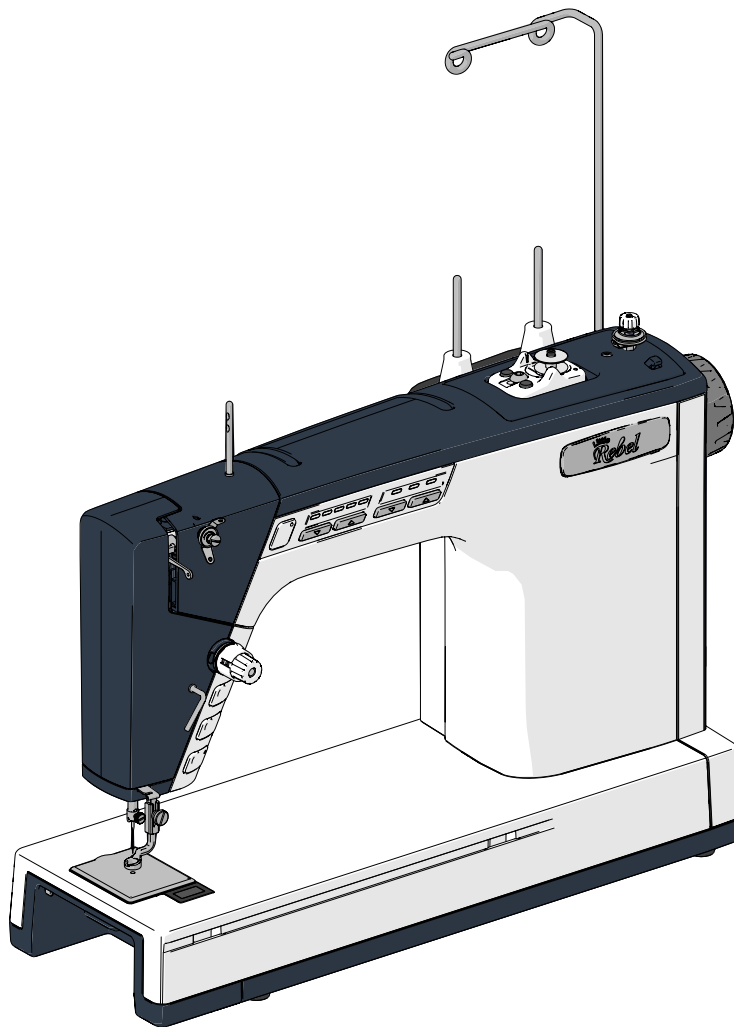


Little *Rebel*

Instruction Manual



Grace
COMPANY

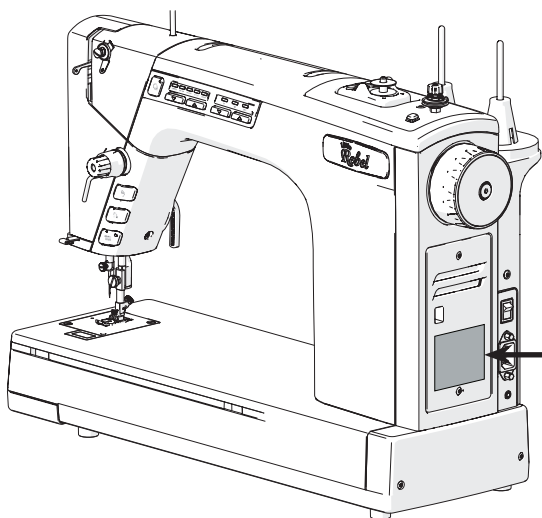
My Machine Details

Use this page to write down some information about your machine. This will be helpful if you ever need to call a Grace Company support technician.

Machine: Little Rebel

Date of Purchase: _____

Serial Number: _____



Find your serial number on the silver sticker on the back of the machine.

Quilting Frame (if applicable): _____

Accessories Owned:

Quilter's Creative Touch (QuiltMotion)

G-Series 2 Top Plate

Gracie Laser

Ruler Base

Magnifying Glass

Quilt Perfect Ruler Feet Kit

360 Wonderfoot

3-Piece Q'nique Hopping Foot Set

9-Piece Foot Attachment Set

Important Safeguards

When using an electrical appliance, basic safety precautions should always be followed, including the following.

DANGER - To reduce the risk of electric shock, do not leave the machine unattended when plugged in. Always unplug this machine from the electric outlet immediately after using and before cleaning.

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

- This appliance is not to be used 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 in a safe way and understand the hazards involved.
- Children should be supervised to ensure that they do not play with the appliance. Children shall not play with the appliance.
- Cleaning and user maintenance shall not be made by children without supervision.
- Use this machine only for its intended use as described in this manual. Use only attachments recommended by the manufacturer as contained within this manual.
- Never operate this machine if it has a damaged cord or plug, it is not working properly, or it has been dropped, damaged, or dropped into water. Return the machine to the nearest authorized dealer or service center for examination, repair, or electrical or mechanical adjustment.
- Never operate the machine with any air openings blocked. Keep ventilation openings of the machine free from the accumulation of lint, dust, and loose cloth.
- Never drop or insert any object into any opening.
- The appliance is intended for indoor use only. Do not use outdoors.
- Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
- Connect this appliance to a properly grounded outlet only. See grounding instructions on next page.
- To disconnect, turn all controls to the off position, then remove the plug from the outlet by grasping the plug. Do not pull on cord. Always switch off or unplug the appliance when leaving it unattended.
- Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- Keep fingers away from all moving parts. Special care is required around the machine needle.
- Always use the proper needle plate. The wrong plate can cause the needle to break.
- Do not use bent or damaged needles.
- Switch the machine off when making any adjustments in the needle area, such as threading the needle, changing the needle, installing the hopping foot or presser foot holder, etc.
- Always unplug the machine from the electrical outlet when removing covers, lubricating, or when making any other user servicing adjustments mentioned in the instruction manual.
- CAUTION: In order to avoid a hazard due to inadvertent resetting of the thermal cut-out, this appliance must not be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility.

If using this machine in an area with inconsistent input power, it is recommended the surge protector is connected to a backup battery supply.

In the instructions for electric sets shall indicate the sewing machine for which intended and how to be installed.

Save these instructions. Do not discard box or packaging.

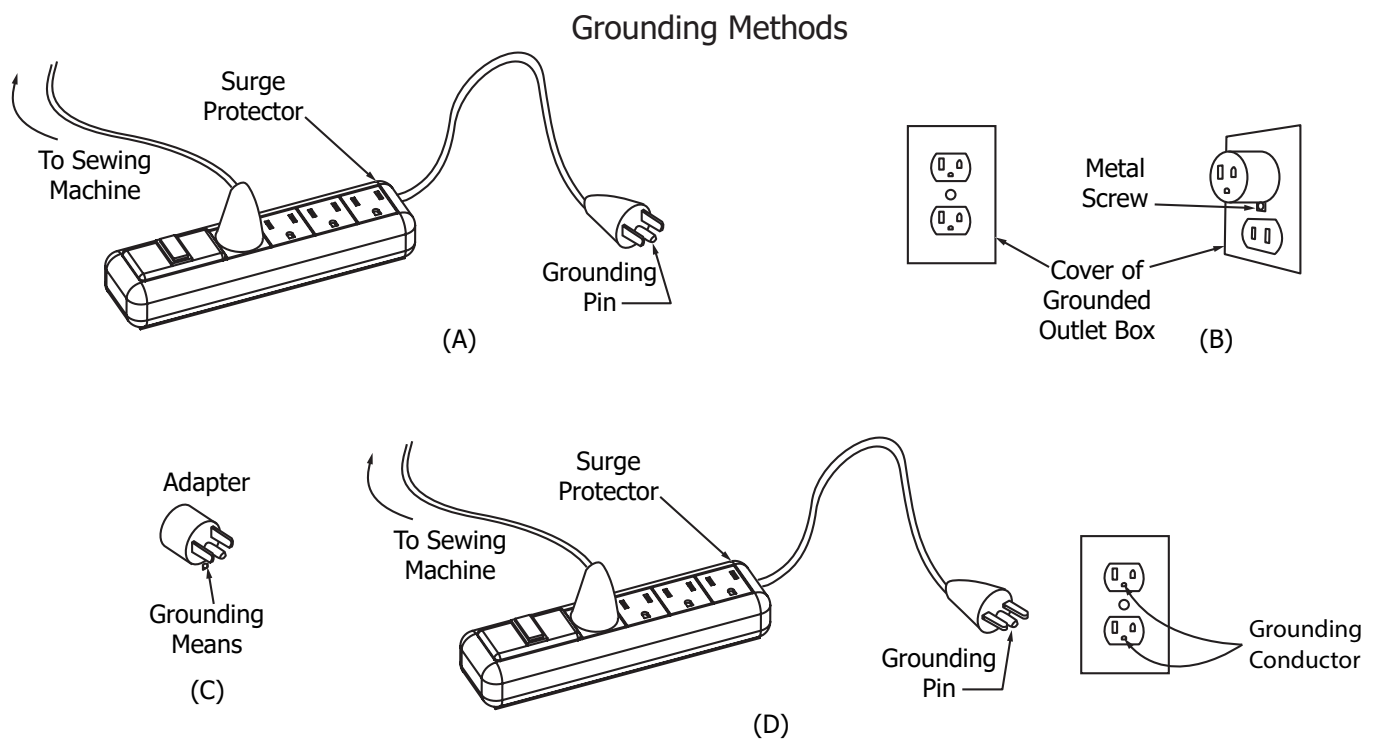
Important Safeguards (continued)

GROUNDING INSTRUCTIONS

This product must be grounded. In the event of malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with a cord that has an equipment-grounding conductor and a grounding plug. Plug the cord from the quilting machine into a surge protector. The surge protector must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

DANGER - Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green, with or without yellow stripes, is the equipment-grounding conductor. If repair or replacement of the cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal. Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if in doubt as to whether the product is properly grounded.

Do not modify the plug provided with the product - if it will not fit the outlet, have a proper outlet installed by a qualified electrician.



This product is for use on a nominal 120 V circuit, and has a grounding pin as illustrated above (A). A temporary adapter, shown in (B) and (C), may be used to connect this plug to a 2-pole receptacle (B) if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet can be installed by a qualified electrician. The green colored rigid ear, lug, and the like, extending from the adapter must be connected to a permanent ground such as a properly grounded outlet box cover. Whenever the adapter is used, it must be held in place by the metal screw.

A qualified electrician should be consulted if there is any doubt as to whether an outlet box is properly grounded.

Warranty Information

The Little Rebel has a two-year limited warranty on all parts and a five-year limited warranty on its cast metal body. Under these warranties, Grace Company will at its discretion repair or replace any part(s) with material or manufacturing defect. The customer is required to return the product to Grace Company in its original box. If the customer does not have their original sewing machine box, they will need to buy a box from Grace Company to return their machine in. The customer is responsible for all shipping costs. Upon receipt of the product, Grace Company will determine whether to repair or replace the defective product or part(s). These warranties do not cover parts that are damaged through misuse, improper storage, improper assembly, loss, natural events, or willful destruction.

All customers requesting support will be required to provide a proof of purchase and registration if no warranty card is present and applicable. Grace Company product warranties are still valid if bought from an authorized Grace Company dealer. Grace Company is not subject to dealer warranties. Warranties do not transfer over to a secondary owner.

For more warranty and registration information, visit the following link:

graceframe.com/en/warranty/info



Welcome to Your Little Rebel

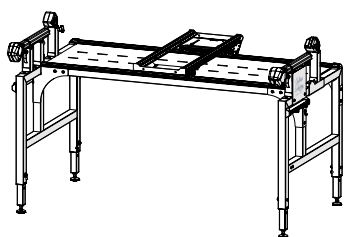
We are pleased to introduce you to the newest part of your quilting setup. This machine has been specially designed to help you create quality sewing and quilting projects.

If you purchased any other Grace Company products with your Little Rebel, assemble those products first in the order shown in the flowchart below. Directions at the end of every section will tell you which section of which instruction manual to turn to next. Skip any sections for products that you are not assembling. When finished, return to this instruction manual and complete "First-Time Setup" for the Little Rebel, beginning on page 1.

Thank you again for choosing us to help with your sewing and quilting projects.

- Grace Company

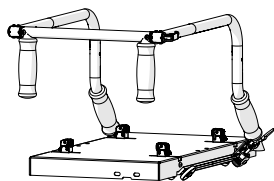
Note: In other manuals, **follow all directions for "domestic" and "wheel-less" machines.** Directions for "wheeled quilting machines" do not apply to the Little Rebel.



★ START HERE ★

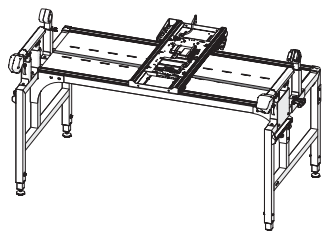
Frame Manual: Part One

- Assemble the frame tracks and sides.
- Align the frame tracks.
- Install a channel lock on the bottom carriage, if applicable.



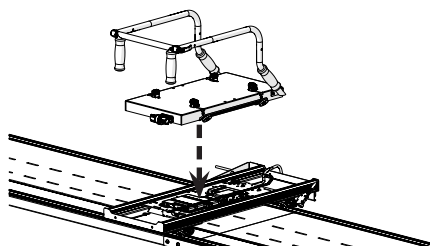
Top Plate Manual

- Assemble the top plate.



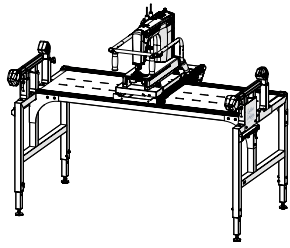
QCT Manual: Part One

- Install the sewing board.
- Install the motor plate.
- Prepare the bottom carriage.
- Install and tension the long belt.



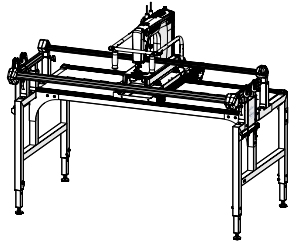
QCT Manual: Part Two

- Install and tension the short belt.



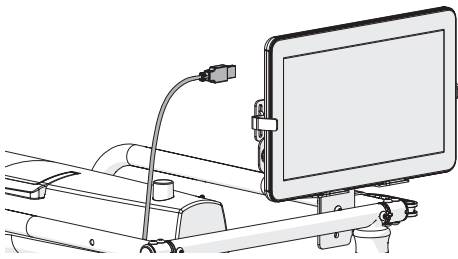
Frame Manual: Part Two

- Place the machine on the top plate.
- Install a channel lock on the top plate, if applicable.



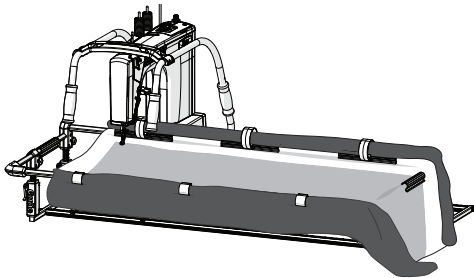
Frame Manual: Part Three

- Install and adjust the rails.
- Adjust the carriage stop, if applicable.
- Level the frame, if applicable.



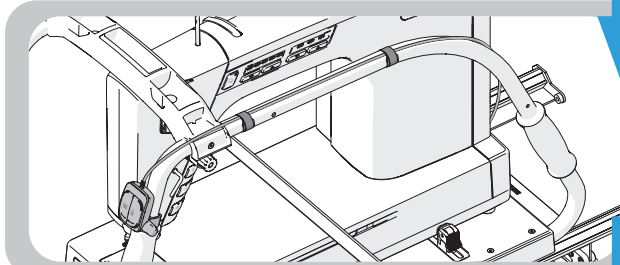
QCT Manual: Part Three

- Install the tablet tray.
- Attach and manage the cables.
- Install and register the QCT software.



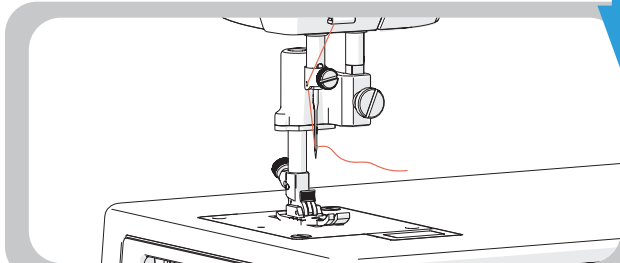
Frame Manual: Part Four

- Install the cloth leaders, if applicable.
- Optional: Build a quilt sandwich and attach it to the frame.



Little Rebel: First-Time Setup

- Attach the thread mast.
- Lower the take-up rail.
- Attach the stitch controller to the top plate.
- Plug in the machine.



Little Rebel: Preparing to Stitch

- Wind a bobbin and load the bobbin case.
- Thread the machine.
- Balance the top thread tension with the bottom thread tension.

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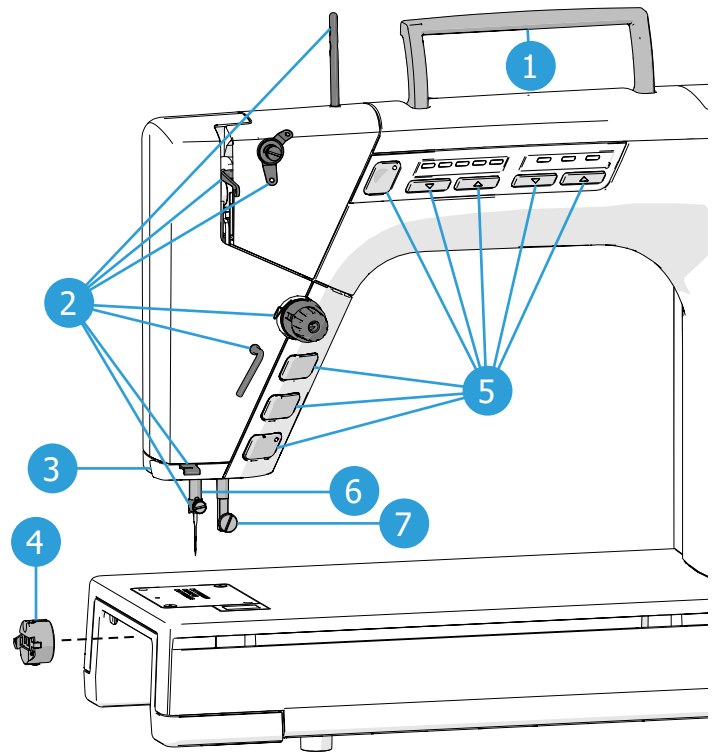
For more Little Rebel resources, visit lead.me/littlerebel or scan this QR code with your smartphone camera:



Machine Layout

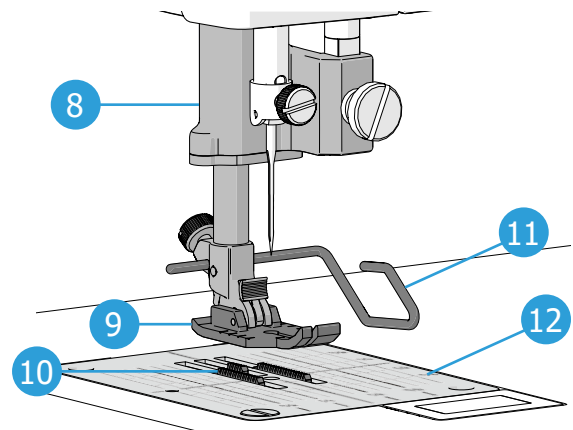
- 1 **Carrying Handle** (page 42, page 47)
For safely lifting the machine.
- 2 **Thread Guides and Tensioners** (page 17)
See page 17 for detailed layout.
- 3 **Thread Cutter** (page 17)
Cuts excess thread from the needle area.
- 4 **Bobbin Case** (page 13)
Holds the wound bobbin.
- 5 **Buttons** (page ix)
See page ix for detailed layout.
- 6 **Needle Bar** (page 15)
Moves the needle.
- 7 **Presser Bar** (page 24, page 33)
Moves the currently installed foot.

Main View



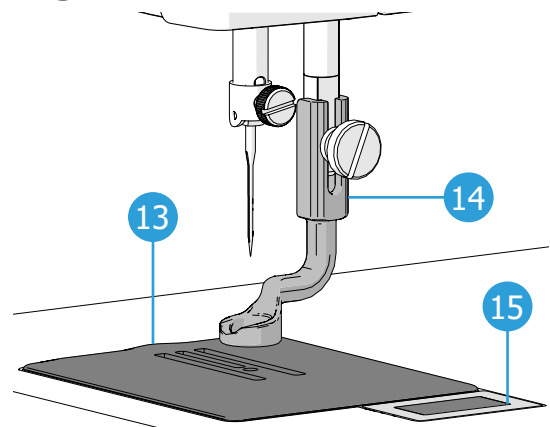
- 8 **Presser Foot Holder** (page 24)
Holds the presser foot.
- 9 **Presser Foot** (page 27, page 29)
Presses down on the fabric while sewing.
- 10 **Feed Dogs** (page 29)
Feed the fabric under the presser foot.
- 11 **Seam Guide** (page 28)
Adjustable guide for seam allowance.
- 12 **Needle Plate w/ Markings** (page 28)
Plate with etched-in measurements.

Sewing Mode View



- 13 **Quilting Plate** (page 33)
Covers the needle plate while quilting.
- 14 **Hopping Foot** (page 33, page 50)
Presses down on the fabric while quilting.
- 15 **Fabric Sensor** (page 39, page 40)
Detects fabric for stitch regulation.

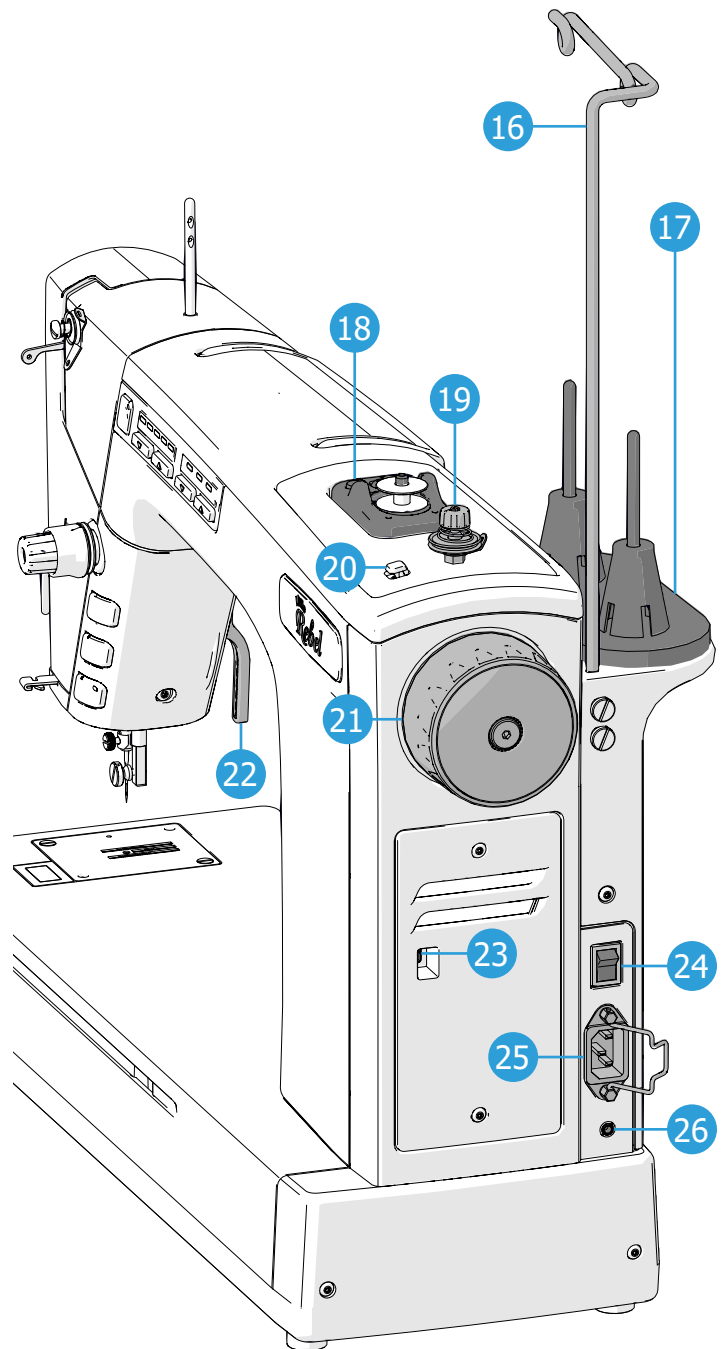
Quilting Mode View



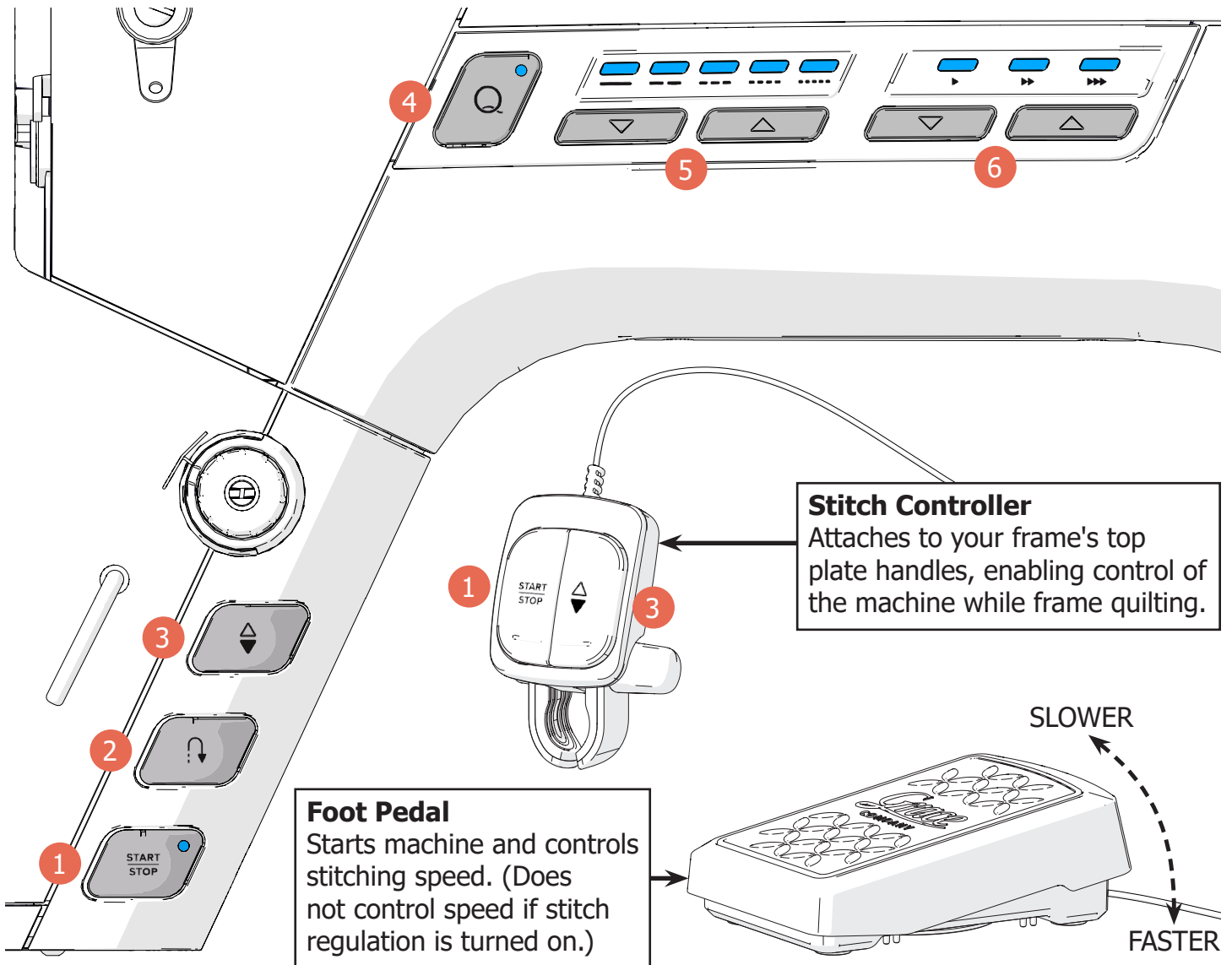
Machine Layout (continued)

- 16 Thread Mast** (page 10, page 17)
Guide for threading and bobbin winding.
- 17 Thread Stand** (page 10, page 17)
Holds two thread cones or spools.
- 18 Bobbin Winder** (page 10, page 67)
Winds bobbins. Stops automatically.
- 19 Bobbin Thread Tensioner** (page 10)
Tensioner for bobbin winding.
- 20 Thread Cutter** (page 10)
Cuts excess thread from the bobbin winder.
- 21 Hand Wheel** (page 29)
Raises and lowers the needle.
- 22 Presser Bar Lever** (page 27, page 29)
Lifts the presser bar.
- 23 USB-C Port**
For QCT (automation accessory) attachment.
- 24 Power Switch** (page 7)
Turns the machine on/off.
- 25 Power Port w/ Retainer** (page 7)
Securely connects power cord to machine.
- 26 Accessory Port** (page 24, page 33)
For foot pedal or stitch controller cable.

Rear View



Buttons and Controls



Stitch Controller
Attaches to your frame's top plate handles, enabling control of the machine while frame quilting.

Foot Pedal
Starts machine and controls stitching speed. (Does not control speed if stitch regulation is turned on.)

- 1 Start/Stop Button**
Press to start stitching at the current speed setting. Press again to stop stitching. (Disabled while foot pedal is plugged in.)
- 2 Backstitch Button**
Press once to make a few stitches in reverse. Press and hold to stitch in reverse for as long as the button is held. (Disabled while in Quilting Mode.)
- 3 Needle Up/Down Button**
Press once to do a half stitch. Press twice to do a full stitch. Press and hold to change the default needle stop position (up or down).
- 4 Q Button**
Press to turn on/off stitch regulation with the fabric sensor. (Disabled while in Sewing Mode.)
- 5 Stitch Length Buttons**
Press to adjust the stitches-per-inch (SPI) setting. A higher setting makes smaller stitches. (Disabled while in Quilting Mode with stitch regulation turned off.)
- 6 Speed Buttons**
Press to adjust the stitching speed, or the maximum stitching speed if the foot pedal is plugged in. (Disabled while in Quilting Mode with stitch regulation turned on.)

Included Parts and Tools

Foot Pedal



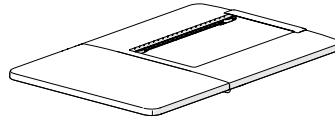
SMP-09-17957

Thread Mast



SMP-04-17686

Extension Table



SMP-09-17684

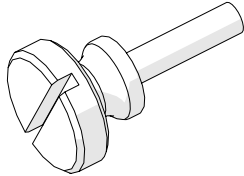
Installation Box

Power Cord



SMP-02-10845

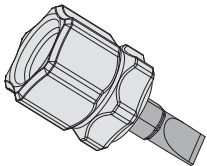
**Thread Mast Screw
(x2) (+ x1 spare)**



HDW-03-17896

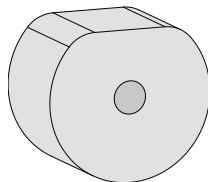
Tool Box

**Flat Head
Screwdriver**



SMP-03-10169

Timing Spacer



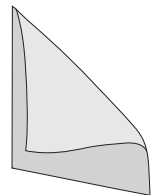
SMP-03-11320

Oil Bottle



SMP-08-17820

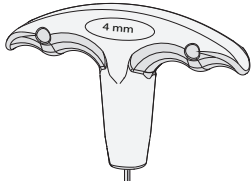
Alcohol Wipe



SMP-06-17977

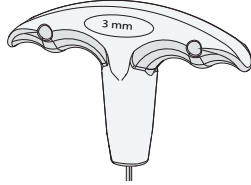
Tool Box (continued)

T-handle Allen Wrench 4 mm



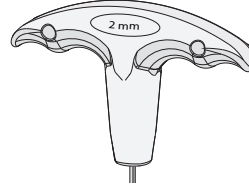
HDW-03-13114

T-handle Allen Wrench 3 mm



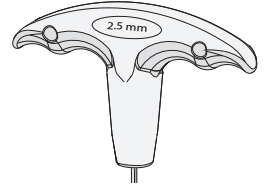
HDW-03-13115

T-handle Allen Wrench 2 mm



HDW-03-13117

T-handle Allen Wrench 2.5 mm



HDW-03-13116

Note: Some included tools are not needed for the assembly or use of your machine, but they may come in handy if you ever need to replace any parts.

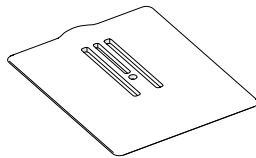
Accessory Box

Stitch Controller



SMP-09-17978

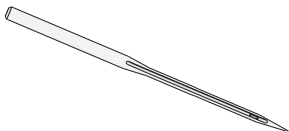
Quilting Plate



SMP-04-17682

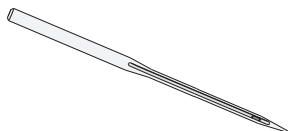
Misc. Container (inside Accessory Box)

**Needle 10-Pack
Size 18-110**



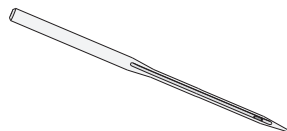
ACC-01-14517

**Needle 10-Pack
Size 16-100**



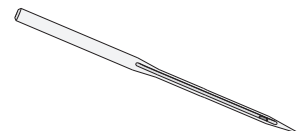
ACC-01-14516

**Needle 10-Pack
Size 14-90**



ACC-01-14518

**Needle 10-Pack
Size 12-80**

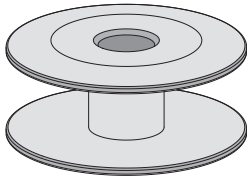


ACC-01-17898

Included Parts and Tools (continued)

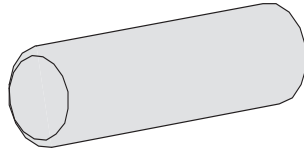
Misc. Container (continued)

M-Class Bobbin



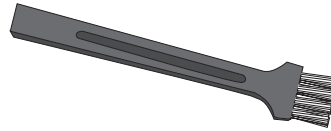
SMP-08-10070

Needle Magnet



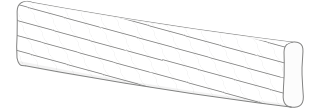
SMP-09-13837

Lint Brush



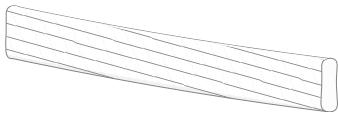
SMP-03-10170

Thread Net 10 cm



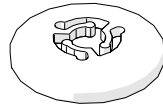
SMP-08-17271

Thread Net 14 cm



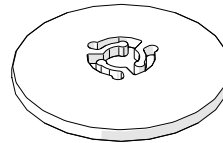
SMP-08-17313

Spool Cap (small)



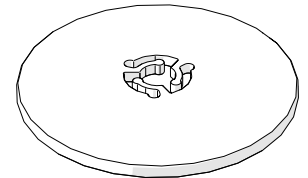
ACC-05-17894

Spool Cap (medium)



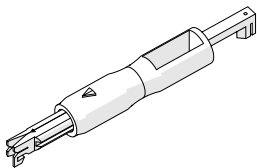
ACC-05-12413

Spool Cap (large)



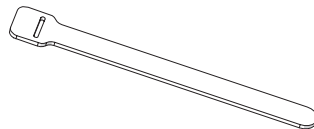
ACC-05-17895

Needle Threader



SMP-08-17904

Velcro Cable Tie (x4)



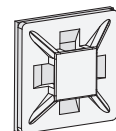
SSE-08-15000

Zip Tie (x2)



MIS-08-10804

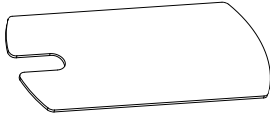
Zip Tie Mount (x2)



MIS-08-10805

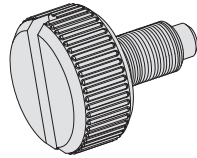
Included Parts and Tools (continued)

**Hopping Foot
Height Tool**



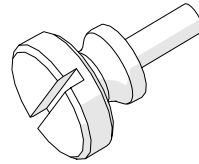
SMP-03-12171

**Thumb Screw M3
(needle bar spare)**



HDW-03-11736

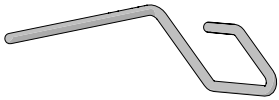
**Foot Screw
(presser bar spare)**



HDW-03-17660

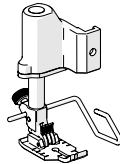
Foot Storage Container (inside Accessory Box)

Seam Guide



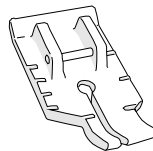
HDW-03-17905

**Presser Foot Holder
(pre-installed)**



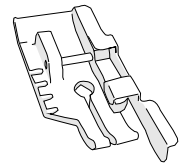
SMP-09-17661

**Quilter Foot
(pre-installed)**



SMP-04-17910

**Quilter Foot w/
Edge Guide**



SMP-04-17911

Zipper Foot



SMP-04-17912

Straight-Stitch Foot



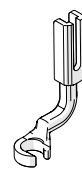
SMP-04-17913

**Standard
Hopping Foot**



SMP-04-10057

**Sit Down
Quilting Foot**



SMP-04-18028

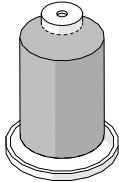
Included Parts and Tools (continued)

Machine Training Panel Kit

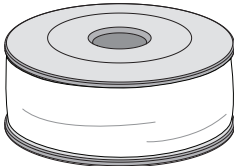
**Sewing Machine
Training Panel**



**Finesse
Thread Cone (x3)**



**M-Class Bobbin
(pre-wound, x2)**



First-Time Setup

Attaching the Thread Mast	2
Preparing Your Frame	3
Turning the Machine On/Off	7

Attaching the Thread Mast

Parts & Tools Needed

Thread Mast



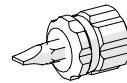
Main Packaging

**Thumb Screw
M3 x 12 mm (x2)**



Installation Box

**Flat Head
Screwdriver**



Tool Box

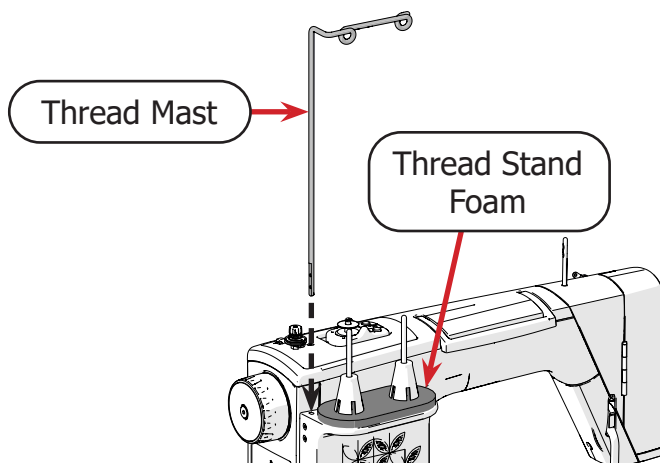
WARNING

Do not discard the product packaging.

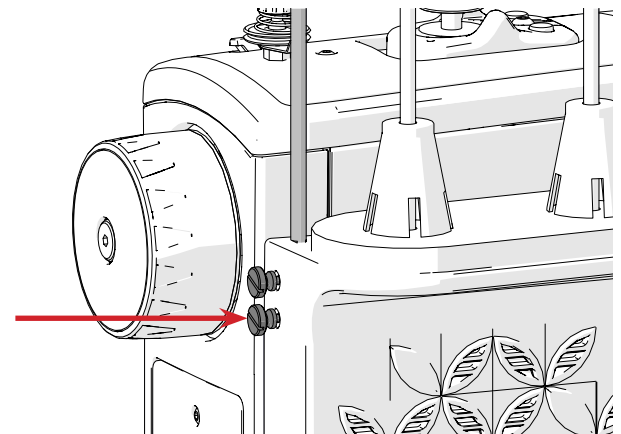
Instructions

Take the following steps to attach the thread mast to the machine:

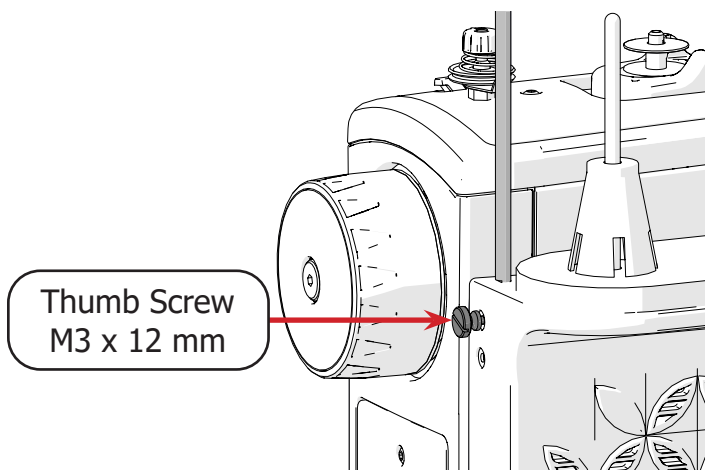
- 1 Insert the **thread mast** into the hole in the back of the machine, behind the **thread stand foam**.



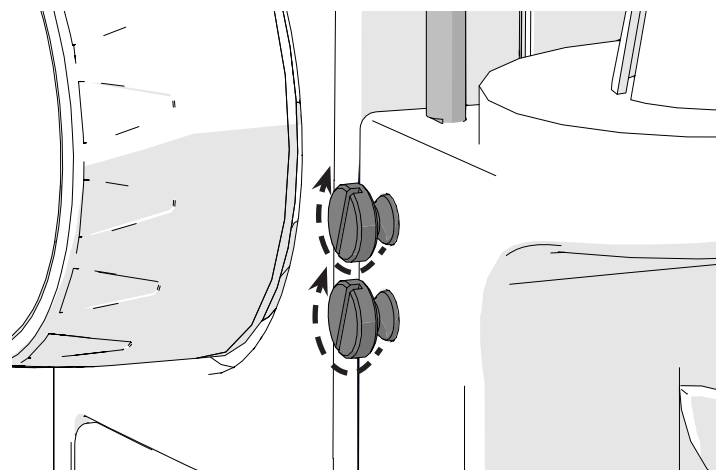
- 3 Loosely install the other thumb screw in the bottom screw hole. If the thread mast is not standing straight up, remove both screws and return to step 2.



- 2 Hold the thread mast in place and loosely install one **M3 x 12 mm thumb screw** in the top screw hole. Do not tighten.



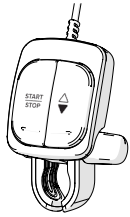
- 4 Tighten both thumb screws, starting with the top screw. For the most secure installation, use the flat head screwdriver.



Preparing Your Frame

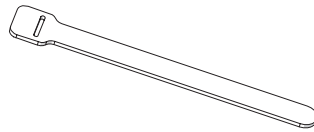
Parts & Tools Needed

**Stitch
Controller**



Accessory Box

**Velcro
Cable Tie (x4)**



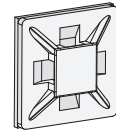
Misc. Container

Zip Tie (x2)



Misc. Container

**Zip Tie
Mount (x2)**



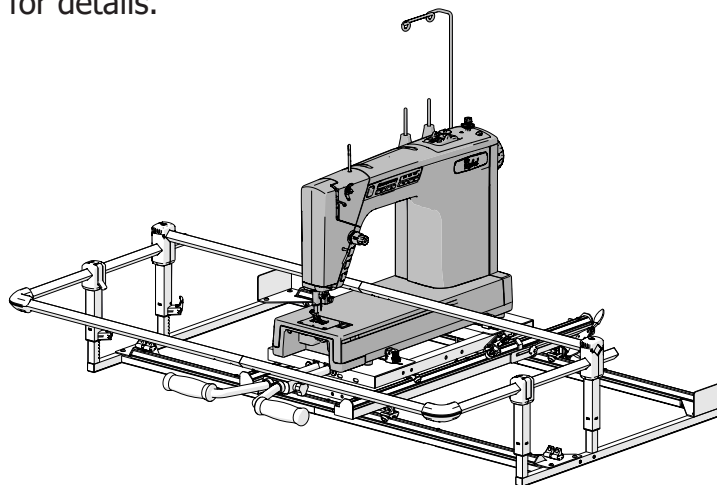
Misc. Container

Instructions

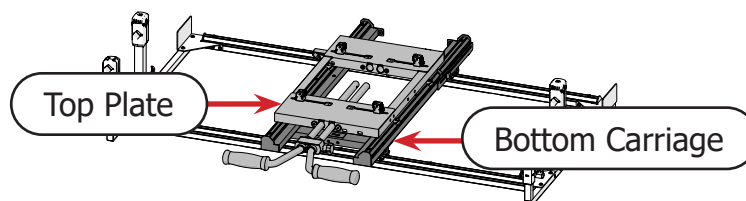
The Little Rebel has been designed to quilt with or without a quilting frame.

- **If you do not own a quilting frame**, skip this task. Turn to page 7 and complete the steps for "Turning the Machine On/Off."
- **If you own a quilting frame**, take the following steps to prepare your frame for use with the Little Rebel. **Note:** Before you can quilt on the frame, you will also need to switch the machine to Quilting Mode. For more information, see "Quilting Mode" on page 32.

- 1 If you have not done so already, place the Little Rebel on the frame. See your frame or top plate instruction manual for details.



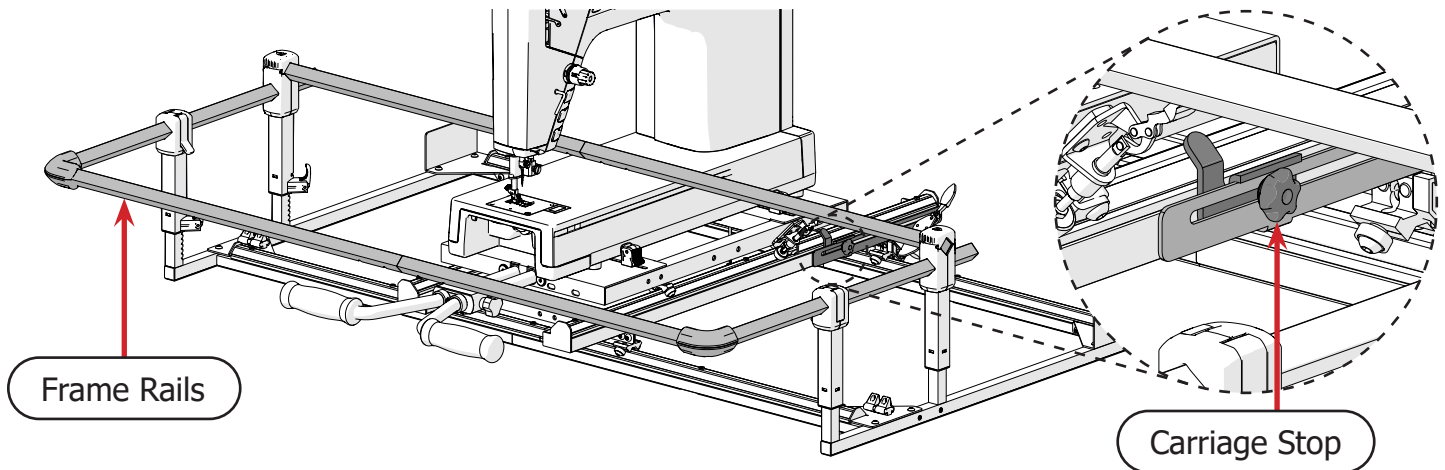
Note: If your frame does not have both a **bottom carriage** and a **top plate**, do not attempt to place the machine on the frame. For more information, or to purchase a compatible bottom carriage or top plate, contact Grace Company at 1-801-485-6688.



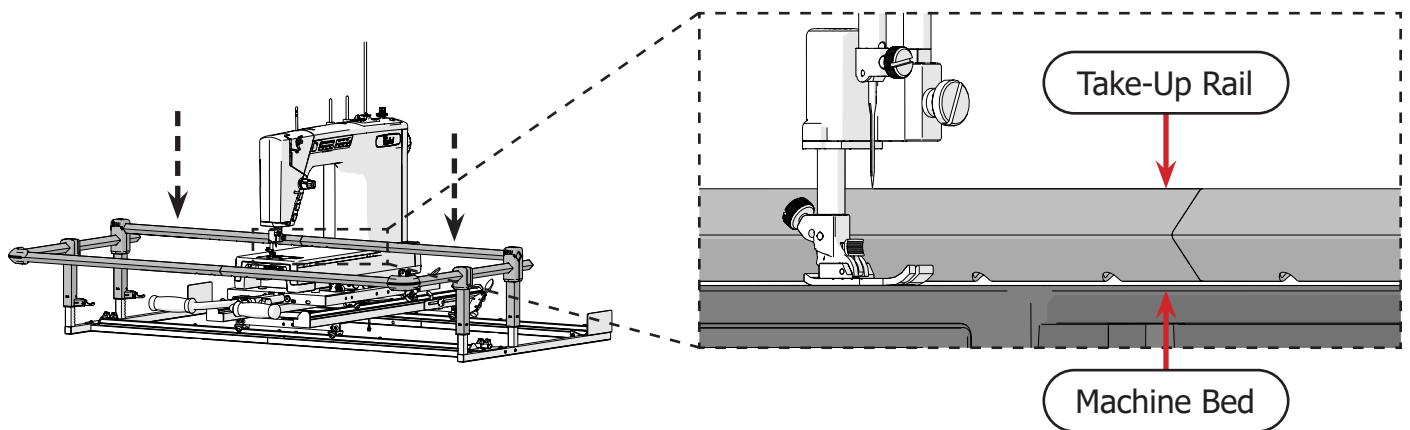
First-Time Setup

Preparing Your Frame (continued)

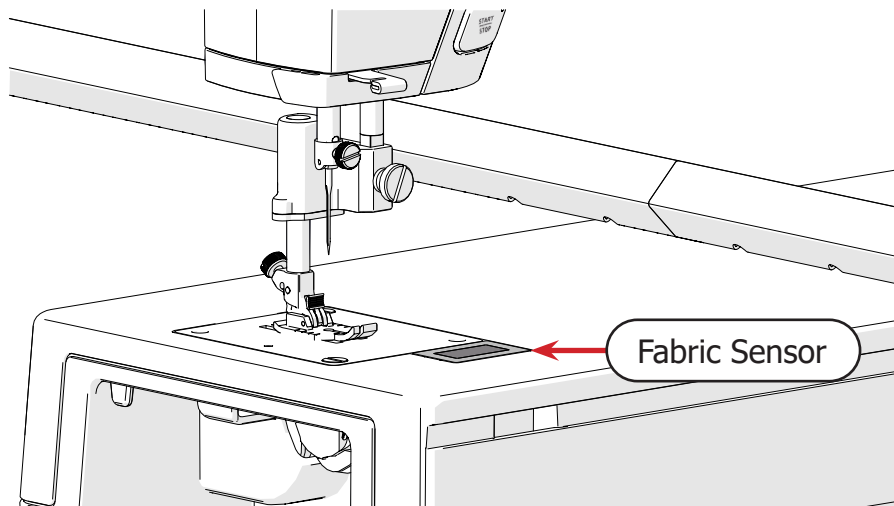
- 2 If you have not done so already, follow the steps in your frame instruction manual to adjust the height and length of the **frame rails**. Also adjust the **carriage stop**, if your frame has one. See your frame instruction manual for details.



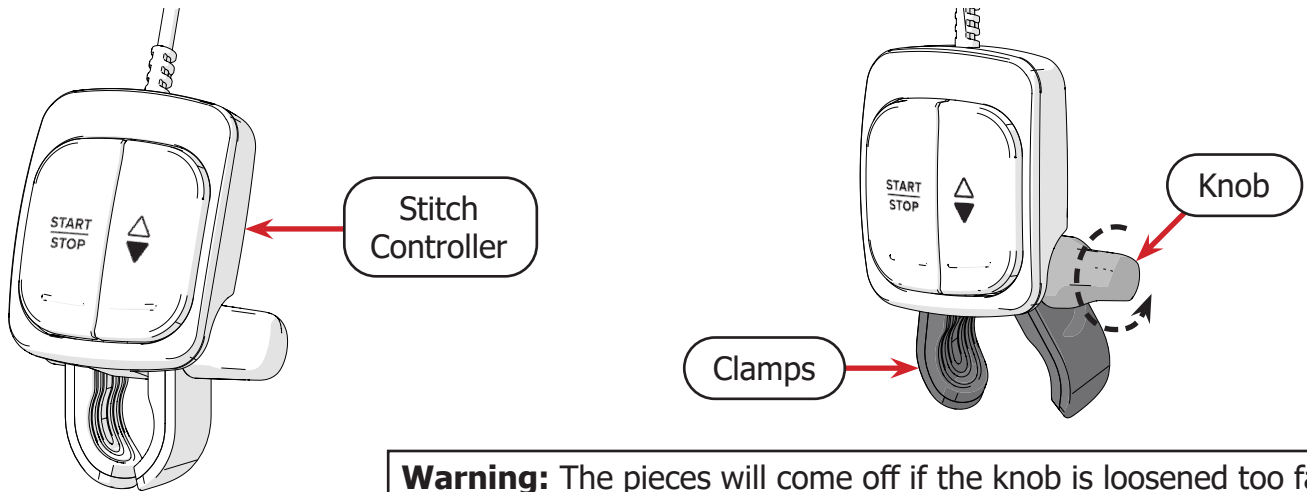
- 3 To successfully quilt with the Little Rebel, you must set the take-up rail height lower than usual. Adjust the rail height so that the **take-up rail** and the **machine bed** are as close as possible without touching.



Note: Lowering the take-up rail allows fabric to drape closer to the **fabric sensor**, improving the quality of regulated stitching. For more information about stitch regulation, see page 40.

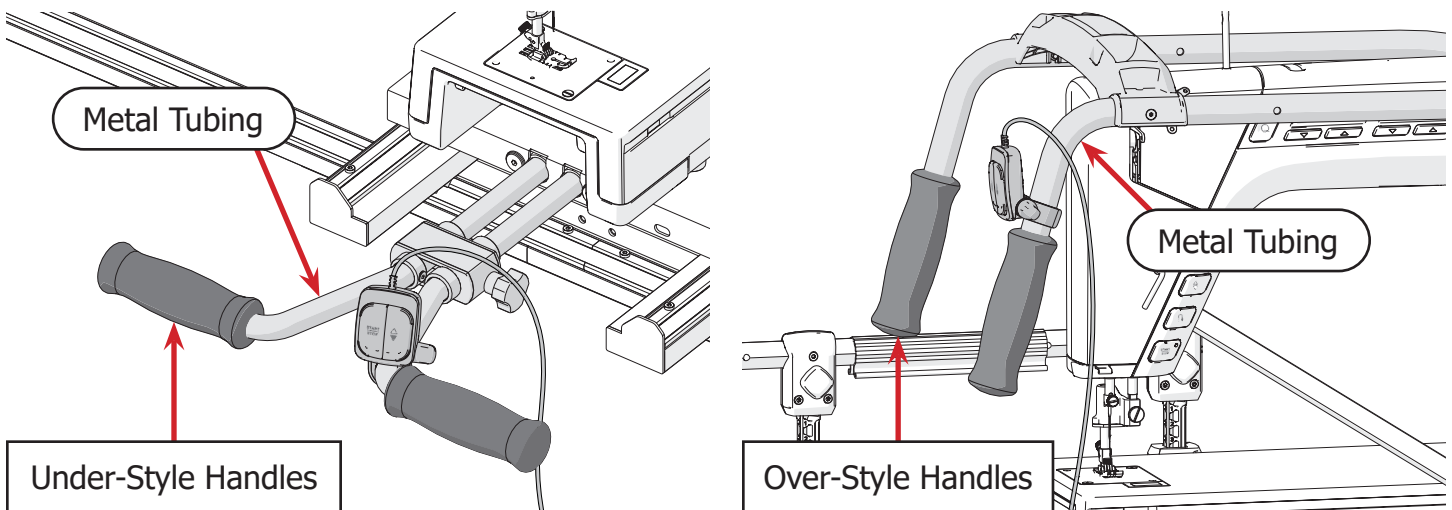


- 4 Retrieve the **stitch controller** from the Little Rebel packaging. Turn the **knob** on the stitch controller to loosen the **clamps**.

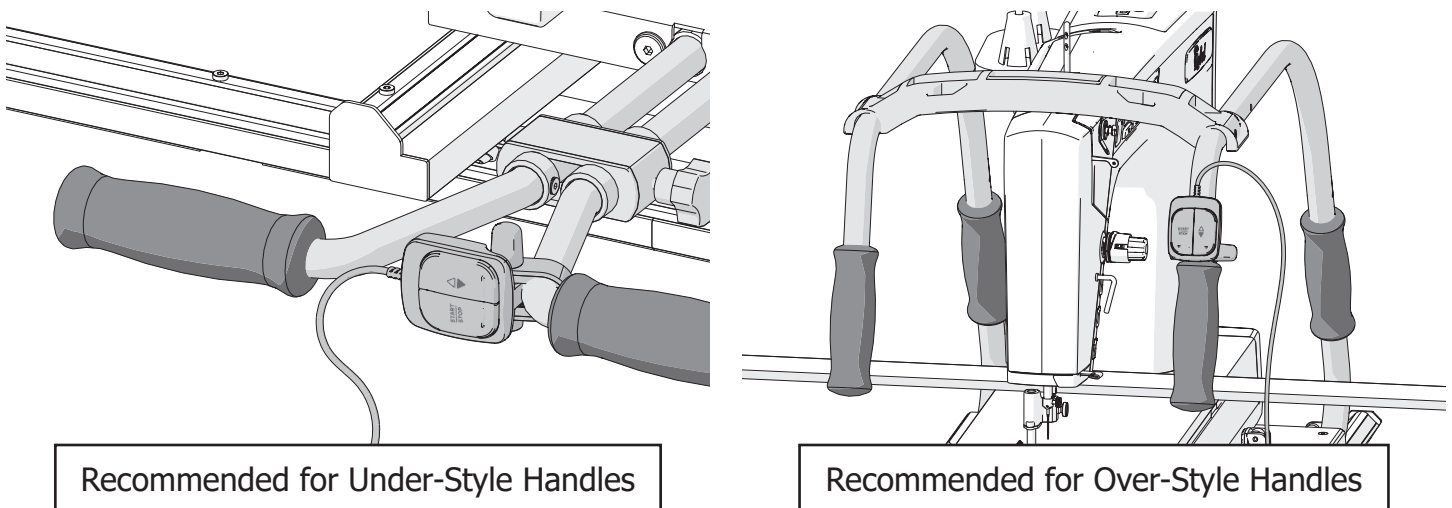


Warning: The pieces will come off if the knob is loosened too far.

- 5 Clamp the stitch controller onto the **metal tubing** of your **top plate handles**. Do not fully tighten the knob yet.



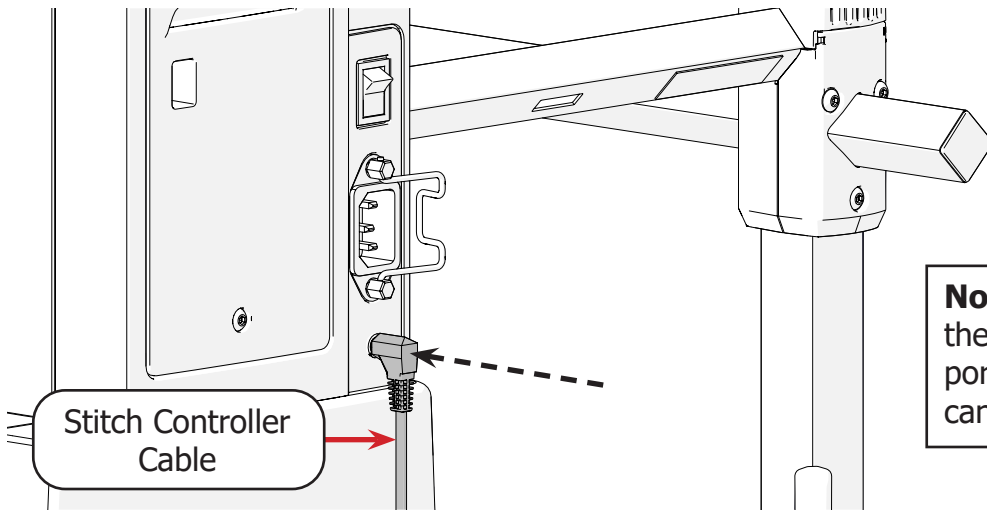
- 6 Adjust the stitch controller so that you can comfortably reach the buttons while holding the top plate handles. When you are satisfied with the position of the controller, tighten the knob.



First-Time Setup

Preparing Your Frame (continued)

- 7 Plug the **stitch controller cable** into the bottom port on the back of the machine.

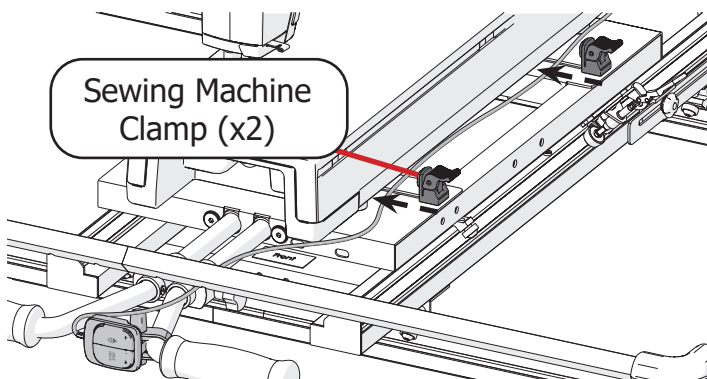


Note: The stitch controller and the foot pedal use the same port on the machine. Only one can be plugged in at a time.

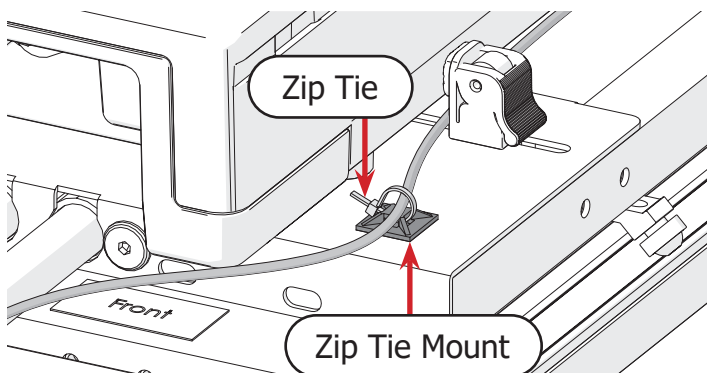
- 8 Secure the stitch controller cable to prevent it from being caught under the wheels. Use the **velcro cable ties**, **zip ties**, and **zip tie mounts** included with your machine.

Recommended for Under-Style Handles

- a Tuck the cable between the machine and the two **sewing machine clamps** along the right side.

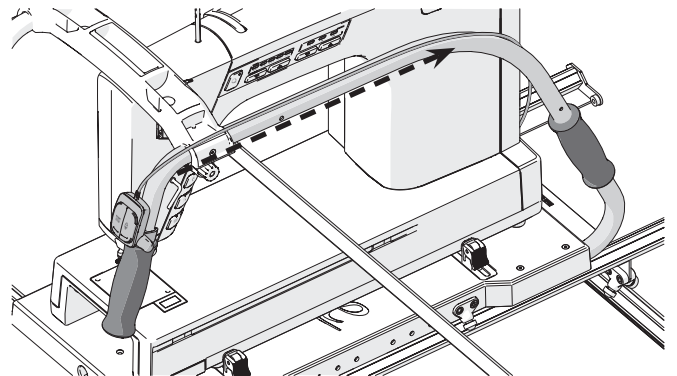


- b Fasten the cable at the front of the top plate with a **zip tie mount** and a **zip tie**. Cut the end of the zip tie once the cable is secure.

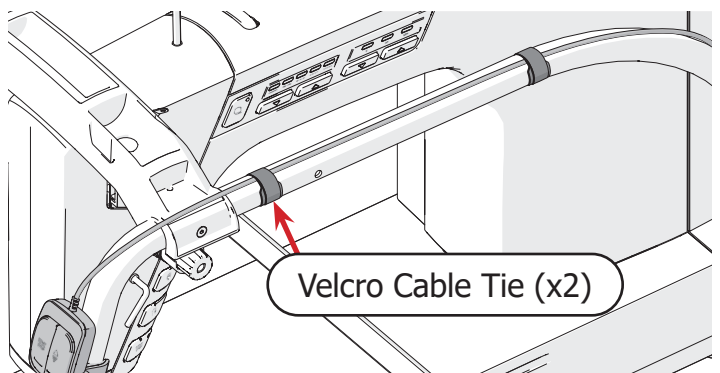


Recommended for Over-Style Handles

- a Run the cable along the metal tubing of the top plate handle from front to back.



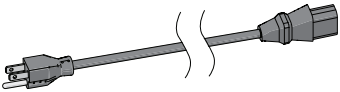
- b Fasten the cable at the front and back of the top plate handle with two **velcro cable ties**.



Turning the Machine On/Off

Parts & Tools Needed

Power Cord

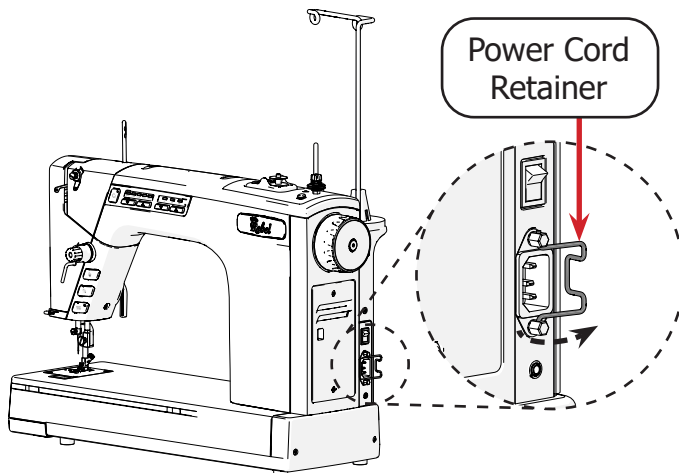


Installation Box

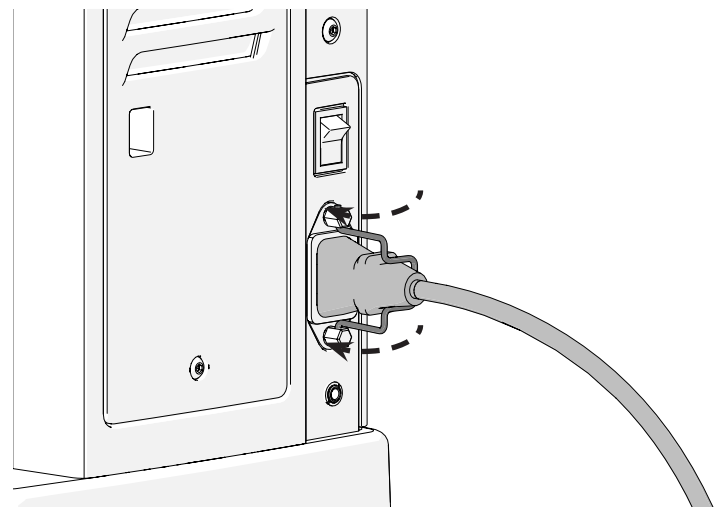
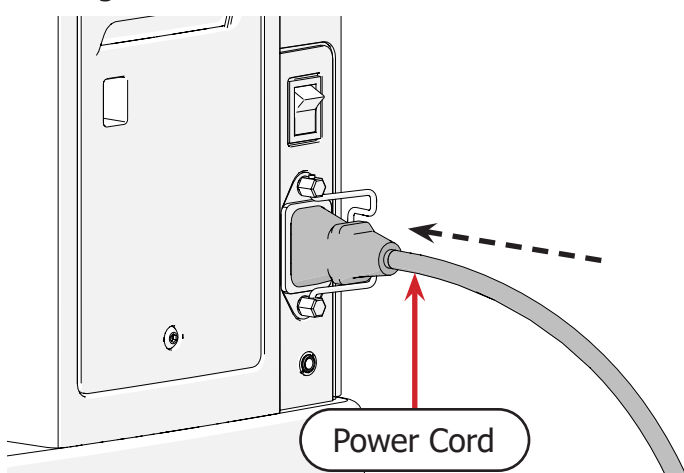
Instructions

Take the following steps to plug in the power cord and turn on the machine for the first time:

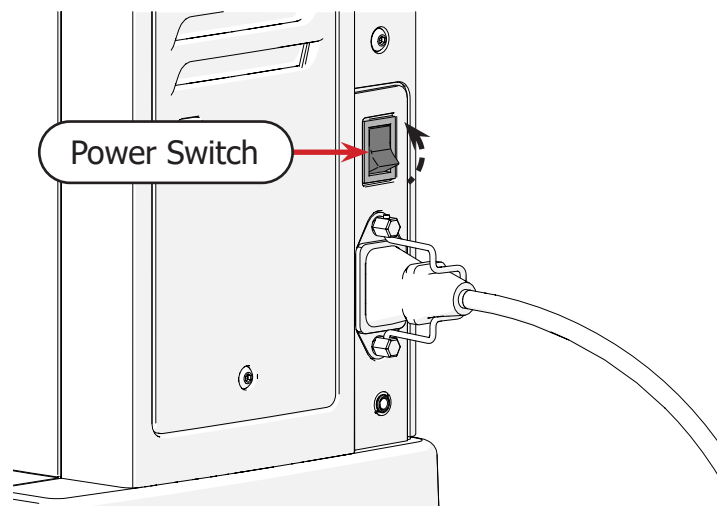
- 1 Open the **power cord retainer** on the back of the machine.
- 2 Plug the **power cord** into the back of the machine. Plug the other end of the cord into a grounded electrical outlet.
- 3 Close the retainer over the power cord.
- 4 Turn on the machine by flipping up the **power switch** directly above the cord.



- 2 Plug the **power cord** into the back of the machine. Plug the other end of the cord into a grounded electrical outlet.



- 4 Turn on the machine by flipping up the **power switch** directly above the cord.



Congratulations! You have completed first-time setup for the Little Rebel.

All remaining tasks in this manual are designed to be completed multiple times as you use the machine and switch between its different modes. The following are some good places to start:

- To thread the machine for either sewing or quilting, complete the tasks in the "Preparing to Stitch" section (page 9).
- To put the machine in Sewing Mode and begin straight stitching, complete the tasks in the "Sewing Mode" section (page 23).
- To put the machine in Quilting Mode and begin quilting with or without a frame, complete the tasks in the "Quilting Mode" section (page 32).

Preparing to Stitch

Winding a Bobbin	10
Loading the Bobbin Case	13
Changing the Needle	15
Threading the Machine	17
Adjusting Thread Tension.....	21

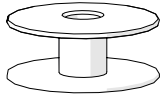
Note: The instructions in this section are intended for machines in both Sewing Mode and Quilting Mode, even though the images only show the machine in Sewing Mode.

For more information about the machine modes, see "Sewing Mode" (page 23) and "Quilting Mode" (page 32).

Winding a Bobbin

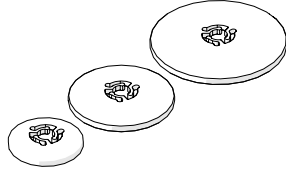
Parts & Tools Needed

Bobbin
(M-class)



Misc. Container

Spool Caps
(for spool thread only)



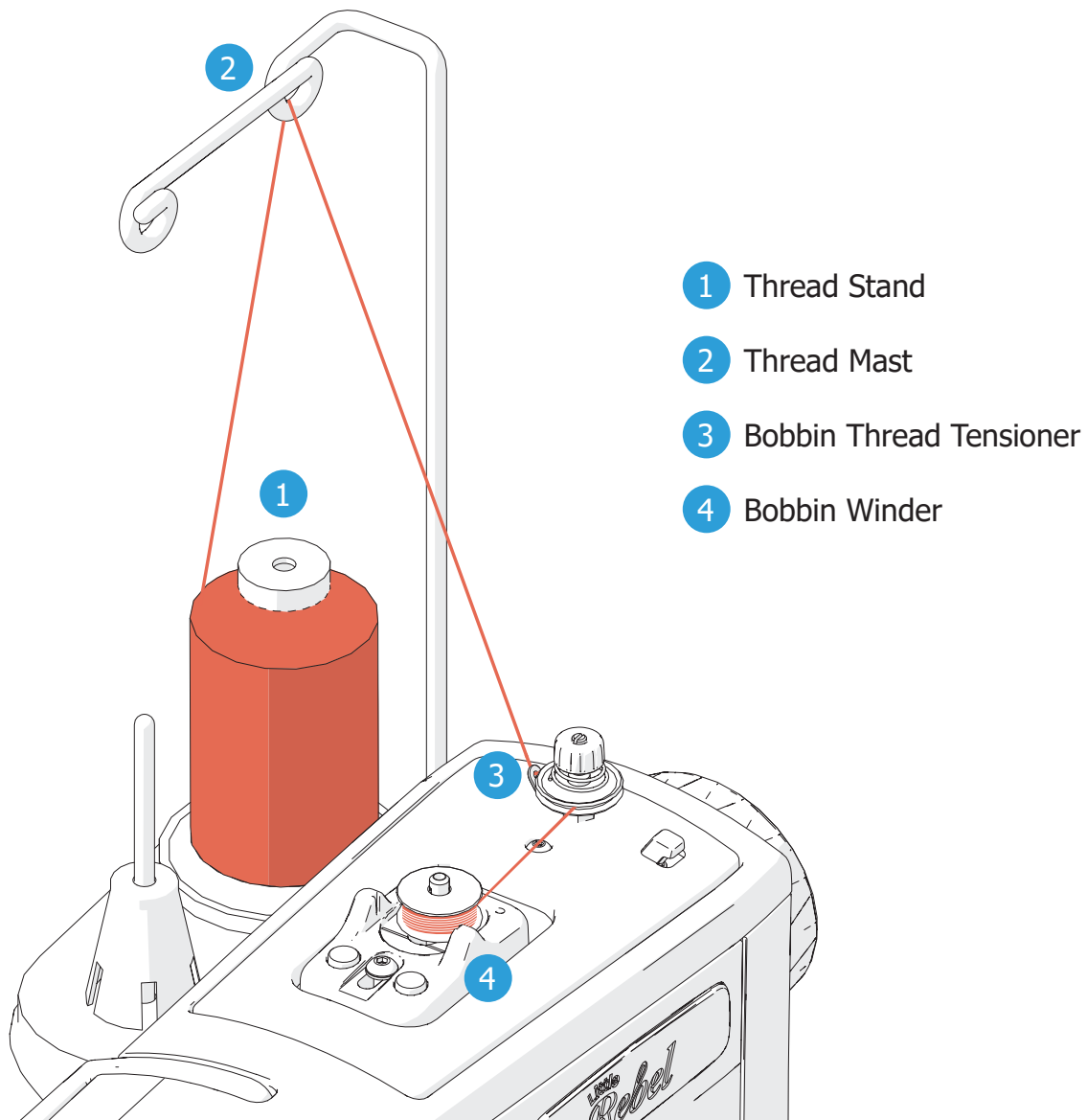
Misc. Container

Note: In addition to the empty bobbin in the Misc. Container, the Little Rebel comes with four bobbins pre-wound with 50 wt. polyester Finesse thread:

- x1 on the bobbin winder
- x1 in the bobbin case
- x2 in the Training Panel Kit Box

Overview

Thread takes the following path from the thread stand to the bobbin winder:

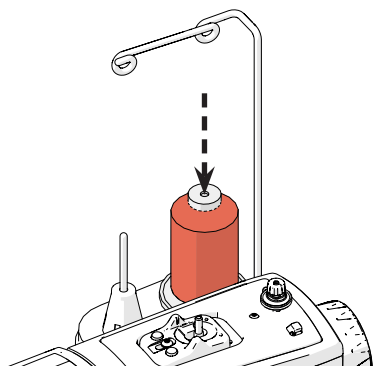


Instructions

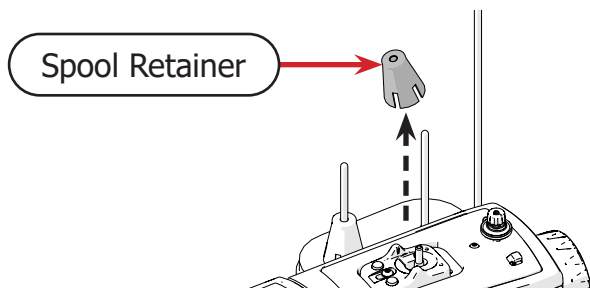
Take the following steps to thread the bobbin winder and wind a bobbin:

Note: Your bobbin thread and your top thread should be similar in type and weight. For more information on choosing thread, see page 72.

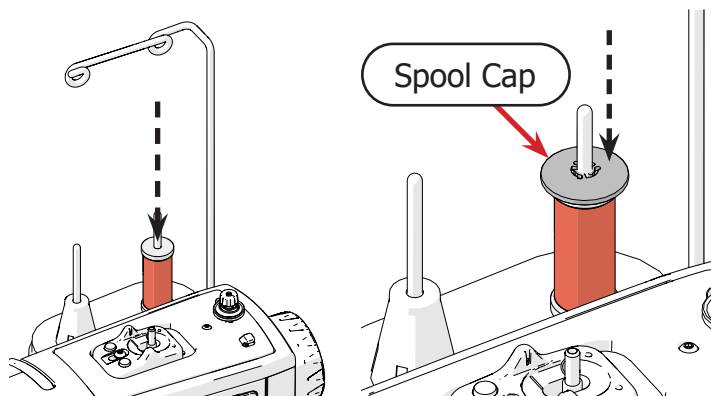
- 1** **If using cone thread:** Place the thread on the rear post of the thread stand.



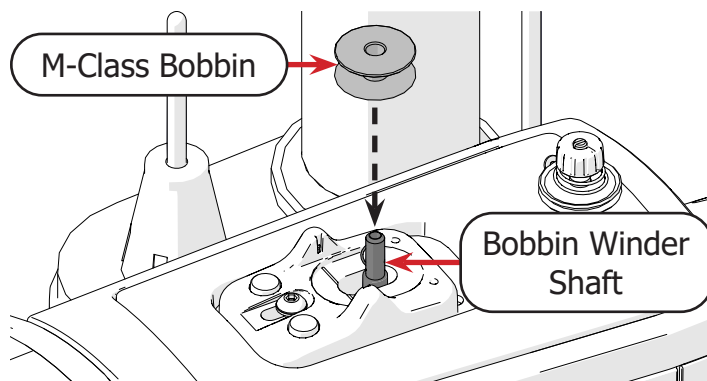
If using spool thread: Remove the **spool retainer** from the rear post of the thread stand. Note that the retainer fits tightly on the stand and might resist being pulled off.



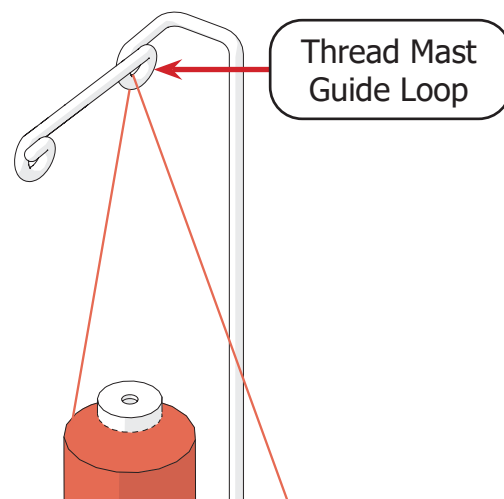
Place the thread on the stand and slide a **spool cap** over it. Use a cap that is slightly wider than the spool of thread.



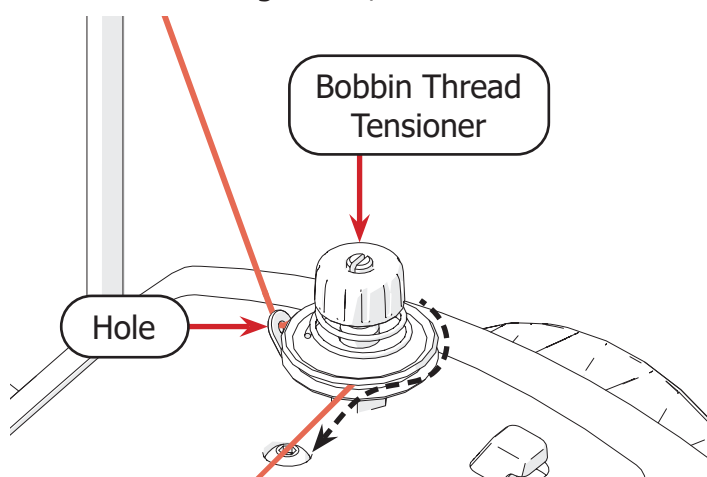
- 2** Place an empty **M-class bobbin** onto the **bobbin winder shaft**.



- 3** Run the thread through the **thread mast guide loop** directly above the thread stand.



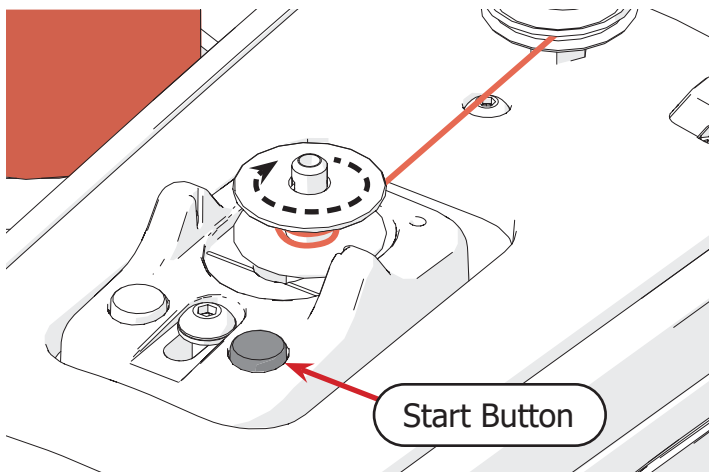
- 4** Pull the thread through the **bobbin thread tensioner**, first through the **hole** and then around the right side, between the two discs.



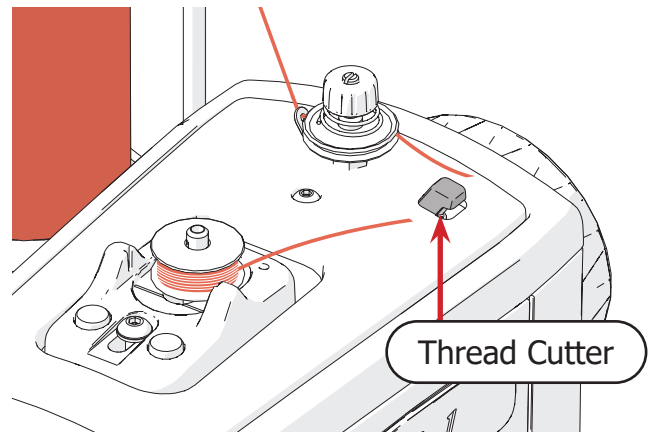
Preparing to Stitch

Winding a Bobbin (continued)

- 5 Wrap the thread clockwise around the empty bobbin and press the **start button** on the winder.



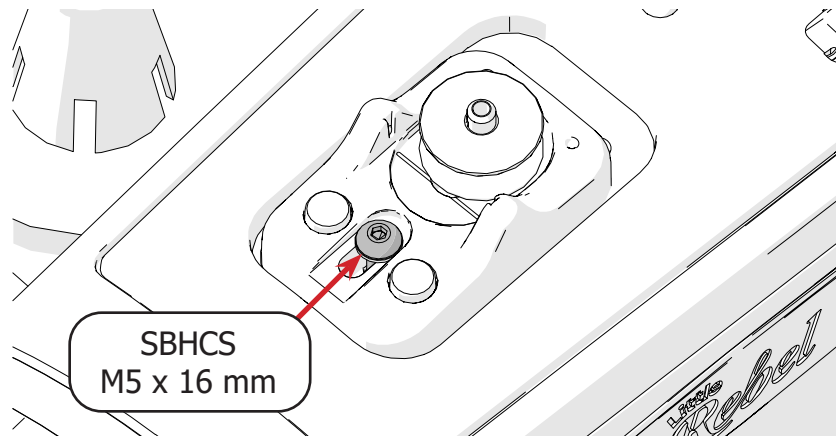
- 6 Winding stops automatically when the bobbin is full. Afterward, pull the bobbin thread away and cut it with the **thread cutter** near the tensioner.



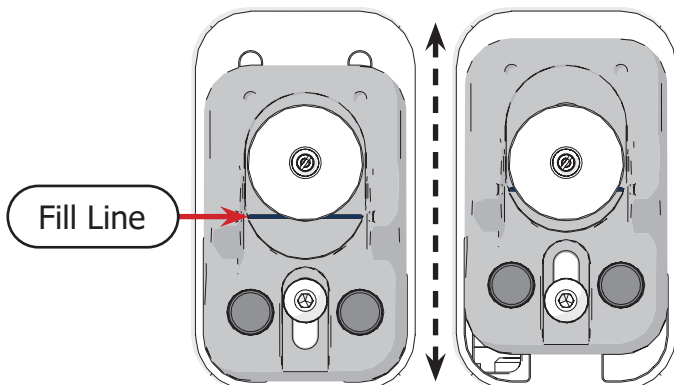
Adjusting the Fill Level

The bobbin winder can be adjusted to fill bobbins a different amount, if desired. Take the following steps to adjust the bobbin winder:

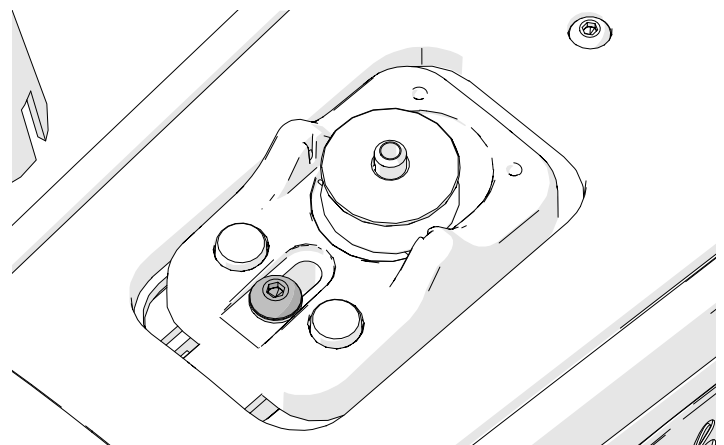
- 1 With the 3 mm Allen wrench, loosen the **M5 x 20 mm SBHCS** on the bobbin winder.



- 2 Position the bobbin winder so that the **fill line** sits where you want the bobbin to stop filling.



- 3 Tighten the M5 x 20 mm SBHCS to secure the bobbin winder in the desired position.

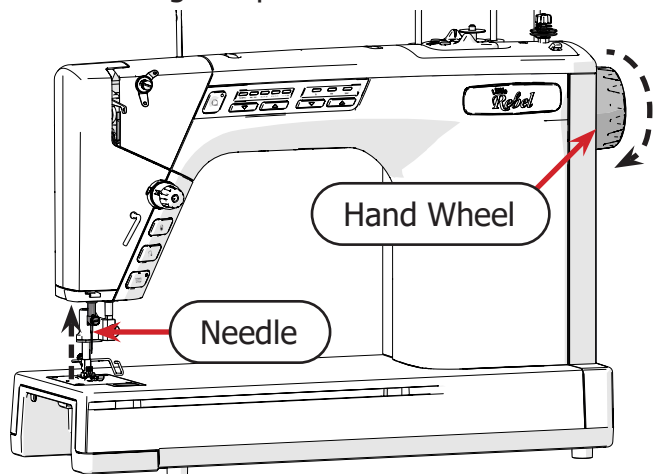


Loading the Bobbin Case

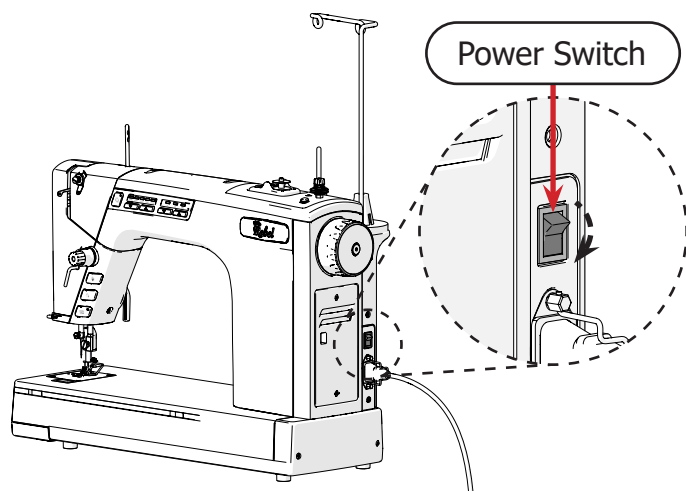
Instructions

Take the following steps to place a wound bobbin in the bobbin case and insert the bobbin case into the machine:

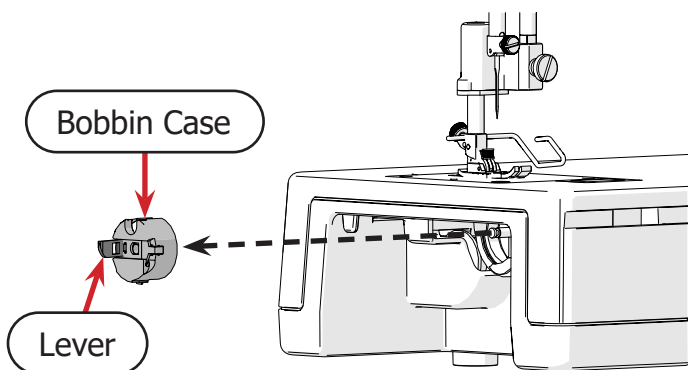
- 1 Rotate the **hand wheel** until the **needle** is in the highest position.



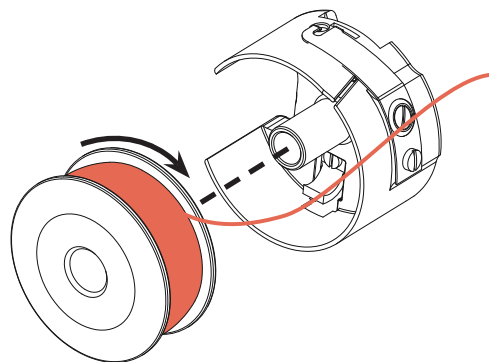
- 2 Turn off the machine by flipping down the **power switch** on the back.



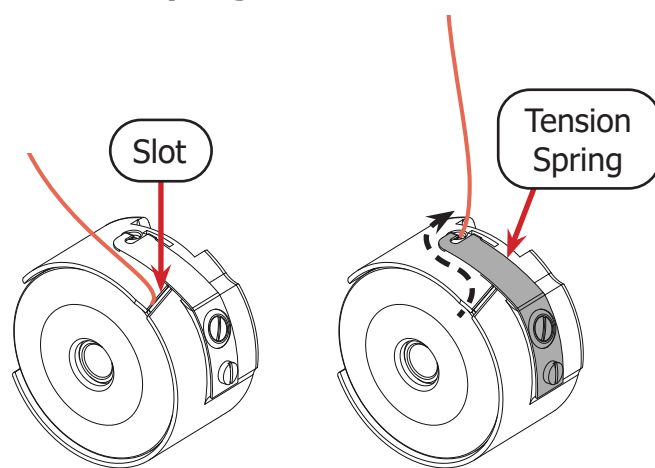
- 3 Reach into the front of the machine and pull the **lever** on the **bobbin case** to release it.



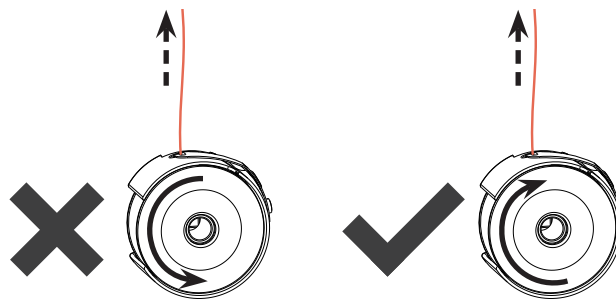
- 4 Place a wound bobbin in the bobbin case with the thread coming out of the bobbin on the right side.



- 5 Pull the thread into the **slot** in the bobbin case, and then around the hook of the **tension spring**.



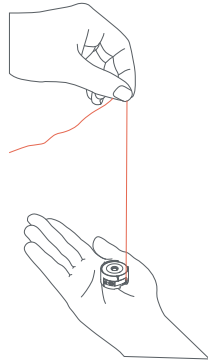
Note: If the bobbin is inserted correctly, it will turn clockwise when you pull the thread.



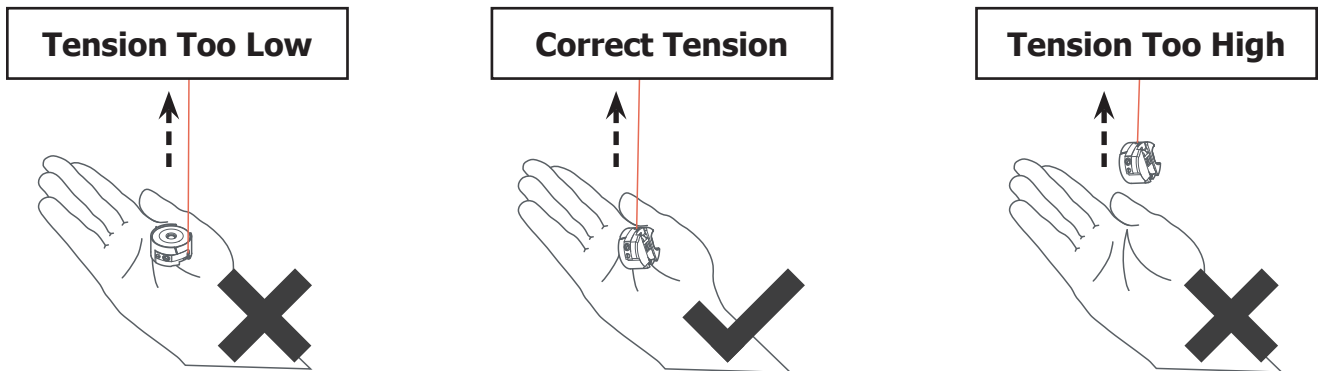
Loading the Bobbin Case (continued)

6 Perform the bobbin thread tension test to set the correct tension:

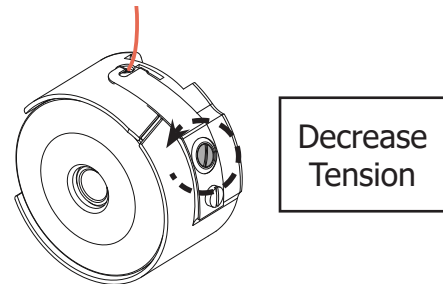
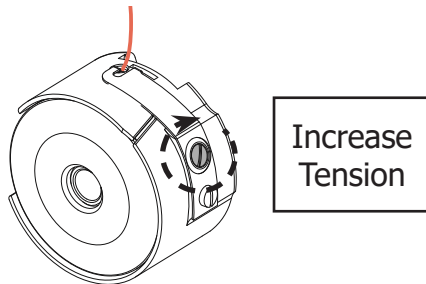
a Place the bobbin case flat on its side, on your palm.



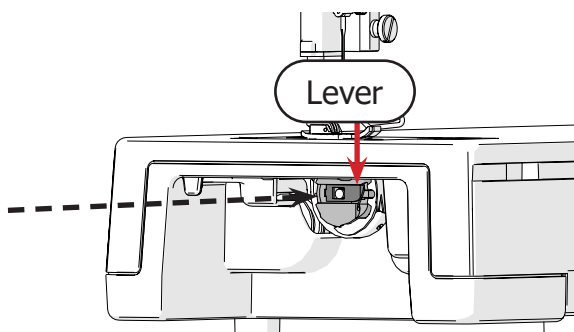
b Pull up on the thread. If the thread tension is correct, the thread will run freely and the bobbin case will rise into a vertical position without lifting off your hand.



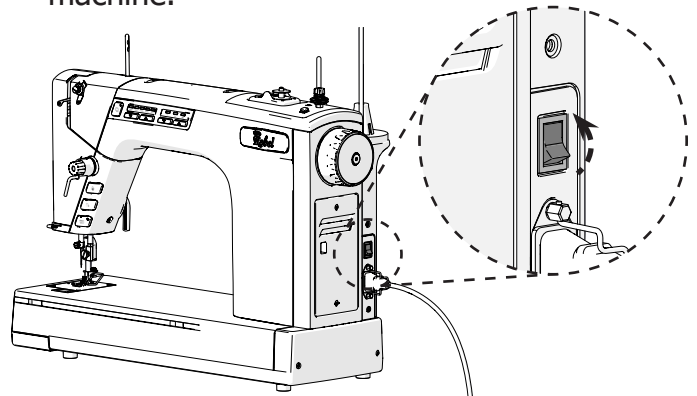
- As needed, adjust the large **tension screw** on the bobbin case and repeat the test until the tension is correct. **Warning:** The screw will fall out if loosened too far.



7 Insert the bobbin case into the machine with the **lever** pointing to the right. Push on the case until it clicks securely into place.



8 Flip up the power switch to turn on the machine.



Changing the Needle

Parts & Tools Needed

Needle



Misc. Container

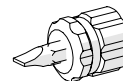
Note: It is important to choose the right style and size of needle for your project. For more information, see page 70.

Needle Magnet



Misc. Container

Flat Head Screwdriver

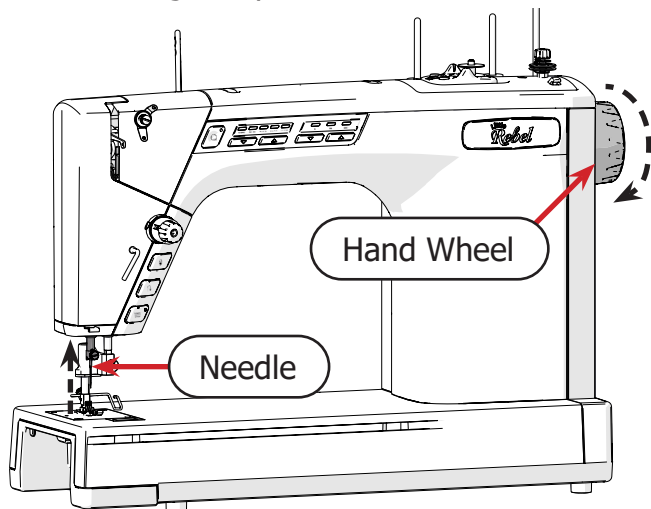


Tool Box

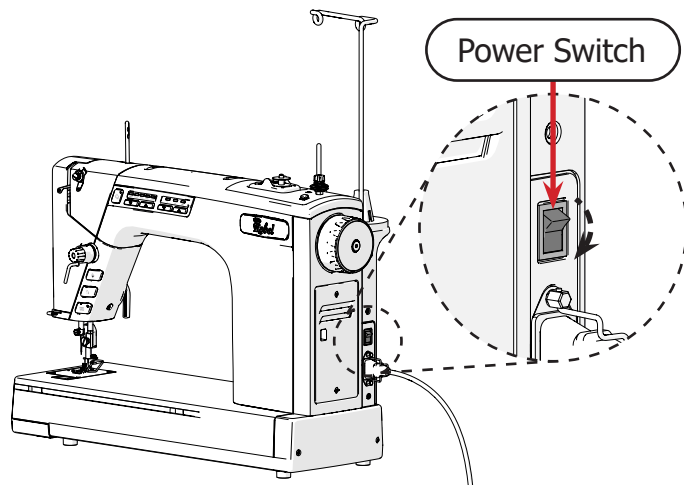
Instructions

Always change the needle after eight hours of use, or immediately if it is broken, bent, or burred. Also change the needle whenever the weight of your thread requires a different needle size. Take the following steps to change the needle:

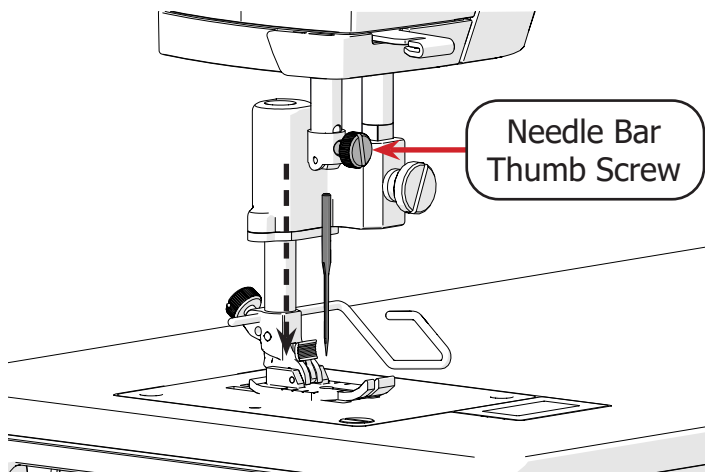
- 1 Rotate the **hand wheel** until the **needle** is in the highest position.



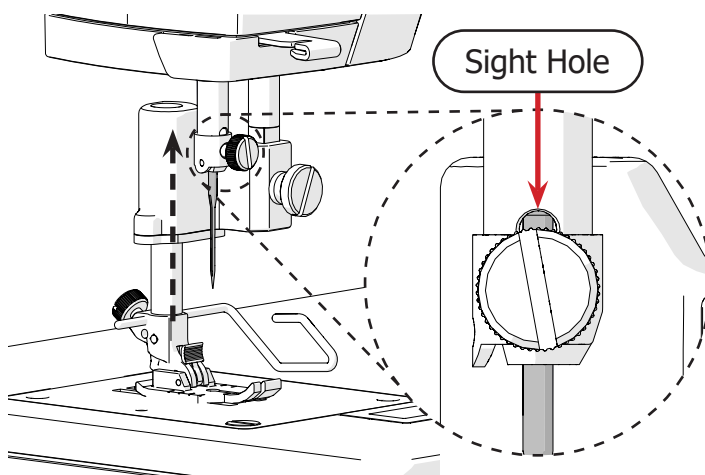
- 2 Turn off the machine by flipping down the **power switch** on the back.



- 3 Loosen the **needle bar thumb screw** and pull out the needle. If needed, use a flat head screwdriver to loosen the screw.

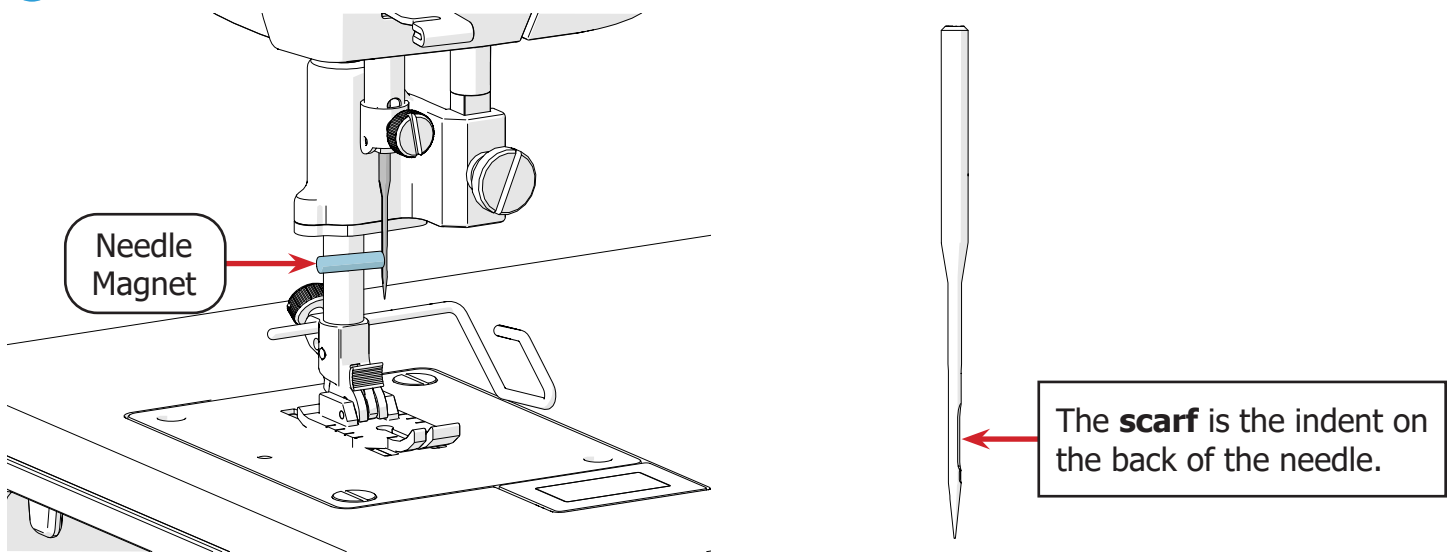


- 4 Insert the new needle up into the needle bar. Check the **sight hole** above the screw to make sure the needle is fully inserted.

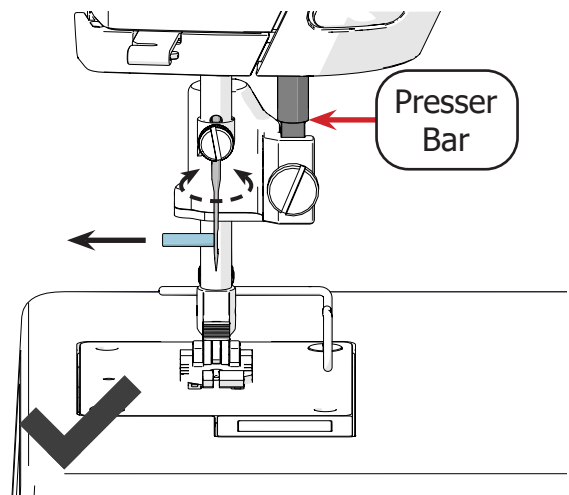
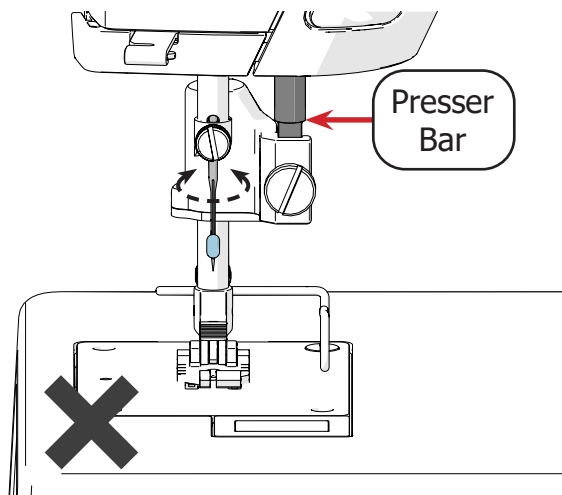


Changing the Needle (continued)

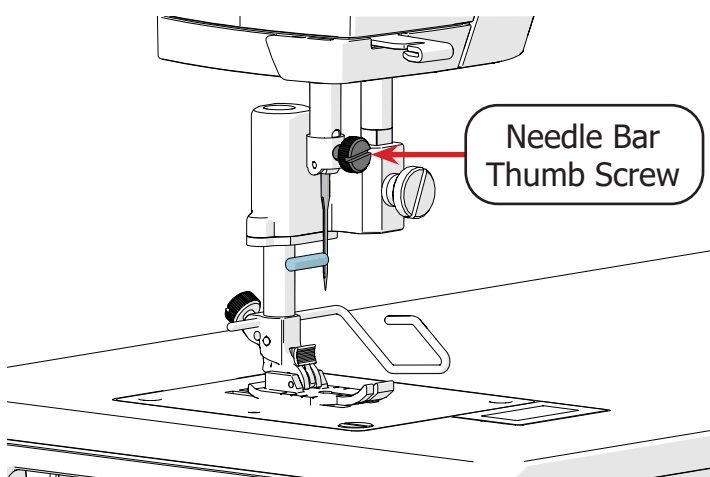
5 Attach the **needle magnet** to the needle, opposite from the **scarf**.



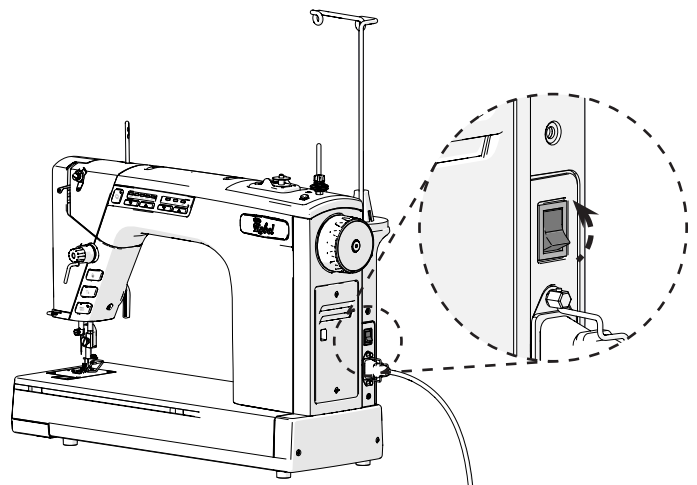
6 Turn the needle so that the magnet points as straight as possible away from the **presser bar**.
Note: Move the needle directly. Do not use the magnet to move the needle.



7 Tighten the **needle bar thumb screw**. Do not over-tighten if using the flat head screwdriver.



8 Remove the needle magnet and turn on the machine with the power switch.

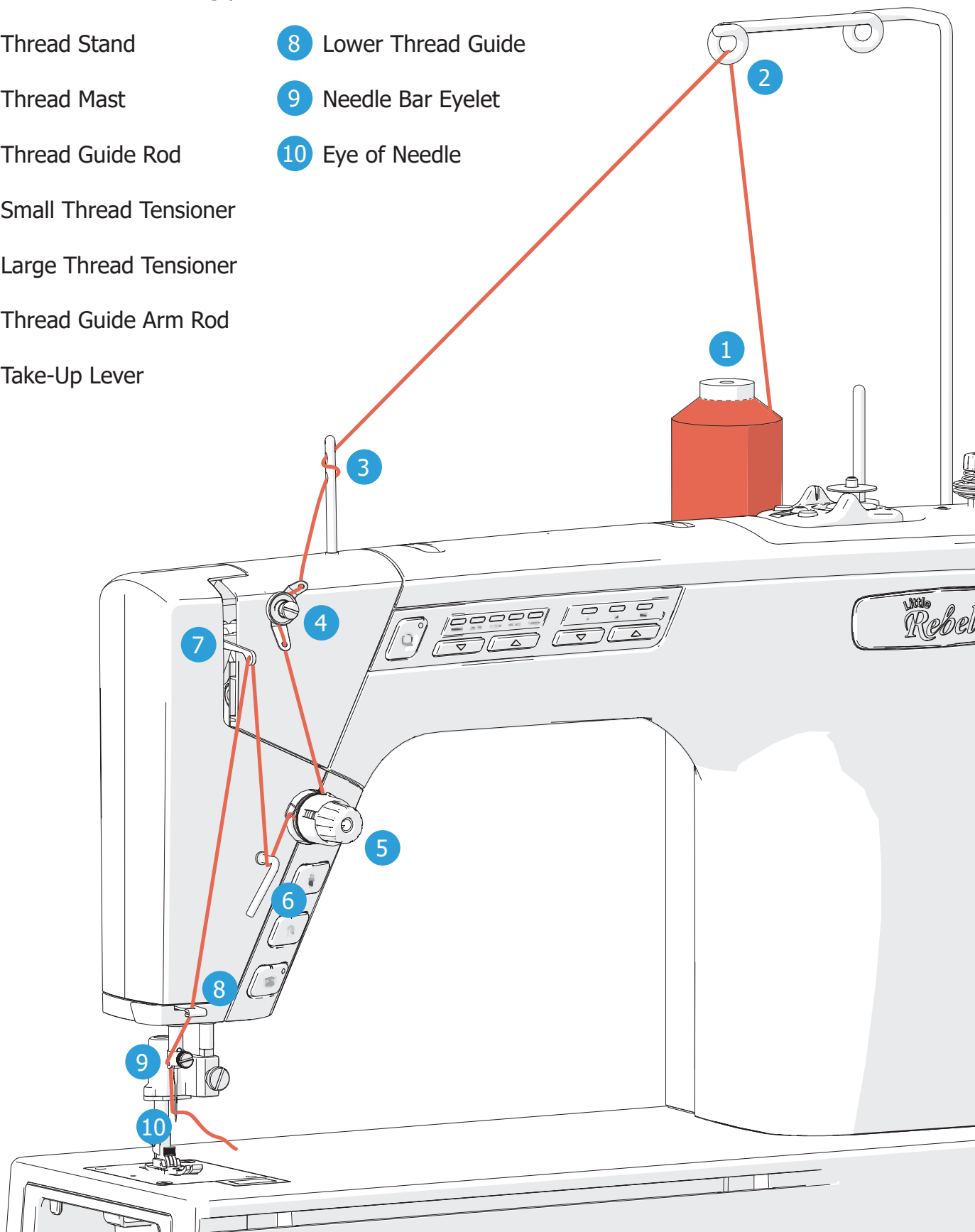


Threading the Machine

Overview

Thread takes the following path from the thread stand to the needle:

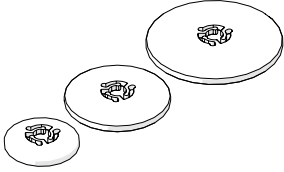
- | | |
|--------------------------|----------------------|
| 1 Thread Stand | 8 Lower Thread Guide |
| 2 Thread Mast | 9 Needle Bar Eyelet |
| 3 Thread Guide Rod | 10 Eye of Needle |
| 4 Small Thread Tensioner | |
| 5 Large Thread Tensioner | |
| 6 Thread Guide Arm Rod | |
| 7 Take-Up Lever | |



Parts & Tools Needed

Spool Caps

(for spool thread only)

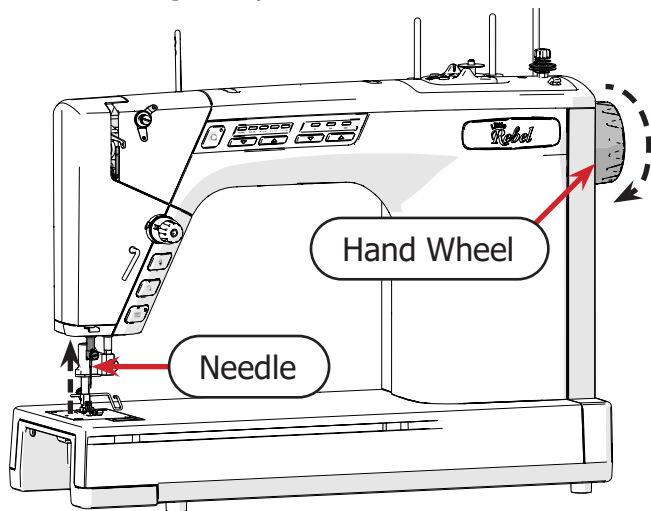


Misc. Container

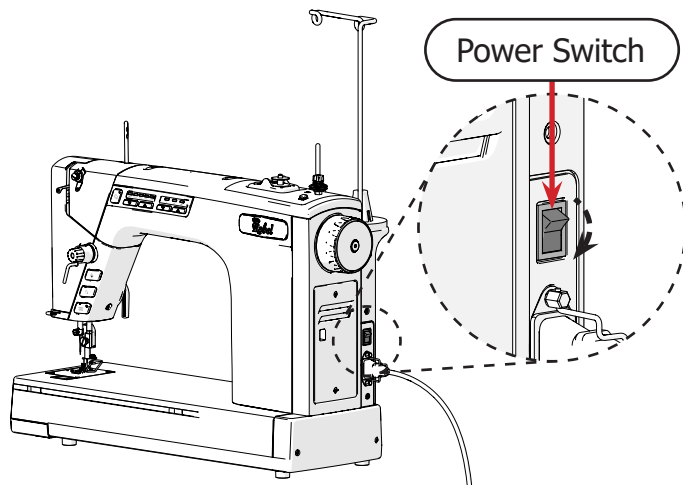
Instructions

Take the following steps to thread the machine:

- 1 Rotate the **hand wheel** until the **needle** is in the highest position.

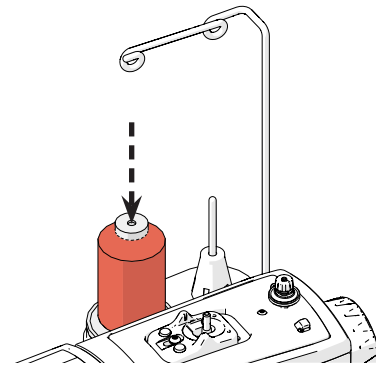


- 2 Turn off the machine by flipping down the **power switch** on the back.

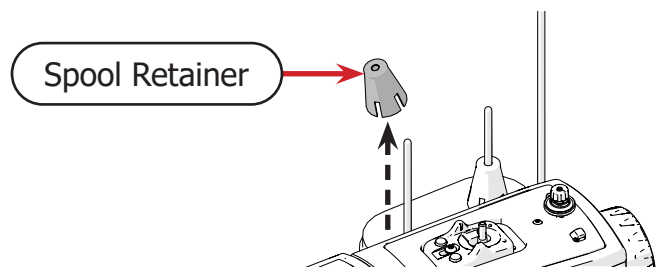


Note: Your top thread and your bobbin thread should be similar in type and weight. For more information on choosing thread, see page 72.

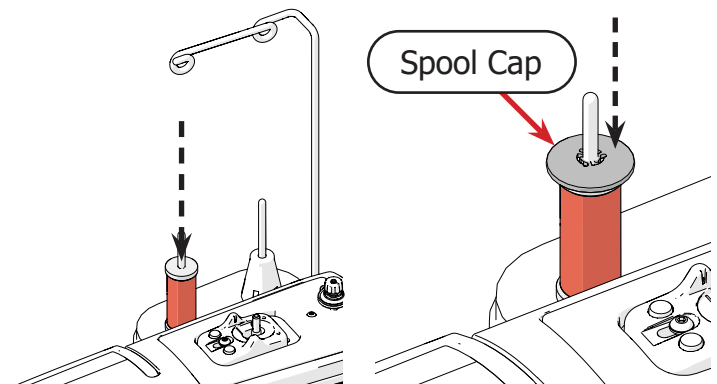
- 3 **If using cone thread:** Place the thread on the front post of the thread stand.



If using spool thread: Remove the **spool retainer** from the front post of the thread stand. Note that the retainer fits tightly on the stand and might resist being pulled off.

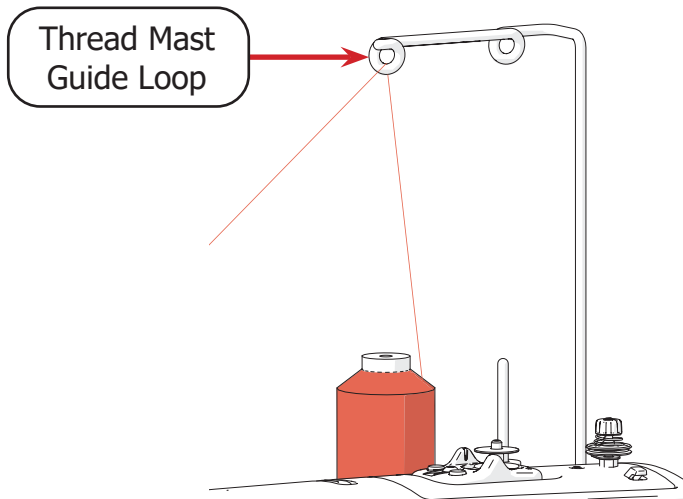


Place the thread on the stand and slide a **spool cap** over it. Use a cap that is slightly wider than the spool of thread.

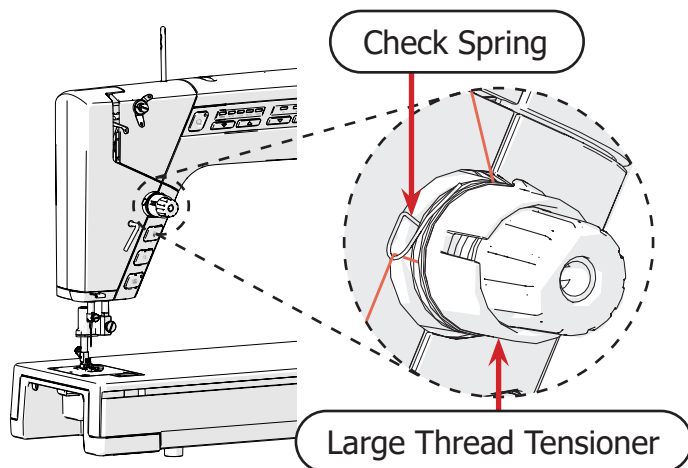


Threading the Machine (continued)

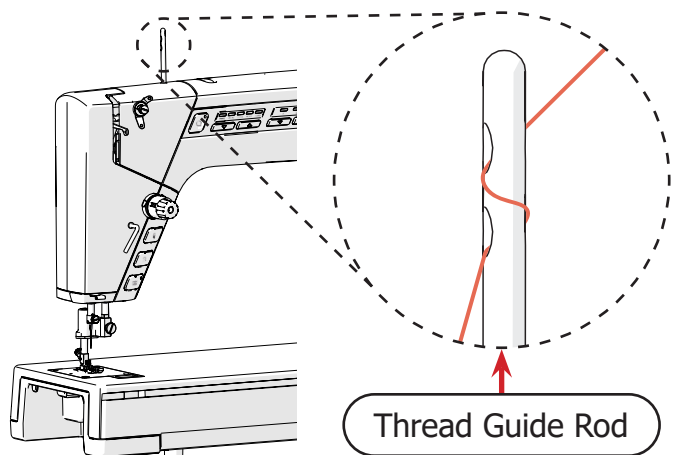
- 4 Run the thread through the **thread mast guide loop** directly above the thread stand.



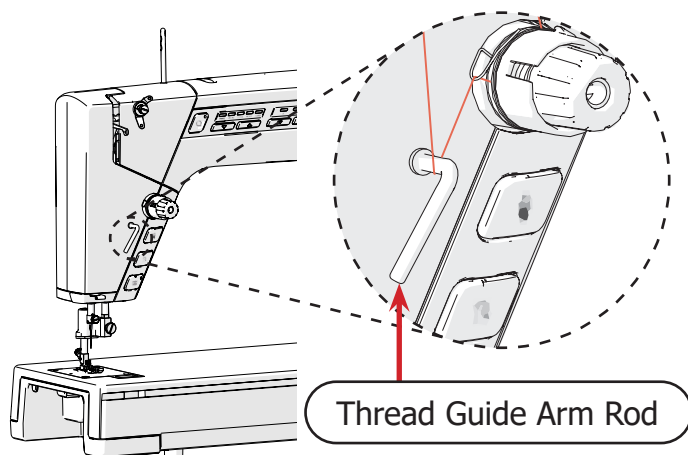
- 7 Run the thread through the **large thread tensioner**—first between the two discs, then over the **check spring**.



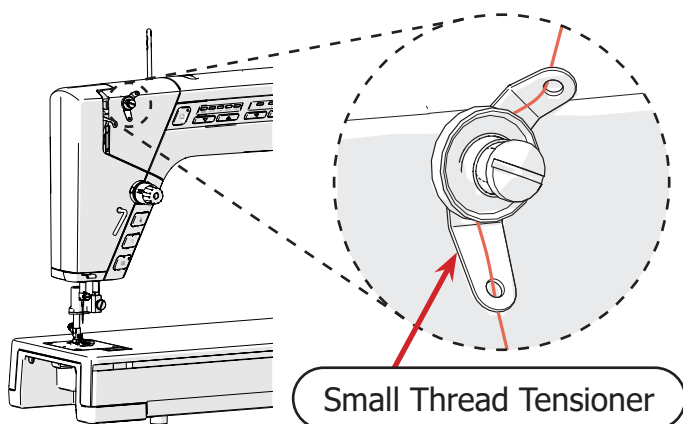
- 5 Run the thread through the **thread guide rod**—first through the top hole, then around the back and through the bottom hole.



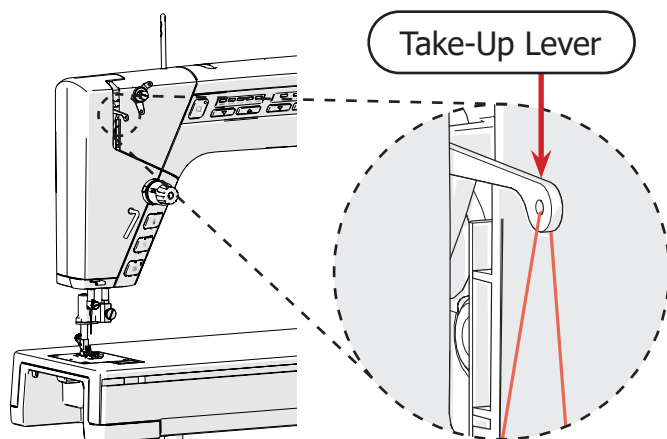
- 8 Run the thread under the **thread guide arm rod**.



- 6 Run the thread through the **small thread tensioner**—first through the top hole, then between the two discs and through the bottom hole.

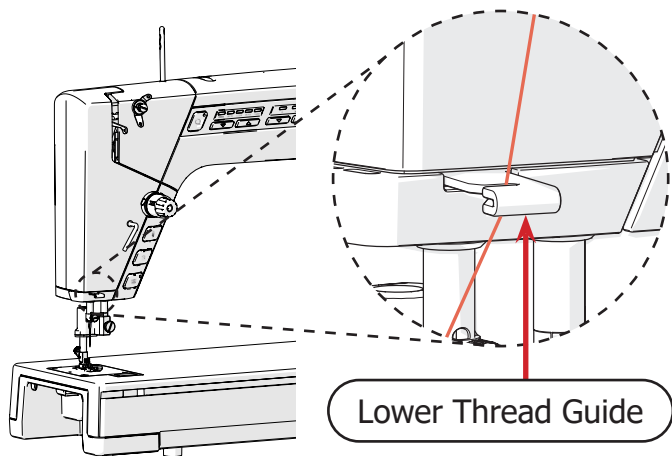


- 9 Run the thread up and through the **take-up lever**.

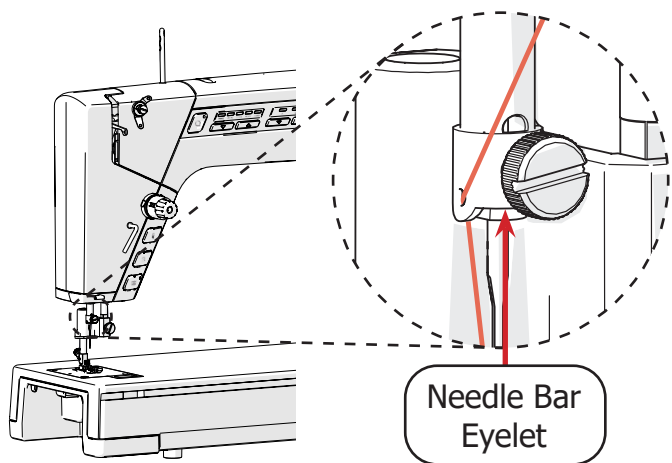


Threading the Machine (continued)

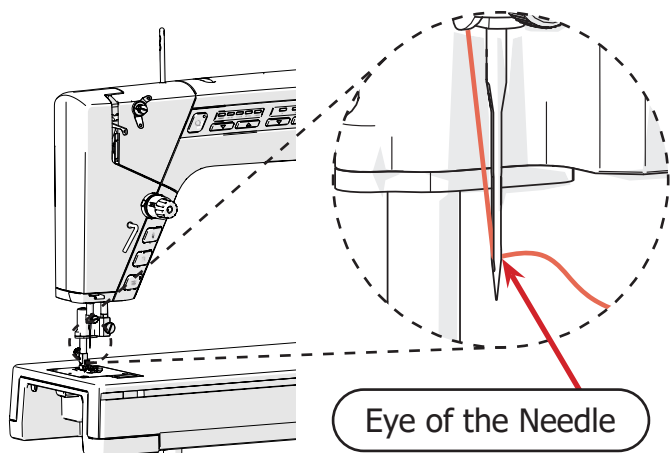
- 10 Run the thread down and through the **lower thread guide**.



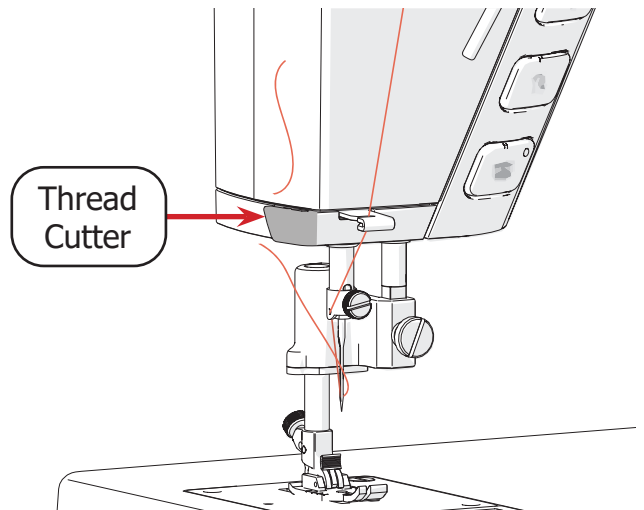
- 11 Run the thread down and through the front of the **needle bar eyelet**.



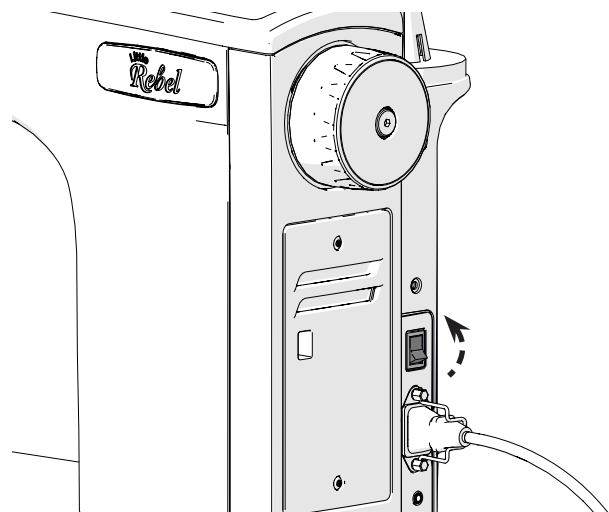
- 12 Run the thread through the **eye of the needle** from front to back. Use the needle threader accessory, if desired (see page 57).



- 13 Cut any excess thread with the **thread cutter** near the lower thread guide.



- 14 Flip up the power switch to turn on the machine.



Adjusting Thread Tension

Overview

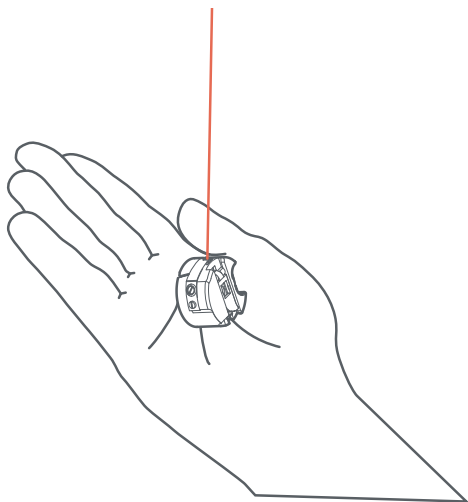
You must adjust the thread tension with the tension knob every time you change your needle, thread, bobbin, or fabric, as well as every time you switch between Sewing Mode and Quilting Mode.

In addition to the tension knob, there are many factors that influence thread tension. To consistently ensure good thread tension, also see the following:

"Loading the Bobbin Case"

task on page 13 of this manual

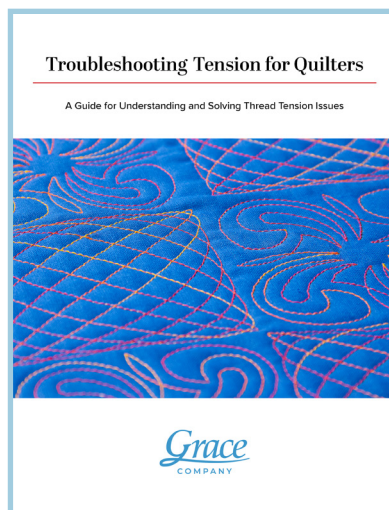
Contains instructions for adjusting the bottom thread tension, which you must always do first before adjusting the top thread tension.



"Troubleshooting Tension for Quilters"

handbook included with your machine

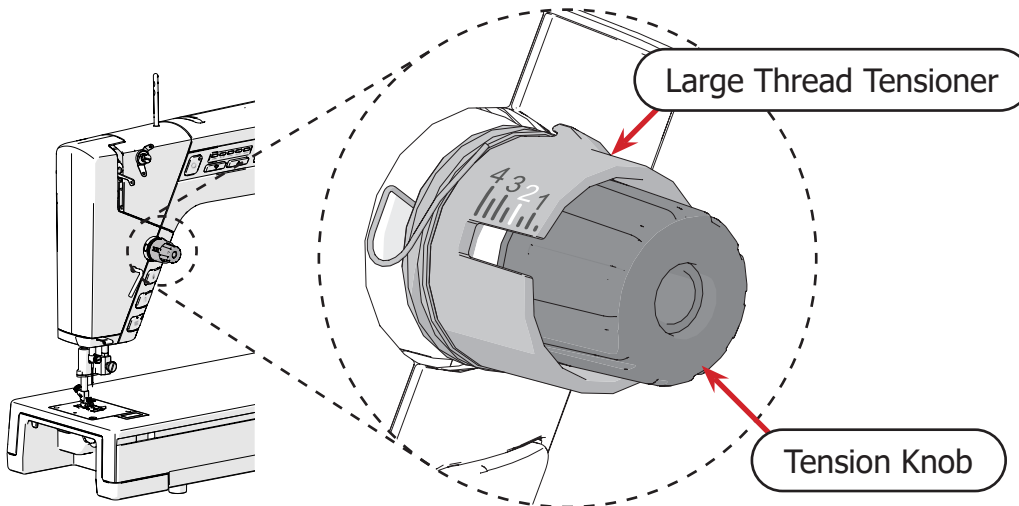
Contains an in-depth overview of thread tension, as well as troubleshooting for bad stitches, breaking thread, and bobbin issues.



Instructions

Take the following steps to balance the top thread tension with the bottom thread tension:

- 1 Set the top thread tension to "2" by turning the **tension knob** on the **large thread tensioner** until the end of the knob aligns with the number marking.



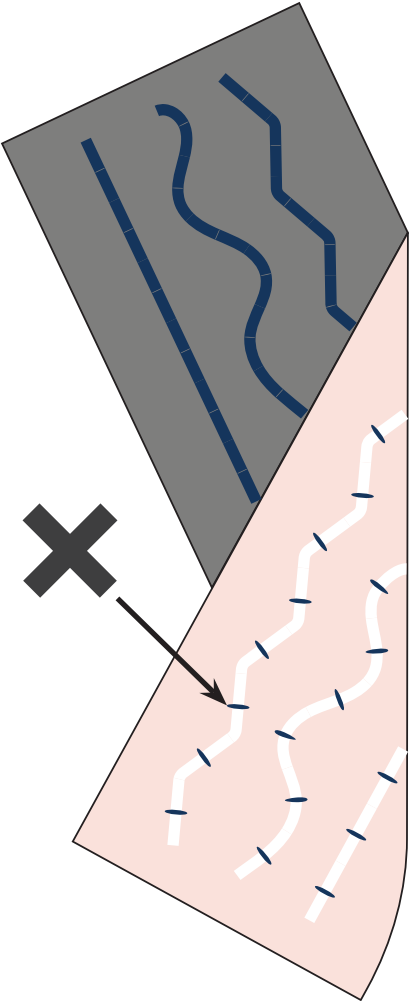
Adjusting Thread Tension (continued)

- 2 Stitch into scrap material and check for unbalanced thread tension. Use material of the same type and thickness as the material that you will be sewing or quilting with next.

Top Tension Low

Bottom thread pulling down top thread.

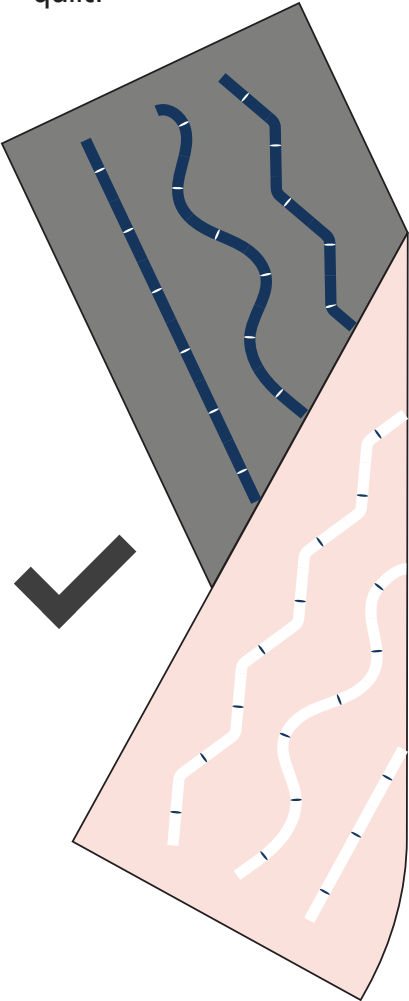
Increase top tension.



Balanced Tension

Top thread and bottom thread pulling equally.

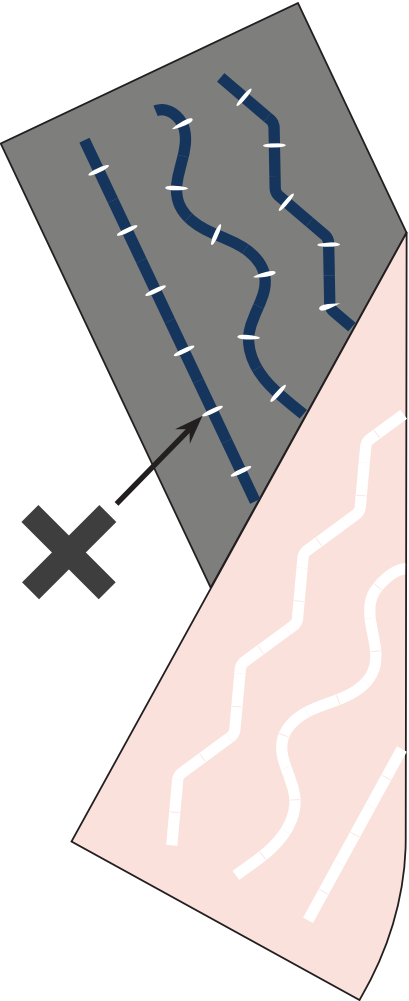
You're ready to sew or quilt!



Top Tension High

Top thread pulling up bottom thread.

Decrease top tension.

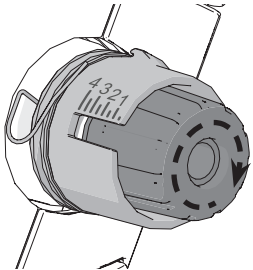


Top Thread

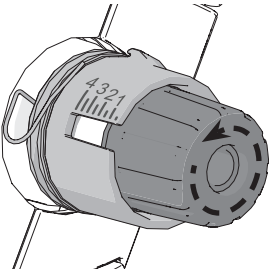


Bottom Thread

- As needed, adjust the tension knob and keep stitching until the overall thread tension appears balanced. Start by adjusting in increments of 1, then in smaller increments to refine the setting.



Increase Top Tension



Decrease Top Tension

Warning: The knob will come off if loosened too far past the lowest setting.

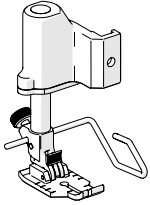
Sewing Mode

Switching to Sewing Mode	24
Sewing Mode Settings	26
Swapping the Presser Foot.....	27
Using the Seam Guide	28
Sewing: Getting Started.....	29

Switching to Sewing Mode

Parts & Tools Needed

Presser Foot Holder



Foot Pedal

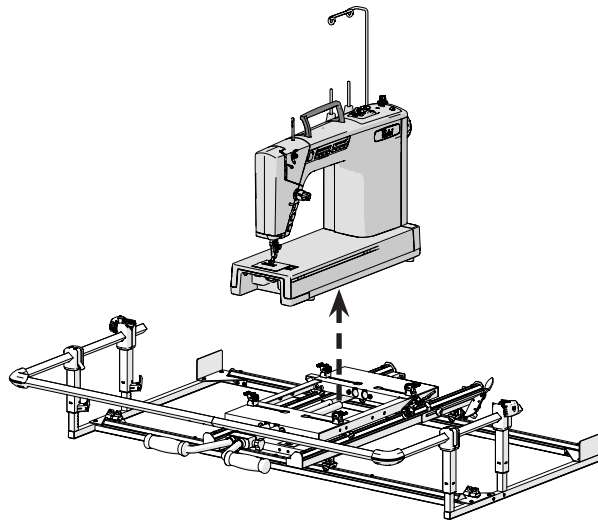


Foot Storage Container

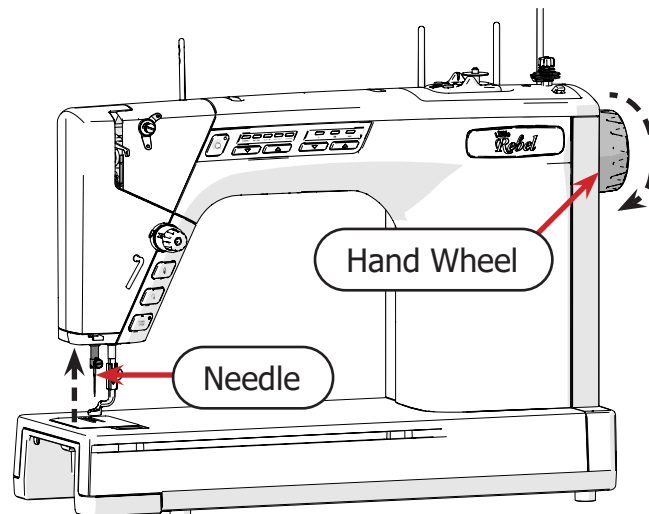
Instructions

Take the following steps to prepare the machine for sewing:

- 1 If the machine is currently on a quilting frame, remove it by following the steps on page 47.

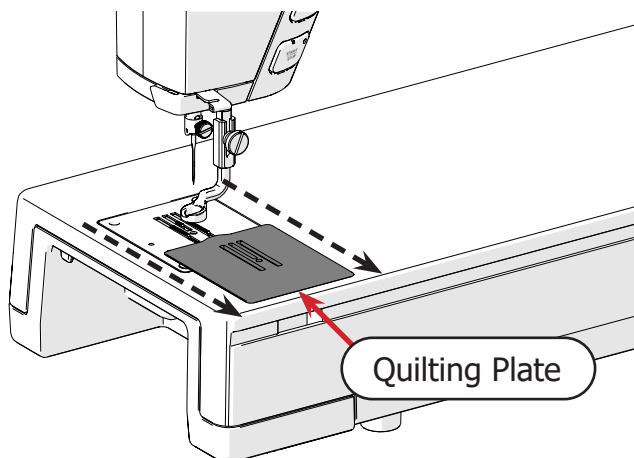


- 2 Rotate the **hand wheel** until the **needle** is in the highest position.

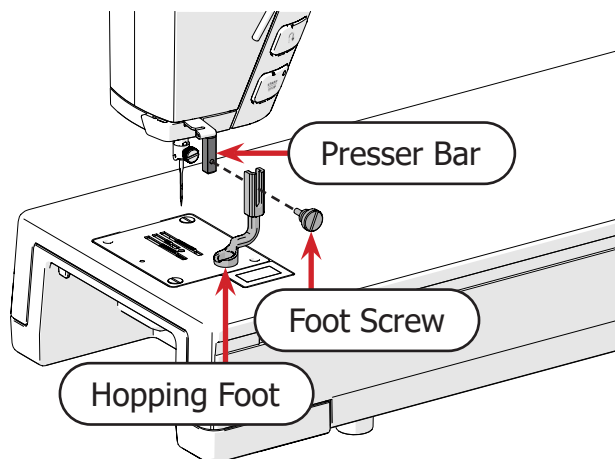


Switching to Sewing Mode (continued)

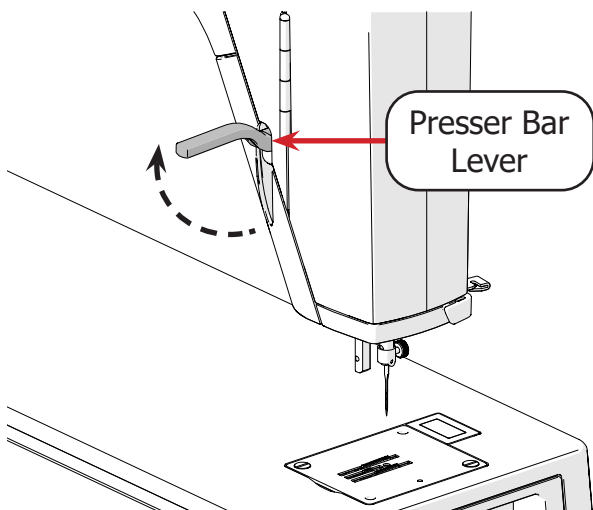
- 3 Remove the magnetic **quilting plate** from the needle area. The machine will beep to show that it has switched to Sewing Mode.



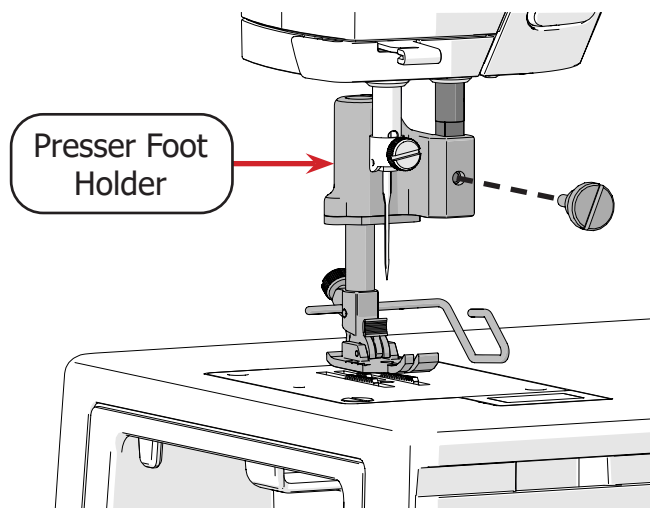
- 4 Remove the **foot screw** and **hopping foot** from the **presser bar**. If needed, use a flat head screwdriver to loosen the foot screw.



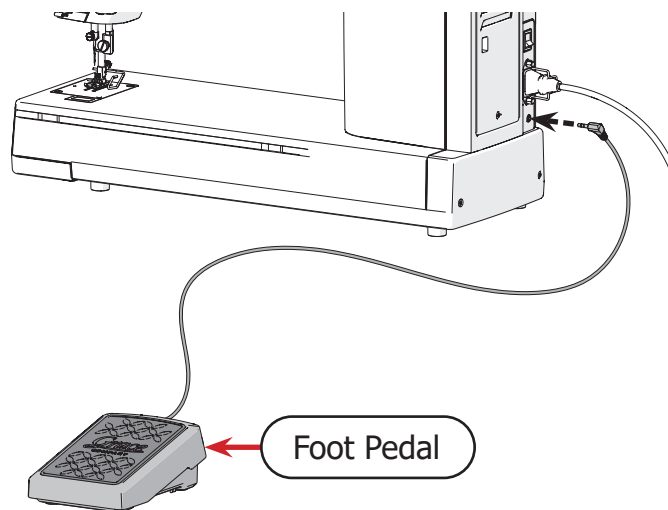
- 5 Lift the **presser bar lever** located behind the needle area.



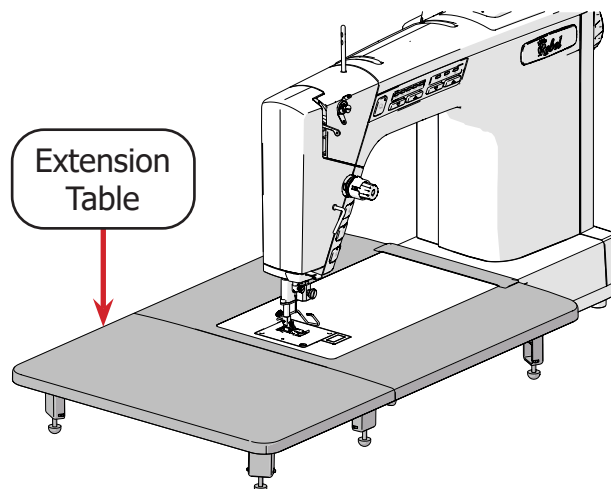
- 6 Use the foot screw to attach the **presser foot holder** to the presser bar.



- 7 **Optional:** Plug the **foot pedal** into the back of the machine, just below the power cord.



- 8 **Optional:** Attach the **extension table** to the machine. See page 55 for details.

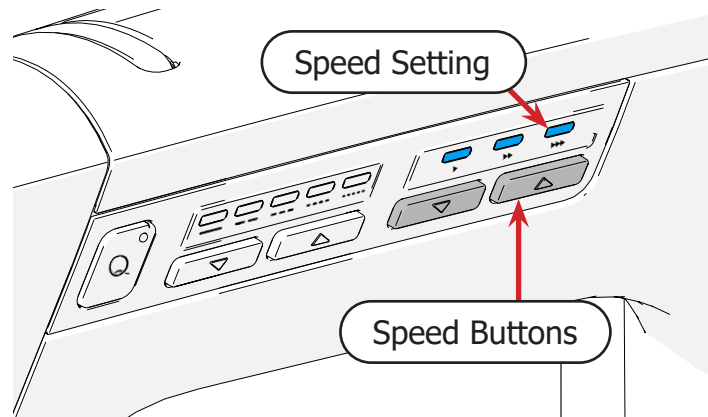


Sewing Mode Settings

Instructions

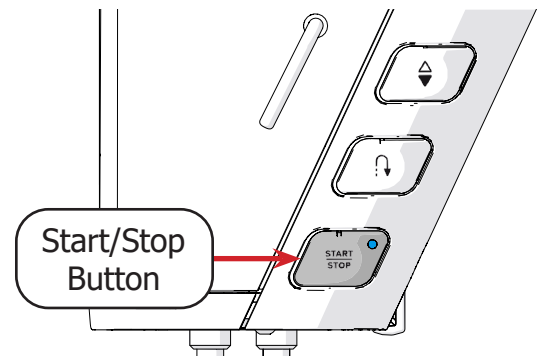
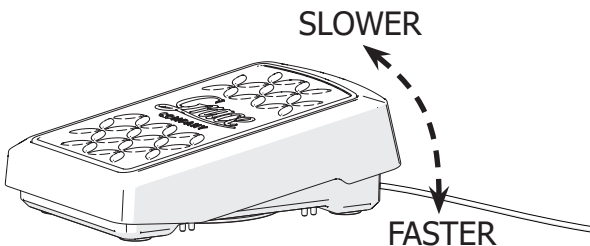
Adjust the following settings before you begin stitching in Sewing Mode. If needed, continue to adjust these settings as you sew.

- 1 Press the **speed buttons** to adjust the **speed setting**.

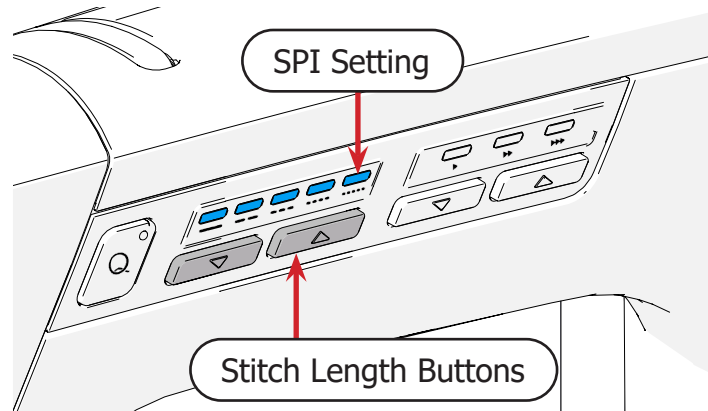


The speed setting functions differently depending on whether or not the foot pedal is plugged in:

- **If the foot pedal is plugged in**, the machine runs and changes speed in response to the foot pedal, but will not exceed the current speed setting.
- **If the foot pedal is not plugged in**, the machine runs consistently at the current speed setting when the **start/stop button** is pressed.



- 2 Press the **stitch length buttons** to adjust the **stitches-per-inch (SPI) setting**. A higher setting makes smaller stitches.



Swapping the Presser Foot

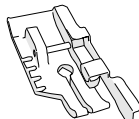
Overview

The Little Rebel is compatible with snap-on presser feet made for low-shank sewing machines. The following presser feet are included with your machine:



Quilter Foot

Ideal for quilt piecing. $\frac{1}{4}$ " seam allowance on right, $\frac{1}{8}$ " on left.



Quilter Foot w/ Edge Guide

Identical to Quilter Foot, but with extended guide on right side.



Zipper Foot

Ideal for sewing along the edge of a zipper. Attaches on left or right side.



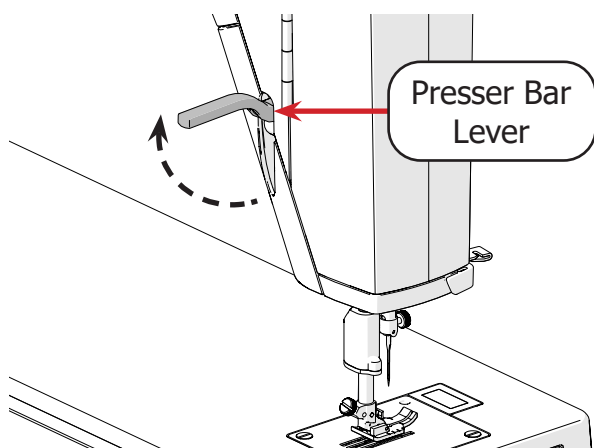
Straight-Stitch Foot

Ideal for lightweight fabrics. $\frac{1}{4}$ " seam allowance on each side.

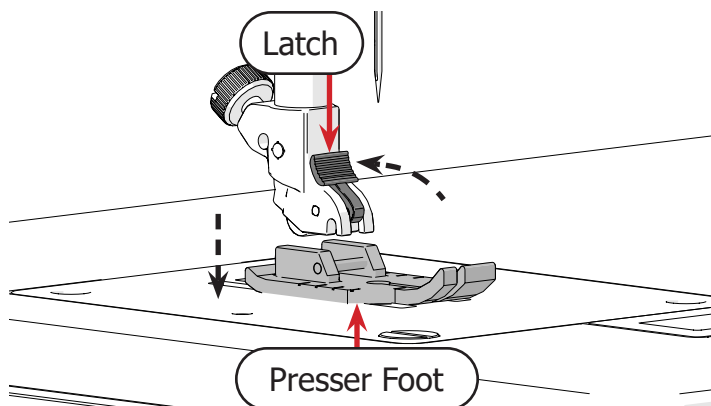
Instructions

Take the following steps to release the presser foot and attach a different presser foot:

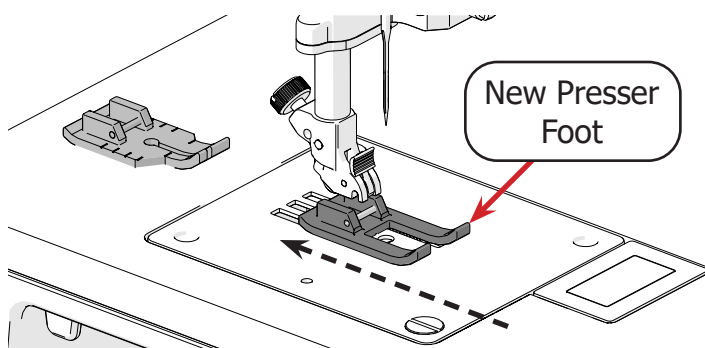
- 1 Lift the **presser bar lever** located behind the needle area.



- 2 Release the currently attached **presser foot** by pressing the **latch** on the front of the presser foot holder.

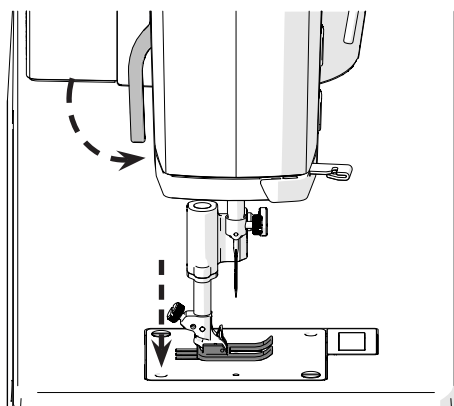


- 3 Slide the **new presser foot** under the presser foot holder. Align the foot so that the holder will catch it when lowered.



Note: Pictured foot not included.

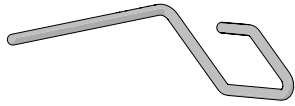
- 4 Lower the presser bar lever. If the holder does not catch the foot, return to step 3 and make sure the foot is aligned correctly.



Using the Seam Guide

Parts & Tools Needed

Seam Guide

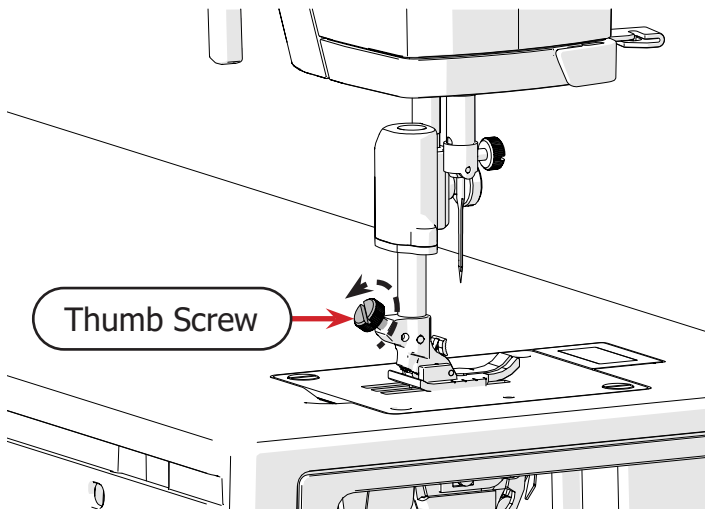


Foot Storage Container

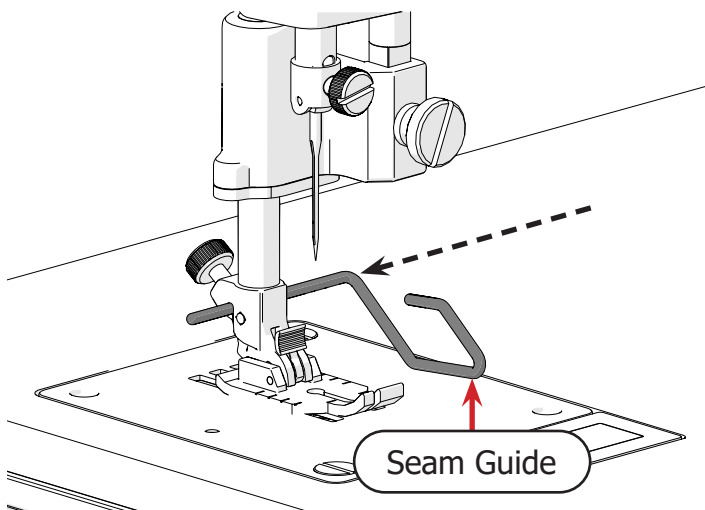
Instructions

The seam guide is an optional attachment that helps you stitch straight lines while in Sewing Mode. Take the following steps to attach the seam guide to the presser foot holder:

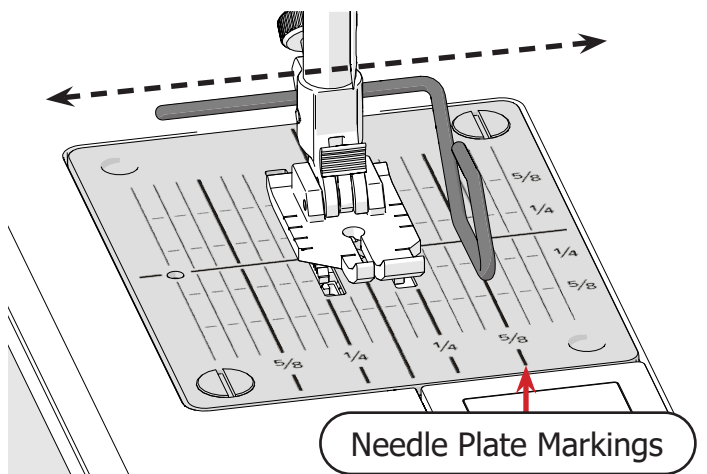
- 1 Loosen the **thumb screw** on the back of the presser foot holder.



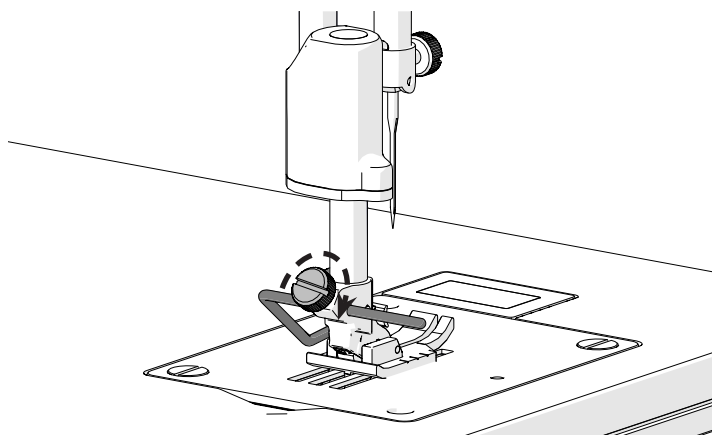
- 2 Insert the **seam guide** into the hole below the thumb screw.



- 3 Align the seam guide as desired, either with a **needle plate marking** or with a line you have drawn or stitched into your fabric.



- 4 Tighten the thumb screw to lock the seam guide at its current position. Loosen and re-tighten the screw as needed to realign the seam guide while sewing.



Sewing: Getting Started

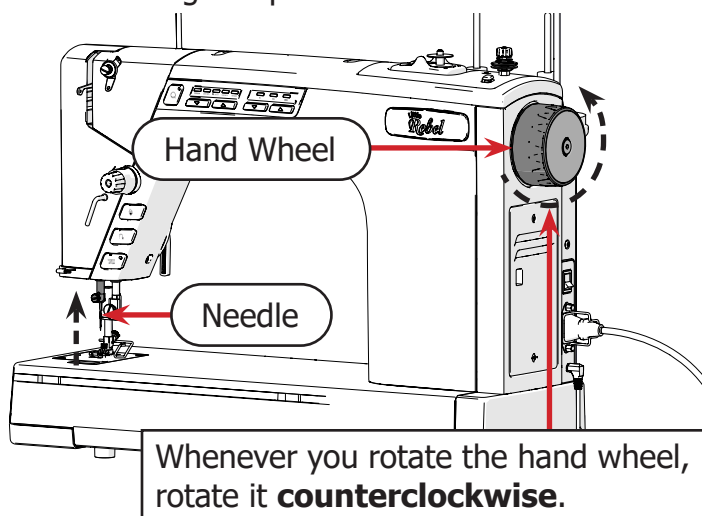
Instructions

If you have completed the following tasks, you are ready to begin stitching in Sewing Mode:

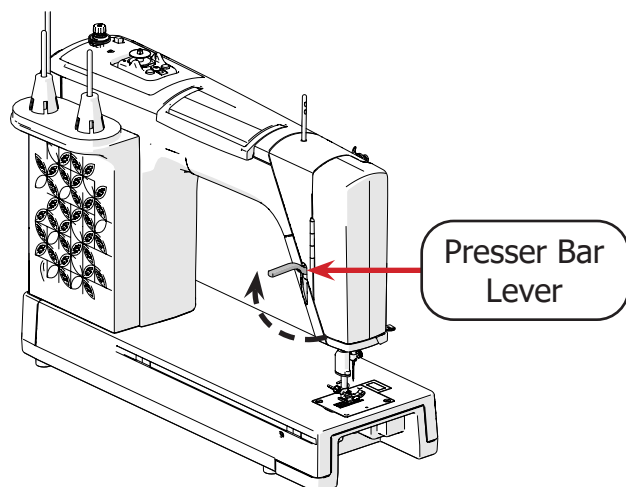
- 1 Loading the Bobbin Case (page 13)
- 2 Threading the Machine (page 17)
- 3 Switching to Sewing Mode (page 24)
- 4 Sewing Mode Settings (page 26)
- 5 Adjusting Thread Tension (page 21)

Follow the steps in this task to become familiar with sewing on the Little Rebel. Use scrap material so you can experiment, get comfortable, and start your projects with confidence. Making mistakes is part of the learning process, so don't get discouraged if your stitches don't look perfect right away!

- 1 Rotate the **hand wheel** until the **needle** is in the highest position.

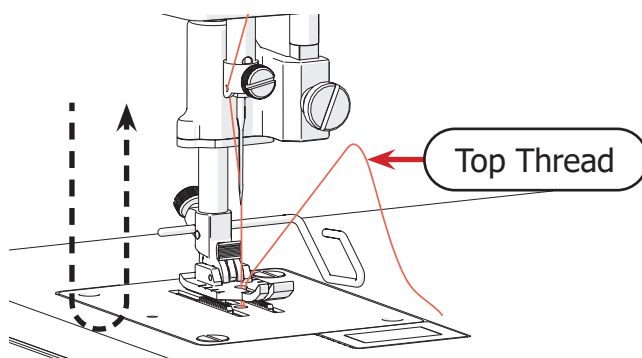


- 2 Lift the **presser bar lever** located behind the needle area.

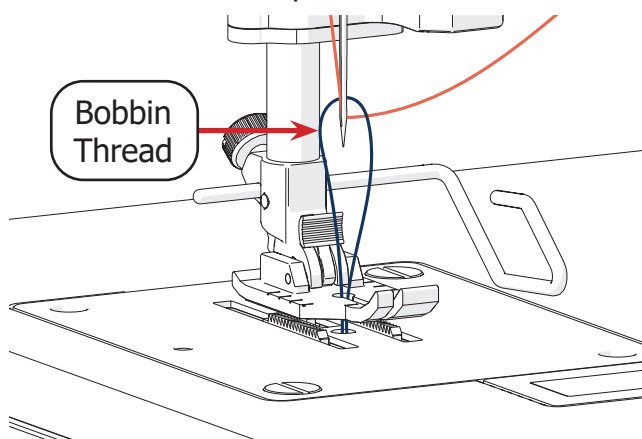


- 3 Pull up the bobbin thread so that any excess thread doesn't get tangled in your stitches:

- a Hold the **top thread** tightly and rotate the hand wheel so that the needle dips down and comes all the way back up.

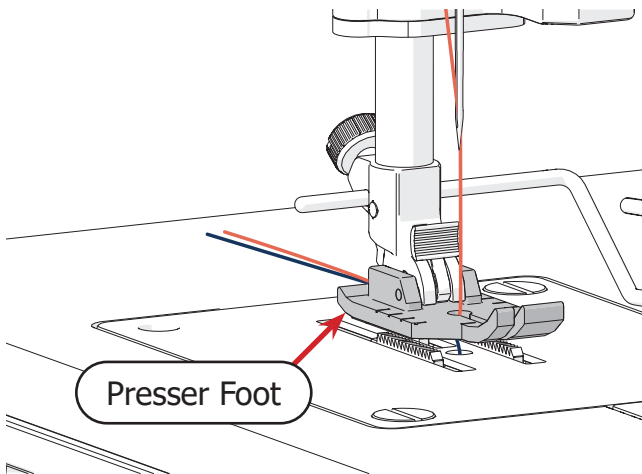


- b Continue until the top thread pulls up a loop of the **bobbin thread**. Pull on the loop until the loose end of the bobbin thread comes up.

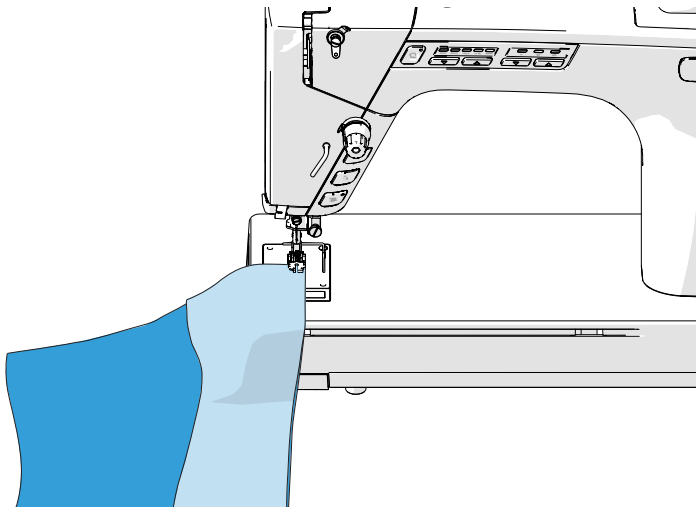


Sewing: Getting Started (continued)

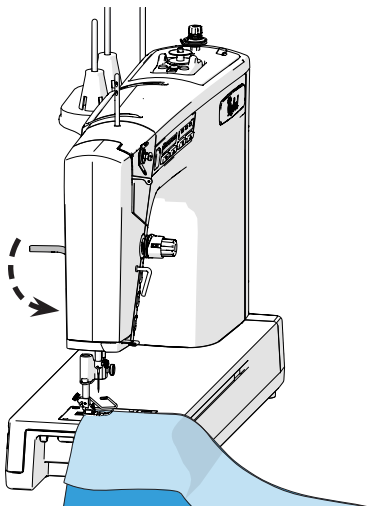
- c Straighten out both threads under the **presser foot** and lay them behind the needle plate, pointing away from you.



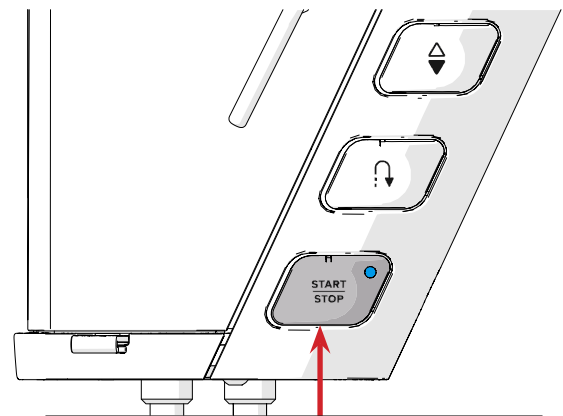
- 4 Align your fabric so that the needle is directly above where you want to begin stitching.



- 5 Lower the presser bar lever to secure the fabric under the **presser foot**.

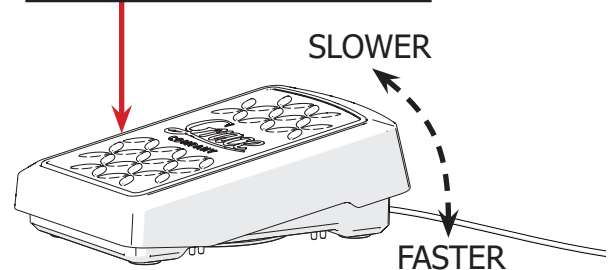


- 6 Begin stitching, either by applying pressure to the **foot pedal** or by pressing the **start/stop button** on the machine.

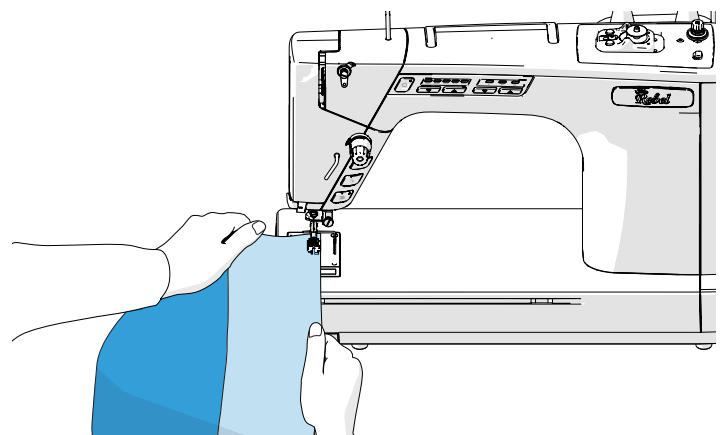


Start/Stop Button
Press to start stitching. Press again to stop stitching. (Disabled while foot pedal is plugged in.)

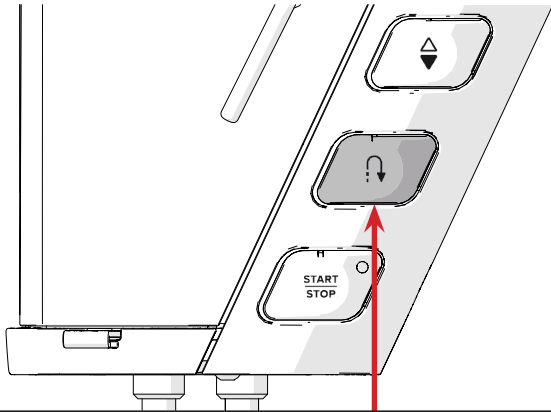
Foot Pedal
Press to start machine and control stitching speed.



While straight stitching, the machine pulls your fabric automatically. Keep your hands on the fabric—at a safe distance from the needle—and gently guide the fabric so that it stays straight as it is pulled.



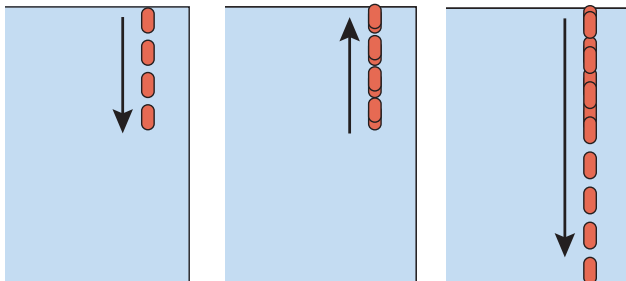
- 7 If you are piecing layers of fabric together, backstitch at the beginning and end of your seam so that the stitches do not come loose. To backstitch, press the **backstitch button** either while you are stitching or after you have stopped stitching.



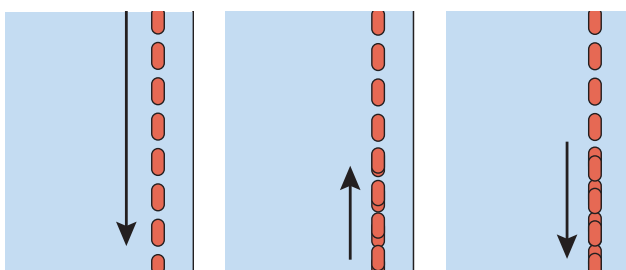
Backstitch Button

Press once to make a few stitches in reverse. Press and hold to stitch in reverse for as long as the button is held.

- a **At the beginning:** Backstitch over your first few stitches. When you reach your original starting point, resume normal stitching.

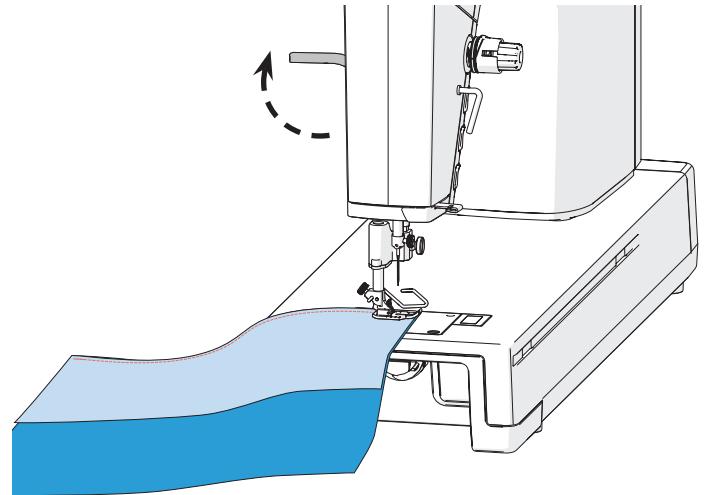


- b **At the endpoint:** Backstitch over your last few stitches, then resume normal stitching until you reach the endpoint again.

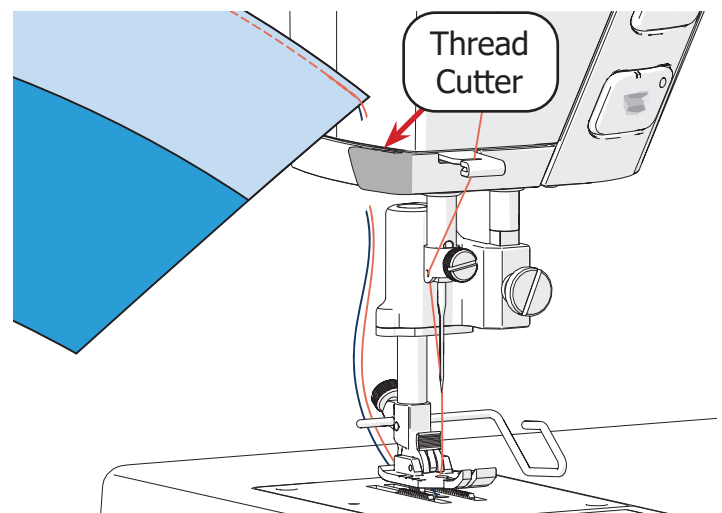


- 8 When you have completed a line of stitches, stop the machine either by pressing the start/stop button or by releasing your foot from the foot pedal.

- 9 Lift the presser bar lever to release your fabric from under the presser foot.



- 10 Pull your fabric away and snip both threads with the **thread cutter** or with a pair of fabric scissors (not included).



Congratulations! You have successfully sewn a straight line of stitches into your fabric. To keep practicing, return to step 4.

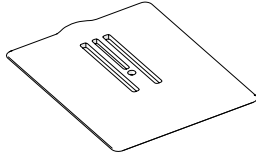
Quilting Mode

Switching to Quilting Mode	33
Quilting Mode Settings.....	39
Choose Your Quilting Setup.....	41
Frame Quilting: Machine Setup.....	42
Frame Quilting: Getting Started	46
Frame Quilting: Machine Takedown	47
Off-Frame Quilting: Preparing Your Quilt	48
Off-Frame Quilting: Getting Started	50

Switching to Quilting Mode

Parts & Tools Needed (All)

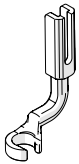
Quilting Plate



Accessory Box

Parts & Tools Needed (Off Frame)

Sit Down Quilting Foot



Accessory Box

Foot Pedal



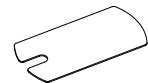
Parts & Tools Needed (On Frame)

Hopping Foot



Foot Storage Container

Hopping Foot Height Tool

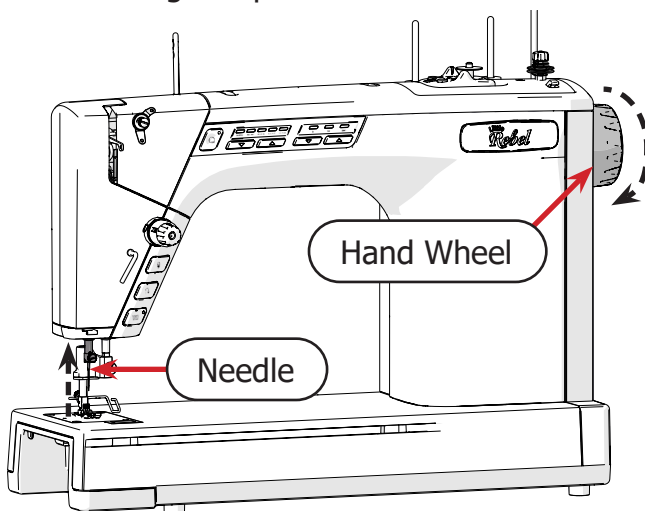


Misc. Container

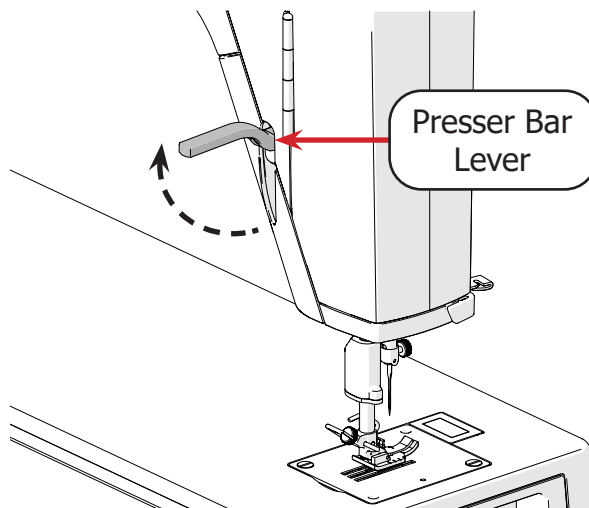
Instructions

Take the following steps to prepare the machine for quilting, whether on or off the frame:

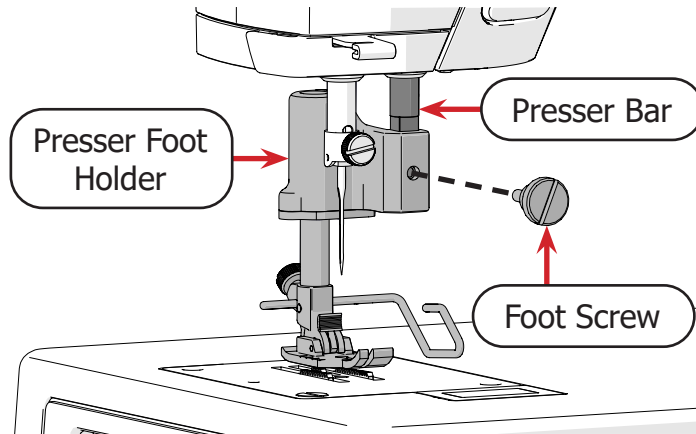
- 1 Rotate the **hand wheel** until the **needle** is in the highest position.



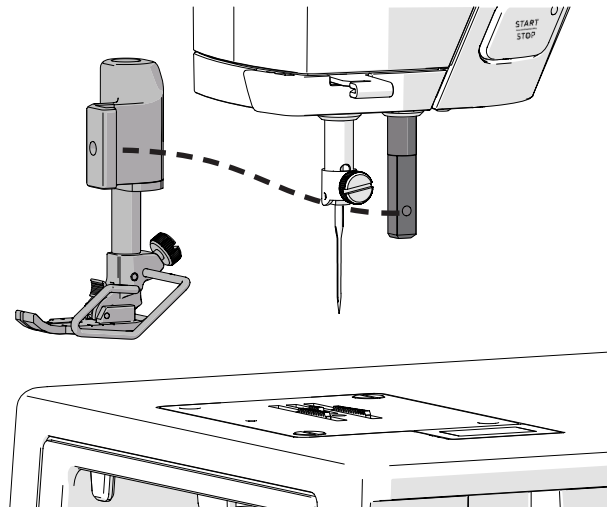
- 2 Lift the **presser bar lever** located behind the needle area.



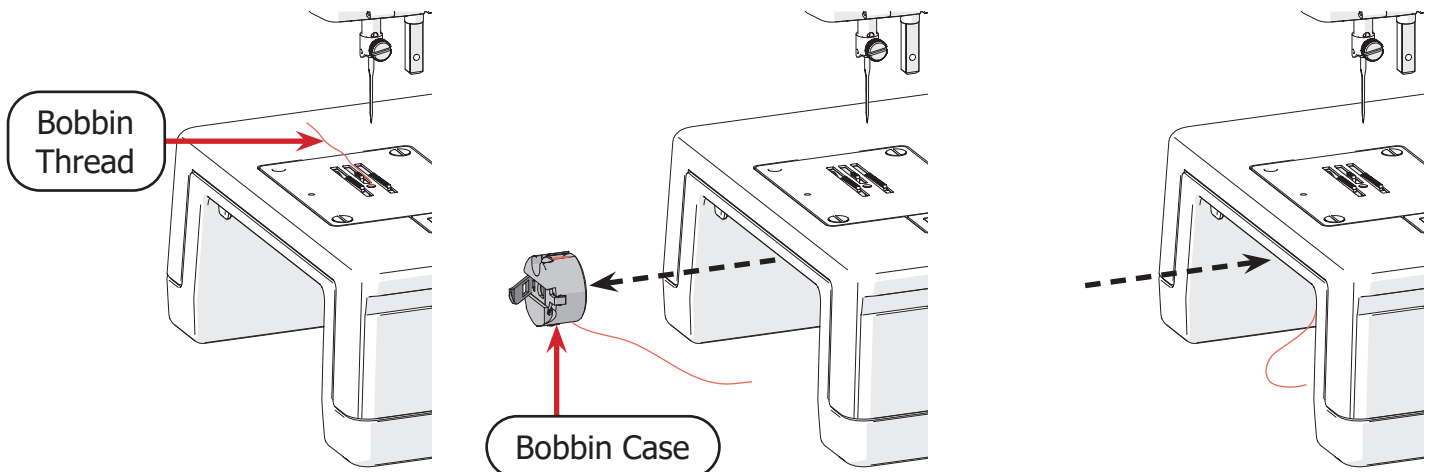
- 3 Remove the **foot screw** holding the **presser foot holder** to the **presser bar**. If needed, use a flat head screwdriver to loosen the foot screw.



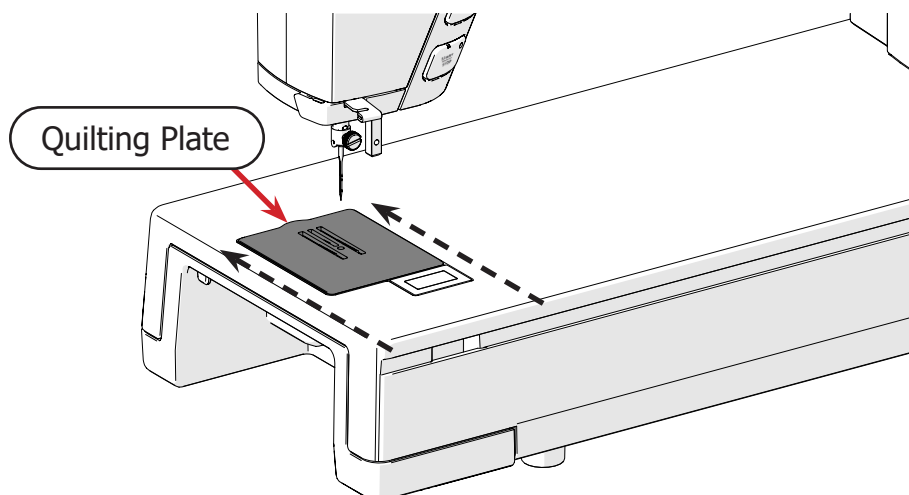
- 4 Remove the presser foot holder from the needle area.



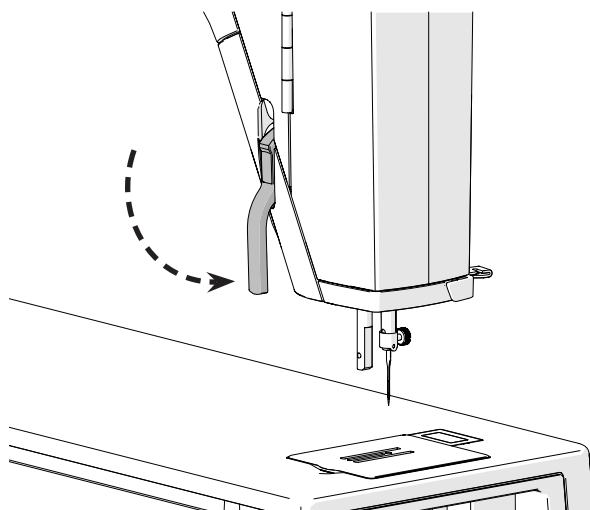
- 5 If the **bobbin thread** is currently pulled up, retract it through the needle plate hole by removing and reinserting the **bobbin case**.



- 6 Slide the magnetic **quilting plate** over the needle plate. The machine will beep to show that it has switched to Quilting Mode.



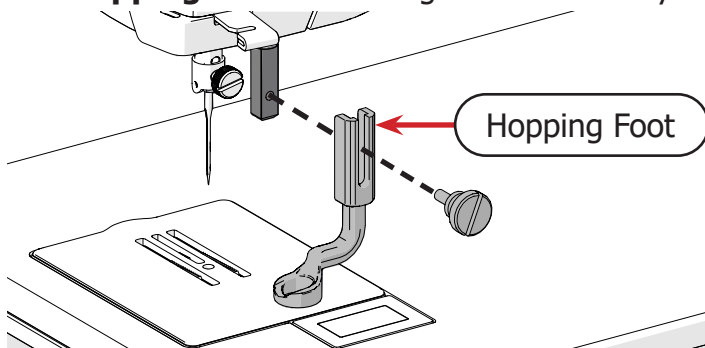
- 7 Lower the presser bar lever.



- 8 For the remainder of this task, follow the steps as presented for **frame quilting** or **off-frame quilting**, depending on whether you will be using a quilting frame.

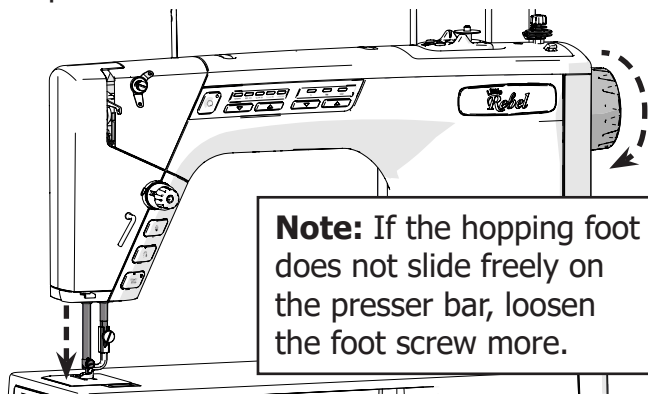
Frame Quilting

- 9 Use the foot screw to loosely attach the **hopping foot**. Do not tighten the screw yet.

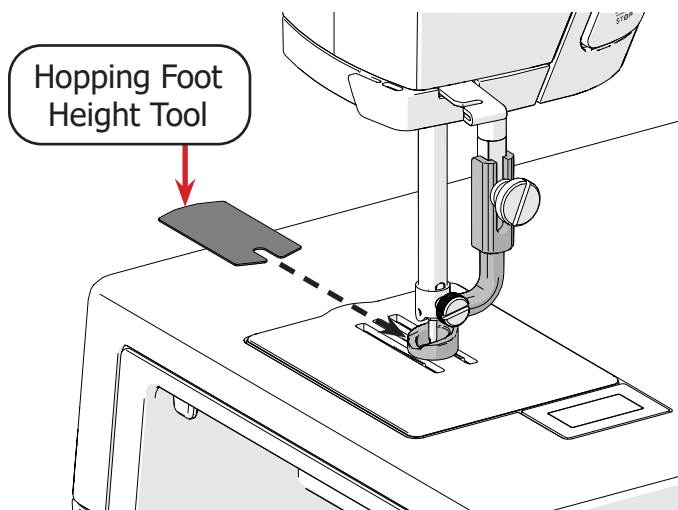


Warning: Do not attempt to lift the presser bar lever while the hopping foot is installed.

- 10 Slowly rotate the hand wheel until the needle and presser bar are in the lowest position.

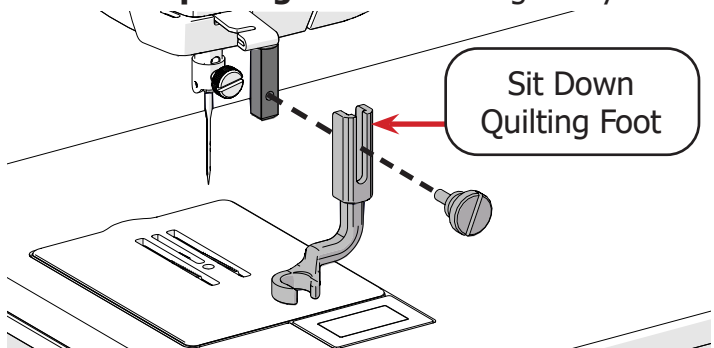


- 11 Slide the **hopping foot height tool** under the hopping foot.



Off-Frame Quilting

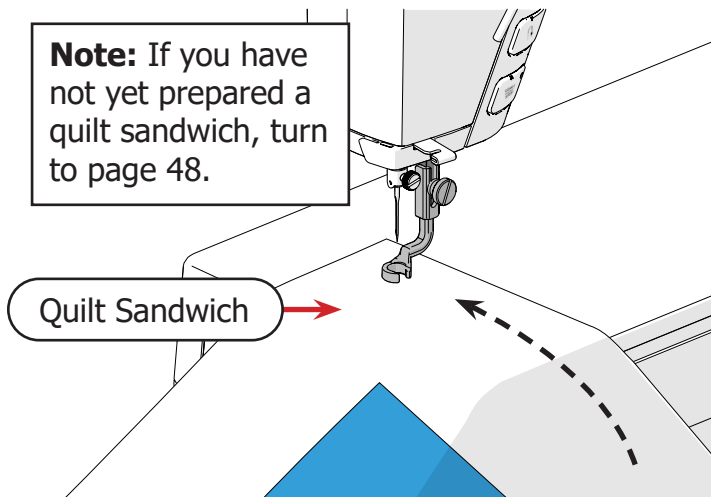
- 9 Use the foot screw to loosely attach the **sit down quilting foot**. Do not tighten yet.



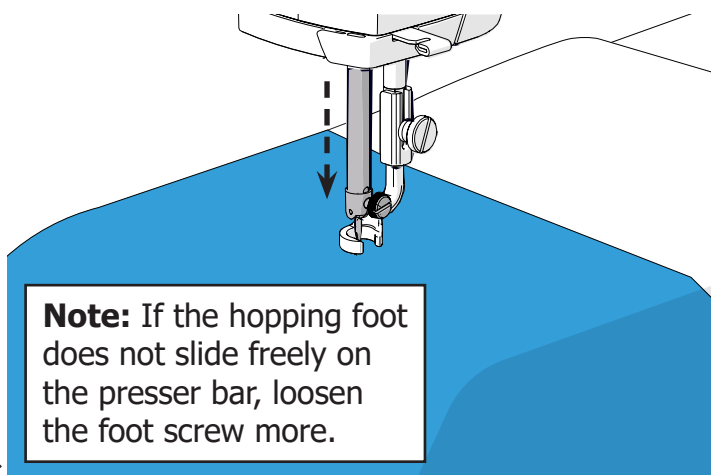
Warning: Do not attempt to lift the presser bar lever while the hopping foot is installed.

- 10 Lift up the hopping foot and slide your **quilt sandwich** under it.

Note: If you have not yet prepared a quilt sandwich, turn to page 48.

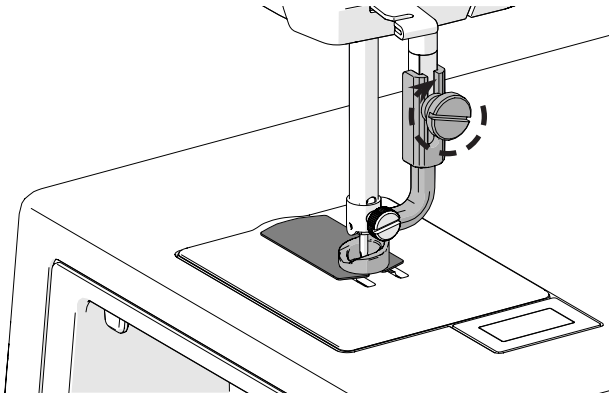


- 11 Slowly rotate the hand wheel until the needle is in the lowest position, piercing through all of the quilt sandwich layers.

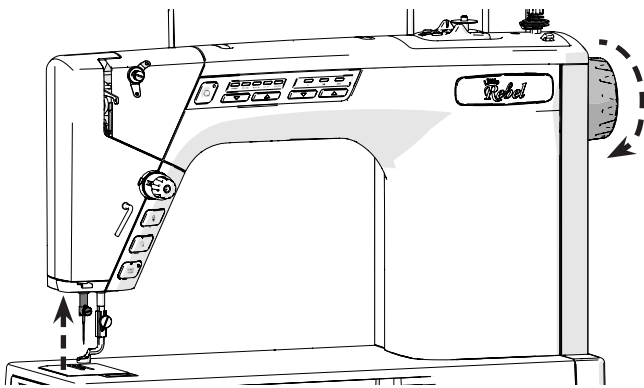


Frame Quilting

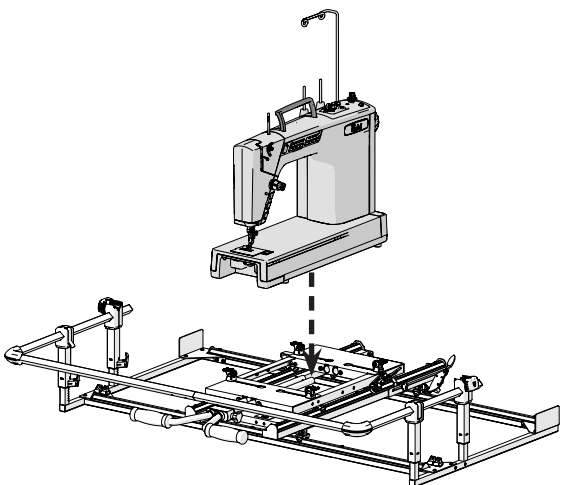
- 12 Make sure the hopping foot is resting evenly on the height tool and tighten the foot screw.



- 13 Remove the height tool and rotate the hand wheel until the needle is in the highest position.

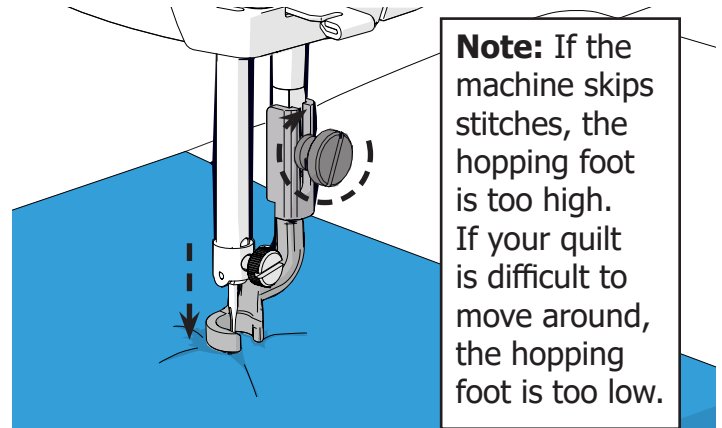


- 14 Place the machine on the frame. See page 42 for details.

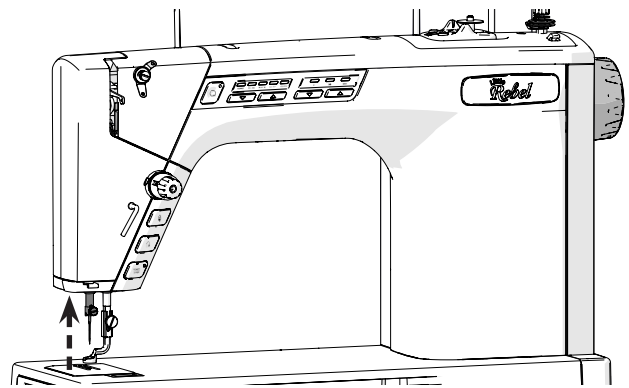


Off-Frame Quilting

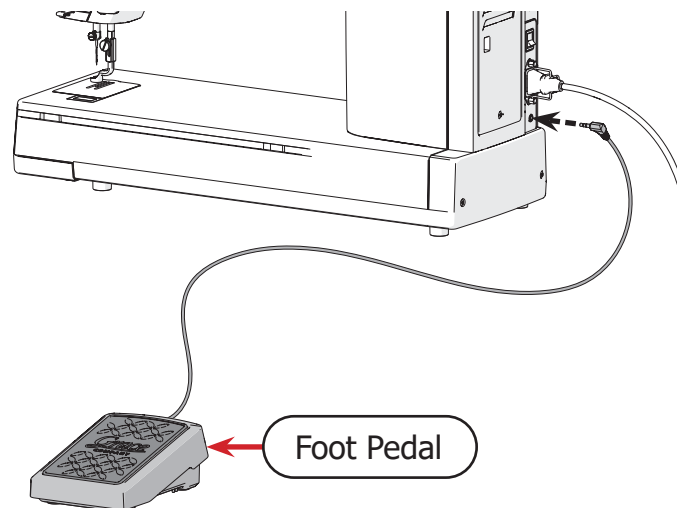
- 12 Gently press the hopping foot down into the fabric and tighten the foot screw.



- 13 Rotate the hand wheel until the needle is in the highest position and remove your quilt sandwich.



- 14 **Optional:** Plug the **foot pedal** into the back of the machine, just below the power cord.

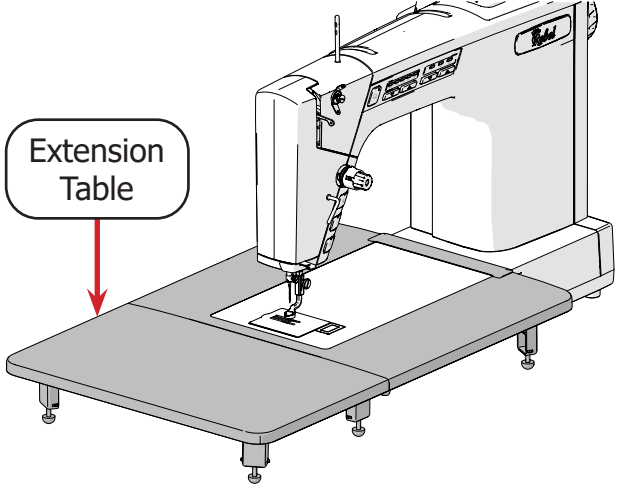


Frame Quilting

Set up is complete.

Off-Frame Quilting

- 15 **Optional:** Attach the **extension table** to the machine. See page 55 for details.



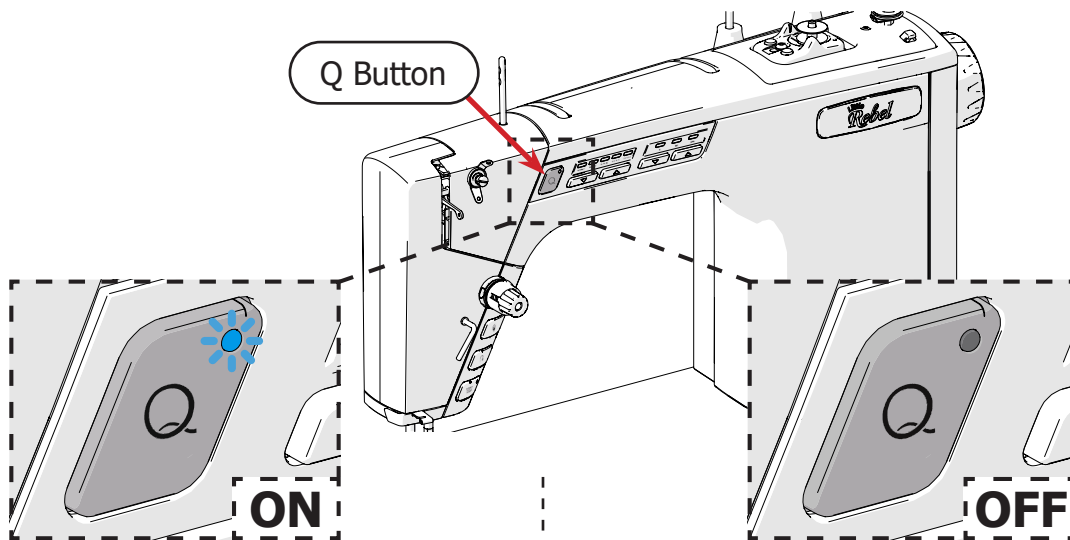
Set up is complete.

Quilting Mode Settings

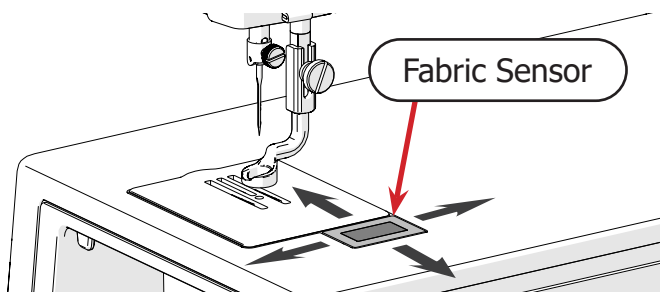
Instructions

Adjust the following settings before you begin stitching in Quilting Mode. If needed, continue to adjust these settings as you quilt.

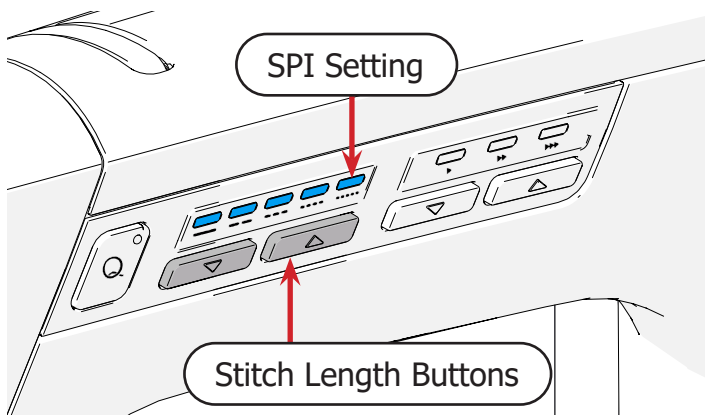
- 1 Press the **Q button** to toggle stitch regulation on/off.



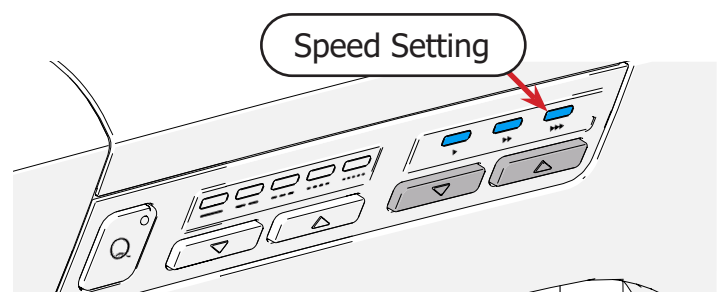
Stitch regulation ON: Speed is determined by the movement of fabric over the **fabric sensor**. The speed buttons are disabled.



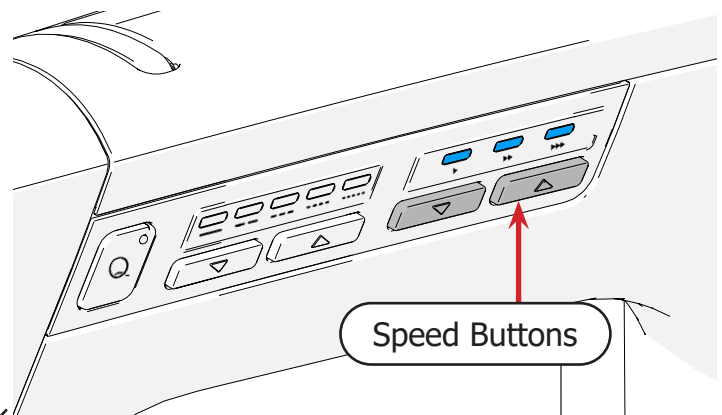
- 2 Press the **stitch length buttons** to adjust the **stitches-per-inch (SPI) setting**. A higher setting makes smaller stitches.



Stitch regulation OFF: Speed is determined by the current **speed setting**. The stitch length buttons are disabled.

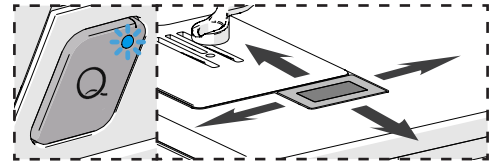


- 2 Press the **speed buttons** to adjust the speed setting. The speed setting functions the same as it does in Sewing Mode (see page 26 for details).

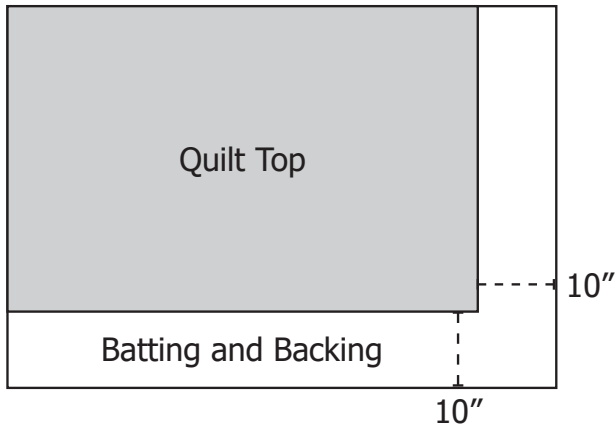


Stitch Regulation Tips

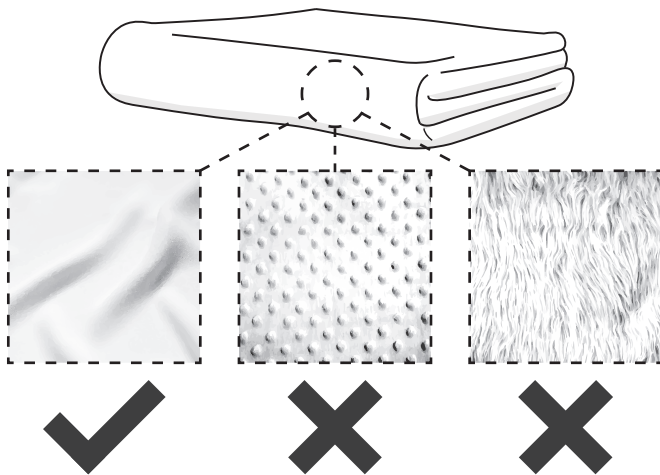
When you quilt with stitch regulation turned on, the machine will skip stitches if your fabric does not make consistent contact with the fabric sensor. To ensure consistent contact, do the following:



- 1 Cut your quilt batting and quilt backing at least 10 inches longer than your quilt top.

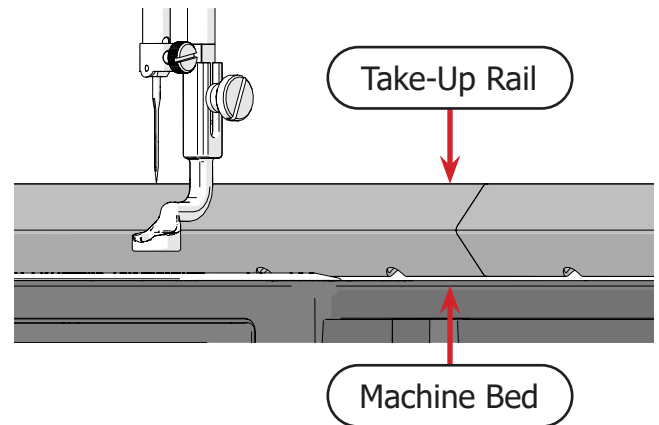


- 2 Avoid fabrics that are puffy or unevenly textured, like faux fur and minky fabrics.

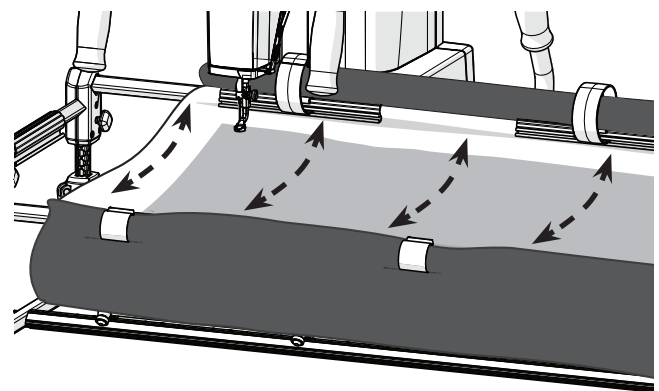


- 3 If you are frame quilting, do the following:

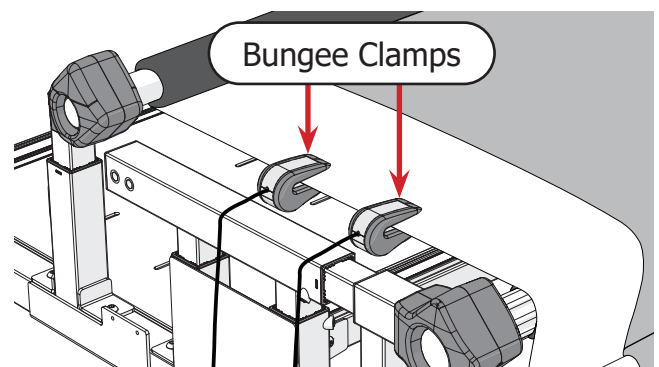
- a Keep your **take-up rail** as low as it can go without touching the **machine bed**.



- b When clamping down or rolling your fabric, leave the fabric tension slightly loose from front to back.



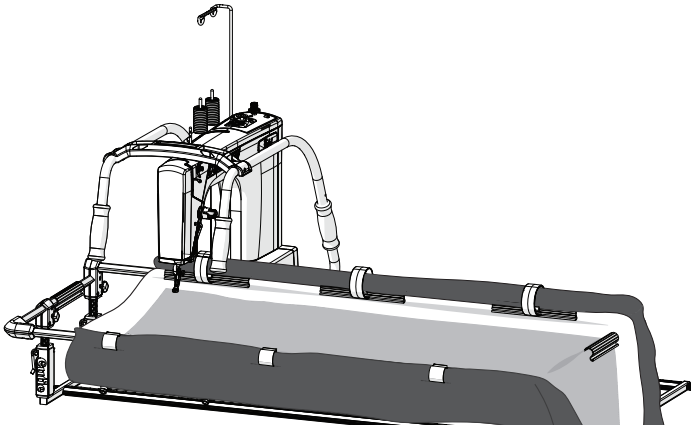
- c If your frame has **bungee clamps**, use them to tension the sides of your fabric.



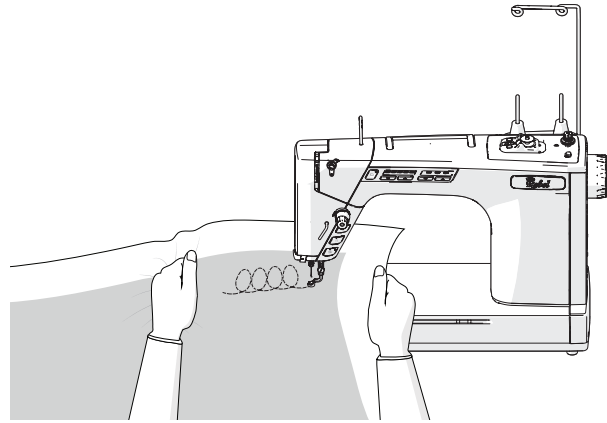
Choose Your Quilting Setup

The remainder of this section is broken into two parts: one for **frame quilting** and one for **off-frame quilting**.

Turn to the indicated page number and complete the tasks as presented for your setup.

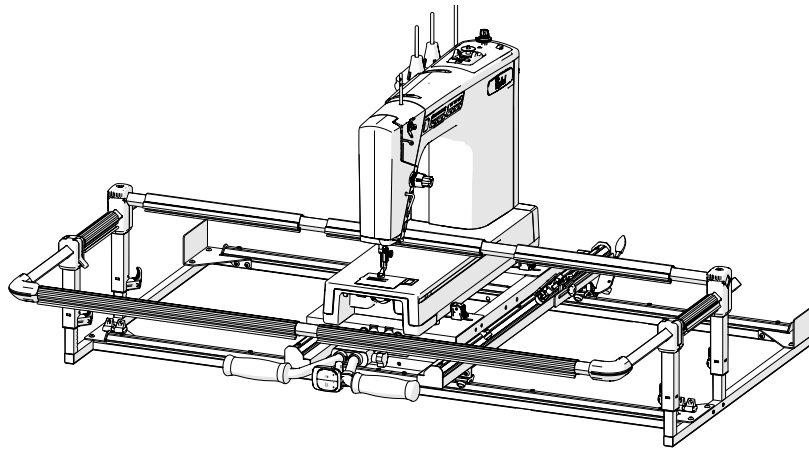


Frame Quilting
page 42



Off-Frame Quilting
page 48

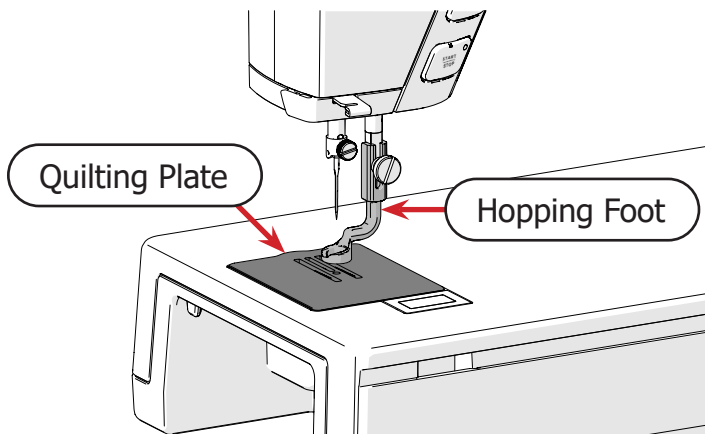
Frame Quilting: Machine Setup



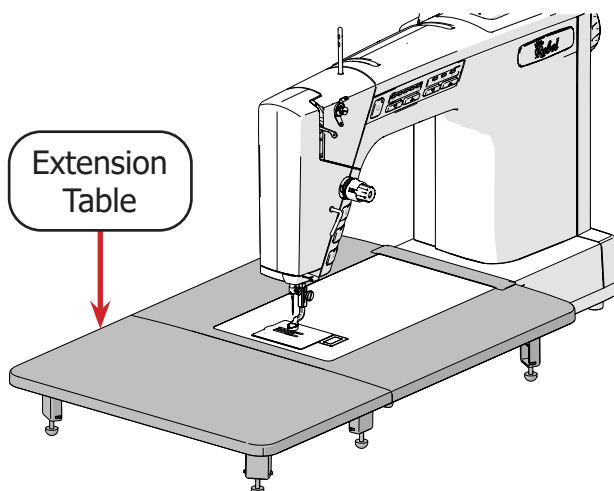
Instructions

If you have completed first-time setup for frame quilting with the Little Rebel (see page 3), take the following steps to reinstall the machine on the frame anytime after you have removed it:

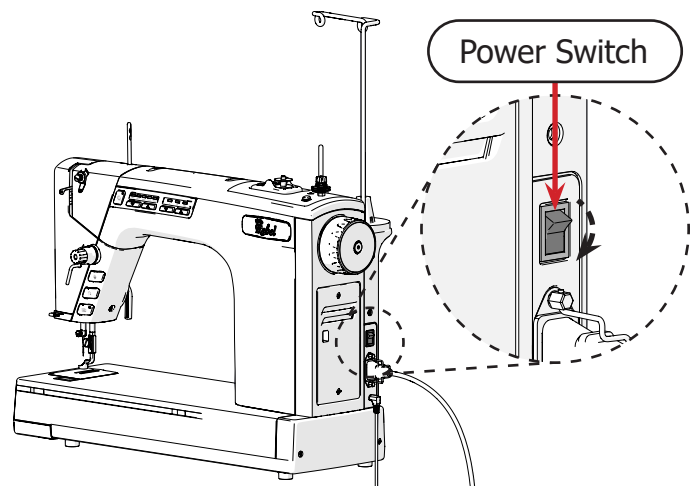
- 1 Verify that the **quilting plate** is attached and the **hopping foot** installed. If they are not, follow the instructions for "Switching to Quilting Mode" beginning on page 33.



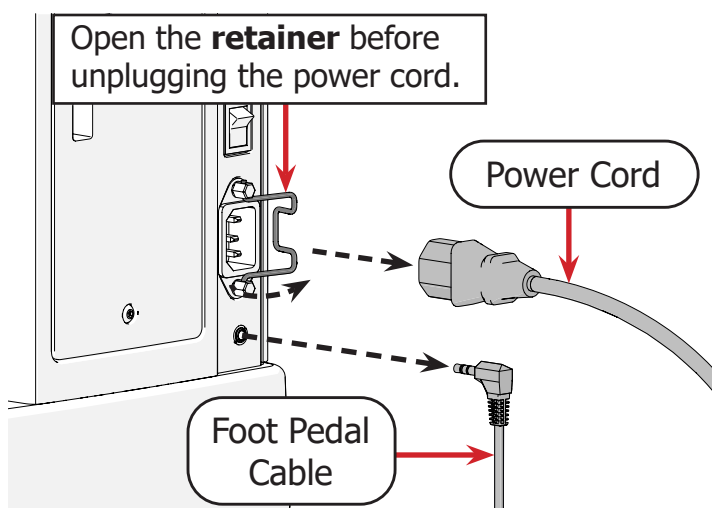
- 2 If the **extension table** is currently attached, remove it. See page 56 for details.



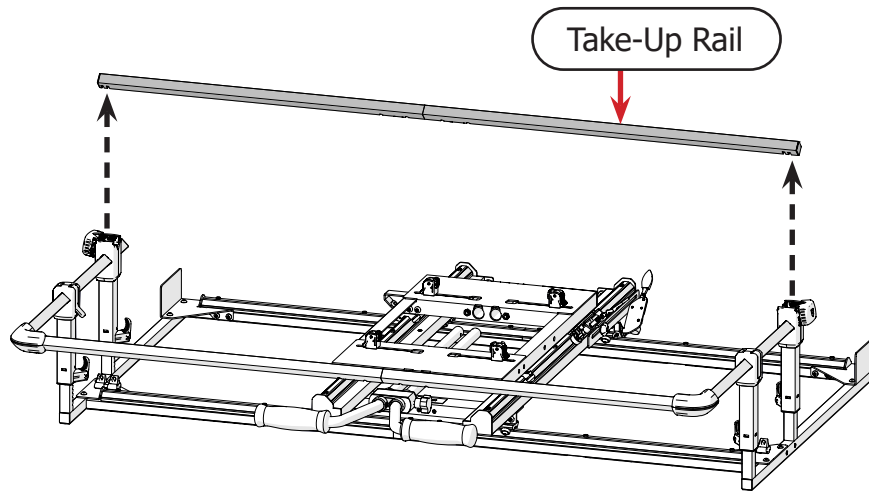
- 3 Turn off the machine by flipping down the **power switch** on the back.



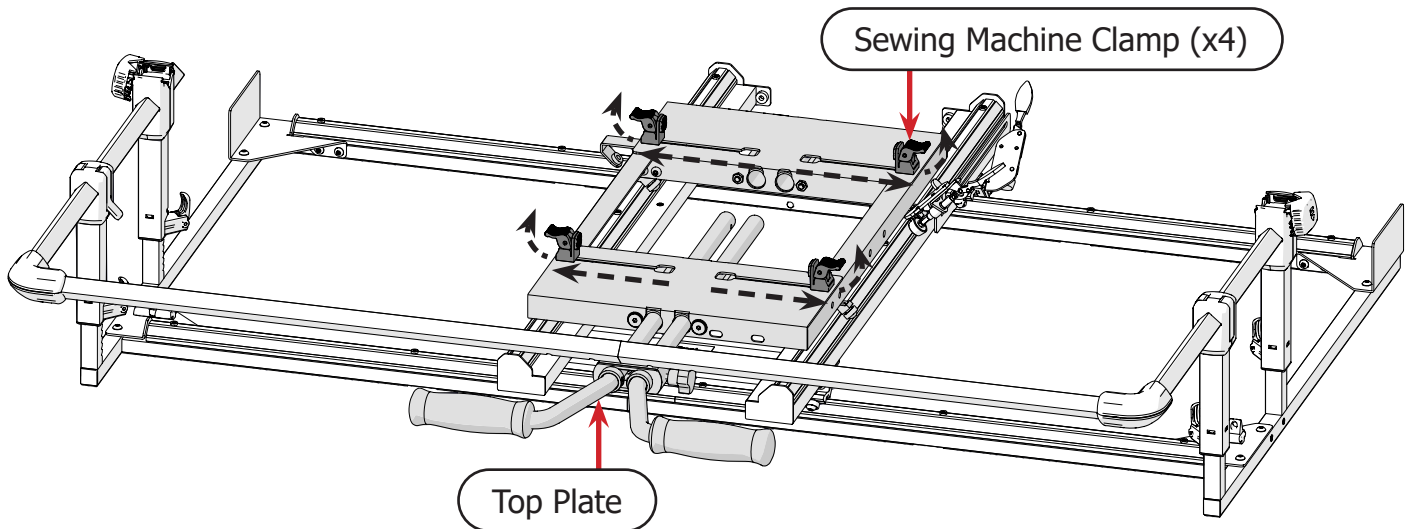
- 4 Unplug the **power cord**, as well as the **foot pedal cable** if it is plugged in.



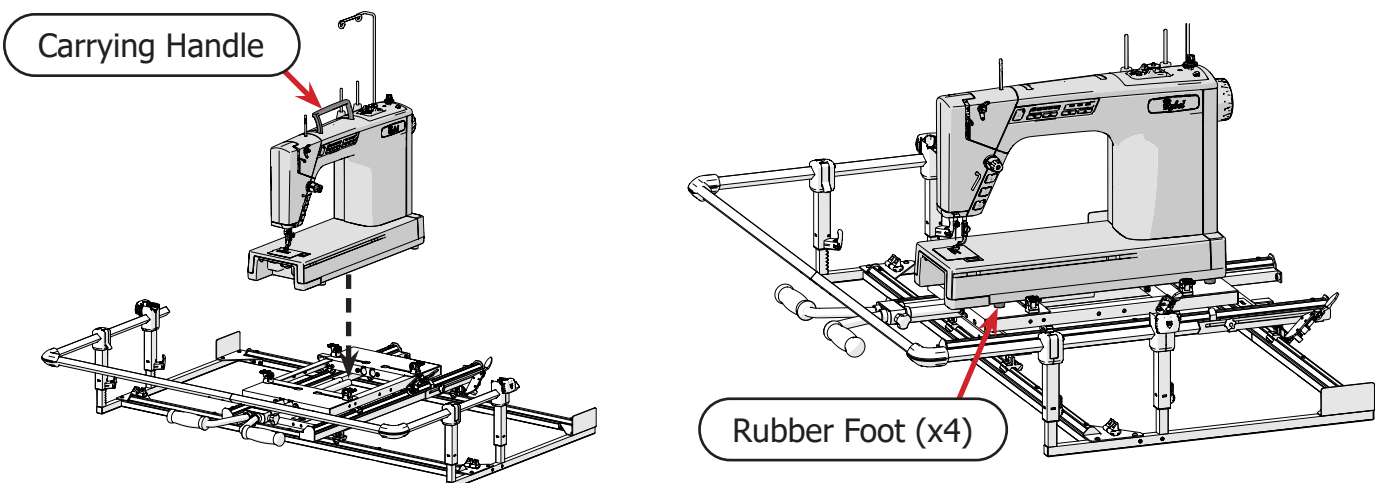
- 5 Remove the **take-up rail** from the quilting frame. See your frame instruction manual for details.



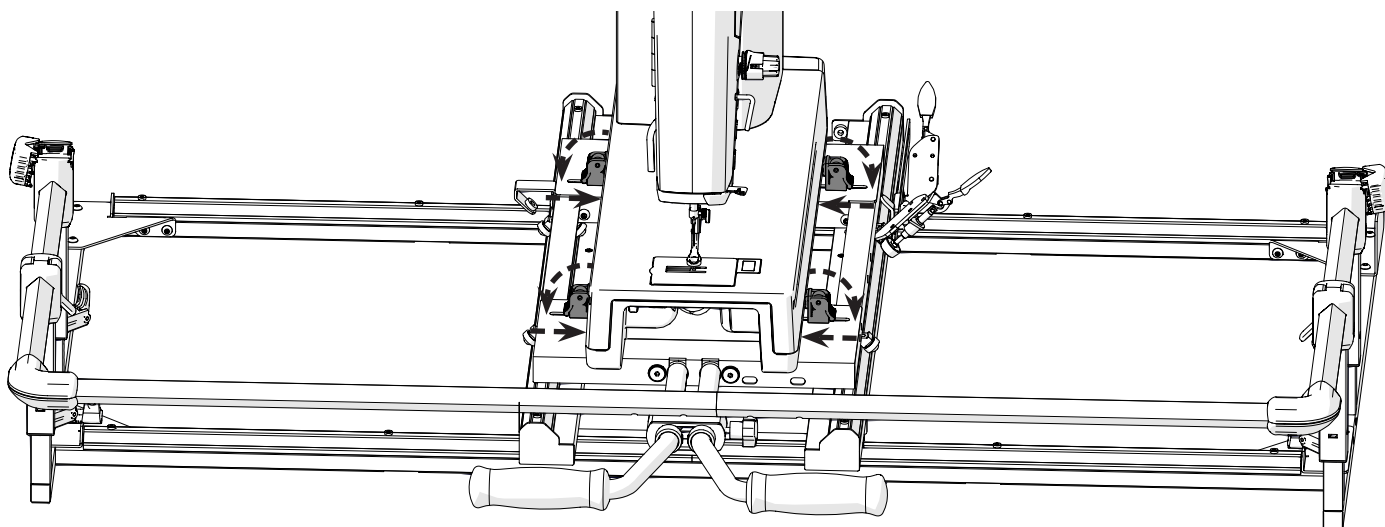
- 6 Unlock the four **sewing machine clamps** on the **top plate** and slide them to the outer edges.



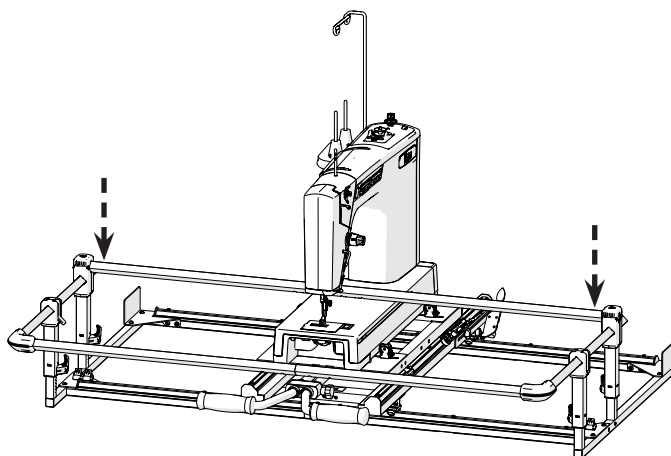
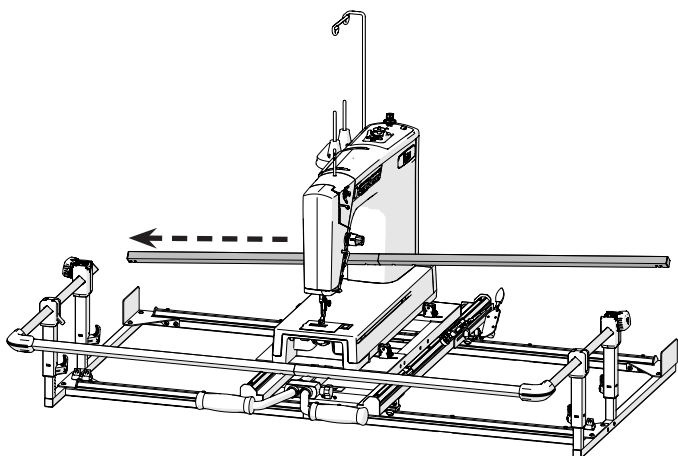
- 7 Use the **carrying handle** to lift the machine and place it squarely on the top plate. Make sure that the machine's **rubber feet** do not hang off the edge of the top plate.



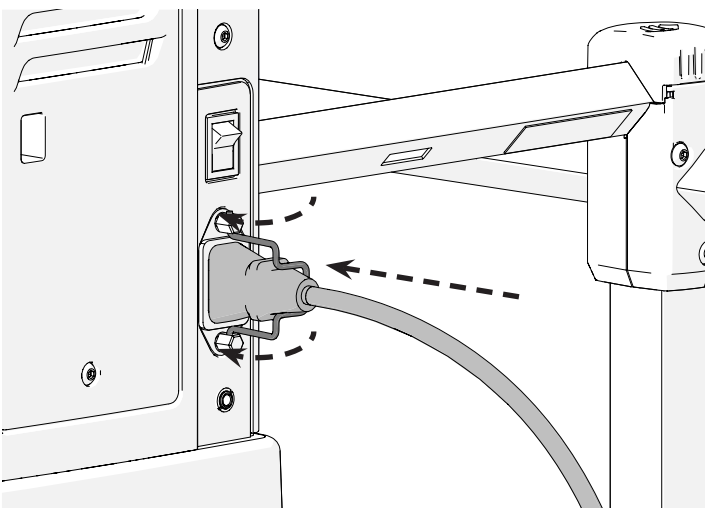
- 8 Slide the sewing machine clamps up against the machine and lock them in place.



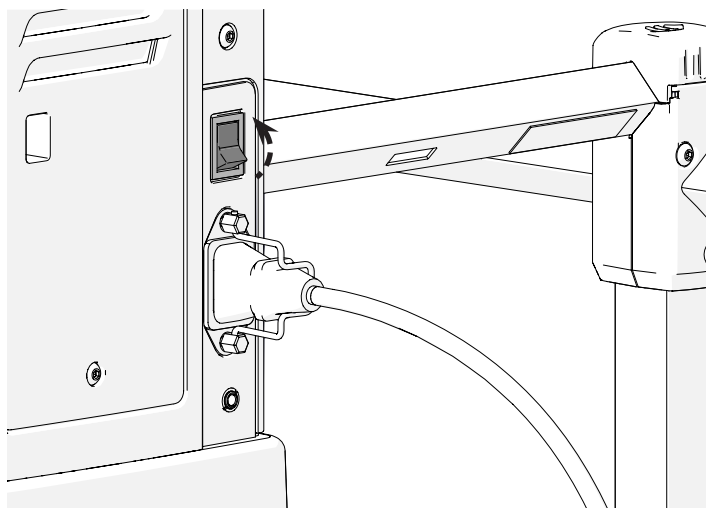
- 9 Guide the take-up rail through the machine throat and reinstall the rail on the frame. See your frame instruction manual for details.



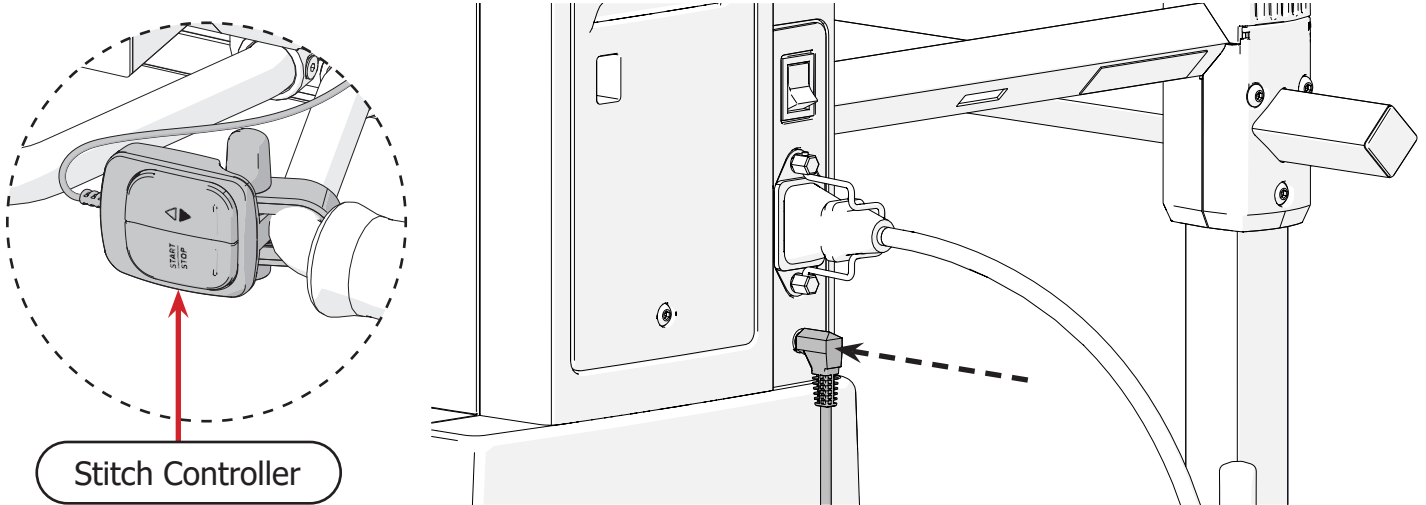
- 10 Plug in the power cord and close the power cord retainer.



- 11 Flip up the power switch to turn on the machine.



- 12 Plug the **stitch controller** into the back of the machine, just below the power cord.



Frame Quilting: Getting Started

Instructions

If you have completed the following tasks, you are ready to quilt with the Little Rebel on your frame:

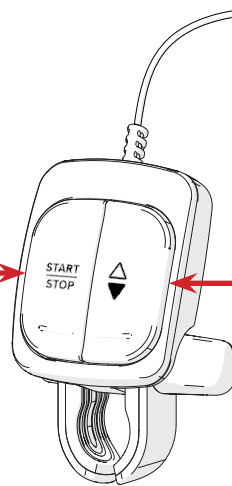
- 1 Preparing Your Frame (page 3)
- 2 Loading the Bobbin Case (page 13)
- 3 Threading the Machine (page 17)
- 4 Switching to Quilting Mode (page 33)
- 5 Quilting Mode Settings (page 39)
- 6 Frame Quilting: Machine Setup (page 42)
- 7 Adjusting Thread Tension (page 21)

After completing all of the above tasks, **follow the instructions in Part Four of your frame instruction manual** to start frame quilting with the Little Rebel.

As you quilt, use the buttons on the stitch controller to operate the machine:

Start/Stop Button

Press to start stitching.
Press again to stop stitching.



Needle Up/Down Button

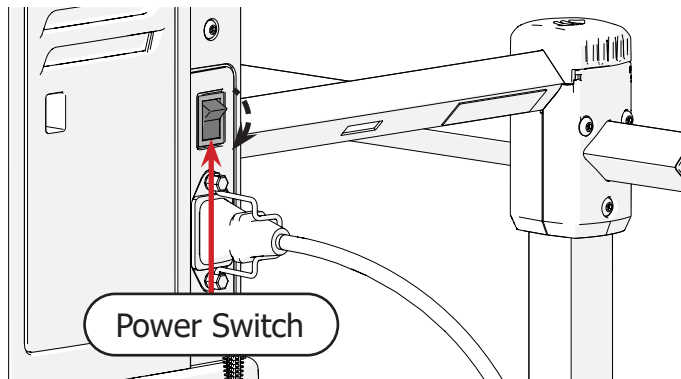
Press once to do a half stitch.
Press twice to do a full stitch.

Frame Quilting: Machine Takedown

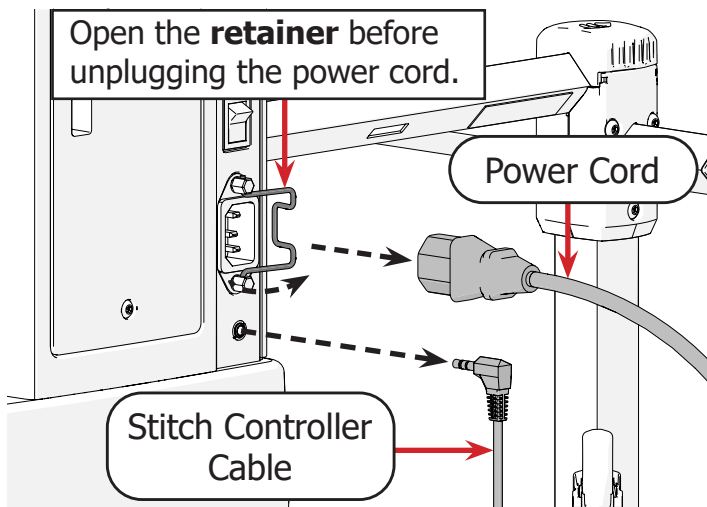
Instructions

Take the following steps to remove the machine from the frame:

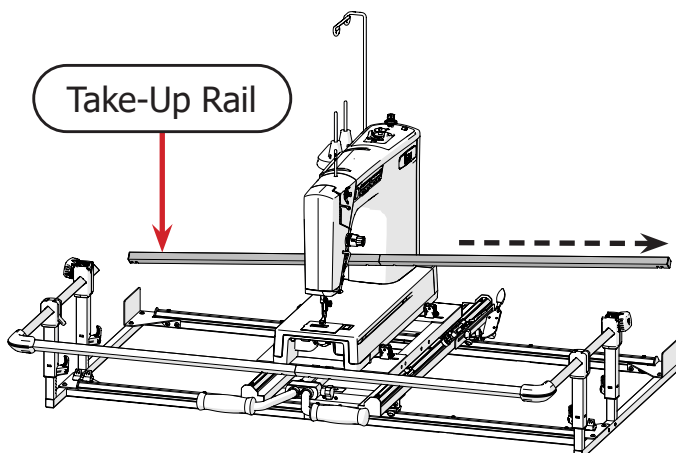
- 1 Turn off the machine by flipping down the **power switch** on the back.



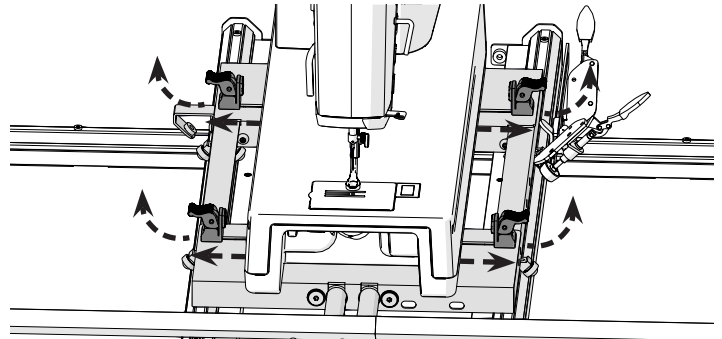
- 2 Unplug the **power cord** and the **stitch controller cable**.



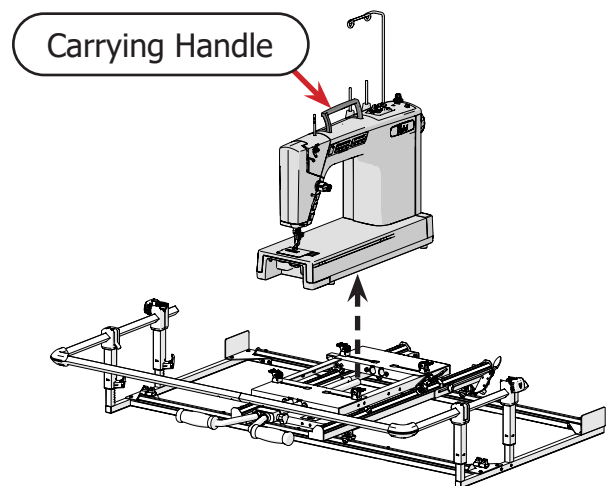
- 3 Remove the frame's **take-up rail**. See your frame instruction manual for details.



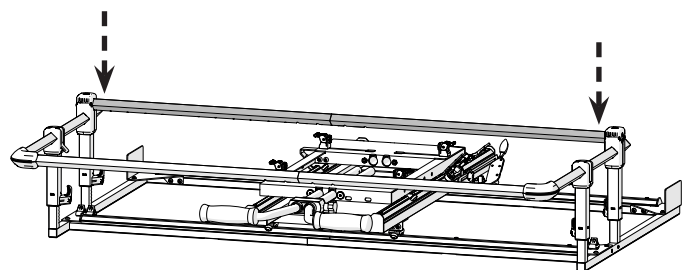
- 4 Unlock the four **sewing machine clamps** on the **top plate** and slide them to the outer edges.



- 5 Use the **carrying handle** to lift the machine off the frame.



- 6 Reinstall the take-up rail on the frame. See your frame instruction manual for details.

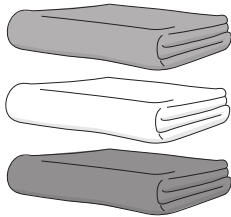


You are now ready to use the machine off the frame. If you will be switching the machine to Sewing Mode, see page 24 for instructions.

Off-Frame Quilting: Preparing Your Quilt

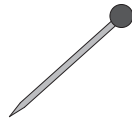
Parts & Tools Needed

Quilt Top, Batting, and Backing



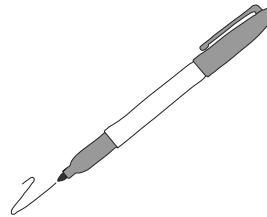
(not included)

Pins



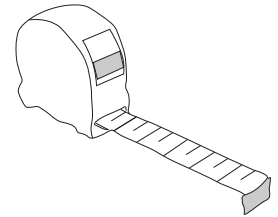
(not included)

Fabric Marking Pencil or Chalk



(not included)

Measuring Tape



(not included)

Terminology

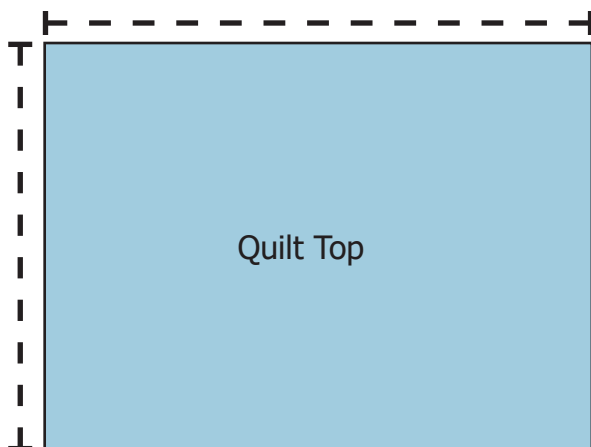
- **Quilt Sandwich:** Quilt top and quilt backing with a layer of quilt batting between them.
- **Right Side/Wrong Side of Fabric:** Some fabrics have a "right side" with prints, textures, or other qualities that the other side (the "wrong side") does not have. The wrong side may simply look faded or washed out compared to the right side.
- **Scrim Side of Batting:** Some types of batting have a side that feels coarse or pimply compared to the other side, which feels smooth and puffy. The coarse and pimply side is the "scrim side."

Instructions

Follow the steps in this task to prepare your quilt sandwich for off-frame quilting with the Little Rebel. To prepare a quilt sandwich for frame quilting, see your frame instruction manual instead.

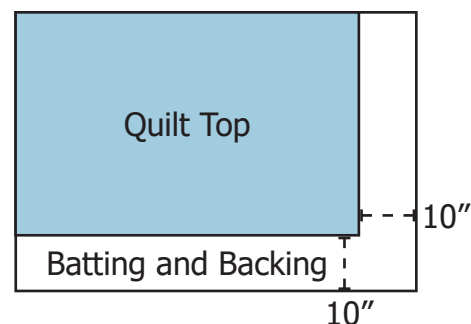
Note: The first time you follow these steps, practice with spare pieces of fabric so you can safely experiment and make mistakes. Be sure to use all three layers (quilt top, batting, and backing) when practicing.

- 1 Measure the length and width of your **quilt top**. Write down your measurements.

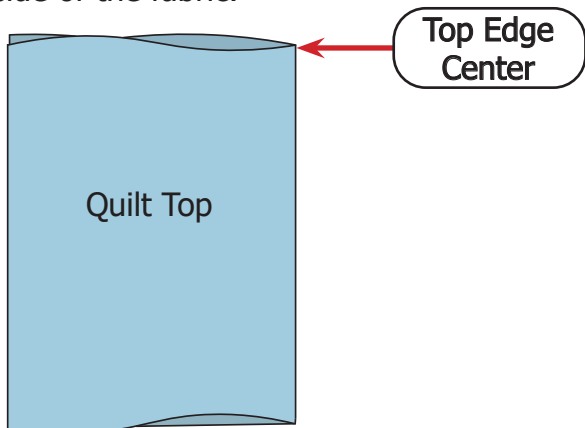


- 2 Cut your **quilt batting** and **quilt backing** at least 10 inches longer than your quilt top.

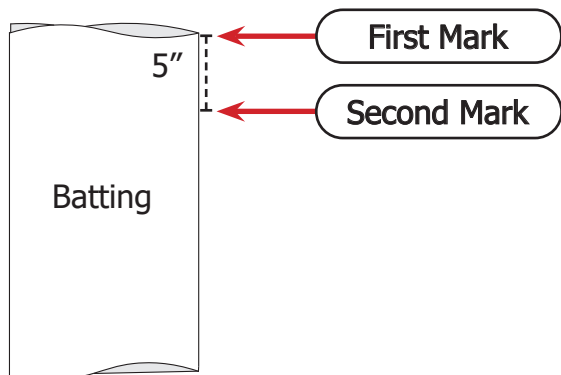
Note: The extra length gives you something to hold onto while moving your fabric, as well as more range around the fabric sensor if you have stitch regulation turned on.



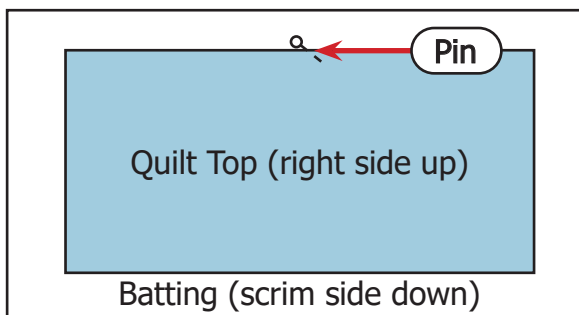
- 3 Fold your quilt top in half with the right side facing outward. Mark the **center of the top edge** with a pin or marker on the right side of the fabric.



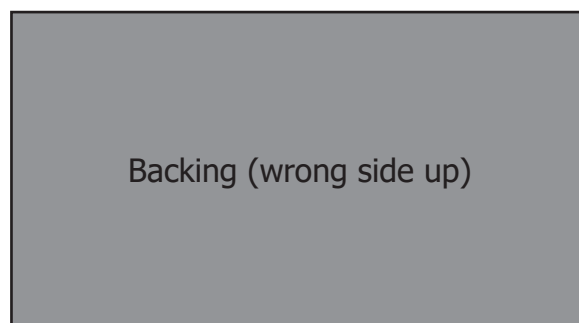
- 4 Fold your batting in half with the scrim side facing inward and **mark** the center of the top edge with a pin or marker. Then use measuring tape or a ruler to make a **second mark** 5 inches below the first.



- 5 Align the mark on the quilt top with the second mark on the batting. **Pin** the two layers together with the right side of the quilt top facing up and the scrim side of the batting facing down.

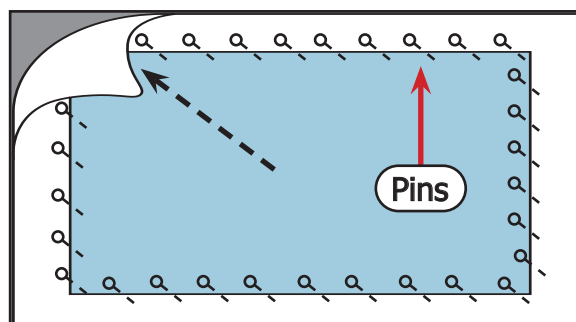


- 6 Lay your quilt backing down with the wrong side facing up.

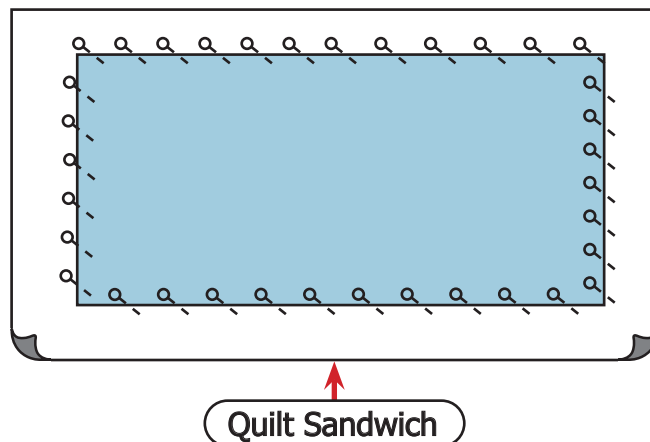


- 7 Lay the batting and quilt top over the backing and **pin** all of the layers together.

Tip: Roll up the batting and quilt top, align them with the edge of the backing, and unroll them over the backing.



- 8 Roll up your newly built **quilt sandwich** so that you can easily carry it to the machine.



Note: Whenever you switch the machine to Quilting Mode for off-frame quilting, use your quilt sandwich to set the hopping foot height.

Off-Frame Quilting: Getting Started

Instructions

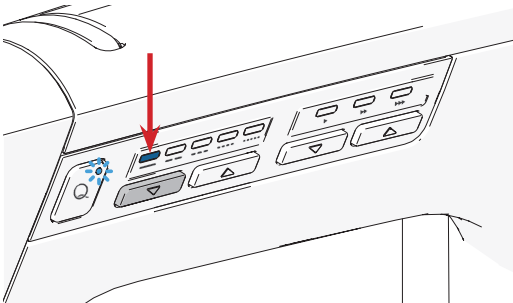
If you have completed the following tasks, you are ready to quilt without a frame in Quilting Mode:

- 1 Off-Frame Quilting: Preparing Your Quilt (page 48)
- 2 Loading the Bobbin Case (page 13)
- 3 Threading the Machine (page 17)
- 4 Switching to Quilting Mode (page 33)
- 5 Quilting Mode Settings (page 39)
- 6 Adjusting Thread Tension (page 21)

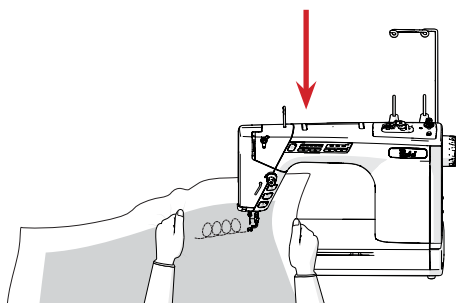
Follow the steps in this task to become familiar with off-frame quilting. Use scrap material so you can experiment, get comfortable, and start your projects with confidence. Making mistakes is part of the learning process, so don't get discouraged if your stitches don't look perfect right away!

- 1 **If you have not yet tacked down your quilt top edges**, adjust the machine settings so you can make long stitches that will be easy to remove later. Otherwise, skip this step.

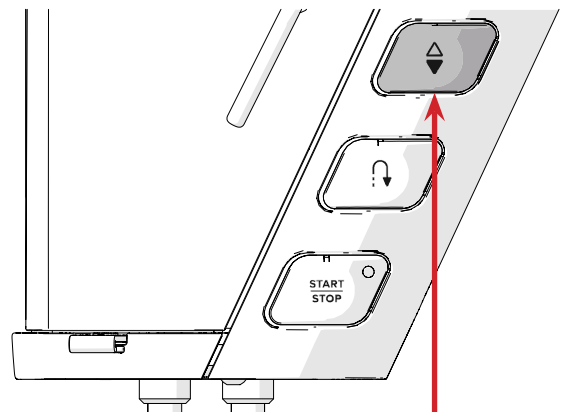
- **If stitch regulation is turned on**, turn down the SPI setting all the way to the longest stitch length.



- **If stitch regulation is turned off**, you will need to move the fabric more quickly in order to make longer stitches. If desired, turn down the speed setting to give yourself more time to move the fabric between each stitch.

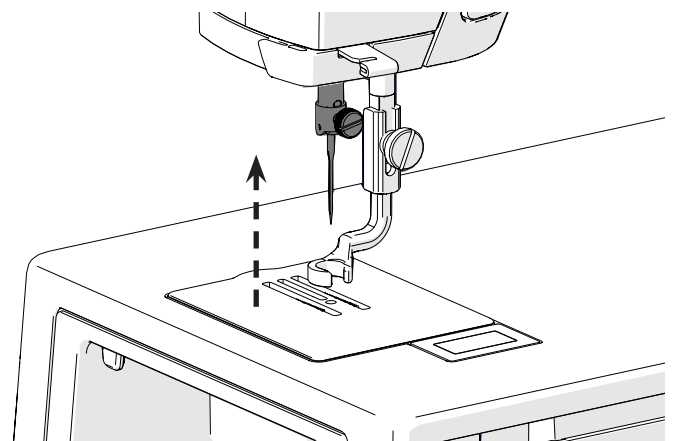


- 2 Move the needle to the highest position by pressing the **needle up/down button** once or twice.

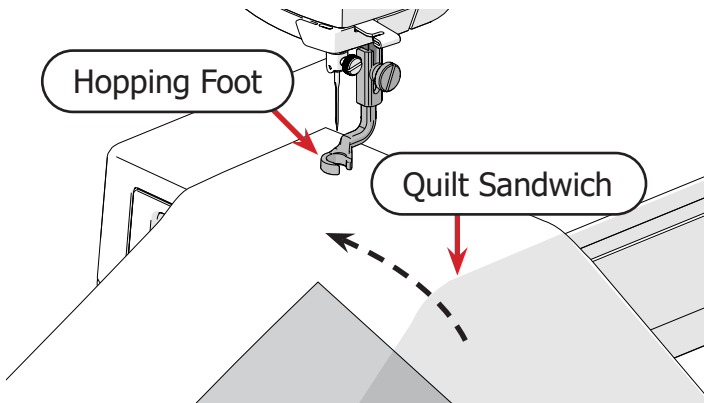


Needle Up/Down Button

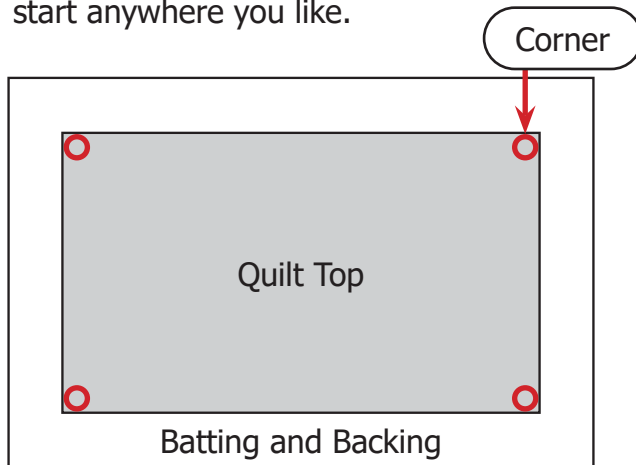
Press once to do a half stitch. Press twice to do a full stitch. Press and hold to change the default needle stop position (up or down).



- 3 Slide your **quilt sandwich** under the **hopping foot**. Align the fabric so that the needle is directly above your starting point, where you want to begin stitching.

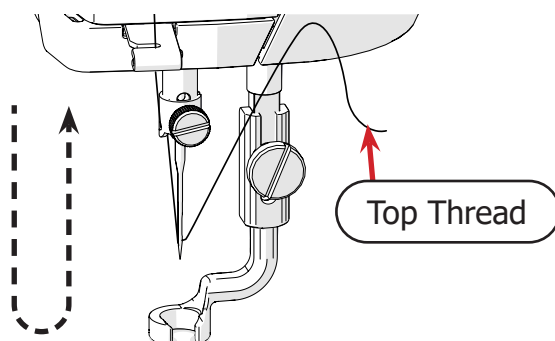


If you have not yet tacked down your **quilt top edges**, choose any **corner** of the quilt top as your starting point. Otherwise, start anywhere you like.

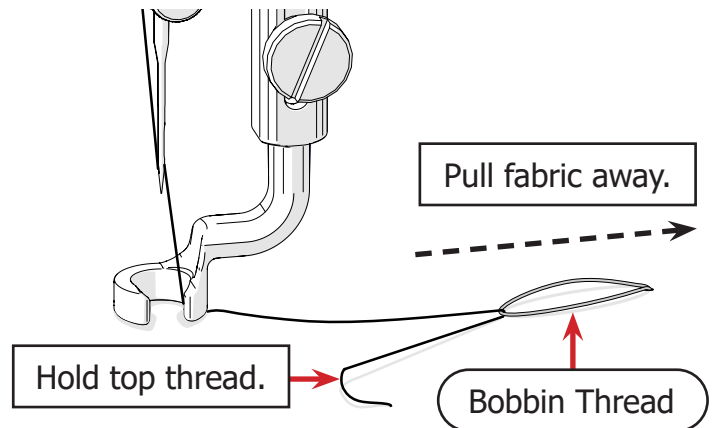


- 4 Pull up the bobbin thread so that any excess thread doesn't get tangled in your stitches:

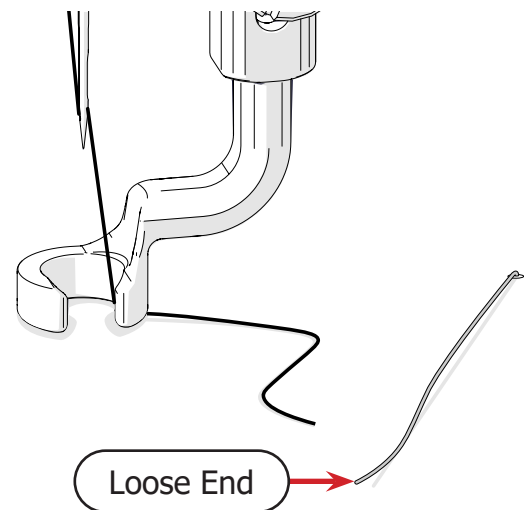
- a While holding the **top thread** tightly, press the needle up/down button twice so the needle goes down and then up.



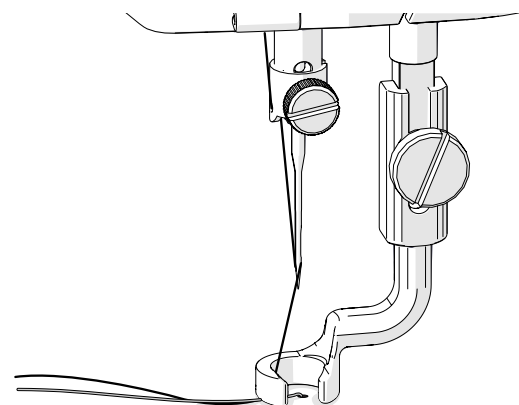
- b While still holding the top thread, pull your fabric to the side until the top thread pulls up a loop of the **bobbin thread**.



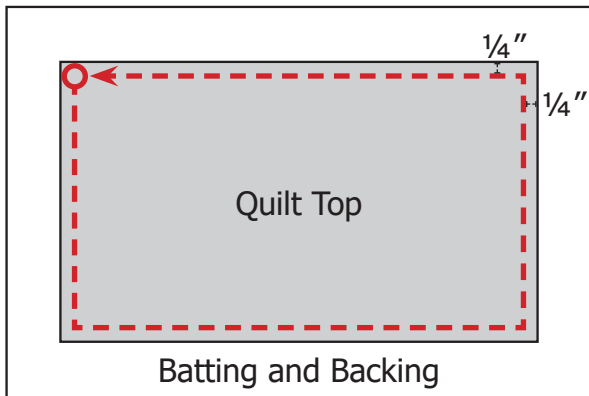
- c Pull on the loop of bobbin thread until the **loose end** of the thread comes up.



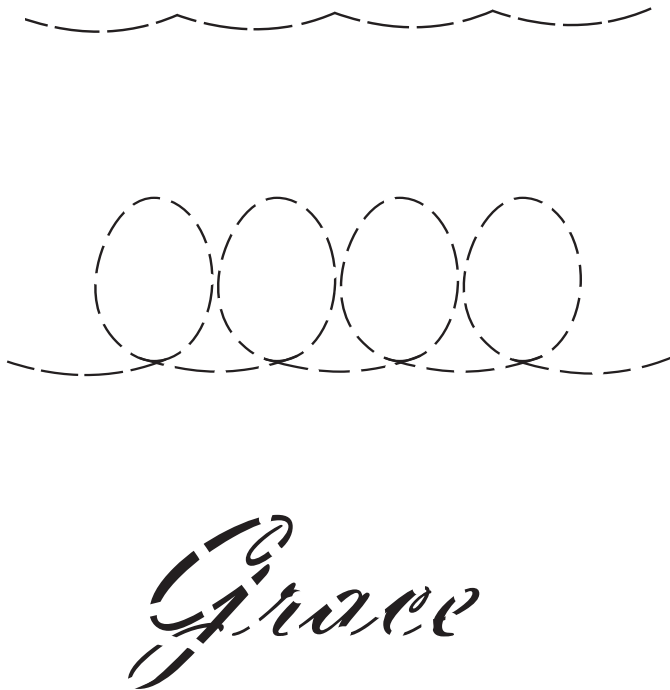
- d Hold the bobbin thread and move the fabric back to the starting point under the needle. Straighten out both threads and lay them to the side.



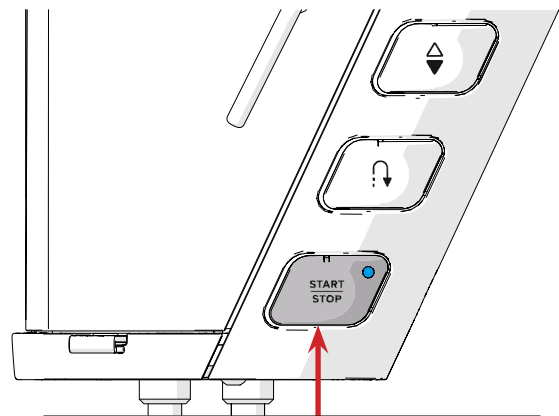
- 5 **If you have not yet tacked down your quilt top edges**, plan to do so by following the path shown below, stitching about one quarter-inch from the edges of the quilt top. (Later, you will return to this step and stitch a normal design.)



If you have tacked down your quilt top edges, plan to stitch anywhere on the quilt top. If desired, use fabric chalk or a marker to draw a simple design that you can stitch over, like loops, wavy lines, or your name.



- 6 Begin stitching, either by applying pressure to the **foot pedal** or by pressing the **start/stop button** on the machine.

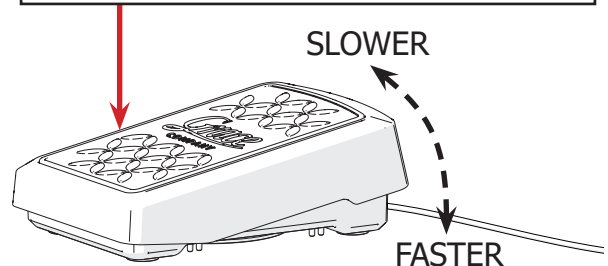


Start/Stop Button

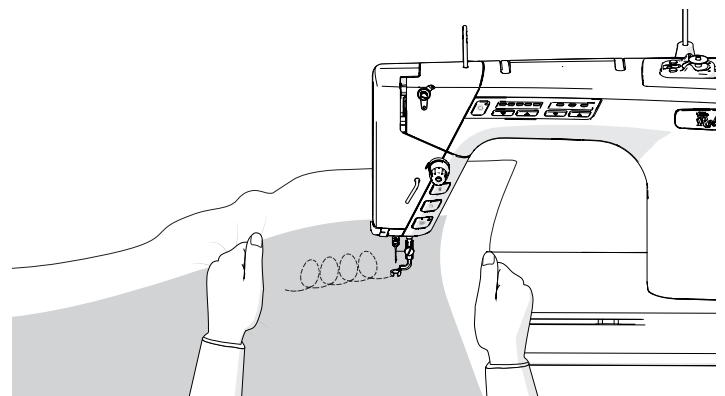
Press to start stitching. Press again to stop stitching. (Disabled while foot pedal is plugged in.)

Foot Pedal

Press to start machine and control stitching speed. (Does not control speed if stitch regulation is turned on.)



While stitching, grip the fabric with both hands and move it under the needle along the path you planned in step 5. Keep the fabric tense and flat against the machine bed, and keep your hands at a safe distance from the needle.

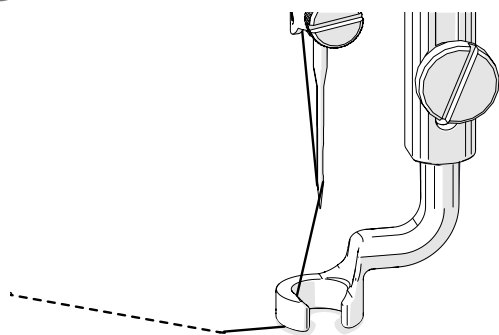


7 When you have completed your design, stop the machine either by pressing the start/stop button or by releasing your foot from the foot pedal.

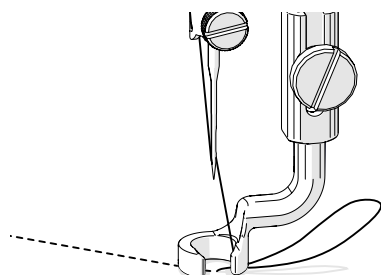
8 Use the needle up/down button to make two or three small stitches near the end of your design. These **securing stitches** will prevent your other stitches from coming loose.

9 Pull up the bobbin thread when you have finished stitching:

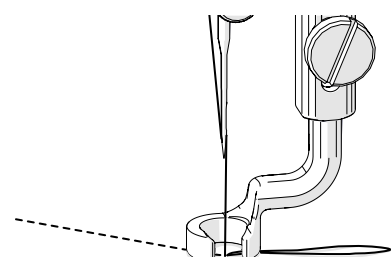
a Pull your fabric a few inches to the side.



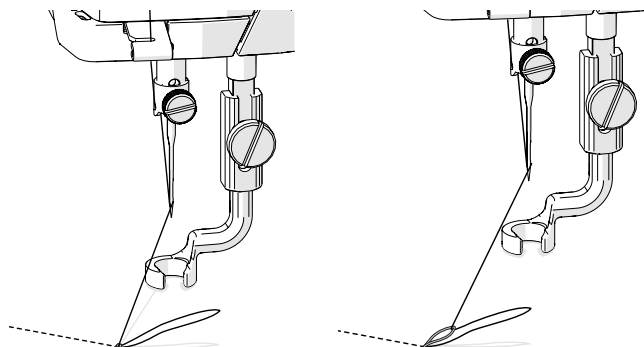
b Hold the top thread to make a loop and move the fabric back to its original ending position.



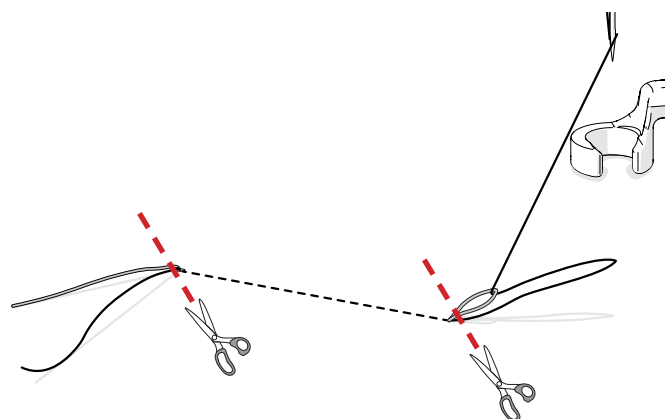
c Make a single stitch at the endpoint by pressing the needle up/down button two times.



d Keep holding the loop and pull your fabric to the side again. Continue until the top thread pulls up a loop of the bobbin thread.



e Cut the thread tails at the starting point and at the endpoint.



Congratulations! You have successfully stitched from start to finish with off-frame quilting. To keep practicing, return to step 3.

If you have just tacked down your quilt top edges, do the following before you return to step 3:

- Remove the pins from the layers of your quilt sandwich.
- Increase the machine speed setting or SPI setting as desired.

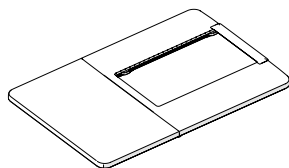
Accessories

Using the Extension Table	55
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Using the Extension Table

Parts & Tools Needed

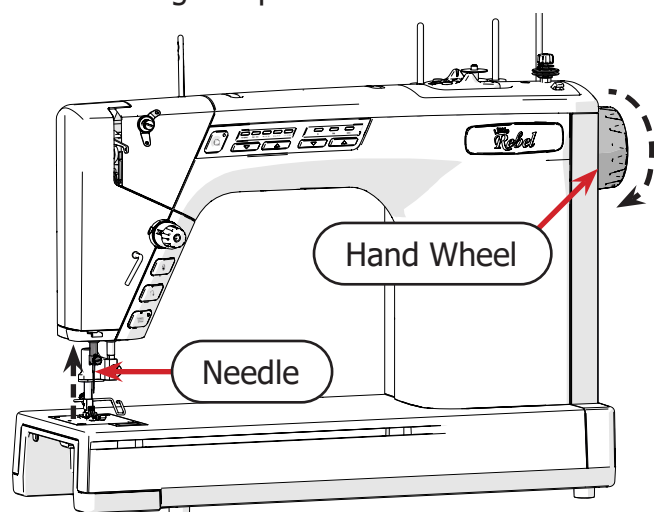
Extension Table



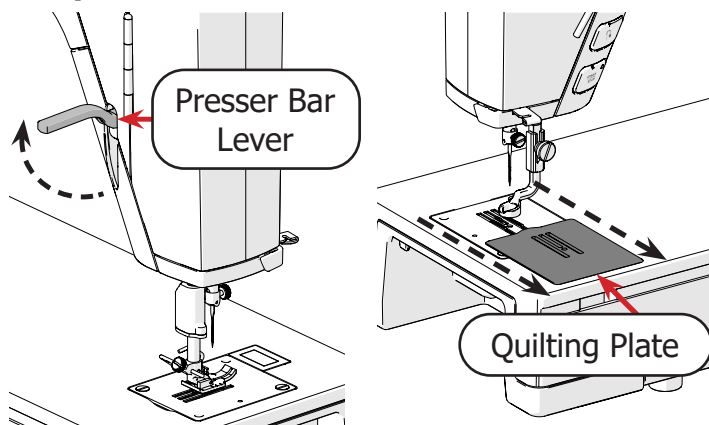
Attaching the Table

Whenever the machine is off the frame, you can attach the extension table. The extension table extends the flat surface area of the machine bed, making it easier to move fabric under the needle. Take the following steps to attach the extension table:

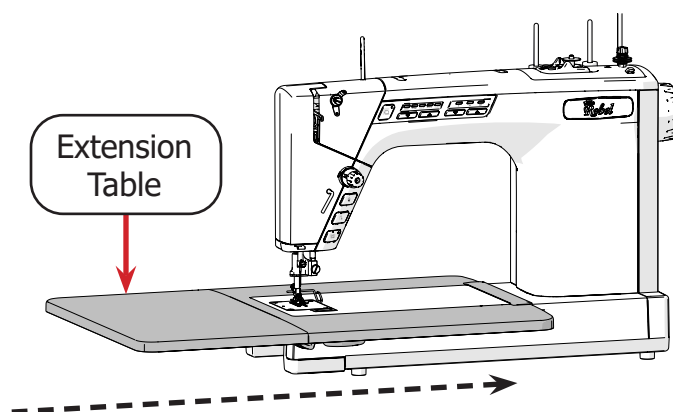
- 1 Rotate the **hand wheel** until the **needle** is in the highest position.



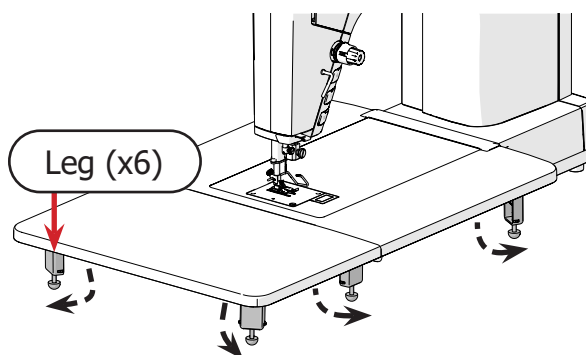
- 2 If in Sewing Mode, lift the **presser bar lever** located behind the needle area.
If in Quilting Mode, remove the **quilting plate** from the needle area.



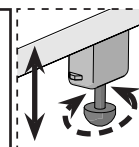
- 3 Slide the **extension table** onto the machine bed, then lower the presser bar lever or reattach the quilting plate.



- 4 Flip down the six **legs** on the underside of the table.



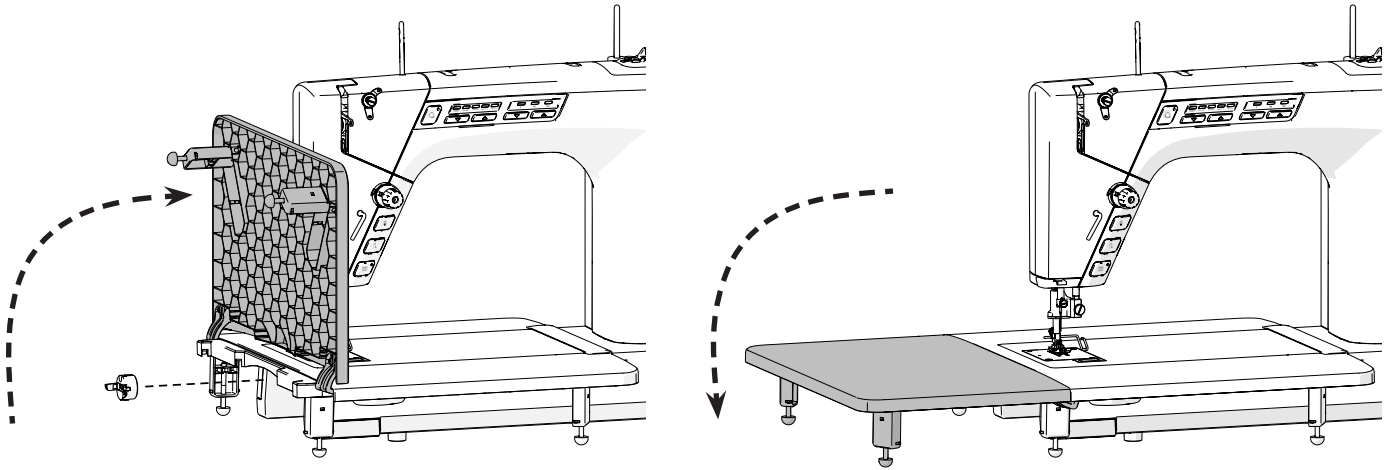
Note: If the table sits unevenly, raise or lower individual legs by twisting the feet clockwise or counterclockwise.



Using the Extension Table (continued)

Accessing the Bobbin Case

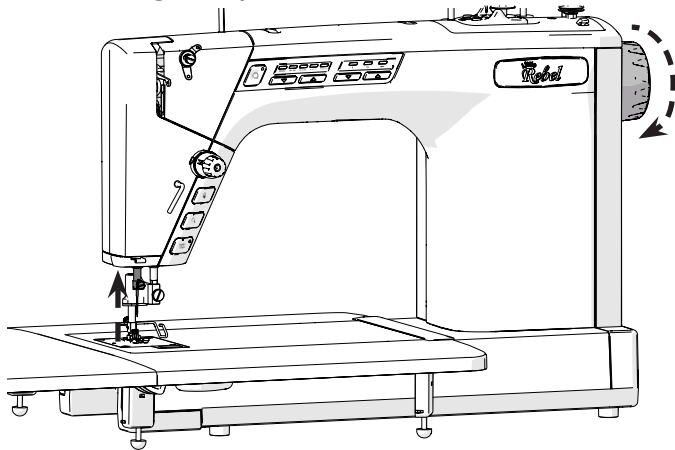
To access the bobbin case while the extension table is installed, lift the front half of the table.



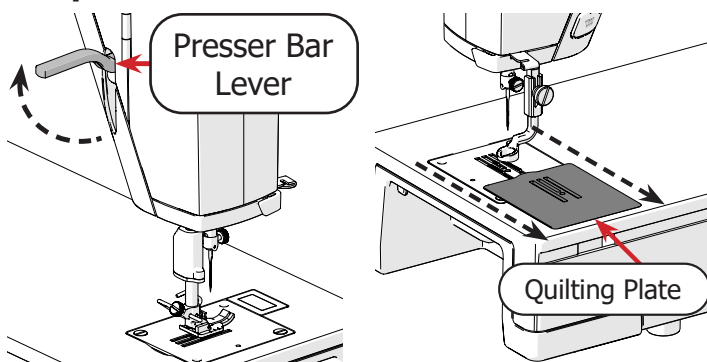
Removing the Table

Take the following steps to remove the extension table from the machine:

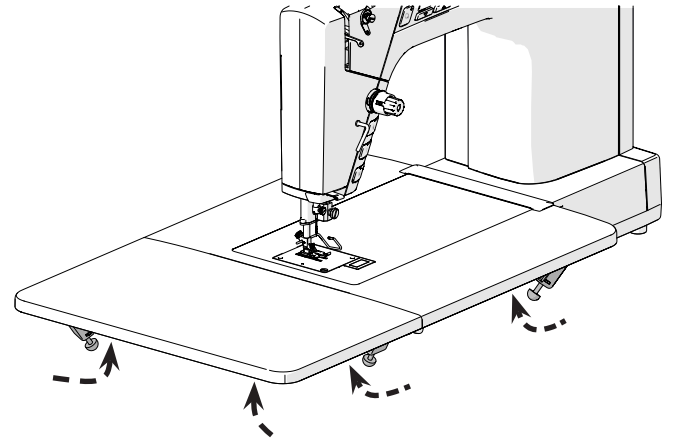
- 1 Rotate the hand wheel until the needle is in the highest position.



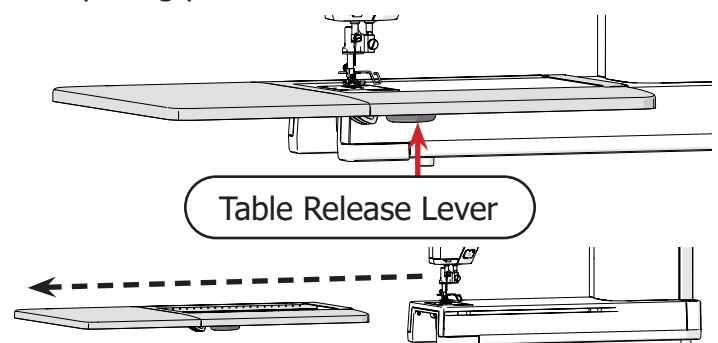
- 2 If in Sewing Mode, lift the **presser bar lever** located behind the needle area. If in Quilting Mode, remove the **quilting plate** from the needle area.



- 3 Flip up the six feet on the underside of the table.



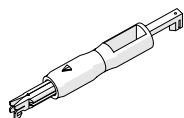
- 4 Pull on the **table release lever** and slide the extension table away from the machine. Lower the presser bar lever or reattach the quilting plate.



Using the Needle Threader

Parts & Tools Needed

Needle Threader

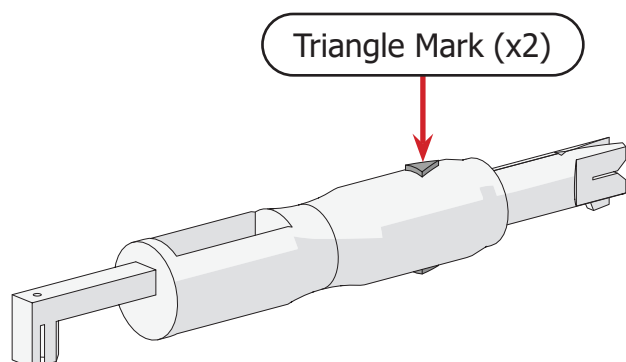


Misc. Container

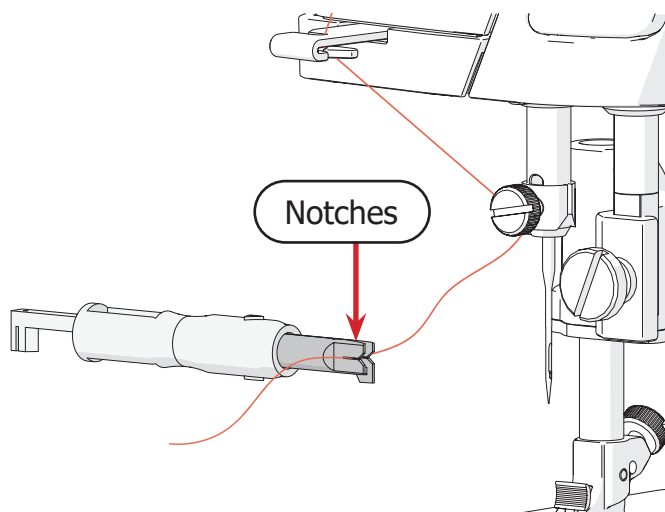
Instructions

Take the following steps to push thread through the eye of the needle with the needle threader:

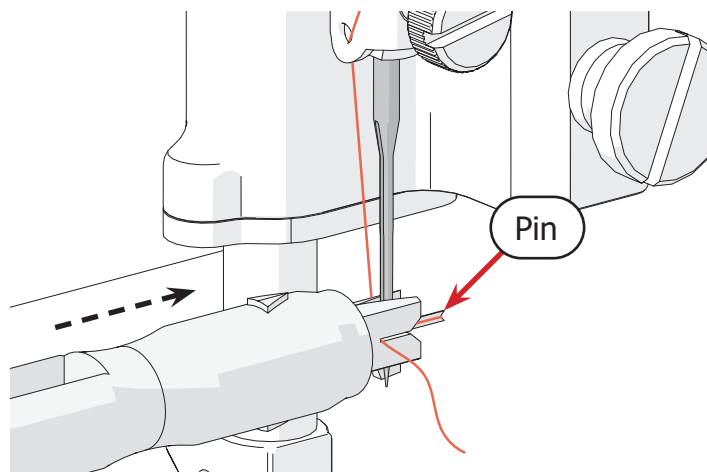
- 1 Turn the needle threader so that the **triangle marks** are on the top and bottom.



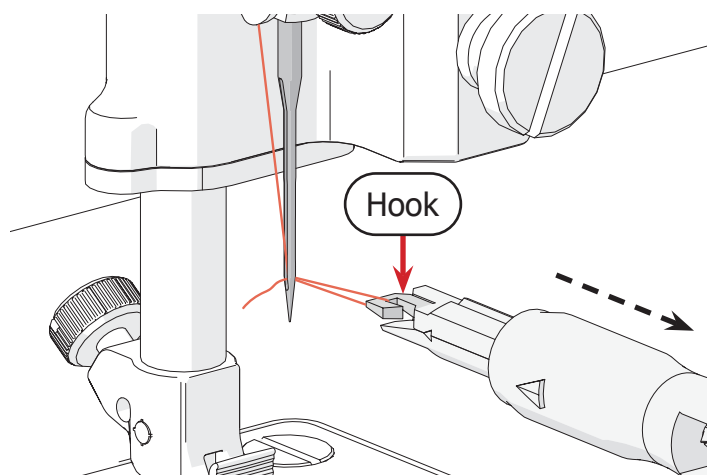
- 2 Slot the thread horizontally into the **notches** on the threader.



- 3 Gently push the threader against the needle. Slide it toward the eye of the needle until the threader **pin** emerges with the thread.



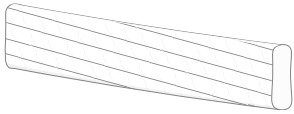
- 4 Slowly pull the threader away and use your fingers or the threader **hook** to pull the remaining thread through the needle eye.



Using the Thread Nets

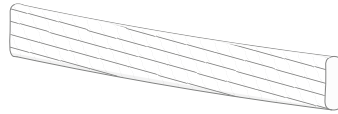
Parts & Tools Needed

**Thread Net
10 cm (x2)**



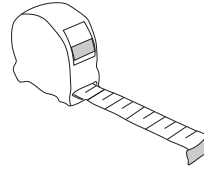
Misc. Container

**Thread Net
14 cm (x2)**



Misc. Container

**Measuring
Tape**



(not included)

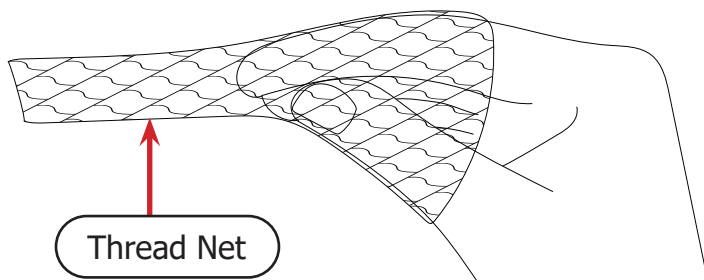
Instructions

Thread nets help thread cones unwind evenly on the machine and prevent them from becoming tangled while in storage. Take the following steps to place a thread net on a thread cone:

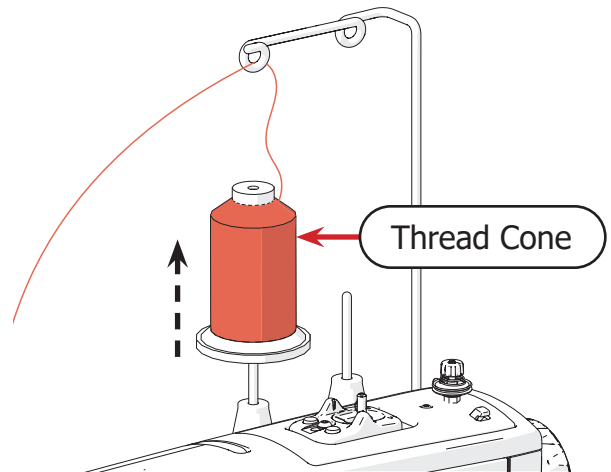
- 1 Measure the height of your thread cone and use the table below to determine which size of thread net to use.

Thread Cone Height	Thread Net Size
10 cm or shorter	10 cm
taller than 10 cm	14 cm

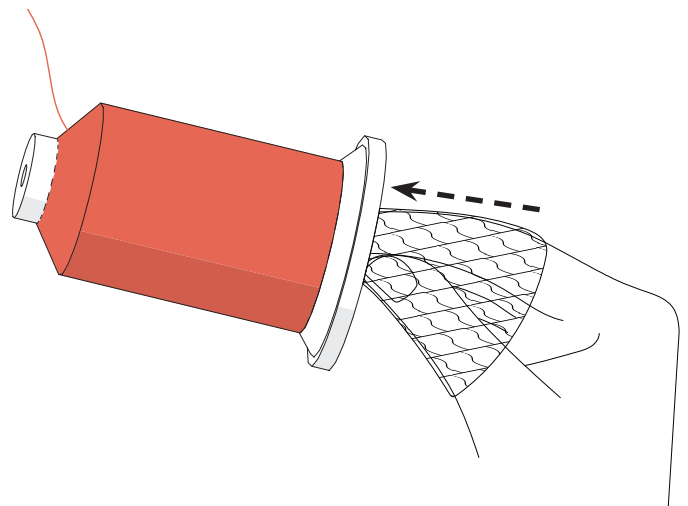
- 2 Insert your thumb and a few fingers into one end of the **thread net**.



- 3 If the machine is currently threaded, lift the **thread cone** from the thread stand. You do not need to unthread the machine.

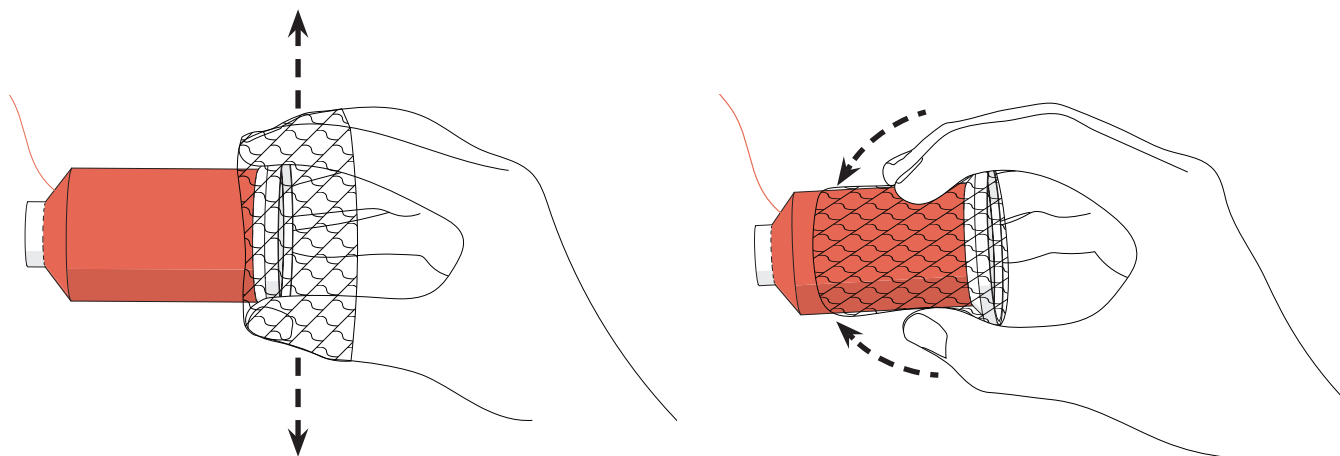


- 4 Insert the thread net about halfway into the underside of the thread cone.

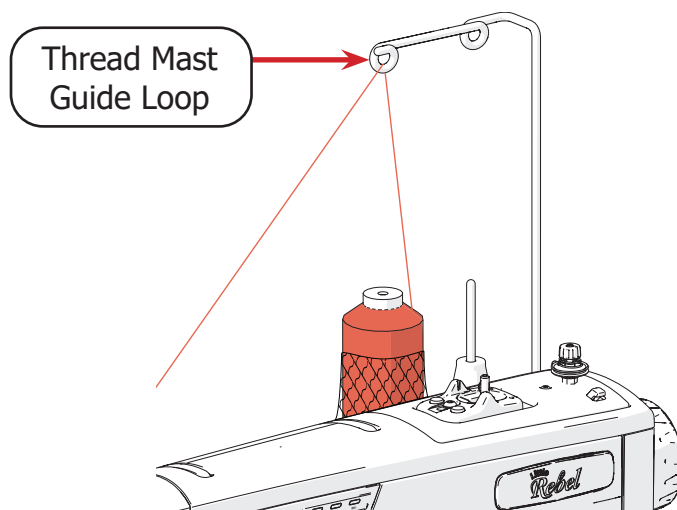


Using the Thread Nets (continued)

- 5 Use your fingers to widen the thread net and push it over the base of the thread cone. Cover at least half of the cone with the net, and leave the rest of the net inside the cone.



- 6 If the machine is currently threaded, place the thread cone back onto the thread stand and make sure that the **thread mast guide loop** is still properly threaded.



Service

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Preparing the Oil Bottle

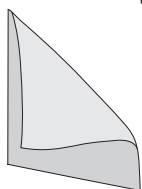
Parts & Tools Needed:

Oil Bottle



Tool Box

Alcohol Wipe



Tool Box

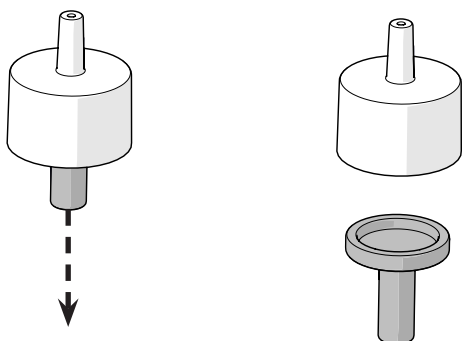
Instructions

Take the following steps to prepare the oil bottle for use in oiling the machine:

- 1 Unscrew the cap.



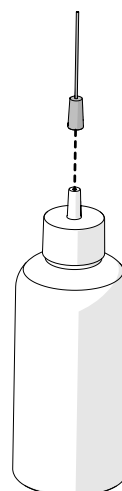
- 2 Use the alcohol wipe to pull the black rubber seal away from the lid of the oil bottle. Discard the seal.



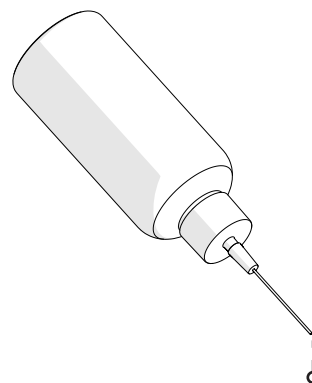
- 3 Screw the cap back onto the bottle.



- 4 Press the application needle onto the cap.



- 5 To apply oil, hold the bottle upside down and squeeze gently.



Oiling and Cleaning

Parts & Tools Needed

Lint Brush



Tool Box

Oil Bottle



Tool Box

Instructions

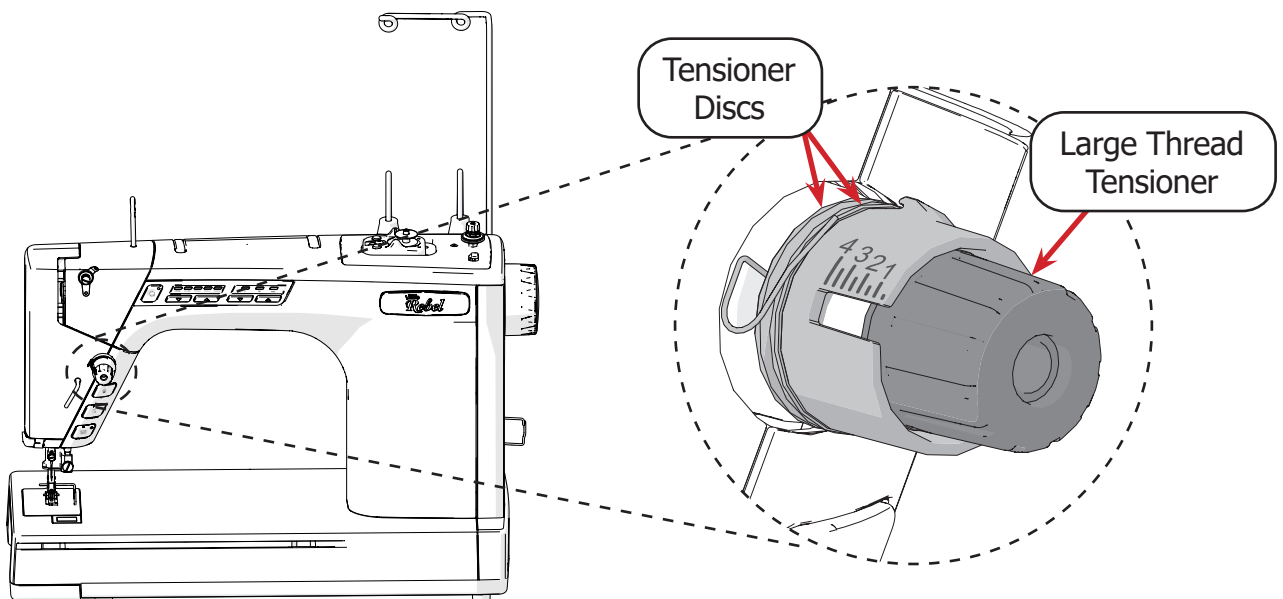
Oil and Clean:

Machine	<ul style="list-style-type: none"> • At the start of a new project • After 20 hours of use • After machine sits unused for more than 30 days
Hook Assembly	<ul style="list-style-type: none"> • Every other bobbin change

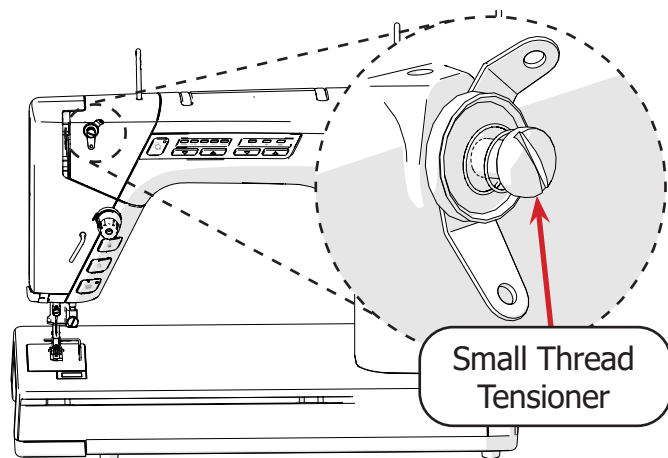
Take the following steps to clean and oil the machine:

- 1 Power off the machine.
- 2 Set the **large thread tensioner** to "1" by turning the knob until it aligns with the number marking. Use the lint brush to clear away lint and thread remnants from between the **tensioner discs**.

Note: Lint buildup between the tensioner discs can prevent proper thread tensioning.

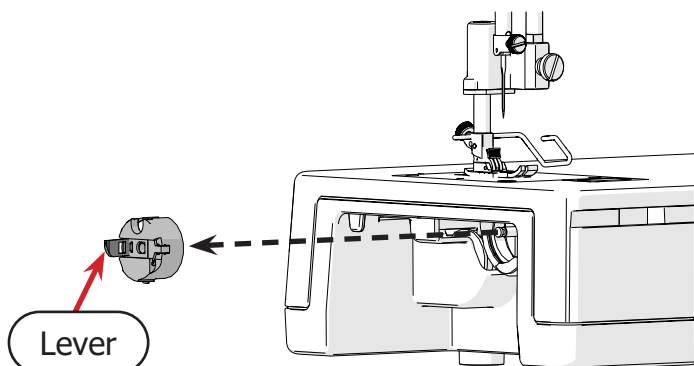


- 3 Clear debris from the spring and discs of the **small thread tensioner**.

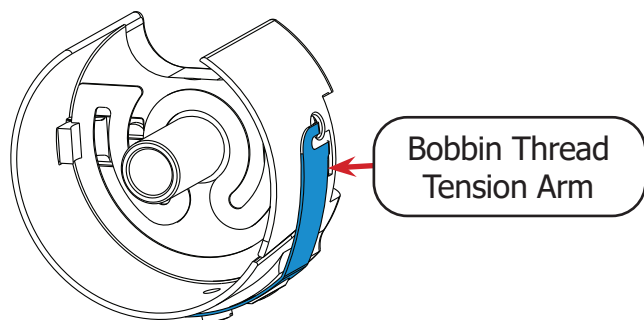


- 4 Pull the **lever** on the bobbin case to remove it from the hook assembly.

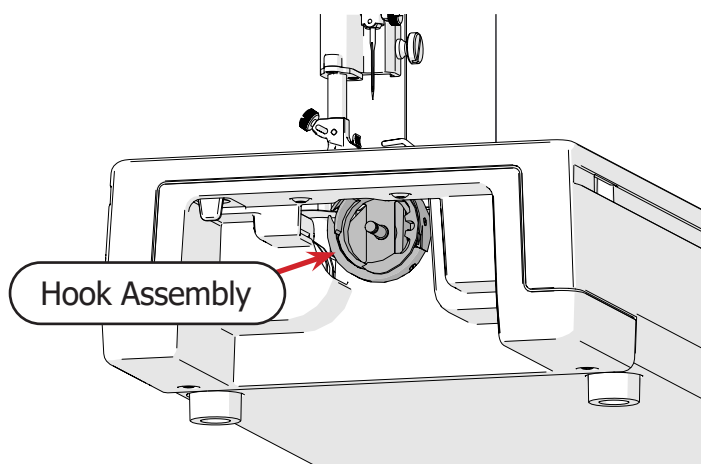
Note: If the case won't release, raise the needle.



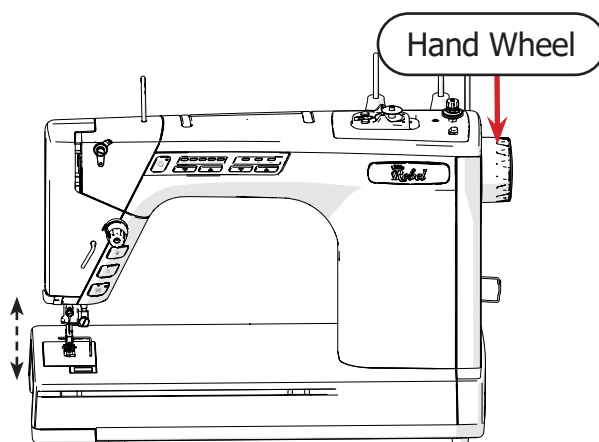
- 5 Remove the bobbin and set it aside. Clean the bobbin case with the lint brush. Be sure to clean the area under the **bobbin thread tension arm**.



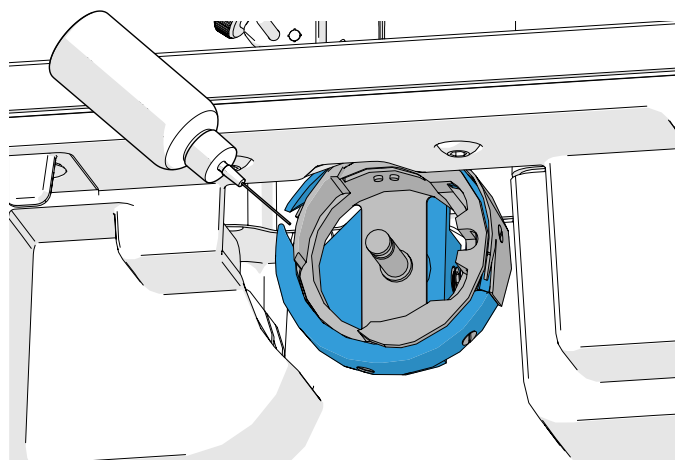
- 6 In and around the **hook assembly**, clear away any lint, cloth, and thread remnants using the lint brush.



- 7 Rotate the **hand wheel** until the needle is halfway down. This will put the hook in the best position for oiling.

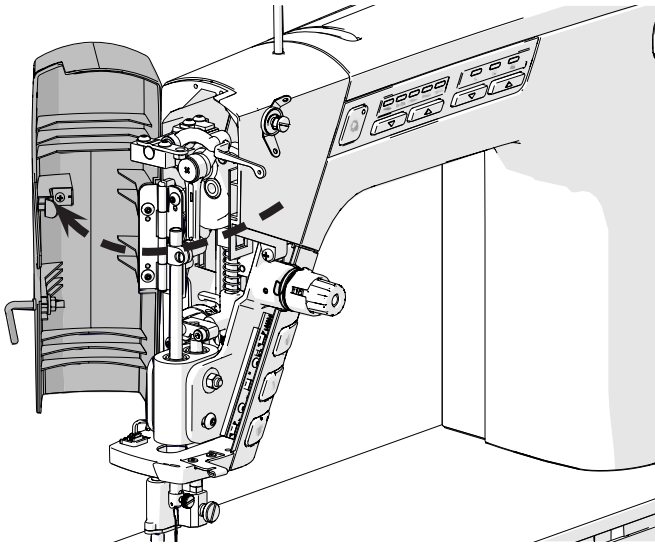


- 8 Place one to two drops of oil into the hook assembly between the **inner part** (shown in gray) and **outer part** (shown in blue).

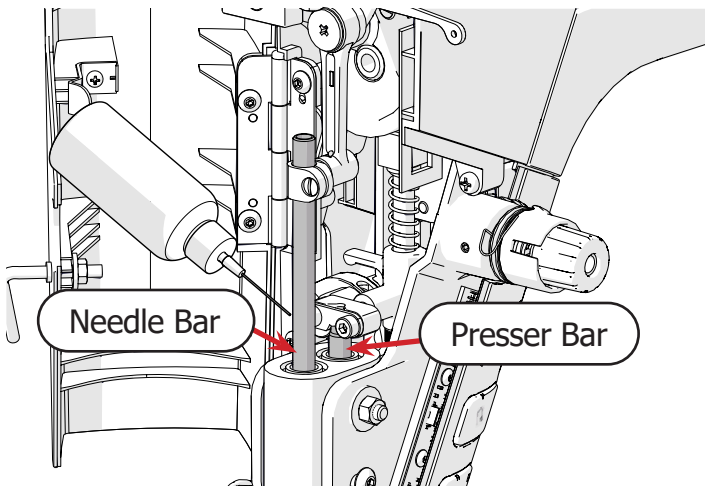


Oiling and Cleaning (continued)

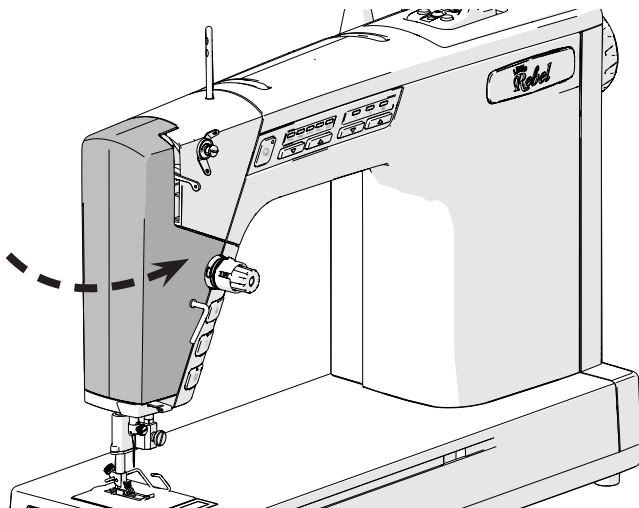
- 9 Open the head plastic.



- 10 Place one drop of oil on the **needle bar** and one on the **presser bar**.

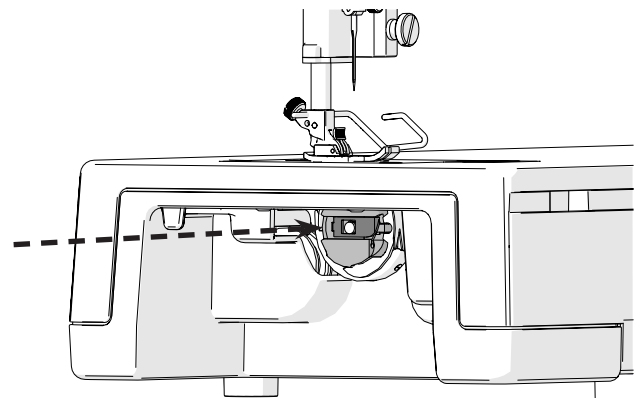


- 11 Close the head plastic.

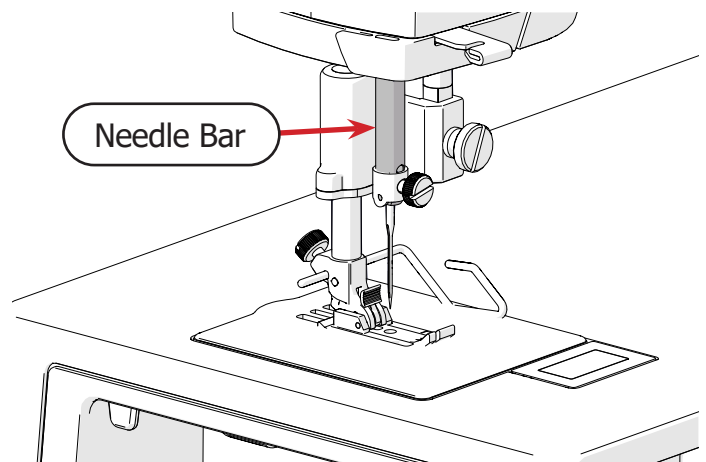


- 12 Turn on the machine. Run the machine without a bobbin installed for about 10 seconds. This will distribute the oil in the hook assembly without getting oil on your bobbin thread.

- 13 Return the bobbin case to the machine.



- 14 Regularly wipe down the **needle bar** above the needle to prevent the accumulation of oil that can stain your fabric.



General Troubleshooting

Instructions

Use the table below to diagnose and resolve common machine issues.

Note: For assistance with bad stitches, thread breakage, or bobbin issues, also see the "Troubleshooting Tension for Quilters" handbook included with your machine.

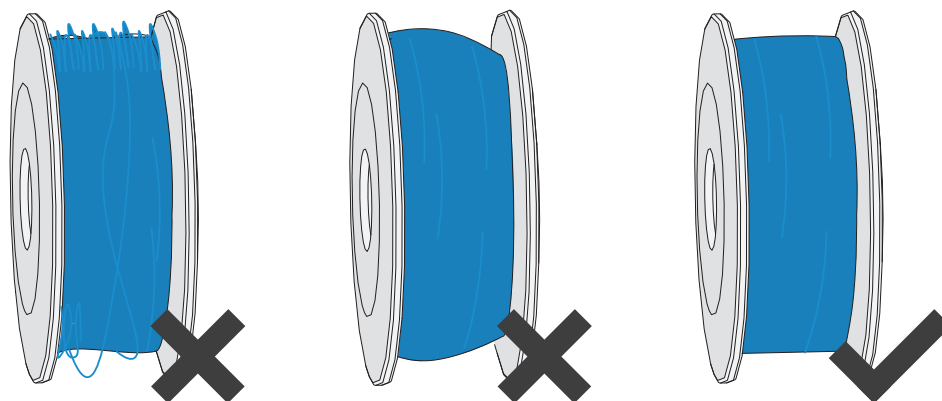
Issue	Cause(s)	Solution
Machine won't turn on	Loose cables	Unplug the power cable and firmly plug it back in (page 7).
	Machine is not turned on	Flip up the power switch on the back of the machine (page 7).
	If your problem persists, contact a Grace Company support technician at 1-801-485-6688 .	
Machine is skipping stitches	Damaged needle	Install a new needle (page 15).
	Machine improperly threaded	Make sure all tensioners and guides are threaded correctly (page 17).
	Bobbin case improperly threaded	Make sure the bobbin is properly installed in the bobbin case (page 13).
	Bobbin improperly wound	Make sure the bobbin is wound evenly and adjust the bobbin tensioner if needed (page 67).
	Unbalanced thread tension	Adjust bottom thread tension (page 13), then adjust top thread tension (page 21).
	Improper distance between hopping foot and quilting plate (Quilting Mode only)	Reset hopping foot height (page 33). If frame quilting, use height tool; if off-frame quilting, use quilt sandwich.
	Fabric not making consistent contact with fabric sensor (Quilting Mode w/ stitch regulation only)	Follow all advice on the Stitch Regulation Tips page (page 40).
	If your problem persists, contact a Grace Company support technician at 1-801-485-6688 .	
Thread is breaking	Damaged needle	Install a new needle (page 15).
	Unbalanced thread tension	Adjust bottom thread tension (page 13), then adjust top thread tension (page 21).
	Machine improperly threaded	Make sure all tensioners and guides are threaded correctly (page 17). Check for accidental double-wrapping.
(continued on next page)		

General Troubleshooting (continued)

Issue	Cause(s)	Solution
Thread is breaking (continued from previous page)	Stitching in place for too long	Avoid running the machine in one spot over the fabric. To stitch only when the fabric moves, turn on stitch regulation (Quilting Mode only; page 39).
	Bobbin case improperly threaded	Make sure the bobbin is properly installed in the case, and make sure the case is firmly inserted into the machine (page 13).
	Debris on tension discs	Clean the machine (page 62).
	Burred bobbin	Check bobbin for sharp edges and replace if needed.
	If your problem persists, contact a Grace Company support technician at 1-801-485-6688 .	
Thread is bunching up in the bobbin area	Bobbin case improperly threaded	Make sure the bobbin is properly installed in the bobbin case (page 13).
	Bobbin improperly wound	Make sure the bobbin is wound evenly and adjust the bobbin tensioner if needed (page 67).
	Machine improperly threaded	Make sure all tensioners and guides are threaded correctly (page 17).
	Unbalanced thread tension	Adjust bottom thread tension (page 13), then adjust top thread tension (page 21).
	If your problem persists, contact a Grace Company support technician at 1-801-485-6688 .	
Machine is noisy	Hook assembly or other machine parts need oiling	Oil the machine (page 62).
	Bobbin winder is running	Press the pause button on the bobbin winder to turn it off.
	If your problem persists, contact a Grace Company support technician at 1-801-485-6688 .	
Other issue	Contact a Grace Company support technician at 1-801-485-6688 .	

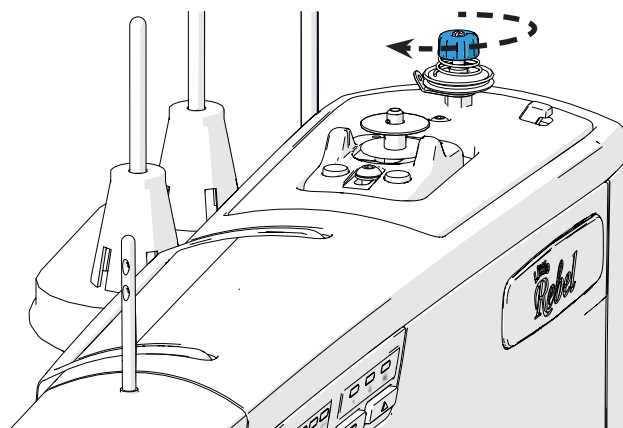
Bobbin Wind Troubleshooting

A quality bobbin wind is essential for a properly functioning machine and for setting your baseline thread tension. The thread on the bobbin should be smooth and evenly wound. The threads should be tightly packed together.



Bobbin Wound Too Loose

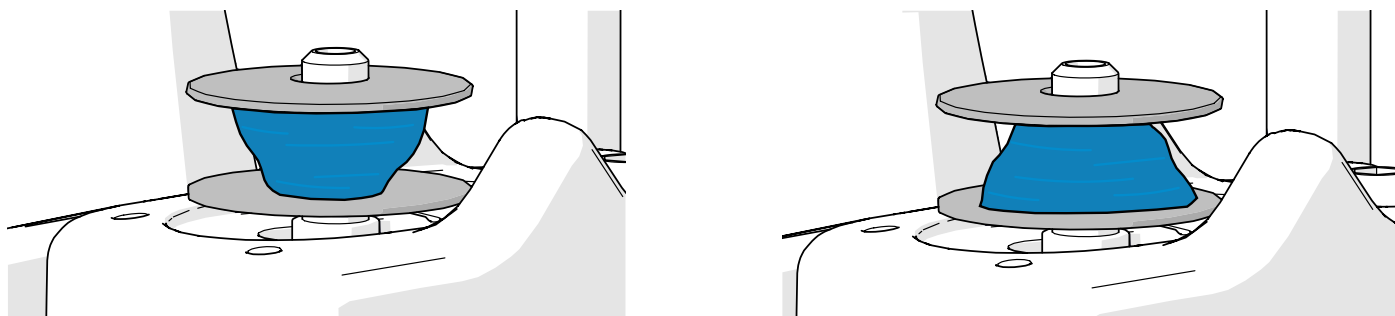
The tension of the bobbin wind is determined by the bobbin thread tensioner. Turn the knob one full rotation clockwise and test the bobbin wind. Repeat until the bobbin winds tightly and smoothly.



Bobbin is Filling to One Side

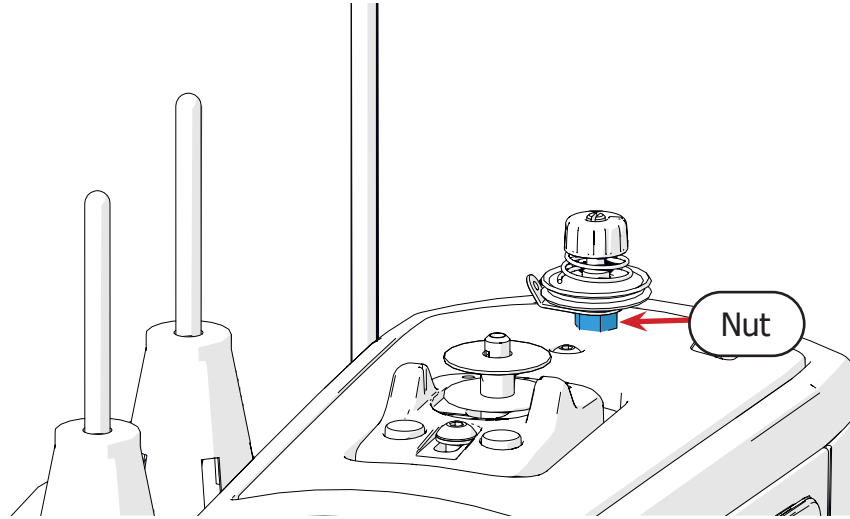
If the bobbin is filling to one side, the bobbin thread tensioner is positioned incorrectly and will need to be adjusted.

- 1 Determine whether the bobbin is filling more toward the top or the bottom.

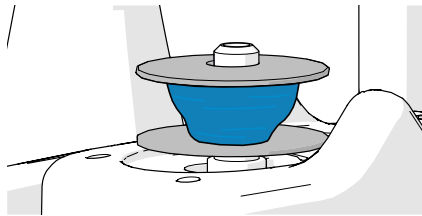


Bobbin Wind Troubleshooting (continued)

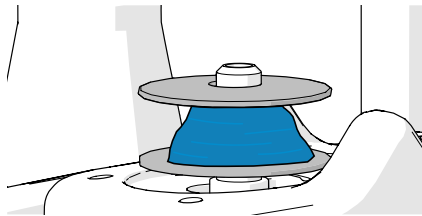
- 2 Unthread the bobbin thread tensioner. With a 7 mm wrench (not included), loosen the **nut** at the base of the tensioner.



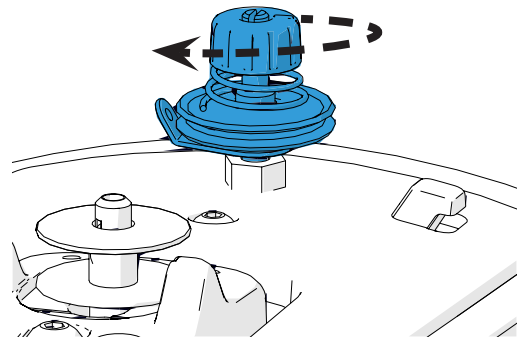
- 3 Turn the top part of the tensioner assembly (shown in blue) a full rotation to adjust the height of the tension discs.



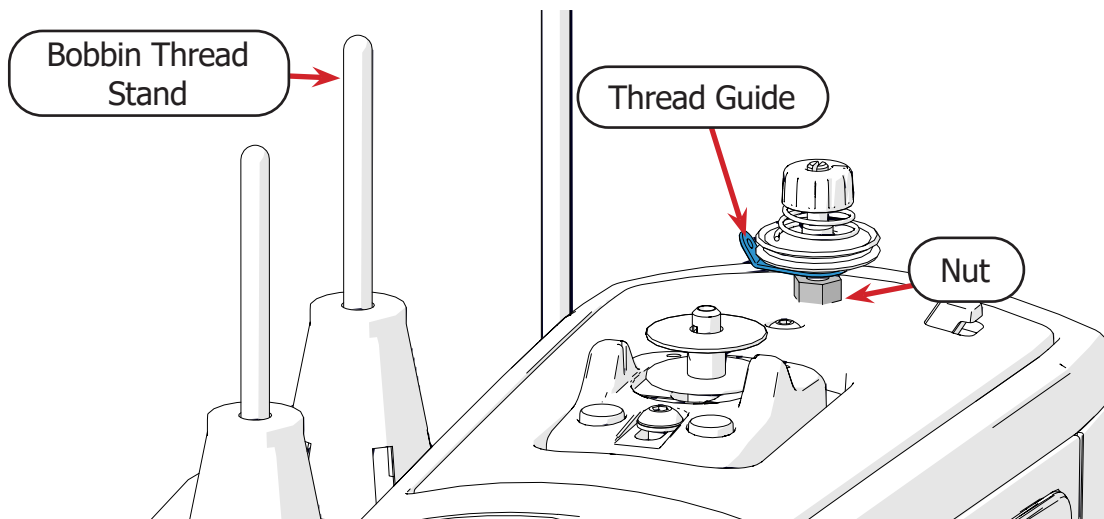
If the bobbin is filling more toward the top, turn the tensioner one full rotation clockwise and test.



If the bobbin is filling more toward the top, turn the tensioner one full rotation counter-clockwise and test.



- 4 Once the bobbin is filling correctly, re-tighten the **nut**. Make sure the **thread guide** is pointing toward the **bobbin thread stand**.



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Choosing Your Needle

General Tips

When choosing a needle for your project, do the following for best results:

- Purchase needles directly from Graceframe.com. Needles from other sources might be poorly manufactured, leading to skipped stitches, breaking thread, and other thread tension problems.
- Choose from the recommended **needle styles** for your machine (see below).
- Choose a **needle size** appropriate for the weight and type of your thread (see below). If you change threads midway through a project, also change your needle to accommodate the weight and type of the new thread.
- Change your needle after eight hours of use and at the beginning of each project.
- Never use a needle that is broken, bent, or burred.

Needle Style

The Little Rebel uses MR (multi-range) needles. MR needles are highly durable and specially engineered to reduce needle deflection, skipped stitches, and breakage of needle and thread.

The following MR needle styles are recommended for your machine:

- **DPX5 MR**
- **134 MR**
- **1955 MR**

Needle Size

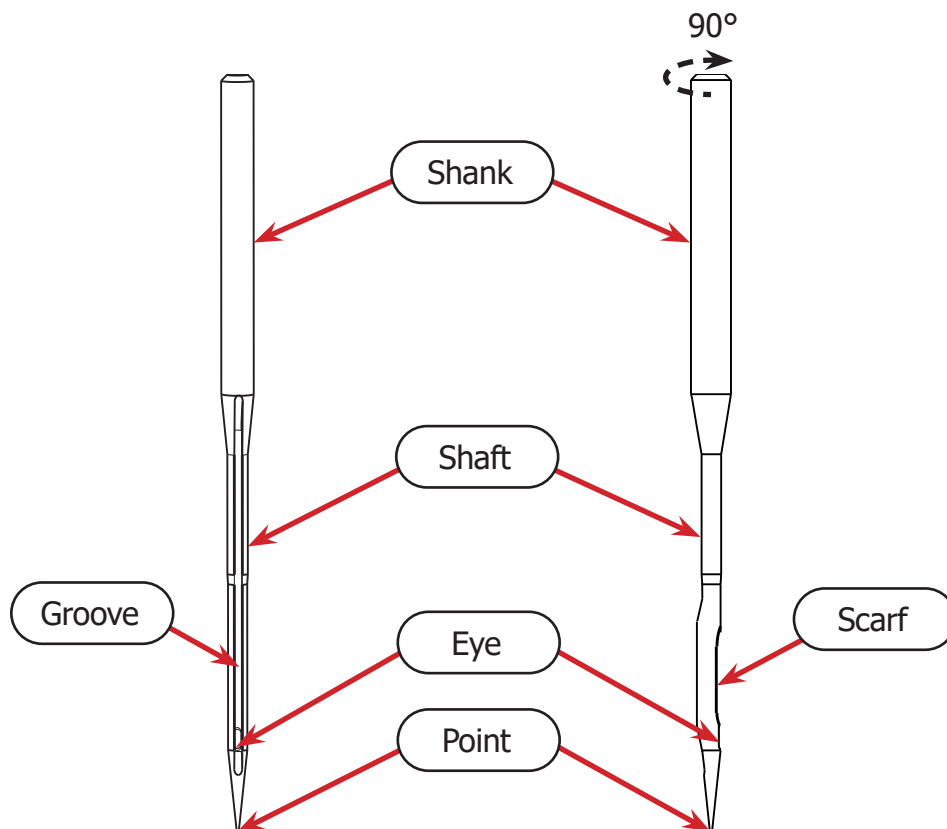
Needles come in many sizes to accommodate different weights of thread. As needle size increases, the needle shaft becomes thicker and the needle eye becomes larger (see next page). Always choose your needle size based upon the weight of the thread you are using.

When you purchase thread, look for the recommended needle size on the thread packaging or in the product description on the manufacturer's website. You can also use the following table as a general guide for matching needle size and thread weight when quilting.

Needle Size	Thread Weight and Type
90/14	<ul style="list-style-type: none"> • 100 wt. silk • 60 wt. polyester • monofilament threads
100/16	<ul style="list-style-type: none"> • 60 wt. cotton or polyester • 50 wt. cotton • monofilament threads
110/18	<ul style="list-style-type: none"> • 50 wt. polyester • 40 wt. cotton or polyester • 30 wt. cotton or polyester
125/20	<ul style="list-style-type: none"> • any 30 wt. (or heavier) thread

Note: For more information about choosing your thread, see page 72.

Parts of a Needle



- **Shank:** The short, thick part of the needle that is inserted up into the needle bar.
- **Shaft:** The long, narrow part of the needle. Needle size is based on the diameter of the needle shaft.
- **Groove:** A long cutout on the front of the needle that spans the entire shaft. Allows the thread to pass through fabric more easily.
- **Eye:** The small hole through which the needle is threaded.
- **Scarf:** An indent on the back of the needle. Allows the needle to reach into the hook assembly and catch the bobbin thread.
- **Point:** The sharp end of the needle. Always replace your needle when the point becomes dull.

Choosing Your Thread

General Tips

When choosing thread for your project, do the following for best results:

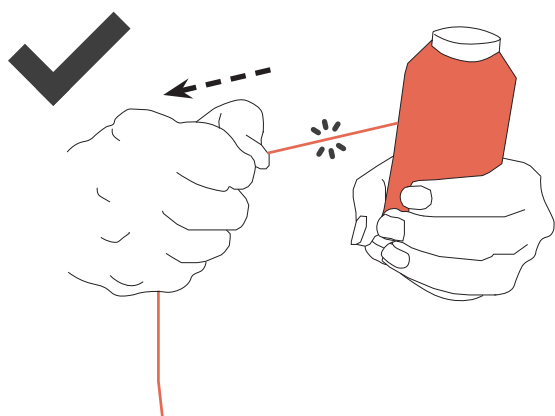
- Choose **type** based on the fabric that you are using (see next page).
- Choose **weight** based on how visible you want your stitches to be (see next page).
- Choose long-staple threads, which are strong and resistant to pilling.
- Choose colorfast threads, which fade less over time.

When preparing to stitch with the thread that you have chosen, do the following for best results:

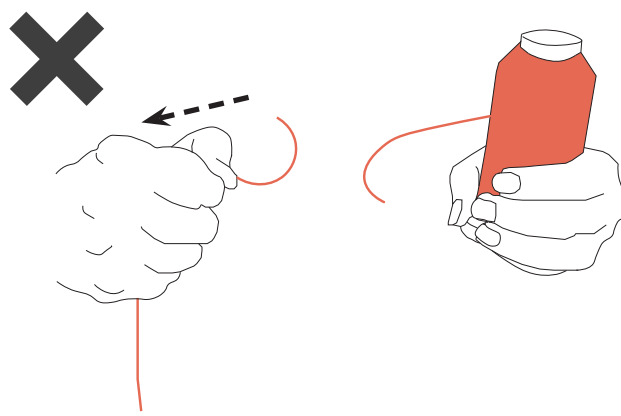
- Make sure your top thread and bottom thread are of similar type and weight.
- Use a needle sized appropriately for the weight of your thread (see page 70).
- Before threading the machine, perform the yank test on your top thread (see below).
- After threading the machine, test your thread tension on scrap materials (see page 21).

Yank Test

Hold the thread cone or spool in one hand. With the other hand, tug on the end of the thread.



If the thread does not break,
it passes the yank test.



If the thread breaks, it fails the yank test.
Use different thread.

Thread Type

"Type" refers to the fiber from which the thread is made. Cotton, polyester, and silk are common thread types that are ideal for use with the Little Rebel.

Every thread type has unique properties, like how stretchy it is or how easily it breaks. This means that some types of thread are more or less ideal for different types of fabric.

Thread Type	Ideal Fabrics
Cotton	<ul style="list-style-type: none"> • Woven/non-stretch fabrics • Natural fabrics
Polyester	<ul style="list-style-type: none"> • Knit/stretch fabrics • Synthetic fabrics
Silk	<ul style="list-style-type: none"> • Delicate fabrics • All fabrics (basting stitches only)

If you are unsure about which thread type to choose, do one of the following:

- Use "all-purpose" thread. This thread is usually polyester or a cotton-polyester blend, and it is designed to be suitable for most projects and fabric types.
- Use thread of the same type as your fabric—for example, cotton thread for cotton fabric.
- Use the thread type recommended by your sewing pattern, if applicable.

Thread Weight

"Weight" (wt.) refers to the thickness of the thread. As the weight number decreases, the thread becomes thicker and more visible. Threads of the same type come in many different weights, but the following weights are recommended for use with the Little Rebel.

Thread Weight	Thickness/Visibility	Recommended For
60 wt.	Low	Piecing
50 wt.	Medium	Piecing and topstitching
40 wt.	High	Topstitching

When choosing your thread, think about how visible you want your stitches to be, and choose the thread weight accordingly. Keep in mind that stitch visibility is also affected by the color of the thread in contrast to the fabric.

Note: Some brands measure thread size in tex, denier, or another unit different from weight. Make sure you understand a brand's measurement system before you buy, and keep these general rules in mind (for more information about matching needle size and thread weight, see page 70):

- Thicker thread requires a larger needle.
- Thinner thread requires a smaller needle.

Choosing Your Thread (continued)

Finesse Thread

Finesse thread is specially designed by Grace Company for quilting and is a great choice for the Little Rebel machine. It is available at graceframe.com or from your local Grace Company dealer.

Type: 100% polyester, 3-ply

Weight: 50 wt.

Size: Mini-cone, 1,500 yd

Colors available (60):

Recommended needles:

- 110/18 or 100/16 quilting needle
- 90/14 topstitch needle



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Information on disposal for Waste from Electrical & Electronic Equipment (WEEE):

This symbol on the products and accompanying documents means that used electrical and electronic products should not be mixed with general household waste. For proper disposal for treatment, recovery and recycling, please take these products to designated collection points where they will be accepted on a free-of-charge basis. In some countries you may be able to return your products to your local retailer upon the purchase of a new product. Disposing of this product correctly will help you save valuable resources and prevent any possible effects on human health and the environment, which could otherwise arise from inappropriate waste handling. Please contact your local authority for further details of your nearest collection point for WEEE.





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