **Attach zigzag foot "J".**

3. **Select stitch .**

4. **Sew along the edge of the fabric with the needle dropping off the edge at the right.**



① Appliqué fabric
② Needle drop point

5. **Remove the basting, if necessary.**

Memo

- Make reinforcing straight stitches at the beginning and the end of stitching.

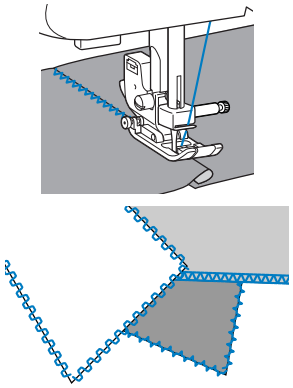
CAUTION

- **Be careful that the needle does not hit a pin during sewing, as the needle can break. You may also be injured.**

Patchwork (crazy quilt) stitching

1. **Fold the edge of the top piece of fabric and place it over the lower piece.**

2. **Sew the two pieces of fabric together so the pattern spans both pieces.**



Piecing

Sewing together two pieces of fabric is called "piecing". The fabric pieces should be cut with a 6.5 mm (1/4 inch) seam allowance.
Sew a piecing straight stitch 6.5 mm (1/4 inch) from either the right side or the left side of the presser foot.

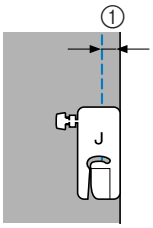
1. **Baste or pin along the seam allowance of the fabric that you wish to piece together.**

2. **Attach zigzag foot "J".**

3. **Select stitch or .**

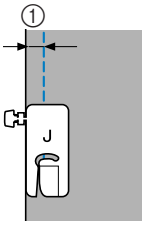
4 **Sew with the side of the presser foot aligned with the edge of the fabric.**

■ **For a seam allowance on the right side**
Align the right side of the presser foot with the edge of the fabric, and sew using stitch P.



① 6.5 mm (1/4 inch)

■ **For a seam allowance on the left side**
Align the left side of the presser foot with the edge of the fabric, and sew using stitch P.



① 6.5 mm (1/4 inch)

Memo

- To change the width of the seam allowance (the needle position), adjust the stitch width. For details, refer to "Changing the needle position" (page 49).

Quilting

Sandwiching batting between the top and bottom layers of fabric is called "quilting". Quilts can easily be sewn using the optional walking foot and the optional quilting guide.

Note

- Only use the walking foot with straight or zigzag stitches. Do not use other patterns. Reverse stitches cannot be sewn with the walking foot.

Models equipped with a needle threader

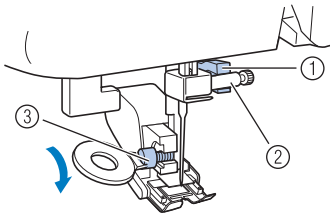
- Thread the needle manually when using the walking foot, or only attach the walking foot after threading the needle using the needle threader.

1 **Baste the fabric to be quilted.**

2 **Remove the presser foot and the presser foot holder.**

- For details, refer to "Removing the presser foot holder" (page 37).

3 **Hook the connecting fork of the walking foot onto the needle clamp screw, lower the presser foot lever, and then use the presser foot holder screw to attach the walking foot to the presser bar.**



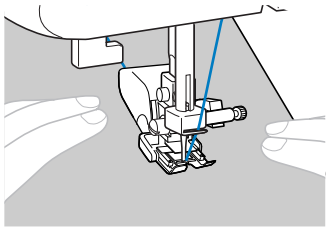
① Connecting fork
② Needle clamp screw
③ Presser foot holder screw

CAUTION

- **Use the disc-shaped screwdriver to tighten the screw securely. If the screw is loose, the needle may strike the presser foot and cause injury.**
- **Be sure to turn the handwheel toward the front of the machine to check that the needle does not strike the presser foot. If the needle strikes the presser foot, injury may result.**

4 **Select stitch P, P or Q.**

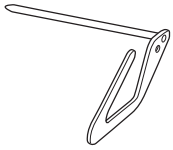
5 **Place one hand on each side of the presser foot, and then evenly guide the fabric while sewing.**



Note

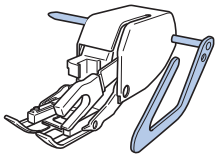
- When sewing with the walking foot, sew at a speed between slow and medium.

■ **Using the optional quilting guide**
Use the quilting guide to sew parallel stitches that are equally spaced.

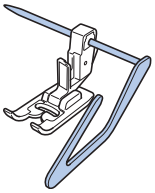


1 Insert the stem of the quilting guide into the hole at the rear of the walking foot or presser foot holder.

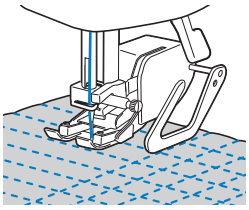
☐ Walking foot



☐ Presser foot holder

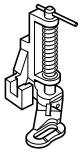


2 Adjust the stem of the quilting guide so that the guide aligns with the seam that has already been sewn.



Free-motion quilting

With free-motion quilting, the feed dogs can be lowered (using the feed dog position lever) so that the fabric can be moved freely in any direction. The optional quilting foot is needed for free-motion quilting.



Note

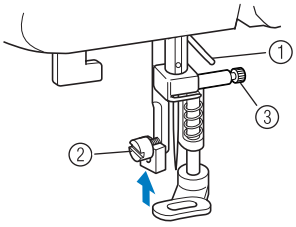
Models equipped with a needle threader

- Thread the needle manually when using the quilting foot, or only attach the quilting foot after threading the needle using the needle threader.

1 Remove the presser foot and the presser foot holder.

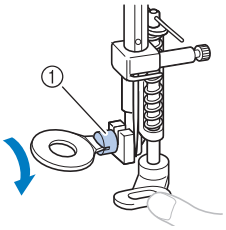
- For details, refer to “Removing the presser foot holder” (page 37).

2 Align the quilting foot with the lower-left side of the presser bar.
The pin on the quilting foot should be positioned over the needle clamp screw.



① Pin on quilting foot
② Presser foot holder screw
③ Needle clamp screw

3 **Hold the quilting foot in place with your right hand, and then tighten the presser foot holder screw using the disc-shaped screwdriver in your left hand.**

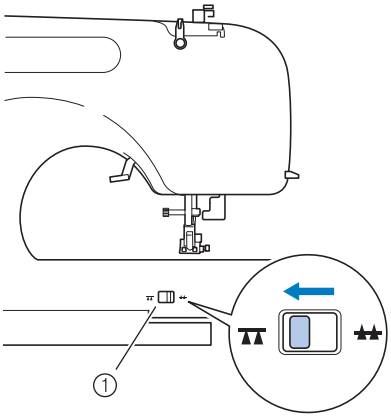


① Presser foot holder screw

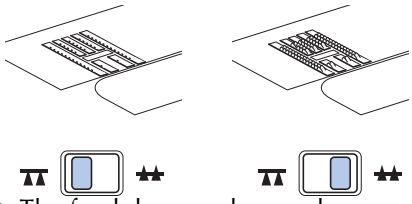
CAUTION

- **Be sure to securely tighten the screws with the disc-shaped screwdriver, otherwise the needle may touch the presser foot, causing it to bend or break.**

4 **Slide the feed dog position lever, located at the rear of the machine on the base, to (to the right as seen from the front of the machine).**



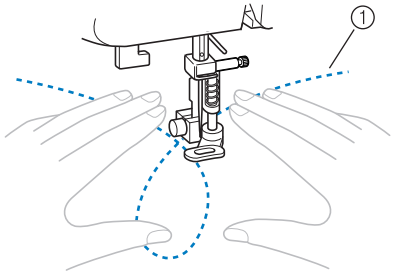
① Feed dog position lever
(as seen from the rear of the machine)



▶ The feed dogs are lowered.

5 **Turn on the sewing machine, and then select a stitch.**

6 **Use both hands to hold the fabric taut, then move the fabric to follow the pattern.**
Reinforcement stitches are sewn at the beginning and end of sewing.



① Pattern

7 **After sewing is finished, slide the feed dog position lever to (to the left as seen from the front of the machine) and turn the handwheel to raise the dogs.**

- Normally, the feed dog position lever is positioned at .

3

REINFORCEMENT STITCHING

Reinforce points that will be subject to strain, such as sleeve holes, inseams and pocket corners.

Stitch Name	Pattern	Presser Foot	Pattern No.							Application	Stitch Width [mm (inch.)]	Stitch Length [mm (inch.)]	Twin Needle	Walking Foot	Reverse (Rev.)/ Reinforcement (Rfc.) Stitching
			100 stitches model	90 stitches model	80 stitches model	70 stitches model	60 stitches model	50 stitches model	40 stitches model		Auto Manual	Auto Manual			
Triple stretch stitch		J	02	02	02	02	02	02	02	Attaching sleeves, sewing inseams, sewing stretch fabrics and decorative stitching	**0.0 (0)** 0.0-7.0 (0-1/4)	**2.5 (3/32)** 1.5-4.0 (1/16-3/16)	** Yes (J)	No	Rfc.
Bar tack stitch		A	42	42	42	36	36	34	30	Reinforcing openings and areas where the seam easily comes loose	**2.0 (1/16)** 1.0-3.0 (1/16-1/8)	**0.4 (1/64)** 0.3-1.0 (1/64-1/16)	No	No	* Auto Rfc.

*Auto Reinf.: Automatic Reinforcement **Select a stitch width of 5.0 mm (3/16 inch) or less.

CAUTION

- **Be sure to turn off the main power before replacing the presser foot. Otherwise, injuries may occur if the foot controller or (start/stop button) is accidentally pressed and the machine starts sewing.**

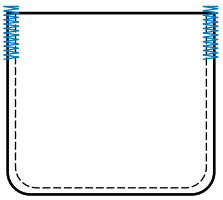
Triple stretch stitching

Use triple stretch stitching to reinforce sleeve holes and inseams.

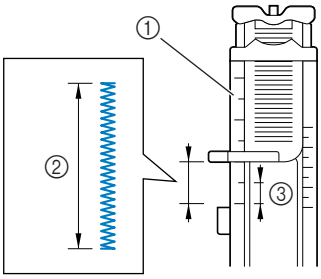
1. **Attach zigzag foot "J".**
2. **Select stitch .**
3. **Start sewing.**
   - For details, refer to "Starting to sew" (page 41).

Bar tack stitching

Bar tacks are used to reinforce points subject to strain, such as pocket corners and openings.
As an example, the procedure for sewing bar tacks at pocket corners is described below.



1. **Determine the desired length of the bar tack.**
   Set the button guide plate on buttonhole foot "A" to the desired length. (The distance between the markings on the presser foot scale is 5 mm (3/16 inch).)

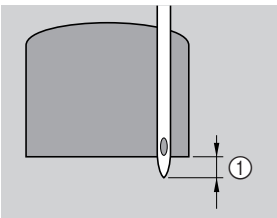


① Presser foot scale
② Length of bar tack
③ 5 mm (3/16 inch)

- A bar tack with a maximum length of about 28 mm (1-1/8 inches) can be sewn.

2. **Attach buttonhole foot "A".**
3. **Select stitch .**

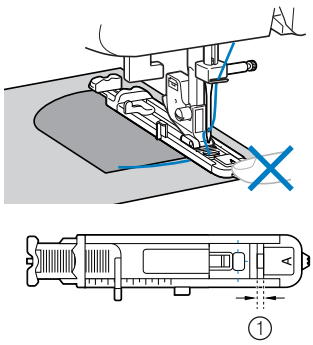
4 **Position the fabric so that the opening of the pocket faces toward you, and then lower the presser foot lever so that the needle drops 2 mm (1/16 inch) in front of the pocket opening.**



① 2 mm (1/16 inch)

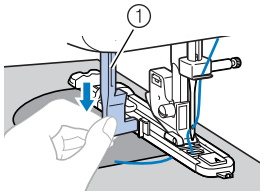
Pass the upper thread down through the hole in the presser foot.

- When lowering the presser foot, do not push in the front of the presser foot, otherwise the bar tack will not be sewn with the correct size.



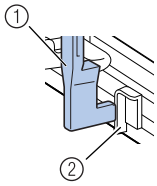
① Do not reduce the gap.

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



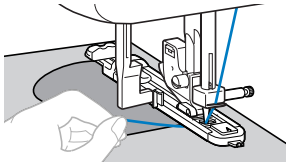
① Buttonhole lever

The buttonhole lever is positioned behind the bracket on the buttonhole foot.



① Buttonhole lever
② Bracket

6 **Gently hold the end of the upper thread in your left hand, and then start sewing.**



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

7 **Raise the needle and the presser foot lever, remove the fabric, and cut the thread.**

8 **Raise the buttonhole lever to its original position.**

Memo

- If the fabric does not feed, for example, because it is too thick, increase the stitch length. For details, refer to “Selecting a stitch” (page 39).

DECORATIVE STITCHING

Various decorative stitches can be sewn with this sewing machine.

Stitch Name	Pattern	Presser Foot	Pattern No. 100 stitches model	90 stitches model	80 stitches model	70 stitches model	60 stitches model	50 stitches model	40 stitches model	Application	Stitch Width [mm (inch.)] Auto / Manual	Stitch Length [mm (inch.)] Auto / Manual	Twin Needle	Walking Foot	Reverse (Rev.)/ Reinforcement (Rfc.) Stitching
Fagoting stitch		J	19	19	19	17	17	17	17	Fagoting, smocking and decorative stitching	**5.0 (3/16)** 0.0-7.0 (0-1/4)	**2.5 (3/32)** 1.0-4.0 (1/16-3/16)	* Yes (J)	No	Rfc.
		J	20	20	20	18	18	18	18	Fagoting, smocking and decorative stitching	**5.0 (3/16)** 2.5-7.0 (3/32-1/4)	**2.5 (3/32)** 1.0-4.0 (1/16-3/16)	* Yes (J)	No	Rfc.
Joining stitch		J	15	15	15	14	14	14	14	Patchwork stitching and decorative stitching	**4.0 (3/16)** 0.0-7.0 (0-1/4)	**1.2 (1/16)** 0.2-4.0 (1/64-3/16)	* Yes (J)	No	Rfc.
		J	16	16	16	15	15	15	15	Patchwork stitching, decorative stitching and sewing overcasting on both pieces of fabrics, such as with tricot	**5.0 (3/16)** 2.5-7.0 (3/32-1/4)	**2.5 (3/32)** 1.0-4.0 (1/16-3/16)	* Yes (J)	No	Rfc.
		J	17	17	17	16	16	16	16	Patchwork stitching and decorative stitching	**5.0 (3/16)** 0.0-7.0 (0-1/4)	**1.2 (1/16)** 0.2-4.0 (1/64-3/16)	* Yes (J)	No	Rfc.
Shell tuck stitch		J	13	13	13	12	12	12	12	Sell tuck stitching	**4.0 (3/16)** 0.0-7.0 (0-1/4)	**2.5 (3/32)** 0.2-4.0 (1/64-3/16)	* Yes (J)	No	Rfc.
Smocking stitch		J	18	18	18	-	-	-	-	Smocking stitching and decorative stitching	**5.0 (3/16)** 0.0-7.0 (0-1/4)	**1.6 (1/16)** 1.0-4.0 (1/16-3/16)	* Yes (J)	No	Rfc.
Satin scallop stitch		N	14	14	14	13	13	13	13	Scallop stitching	**5.0 (3/16)** 2.5-7.0 (3/32-1/4)	**0.5 (1/32)** 0.1-1.0 (1/64-1/16)	* Yes (J)	No	Rfc.
Decorative stitch		J	22	22	22	19	19	19	19	Decorative stitching	**4.0 (3/16)** 0.0-7.0 (0-1/4)	**3.0 (1/8)** 2.0-4.0 (1/16-3/16)	No	No	Rfc.
		J	23	23	23	20	20	20	20	Decorative stitching	**4.0 (3/16)** 0.0-7.0 (0-1/4)	**2.5 (3/32)** 1.0-4.0 (1/16-3/16)	* Yes (J)	No	Rfc.
		J	24	24	24	21	21	21	–	Decorative stitching	**5.5 (7/32)** 0.0-7.0 (0-1/4)	**1.6 (1/16)** 1.0-4.0 (1/16-3/16)	* Yes (J)	No	Rfc.
		N	25	25	25	22	22	22	21	Decorative stitching and elastic-attaching	**5.0 (3/16)** 1.5-7.0 (1/64-1/4)	**1.0 (1/16)** 0.2-4.0 (1/64-3/16)	* Yes (J)	No	Rfc.
		N	26	26	26	23	23	23	22	Lace sewing, decorative hemming, heirloom stitching, etc.	**3.5 (1/8)** 1.5-7.0 (1/16-1/4)	**2.5 (3/32)** 1.6-4.0 (1/16-3/16)	No	No	Rfc.
		N	27	27	27	24	24	24	23	Decorative hemming, heirloom stitching, etc.	**6.0 (15/64)** 1.5-7.0 (1/16-1/4)	**3.0 (1/8)** 1.5-4.0 (1/16-3/16)	No	No	Rfc.
		N	28	28	28	25	25	25	–	Decorative hemming on thin, medium weight and plain weave fabrics, heirloom stitching, etc.	**5.0 (3/16)** 1.5-7.0 (1/16-1/4)	**3.5 (1/8)** 1.5-4.0 (1/16-3/16)	No	No	Rfc.
		N	29	29	29	26	26	26	24	Decorative hemming on thin, medium weight and plain weave fabrics, heirloom stitching, etc.	**5.0 (3/16)** 1.5-7.0 (1/16-1/4)	**4.0 (3/16)** 1.5-4.0 (1/16-3/16)	No	No	Rfc.
		N	30	30	30	27	27	27	–	Decorative hemming on thin, medium weight and plain weave fabrics, heirloom stitching, etc.	**5.0 (3/16)** 1.5-7.0 (1/16-1/4)	**2.5 (3/32)** 1.5-4.0 (1/16-3/16)	No	No	Rfc.

*Select a stitch width of 5.0 mm (3/16 inch) or less.

Stitch Name	Pattern	Presser Foot	Pattern No.							Application	Stitch Width [mm (inch.)]	Stitch Length [mm (inch.)]	Twin Needle	Walking Foot	Reverse (Rev.)/ Reinforcement (Rfc.) Stitching
			100 stitches model	90 stitches model	80 stitches model	70 stitches model	60 stitches model	50 stitches model	40 stitches model		Auto Manual	Auto Manual			
Decorative stitch		N	31	31	31	28	28	28	–	Decorative hemming on thin, medium weight and plain weave fabrics, heirloom stitching, etc.	**5.0 (3/16)** 1.5-7.0 (1/16-1/4)	**2.0 (1/16)** 1.5-4.0 (1/16-3/16)	No	No	Rfc.
		N	32	32	32	–	–	–	–	Decorative stitching, smocking stitching, heirloom stitching, etc.	**6.0 (15/64)** 1.5-7.0 (1/16-1/4)	**1.6 (1/16)** 1.0-4.0 (1/16-3/16)	No	No	Rfc.
		N	33	33	33	–	–	–	–	Decorative stitching, smocking stitching, heirloom stitching, etc.	**5.0 (3/16)** 1.5-7.0 (1/16-1/4)	**1.6 (1/16)** 1.0-4.0 (1/16-3/16)	No	No	Rfc.

CAUTION

- **Be sure to turn off the main power before replacing the presser foot. Otherwise, injuries may occur if the foot controller or (start/stop button) is accidentally pressed and the machine starts sewing.**

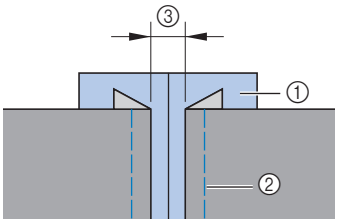
Fagoting

Stitching across an open seam is called “fagoting”. It is used on blouses and children's clothing. This stitch is more decorative when thicker thread is used.

1 Use an iron to fold the two pieces of fabric along their seams.

2 Baste the two pieces of fabric, separated by about 4.0 mm (3/16 inch), onto thin paper or a sheet of water-soluble stabilizer.

- If you draw a line down the middle of the thin paper or water-soluble stabilizer, sewing is easier.



① Thin paper or water soluble stabilizer
② Basting stitching
③ 4 mm (3/16 inch)

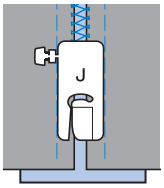
3 Attach zigzag foot “J”.

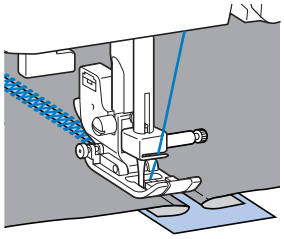
4 Select stitch or .

5 Set the stitch width to 7.0 mm (1/4 inch).

- For details, refer to “Selecting a stitch” (page 39).

6 Sew with the center of the presser foot aligned along the center of the two pieces of fabric.





7 After sewing is finished, remove the paper.

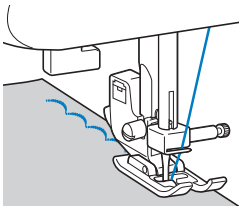
Scallop stitching

The wave-shaped repeating pattern that looks like shells is called “scalloping”. It is used on the collars of blouses and to decorate the edges of handkerchiefs.

1. **Attach monogramming foot “N”.**

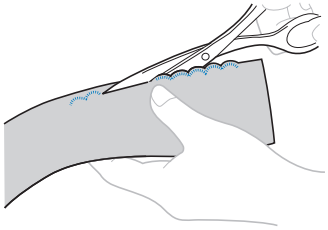
2. **Select stitch .**

3. **Stitch along the edge of the fabric, making sure not to sew directly on the edge of the fabric.**



- For better results, apply spray starch onto the fabric and press with a hot iron before it is sewn.

4. **Trim along the stitches.**



- Be careful not to cut the stitches.

Smocking

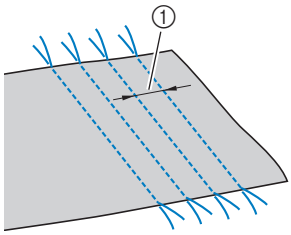
The decorative stitch created by stitching or embroidering over gathers is called “smocking”. It is used to decorate the front of blouses or cuffs.
The smocking stitch adds texture and elasticity to fabric.

1. **Attach zigzag foot “J”.**

2. **Select the straight stitch, and then adjust the stitch length to 4.0 mm (3/16 inch) and loosen the thread tension.**

- For details, refer to “Selecting a stitch” (page 39) and “Thread tension” (page 43).

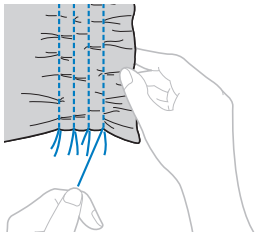
3. **Sew parallel stitching at intervals of 10 mm (3/8 inch).**



① 10 mm (3/8 inch)

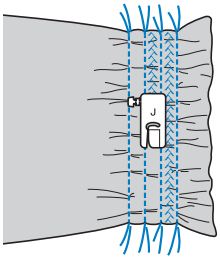
- Do not sew reverse/reinforcement stitches or cut the thread.

4. **Pull the bobbin threads to create gathers.**
Smooth the gathers by ironing them.

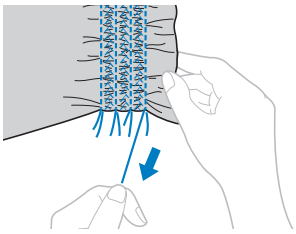


5. **Select stitch or .**

6. **Stitch between the straight stitches.**



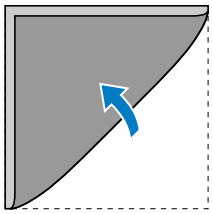
7. **Pull out the threads for the straight stitches.**



Shell tuck stitching

The gathers that look like shells are called “shell tucks”. They are used to decorate trims, the front of blouses or cuffs made of thin fabrics.

1 Fold the fabric along the bias.

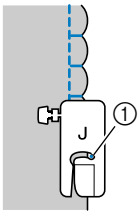


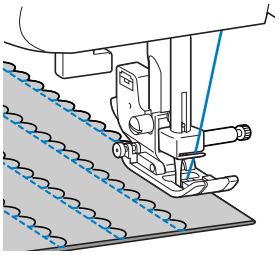
2 Attach zigzag foot “J”.

3 Select stitch , and then increase the thread tension.

- For details, refer to “Selecting a stitch” (page 39).

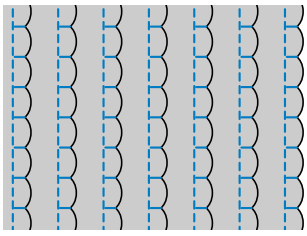
4 Sew while making sure that the needle drops slightly off the edge of the fabric.





① Needle drop point

5 Unfold the fabric, and then iron the tucks down to one side.

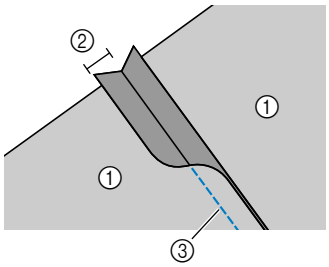


Joining

Decorative bridging stitches can be sewn over the seam allowance of joined fabrics. This is used when making a crazy quilt.

1 Attach zigzag foot “J”.

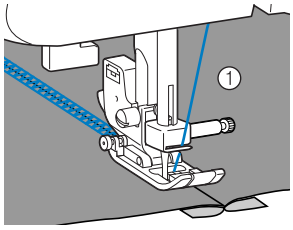
2 Sew together the right sides of the two pieces of fabric, and then open up the seam allowances.



① Wrong side of fabric
② 6.5 mm (1/4 inch) seam allowance
③ Straight stitch

3 Select stitch , or .

4 Turn the fabric over so that the right side faces up, and then sew over the seam with the center of the presser foot aligned with the seam.



① Right side of fabric

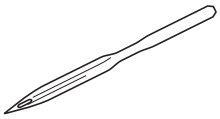
Heirloom stitching

When sewing with the wing needle, the needle holes are enlarged, creating a lace-like decorative stitch. This is used to decorate hems and tablecloths on thin or medium weight fabrics in addition to plain weave fabrics.

CAUTION

- **The needle threader cannot be used with the wing needle, otherwise the sewing machine may be damaged. Manually pass the thread through the eye of the needle from the front to the back. For details, refer to "Upper threading" (page 25).**

1 **Insert the wing needle.**



- Use a 130/705H 100/16 wing needle.
- For details on inserting a needle, refer to "Replacing the needle" (page 32).

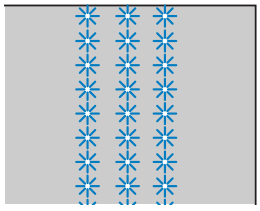
2 **Attach monogramming foot "N".**

3 **Select stitch** , , , , , , **or** .

CAUTION

- **Select a stitch width of 6.0 mm (15/64 inch) or less, otherwise the needle may bend or break.**
- **After adjusting the stitch width, slowly turn the handwheel toward you (counterclockwise) and check that the needle does not touch the presser foot. If the needle hits the presser foot, the needle may bend or break.**

4 **Start sewing.**



4 APPENDIX

STITCH SETTINGS

Applications, stitch lengths and widths and whether the twin needle can be used are listed for utility and mirror image stitches in the following table.

⚠ CAUTION

- **When using the twin needle, select a stitch width of 5.0 mm (3/16 inch) or less, otherwise the needle may break or the machine may be damaged.**
- **When using the twin needle, be sure to attach zigzag foot "J", otherwise the needle may break or the machine may be damaged.**

Utility stitches

Stitch Name		Pattern	Presser Foot	Pattern No. 100 stitches model	90 stitches model	80 stitches model	70 stitches model	60 stitches model	50 stitches model	40 stitches model	Application	Stitch Width [mm (inch.)] Auto / Manual	Stitch Length [mm (inch.)] Auto / Manual	Twin Needle	Walking Foot	Reverse (Rev.)/ Reinforcement (Rfc.) Stitching
Straight	Left		J	00	00	00	00	00	00	00	Basic stitching, sewing gathers or pintucks, etc.	**0.0 (0)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 0.2–5.0 (1/64–3/16)	** Yes (J)	* Yes	Rev.
Straight	Center		J	01	01	01	01	01	01	01	Attaching zippers, basic stitching, and sewing gathers or pintucks, etc.	**3.5 (1/8)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 0.2–5.0 (1/64–3/16)	** Yes (J)	* Yes	Rev.
Triple stretch stitch			J	02	02	02	02	02	02	02	Attaching sleeves, sewing inseams, sewing stretch fabrics and decorative stitching	**0.0 (0)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 1.5–4.0 (1/16–3/16)	** Yes (J)	No	Rfc.
Stretch stitch			J	03	03	03	03	03	03	03	Sewing stretch fabrics and decorative stitching	**1.0 (1/16)** 1.0–3.0 (1/16–1/8)	**2.5 (3/32)** 1.0–4.0 (1/16–3/16)	Yes (J)	No	Rfc.
Zigzag stitch			J	04	04	04	04	04	04	04	Overcasting and attaching appliqués	**3.5 (1/8)** 0.0–7.0 (0–1/4)	**1.4 (1/16)** 0.0–4.0 (0–3/16)	** Yes (J)	* Yes	Rev.
3-point zig-zag stitch			J	05	05	05	05	05	05	05	Overcasting on medium weight or stretch fabrics, attaching elastic, darning, etc.	**5.0 (3/16)** 1.5–7.0 (1/16–1/4)	**1.0 (1/16)** 0.2–4.0 (1/64–3/16)	** Yes (J)	No	Rfc.
Overcasting stitch			G	06	06	06	06	06	06	06	Overcasting on thin or medium weight fabrics	**3.5 (1/8)** 2.5–5.0 (3/32–3/16)	**2.0 (1/16)** 1.0–4.0 (1/16–3/16)	No	No	Rfc.
Overcasting stitch			G	07	07	07	07	07	07	07	Overcasting on thick fabrics	**5.0 (3/16)** 2.5–5.0 (3/32–3/16)	**2.5 (3/32)** 1.0–4.0 (1/16–3/16)	No	No	Rfc.
Overcasting stitch			J	08	08	08	08	08	08	08	Overcasting on stretch fabrics	**5.0 (3/16)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 0.5–4.0 (1/32–3/16)	** Yes (J)	No	Rfc.
Overcasting stitch			J	09	09	09	-	-	-	-	Overcasting on thick or stretch fabrics	**5.0 (3/16)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 0.5–4.0 (1/32–3/16)	** Yes (J)	No	Rfc.

*Do not use reverse stitching. **Select a stitch width of 5.0 mm (3/16 inch) or less.

Stitch Name	Pattern	Presser Foot	Pattern No. 100 stitches model	90 stitches model	80 stitches model	70 stitches model	60 stitches model	50 stitches model	40 stitches model	Application	Stitch Width [mm (inch.)] Auto / Manual	Stitch Length [mm (inch.)] Auto / Manual	Twin Needle	Walking Foot	Reverse (Rev.)/ Reinforcement (Rfc.) Stitching
Blind hem stitch		R	10	10	10	09	09	09	09	Blind hem stitching on medium weight fabrics	**0 (0)** -3← →3	**2.0 (1/16)** 1.0–3.5 (1/16–1/8)	No	No	Rfc.
		R	11	11	11	10	10	10	10	Blind hem stitching on stretch fabrics	**0 (0)** -3← →3	**2.0 (1/16)** 1.0–3.5 (1/16–1/8)	No	No	Rfc.
Appliqué stitch		J	12	12	12	11	11	11	11	Appliqué stitching	**3.5 (1/8)** 2.5–7.0 (3/32–1/4)	**2.5 (3/32)** 1.6–4.0 (1/16–3/16)	** Yes (J)	No	Rfc.
Shell tuck stitch		J	13	13	13	12	12	12	12	Shell tuck stitching	**4.0 (3/16)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 0.2–4.0 (1/64–3/16)	** Yes (J)	No	Rfc.
Satin scallop stitch		N	14	14	14	13	13	13	13	Scallop stitching	**5.0 (3/16)** 2.5-7.0 (3/32-1/4)	**0.5 (1/32)** 0.1-1.0 (1/64-1/16)	** Yes (J)	No	Rfc.
Joining stitch		J	15	15	15	14	14	14	14	Patchwork stitching and decorative stitching	**4.0 (3/16)** 0.0–7.0 (0–1/4)	**1.2 (1/16)** 0.2–4.0 (1/64–3/16)	** Yes (J)	No	Rfc.
		J	16	16	16	15	15	15	15	Patchwork stitching, decorative stitching and sewing overcasting on both pieces of fabrics, such as with tricot	**5.0 (3/16)** 2.5–7.0 (3/32–1/4)	**2.5 (3/32)** 1.0–4.0 (1/16–3/16)	** Yes (J)	No	Rfc.
		J	17	17	17	16	16	16	16	Patchwork stitching and decorative stitching	**5.0 (3/16)** 0.0–7.0 (0–1/4)	**1.2 (1/16)** 0.2–4.0 (1/64–3/16)	** Yes (J)	No	Rfc.
Smocking stitch		J	18	18	18	-	-	-	-	Smocking stitching and decorative stitching	**5.0 (3/16)** 0.0–7.0 (0–1/4)	**1.6 (1/16)** 1.0–4.0 (1/16–3/16)	** Yes (J)	No	Rfc.
Fagoting stitch		J	19	19	19	17	17	17	17	Fagoting, smocking and decorative stitching	**5.0 (3/16)** 0.0-7.0 (0-1/4)	**2.5 (3/32)** 1.0-4.0 (1/16-3/16)	** Yes (J)	No	Rfc.
		J	20	20	20	18	18	18	18	Fagoting, smocking and decorative stitching	**5.0 (3/16)** 2.5-7.0 (3/32-1/4)	**2.5 (3/32)** 1.0-4.0 (1/16-3/16)	** Yes (J)	No	Rfc.
Elastic-attaching stitch		J	21	21	21	-	-	-	-	Attaching elastic to stretch fabrics	**4.0 (3/16)** 0.0-7.0 (0-1/4)	**1.0 (1/16)** 0.2-4.0 (1/64-3/16)	** Yes (J)	No	Rfc
Decorative stitch		J	22	22	22	19	19	19	19	Decorative stitching	**4.0 (3/16)** 0.0-7.0 (0-1/4)	**3.0 (1/8)** 2.0-4.0 (1/16-3/16)	No	No	Rfc.
		J	23	23	23	20	20	20	20	Decorative stitching	**4.0 (3/16)** 0.0-7.0 (0-1/4)	**2.5 (3/32)** 1.0-4.0 (1/16-3/16)	** Yes (J)	No	Rfc.
		J	24	24	24	21	21	21	–	Decorative stitching	**5.5 (7/32)** 0.0-7.0 (0-1/4)	**1.6 (1/16)** 1.0-4.0 (1/16-3/16)	** Yes (J)	No	Rfc.
		N	25	25	25	22	22	22	21	Decorative stitching and elastic-attaching	**5.0 (3/16)** 1.5-7.0 (1/64-1/4)	**1.0 (1/16)** 0.2-4.0 (1/64-3/16)	** Yes (J)	No	Rfc.
		N	26	26	26	23	23	23	22	Lace sewing, decorative hemming, heirloom stitching, etc.	**3.5 (1/8)** 1.5-7.0 (1/16-1/4)	**2.5 (3/32)** 1.6-4.0 (1/16-3/16)	No	No	Rfc.
		N	27	27	27	24	24	24	23	Decorative hemming, heirloom stitching, etc.	**6.0 (15/64)** 1.5-7.0 (1/16-1/4)	**3.0 (1/8)** 1.5-4.0 (1/16-3/16)	No	No	Rfc.

**Select a stitch width of 5.0 mm (3/16 inch) or less.

Stitch Name	Pattern	Presser Foot	Pattern No. 100 stitches model	90 stitches model	80 stitches model	70 stitches model	60 stitches model	50 stitches model	40 stitches model	Application	Stitch Width [mm (inch.)] Auto / Manual	Stitch Length [mm (inch.)] Auto / Manual	Twin Needle	Walking Foot	Reverse (Rev.)/ Reinforcement (Rfc.) Stitching
Decorative stitch		N	28	28	28	25	25	25	–	Decorative hemming on thin, medium weight and plain weave fabrics, heirloom stitching, etc.	**5.0 (3/16)** 1.5-7.0 (1/16-1/4)	**3.5 (1/8)** 1.5-4.0 (1/16-3/16)	No	No	Rfc.
		N	29	29	29	26	26	26	24	Decorative hemming on thin, medium weight and plain weave fabrics, heirloom stitching, etc.	**5.0 (3/16)** 1.5-7.0 (1/16-1/4)	**4.0 (3/16)** 1.5-4.0 (1/16-3/16)	No	No	Rfc.
		N	30	30	30	27	27	27	–	Decorative hemming on thin, medium weight and plain weave fabrics, heirloom stitching, etc.	**5.0 (3/16)** 1.5-7.0 (1/16-1/4)	**2.5 (3/32)** 1.5-4.0 (1/16-3/16)	No	No	Rfc.
		N	31	31	31	28	28	28	–	Decorative hemming on thin, medium weight and plain weave fabrics, heirloom stitching, etc.	**5.0 (3/16)** 1.5-7.0 (1/16-1/4)	**2.0 (1/16)** 1.5-4.0 (1/16-3/16)	No	No	Rfc.
		N	32	32	32	-	-	-	-	Decorative stitching, smocking stitching, heirloom stitching, etc.	**6.0 (15/64)** 1.5-7.0 (1/16-1/4)	**1.6 (1/16)** 1.0-4.0 (1/16-3/16)	No	No	Rfc.
		N	33	33	33	-	-	-	-	Decorative stitching, smocking stitching, heirloom stitching, etc.	**5.0 (3/16)** 1.5-7.0 (1/16-1/4)	**1.6 (1/16)** 1.0-4.0 (1/16-3/16)	No	No	Rfc.
Buttonhole stitch		A	34	34	34	29	29	29	25	Horizontal buttonholes on thin and medium weight fabrics	**5.0 (3/16)** 3.0-5.0 (1/8-3/16)	**0.5 (1/32)** 0.2-1.0 (1/64-1/16)	No	No	*** Auto Rfc.
		A	35	35	35	30	30	30	26	Secured buttonholes for fabrics that have backings	**5.0 (3/16)** 3.0–5.0 (1/8-3/16)	**0.5 (1/32)** 0.2–1.0 (1/64-1/16)	No	No	*** Auto Rfc.
		A	36	36	36	31	31	31	27	Buttonholes for stretch or knit fabrics	**6.0 (15/64)** 3.0–6.0 (1/8-15/64)	**1.0 (1/16)** 0.5–2.0 (1/32-1/16)	No	No	*** Auto Rfc.
		A	37	37	37	32	32	32	28	Buttonholes for stretch fabrics	**6.0 (15/64)** 3.0–6.0 (1/8-15/64)	**1.5 (1/16)** 1.0–3.0 (1/16-1/8)	No	No	*** Auto Rfc.
		A	38	38	38	-	-	-	-	Bound buttonholes	**5.0 (3/16)** 0.0–6.0 (0–15/64)	**2.0 (1/16)** 0.2–4.0 (1/64-3/16)	No	No	*** Auto Rfc.
		A	39	39	39	33	33	33	29	Keyhole buttonholes for thick or furry fabrics	**7.0 (1/4)** 3.0–7.0 (1/8-1/4)	**0.5 (1/32)** 0.3–1.0 (1/64-1/16)	No	No	*** Auto Rfc.
		A	40	40	40	34	34	–	–	Keyhole buttonholes for medium weight and thick fabrics	**7.0 (1/4)** 3.0–7.0 (1/8-1/4)	**0.5 (1/32)** 0.3–1.0 (1/64-1/16)	No	No	*** Auto Rfc.
		A	41	41	41	35	35	–	–	Keyhole buttonholes for thick or furry fabrics	**7.0 (1/4)** 3.0–7.0 (1/8-1/4)	**0.5 (1/32)** 0.3–1.0 (1/64-1/16)	No	No	*** Auto Rfc.
Bar tack stitch		A	42	42	42	36	36	34	30	Reinforcing openings and areas where the seam easily comes loose	**2.0 (1/16)** 1.0–3.0 (1/16-1/8)	**0.4 (1/64)** 0.3–1.0 (1/64-1/16)	No	No	*** Auto Rfc.
Piecing straight stitch	P	J	43	43	43	37	37	-	-	Piecing straight stitching (with a seam allowance of 6.5mm from the right edge of the presser foot)	**5.5 (7/32)** 0.0–7.0 (0–1/4)	**2.0 (1/16)** 0.2–5.0 (1/64–3/16)	No	Yes	Rfc.
	P	J	44	44	44	38	38	-	-	Piecing straight stitching (with a seam allowance of 6.5mm from the left edge of the presser foot)	**1.5 (1/16)** 0.0–7.0 (0–1/4)	**2.0 (1/16)** 0.2–5.0 (1/64–3/16)	No	Yes	Rfc.

***Auto Rfc.:Automatic Reinforcement

Stitch Name	Pattern	Presser Foot	Pattern No.							Application	Stitch Width [mm (inch.)]	Stitch Length [mm (inch.)]	Twin Needle	Walking Foot	Reverse (Rev.)/ Reinforcement (Rfc.) Stitching
			100 stitches model	90 stitches model	80 stitches model	70 stitches model	60 stitches model	50 stitches model	40 stitches model		Auto Manual	Auto Manual			
Hand-look quilting		J	45	45	45	39	39	35	31	Straight stitch quilting that looks hand-sewn	**0.0 (0)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 1.0–4.0 (1/16–3/16)	No	No	Rfc.
Zigzag stitch (for quilting)		J	46	46	46	40	40	-	-	Appliqué quilting, free-motion quilting, satin stitching, button sewing	**3.5 (1/8)** 0.0–7.0 (0–1/4)	**1.4 (1/16)** 0.0–4.0 (0–3/16)	No	Yes	Rfc.
Appliqué stitch (for quilting)		J	47	47	47	41	41	-	-	Attaching appliqués and binding	**1.5 (1/16)** 0.5–3.5 (1/32–1/8)	**1.8 (1/16)** 1.0–4.0 (1/16–3/16)	No	No	Rfc.
		J	48	48	48	42	42	-	-	Attaching appliqués and binding	**1.5 (1/16)** 0.5–3.5 (1/32–1/8)	**1.8 (1/16)** 1.0–4.0 (1/16–3/16)	No	No	Rfc.
Quilting stippling		J	49	49	49	43	43	-	-	Quilting background stitching (stippling)	**7.0 (1/4)** 1.0–7.0 (1/16–1/4)	**1.6 (1/16)** 1.0–4.0 (1/16–3/16)	No	No	Rfc.
Decorative stitch		N	50	50	50	-	-	-	-	For decoration, etc.	**3.0 (1/8)** 0.0–7.0 (0–1/4)	**1.0 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	51	-	-	-	-	-	-	For decoration, etc.	**5.0 (3/16)** 0.0–7.0 (0–1/4)	**2.0 (1/16)** 0.2–4.0 (1/64-3/16)	No	No	Rfc.
		N	52	-	-	-	-	-	-	For decoration, etc.	**4.0 (3/16)** 0.0–7.0 (0–1/4)	**1.6 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	53	51	-	-	-	-	-	For decoration, etc.	**5.0 (3/16)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	54	52	51	-	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	55	53	52	44	44	36	32	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	56	54	-	-	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**1.4 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	57	55	-	-	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	58	-	-	-	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**1.6 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	59	56	53	45	45	37	33	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**2.0 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	60	57	54	46	46	38	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	61	-	-	-	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	62	58	-	-	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**2.0 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.

Stitch Name	Pattern	Presser Foot	Pattern No.							Application	Stitch Width [mm (inch.)]	Stitch Length [mm (inch.)]	Twin Needle	Walking Foot	Reverse (Rev.)/ Reinforcement (Rfc.) Stitching
			100 stitches model	90 stitches model	80 stitches model	70 stitches model	60 stitches model	50 stitches model	40 stitches model		Auto Manual	Auto Manual			
Decorative stitch		N	63	59	55	47	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	64	60	-	-	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**1.6 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	65	61	56	48	47	39	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**2.0 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	66	62	57	49	48	40	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**2.0 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	67	63	58	50	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**1.6 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	68	64	59	51	49	41	34	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	69	65	60	52	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**2.0 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	70	66	61	53	-	-	-	For decoration, etc.	**5.0 (3/16)** 0.0–7.0 (0–1/4)	**2.0 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	71	-	-	-	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**1.6 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	72	67	62	-	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**2.0 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	73	68	-	-	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**2.0 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	74	69	63	54	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	75	70	64	55	50	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**1.6 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	76	71	65	56	51	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**1.4 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
Satin stitches		N	77	72	66	-	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**0.4 (1/64)** 0.1–1.0 (1/64–1/16)	** Yes (J)	No	Rfc.
		N	78	73	67	58	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**0.4 (1/64)** 0.1–1.0 (1/64–1/16)	** Yes (J)	No	Rfc.
		N	79	74	-	-	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**0.4 (1/64)** 0.1–1.0 (1/64–1/16)	** Yes (J)	No	Rfc.

**Select a stitch width of 5.0 mm (3/16 inch) or less.

Stitch Name	Pattern	Presser Foot	Pattern No.							Application	Stitch Width [mm (inch.)]	Stitch Length [mm (inch.)]	Twin Needle	Walking Foot	Reverse (Rev.)/ Reinforcement (Rfc.) Stitching
			100 stitches model	90 stitches model	80 stitches model	70 stitches model	60 stitches model	50 stitches model	40 stitches model		Auto Manual	Auto Manual			
Satin stitches		N	80	75	68	59	53	43	35	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**0.4 (1/64)** 0.1–1.0 (1/64–1/16)	** Yes (J)	No	Rfc.
		N	81	-	-	-	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**0.4 (1/64)** 0.1–1.0 (1/64–1/16)	** Yes (J)	No	Rfc.
		N	82	76	69	60	54	44	36	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**0.4 (1/64)** 0.1–1.0 (1/64–1/16)	** Yes (J)	No	Rfc.
		N	83	77	70	61	55	45	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**0.4 (1/64)** 0.1–1.0 (1/64–1/16)	** Yes (J)	No	Rfc.
		N	84	78	71	62	56	46	37	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**0.4 (1/64)** 0.1–1.0 (1/64–1/16)	** Yes (J)	No	Rfc.
		N	85	79	72	63	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**0.4 (1/64)** 0.1–1.0 (1/64–1/16)	** Yes (J)	No	Rfc.
		N	86	80	73	64	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**0.4 (1/64)** 0.1–1.0 (1/64–1/16)	** Yes (J)	No	Rfc.
		N	87	81	74	57	52	42	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**0.4 (1/64)** 0.1–1.0 (1/64–1/16)	** Yes (J)	No	Rfc.
		N	88	82	-	-	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**0.4 (1/64)** 0.1–1.0 (1/64–1/16)	** Yes (J)	No	Rfc.
		N	89	-	-	-	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**0.4 (1/64)** 0.1–1.0 (1/64–1/16)	** Yes (J)	No	Rfc.
		N	90	-	-	-	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**0.4 (1/64)** 0.1–1.0 (1/64–1/16)	** Yes (J)	No	Rfc.
		N	91	-	-	-	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**0.4 (1/64)** 0.1–1.0 (1/64–1/16)	** Yes (J)	No	Rfc.
		N	92	-	-	-	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**0.4 (1/64)** 0.1–1.0 (1/64–1/16)	** Yes (J)	No	Rfc.

**Select a stitch width of 5.0 mm (3/16 inch) or less.

Stitch Name	Pattern	Presser Foot	Pattern No.							Application	Stitch Width [mm (inch.)]	Stitch Length [mm (inch.)]	Twin Needle	Walking Foot	Reverse (Rev.)/ Reinforcement (Rfc.) Stitching
			100 stitches model	90 stitches model	80 stitches model	70 stitches model	60 stitches model	50 stitches model	40 stitches model		Auto Manual	Auto Manual			
Cross-stitches		N	93	83	-	-	-	-	-	For decoration, etc.	**6.0 (15/64)** 0.0–7.0 (0–1/4)	**1.4 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	94	84	75	65	-	-	-	For decoration, etc.	**7.0 (1/4)** 0.0–7.0 (0–1/4)	**1.6 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	95	85	76	67	57	47	38	For decoration, etc.	**6.0 (15/64)** 0.0–7.0 (0–1/4)	**2.5 (3/32)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	96	86	-	-	-	-	-	For decoration, etc.	**6.0 (15/64)** 0.0–7.0 (0–1/4)	**1.4 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	97	87	77	66	-	-	-	For decoration, etc.	**6.0 (15/64)** 0.0–7.0 (0–1/4)	**1.4 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	98	88	78	68	58	48	-	For decoration, etc.	**6.0 (15/64)** 0.0–7.0 (0–1/4)	**1.4 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.
		N	99	89	79	69	59	49	39	For decoration, etc.	**6.0 (15/64)** 0.0–7.0 (0–1/4)	**1.4 (1/16)** 0.2–4.0 (1/64–3/16)	No	No	Rfc.

MAINTENANCE

Simple sewing machine maintenance operations are described below.

Restrictions on oiling

In order to prevent damaging this machine, it must not be oiled by the user.
This machine was manufactured with the necessary amount of oil applied to ensure correct operation, making periodic oiling unnecessary.

If problems occur, such as difficulty turning the handwheel or an unusual noise, immediately stop using the machine, and contact your authorized dealer or the nearest authorized service center.

Precautions on storing the machine

Do not store the machine in any of the locations described below, otherwise damage to the machine may result, for example, rust caused by condensation.

- Exposed to extremely high temperatures
- Exposed to extremely low temperatures
- Exposed to extreme temperature changes
- Exposed to high humidity or steam
- Near a flame, heater or air conditioner
- Outdoors or exposed to direct sunlight
- Exposed to extremely dusty or oily environments

Note

- In order to extend the life of this machine, periodically turn it on and use it.
  Storing this machine for an extended period of time without using it may reduce its efficiency.

Cleaning the machine surface

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

CAUTION

- **Unplug the power supply cord before cleaning the machine, otherwise injuries or an electric shock may occur.**

Cleaning the race

Sewing performance will suffer if dust collects in the race therefore, it should be cleaned periodically.

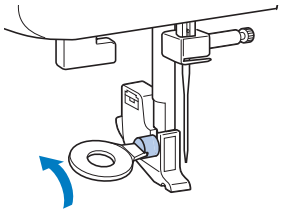
1. **Switch the machine off and unplug it.**

CAUTION

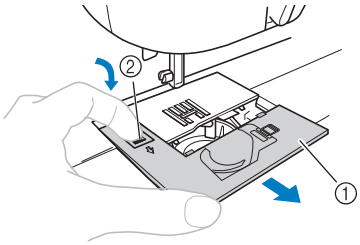
- **Make sure you unplug the machine before you clean it. Otherwise, you may get an electric shock or be injured.**

2. **Raise the needle and the presser foot.**

3. **Loosen the presser-foot screw and the needle clamp screw to remove the presser-foot holder and the needle.**

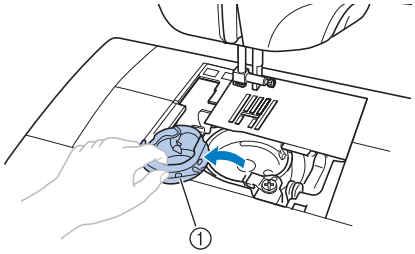


4. **Slide the needle plate cover release toward you to remove the needle plate cover.**



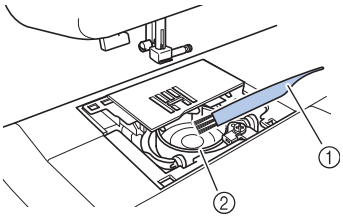
① Needle plate cover
② Needle plate cover release

5 **Remove the bobbin case.**
Grasp the bobbin case, and then pull it out.



① Bobbin case

6 **Use the cleaning brush or a vacuum cleaner to remove any dust from the race and its surrounding area.**

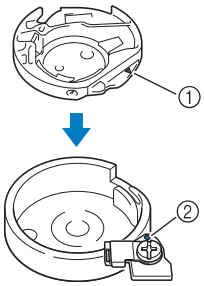


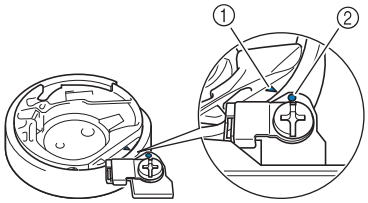
① Cleaning brush
② Race

Note

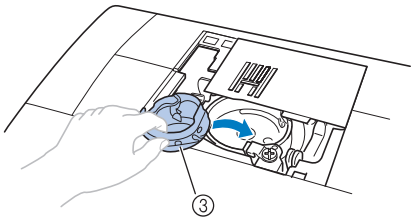
- Do not put oil on the race.

7 **Insert the bobbin case so that the ▲ mark on the bobbin case aligns with the ● mark on the machine.**





- Align the ▲ and ● marks.



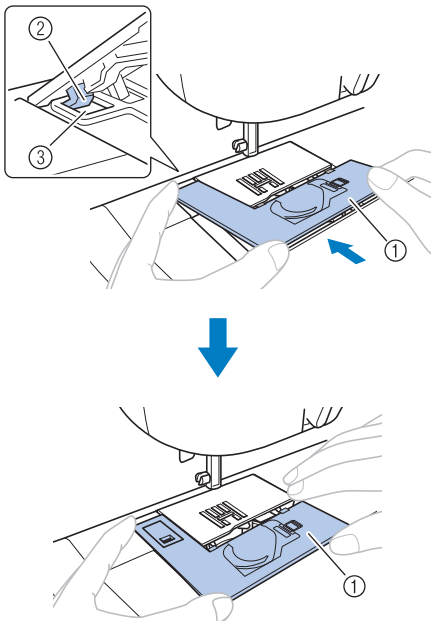
① ▲ mark
② ● mark
③ Bobbin case

- Make sure that the indicated points are aligned before installing the bobbin case.

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. For a new bobbin case (part code: XE7560-001), contact your nearest authorized service center.**
- **Make sure that you fit the bobbin case properly, otherwise the needle may break.**

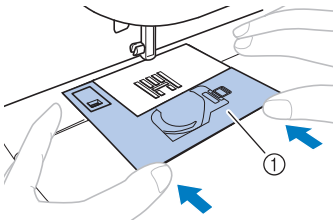
❽ As shown, insert the tab on the needle plate cover into the hole in the needle plate, and then correctly position of the needle plate cover.



① Needle plate cover
② Tab
③ Hole

- Check that the needle plate cover is flush with the top surface of the machine.

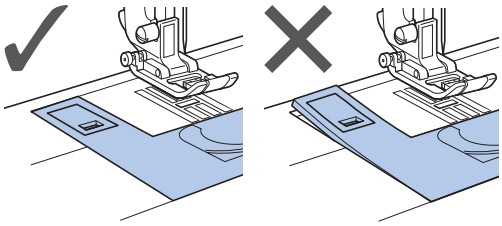
❾ From the front, slide the needle plate cover back into position.



① Needle plate cover

⚠ CAUTION

- **If the needle plate cover is not flush with the surface of the machine as shown below, remove the needle plate cover (step ❹), and then install it again (steps ❽ and ❾). Sewing while the needle plate cover is not flush with the surface of the machine may cause the needle plate cover to come off of the machine, resulting in injuries if your fingers touch the race.**



TROUBLESHOOTING

If the machine stops operating correctly, check the following possible problems before requesting service. You can solve most problems by yourself. If you need additional help, the Brother Solutions Center offers the latest FAQs and troubleshooting tips. Visit us at " http://support.brother.com/ " .
If the problem persists, contact your dealer or the nearest authorized service center.

Frequent troubleshooting topics

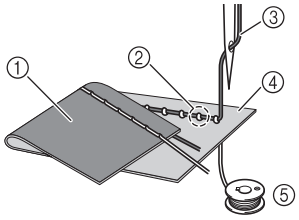
Detailed causes and remedies for common troubleshooting topics are described below. Be sure to refer to this before contacting us.

■ **Upper thread tightened up**	page 85
■ **Tangled thread on wrong side of fabric**	page 86
■ **Incorrect thread tension**	page 89
■ **Fabric is caught in the machine and cannot be removed**	page 90
■ **Error message "E6" appears in the LCD**	page 94

Upper thread tightened up

■ **Symptom**

- The upper thread appears as a single continuous line.
- The lower thread is visible from the upper side of the fabric. (Refer to the illustration below.)
- The upper thread has tightened up, and comes out when pulled.
- The upper thread has tightened up, and wrinkles appear in the fabric.
- The upper thread tension is tight, and the results do not change even after the thread tension is adjusted.



① Lower side of fabric
② Lower thread visible from upper side of fabric
③ Upper thread
④ Upper side of fabric
⑤ Lower thread

■ **Cause**

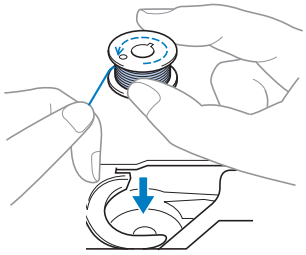
Incorrect lower threading

If the lower thread is incorrectly threaded, instead of the appropriate tension being applied to the lower thread, it is pulled through the fabric when the upper thread is pulled up. For this reason, the thread is visible from the upper side of the fabric.

■ **Remedy/check details**

Correctly install the lower thread.

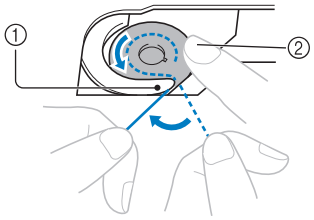
1. **Turn off the sewing machine.**
2. **Remove the bobbin from the bobbin case.**
3. **Place the bobbin in the bobbin case so that the thread unwinds in the correct direction.**
   - Hold the bobbin with your right hand with the thread unwinding to the left, and hold the end of the thread with your left hand. Then, with your right hand, place the bobbin in the bobbin case.



If the bobbin is inserted with the thread unwinding in the wrong direction, sewing will be done with an incorrect thread tension.

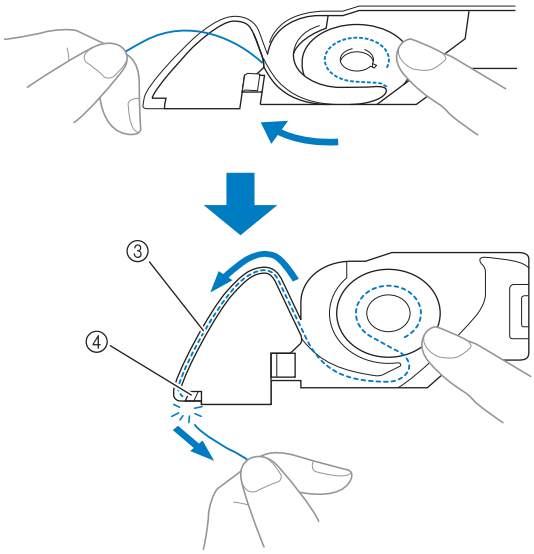
4 While holding the bobbin in place with your finger, pass the thread through the slit in the needle plate.

- Hold down the bobbin with your right hand, and then pull the end of the thread around the tab with your left hand.



① Tab
② Hold down the bobbin with your right hand.

On models equipped with the quick-set bobbin, pull the thread to pass it through the slit in the needle plate, then cut it with the cutter.



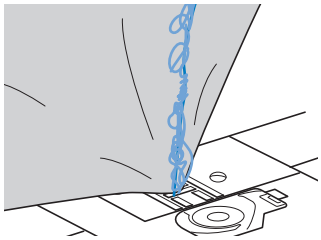
③ Slit
④ Cutter

Sewing with the correct thread tension is possible after the bobbin has been correctly installed in the bobbin case.

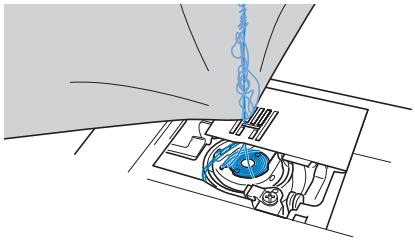
Tangled thread on wrong side of fabric

■ **Symptom**

- The thread becomes tangled on the lower side of the fabric.



- After starting sewing, a rattling noise is made and sewing cannot continue.
- Looking under the fabric, there is tangled thread in the bobbin case.



■ **Cause**

Incorrect upper threading

If the upper thread is incorrectly threaded, the upper thread passed through the fabric cannot be firmly pulled up and the upper thread becomes tangled in the bobbin case, causing a rattling noise.

■ **Remedy/check details**

Remove the tangled thread, and then correct the upper threading.

1 Remove the tangled thread. If it cannot be removed, cut the thread with scissors.

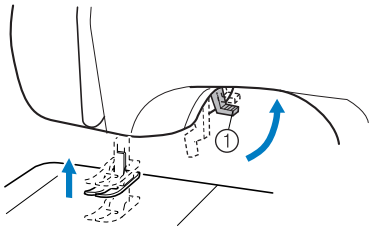
- For details, refer to “Cleaning the race” on page 82.

2 Remove the upper thread from the machine.

3 Refer to the following steps to correct the upper threading.

- If the bobbin was removed from the bobbin case, refer to “Lower threading” (page 22) and “Remedy/check details” in the section “Upper thread tightened up” (page 85) to correctly install the bobbin.

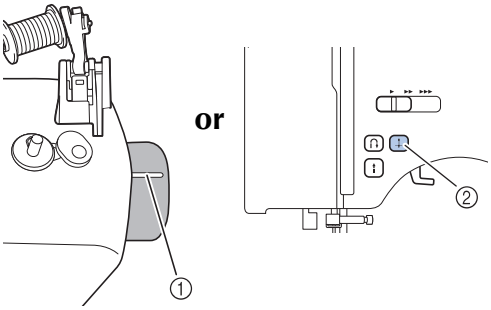
4 **Raise the presser foot using the presser foot lever.**



① Presser foot lever

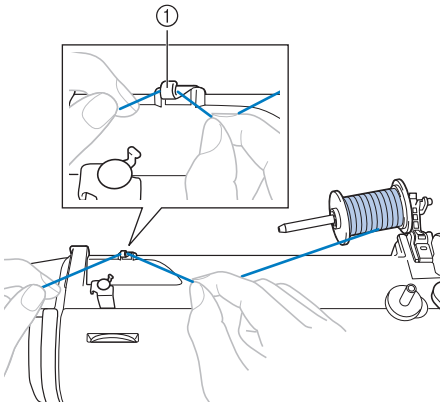
- If the presser foot is not raised, the sewing machine cannot be threaded correctly.

5 **Raise the needle by turning the handwheel toward you (counterclockwise) so that the mark on the wheel points up, or press (needle position button) (for models equipped with the needle position button) once or twice to raise the needle.**



① Mark
② Needle position button

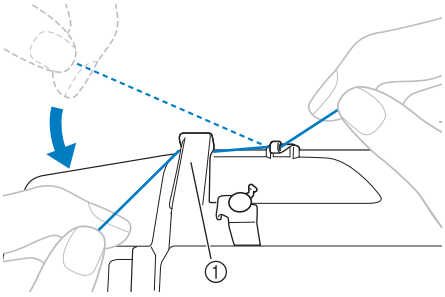
6 **Pull some thread off the spool, and then pass the thread under the thread guide.**



① Thread guide

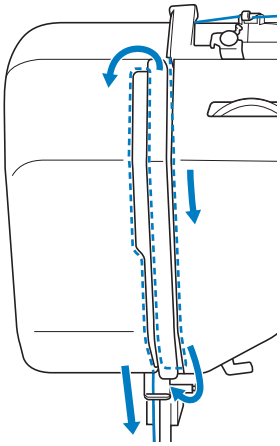
7 **Pass the thread under the thread guide cover from the back to the front.**

Hold the thread with your right hand so that there is no slack in the thread that is pulled out, and then pass the thread under the thread guide cover with your left hand.



① Thread guide cover

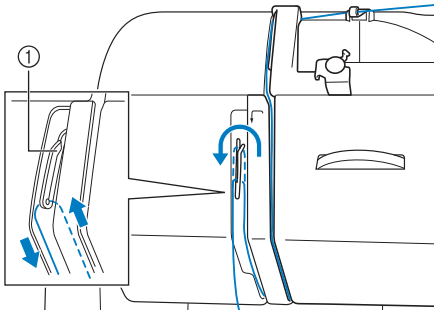
8 **Feed the upper thread as shown in the illustration below.**



4

9 Make sure you guide the thread through the thread take-up lever from right to left as shown in the illustration below.

Sewing is possible only if the thread is securely hooked on the thread take-up lever.

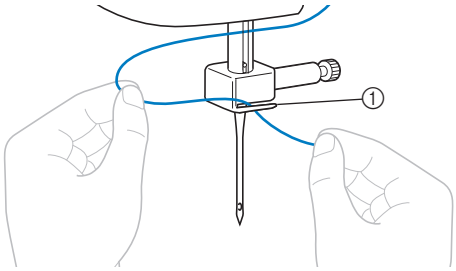


① Thread take-up lever

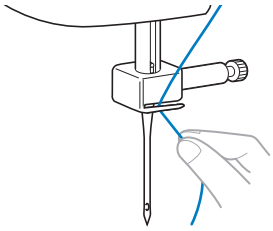
- Make sure that the thread is securely hooked on the thread take-up lever.

10 Put the thread behind the needle bar thread guide above the needle.

The thread can easily be passed behind the needle bar thread guide by holding the thread in your left hand, then feeding the thread with your right hand.



① Needle bar thread guide



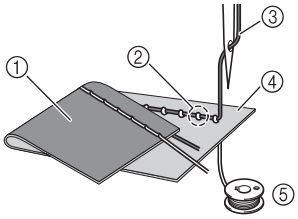
11 Thread the needle according to steps ⓭ and ⓮ in "Upper threading" (page 28) or steps ❷ through ❾ in "Using the needle threader (for models equipped with the needle threader)" (page 28).

Incorrect thread tension

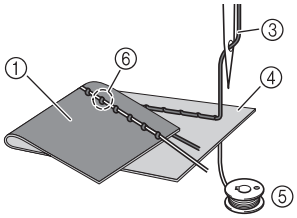
■ **Symptoms**

- Symptom 1: The lower thread is visible from the upper side of the fabric.
- Symptom 2: The upper thread appears as a straight line on the upper side of the fabric.
- Symptom 3: The upper thread is visible from the lower side of the fabric.
- Symptom 4: The lower thread appears as a straight line on the lower side of the fabric.
- Symptom 5: The stitching on the lower side of the fabric is loose or has slack.

☐ **Symptom 1**



☐ **Symptom 3**



① Lower side of fabric
② Lower thread visible from upper side of fabric
③ Upper thread
④ Upper side of fabric
⑤ Lower thread
⑥ Upper thread visible from lower side of fabric

■ **Cause/remedy/check details**

☐ Cause 1

The machine is not correctly threaded.

<With symptoms 1 and 2 described above>
The lower threading is incorrect.
Return the upper tension-control dial to "4", and then refer to "Upper thread tightened up" (page 85) to correct the threading.

<With symptoms 3 through 5 described above>
The upper threading is incorrect.
Return the upper tension-control dial to "4", and then refer to "Tangled thread on wrong side of fabric" (page 86) to correct the upper threading.

☐ Cause 2

A needle and thread appropriate for the fabric are not being used.

The sewing machine needle that should be used depends on the type of fabric sewn and the thread thickness.
If a needle and thread appropriate for the fabric are not being used, the thread tension will not be adjusted correctly, causing wrinkles in the fabric or skipped stitches.

- Refer to "Needle types and their uses" (page 31) to check that a needle and thread appropriate for the fabric are being used.

☐ Cause 3

An appropriate setting on the upper tension-control dial is not selected.

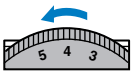
Turn the upper tension-control dial to select an appropriate thread tension.
The appropriate thread tension differs according to the type of fabric and thread being used.

* Adjust the thread tension while test sewing on a piece of scrap fabric that is the same as that used in your project.

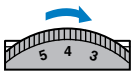
Note

● If the upper threading and lower threading are incorrect, the thread tension cannot be adjusted correctly, even by turning the upper tension-control dial. Check the upper threading and lower threading first, and then adjust the thread tension.

- When the lower thread is visible from the upper side of the fabric. Turn the upper tension-control dial to a lower number (toward the left). (Loosen the thread tension.)



- When the upper thread is visible from the lower side of the fabric. Turn the upper tension-control dial to a higher number (toward the right). (Tighten the thread tension.)



Fabric is caught in the machine and cannot be removed

If the fabric is caught in the sewing machine and cannot be removed, the thread may have become tangled under the needle plate. Follow the procedure described below to remove the fabric from the machine. If the operation could not be completed according to the procedure, instead of attempting to complete it forcefully, contact your nearest authorized service center.

■ Removing the fabric from the machine

1 Immediately stop the sewing machine.

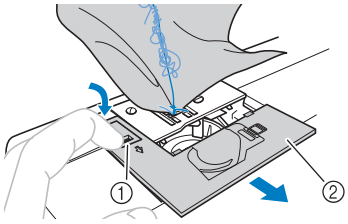
2 Turn off the sewing machine.

3 Remove the needle.
If the needle is lowered into the fabric, turn the handwheel away from you (clockwise) to raise the needle out of the fabric, and then remove the needle.
- Refer to “Replacing the needle” (page 32).

4 Remove the presser foot and presser foot holder.
- Refer to “Replacing the presser foot” (page 36) and “Removing the presser foot holder” (page 37).

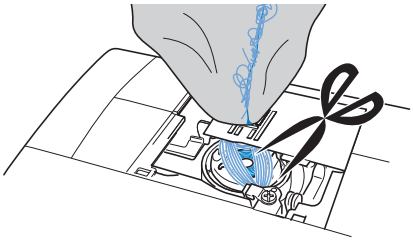
5 Lift up the fabric and cut the threads below it.
If the fabric can be removed, remove it. Continue with the following steps to clean the race.

6 Remove the needle plate cover.

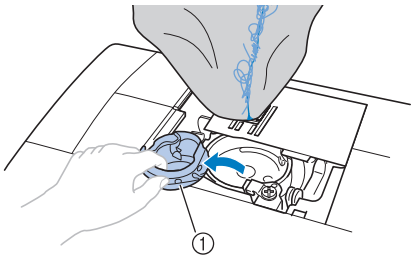


① Needle plate cover release
② Needle plate cover (front part)

7 Cut out the tangled threads, and then remove the bobbin.

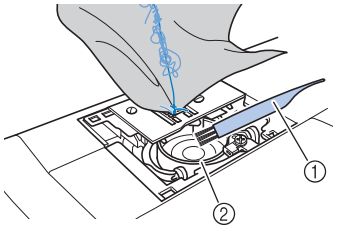


8 Remove the bobbin case.
If threads remain in the bobbin case, remove them.



① Bobbin case

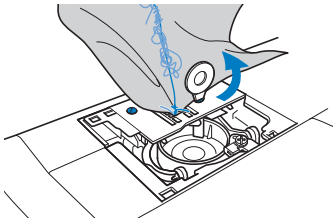
9 Use the cleaning brush or a vacuum cleaner to remove any dust from the race and its surrounding area.



① Cleaning brush
② Race

If the fabric could be removed	Continue to step ⓰.
If the fabric could not be removed	Continue to step ❿.

10 **Use the enclosed disc-shaped screwdriver to loosen the two screws on the needle plate.**

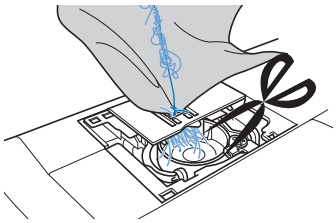


Note

- Be careful not to drop the removed screws in the machine.

11 **Slightly lift up the needle plate, cut any tangled threads, and then remove the needle plate.**

Remove the fabric and threads from the needle plate.



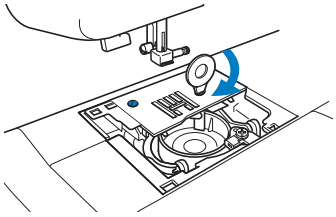
If the fabric cannot be removed, even after completing these steps, contact your nearest authorized service center.

12 **Remove any threads in the race and around the feed dogs.**

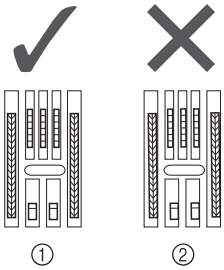
13 **Turn the handwheel to raise the feed dogs.**

14 **Align the two screw holes in the needle plate with the two holes at the needle plate mounting base, and then fit the needle plate onto the machine.**

15 **Lightly finger-tighten the screw on the right side of the needle plate. Then, use the disc-shaped screwdriver to firmly tighten the screw on the left side. Finally, firmly tighten the screw on the right side.**



Turn the handwheel to check that the feed dogs move smoothly and do not contact the edges of the slots in the needle plate.

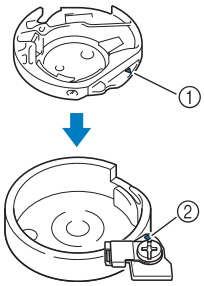


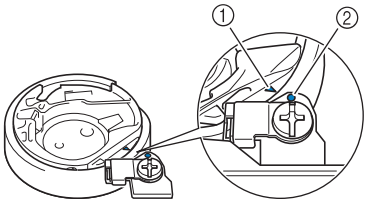
① Correct position of feed dogs
② Incorrect position of feed dogs

Note

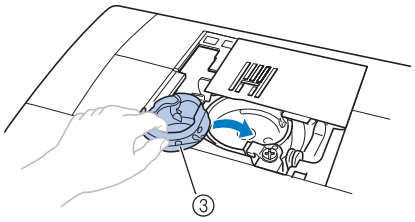
- Be careful not to drop the removed screws in the machine.

16 Insert the bobbin case so that the ▲ mark on the bobbin case aligns with the ● mark on the machine.





- Align the ▲ and ● marks.



① ▲ mark
② ● mark
③ Bobbin case

- Make sure that the indicated points are aligned before installing the bobbin case.

⚠ 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. For a new bobbin case (part code: XE7560-001), contact your nearest authorized service center.**
- **Make sure that you fit the bobbin case properly, otherwise the needle may break.**

17 Attach the needle plate cover according to steps ❽ and ❾ in "Cleaning the race" (page 84).

18 Check the condition of the needle, and then install it.

If the needle is in a poor condition, for example, if it is bent, be sure to install a new needle.

- Refer to "Checking the needle" (page 32) and "Replacing the needle" (page 32).

⚠ CAUTION

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

Note

- After completing this procedure, continue with the following procedure in "Checking machine operations" to check that the machine is operating correctly.

Memo

- Since the needle may have been damaged when the fabric was caught in the machine, we recommend replacing it with a new one.

■ **Checking machine operations**

If the needle plate has been removed, check machine operations to confirm that installation has been completed correctly.

❶ **Turn on the machine.**

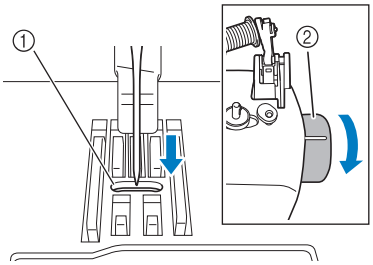
❷ **Select (middle needle position stitch).**

Note

- Do not yet install the presser foot and thread.

❸ **Slowly turn the handwheel toward you (counterclockwise), and look from all sides to check that the needle falls at the center of the hole in the needle plate.**

If the needle contacts the needle plate, remove the needle plate, and then install it again, starting with step ⓭ in "Removing the fabric from the machine" (page 91).



① Hole in the needle plate
② Handwheel

❹ **Select zigzag stitch . At this time, increase the stitch length and width to their maximum settings.**

- For details on changing the settings, refer to "Adjusting the stitch length and width" (page 40).

❺ **Slowly turn the handwheel toward you (counterclockwise) and check that the needle bar and feed dogs operate correctly.**

If the needle or feed dogs contact the needle plate, the machine may be malfunctioning; therefore, contact your nearest authorized service center.

❻ **Turn off the machine, and then install the bobbin and presser foot.**

- Refer to "Lower threading" (page 22) and "Replacing the presser foot" (page 36).

❼ **Correctly thread the machine.**

- For details on threading the machine, refer to "Upper threading" (page 25).

Note

- The thread may have become tangled as a result of incorrect upper threading. Make sure that the machine is correctly threaded.

❽ **Perform trial sewing with normal fabric.**

Note

- Incorrect sewing may be the result of incorrect upper threading or sewing thin fabrics. If there are poor results from the trial sewing, check the upper threading or the type of fabric being used.

Error message "E6" appears in the LCD

If the error message "E6" appears in the LCD with the occurrence of one of the following symptoms, follow the procedure below to solve the problem.

Symptom 1 : The machine rattles and then stops just after sewing is started.
Symptom 2 : The upper thread is tangled, for example, in the race, or fabric is caught in the machine.
Symptom 3 : The needle breaks, or the needle bends and thus hits the needle plate.
Symptom 4 : The fabric is not fed.

Symptom 1 : The machine rattles and then stops just after sewing is started.

■ **Cause**

- The upper thread is not threaded correctly.
- The thread take-up lever is not threaded.

* When the machine stops just after sewing is started, the upper thread may not be threaded correctly.

Note

● If the needle is not raised, the upper thread cannot be threaded correctly. Be sure to press the needle position button to raise the needle before threading the upper thread.

■ **Remedy**

Thread the upper thread again correctly by following the procedure below.

1. **Turn off the machine.**
2. **If the thread is tangled, remove the tangled thread.**
   - Refer to "Cleaning the race" (page 82) and "Tangled thread on wrong side of fabric" (page 86).
3. **Remove the upper thread from the machine.**
4. **Turn the handwheel toward you (counterclockwise) to check if the handwheel moves smoothly.**

If the handwheel moves smoothly	Continue to step ⑩.
If the handwheel does not move smoothly	Continue to step ⑤.

5. **Remove the needle plate cover, and then remove the bobbin and bobbin case.**
6. **Insert the bobbin case so that the ▲ mark on the bobbin case aligns with the ● mark on the machine.**
   - Refer to "Cleaning the race" (page 82).
7. **Attach the needle plate cover.**
   - Refer to "Cleaning the race" (page 82).
8. **Set the bobbin in the bobbin case.**
   - Refer to "Cleaning the race" (page 82).
9. **If the needle is bent, replace it with a new one.**
   - Refer to "Replacing the needle" (page 32).
10. **Turn on the machine, and then press the needle position button to raise the needle.**
    - Refer to "Upper threading" (page 25).
11. **Thread the machine correctly.**
    - For details on threading the machine, refer to "Upper threading" (page 25).

Symptom 2 : The upper thread is tangled, for example, in the race, or fabric is caught in the machine.

■ **Cause**

Thread is tangled below the needle plate.

■ **Remedy**

Remove the fabric and reset the thread and bobbin by following the procedure below.

1. **Turn off the machine.**
2. **Remove the fabric from the machine.**
   - Refer to "Fabric is caught in the machine and cannot be removed" (page 90).

3 **Remove the upper thread and bobbin.**
- Refer to “Fabric is caught in the machine and cannot be removed” (page 90).

4 **Remove the bobbin case.**
- Refer to “Fabric is caught in the machine and cannot be removed” (page 90).

5 **If threads remain in the bobbin case, remove it.**
- Refer to “Fabric is caught in the machine and cannot be removed” (page 90).

6 **Insert the bobbin case so that the ▲ mark on the bobbin case aligns with the ● mark on the machine.**
- Refer to “Cleaning the race” (page 82).

7 **Attach the needle plate cover.**
- Refer to “Cleaning the race” (page 82).

8 **Set the bobbin in the bobbin case.**
- Refer to “Cleaning the race” (page 82).

9 **If the needle is bent, replace it with a new one.**
- Refer to “Replacing the needle” (page 32).

10 **Turn on the machine, and then press the needle position button to raise the needle.**
- Refer to “Upper threading” (page 25).

11 **Thread the machine correctly.**
- For details on threading the machine, refer to “Upper threading” (page 25).

Symptom 3 : The needle breaks, or the needle bends and thus hits the needle plate.

■ **Cause**

You have not used the right combination of fabric, thread and needle.

■ **Remedy**

Choose a thread and needle that are appropriate for the type of fabric.
- Refer to “Needle types and their uses” (page 31).

Symptom 4 : The fabric is not fed.

■ **Cause**

The thread has become clogged as the stitch is too fine.

■ **Remedy**

Lengthen the stitch length.
- Refer to “Adjusting the stitch length and width” (page 40).

List of symptoms

■ **Before sewing**

Symptom	Possible cause	How to put it right	Reference
The needle threader can not be used. (For models equipped with the needle threader lever.)	You have not moved the needle holder to its highest position.	Raise the needle either by turning the handwheel toward you (counterclockwise) so that the mark on the wheel points up or by pressing (needle position button) once or twice.	page 25
	The needle is incorrectly installed.	Correctly install the needle.	page 32
The sewing light does not come on.	The machine is not turned on.	Turn on the machine.	page 14
Bobbin thread does not wind neatly on the bobbin.	The thread is not passed through the bobbin-winding thread guide correctly.	Correctly pass the thread through the bobbin-winding thread guide.	page 19
	Bobbin spins slowly. (for models equipped with the sewing speed controller.)	Move the sewing speed controller to the right (so that the speed will be fast).	page 21
	The thread that was pulled out was not wound onto the bobbin correctly. (For models equipped with the fast bobbin winding system.)	Wind the thread that was pulled off round the bobbin five or six times clockwise.	page 20
The thread does not pass through the eye of the needle. (For models equipped with the needle threader lever.)	You have not moved the needle holder to its highest position.	Raise the needle either by turning the handwheel toward you (counterclockwise) so that the mark on the wheel points up or by pressing (needle position button) once or twice.	page 25
	The needle is incorrectly installed.	Correctly install the needle.	page 32
The needle threader lever does not lower to the correct position. (For models equipped with the needle threader lever.)	The needle has not been raised to the correct position.	Press the needle position button.	page 25
While winding the bobbin, the bobbin thread was wound below the bobbin winder seat.	You have not wound the bobbin thread properly.	After removing the thread wound below the bobbin winder seat, wind the bobbin correctly.	page 17

■ **While sewing**

Symptom	Possible cause	How to put it right	Reference
The sewing machine does not work.	The machine is not plugged in.	Plug the machine in.	page 14
	The main power switch is turned off.	Turn on the main power switch.	page 14
	The bobbin winder shaft is pushed to the right.	Move the bobbin winder shaft to the left.	page 20, 21
	You have not used the foot controller properly.	Use the foot controller properly.	page 14
	The foot controller or the start/stop button was not pressed (for models equipped with the start/stop button).	Press the foot controller or the start/stop button.	page 41
	The presser foot lever is raised.	Lower the presser foot lever.	page 41
	The start/stop button was pressed, even though the foot controller is connected. (for models equipped with the start/stop button)	Do not use the start/stop button when the foot controller is connected. To use the start/stop button, disconnect the foot controller.	page 41
Fabric being sewn with the machine cannot be removed.	Thread is tangled below the needle plate.	Lift up the fabric and cut the threads below it, and clean the race.	page 90
The needle breaks.	The spool or spool cap is incorrectly installed.	Correctly install the spool or spool cap.	page 26
	The upper thread was not threaded correctly.	Correct the upper threading.	page 25
	The needle is incorrectly installed.	Correctly install the needle.	page 32
	The needle clamp screw is loose.	Use the disc-shaped screwdriver to firmly tighten the screw.	page 33
	The needle is bent or blunt.	Replace the needle.	page 32
	You have not used the right combination of fabric, thread and needle.	Choose a thread and needle that are appropriate for the type of fabric.	page 31
	The presser foot you are using is not appropriate for the type of stitch that you want to sew.	Attach the presser foot that is correct for the type of stitch that you want to sew.	page 75
	The upper thread tension is too tight.	Loosen the upper thread tension.	page 43
	You are pulling the fabric too much.	Lightly guide the fabric.	–
	The area around the hole in the needle plate is scratched.	Replace the needle plate. Contact your retailer or the nearest authorized service center.	–
	The area around the hole in the presser foot is scratched.	Replace the presser foot. Contact your retailer or the nearest authorized service center.	–
	The bobbin case is scratched.	Replace the bobbin case. Contact your retailer or the nearest authorized service center.	–
	You have not used a bobbin that has been designed for this machine.	Incorrect bobbins will not work properly. Only use a bobbin that has been designed for this machine.	page 17

Symptom	Possible cause	How to put it right	Reference
The upper thread breaks.	The upper thread was not threaded correctly. (for example, the spool is not installed correctly, the spool cap is too big for the spool being used, or the thread has come out of the needle bar thread guide.)	Correct the upper threading. Use the spool cap that best fits the size of the spool being used.	page 25
	There are knots or tangles in the thread.	Remove any knots or tangles.	–
	The needle is not appropriate for the thread you are using.	Choose a needle that is appropriate for the type of stitch.	page 31
	The upper thread tension is too tight.	Loosen the upper thread tension.	page 43
	The thread is tangled, for example, in the race.	Remove the tangle thread. If the thread is tangled in the race, clean the race.	page 82, 86
	The needle is bent or blunt.	Replace the needle.	page 32
	The needle is incorrectly installed.	Correctly install the needle.	page 32
	The area around the hole in the needle plate is scratched.	Replace the needle plate. Contact your retailer or the nearest authorised service center.	–
	The area around the hole in the presser foot is scratched.	Replace the presser foot. Contact your retailer or the nearest authorised service center.	–
	The bobbin case is scratched, or has a burr on it.	Replace the bobbin case. Contact your retailer or the nearest authorised service center.	–
	You have not used a bobbin that has been designed for this machine.	Incorrect bobbins will not work properly. Only use a bobbin that has been designed for this machine.	page 17
The lower thread is tangled or breaks.	You have not wound the bobbin thread properly.	Wind the bobbin thread properly.	page 17
	The bobbin is scratched or does not turn smoothly.	Replace the bobbin.	–
	The thread is tangled.	Remove the tangled thread and clean the race.	page 82, 86
	You have not used a bobbin that has been designed for this machine.	Incorrect bobbins will not work properly. Only use a bobbin that has been designed for this machine.	page 17
	Bobbin is set incorrectly.	Reset the bobbin thread correctly.	page 22, 23
The fabric is wrinkled.	You have not threaded the upper thread properly or fitted the bobbin properly.	Thread the upper thread and wind the bobbin thread properly.	page 22, 23, 25
	The spool or spool cap is incorrectly installed.	Correctly install the spool or spool cap.	page 26
	You have not used the right combination of fabric, thread and needle.	Choose a thread and needle that are appropriate for the type of fabric.	page 31
	The needle is bent or blunt.	Replace the needle.	page 32
	If thin fabrics are being sewn, the stitch is too long or the fabric is not being fed correctly.	Sew with the stabilizer material under the fabric.	page 46
	If thin fabrics are being sewn, the stitch is too coarse.	Shorten the stitch length, or sew with stabilizer material under the fabric.	page 40, 46

Symptom	Possible cause	How to put it right	Reference
The fabric is wrinkled.	The presser foot you are using is not appropriate for the type of stitch that you want to sew.	Attach the presser foot that is correct for the type of stitch that you want to sew.	page 75
	The thread tension is incorrect.	Adjust the tension of the upper thread.	page 43, 89
Stitches are skipped.	You have not threaded the upper thread properly.	Correct the upper threading.	page 25
	You have not used the right combination of fabric, thread and needle.	Choose a thread and needle that are appropriate for the type of fabric.	page 31
	The needle is bent or blunt.	Replace the needle.	page 32
	The needle is incorrectly installed.	Correctly install the needle.	
	Dust has accumulated under the needle plate or in the race.	Remove the needle plate cover and clean the plate and the race.	page 82
There is a high-pitched noise while sewing.	Dust has built up in the feed dogs or in the race.	Remove the needle plate cover and clean the plate and the race.	page 82
	You have not threaded the upper thread properly.	Correct the upper threading.	page 25
	The bobbin case is scratched.	Replace the bobbin case. Contact your retailer or the nearest authorized service center.	–
	You have not used bobbin that has been designed for this machine.	Incorrect bobbins will not work properly. Only use a bobbin that has been designed for this machine.	page 17
The fabric does not feed.	The feed dogs are lowered.	Slide the feed dog position lever to ⧫⧫.	page 57, 67
	The stitch is too fine.	Lengthen the stitch length.	page 40
	You have not used the right combination of fabric, thread and needle.	Choose a thread and needle that are appropriate for the type of fabric.	page 31
	The thread is tangled, for example, in the race.	Remove the tangle thread. If the thread is tangled in the race, clean the race.	page 82, 86
	The presser foot you are using is not appropriate for the type of stitch that you want to sew.	Attach the presser foot that is correct for the type of stitch that you want to sew.	page 75
	The needle is bent or blunt.	Replace the needle.	page 32
	Zigzag foot "J" is slanted on a thick seam at the beginning of stitching.	Use the presser foot locking pin (black button on the left side) on zigzag foot "J" to keep the presser foot level while sewing.	page 45
The fabric feeds in the opposite direction.	The feed mechanism is damaged.	Contact your retailer or the nearest authorized service center.	–

■ **After sewing**

Symptom	Possible cause	How to put it right	Reference
The upper thread has tightened up.	The bobbin thread is incorrectly installed.	Correctly install the bobbin thread.	page 22, 85
The thread tension is incorrect.	You have not threaded the upper thread properly.	Correct the upper threading.	page 25
	You have not wound the bobbin thread properly.	Wind the bobbin thread properly.	page 17
	The bobbin thread is incorrectly installed.	Correctly install the bobbin thread.	page 22
	You have not threaded the right combination of thread and needle for the fabric you are using.	Choose a thread and needle that are appropriate for the type of fabric.	page 31
	You have not attached the presser-foot holder properly.	Attach the presser-foot holder properly.	page 37
	The thread tension is incorrect.	Adjust the tension of the upper thread.	page 43, 89
	You have not used a bobbin that has been designed for this machine.	Incorrect bobbins will not work properly. Only use a bobbin that has been designed for this machine.	page 17
	Bobbin is set incorrectly.	Reset the bobbin thread correctly.	page 22, 23
The thread is tangled on the wrong side of the fabric.	You have not threaded the upper thread properly.	Correct the upper threading.	page 25, 86
The stitch is not sewn correctly.	The presser foot you are using is not appropriate for the type of stitch that you want to sew.	Attach the presser foot that is correct for the type of stitch that you want to sew.	page 75
	The thread tension is incorrect.	Adjust the tension of the upper thread.	page 43, 89
	The thread is tangled, for example, in the race.	Remove the tangle thread. If the thread is tangled in the race, clean the race.	page 82

ERROR MESSAGES

If an operation is performed incorrectly before the sewing machine is set up, an error message appears on the operation panel. Follow the instructions indicated in the table.
If you press the stitch selection key or do the operation correctly while the error message is displayed, the message disappears.

Error Message	Probable Cause	Solution
E 1	The foot controller was pressed (or the start/stop button was pressed if the foot controller is not connected) and the reverse/reinforcement stitch button was pressed while the presser foot is raised.	Lower the presser foot lever before continuing the operation.
E2	A stitch other than the buttonhole or bar tack stitch was selected and the foot controller was pressed (or the start/stop button was pressed if the foot controller is not connected) while the buttonhole lever is lowered.	Raise the buttonhole lever before continuing the operation.
E3	The buttonhole or bar tack stitch was selected and the foot controller was pressed (or the start/stop button was pressed if the foot controller is not connected) while the buttonhole lever is raised.	Lower the buttonhole lever before continuing the operation.
E4	The reverse/reinforcement stitch button or needle position button was pressed while the bobbin winder shaft is moved to the right.	Move the bobbin winder shaft to the left before continuing the operation.
E5	The start/stop button was pressed while the foot controller was connected.	Disconnect the foot controller, and then press the start/stop button. Otherwise, operate the machine by using the foot controller.
E6	The motor locked up because the thread became tangled, or the needle bent and thus hit the needle plate.	Clean the race to remove the tangled thread (page 82). Check the needle. If the needle is bent or broken, replace the needle (page 32). If both of the above fail, refer to “Error message “E6” appears in the LCD” (page 94).
F 1 - F9	The machine may be malfunctioning.	Contact your nearest authorized service center.

Operation beep

Each time a key is pressed you will hear one beep. If a non-functioning key is pressed or an incorrect operation is performed you will hear two or four beeps (only for models equipped with the operation beep).

- **If a key is pressed (correct operation)**
  One beep sounds.
- **If an incorrect operation is performed or a non-functioning key is pressed**
  Two or four beeps sound.
- **If the machine locks up, for example, because the thread is tangled**
  The sewing machine beeps for four seconds and the machine automatically stops. Be sure to check for the cause of the error, and correct it before continuing to sew.

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Please visit us at **http://support.brother.com/** where you can get product support and answers to frequently asked questions (FAQs).

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