Tempo™

Instruction and Reference Guide

Model BLTP

baby lock®

FOR THE LOVE OF SEWING

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

Baby Lock Consumer Helpline: 800-313-4110

www.babylock.com

CONGRATULATIONS ON CHOOSING OUR MACHINE

Your machine is the most advanced computerized household sewing machine.
To fully enjoy all the features incorporated, we suggest that you study the manual.

PLEASE READ BEFORE USING THIS MACHINE

For safe operation

1. Be sure to keep your eye on the needle while sewing. Do not touch the handwheel, thread take-up lever, needle, or other moving parts.
2. Remember to turn off the power switch and unplug the cord when:
   - Operation is completed
   - Replacing or removing the needle or any other parts
   - A power failure occurs during use
   - Maintaining the machine
   - Leaving the machine unattended.
3. Do not store anything on the foot controller.
4. Plug the machine directly into the wall. Do not use extension cords.

For a longer service life

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

For repair or adjustment

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

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

For additional product information and updates, visit our web site at www.babylock.com

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 removing covers, lubricating, or 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 **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 retailer 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.

4 **Always** keep your work area clear:

- Never operate the machine with any air openings blocked. Keep ventilation openings of the sewing 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.

5 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 sewing 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.

6 This machine is **not** a toy:

- Your close attention is necessary when the machine is used by or near children.
- Do not use outdoors.

7 **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.

8 **For repair or adjustment:**

- If the Light unit (light-emitting diode) is damaged, it must be replaced by authorized retailer.
- 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 Baby Lock retailer.

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.babylock.com

SAVE THESE INSTRUCTIONS

This machine is intended for household use.

FOR USERS IN AC INPUT 220-240V COUNTRIES AND MEXICO

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.

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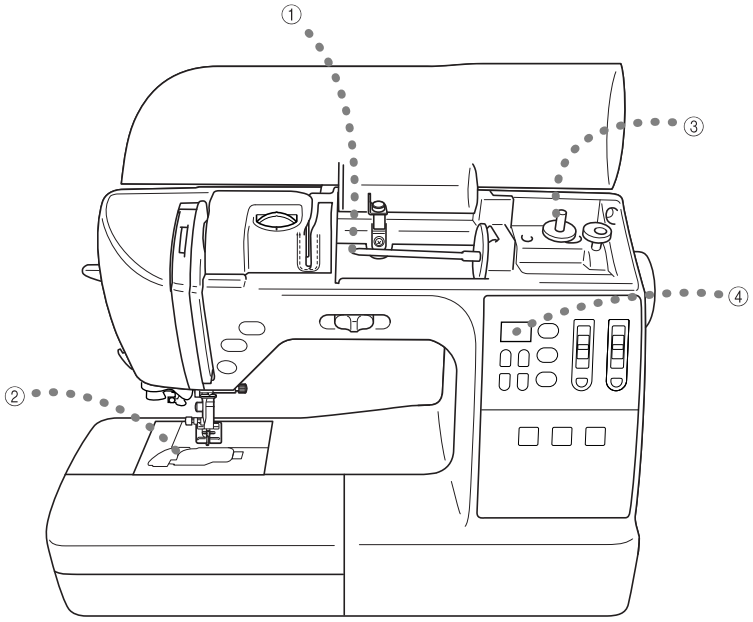
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Introduction

Thank you for purchasing this sewing machine.
Before using this sewing machine, carefully read the “IMPORTANT SAFETY INSTRUCTIONS” (page 1), and then study this manual for the correct operation of the various functions.
In addition, after you have finished reading this manual, store it where it can quickly be accessed for future reference.

Sewing Machine Features



① **Easy upper threading**
Since the spool can be installed at the front of the sewing machine, the upper thread can easily be threaded. In addition, the needle can be threaded with a simple operation (page 22).

② **One-touch lower threading**
You can start sewing without pulling up the bobbin thread (page 20).

③ **Simple bobbin-winding**
The bobbin can quickly and easily be wound with thread (page 16).

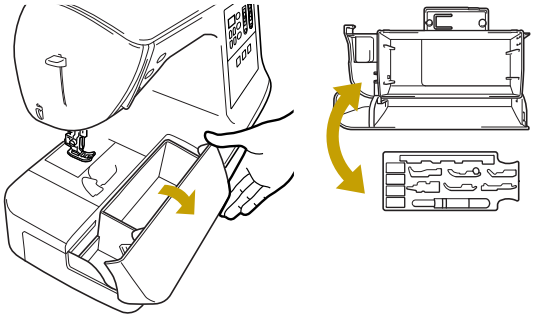
④ **Built-in stitches**
You can select from the built-in stitches available, including utility stitches and decorative stitches (page 56).

Accessories

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

Included accessories

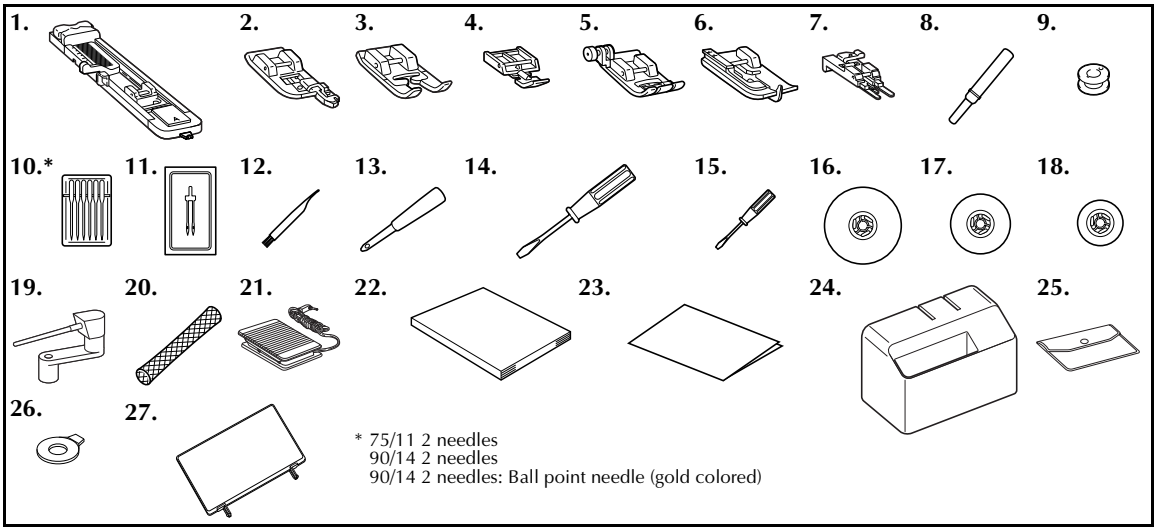
The following items should also be included in the box.



Note

(For U.S.A. only)

- Foot controller: Model N5V
  This foot controller can be used on this machine model BLTP.
- The screw for the presser foot holder is available through your authorized retailer.
  (Part code: XA4813-051)
- The organized accessory tray is available through your authorized retailer.
  (Part code: XC4489-051)

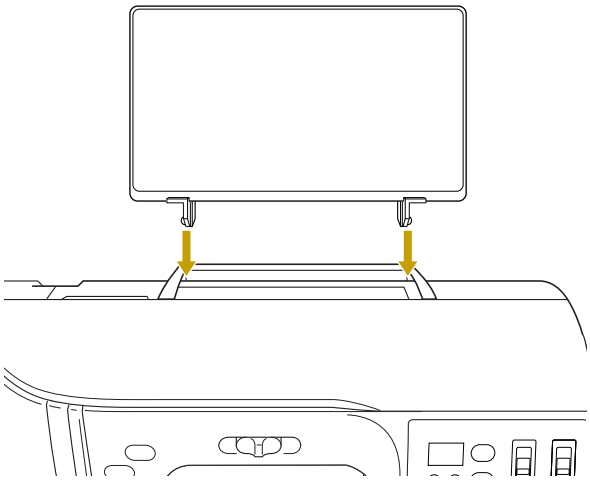


* 75/11 2 needles
90/14 2 needles
90/14 2 needles: Ball point needle (gold colored)

No.	Part Name	Part Code	No.	Part Name	Part Code
1	Buttonhole foot “A”	XC2691-023	15	Screwdriver (small)	X55468-021
2	Overcasting foot “G”	XE6305-101	16	Spool cap (large)	130012-024
3	Monogramming foot “N”	XD0810-031	17	Spool cap (medium)(2)	XE1372-001
4	Zipper foot “I”	X59370-021	18	Spool cap (small)	130013-124
5	Zigzag foot “J” (on machine)	XC3021-031	19	Extra spool pin	XC4654-051
6	Blind stitch foot “R”	XE2650-001	20	Spool net	XA5523-020
7	Button fitting foot “M”	XE2643-001	21	Foot controller	XC6651-221
8	Seam ripper	X54243-051	22	Operation manual	XE8868-001
9	Bobbin (4)	X52800-120	23	Quick reference guide	XE8869-001
10	Needle set	X58358-021	24	Hard case	XC9701-053
11	Twin needle	X59296-121	25	Accessory bag	XC4487-021
12	Cleaning brush	X59476-021	26	Disc-shaped screwdriver	XC1074-051
13	Eyelet punch	XZ5051-001	27	Stitch pattern plate	XE8866-001
14	Screwdriver (large)	XC8349-021			

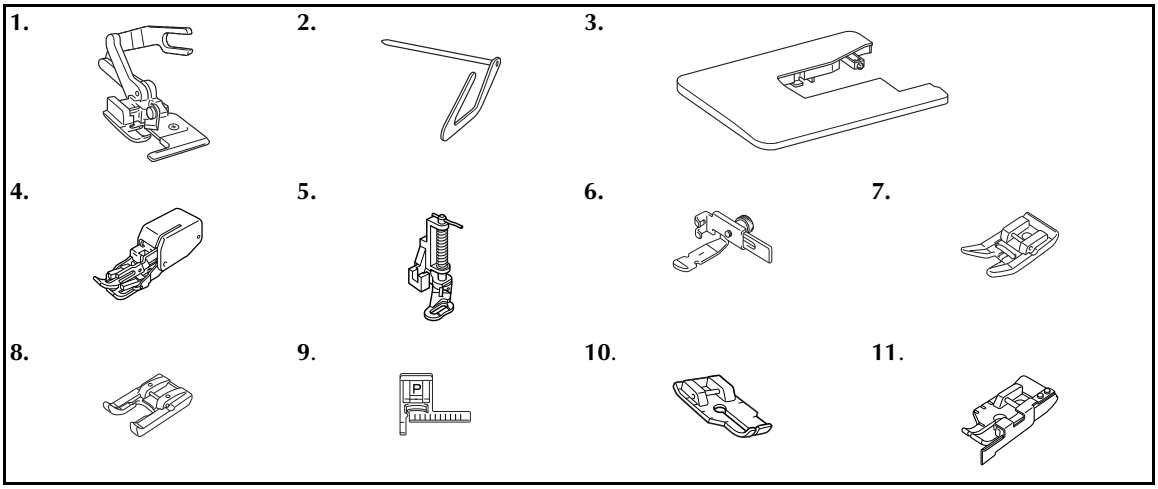
■ **Attaching the stitch pattern plate**

The stitch pattern plate shows the stitches and the stitch numbers. A letter (A, G, J, N or R) indicating the presser foot that should be used appears below the stitch number. Attach the stitch pattern plate to the handle as shown in the illustration below.



Optional accessories

The following are available as optional accessories.



No.	Part Name	Part Code	No.	Part Name	Part Code
1	Side cutter	FA10	7	Non stick foot	FA8
2	Quilting guide	FA11	8	Open toe foot	FA7
3	Extension table	BLR-ET	9	Stitch guide foot “P”	FA6
4	Walking foot	BLG-WI	10	1/4 inch quilting foot	FA1
5	Quilting foot	FA2	11	1/4 inch quilting foot with guide	ESG-QGF
6	Adjustable zipper/piping foot	FA9			

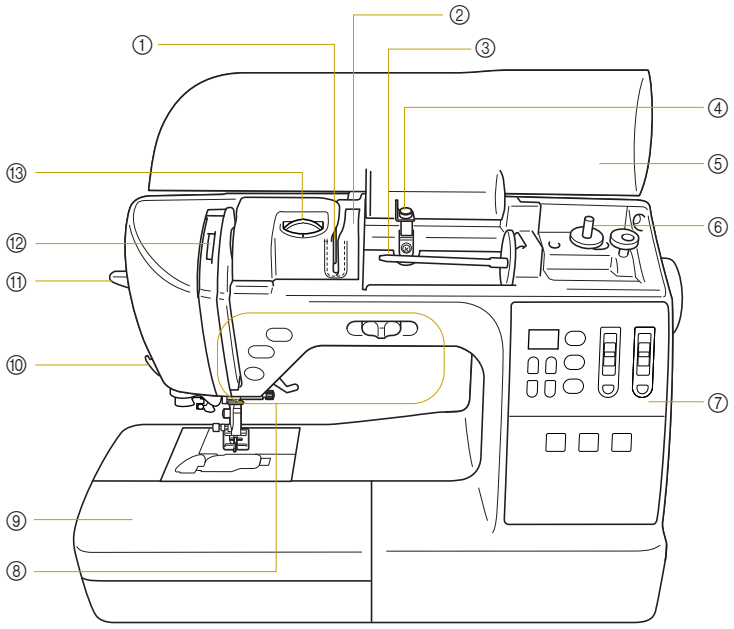
Memo

- Visit your Baby Lock retailer for a complete listing of optional accessories available for your machine.

Names of Machine Parts and Their Functions

The names of the various parts of the sewing machine and their functions are described below. Before using the sewing machine, carefully read these descriptions to learn the names of the machine parts.

Front view



① **Thread guide plate**
Pass the thread under the thread guide plate.

② **Thread guide cover**
Pass the thread behind the thread guide cover when threading the upper thread.

③ **Spool pin**
Place a spool of thread on the spool pin.

④ **Bobbin winding thread guide and pretension disk**
Pass the thread under this thread guide and around the pretension disk when winding the bobbin thread.

⑤ **Top cover**
Open the top cover to place the spool of thread on the spool pin.

⑥ **Bobbin winder**
Use the bobbin winder when winding the bobbin.

⑦ **Operation panel**
Use for stitch selection and various stitch functions (page 12).

⑧ **Operation buttons and sewing speed controller**
Use these buttons and the slide to operate the sewing machine (page 11).

⑨ **Flat bed attachment with accessory compartment**
Store presser feet and bobbins in the accessory compartment of the flat bed attachment. When sewing cylindrical pieces, remove the flat bed attachment.

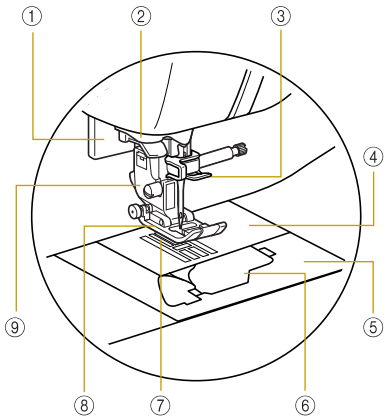
⑩ **Thread cutter**
Pass the threads through the thread cutter to cut them.

⑪ **Needle threader lever**
Use the needle threader to thread the needle.

⑫ **Thread take-up lever check window**
Look through the window to check the position of the take-up lever.

⑬ **Thread tension dial**
Use the thread tension dial to adjust the tension of the upper thread.

Needle and presser foot section



① **Buttonhole lever**
The buttonhole lever is used with the one-step buttonhole foot to create buttonholes.

② **Thread guide disk**
Pass the thread through the thread guide disk when using the needle threader to thread the needle.

③ **Needle bar thread guide**
Pass the upper thread through the needle bar thread guide.

④ **Needle plate**
The needle plate is marked with guides to help sew straight seams.

⑤ **Needle plate cover**
Remove the needle plate cover to clean the bobbin case and race.

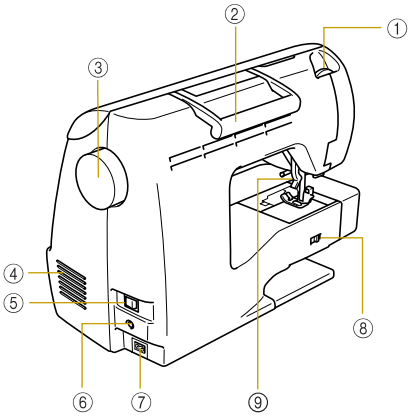
⑥ **Bobbin cover**
Open the bobbin cover to set the bobbin.

⑦ **Feed dogs**
The feed dogs feed the fabric in the sewing direction.

⑧ **Presser foot**
The presser foot applies pressure consistently on the fabric as sewing takes place. Attach the appropriate presser foot for the selected stitch.

⑨ **Presser foot holder**
The presser foot is attached onto the presser foot holder.

Right-side/rear view



① **Presser foot dial**
Use the presser foot dial to adjust the amount of pressure that the presser foot applies to the fabric.

② **Handle**
Carry the sewing machine by its handle when transporting the machine.

③ **Handwheel**
Turn the handwheel toward you to raise and lower the needle. The handwheel should be turned towards you (counterclockwise).

④ **Air vent**
The air vent allows the air surrounding the motor to circulate. Do not cover the air vent while the sewing machine is being used.

⑤ **Main power switch**
Use the main power switch to turn the sewing machine ON and OFF.

⑥ **Foot controller jack**
Insert the plug on the end of the foot controller cable into the foot controller jack.

⑦ **Power supply jack**
Insert the plug on the power cord into the power supply jack.

⑧ **Feed dog position switch**
Use the feed dog position switch to lower the feed dogs.

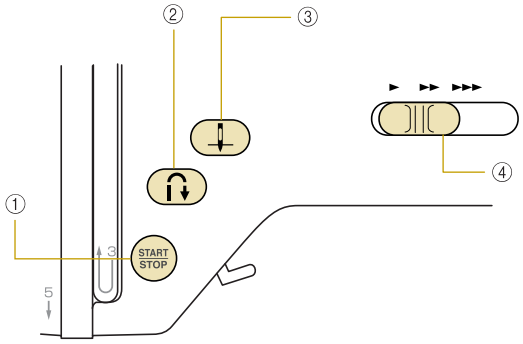
⑨ **Presser foot lever**
Raise and lower the presser foot lever to raise and lower the presser foot.

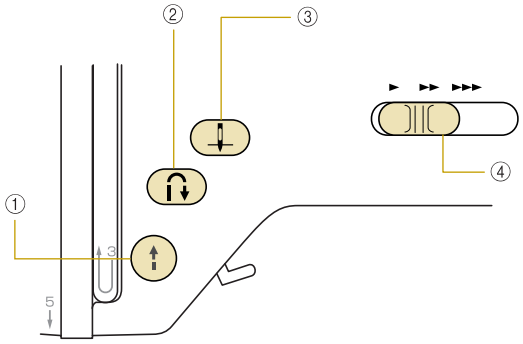
Memo

- Refer to pages 9 through 12 while you are learning to use your machine.

Operation buttons

The operation buttons help you to easily perform various basic sewing machine operations.





① **"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 42).

The button lights up in green, red or orange, depending on how the sewing machine is being operated.

Green:	When the machine is ready to start sewing or while it is sewing
Red:	When the machine is not ready to start sewing
Orange:	When the bobbin winder shaft is moved to the right for winding the bobbin thread onto the bobbin

② **"Reverse/Reinforcement Stitch" button**

Press the "Reverse/Reinforcement Stitch" button to sew reverse stitches or reinforcement stitches. Reverse stitches are sewn by keeping the button pressed down to sew in the opposite direction. Reinforcement stitches are sewn by sewing 3 to 5 stitches on top of each other. For details, refer to "Securing the stitching" (page 44).

③ **"Needle Position" button**

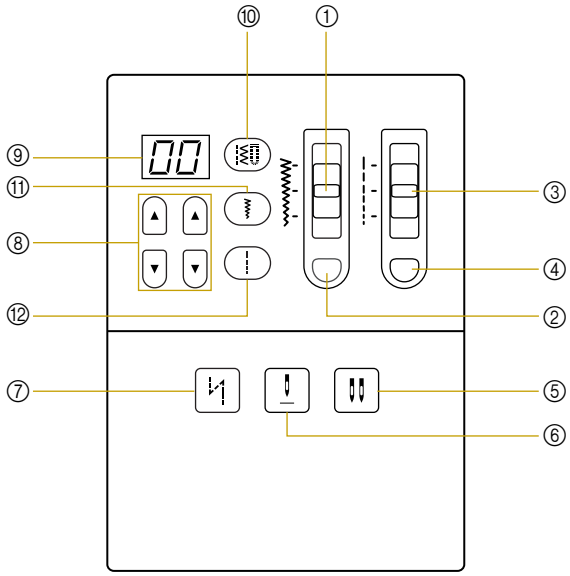
Press the "Needle Position" button to raise or lower the needle. Pressing the button twice sews one stitch.

④ **Sewing speed controller**

Slide the sewing speed controller to adjust the sewing speed.

Operation panel

The operation panel, located on the front at the right of the sewing machine, consists of various buttons and sliders for specifying how the stitch will be sewn.



① **Stitch width adjustment slider** / ② **Stitch width adjustment button**
These are used to adjust the width of the stitch or the needle position. After pressing the stitch width adjustment button, use the stitch width adjustment slider to adjust the stitch width.

③ **Stitch length adjustment slider** / ④ **Stitch length adjustment button**
These are used to adjust the length of the stitch. After pressing the stitch length adjustment button, use the stitch length adjustment slider to adjust the stitch length.

⑤ **Needle mode selection key (single/twin)**
Press the needle mode selection key to select the twin needle sewing setting. Each time this key is pressed, the setting switches between that for single needle sewing and for twin needle sewing.

⑥ **Needle stop position key**
This is used to change the position of the needle when the sewing machine is stopped. If the key is lit, the sewing machine will stop with the needle raised. If the key is not lit, the sewing machine will stop with the needle lowered.

⑦ **Automatic reverse/reinforcement stitch key**
Press the automatic reverse/reinforcement stitch key to automatically sew reverse or reinforcement stitches at the beginning and end of stitching.

⑧ **Stitch selection key**
Press the stitch selection key to select the number for the stitch that you wish to use. 80 stitches are available. For details, refer to “Selecting Stitching” (page 56).

⑨ **Stitch indicator**
This displays the number, width and length of the currently selected stitch. Press the stitch number display key (⑩), stitch width display key (⑪) or the stitch length display key (⑫) to display the corresponding information. In addition, error messages for incorrect operation appear in the stitch indicator.

⑩ **Stitch number display key**
Press the stitch number display key to display the number of the currently selected stitch. When the stitch number is displayed, the stitch number display key lights up.

⑪ **Stitch width display key**
Press the stitch width display key to display the width of the currently selected stitch. When the stitch width is displayed, the stitch width display key lights up.

⑫ **Stitch length display key**
Press the stitch length display key to display the length of the currently selected stitch. When the stitch length is displayed, the stitch length display key lights up.

1 GETTING READY

The various preparations required before starting to sew are described in this chapter.

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Turning the Machine On/Off

This section explains how to turn the sewing machine on and off.

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.**
  - **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**

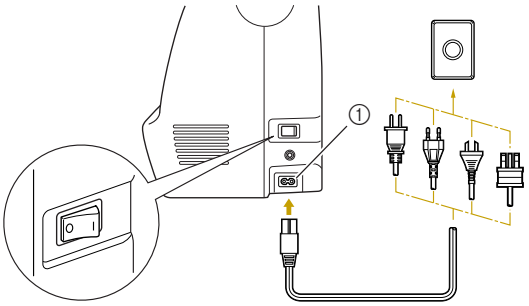
CAUTION

- **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 retailer for repairs before continuing use.**
- **Unplug the power cord if the machine is not to be used for a long period of time. Otherwise a fire may result.**

Turning on the machine

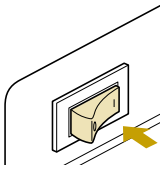
1. **Make sure that the sewing machine is turned off (the main power switch is set to "O"), and then plug the power cord into the power supply jack on the right side of the machine.**

2. **Insert the plug of the power cord into a household electrical outlet.**



① Power supply jack

3. **Press the right side of the main power switch on the right side of the machine (set it to "|").**



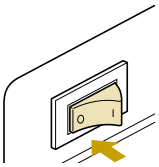
▶ The sewing lamp comes on when the machine is turned on.

Turning off the machine

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

1. **Make sure that the machine is not sewing.**

2. **Press the left side of the main power switch on the right side of the machine (set it to "O").**



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

3. **Unplug the power cord from the electrical outlet.**
   Grasp the plug when unplugging the power cord.

4. **Unplug the power cord from the power supply jack.**

Note

- If a power outage occurs while the sewing machine is being operated, turn off the sewing machine and unplug the power 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 electrical 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.

Winding/Installing the Bobbin

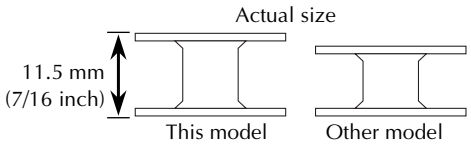
This section describes how to wind the thread onto the bobbin, and then insert the bobbin thread.

Bobbin precautions

Be sure to observe the following precautions concerning the bobbin.

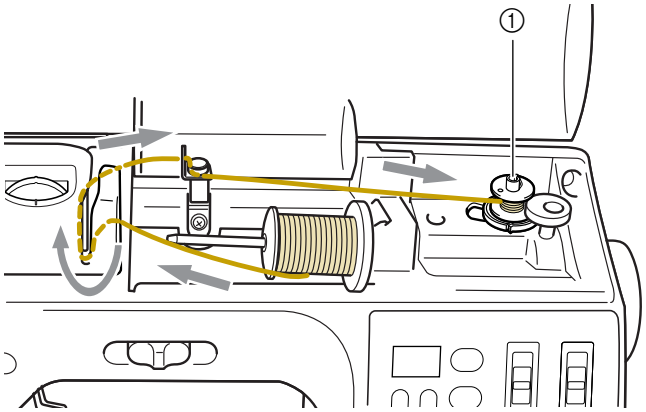
CAUTION

- **Only use the bobbin (part code: X52800-150) designed specifically for this sewing machine. Use of any other bobbin may result in injuries or damage to the machine.**
- **The included bobbin was designed specifically for this sewing machine. If bobbins from other models are used, the machine will not operate correctly. Use only the included bobbin or bobbins of the same type (part code: X52800-150).**



Winding the bobbin

Wind the thread around the bobbin to prepare the bobbin thread.

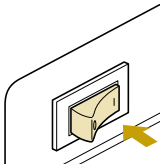


① Bobbin winder

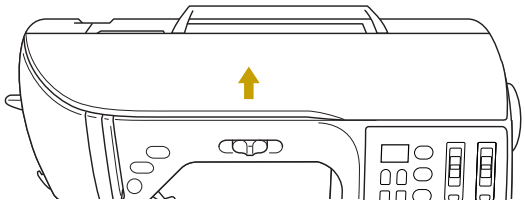
Memo

- The order that the machine should be threaded for winding the bobbin is indicated by a broken line on the sewing machine. Be sure to thread the machine as indicated.

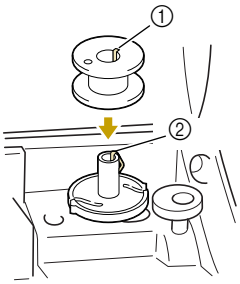
1 **Turn on the sewing machine.**



2 **Open the top cover.**

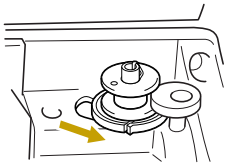


3 **Place the bobbin on the bobbin winder shaft so that the spring on the shaft fits into the notch in the bobbin.**
Press down on the bobbin until it snaps into place.



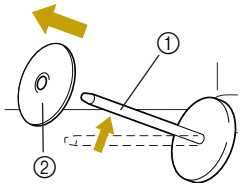
① Notch
② Bobbin winder shaft spring

4 **Slide the bobbin winder in the direction of the arrow until it snaps into place.**



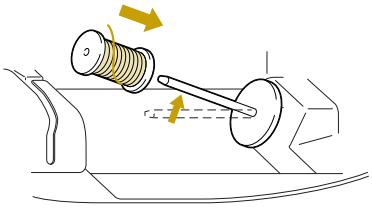
- (START/STOP) / (needle) ("Start/Stop" button) lights up in orange.

5 **Remove the spool cap that is inserted onto the spool pin.**



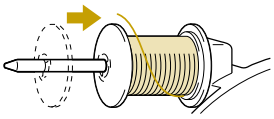
① Spool pin
② Spool cap

6 **Place 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.



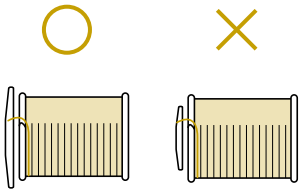
- If the spool is not positioned so that the thread unwinds correctly, the thread may become tangled around the spool pin.

7 **Slide the spool cap onto the spool pin.**
Slide the spool cap as far as possible to the right, as shown, with the rounded side on the left.



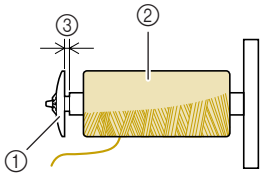
CAUTION

- **If the spool or the spool cap is not positioned correctly, the thread may become tangled around the spool pin and the needle may break.**
- **Three spool cap sizes are available (large, medium and small), 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 and the needle may break.**



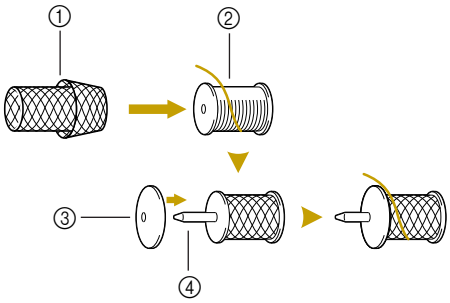
Memo

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



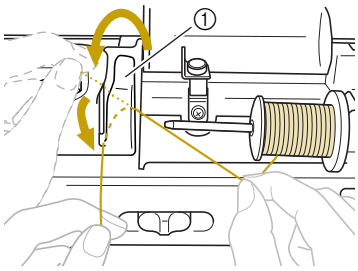
① Spool cap (small)
② Spool (cross-wound thread)
③ Space

- When using thread that winds off quickly, such as transparent nylon thread or metallic thread, place the spool net over the spool before placing the spool of thread onto the spool pin.
  If the spool net is too long, fold it to fit the size of the spool.
  When the spool net is used, the tension of the upper thread will slightly increase. Be sure to check the thread tension. For details, refer to “Changing the tension of the upper thread” (page 46).



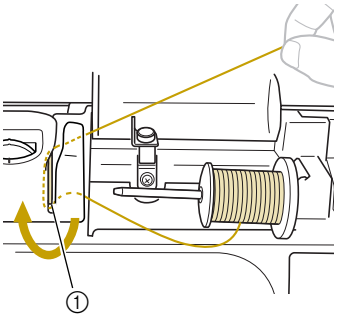
① Spool net
② Spool
③ Spool cap
④ Spool pin

8 **While holding the thread near the spool with your right hand, as shown, pull the thread with your left hand, and then pass the thread behind the thread guide cover and to the front.**



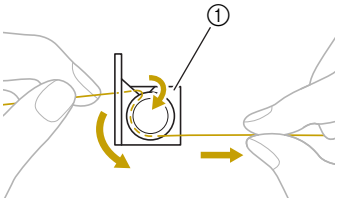
① Thread guide cover

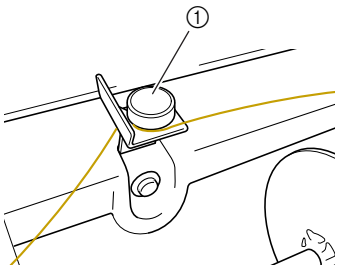
9 **Pass the thread under the thread guide plate from the right.**



① Thread guide plate

10 **Pass the thread under the hook on the thread guide, and then wind it counterclockwise under the pretension disk.**



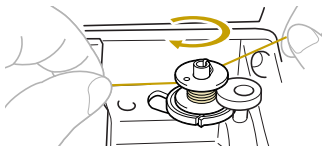


① Thread guide and pretension disk

Note

- Make sure that the thread passes under the pretension disk.

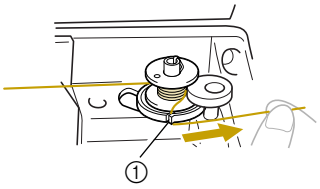
11 **While holding the thread with your left hand, wind the thread that was pulled out clockwise around the bobbin five or six times with your right hand.**



Note

- Make sure that the thread between the spool and the bobbin is pulled tight.
- Be sure to wind the thread clockwise around the bobbin, otherwise the thread will become wrapped around the bobbin winder shaft.

12 **Pass the end of the thread through the guide slit in the bobbin winder seat, and then pull the thread to the right to cut it.**



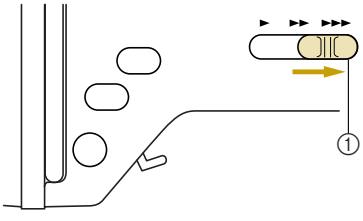
① Guide slit in bobbin winder seat (with built-in cutter)

▶ The thread is cut to a suitable length.

CAUTION

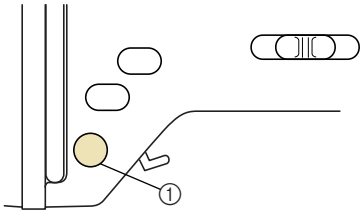
- **Be sure to cut the thread as described. If the bobbin is wound without cutting the thread using the cutter built into the slit in the bobbin winder seat, the thread may become tangled in the bobbin and the needle may bend or break when the bobbin thread starts to run out.**

13 **Slide the sewing speed controller to the right to increase the bobbin winding speed and slide to left to decrease.**



① Sewing speed controller

14 **Press (START/STOP) / (↑) (“Start/Stop” button) once.**



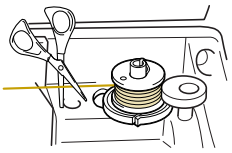
① “Start/Stop” button

- **When the bobbin winding becomes slow, press (START/STOP) / (↑) (“Start/Stop” button) once to stop the machine.**

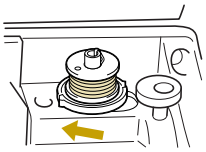
CAUTION

- **When the bobbin winding becomes slow, stop the machine, otherwise the sewing machine may be damaged.**

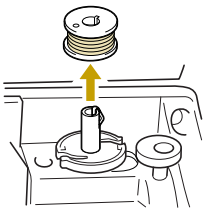
15 **Use scissors to cut the end of the thread wound around the bobbin.**



16 **Slide the bobbin winder shaft to the left.**



17 **Remove the bobbin from the shaft.**



Memo

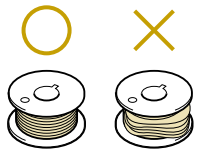
- When the sewing machine is started or the handwheel is turned after winding the bobbin, the machine will make a clicking sound; this is not a malfunction.

Installing the bobbin

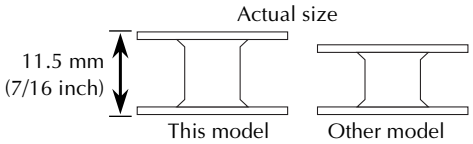
Install the bobbin wound with thread.

CAUTION

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



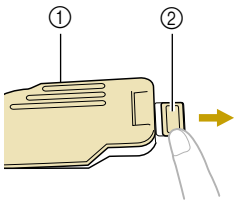
- **The bobbin was designed specifically for this sewing machine. If bobbins from other models are used, the machine will not operate correctly. Use only the included bobbin or bobbins of the same type (part code: X52800-150).**



Memo

- The order that the bobbin thread should be passed through the bobbin case is indicated by marks around the bobbin case. Be sure to thread the machine as indicated.

1 Slide the bobbin cover latch to the right.

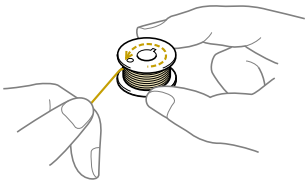


① Bobbin cover
② Latch

▶ The bobbin cover opens.

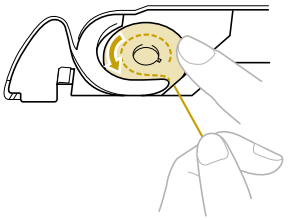
2 Remove the bobbin cover.

3 Hold the bobbin with your right hand and hold the end of the thread with your left.



- Be careful not to drop the bobbin.

4 Insert the bobbin into the bobbin case so that the thread unrolls to the left.



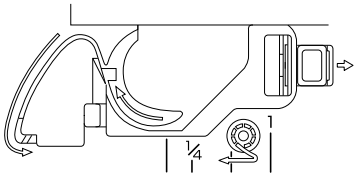
- Be sure to insert the bobbin correctly.

CAUTION

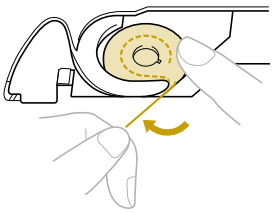
- **Be sure to install the bobbin so that the thread unwinds in the correct direction, otherwise the thread may break or the thread tension will be incorrect.**

Memo

- The order that the bobbin thread should be passed through the bobbin case is indicated by marks around the bobbin case. Be sure to thread the machine as indicated.



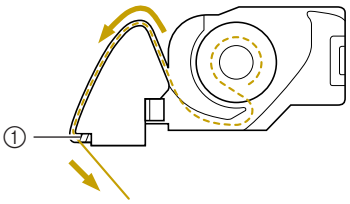
5 **Lightly hold down the bobbin with your right hand, and then guide the thread as shown with your left hand.**



CAUTION

- **When installing the bobbin, be sure to hold it down with your finger. If the bobbin is not correctly installed, the thread tension will be incorrect.**

6 **Pass the thread through the slot as shown, and then pull the thread out toward the front.**

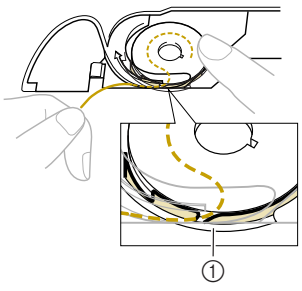


① Cutter

▶ The cutter cuts the thread.

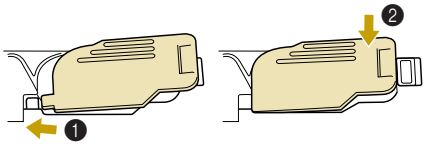
Note

- Make sure that the thread is correctly inserted through the tension-adjusting spring of the bobbin case. If it is not inserted correctly, reinsert the thread.



① Tension-adjusting spring

7 **Reattach the bobbin cover.**
Insert the tab in the lower-left corner of the bobbin cover, and then lightly press down on the right side.



▶ The lower threading is finished.

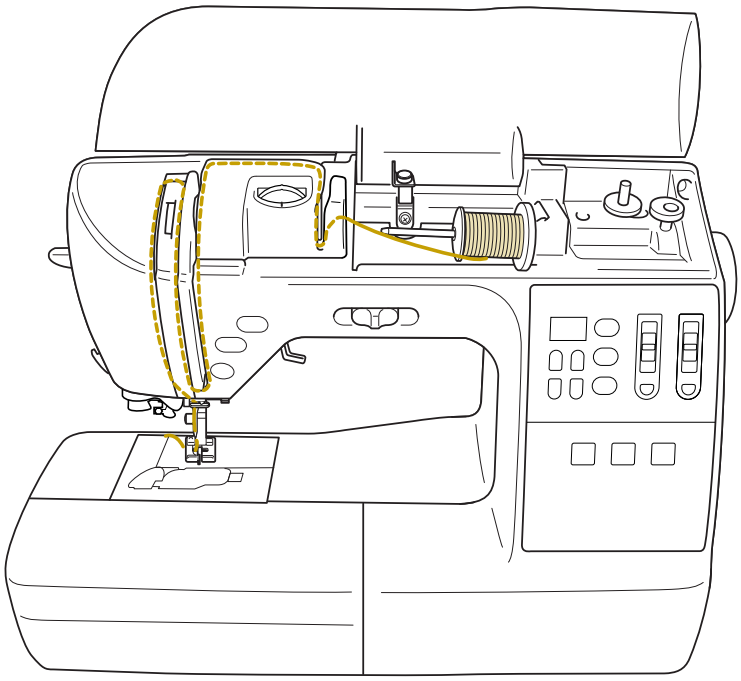
Next, thread the upper thread. Continue with the procedure in “Upper Threading” (page 22).

Memo

- You can begin sewing without pulling up the bobbin thread. If you wish to pull up the bobbin thread before starting to sew, pull up the thread according to the procedure in “Pulling up the bobbin thread” (page 29).

Upper Threading

In this section, the procedures for positioning the spool for the upper thread and threading the needle are described.



CAUTION

- **When threading the upper thread, carefully follow the instructions. If the upper threading is not correct, the thread may become tangled and the needle may bend and break.**

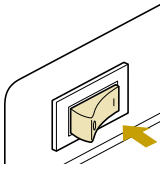
Memo

- The order that the machine should be threaded is indicated by a solid line on the sewing machine. Be sure to thread the machine as indicated.

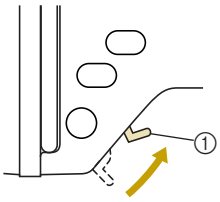
Threading the upper thread

Set the spool of thread on the spool pin, and then thread the machine.

1 **Turn on the sewing machine.**



2 **Raise the presser foot lever.**

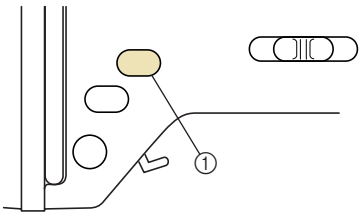


① Presser foot lever

Note

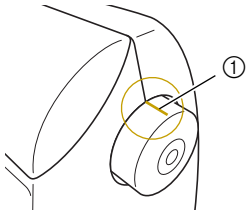
- If the presser foot is not raised, the sewing machine cannot be threaded.

3 **Press (“Needle Position” button) once or twice to raise the needle.**



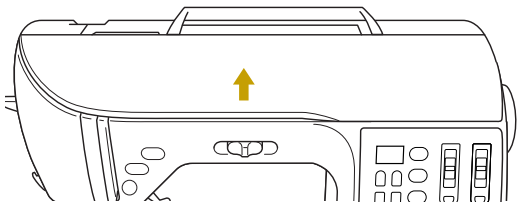
① “Needle Position” button

- The needle is correctly raised when the mark on the handwheel is at the top, as shown below. Check the handwheel and, if this mark is not at this position, press (“Needle Position” button) until it is.

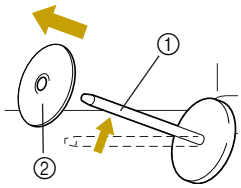


① Mark on handwheel

4 **Open the top cover.**

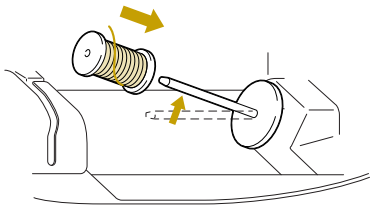


5 **Remove the spool cap that is inserted onto the spool pin.**

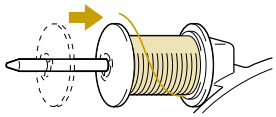


① Spool pin
② Spool cap

6 **Place the spool of 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.

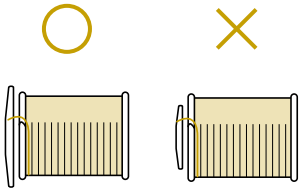


7 **Slide the spool cap onto the spool pin.**
Slide the spool cap as far as possible to the right, as shown, with the rounded side on the left.

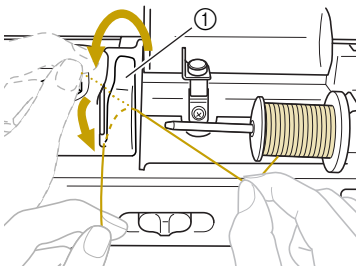


CAUTION

- **If the spool or the spool cap is not positioned correctly, the thread may become tangled around the spool pin and the needle may break.**
- **Three spool cap sizes are available (large, medium and small), 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 and the needle may break.**

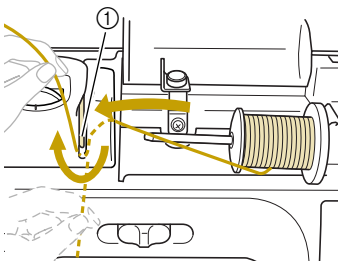


8 **While holding the thread lightly with your right hand, pull the thread with your left hand, and then pass the thread behind the thread guide cover and to the front.**



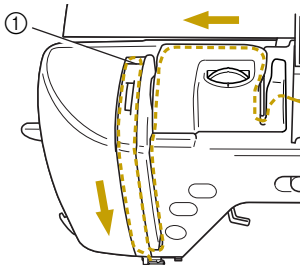
① Thread guide cover

9 **Pass the thread under the thread guide plate, and then pull it up.**



① Thread guide plate

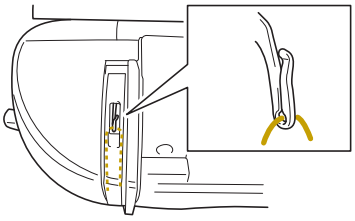
10 **While using your right hand to lightly hold the thread passed under the thread guide plate, pass the thread through the thread path in the order shown below.**



① Shutter

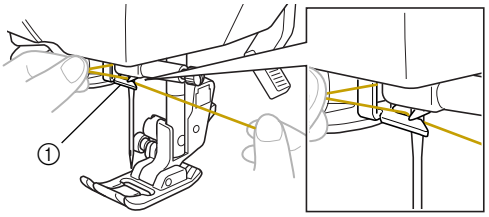
Note

- If the presser foot has been lowered and the shutter is closed, the machine cannot be threaded. Be sure to raise the presser foot and open the shutter before threading the machine. In addition, before removing the upper thread, be sure to raise the presser foot and open the shutter.
- This machine is equipped with a window that allows you to check the position of the take-up lever. Look through this window and check that the thread is correctly fed through the take-up lever.



11 **Pass the thread behind the needle bar thread guide.**

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, as shown.



① Needle bar thread guide

Next, use the needle threader to thread the needle. Continue with the procedure in “Threading the needle” (page 25).

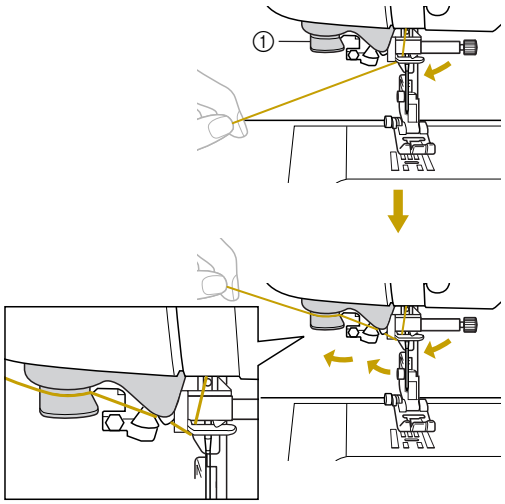
Threading the needle

This section describes how to thread the needle.

Note

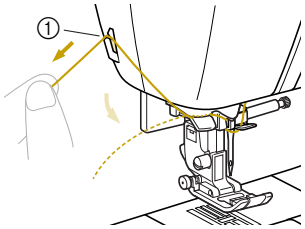
- The needle threader can be used with sewing machine needles 75/11 through 100/16.
- Thread with a thickness of 130/20 or thicker cannot be used with the needle threader.
- The needle threader cannot be used with the wing needle or the twin needle.
- If the needle threader cannot be used, refer to “Threading the needle manually (without using the needle threader)” (page 26).

1 Pull the end of the thread passed through the needle bar thread guide to the left, and then pass the thread through the thread guide disk from the front.



① Thread guide disk

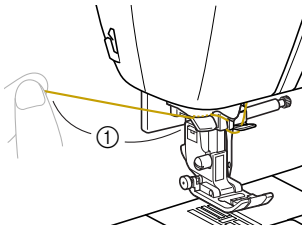
2 Cut the thread with the cutter on the left side of the machine.



① Cutter

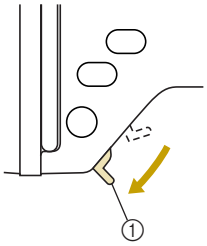
Note

- If the thread is pulled through and cannot be cut correctly, lower the presser foot so that the thread is held in place before cutting the thread. If this operation is performed, skip step 3.
- When using thread that quickly winds off the spool, such as metallic thread, it may be difficult to thread the needle if the thread is cut. Therefore, instead of using the thread cutter, pull out about 80 mm (approx. 3 inches) of thread after passing it through the thread guide disks (marked “7”).



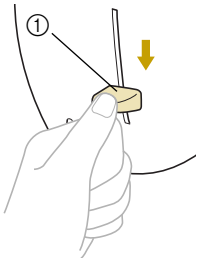
① 80 mm (3 inches) or more

3 Lower the presser foot lever to lower the presser foot.



① Presser foot lever

4 Lower the needle threader lever on the left side of the machine until it clicks, and then slowly return the lever to its original position.

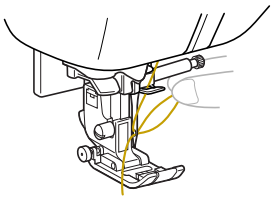


① Needle threader lever

▶ The thread is passed through the eye of the needle.

Note

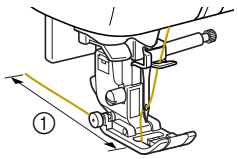
- If the needle was not completely threaded, but a loop in the thread was formed in the eye of the needle, carefully pull the loop through the eye of the needle to pull out the end of the thread.



CAUTION

- **When pulling out the thread, do not pull it with extreme force, otherwise the needle may break or bend.**

5 **Raise the presser foot lever, 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)

▶ The upper threading is finished.
Now that the upper threading and the lower threading are finished, you are ready to begin sewing.

Note

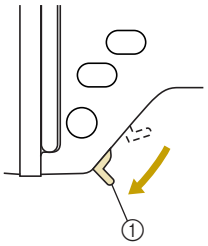
- If the needle is not raised, the needle threader cannot thread the needle. Be sure to press (“Needle Position” button) to raise the needle before using the needle threader.

Threading the needle manually (without using the needle threader)

When using special thread, thread with a thickness of 130/20 or thicker, the wing needle or the twin needle which cannot be used with the needle threader, thread the needle as described below.

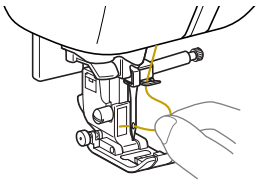
1 **Thread the machine to the needle bar thread guide.**
- For details, refer to “Upper Threading” (page 22).

2 **Lower the presser foot lever.**



① Presser foot lever

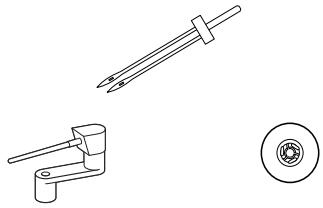
3 **Pass the thread through the eye of the needle from front to back.**



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

Using the twin needle

With the twin needle, you can sew two parallel lines of the same stitch with two different threads. Both upper threads should have the same thickness and quality. Be sure to use the twin needle, the extra spool pin and the spool cap.
For details on the stitches that can be sewn with the twin needle, refer to “Stitch Settings” (page 94).



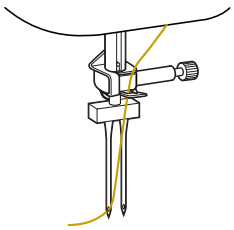
CAUTION

- **Only use the twin needle (part code: X59296-151). 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 injuries.**

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

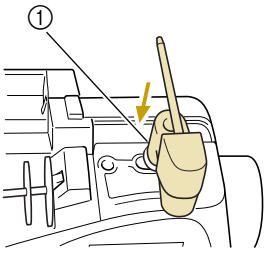
2 Thread the upper thread for the left needle eye.
- For details, refer to steps 1 through 11 of “Threading the upper thread” (page 22).

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



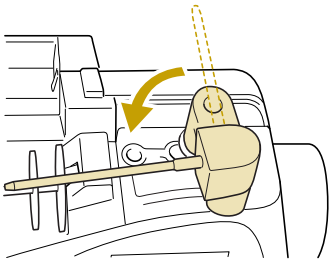
- The needle threader cannot be used with the twin needle. If the needle threader is used with the twin needle, the sewing machine may be damaged.

4 Insert the extra spool pin onto the bobbin winder shaft.
Insert the extra spool pin so that it is perpendicular to the bobbin winder shaft.

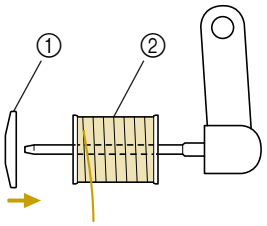


① Bobbin winder shaft

5 Swing down the spool pin so that it is horizontal.

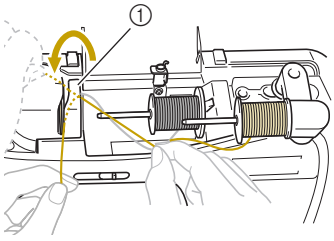


6 Place the upper thread spool for the needle on the right side onto the extra spool pin, and then secure it with the spool cap.
The thread should unroll from the top front of the spool.



① Spool cap
② Spool

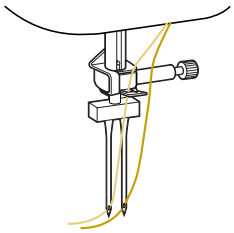
7 Thread the upper thread for the right side in the same way that the upper thread for the left side was threaded.



① Thread guide cover

- For details, refer to step 8 through 10 of “Threading the upper thread” (page 22).

8 **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.



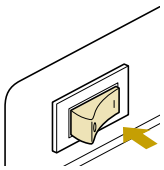
- The needle threader cannot be used with the twin needle. If the needle threader is used with the twin needle, the sewing machine may be damaged.

9 **Attach zigzag foot "J".**
- For details on changing the presser foot, refer to "Replacing the presser foot" (page 33).

CAUTION

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

10 **Turn on the sewing machine.**

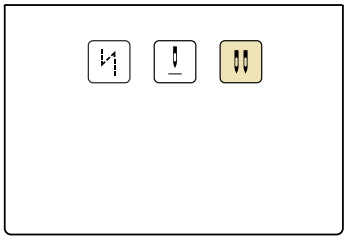


11 **Select a stitch.**
- For details on selecting a stitch, refer to "Selecting Stitching" (page 56).
- For details on the stitches that can be sewn with the twin needle, refer to "Stitch Settings" (page 94).

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.**

12 **Press (Needle mode selection key).**



▶ (Needle mode selection key) lights up, and the twin needle can now be used.

- To return to single needle sewing, press (Needle mode selection key) until the key is no longer lit.
- Even after the sewing machine is turned off, the twin needle setting is not cancelled.

CAUTION

- **When using the twin needle, be sure to select an appropriate stitch, otherwise the needle may break or the machine may be damaged.**

13 **Start sewing.**
- For details on starting to sew, refer to "Starting to sew" (page 42).

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



CAUTION

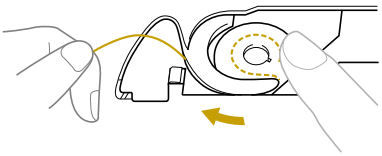
- **When changing the sewing direction, press ("Needle Position" button) to raise the needle from the fabric, and then raise the presser foot lever and turn the fabric. Otherwise the needle may break or the machine may be damaged.**
- **Do not try turning the fabric with the twin needle left down in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

Pulling up the bobbin thread

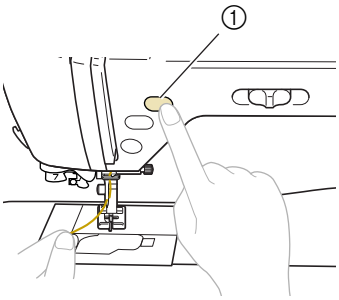
When making gathers or before free-motion quilting, first pull up the bobbin thread as described below.

1 **Insert the bobbin into the bobbin case.**
- Refer to steps 1 through 5 of "Installing the bobbin" (page 20).

2 **Pass the bobbin thread through the slot.**
Do not cut the thread with the cutter.



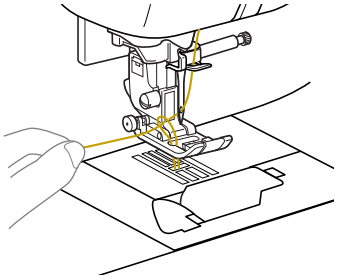
3 **While lightly holding the upper thread with your left hand with the needle in the up-position, press (“Needle Position” button) twice to lower and raise the needle.**



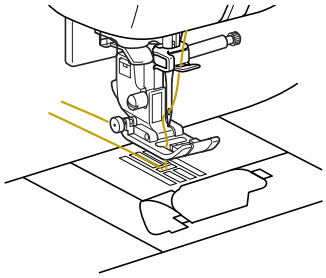
① “Needle Position” button

▶ The bobbin thread is looped around the upper thread and can be pulled up.

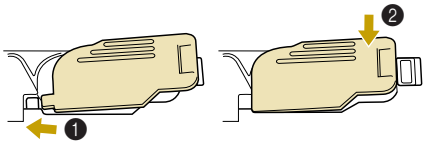
4 **Carefully pull the upper thread upward to pull out the end of the bobbin thread.**



5 **Pull out about 10-15 cm (4-5 inches) of the bobbin thread under the presser foot toward the rear of the machine.**



6 **Reattach the bobbin cover.**
Insert the tab in the lower-left corner of the bobbin cover, and then lightly press down on the right side.



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, for example, if the needle breaks and fragments are dispersed. 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 injuries.**

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	Weight	
Medium weight fabrics	Broadcloth	Cotton thread	60–80	75/11–90/14
	Taffeta	Synthetic thread		
	Flannel, Gabardine	Silk thread	50	
Thin fabrics	Lawn	Cotton thread	60–80	65/9–75/11
	Georgette	Synthetic thread		
	Challis, Satin	Silk thread	50	
Thick fabrics	Denim	Cotton thread	30–50	90/14–100/16
	Corduroy	Synthetic thread	50	
	Tweed	Silk thread		
Stretch fabrics	Jersey	Thread for knits	50–60	Ball point needle (golden colored) 75/11–90/14
	Tricot			
Easily frayed fabrics		Cotton thread	50–80	65/9–90/14
		Synthetic thread		
		Silk thread	50	
For top-stitching		Synthetic thread	30	90/14–100/16
		Silk thread		

Memo

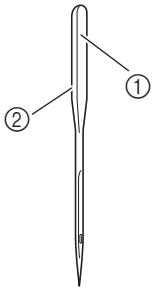
- The smaller the thread number, the thicker the thread, and the larger the needle number, the thicker the needle.
- Use the ball point needle when sewing on stretch fabrics or fabrics where skipped stitches easily occur.
- Use a 90/14 to 100/16 needle with transparent nylon threads, regardless of the fabric being sewn.
- A 75/11 needle is already installed when the sewing machine is purchased.

CAUTION

- **The appropriate fabric, thread and needle combinations are shown in the table on page 30. 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.**

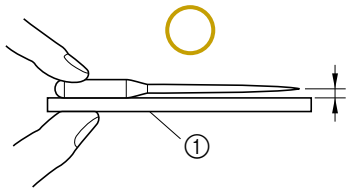
Checking the needle

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

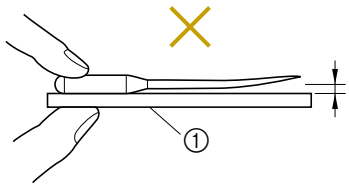
■ **Correct needle**



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.

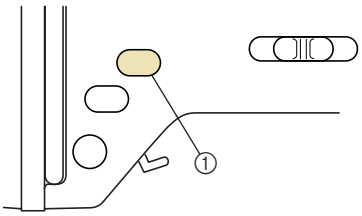


① Flat surface

Replacing the needle

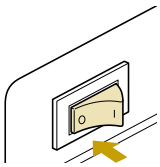
Replace the needle as described below. Use the screwdriver and a needle that has been determined to be straight according to the instructions in "Checking the needle".

1 Press (“Needle Position” button) once or twice to raise the needle.



① “Needle Position” button

2 Turn off the sewing machine.



CAUTION

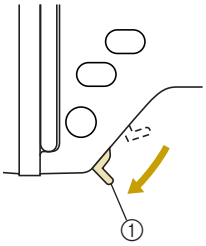
- **Before replacing the needle, be sure to turn off the sewing machine, otherwise injuries may occur if (START/STOP) / (“Start/Stop” button) is accidentally pressed and the machine starts sewing.**

3 Place fabric or paper under the presser foot to cover the hole in the needle plate.

Note

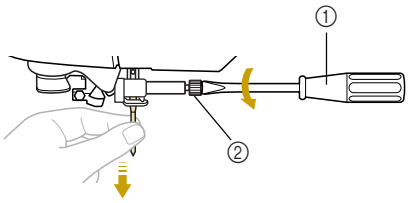
- Before replacing the needle, cover the hole in the needle plate with fabric or paper to prevent the needle from falling into the machine.

4 Lower the presser foot lever.



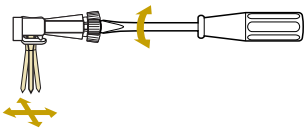
① Presser foot lever

5 Hold the needle with your left hand, and then use a screwdriver to turn the needle clamp screw toward you (counterclockwise) to remove the needle.

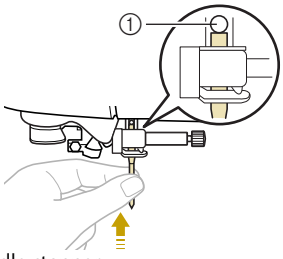


① Screwdriver
② Needle clamp screw

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

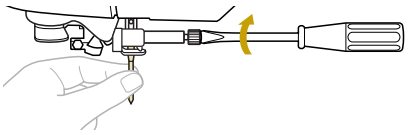


6 With the flat side of the needle toward the rear of the machine, insert the needle until it touches the needle stopper.

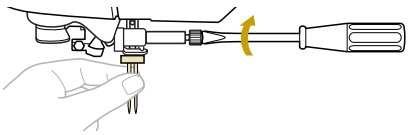


① Needle stopper

7 While holding the needle with your left hand, use the screwdriver to tighten the needle clamp screw.



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 screwdriver, otherwise the needle may break or damage may result.**

Replacing the Presser Foot

The presser foot presses down on the fabric.

Presser foot precautions

Be sure to observe the following precautions concerning the presser feet.

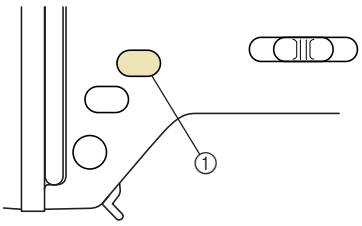
CAUTION

- **Use the presser foot appropriate for the type of stitch that you wish to sew, otherwise the needle may hit the presser foot, causing the needle to bend or break.**
- **Only use presser feet designed specifically for this sewing machine. Use of any other presser foot may result in injuries or damage to the machine.**

Replacing the presser foot

Replace the presser foot as described below.

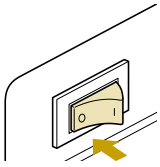
1 **Press (“Needle Position” button) once or twice to raise the needle.**



① “Needle Position” button

▶ The needle is raised.

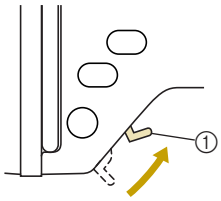
2 **Turn off the sewing machine.**



CAUTION

- **Before replacing the presser foot, be sure to turn off the sewing machine, otherwise injuries may occur if (START/STOP) / (“Start/Stop” button) is accidentally pressed and the machine starts sewing.**

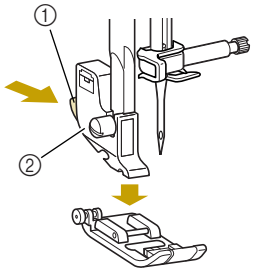
3 **Raise the presser foot lever.**



① Presser foot lever

▶ The presser foot is raised.

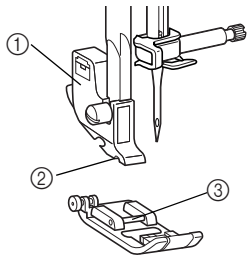
4 **Press the black button at the back of the presser foot holder.**



① Black button
② Presser foot holder

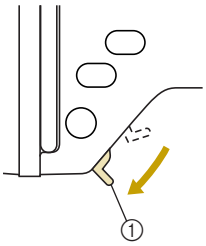
▶ The presser foot holder releases the presser foot.

5 **Place a different presser foot below the holder so that the presser foot pin is aligned with the notch in the holder.**
Position the presser foot so the letter indicating the presser foot type (A, G, I, J, M, N or R) is positioned to be read.



① Presser foot holder
② Notch
③ Pin

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



① Presser foot lever

▶ The presser foot is attached.

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

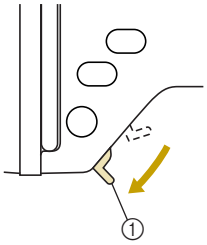
Note

- For details on the presser foot that should be used with the selected stitch, refer to “Stitch Settings” (page 94).

Adjusting the pressure of the presser foot

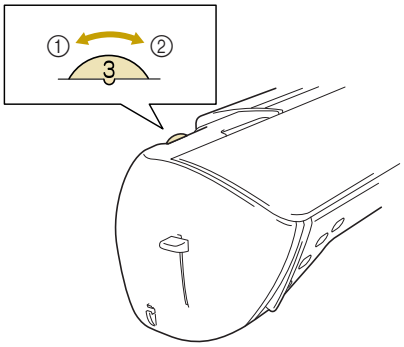
The presser foot pressure (the amount of pressure applied to the fabric by the presser foot) can be adjusted. For best results, increase the pressure when sewing thin fabrics, and decrease the pressure when sewing thick fabrics.

1 **Lower the presser foot lever.**



① Presser foot lever

2 **Turn the presser foot pressure dial at the back of the machine to adjust the pressure of the presser foot.**
The presser foot pressure can be set to one of four levels (between 1 and 4). The larger the setting, the stronger the pressure. Use setting 1 or 2 for thick fabrics, use setting 3 or 4 for thinner fabrics.



① Strong
② Weak

3 **When you are finished sewing, reset the dial to 3 (standard).**

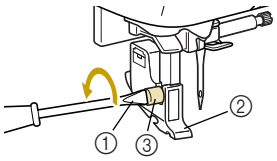
Removing the presser foot holder

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 screwdriver to remove the presser foot holder.

■ Removing the presser foot holder

1 Remove the presser foot.
- For details, refer to "Replacing the presser foot" (page 33).

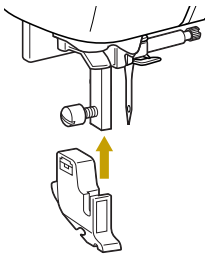
2 Use the screwdriver to loosen the presser foot holder screw.



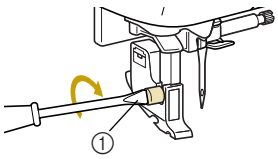
① Screwdriver
② Presser foot holder
③ Presser foot holder screw

■ Attaching the presser foot holder

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



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

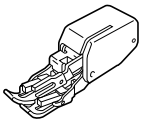


① Screwdriver

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

Using the optional walking foot

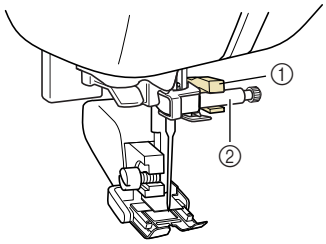
With the walking foot, both pieces of fabric are fed evenly by the feed dogs and the teeth on the presser foot. This is useful when sewing fabrics that are hard to feed such as vinyl and leather and when sewing fabrics that easily slip such as velvets or when quilting.
Use the screwdriver to attach the walking foot.



■ Attaching the walking foot

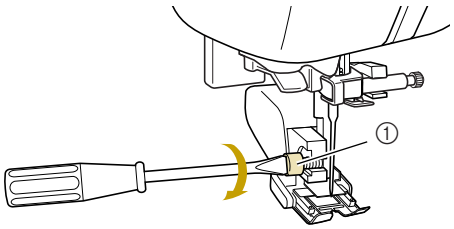
1 Remove the presser foot holder.
- For details, refer to "Removing the presser foot holder" (at the left).

2 Hook the connecting fork of the walking foot onto the needle clamp screw.



① Connecting fork
② Needle clamp screw

3 Lower the presser foot lever, insert the presser foot holder screw, and then tighten the screw with the screwdriver.



① Presser foot holder screw

CAUTION

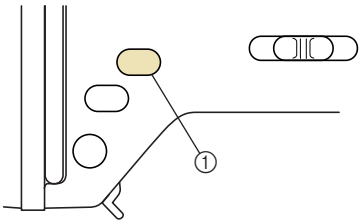
- **Be sure to securely tighten the screw with the screwdriver, otherwise the needle may touch the presser foot, causing it to bend or break.**
- **Before starting to sew, slowly turn the handwheel toward you (counterclockwise) and check that the needle does not touch the presser foot. If the needle hits the presser foot, the needle may bend or break.**

Note

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

■ Removing the walking foot

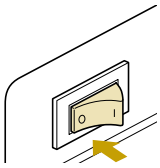
1 Press (“Needle Position” button) once or twice to raise the needle.



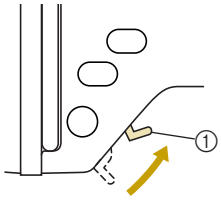
① “Needle Position” button

▶ The needle is raised.

2 Turn off the sewing machine.



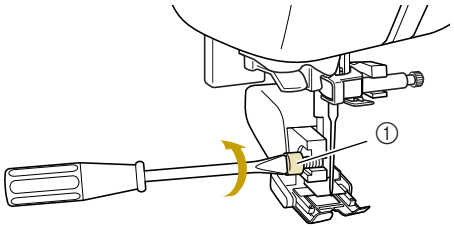
3 Raise the presser foot lever.



① Presser foot lever

▶ The presser foot is raised.

4 With a screwdriver, loosen the presser foot holder screw, and then remove the walking foot.



① Presser foot holder screw

5 Attach the presser foot holder.

- For details, refer to “Removing the presser foot holder” (page 35).

Memo

- Only the straight stitch (with reinforcement stitching) and the zigzag stitch can be used with the walking foot. For details on the stitches, refer to “Stitch Settings” (page 94).

Note

- The optional walking foot is available through your Baby Lock retailer.

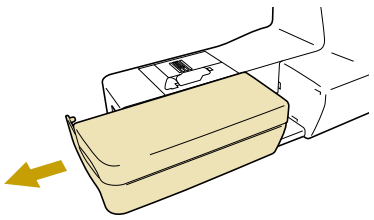
Sewing Cylindrical or Large Pieces

When sewing cylindrical or large pieces of fabric, remove the flat bed attachment.

Stitching cylindrical pieces

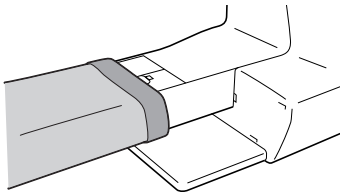
Removing the flat bed attachment makes it easier to sew cylindrical pieces such as cuffs and pant legs.

1. **Pull the flat bed attachment off to the left.**

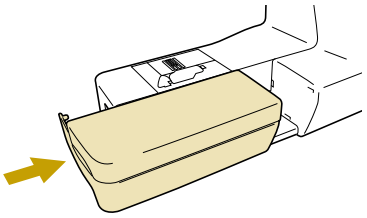


▶ With the flat bed attachment removed, free-arm sewing is possible.

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

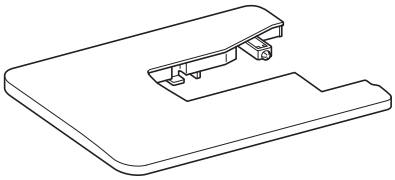


3. **When you are finished with free-arm sewing, install the flat bed attachment back in its original position.**

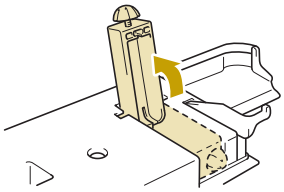


Sewing large pieces of fabric

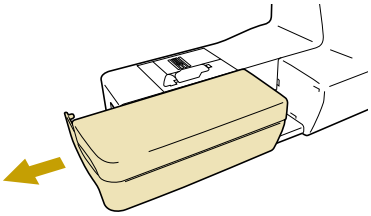
The optional extension table makes sewing large pieces of fabric easier.



1. **Open up the legs at the bottom of the extension table.**
Pull out the four legs until they snap into place.

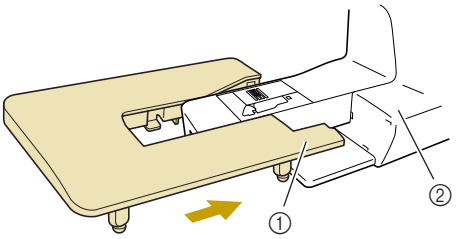


2. **Pull the flat bed attachment off to the left.**



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

3 **Install the extension table.**
Keeping the extension table level, fully slide it into place. The lower right corner section of the extension table extends over the front section of the sewing machine bed.

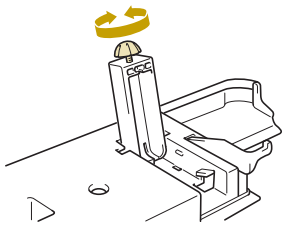


① Lower right corner
② Sewing machine bed

Note

- The optional extension table is available through your Baby Lock retailer.

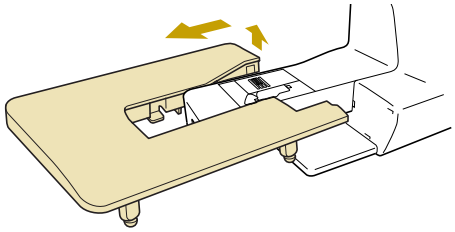
4 **Turn the screw at the bottom of each leg to adjust their height so the extension table will be level with the sewing machine bed.**



CAUTION

- **Do not move the sewing machine while the extension table is attached, otherwise damage or injuries may occur.**

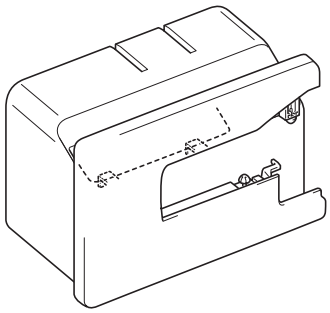
5 **When you are finished using the extension table, remove it.**
While slightly lifting up the extension table, pull it off to the left.



6 **Install the flat bed attachment back in its original position.**

Memo

- With the legs folded up, the extension table can be stored attached to the hard case.



2 SEWING BASICS

The necessary preparations for sewing are described in this chapter.

Sewing **40**
- **General sewing procedure** **40**
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- **Securing the stitching** **44**
- **Cutting the thread** **45**

Adjusting the Thread Tension **46**
- **Changing the tension of the upper thread** **46**

Adjusting the Stitch Width and Length **47**
- **Adjusting the stitch width** **47**
- **Adjusting the stitch length** **48**

Useful Functions **49**
- **Changing the needle stop position** **49**
- **Automatically sewing reverse/reinforcement stitches** **49**
- **Changing the initial needle stop position** **50**

Useful Sewing Tips **51**
- **Trial sewing** **51**
- **Changing the sewing direction** **51**
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- **Sewing thin fabrics** **53**
- **Sewing stretch fabrics** **53**
- **Sewing an even seam allowance** **53**

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

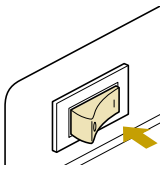
Follow the basic procedures below to sew.

1	**Turn on the machine.**	Turn on the sewing machine. For details on turning on the machine, refer to “Turning on the machine” (page 15).
↓		
2	**Select the stitch.**	Select the stitch appropriate for the area to be sewn. For details on selecting a stitch, refer to “Selecting stitching” (page 56).
↓		
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 33).
↓		
4	**Position the fabric.**	Place the area to be sewn under the presser foot. Be sure that the fabric pieces are sewn in the correct order and that the right and wrong sides of the fabric are aligned correctly. For details on positioning the fabric, refer to “Positioning the fabric” (page 41).
↓		
5	**Start sewing.**	Start sewing. For details on starting to sew, refer to “Starting to sew” (page 42).
↓		
6	**Cut the thread.**	Cut the thread at the end of sewing. For details on cutting the thread, refer to “Cutting the thread” (page 45).

Positioning the fabric

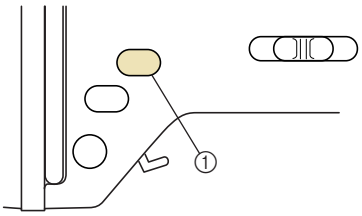
Be sure that the fabric pieces are sewn in the correct order and that the right and wrong sides of the fabric are aligned correctly.

1 **Turn on the sewing machine.**



The straight stitch (left needle position) is automatically selected.

2 **Press (“Needle Position” button) once or twice to raise the needle.**

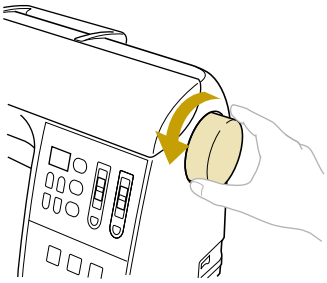


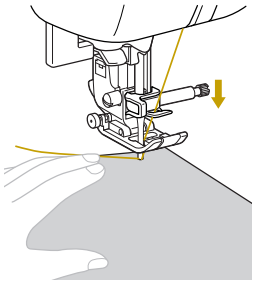
① “Needle Position” button

3 **Place the fabric under the presser foot.**

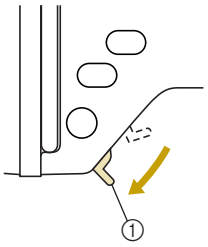
- If the seam allowance is positioned on the right side, sewing in a straight line is easier and the extra fabric does not get in the way.

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.**



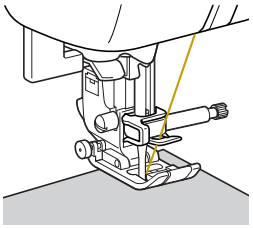


5 **Lower the presser foot lever.**



① Presser foot lever

▶ The fabric is now positioned to be sewn.



Memo

- To adjust the pressure that the presser foot applies to the fabric, refer to “Adjusting the pressure of the presser foot” (page 34).

Starting to sew

Once you are ready to start sewing, you can start the sewing machine. The sewing speed can be adjusted using either the sewing speed controller or the foot controller.

Note

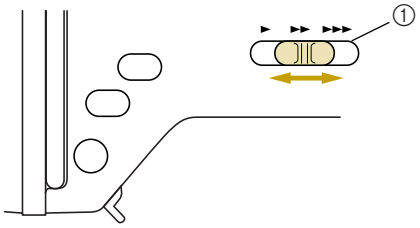
- When the foot controller is plugged in, START/STOP / (“Start/Stop” button) cannot be used to start or stop sewing.

■ Using the operation buttons

Sewing can be started and stopped using the operation button START/STOP / (“Start/Stop” button).

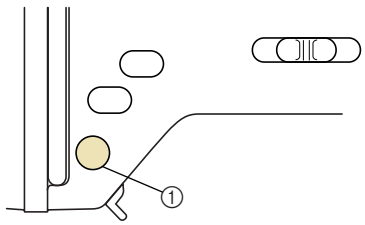
1 Slide the sewing speed controller to the left or right to select the desired sewing speed.

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.



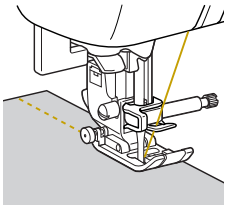
① Sewing speed controller

2 Press START/STOP / (“Start/Stop” button) once.



① “Start/Stop” button

▶ The machine starts sewing.



- If you continue to hold START/STOP / (“Start/Stop” button) after the sewing starts, the machine will sew at a slow speed.

3 When the end of the stitching is reached, press START/STOP / (“Start/Stop” button) once.

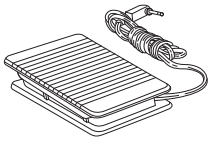
▶ The machine stops sewing with the needle down (in the fabric).

4 When you are finished sewing, raise the needle, and then cut the threads.

- For details, refer to “Cutting the thread” (page 45).

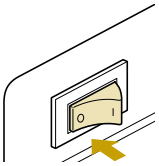
■ Using the foot controller

Sewing can be started and stopped using the foot controller.

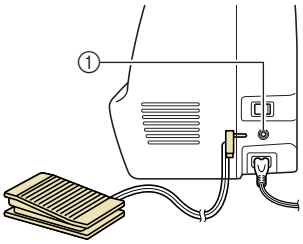


1 Turn off the sewing machine.

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

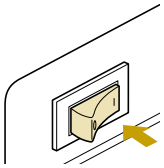


2 Insert the foot controller plug into its jack on the side of the sewing machine.

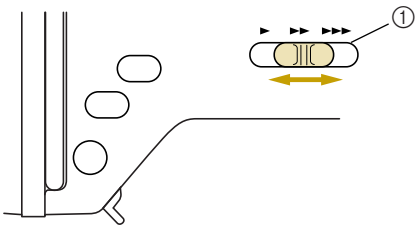


① Foot controller jack

③ Turn on the sewing machine.



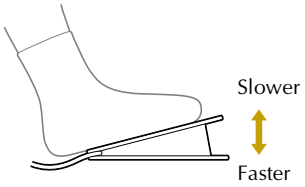
④ Slide the sewing speed controller to the left or right to select the desired sewing speed.
Slide the sewing speed controller to the left to sew at a slower speed, or slide the speed controller to the right to sew at a faster speed.



① Sewing speed controller

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

⑤ Once you are ready to start sewing, slowly press down on the foot controller.
Pressing down on the foot controller increases the sewing speed; releasing the pressure on the foot controller decreases the sewing speed.



- Slowly press down on the foot controller. Pressing it down hard starts sewing too quickly.

▶ The machine starts sewing.

⑥ When the end of the stitching is reached, completely release the foot controller.

▶ The machine stops sewing with the needle lowered (in the fabric).

⑦ When you are finished sewing, raise the needle, and then cut the threads.
- For details, refer to "Cutting the thread" (page 45).

Memo

- If [↕] (Needle stop position key) is lit, the sewing machine will stop with the needle raised. If the key is not lit, the sewing machine will stop with the needle lowered. The needle position setting selected with the needle stop position key does not change if the sewing machine is turned off.
- When the foot controller is plugged in, (START/STOP) / (↑) ("Start/Stop" button) cannot be used to start or stop sewing.

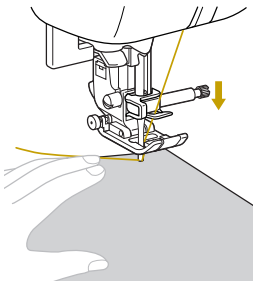
CAUTION

- **Do not allow thread or dust to accumulate in the foot controller, otherwise a fire or an electric shock may occur.**
- **Do not place objects on the foot controller, otherwise damage to the machine or injuries may occur.**
- **If the machine is not to be used for a long period of time, unplug the foot controller, otherwise a fire or an electric shock may occur.**

Securing the stitching

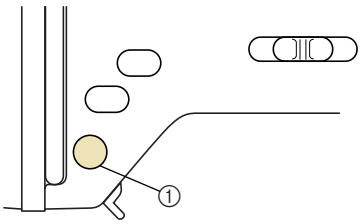
When sewing with the straight stitch, for example, at the end of an opening or where seams do not overlap, use reverse stitching or reinforcement stitching to secure the end of the thread.

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



2 Press START/STOP / ↑ ("Start/Stop" button) or press down on the foot controller.

At this time, if START/STOP / ↑ ("Start/Stop" button) is held down, the machine sews at a low speed.



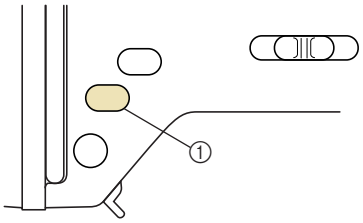
① "Start/Stop" button

- For details, refer to refer to "Starting to sew" (page 42).

▶ The machine starts sewing.

3 After sewing 3 to 5 stitches, press ⟲ ("Reverse/Reinforcement Stitch" button).

Keep ⟲ ("Reverse/Reinforcement Stitch" button) held down until you reach the beginning of the stitching.



① "Reverse/Reinforcement Stitch" button

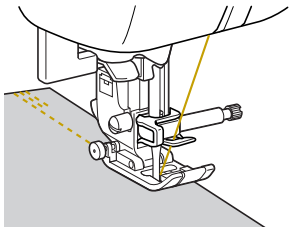
▶ While ⟲ ("Reverse/Reinforcement Stitch" button) is held down, reverse stitches are sewn.

4 After sewing back to the beginning of the stitching, release ⟲ ("Reverse/Reinforcement Stitch" button).

▶ The machine stops sewing.

5 Press START/STOP / ↑ ("Start/Stop" button), or press down on the foot controller.

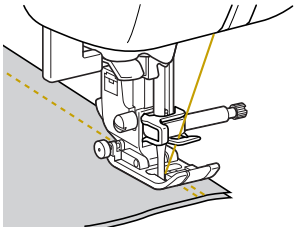
▶ The machine starts sewing in the normal sewing direction.



6 When the end of the stitching is reached, press ⟲ ("Reverse/Reinforcement Stitch" button).

Keep ⟲ ("Reverse/Reinforcement Stitch" button) held down until 3 to 5 reverse stitches are sewn.

▶ While ⟲ ("Reverse/Reinforcement Stitch" button) is held down, reverse stitches are sewn.



7 **After 3 to 5 reverse stitches have been sewn, release (“Reverse/Reinforcement Stitch” button).**

▶ The machine stops sewing.

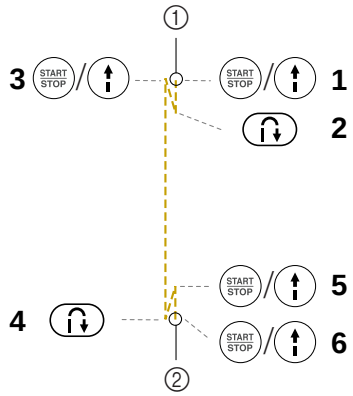
8 **Press (START/STOP) / (“Start/Stop” button), or press down on the foot controller.**

At this time, if (START/STOP) / (“Start/Stop” button) is held down, the machine sews at a slow speed.

▶ The machine starts sewing in the normal sewing direction.

9 **After sewing to the end of the stitching, the sewing machine stops.**

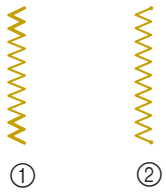
Press (START/STOP) / (“Start/Stop” button) or release foot controller.



① Beginning of stitching
② End of stitching

■ **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

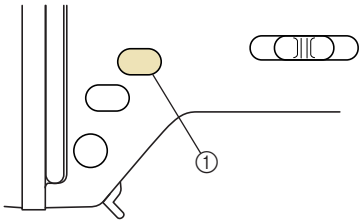
Memo

- Whether reverse stitches or reinforcement stitches are sewn depends on the stitch that is selected. For details, refer to “Stitch Settings” (page 94).

Cutting the thread

When you have finished sewing, cut the threads.

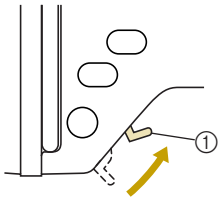
1 **When you wish to finish the stitching and the sewing machine is stopped, press (“Needle Position” button) once to raise the needle.**



① “Needle Position” button

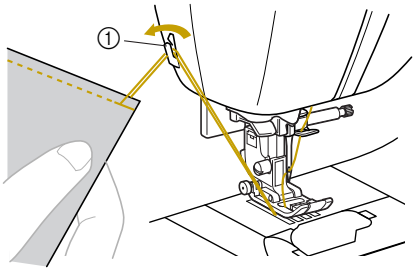
- The needle is raised.

2 **Raise the presser foot lever.**



① Presser foot lever

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



① Thread cutter

Adjusting the Thread Tension

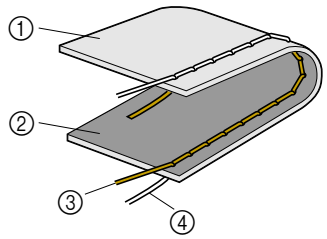
The tensions of the upper thread and of the bobbin thread (thread tension) should be adjusted so that they are equal.

Changing the tension of the upper thread

You may need to change the thread tension, depending on the fabric and thread being used.

■ Correct thread tension

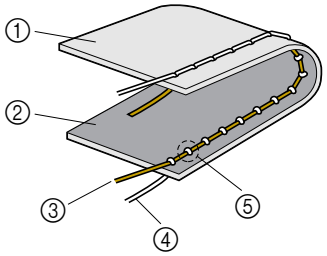
The upper thread and the bobbin thread should cross near the center of the fabric. Only the upper thread should be visible from the right side of the fabric, and only the bobbin thread should be visible from the wrong side of the fabric.



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

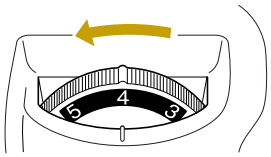
■ Upper thread is too tight

If the bobbin thread is visible from the right side of the fabric, the upper thread is too tight.



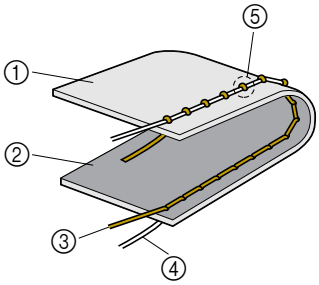
① Wrong side of fabric
② Right side of fabric
③ Upper thread
④ Bobbin thread
⑤ The bobbin thread is visible from the right side of the fabric.

Turn the thread tension dial to the left to loosen the upper thread.



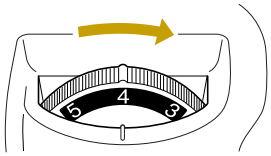
■ Upper thread is too loose

If the upper thread is visible from the wrong side of the fabric, the upper thread is too loose.



① Wrong side of fabric
② Right side of fabric
③ Upper thread
④ Bobbin thread
⑤ The upper thread is visible from the wrong side of the fabric.

Turn the thread tension dial to the right to tighten the upper thread.



Note

- If the upper thread is not threaded correctly or the bobbin is not installed correctly, it may not be possible to set the correct thread tension. If the correct thread tension cannot be achieved, rethread the upper thread and insert the bobbin correctly.

Adjusting the Stitch Width and Length

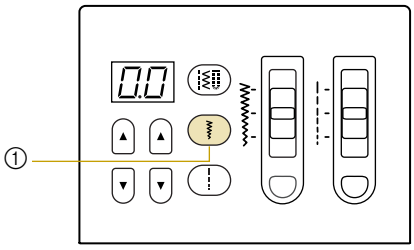
The zigzag width (pattern width) and stitch length of utility stitches can be adjusted. Normally, when a stitch is selected, the appropriate width and length are automatically selected. For details on the range of values within which the width and length can be set, refer to “Stitch Settings” (page 94).

Adjusting the stitch width

The stitch width (zigzag width) can be adjusted to make the stitch wider or narrower.

Note

- When (Stitch width display key) is pressed, the currently specified stitch width (needle position for the straight stitch (left needle position) or triple stretch stitch) appears in the stitch indicator. This allows the specified setting to be checked while it is being changed.



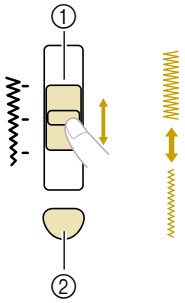
① Stitch width display key
When the stitch width is displayed, stitch width display key lights up.

1 Press the stitch width adjustment button in the operation panel.

▶ The stitch width adjustment button lights up.

2 Slide the stitch width adjustment slider up and down.

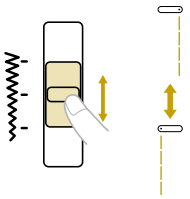
Sliding the stitch width adjustment slider up makes the stitch width wider; sliding the slider down makes the stitch width narrower.



① Stitch width adjustment slider
② Stitch width adjustment button

■ **Changing the needle position**

With the straight stitch (left needle position) and the triple stretch stitch, the needle position can be adjusted. Sliding the stitch width adjustment slider up moves the needle to the right; sliding the slider down moves the needle to the left.



- To automatically select the stitch width most appropriate for the selected stitch, press the stitch width adjustment button again.

CAUTION

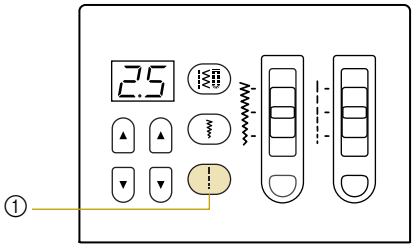
- **After adjusting the stitch width, slowly turn the handwheel toward you and check that the needle does not touch the presser foot. If the needle hits the presser foot, the needle may bend or break.**

Adjusting the stitch length

The stitch length can be adjusted to make the stitch longer or shorter.

Note

- When (!) (Stitch length display key) is pressed, the currently specified stitch length appears in the stitch indicator. This allows the specified setting to be checked while it is being changed.



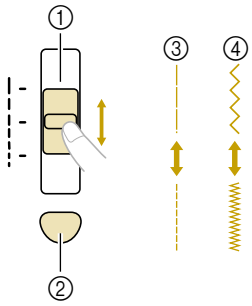
① Stitch length display key
When the stitch length is displayed, stitch length display key lights up.

1 Press the stitch length adjustment button in the operation panel.

▶ The stitch length adjustment button lights up.

2 Slide the stitch length adjustment slider up or down.

Sliding the stitch length adjustment slider up lengthens the stitch; sliding the slider down shortens the stitch.



① Stitch length adjustment slider
② Stitch length adjustment button
③ Straight stitch
④ Zigzag stitch

- To automatically select the stitch length most appropriate for the selected stitch, press the stitch length adjustment button again.

CAUTION

- **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.**

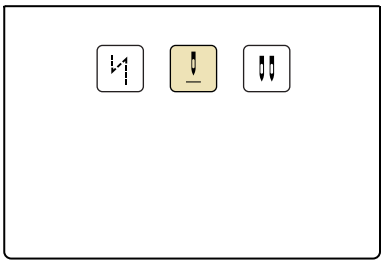
Useful Functions

Functions useful in improving sewing efficiency are described below.

Changing the needle stop position

The sewing machine can be set to leave the needle in the fabric (lowered needle stop position) or leave the needle raised (raised needle stop position) when sewing is stopped.

Press (Needle stop position key) in the operation panel to switch between the two settings.



■ **For the raised needle stop position**



(Needle stop position key) is lit.

■ **For the lowered needle stop position**

(Needle stop position key) is not lit.

- When the sewing machine is purchased, it is set to the lowered needle stop position.

Memo

- The needle stop position setting does not change if the sewing machine is turned off.

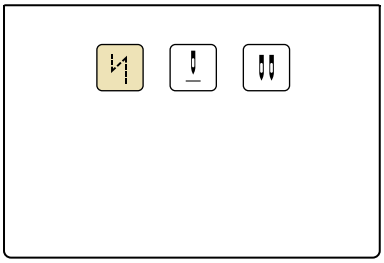
Automatically sewing reverse/ reinforcement stitches

The sewing machine can be set to automatically sew reverse or reinforcement stitches at the beginning and end of the stitching.
Whether reverse stitches or reinforcement stitches are sewn depends on the stitch that is selected. For details, refer to “Stitch Settings” (page 94).

1 Select a stitch.

- For details on selecting a stitch, refer to “Selecting stitching” (page 56).

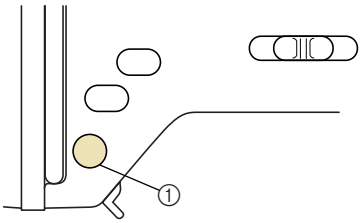
2 Press (Automatic reverse/reinforcement stitch key) in the operation panel.
This step is not necessary if a stitch such as those for sewing buttonholes and bar tacks is selected where reinforcement stitches are automatically sewn.



▶ (Automatic reverse/reinforcement stitch key) lights up.

- To cancel automatic reverse/reinforcement stitching, press (Automatic reverse/reinforcement stitch key) until the key is no longer lit.
- When the sewing machine is turned off, the automatic reverse/reinforcement stitching setting is cancelled.

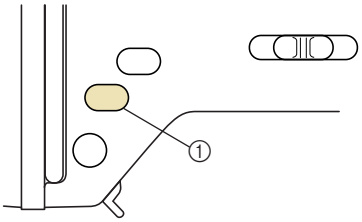
3 **Position the fabric under the presser foot, and then press (START/STOP) / (↑) ("Start/Stop" button) once.**



① "Start/Stop" button

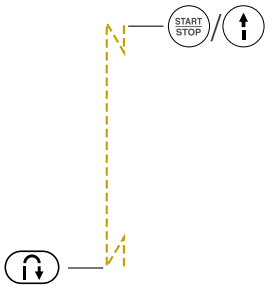
▶ After reverse/reinforcement stitches are sewn, the machine starts sewing.

4 **After reaching the end of the stitching, press (↩) ("Reverse/Reinforcement Stitch" button) once.**
This step is not necessary if a stitch such as those for sewing buttonholes and bar tacks is selected where reinforcement stitches are automatically sewn.



① "Reverse/Reinforcement Stitch" button

▶ After reverse/reinforcement stitches are sewn, the sewing machine stops.



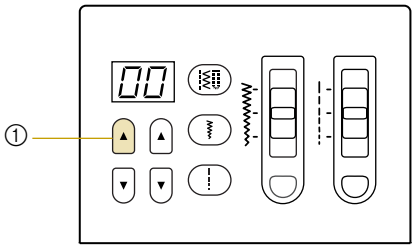
Memo

- Reverse/reinforcement stitches **WILL NOT** be sewn until (↩) ("Reverse/Reinforcement Stitch" button) is pressed. (START/STOP) / (↑) ("Start/Stop" button) may be pressed to stop stitching when needed such as for pivoting corners.

Changing the initial needle stop position

The needle position when the machine is turned on can be switched between a position on the left or at the center.

1 **While holding pressed the (▲) for the first digit (tens) from the stitch selection keys, turn on the sewing machine.**



① Up key for the first digit (tens) from the stitch selection keys

▶ The needle position switches between that on the left and that at the center.

- Each time the operation described in step 1 is performed, the needle position switches between that on the left and that at the center.

Memo

- As a default, the initial needle stop position is on the left.
- The specified initial needle stop position is maintained even after the machine is turned off.

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

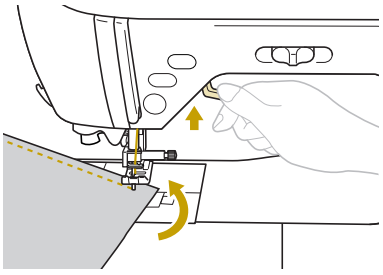
After you have set up the machine with the thread and needle appropriate for the type of fabric being sewn, the machine automatically sets the thread tension and stitch length and width for the stitch that is selected. However, a trial piece of fabric should be sewn since, depending on the type of fabric 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 remained up when the machine stopped sewing, press (“Needle Position” button) to lower the needle.

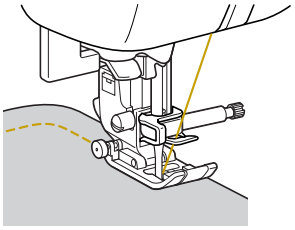
2. **Raise the presser foot lever, and then turn the fabric.**
   Turn the fabric using the needle as a pivot.



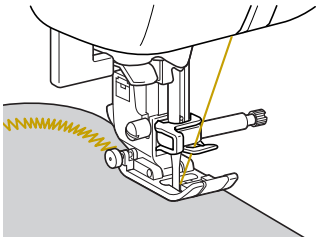
3. **Lower the presser foot lever and continue sewing.**

Sewing curves

Stop sewing, and then slightly change the sewing direction to sew around the curve. For details on sewing with an even seam allowance, refer to “Sewing an even seam allowance” (page 53).

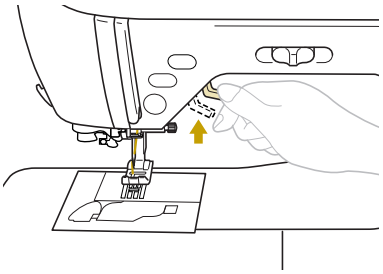


When sewing along a curve while using a zigzag stitch, select a shorter stitch length in order to obtain a finer stitch.

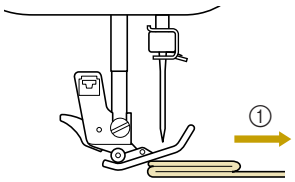


Sewing thick fabrics

■ **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.



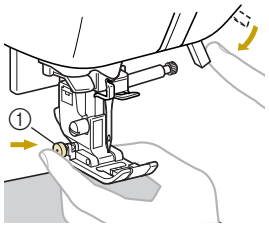
■ **If thick seams are being sewn and the fabric does not feed at the beginning of stitching**
Zigzag foot "J" is equipped with a feature that keeps the presser foot level.



① Sewing direction

① **When you encounter a seam that is too thick to feed under the foot, raise the presser foot lever.**

② **Press the black button (presser foot holding pin) on the left side of zigzag foot "J". Keep the button held in and lower the presser foot.**

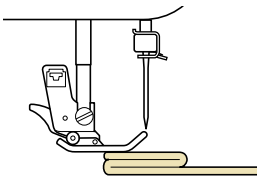


① Presser foot holding pin

Note

- The presser foot needs to be in a level position before pressing the black button (presser foot holding pin) on the left side of zigzag foot "J".

③ **Release the button. The foot will lock in place level with the seam, allowing the fabric to feed.**



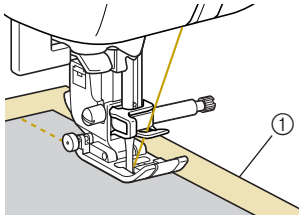
▶ Once the trouble spot has been passed, the foot will return to its normal position.

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 thin fabrics

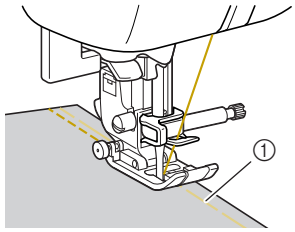
When sewing thin fabrics, the stitching may become misaligned or the fabric may not feed correctly. If this occurs, place thin paper or stabilizer material under the fabric and sew it together with the fabric. When you have finished sewing, tear off any excess paper.



① Stabilizer material or paper

Sewing stretch fabrics

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



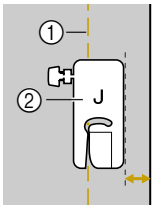
① Basting

Sewing an even seam allowance

To sew an even seam, start sewing so that the seam allowance is to the right of the presser foot, and the edge of the fabric is aligned with either the right edge of the presser foot or a marking on the needle plate.

■ **Aligning the fabric with the presser foot**

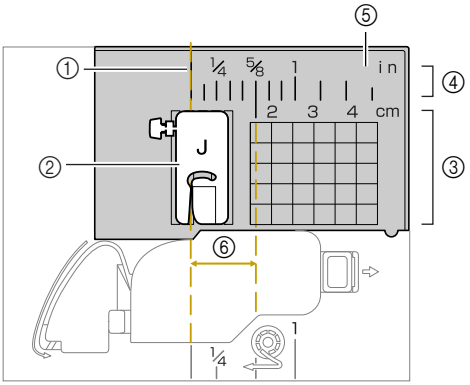
Sew while keeping the right edge of the presser foot a fixed distance from the edge of the fabric.



① Seam
② Presser foot

■ **Aligning the fabric with a needle plate marking**

The markings on the needle plate show the distance from the needle position of a seam sewn with the straight stitch (left needle position). Sew while keeping the edge of the fabric aligned with a marking in the needle plate. The distance between the markings in the upper scale is 1/8 inch (3 mm) and the distance between the markings in the grid is 5 mm (3/16 inch).



① Seam
② Presser foot
③ Centimeters
④ Inches
⑤ Needle plate
⑥ 16 mm (5/8 inch)

3 UTILITY STITCHES

The various stitches and their applications are described in this chapter.

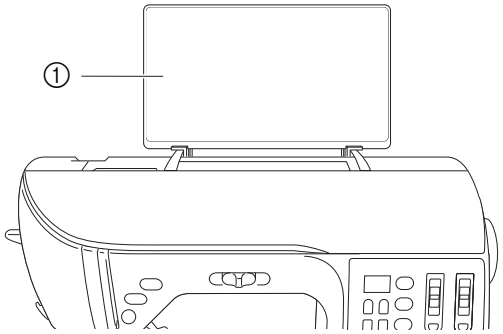
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Selecting stitching 56
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Bar tack stitching 83
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Selecting Stitching

You can select any of the various types of stitching available.

Selecting stitching

Using the operation panel keys, select the desired stitch.
Immediately after turning on the machine, the straight stitch (left needle position) is selected. The machine can also be set to select the straight stitch (center needle position). For details, refer to "Changing the initial needle stop position" (page 50).
The stitch pattern plate shows the stitches and the stitch numbers. A letter (A, G, J, N or R) indicating the presser foot that should be used appears below the stitch number.



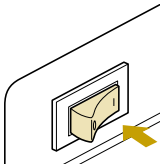
① Stitch pattern plate

1 **Determine the stitch that you wish to use.**
- Refer to the stitch pattern plate.

2 **Determine which presser foot should be used with the selected stitch.**
The presser feet are stored in the accessory compartment.
- For details on the stitches that can be sewn with the twin needle, refer to "Stitch Settings" (page 94).

3 **Attach the presser foot.**
- For details, refer to "Replacing the presser foot" (page 33).

4 **Turn on the sewing machine.**

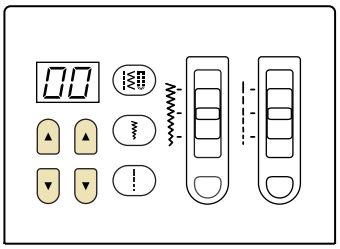


▶ When the machine is first turned on, "00" will be displayed.

5 **Press ▲ ▼ ▲ ▼ (Stitch selection key). The number of the selected stitch is displayed.**

Each press of ▲ increases the number by one. After "9" ("7" for the number on the left) is reached, the number returns to "0". Each press of ▼ decreases the number by one. After "0" is reached, the number returns to "9" ("7" for the number on the left).

Pressing ▲ ▼ on the right changes the second digit (ones), and pressing ▲ ▼ on the left changes the first digit (tens).



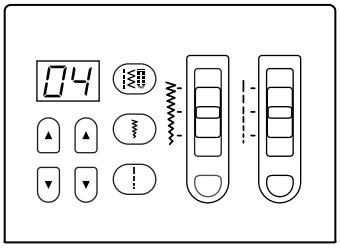
▶ The stitch is selected.

6 **If necessary, specify the setting for automatic reverse/reinforcement stitching and adjust the stitch length, etc.**
- For details on sewing with each of the utility stitches, begin on page 58.

■ **[Example] Selecting stitch 04 .**

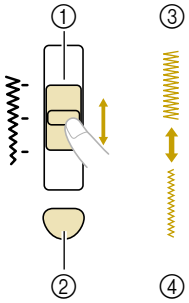
① Press ▲ ▼ ▲ ▼ (Stitch selection key) to select stitch 04.

Select "0" with ▲ or ▼ on the left, and then select "4" with ▲ or ▼ on the right.



② To adjust the stitch width, slide the stitch width adjustment slider up or down.

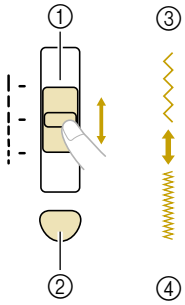
Press the stitch width adjustment button, and then slide the stitch width adjustment slider to adjust the stitch width.



① Stitch width adjustment slider
② Stitch width adjustment button
③ Wide
④ Narrow

③ To adjust the stitch length, slide the stitch length adjustment slider up or down.

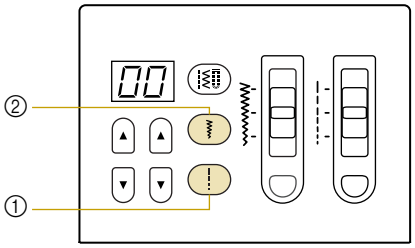
Press the stitch length adjustment button, and then slide the stitch length adjustment slider to adjust the stitch length.



① Stitch length adjustment slider
② Stitch length adjustment button
③ Long
④ Short

Memo

- When (Stitch length display key) or (Stitch width display key) is pressed, the currently specified stitch length or width appears in the stitch indicator.
  This allows the specified setting to be checked while it is being changed.



① Stitch length display key
② Stitch width display key

When the stitch length is displayed, (Stitch length display key) lights up. When the stitch width is displayed, (Stitch width display key) lights up.

- For details on adjusting the stitch width and length, refer to "Adjusting the Stitch Width and Length" (page 47).

Overcasting Stitches

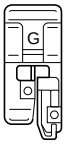
Sew overcasting stitches along the edges of cut fabric to prevent fabric from fraying. Seven stitches are available for overcasting. The procedure for sewing overcasting stitch is explained according to the presser foot that is used.

Sewing overcasting stitches using overcasting foot “G”

Three stitches can be used to sew overcasting with overcasting foot “G”.

Stitch Name	Pattern	Application	Stitch Width [mm (inch)]		Stitch Length [mm (inch)]		Presser Foot
			Auto	Manual	Auto	Manual	
Overcasting stitch	06	Preventing fraying in medium weight and thin 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)	G
	07	Preventing fraying in thick fabrics and fabrics that fray easily	5.0 (3/16)	2.5–5.0 (3/32–3/16)	2.5 (3/32)	1.0–4.0 (1/16–3/16)	
	08		5.0 (3/16)	3.5–5.0 (1/8–3/16)	2.5 (3/32)	1.0–4.0 (1/16–3/16)	

1 **Attach overcasting foot “G”.**

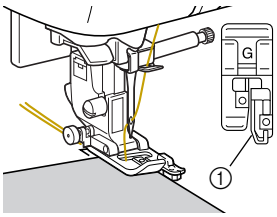


- For details, refer to “Replacing the presser foot” (page 33).

2 **Select a stitch.**

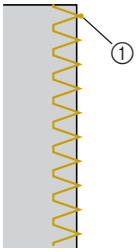
- For details, refer to “Selecting stitching” (page 56).

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 **Sew with the edge of the fabric against the presser foot guide.**



① Needle drop point

CAUTION

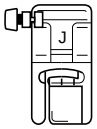
- **After adjusting the stitch width, slowly turn the handwheel toward you (counterclockwise) and check that the needle does not touch the presser foot. If the needle hits the presser foot, the needle may bend or break.**

Sewing overcasting stitches using zigzag foot “J”

Three stitches can be used to sew overcasting stitches with zigzag foot “J”.

Stitch Name	Pattern	Application	Stitch Width [mm (inch)]		Stitch Length [mm (inch)]		Presser Foot
			Auto	Manual	Auto	Manual	
Zigzag stitch	04	Preventing fraying (center baseline/reverse stitching)	3.5 (1/8)	0.0–7.0 (0–1/4)	1.4 (1/16)	0.0–4.0 (0–3/16)	J
3-point zigzag stitch	05	Preventing fraying in thick fabrics and stretch fabrics	5.0 (3/16)	1.5–7.0 (1/16–1/4)	1.0 (1/16)	0.2–4.0 (1/64–3/16)	
Overcasting stitch	09	Preventing fraying in 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)	

1 **Attach zigzag foot “J”.**

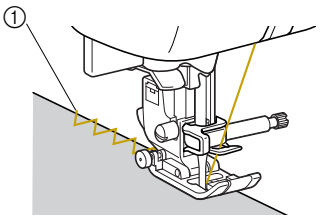


- For details, refer to “Replacing the presser foot” (page 33).

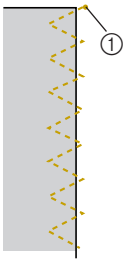
2 **Select a stitch.**

- For details, refer to “Selecting stitching” (page 56).

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



① Needle drop point



① Needle drop point

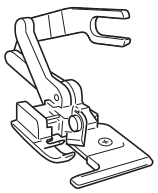
Memo

- For best results when sewing stretch fabrics, decrease the pressure of the presser foot. For details, refer to “Adjusting the pressure of the presser foot” (page 34).

Sewing overcasting stitches using the optional side cutter

Using the side cutter, seam allowances can be finished while the edge of the fabric is cut off. The following four stitches can be used to sew overcasting.
When the side cutter is attached, be sure to use the settings in the ranges listed below.

Stitch Name	Pattern	Application	Stitch Width [mm (inch)]		Stitch Length [mm (inch)]		Presser Foot
			Auto	Manual	Auto	Manual	
Overcasting stitch	00	Sewing straight stitches while cutting the fabric	0.0 (0)	0.0–7.0 (0–1/4)	2.5 (3/32)	0.2–5.0 (1/64–3/16)	S
	06	Preventing fraying in thin and medium weight fabrics while cutting the fabric	3.5 (1/8)	2.5–5.0 (3/32–3/16)	2.0 (1/16)	1.0–4.0 (1/16–3/16)	
	07	Preventing fraying in thick fabrics while cutting the fabric	5.0 (3/16)	2.5–5.0 (3/32–3/16)	2.5 (3/32)	1.0–4.0 (1/16–3/16)	
	17	Sewing zigzag stitches while cutting the fabric	3.5 (1/8)	0.0–7.0 (0–1/4)	1.4 (1/16)	0.0–4.0 (0–3/16)	

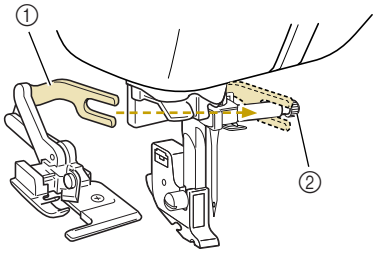


1 **Remove the presser foot.**
- For details, refer to “Replacing the presser foot” (page 33).

2 **Lower the presser foot lever, and then manually thread the needle.**
- The needle threader cannot be used. If the needle threader is used with the side cutter, the sewing machine may be damaged.

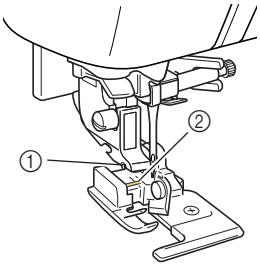
3 **Raise the presser foot lever.**

4 **Hook the connecting fork of the side cutter onto the needle clamp screw.**



① Connecting fork
② Needle clamp screw

5 **Position the side cutter so that side cutter pin is aligned with the notch in the presser foot holder, and then slowly lower the presser foot lever.**

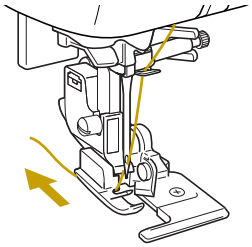


① Notch in presser foot holder
② Pin

▶ The side cutter is attached.

6 **Raise the presser foot lever to check that the side cutter is securely attached.**

7 **Pass the upper thread under the side cutter, and then pull it out toward the rear of the sewing machine.**

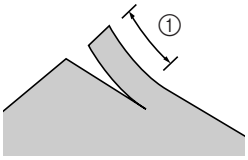


8 **Select a stitch.**
- For details, refer to "Selecting stitching" (page 56).

CAUTION

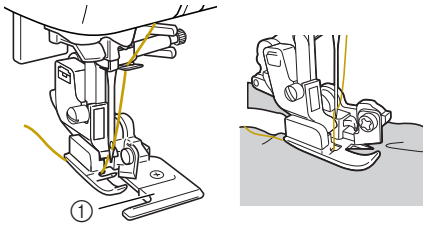
- **After adjusting the stitch width, slowly turn the handwheel toward you (counterclockwise) and check that the needle does not touch the presser foot. If the needle hits the presser foot, the needle may bend or break.**

9 **Make a cut of about 2 cm (3/4 inch) long in the fabric at the beginning of the stitching.**



① 2 cm (3/4 inch)

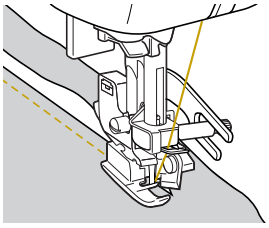
10 **Position the fabric in the side cutter.**
The cut in the fabric should be positioned over the guide plate of the side cutter.



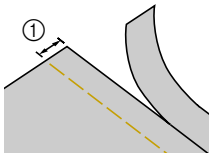
① Guide plate

- If the fabric is not positioned correctly, the fabric will not be cut.

11 **Lower the presser foot lever, and then start sewing.**



▶ A seam allowance is cut while the stitching is sewn.
- If the stitching is sewn in a straight line, the seam allowance will be about 5 mm (3/16 inch).



① 5 mm (3/16 inch)

Memo

- The side cutter can cut as much as one layer of 13-oz. denim.
- After using the side cutter, clean it by removing any lint or dust.
- If the side cutter can no longer cut fabric, use a rag to apply a small amount of oil to the cutting edge of the cutter.
- The optional side cutter is available through your Baby Lock retailer.

Basic Stitching

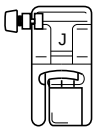
Straight stitches are used for sewing plain seams. Three stitches are available for basic stitching.

Stitch Name	Pattern	Application	Stitch Width [mm (inch)]		Stitch Length [mm (inch)]		Presser Foot
			Auto	Manual	Auto	Manual	
Straight stitch (left needle position)	00	Basic stitching and sewing gathers or pintucks (left baseline/ reverse stitching)	0.0 (0)	0.0–7.0 (0–1/4)	2.5 (3/32)	0.2–5.0 (1/64–3/16)	J
Straight stitch (center needle position)	01	Basic stitching and sewing gathers or pintucks (center baseline/reverse stitching)	3.5 (1/8)	0.0–7.0 (0–1/4)	2.5 (3/32)	0.2–5.0 (1/64–3/16)	
Triple stretch stitch	02	Reinforcing seams and sewing stretch fabrics	0.0 (0)	0.0–7.0 (0–1/4)	2.5 (3/32)	1.5–4.0 (1/16–3/16)	

Basic stitching

1 **Baste or pin together the fabric pieces.**

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



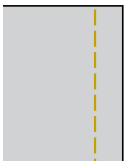
- For details, refer to "Replacing the presser foot" (page 33).

3 **Select a stitch.**
- For details, refer to "Selecting stitching" (page 56).

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

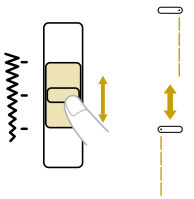
5 **Start sewing.**
- For details, refer to "Starting to sew" (page 42).
- For details on sewing reverse/reinforcement stitches, refer to "Securing the stitching" (page 44).

6 **When sewing is finished, cut the thread.**
- For details, refer to "Cutting the thread" (page 45).



■ Changing the needle position

With the straight stitch (left needle position) and the triple stretch stitch, the needle position can be adjusted. Sliding the stitch width adjustment slider up moves the needle to the right; sliding the slider down moves the needle to the left.



Memo

- The stitch width adjustment button needs to be lit before using the slider to change the needle position.

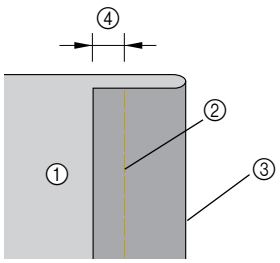
Blind Hem Stitching

Secure the bottoms of skirts and pants with a blind hem. Two stitches are available for blind hem stitching.

Stitch Name	Pattern	Application	Stitch Width [mm (inch)]		Stitch Length [mm (inch)]		Presser Foot
			Auto	Manual	Auto	Manual	
Blind hem stitch	10	Blind hem stitching on medium weight fabrics	00 (0)	-3 – 3-	2.0 (1/16)	1.0–3.5 (1/16–1/8)	R
	11	Blind hem stitching on stretch fabrics					

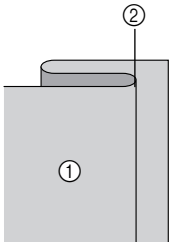
Sew a blind hem according to the following procedure.

1 **Fold the fabric along the desired edge of the hem, and then baste it about 5 mm (3/16 inch) from the edge of the fabric.**



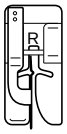
① Wrong side of fabric
② Basting stitching
③ Desired edge of hem
④ 5 mm (3/16 inch)

2 **Fold back the fabric along the basting, and then position the fabric with the wrong side facing up.**



① Wrong side of fabric
② Basting

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

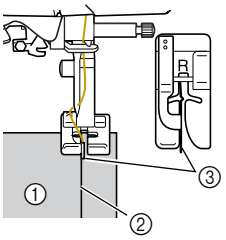


- For details, refer to "Replacing the presser foot" (page 33).

4 **Select a stitch.**

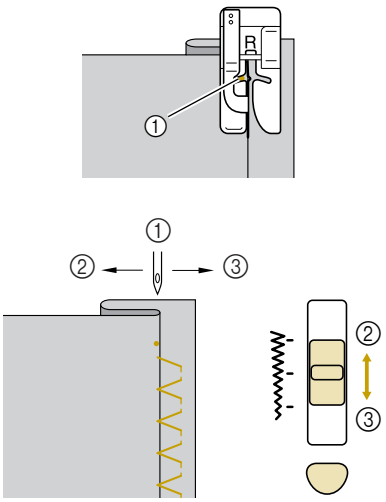
- For details, refer to "Selecting stitching" (page 56).

5 **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

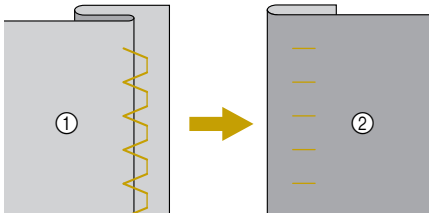
6 **Adjust the stitch width until the needle slightly catches the fold of the hem.**



① Needle drop point
② Wider stitch
③ Narrower stitch

■ **If the needle catches too much of the hem fold**

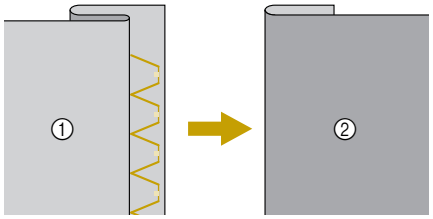
If the needle catches too much of the hem fold, move the stitch width adjustment lever down. This makes the stitch narrower to move the needle away from the fold.



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 enough of the hem fold, move the stitch width adjustment lever up. This makes the stitch wider to move the needle closer onto the fold.

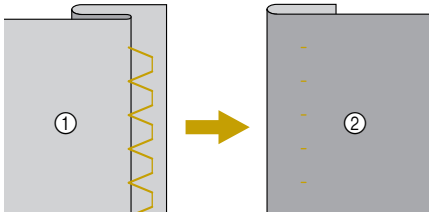


① Wrong side of fabric
② Right side of fabric

- For details on changing the stitch width, refer to “Adjusting the Stitch Width and Length” (page 47).

7 **Sew with the fold of the hem against the presser foot guide.**

8 **Remove the basting stitching.**



① Wrong side of fabric
② Right side of fabric

Memo

- For best results when sewing stretch fabrics, decrease the pressure of the presser foot. For details, refer to “Adjusting the pressure of the presser foot” (page 34).

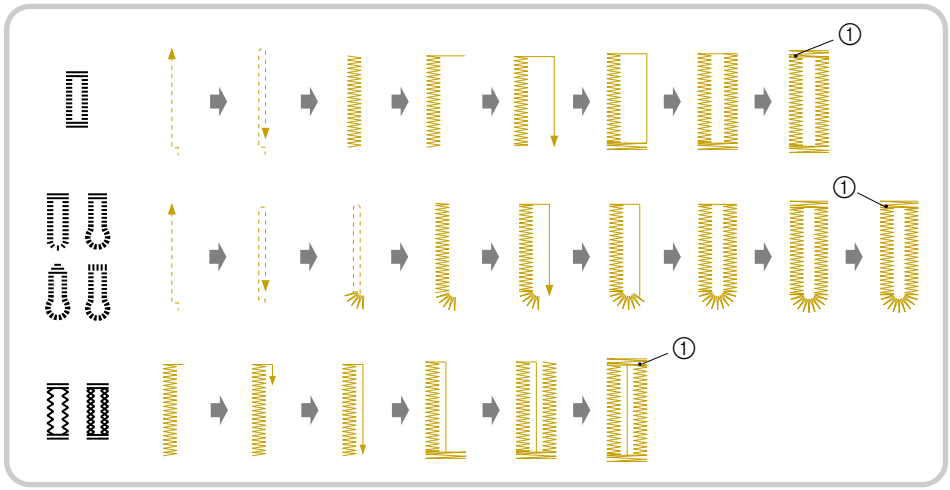
Buttonhole Stitching/Button Sewing

Buttonholes can be sewn and buttons can be sewn on. Seven stitches are available for sewing one-step buttonholes and one stitch for sewing on buttons.

Stitch Name	Pattern	Application	Stitch Width [mm (inch)]		Stitch Length [mm (inch)]		Presser Foot
			Auto	Manual	Auto	Manual	
Buttonhole stitch	40 	Horizontal buttonholes on thin and medium weight fabrics	5.0 (3/16)	3.0–5.0 (1/8–3/16)	0.4 (1/64)	0.2–1.0 (1/64–1/16)	A
	41 	Buttonholes with bar tacks on both ends for stabilized fabrics	5.0 (3/16)	3.0–5.0 (1/8–3/16)	0.4 (1/64)	0.2–1.0 (1/64–1/16)	
	42 	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)	
	43 	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)	
	44 	Keyhole buttonholes for thick or plush 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)	
	45 	Keyhole buttonholes for medium weight and thickfabrics	7.0 (1/4)	3.0–7.0 (1/8–1/4)	0.5 (1/32)	0.3–1.0 (1/64–1/16)	
	46 	Horizontal buttonhole for thick or plush 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)	
Button-sewing stitch	48 	Button sewing	3.5 (1/8)	2.5–4.5 (3/32–3/16)	–	–	M

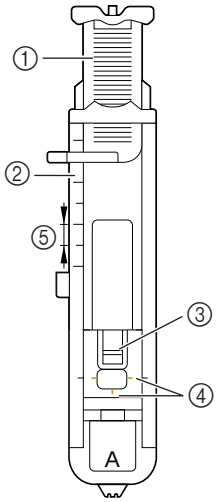
Buttonhole sewing

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.



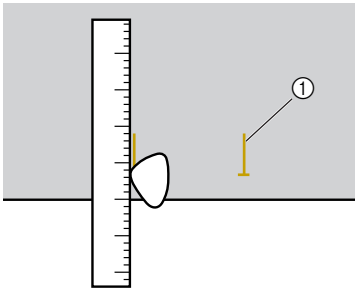
① Reinforcement stitching

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



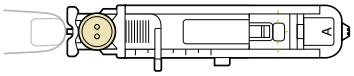
① Button guide plate
② Presser foot scale
③ Pin
④ Marks on buttonhole foot
⑤ 5 mm (3/16 inch)

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



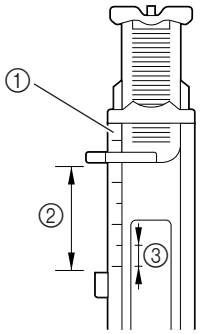
① Marks on fabric

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



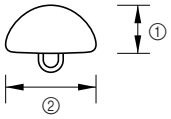
■ **If the button does not fit in the button guide plate**

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)

▶ The size of the buttonhole is set.

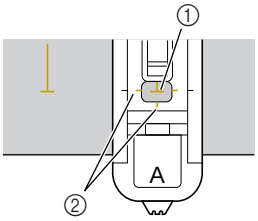
3 **Attach buttonhole foot "A".**

- For details, refer to "Replacing the presser foot" (page 33).

4 **Select a stitch.**

- For details, refer to "Selecting stitching" (page 56).

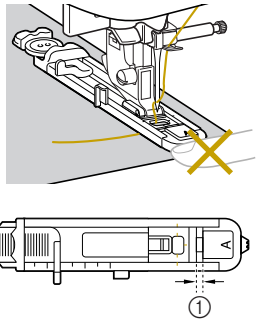
5 **Position the fabric with the front end of the buttonhole mark aligned with the red marks on the sides of the buttonhole foot, and then lower the presser foot lever.**



① Mark on fabric (front)
② Red marks on buttonhole foot

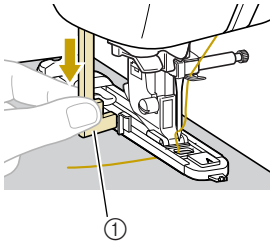
Pass the upper thread down through the hole in the presser foot.

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



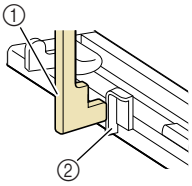
① Do not reduce the gap.

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



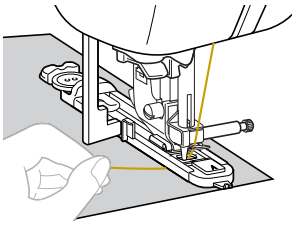
① Buttonhole lever

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



① Buttonhole lever
② Bracket

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

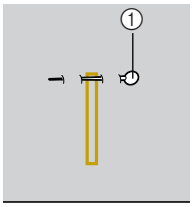


▶ Once sewing is completed, the machine automatically sews reinforcement stitches, then stops

8 **Raise the presser foot lever, remove the fabric, and then cut the threads.**

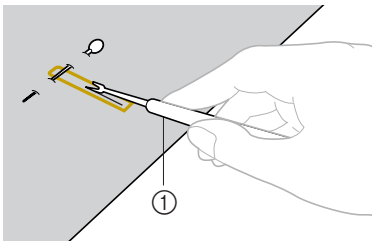
9 **Raise the buttonhole lever to its original position.**

10 **Insert a pin along the inside of one bar tack at the end of the buttonhole stitching to prevent the stitching from being cut.**



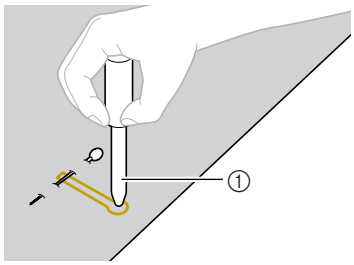
① Pin

11 **Use the seam ripper to cut towards the pin and open the buttonhole.**



① Seam ripper

For keyhole buttonholes, use the 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

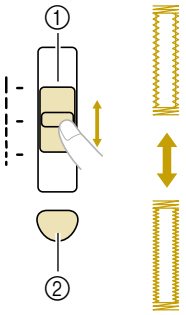
- When using the eyelet punch, place thick paper or some other protective sheet under the fabric before punching the hole in the fabric.

CAUTION

- **When opening the buttonhole with the seam ripper, do not place your hands in the cutting direction, otherwise injuries may result if the seam ripper slips.**

■ **Changing the density of the stitching**

Press the stitch length adjustment button, and then slide the stitch length adjustment slider to adjust the stitch length.

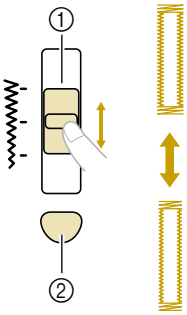


① Stitch length adjustment slider
② Stitch length adjustment button

- For details, refer to “Adjusting the stitch length” (page 48).
- If the fabric does not feed (for example, if it is too thick), decrease the density of the stitching.

■ **Changing the stitch width**

Press the stitch width adjustment button, and then slide the stitch width adjustment slider to adjust the stitch width.



① Stitch width adjustment slider
② Stitch width adjustment button

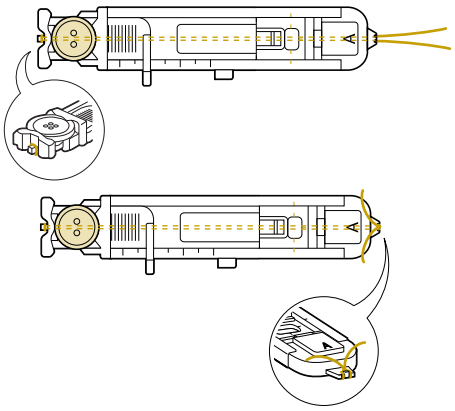
- For details, refer to “Adjusting the stitch width” (page 47).

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.**



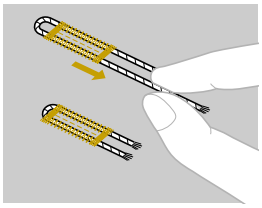
2. **Attach buttonhole foot "A".**
   - For details, refer to "Replacing the presser foot" (page 33).

3. **Select stitch 42 or 43.**

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.**



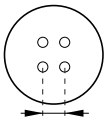
7. **Use a handsewing needle to pull the gimp thread to the wrong side of the fabric, and then tie it.**

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.

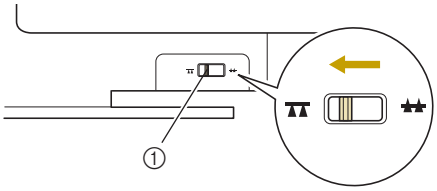
Button sewing

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.**



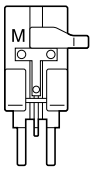
2. **Raise the presser foot lever, and then slide the drop feed lever, located at the rear of the machine on the base, to (to the left as seen from the rear of the machine).**



① Drop feed lever
(as seen from the rear of the machine)

▶ The feed dogs are lowered.

3. **Attach button-sewing foot "M".**

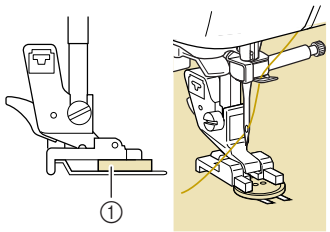


- For details, refer to "Replacing the presser foot" (page 33).

4. **Select stitch 48 .**
   - For details, refer to "Selecting stitching" (page 56).

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

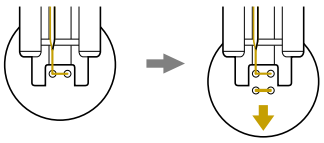
6 Place the button into button-sewing foot "M".



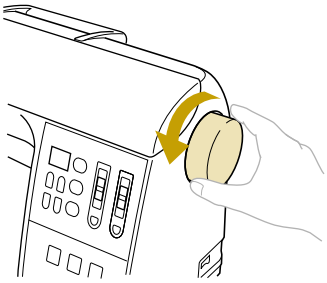
① Button

▶ The button is held in place.

- 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.



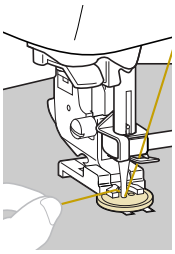
7 Turn the handwheel toward you (counterclockwise) to check that the needle correctly goes into the two holes of the button.
If it seems as if the needle will hit the button, remeasure the distance between the holes in the button. Adjust the stitch width to the distance between the button holes.



CAUTION

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

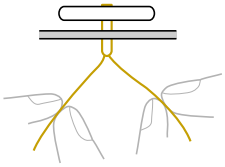
8 Start sewing.
Set the sewing speed controller to the left (so that the speed will be slow).



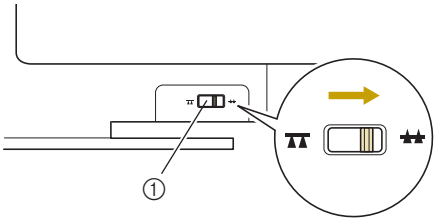
▶ The sewing machine automatically stops after sewing reinforcement stitches.

- If additional strength is needed to secure the button, perform the button-sewing operation twice.

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



10 When you are finished attaching the button, slide the drop feed lever to ▲▲ (to the right as seen from the rear of the machine) to raise the feed dogs.



① Drop feed lever
(as seen from the rear of the machine)

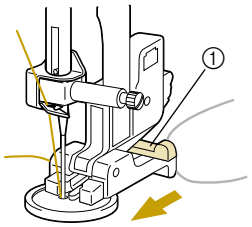
Memo

- The feed dog position switch is normally set to the right side (as seen from the rear of machine).
- The feed dogs come up when you start sewing again.

■ **Attaching a shank to a button**

To sew the button with a shank, attach the button with space between it and the fabric, and then wind the thread by hand. This attaches the button securely.

① **Place the button into button-sewing foot "M", and then pull the shank lever toward you.**



① Shank lever

② **After sewing is finished, cut the upper thread with plenty of excess, wind it around the thread between the button and the fabric, and then tie it to the upper thread at the beginning of the stitching.**

Tie together the ends of the bobbin thread at the end and at the beginning of the stitching on the wrong side of the fabric.



③ **Cut off any excess thread.**

Zipper Insertion

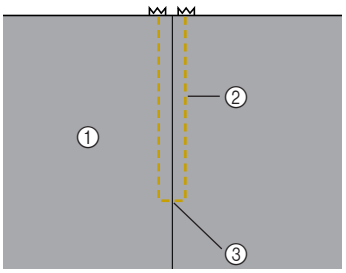
A zipper can be sewn in place.

Stitch Name	Pattern	Application	Stitch Width [mm (inch)]		Stitch Length [mm (inch)]		Presser Foot
			Auto	Manual	Auto	Manual	
Straight stitch (center needle position)	01	Attaching zippers Sewing concealed seams and pintucks	3.5 (1/8)	0.0–7.0 (0–1/4)	2.5 (3/32)	0.2–5.0 (1/64–3/16)	I

There are many methods for inserting zippers. The procedures for inserting a centered zipper and a side zipper are described below.

Inserting a centered zipper

Stitching is sewn on both pieces of fabric butted against each other.



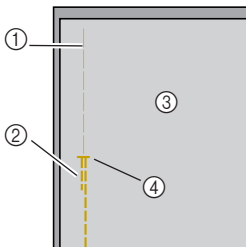
① Right side of fabric
② Stitching
③ End of zipper opening

1 Attach zigzag foot "J" and sew straight stitches up to the zipper opening.

With the right sides of the fabric facing each other, sew reverse stitches after reaching the zipper opening.

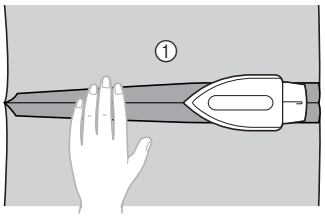
- For details, refer to "Basic Stitching" (page 62).

2 Using a basting stitch, continue sewing to the edge of the fabric.



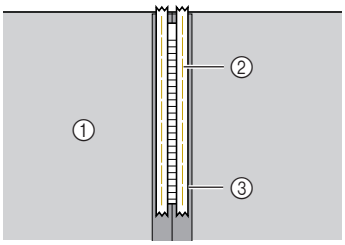
① Basting stitching
② Reverse stitches
③ Wrong side of fabric
④ End of zipper opening

3 Press open the seam allowance from the wrong side of the fabric.



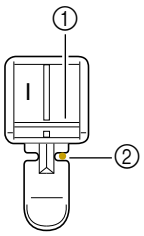
① Wrong side of fabric

4 Align the seam with the center of the zipper, and then baste the zipper in place.



① Wrong side of fabric
② Basting stitching
③ Zipper

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



① Pin on the right side
② Needle drop point

- For details, refer to "Replacing the presser foot" (page 33).

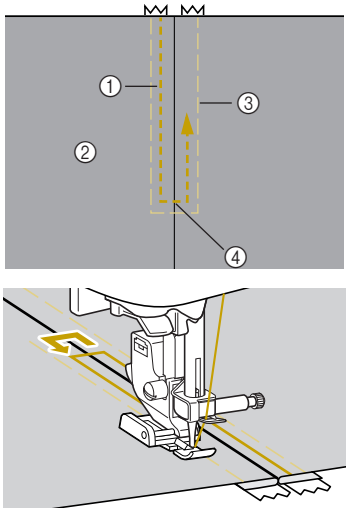
6 **Select stitch 01 .**

- For details, refer to “Selecting stitching” (page 56).

CAUTION

- **When using zipper foot “I”, be sure to select the straight stitch (center needle position), and slowly turn the handwheel toward you (counterclockwise) to check that the needle does not touch the presser foot. If a different stitch is selected or the needle hits the presser foot, the needle may bend or break.**

7 **Topstitch around the zipper.**



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

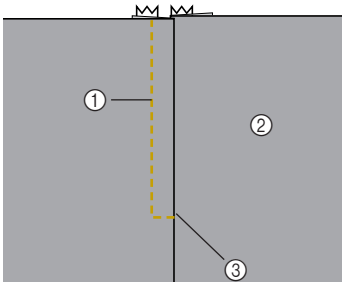
CAUTION

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

8 **Remove the basting stitching.**

Inserting a side zipper

Stitching is sewn on only one piece of fabric. Use this type of zipper application for side openings and back openings.



① Stitching
② Right side of fabric
③ End of zipper opening

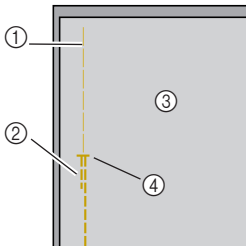
The following procedure will describe how to stitch on the left side, as shown in the illustration.

1 **Attach zigzag foot “J” and sew straight stitches up to the zipper opening.**

With the right sides of the fabric facing each other, sew reverse stitches after reaching the zipper opening.

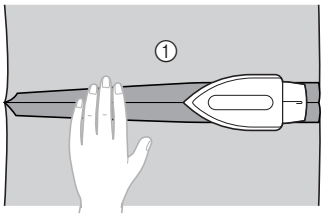
- For details, refer to “Basic Stitching” (page 62).

2 **Using a basting stitch, continue sewing to the edge of the fabric.**



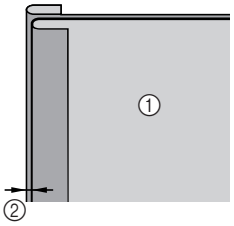
① Basting stitching
② Reverse stitches
③ Wrong side of fabric
④ End of zipper opening

3 **Press open the seam allowance from the wrong side of the fabric.**



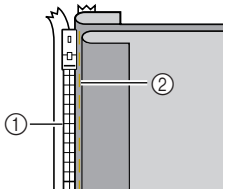
① Wrong side of fabric

4 **Press the seam allowance so that the right side (the side that will not be stitched) has an extra 3 mm (1/8 inch).**



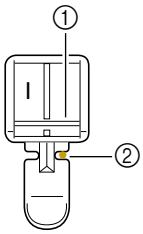
① Wrong side of fabric
② 3 mm (1/8 inch)

5 **Align the zipper teeth with the pressed edge of the fabric having the extra 3 mm (1/8 inch), and then baste or pin the zipper in place.**



① Zipper teeth
② Basting stitching

6 **Attach the presser foot holder to the right pin of zipper foot "I".**
If the stitching will be sewn on the right side, attach the presser foot holder to the left pin of the zipper foot.



① Pin on the right side
② Needle drop point

- For details, refer to "Replacing the presser foot" (page 33).

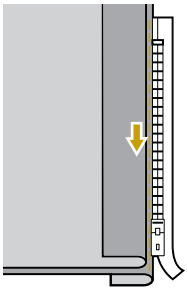
7 **Select stitch 01 .**

- For details, refer to "Selecting stitching" (page 56).

CAUTION

- **When using zipper foot "I", be sure to select the straight stitch (center needle position), and slowly turn the handwheel toward you (counterclockwise) to check that the needle does not touch the presser foot. If a different stitch is selected or the needle hits the presser foot, the needle may bend or break.**

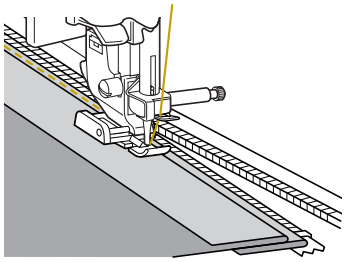
8 **Sew the zipper to the piece of fabric with the extra 3 mm (1/8 inch), starting from the base of the zipper.**



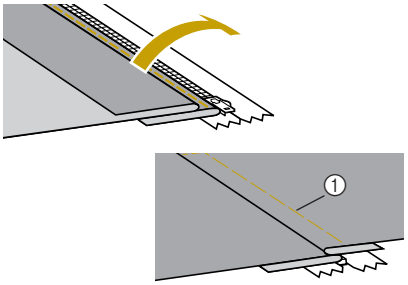
CAUTION

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

9 **When you are about 5 cm (2 inches) from the end of the zipper, stop the sewing machine with the needle lowered (in the fabric), raise the presser foot lever, and then open the zipper and continue sewing.**

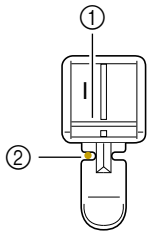


10 **Close the zipper, turn over the fabric, and then baste the other side of the zipper to the fabric.**



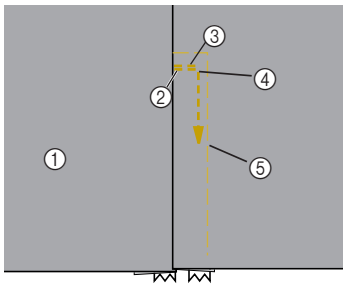
① Basting stitching

11 **Attach the presser foot holder to the other pin of zipper foot "I".**
If the presser foot holder was attached to the right pin in step **6**, change it to the left pin.



① Pin on the left side
② Needle drop point

12 **Topstitch around the zipper.**
Sew reverse stitches at the end of the zipper opening and align the zipper teeth with the side of the presser foot.



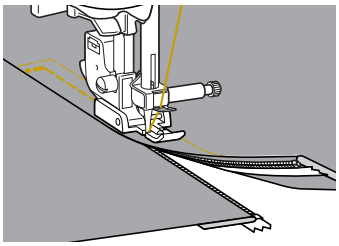
① Right side of fabric
② End of zipper opening
③ Reverse stitches
④ Beginning of stitching
⑤ Basting stitching

CAUTION

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

13 **When you are about 5 cm (2 inches) from the end of the zipper, stop the sewing machine with the needle lowered (in the fabric), raise the presser foot lever, and then open the zipper and continue sewing.**

14 **Remove the basting stitching.**



3

Sewing Stretch Fabrics and Elastic Tape

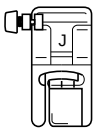
Stretch fabrics can be sewn and elastic tape can be attached.

Stitch Name	Pattern	Application	Stitch Width [mm (inch)]		Stitch Length [mm (inch)]		Presser Foot
			Auto	Manual	Auto	Manual	
Stretch stitch	03	Stretch fabrics	1.0 (1/16)	1.0–3.0 (1/16–1/8)	2.5 (3/32)	1.0–4.0 (1/16–3/16)	J
3-point zigzag stitch	05	Attaching elastic	5.0 (3/16)	1.5–7.0 (1/16–1/4)	1.0 (1/16)	0.2–4.0 (1/64–3/16)	

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

Stretch stitching

1 **Attach zigzag foot “J”.**

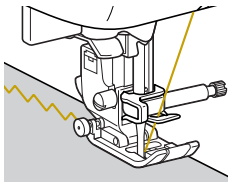


- For details, refer to “Replacing the presser foot” (page 33).

2 **Select stitch 03 .**

- For details, refer to “Selecting stitching” (page 56).

3 **Sew the fabric without stretching it.**

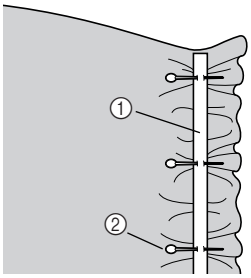


Elastic attaching

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.

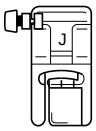
1 **Pin the elastic tape to the wrong side of the fabric.**

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”.**



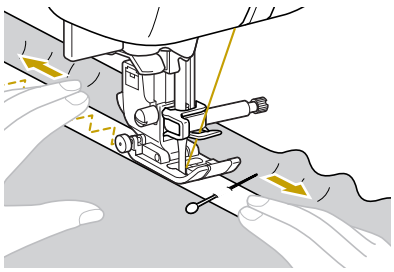
- For details, refer to “Replacing the presser foot” (page 33).

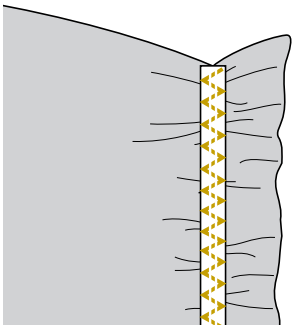
3 **Select stitch 05 .**

- For details, refer to “Selecting stitching” (page 56).

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.**

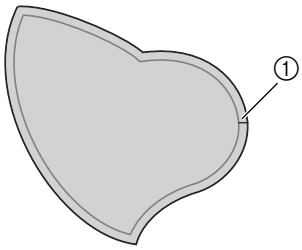
Appliqué, Patchwork and Quilt Stitching

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

Stitch Name	Pattern	Application	Stitch Width [mm (inch)]		Stitch Length [mm (inch)]		Presser Foot
			Auto	Manual	Auto	Manual	
Zigzag stitch	04 	Attaching appliqués (center baseline/reverse stitching)	3.5 (1/8)	0.0–7.0 (0–1/4)	1.4 (1/16)	0.0–4.0 (0–3/16)	J
	17 	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)	
Appliqué stitch	12 	Attaching appliqués	3.5 (1/8)	2.5–7.0 (3/32–1/4)	2.5 (3/32)	1.6–4.0 (1/16–3/16)	
	18 	Attaching appliqués and binding	1.5 (1/16)	0.5–5.0 (1/32–3/16)	1.8 (1/16)	1.0–4.0 (1/16–3/16)	
	19 	Attaching appliqués and binding	1.5 (1/16)	0.5–5.0 (1/32–3/16)	1.8 (1/16)	1.0–4.0 (1/16–3/16)	
Piecing straight stitch	14 	Piecing straight stitching (with a seam allowance of 6.5 mm (1/4 inch) 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)	
	15 	Piecing straight stitching (with a seam allowance of 6.5 mm (1/4 inch) 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)	
Joining stitch	22 	Patchwork stitching	4.0 (3/16)	0.0–7.0 (0–1/4)	1.2 (1/16)	0.2–4.0 (1/64–3/16)	
	23 		5.0 (3/16)	2.5–7.0 (3/32–1/4)	2.5 (3/32)	1.0–4.0 (1/16–3/16)	
	24 		5.0 (3/16)	0.0–7.0 (0–1/4)	1.2 (1/16)	0.2–4.0 (1/64–3/16)	
Mock hand quilting stitch	16 	Straight stitch quilting that looks hand quilting	0.0 (0)	0.0–7.0 (0–1/4)	2.5 (3/32)	1.0–4.0 (1/16–3/16)	
Quilting stippling	20 	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)	

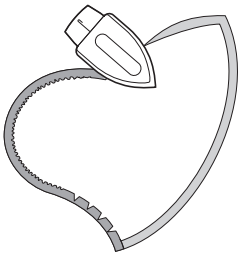
Appliqué stitching

1 **Cut out the appliqué, leaving a seam allowance of between 3 and 5 mm (1/8 and 3/16 inch).**



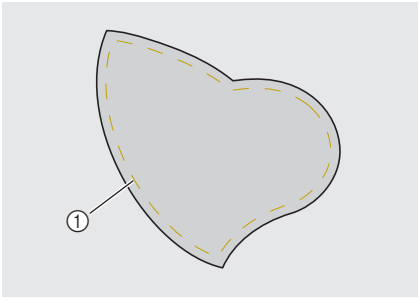
① Seam allowance

2 **Place a pattern made of thick paper or stabilizer on the back of the appliqué, and then fold over the seam allowance using an iron.**



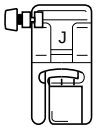
- Remove the thick paper after pressing the seam allowance.

3 **Turn the fabric over, and then baste or pin it onto the fabric that it will be attached to.**



① Basting stitching

4 **Attach zigzag foot "J".**

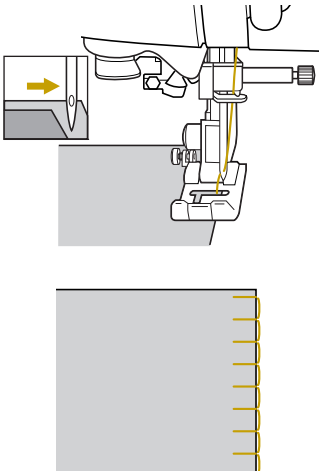


- For details, refer to "Replacing the presser foot" (page 33).

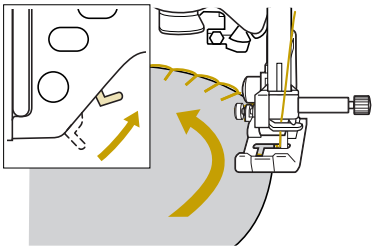
5 **Select a stitch.**

- For details, refer to "Selecting stitching" (page 56).

6 **Turn the handwheel toward you (counterclockwise), and then begin sewing around the edge of the appliqué, making sure that the needle drops just outside of the appliqué.**



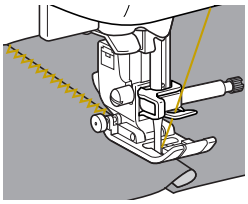
When sewing around corners, stop the machine with the needle in the fabric just outside of the appliqué, raise the presser foot lever, and then turn the fabric as needed to change the sewing direction.

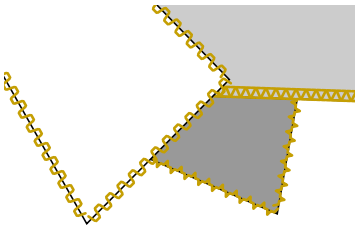


Patchwork (crazy quilt) stitching

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 over both pieces.**



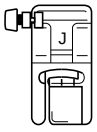


Piecing

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".**



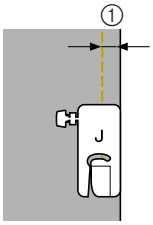
- For details, refer to "Replacing the presser foot" (page 33).

3 **Select stitch 14 or 15.**

- For details, refer to "Selecting stitching" (page 56).

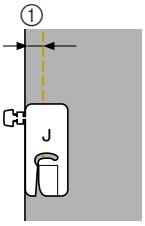
4 **Sew with the side of the presser foot aligned with the edge of the fabric.**

■ **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 14.



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 15.



① 6.5 mm (1/4 inch)

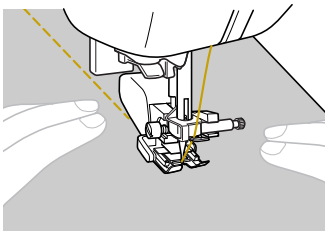
Memo

- To change the width of the seam allowance (the needle position), adjust the stitch width. For details, refer to "Adjusting the stitch width" (page 47).

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.

1. **Baste the fabric to be quilted.**
2. **Attach the walking foot.**
   - For details, refer to “Using the optional walking foot” (page 35).
3. **Select stitch 15 or 17 .**
   - For details, refer to “Selecting stitching” (page 56).
4. **Place one hand on each side of the presser foot, and hold fabric taut while sewing.**

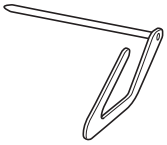


Note

- When sewing with the walking foot, sew at a speed between slow and medium.
- The optional walking foot is available through your Baby Lock retailer.

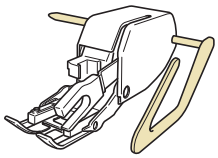
■ **Using the optional quilting guide**

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

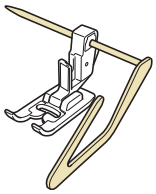


1. **Insert the stem of the quilting guide into the hole at the rear of the walking foot or presser foot holder.**

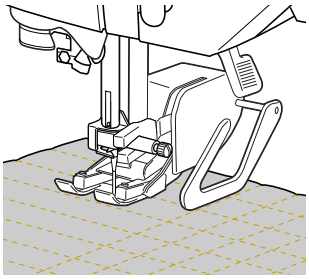
☐ Walking foot



☐ Presser foot holder



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

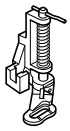


Note

- The optional quilting guide is available through your Baby Lock retailer.

Free-motion quilting

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

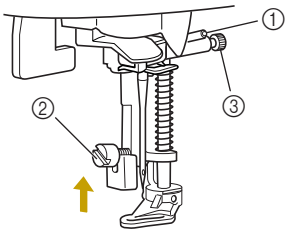


1 Remove the presser foot and the presser foot holder.

- Refer to "Removing the presser foot holder" (page 35).

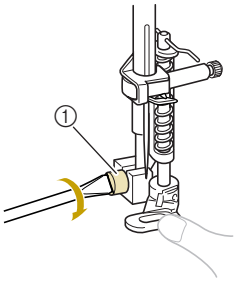
2 Secure the quilting foot with the presser foot holder screw.

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 screwdriver in your left hand.

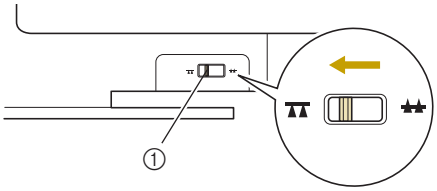


① Presser foot holder screw

CAUTION

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

4 Slide the drop feed lever, located at the rear of the machine on the base, to (to the left as seen from the rear of the machine).



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

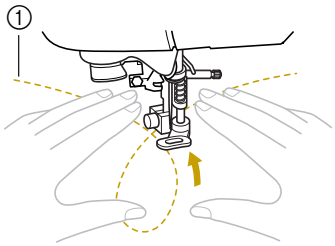
▶ The feed dogs are lowered.

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

- For details, refer to "Selecting stitching" (page 56).

6 Use both hands to hold the fabric taut, and then move the fabric to follow the pattern.

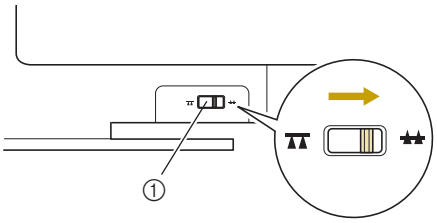
Reinforcement stitches are sewn at the beginning and end of sewing.



① Pattern

7 After sewing is finished, slide the drop feed lever to (to the right as seen from the rear of the machine) to raise the feed dogs.

- Normally, the drop feed lever is positioned at the right.



① Drop feed lever
(as seen from the rear of the machine)

Note

- The optional quilting foot is available through your Baby Lock retailer.

Reinforcement Stitching

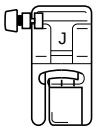
Reinforce points that will be subject to strain, such as sleeve holes, inseams and pocket corners.

Stitch Name	Pattern	Application	Stitch Width [mm (inch)]		Stitch Length [mm (inch)]		Presser Foot
			Auto	Manual	Auto	Manual	
Triple stretch stitch	02	Reinforcing the seams of sleeves and inseams	0.0 (0)	0.0–7.0 (0–1/4)	2.5 (3/32)	1.5–4.0 (1/16–3/16)	J
Bar tack stitch	47	Reinforcing the ends of openings, such as the corners of pockets	2.0 (1/16)	1.0–3.0 (1/16–1/8)	0.4 (1/64)	0.3–1.0 (1/64–1/16)	A

Triple stretch stitching

Use triple stretch stitching to reinforce sleeve holes and inseams.

1 **Attach zigzag foot "J".**



- For details, refer to "Replacing the presser foot" (page 33).

2 **Select stitch 02.**

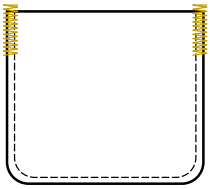
- For details, refer to "Selecting stitching" (page 56).

3 **Start sewing.**

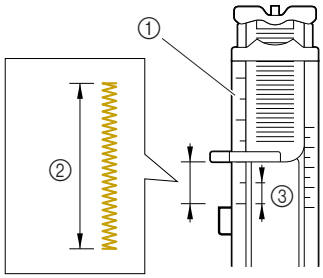
- For details, refer to "Starting to sew" (page 42).

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).)



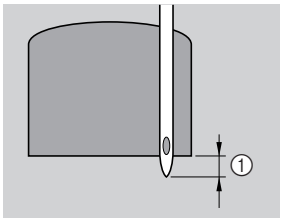
① Presser foot scale
② Length of bar tack
③ 5 mm (1/8 inch)

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

2 **Attach buttonhole foot "A".**
- For details, refer to "Replacing the presser foot" (page 33).

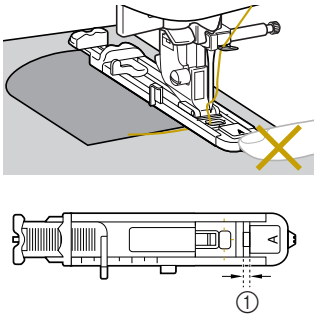
3 **Select stitch 47 .**
- For details, refer to "Selecting stitching" (page 56).

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.**



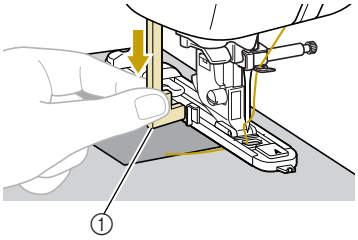
① 2 mm (1/16 inch)

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.



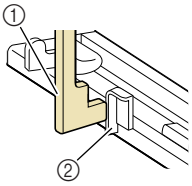
① Do not reduce the gap.

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



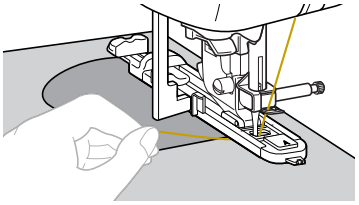
① Buttonhole lever

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 presser foot lever, remove the fabric, and cut the threads.**

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

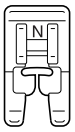
Memo
- If the fabric does not feed, for example, because it is too thick, increase the stitch length. For details, refer to "Adjusting the stitch length" (page 48).

Eyelet Stitching

Eyelets, such as those on belts, can be sewn. Three sizes of eyelets are possible: 7 mm, 6 mm and 5 mm (1/4, 15/64 and 3/16 inch).

Stitch Name	Pattern	Application	Stitch Width [mm (inch)]		Stitch Length [mm (inch)]		Presser Foot
			Auto	Manual	Auto	Manual	
Eyelet stitch	49	Sewing eyelets, for example, on belts	7.0 (1/4)	7.0, 6.0 or 5.0 (1/4, 15/64 or 3/16)	–	–	N

1 **Attach monogramming foot "N".**



- For details, refer to "Replacing the presser foot" (page 33).

2 **Select stitch 49.**

- For details, refer to "Selecting stitching" (page 56).

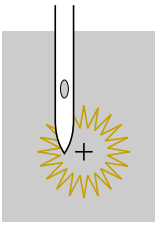
3 **Adjust the stitch width to select the desired eyelet size.**



7 mm (1/4 inch) 6 mm (15/64 inch) 5 mm (3/16 inch)

- For details, refer to "Adjusting the stitch width" (page 47).

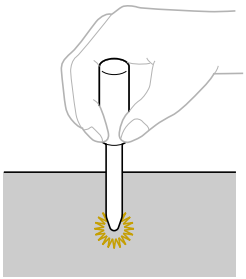
4 **Lower the needle into the fabric at the beginning of the stitching, and then lower the presser foot lever.**



5 **Start sewing.**

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

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



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

Memo

- If light weight thread is used, the stitching may be sparse. If this occurs, sew the eyelet twice before removing the fabric, one on top of the other.

Decorative Stitching

The utility stitches contain the following decorative stitches.

Stitch Name	Pattern	Application	Stitch Width [mm (inch)]		Stitch Length [mm (inch)]		Presser Foot
			Auto	Manual	Auto	Manual	
Fagoting stitch	25 	Sewing two pieces of fabric together across an open seam	5.0 (3/16)	0.0–7.0 (0–1/4)	2.5 (3/32)	1.0–4.0 (1/16–3/16)	J
	26 		5.0 (3/16)	2.5–7.0 (3/25–1/4)	2.5 (3/32)	1.0–4.0 (1/16–3/16)	
Joining stitch	22 	Decorative bridging stitches	4.0 (3/16)	0.0–7.0 (0–1/4)	1.2 (1/16)	0.2–4.0 (1/64–3/16)	
	23 		5.0 (3/16)	2.5–7.0 (3/32–1/4)	2.5 (3/32)	1.0–4.0 (1/16–3/16)	
	24 		5.0 (3/16)	0.0–7.0 (0–1/4)	1.2 (1/16)	0.2–4.0 (1/64–3/16)	
Shell tuck stitch	13 	Shell tuck stitching on collars and curves	4.0 (3/16)	0.0–7.0 (0–1/4)	2.5 (3/32)	0.2–4.0 (1/64–3/16)	
Smocking stitch	25 	Smocking fabrics to add texture and elasticity	5.0 (3/16)	0.0–7.0 (0–1/4)	2.5 (3/32)	1.0–4.0 (1/16–3/16)	
	26 		5.0 (3/16)	2.5–7.0 (3/32–1/4)	2.5 (3/32)	1.0–4.0 (1/16–3/16)	
Scallop stitch	21 	Satin 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)	N
Hemstitching	31 	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)	
	32 		6.0 (15/64)	1.5–7.0 (1/16–1/4)	3.0 (1/8)	1.5–4.0 (1/16–3/16)	
	33 	Decorative hemming and heirloom stitching, etc. on thin, medium weight and plain weave fabrics	5.0 (3/16)	1.5–7.0 (1/16–1/4)	3.5 (1/8)	1.5–4.0 (1/16–3/16)	
	34 		5.0 (3/16)	1.5–7.0 (1/16–1/4)	4.0 (3/16)	1.5–4.0 (1/16–3/16)	
	35 		5.0 (3/16)	1.5–7.0 (1/16–1/4)	2.5 (3/32)	1.5–4.0 (1/16–3/16)	

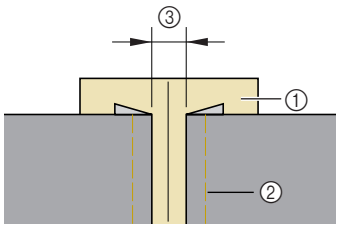
Stitch Name	Pattern	Application	Stitch Width [mm (inch)]		Stitch Length [mm (inch)]		Presser Foot
			Auto	Manual	Auto	Manual	
Ladder stitch	27	Decorative stitching	4.0 (3/16)	0.0–7.0 (0–1/4)	3.0 (1/8)	2.0–4.0 (1/16–3/16)	J
Rick-rack stitch	28		4.0 (3/16)	0.0–7.0 (0–1/4)	2.5 (3/32)	1.0–4.0 (1/16–3/16)	
Decorative stitch	29		5.5 (7/32)	0.0–7.0 (0–1/4)	1.6 (1/16)	1.0–4.0 (1/16–3/16)	
Serpentine stitch	30		5.0 (3/16)	1.5–7.0 (1/16–1/4)	1.0 (1/16)	0.2–4.0 (1/64–3/16)	N

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.

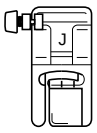
1. **Use an iron to fold the two pieces of fabric along their seams.**

2. **Baste the two pieces of fabric, separated by about 4 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”.**

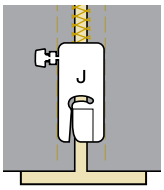


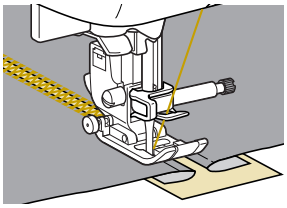
- For details, refer to “Replacing the presser foot” (page 33).

4. **Select stitch 25 or 26.**
   - For details, refer to “Selecting stitching” (page 56).

5. **Set the stitch width to 7.0 mm (1/4 inch).**
   - For details, refer to “Adjusting the stitch width” (page 47).

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



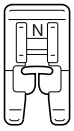


7. **After sewing is finished, remove the paper.**

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”.**

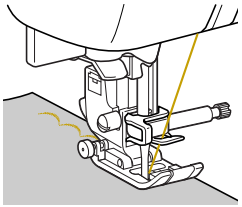


- For details, refer to “Replacing the presser foot” (page 33).

2 **Select stitch 21 .**

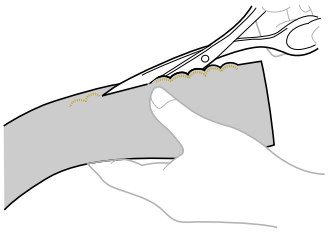
- For details, refer to “Selecting stitching” (page 56).

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 to the fabric and press with a hot iron before it is sewn.

4 **Trim along the stitches.**

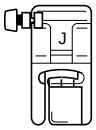


- Be careful not to cut the stitches.

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”.**

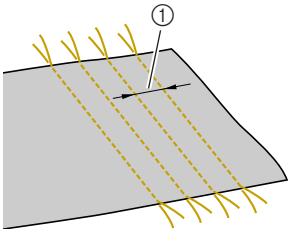


- For details, refer to “Replacing the presser foot” (page 33).

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 “Adjusting the stitch length” (page 48) and “Changing the tension of the upper thread” (page 46).

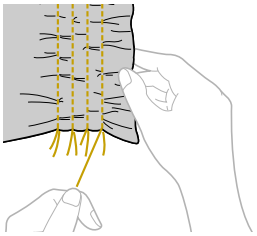
3 **Sew parallel stitching at intervals of 1 cm (3/8 inch).**



① 1 cm (3/8 inch)

- It is not necessary to sew reverse/ reinforcement stitches.
- At the end of the stitching, the thread is pulled out about 5 cm (2 inches).

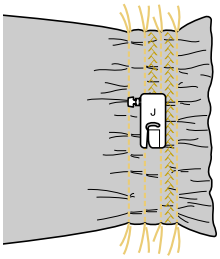
4 **Pull the bobbin threads to create gathers.**
Smooth the gathers by ironing them.



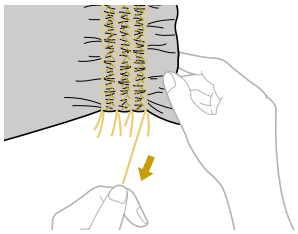
5 **Select stitch [25] or [26].**

- For details, refer to “Selecting stitching” (page 56).

6 **Stitch between the straight stitches.**



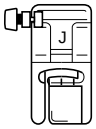
7 **Pull out the threads for the straight stitches.**



Joining

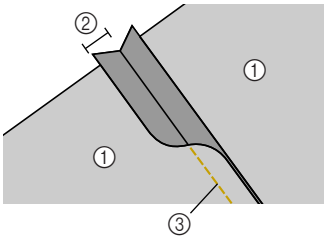
Decorative bridging stitches can be sewn over the seam allowance of joined fabrics. This is used when making a crazy quilt.

1 **Attach zigzag foot “J”.**



- For details, refer to “Replacing the presser foot” (page 33).

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

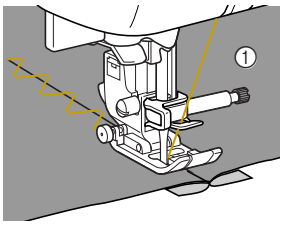


① Wrong side of fabric
② 6.5 mm (1/4 inch) seam allowance
③ Straight stitch

3 **Select stitch [22], [23] or [24].**

- For details, refer to “Selecting stitching” (page 56).

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

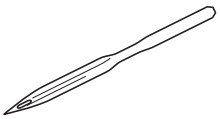
Heirloom stitching

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.

Note

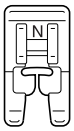
- If the thread becomes tangled, use stabilizer material.

1 Install the wing needle.



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

2 Attach monogramming foot "N".



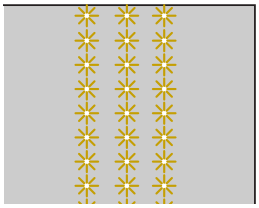
- For details, refer to "Replacing the presser foot" (page 33).

3 Select a stitch.

The stitches that can be used are 31, 32, 33, 34, 35, 36, 37, 38 or 39.

- For details, refer to "Selecting stitching" (page 56).
- Select a stitch width of 6.0 mm (15/64 inch) or less.

4 Start sewing.

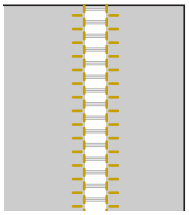


CAUTION

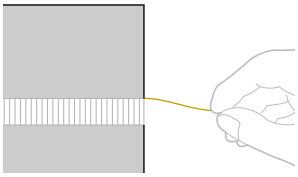
- **Select a stitch width of 6.0 mm (15/64 inch) or less, otherwise the needle may bend or break.**
- **After adjusting the stitch width, slowly turn the handwheel toward you (counterclockwise) and check that the needle does not touch the presser foot. If the needle hits the presser foot, the needle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

Partially removing threads is called "drawnwork". This gives a beautiful result with fabrics that have a loose weave.
Two ways to create drawnwork are described below.

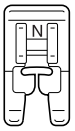
■ **Drawnwork (Example 1)**
The fabric is turned and sewn twice.



1 Pull out several threads from the fabric.



2 Attach monogramming foot "N".

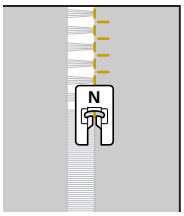


- For details, refer to "Replacing the presser foot" (page 33).

3 **Select stitch 31 .**

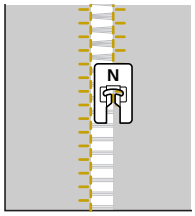
- For details, refer to “Selecting stitching” (page 56).

4 **With the right side of the fabric facing up, sew along the right edge of the frayed section.**

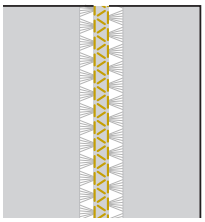


5 **Turn the fabric around to sew the opposite side.**

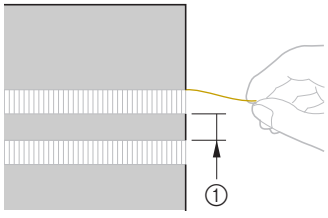
6 **Sew along the other edge of the frayed section so that it looks like the previous stitching.**



■ Drawnwork (Example 2)

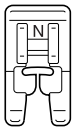


1 **Pull out several threads from two sections of the fabric, separated by an unfrayed section of about 4 mm (3/16 inch).**



① 4 mm (3/16 inch)

2 **Attach monogramming foot “N”.**

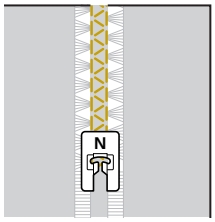


- For details, refer to “Replacing the presser foot” (page 33).

3 **Select stitch 34 .**

- For details, refer to “Selecting stitching” (page 56).

4 **Sew along the center of the unfrayed section.**



4 APPENDIX

The various maintenance and troubleshooting procedures are described in this chapter.

Stitch Settings **94**
- **Utility stitches** **94**

Care and Maintenance **100**
- **Cleaning the machine surface** **100**
- **Cleaning the race** **100**

Troubleshooting **102**
- **Error messages** **105**
- **Operation beep** **106**

Index **107**

Stitch Settings

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

Utility stitches

Stitch Name		Pattern	Presser Foot	Application	Stitch Width [mm (inch)]		Stitch Length [mm (inch)]		Twin Needle	Reverse/ Reinforcement Stitching	Walking Foot	Side cutter
					Auto	Manual	Auto	Manual				
Straight stitch	Left	00	J	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)	Reverse	No	Yes
	Center	01	J/I	Attaching zippers, basic stitching, 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)	Reverse	No	No
Triple stretch stitch		02	J	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)	Reinforcement	No	No
Stretch stitch		03	J	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)	Reinforcement	No	No
Zigzag stitch		04	J	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)	Reverse	No	No
3-point zigzag stitch		05	J	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)	Reinforcement	No	No
Overcasting stitch		06	G	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	Reinforcement	No	Yes
		07	G	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	Reinforcement	No	Yes
		08	G	Preventing fraying in thick fabrics and fabrics that fray easily	5.0 (3/16)	3.5–5.0 (1/8–3/16)	2.5 (3/32)	1.0–4.0 (1/16–3/16)	No	Reinforcement	No	Yes
		09	J	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)	Reinforcement	No	No
Blind hem stitch		10	R	Blind hem stitching on medium weight fabrics	00 (0)	-3 – 3-	2.0 (1/16)	1.0–3.5 (1/16–1/8)	No	Reinforcement	No	No
		11	R	Blind hem stitching on stretch fabrics	00 (0)	-3 – 3-	2.0 (1/16)	1.0–3.5 (1/16–1/8)	No	Reinforcement	No	No
Appliqué stitch		12	J	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)	Reinforcement	No	No
Shell tuck edge		13	J	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)	Reinforcement	No	No

Stitch Name	Pattern	Presser Foot	Application	Stitch Width [mm (inch)]		Stitch Length [mm (inch)]		Twin Needle	Reverse/ Reinforcement Stitching	Walking Foot	Side cutter
				Auto	Manual	Auto	Manual				
Piecing straight stitch	14 	J	Piecing straight stitching (with a seam allowance of 6.5 mm (1/4 inch) 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	Reinforcement	No	No
	15 	J	Piecing straight stitching (with a seam allowance of 6.5 mm (1/4 inch) 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	Reinforcement	Yes	No
Straight stitch that looks hand-sewn (for quilting)	16 	J	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	Reinforcement	No	No
Zigzag stitch (for quilting)	17 	J	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	Reinforcement	Yes	Yes
Appliqué stitch (for quilting)	18 	J	Attaching appliqués and binding	1.5 (1/16)	0.5–5.0 (1/32–3/16)	1.8 (1/16)	1.0–4.0 (1/16–3/16)	No	Reinforcement	No	No
	19 	J	Attaching appliqués and binding	1.5 (1/16)	0.5–5.0 (1/32–3/16)	1.8 (1/16)	1.0–4.0 (1/16–3/16)	No	Reinforcement	No	No
Quilting stitch (for stippling)	20 	J	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	Reinforcement	No	No
Satin scallop stitch	21 	N	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)	Reinforcement	No	No
Joining stitch	22 	J	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)	Reinforcement	No	No
	23 	J	Patchwork stitching, decorative stitching and sewing overcasting on both pieces of fabric, 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)	Reinforcement	No	No
	24 	J	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)	Reinforcement	No	No
Fagoting stitch	25 	J	Fagoting 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)	Reinforcement	No	No
	26 	J	Fagoting 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)	Reinforcement	No	No

Stitch Name	Pattern	Presser Foot	Application	Stitch Width [mm (inch)]		Stitch Length [mm (inch)]		Twin Needle	Reverse/ Reinforcement Stitching	Walking Foot	Side cutter
				Auto	Manual	Auto	Manual				
Ladder stitch	27 	J	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	Reinforcement	No	No
Rick-rack stitch	28 	J	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)	Reinforcement	No	No
Decorative stitch	29 	J	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)	Reinforcement	No	No
Serpentine stitch	30 	N	Decorative stitching and elastic-attaching	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)	Reinforcement	No	No
Hemstitching	31 	N	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	Reinforcement	No	No
	32 	N	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	Reinforcement	No	No
	33 	N	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	Reinforcement	No	No
	34 	N	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	Reinforcement	No	No
	35 	N	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	Reinforcement	No	No
	36 	N	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	Reinforcement	No	No
	37 	N	Decorative hemming, ribbon threading, heirloom stitching, etc.	5.0 (3/16)	1.5–7.0 (1/16–1/4)	3.0 (1/8)	1.5–4.0 (1/16–3/16)	No	Reinforcement	No	No
	38 	N	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	Reinforcement	No	No
	39 	N	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	Reinforcement	No	No

Stitch Name	Pattern	Presser Foot	Application	Stitch Width [mm (inch)]		Stitch Length [mm (inch)]		Twin Needle	Reverse/ Reinforcement Stitching	Walking Foot	Side cutter
				Auto	Manual	Auto	Manual				
Buttonhole stitch	40 	A	Horizontal buttonholes on thin and medium weight fabrics	5.0 (3/16)	3.0–5.0 (1/8–3/16)	0.4 (1/64)	0.2–1.0 (1/64–1/16)	No	Automatic reinforcement	No	No
	41 	A	Secured buttonholes for fabrics that have backings	5.0 (3/16)	3.0–5.0 (1/8–3/16)	0.4 (1/64)	0.2–1.0 (1/64–1/16)	No	Automatic reinforcement	No	No
	42 	A	Buttonholes for stretch or knit fabrics	6.0 (15/54)	3.0–6.0 (1/8–15/64)	1.0 (1/16)	0.5–2.0 (1/32–1/16)	No	Automatic reinforcement	No	No
	43 	A	Buttonholes for stretch fabrics	6.0 (15/54)	3.0–6.0 (1/8–15/64)	1.5 (1/16)	1.0–3.0 (1/16–1/8)	No	Automatic reinforcement	No	No
	44 	A	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	Automatic reinforcement	No	No
	45 	A	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	Automatic reinforcement	No	No
	46 	A	Horizontal 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	Automatic reinforcement	No	No
Bar tack stitch	47 	A	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	Automatic reinforcement	No	No
Button-sewing stitch	48 	M	Button sewing	3.5 (1/8)	2.5–4.5 (3/32–3/16)	–	–	No	Automatic reinforcement	No	No
Eyelet stitch	49 	N	Sewing eyelets, for example, on belts	7.0 (1/4)	7.0, 6.0, 5.0 (1/4, 15/64, 3/16)	–	–	No	Automatic reinforcement	No	No

Stitch Name	Pattern	Presser Foot	Application	Stitch Width [mm (inch)]		Stitch Length [mm (inch)]		Twin Needle	Reverse/ Reinforcement Stitching	Walking Foot	Side cutter
				Auto	Manual	Auto	Manual				
Decorative stitch	50 	N	For decoration, etc.	2.5 (3/32)	0.0–7.0 (0–1/4)	2.5 (3/32)	0.2–4.0 (1/64–3/16)	No	Reinforcement	No	No
	51 	N	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	Reinforcement	No	No
	52 	N	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	Reinforcement	No	No
	53 	N	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	Reinforcement	No	No
	54 	N	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	Reinforcement	No	No
	55 	N	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	Reinforcement	No	No
	56 	N	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	Reinforcement	No	No
	57 	N	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	Reinforcement	No	No
	58 	N	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	Reinforcement	No	No
	59 	N	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	Reinforcement	No	No
	60 	N	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	Reinforcement	No	No
	61 	N	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	Reinforcement	No	No
	62 	N	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	Reinforcement	No	No
	63 	N	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	Reinforcement	No	No
	64 	N	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	Reinforcement	No	No
	65 	N	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	Reinforcement	No	No
	66 	N	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	Reinforcement	No	No

Stitch Name	Pattern	Presser Foot	Application	Stitch Width [mm (inch)]		Stitch Length [mm (inch)]		Twin Needle	Reverse/ Reinforcement Stitching	Walking Foot	Side cutter
				Auto	Manual	Auto	Manual				
Satin stitches	67 	N	For decoration, etc.	7.0 (1/4)	2.5–7.0 (3/32–1/4)	0.4 (1/64)	0.1–1.0 (1/64–1/16)	Yes (J)	Reinforcement	No	No
	68 	N	For decoration, etc.	7.0 (1/4)	2.5–7.0 (3/32–1/4)	0.4 (1/64)	0.1–1.0 (1/64–1/16)	Yes (J)	Reinforcement	No	No
	69 	N	For decoration, etc.	7.0 (1/4)	2.5–7.0 (3/32–1/4)	0.4 (1/64)	0.1–1.0 (1/64–1/16)	Yes (J)	Reinforcement	No	No
	70 	N	For decoration, etc.	7.0 (1/4)	2.5–7.0 (3/32–1/4)	0.4 (1/64)	0.1–1.0 (1/64–1/16)	Yes (J)	Reinforcement	No	No
	71 	N	For decoration, etc.	7.0 (1/4)	2.5–7.0 (3/32–1/4)	0.4 (1/64)	0.1–1.0 (1/64–1/16)	Yes (J)	Reinforcement	No	No
	72 	N	For decoration, etc.	7.0 (1/4)	2.5–7.0 (3/32–1/4)	0.4 (1/64)	0.1–1.0 (1/64–1/16)	Yes (J)	Reinforcement	No	No
	73 	N	For decoration, etc.	7.0 (1/4)	2.5–7.0 (3/32–1/4)	0.4 (1/64)	0.1–1.0 (1/64–1/16)	Yes (J)	Reinforcement	No	No
	74 	N	For decoration, etc.	7.0 (1/4)	2.5–7.0 (3/32–1/4)	0.4 (1/64)	0.1–1.0 (1/64–1/16)	Yes (J)	Reinforcement	No	No
Cross stitch	75 	N	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	Reinforcement	No	No
	76 	N	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	Reinforcement	No	No
	77 	N	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	Reinforcement	No	No
	78 	N	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	Reinforcement	No	No
	79 	N	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	Reinforcement	No	No

Care and Maintenance

Simple sewing machine maintenance operations are described below.

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.

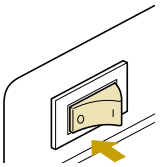
CAUTION

- **Unplug the power 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 bobbin case; therefore, it should be cleaned periodically.

1. **Turn off the sewing machine.**

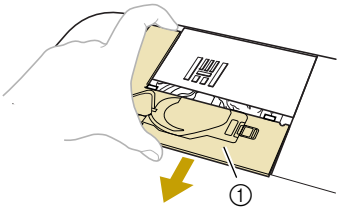


2. **Unplug the power cord from the power supply jack on the right side of the sewing machine.**

CAUTION

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

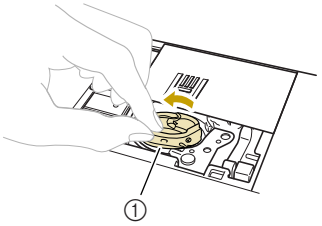
3. **Remove the flat bed attachment.**
4. **Grasp both sides of the needle plate cover, and then slide it toward you.**



① Needle plate cover

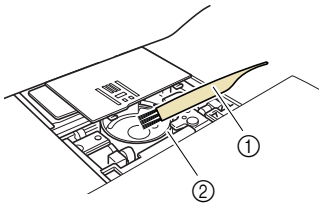
▶ The needle plate cover is removed.

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



① Bobbin case

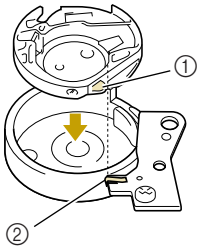
6 **Use the cleaning brush or a vacuum cleaner to remove any lint and dust from the race and its surrounding area.**

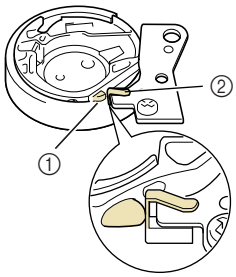


① Cleaning brush
② Race

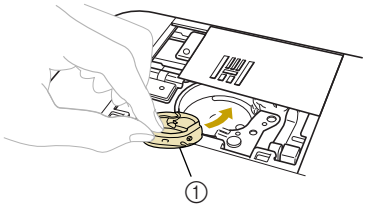
- Do not apply oil to the bobbin case.

7 **Insert the bobbin case so that the projection on the bobbin case aligns with the spring.**



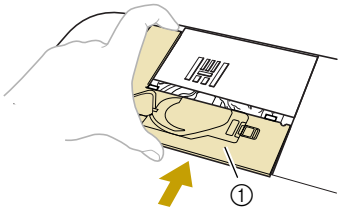


① Projection
② Spring



① Bobbin case

8 **Insert the tabs on the needle plate cover into the needle plate, and then slide the cover back on.**



① Needle plate cover

9 **Install the flat bed attachment in its original position.**

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: XC3153-151), contact your nearest authorized service center.**
- **Be sure that the bobbin case is correctly installed, otherwise the needle may break.**

Troubleshooting

If the machine stops operating correctly, check the following possible problems before requesting service.
If the problem persists, contact your retailer or the nearest authorized service center.

Symptom	Probable Cause	Remedy	Reference
The sewing machine does not operate.	The machine is not turned on.	Turn on the machine.	page 15
	The “Start/Stop” button was not pressed.	Press the “Start/Stop” button.	page 42
	The presser foot lever is raised.	Lower the presser foot lever.	–
	The “Start/Stop” button was pressed, even though the foot controller is connected.	Do not use the “Start/Stop” button when the foot controller is connected. To use the “Start/Stop” button, disconnect the foot controller.	page 42
The needle breaks.	The needle is incorrectly installed.	Correctly install the needle.	page 32
	The needle clamp screw is loose.	Use the screwdriver to firmly tighten the screw.	
	The needle is bent or blunt.	Replace the needle.	
	The combination of fabric, thread and needle is not correct.	Select a thread and needle that are appropriate for the type of fabric being sewn.	page 30
	The presser foot that is used is not appropriate for the type of stitch that you wish to sew.	Attach the presser foot that is appropriate for the type of stitch that you wish to sew.	page 94
	The upper thread tension is too tight.	Loosen the upper thread tension.	page 46
	The fabric is pulled too much.	Lightly guide the fabric.	–
	The spool is incorrectly installed.	Correctly install the spool.	page 22
	The area around the hole in the needle plate is scratched, or has a burr on it.	Replace the needle plate. Contact your retailer or the nearest authorized service center.	–
	The area around the hole in the presser foot is scratched, or has a burr on it.	Replace the presser foot. Contact your retailer or the nearest authorized service center.	–
	The bobbin case is scratched, or has a burr on it.	Replace the bobbin case. Contact your retailer or the nearest authorized service center.	–
	A bobbin designed specifically for this machine is not used.	Incorrect bobbins will not work properly. Only use a bobbin designed specifically for this machine.	page 16

Symptom	Probable Cause	Remedy	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.	page 22
	There are knots or tangles in the thread.	Remove any knots or tangles.	–
	The selected needle is not appropriate for the thread being used.	Select a needle that is appropriate for the type of thread being used.	page 30
	The upper thread tension is too tight.	Loosen the upper thread tension.	page 46
	The thread is tangled, for example, in the bobbin case.	Remove the tangle thread. If the thread is tangled in the bobbin case, clean the race.	page 100
	The needle is bent or blunt.	Replace the needle.	page 32
	The needle is incorrectly installed.	Correctly install the needle.	
	The area around the hole in the needle plate is scratched, or has a burr on it.	Replace the needle plate. Contact your retailer or the nearest authorized service center.	–
	The area around the hole in the presser foot is scratched, or has a burr on it.	Replace the presser foot. Contact your retailer or the nearest authorized service center.	–
	The bobbin case is scratched, or has a burr on it.	Replace the bobbin case. Contact your retailer or the nearest authorized service center.	–
	A bobbin designed specifically for this machine is not used.	Incorrect bobbins will not work properly. Only use a bobbin designed specifically for this machine.	page 16
The lower thread is tangled or breaks.	The bobbin thread is incorrectly installed.	Correctly install the bobbin thread.	page 20
	The bobbin is scratched or does not rotate smoothly, or has a burr on it.	Replace the bobbin.	–
	The thread is tangled.	Remove the tangled thread and clean the race.	page 100
	A bobbin designed specifically for this machine is not used.	Incorrect bobbins will not work properly. Only use a bobbin designed specifically for this machine.	page 16
The thread tension is incorrect.	The upper thread was not threaded correctly.	Correct the upper threading.	page 22
	The bobbin thread is incorrectly installed.	Correctly install the bobbin thread.	page 20
	The combination of fabric, thread and needle is not correct.	Select a thread and needle that are appropriate for the type of fabric being sewn.	page 30
	The presser foot holder is incorrectly installed.	Correctly install the presser foot holder.	page 35
	The thread tension is incorrect.	Adjust the tension of the upper thread.	page 46
	A bobbin designed specifically for this machine is not used.	Incorrect bobbins will not work properly. Only use a bobbin designed specifically for this machine.	page 16

Symptom	Probable Cause	Remedy	Reference
The fabric is wrinkled.	The upper thread was not threaded correctly, or the bobbin is incorrectly installed.	Correctly thread the upper thread and correctly install the bobbin thread.	page 20, 22
	The spool is incorrectly installed.	Correctly install the spool.	page 22
	The combination of fabric, thread and needle is not correct.	Select a thread and needle that are appropriate for the type of fabric being sewn.	page 30
	The needle is bent or blunt.	Replace the needle.	page 32
	If thin fabrics are being sewn, the stitch is too long.	Shorten the stitch length or sew with stabilizer material under the fabric.	page 48
	The thread tension is incorrect.	Adjust the tension of the upper thread.	page 46
Stitches are skipped.	The upper thread was not threaded correctly.	Correct the upper threading.	page 22
	The combination of fabric, thread and needle is not correct.	Select a thread and needle that are appropriate for the type of fabric being sewn.	page 30
	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 bobbin case.	Remove the needle plate cover and clean the race.	page 100
A high-pitched noise is made while sewing.	Dust has accumulated in the feed dogs or in the bobbin case.	Clean the race.	page 100
	The upper thread was not threaded correctly.	Correct the upper threading.	page 22
	The bobbin case is scratched, or has a burr on it.	Replace the bobbin case. Contact your retailer or the nearest authorized service center.	–
	A bobbin designed specifically for this machine is not used.	Incorrect bobbins will not work properly. Only use a bobbin designed specifically for this machine.	page 16
The needle threader cannot be used.	The needle has not been raised to the correct position.	Press the “Needle Position” button.	page 25
	The needle is incorrectly installed.	Correctly install the needle.	page 32
The stitch is not sewn correctly.	The presser foot that is used is not appropriate for the type of stitch that you wish to sew.	Attach the presser foot that is appropriate for the type of stitch that you wish to sew.	page 94
	The thread tension is incorrect.	Adjust the tension of the upper thread.	page 46
	The thread is tangled, for example, in the bobbin case.	Remove the tangle thread. If the thread is tangled in the bobbin case, clean the race.	page 100

Symptom	Probable Cause	Remedy	Reference
The fabric does not feed.	The feed dogs are lowered.	Slide the drop feed lever to the right (as seen from the rear of the machine).	page 69, 82
	The stitch is too short.	Lengthen the stitch length.	page 48
	The presser foot that is used is not appropriate for the type of stitch that you wish to sew.	Attach the presser foot that is appropriate for the type of stitch that you wish to sew.	page 94
	The pressure of the presser foot is weak.	Turn the presser foot pressure dial to the left to increase the pressure of the presser foot.	page 34
	The thread is tangled, for example, in the bobbin case.	Remove the tangle thread. If the thread is tangled in the bobbin case, clean the race.	page 100
The sewing lamp does not come on.	The sewing lamp is damaged.	Contact your retailer or the nearest authorized service center.	–

Error messages

If (START/STOP) / (↑) ("Start/Stop" button) is pressed before the sewing machine is correctly set up or if an operation is performed incorrectly, an error message appears in the stitch indicator. Follow the instructions that appear. The message may disappear if the operation is performed correctly. The message will disappear if ▲ or ▼ (Stitch selection keys) is pressed while the message is displayed.

Error Message	Probable Cause
E 1	The "Start/Stop" button or "Reverse/Reinforcement Stitch" button was pressed while the presser foot was raised.
E2	A stitch other than the buttonhole or bar tack stitch was selected and the "Start/Stop" button was pressed while the buttonhole lever is lowered.
E3	The buttonhole or bar tack stitch was selected and the "Start/Stop" button was pressed while the buttonhole lever is raised.
E4	The "Reverse/Reinforcement Stitch" button or "Needle Position" button was pressed while the bobbin winder is moved to the right.
E5	The "Start/Stop" button was pressed while the foot controller was connected.
E6	The motor locked up because the thread is tangled.
E7	The needle mode selection key was pressed while a stitch that cannot be used with twin needle sewing was selected.
E8	You tried to select a different stitch while the twin needle sewing setting was selected (the key is lit).

Operation beep

Each time a key is pressed or an incorrect operation is performed, a beep is sounded.

- **For a correct operation**
  One beep is sounded.
- **If an incorrect operation is performed**
  Two or four beeps are sounded.
- **If the machine locks up, for example, because the thread is tangled**
  The sewing machine continues to beep for four seconds. 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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