

Q'nique16X ELITE

Instruction Manual

Grace
COMPANY

My Machine Details

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

Machine Type: Q'nique 16X Elite

Machine Serial Number: _____

Date of Purchase: _____

What Frame are You Using? _____

Select Which Machine Accessories You Have Purchased:

QuiltMotion

Back Handles

Q'nique Laser Stylus

Magnifique Magnifying Glass

Ruler Base

Quilt Perfect Ruler Feet Kit

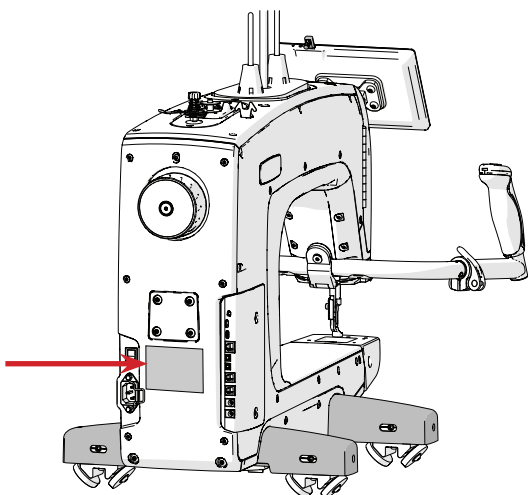
360 Wonder Foot

4 Piece Accessory Hopping Foot

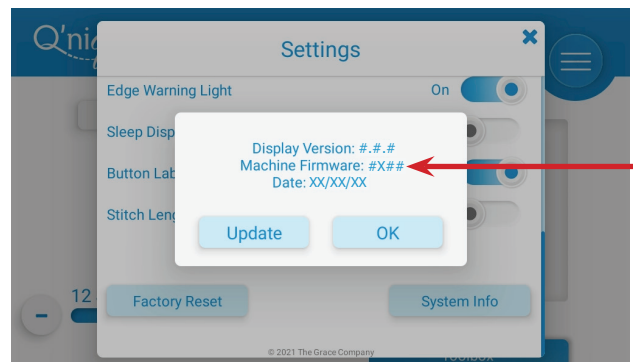
9 Piece Accessory Hopping Foot

Thread Spool Accessory

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



You may also be asked about your machine's firmware version. You can find this on the display after the machine is assembled and turned on. See page 83 for details.



Important Safeguards

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

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

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

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

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

SAVE THESE INSTRUCTIONS!

Do not discard box or packaging.

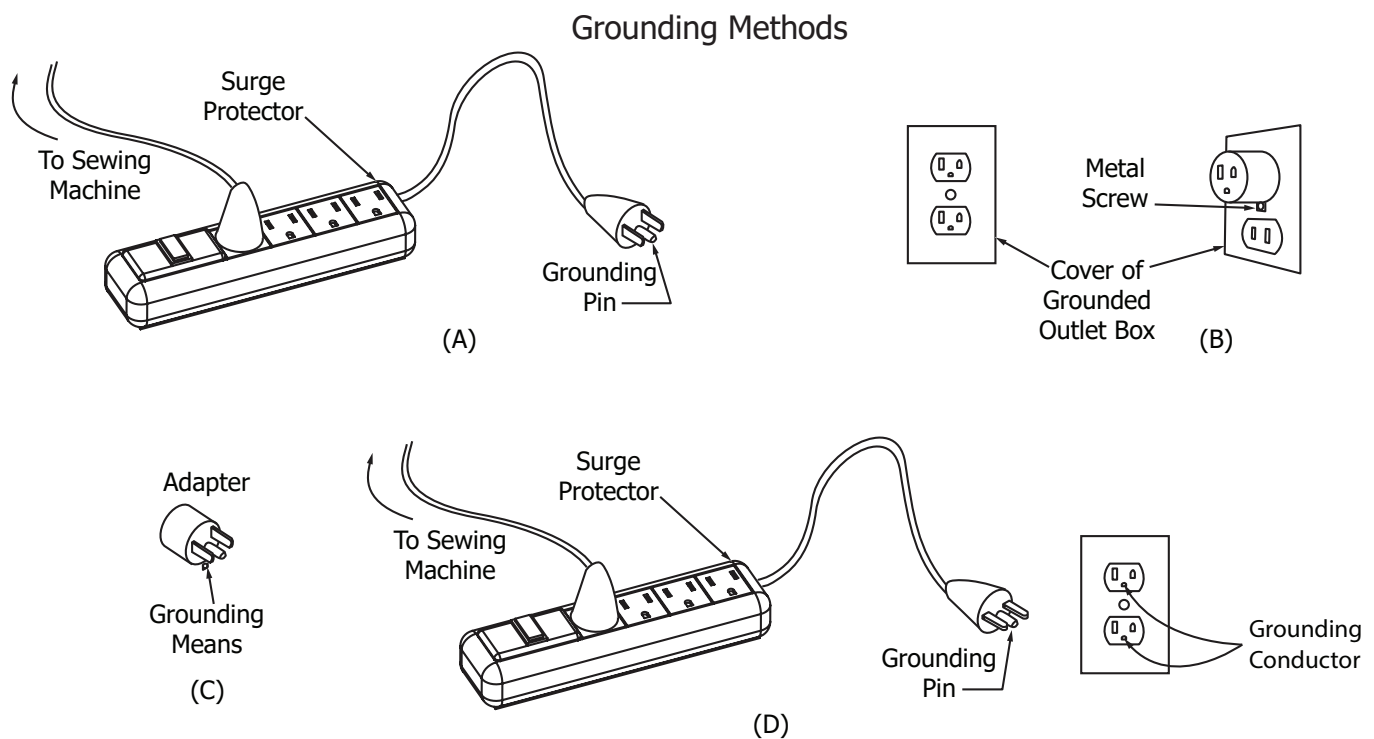
Important Safeguards (continued)

GROUNDING INSTRUCTIONS

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

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

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



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

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

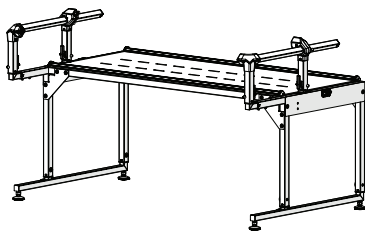
Welcome to Your Q'nique 16X Elite

We are pleased to introduce you to the newest part of your quilting setup. This machine has been especially designed to help quilters like you have the tools available to create quality projects.

This manual is broken into four sections (or parts). Notifications at the end of each section will direct you to switch to your frame manual or QuiltMotion manual for instructions on assembling those products. This creates a streamlined process of building a complete quilting setup in the most efficient way. Use the following flowchart to guide you in navigating multiple manuals. If you are not using one of the products in the flowchart, just move to the next item in the chart.

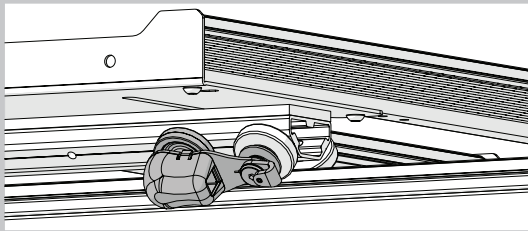
Thank you again for choosing us to help with your quilting projects.

- Grace Company



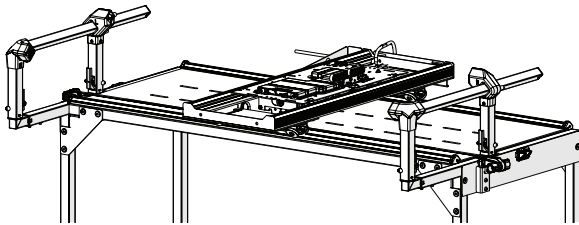
Start Here: Frame Manual: Part One

- Assemble the frame's legs, table, and sides.
- Install the channel lock onto the bottom carriage.
- Align your tracks.



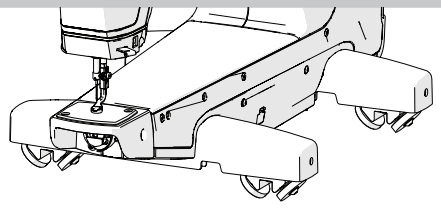
Quilting Machine Manual: Part One

- Install the lower encoder onto the bottom carriage.



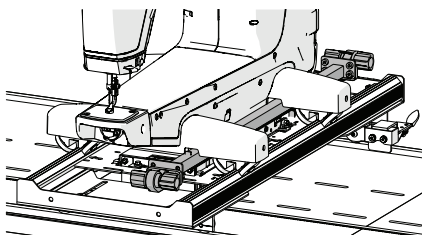
QuiltMotion Manual: Part One

- Prepare the bottom carriage.
- Install the long belt across the frame.



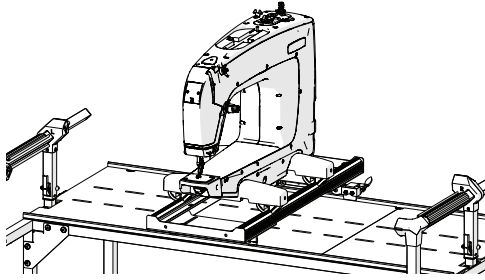
Quilting Machine Manual: Part Two

- Install your machine's wheels.
- Align your wheels.



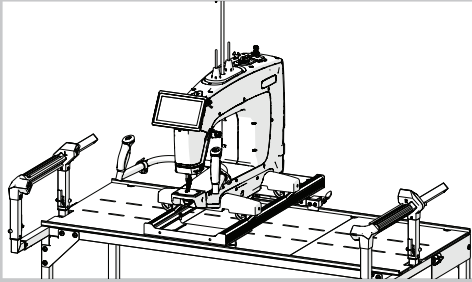
QuiltMotion Manual: Part Two

- Install the short belt.
- Tension the short belt.



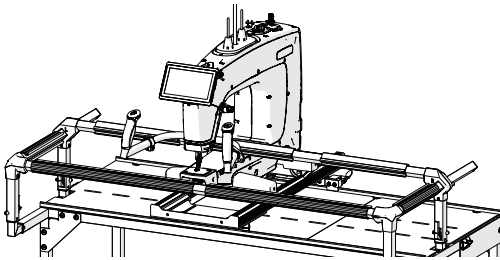
Frame Manual: Part Two

- Install the channel lock on the machine or top plate.
- Prepare the top plate and home sewing machine.
- Place the machine or top plate on the frame.



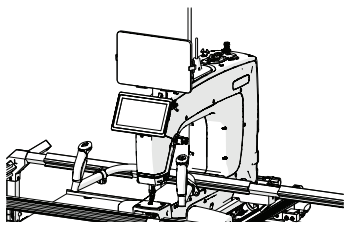
Quilting Machine Manual: Part Three

- Install the display, handles, and thread mast.
- Install the upper encoder.



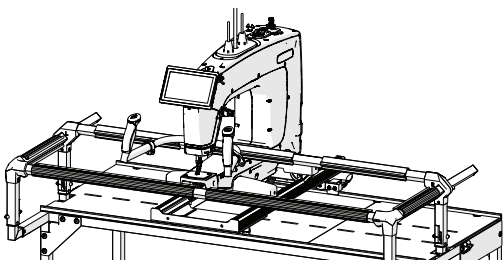
Frame Manual: Part Three

- Install the rails and fabric bungees.
- Position and adjust the rails.
- Adjust the carriage stop.
- Level the frame.



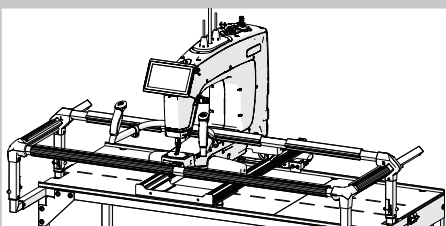
QuiltMotion Manual: Part Three

- Install the tablet bracket.
- Plug in QuiltMotion.



Frame Manual: Part Four

- Install the velcro tape
- Install the cloth leaders
- Attach the fabric



Quilting Machine Manual: Part Four

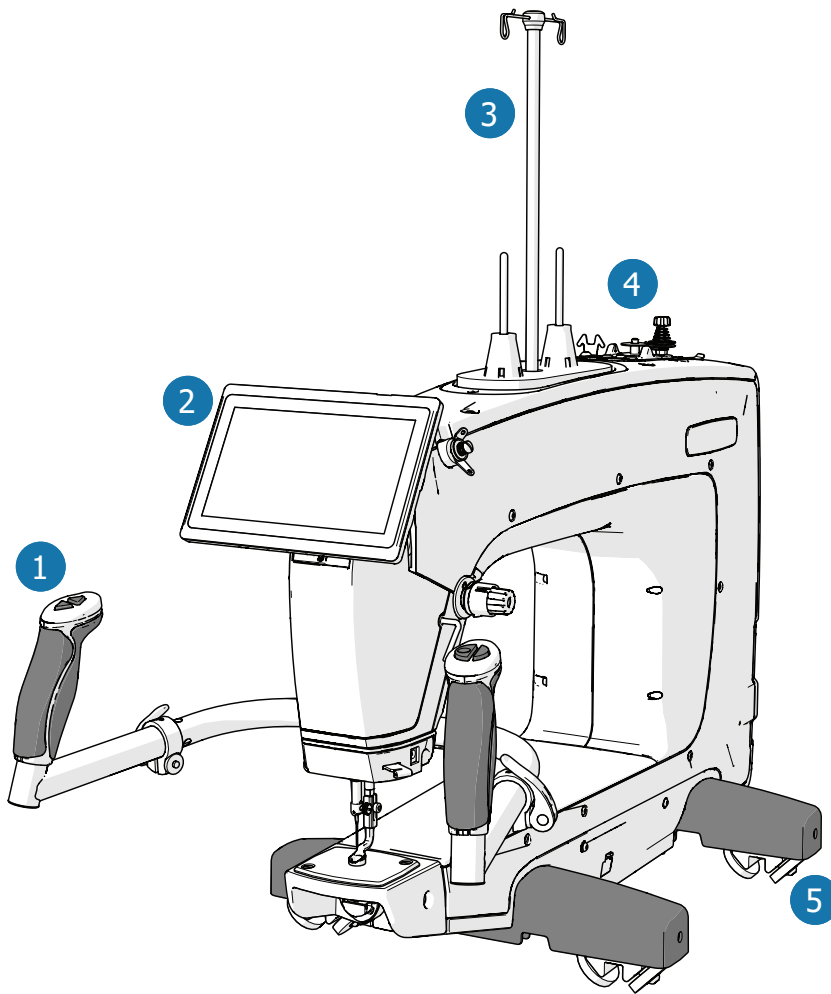
- Use the quilting modes and settings in the display.
- Maintain the machine and perform repairs.

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Machine Specifications

Patents Pending



Product Dimensions

Body:

- Height: 781.05 mm, or 30.75 inches
- Width: 381 mm, or 15 inches
- Length: 820 mm, 32.3 inches
- Weight: 21.5 kg, or 47.5 lbs

Quilting Arm:

- Height: 210.8 mm, or 8.3 inches
- Length: 406.4 mm, or 16 inches

Electrical

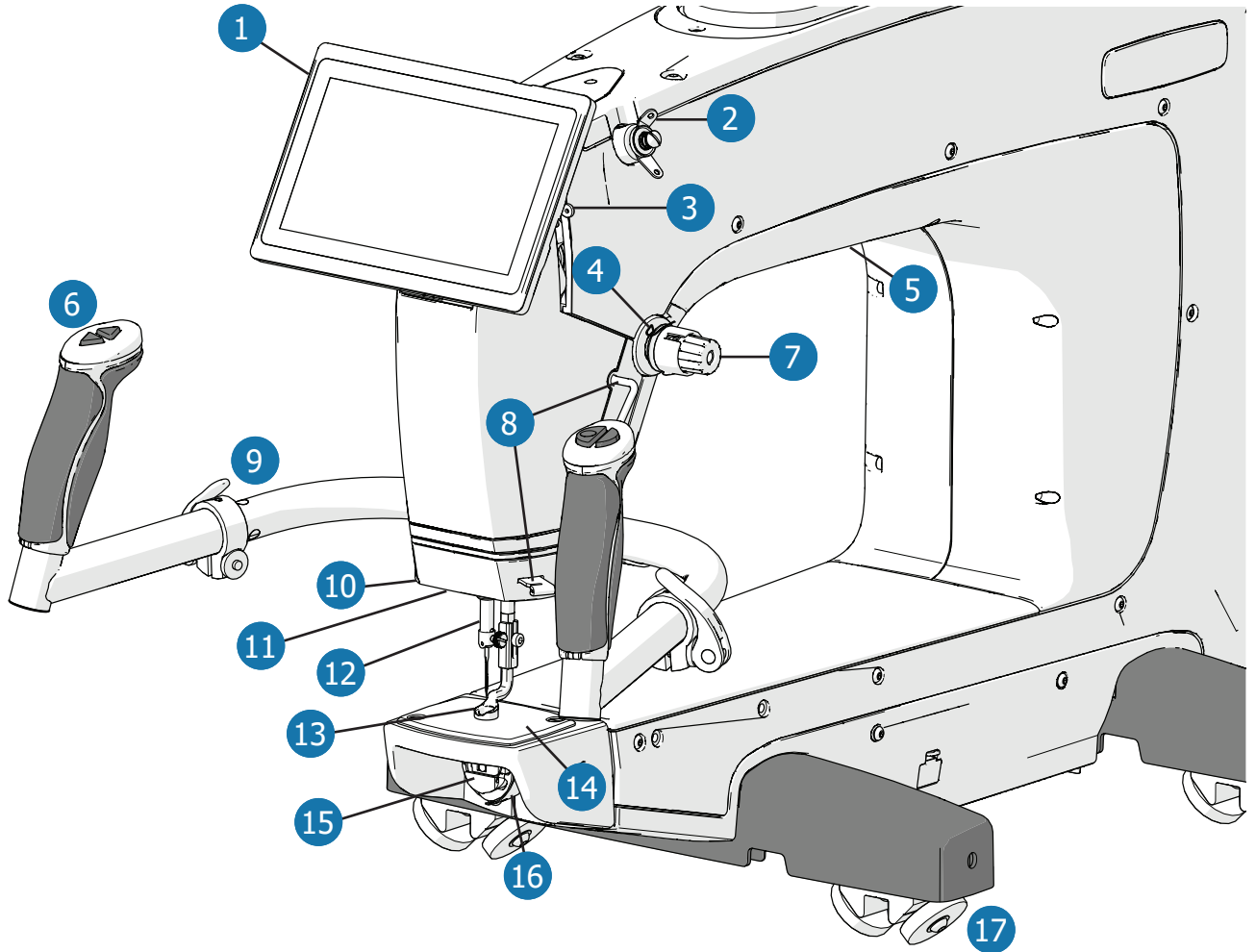
- Input Voltage: 115/230 VAC
- Peak Power Consumption: 350 W

Features

- 1 Adjustable handles for comfortable extended use (page 14)
 - 2 7" Touch Display (page 17)
 - 3 Dual thread mast and stands for quilting and winding bobbin at the same time
 - 4 Built-in bobbin winder (page 25)
 - 5 Dual wheels for stability (page 8)
- Stitches per minute (SPM) range of 90 to 2000 stitches
 - Regulated stitching
 - Quilt-edge warning feature

Machine Layout

Quilting Machine (Front View)



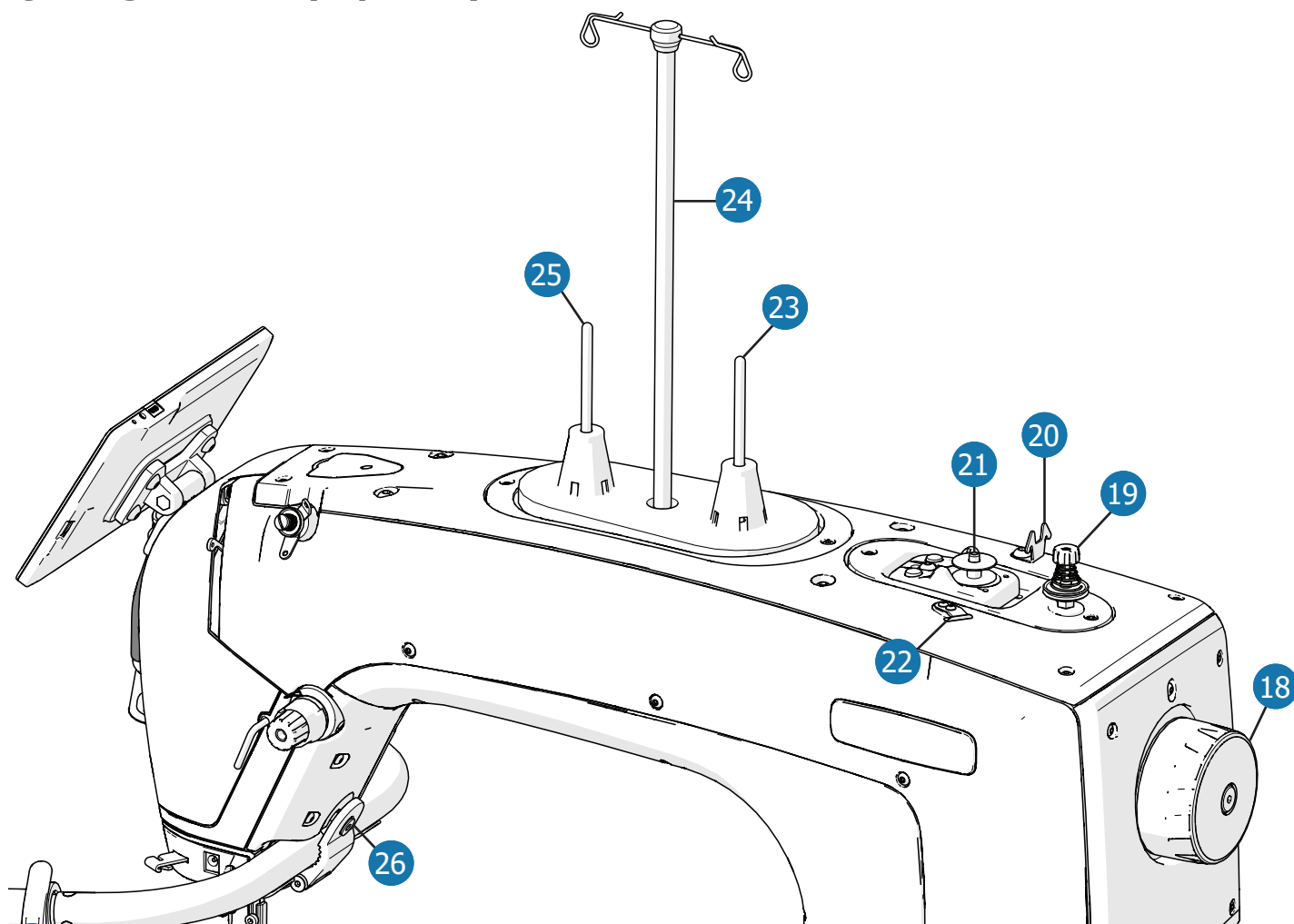
- 1 7" Touch Display** (page 17)
Provides access to quilting options.
- 2 Small Thread Tensioner** (page 30)
Tensions thread when quilting.
- 3 Take-Up Lever** (page 30)
Tensions thread when quilting.
- 4 Tensioner Check Spring** (page 30)
Applies additional tension to thread.
- 5 Throat Lights** (page 40)
Lights up sewing area when machine is on.
- 6 Handlebar Controls** (page 42)
Controls machine functions.
- 7 Large Thread Tensioner** (page 30)
Tensions thread as adjusted when quilting.
- 8 Thread Guides** (page 30)
Positions thread when quilting.
- 9 Handle Bar Levers** (page 14)
Used to adjust handle position.
- 10 Lamp** (page 40)
Lights up needle area when machine is on.
- 11 Thread Cutter** (page 30)
Cuts excess thread from threading machine.
- 12 Needle Bar** (page 30)
Holds the needle when quilting.
- 13 Hopping Foot** (page 75)
Presses fabric down when quilting.
- 14 Needle Plate** (page 78)
Covers top of hook assembly.

15 Bobbin Case (page 28)
Holds M class bobbin and controls bottom thread tension.

16 Hook Assembly (page 28)
Holds the bobbin case and hooks the top thread to create stitches.

17 Machine Wheels (page 8)
Shuttles the machine up and down the bottom carriage.

Quilting Machine (Top View)



18 Hand Wheel
Raises and lowers the needle bar.

19 Bobbin Thread Tensioner (page 25)
Tensions thread when winding a bobbin.

20 Bobbin Thread Guide (page 25)
Guides thread to the bobbin thread tensioner.

21 Bobbin Stand (page 25)
Holds the bobbin for winding.

22 Bobbin Thread Cutter (page 25)
Cuts wound bobbin thread.

23 Bobbin Winder Thread Stand (page 25)
Holds a cone of thread for winding bobbin.

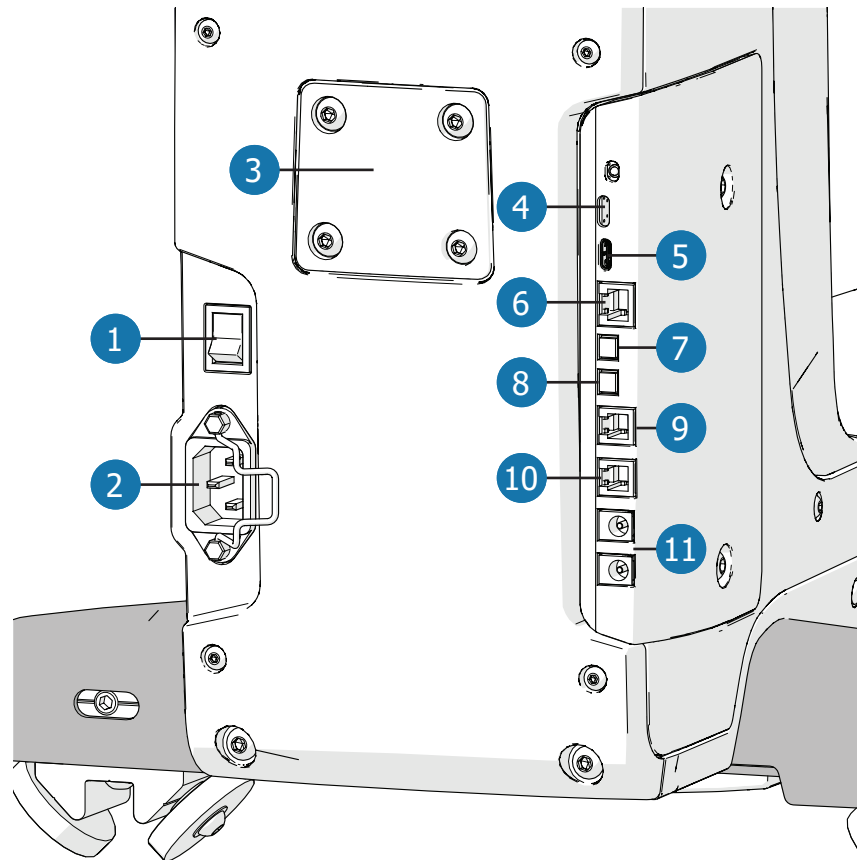
24 Thread Mast (page 19)
Guides thread when quilting.

25 Top Thread Stand (page 30)
Holds a thread cone for threading machine.

26 Handle Bar Clamp (page 14)
Used to adjust handlebar position.

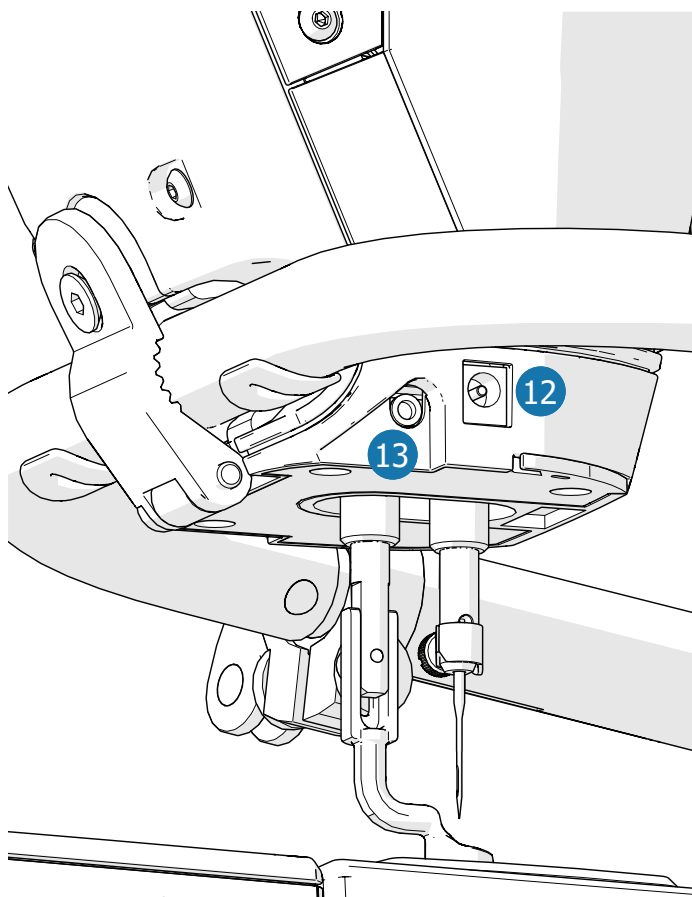
Ports and Plugins

Machine Rear (Rear View)



- 1 Power On/Off Switch** (page 22)
Turns machine on and off.
- 2 Power Port with Retainer** (page 22)
Connects and holds power cable to the machine.
- 3 Back Handle Mount Cover**
For mounting the back handle accessory.
- 4 USB Connector Port**
For 7 inch back handles display and for updating.
- 5 USB Connector Port**
For 2.4 inch back handles display.
- 6 Quilt Motion Tablet Port**
For optional automation accessory.
- 7 Left Rear Handle Cable Port**
For back handle accessory.
- 8 Right Rear Handle Cable Port**
For back handle accessory.
- 9 Lower Encoder Port** (page 20)
Connects encoders to machine.
- 10 Upper Encoder Port** (page 20)
Connects encoders to machine.
- 11 Accessory Ports**
For laser accessory.

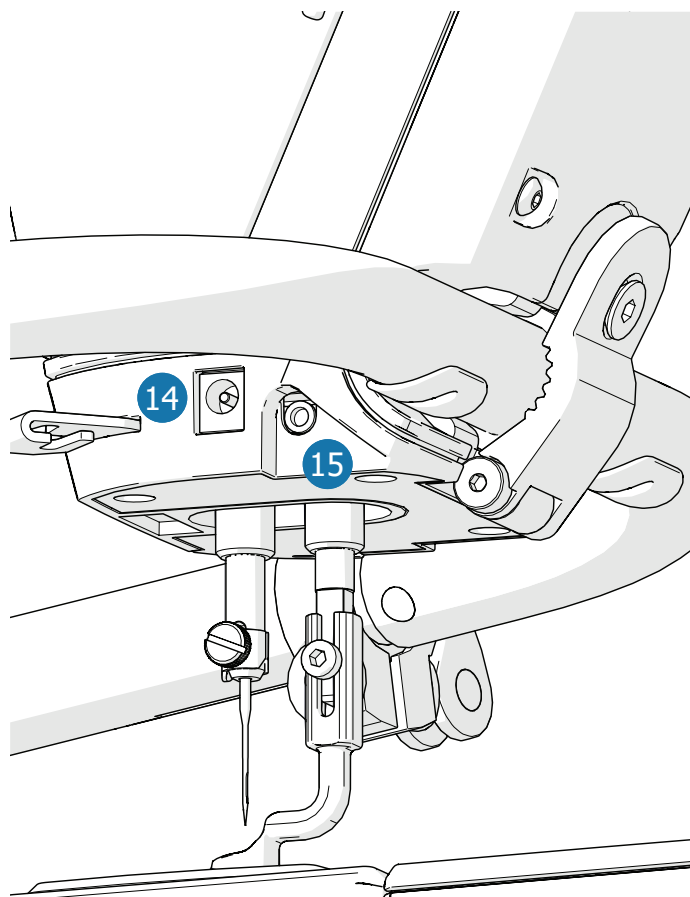
Machine Throat Left



12 Left Accessory Port
For laser accessory.

13 Left Handlebar Port (page 14)
Connects handlebar controls to machine.

Machine Throat Right



14 Right Accessory Port
For laser accessory.

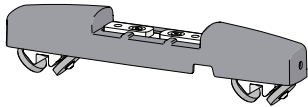
15 Right Handlebar Port (page 14)
Connects handlebar controls to machine.

Included Parts and Tools

Level One (Workstation)

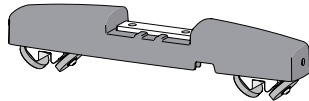
Tip: Parts are grouped together in the packaging for your convenience. For the best experience, do not remove parts from the packaging until instructed to do so.

Back Wheel Assembly



SMP-09-16244
See page 8

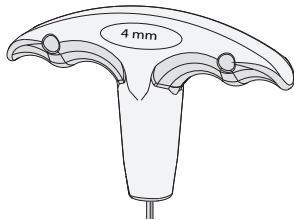
Front Wheel Assembly



SMP-09-16239
See page 8

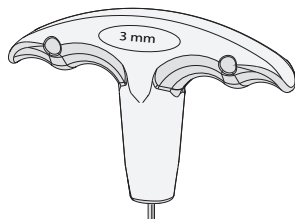
Tools Box

T-handle Allen Wrench 4 mm



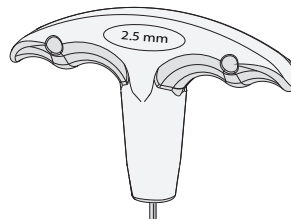
HDW-03-13114

T-handle Allen Wrench 3 mm



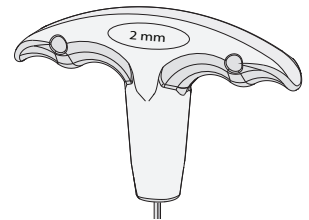
HDW-03-13115

T-handle Allen Wrench 2.5 mm



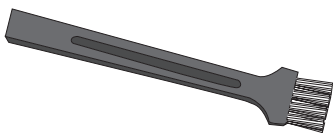
HDW-03-13116

T-handle Allen Wrench 2 mm



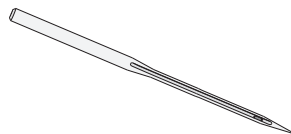
HDW-03-13117

Lint Brush



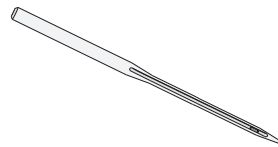
SMP-03-10170
See page 69

Needle Size 18 (one 10 pack) (one pre-installed)



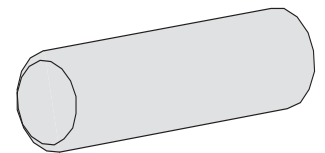
ACC-01-14517
See page 73

Needle Size 16 (one ten pack)



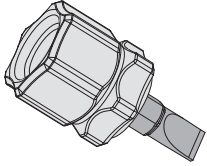
ACC-01-14516
See page 73

Needle Magnet



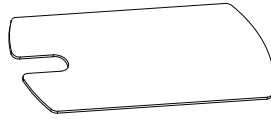
SMP-09-13837
See page 73

**Flat-head
Screwdriver**



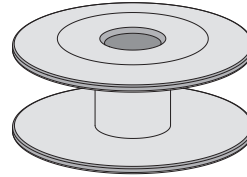
SMP-03-10169
See page 78

**Hopping Foot
Height tool**



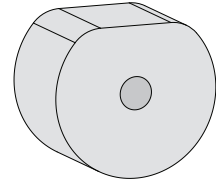
SMP-03-12171
See page 75

**M Class Bobbin (x3)
(Two pre-installed)**



SMP-08-10070
See page 25

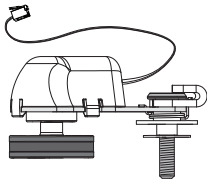
**Timing
Spacer Tool**



SMP-03-11320
See page 90

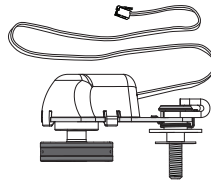
Encoder Box

**Upper Encoder
(silver spring)**



SMP-09-15701
See page 20

**Lower Encoder
(black spring)**



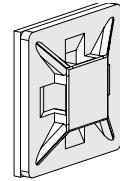
SMP-09-15700
See page 2

Zip Tie (x2)



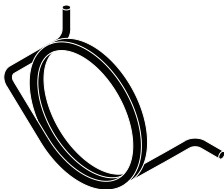
MIS-08-10804
See page 22

Zip Tie Mount (x2)



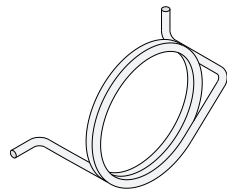
MIS-08-10805

**Lower Encoder
Spring (black)**



HDW-03-10671
See page 84

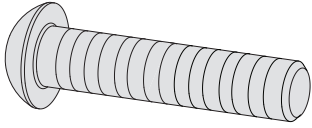
**Upper Encoder
Spring (silver)**



HDW-03-10216
See page 84

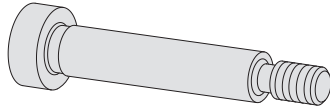
Wheel Base Hardware Box

**SBHCS Screw
M6 x 35 mm (x2)**



HDW-03-10738
See page 8

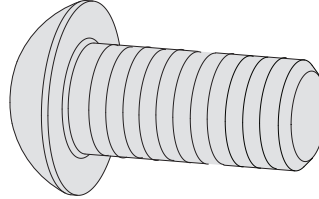
**Shoulder Bolt
M6 (x2)**



HDW-03-10541
See page 8

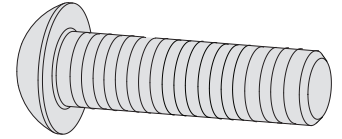
Thread Stand Hardware Box

**SBHCS Screw
M4 x 12 mm (x3)**



HDW-03-14247
See page 19

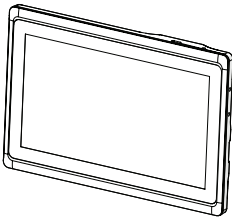
**SBHCS Screw
M4 x 20 mm (x1)**



HDW-03-11661
See page 19

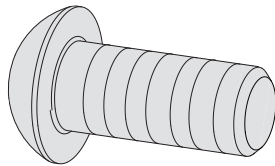
Display Box

**7-Inch Touch
Display**



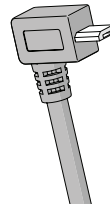
SMP-09-16754
See page 17

**SBHCS Screw
M5 x 16 mm (x2)**



HDW-03-10857
See page 17

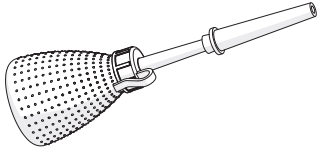
Display Cable



SMP-02-16412
See page 17

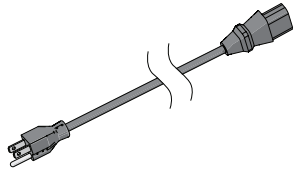
Power Cord/Oil Bottle Box

Oil Bottle



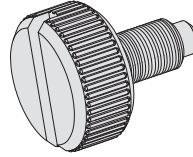
SMP-09-13888
See page 68

Power Cord



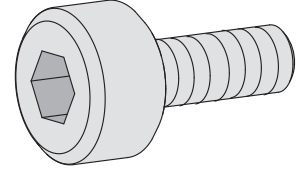
SMP-02-14466
See page 22

M3 Thumb Screw
(needle bar spare)



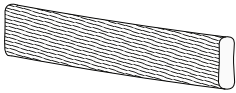
HDW-03-11736
See page 73

Hopping Foot Screw



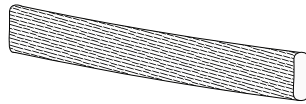
HDW-03-10966
See page 75

Thread Net
10cm (x2)



SMP-08-17315
See page 35

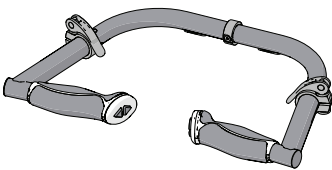
Thread Net
14cm (x2)



SMP-08-17313
See page 35

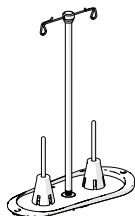
Level Two

Handlebar Assembly



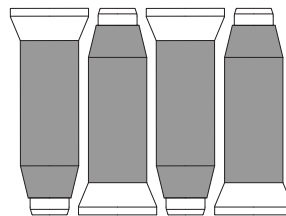
SMP-09-14066
See page 14

Thread Stand Assembly



SMP-09-16235
See page 19

Sample Thread Kit



MIS-11-16122

Animated Instructions

To provide the best possible customer experience, we also offer animated video instructions for setting up this product. To view the animated instructions, visit our website at:

<https://l.ead.me/16xelitestart>.

You can also use your smartphone to scan this QR code:



Out-of-the Box Assembly

This section of the manual covers all the steps to assemble the machine after you bring it home for the first time.

Task 1 - Installing the Lower Encoder	page 2
Task 2 - Installing the Wheels	page 8
Task 3 - Installing the Handlebars	page 14
Task 4 - Connecting the Display	page 17
Task 5 - Attaching the Thread Stand.....	page 19
Task 6 - Installing the Upper Encoder	page 20
Task 7 - Turning the Machine On/Off	page 22

Part One

Before completing the tasks in Part One of your machine instructions, please complete Part One of your frame instructions.

Progress Checkpoint:

Have you:

- Assembled your frame's legs and table?
- Installed and align the frame tracks?
- Installed the channel lock on the bottom carriage?
- Installed the rail supports?

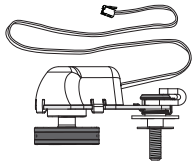
Note: Do not install the rails at this time.

If you've already fully assembled your frame, uninstall your frame's take-up rail.

Task 1 - Installing the Lower Encoder

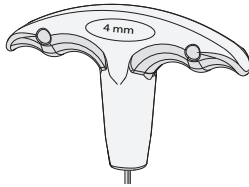
Parts & Tools Needed:

Lower Encoder
(black spring)



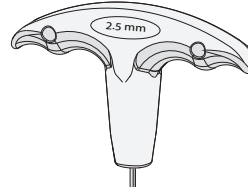
Encoder Box

T-handle Allen
Wrench 4 mm



Tools Box

T-handle Allen
Wrench 2.5 mm

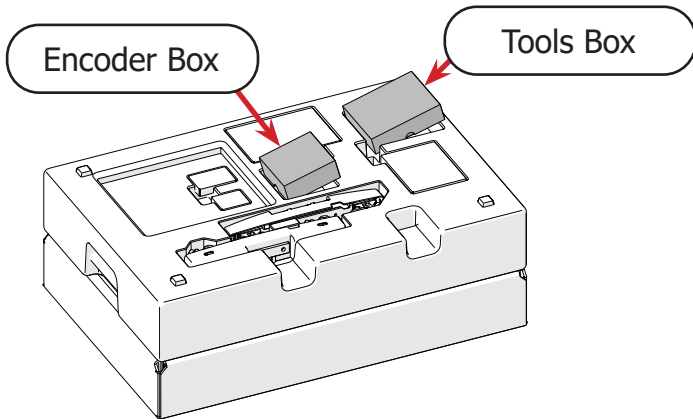


Tools Box

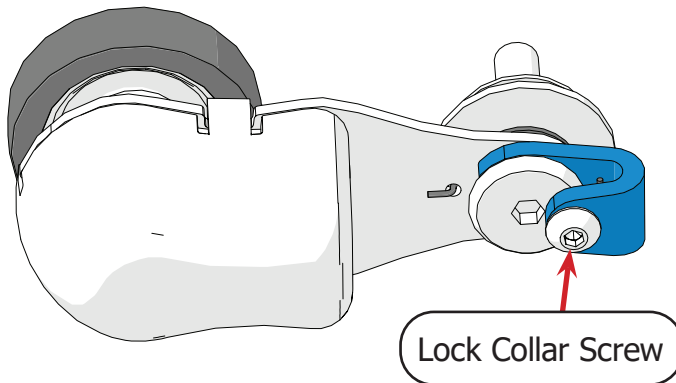
Instructions

The encoders monitor the position of the machine over the frame, allowing for regulated stitching. The lower encoder is installed on the left-rear wheel of your frame's bottom carriage. Please take the following steps to install the encoder onto the bottom carriage:

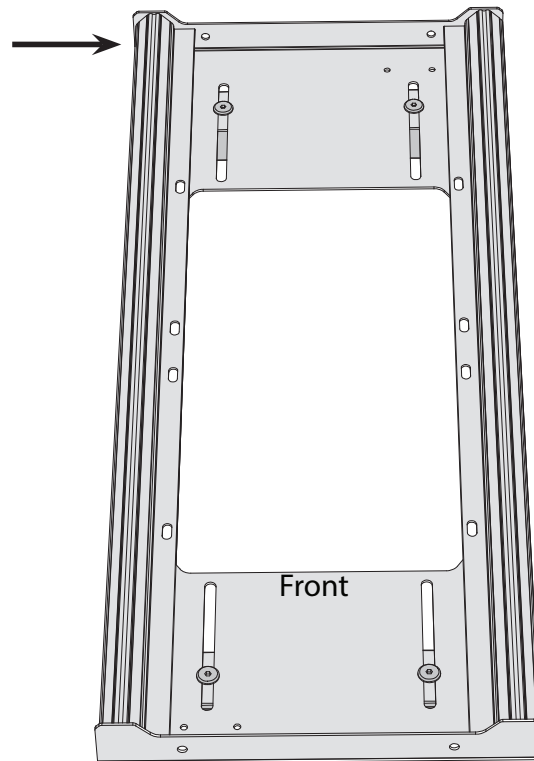
- 1 The parts and tools needed for this step are located in the **encoder and tools boxes**. The lower encoder has the black spring and green sticker.



- 2 Loosen the **lock collar screw** on the lower encoder with the 2.5 mm Allen wrench until the **lock collar** (shown in blue) turns freely.



- 3 Locate the back left wheel of your bottom carriage. **Note:** If needed, review your frame assembly manual to determine the front of the bottom carriage.

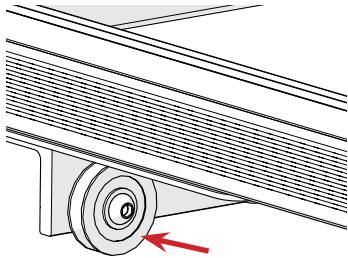


Note: Bottom carriage appearance will vary by model.

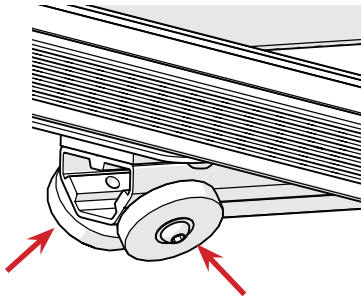
Task 1 - Installing the Lower Encoder (continued)

- 4 For the following steps, know whether your bottom carriage is dual-wheel (two wheels at each corner) or single-wheel (one wheel at each corner). If it is dual-wheel, does it have large wheels or small wheels?

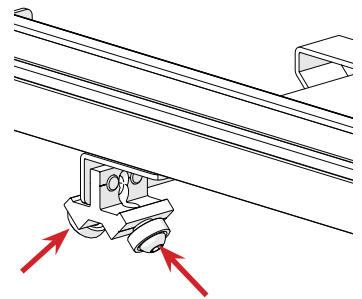
Single-Wheel Carriage
(large wheels)



Dual-Wheel Carriage
(large wheels)



Dual-Wheel Carriage
(small wheels)



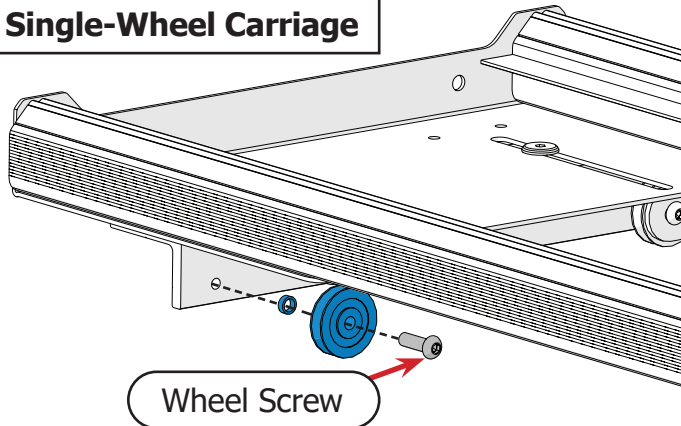
OR

OR

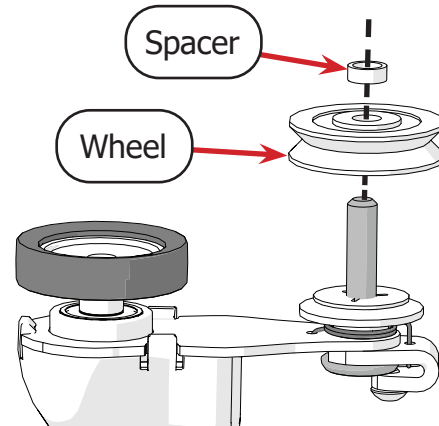
- 5 **For large wheel carriages:** Use the 4 mm Allen wrench to remove the left rear **wheel** from the bottom carriage and install it onto the encoder screw. The **wheel screw** will not be needed again and can be stored with the packaging materials.

For single-wheel carriages, place the **spacer** on the encoder after the **wheel**.

Single-Wheel Carriage



Wheel Screw

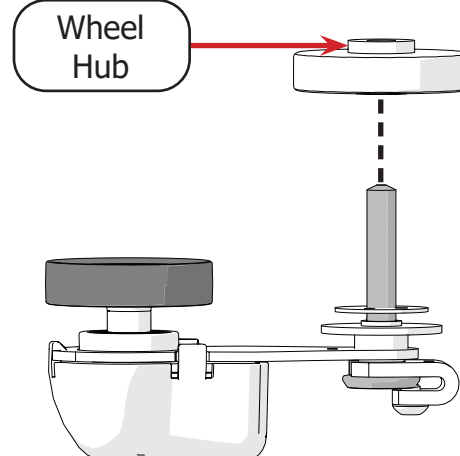
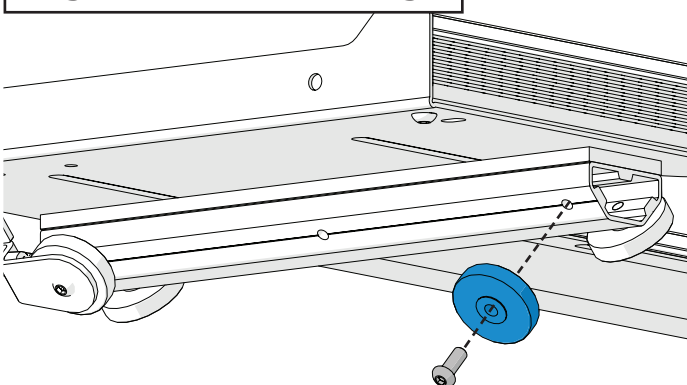


Spacer

Wheel

On large dual-wheel carriages, remove the **outward-facing wheel** (shown in blue) and place the wheel onto the encoder screw so the **wheel hub** faces away from the encoder.

Large Dual-Wheel Carriage

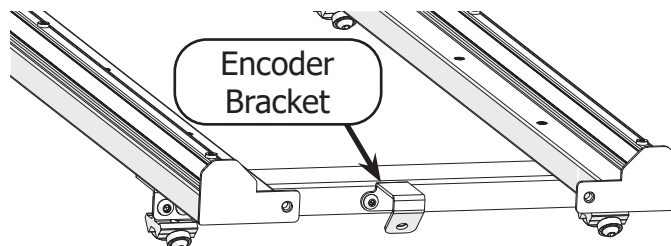


Wheel Hub

Task 1 - Installing the Lower Encoder (continued)

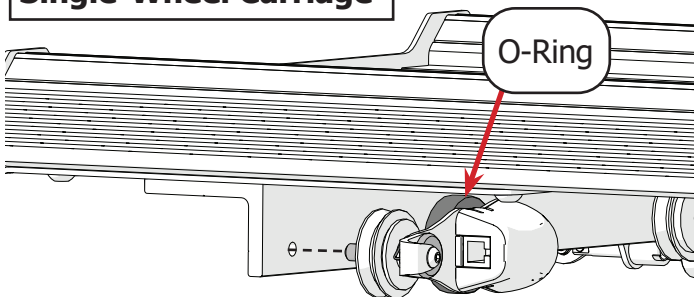
For the small, dual-wheel bottom carriage: Do not remove the wheels. Ensure the lower encoder bracket has been installed on the back of your bottom carriage. These steps are covered in your frame instruction manual.

Small Dual-Wheel Carriage

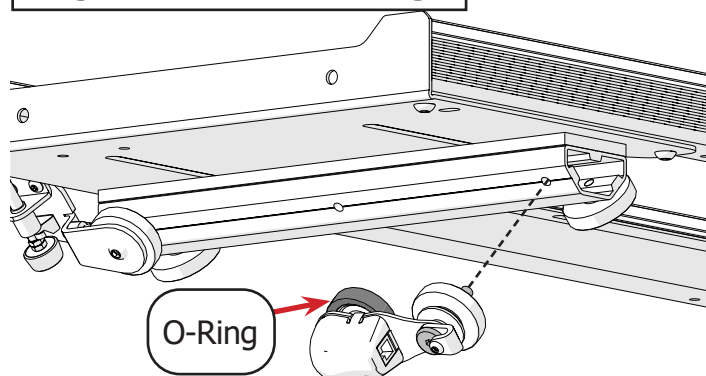


- 6 For the large wheel bottom carriages:** With the 4 mm Allen wrench, screw the encoder into the left rear wheel hole on the carriage so the **O-ring** is between the rear wheels.

Single-Wheel Carriage

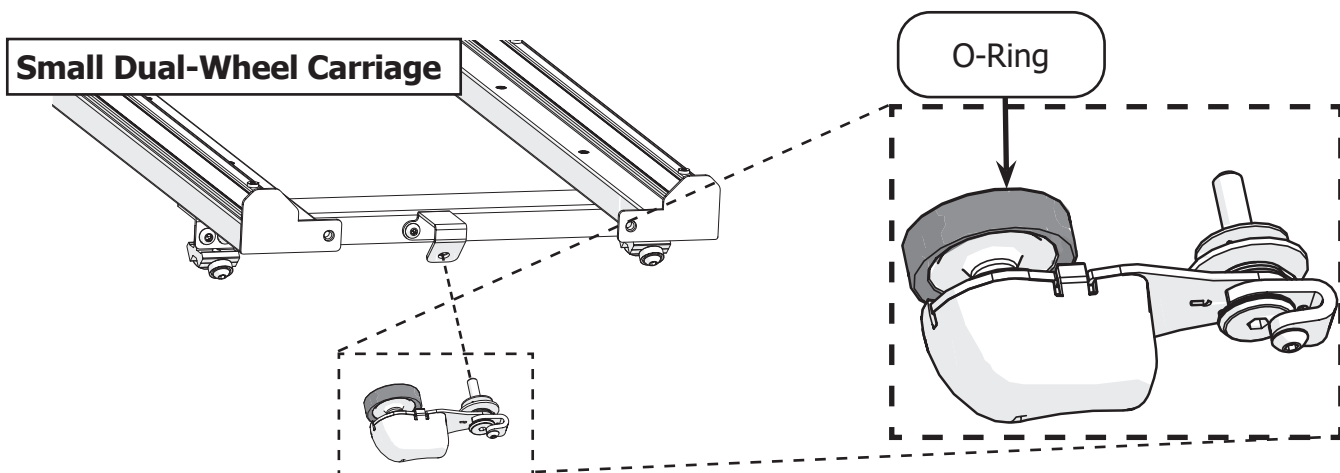


Large Dual-Wheel Carriage



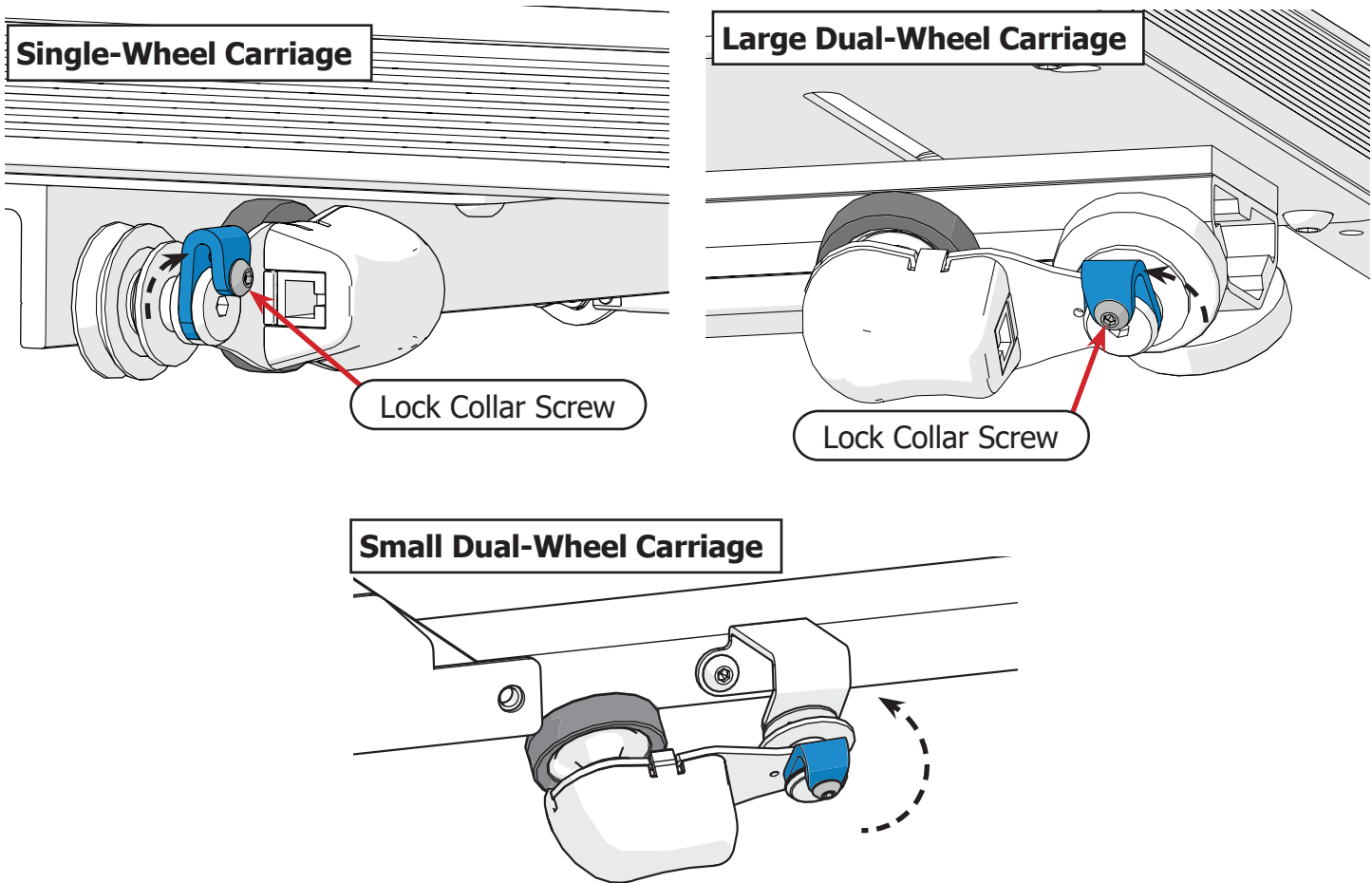
For the small, dual-wheel bottom carriage: Install the encoder directly onto the encoder bracket at the rear of the carriage so the **O-ring** is to the left of the bracket. Tighten with the 4 mm Allen wrench.

Small Dual-Wheel Carriage

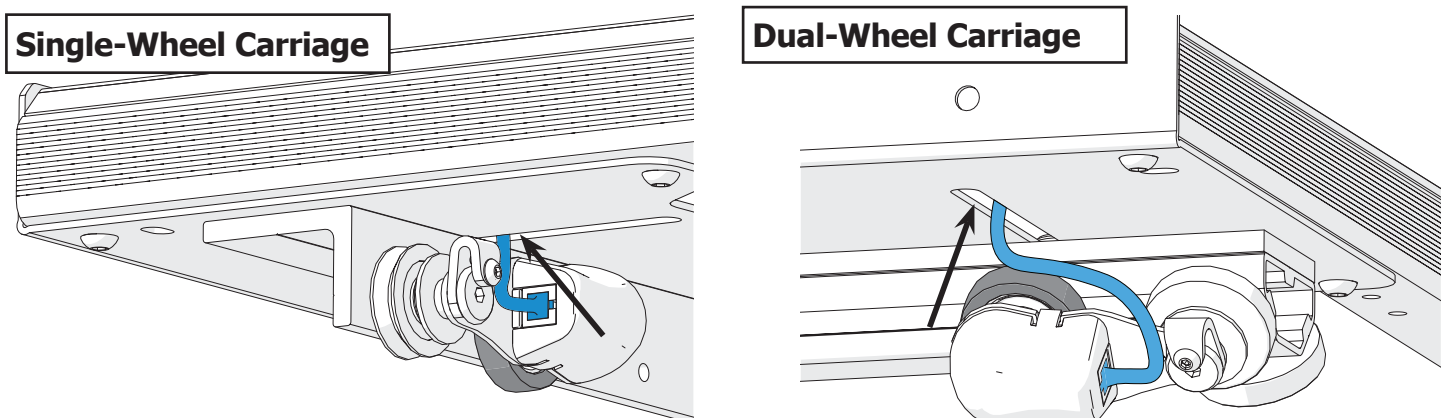


Task 1 - Installing the Lower Encoder (continued)

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



- 8 **For the large wheel bottom carriages:** Take the free end of **encoder cable** (shown in blue) and pull it through the slot in the bottom carriage behind the wheels.



Note: For the small dual-wheel carriage this step is not needed.

Note: Instructions for plugging the cable into the machine are covered in “Task 6 - Installing the Upper Encoder” after the machine has been installed.

Congratulations! You have completed Part One of this manual.

If you are also installing QuiltMotion, complete Part One of your QuiltMotion manual.

If you are not installing QuiltMotion at this time, continue to Part Two of this manual on page xx.

Part Two

Before completing the tasks in Part Two of your machine instructions, please complete Part One of your QuiltMotion instructions if you will be installing automation today.

Progress Checkpoint:

QuiltMotion Manual Part One (optional)

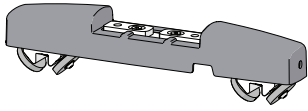
Have you:

- Installed the motor plate into your bottom carriage?
- Installed the long belt onto your frame?

Task 2 - Installing the Wheels

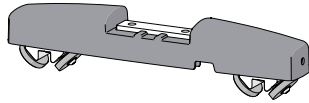
Parts & Tools Needed:

Back Wheel Assembly



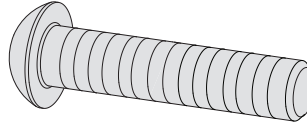
Packaging Level One

Front Wheel Assembly



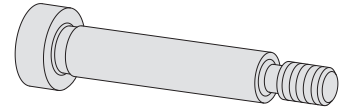
Packaging Level One

**SBHCS Screw
M6 x 35 mm (x2)**



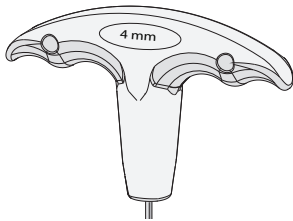
Wheel Install
Hardware Box

**Shoulder Bolt
M6 (x2)**



Wheel Install
Hardware Box

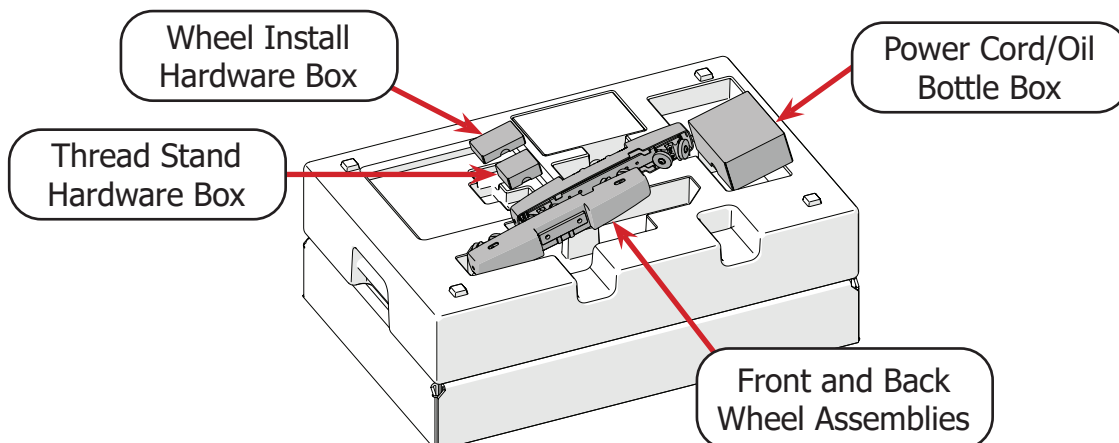
**T-handle Allen
Wrench 4 mm**



Instructions

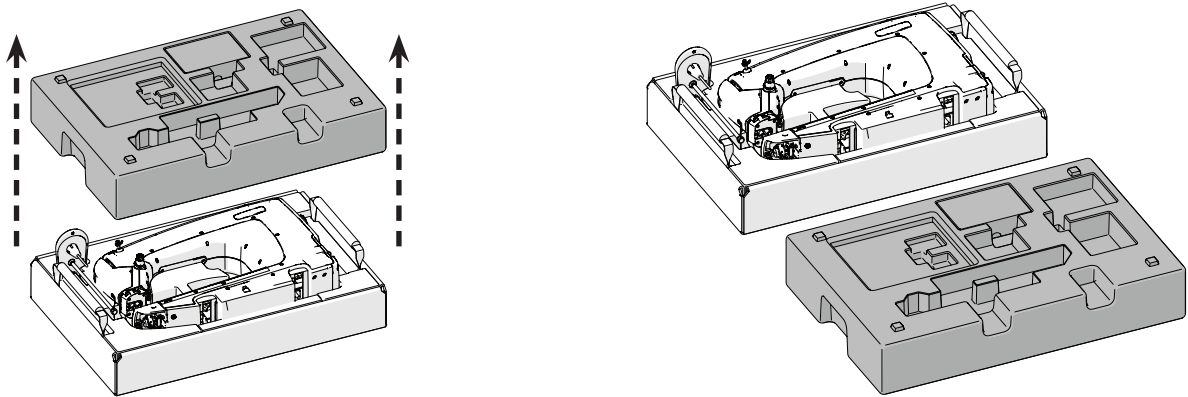
Take the following steps to install the wheels on the bottom of the machine:

- 1 Remove the **front and back wheel assemblies**, the **wheel install hardware box**, the **power cord/oil bottle box**, and the **thread stand hardware box** from the top layer of packaging. Set them aside with the encoder and hardware boxes.



Task 2 - Installing the Wheels (continued)

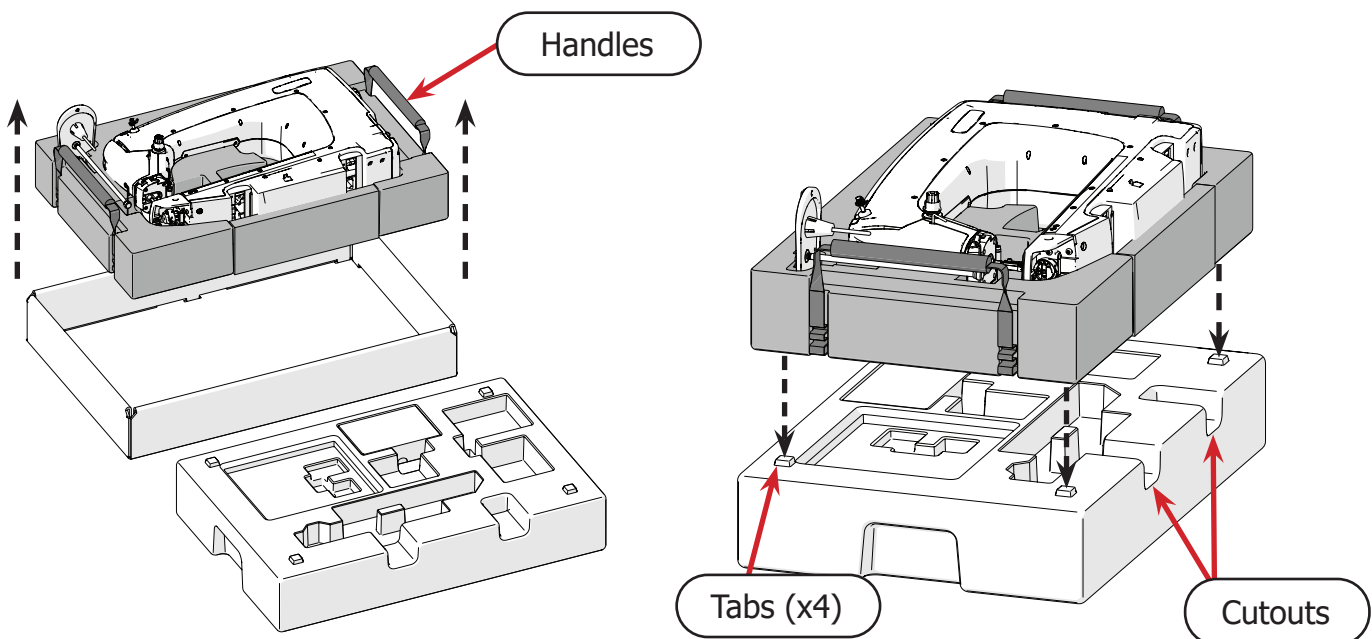
- 2 Lift the top layer of packaging and place it beside the bottom layer that holds the machine.



- 3 Use the **handles** to lift the bottom layer of packaging out of the box. Make sure to place it on top of the first layer of packaging so that the following items are lined up correctly:

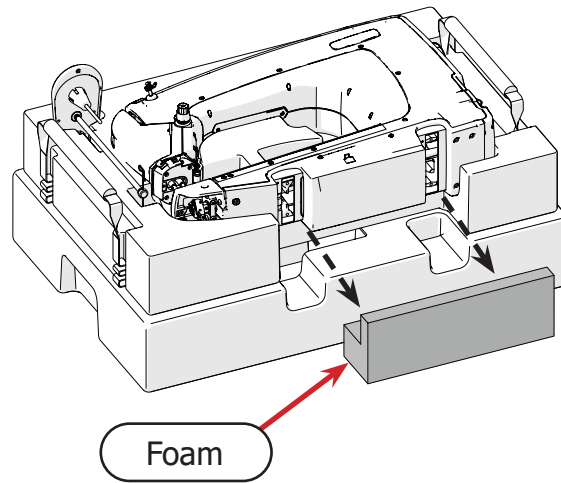
- The bottom of the machine is over the **cutouts** in the side of the first layer of foam
- The holes in the bottom corners line up with the **tabs** on the top of the first layer of foam

Note: To avoid risk of injury to yourself or damage to the machine, it is highly recommended that this step be completed with two people, one lifting each side of the second layer of packaging.

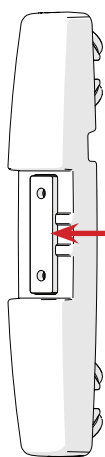


Task 2 - Installing the Wheels (continued)

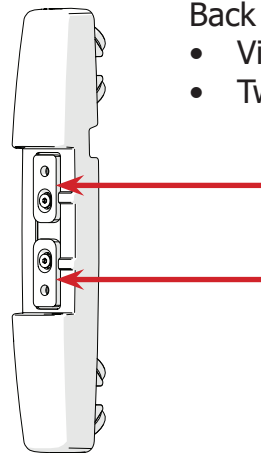
4 Remove the piece of **foam** covering the bottom of the machine.



5 Identify which wheel assembly is for the front and which is for the back.

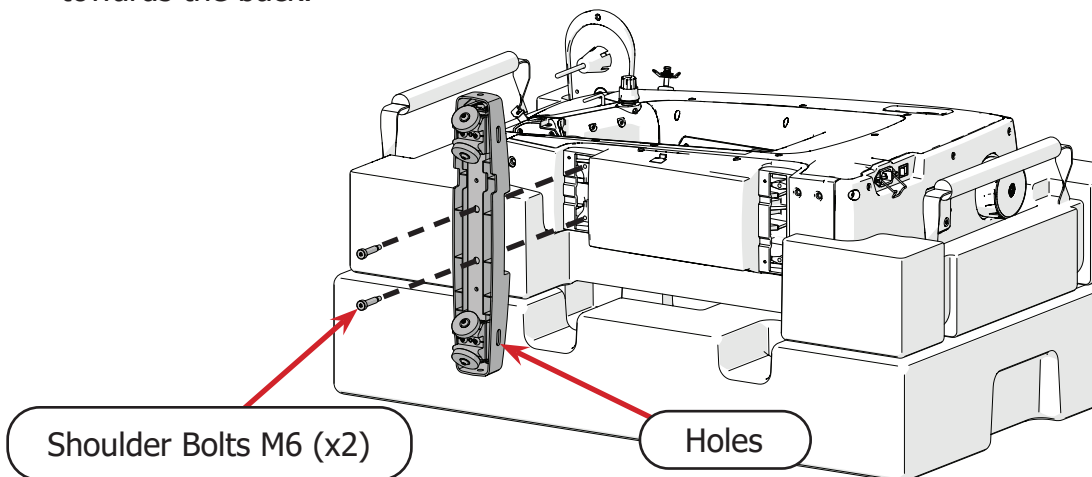


- Front Wheel Assembly:
- No visible screws on top
 - One rubber spacer



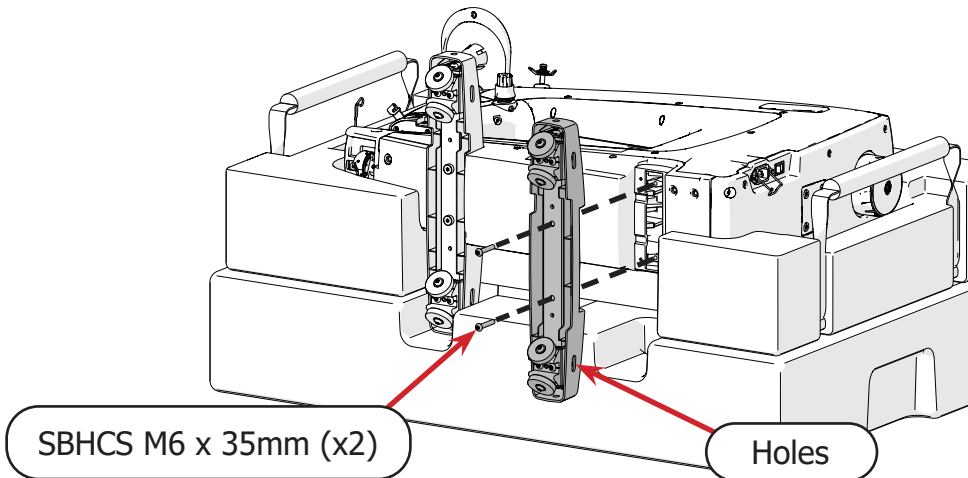
- Back Wheel Assembly:
- Visible screws on top
 - Two metal spacers

6 Attach the front wheel assembly to the bottom of the machine with the two **M6 shoulder bolts** and the 4 mm Allen wrench. Make sure the **holes** in the back of the wheel assembly are facing towards the back.

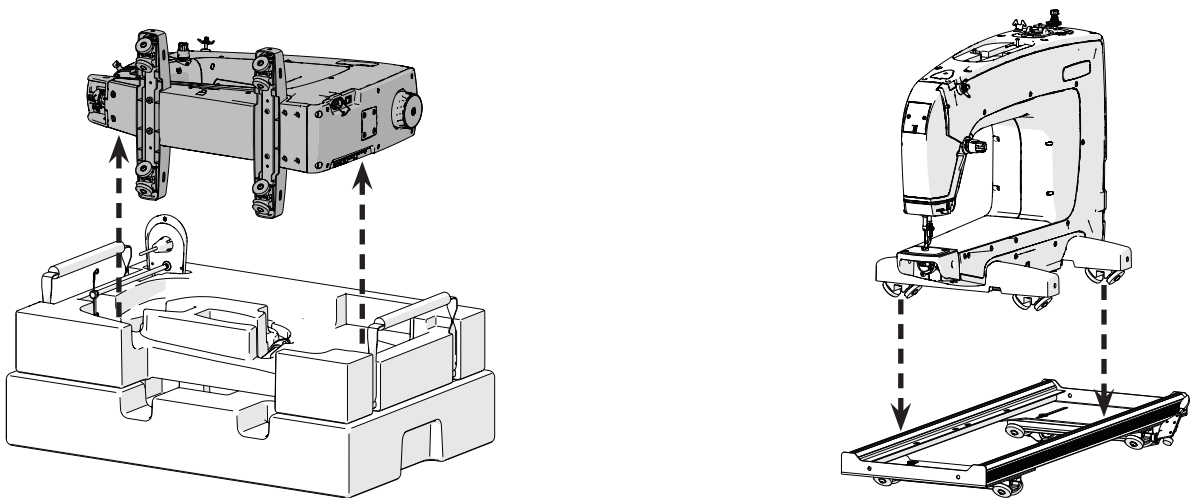


Task 2 - Installing the Wheels (continued)

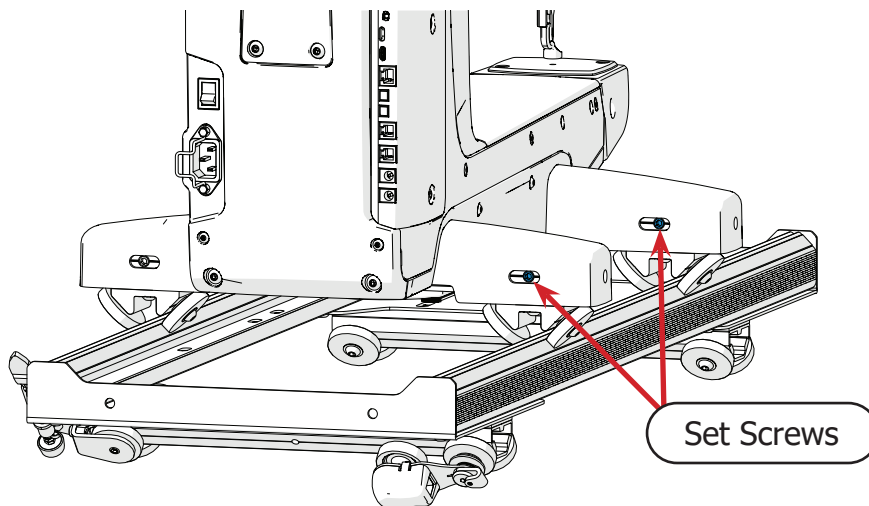
- 7 Attach the back wheel assembly to the bottom of the machine with the two **M6 x 35 SBHCS** and the 4 mm Allen wrench. Make sure the **holes** in the back of the wheel assembly are facing towards the back.



- 8 Remove the machine from the packaging and place it on the bottom carriage on the frame.

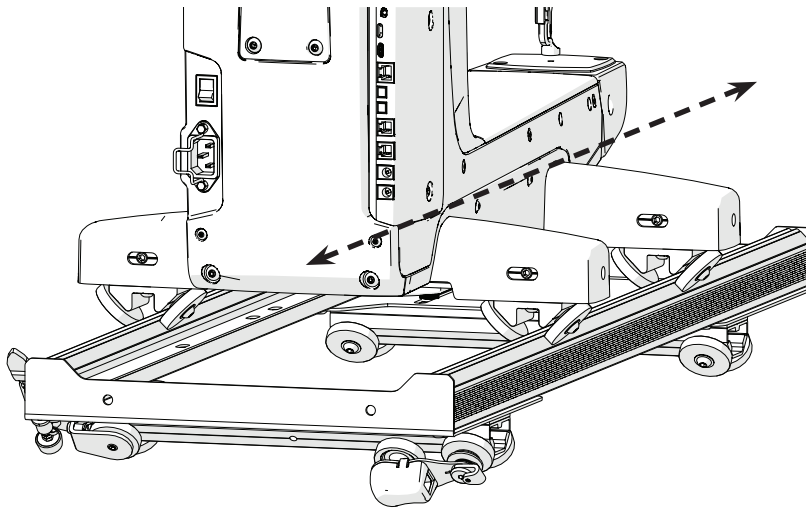


- 9 Use the 4 mm Allen wrench to loosen the **set screws** on one side of each of the wheel assemblies.

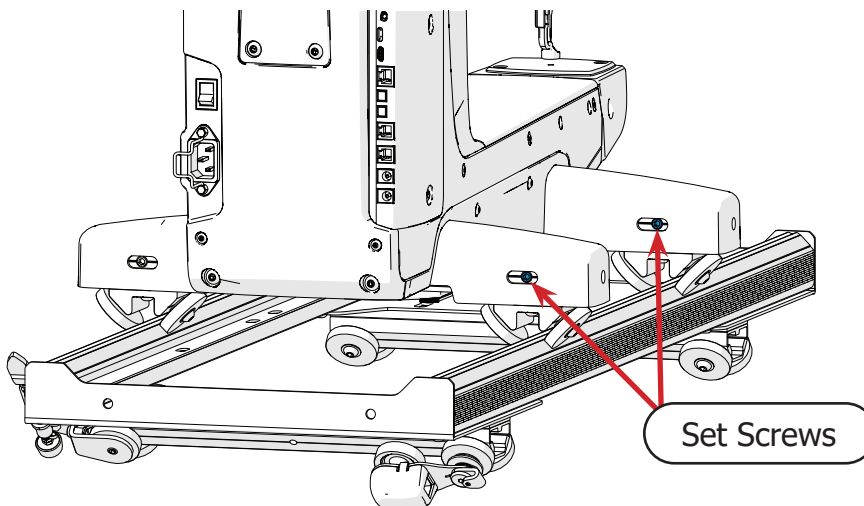


Task 2 - Installing the Wheels (continued)

- 10 Roll the machine up and down the bottom carriage tracks several times so that the machine can settle and ride smoothly.



- 11 Use the 4 mm Allen wrench to re-tighten the wheel assembly **set screws** you loosened earlier.



Congratulations! You have completed Part Two of this manual.

If you are also installing QuiltMotion, complete Part Two of your QuiltMotion manual.

If you are not installing QuiltMotion at this time but are assembling a new frame, continue to Part Two of your frame manual. If the frame manual is not broken in to parts, follow the manual's directions to:

- Install the channel lock onto your machine.

If you are installing your machine onto a frame that is already fully assembled, continue to Part Three of this manual on page 13.

Part Three

Before completing the tasks in Part Three of your machine instructions, please complete Part Two in your QuiltMotion manual (if setting up QuiltMotion at this time), and then part Two of your frame manual.

Progress Checkpoint:

Have you:

- Completed QuiltMotion Part Two (optional)?

Have you:

- Installed the channel lock onto the quilting machine?

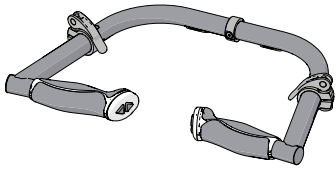
If you've already fully assembled your frame:

- Install the channel lock onto the quilting machine.

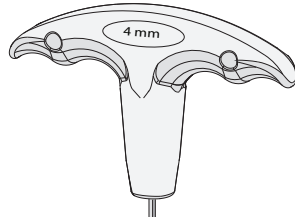
Task 3 - Installing the Handlebars

Parts & Tools Needed:

Handlebar Assembly



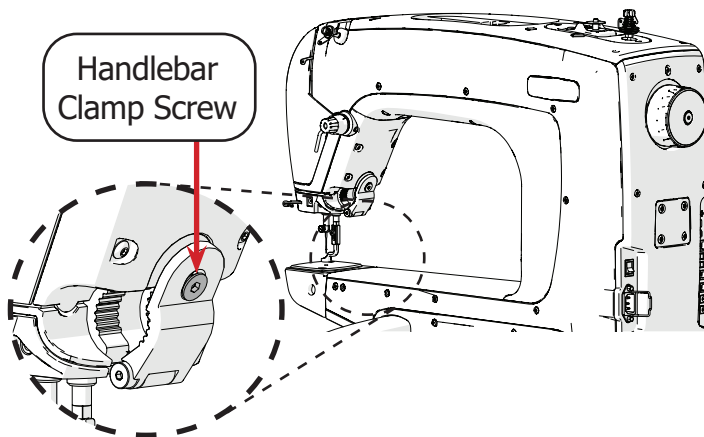
T-handle Allen Wrench 4 mm



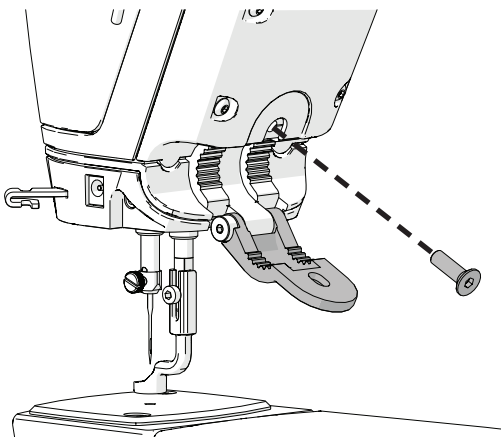
Instructions

Take the following steps to install and adjust the handlebars:

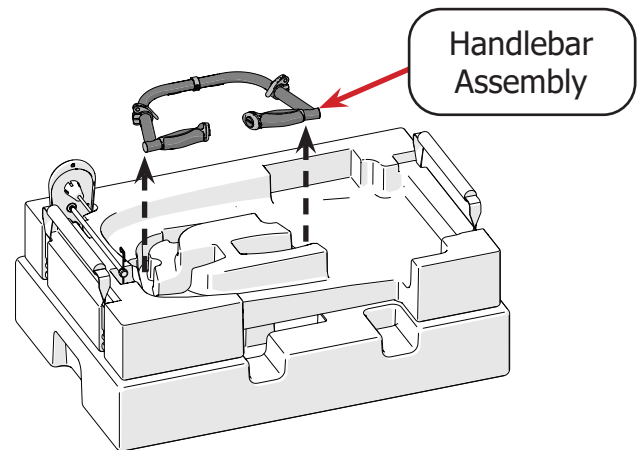
- 1 With the 4 mm T-handle Allen wrench, remove the **handlebar clamp screw** to open the handlebar clamp.



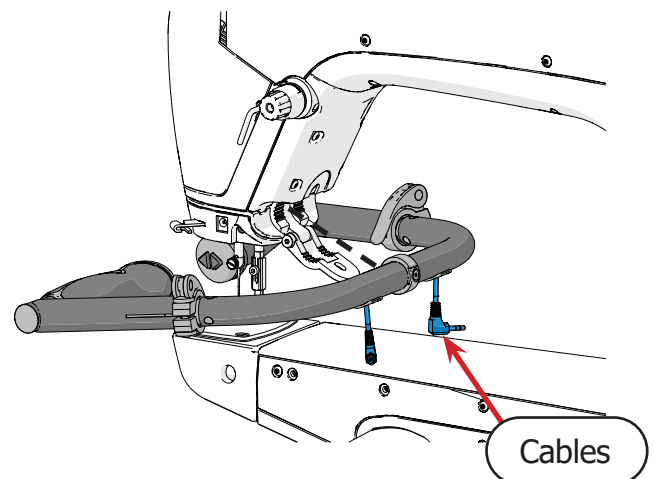
The handlebar clamp opens.



- 2 Take the **handlebar assembly** from the second level of the packaging.

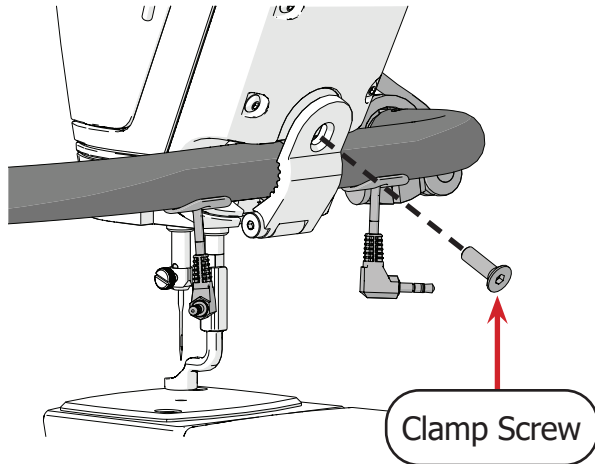


- 3 Slide them into the slot so that the **cables** are on the bottom.

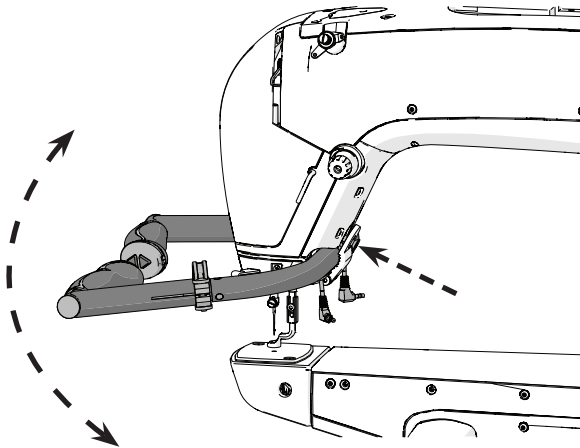


Task 3 - Installing the Handlebars (continued)

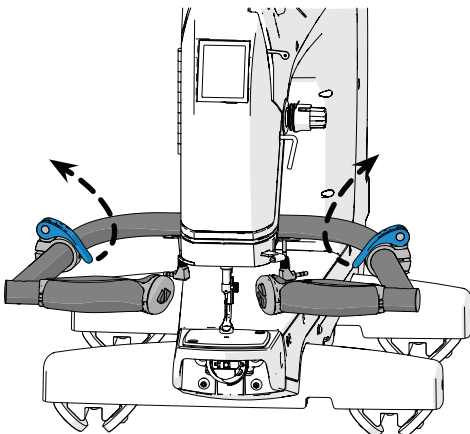
- 4 Close and hold the clamp, and loosely screw in the **clamp screw**.



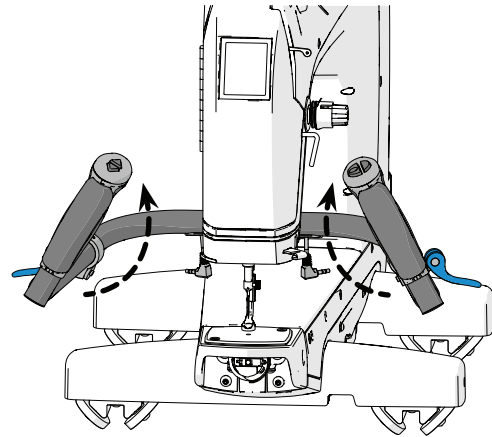
- 5 Hold the handlebars at the desired angle and tighten the clamp screw.



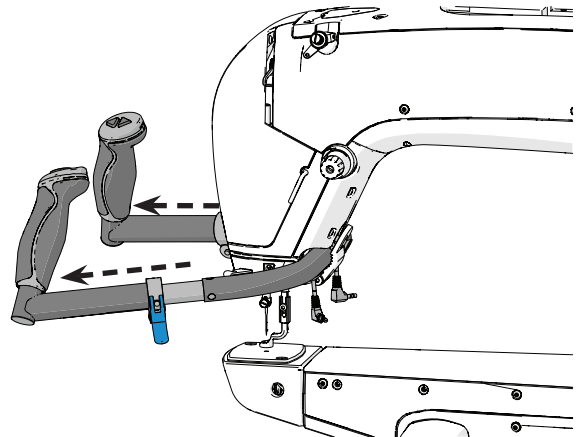
- 6 Open the **handlebar levers** (shown in blue).



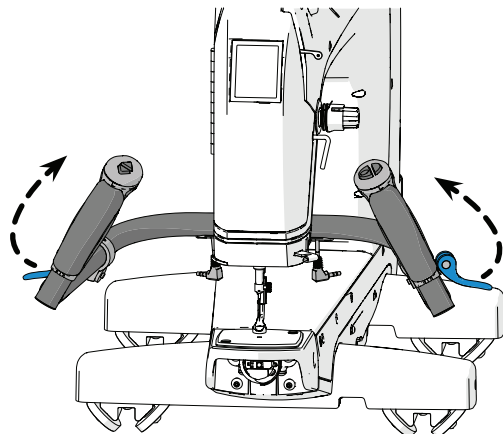
- 7 Twist the controls vertically until they are comfortable to hold and operate.



- 8 If desired, extend the handles outward to improve the reach of the machine.

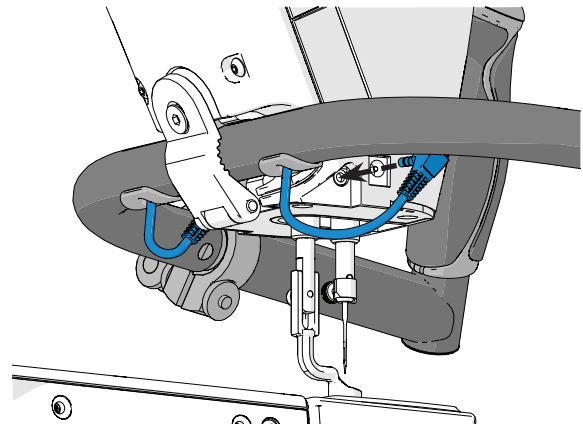
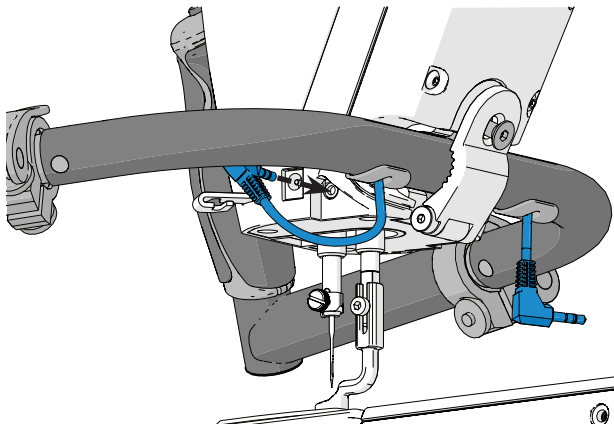


- 9 Once you are comfortable with the position of the handles, close the **handlebar levers**.



Task 3 - Installing the Handlebars (continued)

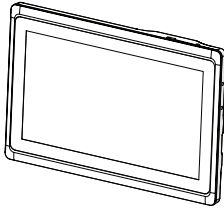
- 10 Plug the handlebar cables into the ports on both sides just above the hopping foot.



Task 4 - Connecting the Display

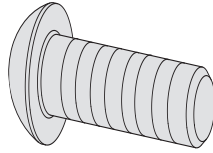
Parts & Tools Needed:

7-Inch Touch Display



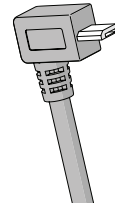
Display Box

SBHCS Screw
M5 x 16 mm (x2)



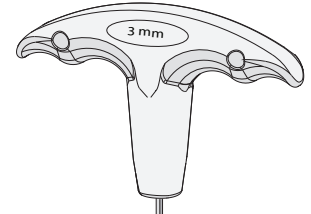
Display Box

Display Cable



Display Box

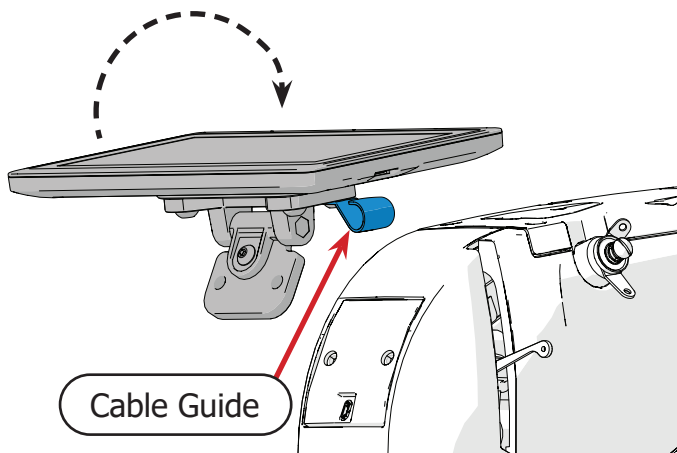
T-handle Allen
Wrench 3 mm



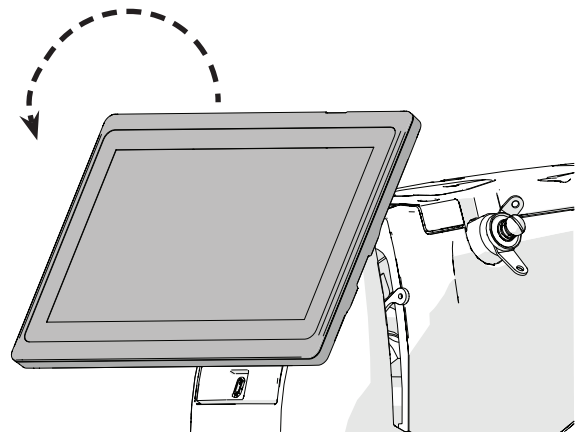
Instructions

Take the following steps to install the display.

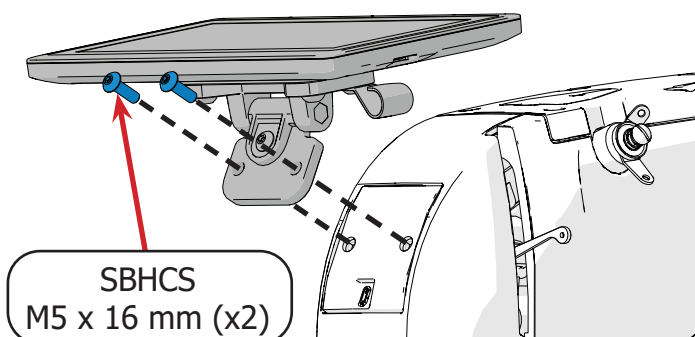
- 1 Tilt the display back and line it up in front of the machine with the **cable guide** on the right hand side.



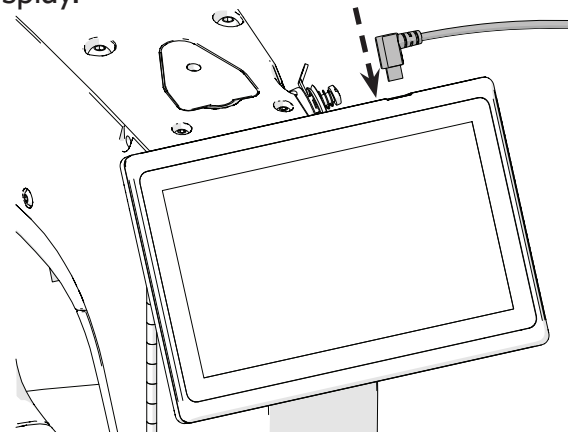
- 3 Tilt the display to your desired angle.



- 2 Use the 3 mm Allen wrench and two **M5 x 16 mm SBHCS** to secure the display to the machine.

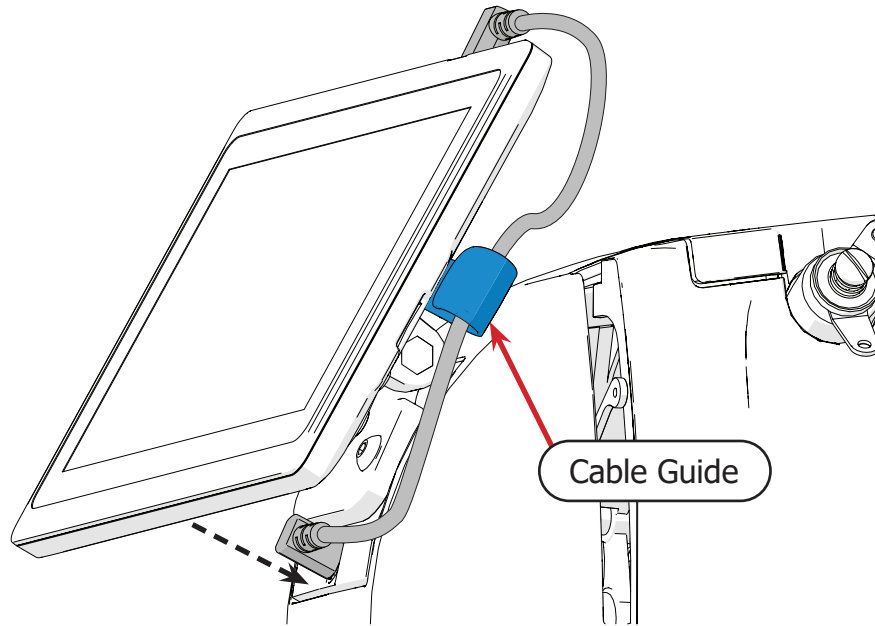


- 4 Plug the **display cable** into the top of the display. Use the end of the cable that will take the cable towards the side of the display.



Task 4 - Connecting the Display (continued)

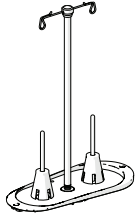
- 5 Run the cable through the **cable guide** behind the display and then plug the other end into the machine.



Task 5 - Attaching the Thread Stand

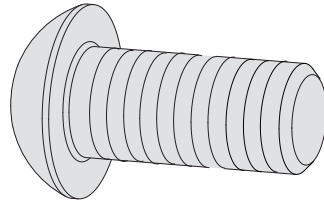
Parts & Tools Needed:

Thread Stand Assembly



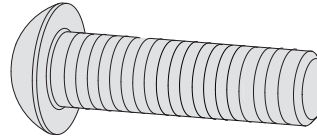
Packaging Level 2

SBHCS Screw M4 x 12 mm (x3)



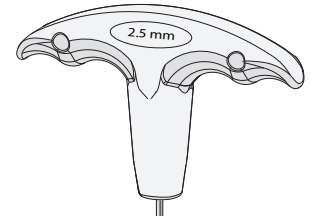
Thread Stand
HardwareBox

SBHCS Screw M4 x 20 mm (x1)



Thread Stand
HardwareBox

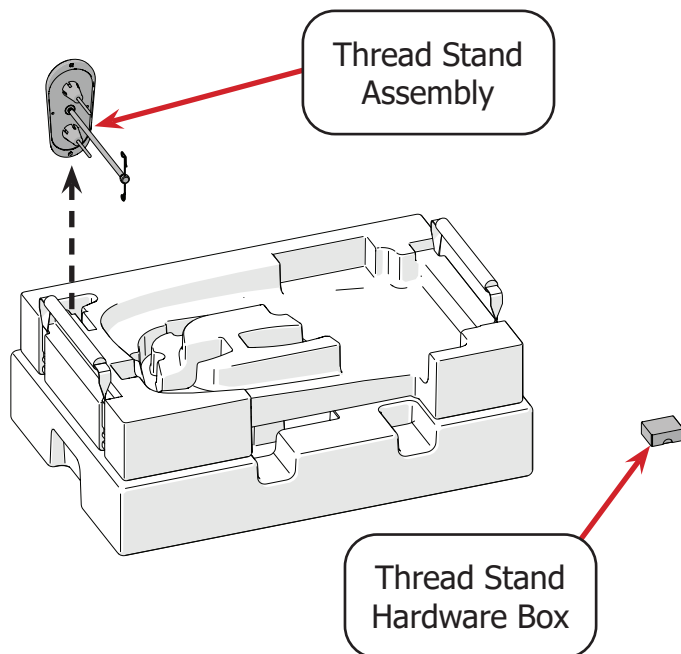
T-handle Allen Wrench 2.5 mm



Instructions

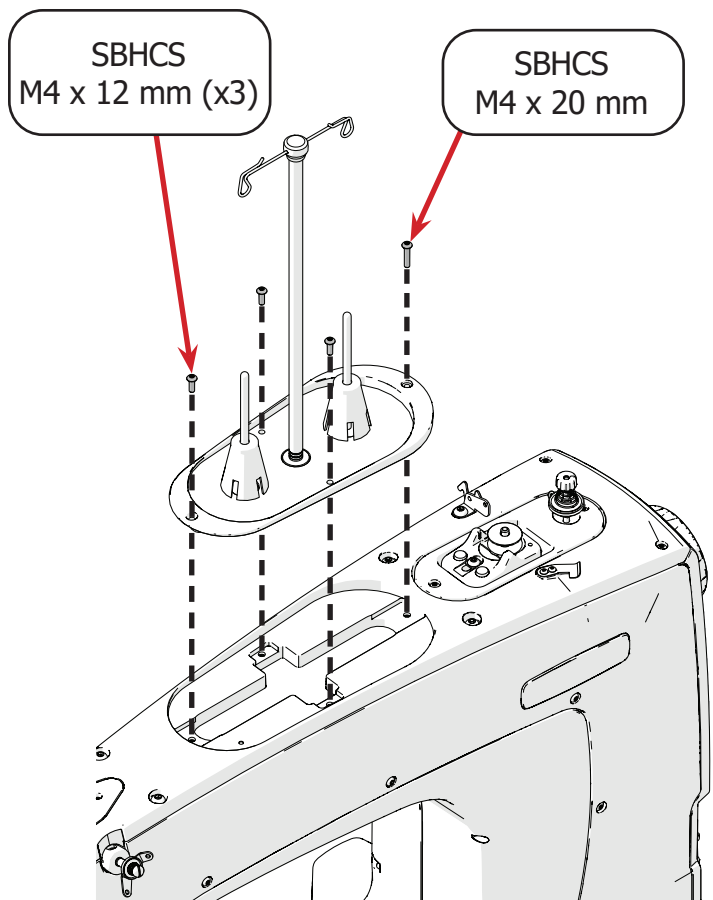
Take the following steps to install the thread stand assembly:

- 1 Take the **thread stand assembly** out of the second level of packaging. The screws needed for this task are in the **thread stand hardware box** that you removed earlier.



- 2 Secure the thread stand assembly in place using the 2.5 mm Allen wrench, three **M4 x 12 mm SBHCS**, and one **M4 x 20 mm SBHCS**.

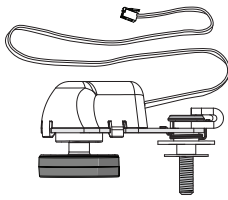
The M4 x 20 mm SBHCS goes in the rear screw hole of the thread stand.



Task 6 - Installing the Upper Encoder

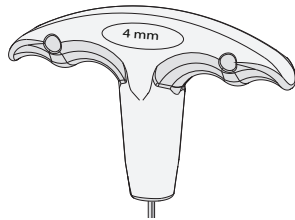
Parts & Tools Needed:

Upper Encoder
(silver spring)

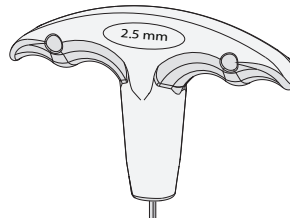


Encoder Box

T-handle Allen
Wrench 4 mm



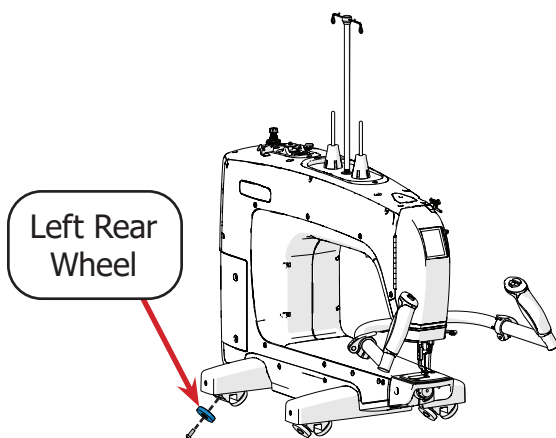
T-handle Allen
Wrench 2.5 mm



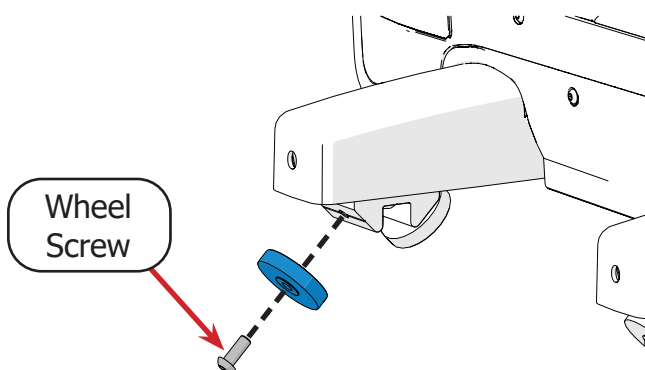
Instructions

The encoders monitor the position of the machine on the frame, allowing for regulated stitching. The upper encoder is installed on the outward-facing, left-rear wheel of the machine. Please take the following steps:

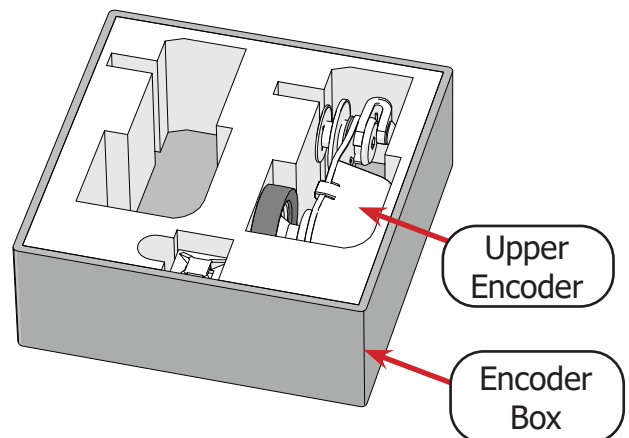
- 1 Use the 4 mm T-handle Allen wrench to remove the **left rear wheel** from the machine.



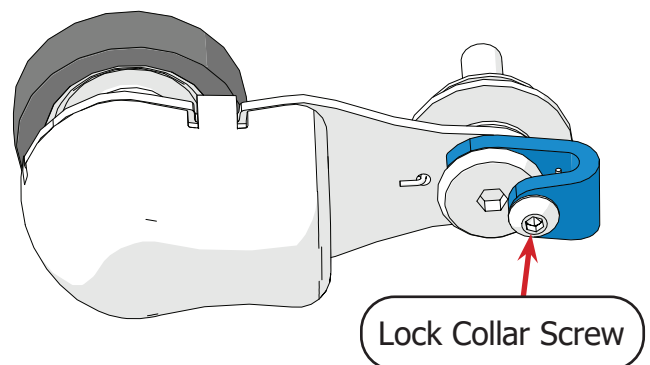
The **wheel screw** will not be needed again and can be stored with the packaging materials.



- 2 Find the **upper encoder** in the **encoder box**. The upper encoder has a silver spring and a purple sticker on the cable.

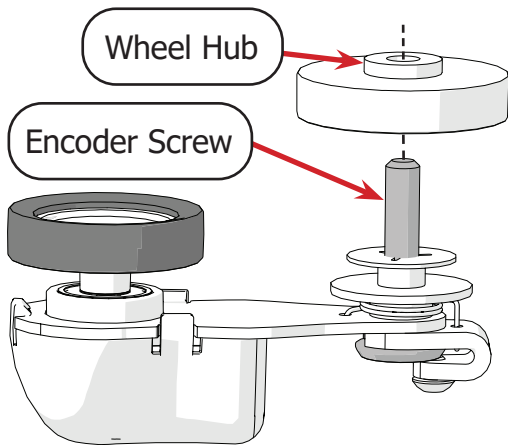


- 3 Loosen the **lock collar screw** on the upper encoder with the 2.5 mm Allen wrench until the **lock collar** (shown in blue) turns freely.

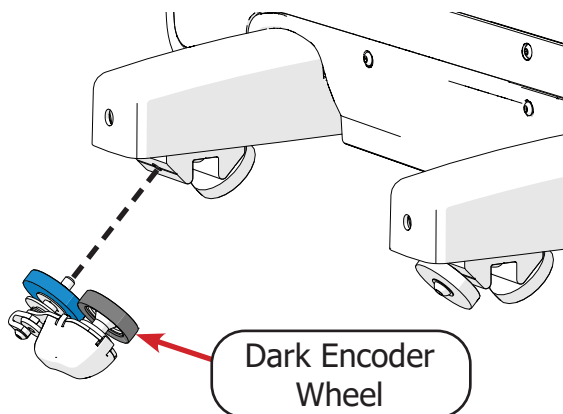


Task 6 - Installing the Upper Encoder (continued)

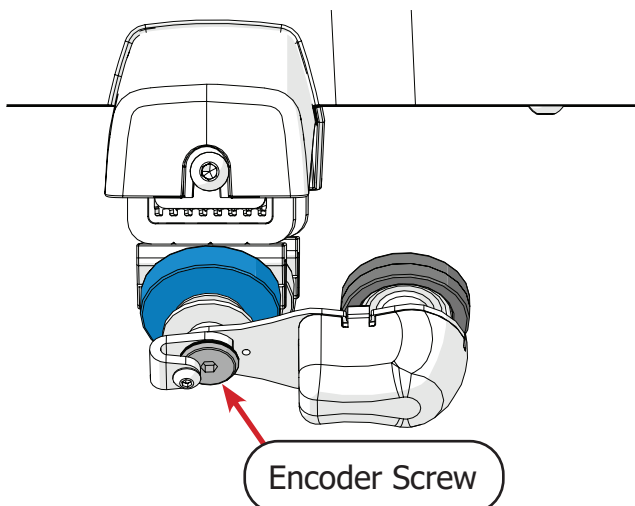
- 4 Slide the wheel onto the upper **encoder screw** so that the **wheel hub** faces away from the encoder.



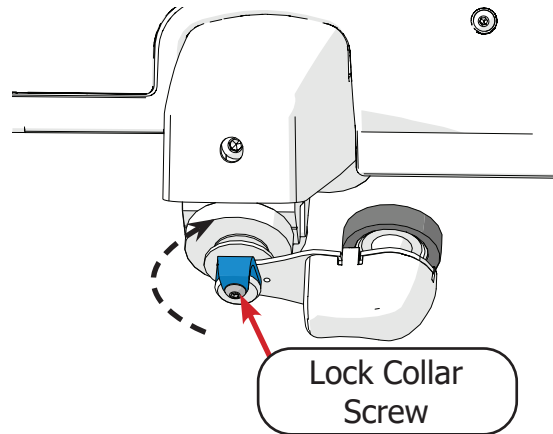
- 5 Place the encoder screw into the left rear wheel hole so the **dark encoder wheel** is between the two left machine wheels.



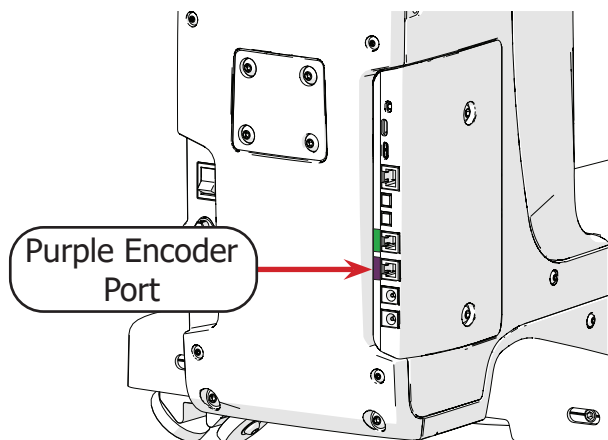
- 6 Tighten the **encoder screw** with the 4 mm Allen wrench.



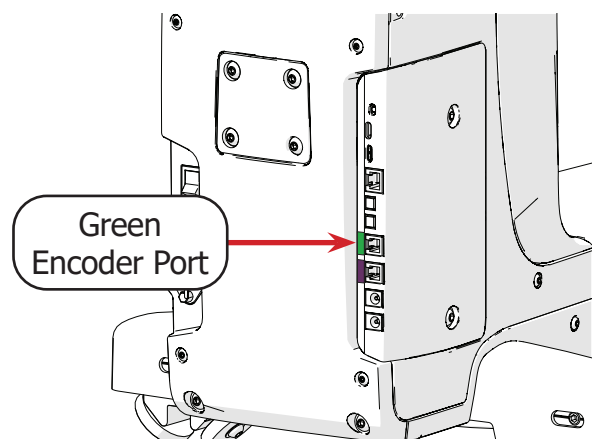
- 7 Turn the **encoder lock collar** (shown in blue) to point up and tighten the **lock collar screw** with the 2.5 mm Allen wrench.



- 8 Plug the upper encoder cable into the **purple encoder port** on the back left of the machine.



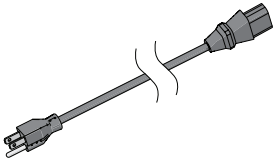
- 9 Plug the lower encoder cable into the **green encoder port** on the left rear of the machine.



Task 7 - Turning the Machine On/Off

Parts & Tools Needed:

Power Cord



Power Cord/
Oil Bottle Box

Zip Tie



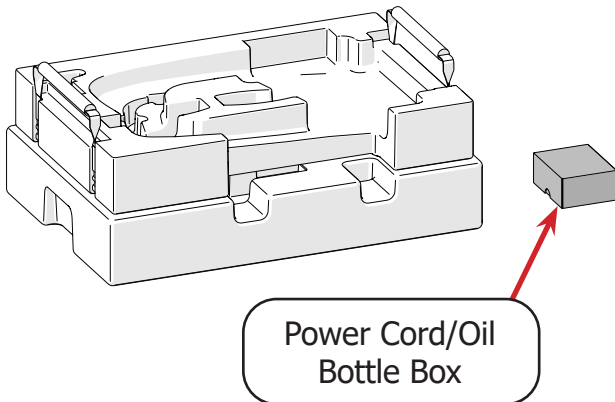
Encoder Box

Note: Zip tie required for Cutie frame users only.

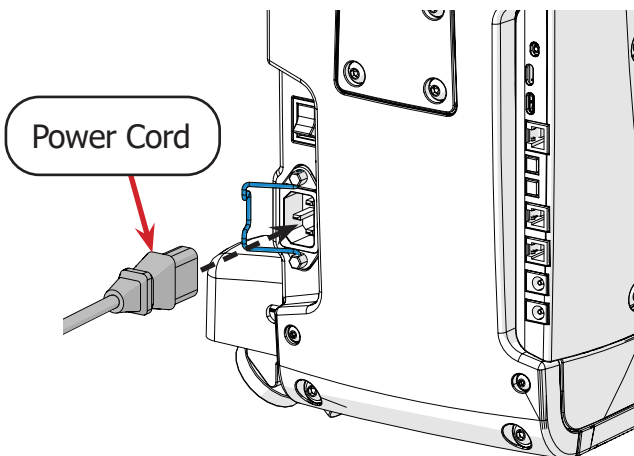
Instructions

The power cable port and power switch are located on the back of the machine. To power on the machine, take the following steps:

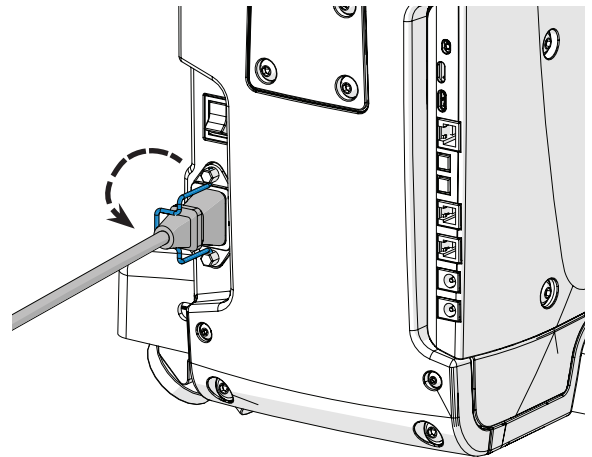
- 1 Find the power cord in the **power cord/oil bottle box** that you removed earlier.



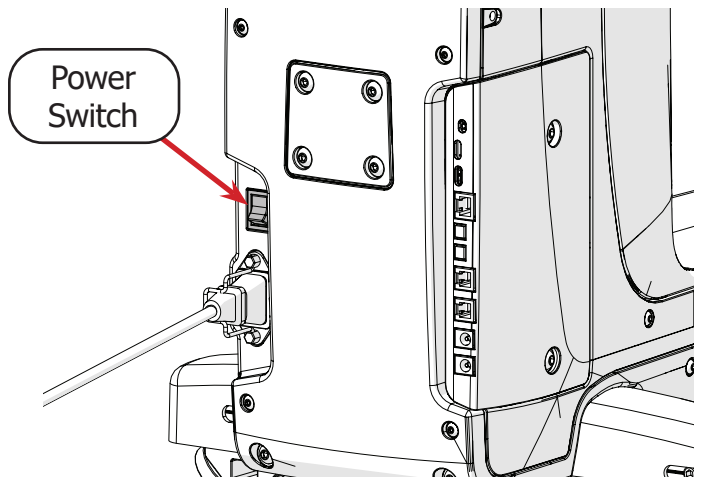
- 2 Move the **power cable retainer** (blue) to the side and plug the **power cord** into the back of the machine.



- 3 Press the **power cable retainer** (blue) firmly onto the power cable.

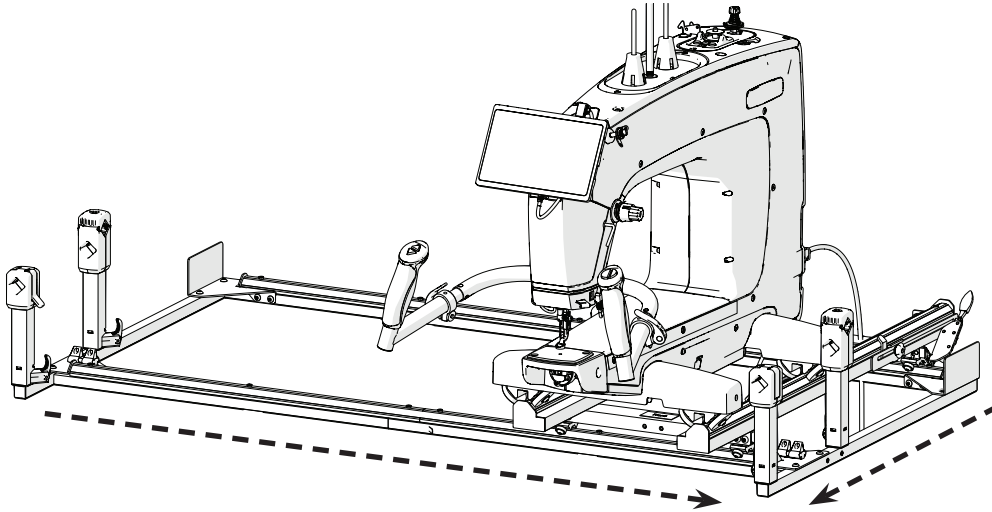


- 4 Press the **power switch** up to turn the machine on.

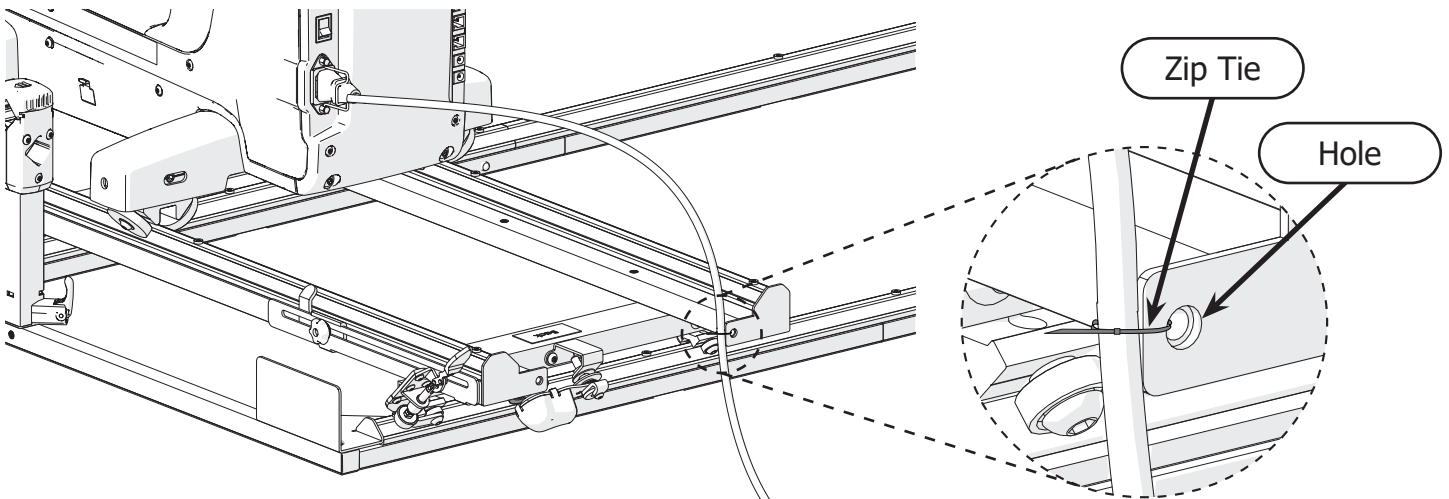


Task 7 - Turning the Machine On/Off (continued)

- 5 **Cutie frame users only:** Move the machine to the right side of the frame and pull it as far forward as possible.



- 6 **Cutie frame users only:** Use a **zip tie** to fasten the power cord to the back left **hole** on the Cutie frame carriage. The power cord should have a little bit of slack between the zip tie and the machine.



Preparing to Quilt

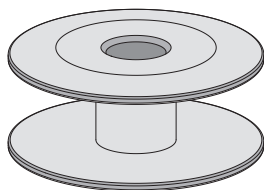
This section of the manual covers winding the bobbin, loading the bobbin case, and threading the machine.

Task 8 - Winding a Bobbin	page 25
Task 9 - Loading the Bobbin Case	page 28
Task 10 - Threading the Machine	page 30

Task 8 - Winding a Bobbin

Parts & Tools Needed:

Bobbin (Class M)



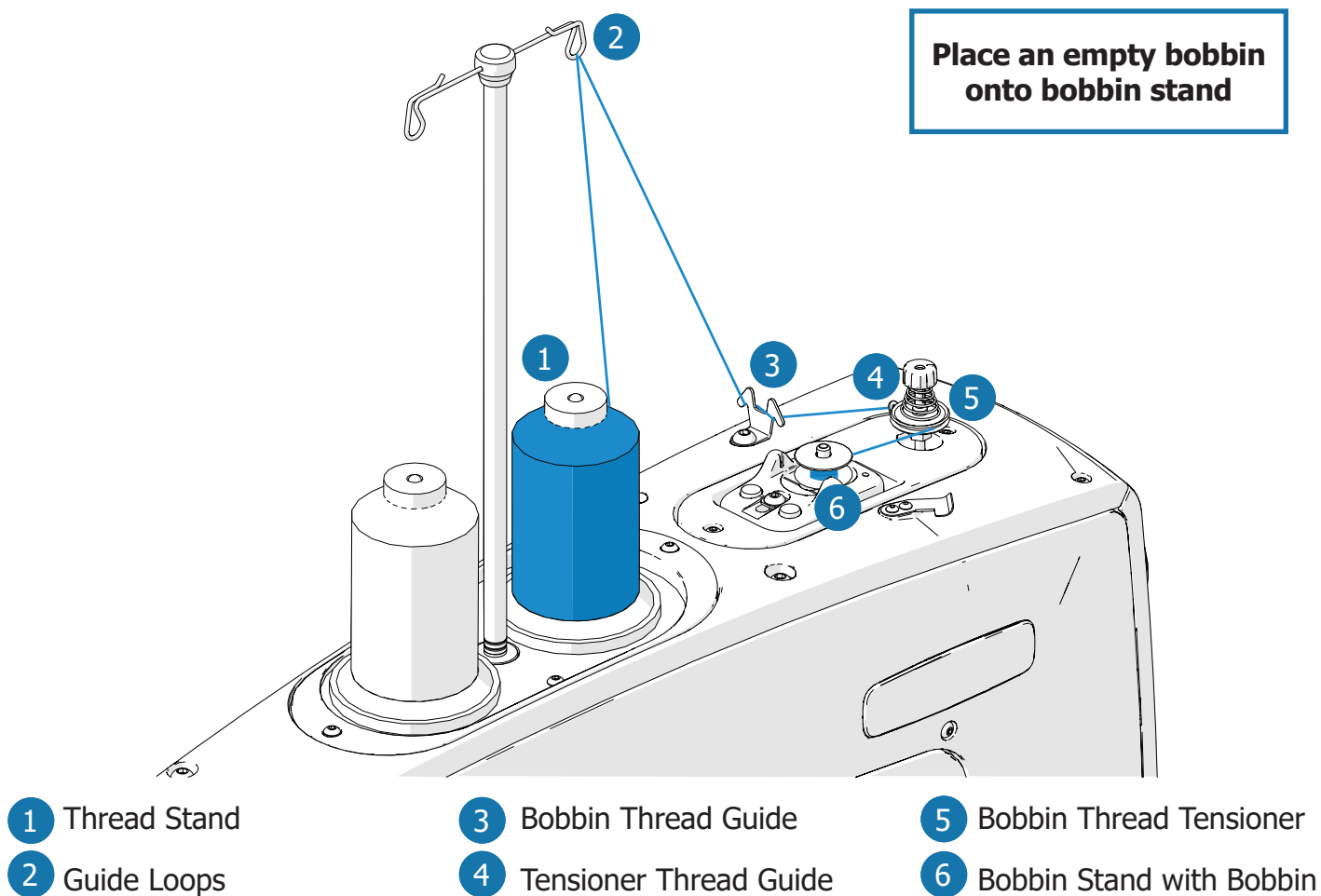
Box 1

Instructions

Your machine comes with two bobbins pre-wound with 50 weight polyester Finesse thread. An empty M-class bobbin has also been provided. It's important to choose bobbin thread that is similar in type and quality as the top thread. For more information on choosing thread, see "Choosing Your Thread" on page 97.

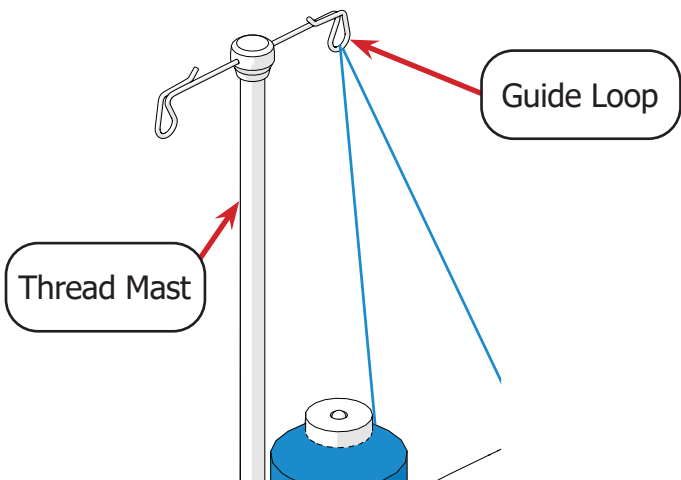
Note: This machine uses cone-style thread. Unless you have the spool accessory, please use only thread cones for this machine.

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

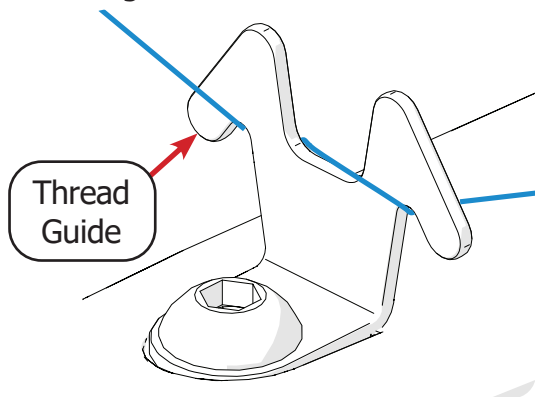


Task 8 - Winding a Bobbin (continued)

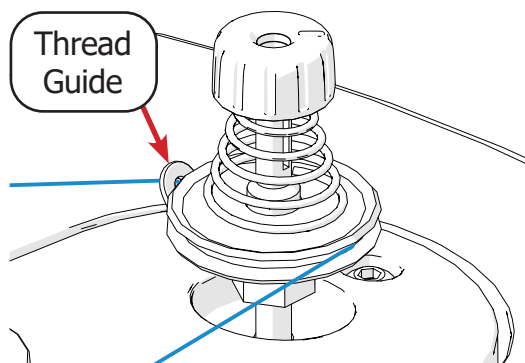
- 1 Run the thread through the **thread mast guide loop** directly above the thread cone.



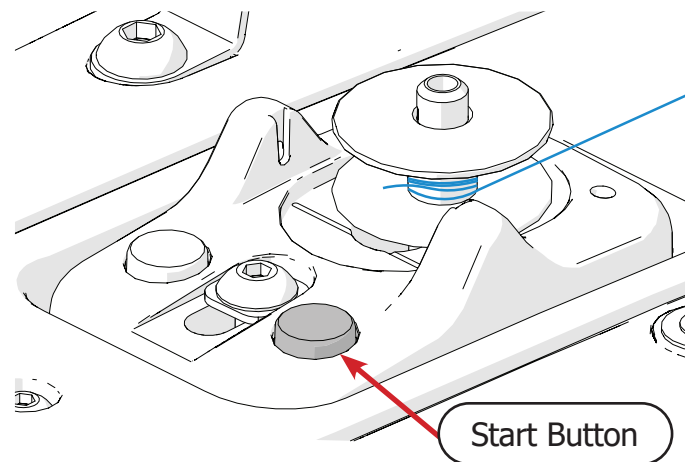
- 2 Pass the thread underneath the left side of the **thread guide**. Move it through the middle of the thread guide back to the front and then underneath the right side of the thread guide.



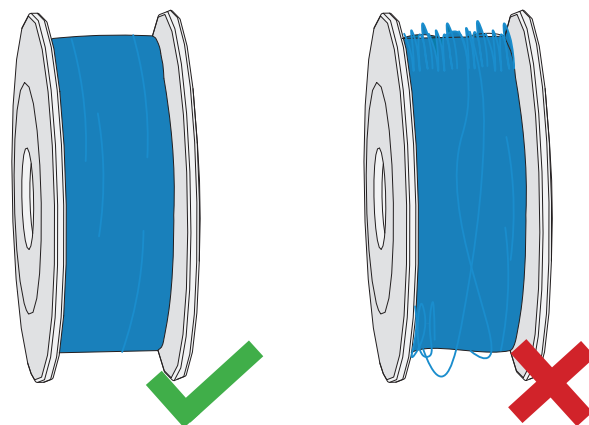
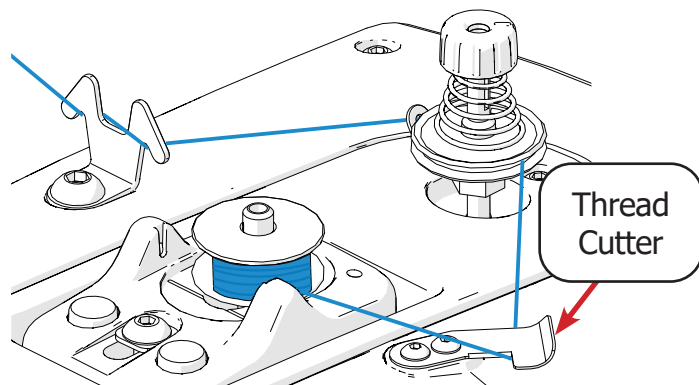
- 3 Pull the thread through the hole in the **tensioner thread guide** and then around the back of the **bobbin thread tensioner**, between the two discs.



- 4 Wrap the thread clockwise around the empty bobbin. Press **start** when ready.



- 5 Winding stops automatically when the bobbin is full. Cut the bobbin away from the thread cone using the **thread cutter** near the bobbin winder.

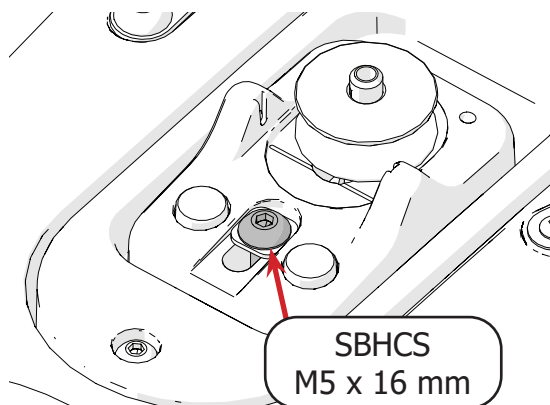


The bobbin thread should appear neat and smooth. See Bobbin Wind Troubleshooting Guide for more info.

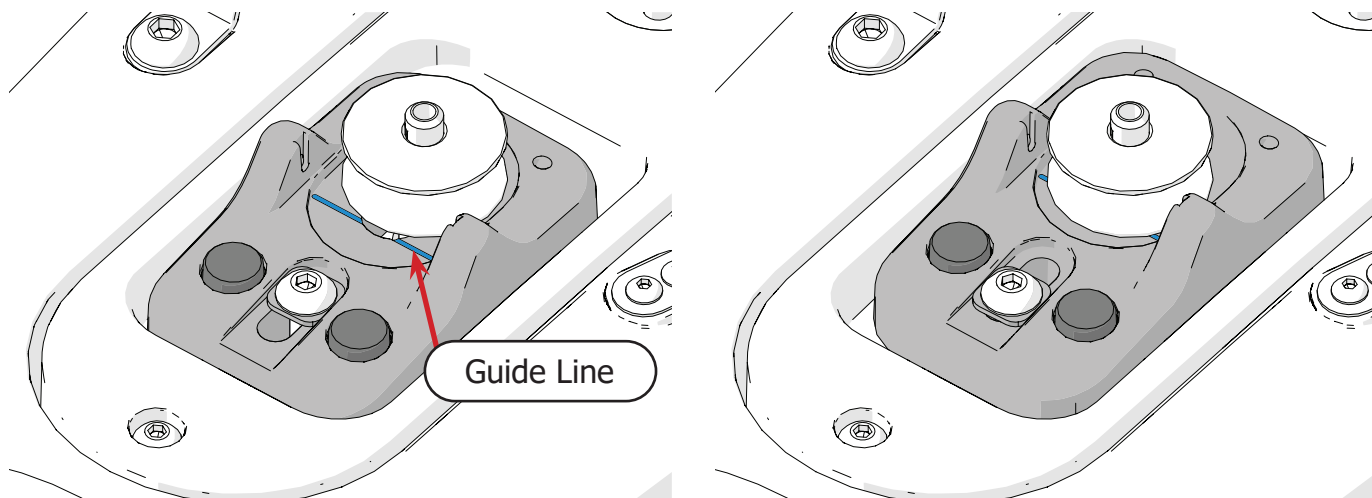
Adjust Fill Levels

The bobbin winder can be adjusted to fill a bobbin to different levels if desired.

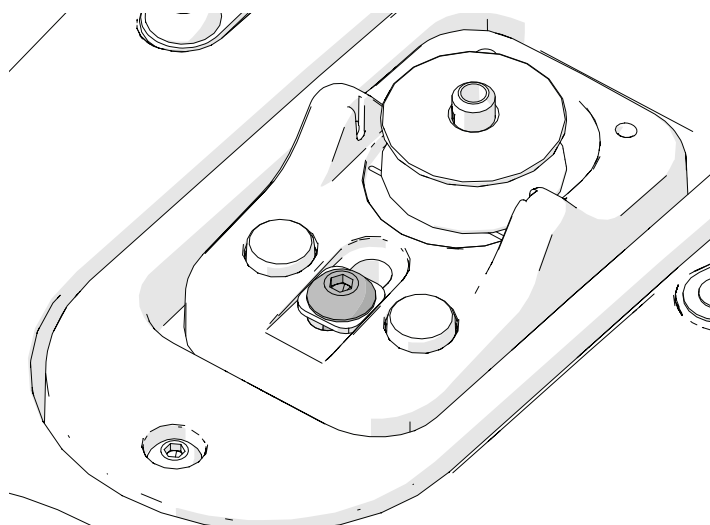
- 1 To adjust the bobbin winder, loosen the **M5 x 16 mm SBHCS** with the 3 mm Allen wrench.



- 2 Slide the bobbin winder until the **guide line** underneath the bobbin is positioned where you want the bobbin thread to finish filling.



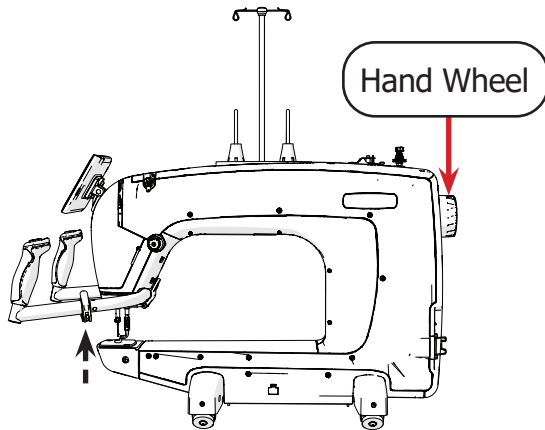
- 3 Tighten the M5 x 16 mm SBHCS to secure the bobbin winder in place.



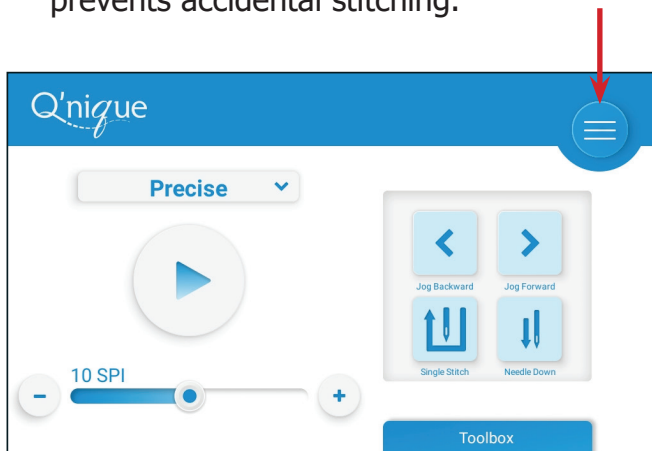
Task 9 - Loading the Bobbin Case

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

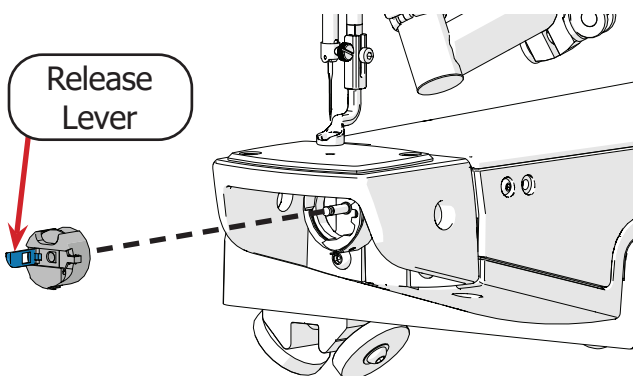
- 1 Check that the needle is up. If needed, rotate the **hand wheel** to raise the needle.



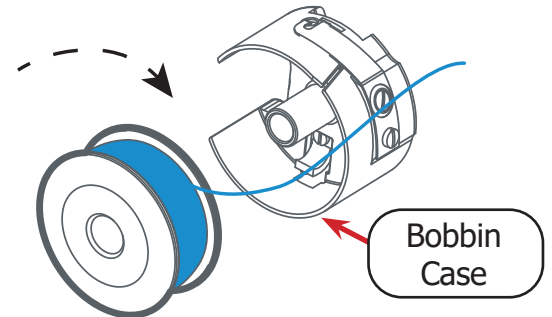
- 2 Open the Settings menu by clicking the **menu icon** and choosing Settings. This prevents accidental stitching.



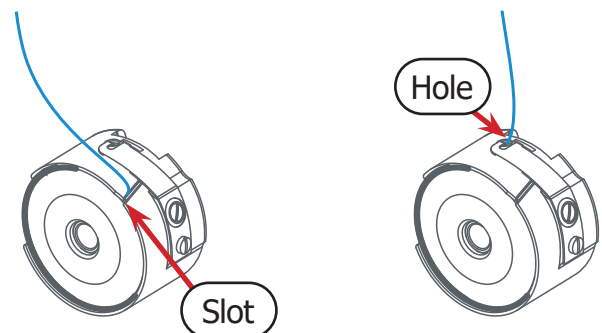
- 3 Pull on the bobbin case **release lever** to remove the bobbin case from the hook assembly.



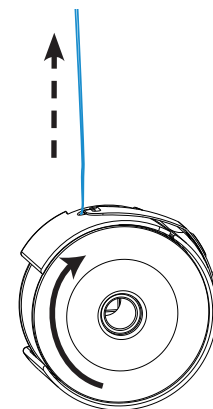
- 4 Place the wound bobbin into the **bobbin case**. Note the direction that the thread is coming off the bobbin in relation to the case.



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



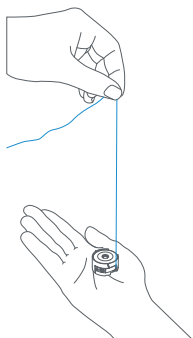
Note: If the bobbin is wound correctly it will turn clockwise when the thread is pulled.



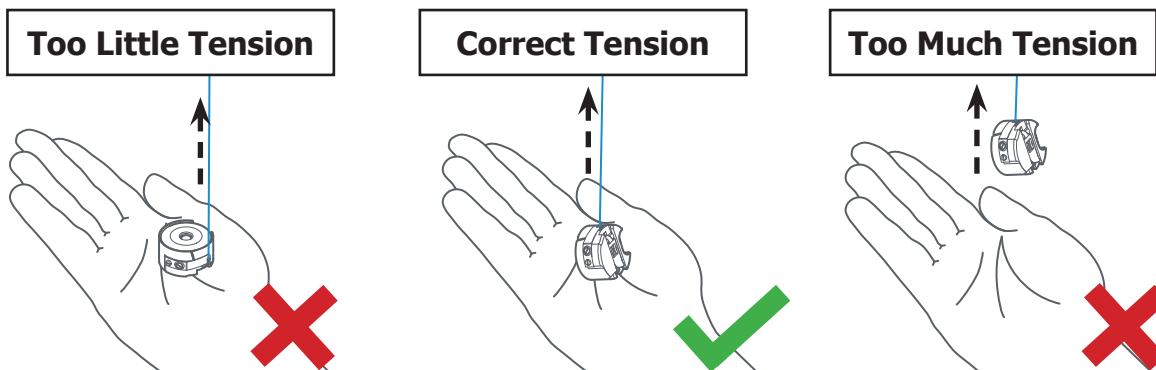
Task 9 - Loading the Bobbin Case (continued)

- 6 Test the tension of the bobbin case every time bobbin thread is changed; bobbin tension is the foundation for correct thread tension.

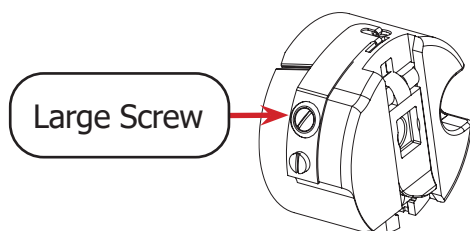
a. Place the bobbin case flat on its side, on your palm.



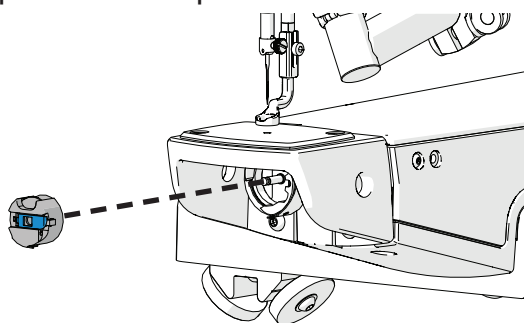
- b. Pull up on the thread. The thread should run freely and the bobbin case should rise into a vertical position without lifting off your hand.



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



- 7 Place the bobbin case inside the 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.



Task 10 - Threading the Machine

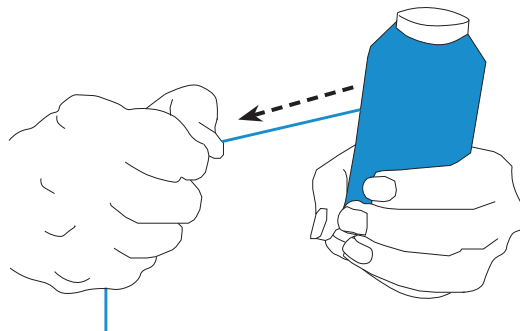
Before threading the machine, make sure you've selected quality thread for your project. Choosing the right thread for the machine can prevent the thread from breaking or tangling up under the needle plate. For more information on choosing thread, see page 97. Note the following:

- This machine uses cone-style thread, not thread from a spool. Do not use spool thread unless the spool accessory (not included in this kit) has been installed.

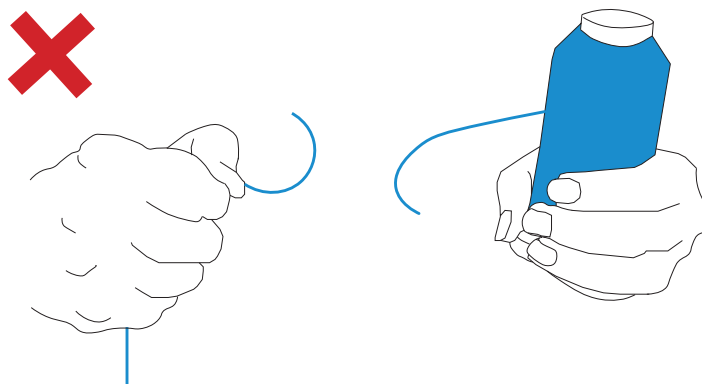


- Choose thread that is strong enough to pass the yank test (shown below), and re-test thread as it ages. Thread strength can diminish over time.

a. Hold the cone in one hand and the end of thread in the other.



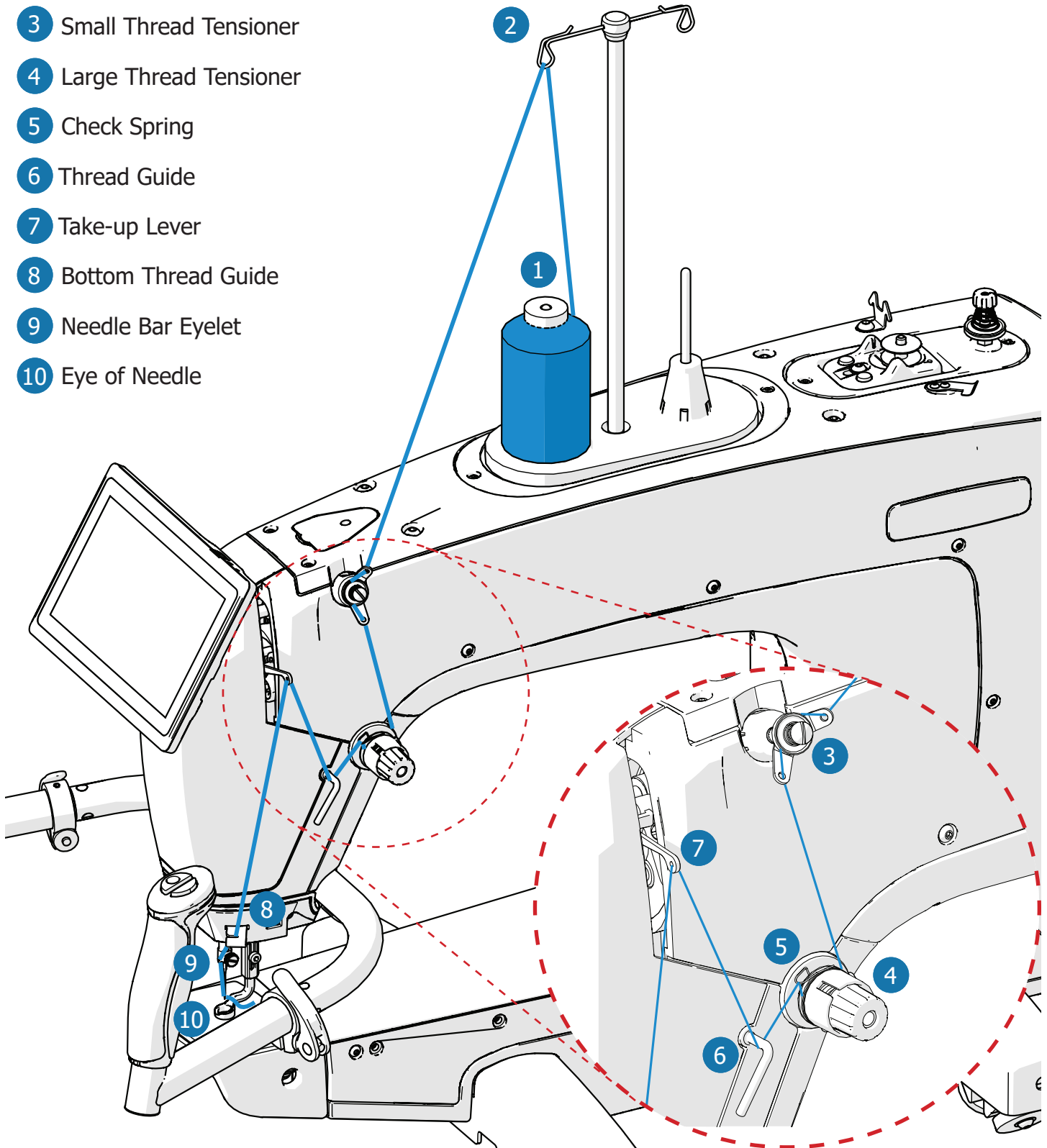
b. Tug on the thread. If the thread snaps easily, it may be too brittle to use for quilting.



Task 10 - Threading the Machine (continued)

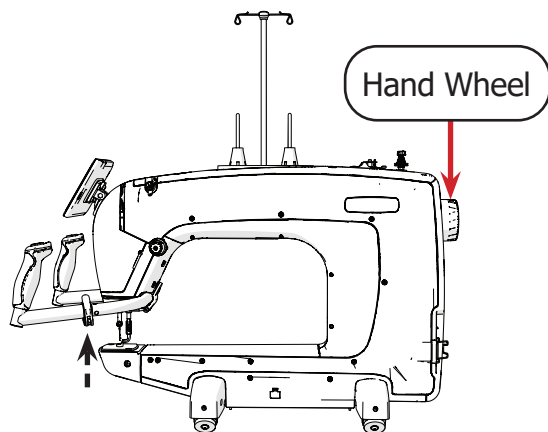
The following diagram outlines the path the thread (shown in blue) must take through the machine.

- 1 Thread Stand
- 2 Thread Mast Guide Loop
- 3 Small Thread Tensioner
- 4 Large Thread Tensioner
- 5 Check Spring
- 6 Thread Guide
- 7 Take-up Lever
- 8 Bottom Thread Guide
- 9 Needle Bar Eyelet
- 10 Eye of Needle

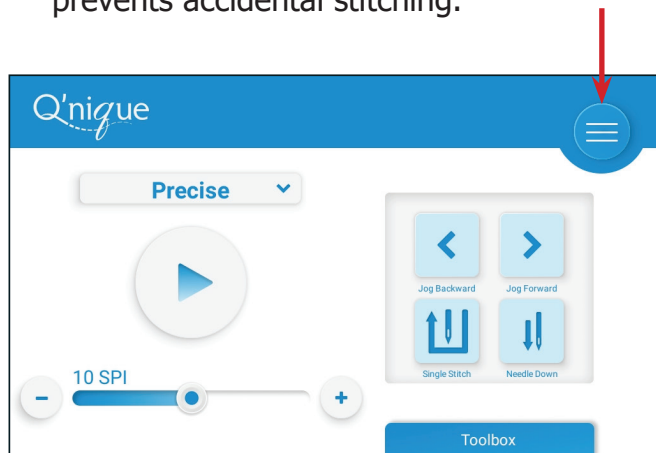


Task 10 - Threading the Machine (continued)

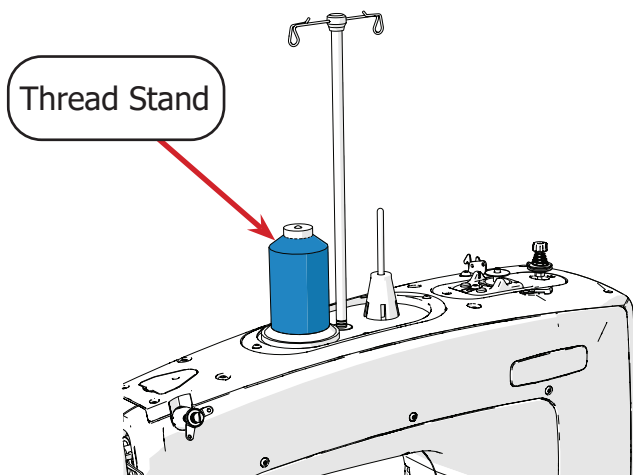
- 1 Rotate the **hand wheel** at the rear of the machine to raise the needle to the top position



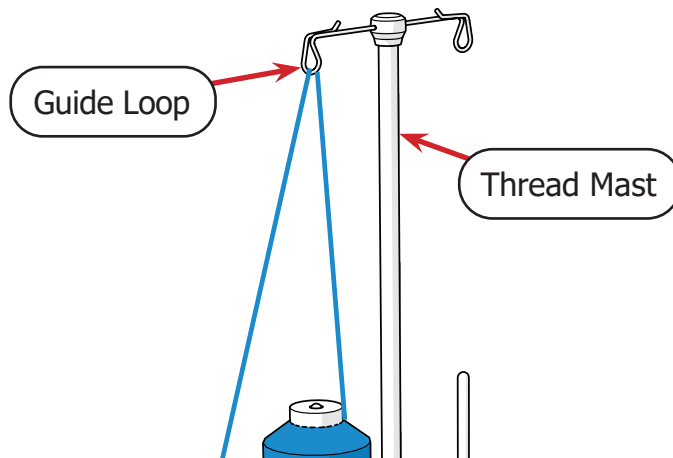
- 2 Open the Settings menu by clicking the menu icon and selecting **Settings**. This prevents accidental stitching.



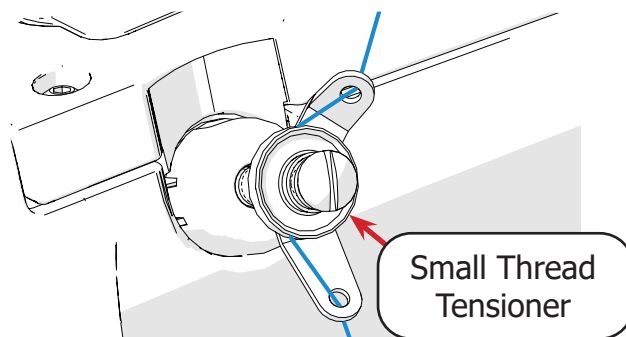
- 3 Place the thread cone on the cone-style **thread stand** toward the front of the machine.



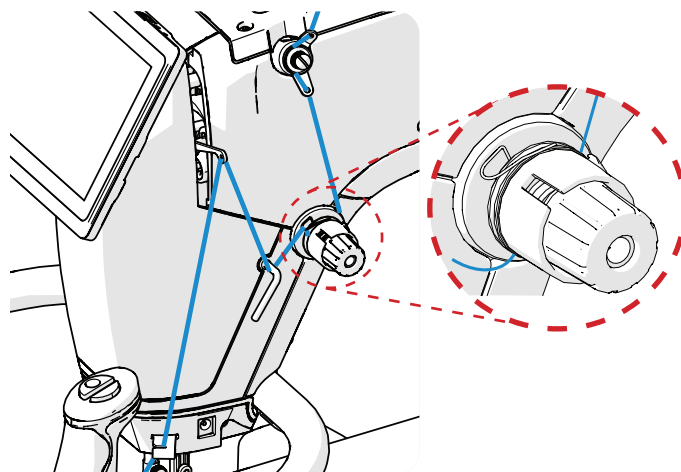
- 4 Pull the thread straight up, through the **thread mast guide loop** above the thread stand.



- 5 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.

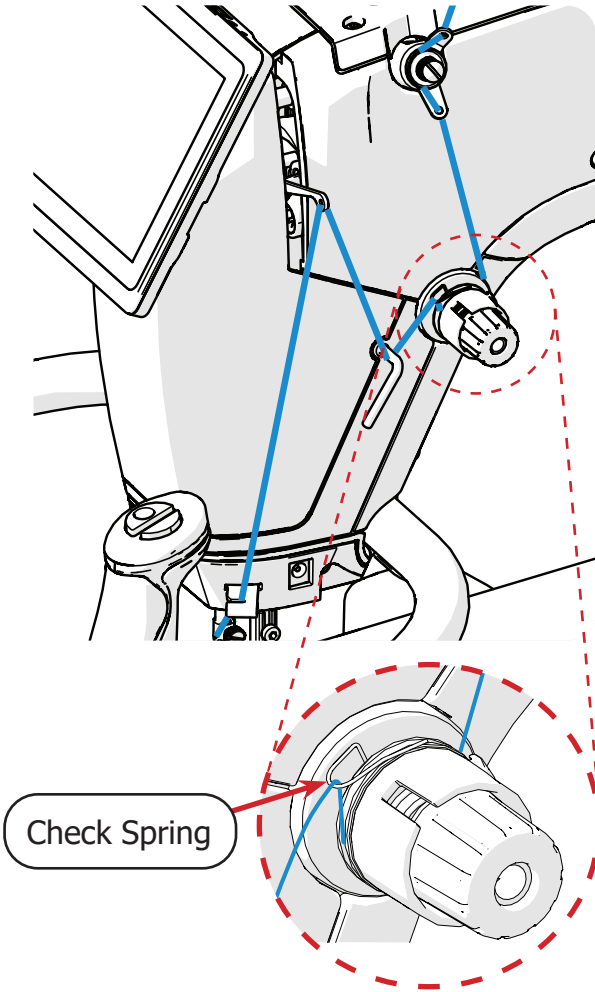


- 6 Pull the thread around the **large thread tensioner**, between the tension discs.

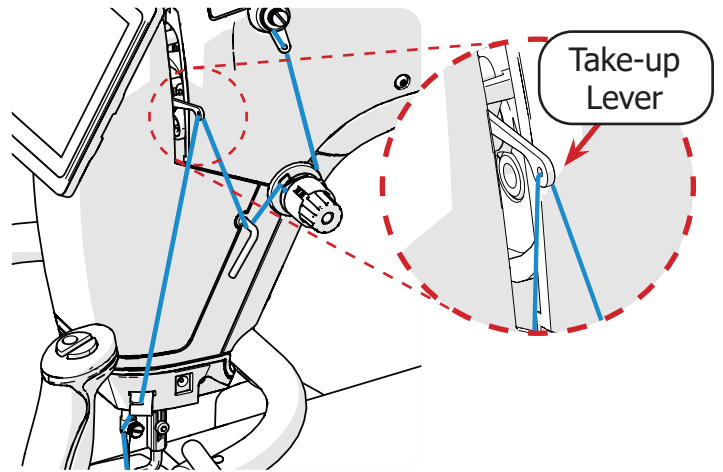


Task 10 - Threading the Machine (continued)

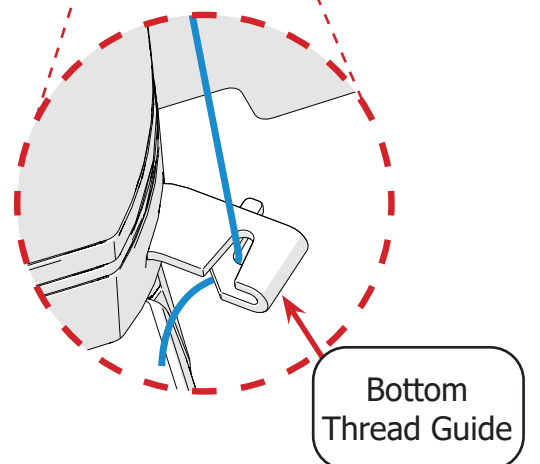
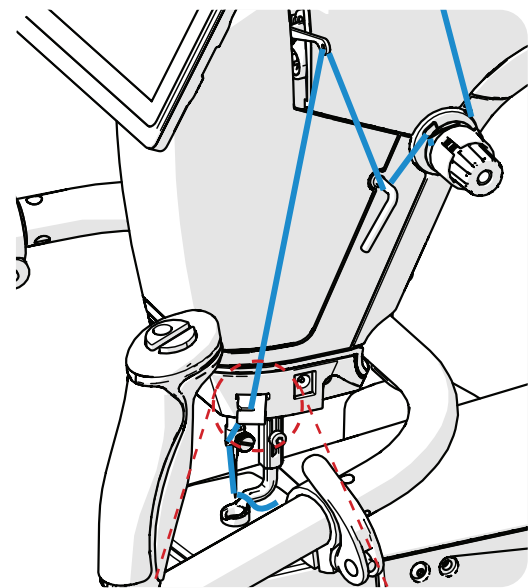
- 7 Wrap the thread over the **check spring**.



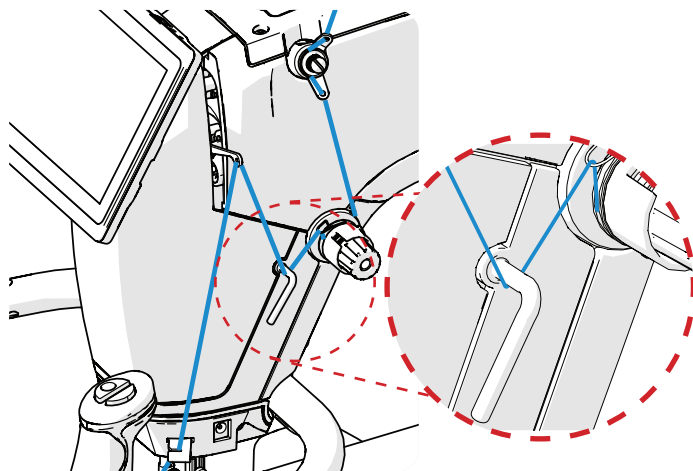
- 9 Pull the thread through the hole in the **take-up lever**.



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

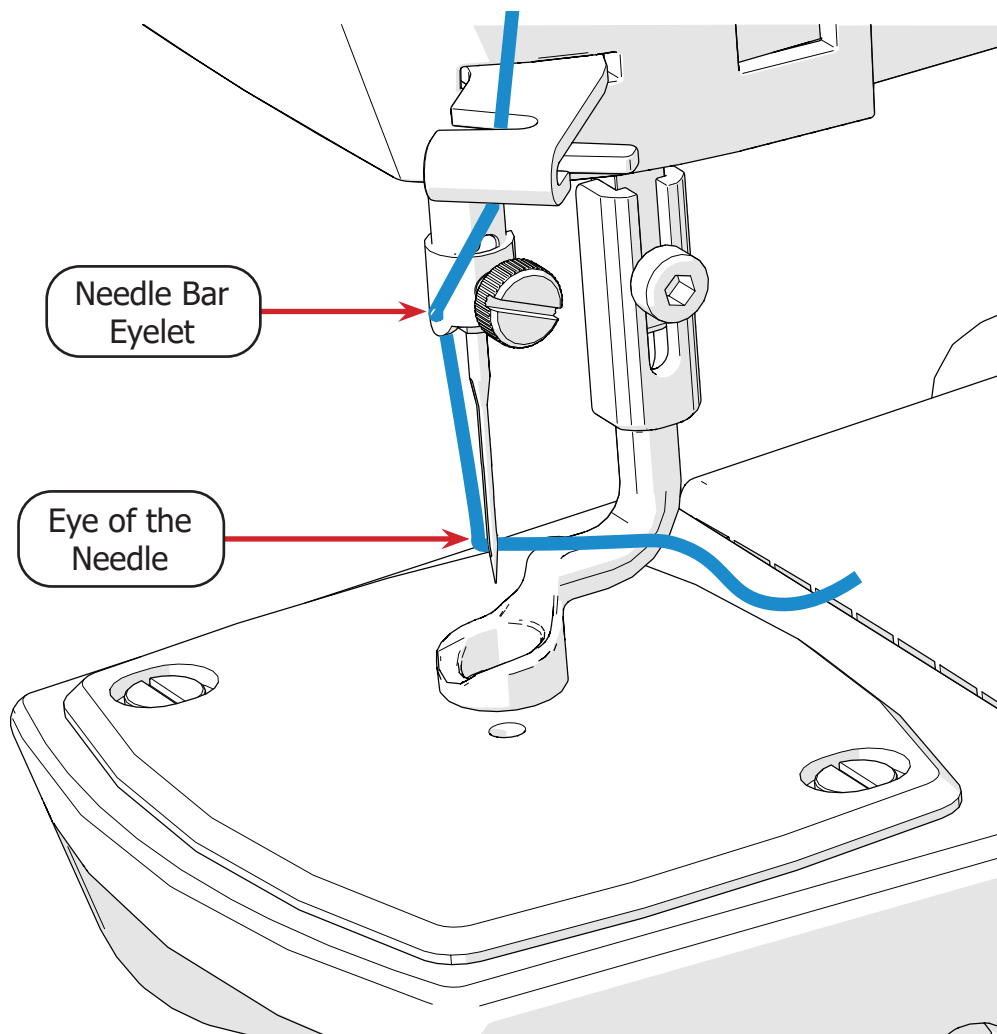


- 8 Next, pass the thread down and around the **thread guide** next to the large thread tensioner.

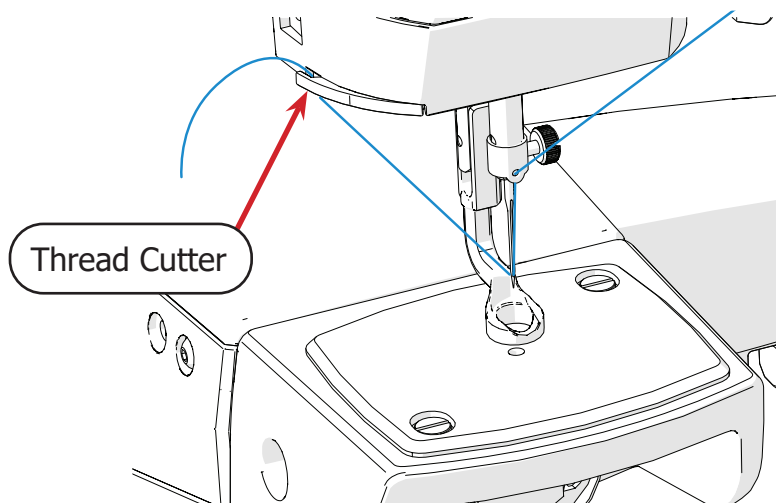


Task 10 - Threading the Machine (continued)

- 11 Now pass the thread through the front of the **needle bar eyelet**, located above the needle. Thread the **eye of the needle** from front to back.



- 12 Cut the excess thread with the built-in **thread cutter** on the side of the hopping foot opposite the bottom thread guide.



Task 10 - Threading the Machine (continued)

Using the Thread Nets

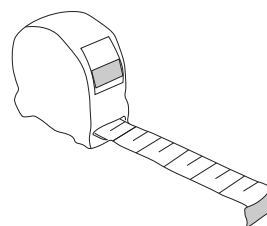
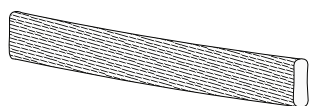
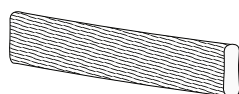
Thread nets help your thread unwind evenly while quilting and prevent it from becoming tangled while in storage. Follow the steps below to add a thread net to a thread cone.

Parts & Tools Needed:

Thread Net 10cm (x2)

Thread Net 14cm (x2)

Measuring Tape

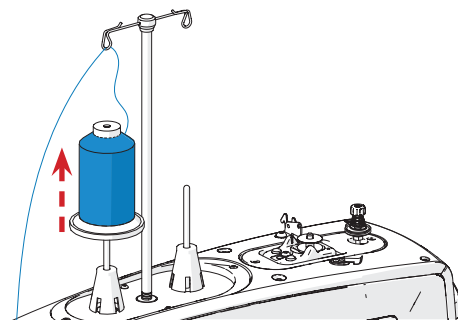
Power Cord/
Oil Bottle BoxPower Cord/
Oil Bottle Box

(not included)

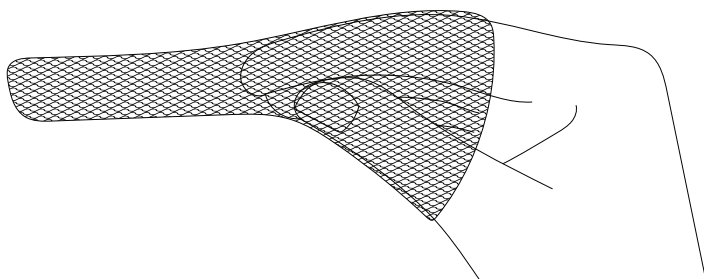
- 1 Measure the height of your thread cone, then use the table below to determine which size of thread net to use.

Thread Cone Height	Thread Net Size
≤ 10 cm (4 in)	10 cm
> 10 cm (4 in)	14 cm

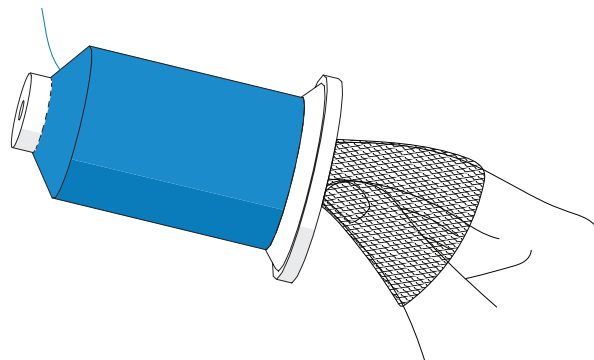
- 3 Remove the thread cone from the thread stand. Ensure that the thread does not come loose from the thread mast guide loop.



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

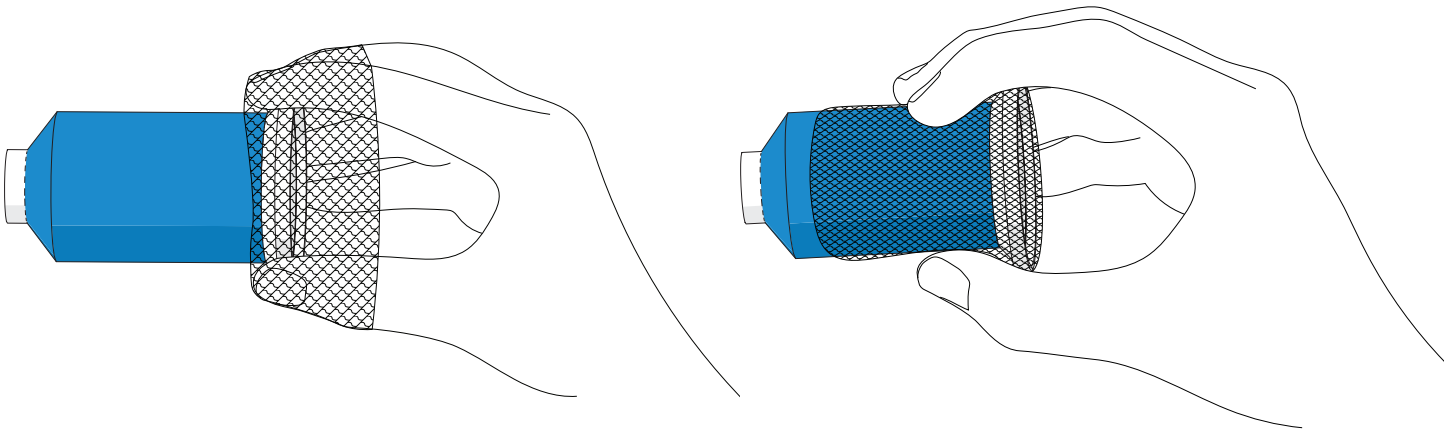


- 4 Insert the thread net about halfway into the underside of the thread cone.

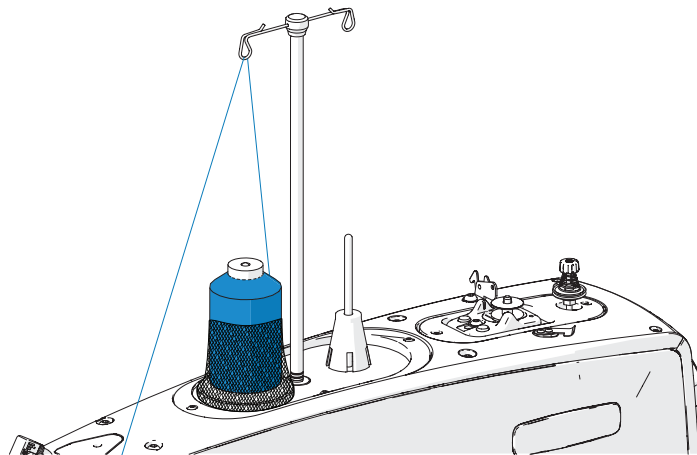


Task 10 - Threading the Machine (continued)

- 5 Use your fingers to widen the lower part of the thread net and wrap it around the base of the thread cone. The thread net should cover at least the bottom half of the thread cone.



- 6 Place the thread cone back onto the thread stand. Your thread will now unwind evenly while quilting.



Congratulations! You have completed Part Three of this manual.

If you are assembling a new frame, turn to Part Three of your frame manual. If your frame manual is not broken into parts, follow the manual's directions to:

- Install and adjust the rails
- Install frame handwheel (if applicable)
- Install the bungee clamps (if applicable)
- Adjust the carriage stop (Cutie Frame only)
- Level the frame

If you are not assembling a new frame but are installing QuiltMotion onto your frame, turn to Part Three of your QuiltMotion manual.

If you are installing your machine onto a frame that is already fully assembled and are not installing QuiltMotion at this time, continue to Part Four of this manual on page 38.

Part Four

If your frame isn't fully assembled at this time, it is recommended to complete Part Three in your frame manual, Part Three in your QuiltMotion manual (optional), and Part Four of your frame manual before you continue.

Progress Checkpoint:

Have you:

- Installed your frame's rails?
- Adjusted the rails to work with your machine?
- Installed frame handwheel (applicable frames only)?
- Installed bungee clamps (applicable frames only)?
- Adjusted the carriage stop (Cutie Frame only)?
- Leveled the frame (applicable frames only)?

Have you:

- Completed QuiltMotion Part Three (optional)?

Have you:

- Prepared your frame for fabric installation?
- Installed your quilt onto your frame?

Quilting

This section of the manual covers how to use the handlebar controls, the different quilting modes, and tools on the display.

Choosing Machine Settings	page 40
Using the Handlebar Controls	page 42
Using Precise Quilting Mode	page 43
Using Cruise Quilting Mode	page 45
Using Manual Quilting Mode	page 47
Using Baste Quilting Mode	page 49
Using the Bobbin Estimator Tool	page 51
Using the Edge Warning	page 53
Adjusting Thread Tension	page 56
Taking Measurements	page 59
Making Calculations	page 61
Tracking Stitch Count and Run Time	page 62
Getting Started	page 63

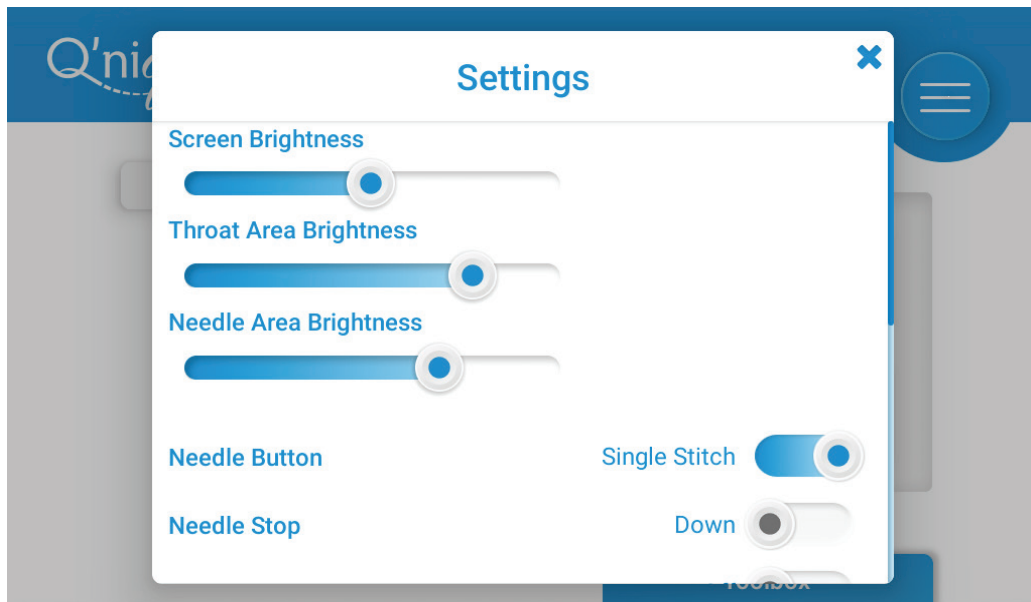
Choosing Machine Settings

To customize the settings for the handlebar controls, screen buttons, or warning icons, take the following steps:

- 1 Press the menu icon in the top right corner of the screen and select **Settings**.



The Settings menu opens.



Note: The machine is unable to stitch while the Settings menu is pulled up.

Choosing Machine Settings (continued)

2 Choose desired settings:

- **Screen Brightness:** Use the sliding button to adjust the brightness of the display.
- **Needle Area Brightness:** Use the sliding button to adjust the brightness of the lamp over the needle area.
- **Needle Button:** Choose whether the needle button on the handlebars will create a single stitch or drop or raise the needle.

Single Stitch: Complete motion of needle up and down.

Needle Up/Down: Move the needle either down into the fabric or up out of the fabric.

- **Needle Stop:** Choose whether the needle will default to the “up” or “down” position when stitching is inactive.
- **Overspeed Sound:** The overspeed alarm can be muted so that there is no beeping when the machine is moved more quickly than the regulated stitching can manage.
- **Overspeed Light:** The red overspeed warning light can be deactivated so that it won't turn on when the machine is moved more quickly than the regulated stitching can manage.
- **Edge Warning Sound:** The edge guard alarm can be muted so that there is no beeping when the machine reaches edge of your set quilting area.
- **Edge Warning Light:** The red edge guard warning light can be deactivated so that it won't turn on when the machine is moved more quickly than the regulated stitching can manage.
- **Click Sound:** Choose whether pressing on-screen buttons should make a sound or not.
- **Stitch Length Units:** Choose to display machine stitch length in stitches per centimeter or stitches per inch.

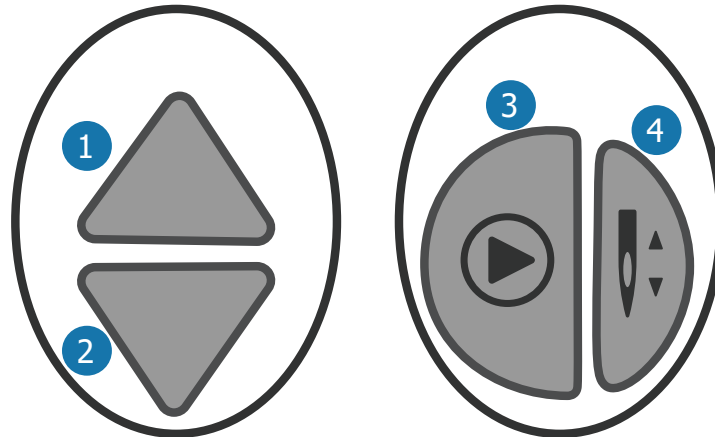
3 Press the **System Info** button to access the System Information screen. This screen shows the display and firmware versions for your machine (see page 62), along with the date of the last firmware update.

4 If needed, press the **Factory Reset** button to return all settings to their original default status.

5 To return to the main screen, press the X in the top right corner of the settings screen or anywhere outside of the settings screen window.

Using the Handlebar Controls

When first powered up, the machine is in regulated precise quilting mode (see page 43) 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 40 for details).

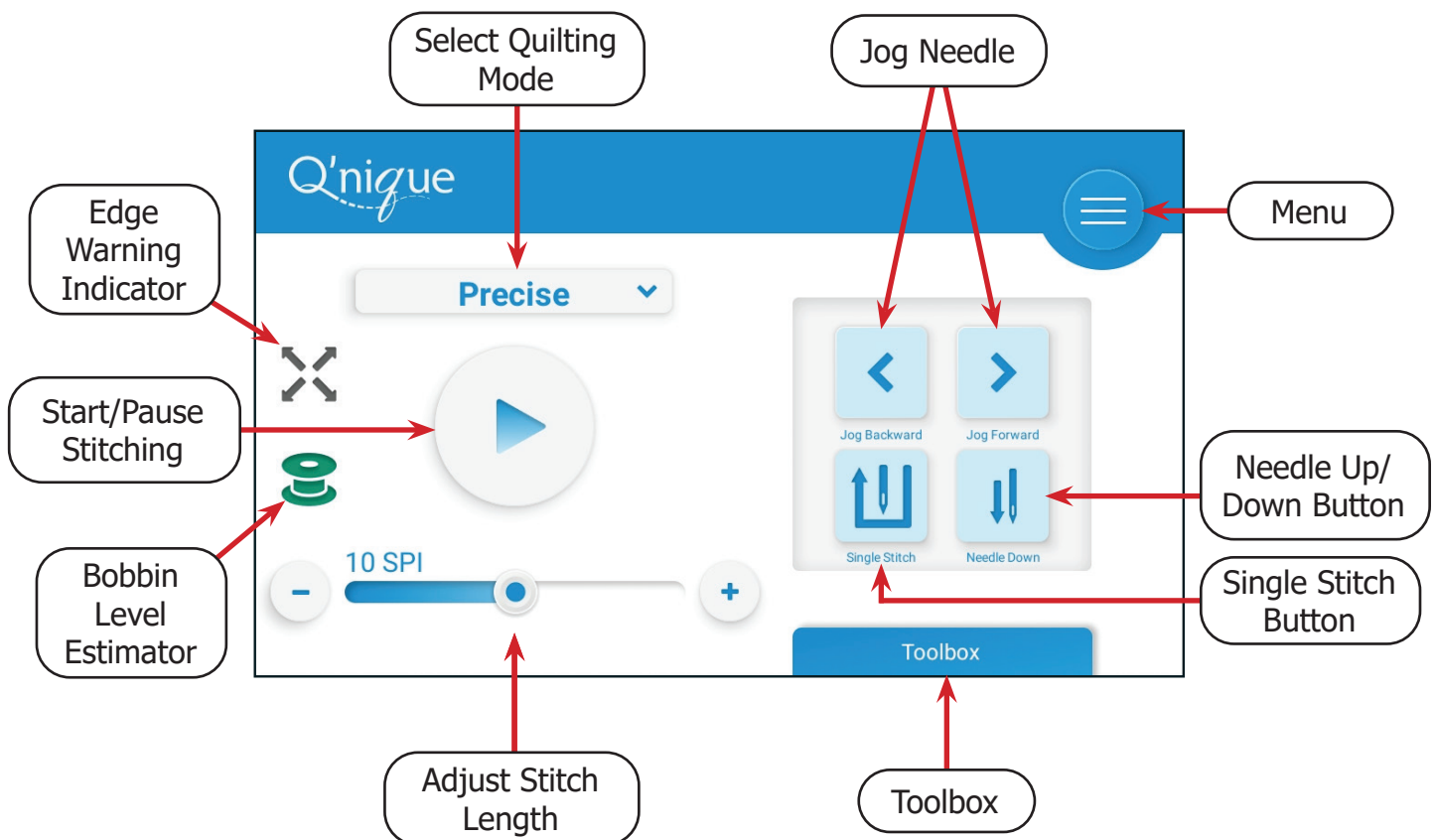


- 1 Increase:** This button increases the number, size, or speed of the stitching, depending upon the quilting mode. For example, in precise quilting mode, this button will increase the number of stitches the machine makes in an inch (SPI) or in a centimeter (SPC).
- 2 Decrease:** This button will decrease the number, size, or speed of the stitching depending upon the quilting mode.
- 3 Start/Stop Quilting:** Press to start or stop stitching.
- 4 Needle Button:** Press to create a single stitch or to toggle the needle between the up and down positions, based upon settings (see “Choosing Machine Settings” on page 40 for details).

Using Precise Quilting Mode



The machine defaults to precise quilting mode when turned on. In this regulated quilting mode, you select the stitch length you want and the machine will adjust to help make more consistent stitches as you move the machine faster or slower or change direction. It will only stitch when you move the machine, which helps with patterns that have corners or crisp points.

To reach this quilting mode, press the **select quilting mode** button and select **Precise**.



To quilt in regulated precise quilting mode, take the following steps:

- 1 Confirm that the **stitch length**, measured in stitches per inch or stitches per centimeter, is the desired length. Note: To change units, go to the **Settings** menu (see page 40).

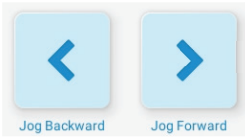
Use the   symbols or the sliding bar to adjust the stitches per inch. Higher SPI means shorter stitch length.

- 2 When stitching is inactive, press the single stitch button or the needle up/down button on the display to make single stitches. This can also be done with the needle button on the right handle, depending on settings. To switch the type of stitch created with the handle button, go to the Settings menu (see page 40).

Note: While stitching is active, the **single stitch** and **needle up/down buttons** on the display and the **needle button** on the handlebar controls are disabled.

Using Precise Quilting Mode (continued)

- 3 Position the quilting machine over the quilt. If needed, use the **needle jog** buttons to move the needle closer or farther from the fabric in small increments to help place your first stitch.



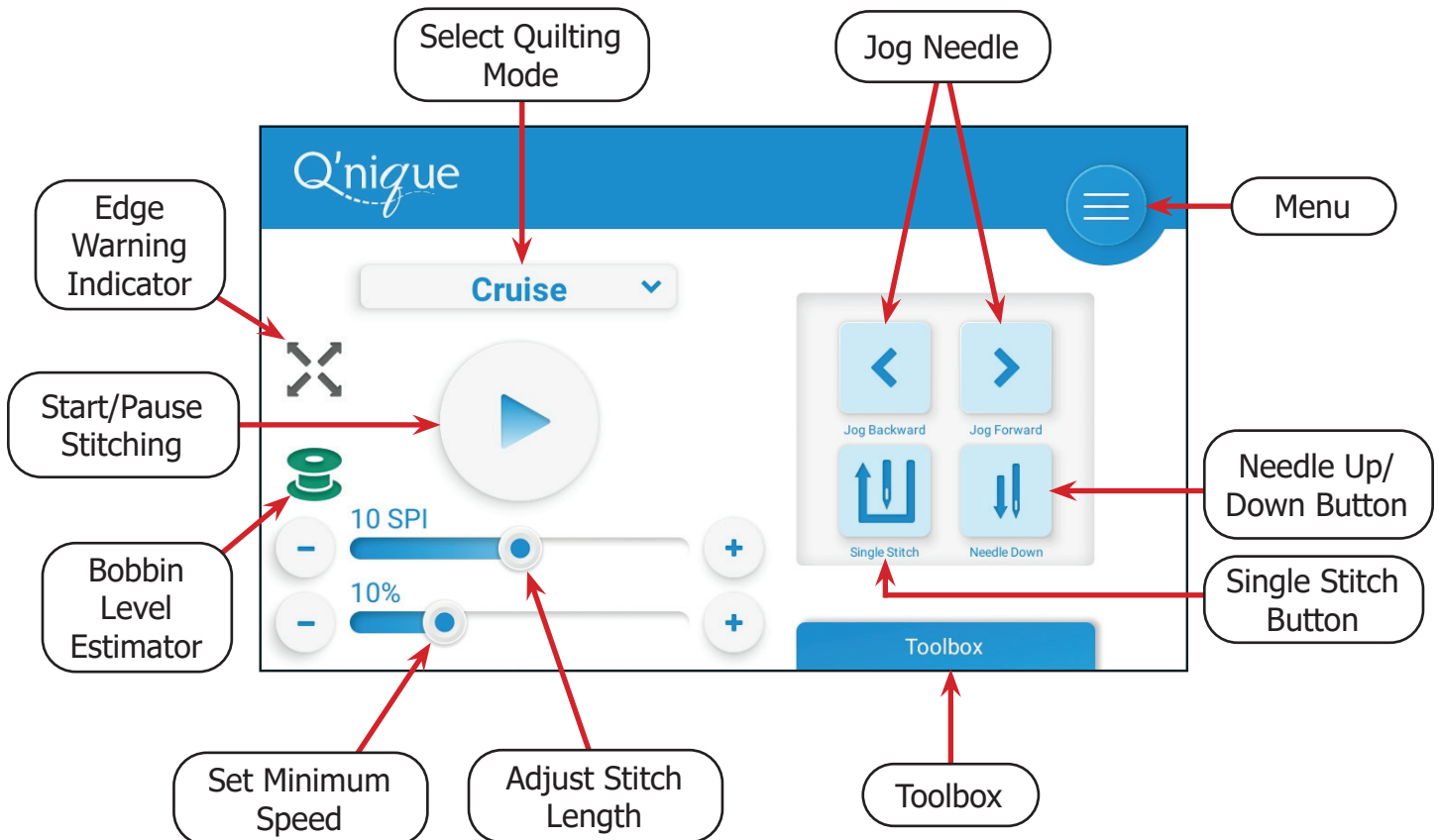
Press to move the needle up or down in small increments.

- 4 Moving the machine too quickly while quilting can reduce the quality of the stitch regulation. If the machine is moved too quickly, an alarm will sound, a red LED light will shine on the needle area, and the **start stitching button** on the display will turn red. Slow the machine's movement to turn off the alarm, light, and display alert. Both the alarm and the display alert can be deactivated in the **Settings** menu.
- 5 When activated, the **bobbin estimator** will show on the left side of the display. For instructions on how to use the bobbin level estimator, see page 51.
 - When the icon is green, the bobbin is estimated to be between 21% and 100% full.
 - When the icon is yellow, the bobbin is estimated to be between 11% and 20% full.
 - When the icon is red, the bobbin is estimated to be under 10% full.
- 6 When activated, the **edge warning indicator** will display on the left side of the screen. This indicator will turn red when you reach the edge of the set quilting area. For instructions on how to use the edge warning alert, see page 53.
- 7 You may find that you need to take measurements or do quick calculations while you quilt. Press **Toolbox** to access the calculator and measure tools.
- 8 To stop stitching, press the **start/pause stitching** button on the display or the handlebars. The needle will move into the needle stop position indicated in the Settings menu (see page 40).

Using Cruise Quilting Mode

Cruise mode is another regulated mode. You select the stitch length you want and the machine will adjust to help make more consistent stitches as you move the machine faster or slower or change direction. However, the machine will continue to stitch in place (at the minimum speed) if you stop moving the machine. This mode is helpful for continuous, smooth, or curvy designs.

To switch to cruise quilting mode, press the **select quilting mode** button and select **Cruise**.



To quilt in cruise quilting mode, take the following steps:

- 1 Confirm that the **stitch length**, measured in stitches per inch or stitches per centimeter, is the desired length. Note: To change units, go to the **Settings** menu (see page 40).

Use the symbols or the sliding bar to adjust the stitches per inch. Higher SPI means shorter stitch length.

- 2 Determine the **minimum speed** the machine will stitch at when stitching is active but the machine is not being moved. This can be set from 5% to 25% of the machine's top speed of 2600 stitches per minute.

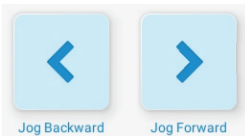
Use the symbols or the sliding bar to adjust the minimum speed

Using Cruise Quilting Mode (continued)

- 3 When stitching is inactive, press the single stitch button or the needle up/down button on the display to make single stitches. This can also be done with the needle button on the right handle, depending on settings. To switch the type of stitch created with the handle button, go to the Settings menu (see page 40).

Note: While stitching is active, the **single stitch** and **needle up/down buttons** on the display and the **needle button** on the handlebar controls are disabled.

- 4 Position the quilting machine over the quilt. If needed, use the **needle jog** buttons to move the needle closer or farther from the fabric in small increments to help place your first stitch.



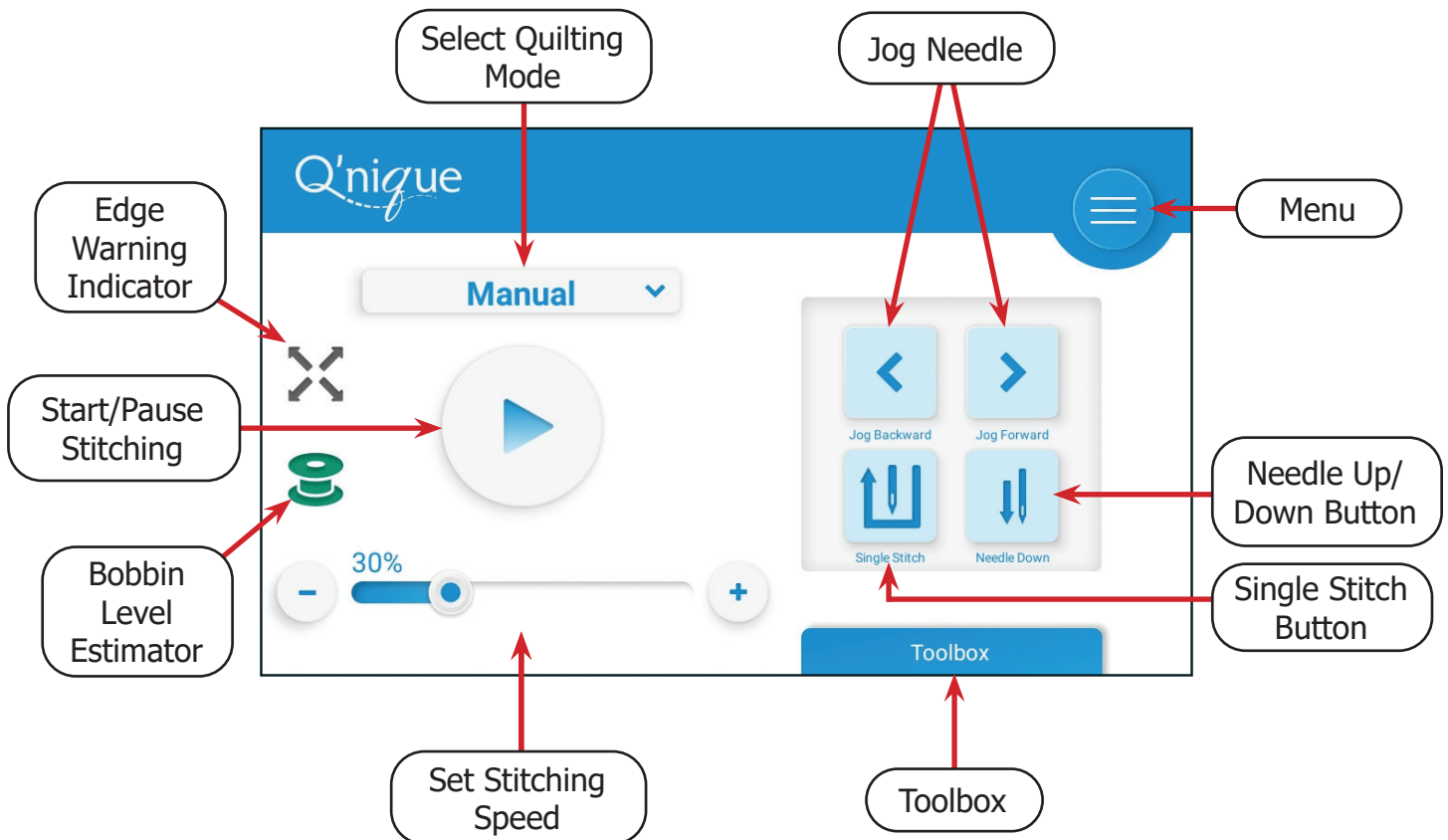
Press to move the needle up or down in small increments.

- 5 Moving the machine too quickly while quilting can reduce the quality of the stitch regulation. If the machine is moved too quickly, an alarm will sound and the **start stitching button** on the display will turn red. Slow the machine's movement to turn off the alarm and display alert. Both the alarm and the display alert can be deactivated in the **Settings** menu.
- 6 When activated, the **bobbin estimator** will show on the left side of the display. For instructions on how to use the bobbin level estimator, see page 51.
 - When the icon is green, the bobbin is estimated to be between 21% and 100% full.
 - When the icon is yellow, the bobbin is estimated to be between 11% and 20% full.
 - When the icon is red, the bobbin is estimated to be under 10% full.
- 7 When activated, the **edge warning indicator** will display on the left side of the screen. This indicator will turn red when you reach the edge of the set quilting area. For instructions on how to use the edge warning alert, see page 53.
- 8 You may find that you need to take measurements or do quick calculations while you quilt. Press **Toolbox** to access the calculator and measure tools.
- 9 To stop stitching, press the **start/pause stitching** button on the display or the handlebars. The needle will move into the needle stop position indicated in the Settings menu (see page 40).

Using 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 patterns.

To switch to manual quilting mode, press the **select quilting mode** button and select **Manual**.



To quilt in manual quilting mode, take the following steps:

- 1 Confirm that the **stitch speed** is set to the desired speed. The speed is measured as a percentage of the machine's maximum speed of 2600 stitches per minute.

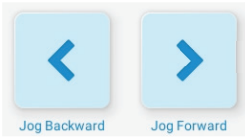
Use the symbols or the sliding bar to adjust the machine speed

- 2 When stitching is inactive, press the single stitch button or the needle up/down button on the display to make single stitches. This can also be done with the needle button on the right handle, depending on settings. To switch the type of stitch created with the handle button, go to the Settings menu (see page 40).

Note: While stitching is active, the **single stitch** and **needle up/down buttons** on the display and the **needle button** on the handlebar controls are disabled.

Using Manual Quilting Mode (continued)

- 3 Position the quilting machine over the quilt. If needed, use the **needle jog** buttons to move the needle closer or farther from the fabric in small increments to help place your first stitch.



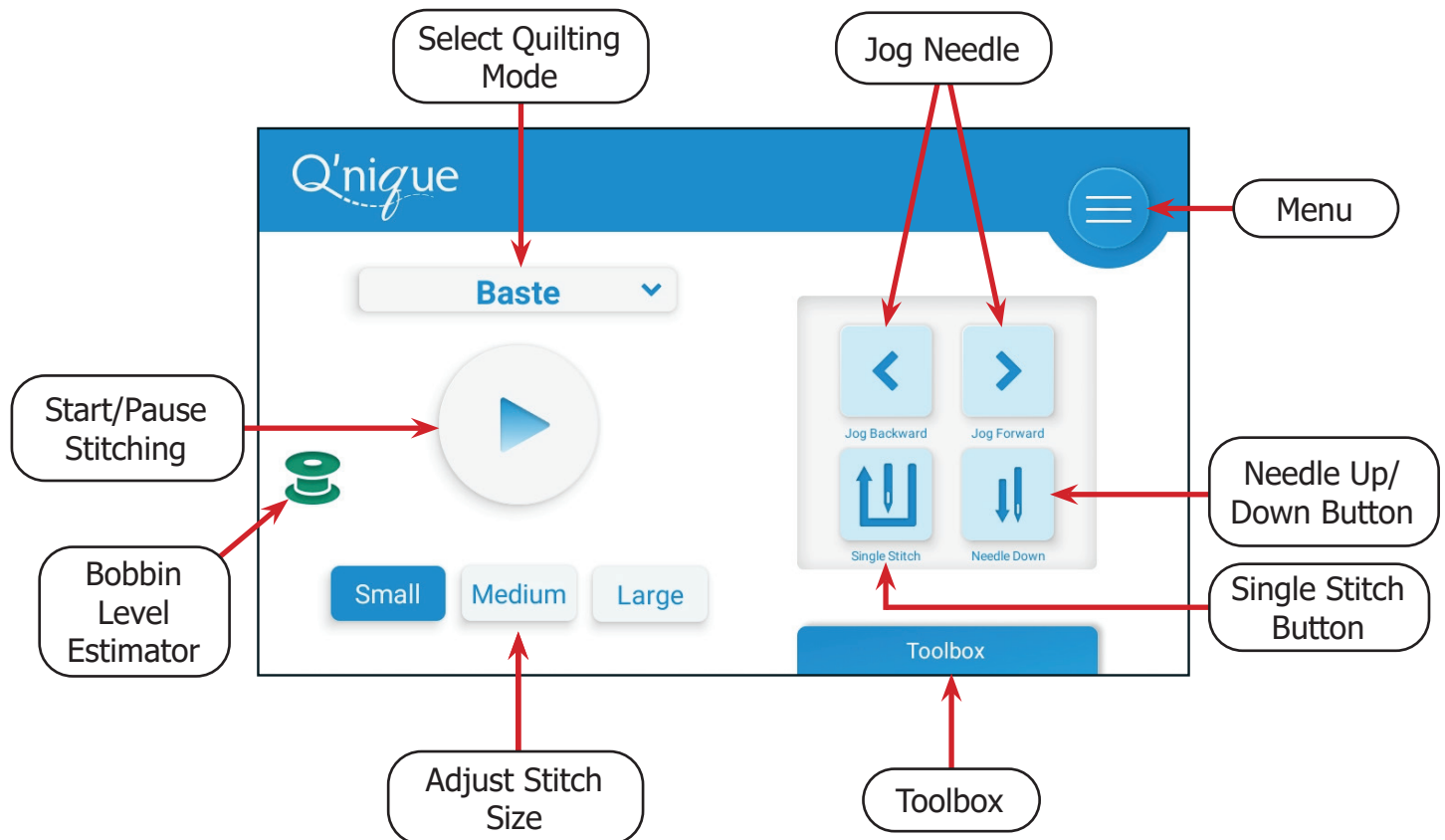
Press to move the needle up or down in small increments.

- 4 When activated, the **bobbin estimator** will show on the left side of the display. For instructions on how to use the bobbin level estimator, see page 51.
 - When the icon is green, the bobbin is estimated to be between 21% and 100% full.
 - When the icon is yellow, the bobbin is estimated to be between 11% and 20% full.
 - When the icon is red, the bobbin is estimated to be under 10% full.
- 5 When activated, the **edge warning indicator** will display on the left side of the screen. This indicator will turn red when you reach the edge of the set quilting area. For instructions on how to use the edge warning alert, see page 53.
- 6 You may find that you need to take measurements or do quick calculations while you quilt. Press **Toolbox** to access the calculator and measure tools.
- 7 To stop stitching, press the start/pause stitching button on the display or the handlebars. The needle will move into the needle stop position indicated in the Settings menu (see page 40).

Using Baste Quilting Mode

Use baste mode to create loose, temporary stitches around the edge of your quilt top to hold layers of fabric together while quilting.

To switch to baste quilting mode, press the **select quilting mode** button and select **Baste**.



To quilt in baste quilting mode, take the following steps:

- 1 Confirm that the **stitch size**, (small, medium, or large) is the desired length.
- 2 When stitching is inactive, press the single stitch button or the needle up/down button on the display to make single stitches. This can also be done with the needle button on the right handle, depending on settings. To switch the type of stitch created with the handle button, go to the Settings menu (see page 40).

Note: While stitching is active, the **single stitch** and **needle up/down buttons** on the display and the **needle button** on the handlebar controls are disabled.

Using Baste Quilting Mode (continued)

- 3 Position the quilting machine over the quilt. If needed, use the **needle jog** buttons to move the needle closer or farther from the fabric in small increments to help place your first stitch.



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

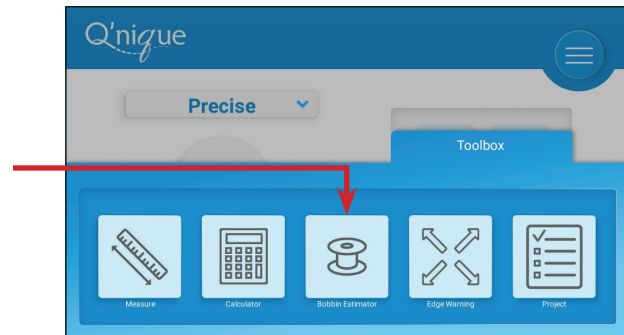
- 4 Moving the machine too quickly while quilting can reduce the quality of the stitch regulation. If the machine is moved too quickly, an alarm will sound and the **start stitching button** on the display will turn red. Slow the machine's movement to turn off the alarm and display alert. Both the alarm and the display alert can be deactivated in the **Settings** menu.
- 5 When activated, the **bobbin estimator symbol** will show on the left side of the display. For instructions on how to use the bobbin level estimator, see page 51.
 - When the icon is green, the bobbin is estimated to be between 21% and 100% full.
 - When the icon is yellow, the bobbin is estimated to be between 11% and 20% full.
 - When the icon is red, the bobbin is estimated to be under 10% full.
- 6 Edge Warning is automatically deactivated in Baste Mode
- 7 You may find that you need to take measurements or do quick calculations while you quilt. Press **Toolbox** to access the calculator and measure tools.
- 8 To stop stitching, press the start/pause stitching button on the display or the handlebars. The needle will move into the needle stop position indicated in the Settings menu (see page 40).

Note: Edge warning is inactive while in the baste quilting mode.

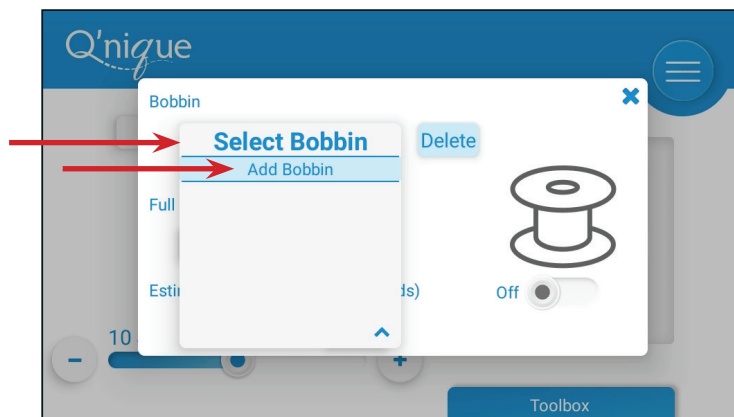
Using the Bobbin Estimator Tool

The bobbin estimator calculates the likely amount of thread remaining on the bobbin. To achieve the closest estimate, information must be accurately entered into the Bobbin Estimator screen. Take the following steps to use the bobbin estimator tool:

- 1 To access the bobbin estimator tool, tap on the **Toolbox** at the bottom of any quilting mode screen and select the **bobbin estimator**.



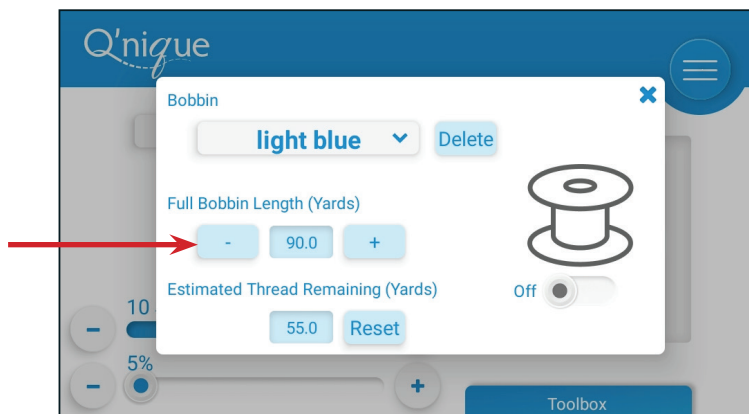
- 2 Press **Select Bobbin**. The drop-down menu will show a list of any bobbins you've added in the past. To add a bobbin, press **Add Bobbin**. An on-screen keyboard will appear so you can name the new bobbin.



Tip: Choose a bobbin name that will make it easy to identify which bobbin you're using so that if you have to swap between partially used bobbins you can be sure to select the correct one from the list.

Name examples: "Ct Light Blue" for light blue cotton, or "Poly Wht 40 Wt" for 40-weight white polyester.

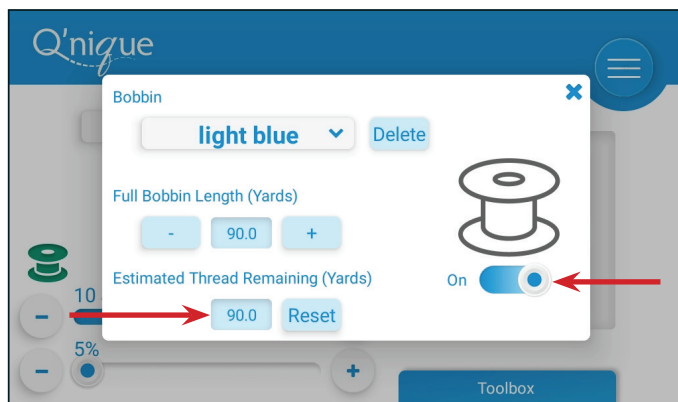
- 3 Enter the estimated number of yards on the bobbin. As a starting reference, an M-class bobbin fully wound with 40 wt cotton thread is approximately 90 yards. Yardage will vary depending on the fiber and weight of the thread used.



Tip: It may take some practice to estimate the length of a fully wound bobbin. Keep a record of your starting estimate. When you run out of bobbin thread, open the estimator tool and see how much thread remains. Use this information to adjust your starting estimate next time you use the same type of thread.

Using the Bobbin Estimator Tool (continued)

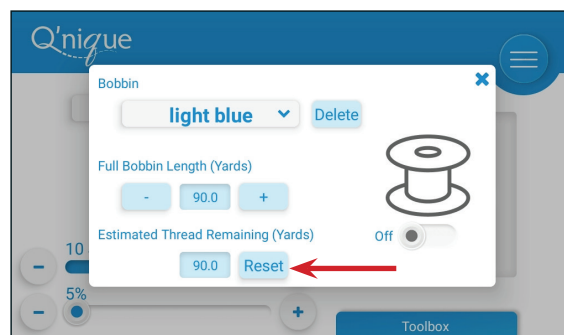
- 4 Turn on the bobbin estimator with the switch on underneath the bobbin image. When **on**, any stitches the machine makes will subtract from the **estimated thread remaining**.



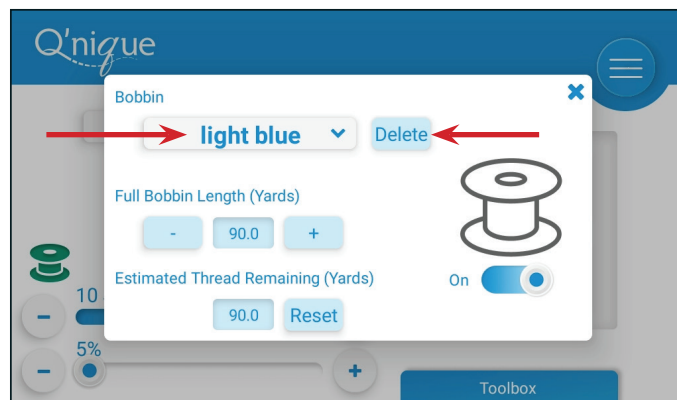
The **bobbin estimator symbol** will also show on the left side of the quilting mode screen when the estimator is on. Color changes notify when the bobbin is estimated to be nearing the end of the thread.

- 5 When the bobbin thread is used up, you can either delete the record of the bobbin or reset it to be used again. **Reset** is recommended if you're planning on winding the bobbin back up with the same thread.

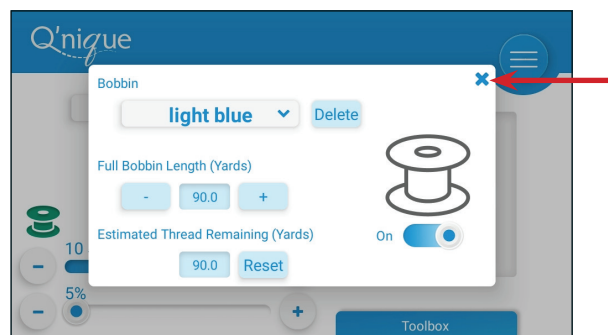
Press **Reset** to restore the estimated thread remaining to the full estimate.



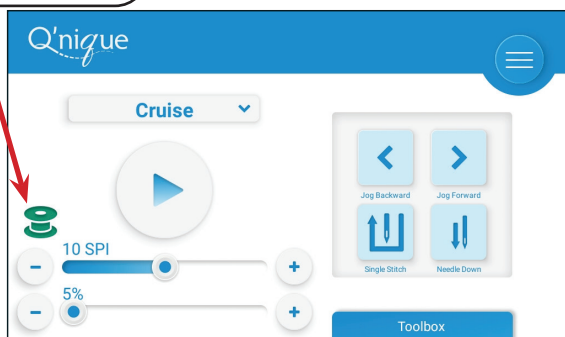
To delete a bobbin, select it from the drop-down and press **delete**.






- 6 To return to the main quilting screen, press the **X** in the top right corner or press anywhere outside of the bobbin estimator screen.



Bobbin Estimator Symbol



-  21% - 100% remaining
-  11% - 20% remaining
-  0% - 10% remaining

Note: Pressing this symbol on a quilting screen will bring up the bobbin estimator tool.

Using the Edge Warning

The edge warning alert system helps you stay within a “safe area” of your quilt by notifying you when you approach the edge of a set boundary. This will help prevent the machine from hitting the rails of the frame, but you can also set boundaries around a particular block or section of the quilt.

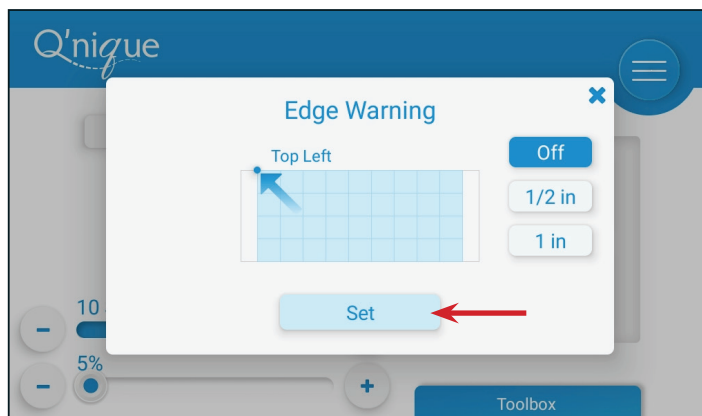
Note: Edge Warning is automatically deactivated in Baste Mode, so the alarm will not bother you while tacking down your quilt.

Take the following steps to use the edge warning tool:

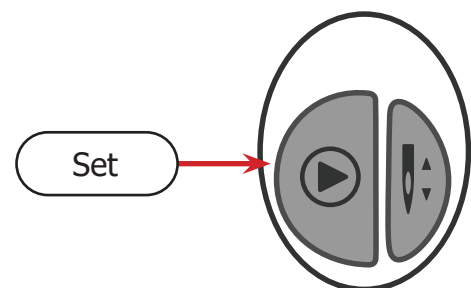
- 1 To access the edge warning tool, tap on the **Toolbox** at the bottom of any quilting mode screen and select **Edge Warning**.



- 2 Move your machine so that your needle is at the top left corner of the area you want to mark as your safe area. Press the **set** button.

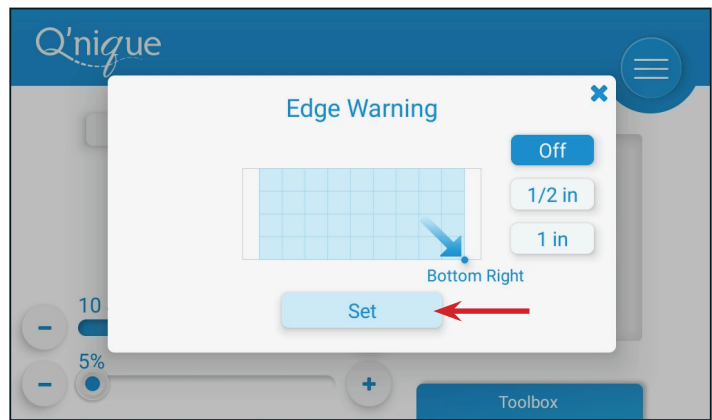


Tip: You can also use the start/stop quilting button on the right handlebar to set the corners of the “safe area.”



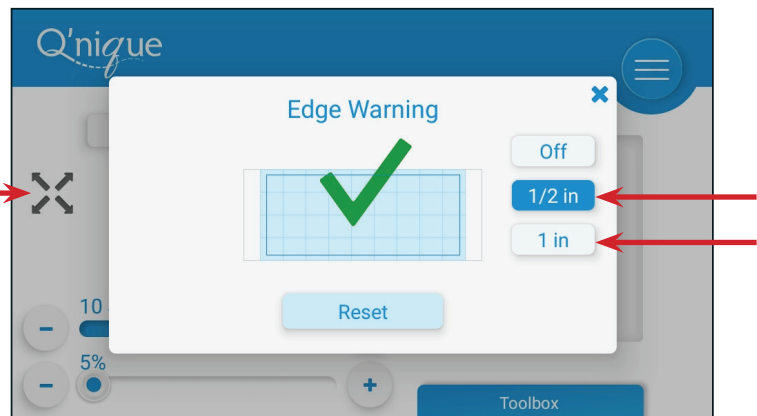
Using the Edge Warning (continued)

- 3 Move your machine so that your needle is at the bottom right corner of the area you want to mark as your safe area. Press the **set** button.

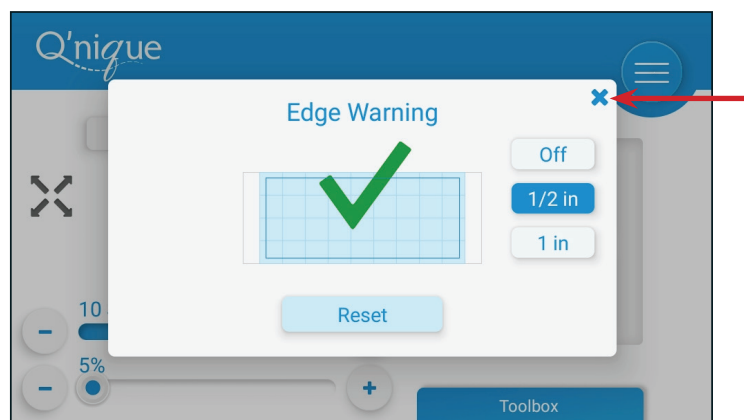


- 4 After marking your boundaries, set the machine to notify you when your needle is within 1/2 inch or 1 inch of any of those boundaries. Once this is set, a green check mark will appear to confirm everything saved successfully.

Note: The edge warning symbol will also appear on the main quilting screen. Pressing this symbol on the main quilting screen will bring up the edge warning tool.

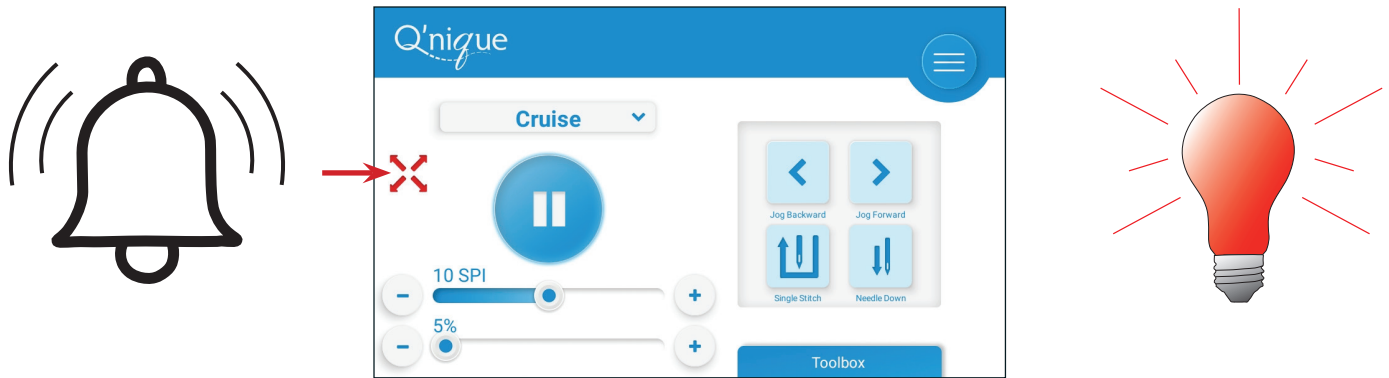


- 5 To return to the main quilting screen, press the X in the top right corner or press anywhere outside of the edge warning screen.



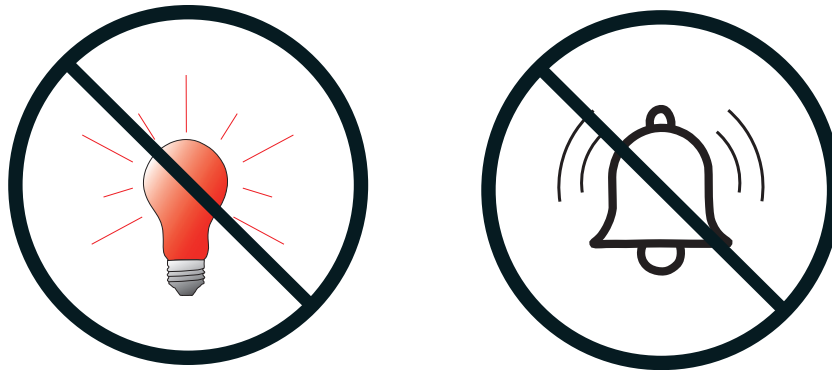
Using the Edge Warning (continued)

- 6 Whenever you approach or cross the boundaries while quilting, an alarm will sound, a red LED light will shine on the needle area, and the **edge warning symbol** on the left side of the main quilting screen will turn red. These alerts persist until you return to the established "safe area."

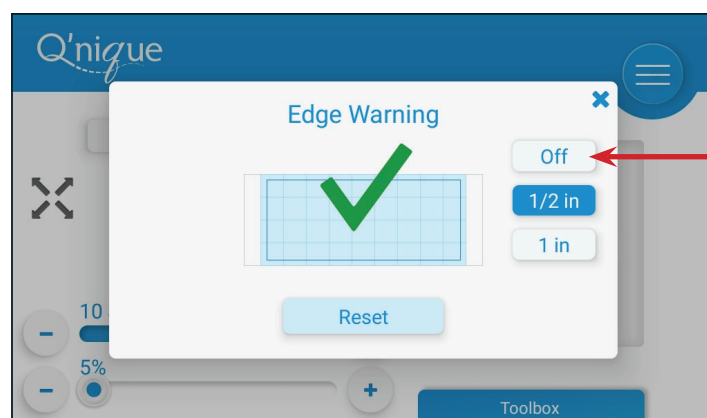
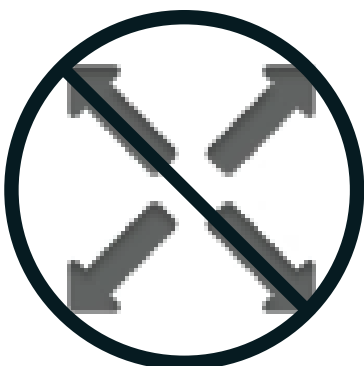


Note: Edge Warning is automatically deactivated in Baste Mode.

- 7 The light and the alarm can each be deactivated in the settings screen (see page 40).



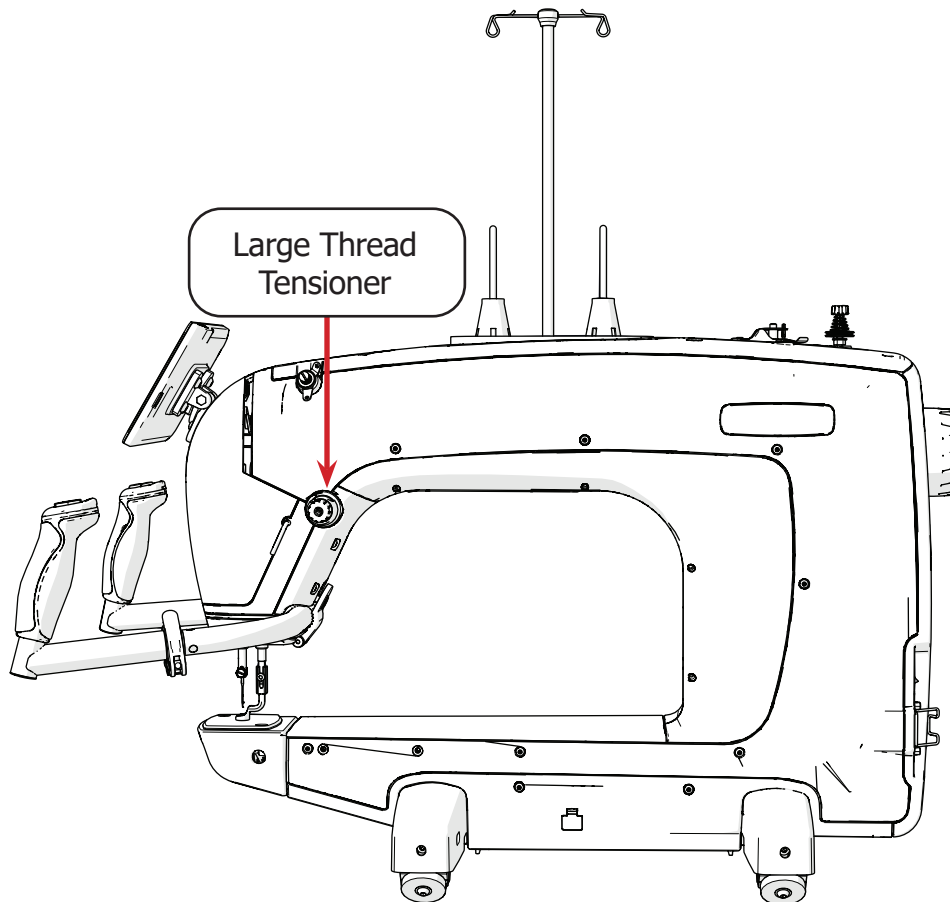
To hide the edge warning symbol on the quilting screen, turn off the edge warning tool from the edge warning screen. This will also deactivate the warning light and alarm.



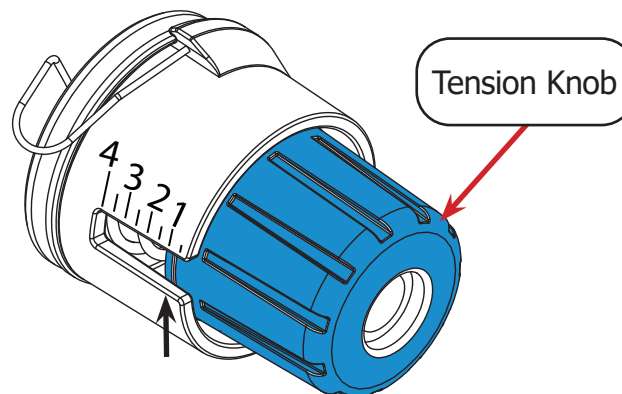
Adjusting Thread Tension

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

Tip: Bottom thread tension is the foundation for proper thread tension, and should be set first before setting top tension. Bottom tension is addressed in “Task 9 - Loading the Bobbin Case” (see page 28).



- 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. Do not over loosen: the tension knob may unscrew and fall off.

Adjusting Thread Tension (continued)

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

**Too Much Top
Tension**



Bottom thread is pulled to the top of the fabric.

**Balanced
Tension**



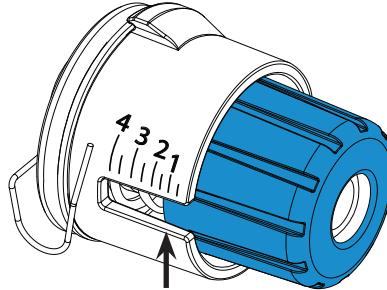
**Too Little Top
Tension**



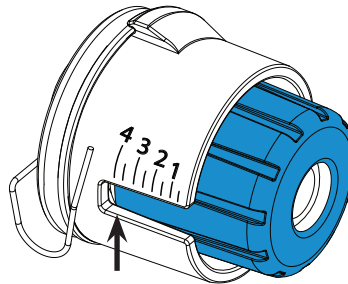
Top thread is pulled to the bottom of the fabric.

Adjusting Thread Tension (continued)

- If the bobbin (bottom) thread 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." Stop turning the knob when desired tension is achieved.



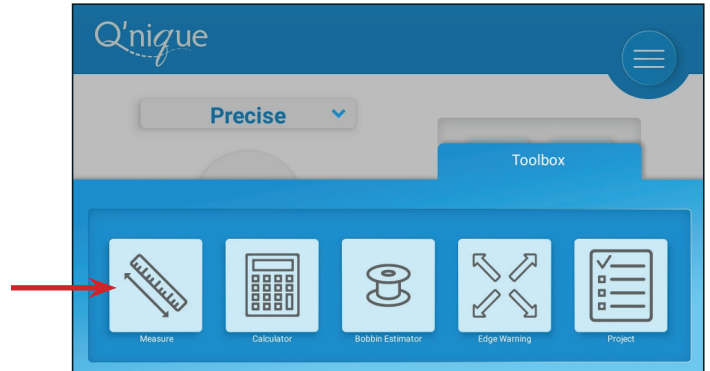
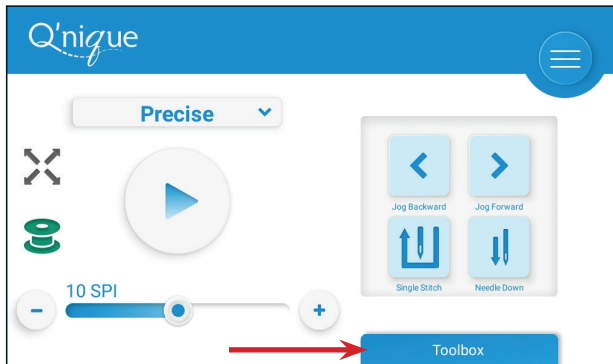
- If the top thread is pulled down through the bottom layer of fabric, there is too little top tension. Increase the tension on the top by slowly turning the large thread tensioner knob toward setting "4." Stop turning the knob when desired tension is achieved.



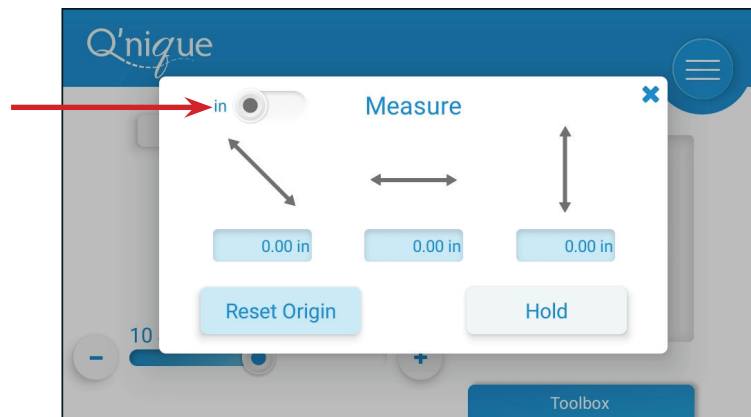
Taking Measurements

Your machine can be used to take measurements across the surface of your quilt.

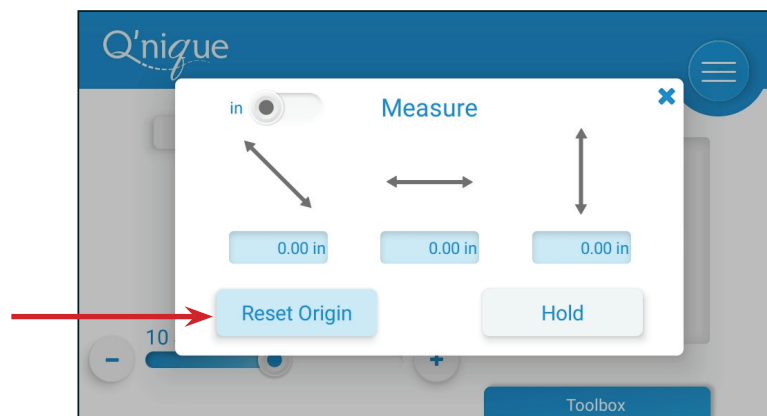
- 1 To access the measure tool, tap on the **Toolbox** at the bottom of any quilting mode screen and select **Measure**.



- 2 Select whether you want to measure using inches or centimeters.

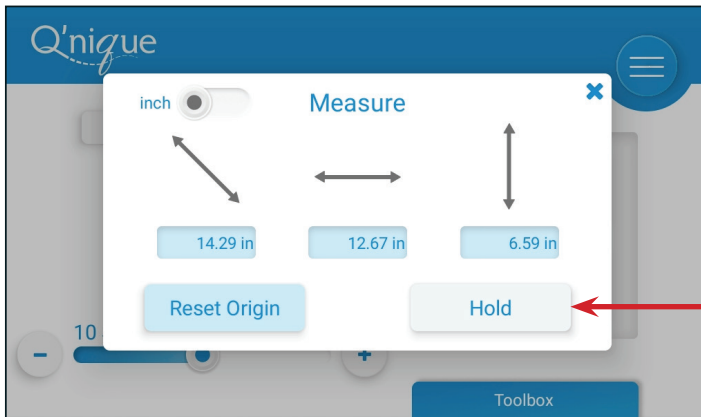


- 3 Move the machine so that the needle is at the position where you want to start your measurement and click the **Reset Origin** button. This origin will be saved until you reset it again.



Taking Measurements (continued)

- 4 Move the machine so that the needle is at the end point of your measurement. You can click the Hold button to keep the measurements on screen even if you move your machine.



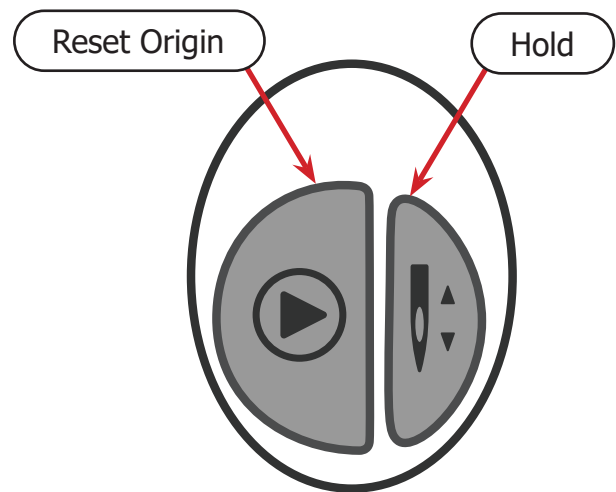
Measures the actual distance from the origin to the end point.



Measures the horizontal distance from the origin.

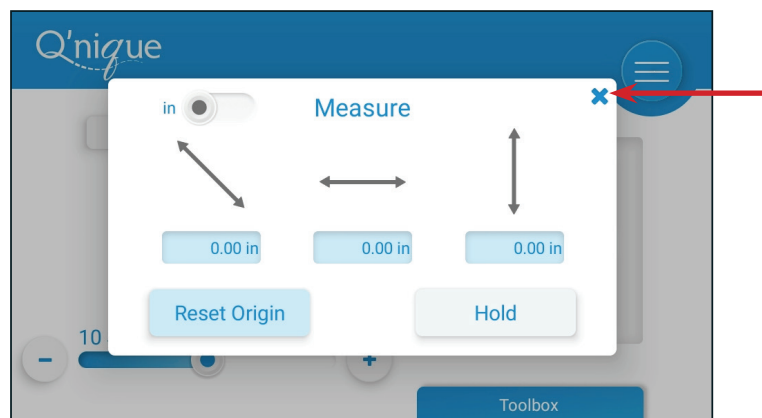


Measures the vertical distance from the origin.



Tip: You can also use the buttons on the right handlebar to reset the origin and hold the measurements.

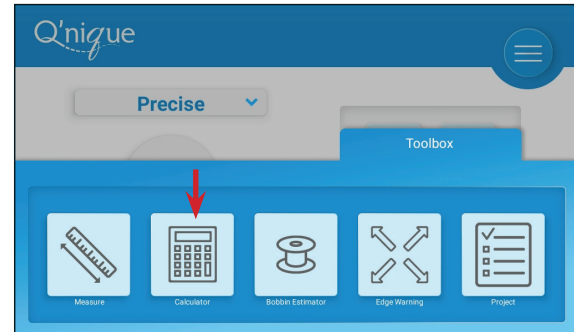
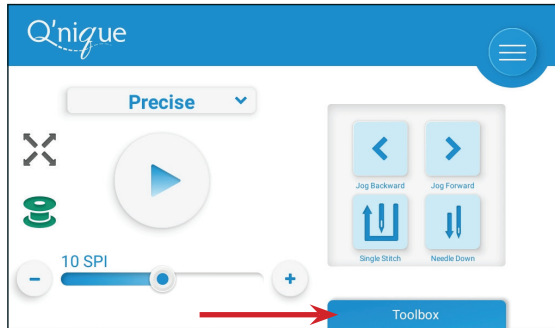
- 5 To resume measuring, press **Hold** a second time.
- 6 To return to the main quilting screen, press the X in the top right corner or press anywhere outside of the measure screen.



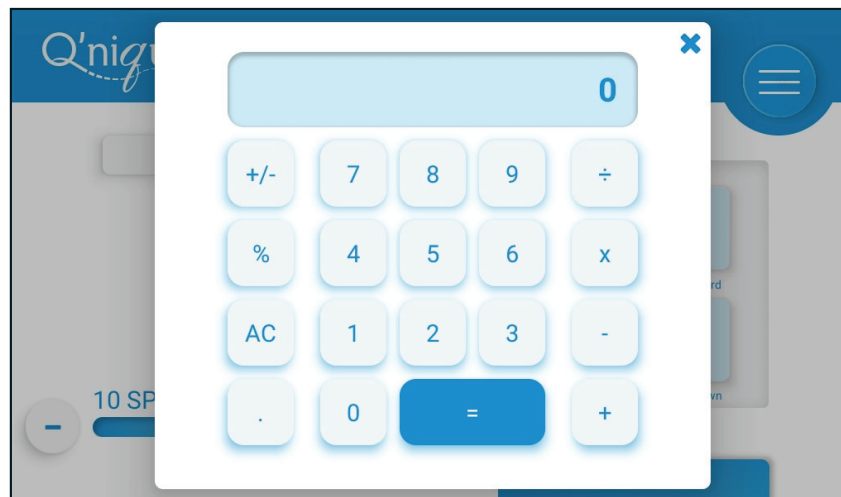
Making Calculations

Your machine can be used to make quick calculations.

- 1 To access the calculator, tap on the **Toolbox** at the bottom of any quilting mode screen and select **Calculator**.



- 2 Use the calculator to add, subtract, multiply, divide, and find percentages.



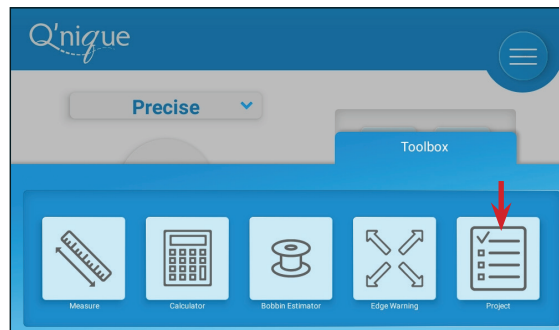
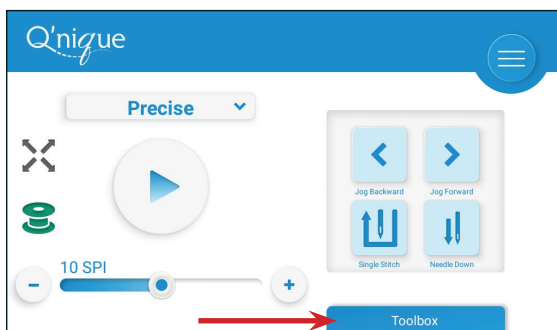
- 3 To return to the main quilting screen, press the X in the top right corner or press anywhere outside of the calculator screen.



Tracking Stitch Count and Run Time

You can track the stitch count and run time of both your current project and the lifetime of the machine in the project tool.

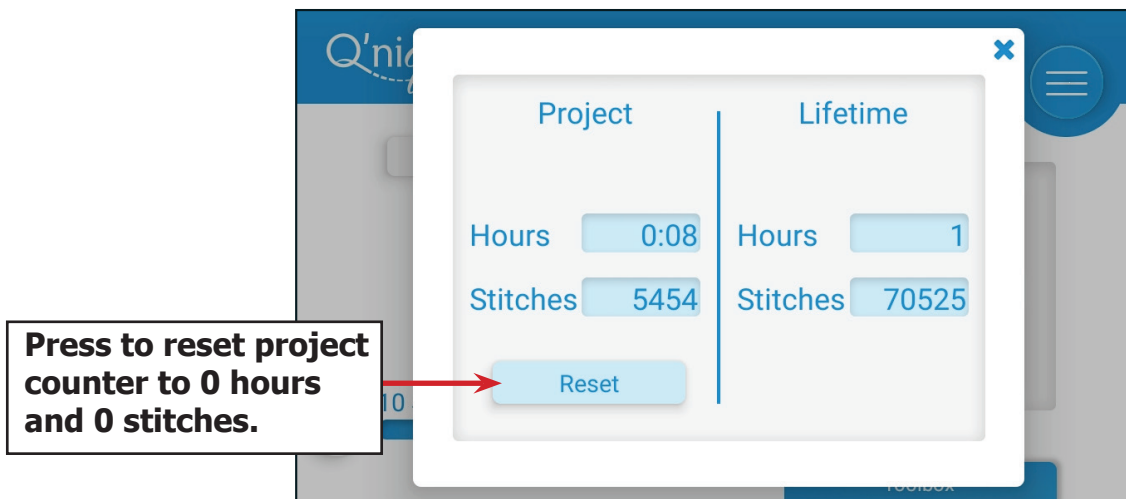
- 1 To access the project tool, tap on the **Toolbox** at the bottom of any quilting mode screen and select **Project**.



- 2 This screen will show the run time and stitch data for both the current project and lifetime of the machine.

Project shows the total run time in hours and minutes along with the total stitches since the last reset.

Lifetime shows the total run time in hours along with the total stitches since the machine was purchased.



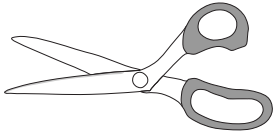
Tip: It's recommended to oil your machine after 20 hours of use. The "Hours Run" counter can help keep track of when your machine is due to be oiled. After cleaning and oiling your machine, press **Reset** to start the counters under **project** back at zero.

The counters under **lifetime** cannot be reset.

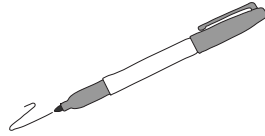
Getting Started

Parts & Tools Needed:

Scissors
(not included)



Washable Fabric
Marker/chalk (not
included)



Instructions

With the machine fully assembled, you are ready to begin quilting. Practice on spare fabric to become familiar with the machine's settings and movements so you can start your projects with confidence. It is normal to make mistakes, so don't get discouraged if your stitches don't look perfect right away. Follow the steps in this section to get started and you'll be quilting in no time!

- 1 **Relax!** Take a deep breath and don't be afraid to take it slow.

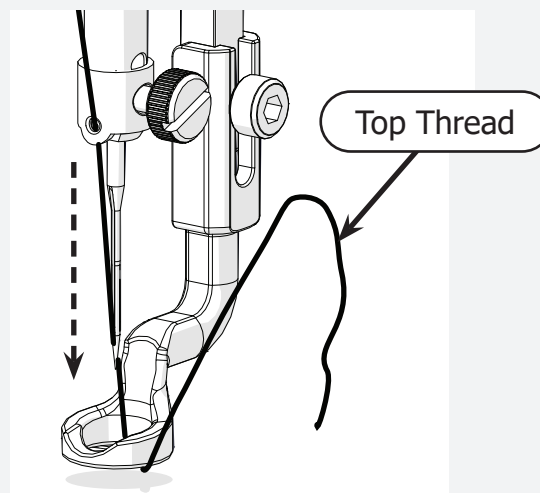
Make sure that the following items have been completed:

- Your machine is threaded and tensioned.
- Your practice fabric is attached.
- You have established any machine settings you want to use.



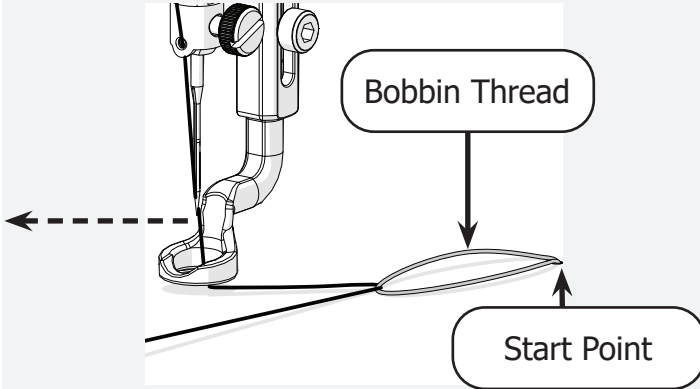
- 2 Before you begin stitching, pull up your bobbin thread to prevent the thread tail from dangling underneath the fabric as you quilt and getting sewn in place.

- a First, position the needle directly above where you want to begin your pattern.
- b Pull on the **top thread** so that it is tight and jog the needle up and down using the single stitch button on the display.

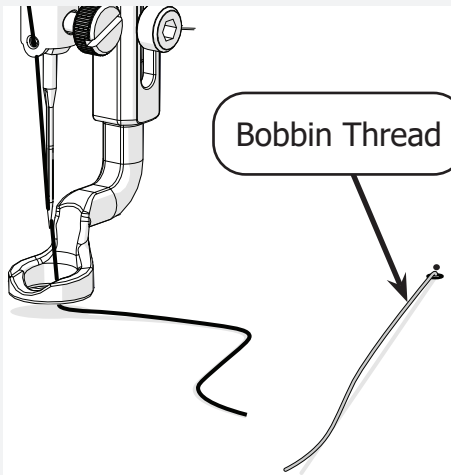


Getting Started (continued)

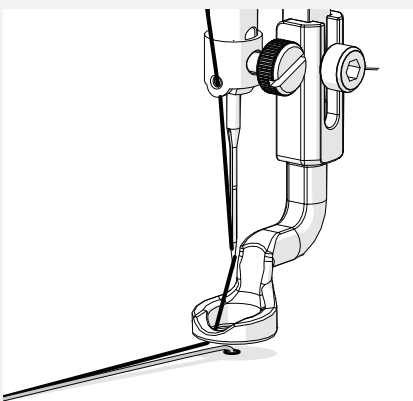
- c While still tightly holding the top thread, move the machine several inches to the side. Your top thread should pull a loop of **bobbin thread** through the **start point** to the top of the fabric.



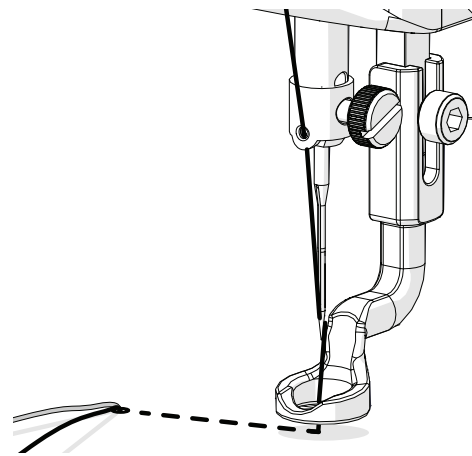
- d Pull on the loop of **bobbin thread** until the loose end of the thread comes up from underneath the fabric.



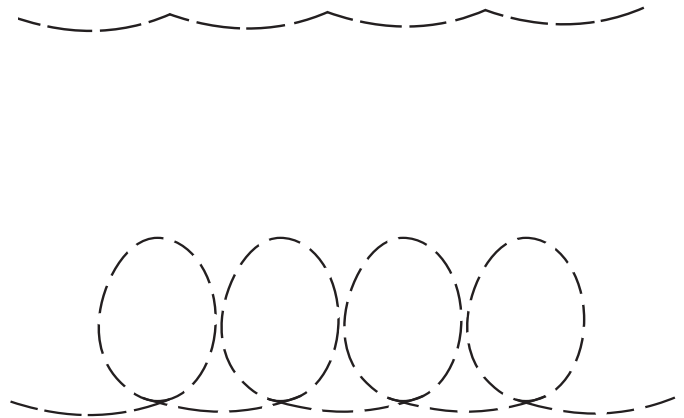
- e Pull on the bobbin thread while moving the machine back to the start point. This makes sure that there is no loose thread underneath the fabric.



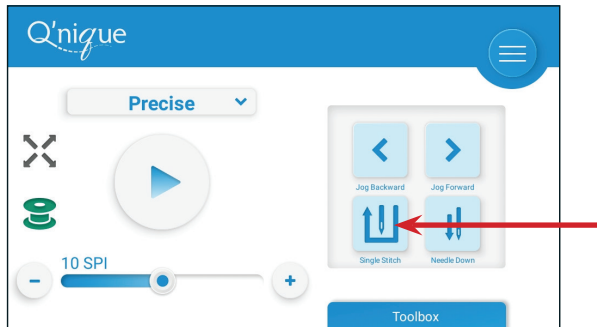
- 3 Begin stitching. Be sure to start your pattern as close as possible to the start point where you pulled out the bobbin thread.



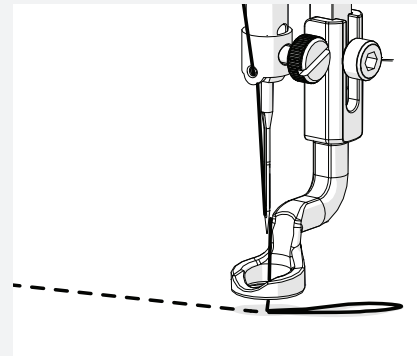
- 4 With fabric chalk or a marker, draw a simple pattern or write your name on the fabric and then stitch over it to practice.



- 5 Complete the pattern by making a tie-off stitch. Use the single stitch button to make a few small stitches very close together.

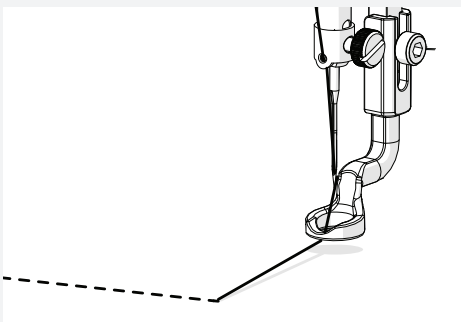


- c Make a single stitch over the tie-off.

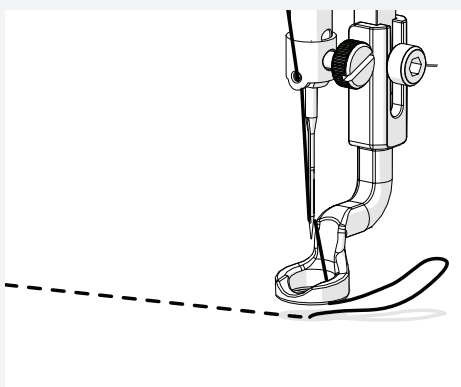


- 6 To pull up the bobbin thread after making a tie-off, take the following steps:

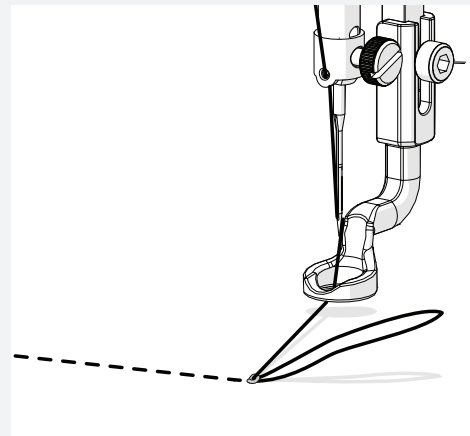
- a Move the machine away from the tie-off stitch.



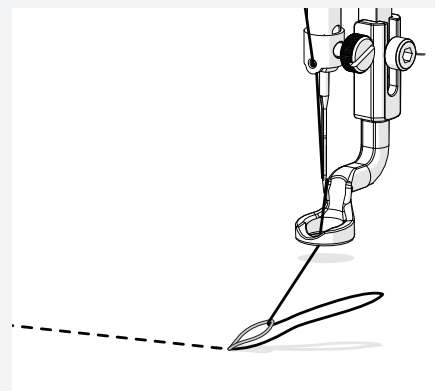
- b Hold the thread to make a loop and return the machine to the tie-off stitch.



- d Hold the loop and move the machine away from the tie-off again.



- e Keep moving away from the tie-off until a loop of bobbin thread is pulled up above the fabric. Cut all threads close to the tie-off.



Getting Started (continued)

- 7 You may now cut the thread tails from the beginning of the pattern.

Practice! Keep trying different stitches until you feel comfortable with how your machine feels and moves. You can always attach a new practice quilt if you need to.

Congratulations! Now that you have practiced and gotten used to the basic settings and movements of your machine, you are ready to begin your quilting journey.

Good luck, and thank you again for choosing The Grace Company to help with your quilting needs.

Maintaining the Machine

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

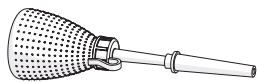
This section of the manual covers oiling the machine, changing the needle, adjusting the hopping foot, reinstalling the needle plate, and reinstalling the anti-backlash spring.

Preparing the Oil Bottle	page 68
Oiling and Cleaning	page 69
Changing the Needle	page 73
Adjusting the Hopping Foot	page 75
Reinstalling the Needle Plate	page 78
Reinstalling the Anti-Backlash Spring	page 80

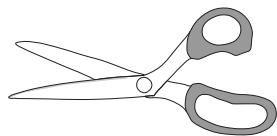
Preparing the Oil Bottle

Parts & Tools Needed:

Oil Bottle



Scissors



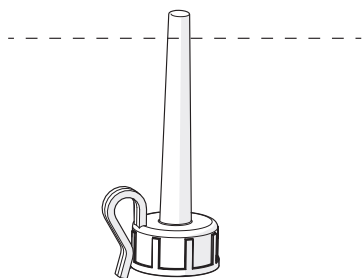
Power Cord/Oil Bottle
Box

(Not included)

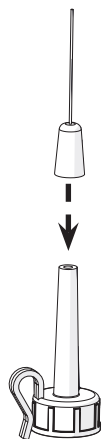
Instructions

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

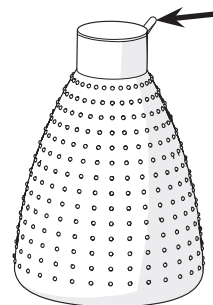
- 1 Snip off about 1/4th of an inch from the tip of the plastic lid with a pair of scissors.



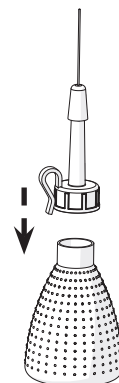
- 2 Place the applicator needle onto the top of the cap.



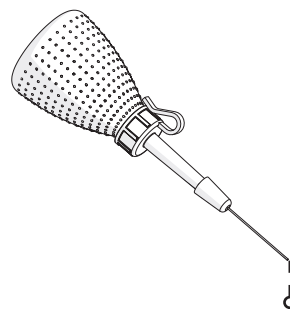
- 3 Peel the safety foil off the opening of the oil bottle.



- 4 Carefully screw the lid onto the oil bottle.



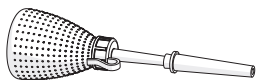
- 5 Hold bottle upside down and squeeze gently to apply oil. When not in use, cover the applicator needle with the safety cap.



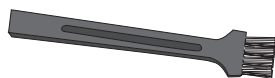
Oiling and Cleaning

Parts & Tools Needed:

Oil Bottle



Lint Brush



- Compressed Air Can (optional; not included)

Tools Box

Instructions

Oil and Clean:

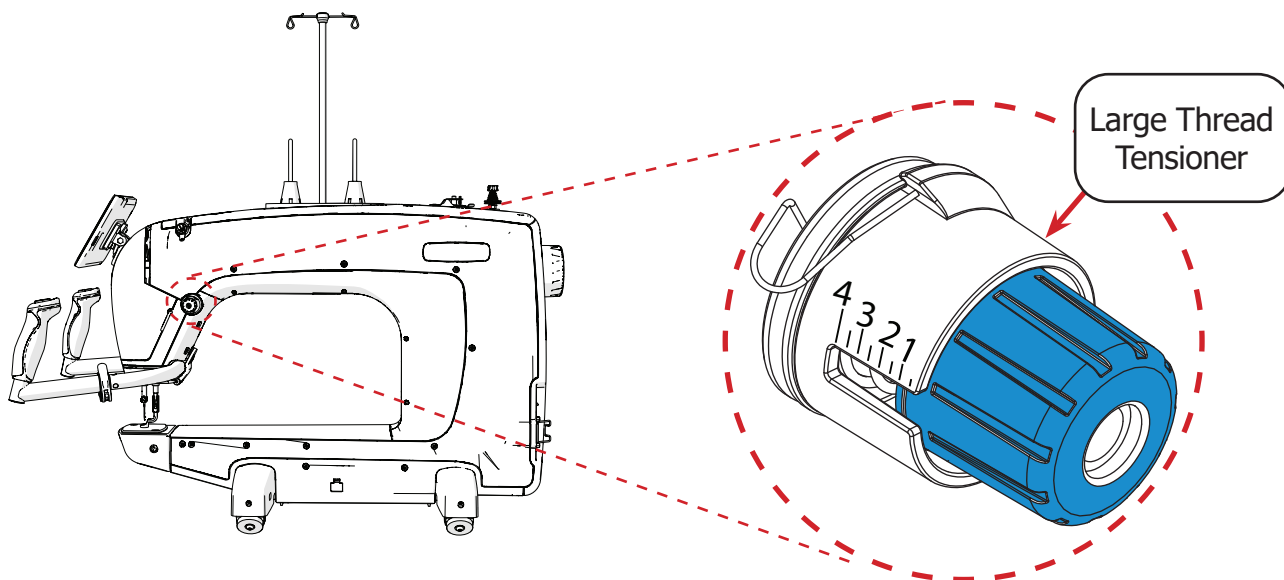
Machine	<ul style="list-style-type: none"> • At the start of a new project • After 20 hours of use • After sitting without use for more than 30 days
Hook Assembly	<ul style="list-style-type: none"> • Every other bobbin change

Tip: The Hours Run counter on the **Projects Screen** in the **Toolbox** on your display can be used to track hours of quilting time (see page 62).

Take the following steps to clean and oil the machine:

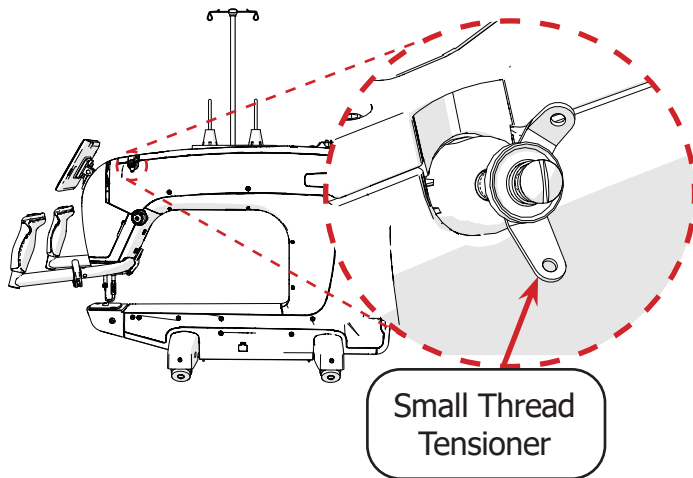
- 1 Power off the machine.
- 2 Set the **large thread tensioner** to "1" to expose the tensioner discs. Use the lint brush or a can of compressed air to clear away lint and thread remnants from between the discs.

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

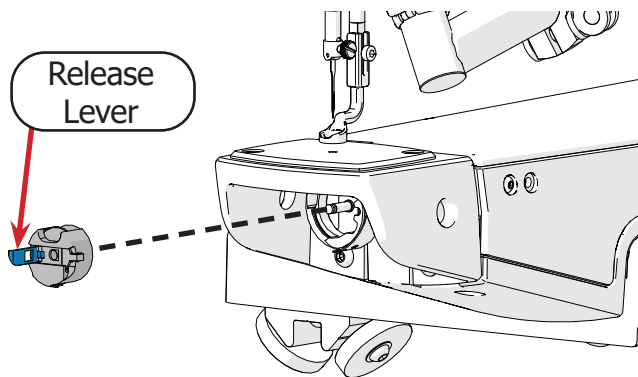


Oiling and Cleaning (continued)

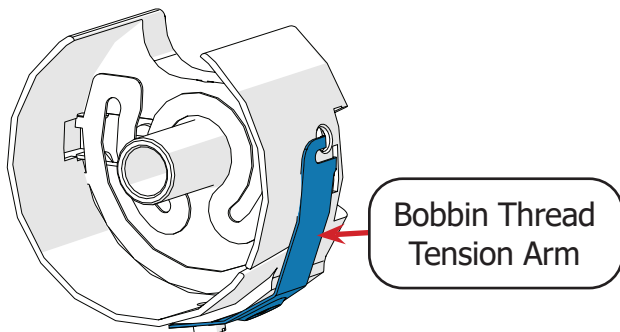
- 3 Clear debris from the spring and discs of the **small thread tensioner**.



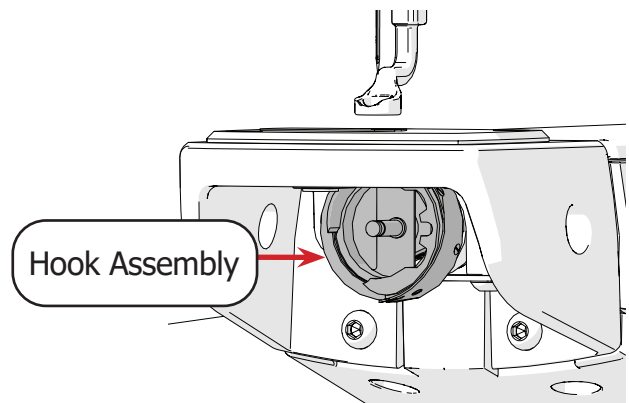
- 4 Pull the **release lever** (shown in blue) on the bobbin case to remove it from the hook assembly. If the case won't release, raise the needle with the hand wheel at the rear of the machine.



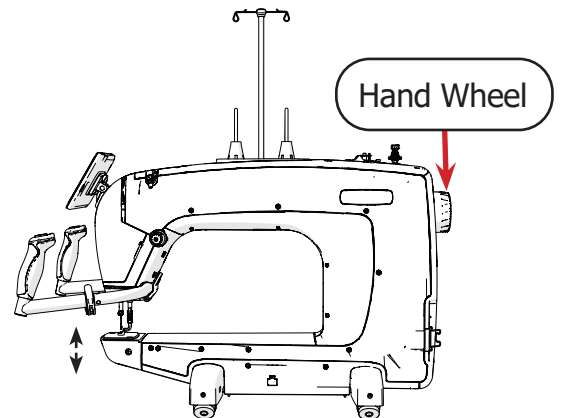
- 5 Set the bobbin aside. Clean the bobbin case with the lint brush or compressed air. Be sure to clean the area under the **bobbin tension thread arm**.



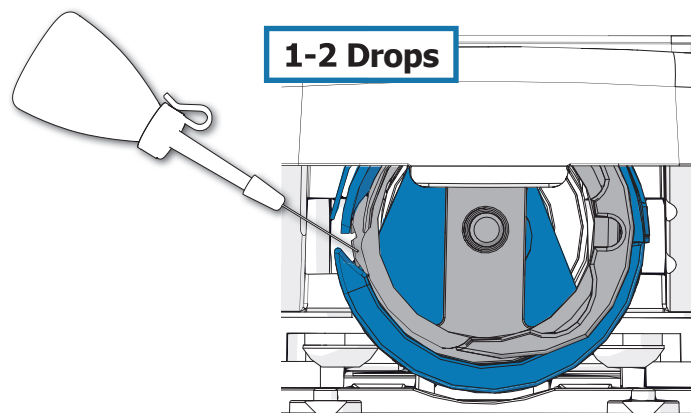
- 6 In and around the **hook assembly**, clear away any lint, cloth, and thread remnants.



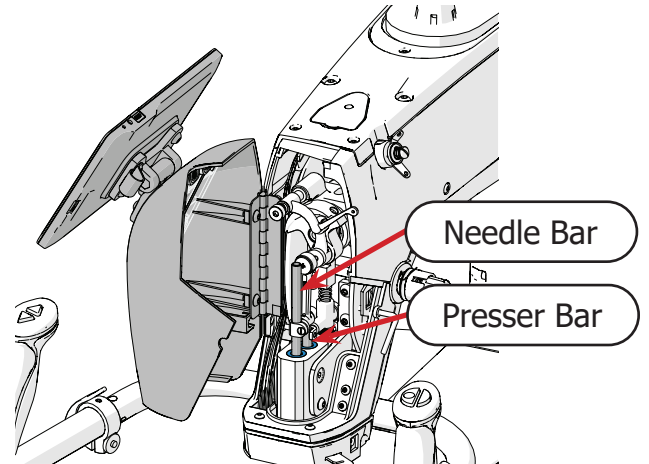
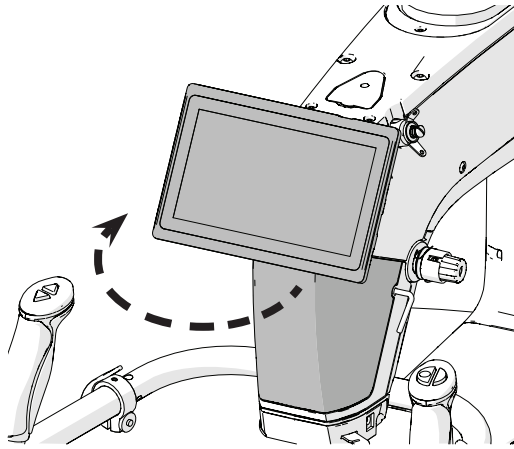
- 7 Rotate the **hand wheel** until the needle is halfway down. This will put the hook in the best position for oiling.



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

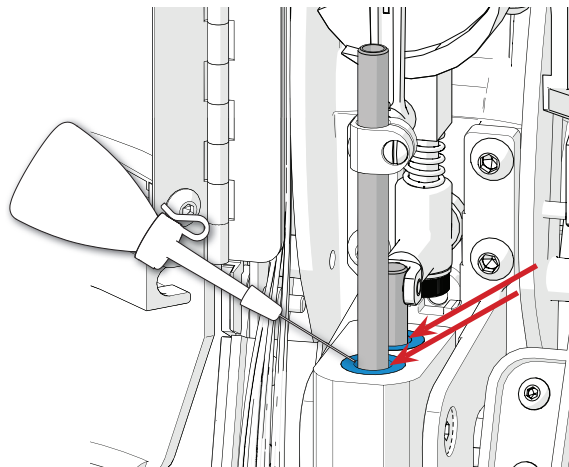


- 9 Pull on the sides of the front cover of the machine to open the cover and access the **needle bar** and **presser bar**.



- 10 Place 1-2 drops of oil at the bottom of the needle bar and presser bar where they meet the bushing block.

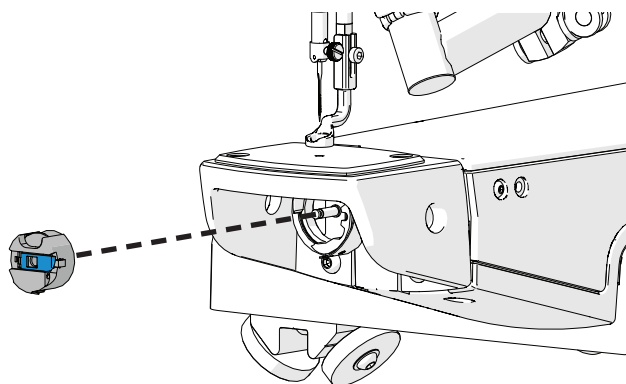
Close the front cover when finished.



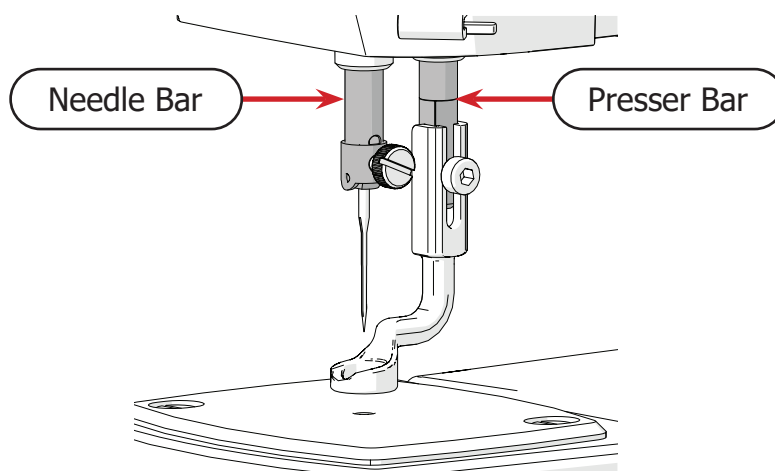
- 11 Power up the machine and run it for about ten seconds to evenly spread the oil around the hook assembly.

Oiling and Cleaning (continued)

- 12 Reload the bobbin case and return it to the machine (for detailed instructions on tensioning the bobbin case, see page 28).



- 13 Regularly wipe down the **needle bar** and **presser bar** to prevent the accumulation of oil that can stain your fabric.



Changing the Needle

For information on selecting a needle, see "Choosing Your Needle" on page 95.

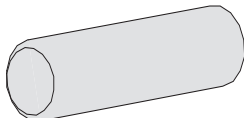
Parts & Tools Needed:

Needle



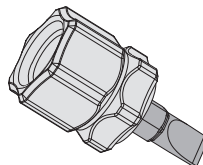
Tools Box

Needle Magnet



Tools Box

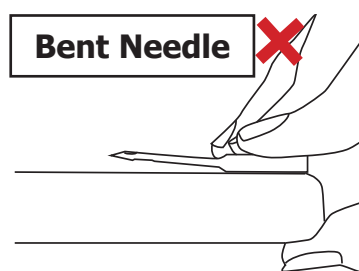
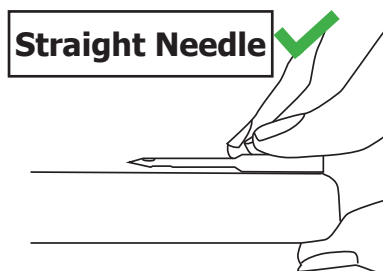
Flat-head Screwdriver



Tools Box

Instructions

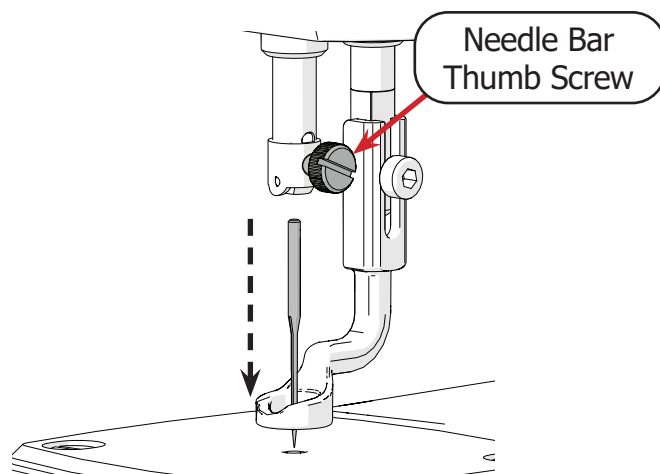
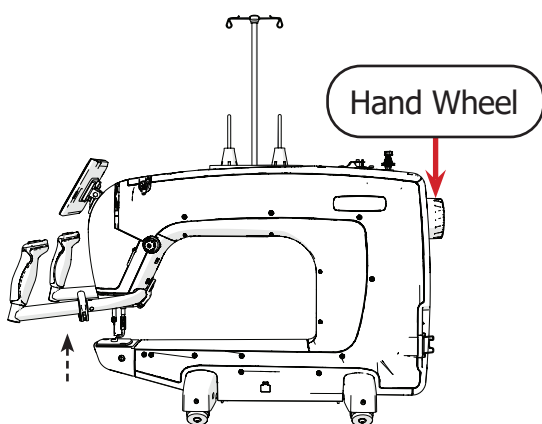
A broken, bent, or burred needle may break thread, damage fabric, or even damage the machine. Always check that the needle is in good condition before starting a new project, and replace the needle after eight hours of use.



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

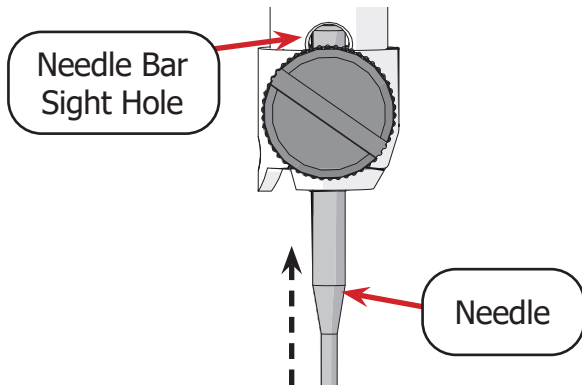
- DPX5 MR
- 134 MR
- 1955 MR

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

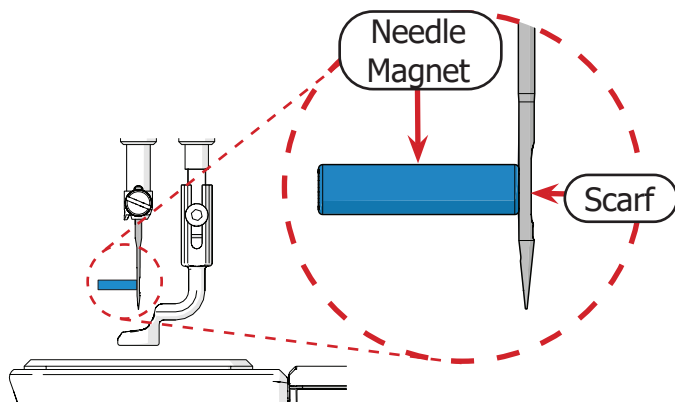


Changing the Needle (continued)

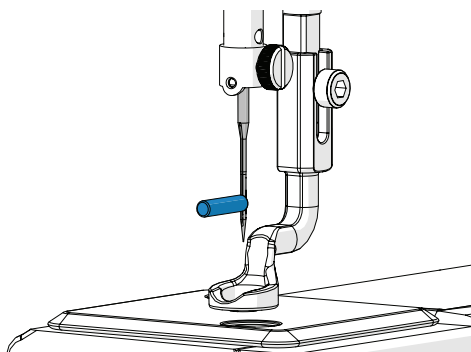
- 4 Insert the new needle all the way into the needle bar. Check the **needle bar sight hole** above the thumb screw to make sure the **needle** is inserted all the way.



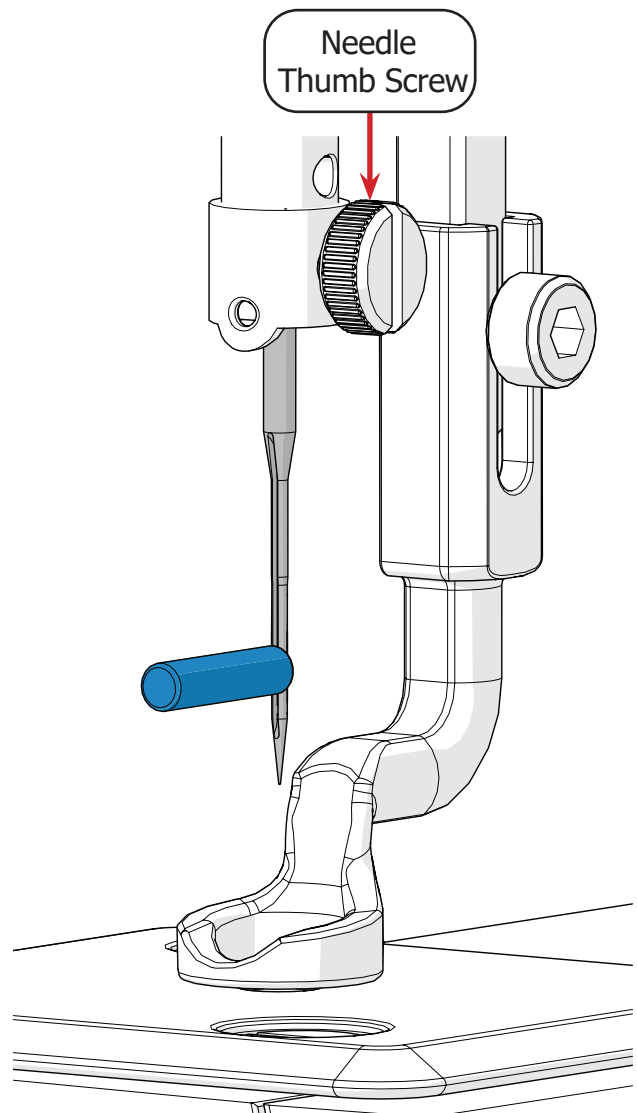
- 5 The **scarf**, a cut-out on the back of the needle, should face the throat of the machine. Place the **needle magnet** on the opposite side of the scarf.



- 6 Use the needle magnet as a visual guide. Twist the needle until the **magnet** (shown in blue) points as straight out from the machine as possible. **Note:** Do not attempt to adjust the needle by moving the magnet directly.



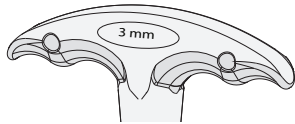
- 7 Hand-tighten the **needle thumb screw**. Do not over-tighten if using the flat-head screwdriver.



Adjusting the Hopping Foot

Parts & Tools Needed:

T-handle Allen
Wrench 3 mm



Tools Box

Hopping Foot
Height Tool



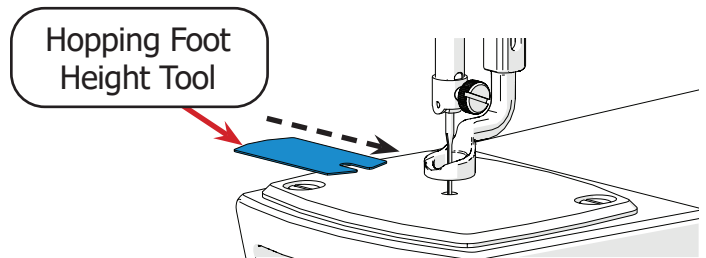
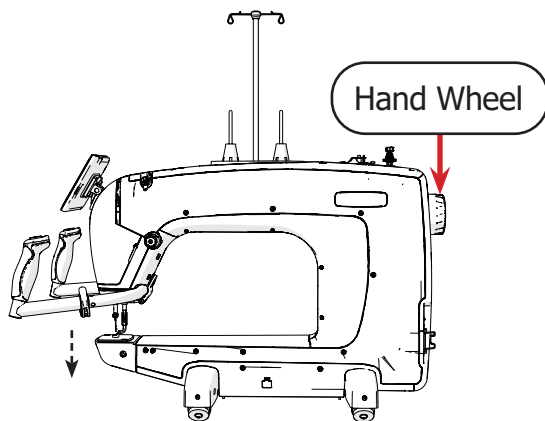
Tools Box

Height Adjustment

When quilting with thick fabric or batting layers, the hopping foot may press down on the quilt too tightly and begin to drag. Alternatively, having the hopping foot too high can result in skipped stitches. The hopping foot can be raised or lowered to correct these problems.

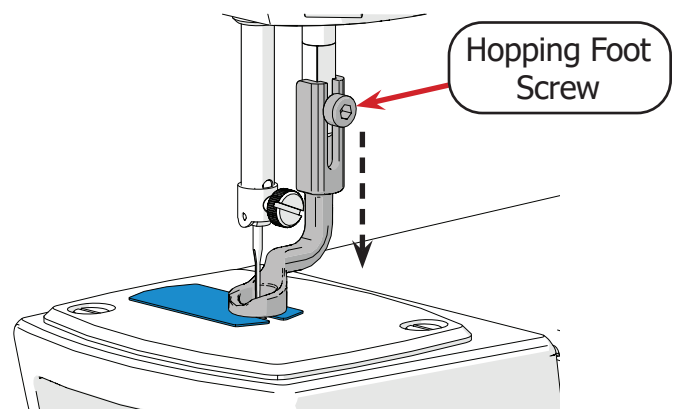
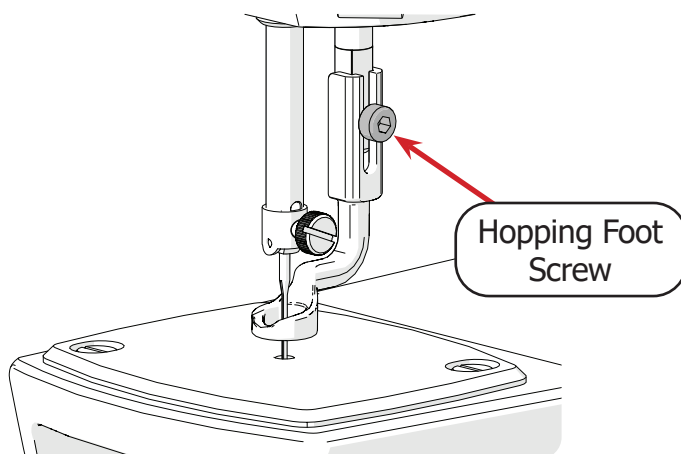
To adjust the hopping foot height, take the following steps:

- 1 Move the machine so it is not over fabric. Then use the **hand wheel** to drop the needle bar to the lowest position.
- 3 Slide the **hopping foot height tool** (shown in blue) underneath the hopping foot with the needle inside the slot.



Note: The height tool prepares the machine for standard sized quilt batting and two layers of fabric. For thicker quilts, stack sheets of printing paper over the gauge to increase room underneath the hopping foot.

- 2 Use the 3 mm Allen wrench to loosen, but not remove, the **hopping foot screw**.
- 4 Lower the hopping foot until it rests on the height tool. Re-tighten the hopping foot screw with the 3 mm Allen wrench.

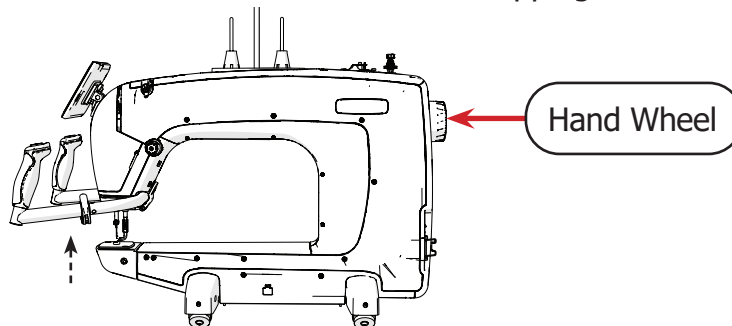


Adjusting the Hopping Foot (continued)

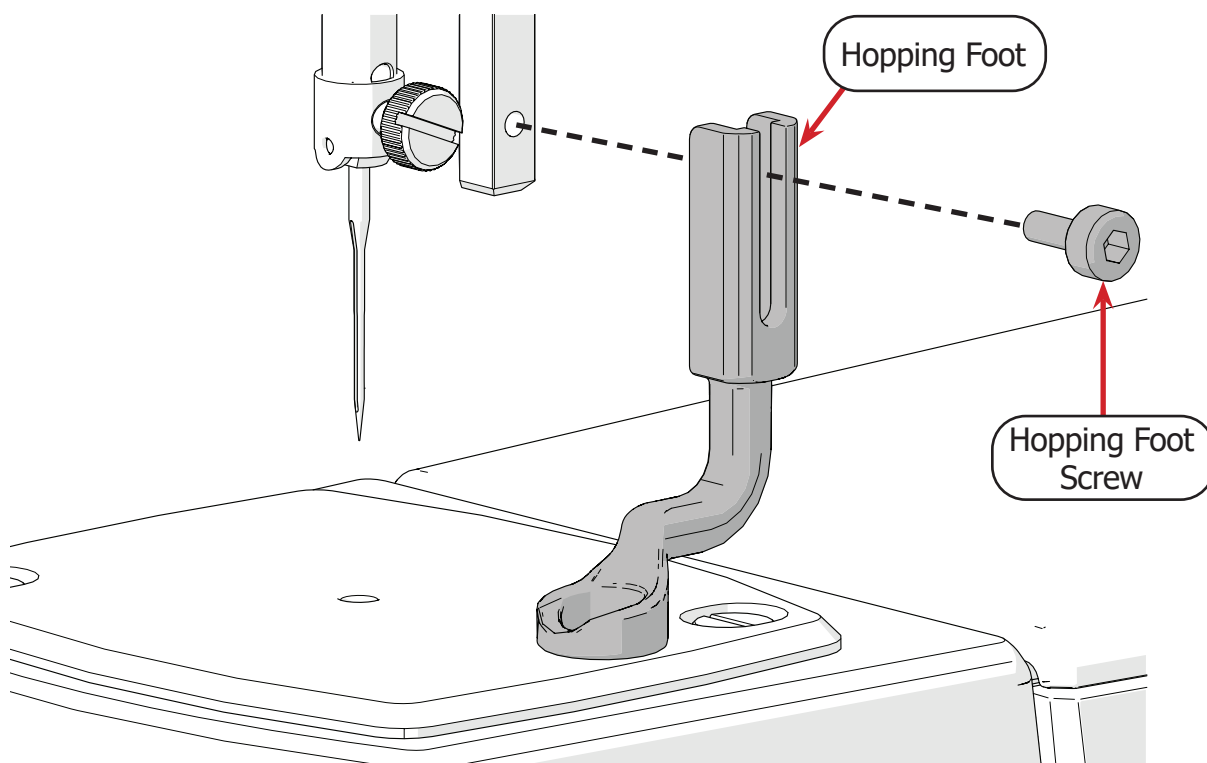
Removal Instructions

To remove the hopping foot for maintenance or to adjust the hopping foot angle, 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.



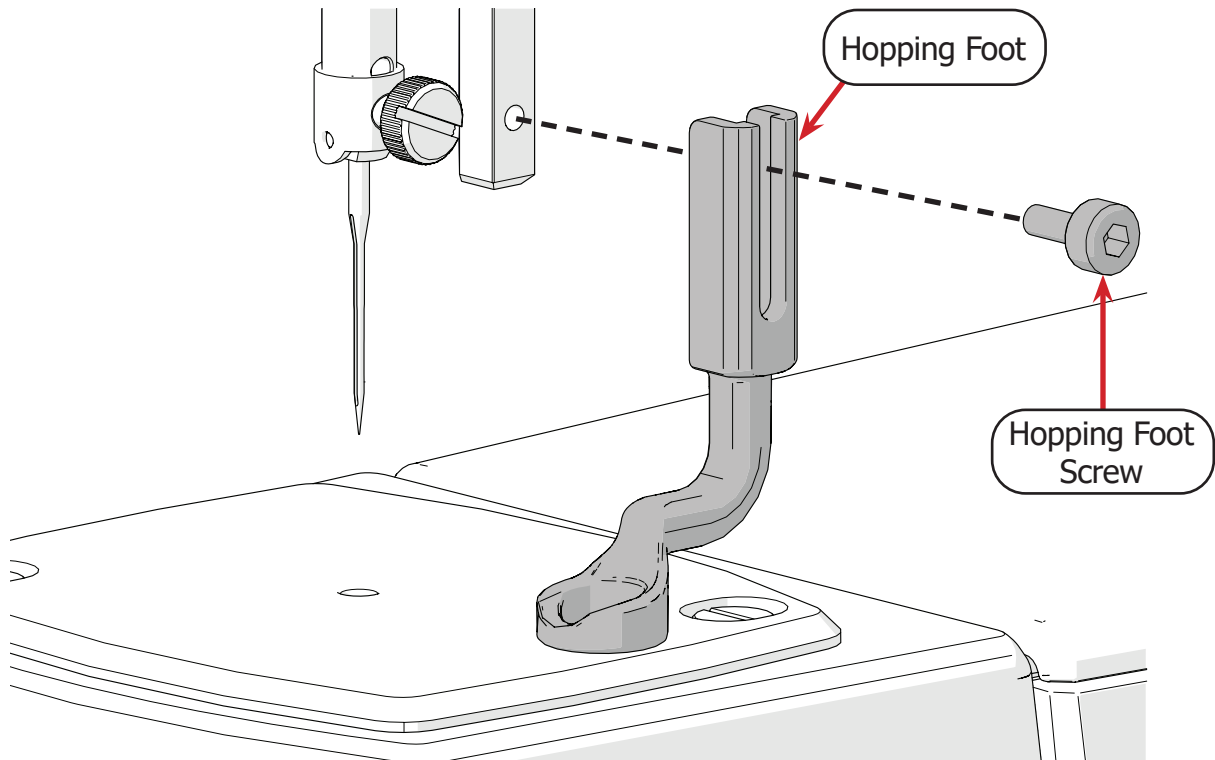
- 3 Use the 3 mm Allen wrench to remove the **hopping foot screw** and **the hopping foot**.



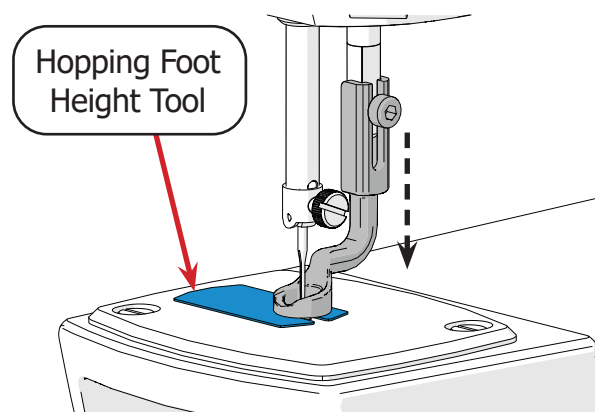
Installation Instructions

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

- 1 Power off the machine.
- 2 Slide the **hopping foot** onto the **hopping foot collar**. Use the 3 mm Allen wrench and **hopping foot screw** to hold it in place, but do not tighten.



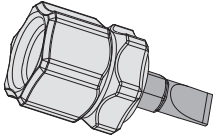
- 3 Adjust height as needed (see page 75).



Reinstalling the Needle Plate

Parts & Tools Needed:

Flat-head Screwdriver

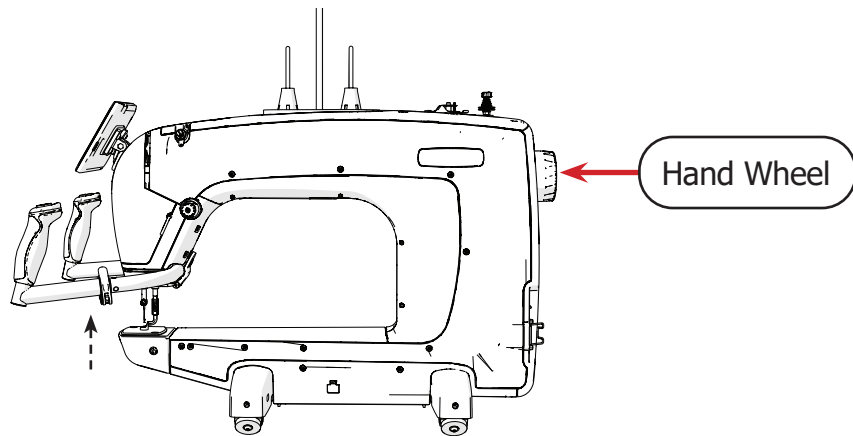


Tools Box

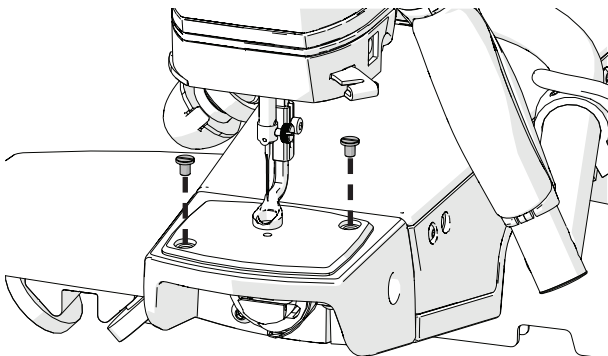
Removal Instructions

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

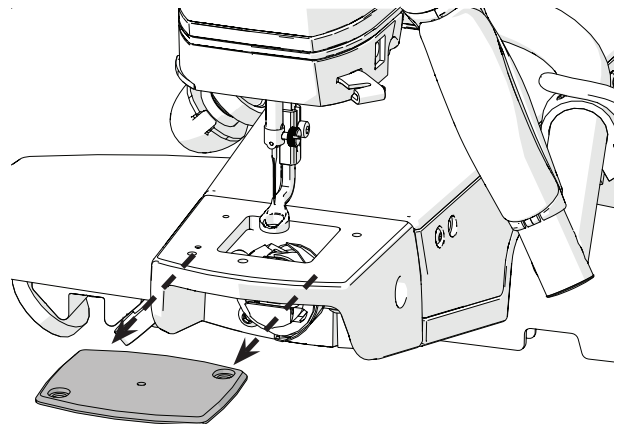
- 1 Power off the machine and raise the needle to the highest position using the **hand wheel**.



- 2 Use the flat-head screwdriver to remove the two **needle plate screws** (shown in gray).



- 3 Slide the **needle plate** (shown in gray) from the machine.

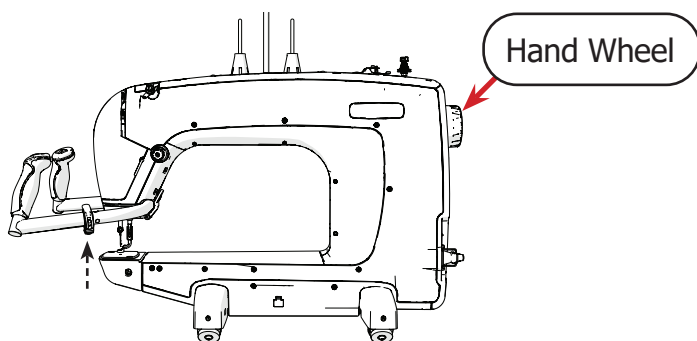


Reinstalling the Needle Plate (continued)

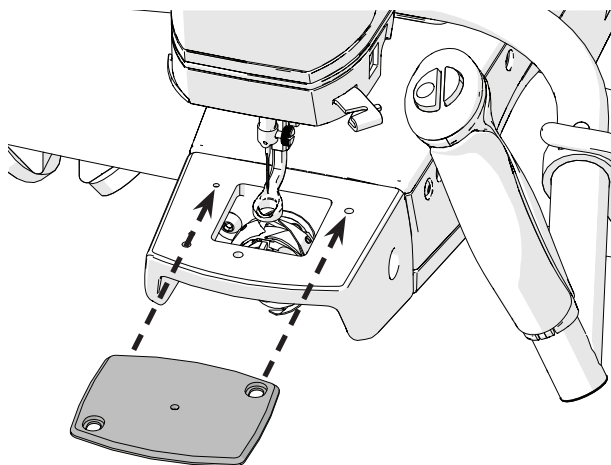
Installation Instructions

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

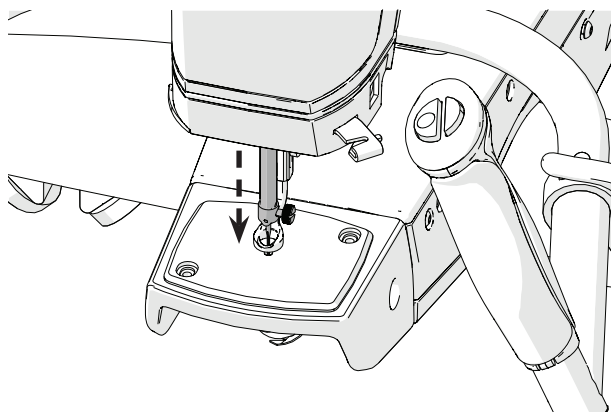
- 1 Power off the machine. Raise the needle to the highest position using the **hand wheel**.



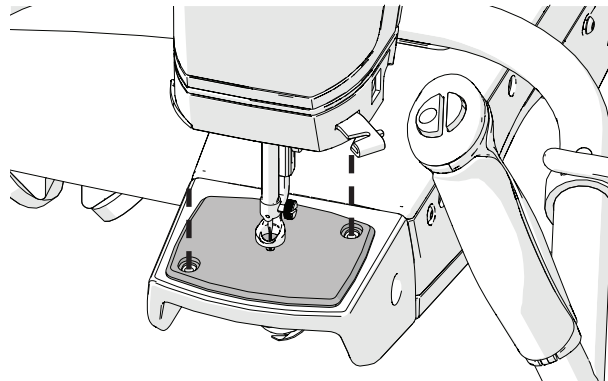
- 2 Slide the **needle plate** (shown in gray) onto the machine.



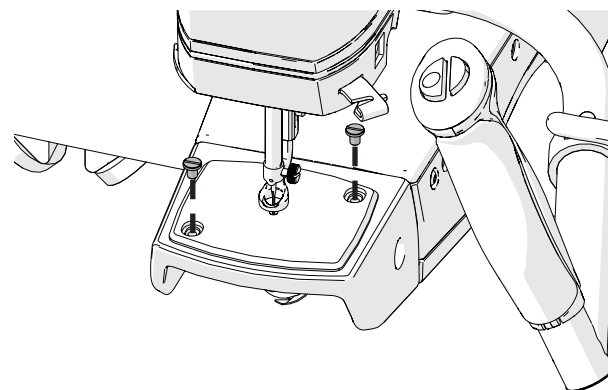
- 3 Slowly lower the needle with the hand wheel. The needle should slide into the center hole without contacting the needle plate.



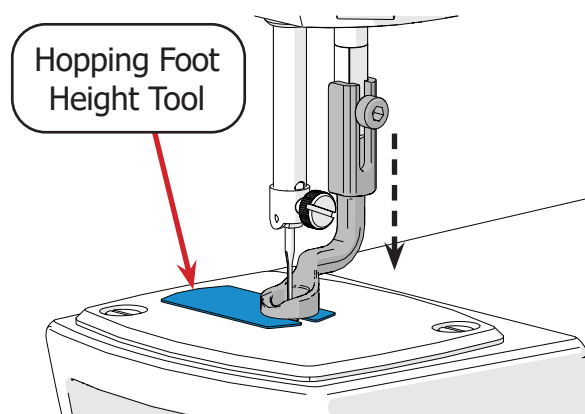
- 4 Align the screw holes on the needle plate with those on the machine.



- 5 Place the two **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.



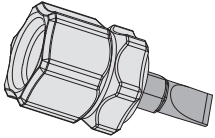
- 6 Adjust height as needed (see page 75).



Reinstalling the Anti-Backlash Spring

Parts & Tools Needed:

Flat-head Screwdriver

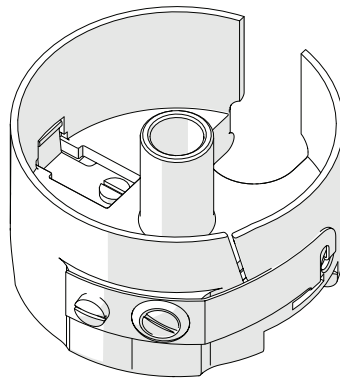


Tools Box

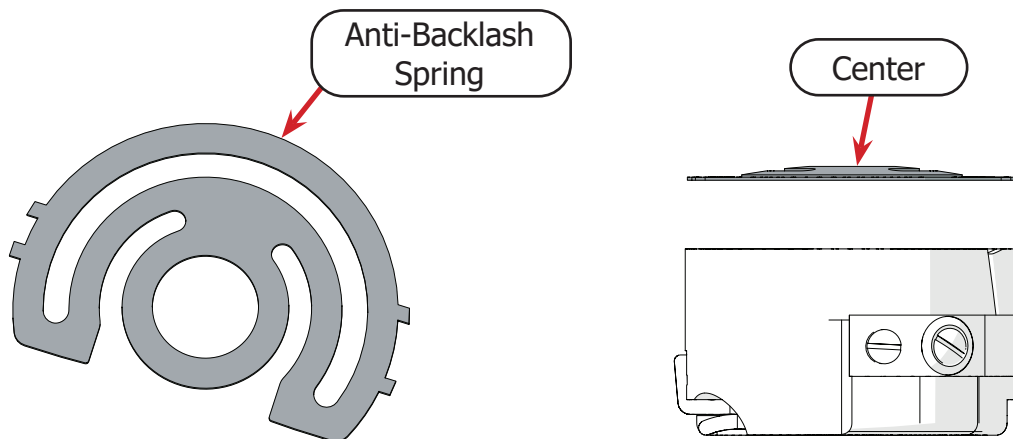
Instructions

Take the following steps to reinstall or replace the anti-backlash spring in the bobbin case if it has fallen out:

- 1 Lay the bobbin case face-down so that the opening is facing up.

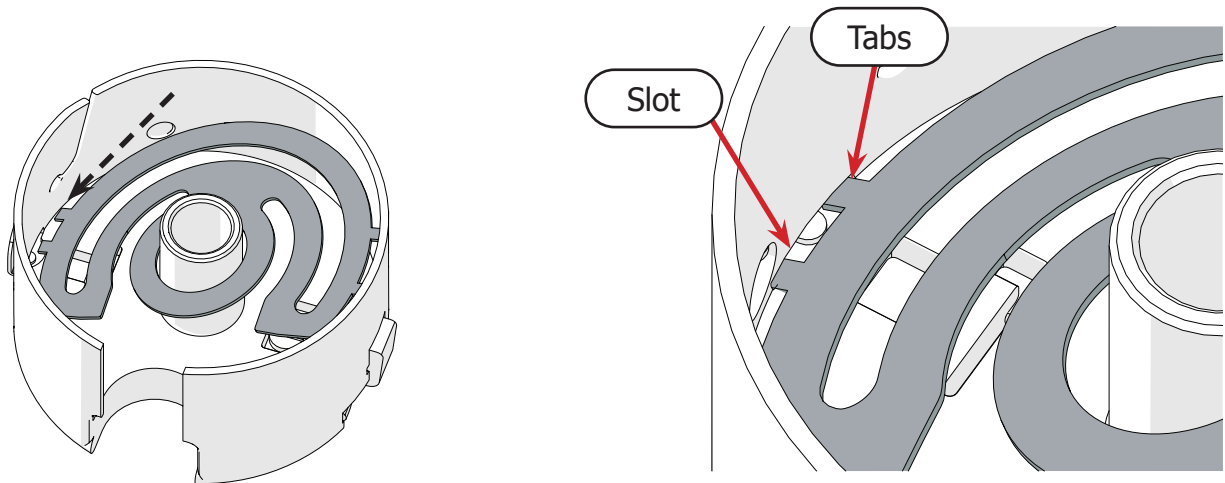


- 2 Position the **anti-backlash spring** so that the **center** section is raised above the edge of the spring.

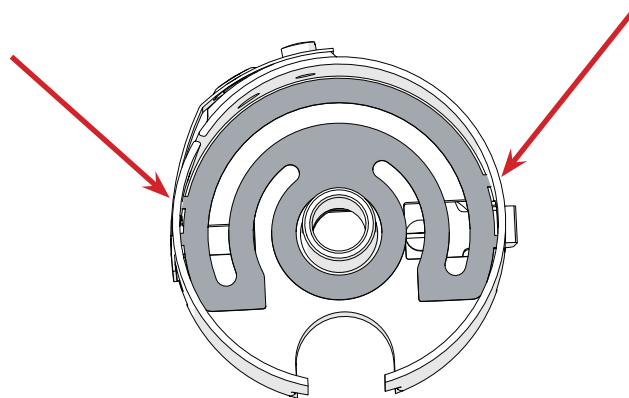


Reinstalling the Anti-Backlash Spring (continued)

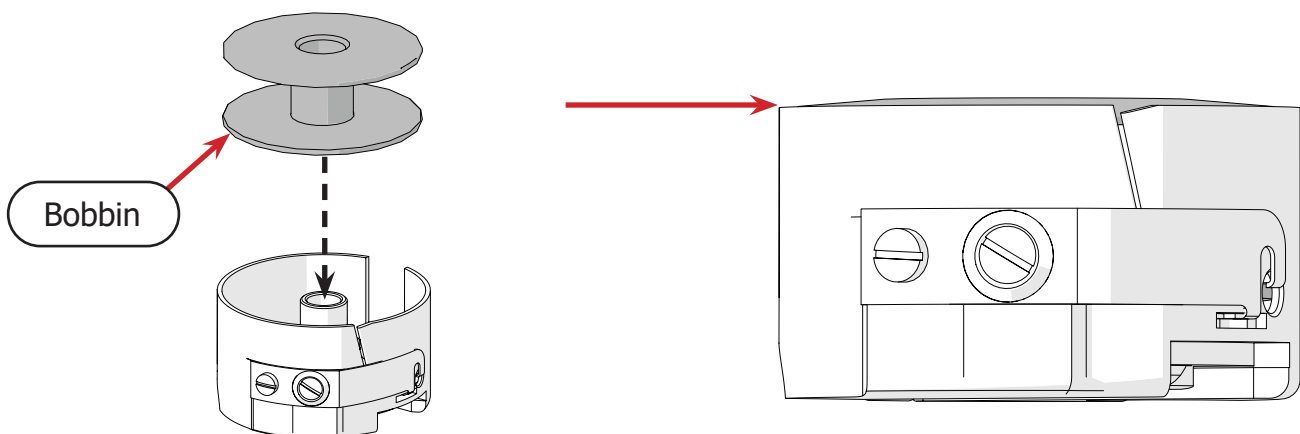
- 3 Place the spring inside the bobbin at an angle and press the **tabs** that are closer together into their **slot** on the side.



- 4 Press the other side of the spring down and insert the other tabs on the other side. Use the small flat-head screwdriver to make sure all four tabs are fully secured.



- 5 Place the **bobbin** in the bobbin case. The anti-backlash spring should hold the bobbin so that it barely pokes out of the opening of the bobbin case.



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:

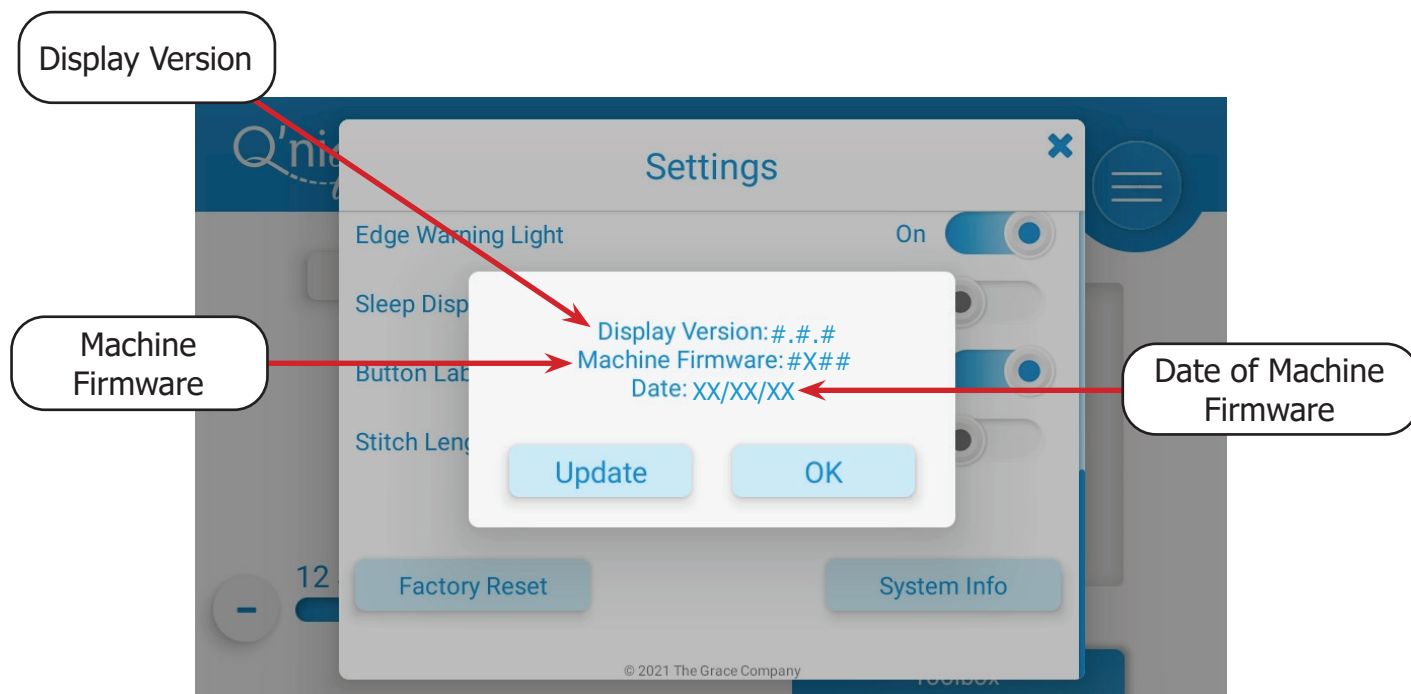
- **Phone:** (800) 264-0644
- **Email:** support@graceframe.com

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

Updating the Software	page 83
Replacing the Encoder Spring	page 84
Reinstalling the Hook Holder	page 87
Timing the Machine	page 90

Updating the Software

The firmware versions for the machine motor and the touch display are found by pressing "System Info" from the bottom of the Settings menu (see page 40).



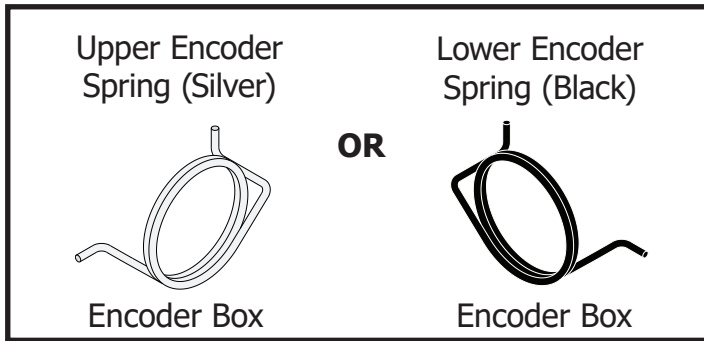
The following information and options display:

- **Display Version:** Shows the latest software version for the touch display.
- **Machine Firmware:** Shows the latest firmware version for the machine.
- **Date:** Shows the date when the machine firmware was last updated.
- **Update Button:** Checks to see if an SD card with an available software update has been inserted into the display. If it detects the update, it will update the display to the newest version.
- **OK Button:** Click to return to the Settings menu.

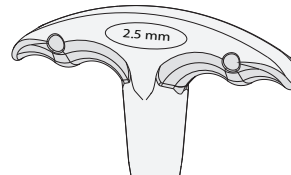
Replacing the Encoder Spring

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

Parts & Tools Needed:

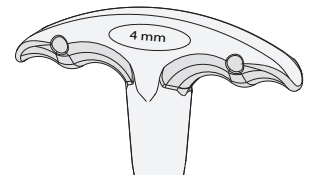


T-handle Allen Wrench 2.5 mm



Tools Box

T-handle Allen Wrench 4 mm

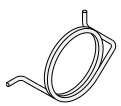


Tools Box

Instructions

If the encoder spring is over-tensioned, it may break and need to be replaced. To replace the encoder spring, take the following steps:

- 1 Determine the correct spring to use in the repair:

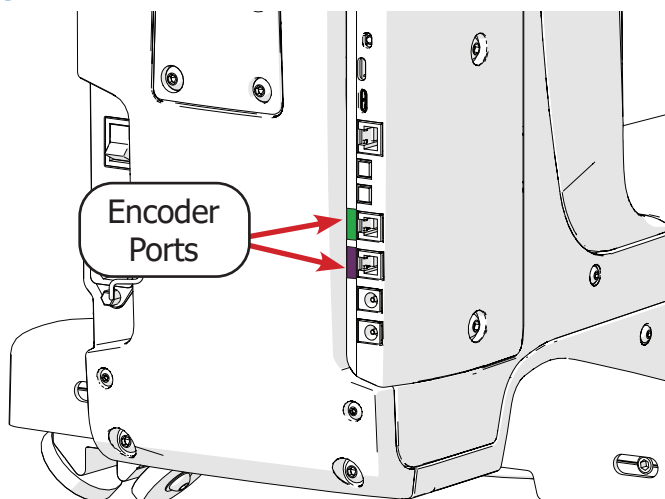


Upper Encoder: Attached to the wheel on the machine. Use the silver spring.

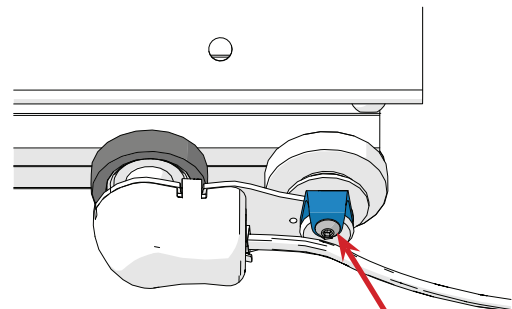


Lower Encoder: Attached to the wheel on the bottom carriage. Use the black spring.

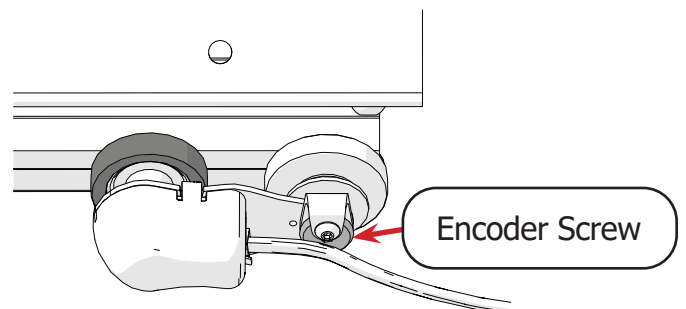
- 2 Unplug the encoder cable from the machine.



- 3 Loosen the **lock collar screw** with the 2.5 mm Allen Wrench until the **lock collar** (shown in blue) can twist freely.

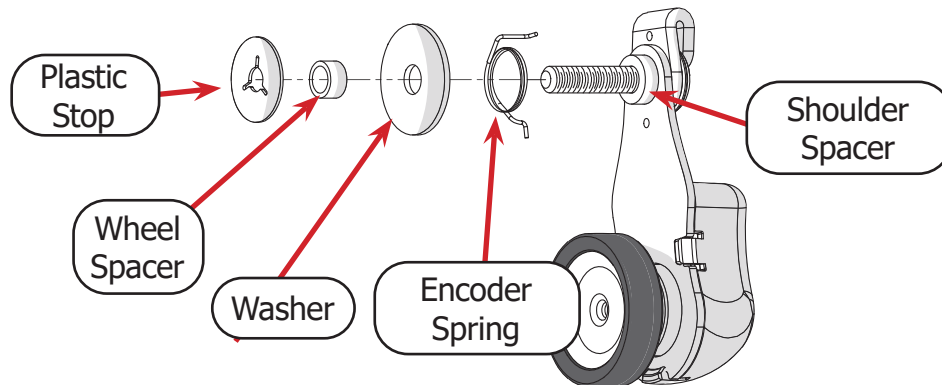


- 4 Use the 4mm Allen wrench to loosen the **encoder screw** and remove the encoder and wheel.

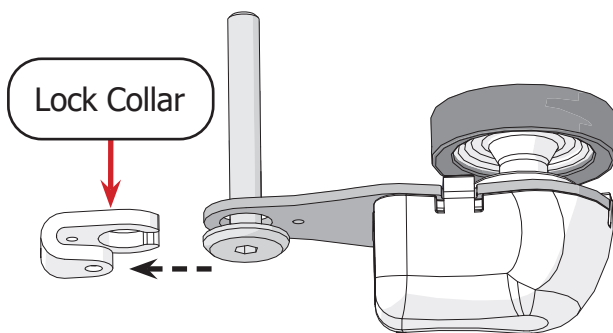


Replacing the Encoder Spring (continued)

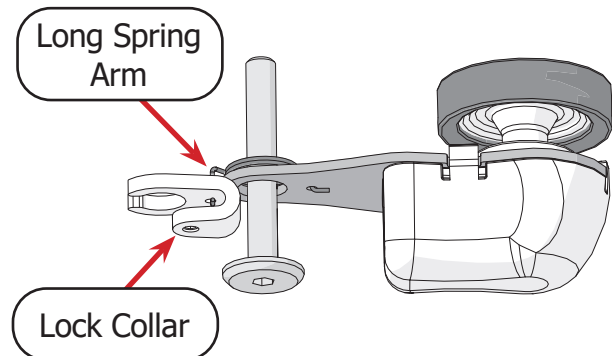
- 5 Remove the **plastic stop**, **wheel spacer**, **washer**, broken **encoder spring**, and **shoulder spacer** from the encoder.



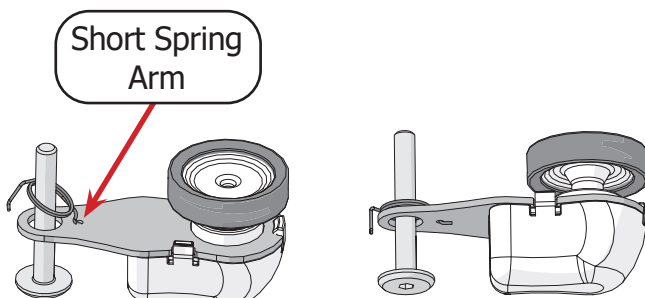
- 6 Pull on the **lock collar** to remove it from the encoder screw.



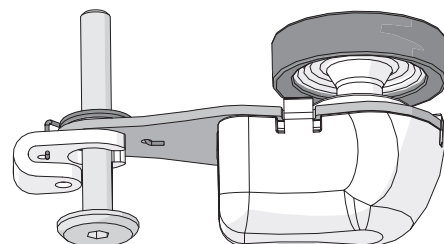
- 8 Place the **long arm** of the encoder spring into the hole on the encoder **lock collar**.



- 7 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.

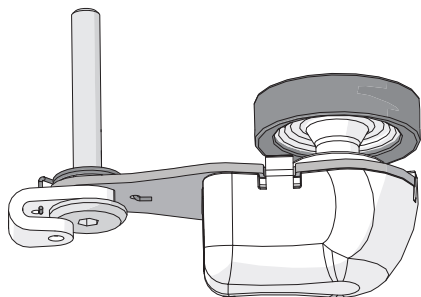


- 9 Without allowing the arm to slip out of the lock collar, rotate the collar until it wraps around the encoder bolt.

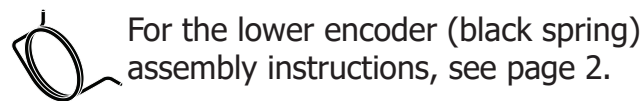
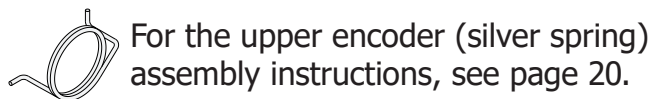


Replacing the Encoder Spring (continued)

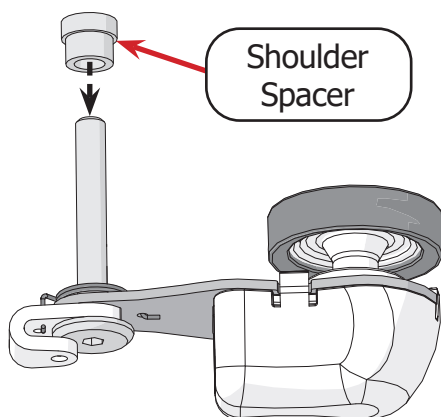
- 10 Adjust the screw and lock collar so the head of the screw slides in between the lock collar.



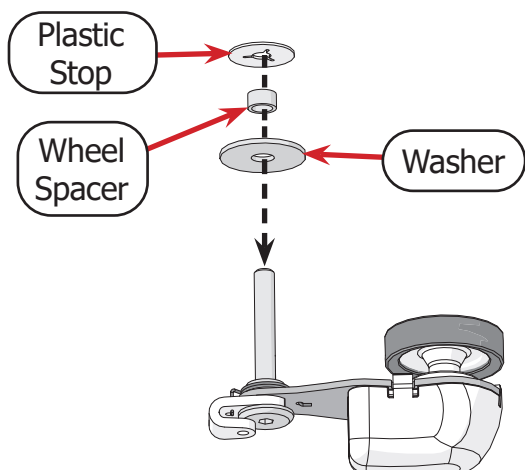
- 13 Complete the assembly instructions for the encoder you repaired.



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



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

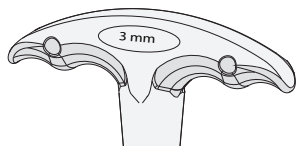


Reinstalling the Hook Holder

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

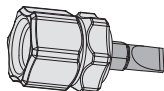
Parts & Tools Needed:

T-handle Allen Wrench 3 mm



Tools Box

Flat-head Screwdriver

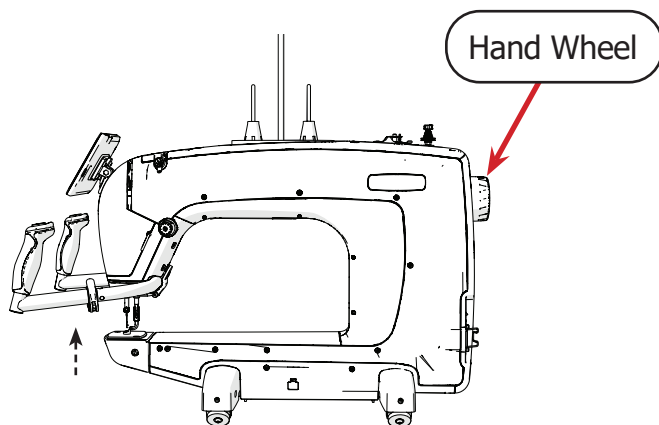


Tools Box

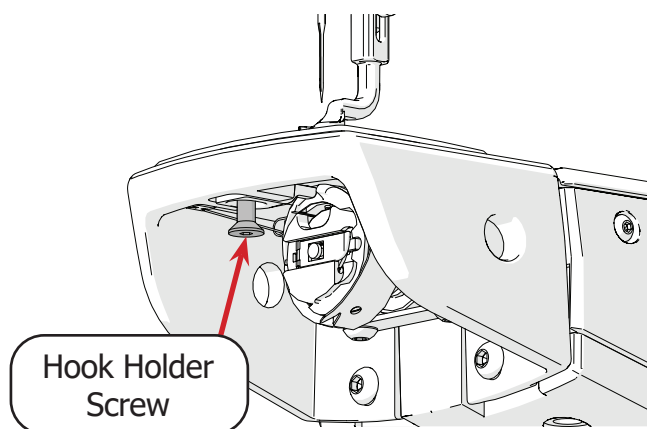
Removal Instructions

The hook holder keeps the hook assembly in 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.

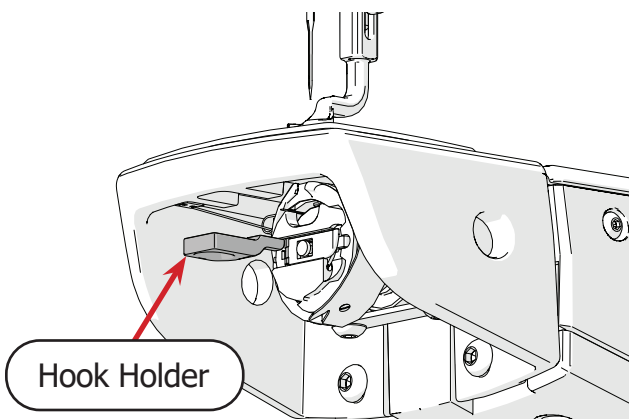
- 1 Power off the machine and raise the needle to the highest position using the **hand wheel**.



- 2 With the 3 mm Allen wrench, remove the **hook holder screw** (shown in gray) that attaches the hook holder to the machine.



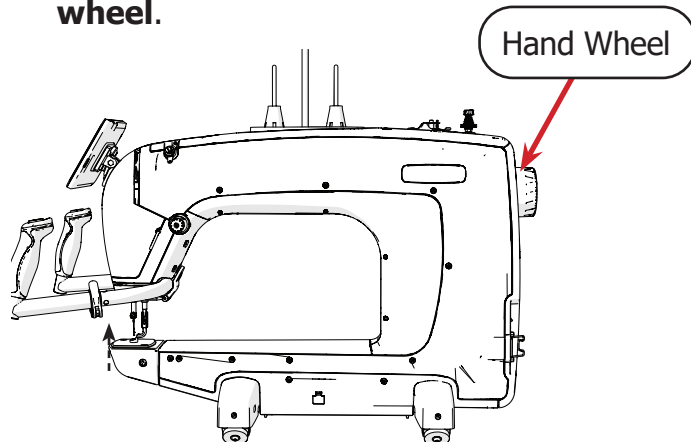
- 3 The **hook holder** will slide free of the machine.



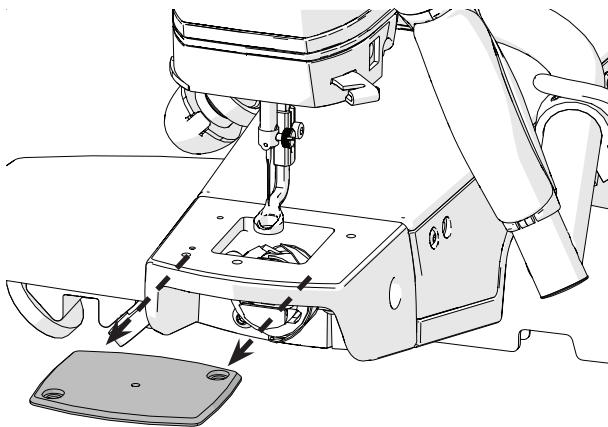
Reinstalling the Hook Holder (continued)

Installation Instructions

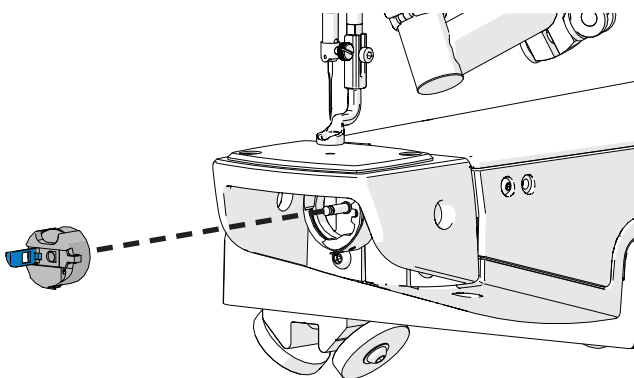
- 1 Power off the machine and raise the needle to the highest position using the **hand wheel**.



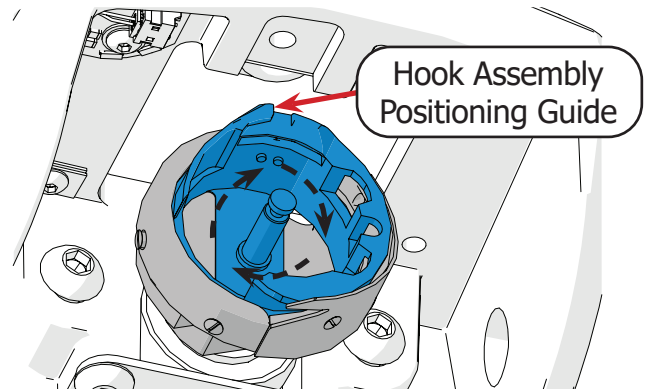
- 2 Remove the needle plate (see page 78).



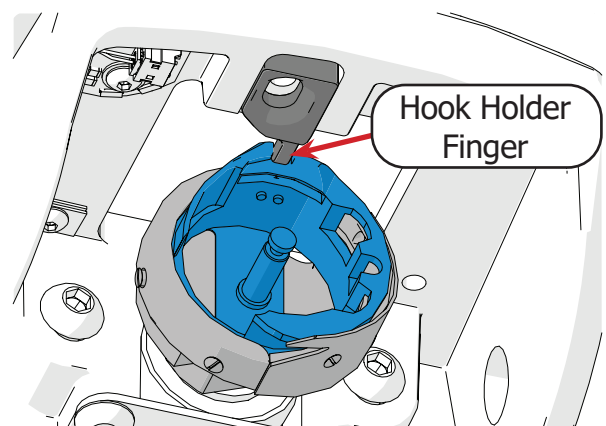
- 3 Remove the bobbin case from the hook assembly (see page 28).



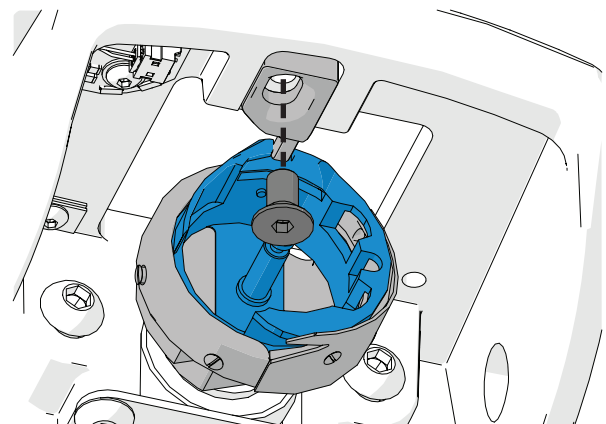
- 4 Turn the inside part of the **hook assembly** (shown in blue) so that the **positioning guide** is at the highest point.



- 5 Slide the **finger** of the **hook holder** into the middle of the **hook assembly's positioning guide** (shown in blue).

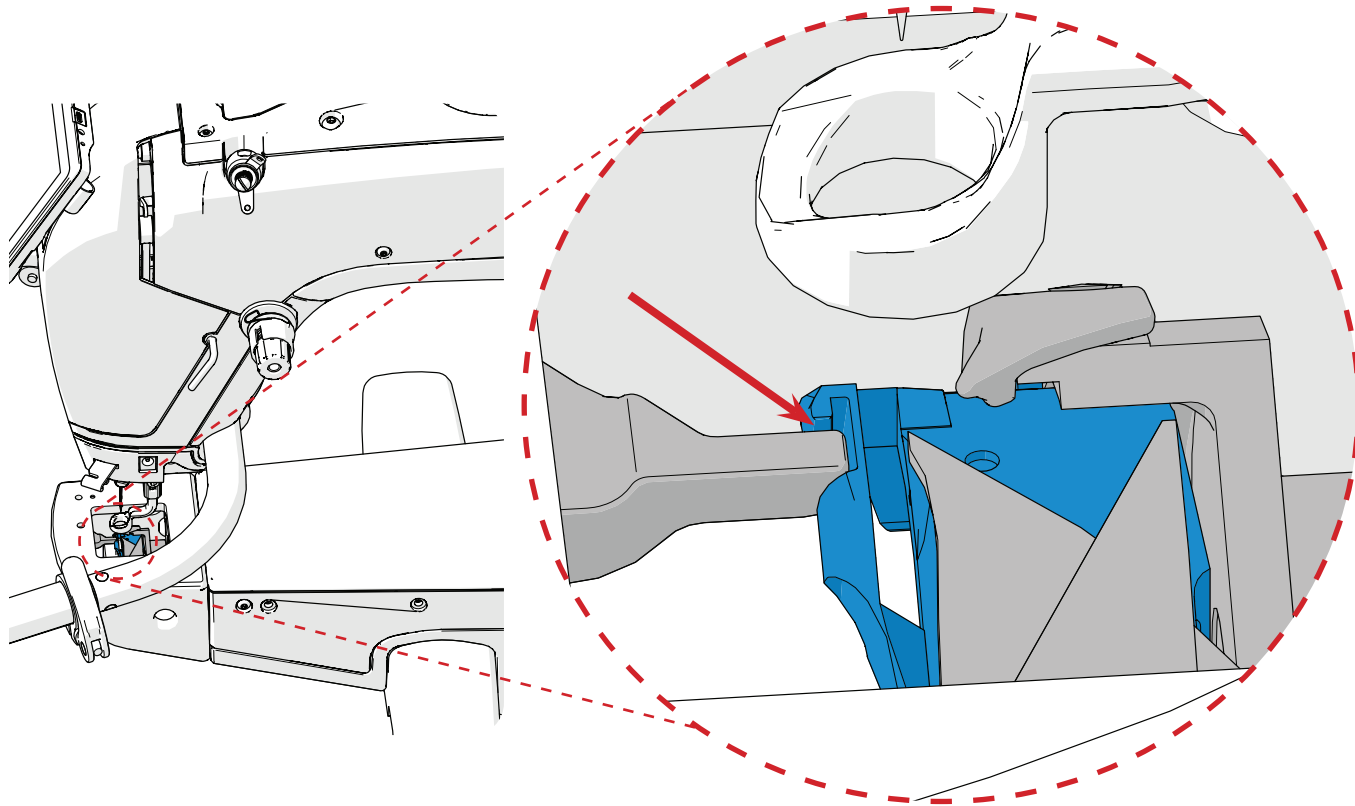


- 6 Attach loosely with the **hook holder screw**. Do not tighten.

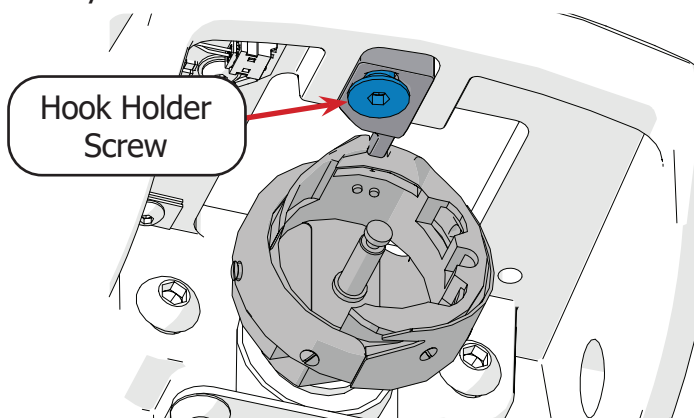


Reinstalling the Hook Holder (continued)

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

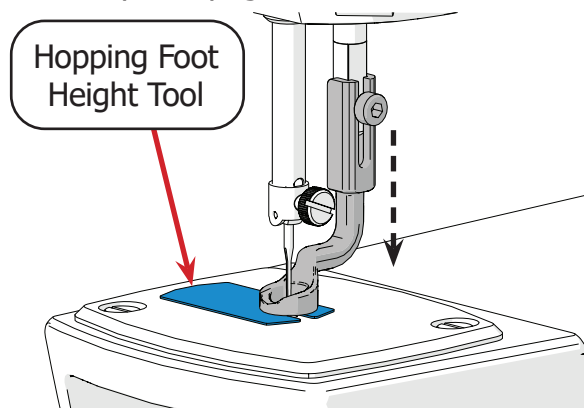


- 8 Tighten the hook holder screw to fasten the hook holder in place. The inside part of the hook assembly should no longer rotate freely by hand.



- 9 Reinstall the needle plate by following the steps on page 78.

Adjust the hopping foot height by following the steps on page 75.

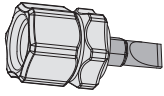


Timing the Machine

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

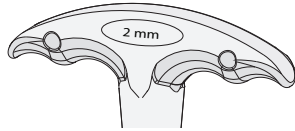
Parts & Tools Needed:

Flat-head Screwdriver



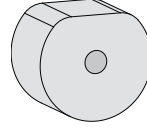
Tools Box

T-handle Allen Wrench 2 mm



Tools Box

Timing Spacer Tool

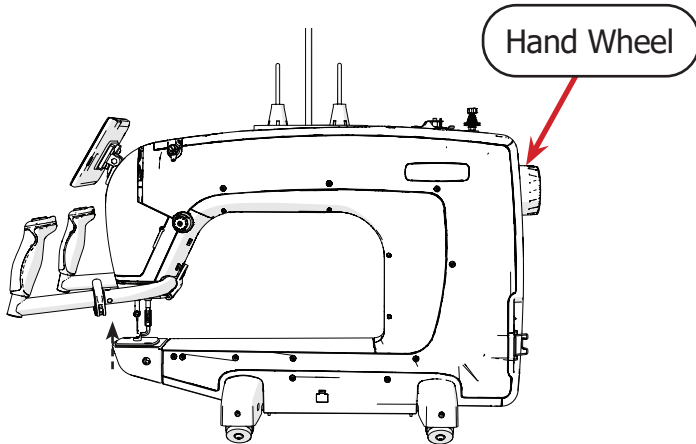


Tools Box

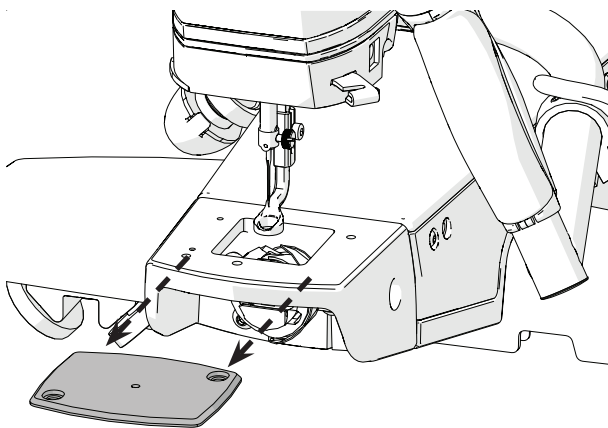
Instructions

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.

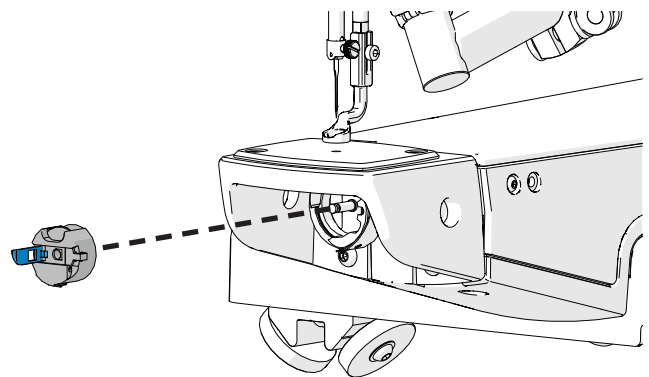
- 1 Power off the machine and raise the needle to the highest position using the **hand wheel**.



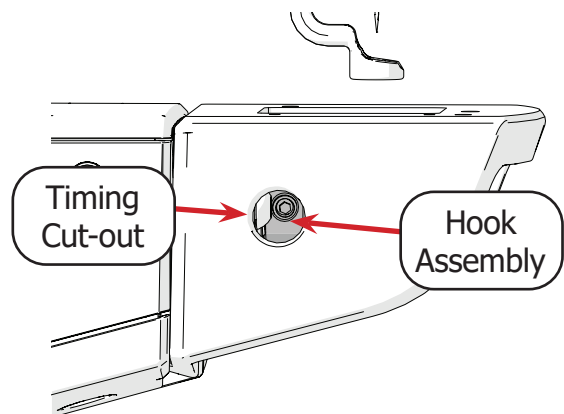
- 2 Remove the needle plate (see page 78).



- 3 Remove the bobbin case from the hook assembly (see page 28).

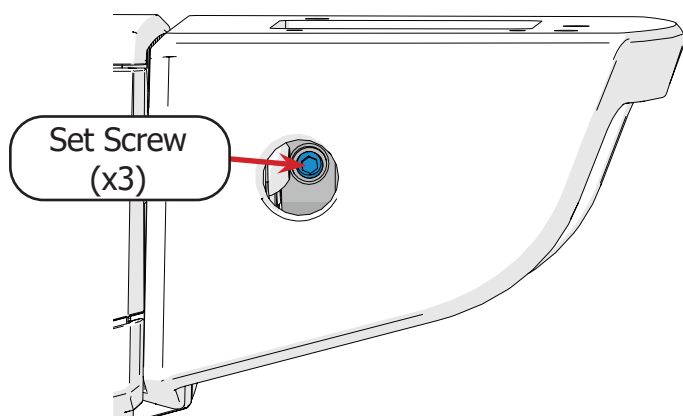


- 4 Look into the machine's **timing cut-out** and turn the hand wheel. The **hook assembly** will rotate.

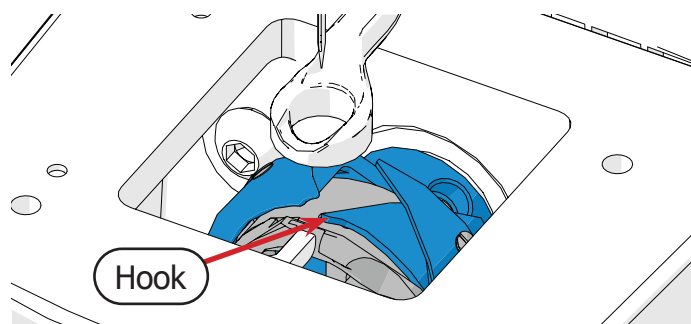


Timing the Machine (continued)

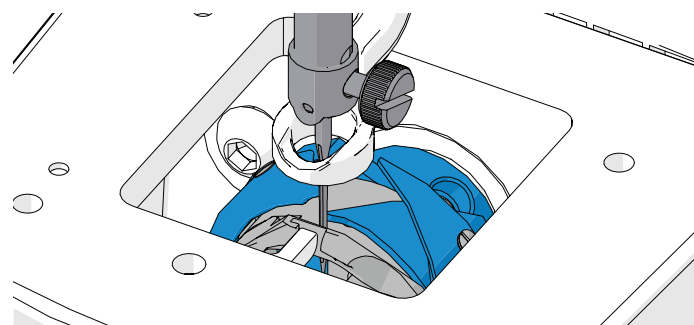
- 5 As each of the **3 set screws** aligns with the cut-out, loosen them with the 2 mm Allen wrench. DO NOT remove these screws.



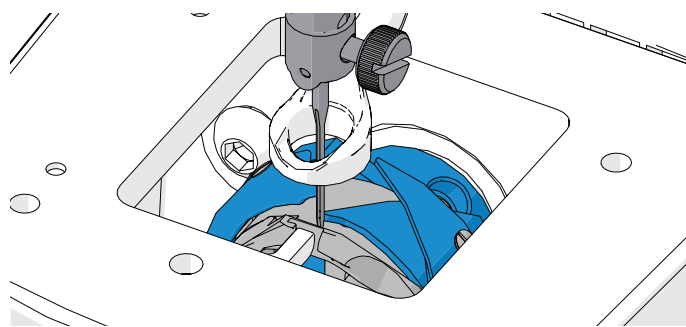
- 6 The **outside** part of the hook assembly (shown in blue) now rotates by hand. Turn the outside part of the hook assembly so that the **hook** is at the top.



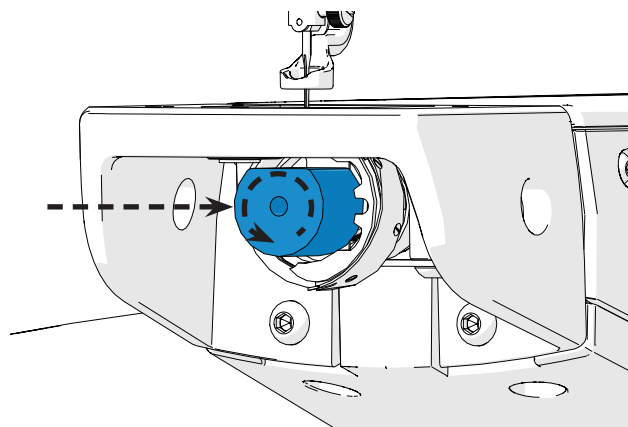
- 7 Carefully rotate the hand wheel to drop the **needle** (shown in gray) all the way to the lowest point. Continue rotating the hand wheel the same direction. The **needle** should begin to raise up.



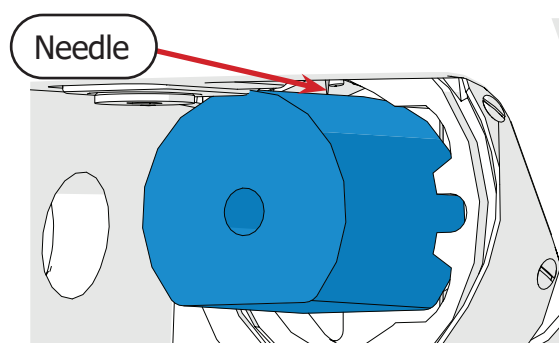
- 8 Stop raising the needle once the eye is about level with the **hook** (shown in blue). Do not continue to raise the needle. If the needle reaches the top of its rotation (over the hopping foot), start over at step 7.



- 9 Slip the **timing spacer tool** (shown in blue) into the hook assembly with the flat side facing up. Then turn the timing tool until the flat side faces down.

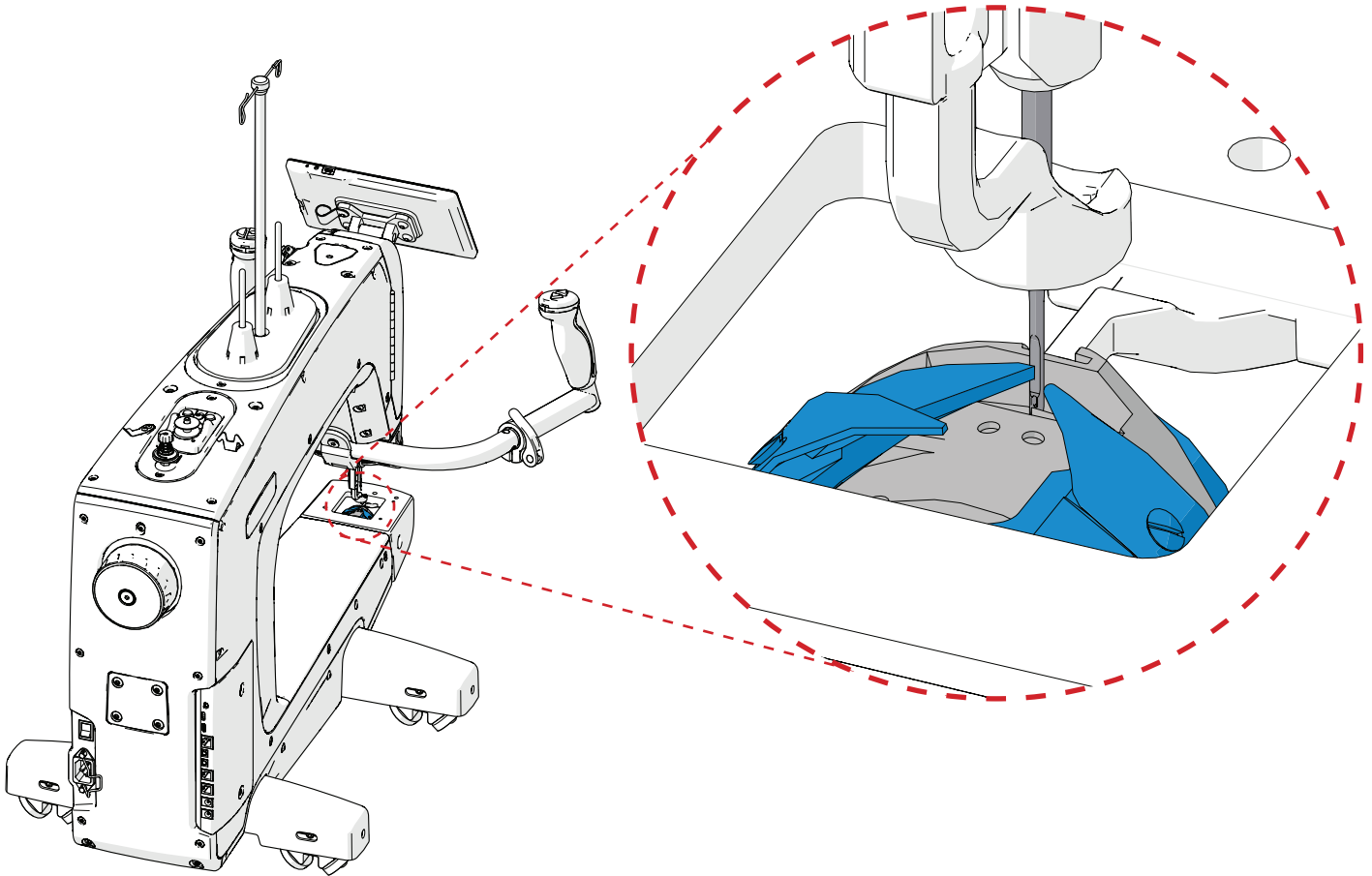


- 10 Turn the hand wheel the opposite direction to bring the **needle** back down until it rests on top of the **timing spacer**. Do not let the **needle** rise to the top before bringing it back down or you will need to repeat steps 7-10.

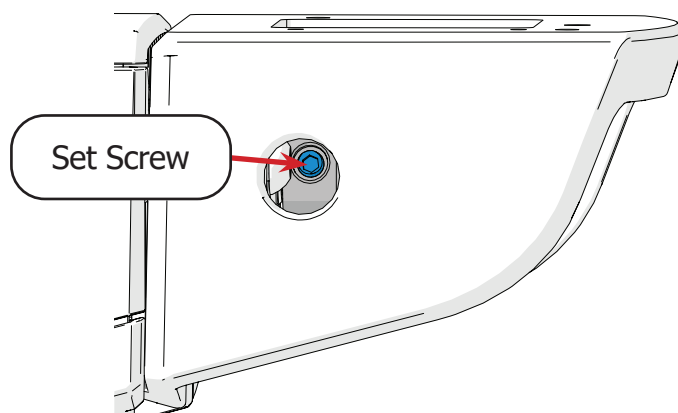


Timing the Machine (continued)

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

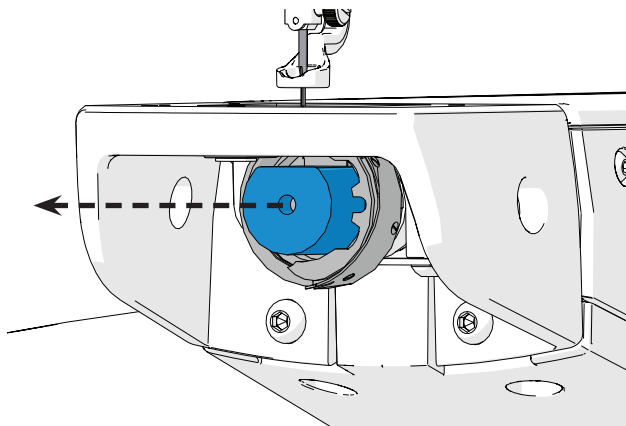


- 12 Pull the hook assembly toward the front of the machine until the hook is as close to the needle as possible without touching
- 13 Use the 2 mm Allen wrench to tighten one of the three **set screws** through the timing cut-out window on the left.

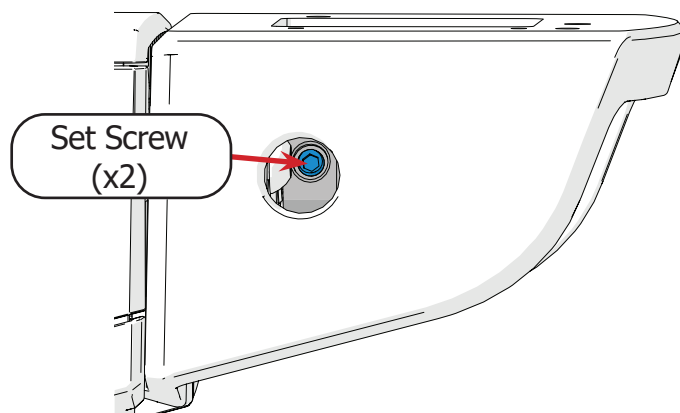


Timing the Machine (continued)

- 14 Turn the timing spacer tool until the flat side is facing up and then remove it from the machine.



- 15 Turn the hand wheel a full rotation to listen for clicking noises and to ensure the needle does not bend or hit the hook.
- 16 Tighten the two remaining **set screws** through the timing cut-out.



- 17 Replace and align the needle plate (see page 78). Make sure the needle is in the center of the needle plate.
- 18 Replace the bobbin case (see page 28).
- 19 Replace the hopping foot and adjust hopping foot height (see page 75).
- 20 Test the machine and listen for any unusual noises. If there are any skipped stitches, the hook is too far away from the needle. If the thread breaks, the hook is too close to the needle.

Appendix

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

Choosing Your Needle	page 95
Choosing your Thread	page 97
Choosing Your Fabric and Batting	page 100
Troubleshooting Guide	page 101
Index	page 103

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

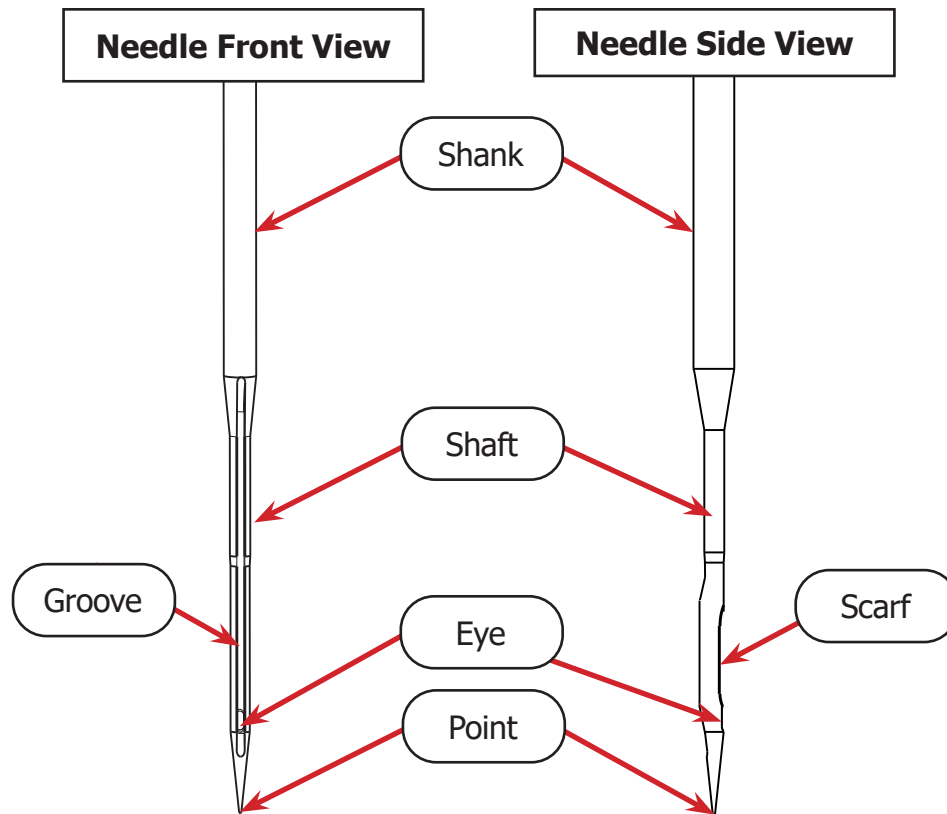
Needle Sizes

Choose the size of your needle based upon the thread you're using. Thicker thread requires a thicker needle. Remember, the thicker the thread, the lower the thread weight (wt.) number.

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

Choosing your Needle (continued)

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 “Task 10 - Threading the Machine” on page 30). 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 “Task 10 - Threading the Machine” on page 30).
- 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 plies, 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

Choosing your Thread (continued)

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 and polyester. No extra processing or treatments are typical for silk.

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.

Choosing your Thread (continued)

Our Recommended Thread

Finesse thread is specially-designed for quilting 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 22).
	Machine is not turned on	Check power button is pressed down on right side (page 22).
	If problem persists, please contact a Grace Company support technician. Call (800) 264-0644 .	
Stitches are skipped.	Damaged needle	Check needle (page 73).
	Machine improperly threaded	Check that all tensioners and guides were threaded correctly (page 30).
	Bobbin wound or threaded incorrectly	Check that the bobbin was inserted the correct direction in the case (page 25).
	Incorrect thread tension	Adjust top thread tension (page 56). Adjust bottom thread tension (page 56).
	Hopping foot incorrect distance from needle plate	Check hopping foot height distance with height tool (page 75).
	If problem persists, please contact a Grace Company support technician. Call (800) 264-0644 .	
Thread is breaking.	Damaged needle	Check needle (page 73).
	Incorrect thread tension	Adjust top thread tension (page 56). Adjust bottom thread tension (page 56).
	Machine improperly threaded	Check guides and tensioners for accidental double-wrapping (page 30).
	Stitching in place too long	Keep machine moving to avoid stitch build-up in one place, or switch to regulated precise quilting mode (page 43).

Troubleshooting Guide (continued)

Issue	Cause(s)	Solution
Thread is breaking.	Bobbin inserted incorrectly	Check bobbin is the correct direction in the case and inserted firmly (clicked) into the machine (page 28).
	Debris on tension discs	Clean the machine (page 69).
	Burred bobbin	Check bobbin for sharp edges. Contact your dealer to replace if needed.
	Needle plate is rubbing needle	Check that needle plate is centered and does not hit needle (page 78).
	If problem persists, please contact a Grace Company support technician. Call (800) 264-0644 .	
Machine is running loud.	Machine and/or hook assembly needs oiling	Oil the machine and hook assembly (page 69).
	Bobbin winder is on	Press the "off" button on the bobbin winder (page 25).
	If problem persists, please contact a Grace Company support technician. Call (800) 264-0644 .	
Thread is bunching up in hook assembly (bobbin case area).	Bobbin wound or threaded incorrectly	Check that the bobbin was threaded correctly and inserted the correct direction in the case (page 25).
	Machine improperly threaded	Check that all tensioners and guides were threaded (page 30).
	Incorrect thread tension	Adjust top thread tension (page 56). Adjust bottom thread tension (page 56).
	Bobbin case has damaged or missing spring	Check inside bobbin case to see spring. Contact your dealer to replace if needed.
	If problem persists, please contact a Grace Company support technician. Call (800) 264-0644 .	

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





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