

Q'nique 15 PRO



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Grace Company

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Version 1.7

MADE BY
Grace

Important Safety Instructions

Please read all these safety instructions before using this machine.

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:

- Do not allow this machine to be used as a toy. Pay close attention when this machine is used by or near children.
- 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 quilting machine free from the accumulation of lint, dust, and loose cloth.
- Never drop or insert any object into any opening.
- Do not use outdoors.
- Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
- 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.
- Keep fingers away from all moving parts. Special care is required around the quilting machine needle.
- Always use the proper needle plate. The wrong plate can cause the needle to break.
- Do not use bent needles.
- Do not pull or push fabric while stitching. It may deflect the needle causing it to break.
- Switch the quilting machine off when making any adjustments in the needle area, such as threading the needle, changing the needle, or changing the presser foot, etc.
- Always unplug the quilting machine from the electrical outlet when removing covers, lubricating, or when making any other user servicing adjustments mentioned in the instruction manual.

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

Connect this machine to a properly grounded outlet only. See "Grounding Instructions" (next page).

SAVE THESE INSTRUCTIONS

Do not discard box or packaging

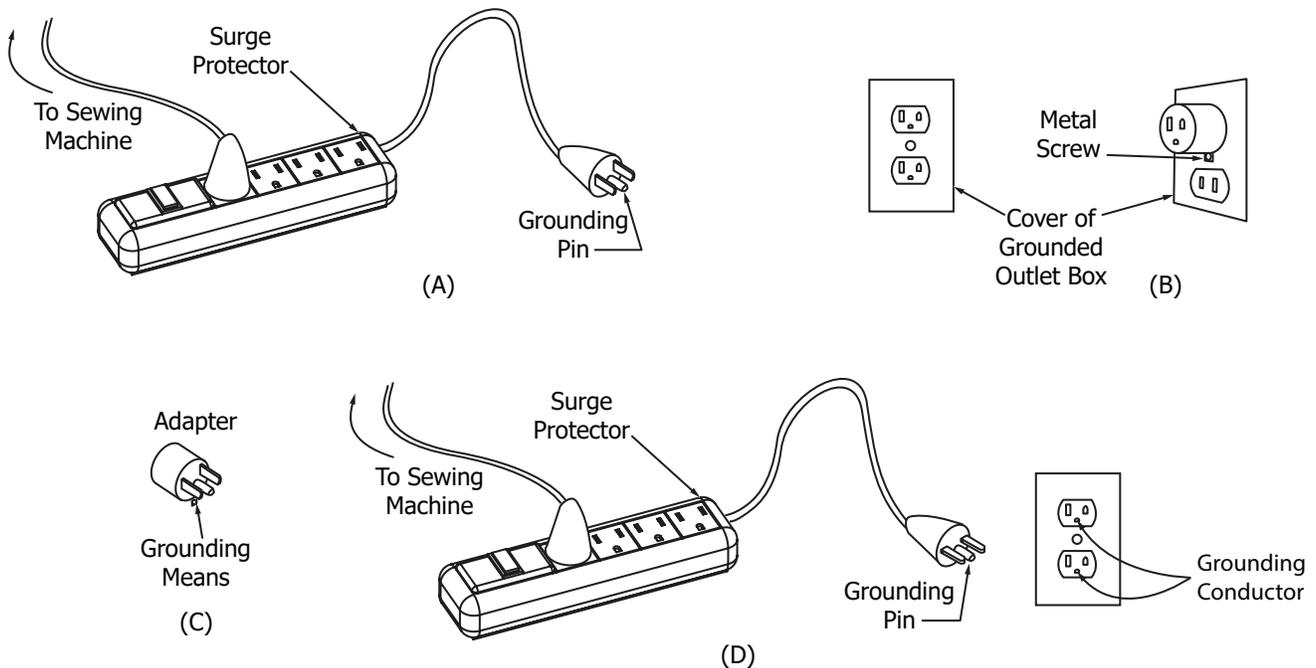
GROUNDING INSTRUCTIONS

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.

Grounding Methods



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.

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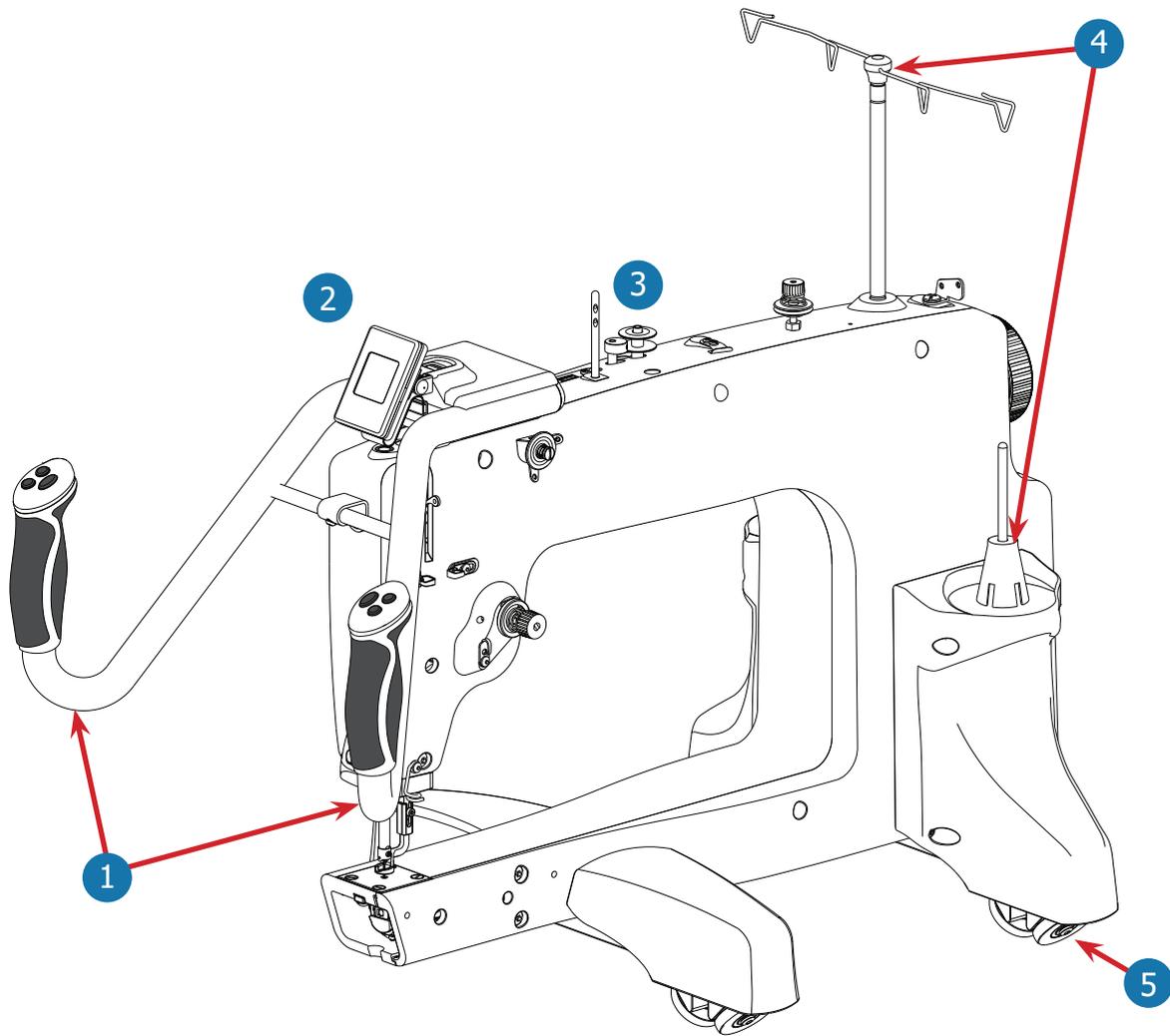
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Machine Specifications



Product Dimensions

Body:

- Height: 480 mm, or 19 inches
- Width: 395 mm, or 15.5 inches
- Length: 585 mm, or 23 inches
- Weight: 19 kg, or 42 lbs

Quilting Arm:

- Height: 215.9 mm, or 8.5 inches
- Width: 381 mm, or 15 inches

Electrical

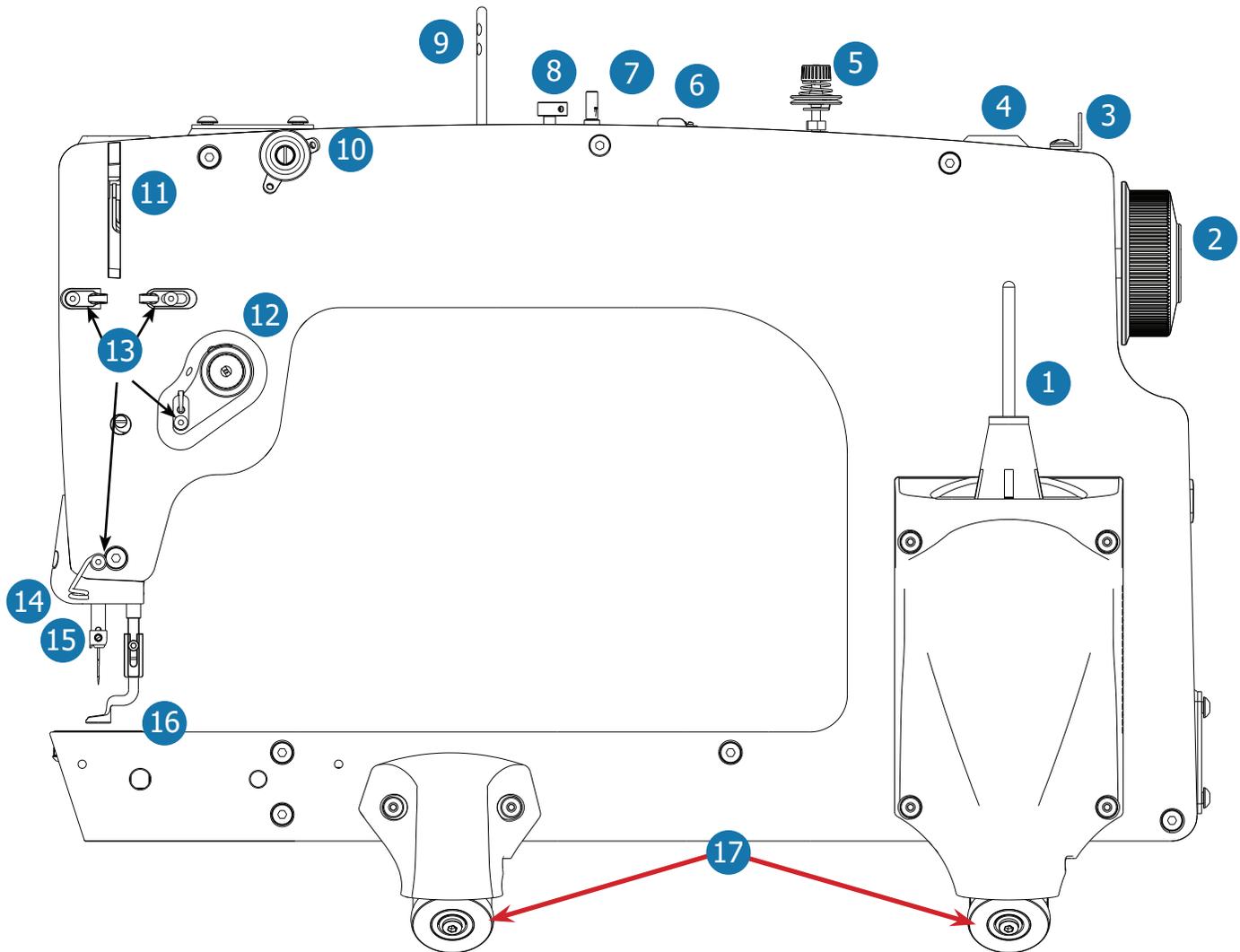
- Input Voltage: 110-220 VAC
- Peak Power Consumption: 300 W

Features

- 1 Ergonomic handles and handlebars for efficient, extended use (page 45)
- 2 Touch screen to select menu options (page 24)
- 3 Built in bobbin winder (page 29)
- 4 Dual thread mast and stands for quilting and winding bobbin at the same time
- 5 Dual wheels for added stability (page 12)
 - SPM range of 100 to 2000 stitches
 - Full and half-stitches
 - Needle jog
 - Regulated stitching

Machine Layout

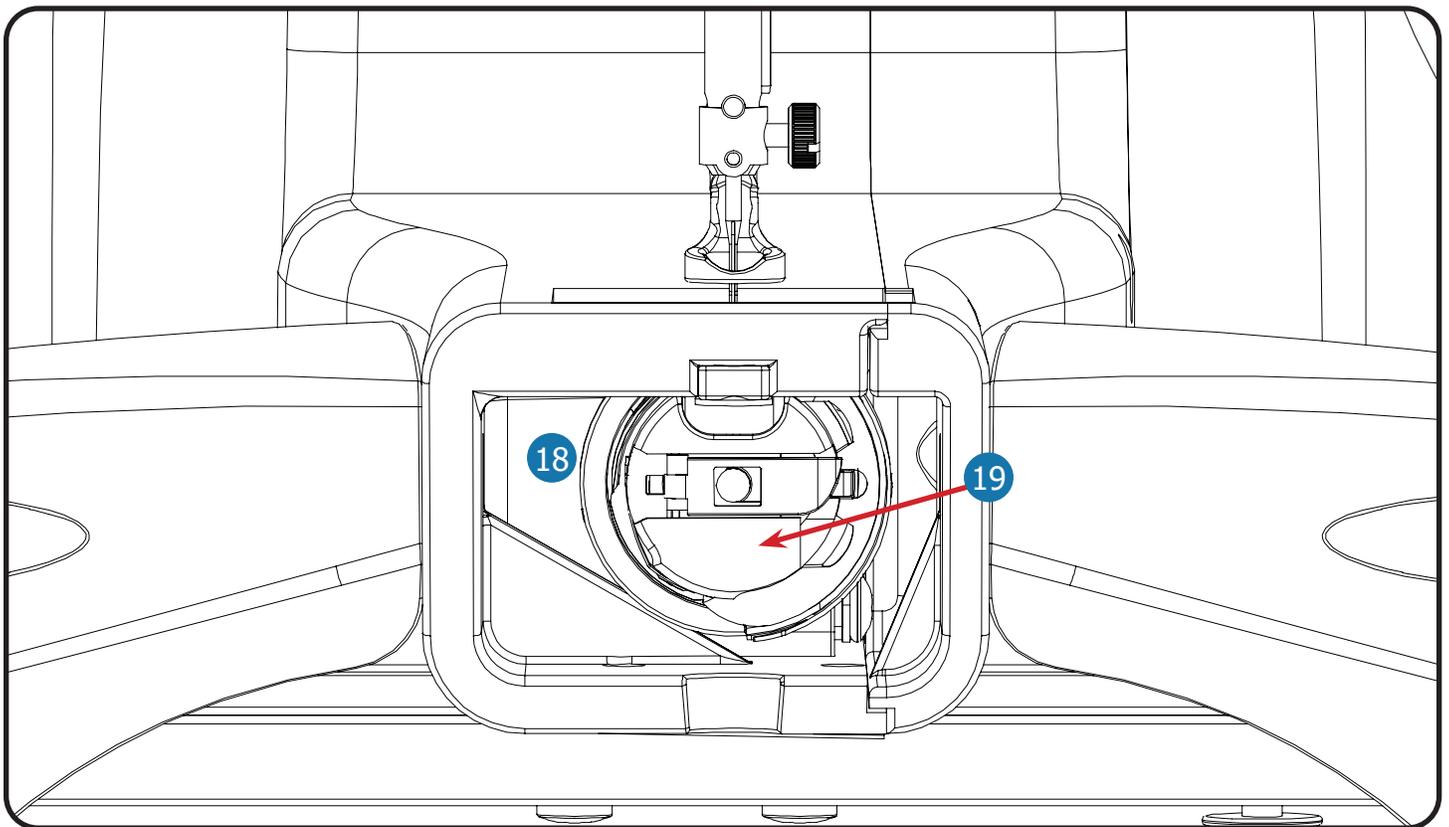
Quilting Machine (Side View)



- 1 Thread Stand** (page 35)
Holds a cone of thread.
- 2 Hand Wheel**
Raises and lowers the needle bar.
- 3 Bobbin Thread Guide** (page 29)
Positions thread for winding a bobbin.
- 4 Thread Mast Base** (page 22)
Holds the thread mast.
- 5 Bobbin Thread Tensioner** (page 29)
Tensions thread when winding a bobbin.
- 6 Bobbin Thread Cutter** (page 29)
Cuts wound bobbin thread.
- 7 Bobbin Stand** (page 29)
Holds the bobbin for winding.
- 8 Bobbin Cam** (page 29)
Starts and stops bobbin winding.

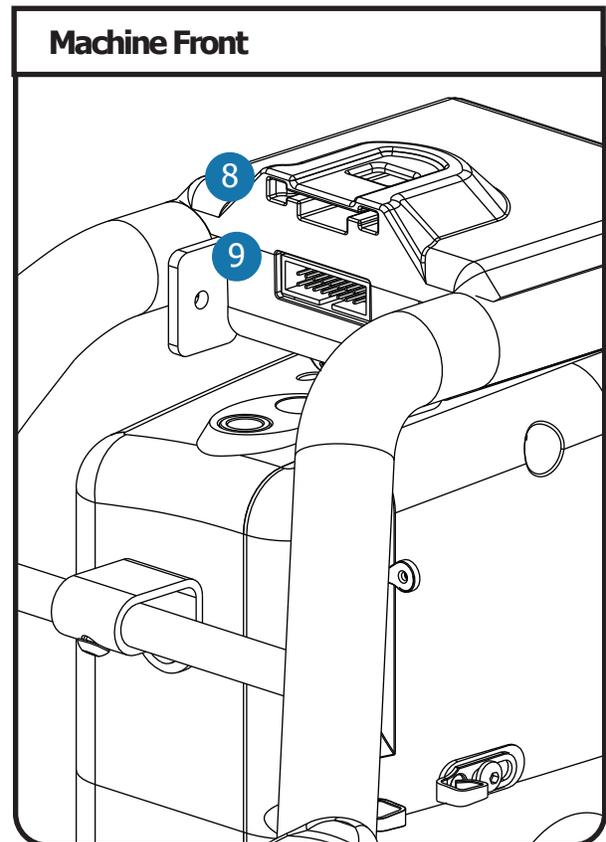
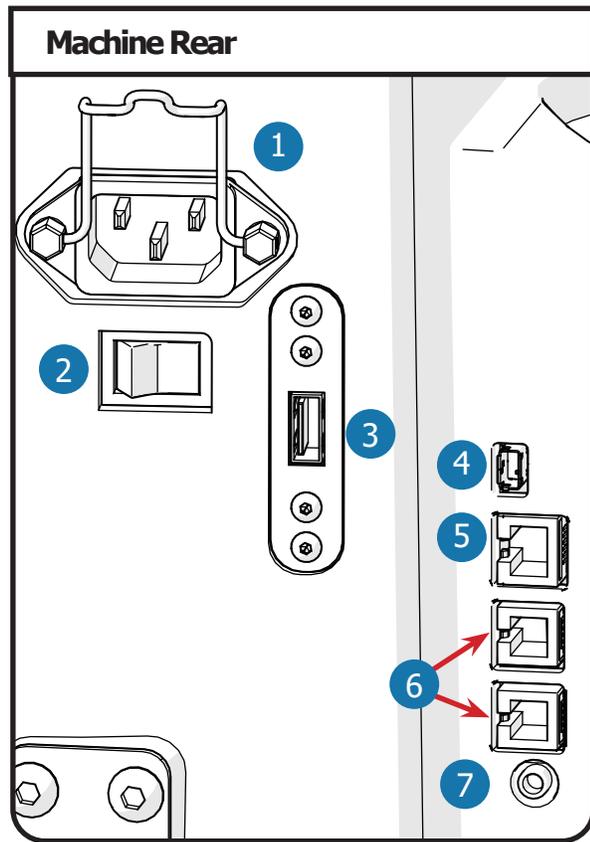
- 9 Thread Guide Rod** (page 35)
Positions thread when quilting.
- 10 Small Thread Tensioner** (page 35)
Tensions thread when quilting.
- 11 Take-Up Lever** (page 35)
Tensions thread when quilting.
- 12 Large Thread Tensioner** (page 35)
Tensions thread as adjusted when quilting.
- 13 Thread Guides** (page 35)
Positions thread when quilting.
- 14 Lamp**
Lights up needle area when machine is on.
- 15 Needle Bar** (page 64)
Holds the needle when quilting.
- 16 Hopping Foot** (page 68)
Presses fabric down when quilting.
- 17 Machine Wheels** (page 12)
Rides the bottom carriage rails to move machine up or down on the quilting frame.

Hook Assembly (Front View)



- 18 Hook Assembly** (page 32)
Holds the bobbin case and hooks the top thread to create stitches.
- 19 Bobbin Case** (page 32)
Holds M class bobbin and controls bottom thread tension.

Ports and Plug-Ins

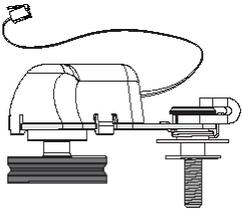


- 1 Power Port with Retainer** (page 25)
Connects and holds power cable to the machine.
- 2 Power On/Off Switch** (page 25)
Turns machine on and off.
- 3 Quilt Motion Tablet Port**
For optional automation Accessory.
- 4 Connector Port**
For updating only.
- 5 Quilt Motion Control Port**
For optional automation Accessory.

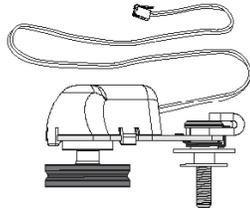
- 6 Encoder Port** (page 16)
Connects encoders to machine.
- 7 Foot Pedal Port**
For sit-down system.
- 8 Display Clip Port** (page 24)
Connects display clip to machine.
- 9 Display Cable Port** (page 24)
Connects display cable to machine.

Included Parts

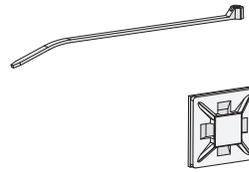
Please make sure all pieces are included in your kit.



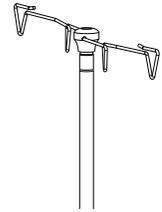
Upper Encoder
(silver spring)
See page 16



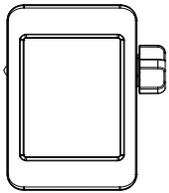
Lower Encoder
(black spring)
See page 19



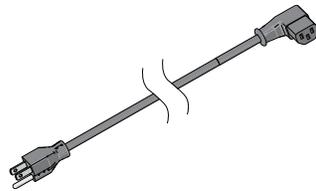
Zip Tie (2)
Zip Tie Mount (2)
See page 21



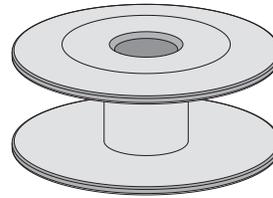
Thread Mast
See page 22



2.4" Touch Screen Display with Cable
See page 24



Power Cord
See page 25



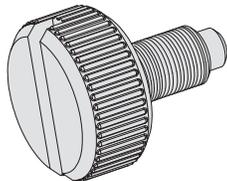
M Class Bobbin (3)
(one on bobbin stand,
one in bobbin case)
See page 29



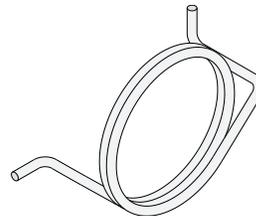
Size 18 Needle (10)
(one in machine)
See page 64



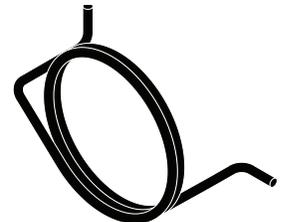
Size 16 Needle (10)
See page 64



M3 Thumb Screw
(spare needle screw)
See page 64



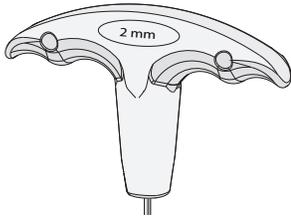
Upper Encoder Spring (silver)
See page 77



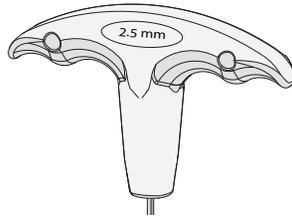
Lower Encoder Spring (black)
See page 77

Included Tools

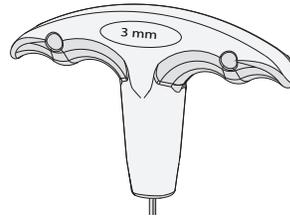
Please make sure all pieces are included in your kit.



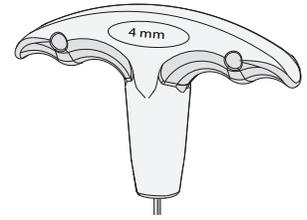
**2 mm T-handle
Allen Wrench**



**2.5 mm T-handle
Allen Wrench**



**3 mm T-handle
Allen Wrench**



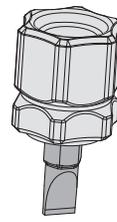
**4 mm T-handle
Allen Wrench**



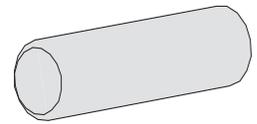
Lint Brush



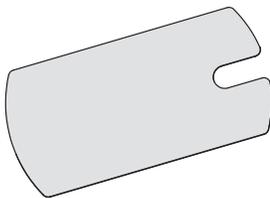
Oil Bottle



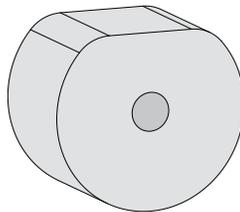
**Flat-head
Screwdriver**



Needle Magnet



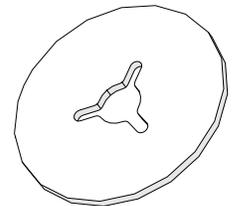
**Hopping Foot
Height Gauge**



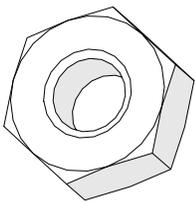
Timing Spacer



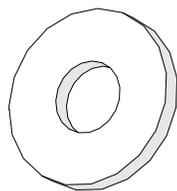
**Open-End
7 mm Wrench**



Plastic Washer M4



Hex Nut M4



Washer M5

Out-of-the-Box Assembly

The machine requires minimal assembly to get started! This section of the manual covers aligning the wheels, installing the encoders, setting up the thread mast, attaching the touch screen display, and powering up the machine.

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Connecting the Front Display	page 24
Turning the Machine On/Off.....	page 25

Note: Assemble your frame and bottom carriage before unpacking your quilting machine.

Tip: For additional help, scan the QR code below with the camera on your smart phone to visit our online support videos!

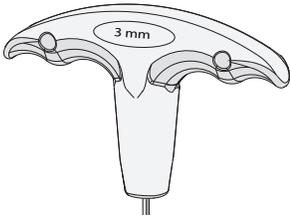


Out-of-the-Box Assembly

Aligning the Wheels

Parts & Tools Needed:

Set up the frame before assembling the machine.



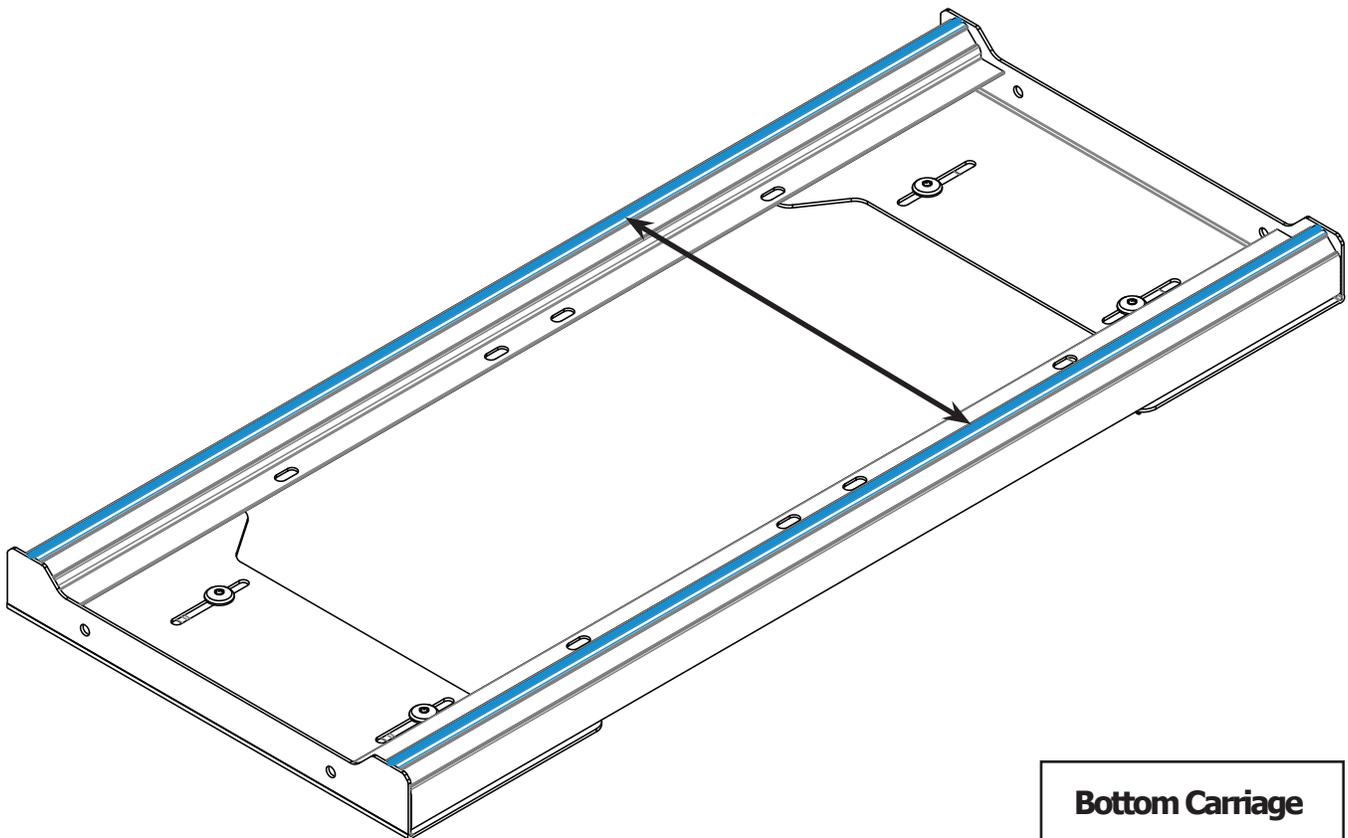
**3 mm T-handle
Allen Wrench**

- Tape Measure (not included)

Instructions

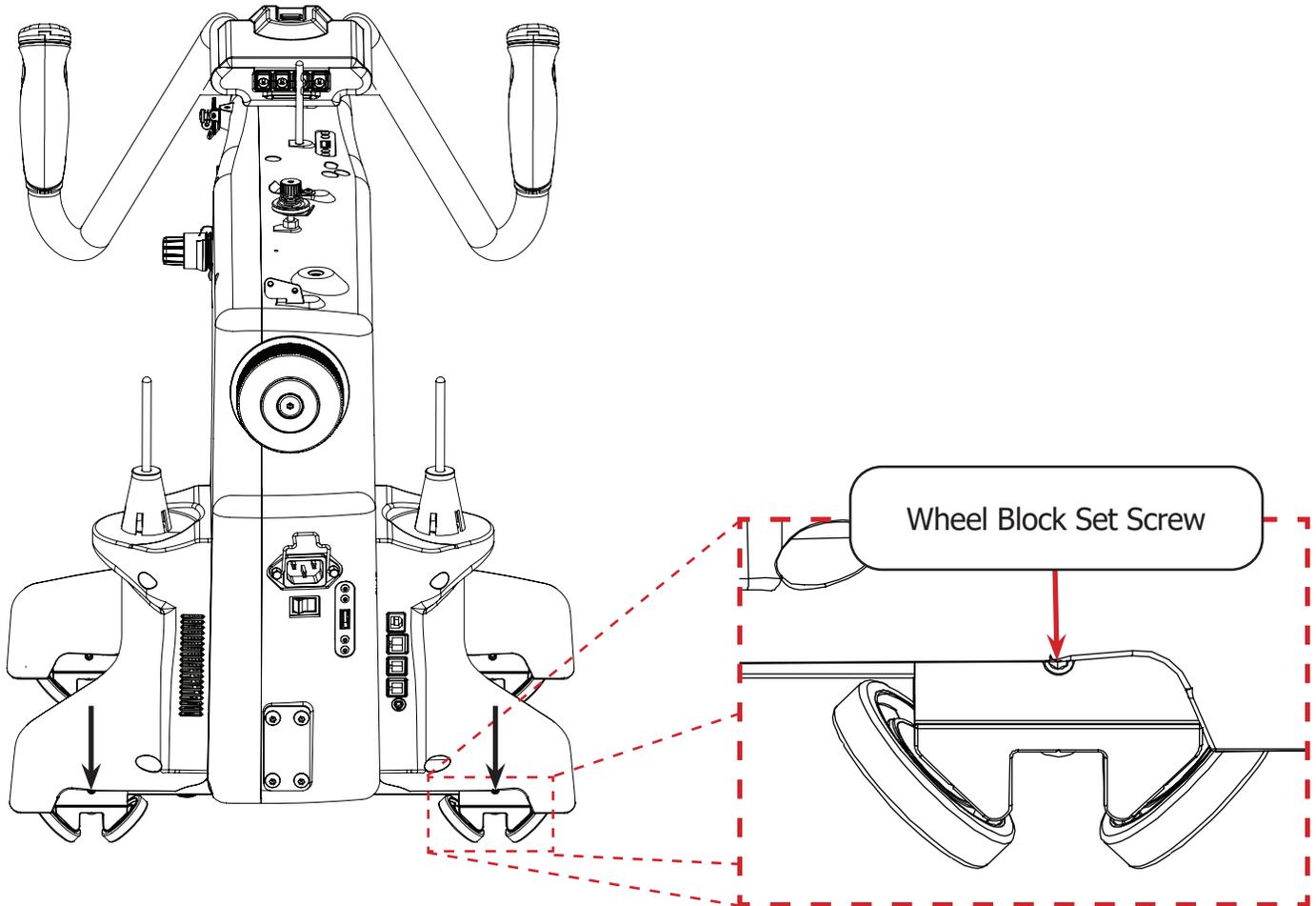
The first step to preparing the quilting machine is to align the wheels so that the machine glides across the bottom carriage rails during use. The spacing between the wheels on the machine may need to be aligned to fit your carriage model. Please take the following steps:

1. Measure the distance between the two sides of the **bottom carriage**, from peak (shown in blue) to peak of each track.



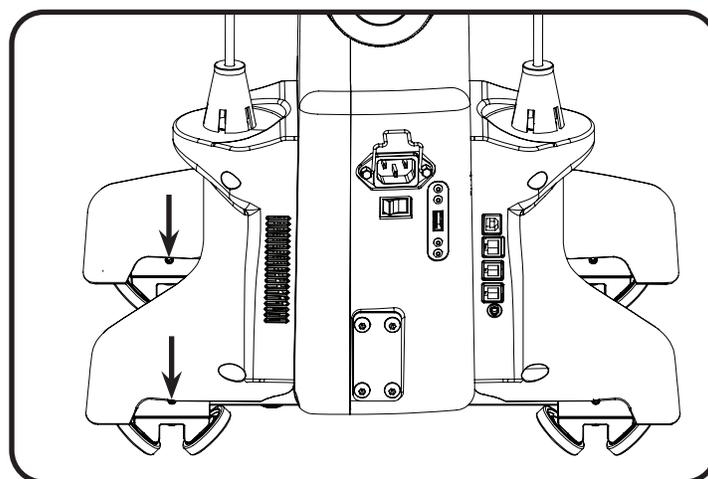
Bottom Carriage

2. Next measure the distance between the two rear **wheel block set screws**.

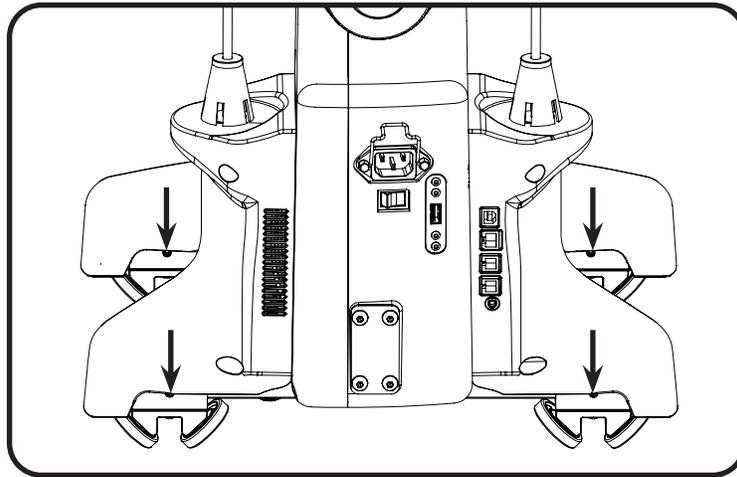


3. Compare the measurements.

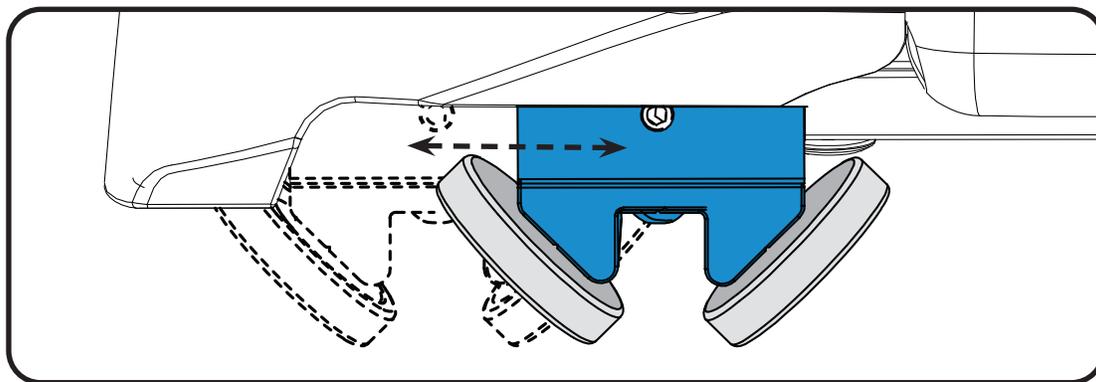
- If the distances are within an inch of each other, loosen the two **left wheel block set screws** with the 3 mm Allen wrench.



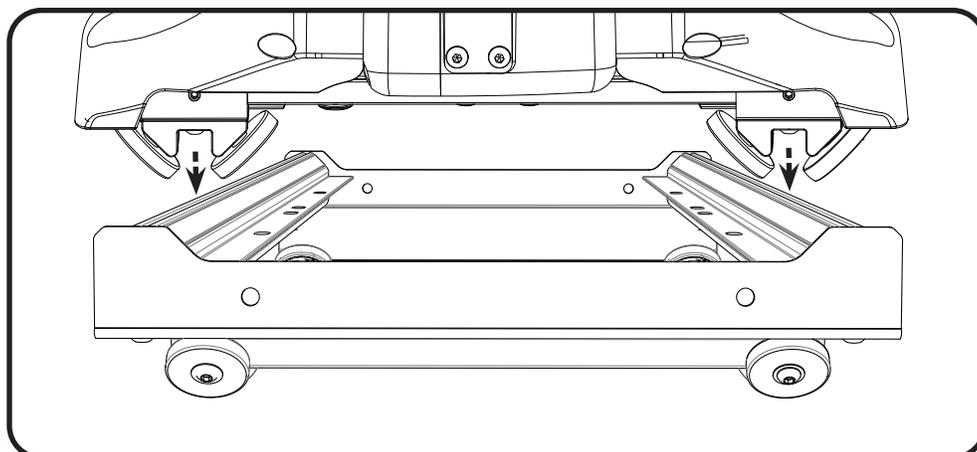
- If the difference between the measurements is greater than an inch, loosen all **four wheel blocks** with the 3 mm Allen wrench.



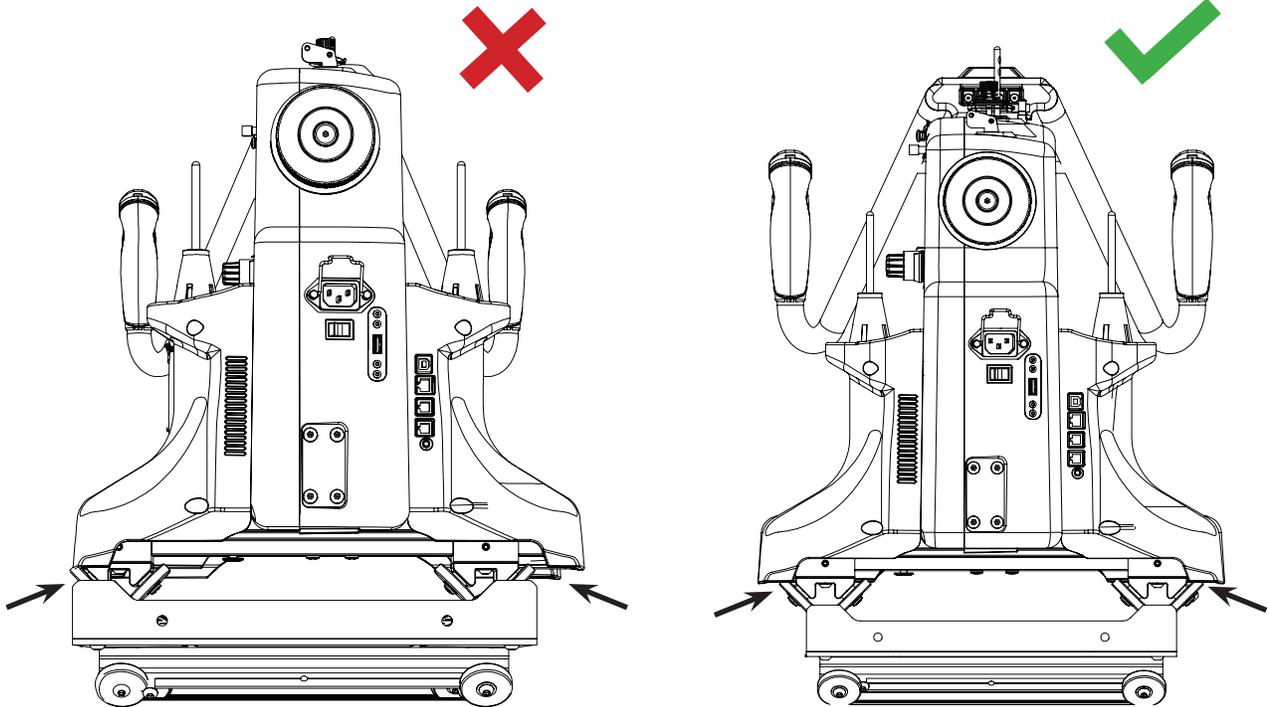
Note: The loosened **wheel blocks** are now able to shift from side to side.



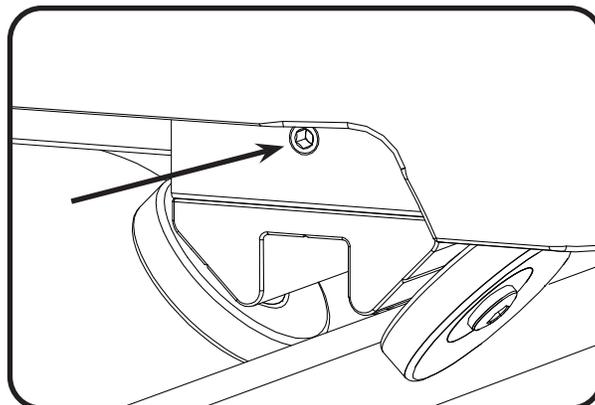
4. Adjust the two front wheel blocks so that the distance between the set screws matches the distance between the carriage rails. Do the same for the two back wheel blocks.
5. Carefully place your quilting machine on the bottom carriage.



- 6. Slide machine up and down the carriage rails. Ensure all wheels contact with the rails and the machine moves smoothly.
- 7. Shift the machine so it is centered over the rails.

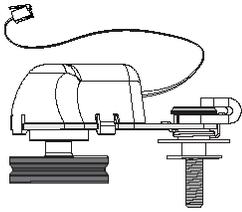


- 8. Re-tighten the **set screws** with the 3 mm Allen wrench.

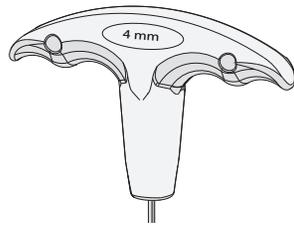


Assembling the Upper Encoder

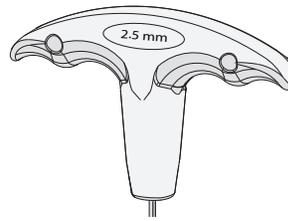
Parts & Tools Needed:



**Upper Encoder
(Silver Spring)**



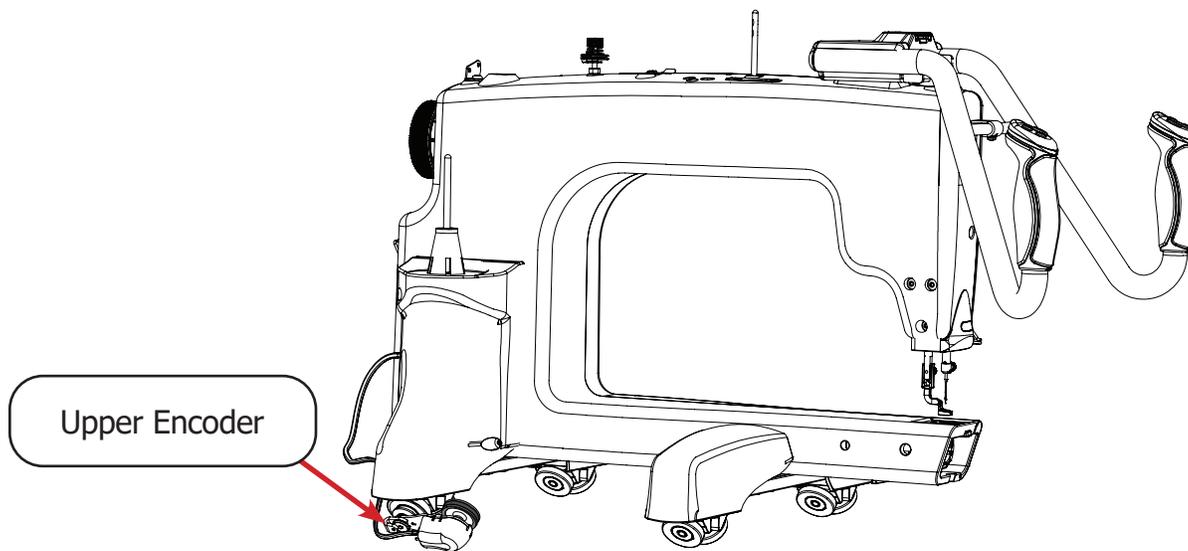
**4 mm T-handle
Allen Wrench**



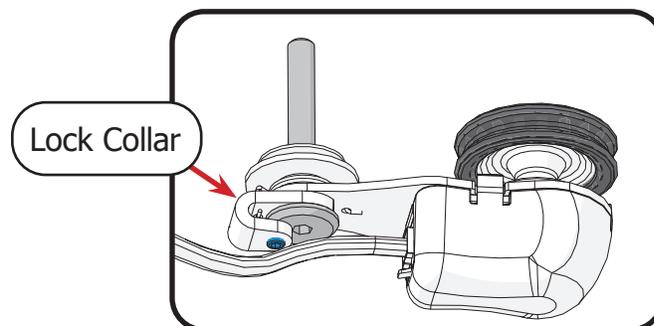
**2.5 mm T-handle
Allen Wrench**

Instructions

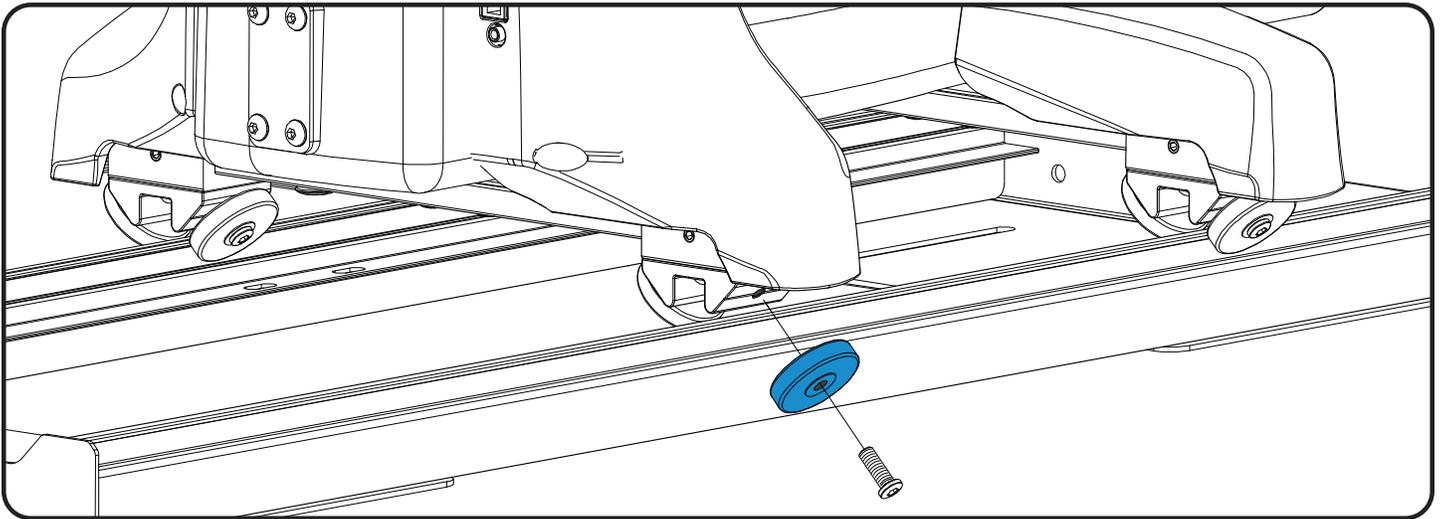
The encoders make regulated stitching possible by tracking the position of the machine on the frame. The **upper encoder** has the short cable and silver spring. Install the upper encoder on the left-rear wheel of the machine.



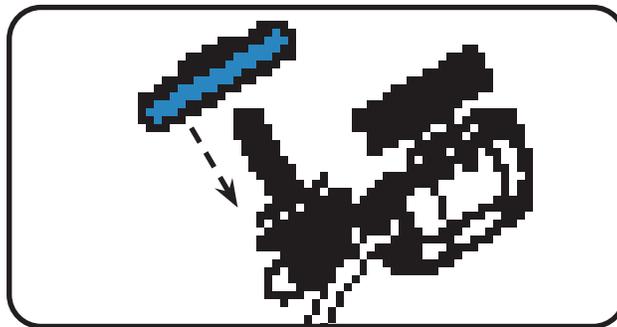
1. Loosen the **lock collar screw** (shown in blue) on the upper encoder with the 2.5 mm Allen wrench until the **lock collar** turns freely. **Note:** Depending on the encoder model, this step may require the 2.0 mm Allen wrench.



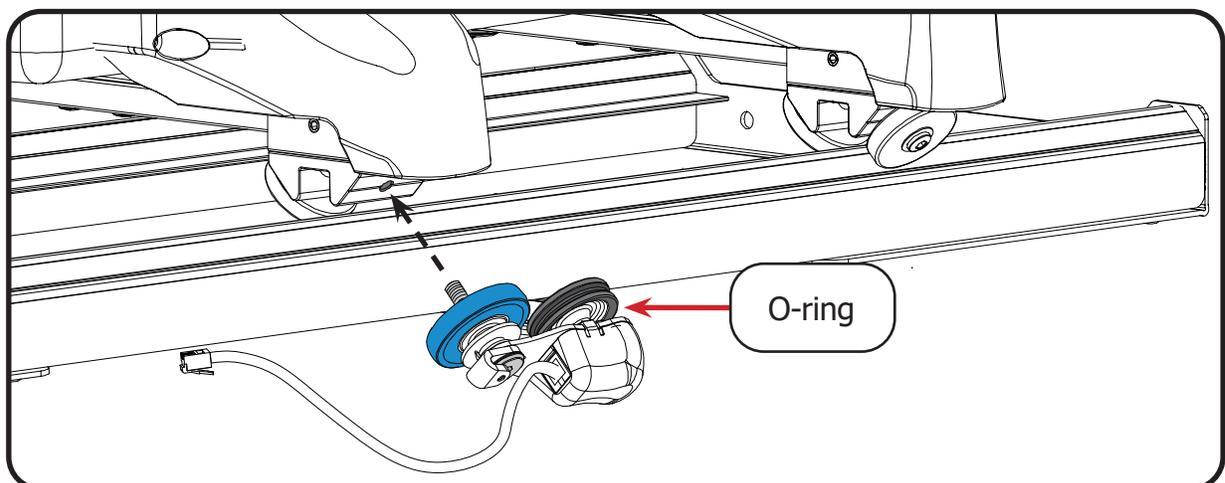
2. Use the 4 mm Allen wrench to remove the **outer left-rear wheel** (shown in blue) from the machine. The screw will not be needed and can be stored with the packaging materials.



3. Slide the flat side of the wheel onto the **encoder screw** (shown in gray).

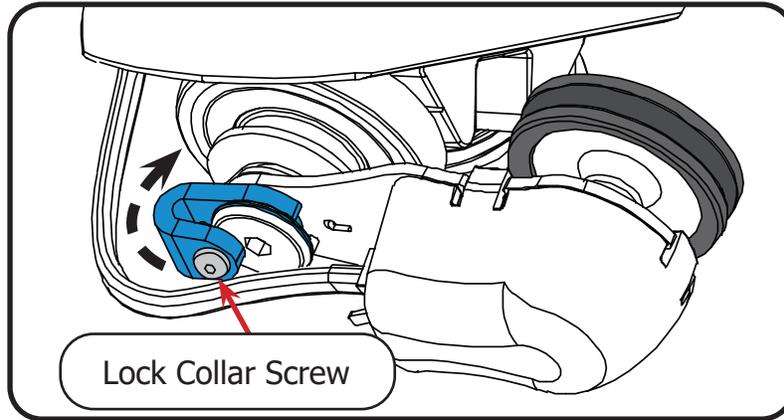


4. Insert the encoder screw into the **wheel hole** on the machine. The encoder **O-ring** should be between the rear wheel and the front of the machine.

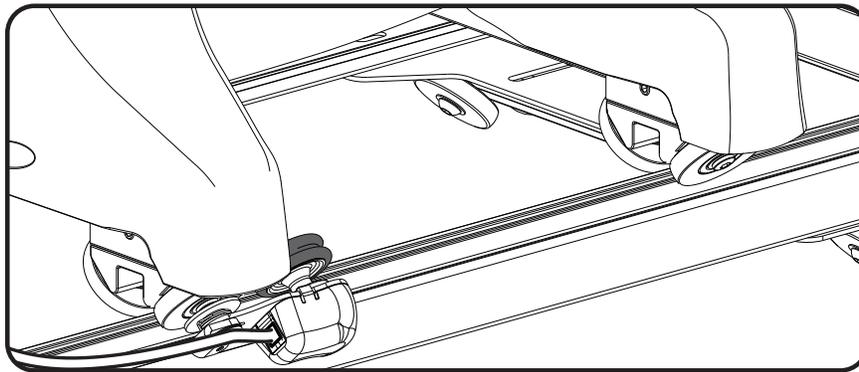


5. Tighten the encoder screw with the 4 mm Allen wrench.

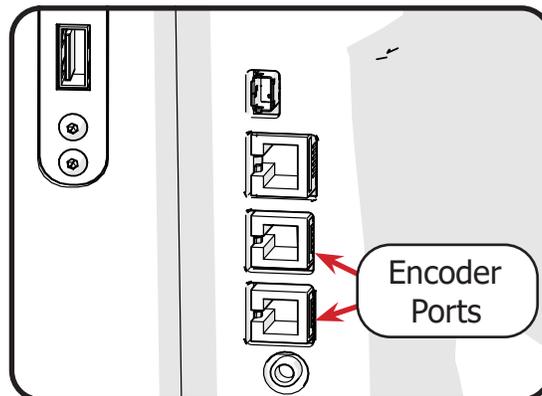
- Twist the **encoder lock collar** (shown in blue) to point up and tighten the **lock collar screw** with the 2.5 mm Allen wrench. **Note:** Your machine model may require the 2.0 Allen wrench for this step.



Note: The O-ring rides the track and rotates when the machine is moved up and down the rail.

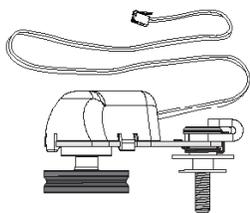


- Plug the encoder cable into one of the **encoder ports** on the back of the machine.

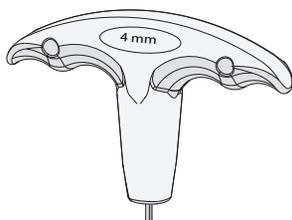


Assembling the Lower Encoder

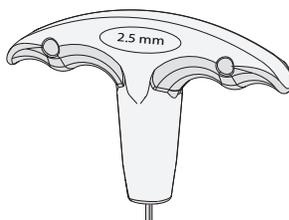
Parts & Tools Needed:



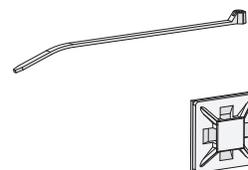
Lower Encoder
(Black Spring)



4 mm T-handle
Allen Wrench



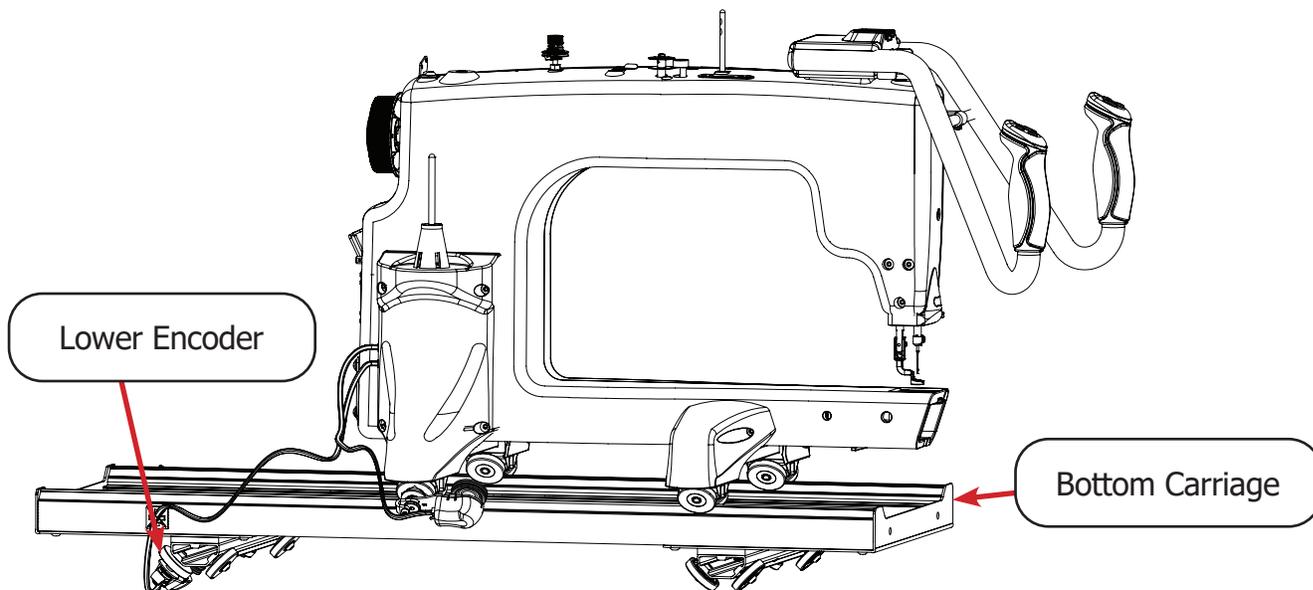
2.5 mm T-handle
Allen Wrench



Zip Tie (2)
Zip Tie Mount (2)

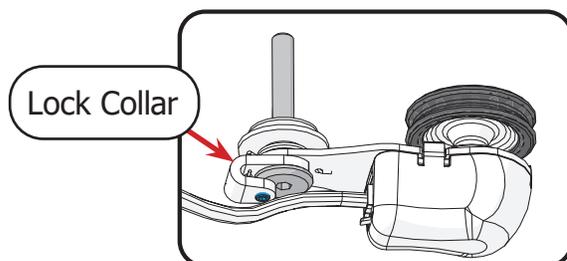
Instructions

The **lower encoder** has the long cable and black spring. It must be installed on the rear-facing, left-rear wheel of the **bottom carriage**.

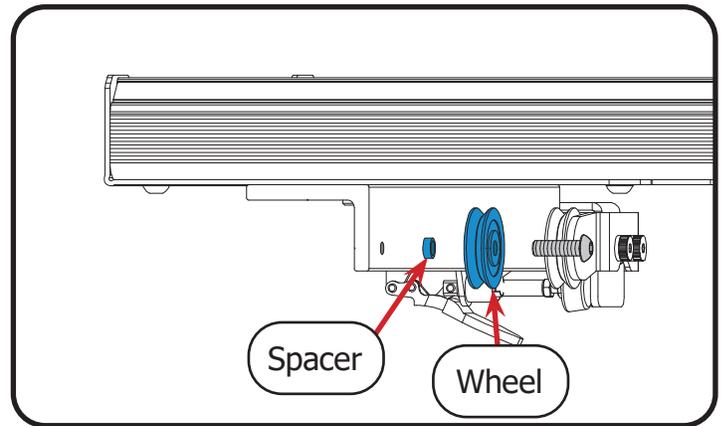
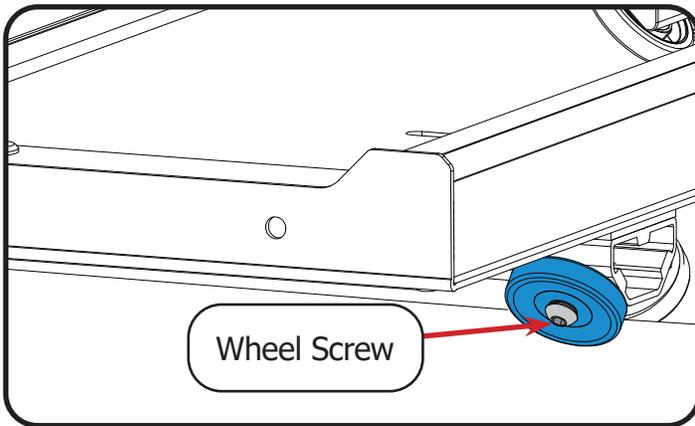


Note: Some bottom carriage styles only have one wheel in each corner of the bottom carriage instead of two. If this is the case, the lower encoder will be installed on the left-rear wheel of the bottom carriage.

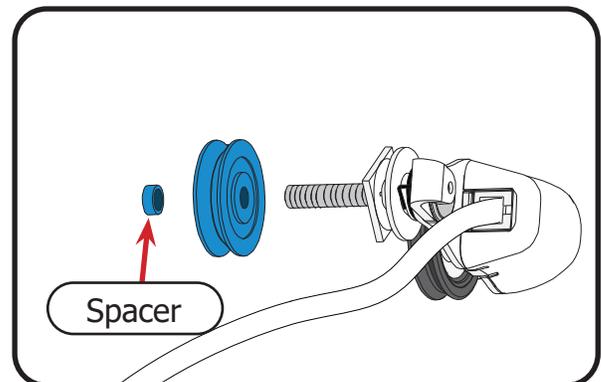
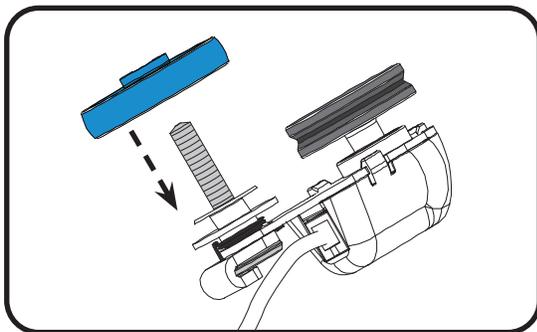
1. Loosen the **lock collar screw** (shown in blue) on the lower encoder with the 2.5 mm Allen wrench until the **lock collar** turns freely. **Note:** Depending on the encoder model, this step may require the 2.0 mm Allen wrench.



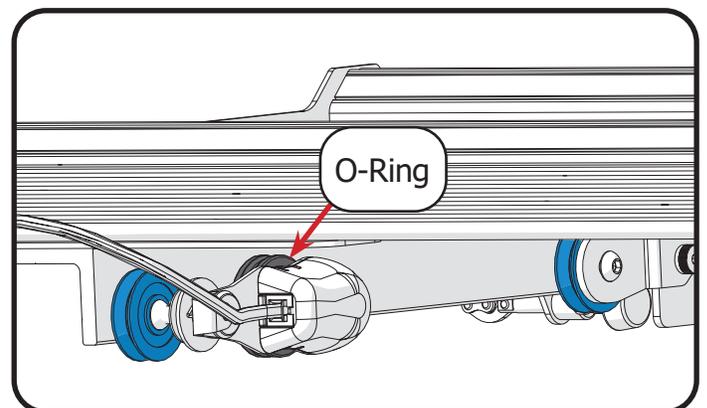
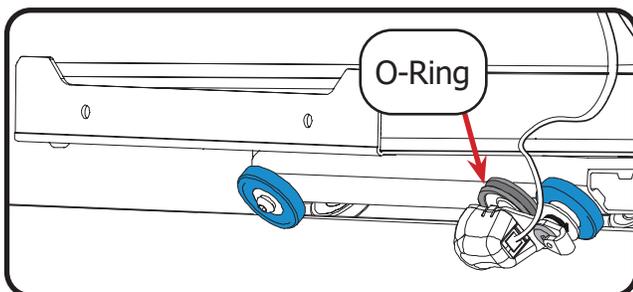
- Using the 4 mm Allen wrench, loosen the **wheel screw** to remove the **rear-facing left-rear wheel** (shown in blue) from the bottom carriage. **Note:** Some bottom carriage styles have only one wheel at each corner. In that case, remove the left-rear **wheel** and **spacer**.



- Slide the wheel onto the **encoder screw** (shown in gray) so that the wheel hub faces away from the encoder. **Note:** some bottom carriage styles do not have wheel hubs. Instead, place the **spacer** onto the encoder screw after the wheel.

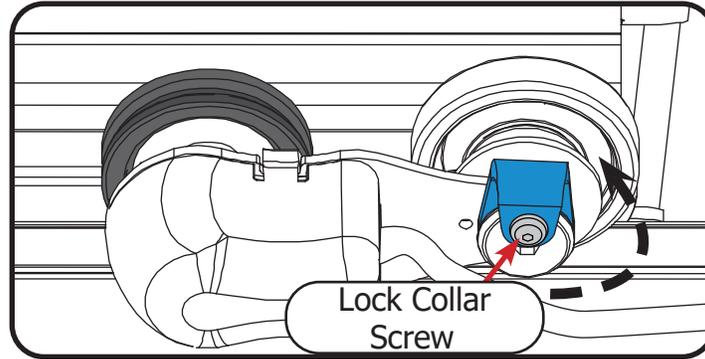


- Place the encoder screw into the left-rear position of the bottom carriage. The encoder **O-ring** should sit between the **rear-facing wheels** (shown in blue).

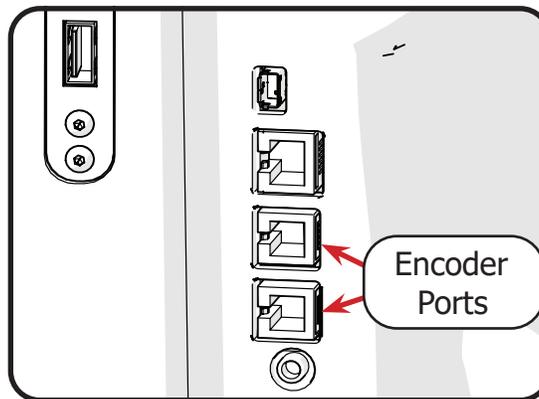


Note: If your bottom carriage is a style with only one wheel at each corner, install the lower encoder so it is between the two rear wheels.

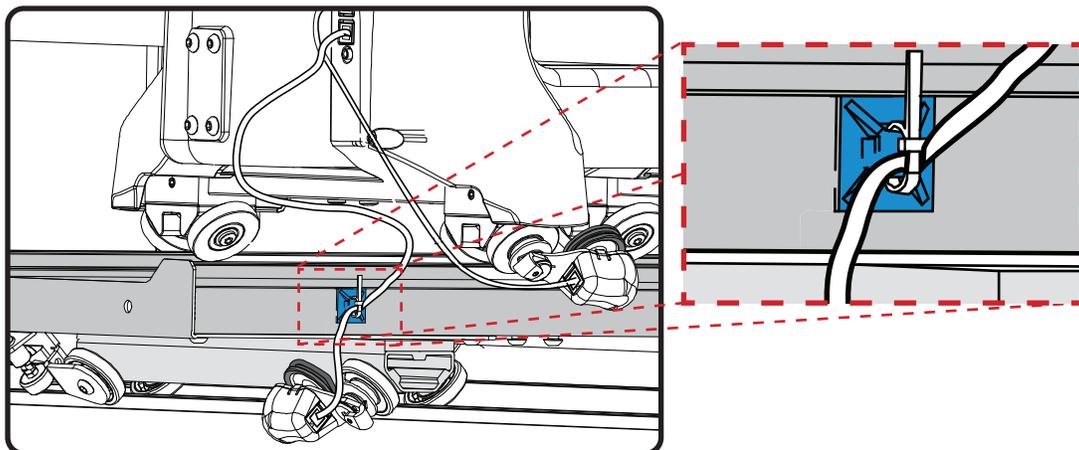
5. Turn the **encoder lock collar** (shown in blue) to point up. Then use the 2.5 mm Allen wrench to tighten the **lock collar screw**.



6. Plug the encoder cable into one of the **encoder ports** on the back of the machine.



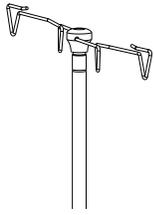
7. To prevent the long encoder cable from catching on the rear corner of the bottom carriage, use the adhesive **zip tie mount** and zip tie to fasten the long encoder cable to the side of the **bottom carriage** (shown in gray).
- For best results, place the zip tie mount above the rear wheel. Fasten the encoder cable so that all the slack in the cord is between the mount and the machine (not the mount and the wheel).



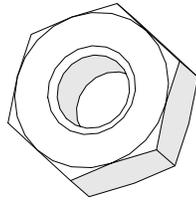
Out-of-the-Box Assembly

Attaching the Thread Mast

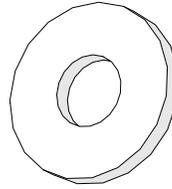
Parts & Tools Needed:



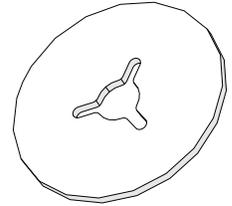
Thread Mast



Hex Nut M4



Washer M5



Plastic Washer M4

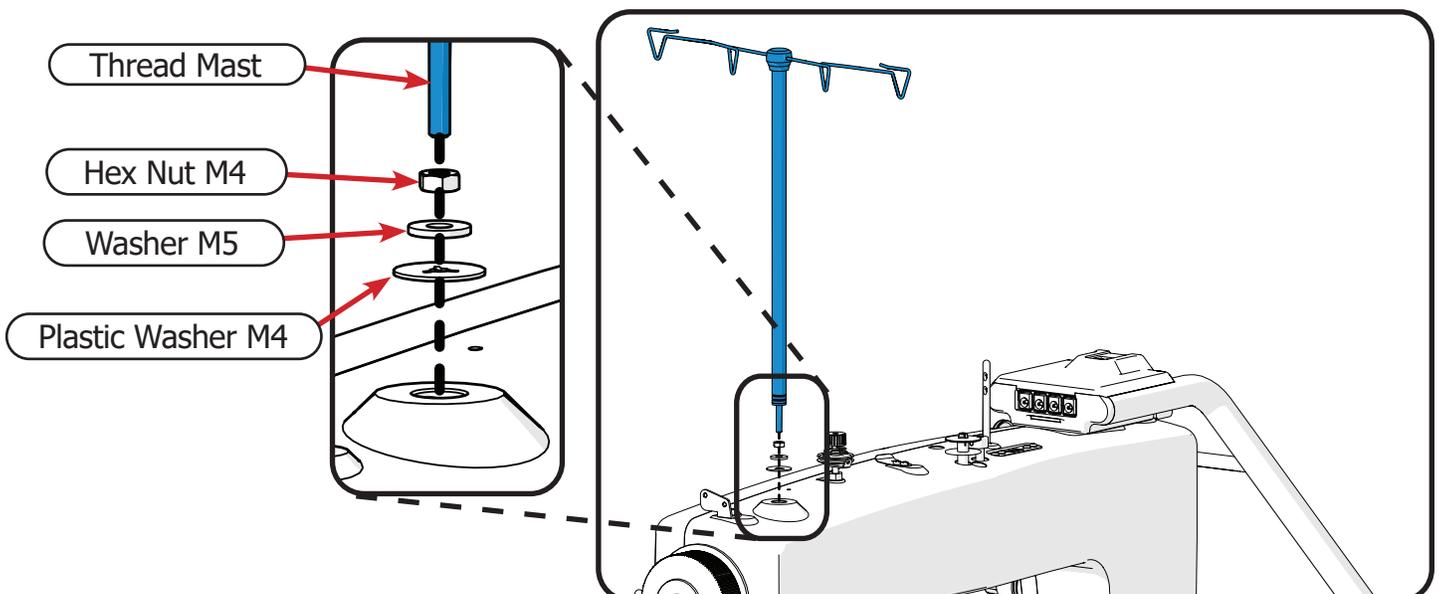


**Open-End
7 mm Wrench**

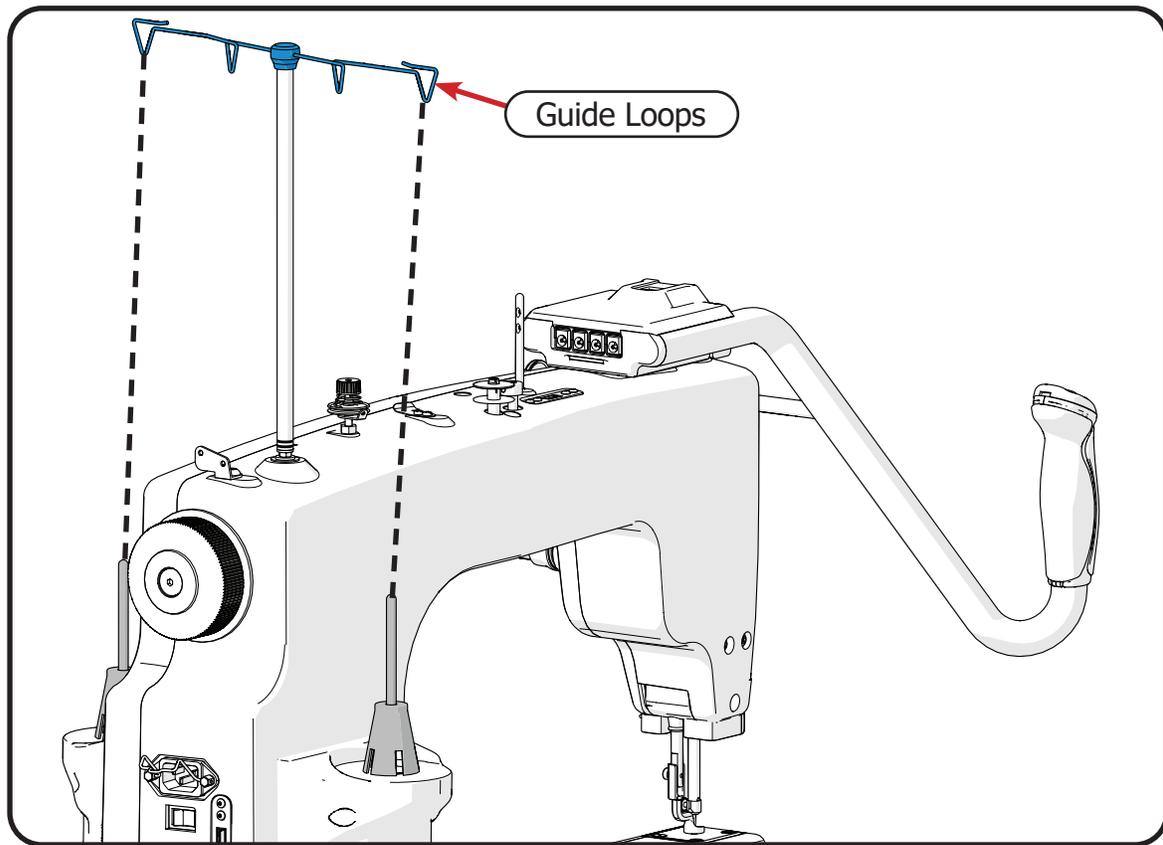
Instructions

The thread mast guides the thread to prevent snagging or tangling. Only two of the four guide loops are used when winding the bobbin or when threading the machine, so the machine can sew and wind a bobbin at the same time.

1. Screw the **thread mast** into the **M4 Hex nut**, **M5 washer**, **M4 plastic washer**, and into the machine.

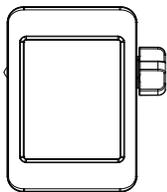


2. Hold the thread mast so the **guide loops** are directly above the **thread stands** (shown in gray). Tighten the M4 hex nut with the 7 mm open-end wrench.



Connecting the Touch Display

Parts & Tools Needed:

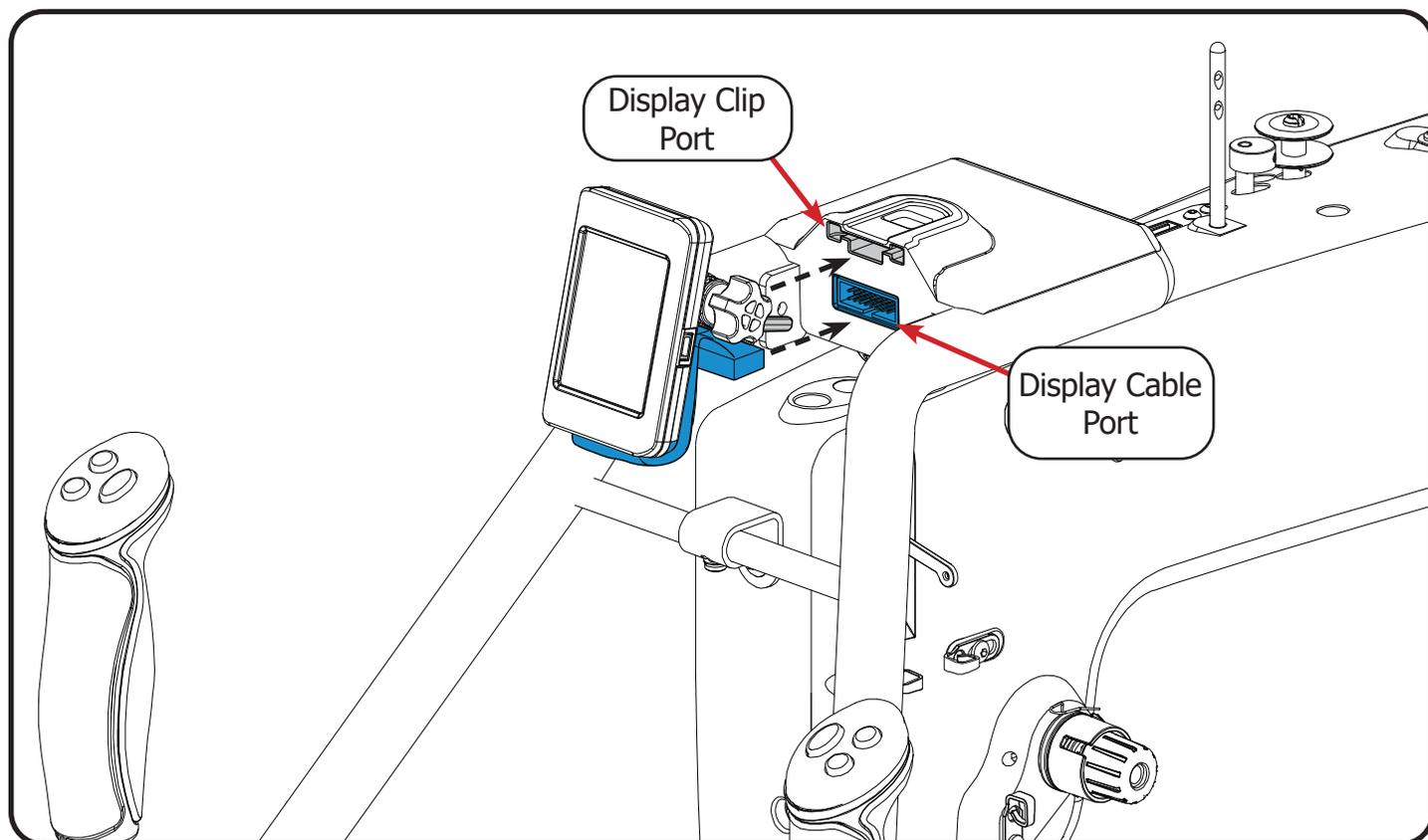


**2.4" Touch Screen
Display with Cable**

Instructions

The touch display provides access to the Settings menu and quilting options for the machine. To connect the front display to the machine, please take the following steps:

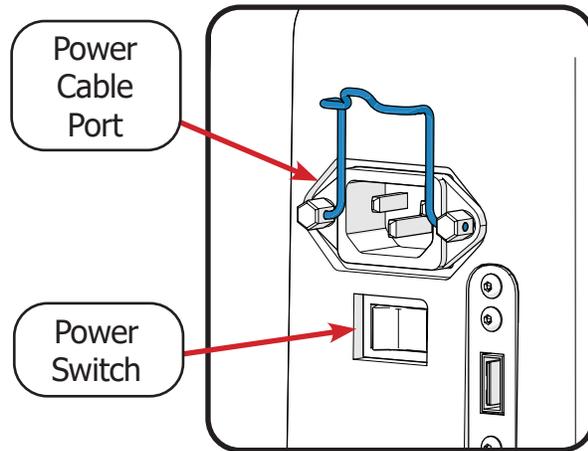
1. Connect the **display ribbon cable** (shown in blue) to the **display cable port**. You may need to thread the cable out from underneath the display clip before it will connect to the port.



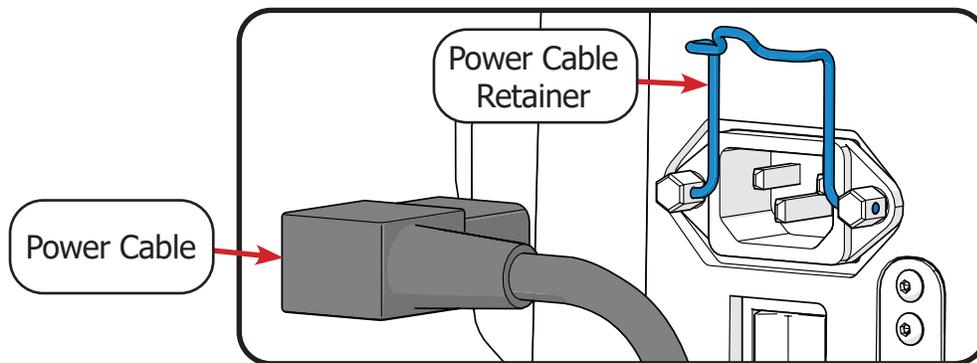
2. Snap the **display clip** (shown in gray) into the **display clip port**.

Turning the Machine On/Off

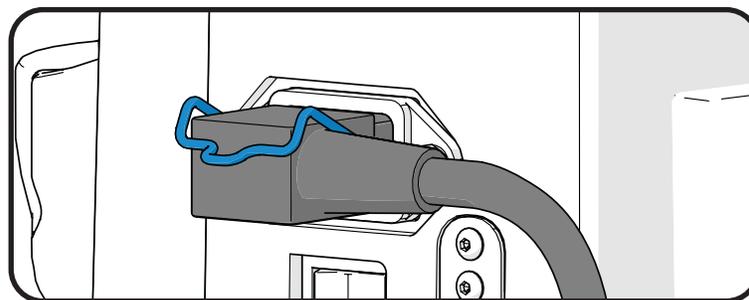
The **power cable port** and **power switch** are located on the back of the machine.



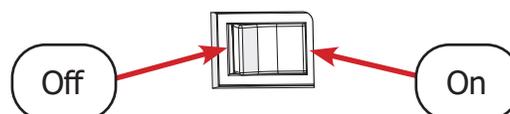
1. Lift up the **power cable retainer** and plug the **power cable** into the machine.



2. Press the power cable retainer down firmly until it grasps the power cable.



3. Press the right side of the power switch to turn the machine on.



Preparing to Quilt

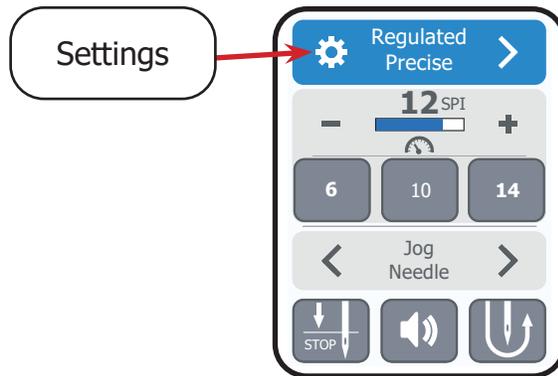
This section of the manual covers choosing the settings for your machine, winding the bobbin, loading the bobbin case, and threading the machine.

Choosing Machine Settings	page 27
Winding the Bobbin	page 29
Loading the Bobbin Case	page 32
Threading the Machine.....	page 35
Final Checklist	page 43

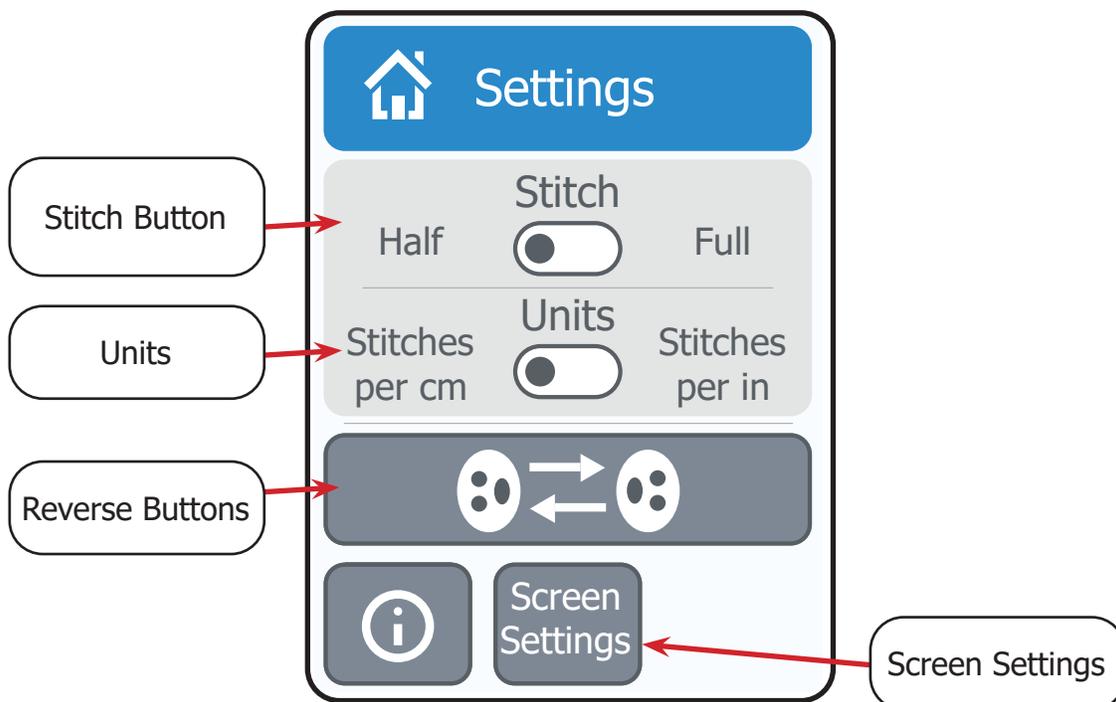
Choosing Machine Settings

To customize the settings for the handlebar controls, screen buttons, or display appearance, take the following steps:

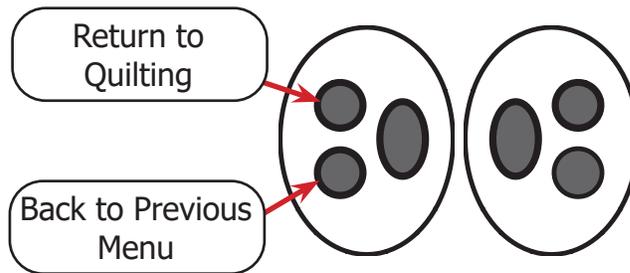
1. Press the **Settings** icon  at the top of the touch display.



The Settings menu opens.

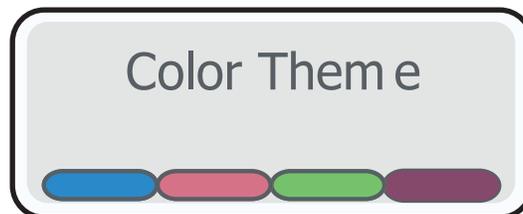


Note: While in the Settings menu, the System Information screen, or the Screen Settings menu, only two of the handlebar buttons have a function:



2. Choose desired settings:

- Stitch Button:** Choose whether the stitch button on the quilting mode screens will create a half-stitch or full stitch when pressed.
 - If "Half" is selected, pressing  on a quilting mode screen (precise, cruise, manual, or baste) will create a half-stitch.
 - If "Full" is selected, pressing  on a quilting mode screen (precise, cruise, manual, or baste) will create a single full stitch.
- Units:** Choose to display machine stitch length in stitches per centimeter (cm) or stitches per inch (in).
- Reverse Buttons:** Select between handlebar controls for right or left-handed quilters.
- Screen Settings:** Press to go to the Screen Settings page, where you can choose a color theme for the display by tapping on the desired color.

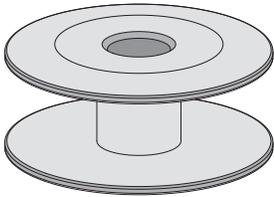


3. From the settings menu, you can also press the **System Information** icon  to access the System Information screen. This displays the firmware versions for your machine (see page 76) as well as the stitch count and run-time (see page 56).

4. To return to quilting, press the **Home**  icon or the Return to Quilting button on the handlebar controls.

Winding a Bobbin

Parts & Tools Needed:



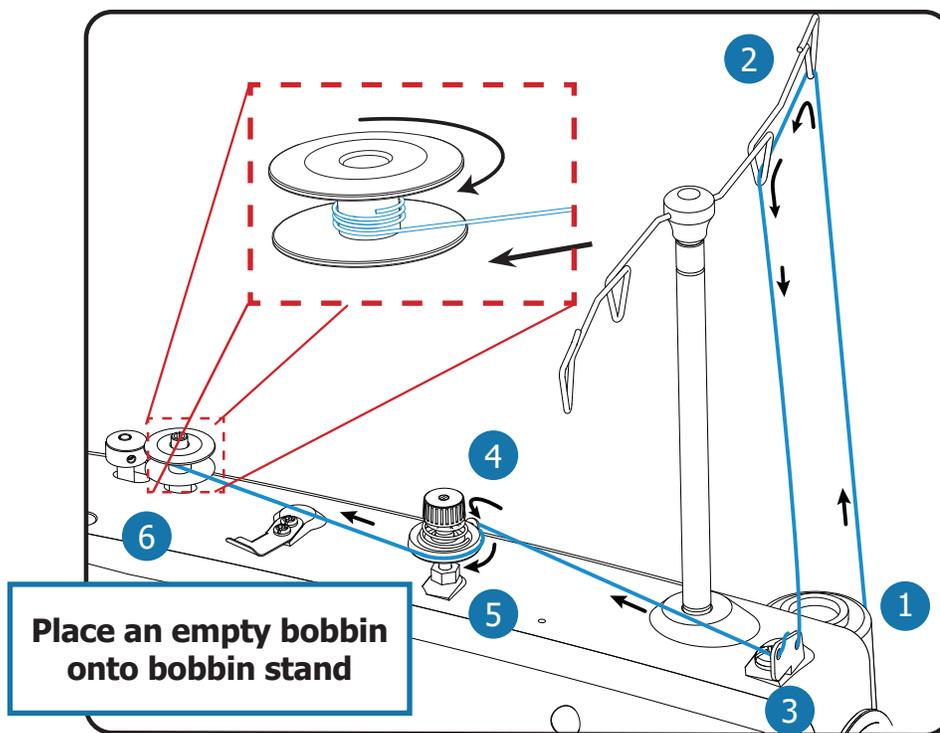
**Bobbin (Class
M Large)**

Instructions

Your machine comes with two bobbins wound with 50 weight cotton thread. Please note that using bobbin thread that does not match the top thread can cause machine malfunctions. An empty M-class bobbin has been provided.

Note: This machine uses cone-style thread. Unless you have the spool accessory, please use only thread cones for this machine. For more information on choosing quality thread, see "Threading the Machine" on page 35.

The following diagram outlines the path the thread (shown in blue) must take to wind the bobbin.



1 Thread Stand

3 Bobbin Thread Guide

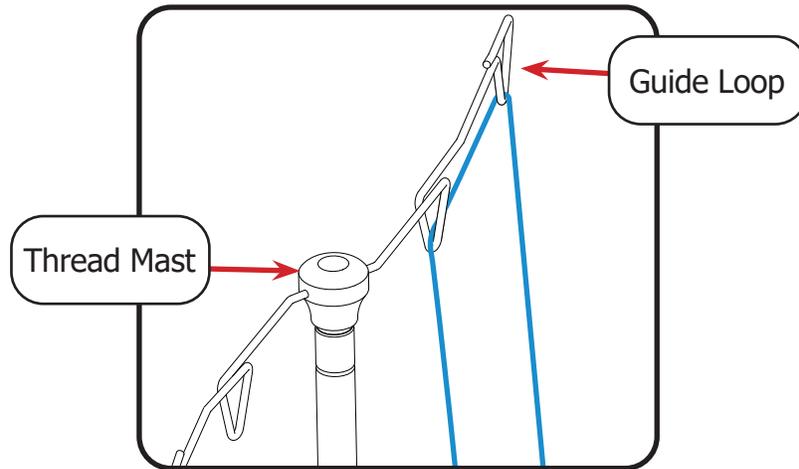
5 Bobbin Thread Tensioner

2 Guide Loops

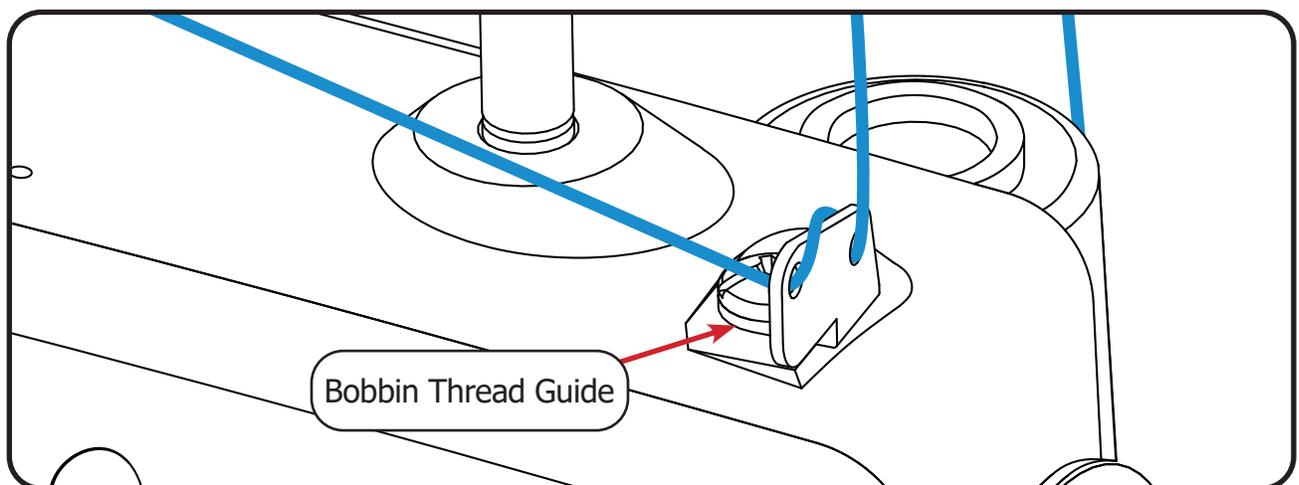
4 Spring Hook

6 Bobbin Stand with Bobbin

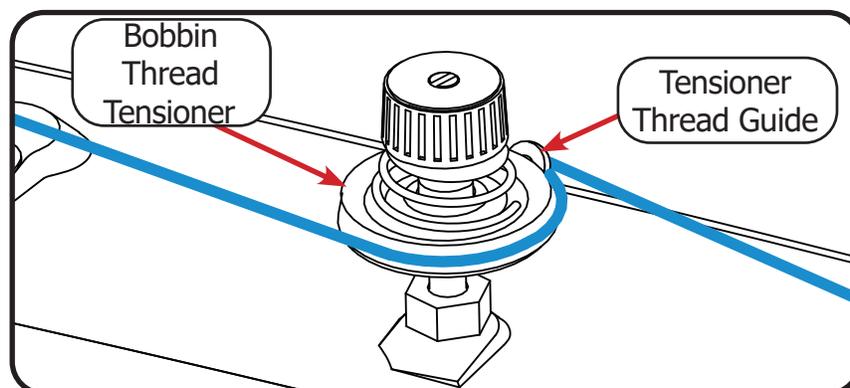
1. Run the thread through two of the **guide loops** on the **thread mast**. Leave the other two loops available for threading the machine. **Note:** Avoid wrapping the thread around the mast by threading the first guide loop from back-to-front, and the second guide loop from front-to-back.



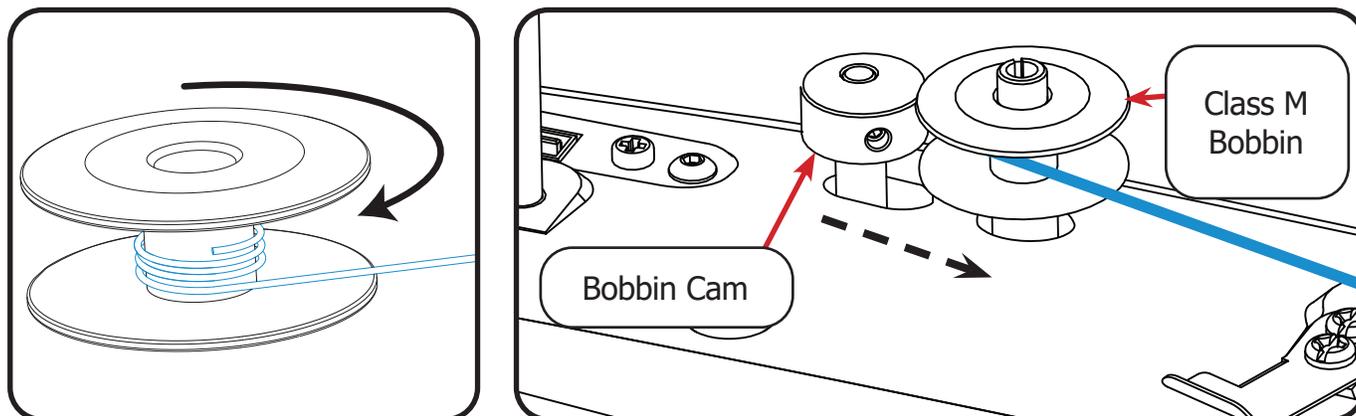
2. Feed the thread through the back of the first hole (closest to the thread cone) on the **bobbin thread guide**. Then wrap it back over and pass through the back of the second hole.



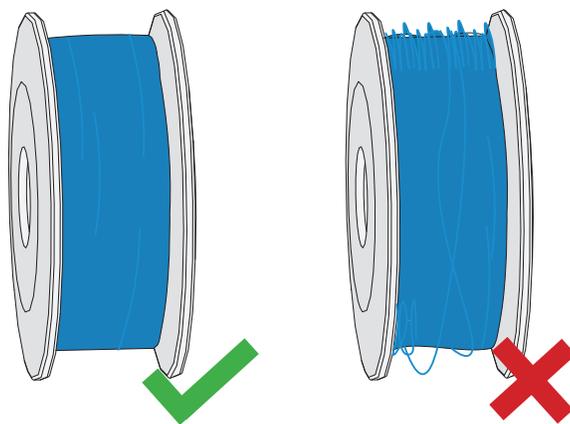
3. Pull the thread through the hole in the **tensioner thread guide** and then around the back of the **bobbin thread tensioner**, between the two discs.



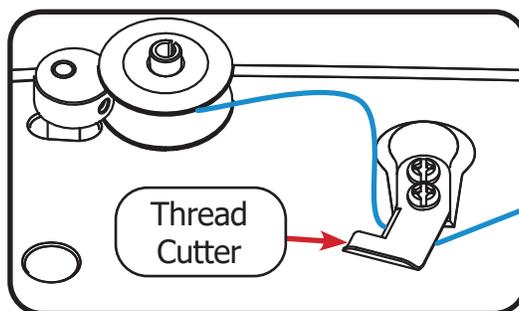
4. Wrap the thread clockwise around the **bobbin** a few times to hold the thread in place. The thread should be held taut. Then push the **bobbin cam** toward the bobbin to start winding.



Tip: Check your bobbin to see how it is winding. Thread should distribute evenly along the bobbin and appear neat and smooth.



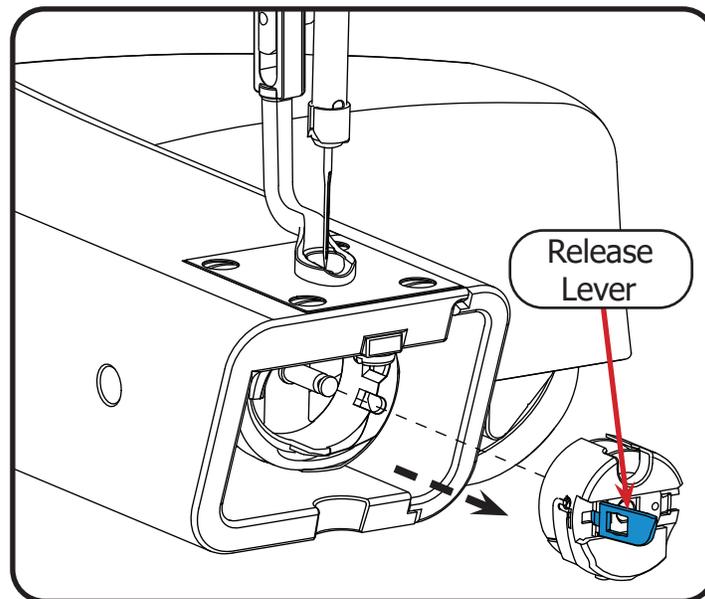
5. When the bobbin is full, the winding will automatically stop (to adjust bobbin fill levels, see "Adjusting the Bobbin Cam" on page 67). Cut the excess thread using the built-in **thread cutter** next to the bobbin stand.



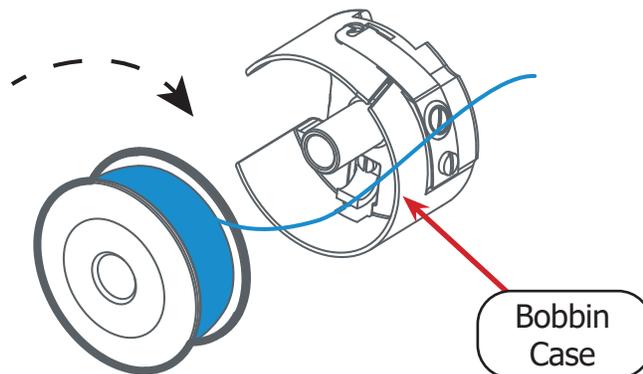
Loading the Bobbin Case

After filling the bobbin, it is time to insert it into the bobbin case and place it in the machine.

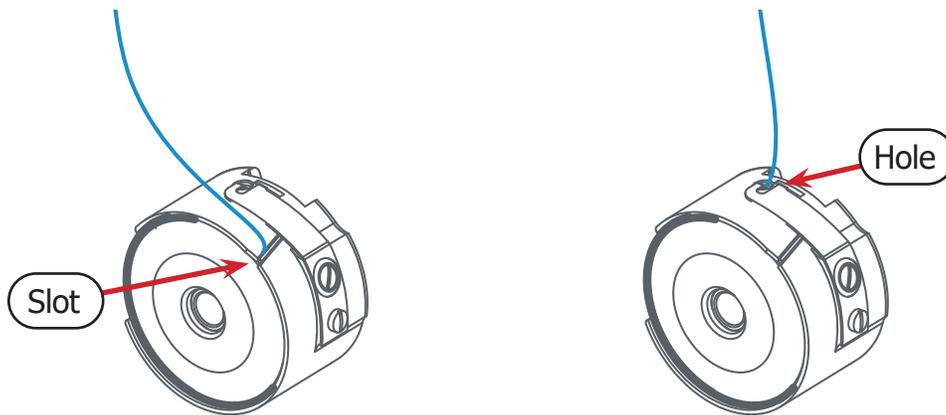
1. Check that the needle is in the "Up" position. The bobbin case will not release from the machine if the needle is down. If needed, rotate the hand wheel to raise the needle.
2. Press the Settings icon  on the display to go to the Settings menu. This will prevent accidental stitching.
3. Pull the **release lever** on the bobbin case to remove the case from the machine.



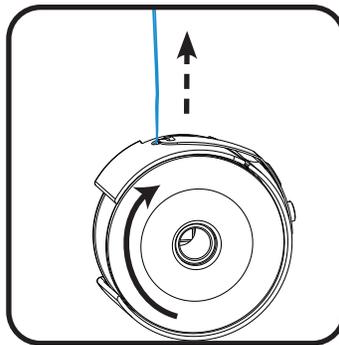
4. Place the wound bobbin into the **bobbin case**. Please note the direction that the thread is coming off the bobbin in relation to the case.



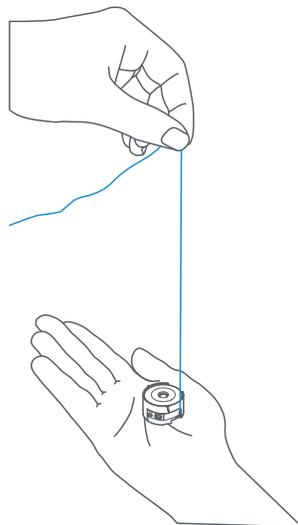
5. Slip a few inches of thread through the **slot** and out of the **hole**.



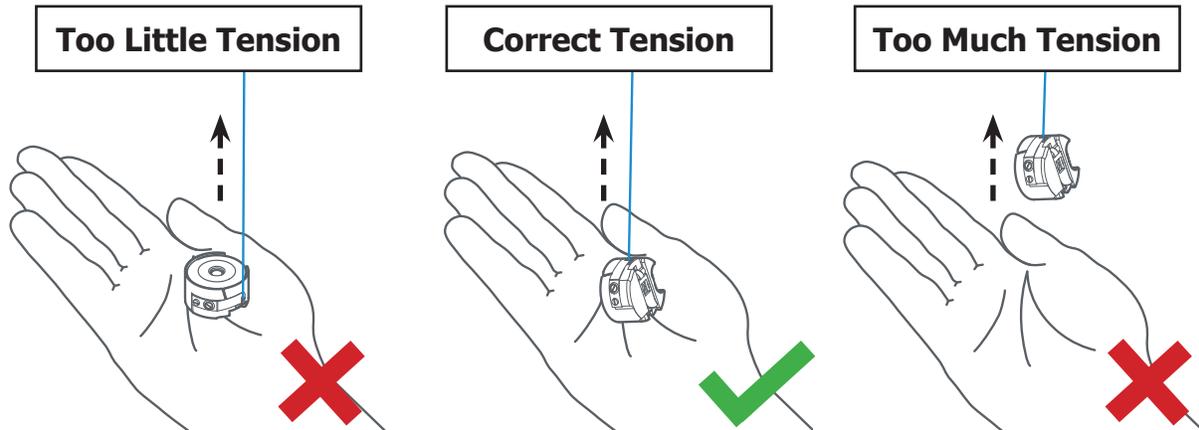
Note: If the bobbin is wound correctly it will turn clockwise when the thread is pulled.



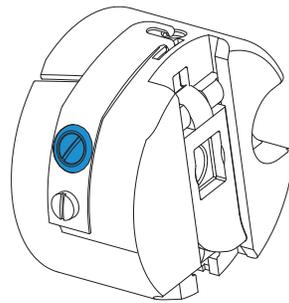
6. Test the tension of the bobbin case. Bobbin tension is the foundation for correct thread tension, so test the tension each time the bobbin thread is changed.
 - a. Place the bobbin case on its side on your palm.



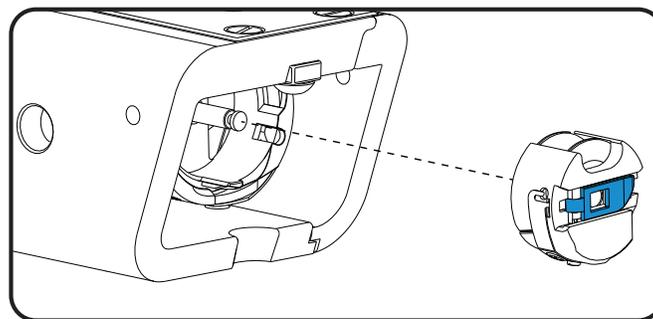
- b. Pull up on the thread. The thread should run freely. If the tension is correct, the bobbin will rise into a vertical position without lifting off of your hand.



- If the bobbin case remains on its side, there is too little tension. Turn the **large screw** (shown in gray) clockwise.
- If the case lifts into the air, there is too much tension. Turn the **large screw** (shown in gray) counter-clockwise.



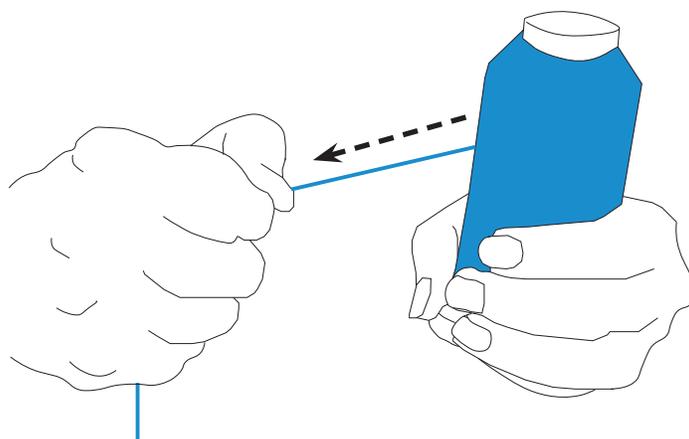
7. Once the thread tension in the bobbin case is correct, place the bobbin case inside the quilting machine with the **lever** (shown in blue) at the 3 o'clock position. It should click into place. Do not pull on the lever while inserting the bobbin case.



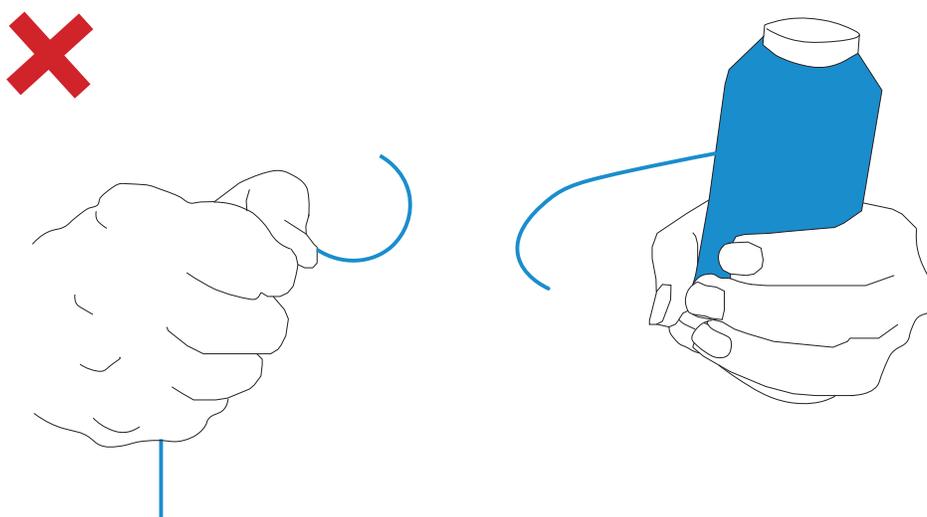
Threading the Machine

Before threading the machine, make sure you've selected quality thread for your project. Choosing the right thread for the machine can prevent the thread from breaking or tangling up under the needle plate. Note the following:

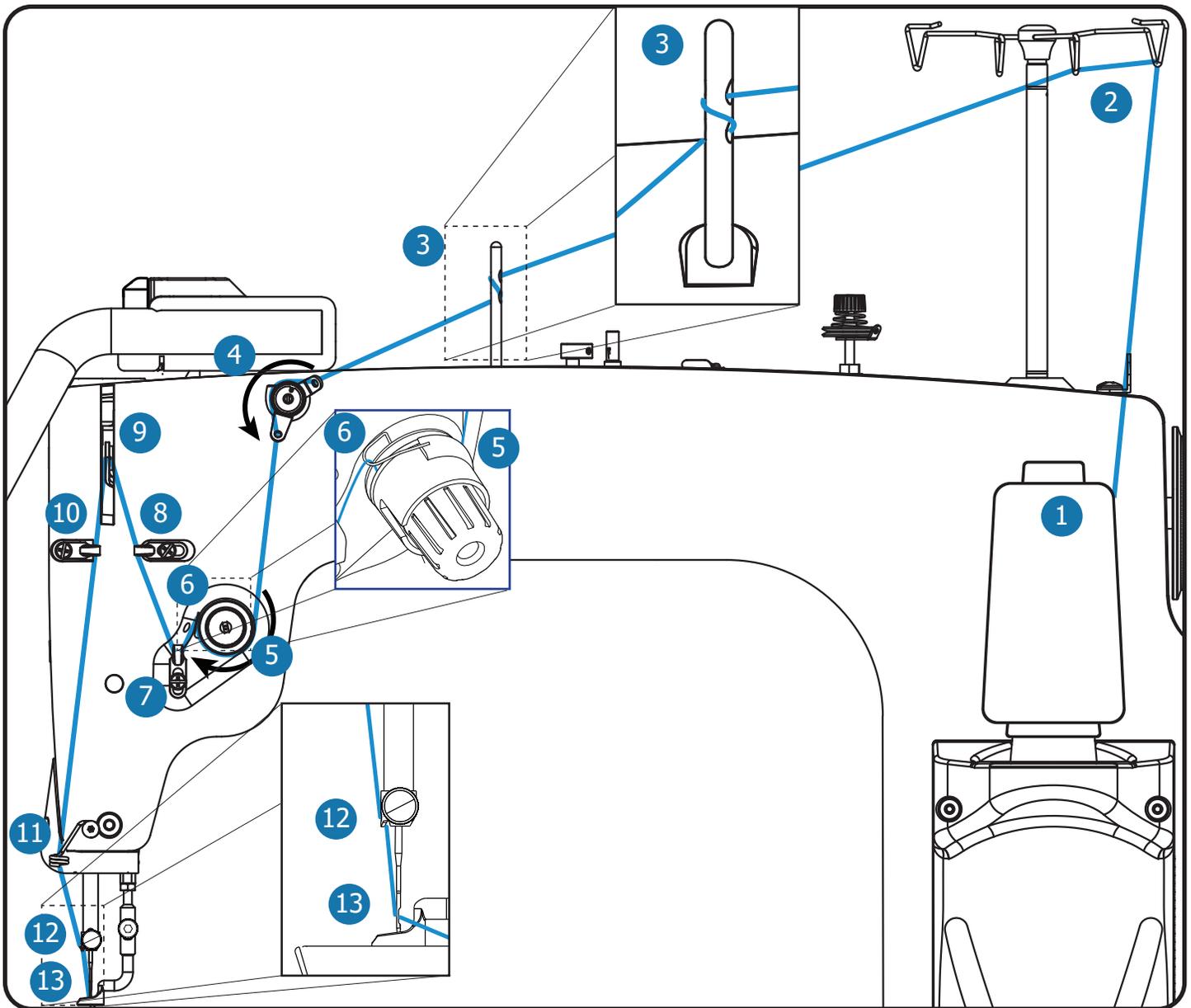
- This machine uses cone-style thread, not thread from a spool. Do not use spool thread unless the spool accessory has been installed.
- Choose thread that is strong enough to pass the yank test, and re-test thread as it ages. Thread strength can diminish over time.
 - a. Hold the cone in one hand and the end of thread in the other.



- b. Give the thread a pull. If the thread snaps easily, it may be too brittle to use in the quilting machine.

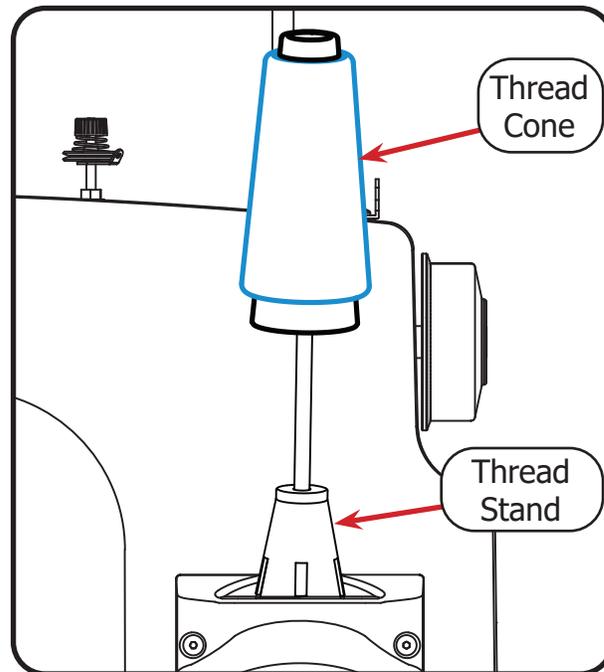


The following diagram outlines the path the thread (shown in blue) must take through the machine.

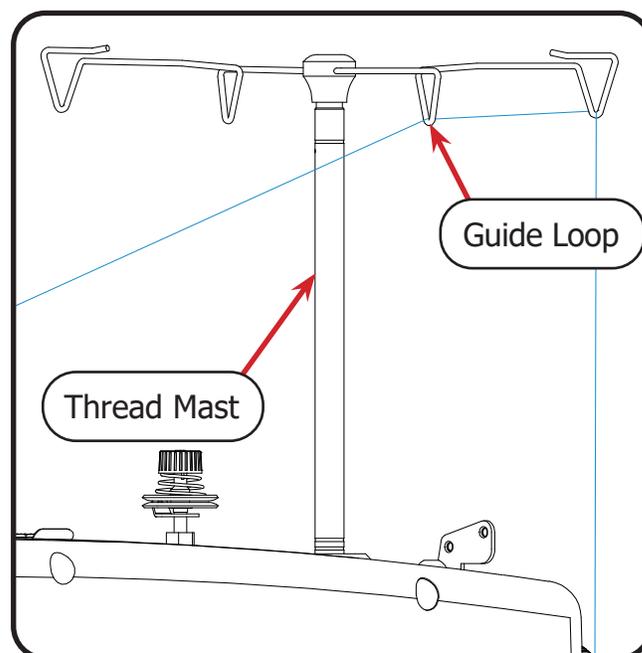


- | | | |
|--------------------------|-----------------------|-------------------------|
| 1 Thread Cone | 6 Check Spring | 11 Bottom Thread Guide |
| 2 Thread Mast | 7 Thread Guide | 12 Eyelet of Needle Bar |
| 3 Thread Guide Rod | 8 Left Thread Guide | 13 Eye of Needle |
| 4 Small Thread Tensioner | 9 Take-up Lever | |
| 5 Large Thread Tensioner | 10 Right Thread Guide | |

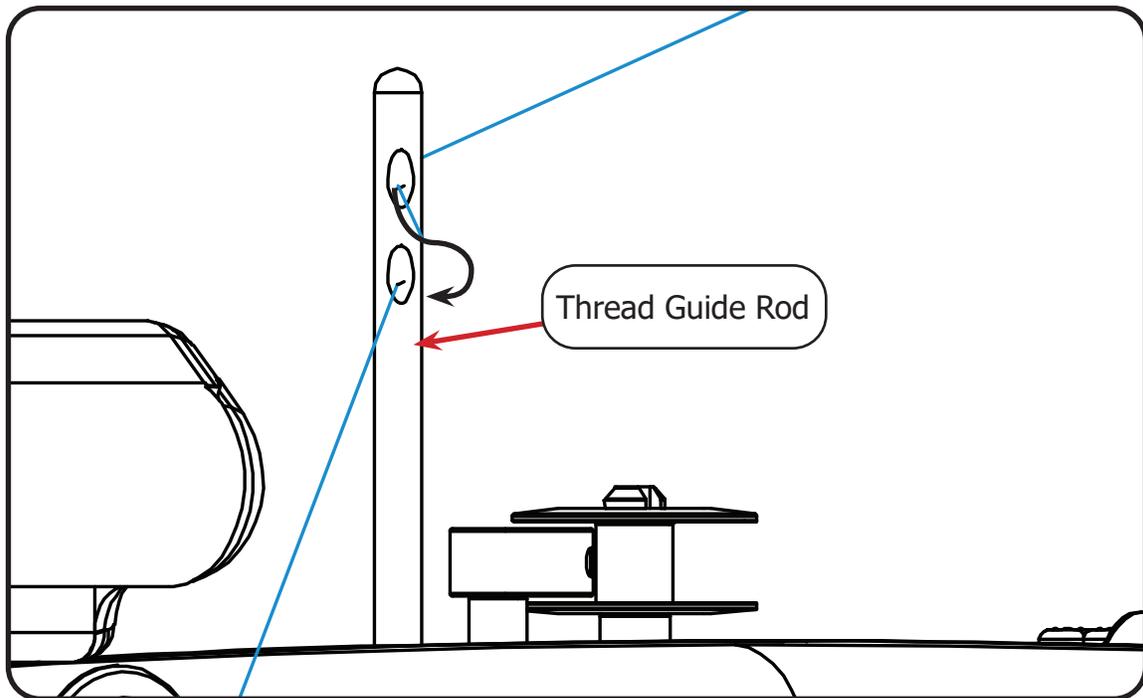
1. Check that the needle is in the "Up" position. The needle cannot be threaded if it is down.
2. To prevent accidental stitching or needle movement, press the Settings icon  on the display to go to the Settings menu.
3. Place the **thread cone** on one of the cone-style **thread stands**.



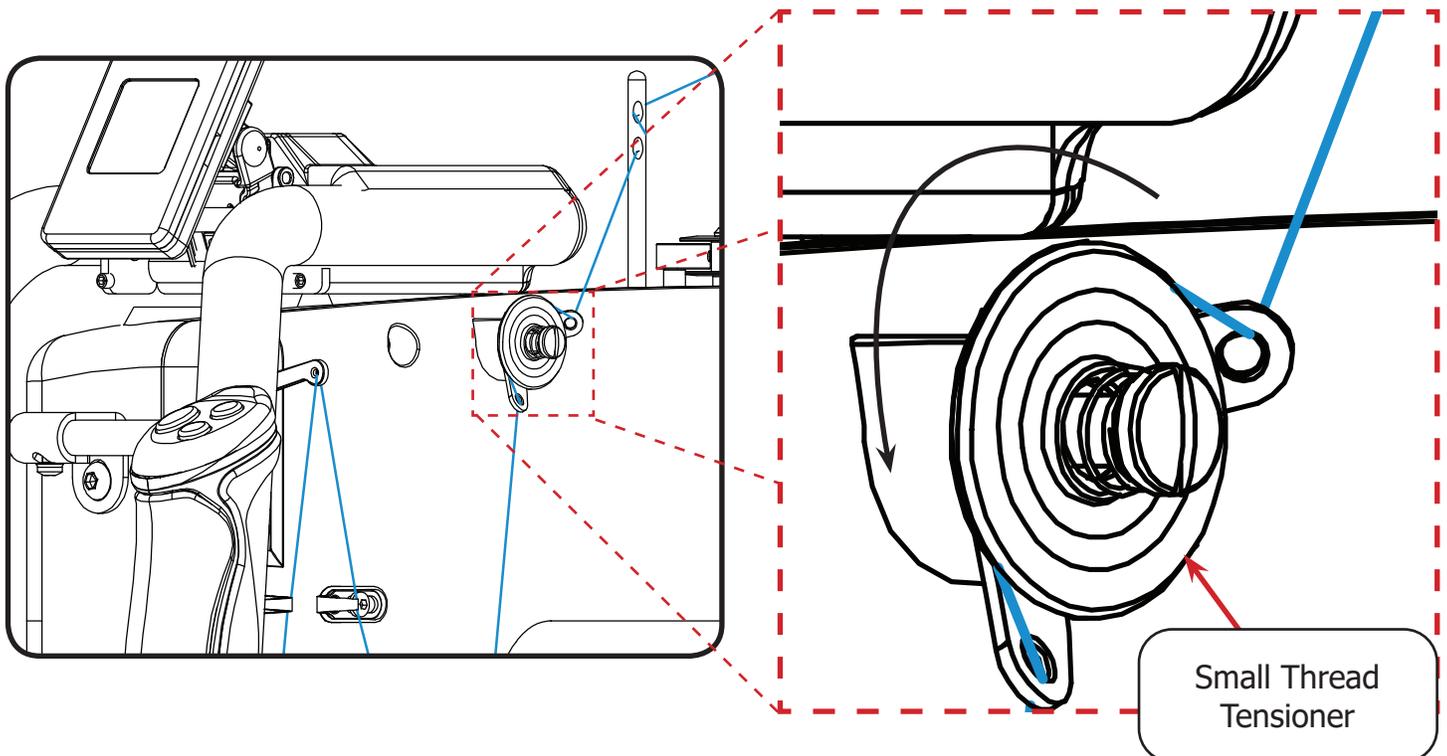
4. Pull the thread straight up and through the two **guide loops** of the **thread mast**. Avoid accidental twisting by threading from front-to-back on the first loop, and then back-to-front on the second loop.



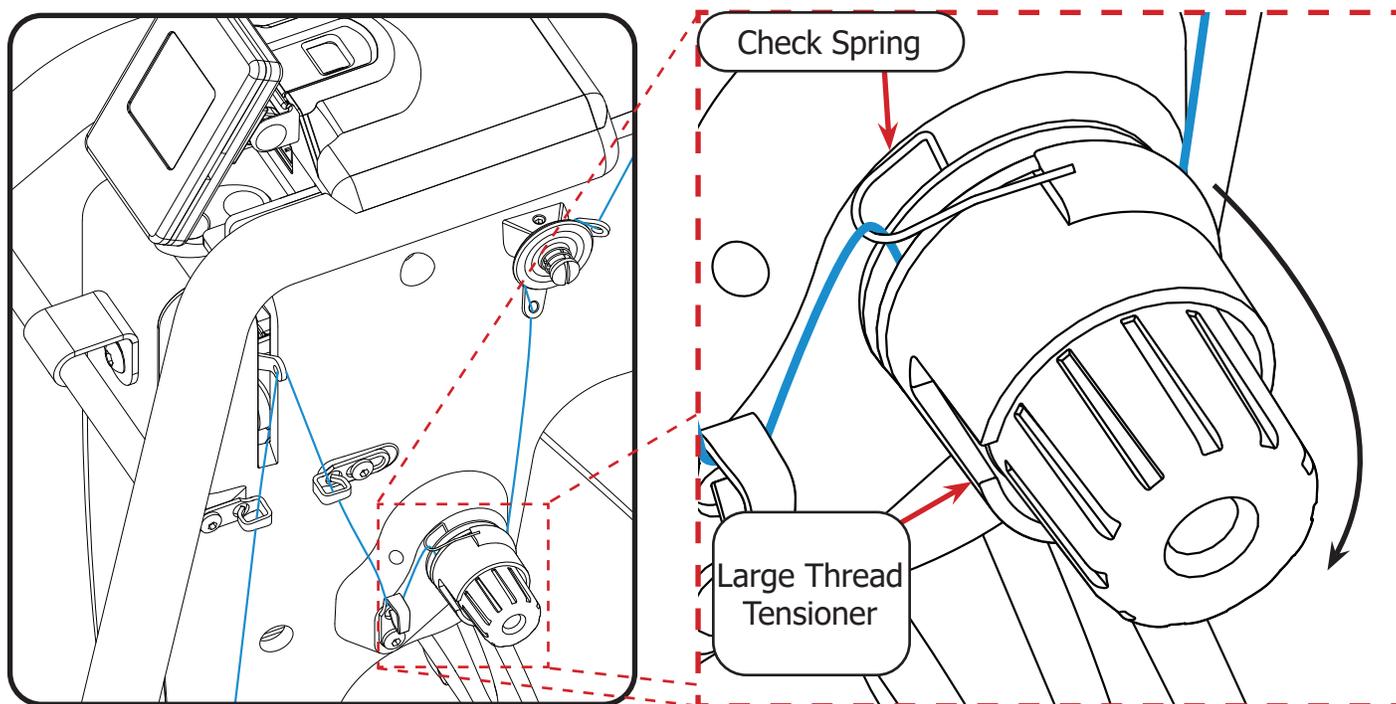
5. Feed the thread through the top hole of the **thread guide rod**. Wrap the thread around to the back of the guide and insert through the bottom hole.



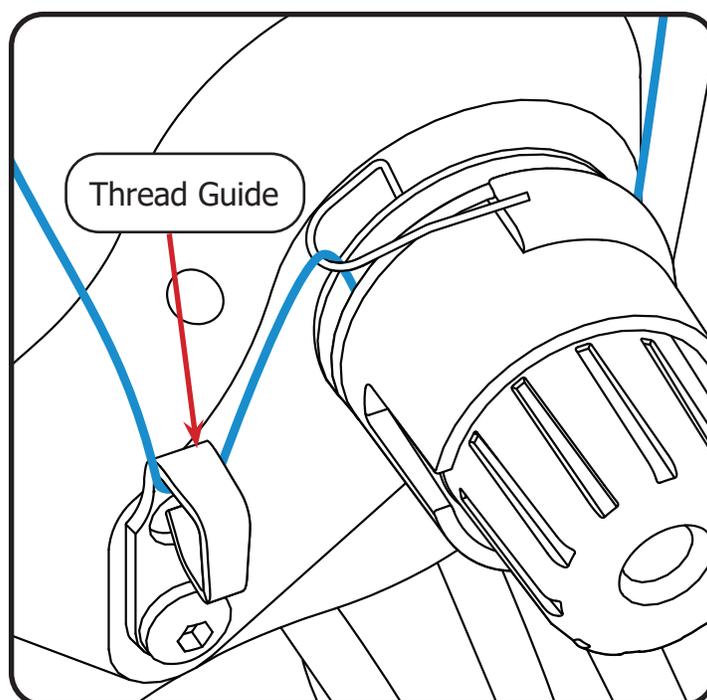
6. Run the thread through the top hole on the **small thread tensioner**. Then slip the thread between the two discs, and through the bottom hole of the **small thread tensioner**.



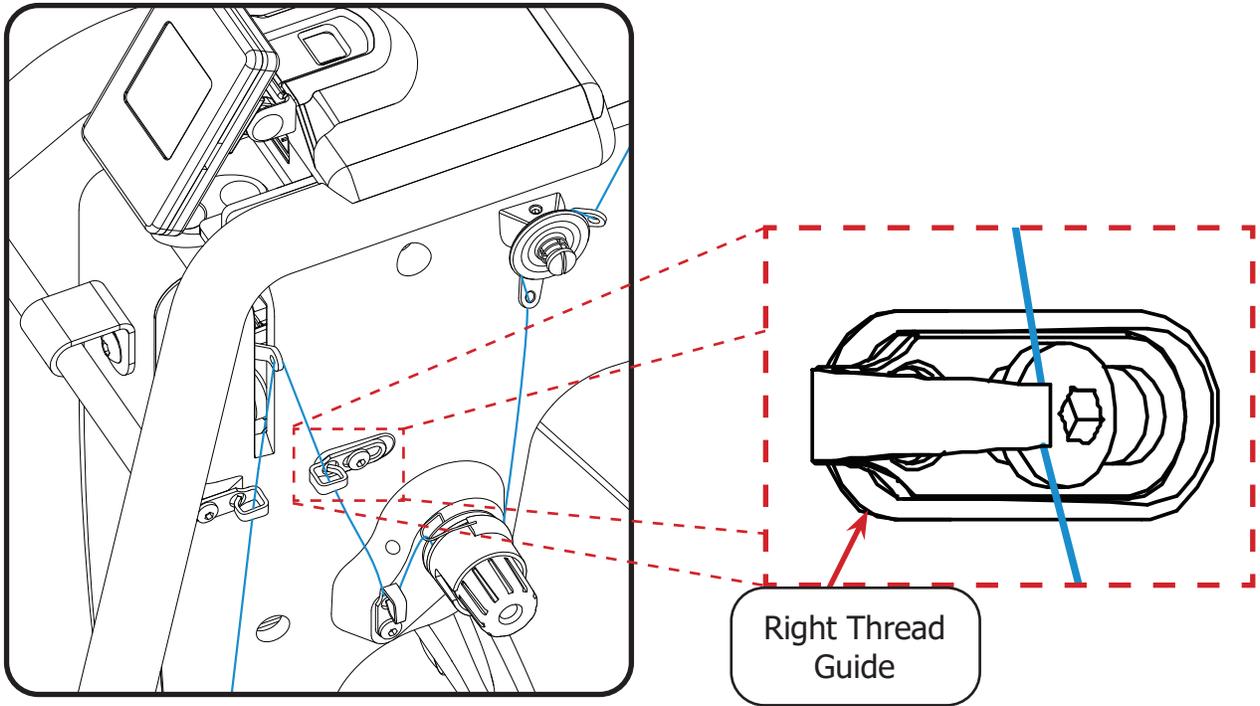
7. Loop the thread down around the **large thread tensioner** between the tension discs. Catch the thread on the **check spring**.



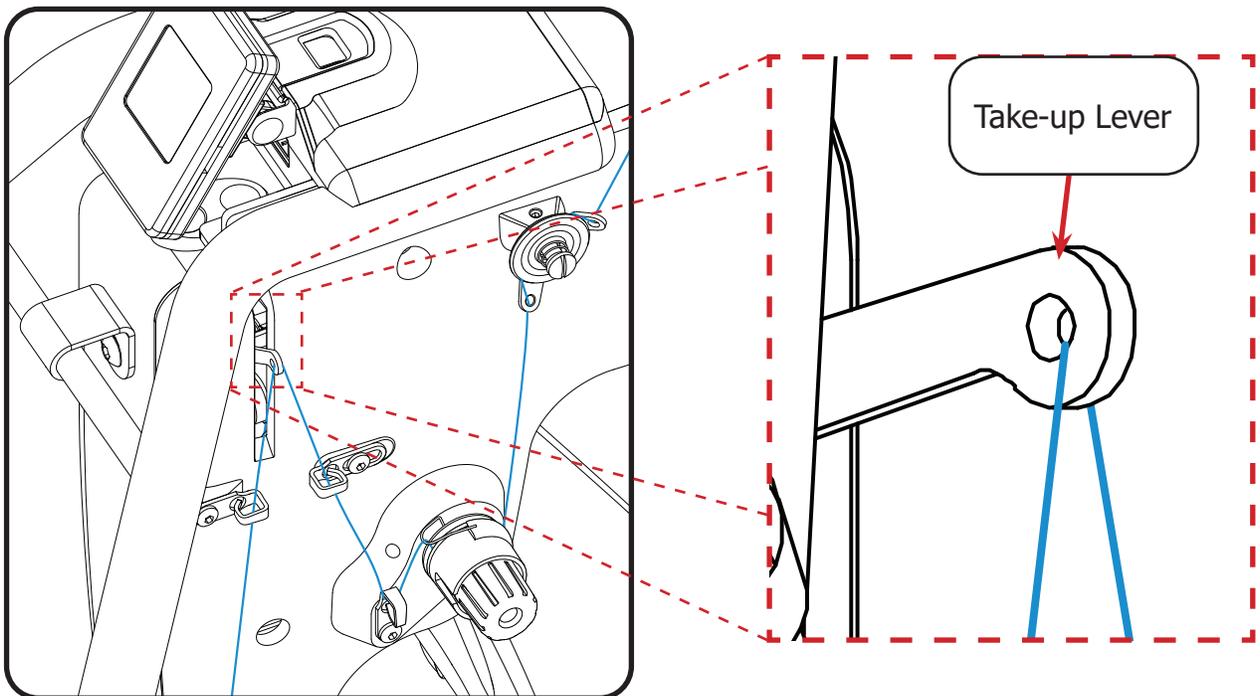
8. Next, run the thread through the **thread guide** next to the large thread tensioner.



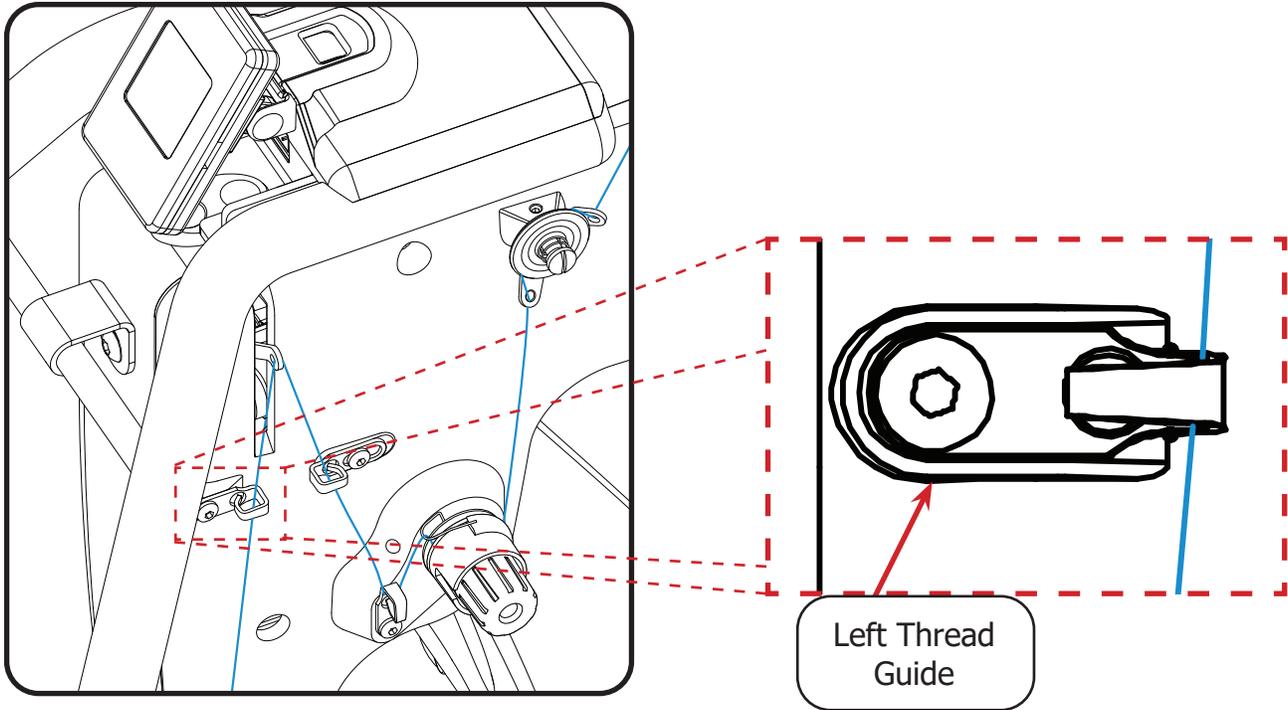
9. Pass the thread up through the **right thread guide** on the way to the take-up lever.



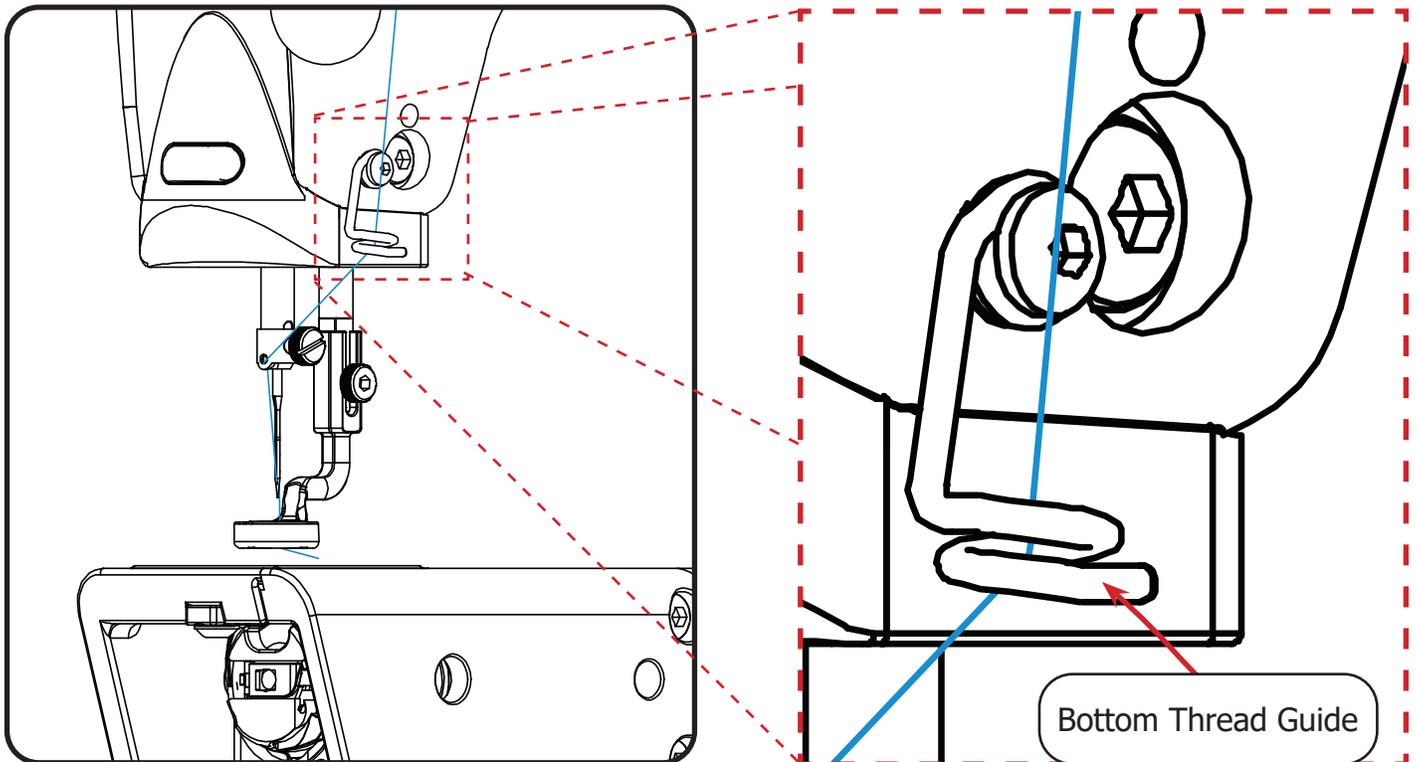
10. Pull the thread through the hole in the **take-up lever**.



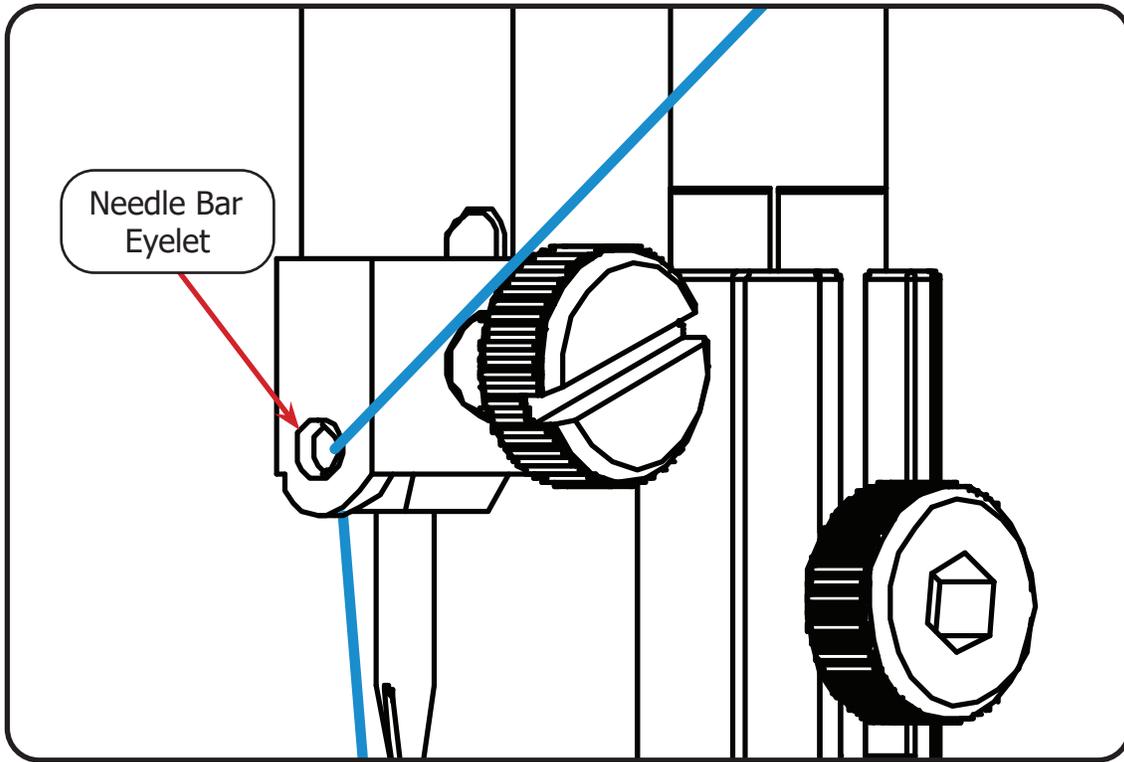
11. Feed the thread into the **left thread guide**, below the take-up lever.



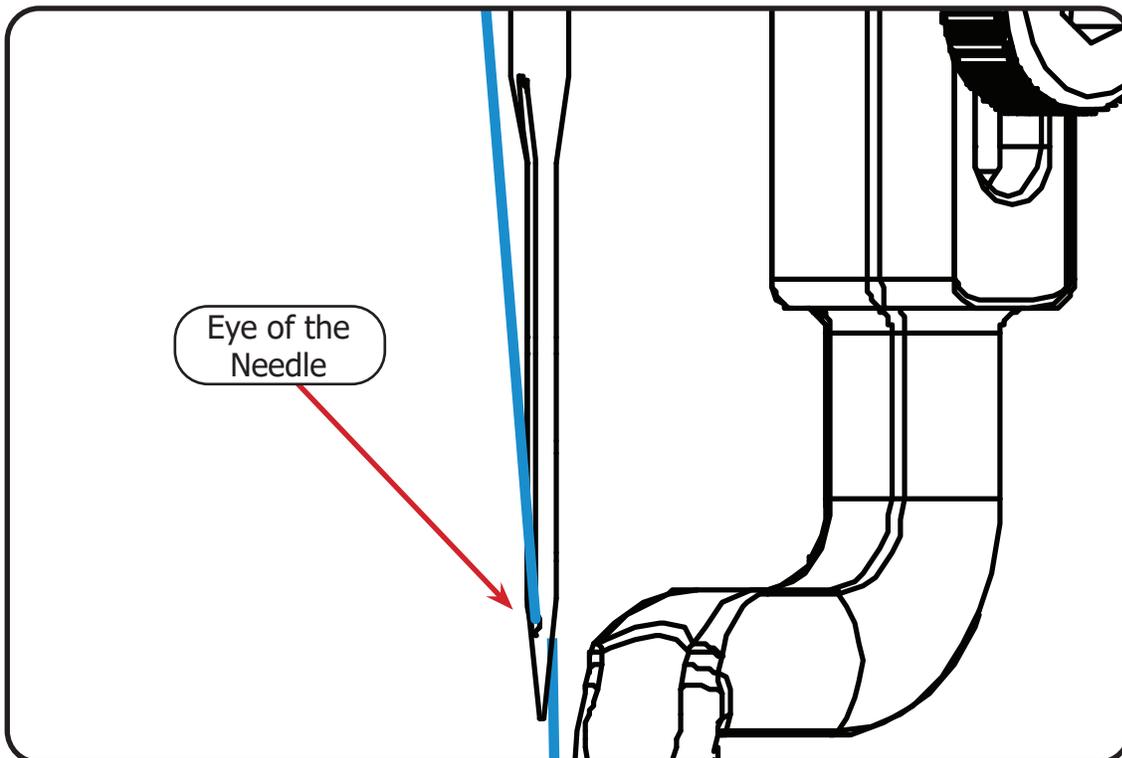
12. Then pass the thread down through the **bottom thread guide** on the way to the needle.



13. Now pass the thread through the front of the **needle bar eyelet**, located above the needle.



14. Finally, feed the thread through the **eye of the needle**. Leave a few inches of dangling thread.



Final Checklist

Before you begin quilting, make sure that:

- The thread mast is tightly attached.
- The bobbin is wound and installed in the machine.
- The display is secured.
- The needle is straight, and held firmly to the needle bar.
- The power cord is connected to the machine and power outlet.
- The quilting area is clear of any materials that are not needed for quilting.

Quilting

Now that the machine is set up, it's time to start quilting! This section of the manual covers using the handlebar controls, the four quilting modes, and tensioning the thread.

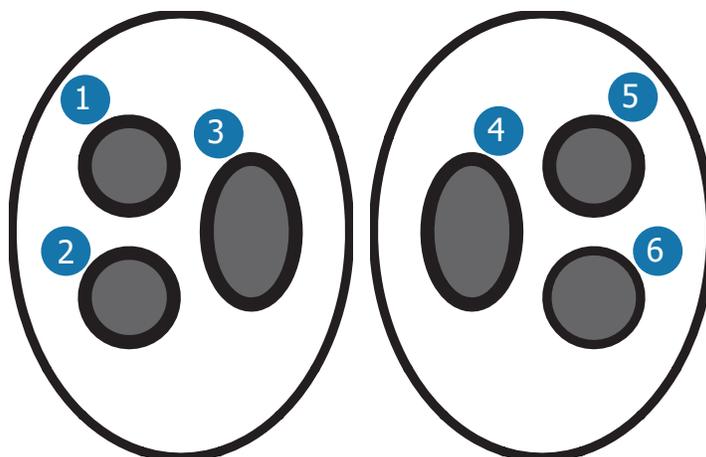
Using the Handlebar Controls	page 45
Using the Precise Quilting Mode	page 46
Using the Cruise Quilting Mode	page 48
Using Basting Quilting Mode	page 50
Using Manual Quilting Mode.....	page 52
Adjusting Thread Tension.....	page 54
Tracking Stitch/Time Count.....	page 56

Tip: As you familiarize yourself with the controls and display of your quilting machine, it's a good time to test out any new quilting materials and try a few practice stitches. Test your thread tension while practicing on the different quilting modes available on the machine.

Using the Handlebar Controls

When first powered up, the machine is in regulated precise quilting mode and can start quilting right away. Please take a moment to review the handlebar controls. These controls are used when quilting. While in the Settings menu, some buttons have a different purpose or do not function (see “Choosing Machine Settings” on page 27 for details).

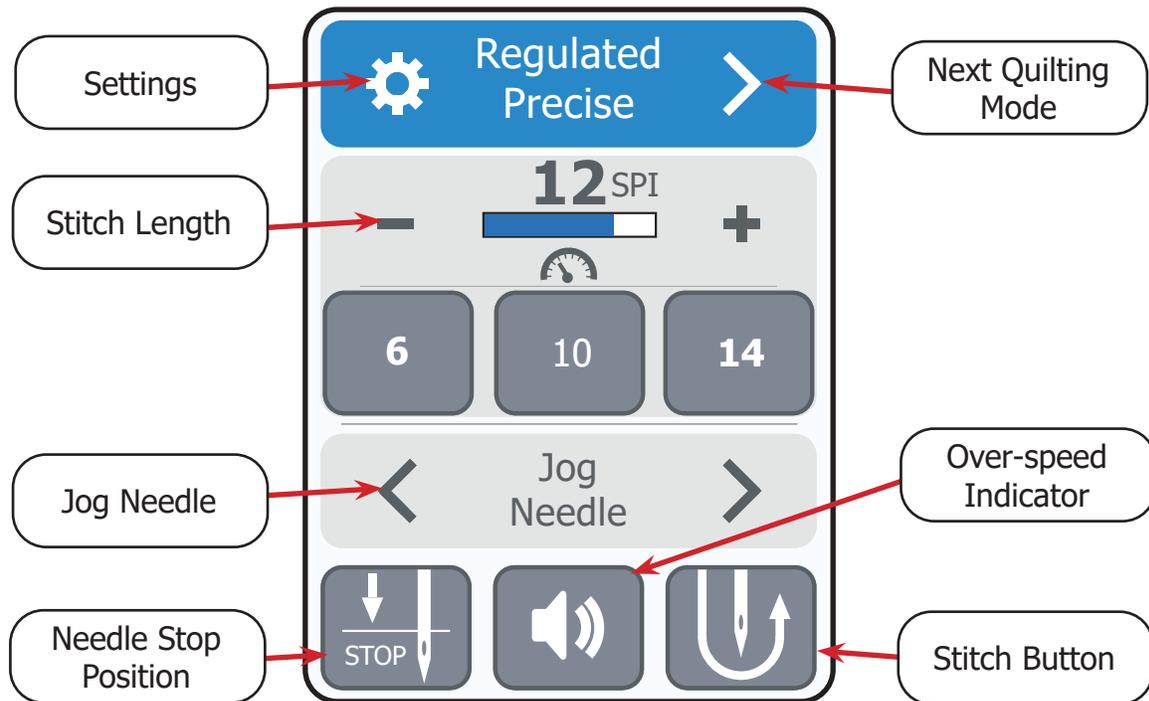
Note: Left-handed quilters may prefer to reverse these buttons. This can be done in the Settings menu (see “Choosing Machine Settings” on page 27).



- 1 **Change Quilting mode:** Press to cycle through the quilting modes: regulated precise, regulated cruise, baste, and manual.
- 2 **Settings:** This button opens the Settings menu.
- 3 **Single Full Stitch or Half-stitch**
 - Press to create a single full stitch or a half-stitch, based upon settings (see “Choosing Machine Settings” on page 27 for details).
- 4 **Start/Stop Quilting:** Press to start or stop stitching.
- 5 **Increase:** This button increases the number, size, or speed of the stitching, depending upon the quilting mode. For example, in precise quilting mode, this button will increase the number of stitches the machine makes in an inch (SPI) or in a centimeter (SPC).
- 6 **Decrease:** This button will decrease the number, size, or speed of the stitching depending upon the quilting mode.

Using the Precise Quilting Mode

The machine defaults in precise quilting mode when powered on. In this regulated quilting mode, the machine maintains the length of the stitch despite the speed and direction of the quilter's movements. If the quilter stops moving, the machine stops stitching.



The following icons display:



Settings: Press to visit the Settings menu.



Next Quilting mode: Press to access the next quilting mode. There are three other quilting modes available: cruise, baste, and manual.

- **Stitch Length:** Shown in stitches per inch (SPI) or stitches per centimeter (SPC).



Reduces the number of stitches per inch or centimeter and increases stitch length.



Increases the number of stitches per inch or centimeter, which decreases stitch length.

- **Jog Needle:**



Press to move the needle up or down in small increments.

- **Needle Stop Position:** Press to choose if the needle should stop in the up or down position when no longer stitching.



Needle stops in the "Down" position.



Needle stops in the "Up" position.

- **Over-speed indicator:** When the machine is moving too quickly for stitch regulation, the machine will beep and this icon turns red. Press to mute the beeping alarm.



Stitching is not active and alarm is not muted.



Stitching is not active and alarm is muted.



Stitching is active and alarm is not muted.



Stitching is active and alarm is muted.



Machine moving too quickly for stitching and alarm is not muted.

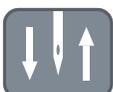


Machine moving too quickly for stitching and alarm is muted.

- **Stitch Button:** Press to create a single full stitch or a half-stitch. To select which type of stitch this button is set to, go to the Settings menu.



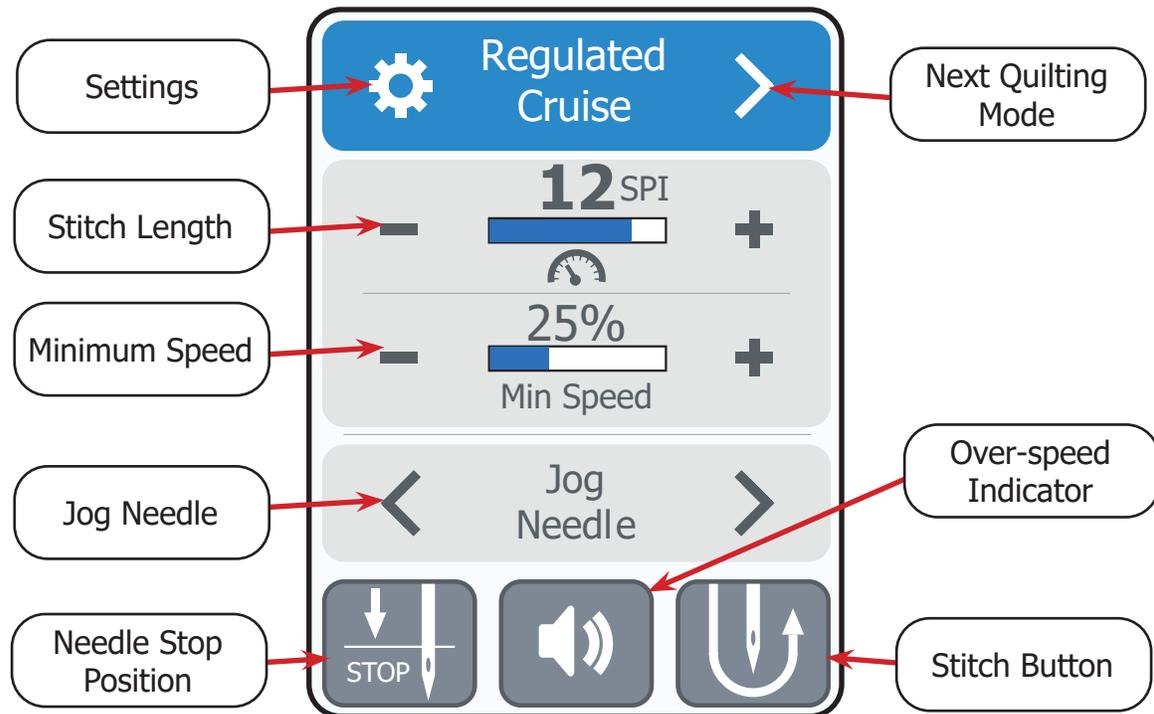
Press to create a full stitch.



Press to create a half-stitch.

Using the Cruise Quilting Mode

Like in precise mode, in cruise the quilting machine maintains the length of the stitch despite the speed and direction of the quilter's movements. However, the machine will continue to stitch in place (at the minimum speed) if the quilter stops moving.



The following icons display:



Settings: Press to visit the Settings menu.



Next Quilting mode: Press to access the next quilting mode. There are three other quilting modes available: precise, baste, and manual.

- **Stitch Length:** Shown in stitches per inch (SPI) or stitches per centimeter (SPC).



Reduces the number of stitches per inch or centimeter and increases stitch length.



Increases the number of stitches per inch or centimeter, which decreases stitch length.

- **Minimum Speed:** This is the speed that the machine will drop to when it is stitching in place because it is not being moved. This can be set from 5% to 25% of the machine's highest speed.

- **Jog Needle:**

 Press to move the needle up or down in small increments.

- **Needle Stop Position:** Press to choose if the needle should stop in the up or down position when no longer stitching.

 Needle stops in the "Down" position.

 Needle stops in the "Up" position.

- **Over-speed indicator:** When the machine is moving too quickly for stitch regulation, the machine will beep and this icon turns red. Press to mute the beeping alarm.

 Stitching is not active and alarm is not muted.

 Stitching is not active and alarm is muted.

 Stitching is active and alarm is not muted.

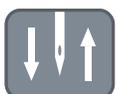
 Stitching is active and alarm is muted.

 Machine moving too quickly for stitching and alarm is not muted.

 Machine moving too quickly for stitching and alarm is muted.

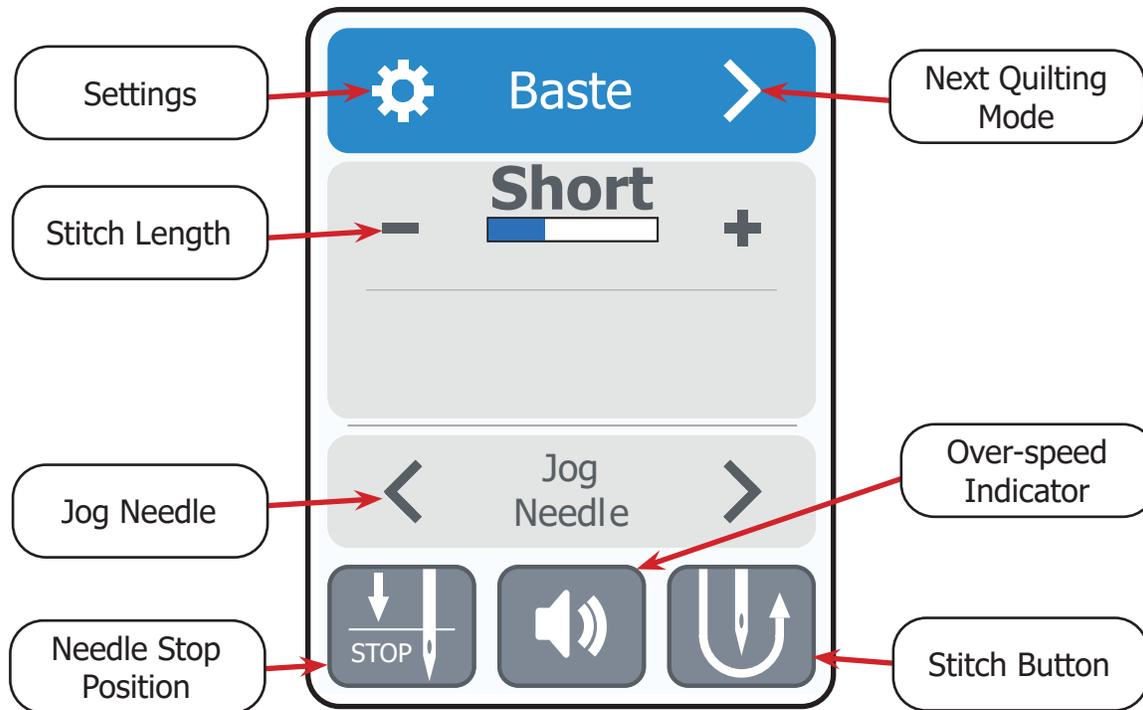
- **Stitch Button:** Press to create a single full stitch or a half-stitch. To select which type of stitch this button is set to, go to the Settings menu.

 Press to create a full stitch.

 Press to create a half-stitch.

Using the Baste Quilting Mode

Use the baste quilting mode to create loose, temporary stitching to hold layers of fabric together while quilting.



The following icons display:



Settings: Press to visit the Settings menu.



Next Quilting mode: Press to access the next quilting mode. There are three other quilting modes available: precise, cruise, and manual.

- **Stitch Length:** Shows the current length (short, medium, or long) of the basting stitch.



Reduces stitch length.



Increases stitch length.

- **Jog Needle:**

 Press to move the needle up or down in small increments.

- **Needle Stop Position:** Press to choose if the needle should stop in the up or down position when no longer stitching.



Needle stops in the "Down" position.



Needle stops in the "Up" position.

- **Over-speed indicator:** When the machine is moving too quickly to for stitch regulation, the machine will beep and this icon turns red. Press to mute the beeping alarm.



Stitching is not active and alarm is not muted.



Stitching is not active and alarm is muted.



Stitching is active and alarm is not muted.



Stitching is active and alarm is muted.



Machine moving too quickly for stitching and alarm is not muted.

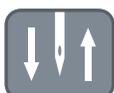


Machine moving too quickly for stitching and alarm is muted.

- **Stitch Button:** Press to create a single full stitch or a half-stitch. To select which type of stitch this button is set to, go to the Settings menu.



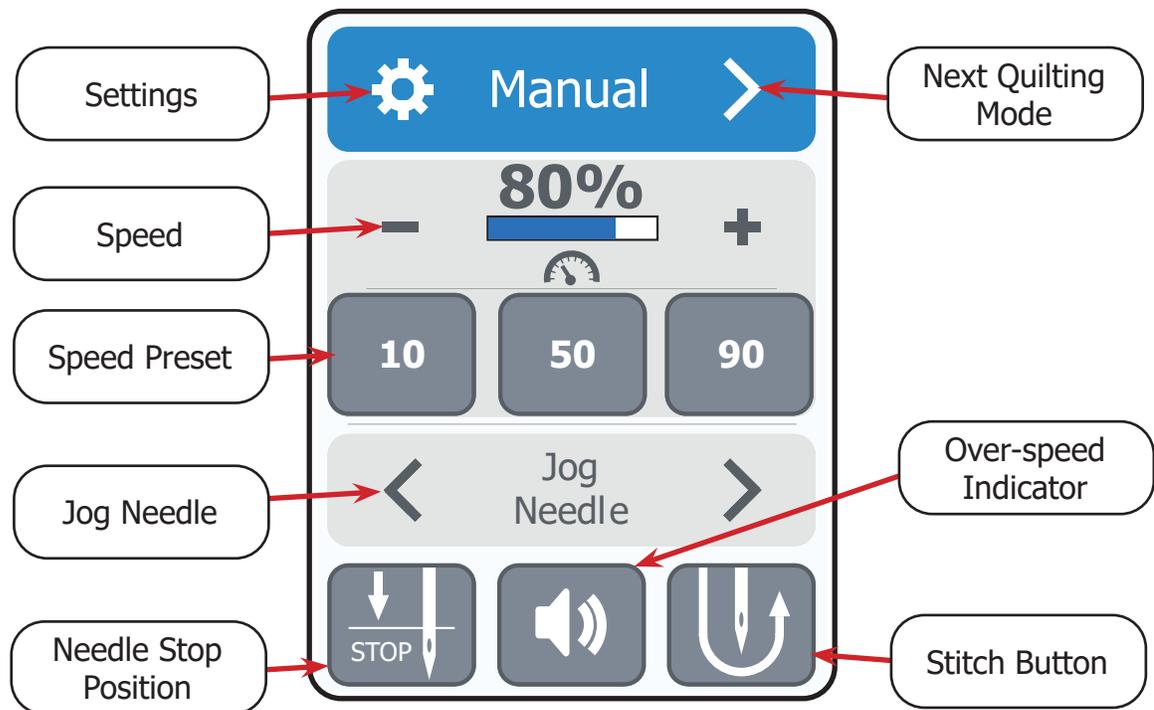
Press to create a full stitch.



Press to create a half-stitch.

Using the Manual Quilting Mode

In this quilting mode, the machine produces stitches at a certain speed. It's up to the quilter to move the machine the distance needed to get the desired stitch length. This mode is useful for small, continuous stippling patterns.



The following icons display:



Settings: Press to visit the Settings menu.



Next Quilting mode: Press to access the next quilting mode. There are three other quilting modes available: precise, cruise, and baste.

- **Speed:** Shows the current stitching speed as a percentage of the maximum stitching speed. The maximum speed (100%) is 2,000 stitches per minute.



Reduces stitching speed.



Increases stitching speed.

- **Speed Preset:** Allows for changing the speed of the stitching quickly. To change the speed percentage for a preset, set the desired speed, then press and hold the preset you'd like to change for 3 seconds. It will update to the new speed.

 Sets stitching speed to 10% of maximum speed.

 Sets stitching speed to 50% of maximum speed.

 Sets stitching speed to 90% of maximum speed.

- **Jog Needle:**

  Press to move the needle up or down in small increments

- **Needle Stop Position:** Press to choose if the needle should stop in the up or down position when no longer stitching.

 Needle stops in the "Down" position.

 Needle stops in the "Up" position.

- **Over-speed indicator:** Shows if stitching is active. Press to mute the over-speed alarm.

 Stitching is not active and alarm is not muted.

 Stitching is not active and alarm is muted.

 Stitching is active and alarm is not muted.

 Stitching is active and alarm is muted.

- **Stitch Button:** Press to create a single full stitch or a half-stitch. To select which type of stitch this button is set to, go to the Settings Menu.

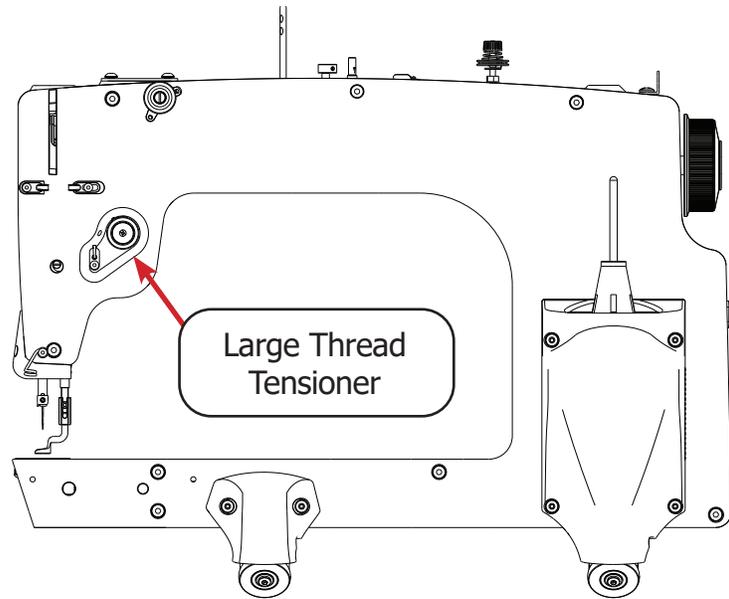
 Press to create a full stitch.

 Press to create a half-stitch.

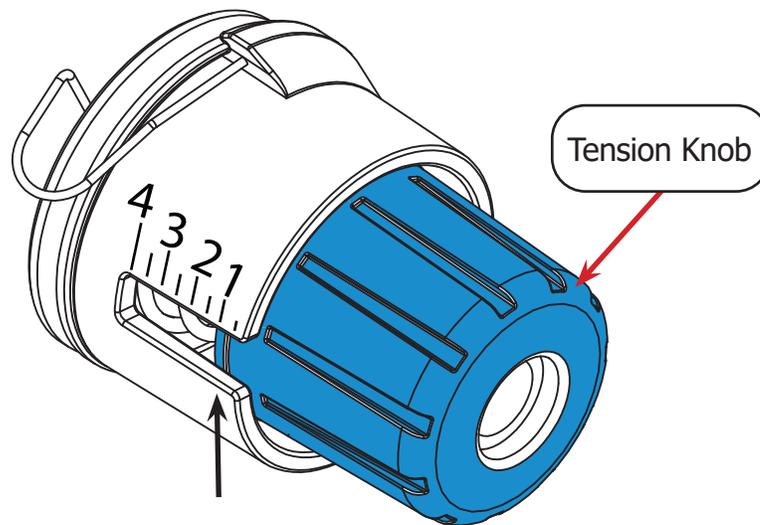
Adjusting Thread Tension

Proper thread tension prevents unwanted puckering, poorly-formed stitches, and malfunctions that can damage the fabric and the quilting machine. Test your thread tension on extra materials before sewing on a project.

Tip: Bottom thread tension is addressed in "Loading the Bobbin Case" (see page 32).

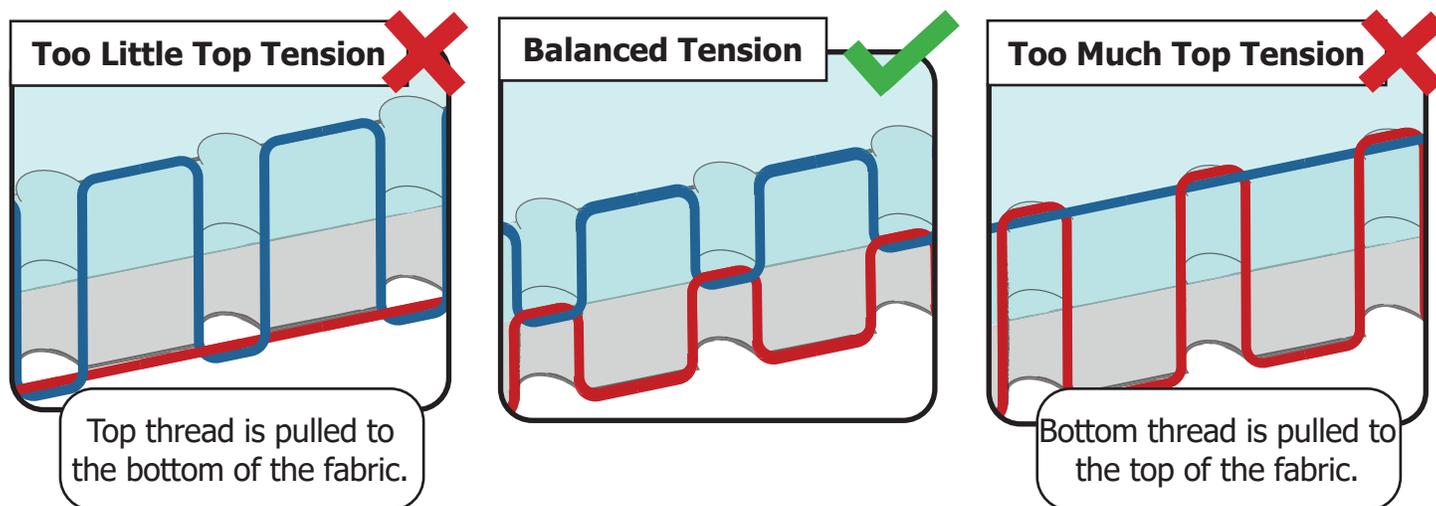


1. Loosen the **tension knob** on the **large thread tensioner** to set the tension to "1." The bottom of the tension knob will line up with the number that the tension is set to.

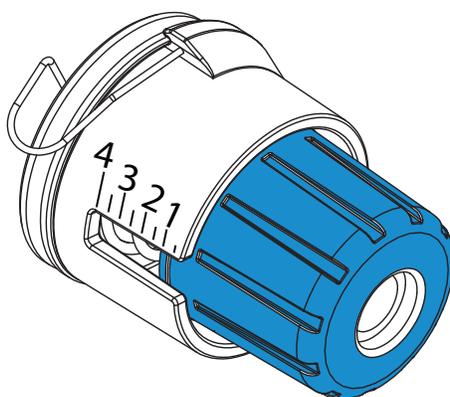


Note: Setting "1" is the lowest tension for your machine, and is an ideal starting place to find the correct top tension.

2. Slowly increase the tension while stitching into scrap material. When the thread tension is balanced, the top and bottom thread (shown in blue and red) will knot in the middle of the fabric layers.



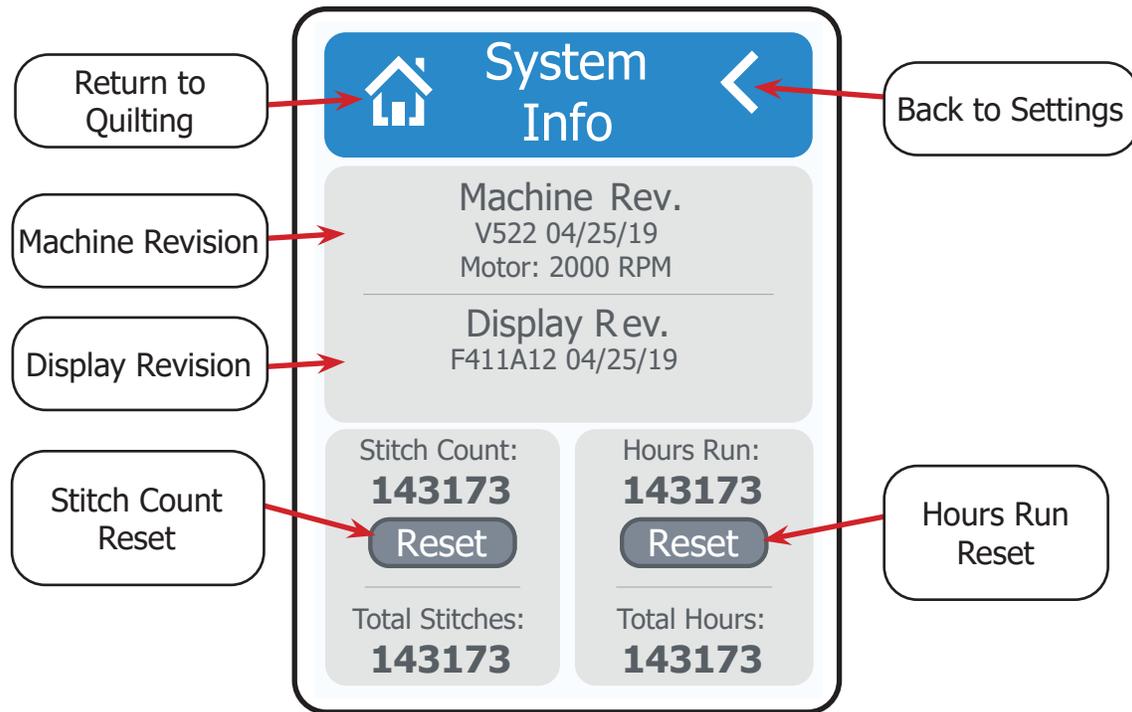
- If the **bobbin (bottom) thread** (shown in red) is pulled through the top layer of fabric, there is too much top tension. Loosen the tension by turning the large thread tensioner knob toward the setting "1."
- If the **top thread** (shown in blue) is pulled down through the bottom layer of fabric, there is too little top tension. Increase the tension on the top by turning the large thread tensioner knob toward setting "4."



Tracking Stitch Count and Run Time

To track the number of stitches your machine has sewn or hours it has run, press the System Information icon  from the Settings menu (see "Choosing Machine Settings" on page 27).

The following information displays:



 **Return to Quilting:** Press to leave the System Information page and go back to quilting.

 **Back to Settings:** Press to return to the Settings menu.

- **Machine Revision:** Shows the latest firmware version for the machine.
- **Display Revision:** Shows the latest firmware version for the touch display.
- **Stitch Count:** Displays the number of stitches since the last reset.

 **Reset** Press to start the stitch count back at 0.

- **Hours Run:** Displays the number of hours run since the last reset.

Reset Press to start the hour count back at 0.

- **Total Stitches:** Shows the total number of stitches since the machine was purchased. This cannot be reset.
- **Total Hours:** Shows the total number of hours the machine has run. This cannot be reset.

Tip: It's recommended to oil your machine after 20 hours of use. The "Hours Run" counter can help keep track of when your machine is due to be oiled.

1. After cleaning and oiling your machine (see "Oiling and Cleaning" on page 60), press **Reset** underneath **Hours Run**. This will set the hour count back to 0.
2. Check the **Hours Run** count regularly. When it reaches 20 hours, it's time to clean and oil the machine again. Repeat from step 1.

Maintaining the Machine

Keep your machine performing at its peak by practicing good machine maintenance habits.

Preparing the Oil Bottle.....	page 59
Oiling and Cleaning	page 60
Changing the Needle	page 64
Adjusting the Bobbin Cam.....	page 67
Adjusting the Hopping Foot.....	page 68
Reinstalling the Needle Plate	page 71
Calibrating the Touch Display.....	page 74

This section of the manual covers oiling the machine, changing the needle, adjusting the bobbin cam and hopping foot, reinstalling the needle plate, and calibrating the touch display.

Preparing the Oil Bottle

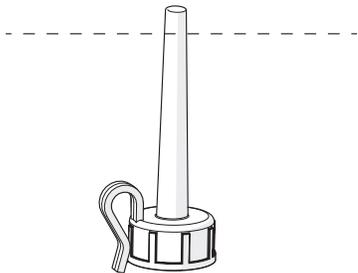
Parts & Tools Needed:



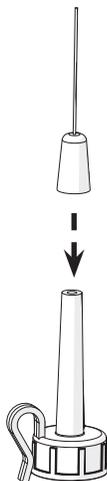
Oil Bottle

Instructions

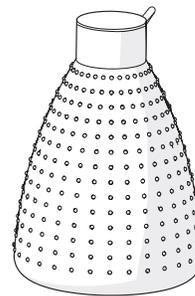
1. Snip off about 1/4th of an inch from the tip of the plastic lid with a pair of scissors.



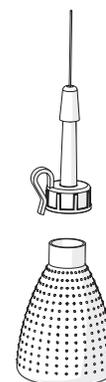
2. Place the applicator needle onto the top of the cap.



3. Peel the safety foil off the opening of the oil bottle.



4. Carefully screw the lid onto the oil bottle.



5. Hold bottle upside down and squeeze gently to apply oil. When not in use, cover the applicator needle with the safety cap.

Maintaining the Machine

Oiling and Cleaning

Parts & Tools Needed:



Oil Bottle



Lint Brush

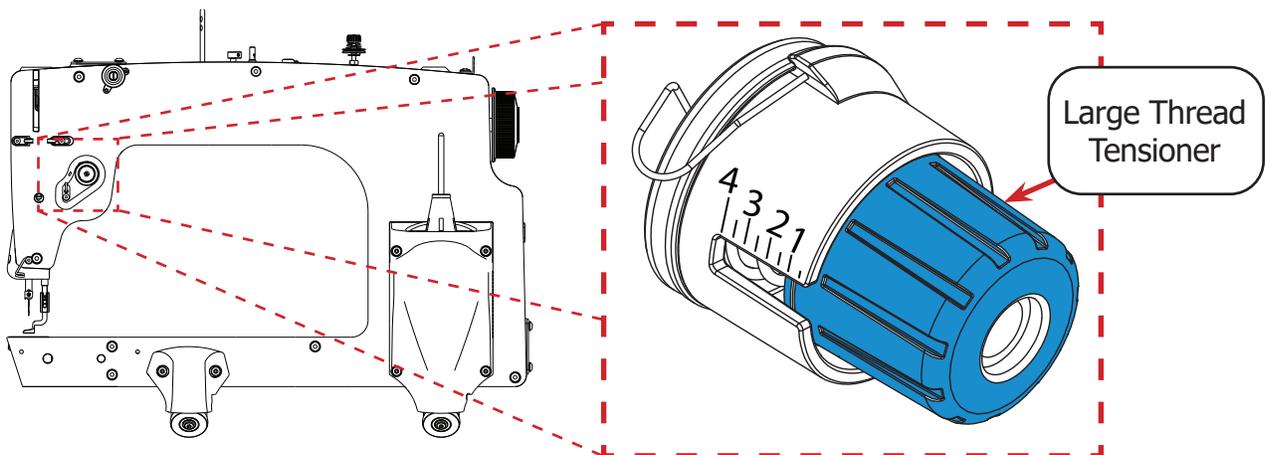
Instructions

Oil and Clean:	
Machine	<ul style="list-style-type: none">• At the start of a new project• After 20 hours of use• After sitting without use for more than 30 days
Hook Assembly	<ul style="list-style-type: none">• Every other bobbin change

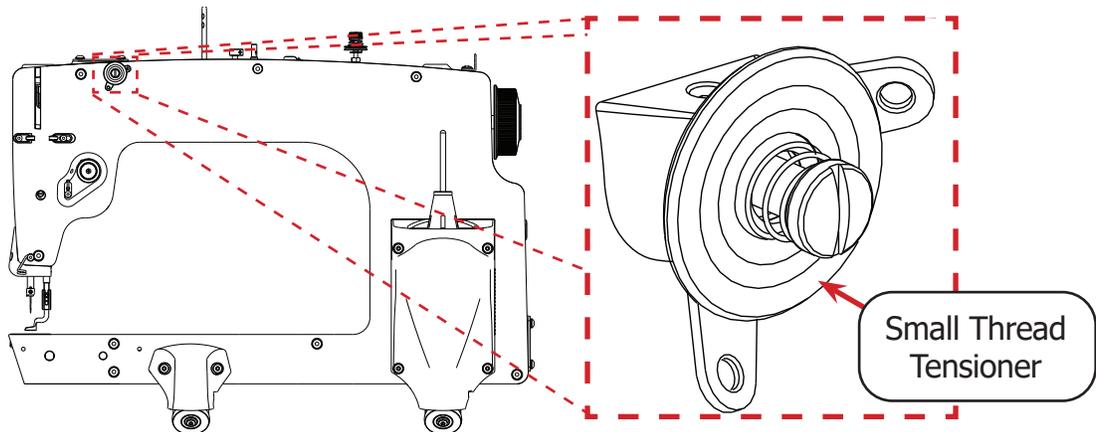
Tip: The Hours Run counter on the System Information page can be used to track hours of quilting time (see “Tracking Stitch Count and Run Time” on page 56).

1. Power off the machine.
2. Set the **large thread tensioner** to “1” to expose the tensioner discs. Use the lint brush or a can of compressed air to clear away lint and thread remnants.

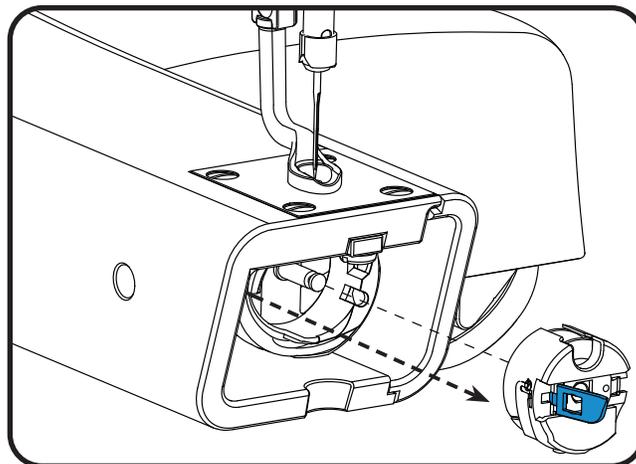
Note: Lint build-up between the tensioner discs can prevent proper thread tensioning.



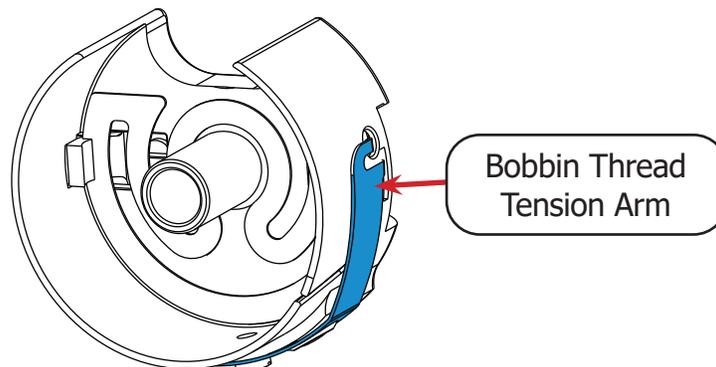
3. Clear debris from the spring and discs of the **small thread tensioner** with the lint brush or compressed air.



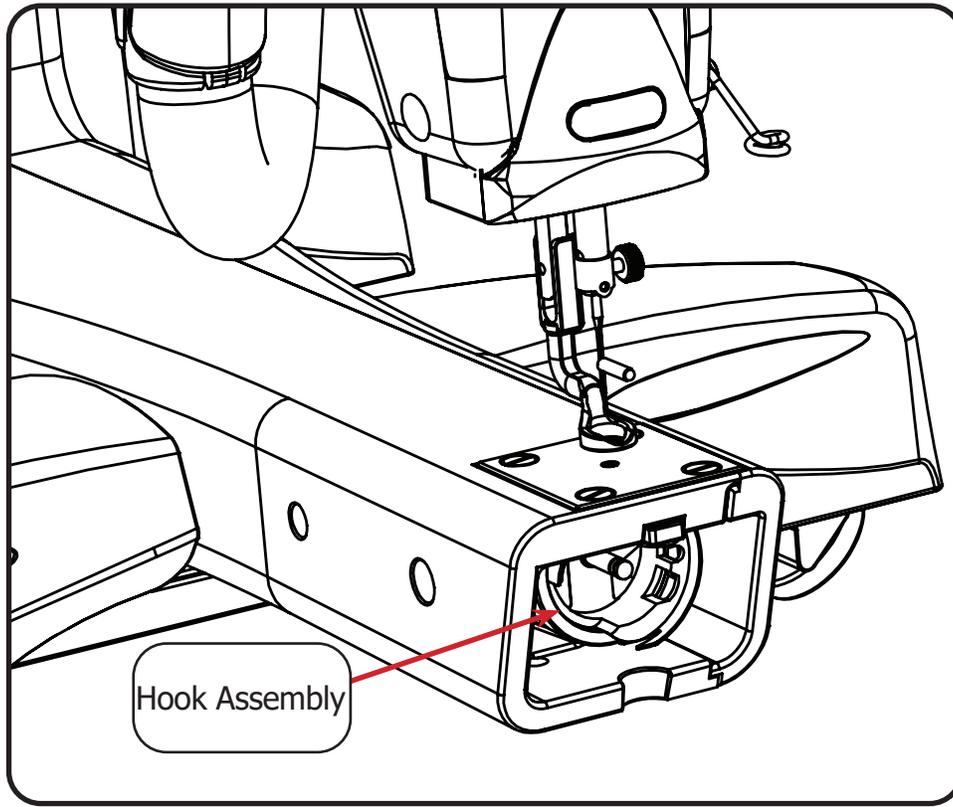
4. Pull the **lever** (shown in blue) on the bobbin case to remove it from the hook assembly.
Note: If the case won't release, try raising the needle.



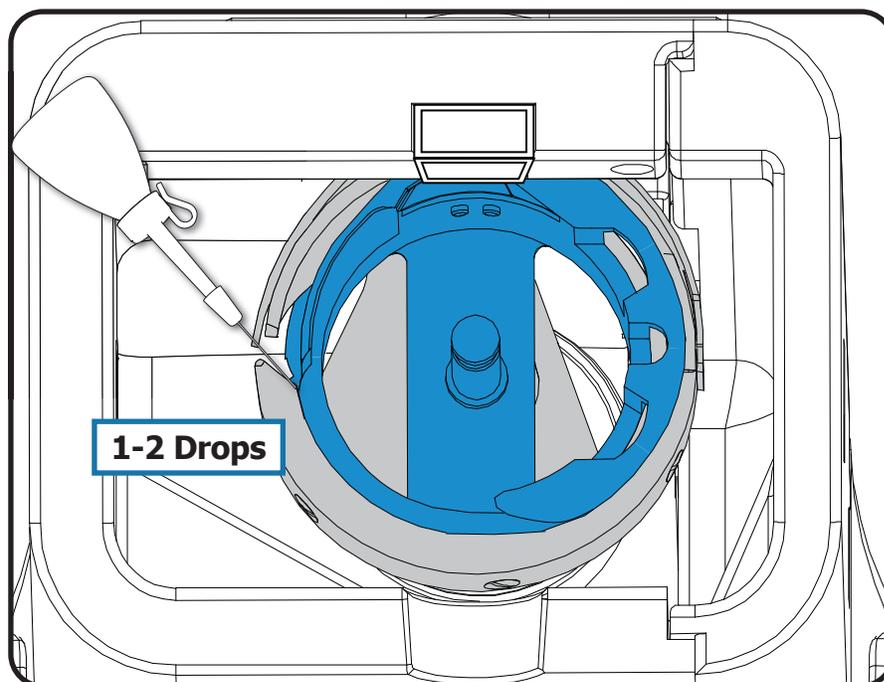
5. Take the bobbin from the case and set it aside. Clean the bobbin case with the lint brush or compressed air. Be sure to clean the area under the **bobbin thread tension arm**.



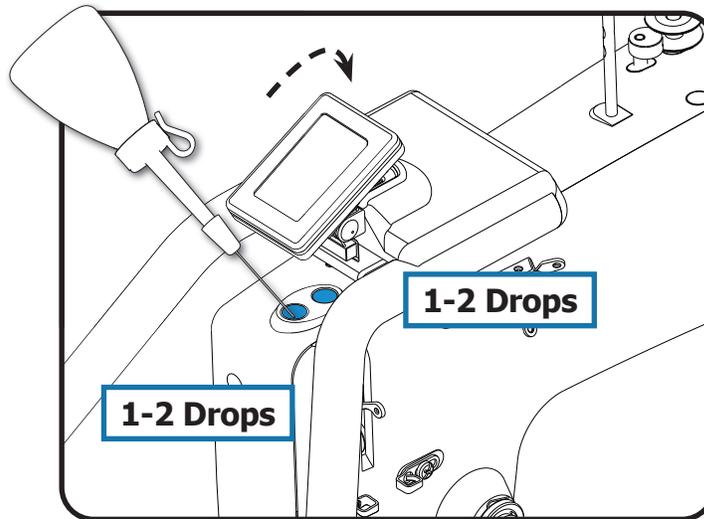
6. In and around the **hook assembly**, clear away any lint, cloth, and thread remnants using the lint brush or compressed air.



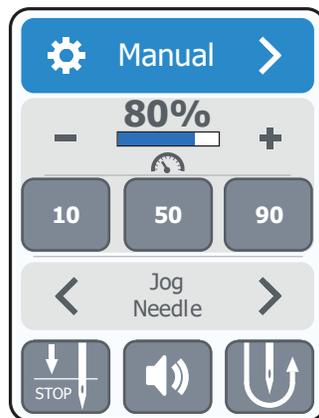
7. Rotate the hand wheel until the needle is halfway down. This will put the hook in the best position for oiling.
8. Place one to two drops of oil into the hook assembly between the **inner part** (shown in blue) and **outer part** (shown in gray).



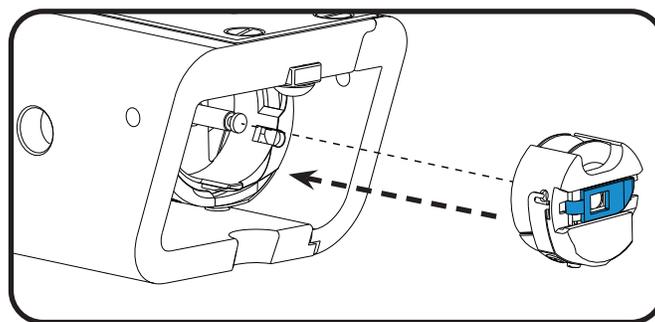
9. Tilt back the display to reveal two holes underneath. Place 1-2 drops of oil into each hole.



10. Power up the machine and run it in Manual mode for a few minutes without the bobbin. This will evenly spread the oil around the hook assembly without staining the bobbin thread.



11. Reload the bobbin case and return it to the machine. For detailed instructions, see "Loading the Bobbin Case" on page 32.



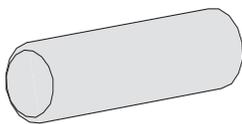
Maintaining the Machine

Changing the Needle

Parts & Tools Needed:



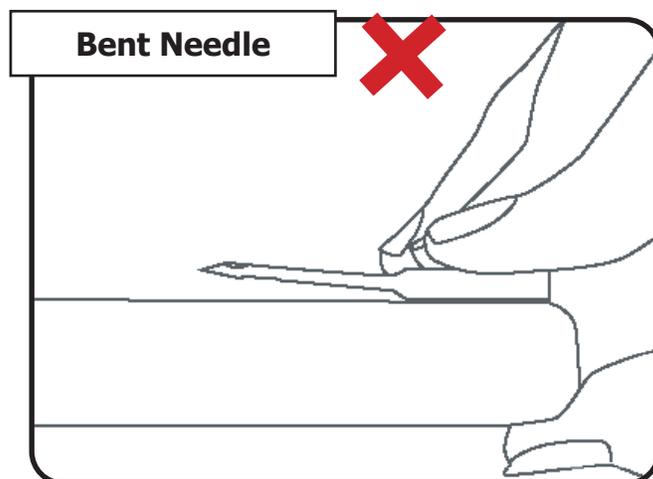
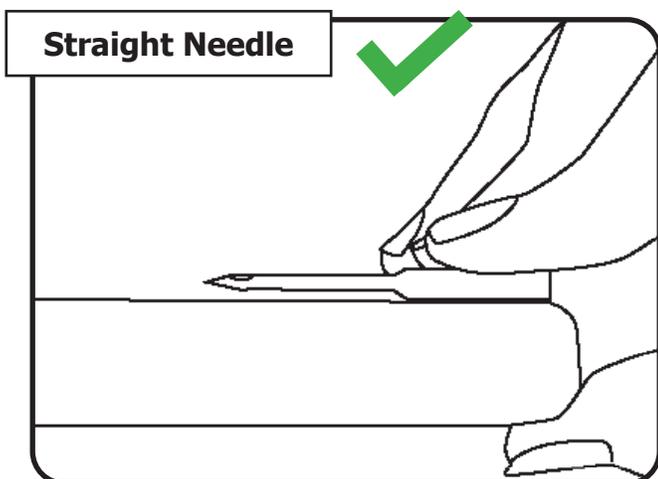
Needle



Needle Magnet

Instructions

A broken, bent, or burred needle can damage the fabric, break thread, or even damage the machine. Always check that the needle is in good repair before starting a new project.



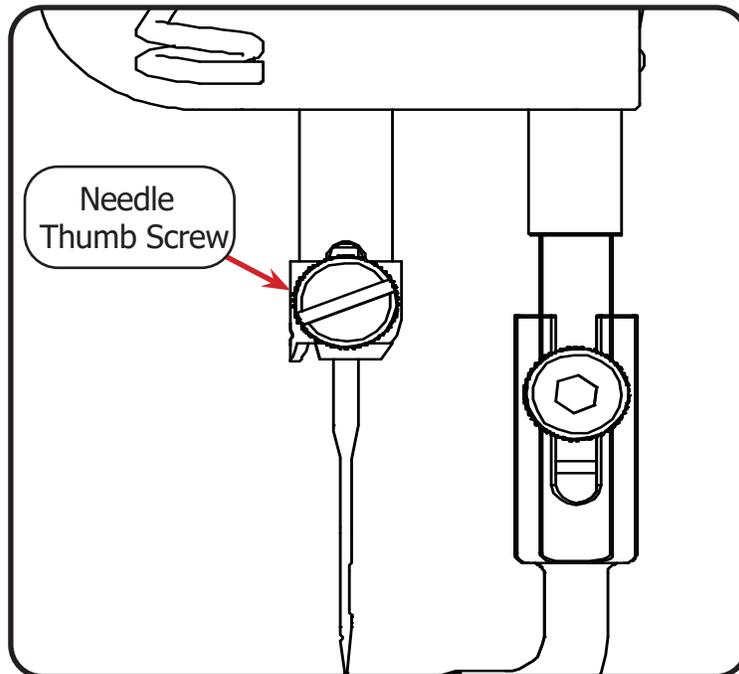
To avoid damage to the machine, please choose an approved needle style from the list below:

- DPX5 MR
- 134 MR
- 1955 MR

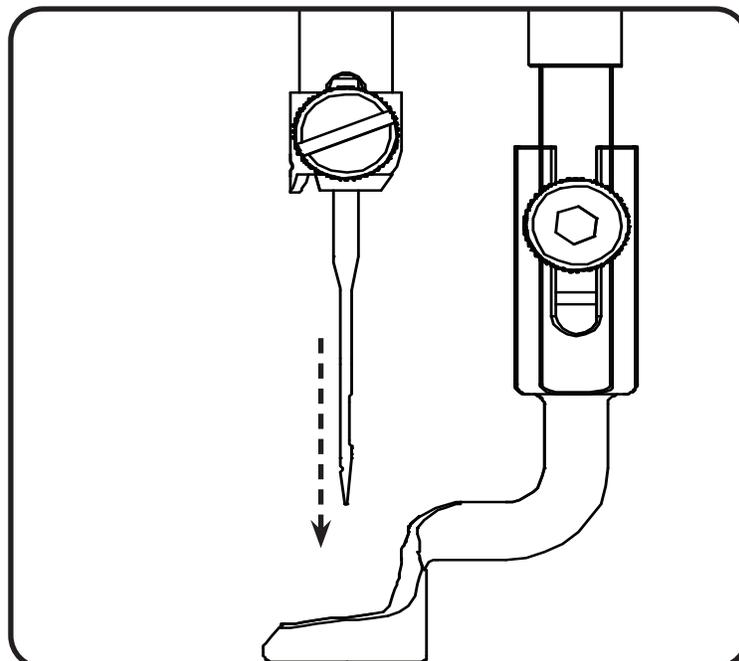
Note: For more information on selecting a needle, see "Choosing Your Needle" on page 90.

To change the needle on your quilting machine, take the following steps:

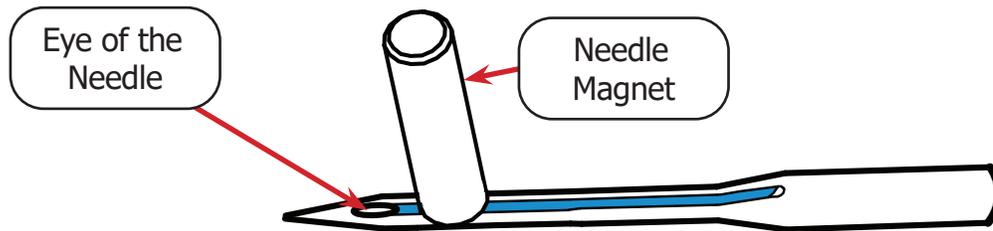
1. Power off the machine.
2. Raise the needle to the highest position with the hand wheel.
3. Loosen the **needle thumb screw**. If needed, use a flat-head screwdriver.



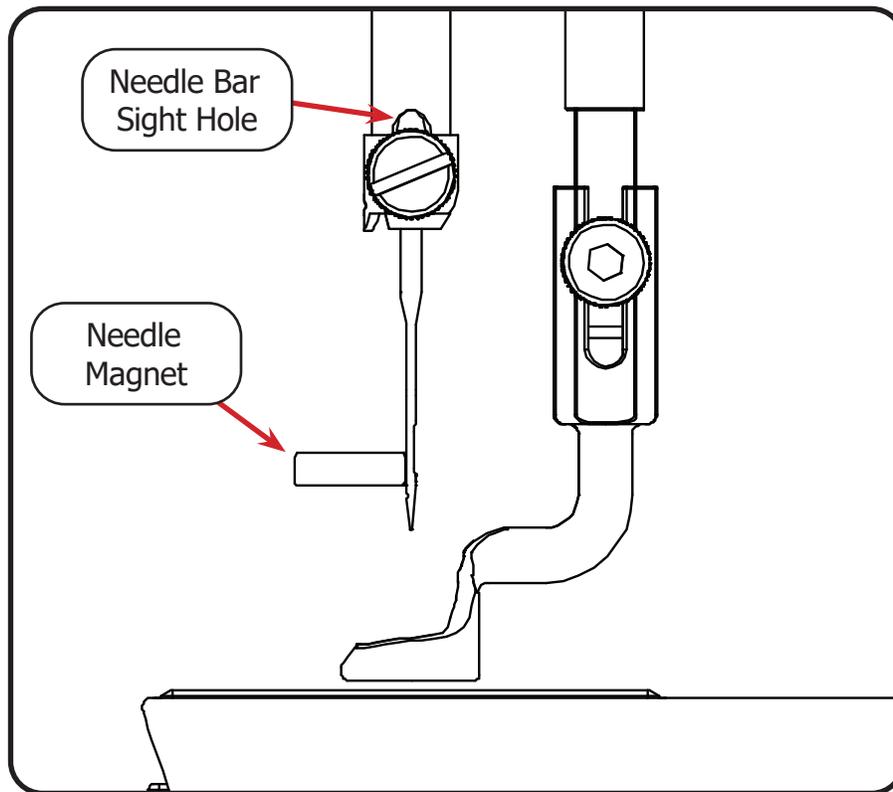
4. Pull down on the needle to remove it from the needle bar.



5. On the new needle, place the **needle magnet** above the eye, on the **groove** (shown in blue).



6. Insert the new needle so the groove and **needle magnet** are pointed to the front of the machine. The needle should be inserted all the way into the needle bar. Look through the **needle bar sight hole** to make sure the needle is all the way inside the needle bar.



7. Adjust the needle so the magnet to points as straight out from the machine as possible.
8. Hand-tighten the thumb screw. Do not over-tighten if using the flat-head screwdriver.

Adjusting the Bobbin Cam

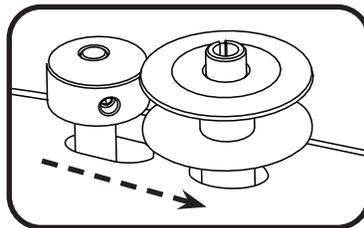
Parts & Tools Needed:

- 1.5 mm Allen Wrench (not included)

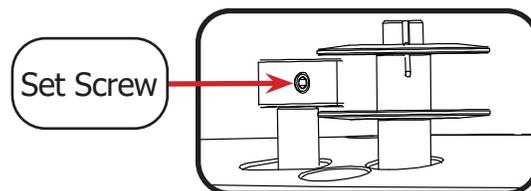
Instructions

The machine's bobbin cam is set so the bobbin will wind completely before the winder automatically shuts off. To change how much the bobbin fills before the winding stops, take the following steps:

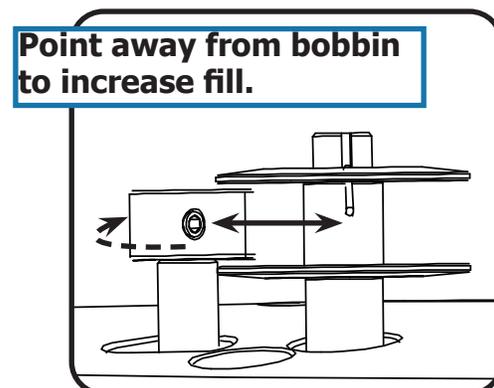
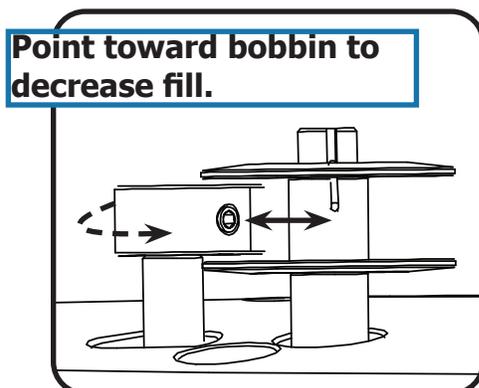
1. Power off the machine.
2. Place an empty bobbin onto the bobbin stand and flip the bobbin cam toward the bobbin. This will help estimate how far to adjust the bobbin cam.



3. Loosen the **set screw** on the bobbin cam with a 1.5 mm Allen wrench until the top of the bobbin cam twists freely.



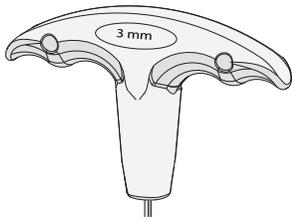
4. Point the set screw toward the bobbin to decrease the amount the bobbin will fill before the winder shuts off. Point the set screw away from the bobbin to increase the fill amount.



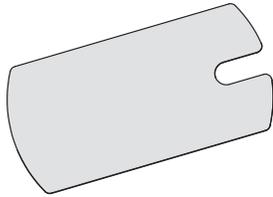
5. After choosing the desired distance, tighten the set screw with a 1.5 mm Allen wrench.

Adjusting the Hopping Foot

Parts & Tools Needed:



**3 mm T-handle
Allen Wrench**



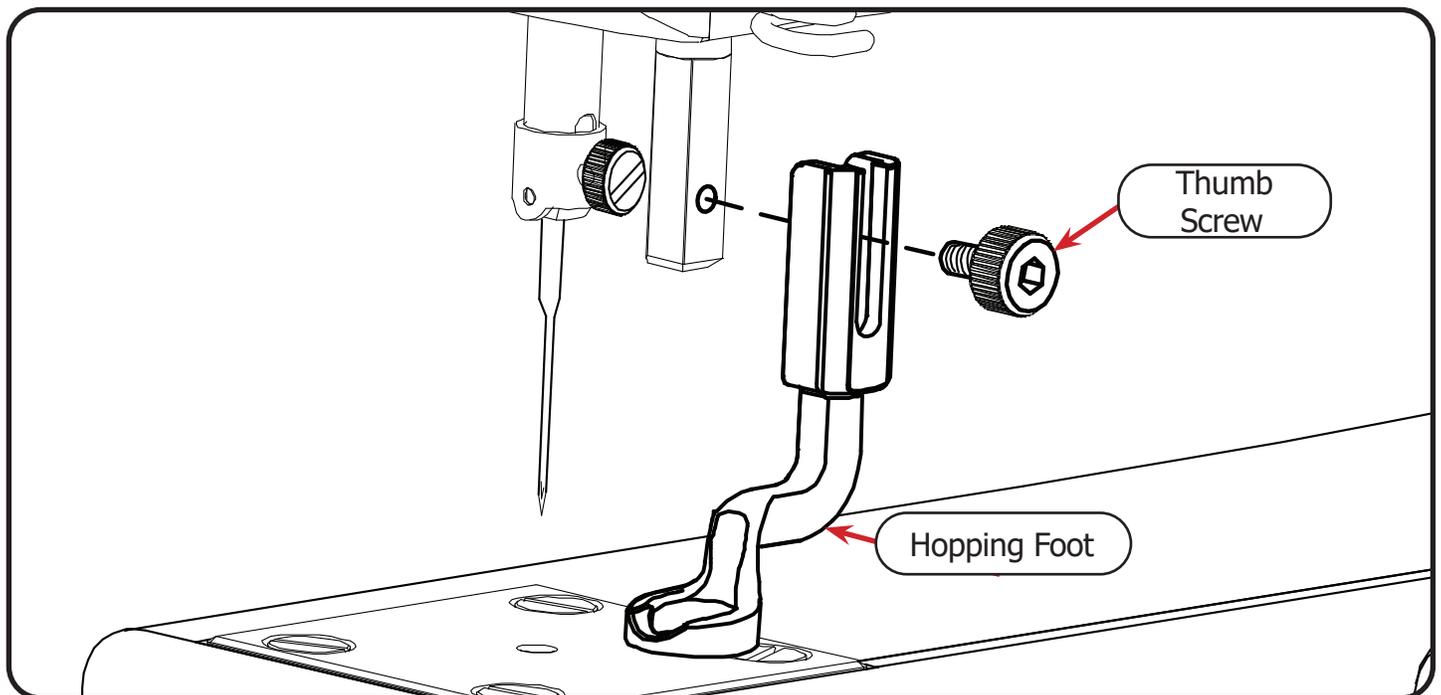
**Hopping Foot
Height Gauge**

Height Adjustment Instructions

When quilting with thicker fabric or batting layers, the hopping foot may begin to drag from pressing down on the quilt too tightly. Alternatively, if the hopping foot is set too high, skipped stitches can result. The hopping foot can be raised or lowered to correct these problems.

To adjust the hopping foot height, take the following steps:

1. Loosen the **thumb screw** that holds the **hopping foot** to the presser bar.
2. Raise or lower the hopping foot to the desired height. **Note:** If quilting on standard batting with two fabric layers, place the provided hopping foot height gauge underneath the hopping foot to obtain the correct height.

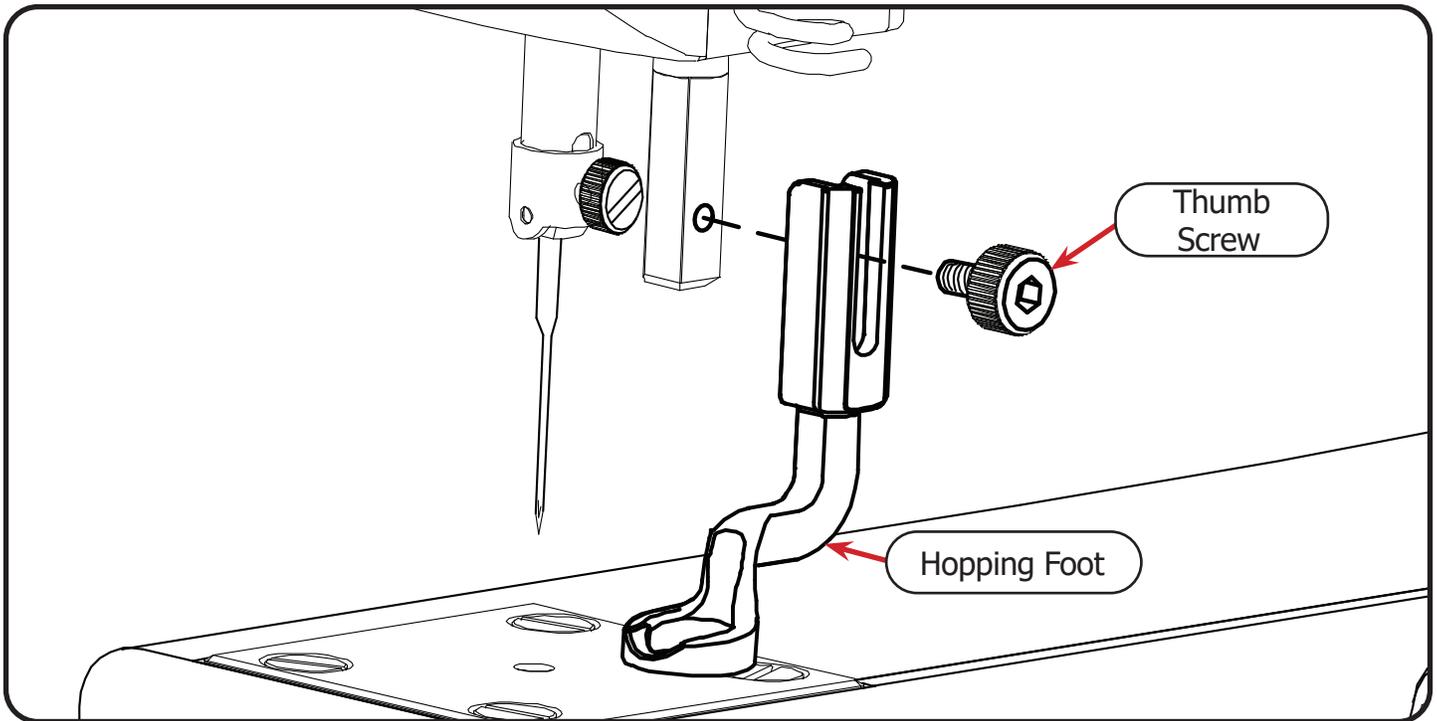


3. Hold the hopping foot in place and re-tighten the thumb screw with the 3 mm Allen wrench.

Removal Instructions

To remove the hopping foot for maintenance, take the following steps:

1. Power off the machine.
2. Rotate the hand wheel to lift the needle from the inside of the hopping foot.
3. Use the 3 mm Allen wrench to remove the **thumb screw** holding the **hopping foot**.

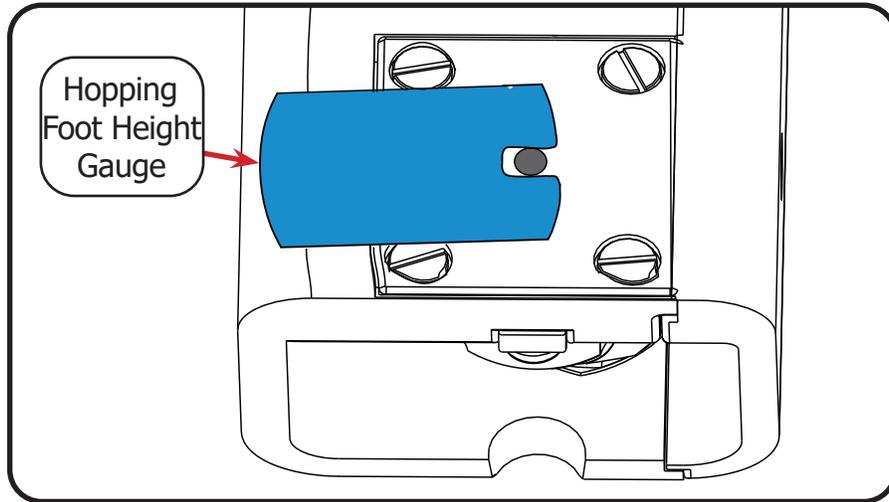


4. The hopping foot should now slide free from the presser bar.

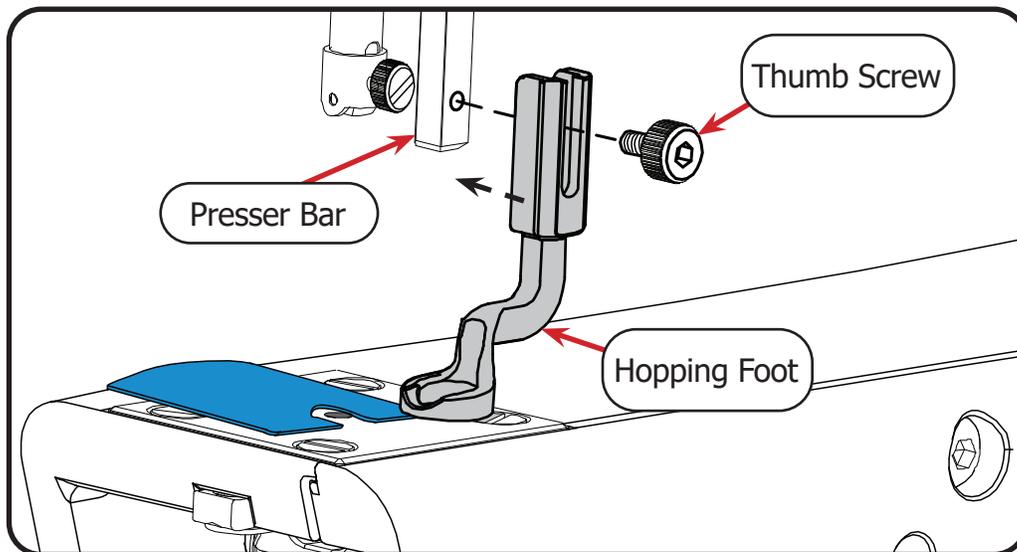
Installation Instructions

To install the hopping foot on your quilting machine, please take the following steps:

1. Power off the machine.
2. Remove the needle. See "Changing the Needle" on page 64 for detailed instructions.
3. Rotate the hand wheel to drop the needle bar to the lowest position.
4. Place the **hopping foot height gauge** on top of the needle plate.



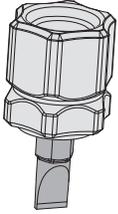
5. Slide the **hopping foot** to the **presser bar**, on top of the height gauge.



6. Tighten the **thumb screw**.

Reinstalling the Needle Plate

Parts & Tools Needed:

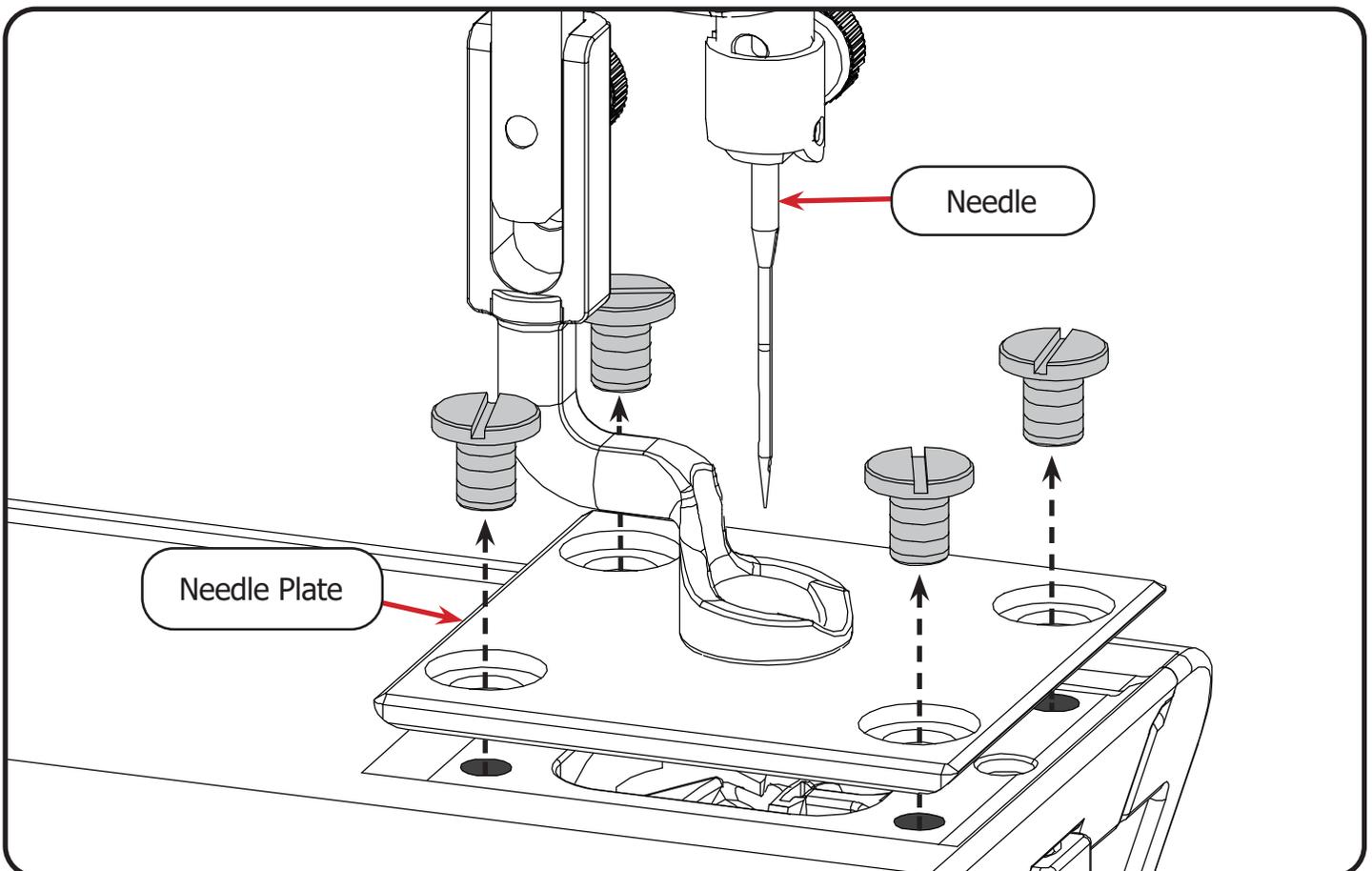


**Flat-head
Screwdriver**

Removal Instructions

To remove the needle plate from the quilting machine, take the following steps:

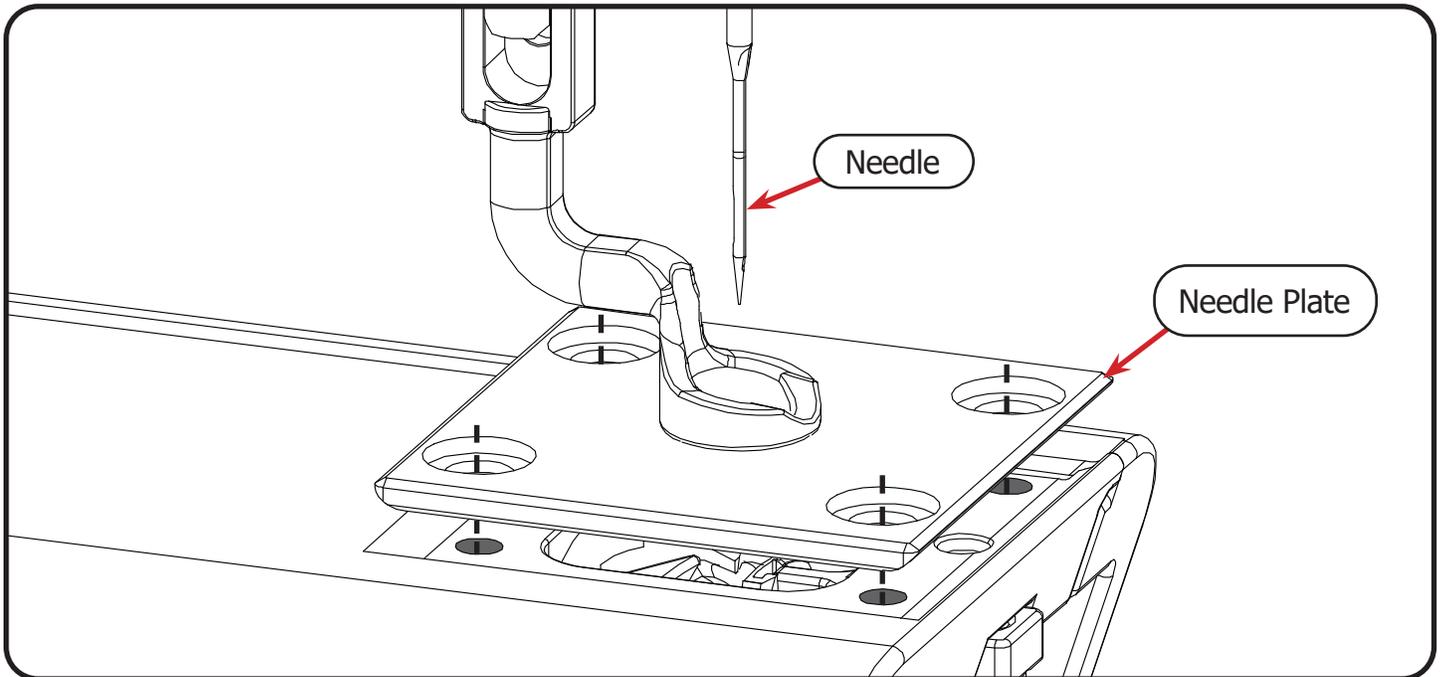
1. Power off the machine and raise the **needle** to the highest position using the hand wheel.
2. Use the flat-head screwdriver to remove the four **needle plate screws** (shown in gray).
3. Slide the **needle plate** from the machine.



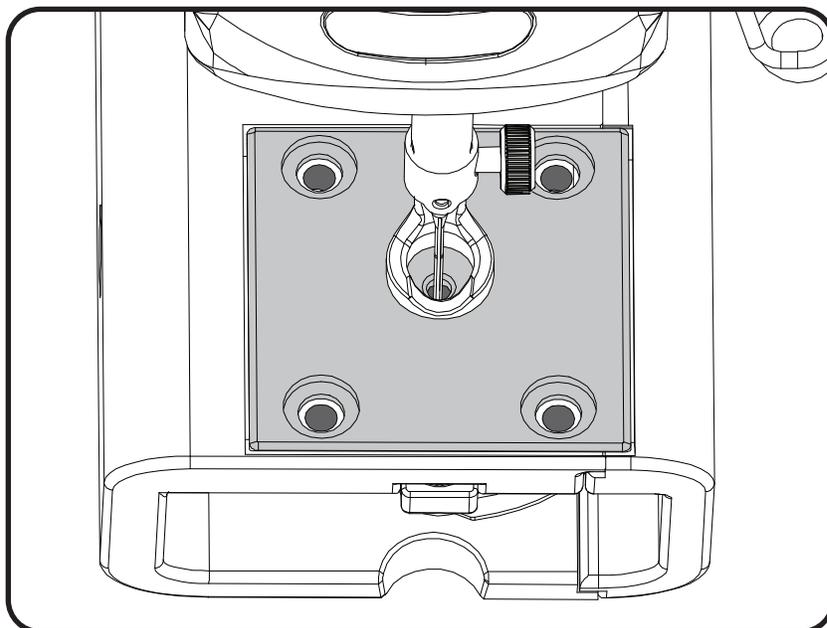
Installation Instructions

To install the needle plate onto the quilting machine, take the following steps:

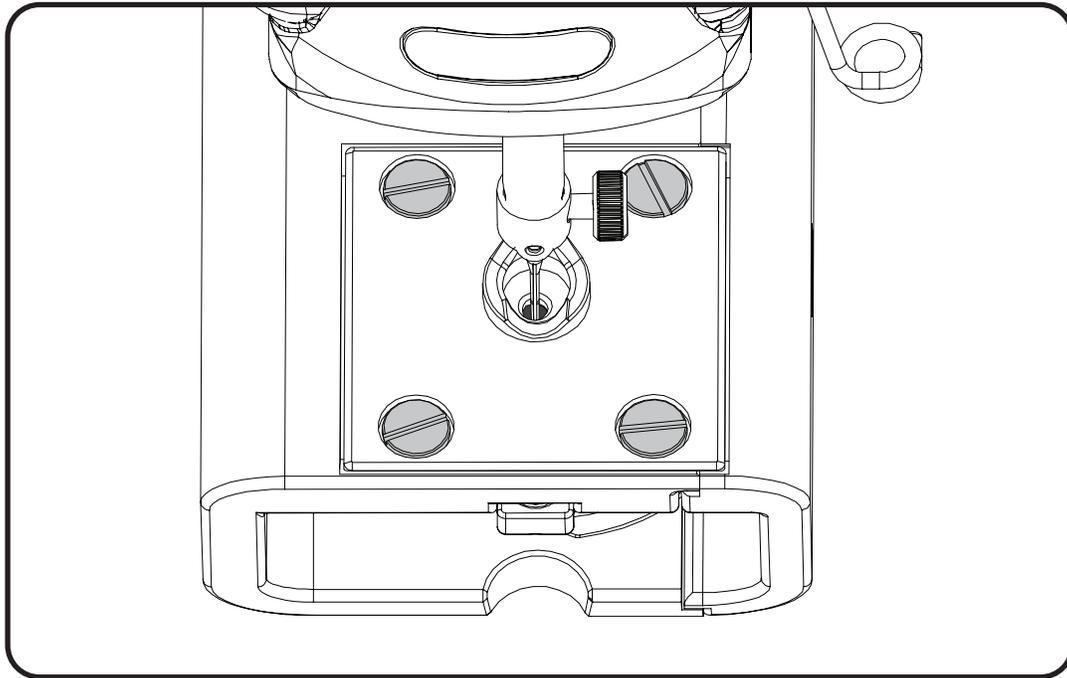
1. Power off the machine and raise the **needle** to the highest position using the hand wheel.
2. Place the **needle plate** onto the machine and align the **four screw holes**.



3. Slowly lower the needle with the hand wheel. The needle should slide into the center hole of the needle plate without contacting the plate.



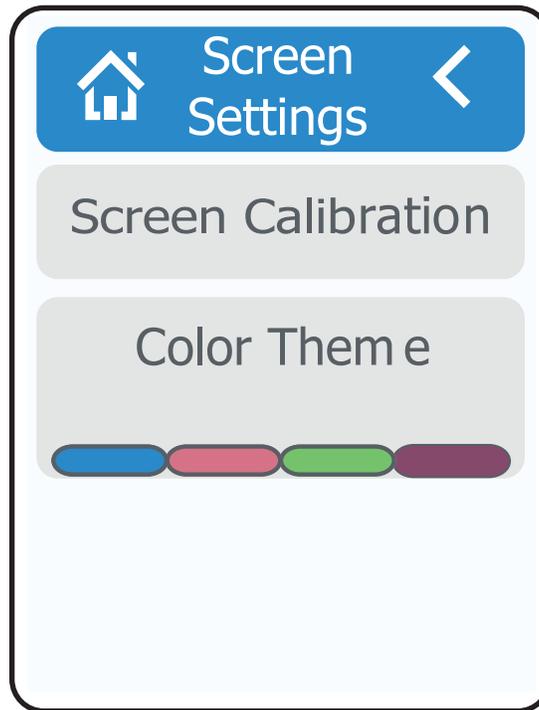
4. Place the four **needle plate screws** (shown in gray) into the plate. Make sure the needle plate is centered around the needle, and then tighten the screws with the flat-head screwdriver.



Calibrating the Touch Display

If the touch screen on the display is not working properly, the screen may need to be calibrated. Go to the Settings  menu and press the Screen Settings icon  .

The Screen Settings menu displays.



1. Press Screen Calibration to open the Screen Calibration page.
Note: For information about the Color Theme option, see “Choosing Machine Settings” on page 27.
2. The Screen Calibration page displays with instructions on calibrating the screen. It is best to use the tip of a stylus or another object with a small point when following the instructions.
3. Press the top right corner as close to the edge of the screen as possible.
4. Press the bottom left corner as close to the edge of the screen as possible.
5. When the calibration is finished, the screen will close and return you to the Screen Settings menu.

Repairs and Diagnostics

The instructions in this section should only be taken at the direction of a Grace Company support technician. If you are experiencing problems with your machine, please contact our technical support team:

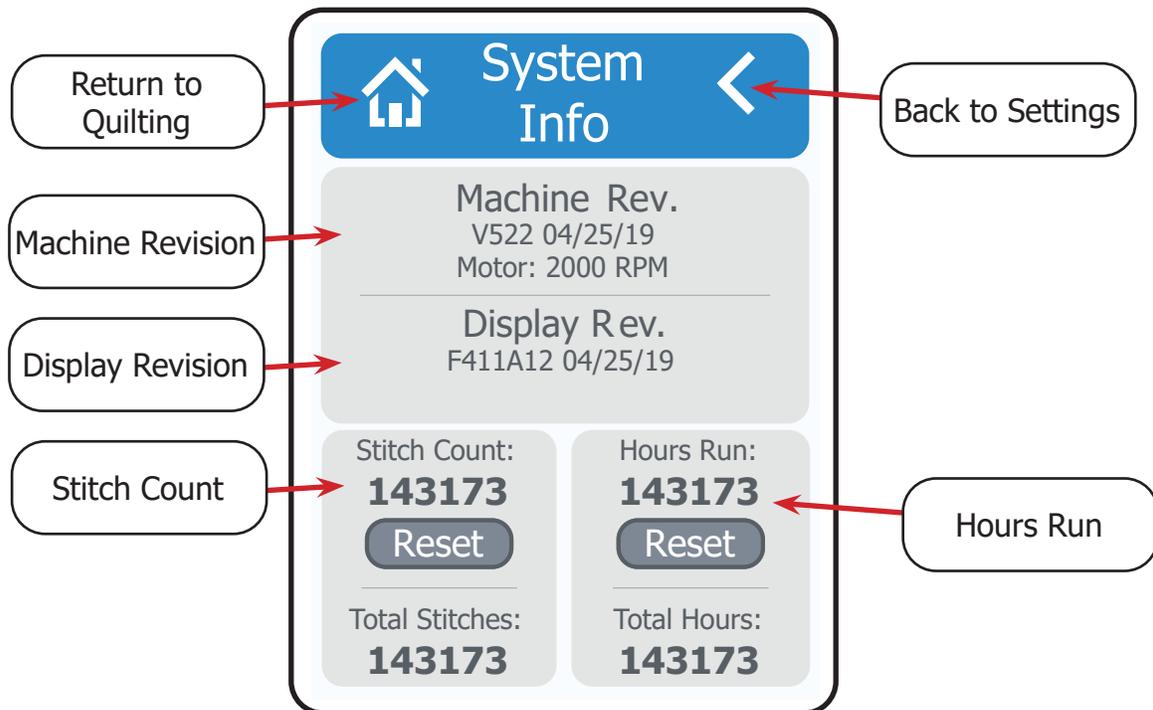
- **Phone:** (800) 264-0644
- **Email:** support@graceframe.com

Checking the Firmware	page 76
Replacing the Encoder Spring	page 77
Reinstalling the Hook Holder	page 82
Timing the Machine	page 85

This section of the manual covers replacing the encoder spring, installing the hook holder, timing the machine, and checking the machine and display firmware versions.

Checking the Firmware

The control firmware versions for the machine motor and the touch display are found by pressing the System Information icon  from the Settings menu (see "Choosing Machine Settings" on page 27).



The following information and options display:



Return to Quilting: Press to leave the System Information page and go back to quilting.



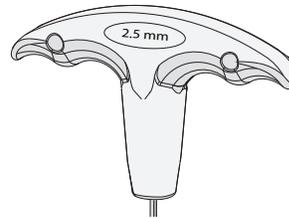
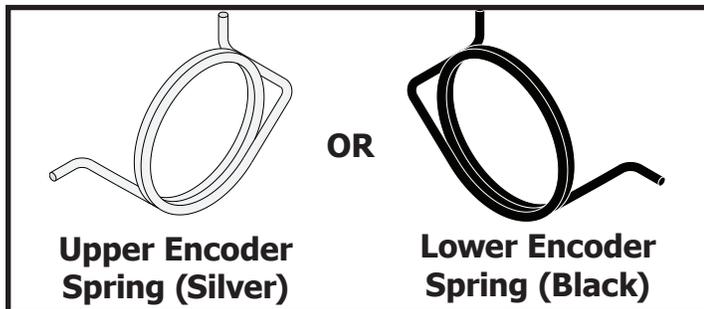
Back to Settings: Press to return to the Settings Menu.

- **Machine Revision:** Shows the latest firmware version for the machine.
- **Display Revision:** Shows the latest firmware version for the touch display.
- **Stitch Count:** Tracks stitches made (see "Tracking Stitch Count and Run Time" on page 56).
- **Hours Run:** Tracks hours that the machine has run (see "Tracking Stitch Count and Run Time" on page 56).

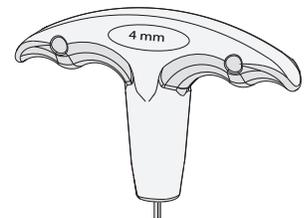
Replacing the Encoder Spring

Parts & Tools Needed:

Please speak to a Grace Company support technician before attempting these instructions.



2.5 mm T-handle Allen Wrench



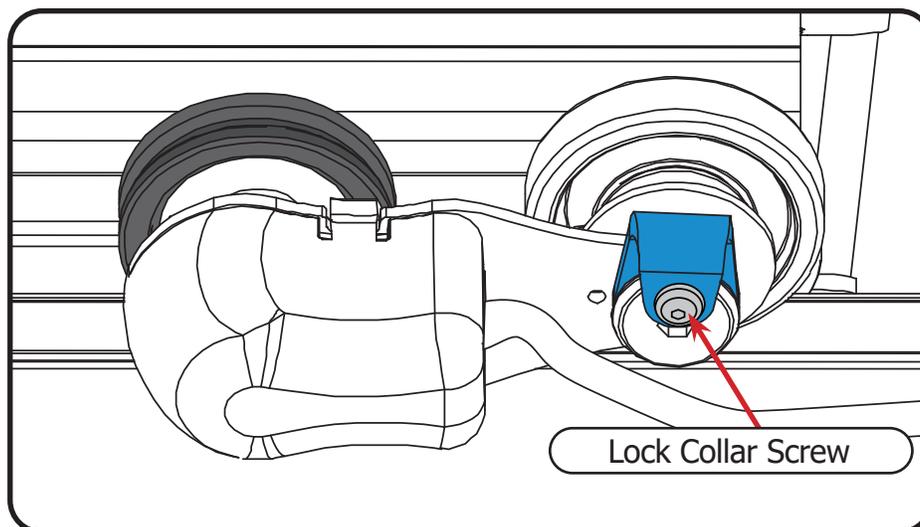
4 mm T-handle Allen Wrench

Instructions

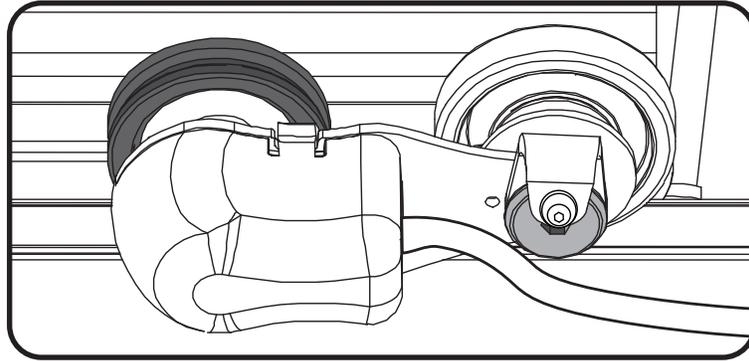
If the encoder spring is over-tensioned, it may break and need to be replaced.

To replace the encoder spring, take the following instructions:

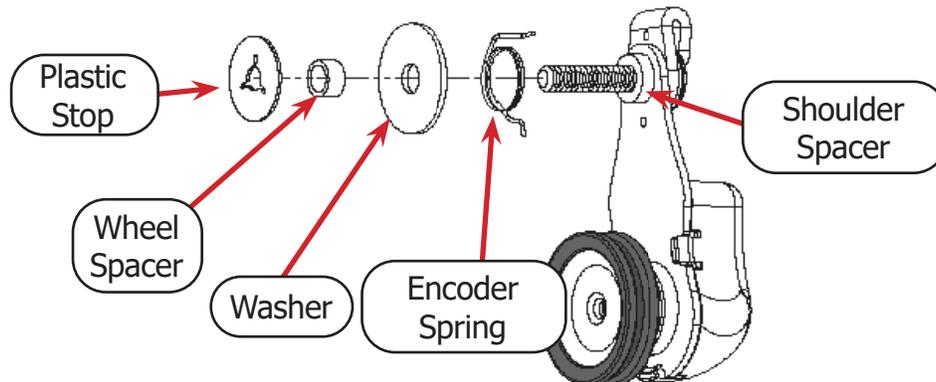
- Determine the correct spring to use in the repair:
 - Upper Encoder:** Attached to the wheel on the machine. Use the silver spring.
 - Lower Encoder:** Attached to the wheel on the bottom carriage. Use the black spring.
- Unplug the encoder cable from the machine.
- Loosen the **lock collar set screw** with the 2.5 mm Allen wrench until the **lock collar** (shown in blue) can twist freely. **Note:** Depending on your machine model, this step may require the 2.0 mm Allen wrench.



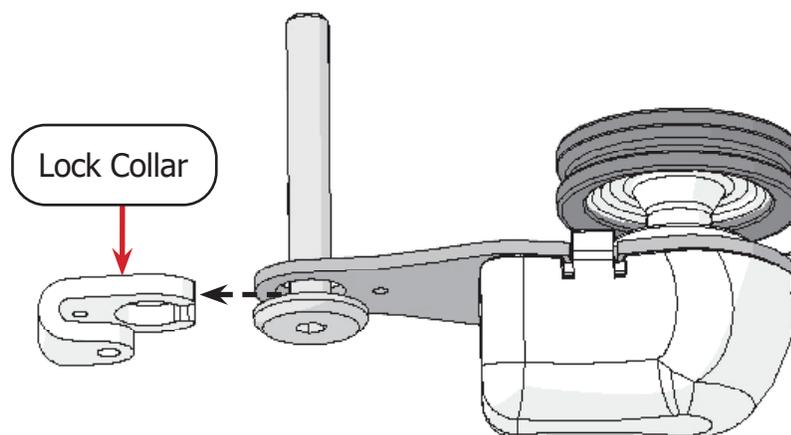
1. Use the 4 mm Allen wrench to loosen the **encoder screw** (shown in gray) and remove the encoder and wheel.



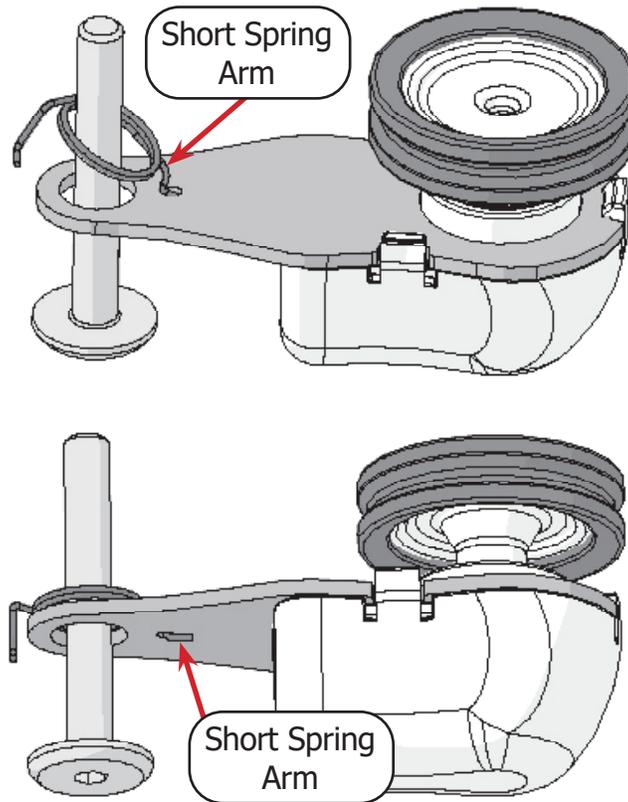
2. Remove the **plastic stop**, **wheel spacer**, **washer**, broken **encoder spring**, and **shoulder spacer** from the encoder.



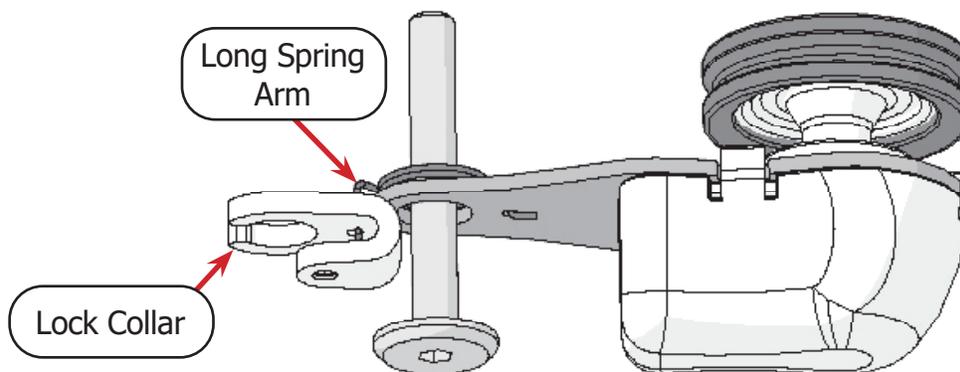
3. Pull on the **lock collar** to remove it from the encoder screw.



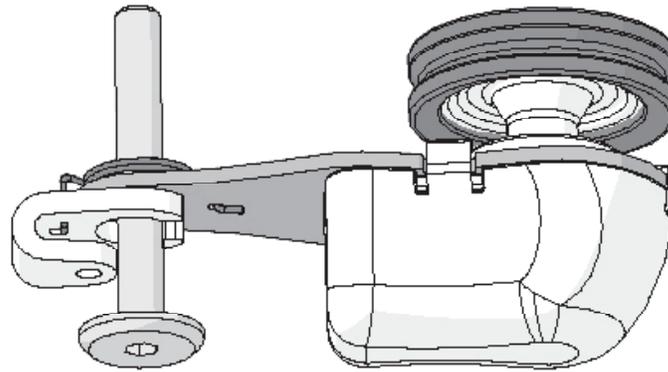
- Place the replacement spring over the encoder screw, and insert the **short arm** of the spring all the way through the hole on the encoder base.



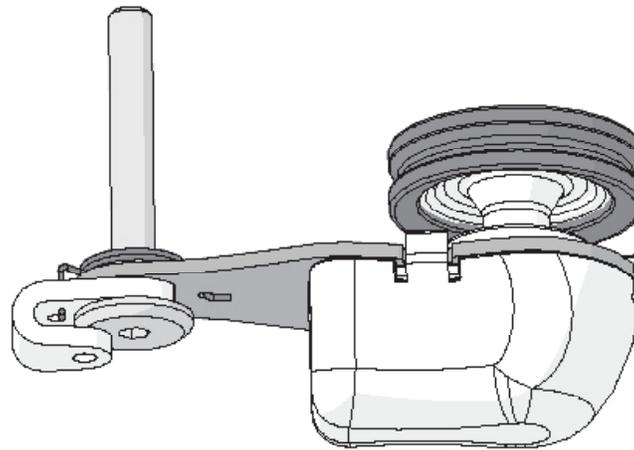
- Place the **long arm** of the encoder spring arm into the hole on the encoder **lock collar**.



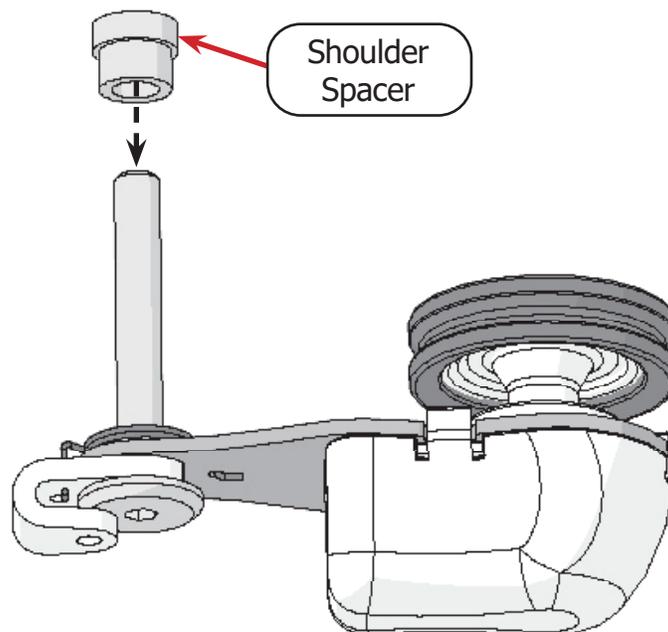
- 6. Without allowing the arm to slip out of the lock collar, rotate the collar until it wraps around the encoder bolt.



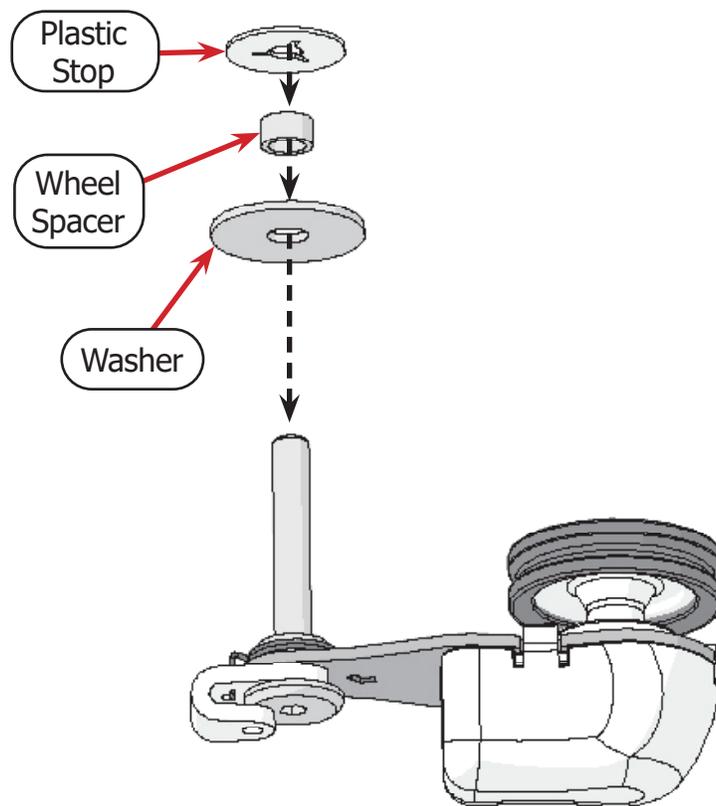
- 7. Adjust the screw and lock collar so the head of the screw slides in between the lock collar.



- 8. Slide the **shoulder spacer** onto the screw with the thinner side toward the head of the bolt.



9. Next, place the **washer**, **wheel spacer**, and **plastic stop** onto the encoder screw.



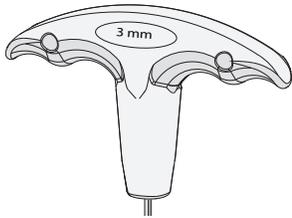
10. Complete the assembly instructions for the encoder you removed.

- For the upper encoder (silver spring) assembly instructions, see "Assembling the Upper Encoder" on page 16.
- For the lower encoder (black spring) assembly instructions, see "Assembling the Lower Encoder" on page 19.

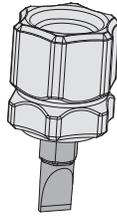
Reinstalling the Hook Holder

Please speak to a Grace Company support technician before attempting these instructions.

Parts & Tools Needed:



**3 mm T-handle
Allen Wrench**

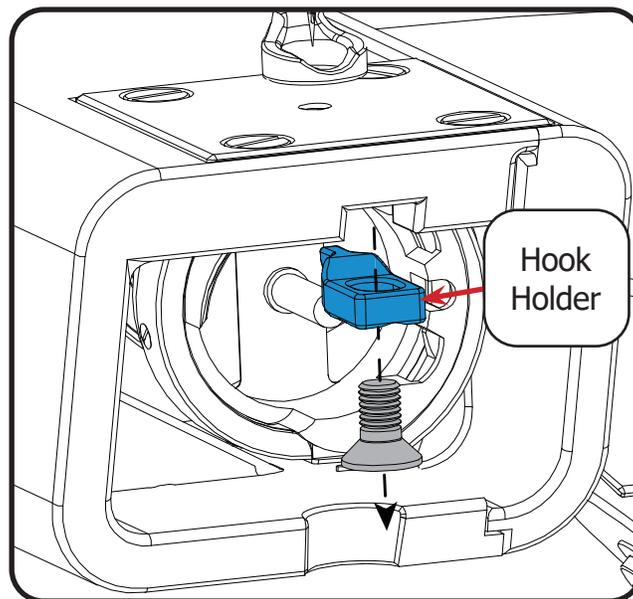


**Flat-head
Screwdriver**

Removal Instructions

The hook holder prevents the hook assembly from shifting out-of-place. The following procedure should only be attempted if determined necessary by a Grace Company support technician. If done incorrectly, major machine problems can result.

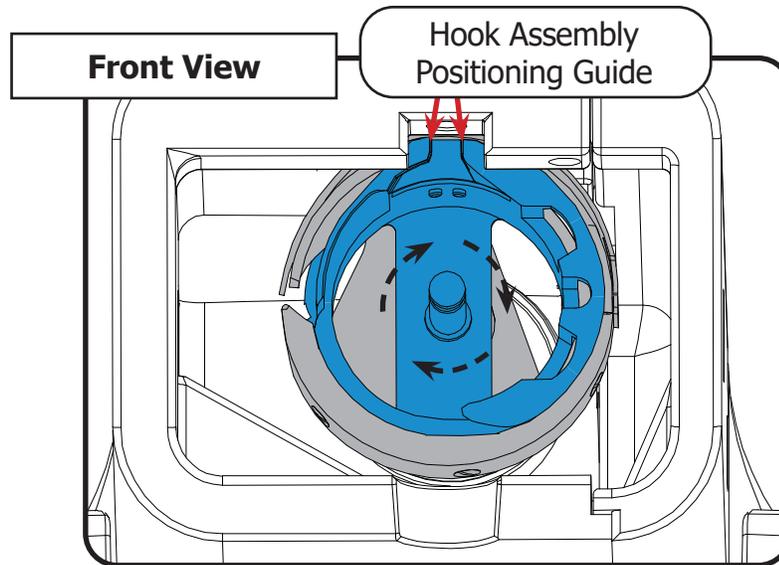
1. Turn off the machine.
2. Rotate the hand wheel to raise the needle to the highest point.
3. With the 3mm Allen wrench, remove the **hook holder screw** (shown in gray) that attaches the **hook holder** to the machine.



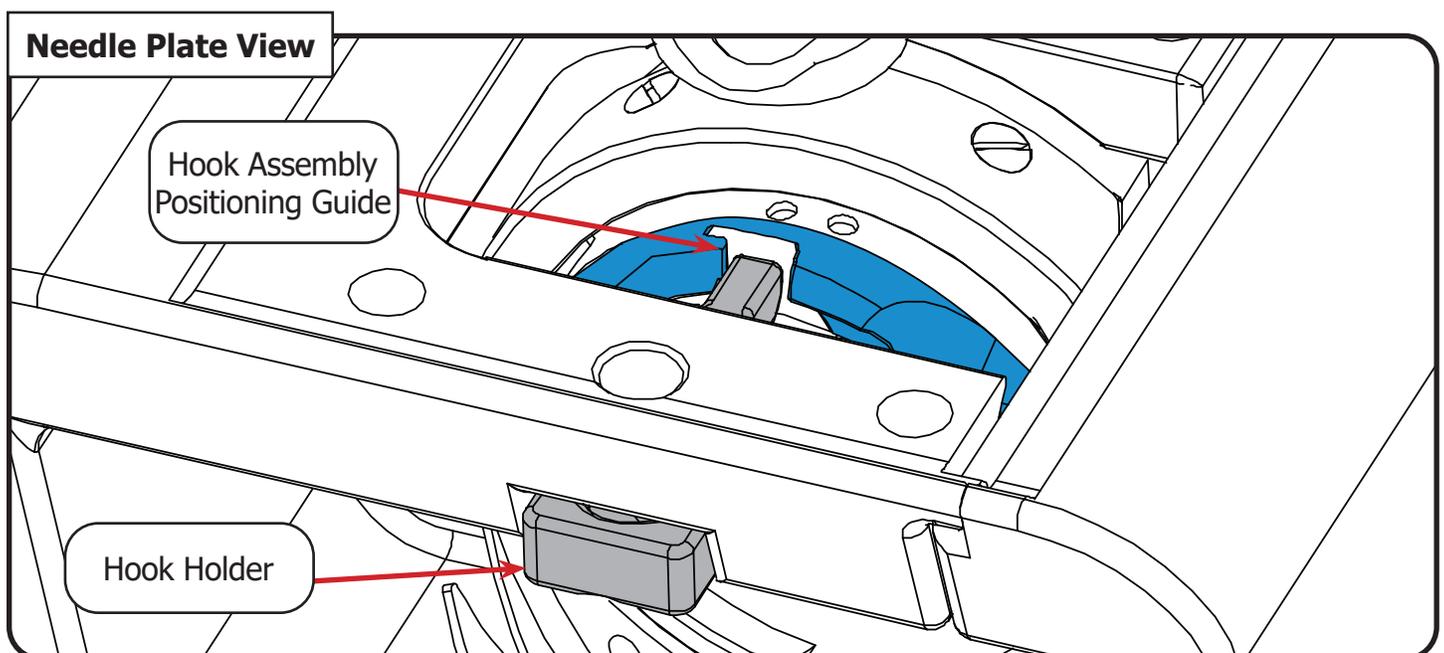
4. Slide the hook holder from the hook assembly.

Installation Instructions

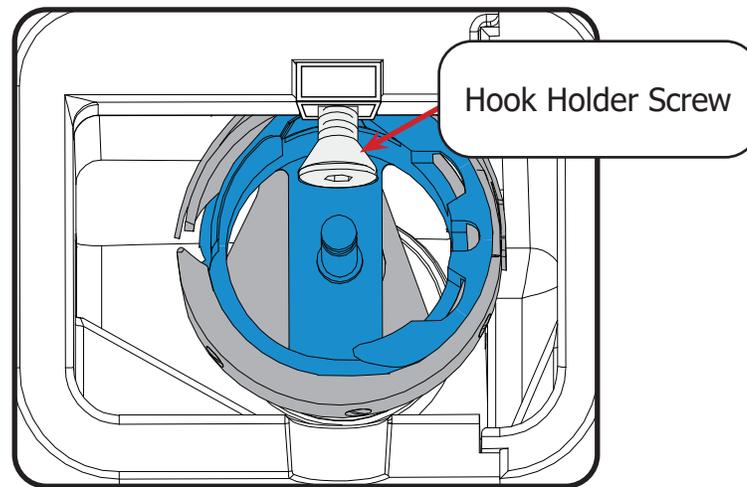
1. Turn off the machine.
2. Rotate the hand wheel to raise the needle to the highest point.
3. Remove the needle plate using the flat-head screwdriver (see "Reinstalling the Needle Plate" on page 71).
4. Remove the bobbin case (see "Loading the Bobbin Case" on page 32).
5. Turn the inside part of the **hook assembly** (shown in blue) so that the **positioning guide** is at the highest point.



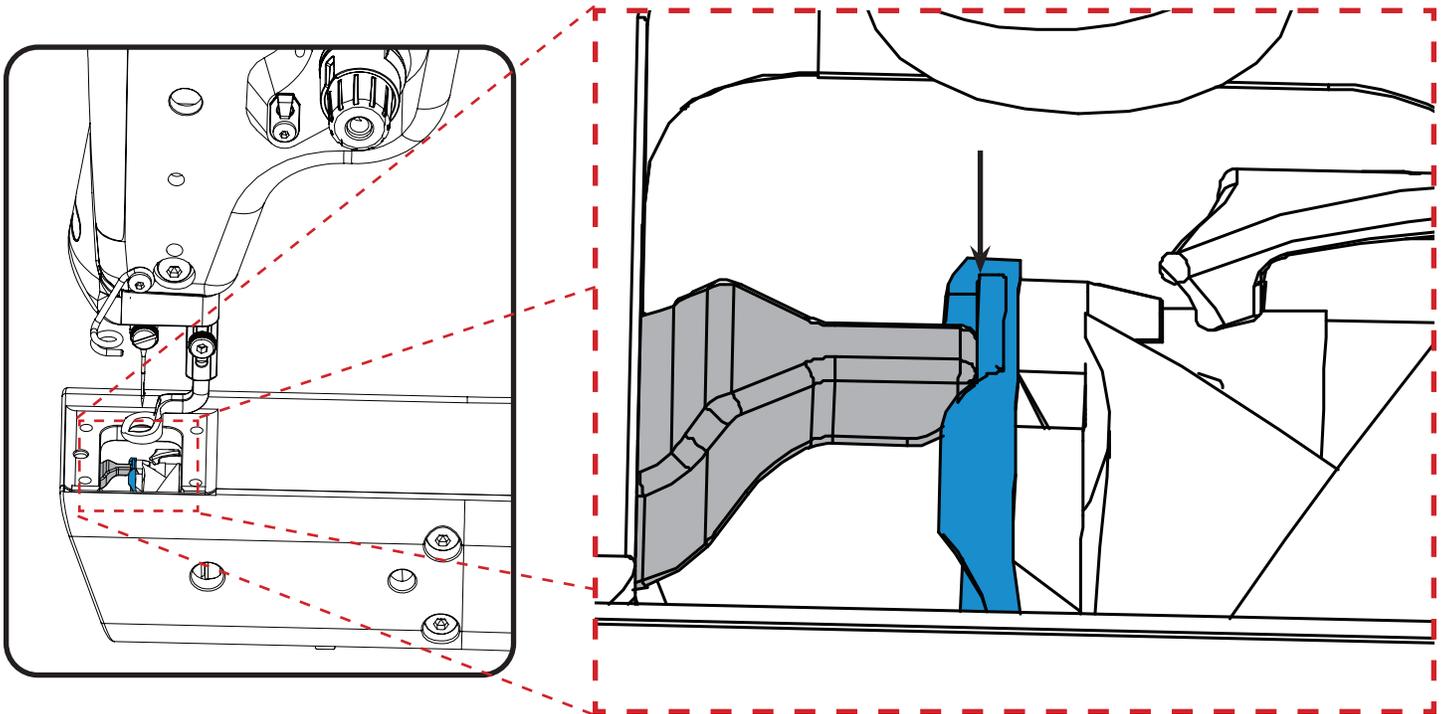
6. Slide the finger of the **hook holder** into the middle of the **hook assembly's positioning guide**.



7. Attach loosely with the **hook holder screw**. Do not tighten.



8. Align the **hook holder** with the inside edge of the **positioning guide**, as shown below.

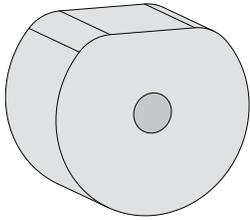


9. Tighten the hook holder screw to fasten the hook holder in place.

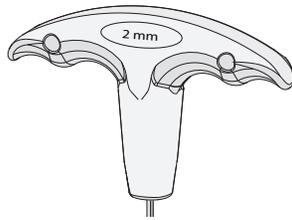
Timing the Machine

Parts & Tools Needed:

Please speak to a Grace Company support technician before attempting these instructions.



Timing Spacer

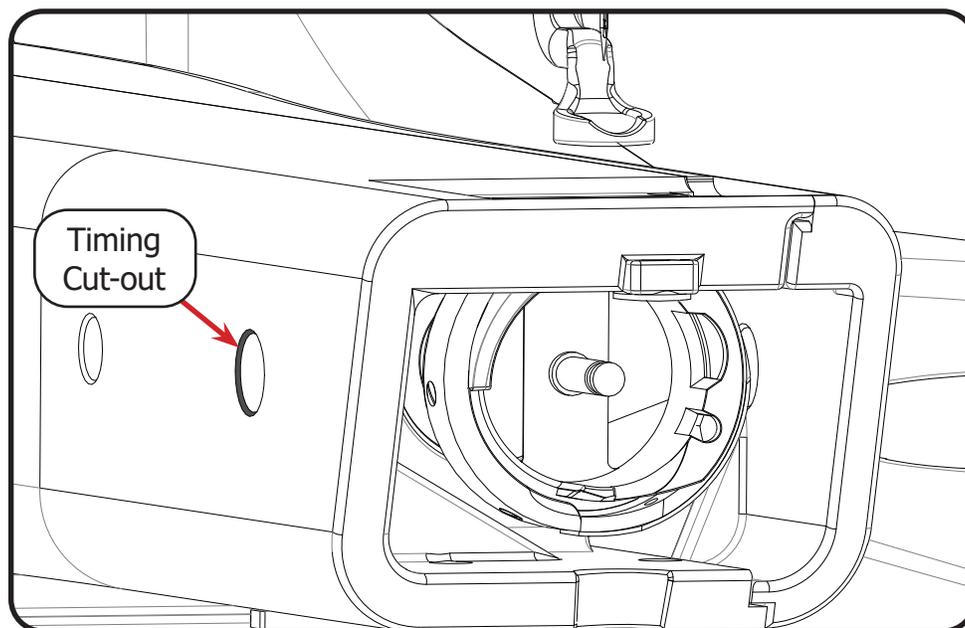


2 mm T-handle
Allen Wrench

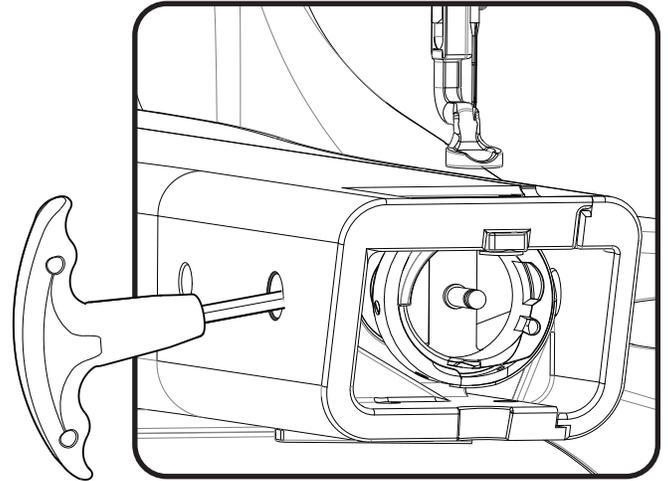
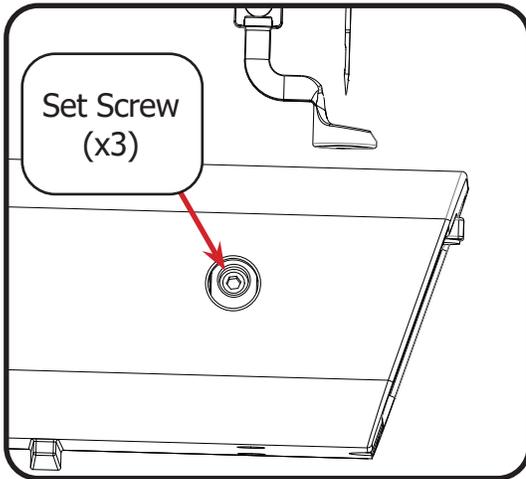
Instructions

Timing your machine aligns the needle and hook assembly so that they are in the correct places during the creation of a stitch. Improper timing can result in damage to the machine and needle, or make sewing impossible. Please consult with a Grace Company support technician before attempting to adjust the timing on your machine.

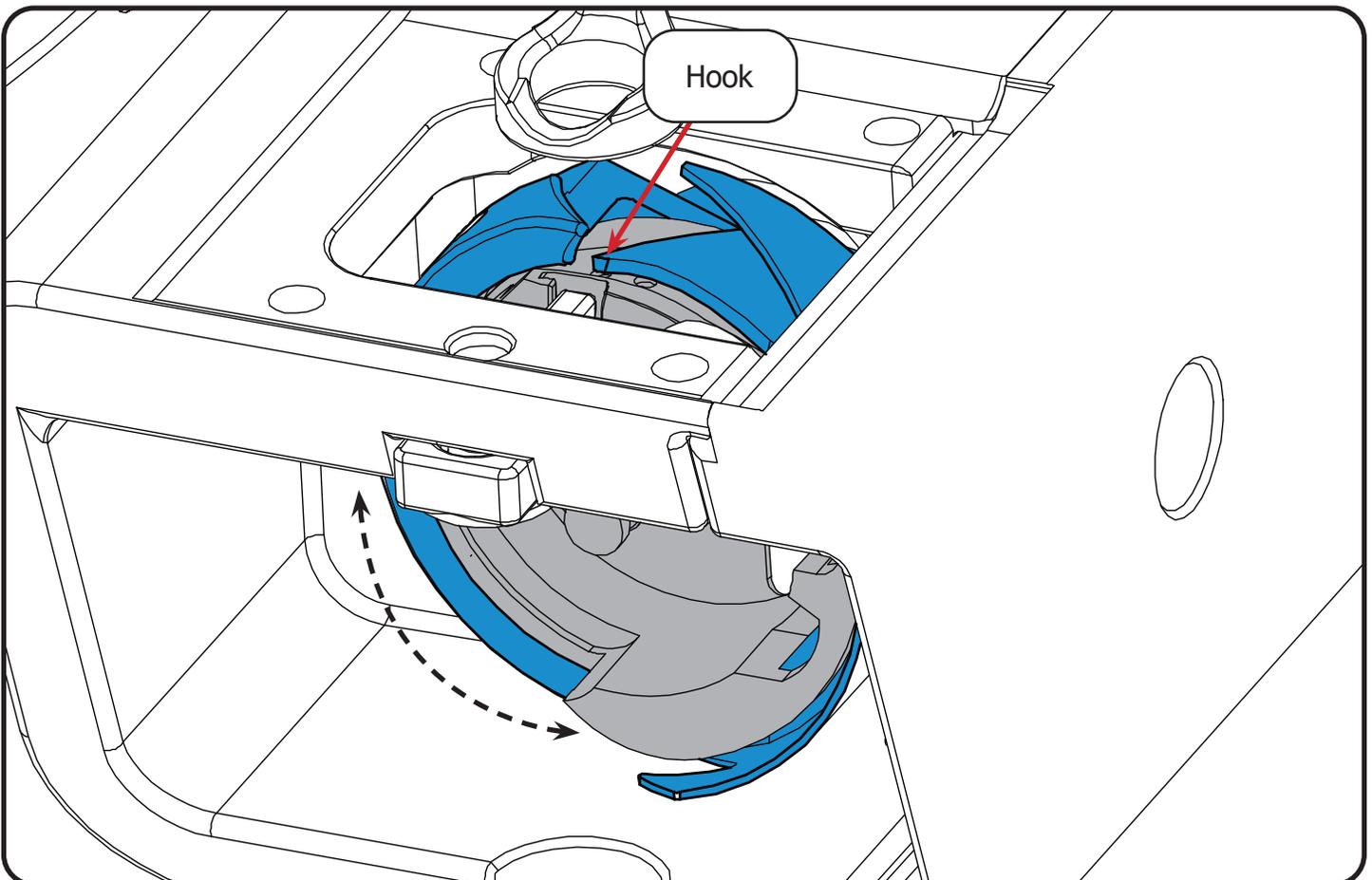
1. Turn off the machine.
2. Check that your needle is not bent or damaged, and that it is inserted all the way into the needle bar (see "Changing the Needle" on page 64).
3. Remove the bobbin case from the hook assembly (see "Loading the Bobbin Case" on page 32).
4. Remove the needle plate (see "Reinstalling the Needle Plate" on page 71).
5. Look into the machine's **timing cut-out** and turn the hand wheel. The hook assembly will rotate.



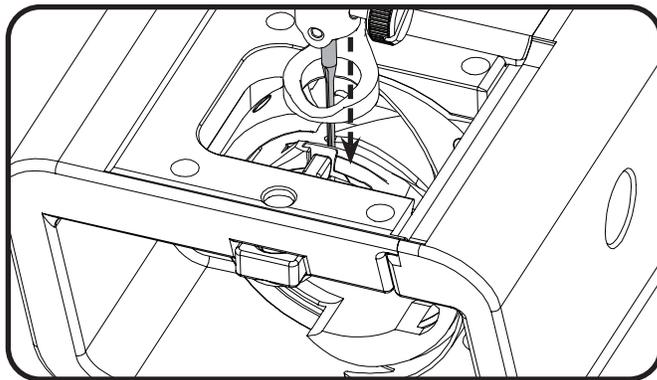
6. As each of the **3 set screws** aligns with the cut-out, loosen them with the 2 mm Allen wrench.



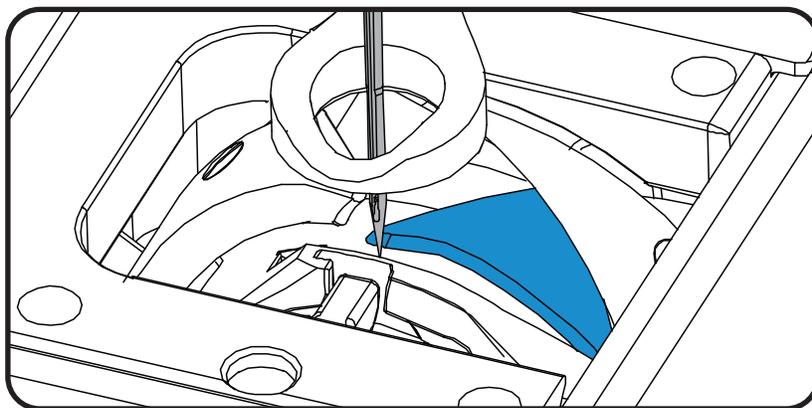
7. When all three set screws are loosened, the **outside** part of the hook assembly (shown in blue) will rotate by hand. Turn the outside part of the hook assembly so that the **hook** is at the top.



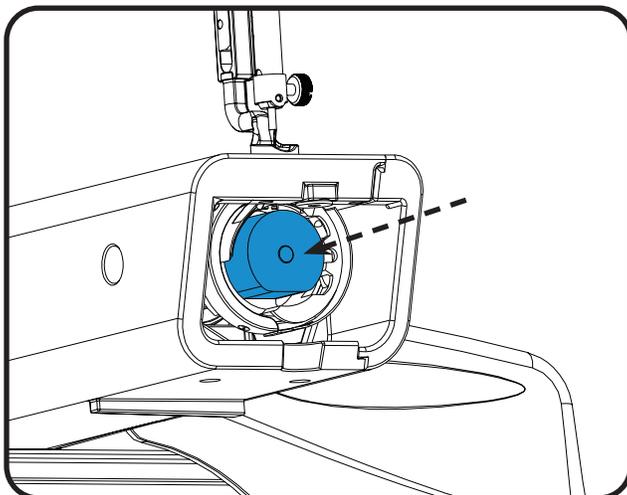
- Carefully rotate the hand wheel to drop the **needle** (shown in gray) all the way to the lowest point. Continue rotating the hand wheel the same direction. The **needle** should begin to raise up.



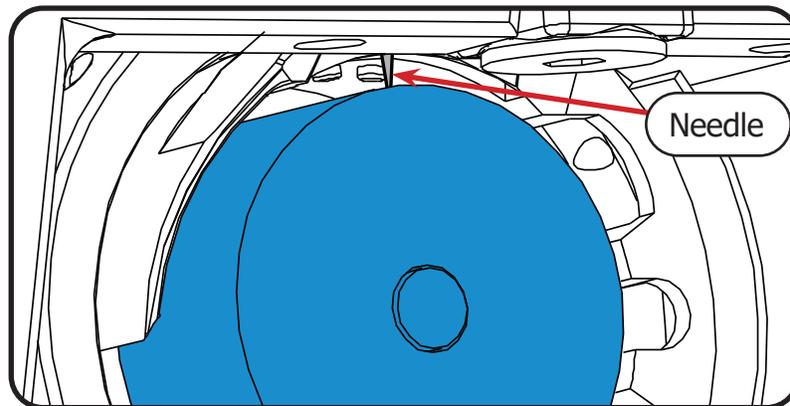
- Stop raising the needle once it is about level with the **hook** (shown in blue). Do not continue to raise the needle. If the needle reaches the top of its rotation (over the hopping foot), you will have to start over at step 8.



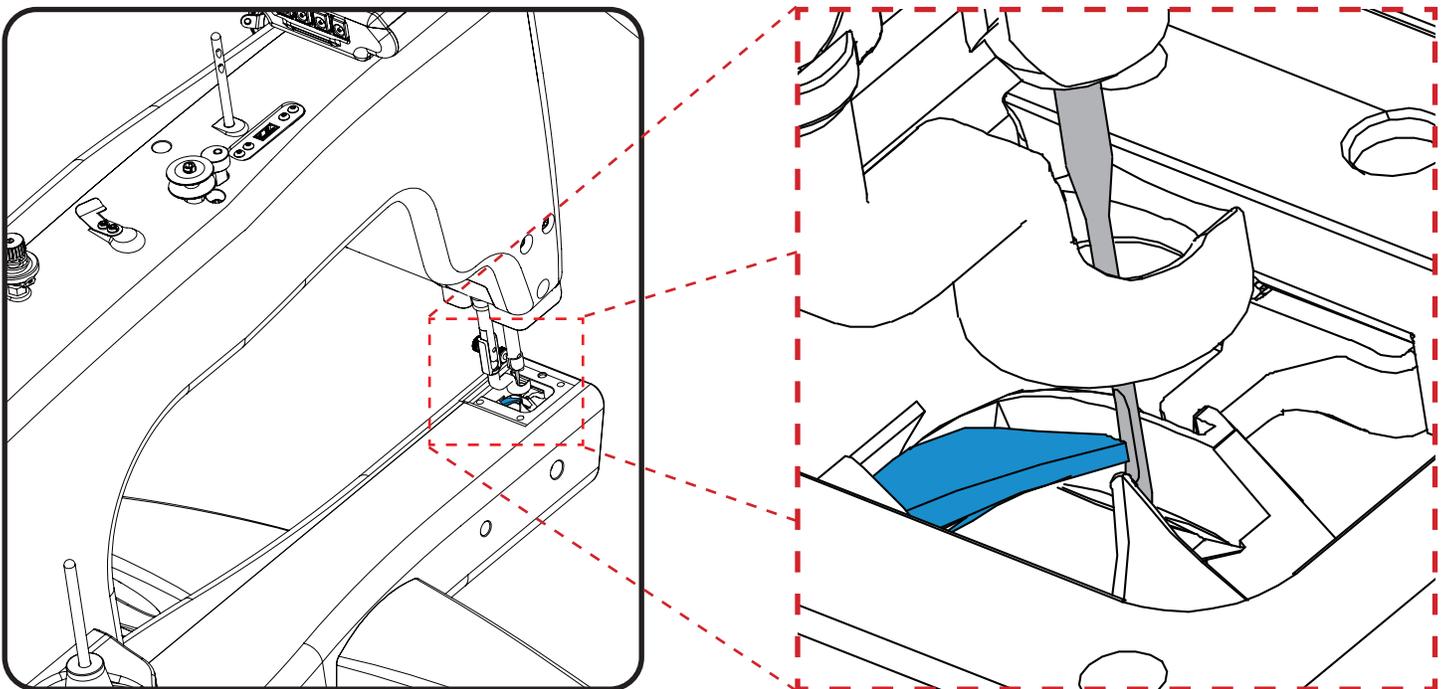
- Slip the **timing spacer** (shown in blue) into the hook assembly.



- Turn the hand wheel the opposite direction to bring the **needle** back down until it rests on top of the **timing spacer** (shown in blue). Do not let the **needle** rise to the top before bringing it back down or you will need to repeat steps 8-11.



- Position the tip of the **hook** (shown in blue) in the middle of the back of the **needle** (shown in gray). This is easier to see from the back of the machine.



- Tighten the set screw through the timing cut-out. Watch for bending in the needle and listen for a clicking sound that could indicate the needle is hitting the hook.
- Turn the hand wheel a full rotation to ensure the needle does not hit the hook assembly at any point.
- Tighten the two remaining set screws through the timing cut-out. The needle plate and bobbin case can be reinstalled.

Appendix

This section of this manual covers additional information on quilting with your machine.

Choosing Your Needle	page 90
Choosing Your Thread	page 92
Choosing Your Fabric and Batting	page 95
Troubleshooting Guide	page 96
Index	page 98

Choosing Your Needle

Using the wrong type of needle, or using a needle that is bent, broken, or blunt, can damage the fabric, the machine, and needle. For best results:

- Use the recommended needle style for your machine (see below).
- Use the needle size appropriate for the weight and type of thread you're using (see below).
- Never use a needle that is dull, bent, burred, or damaged.
- Use multi-directional needles.
- Change your needle after 8 hours of use and at the beginning of each project.

Needle Style

The following are the recommended needle styles for your machine:

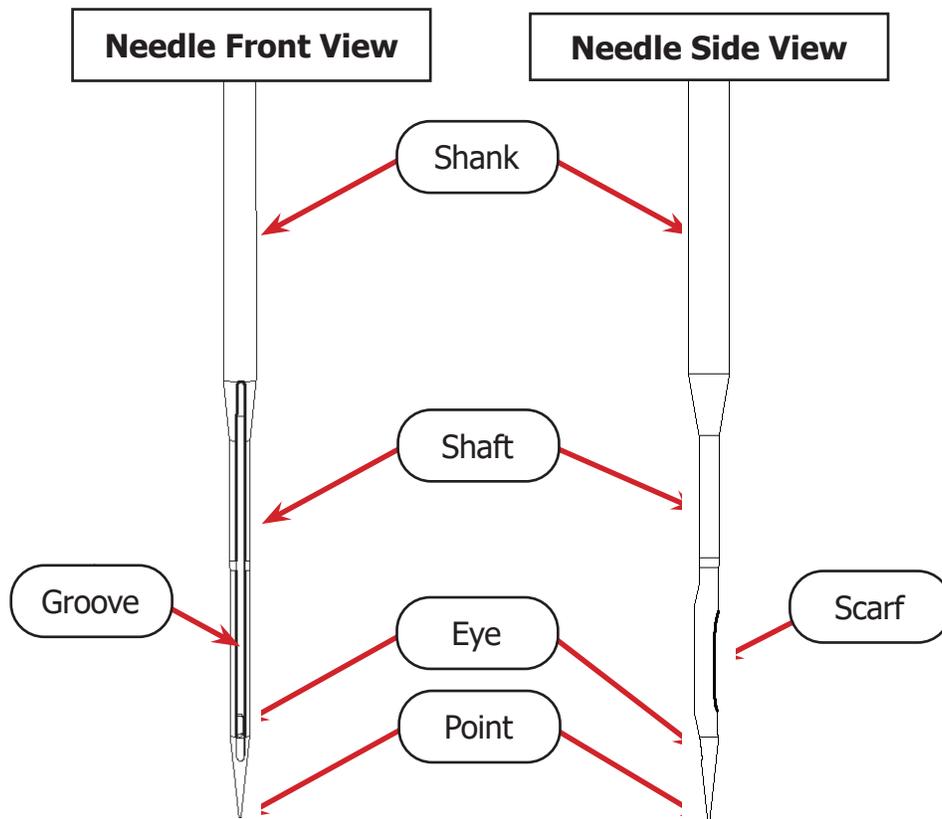
- DPX5 MR
- 134 MR
- 1955 MR

Needle Sizes

Choose the correct needle size based upon the thread you're using. The larger the thread size, the lower the thread weight number, and the larger the needle needs to be. Generally, the finer the fabric, the finer the needle and thread that should be used.

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

Needle Diagram



- **Shank:** Where the needle bar grasps the needle.
- **Shaft:** The long, narrow part of the needle. Needle size is based upon the diameter of the needle shaft.
- **Groove:** Reaching from the top to the bottom of the needle shaft, the groove allows thread to pass through the fabric more easily and without getting damaged.
- **Eye:** Hole near needle point where the needle is threaded.
- **Scarf:** A cut-away on the back of the needle that allows the needle to fit smoothly within the hook assembly when quilting.
- **Point:** The sharp end of the needle. Choose the type of needle point to fit your project, and always replace your needle once the point is dull.

Choosing Your Thread

Choosing the best thread for your project is just as important as choosing the correct needle. Good thread is strong and can pass the “Yank Test” (see “Threading the Machine” on page 35). It holds its color well over time (colorfastness), and uses long fibers (extra-long staple) that resist pilling or creating lint.

Thread type and size determines not only which needle size to choose and what the thread tension must be set to on your machine, but also how visible the thread is on the project.

For best results:

- Use a cone-style thread unless you have the thread spool accessory for your machine.
- Test the strength of thread before use with the “Yank Test” (see “Threading the Machine” on page 35).
- Practice using new thread on spare quilting materials to find the ideal thread tension. Write this information down and store it with your thread for later reference.
- Keep thread out of sunlight to prevent fading, and do not store near extreme temperatures.
- Select thread that is ideal for the fabric you’re using (see the chart below).
- Avoid using different thread type for the top thread than you’re using for the bottom thread.

Thread Type Guide

Threads can be multiple strands, called ply, spun together, or it can be a single ply. The fibers that make up the ply can come from many sources, but the most common threads used in quilting are made from cotton, polyester, and silk. The unique properties of each material make some threads better suited for use on some fabrics than others.

Thread Type	Ideal Fabric
Cotton	<ul style="list-style-type: none"> • Cotton • Linen • Rayon
Polyester	<ul style="list-style-type: none"> • Knit or Stretch • Woven synthetic
Silk	<ul style="list-style-type: none"> • Silk • Wool • Basting thread for all fabrics

Thread Size

The thickness of the thread is called the weight (wt.). This number is usually stamped on the edge of the top or bottom of the thread cone. Notice that as the thread becomes heavier and thicker, the weight decreases:

- 60 weight: Very thin, fine thread that will blend in to the fabric.
- 40 weight: Thicker thread that will show up on the fabric.

Note: choose matching weight and thread type when picking top and bottom (bobbin) threads.

Tip: Not all manufacturers will have the same sizing method for their thread. Threads can be measured by weight, tex, denier, or scaling that is unique to its brand. Take the time to understand how the sizing works for a brand you’re considering, and keep a few common sewing rules in mind:

- The thicker the thread, the larger the needle required. A needle that is too thin can shred thread.
- The thinner the thread, the smaller the needle should be. A needle that is too large will cause uneven stitching and can leave holes in the fabric.

Thread Processing

Sometimes thread is processed to change its properties. The chart below lists the processes common to cotton, polyester, and silk threads.

Thread Type	Processing
Cotton	<ul style="list-style-type: none"> • Mercerized: Treated to improve strength and colorfastness. • Glazed: Waxed or coated to give a polished appearance. The coating may rub off and build up in machine. • Gassed: Exposed briefly to a gas flame to burn away fuzz and lint, giving a smooth appearance.
Polyester	<ul style="list-style-type: none"> • Lubricated: Treated with lubricant to reduce friction. Avoid thread that is oily to the touch. • Bonded: Treated with resin to increase strength. This is typically used for heavy-duty applications, such as upholstery.
Silk	<ul style="list-style-type: none"> • No extra processing or treatments are typical for silk.

Recommended Thread

Finesse thread is specially-designed quilting thread by the Grace Company. It can be used with domestic (sewing) and quilting machines, and comes in 60 colors.

- 100% Polyester, 3-ply thread
- 1,500 yards mini-cone
- 50 wt.
- 110/18 or 100/16 quilting machine needle
- Topstitch 90/14 sewing machine needle



Choosing Your Fabric and Batting

Fabric

Some fabrics are not recommended for use with the quilting machine. Thick fabrics, such as denim or leather, have a lot of resistance that can bend or snap a needle, and misalign or break internal machinery. When quilting, avoid any fabrics that are difficult to pierce, and take care that the fabric layers of the quilt are well balanced .

Batting

To choose the best batting for your project, consider the look and feel of the quilt that you're going for. Batting thickness is measured by its loft. A low loft batting is thinner and lighter, ideal for a quilt with a flatter appearance. High loft batting should be used if a fluffy, full quilt is the goal.

Typically, wool batting is the thickest batting while bamboo is the lightest. Wool provides the most warmth, followed by polyester, and then cotton.

Troubleshooting Guide

Issue	Cause(s)	Solution
Machine won't turn on.	Loose cables	Check that all cables are securely plugged in (page 25).
	Machine is not turned on	Check power button is pressed down on right side (page 25).
	If problem persists, please contact a Grace Company support technician. Call (800) 264-0644 .	
Stitches are skipped.	Damaged needle	Check needle (page 64).
	Machine improperly threaded	Check that all tensioners and guides were threaded correctly (page 35).
	Bobbin wound or threaded incorrectly	Check that the bobbin was inserted the correct direction in the case (page 32).
	Incorrect thread tension	Adjust top thread tension (page 54). Adjust bottom thread tension (page 33).
	Hopping foot incorrect distance from needle plate	Check distance with height gauge. Reinstall hopping foot if incorrect (page 68).
	If problem persists, please contact a Grace Company support technician. Call (800) 264-0644 .	
Thread is breaking.	Damaged needle	Check needle (page 64).
	Incorrect thread tension	Adjust top thread tension (page 54). Adjust bottom thread tension (page 33).
	Machine improperly threaded	Check guides and tensioners for accidental double-wrapping (page 35). Thread mast should be directly over thread stands.
	Stitching in place too long	Keep machine moving to avoid stitch build-up in one place, or switch to regulated precise quilting mode (page 46).

Issue	Cause(s)	Solution
<p>Thread is breaking.</p>	<p>Bobbin inserted incorrectly</p>	<p>Check bobbin is the correct direction in the case and inserted firmly (clicked) into the machine (page 32).</p>
	<p>Debris on tension discs</p>	<p>Clean the machine (page 60).</p>
	<p>Burred bobbin</p>	<p>Check bobbin for sharp edges. Contact your dealer to replace if needed.</p>
	<p>Needle plate is rubbing needle</p>	<p>Check that needle plate is centered and does not hit needle (page 71).</p>
	<p>If problem persists, please contact a Grace Company support technician. Call (800) 264-0644.</p>	
<p>Machine is running loud.</p>	<p>Machine and/or hook assembly needs oiling</p>	<p>Oil the machine and hook assembly (page 60).</p>
	<p>Bobbin winder is on</p>	<p>Check that bobbin cam is in "Off" position (away from Bobbin stand).</p>
	<p>If problem persists, please contact a Grace Company support technician. Call (800) 264-0644.</p>	
<p>Thread is bunching up in hook assembly (bobbin case area).</p>	<p>Bobbin wound or threaded incorrectly</p>	<p>Check that the bobbin was threaded correctly and inserted the correct direction in the case (page 32).</p>
	<p>Machine improperly threaded</p>	<p>Check that all tensioners and guides were threaded (page 35).</p>
	<p>Incorrect thread tension</p>	<p>Adjust top thread tension (page 54). Adjust bottom thread tension (page 33).</p>
	<p>Bobbin case has damaged or missing spring</p>	<p>Check inside bobbin case to see spring. Contact your dealer to replace if needed.</p>
	<p>If problem persists, please contact a Grace Company support technician. Call (800) 264-0644.</p>	

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