Q'nique 16 X

Instruction Manual

Grace COMPANY

Copyright June 16, 2022

V 1.9

X160

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

Machine Serial Number: _____

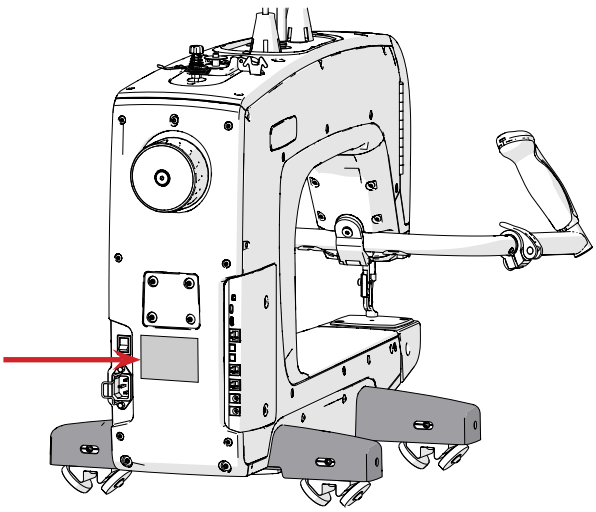
Date of Purchase: _____

What Frame are You Using? _____

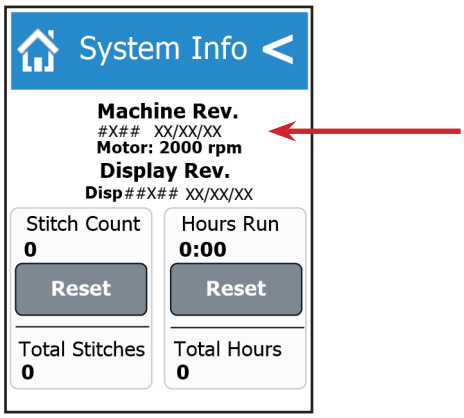
Select Which Machine Accessories You Have Purchased:

- ☐ 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 62 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 by 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.

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

SAVE THESE INSTRUCTIONS! Do not discard box or packaging.

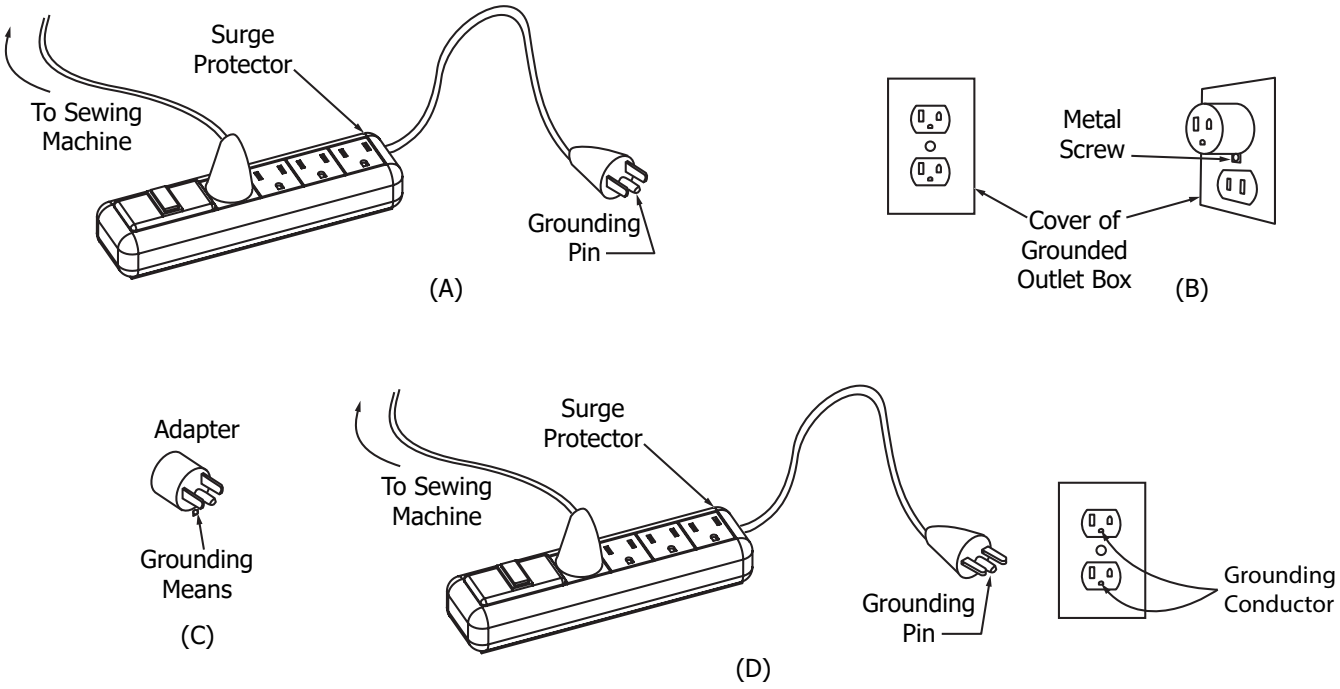
GROUNDING INSTRUCTIONS

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

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

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

Grounding Methods



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

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

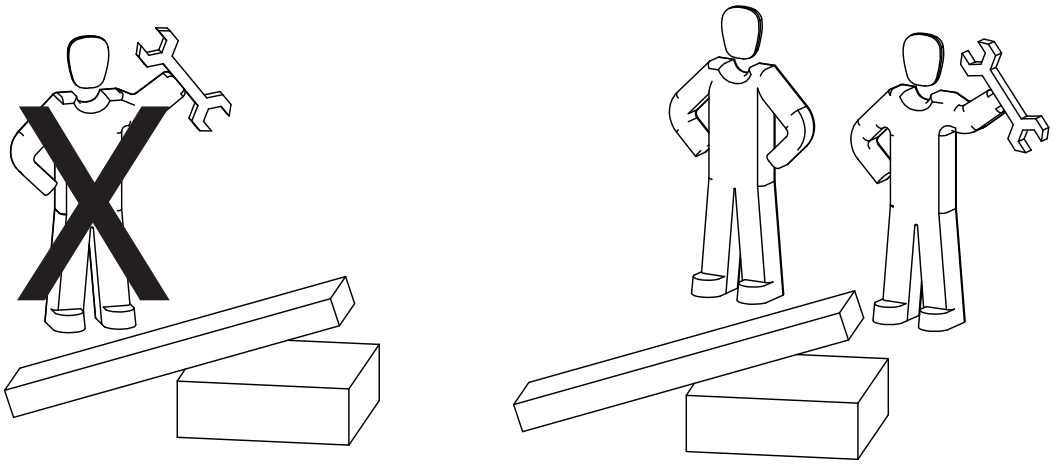
Warranty Information

The Q'nique 16X has a two-year limited warranty on all parts and a five-year limited warranty on its cast metal body. Under these warranties, Grace Company will at its discretion repair or replace any part(s) with material or manufacturing defect. The customer is required to return the product to Grace Company in its original box. If the customer does not have their original quilting machine box, they will need to buy a box from Grace Company to return their machine in. The customer is responsible for all shipping costs. Upon receipt of the product, Grace Company will determine whether to repair or replace the defective product or part(s). These warranties do not cover parts that are damaged through misuse, improper storage, improper assembly, loss, natural events, or willful destruction.

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

For more warranty and registration information, visit:

https://graceframe.com/en/warranty/info.





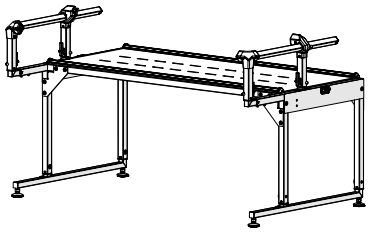
Welcome to Your Q'nique 16X

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.

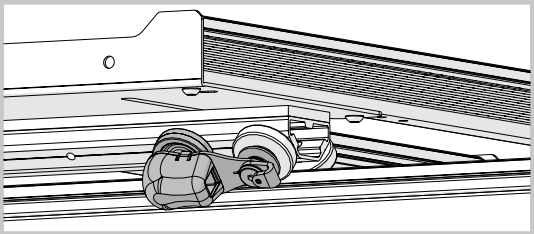
Thank you again for choosing us to help with your quilting projects.

- Grace Company



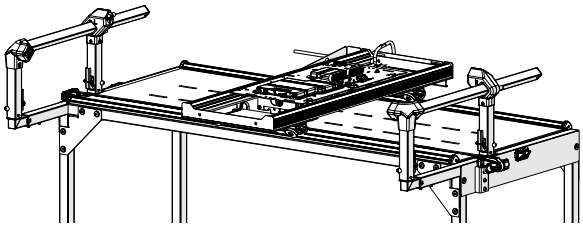
<u>Start Here:</u> Frame Manual: Part One

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



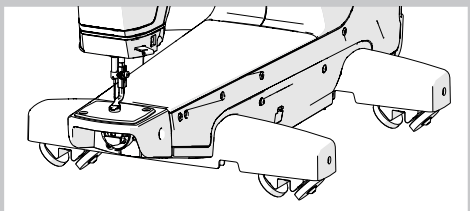
Quilting Machine Manual: Part One

- Install the lower encoder onto the bottom carriage.



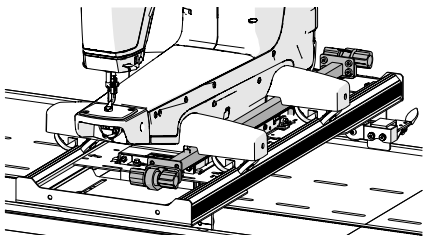
QuiltMotion Manual: Part One

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



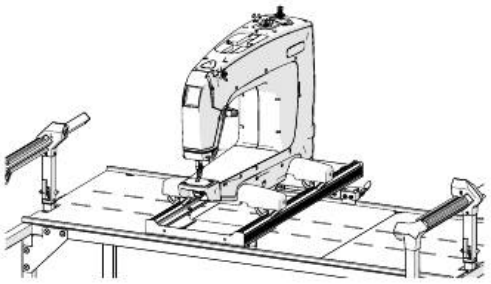
Quilting Machine Manual: Part Two

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



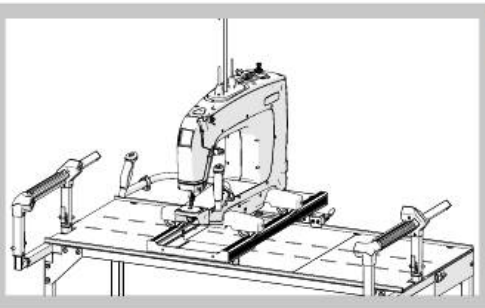
QuiltMotion Manual: Part Two

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



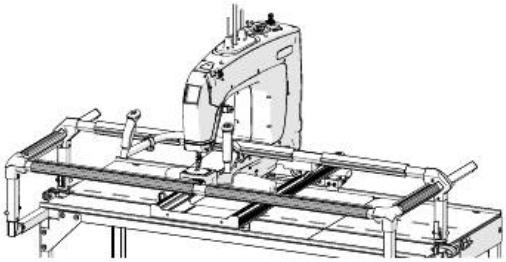
Frame Manual: Part Two

- 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.



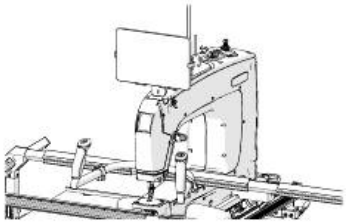
Quilting Machine Manual: Part Three

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



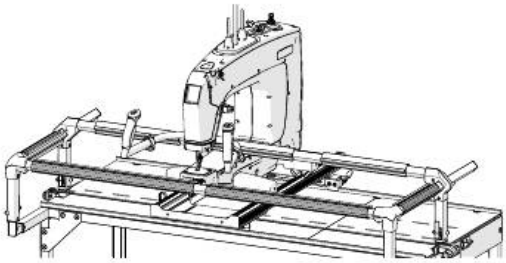
Frame Manual: Part Three

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



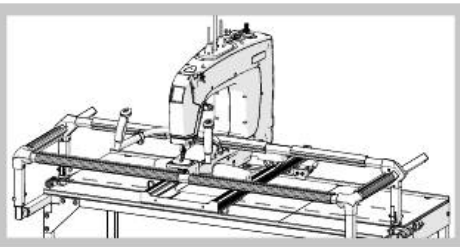
QuiltMotion Manual: Part Three

- 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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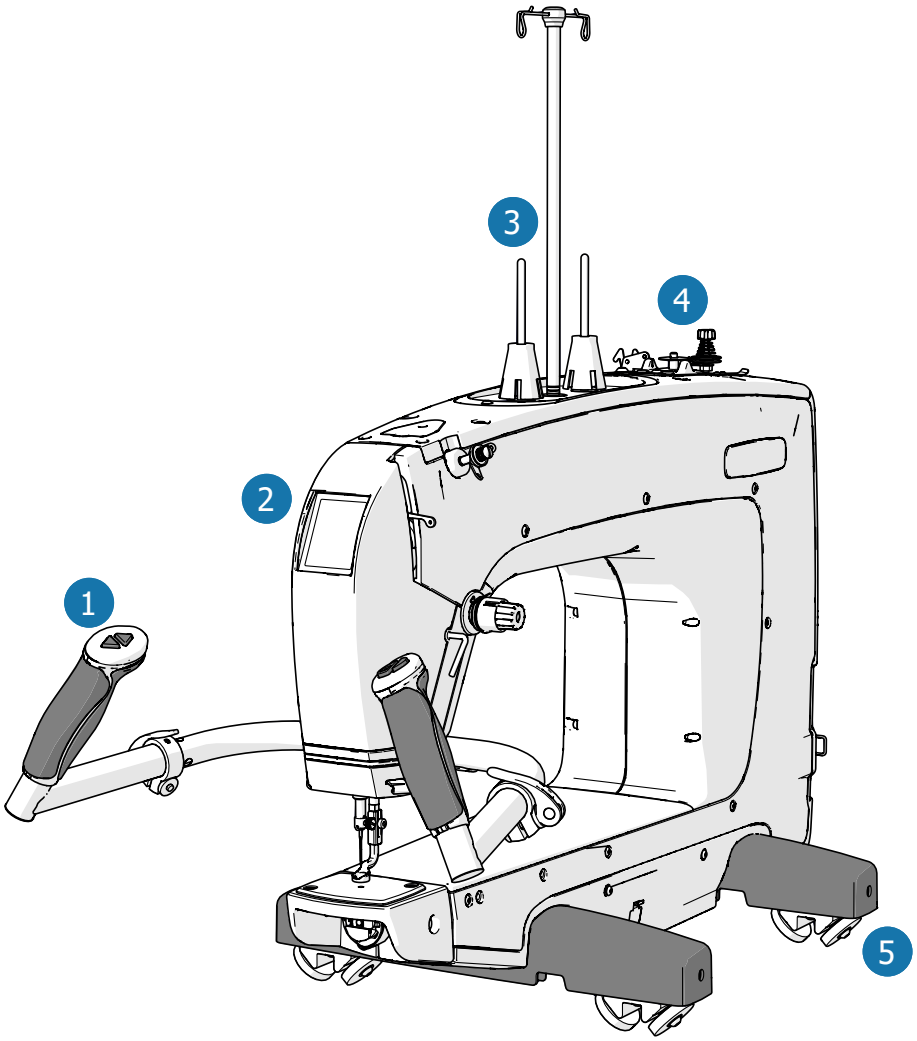
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Machine Specifications

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: 200 W

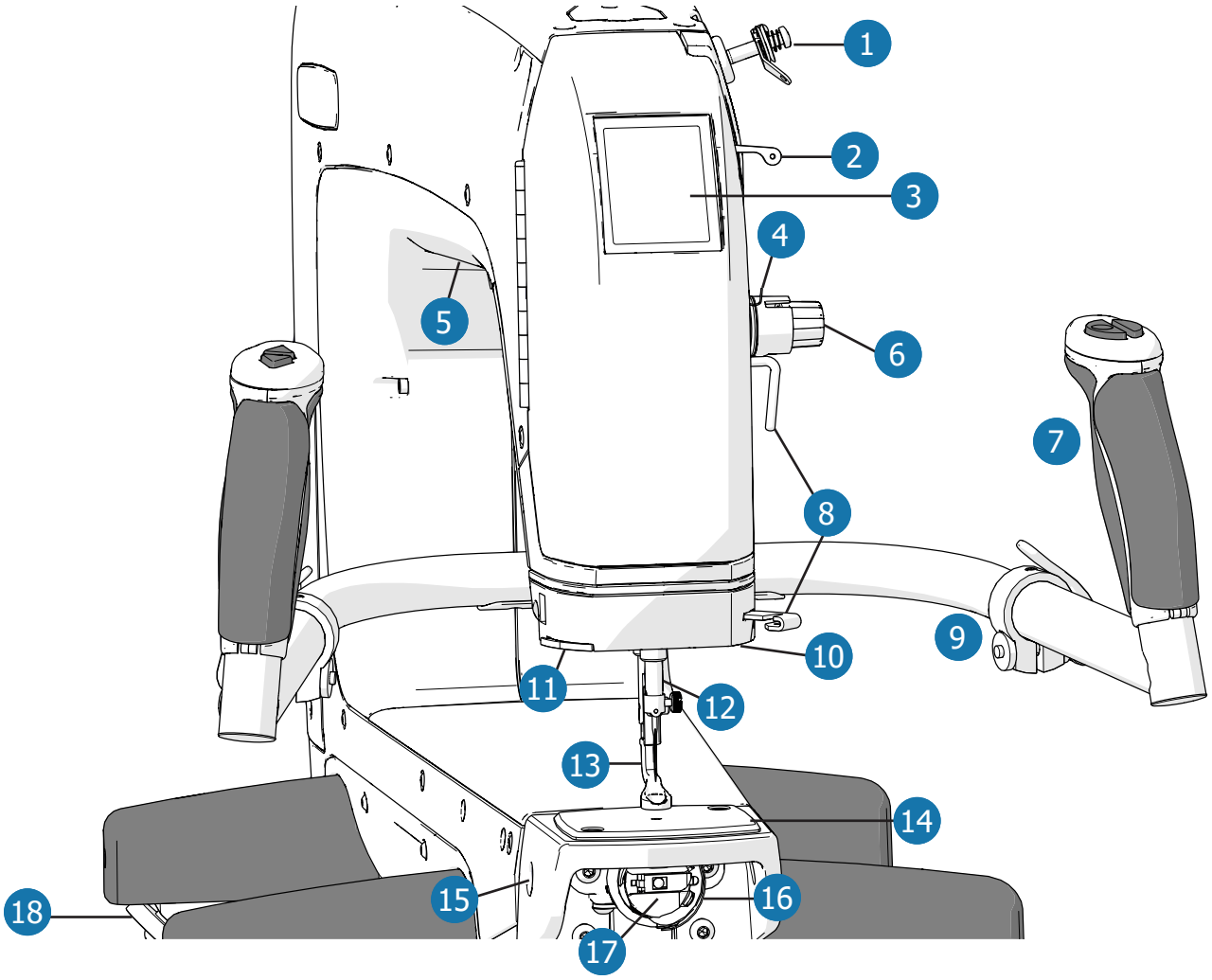
Features

1. Adjustable handles for comfortable extended use (page 18)
2. 2.4” Touch Display (page 42)
3. Dual thread mast and stands for quilting and winding bobbin at the same time
4. Built-in bobbin winder (page 27)
5. Dual wheels for stability (page 12)

- Stitches per minute (SPM) range of 90 to 1700 stitches
- Regulated stitching
- Quilt-edge warning feature

Machine Layout

Quilting Machine (Front View)



1 **Small Thread Tensioner** (page 32)
Tensions thread when quilting.

2 **Take-Up Lever** (page 32)
Tensions thread when quilting.

3 **2.4" Touch Display** (page 42)
Provides access to quilting options.

4 **Tensioner Check Spring** (page 32)
Applies additional tension to thread.

5 **Throat Lights**
Lights up sewing area when machine is on.

6 **Large Thread Tensioner** (page 32)
Tensions thread as adjusted when quilting.

7 **Handlebar Controls** (page 44)
Controls machine functions.

8 **Thread Guides** (page 32)
Positions thread when quilting.

9 **Handle Bar Levers** (page 18)
Used to adjust handle position.

10 **Lamp** (page 42)
Lights up needle area when machine is on.

11 **Thread Cutter** (page 32)
Cuts excess thread from threading machine.

12 **Needle Bar** (page 32)
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.

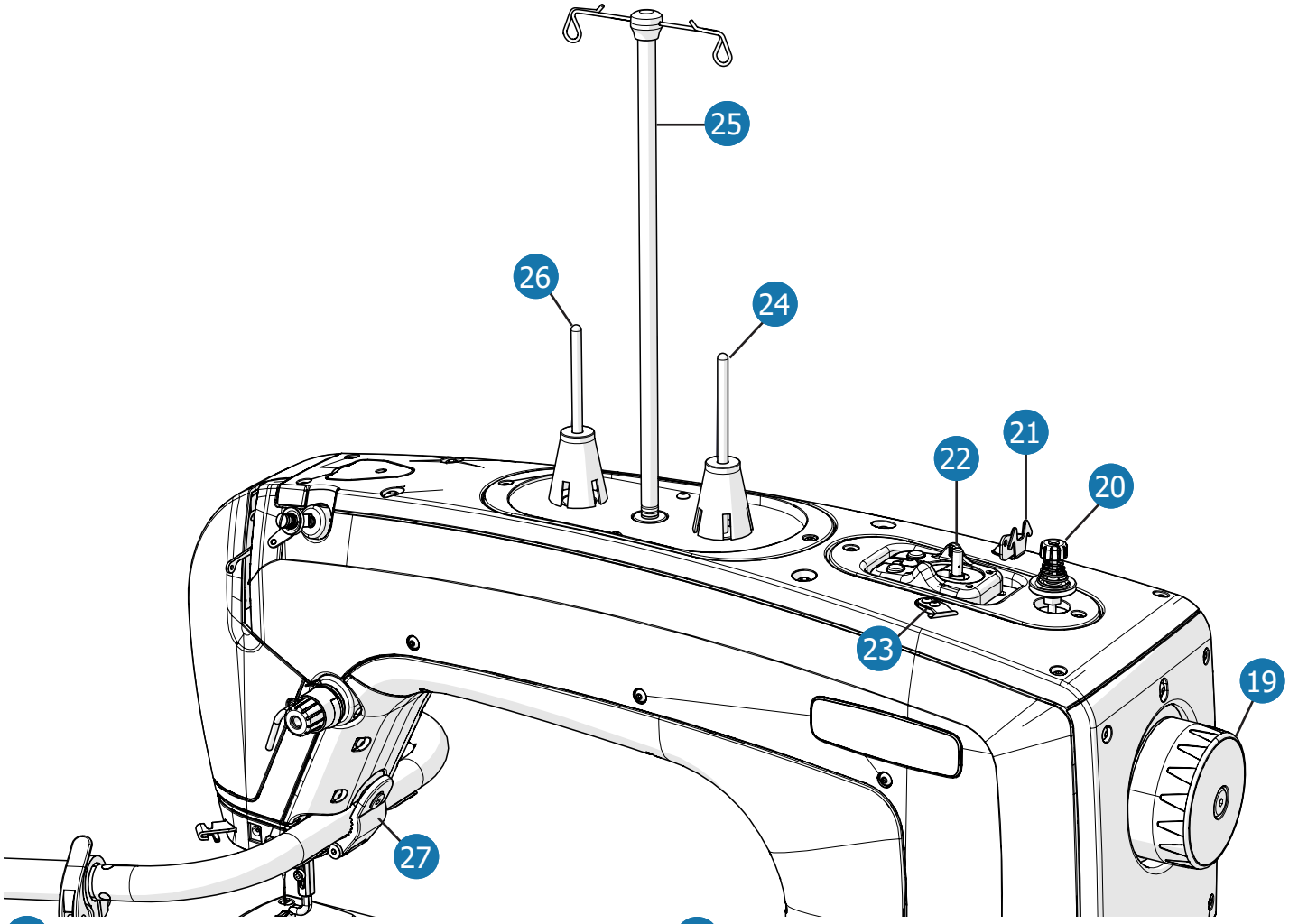
15 **Timing Cut-Out** (page 89)
Accesses hook assembly set screws.

16 **Hook Assembly** (page 30)
Holds the bobbin case and hooks the top thread to create stitches.

17 **Bobbin Case** (page 30)
Holds M-class bobbin and controls bottom thread tension.

18 **Machine Wheels** (page 12)
Shuttles the machine up and down the bottom carriage.

Quilting Machine (Top View)



19 **Hand Wheel**
Raises and lowers the needle bar.

20 **Bobbin Thread Tensioner** (page 27)
Tensions thread when winding a bobbin.

21 **Bobbin Thread Guide** (page 27)
Guides thread to the bobbin thread tensioner.

22 **Bobbin Stand** (page 27)
Holds the bobbin for winding.

23 **Bobbin Thread Cutter** (page 27)
Cuts wound bobbin thread.

24 **Bobbin Winder Thread Stand** (page 27)
Holds a cone of thread for winding bobbin.

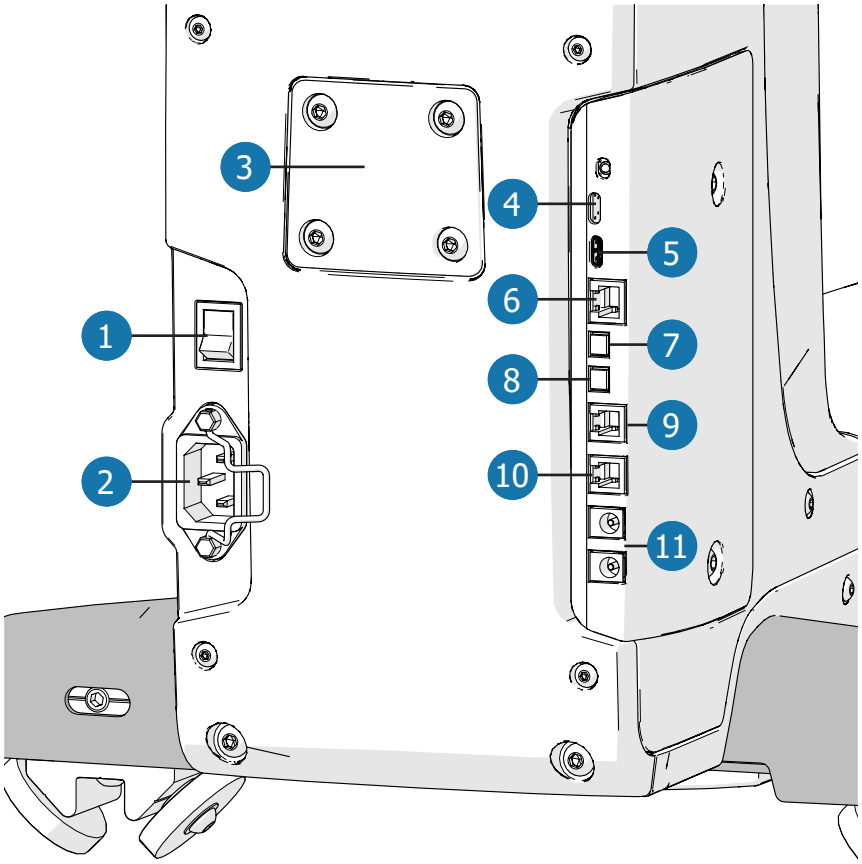
25 **Thread Mast** (page 21)
Guides thread when quilting.

26 **Top Thread Stand** (page 32)
Holds a thread cone for threading machine.

27 **Handle Bar Clamp** (page 18)
Used to adjust handlebar position.

Ports and Plug-Ins

Machine Rear (Rear View)



1 **Power On/Off Switch** (page 24)
Turns machine on and off.

2 **Power Port with Retainer** (page 24)
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.

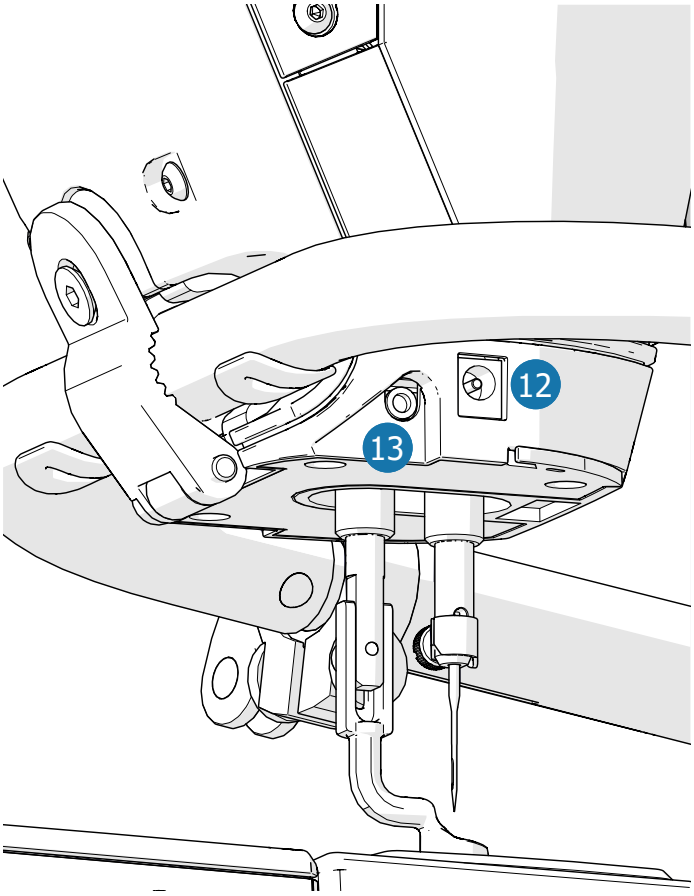
8 **Right Rear Handle Cable Port**
For back handle accessory.

9 **Lower Encoder Port** (page 22)
Connects encoders to machine.

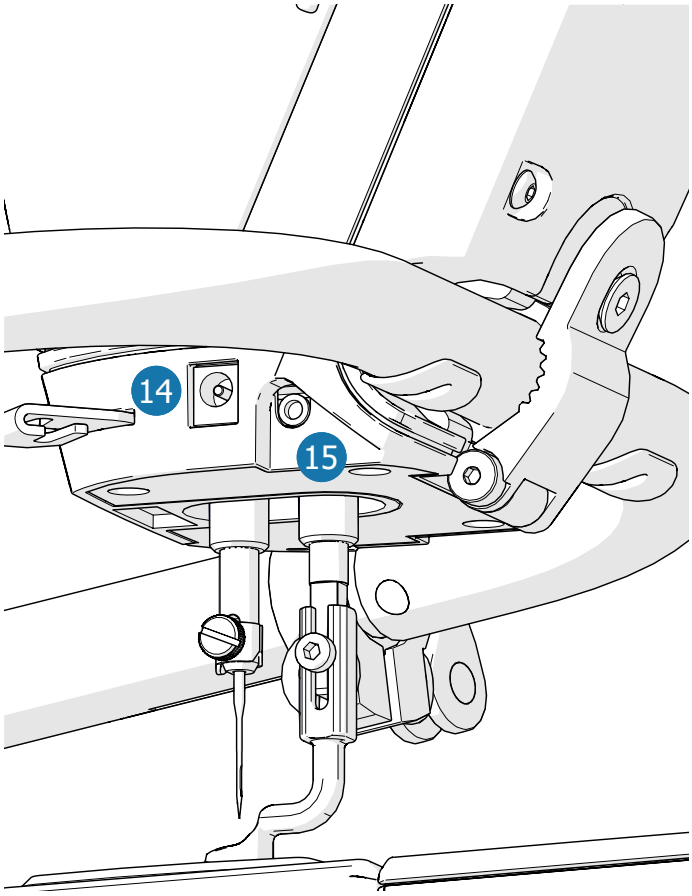
10 **Upper Encoder Port** (page 22)
Connects encoders to machine.

11 **Accessory Ports**
For laser accessory.

Machine Throat Left



Machine Throat Right



12 **Left Accessory Port**
For laser accessory.

13 **Left Handlebar Port** (page 18)
Connects handlebar controls to machine.

14 **Right Accessory Port**
For laser accessory.

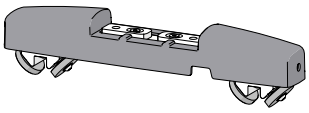
15 **Right Handlebar Port** (page 18)
Connects handlebar controls to machine.

Included Parts and Tools

Level One (Workstation)

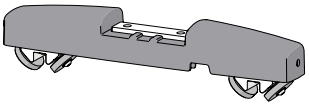
Tip: Parts are grouped together in the packaging for your convenience. For the best experience, do not remove parts from the packaging until instructed to do so.

Back Wheel Assembly



SMP-09-16244
See page 12

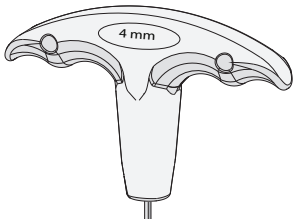
Front Wheel Assembly



SMP-09-16239
See page 12

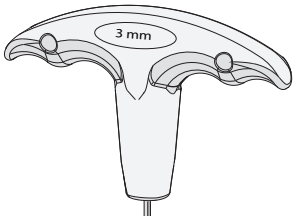
Tools Box

T-handle Allen Wrench 4 mm



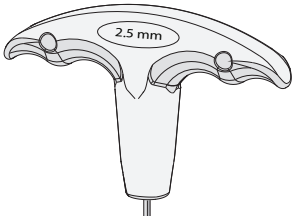
HDW-03-13114

T-handle Allen Wrench 3 mm



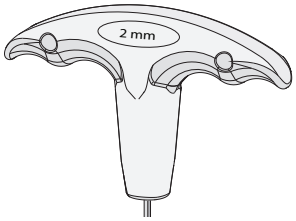
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T-handle Allen Wrench 2.5 mm



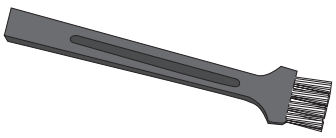
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T-handle Allen Wrench 2 mm



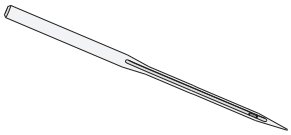
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Lint Brush



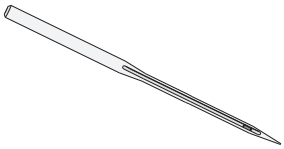
SMP-03-10170
See page 69

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



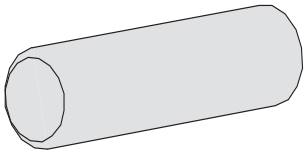
ACC-01-14517
See page 73

Needle Size 16 (one ten pack)



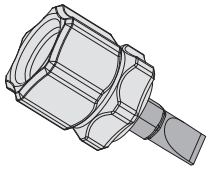
ACC-01-14516
See page 73

Needle Magnet



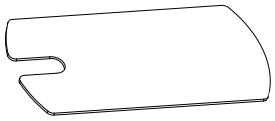
SMP-09-13837
See page 73

Flat-head Screwdriver



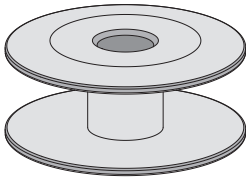
SMP-03-10169
See page 78

Hopping Foot Height tool



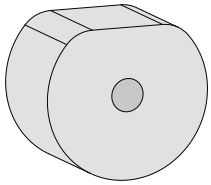
SMP-03-12171
See page 75

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



SMP-08-10070
See page 27

Timing Spacer Tool



SMP-03-11320
See page 89

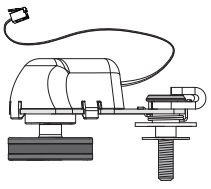
Allen Wrench 5 mm



HDW-03-10741

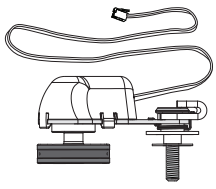
Encoder Box

Upper Encoder
(silver spring)



SMP-09-15701
See page 22

Lower Encoder
(black spring)



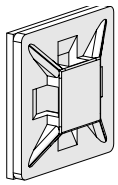
SMP-09-15700
See page 2

Zip Tie (x2)



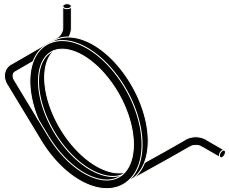
MIS-08-10804
See page 24

Zip Tie Mount (x2)



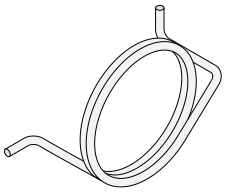
MIS-08-10805

Lower Encoder Spring (black)



HDW-03-10671
See page 83

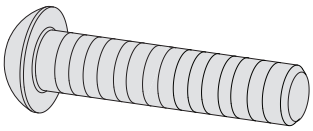
Upper Encoder Spring (silver)



HDW-03-10216
See page 83

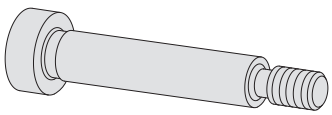
Wheel Base Hardware Box

SBHCS Screw M6 x 35 mm (x2)



HDW-03-10738
See page 12

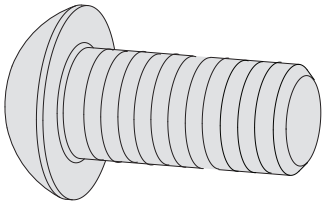
Shoulder Bolt M6 (x2)



HDW-03-10541
See page 12

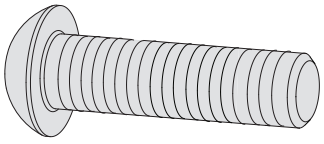
Thread Stand Hardware Box

SBHCS Screw M4 x 12 mm (x3)



HDW-03-14247
See page 21

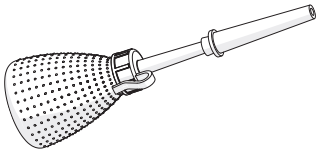
SBHCS Screw M4 x 20 mm (x1)



HDW-03-11661
See page 21

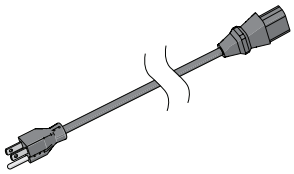
Power Cord/Oil Bottle Box

Oil Bottle



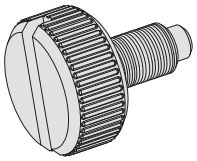
SMP-09-13888
See page 69

Power Cord



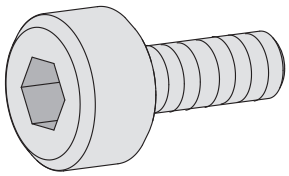
SMP-02-14466
See page 24

M3 Thumb Screw
(needle bar spare)



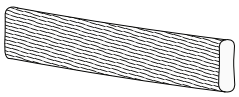
HDW-03-11736
See page 73

Hopping Foot Screw



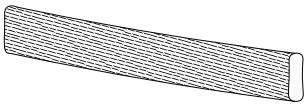
HDW-03-10966
See page 75

Thread Net 10cm (x2)



SMP-08-17315
See page 37

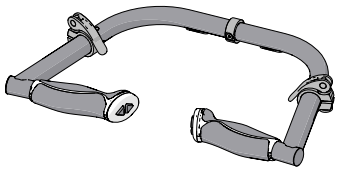
Thread Net 14cm (x2)



SMP-08-17313
See page 37

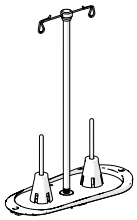
Level Two

Handlebar Assembly



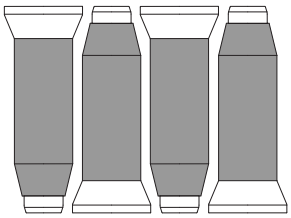
SMP-09-14066
See page 18

Thread Stand Assembly



SMP-09-16235
See page 21

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/16xstart.

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 12

Task 3 - Installing the Handlebars .....page 18

Task 4 - Attaching the Thread Stand.....page 21

Task 5 - Installing the Upper Encoder.....page 22

Task 6 - Turning the Machine On/Off .....page 24

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?

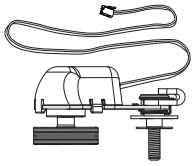
Note: Do not install the rails at this time.

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

Task 1 - Installing the Lower Encoder

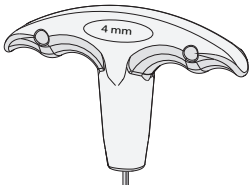
Parts & Tools Needed:

Lower Encoder (black spring)



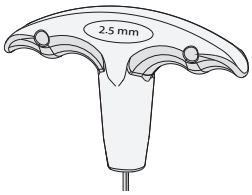
Encoder Box

T-handle Allen Wrench 4 mm



Tools Box

T-handle Allen Wrench 2.5 mm

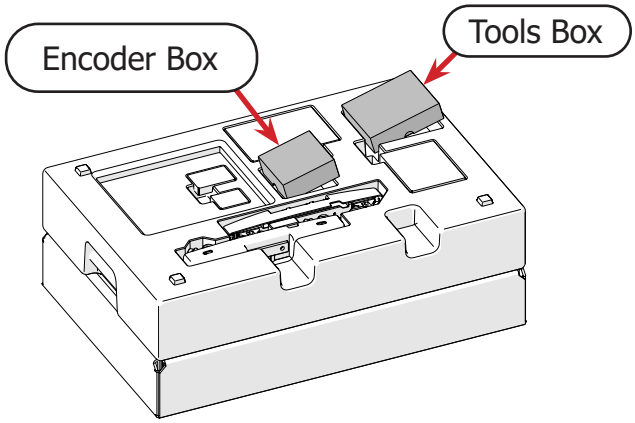


Tools Box

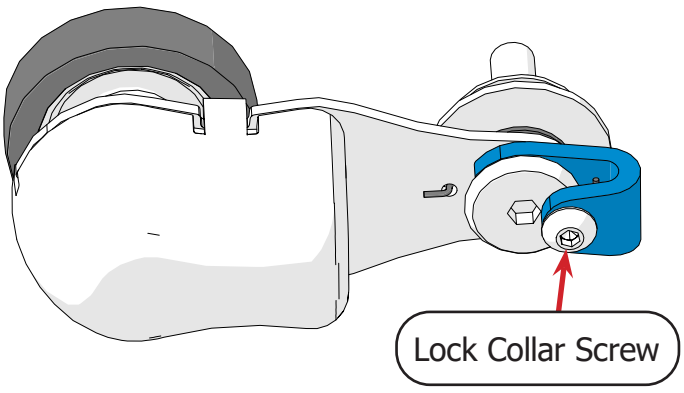
Instructions

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:

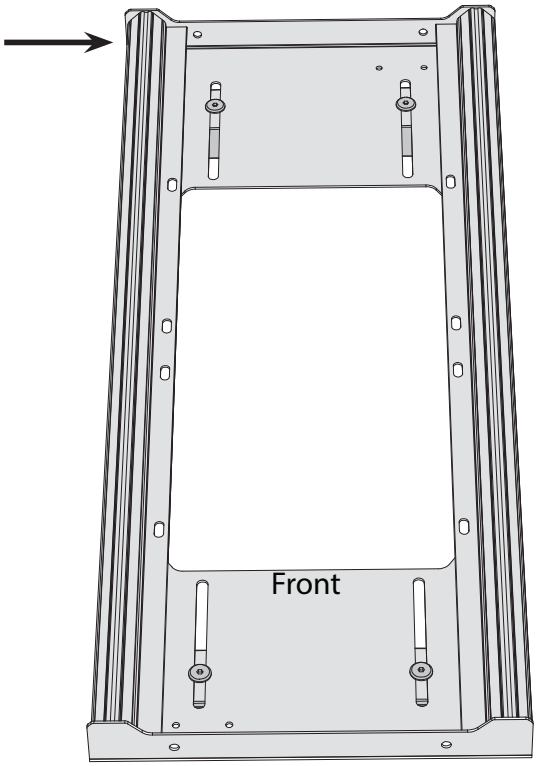
1. The parts and tools needed for this step are located in the **encoder and tools boxes**. The lower encoder has the black spring and green sticker.



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.



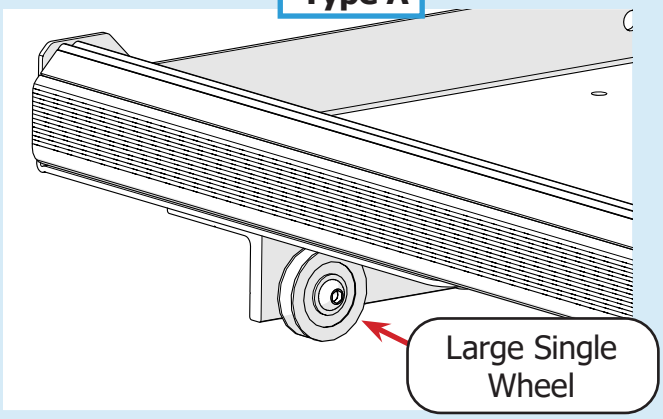
3. Locate the back left wheel of your bottom carriage. **Note:** If needed, review your frame assembly manual to determine the front of the bottom carriage.



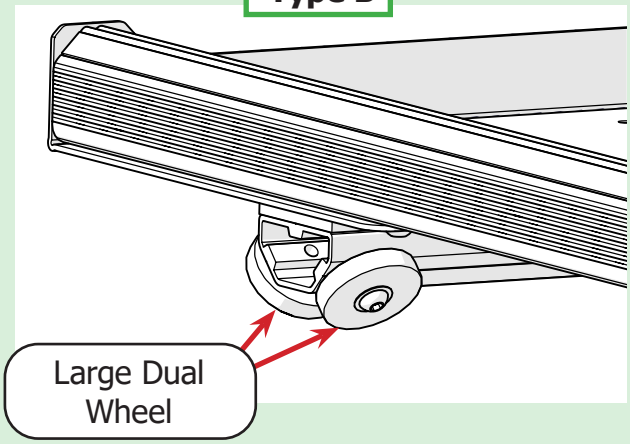
Note: Bottom carriage appearance will vary by model.

4 There are four types of bottom carriage you might have. Review the characteristics below to determine which type is yours, and then follow the directions for your type.

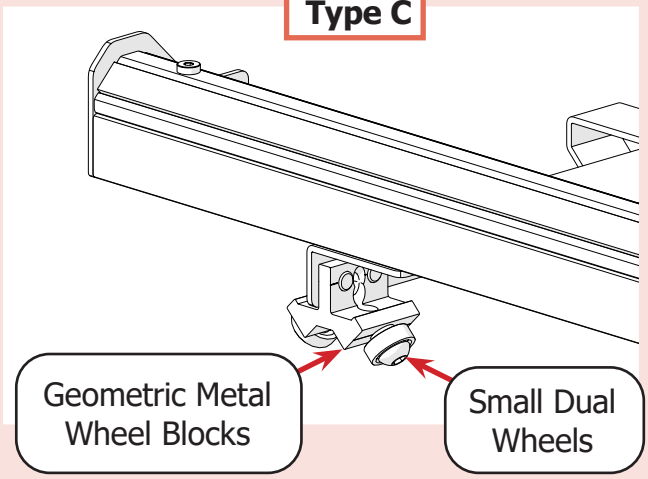
Type A



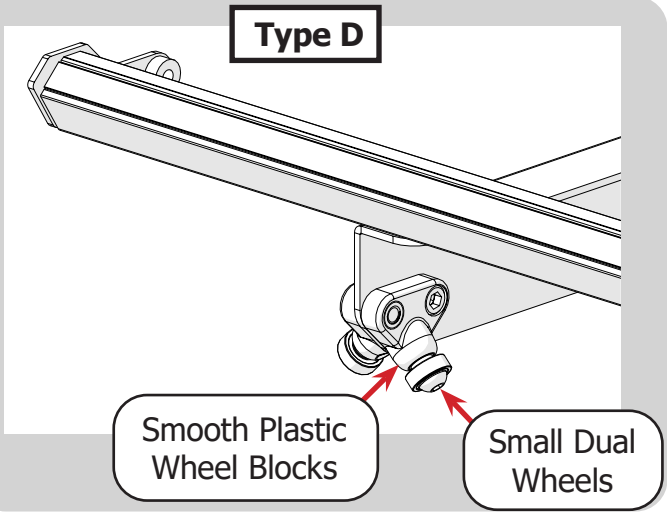
Type B



Type C

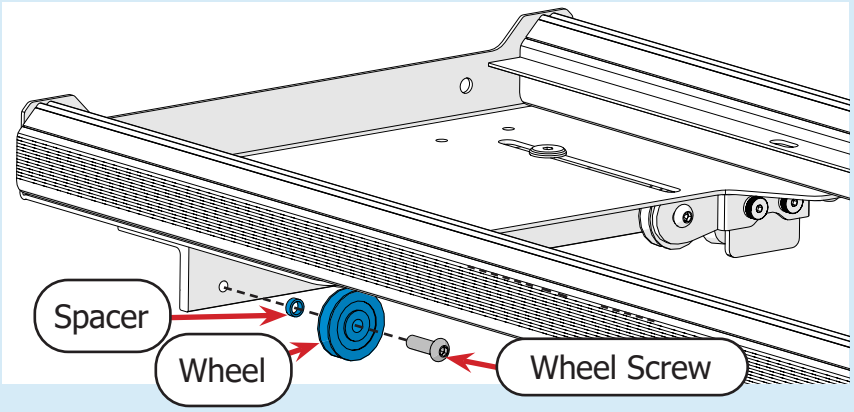


Type D



Type A

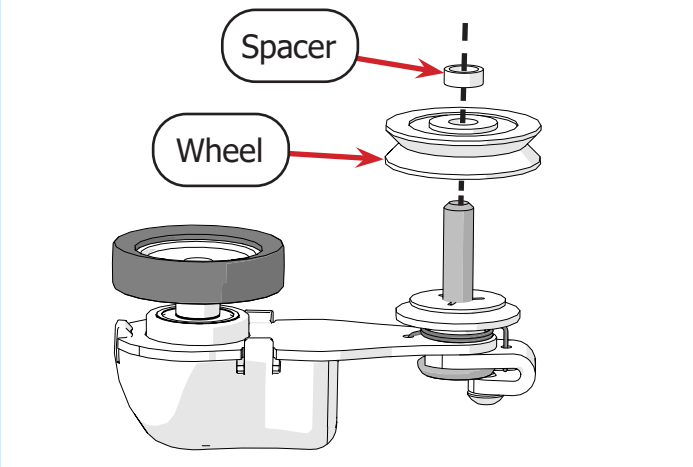
a Use the 4 mm Allen wrench to remove the left-rear **wheel** and **spacer** from the bottom carriage.



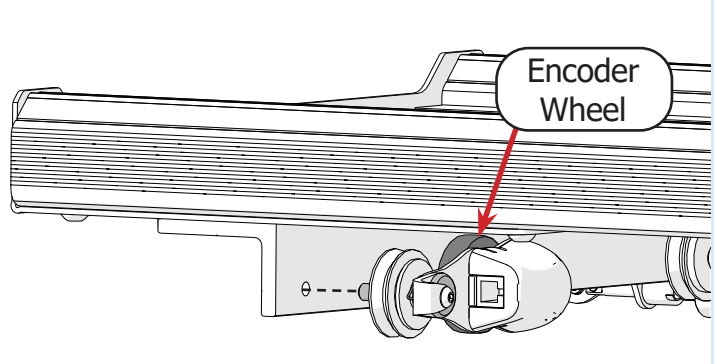
Note: The **wheel screw** is not needed again and can be stored with the packaging materials.

Task 1 - Installing the Lower Encoder (continued)

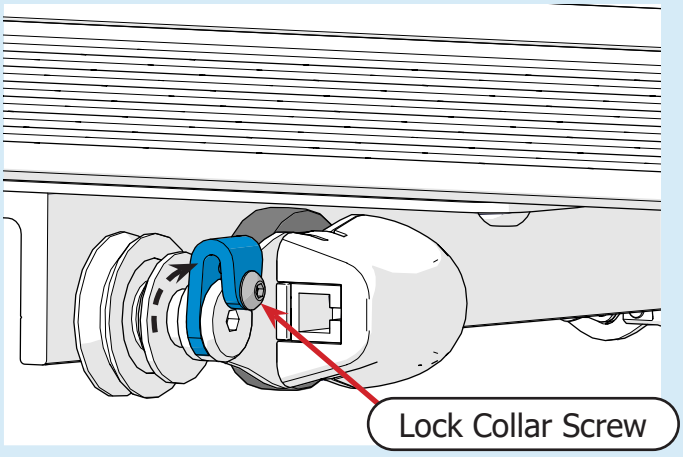
b Install the **wheel** and then the **spacer** onto the encoder bolt.



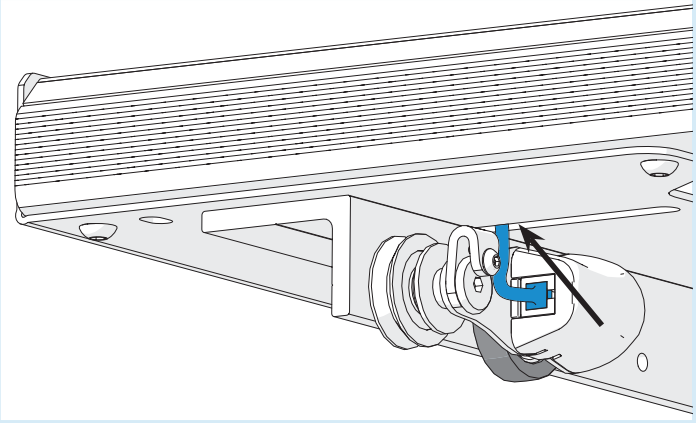
c With the 4 mm Allen wrench, screw the encoder into the left rear wheel hole on the carriage so the **encoder wheel** is between the rear wheels.



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



e Take the free end of the **encoder cable** (shown in blue) and pull it through the slot in the bottom carriage behind the wheels.

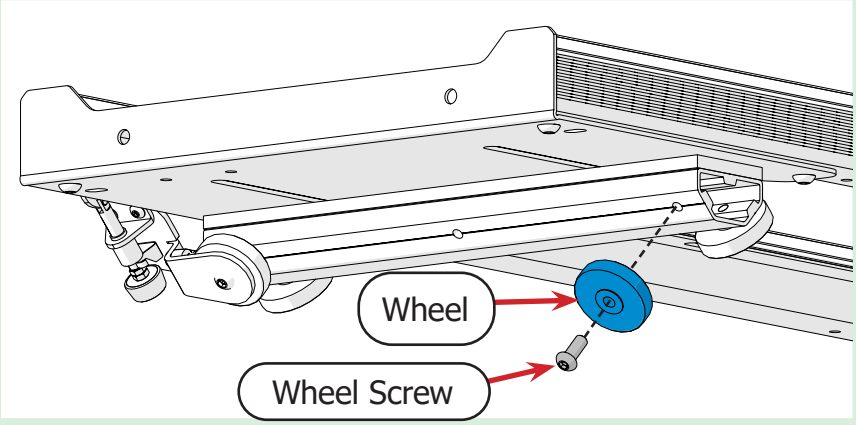


Note: Instructions for plugging the encoder cable into the machine are covered in "Task 5" after the machine has been installed.

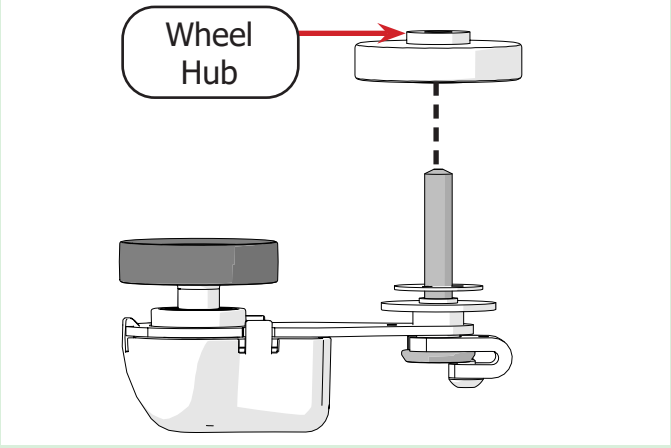
Type B

a Use the 4 mm Allen wrench to remove the outward-facing left rear **wheel** from the bottom carriage.

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

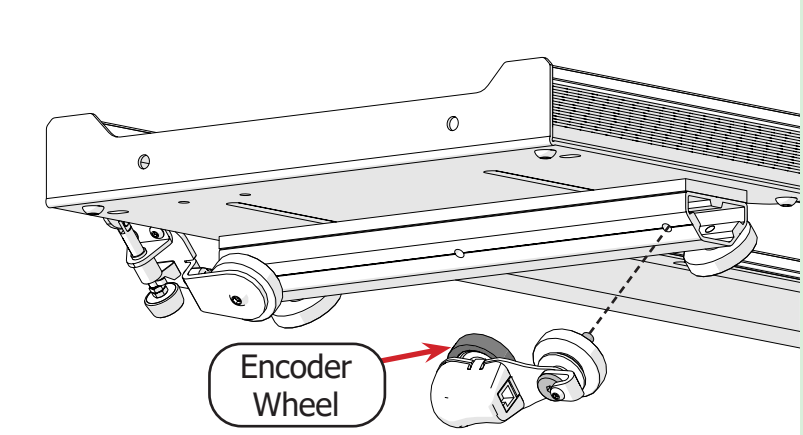


b Install the wheel onto the encoder bolt so the **wheel hub** is away from the encoder.

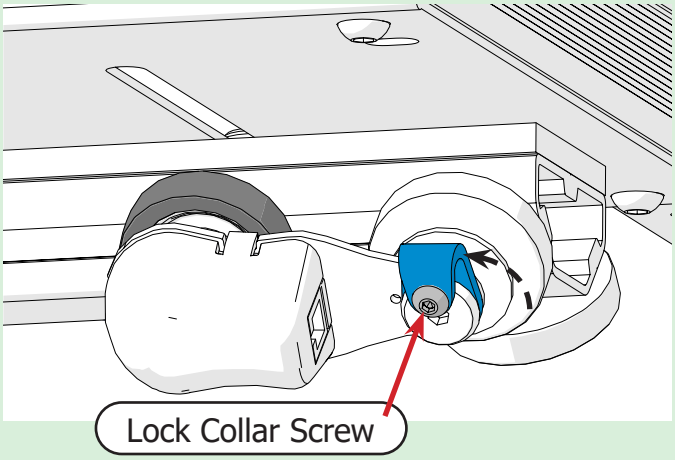


Task 1 - Installing the Lower Encoder (continued)

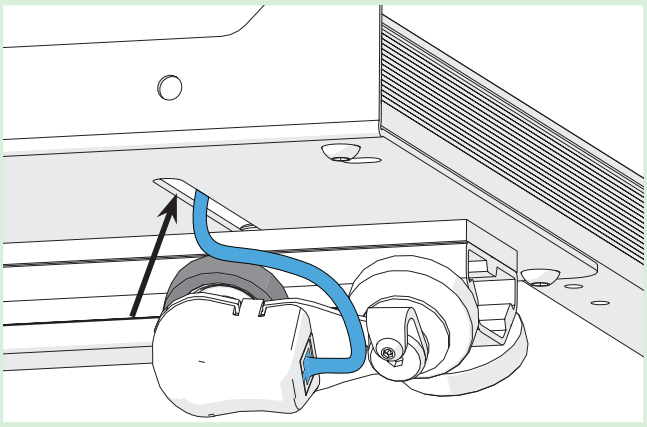
c With the 4 mm Allen wrench, screw the encoder into the left rear wheel hole on the carriage so the **encoder wheel** is between the rear wheels.



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



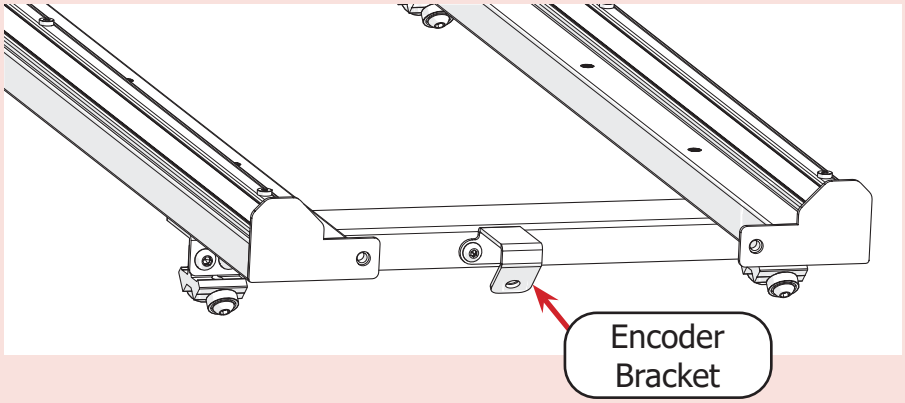
e Take the free end of the **encoder cable** (shown in blue) and pull it through the slot in the bottom carriage behind the wheels.



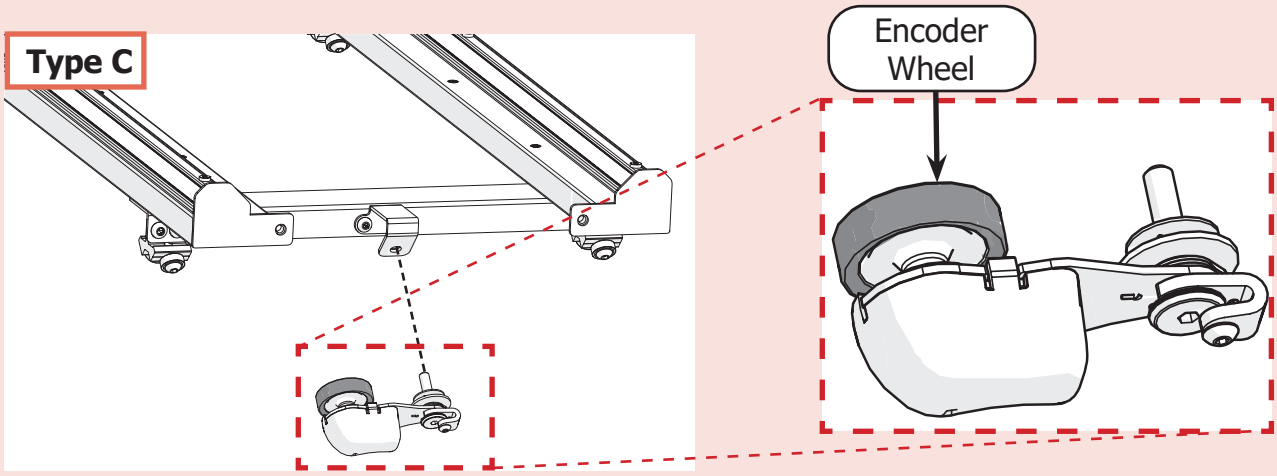
Note: Instructions for plugging the encoder cable into the machine are covered in "Task 5" after the machine has been installed.

Type C

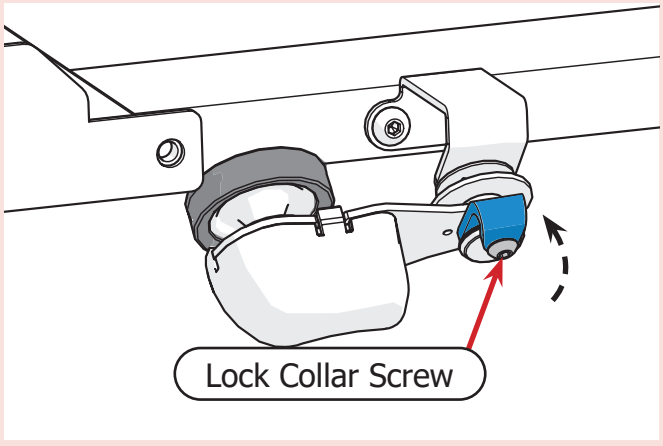
a Ensure the lower **encoder bracket** has been installed on the back of your bottom carriage. These steps are covered in your frame's instruction manual.



b Install the encoder directly onto the encoder bracket at the rear of the carriage so the **encoder wheel** is to the left of the bracket. Tighten with the 4 mm Allen wrench.



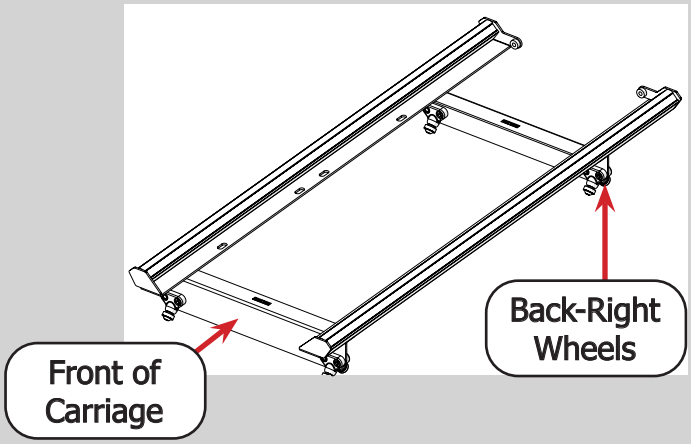
c Turn the encoder **lock collar** (shown in blue) to point up. Then tighten the **lock collar screw** with the 2.5 mm Allen wrench.



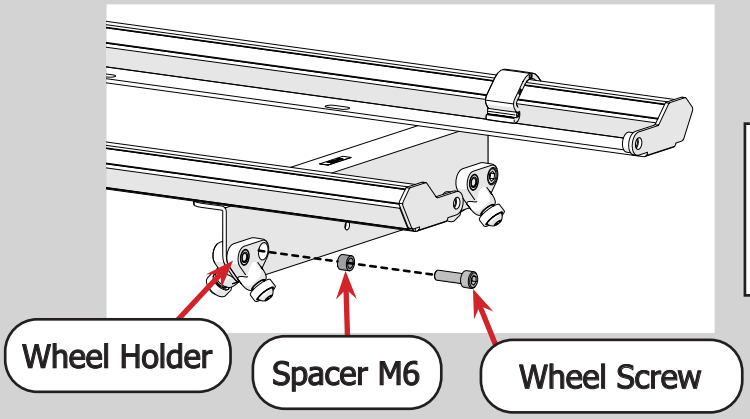
Note: Instructions for plugging the encoder cable into the machine are covered in "Task 5" after the machine has been installed.

Type D

a Locate the **back-right wheels** of the bottom carriage.

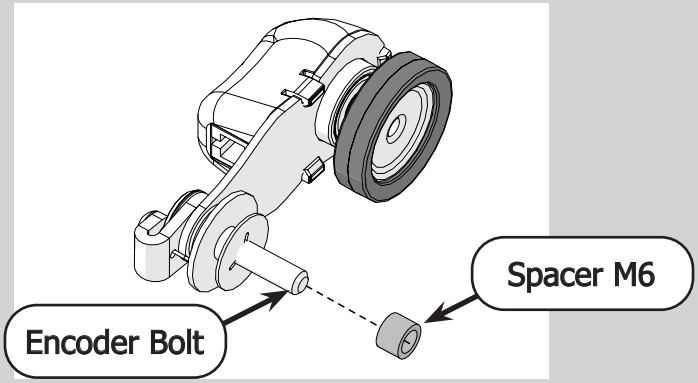


b Use the 5 mm Allen Wrench to remove the **wheel screw** and the **M6 spacer** from the back of the back-right **wheel holder**.



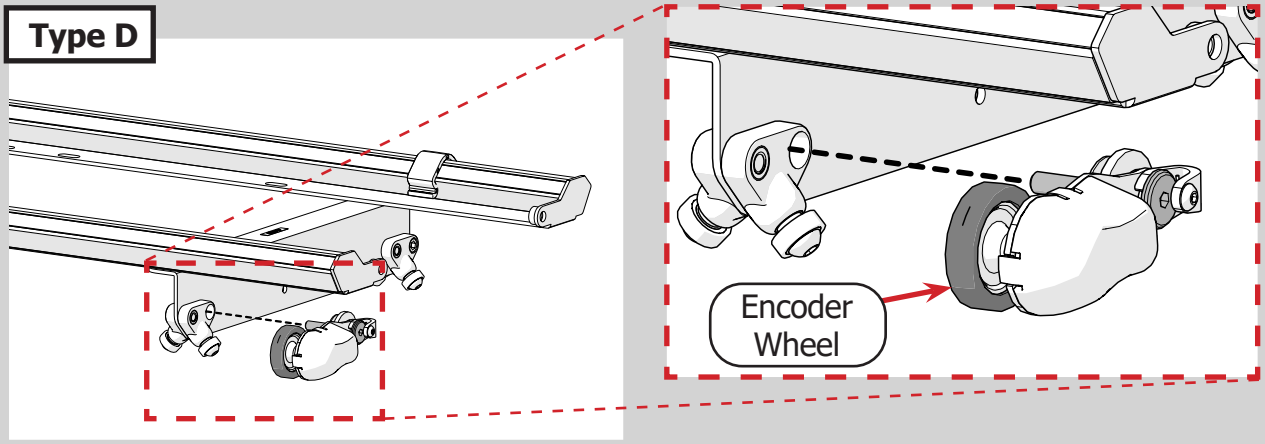
Note: The **wheel screw** is not needed again and can be stored with the packaging materials.

c Install the **M6 spacer** onto the **encoder bolt**.

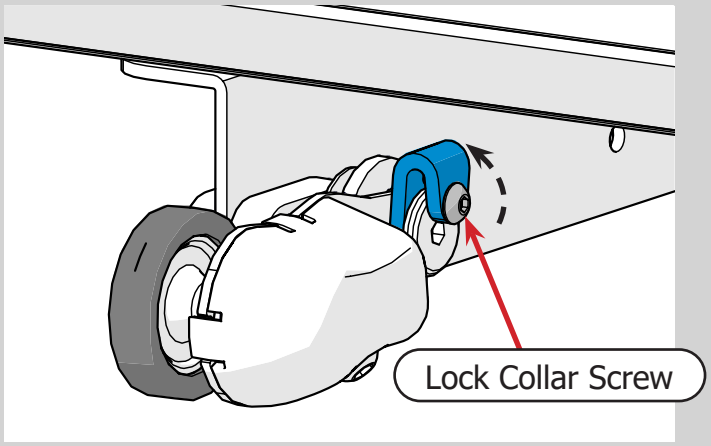


d Install the encoder directly onto the wheel holder at the rear of the carriage so the **encoder wheel** is to the left of the bracket. Tighten with the 4 mm Allen wrench.

Type D



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



Note: Instructions for plugging the encoder cable into the machine are covered in "Task 5" after the machine has been installed.

Note: Instructions for plugging the cable into the machine are covered in "Task 5 - Installing the Upper Encoder" on page 22 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 11.

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)

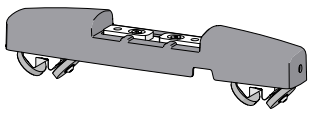
Have you:

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

Task 2 - Installing the Wheels

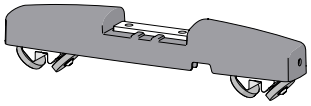
Parts & Tools Needed:

Back Wheel Assembly



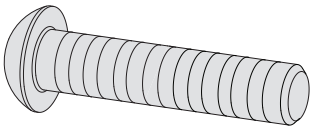
Packaging Level One

Front Wheel Assembly



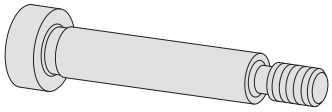
Packaging Level One

SBHCS Screw M6 x 35 mm (x2)



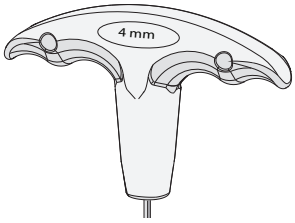
Wheel Install HardwareBox

Shoulder Bolt M6 (x2)



Wheel Install HardwareBox

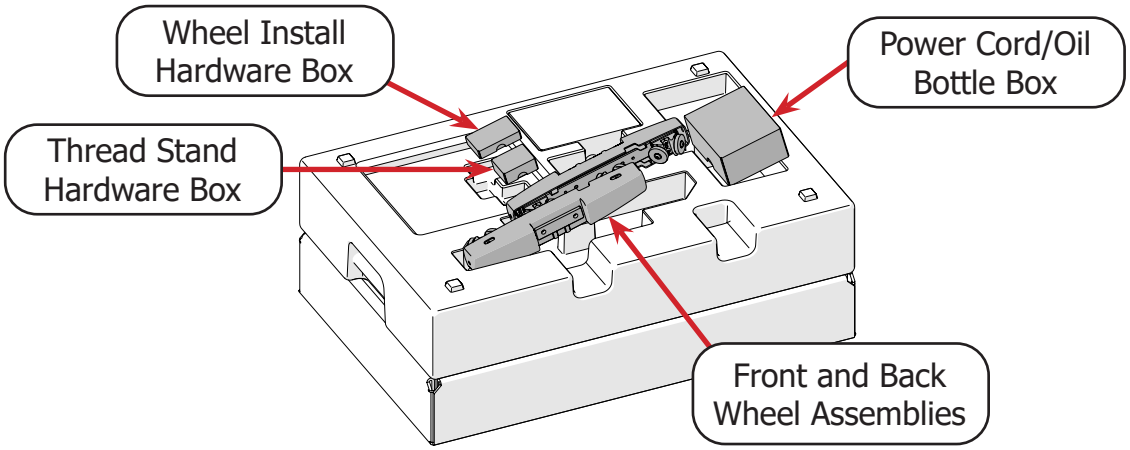
T-handle Allen Wrench 4 mm



Instructions

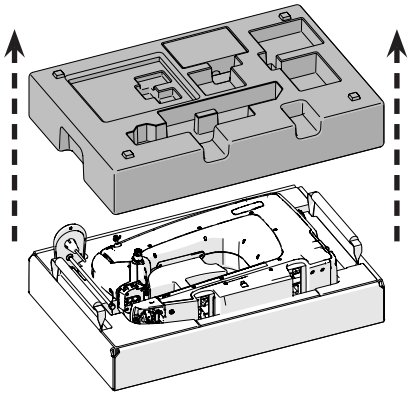
Take the following steps to install the wheels on the bottom of the machine:

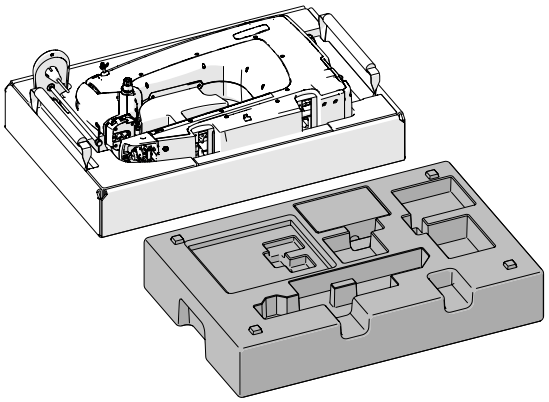
1. Remove the **front and back wheel assemblies**, the **wheel install hardware box**, the **power cord/oil bottle box**, and the **thread stand hardware box** from the top layer of packaging. Set them aside with the encoder and hardware boxes.



Task 2 - Installing the Wheels (continued)

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

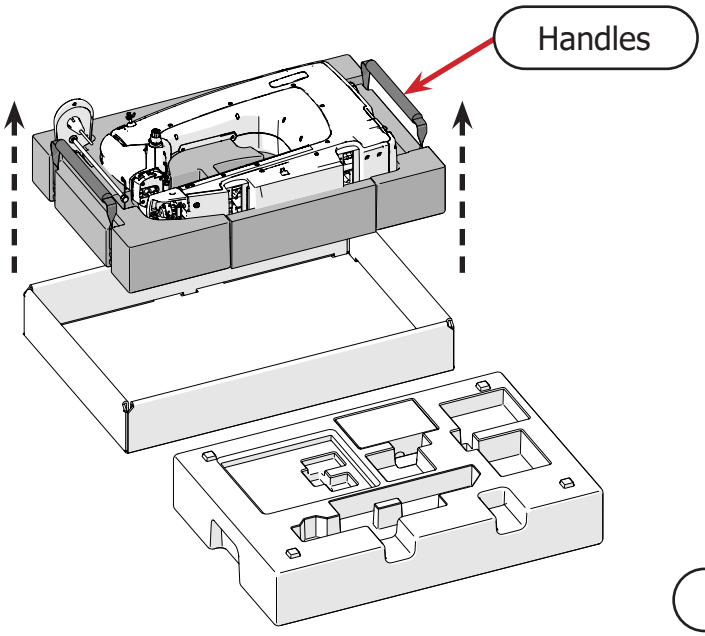


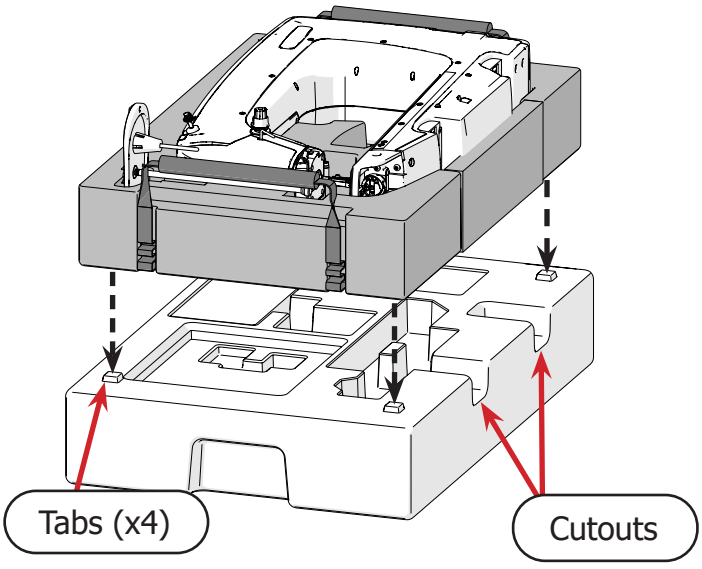


3 Use the **handles** to lift the bottom layer of packaging out of the box. Make sure to place it on top of the first layer of packaging so that the following items are lined up correctly:

- 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

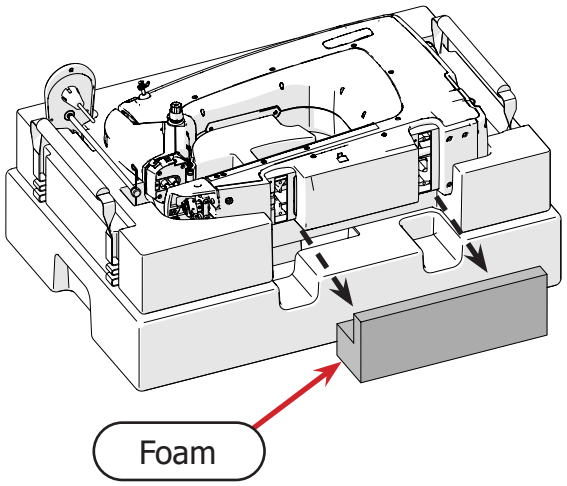
> **Note**: To avoid risk of injury to yourself or damage to the machine, it is highly recommended that this step be completed with two people, one lifting each side of the second layer of packaging.



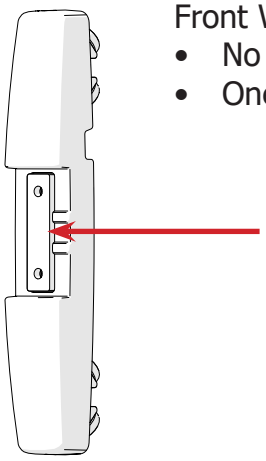


Task 2 - Installing the Wheels (continued)

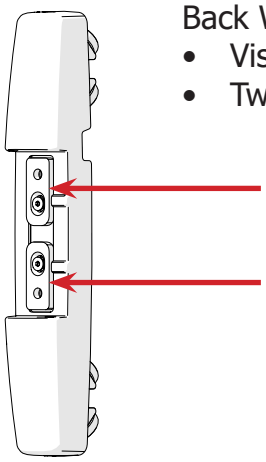
4 Remove the piece of **foam** covering the bottom of the machine.



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

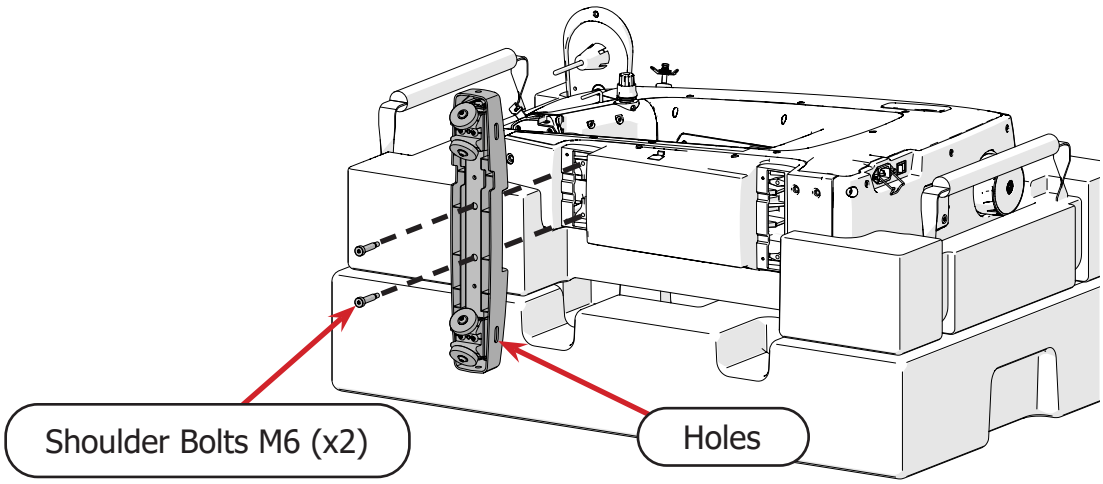


Front Wheel Assembly:
- No visible screws on top
- One rubber spacer



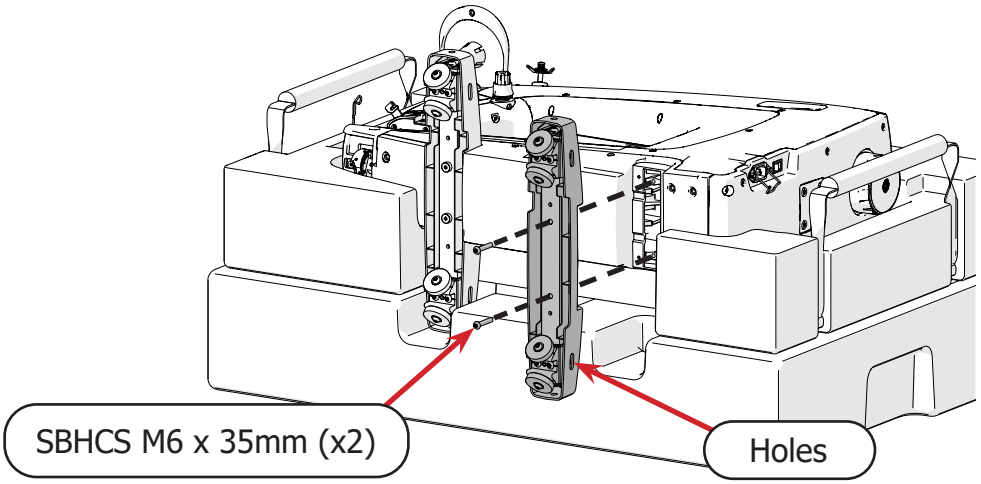
Back Wheel Assembly:
- Visible screws on top
- Two metal spacers

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.

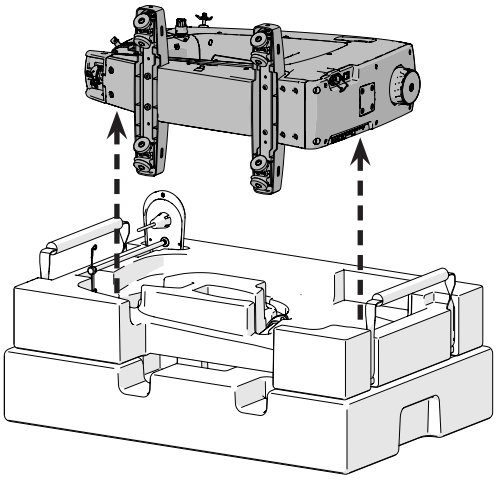


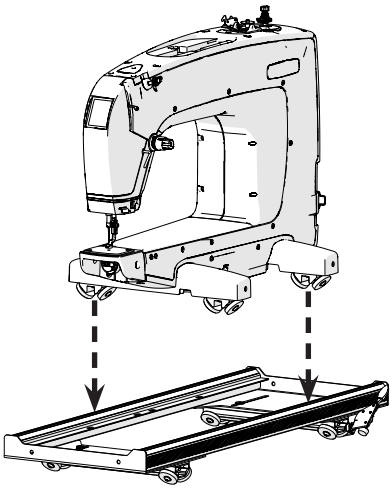
Task 2 - Installing the Wheels (continued)

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.

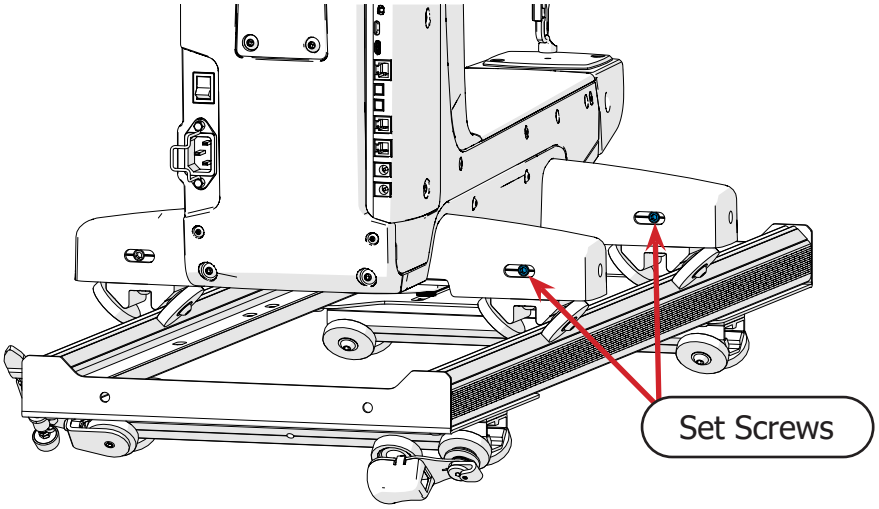


8 Remove the machine from the packaging and place it on the bottom carriage on the frame.



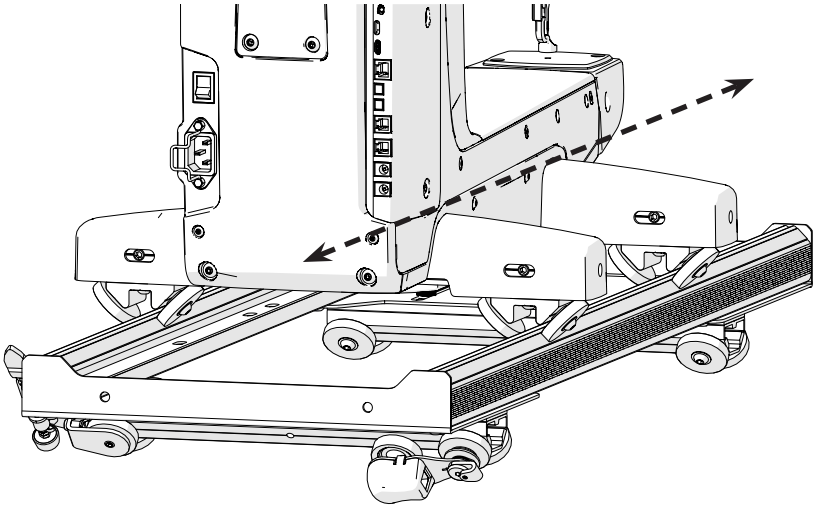


9 Use the 4 mm Allen wrench to loosen the **set screws** on one side of each of the wheel assemblies.

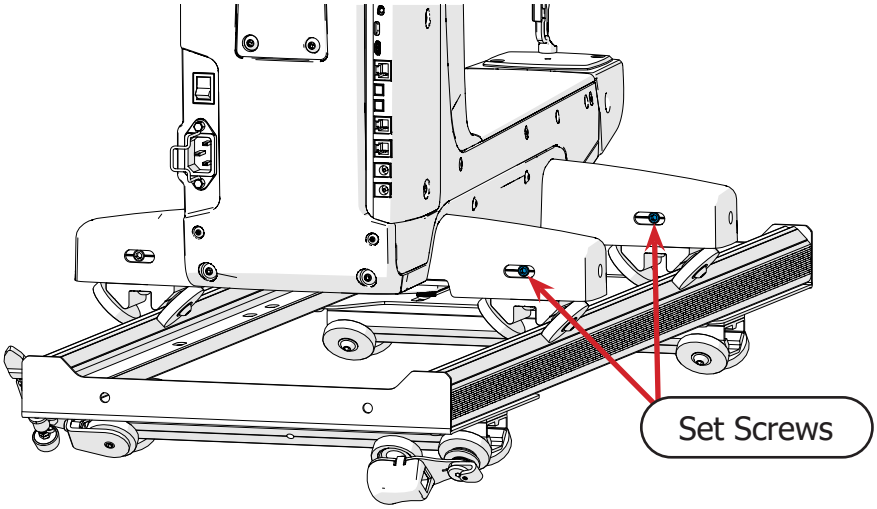


Task 2 - Installing the Wheels (continued)

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 17.

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?

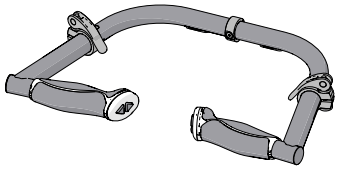
If you've already fully assembled your frame:

- Install the channel lock onto the quilting machine.

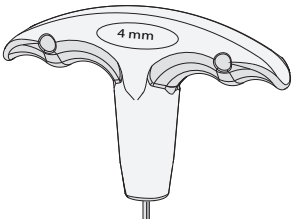
Task 3 - Installing the Handlebars

Parts & Tools Needed:

Handlebar Assembly



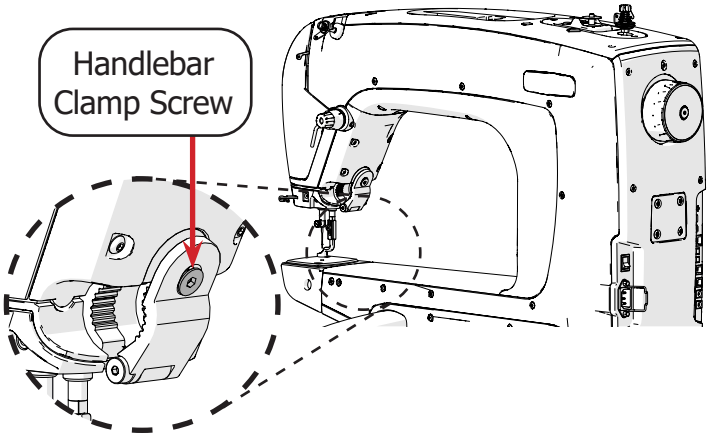
T-handle Allen Wrench 4 mm



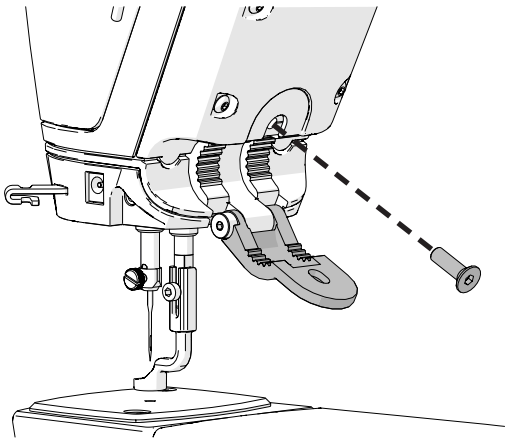
Instructions

Take the following steps to install and adjust the handlebars:

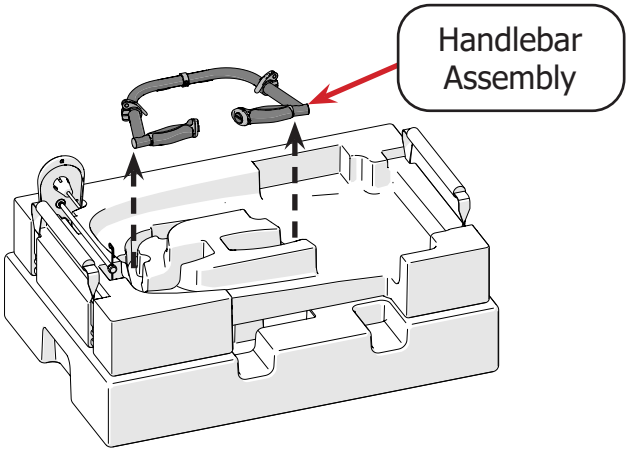
1. With the 4 mm T-handle Allen wrench, remove the **handlebar clamp screw** to open the handlebar clamp.



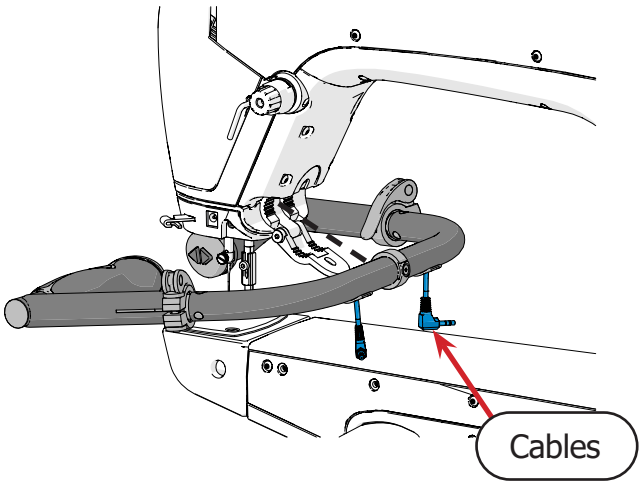
The handlebar clamp opens.



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

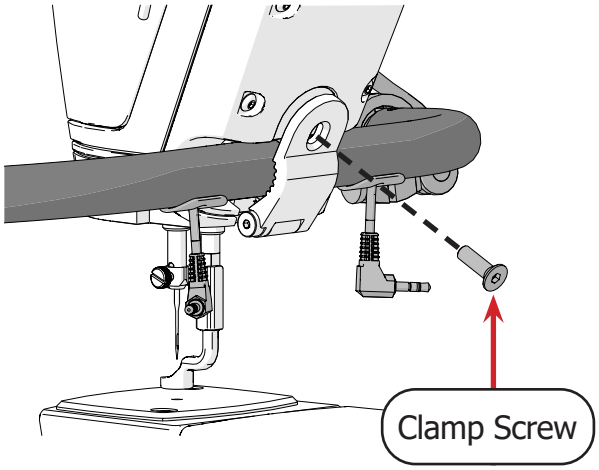


3. Slide them into the slot so that the **cables** are on the bottom.

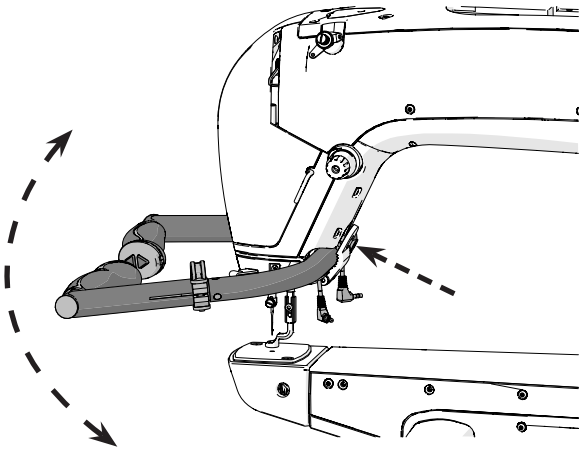


Task 3 - Installing the Handlebars (continued)

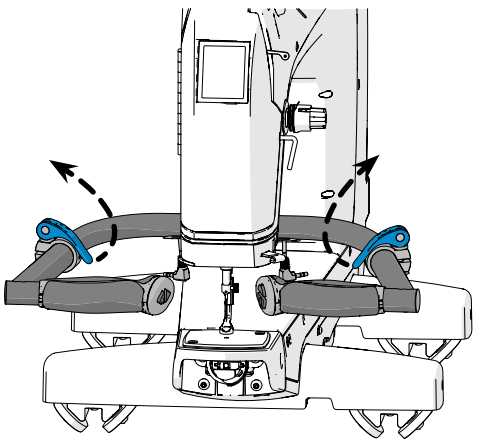
4 Close and hold the clamp, and loosely screw in the **clamp screw**.



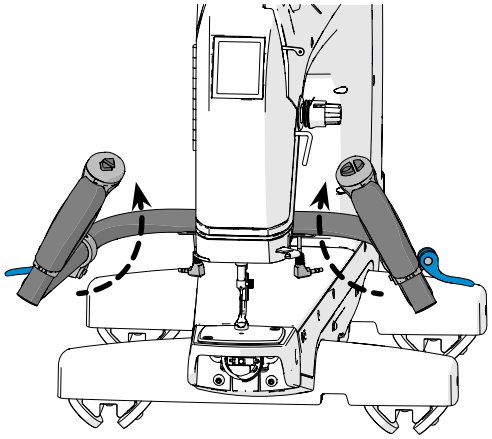
5 Hold the handlebars at the desired angle and tighten the clamp screw.



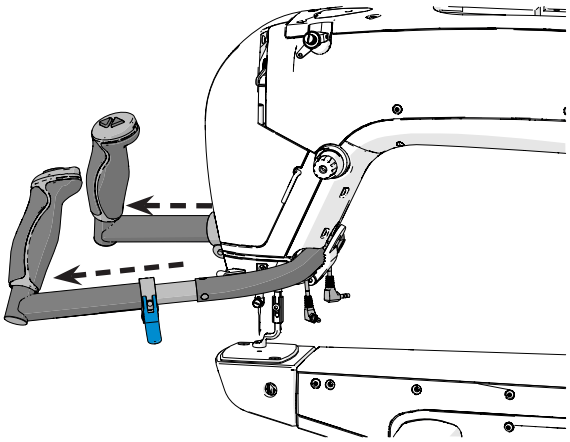
6 Open the **handlebar levers** (shown in blue).



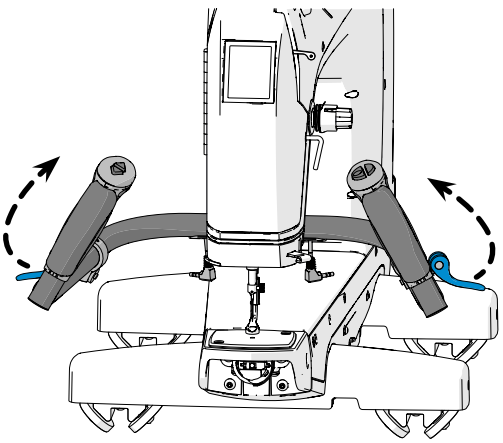
7 Twist the controls vertically until they are comfortable to hold and operate.



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

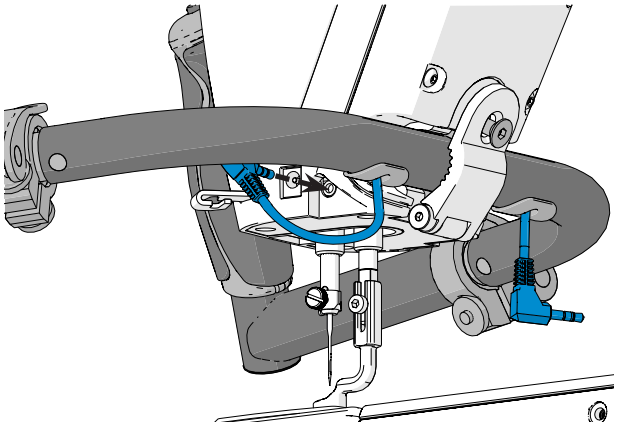


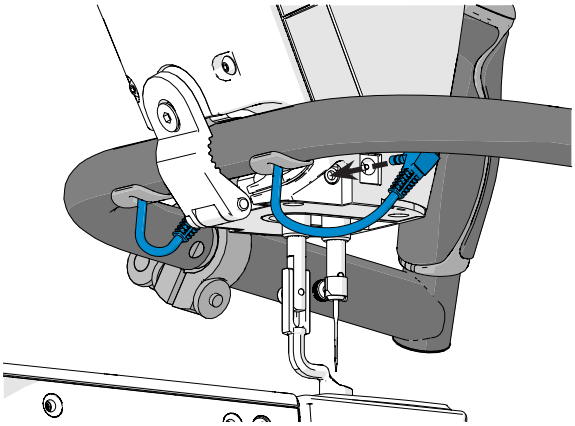
9 Once you are comfortable with the position of the handles, close the **handlebar levers** (shown in blue).



Task 3 - Installing the Handlebars (continued)

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

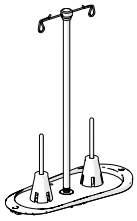




Task 4 - Attaching the Thread Stand

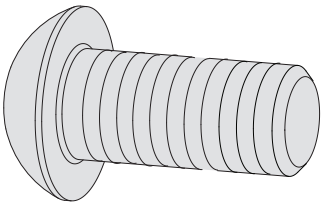
Parts & Tools Needed:

Thread Stand Assembly



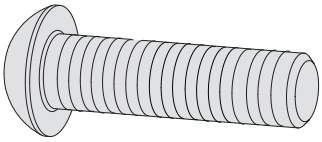
Packaging Level 2

SBHCS Screw M4 x 12 mm (x3)



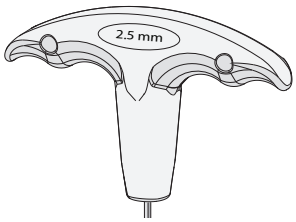
Thread Stand HardwareBox

SBHCS Screw M4 x 20 mm (x1)



Thread Stand HardwareBox

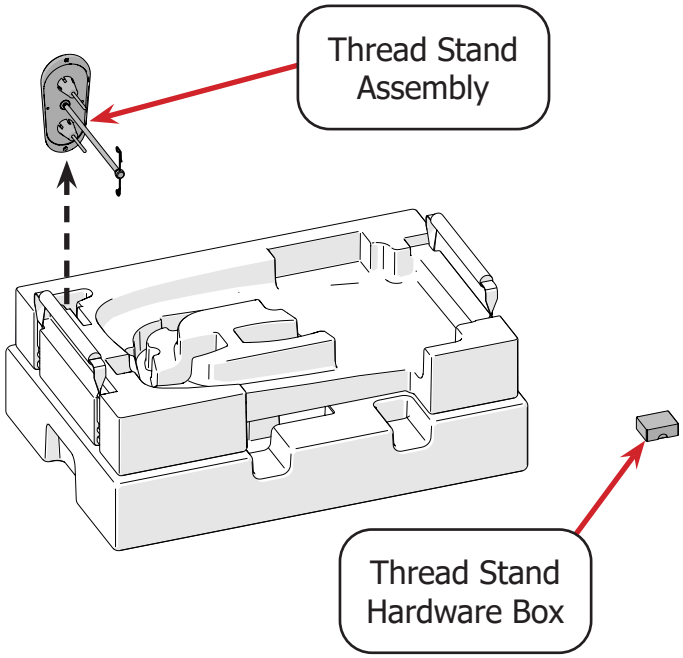
T-handle Allen Wrench 2.5 mm



Instructions

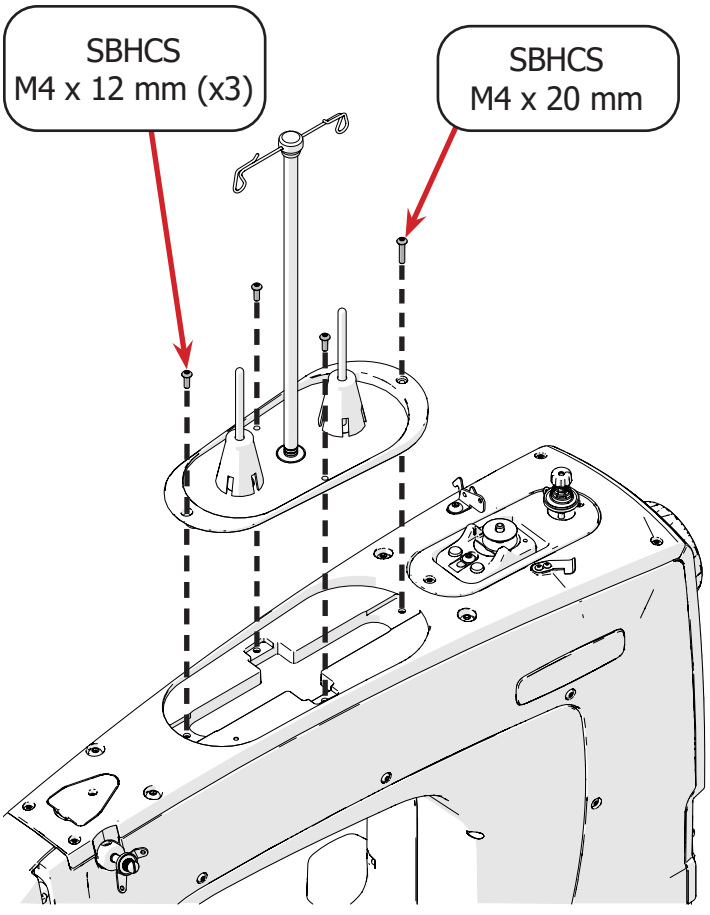
Take the following steps to install the thread stand assembly:

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**.

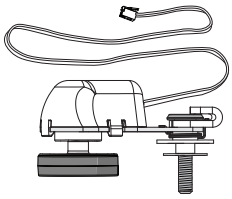
   The M4 x 20 mm SBHCS goes in the rear screw hole of the thread stand.



Task 5 - Installing the Upper Encoder

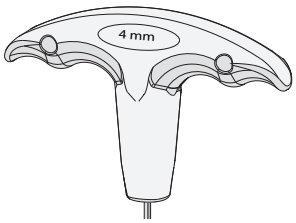
Parts & Tools Needed:

Upper Encoder (silver spring)

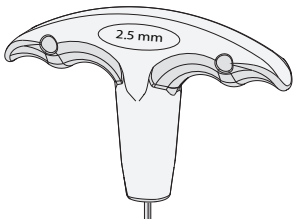


Encoder Box

T-handle Allen Wrench 4 mm



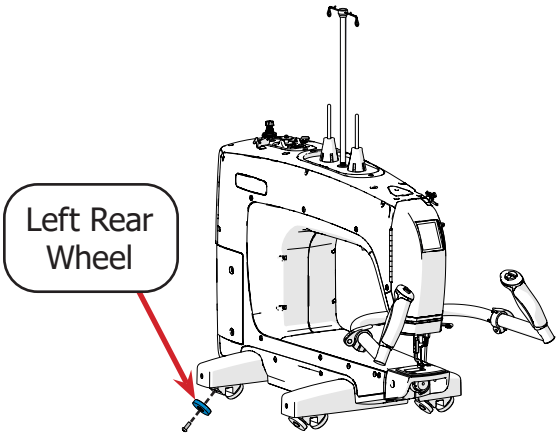
T-handle Allen Wrench 2.5 mm



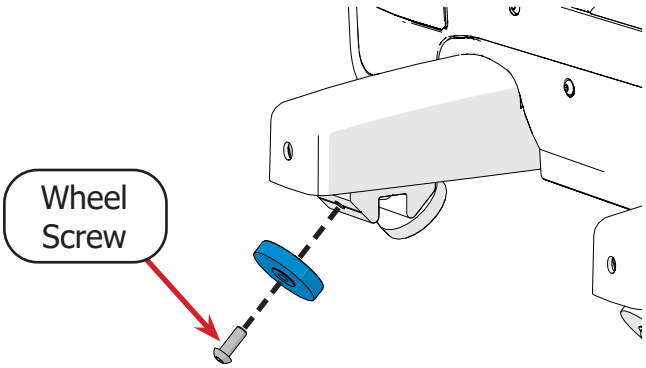
Instructions

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:

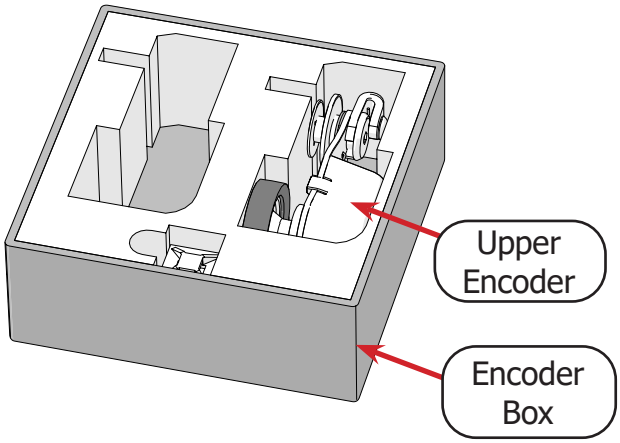
1. Use the 4 mm T-handle Allen wrench to remove the **left rear wheel** from the machine.



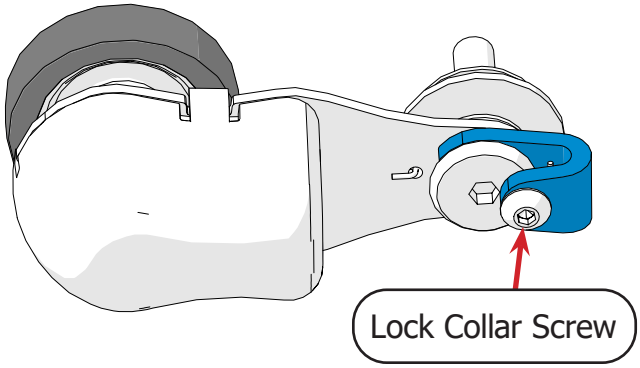
The **wheel screw** will not be needed again and can be stored with the packaging materials.



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

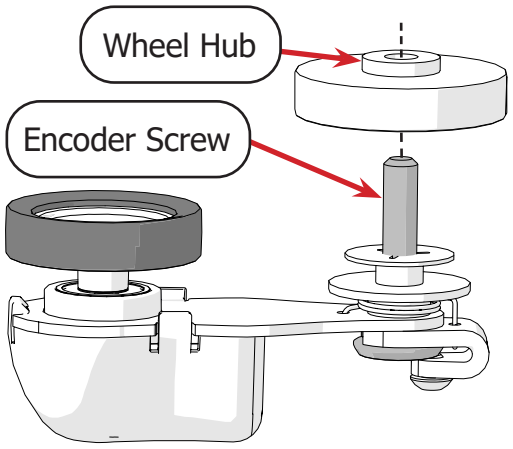


3. Loosen the **lock collar screw** on the upper encoder with the 2.5 mm Allen wrench until the **lock collar** (shown in blue) turns freely.

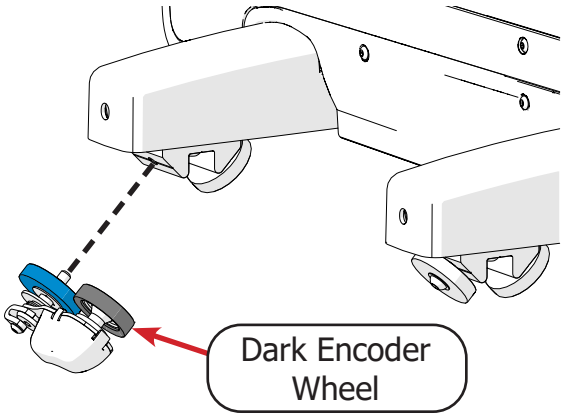


Task 5 - Installing the Upper Encoder (continued)

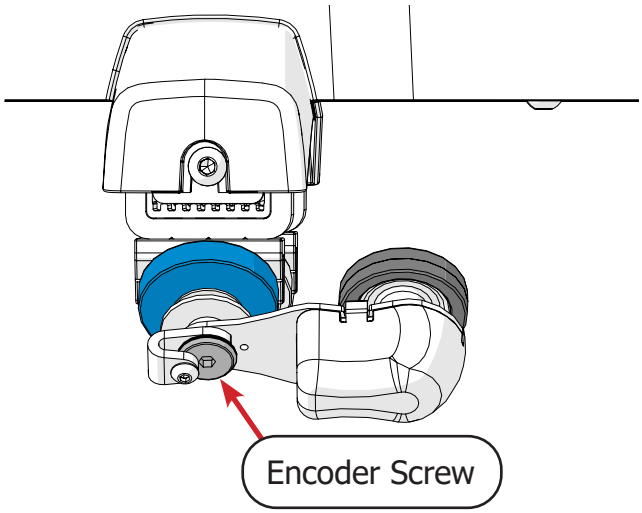
4 Slide the wheel onto the upper **encoder screw** so that the **wheel hub** faces away from the encoder.



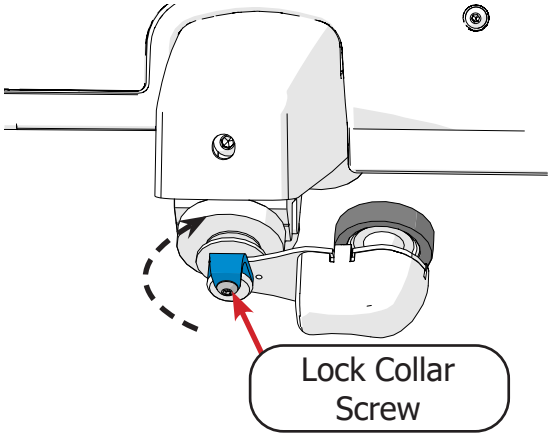
5 Place the encoder screw into the left rear wheel hole so the **dark encoder wheel** is between the two left machine wheels.



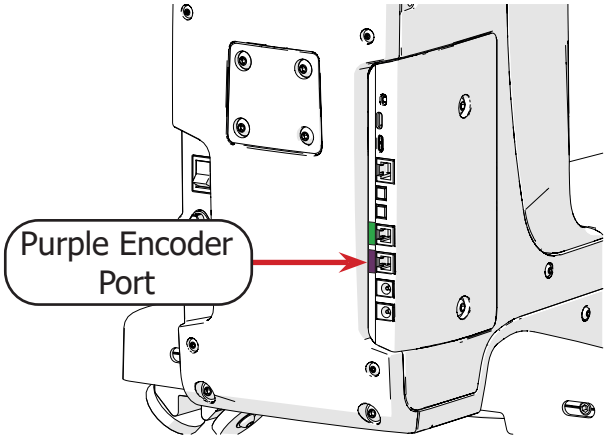
6 Tighten the **encoder screw** with the 4 mm Allen wrench.



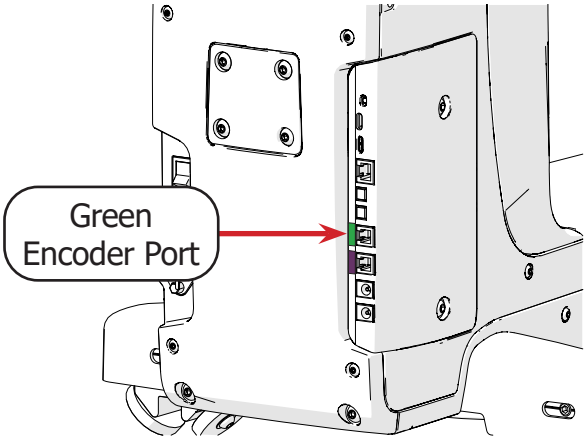
7 Turn the **encoder lock collar** (shown in blue) to point up and tighten the **lock collar screw** with the 2.5 mm Allen wrench.



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



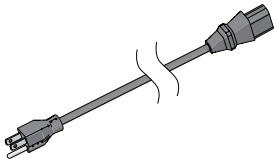
9 Plug the lower encoder cable into the **green encoder port** on the left rear of the machine.



Task 6 - Turning the Machine On/Off

Parts & Tools Needed:

Power Cord



Power Cord/
Oil Bottle Box

Zip Tie



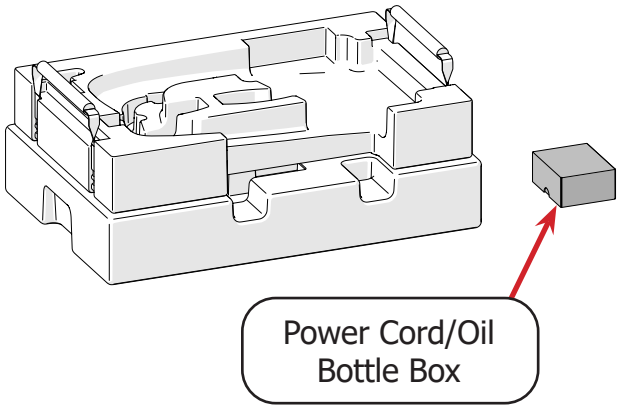
Encoder Box

Note: Zip tie required for Cutie frame users only.

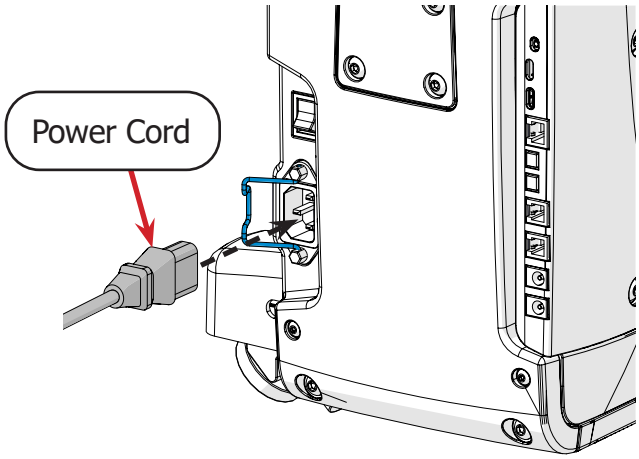
Instructions

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

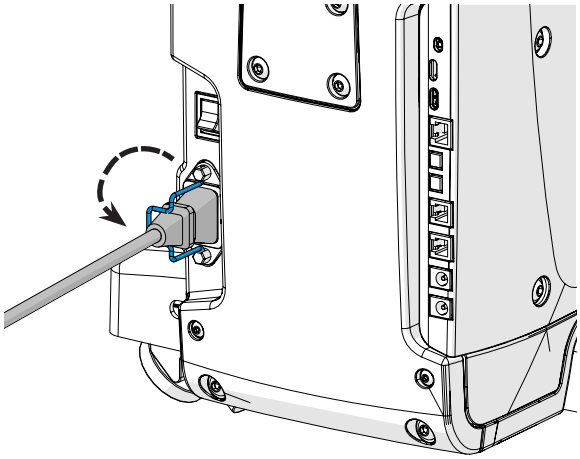
1. Find the power cord in the **power cord/oil bottle box** that you removed earlier.



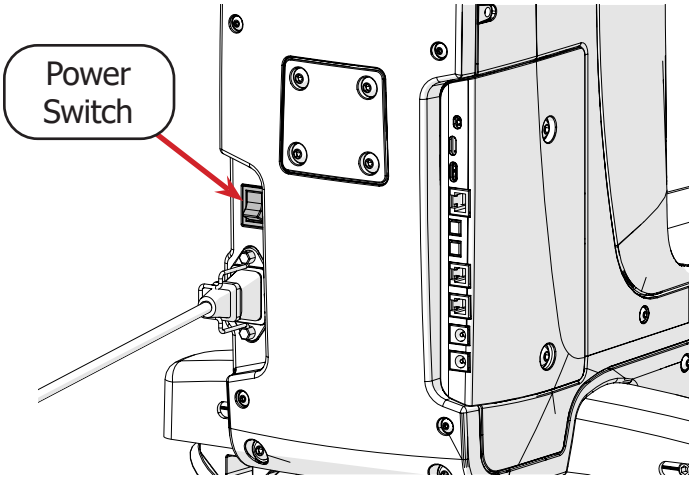
2. Move the **power cable retainer** (blue) to the side and plug the **power cord** into the back of the machine.



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

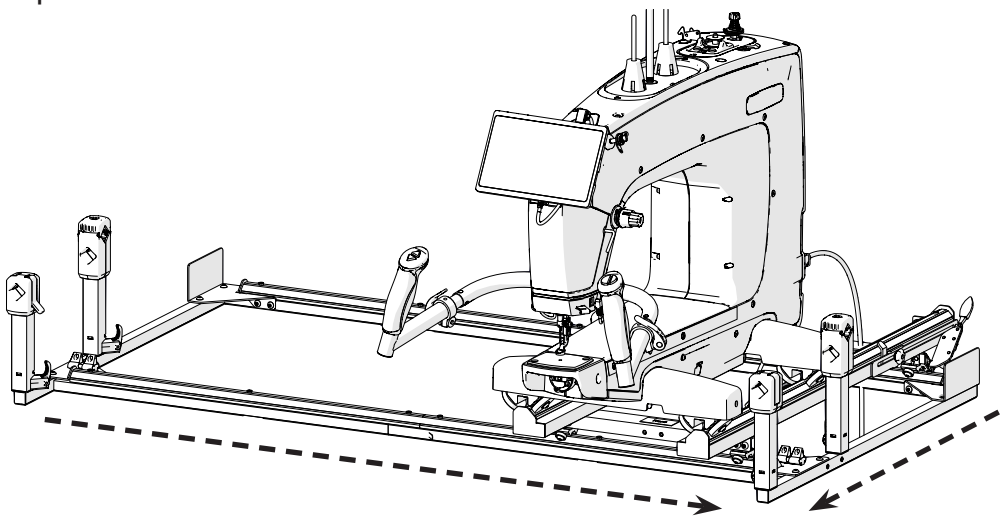


4. Press the **power switch** up to turn the machine on.

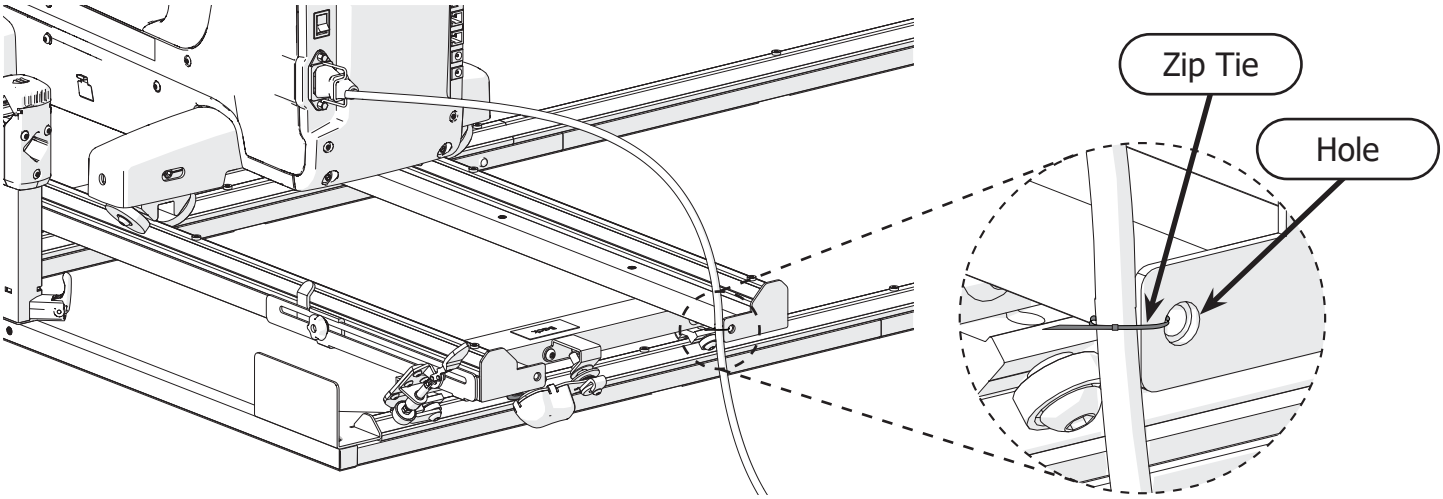


Task 6 - Turning the Machine On/Off (continued)

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 7 - Winding a Bobbin .....page 27

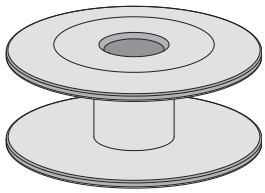
Task 8 - Loading the Bobbin Case .....page 30

Task 9 - Threading the Machine .....page 32

Task 7 - Winding a Bobbin

Parts & Tools Needed:

Bobbin (Class M)



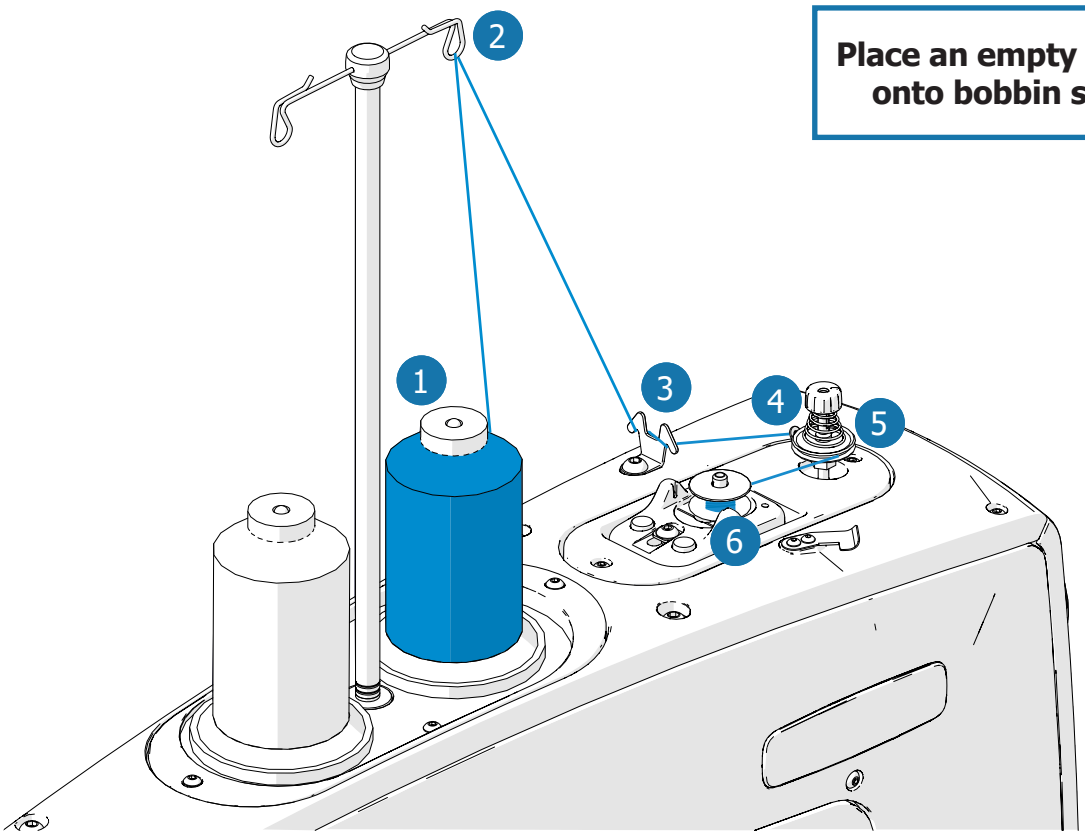
Box 1

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 96.

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

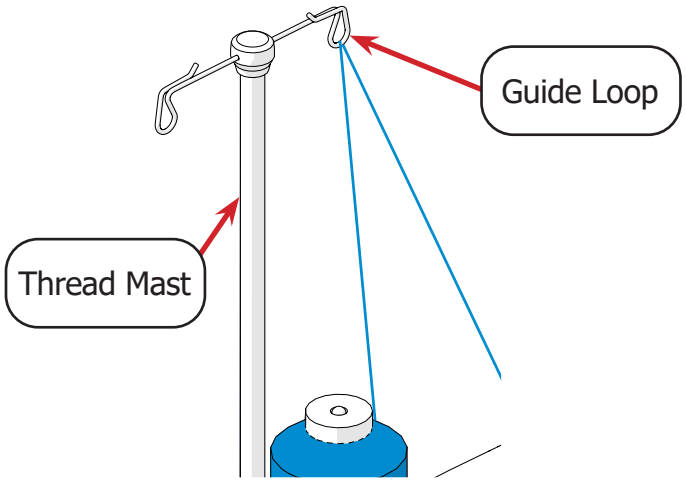
The following diagram outlines the path the thread (shown in blue) must take to wind the bobbin.



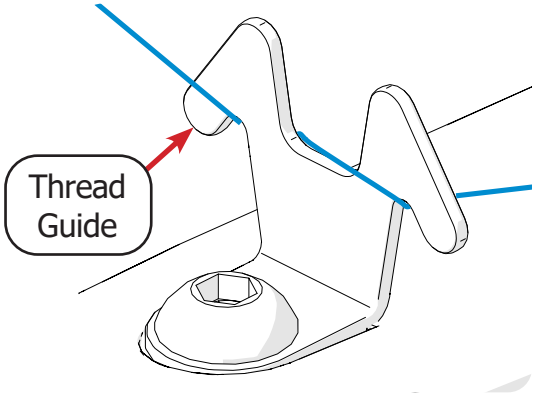
1. Thread Stand
2. Guide Loops
3. Bobbin Thread Guide
4. Tensioner Thread Guide
5. Bobbin Thread Tensioner
6. Bobbin Stand with Bobbin

Task 7 - Winding a Bobbin (continued)

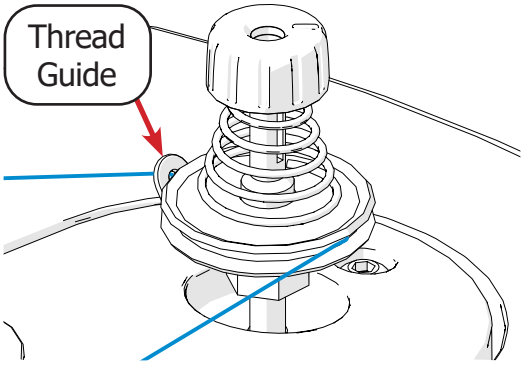
1 Run the thread through the **thread mast guide loop** directly above the thread cone.



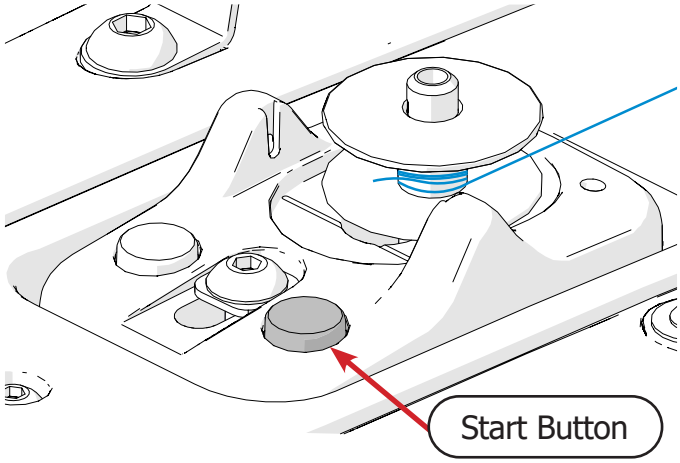
2 Pass the thread underneath the left side of the **thread guide**. Move it through the middle of the thread guide back to the front and then underneath the right side of the thread guide.



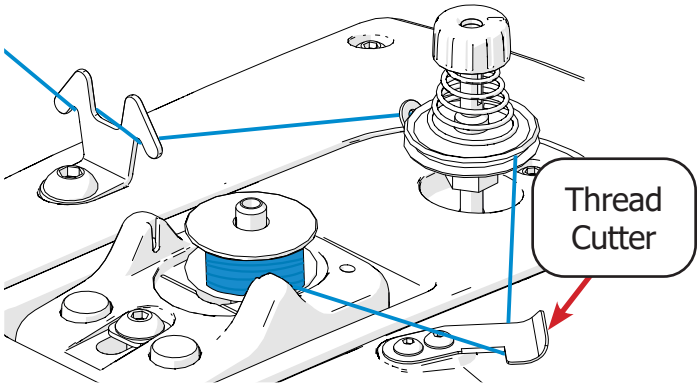
3 Pull the thread through the hole in the **tensioner thread guide** and then around the back of the **bobbin thread tensioner**, between the two discs.

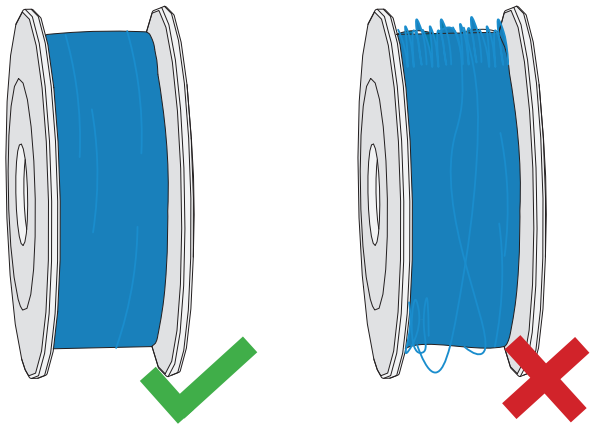


4 Wrap the thread clockwise around the empty bobbin. Press **start** when ready.



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.



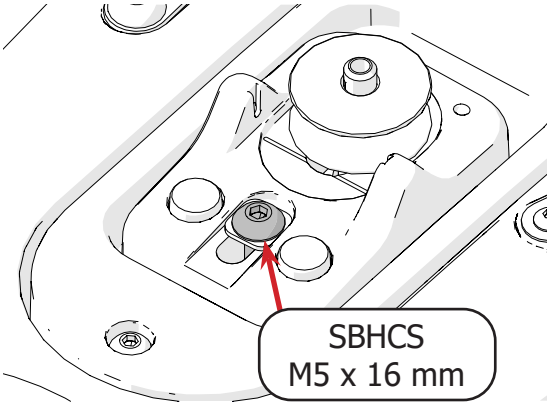


The bobbin thread should appear neat and smooth. See page 100 for more info.

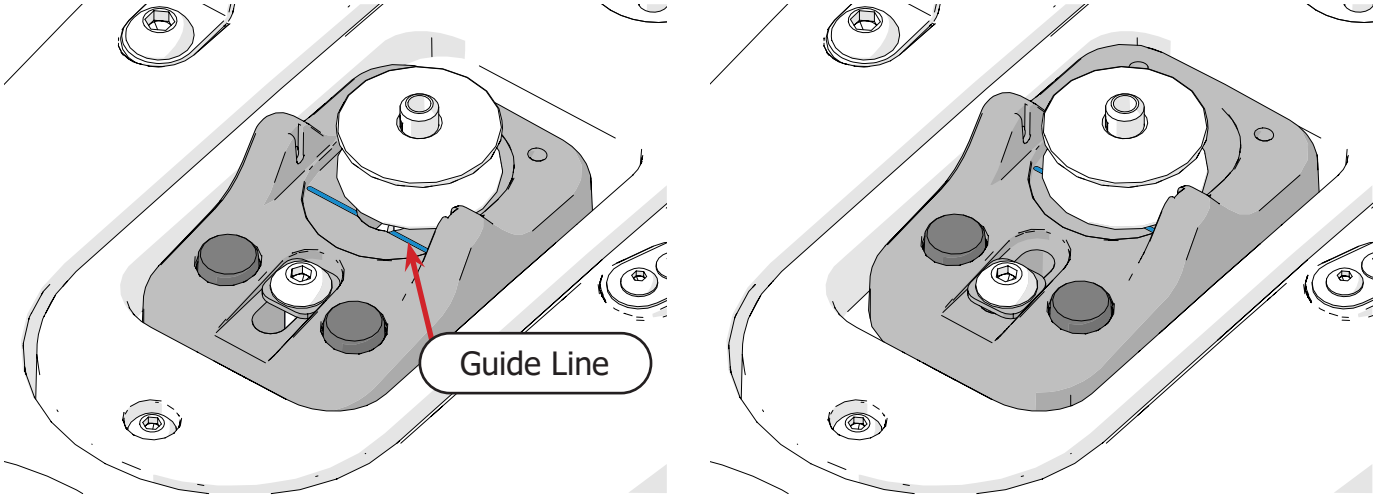
Adjust Fill Levels

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

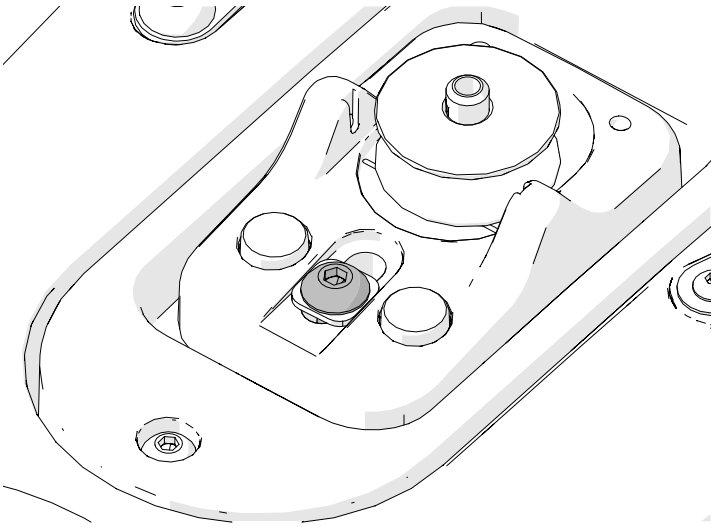
1. To adjust the bobbin winder, loosen the **M5 x 16 mm SBHCS** with the 3 mm Allen wrench.



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



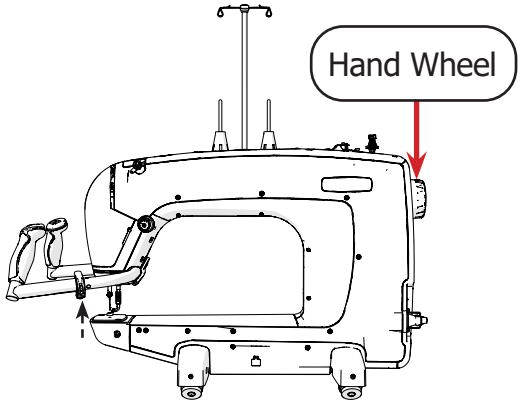
3. Tighten the M5 x 16 mm SBHCS to secure the bobbin winder in place.



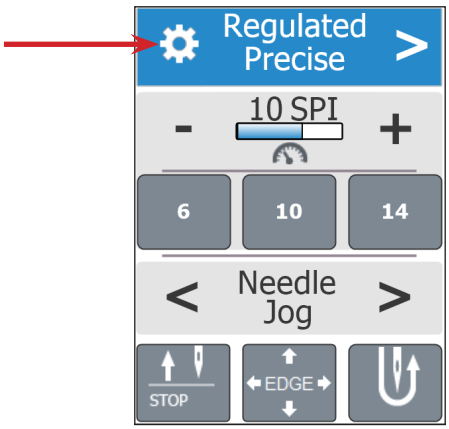
Task 8 - Loading the Bobbin Case

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

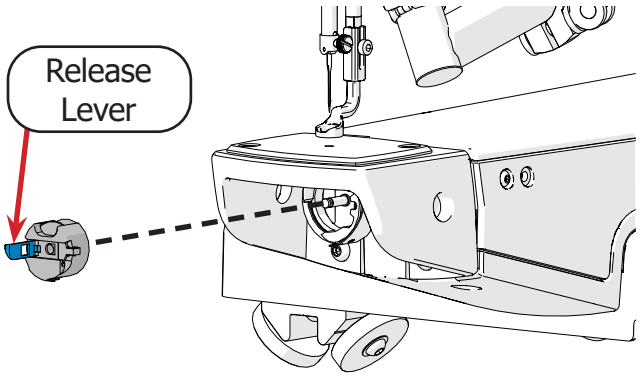
1. Check that the needle is up. If needed, rotate the **hand wheel** to raise the needle.



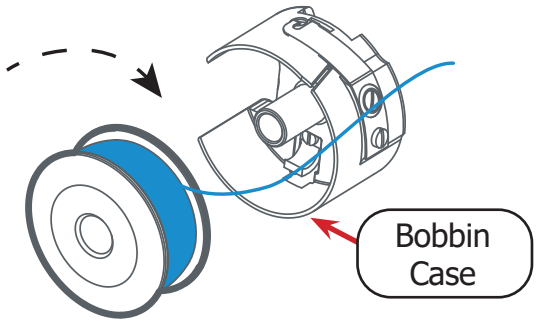
2. Open the Tools menu by clicking the icon in the top left corner. This prevents accidental stitching.



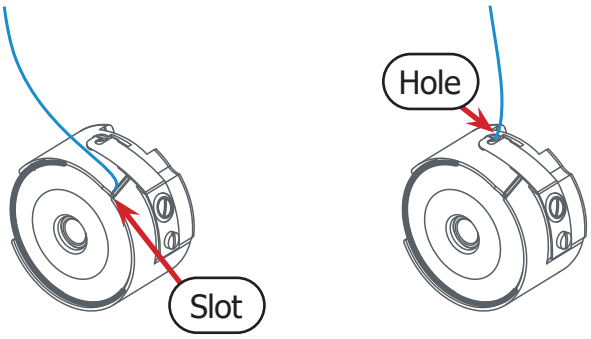
3. Pull on the bobbin case **release lever** to remove the bobbin case from the hook assembly.



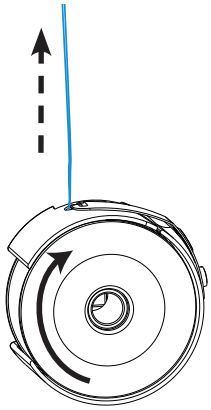
4. Place the wound bobbin into the **bobbin case**. Note the direction that the thread is coming off the bobbin in relation to the case.



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



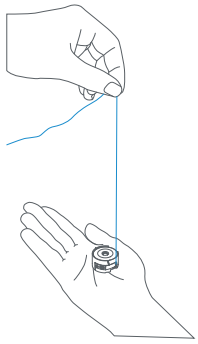
Note: If the bobbin is wound correctly it will turn clockwise when the thread is pulled.



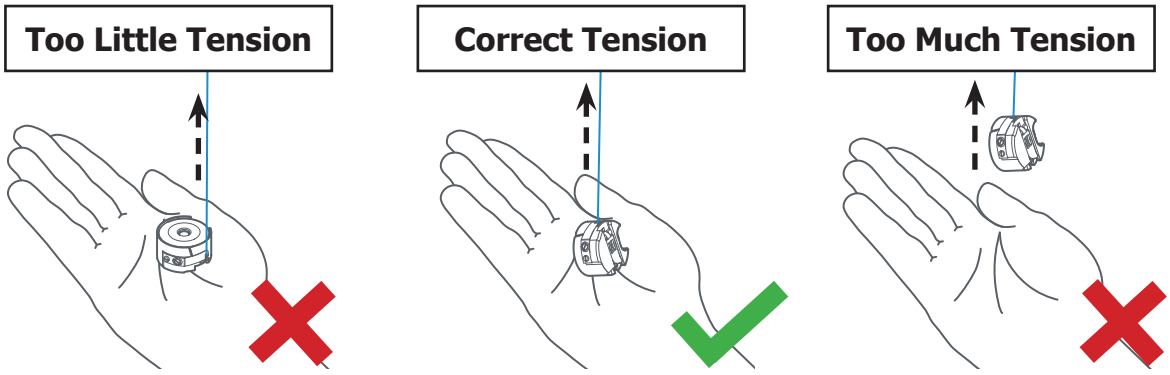
Task 8 - Loading the Bobbin Case (continued)

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

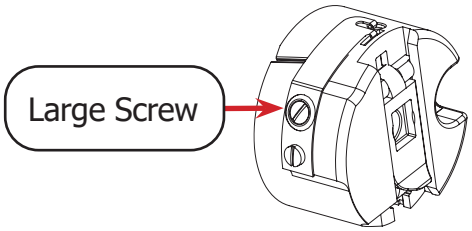
a. Place the bobbin case flat on its side, on your palm.



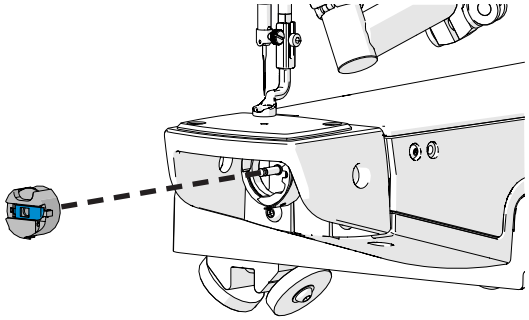
b. Pull up on the thread. The thread should run freely and the bobbin case should rise into a vertical position without lifting off your hand.



- 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 9 - Threading the Machine

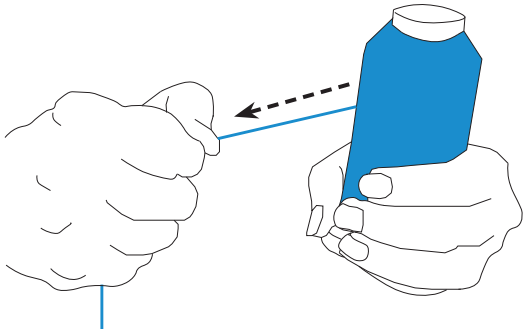
Before threading the machine, make sure you've selected quality thread for your project. Choosing the right thread for the machine can prevent the thread from breaking or tangling up under the needle plate. For more information on choosing thread, see page 96. Note the following:

- 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.

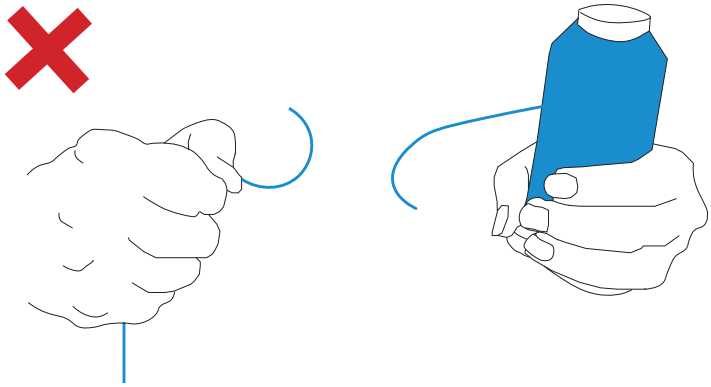


- Choose thread that is strong enough to pass the yank test (shown below), and re-test thread as it ages. Thread strength can diminish over time.

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



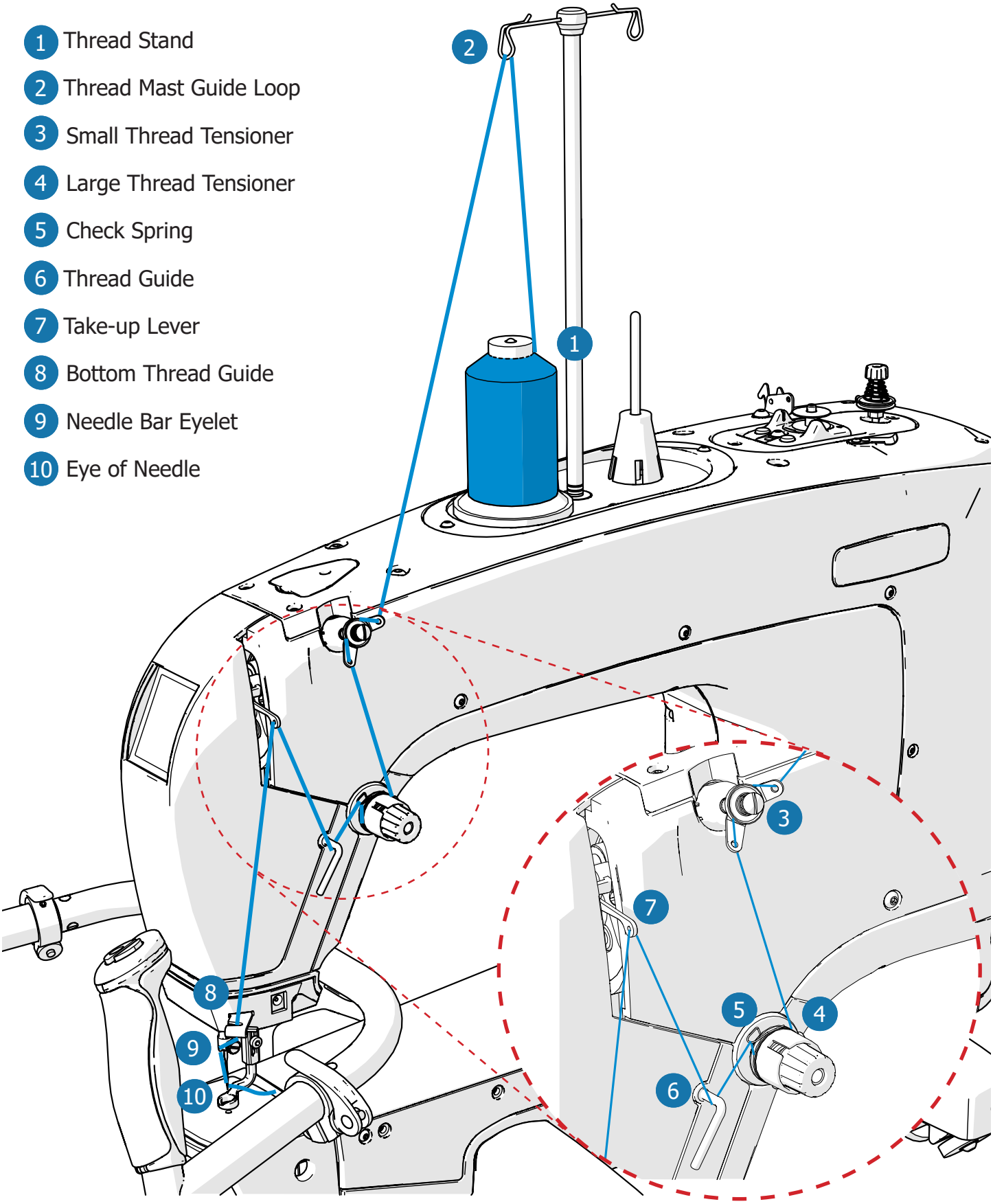
  b. Tug on the thread. If the thread snaps easily, it may be too brittle to use for quilting.



Task 9 - Threading the Machine (continued)

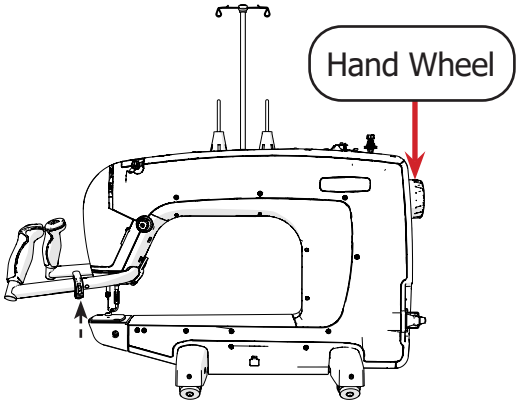
The following diagram outlines the path the thread (shown in blue) must take through the machine.

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

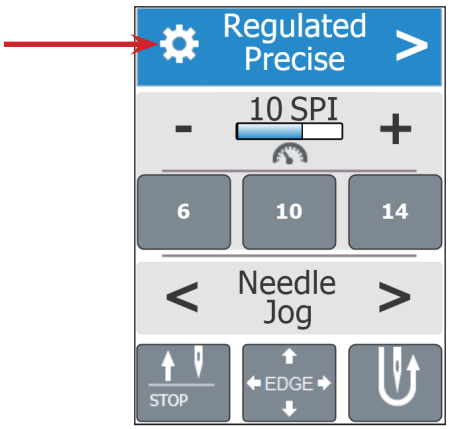


Task 9 - Threading the Machine (continued)

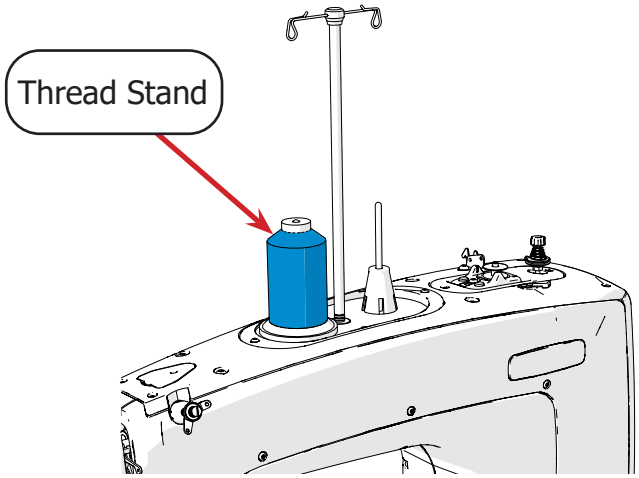
1. Rotate the **hand wheel** at the rear of the machine to raise the needle to the top position



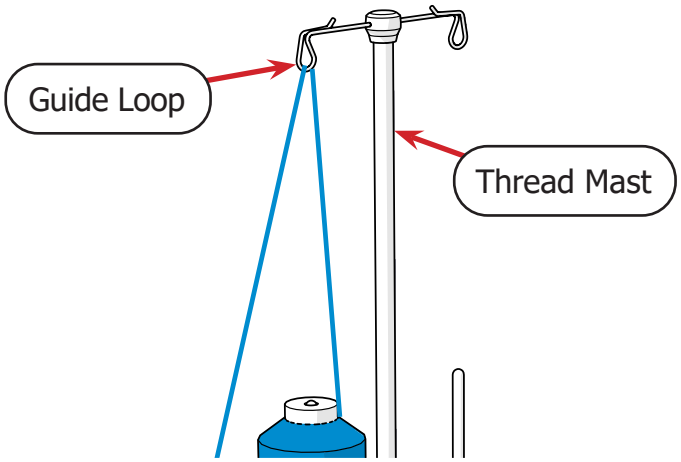
2. Open the **Tools** menu by clicking the icon in the top left corner. This prevents accidental stitching.



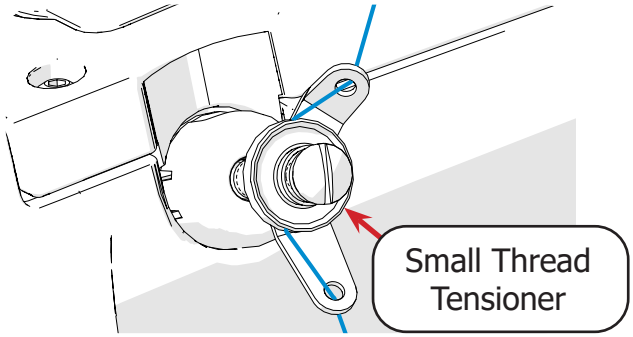
3. Place the thread cone on the cone-style **thread stand** toward the front of the machine.



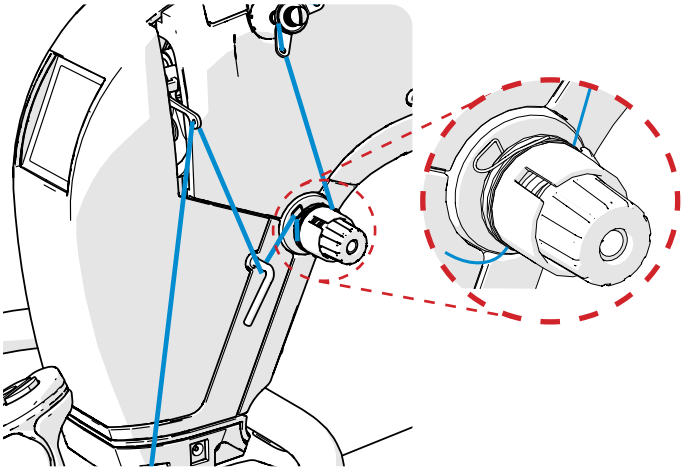
4. Pull the thread straight up, through the **thread mast guide loop** above the thread stand.



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.

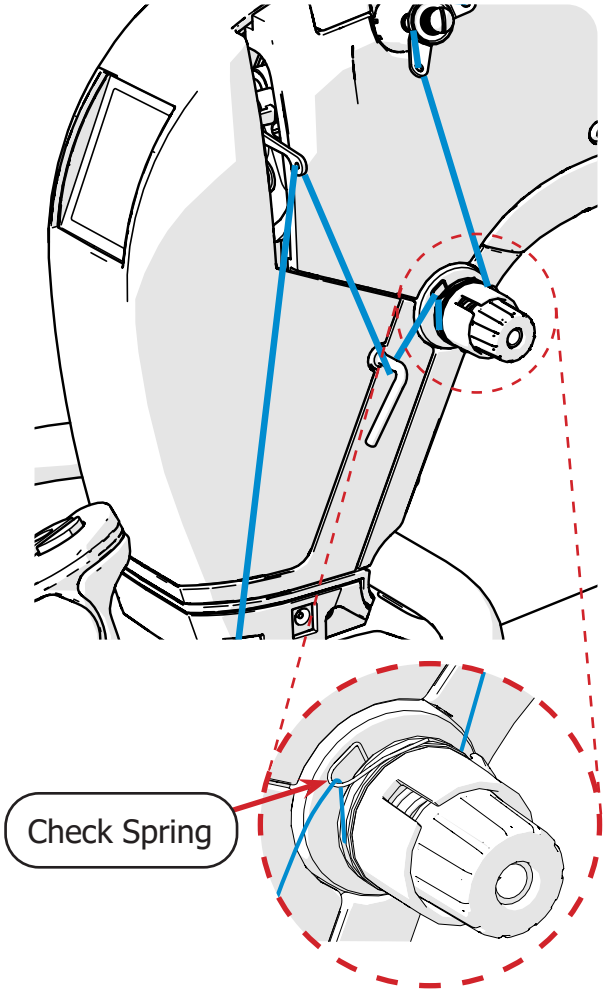


6. Pull the thread around the **large thread tensioner,** between the tension discs.

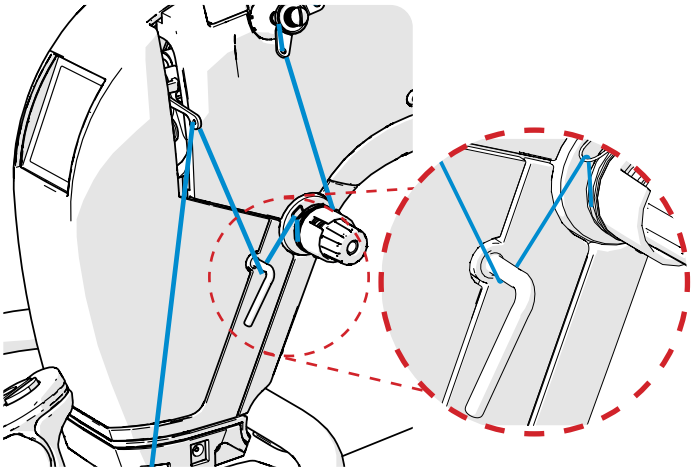


Task 9 - Threading the Machine (continued)

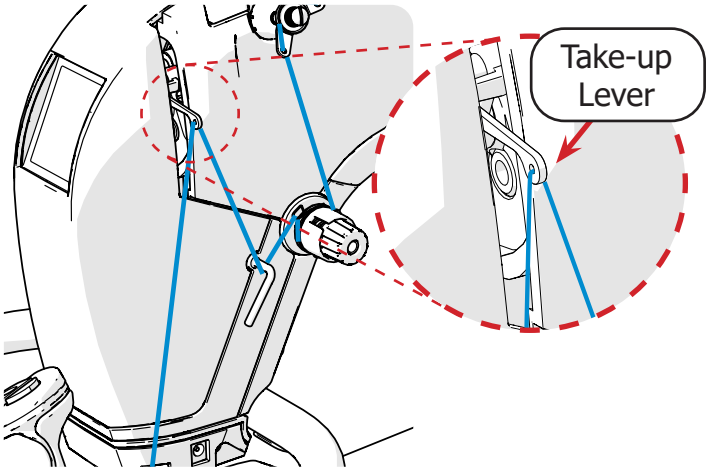
7 Wrap the thread over the **check spring**.



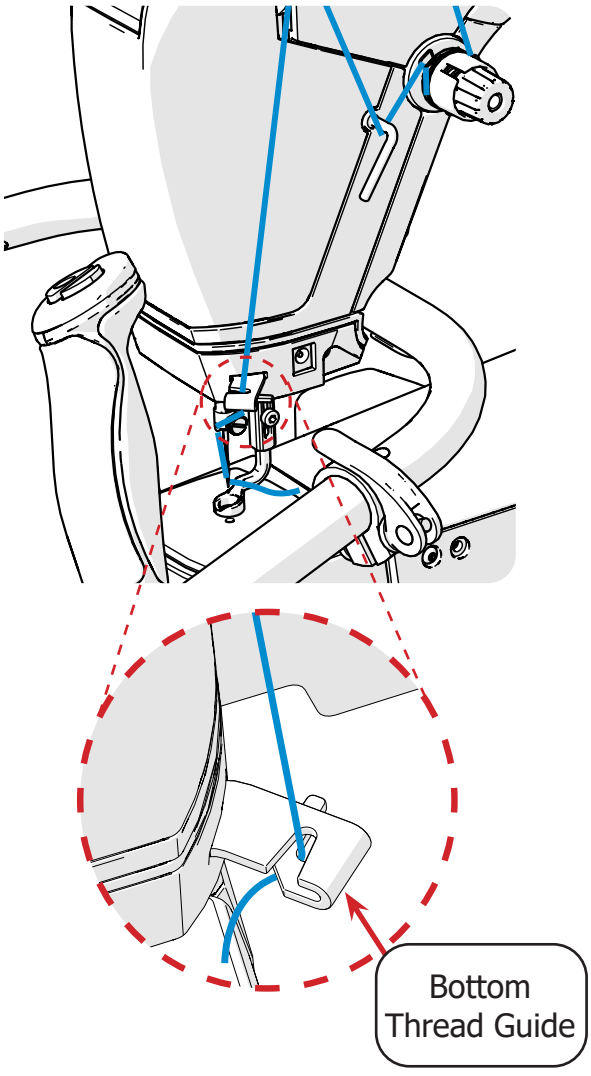
8 Next, pass the thread down and around the **thread guide** next to the large thread tensioner.



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

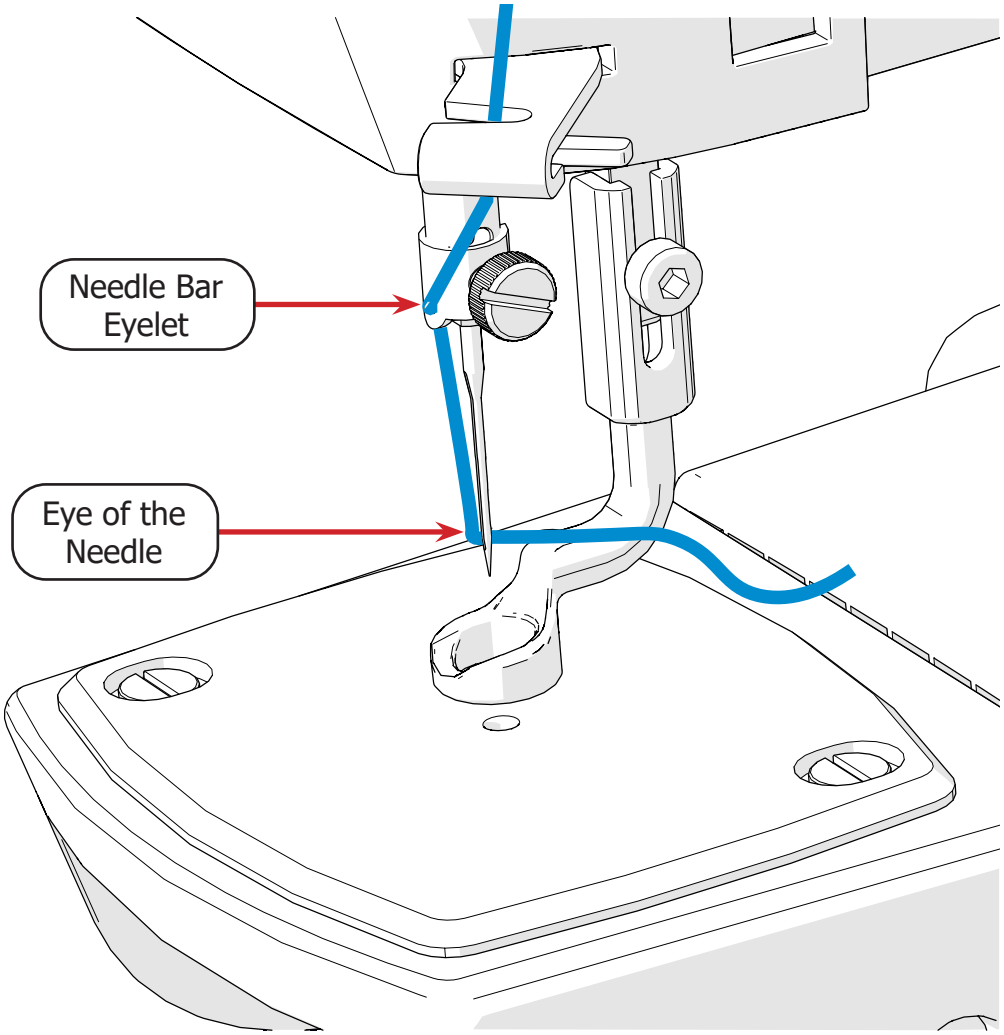


10 Then pass the thread down through the **bottom thread guide** on the way to the needle.

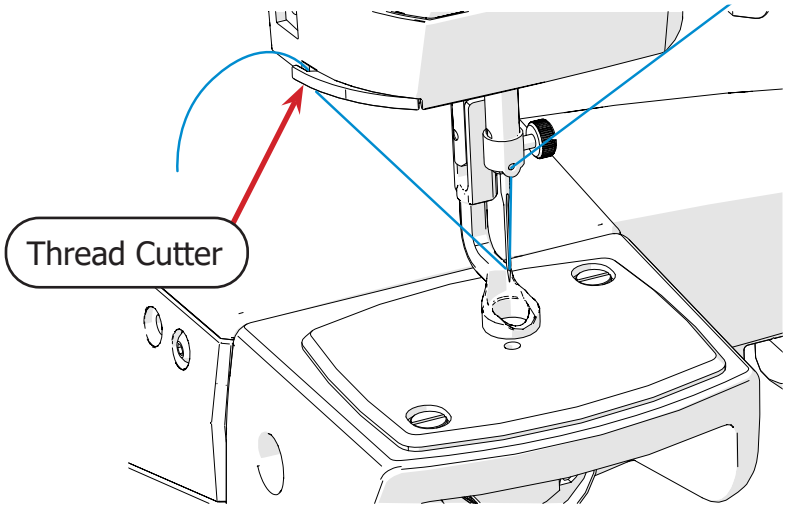


Task 9 - Threading the Machine (continued)

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.

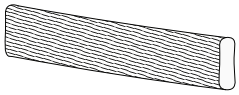


Using the Thread Nets

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.

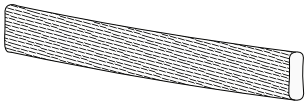
Parts & Tools Needed:

Thread Net 10cm (x2)



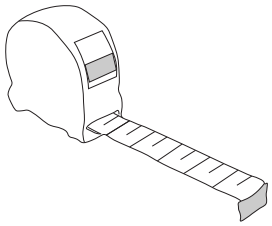
Power Cord/
Oil Bottle Box

Thread Net 14cm (x2)



Power Cord/
Oil Bottle Box

Measuring Tape

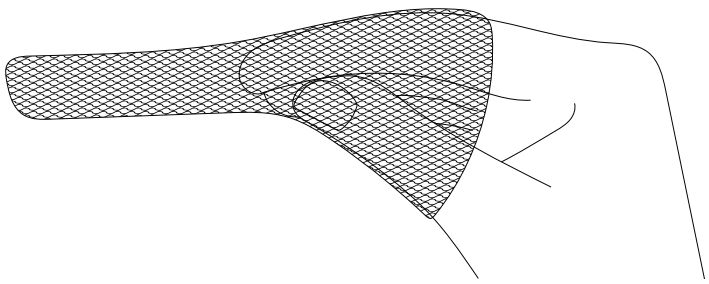


(not included)

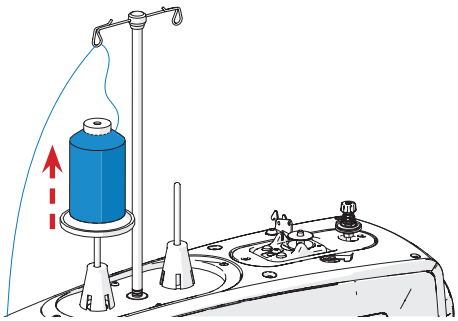
1. Measure the height of your thread cone, then use the table below to determine which size of thread net to use.

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

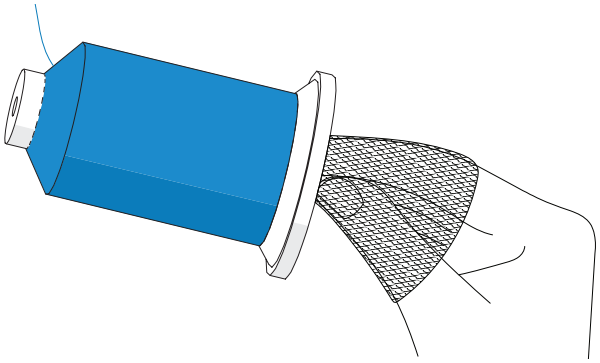
2. Insert your thumb and a few fingers into one end of the thread net.



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

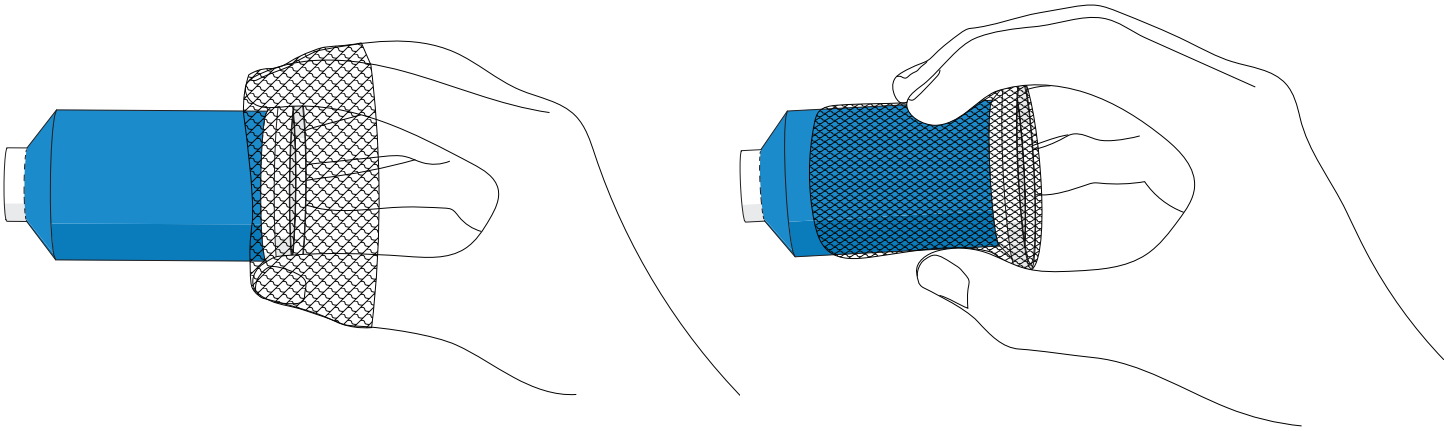


4. Insert the thread net about halfway into the underside of the thread cone.



Task 9 - Threading the Machine (continued)

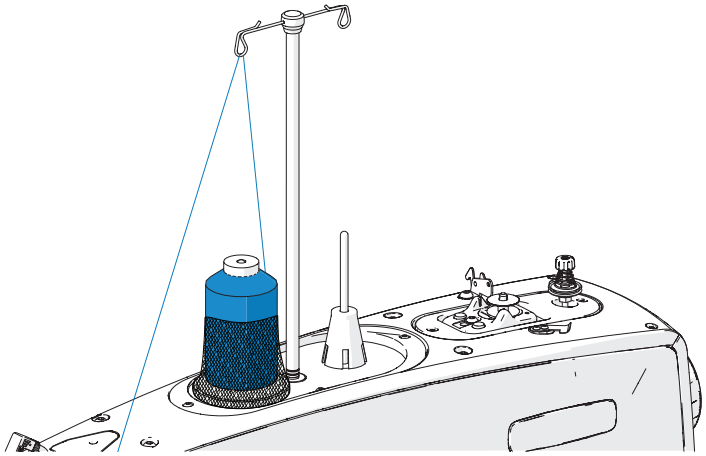
5 Use your fingers to widen the lower part of the thread net and wrap it around the base of the thread cone. The thread net should cover at least the bottom half of the thread cone.



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

Note: If you are experiencing thread tension issues while quilting, you may need to pull the thread net up to cover more of the thread cone.

For more information about thread tension, see page 57.



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 68.

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

Choosing Machine Settings ..... **page 42**

Using Machine Handlebar Controls ..... **page 44**

Using Precise Quilting Mode ..... **page 45**

Using Cruise Quilting Mode ..... **page 47**

Using Manual Quilting Mode ..... **page 49**

Using Baste Quilting Mode ..... **page 51**

Screen Settings ..... **page 53**

Using the Edge Warning ..... **page 54**

Adjusting Thread Tension ..... **page 57**

Taking Measurements ..... **page 60**

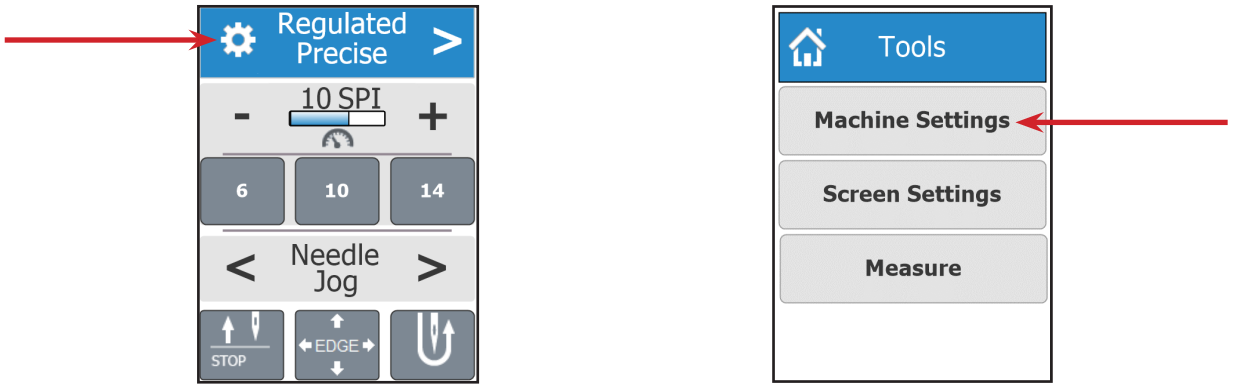
System Info ..... **page 62**

Getting Started ..... **page 63**

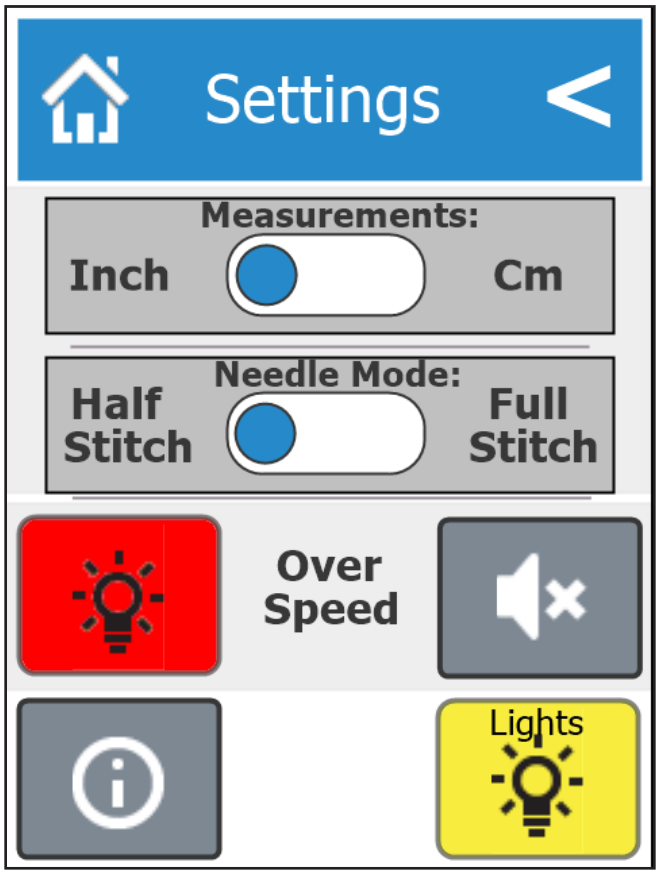
Choosing Machine Settings

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 left corner of the screen and select **Machine Settings**.



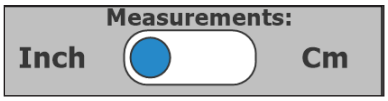
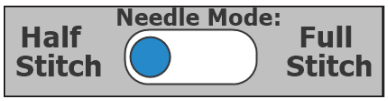
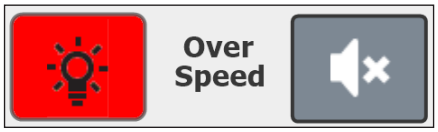
The Machine Settings menu opens.



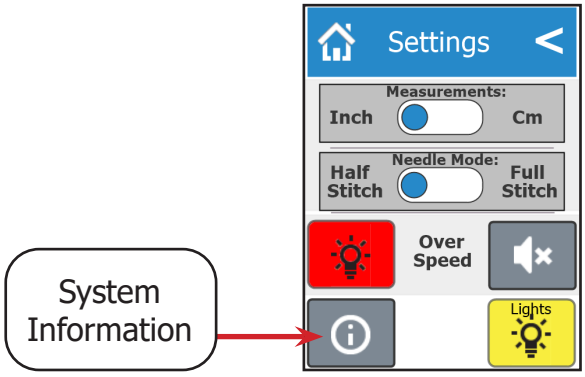
Note: The machine is unable to stitch while the Tools or Settings menu is pulled up.

Choosing Machine Settings (continued)

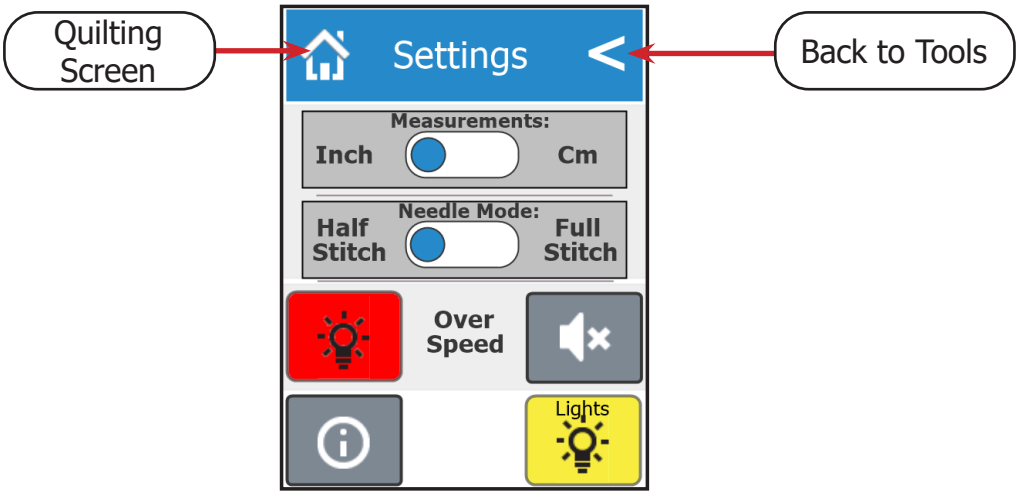
2 Choose desired settings:

	Choose to display machine stitch length in stitches per inch or stitches per centimeter.
	Choose whether the needle button on the quilting mode screens and handlebar controls will create a full or a half stitch.
	The overspeed alarm and overspeed warning light can each be deactivated so that they will not turn on if the machine is moved more quickly than regulated stitching can manage.
	Press to turn the lamp above the needle area on or off.

3 Press the **system information** icon to access the System Info screen. This displays the firmware versions for your machine (see page 62) as well as the stitch count and run-time for a current project and the life of your machine.

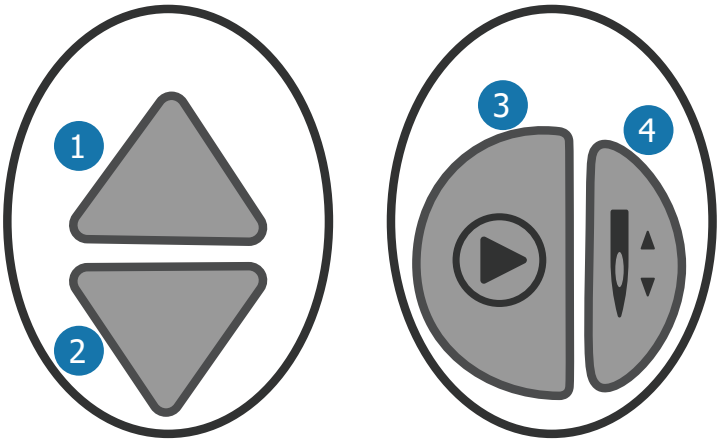


4 Click the **home icon** to return to the quilting screen, or **back** to return to the tools menu.



Using the Handlebar Controls

When first powered up, the machine is in regulated precise quilting mode (see page 45) 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 42 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.

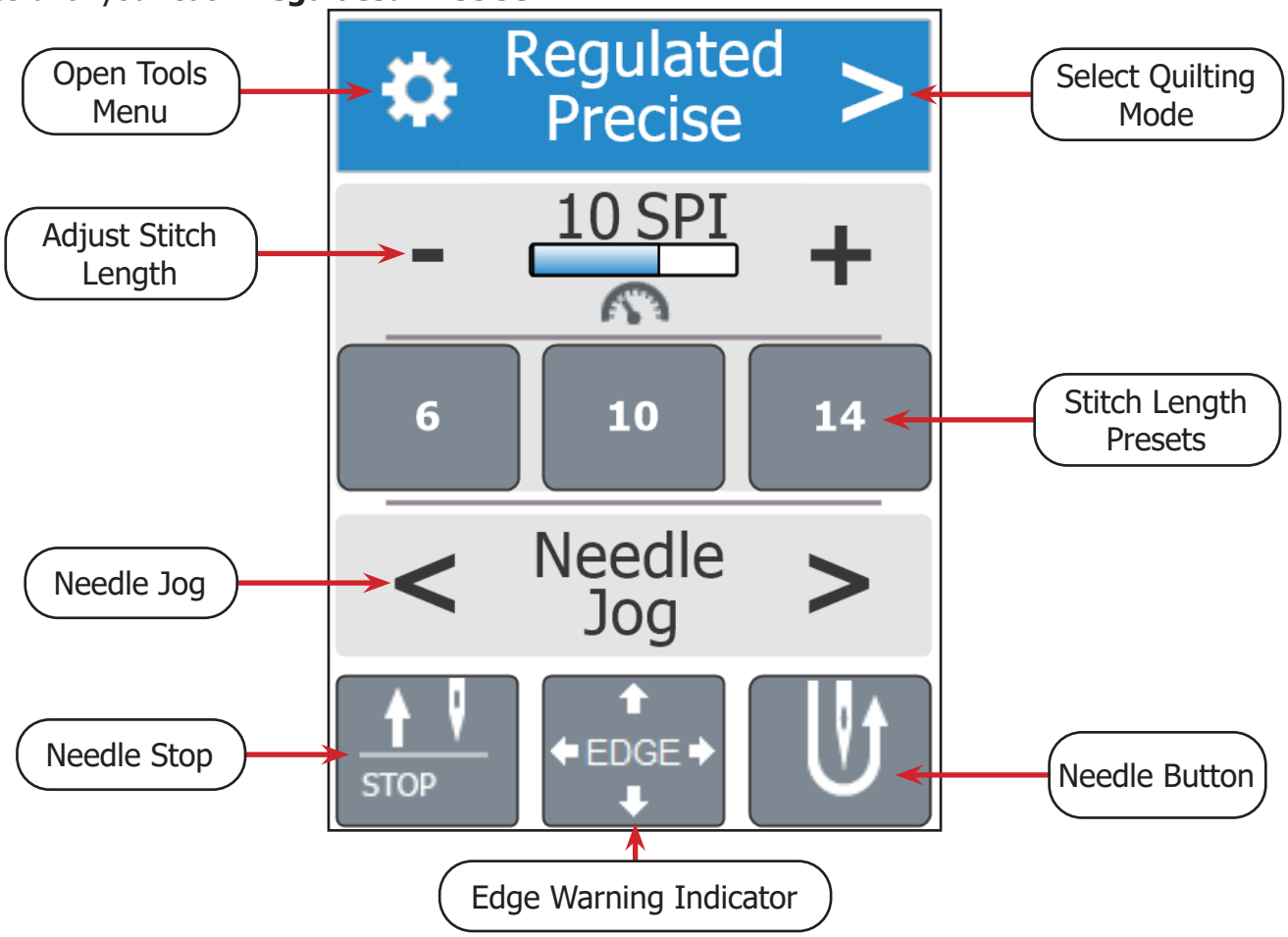
3. **Start/Stop Quilting:** Press to start or stop stitching.

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 42 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 switch to precise mode, press the **select quilting mode** button to cycle through the four quilting modes until you reach **Regulated 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: The unit of measurement can be changed in the **Machine Settings** menu (see page 42).

   Use the − + symbols to adjust the stitch length. A higher SPI or SPC means shorter stitch length.

2. When stitching is inactive, press the needle button on the display to make single or half stitches. This can also be done with the needle button on the right handle. To switch the type of stitch between a half stitch or full stitch, go to the Machine Settings menu (see page 42).

   Note: While stitching is active, the needle buttons on the display and the handlebar controls are disabled.

Using Precise Quilting Mode (continued)

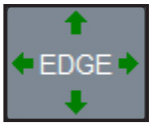
3. Position the quilting machine over the quilt. If needed, use the **needle jog** buttons to move the needle closer or farther from the fabric in small increments to help place your first stitch.



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, the overspeed alarm will sound and a red LED light will shine on the needle area. Slow the machine's movement to turn off the alarm and light. Both the alarm and light can be deactivated in the **Machine Settings** menu.

5. When activated, the arrows on the **edge warning indicator** on the bottom of the quilting mode screen will turn green.



For instructions on how to use the edge warning alert, see page 54.

6. You may find that you need to take measurements while you quilt. Press the **tools menu** button and select **measure** to open the measure tool. For instructions on how to use the measure tool, see page 60.

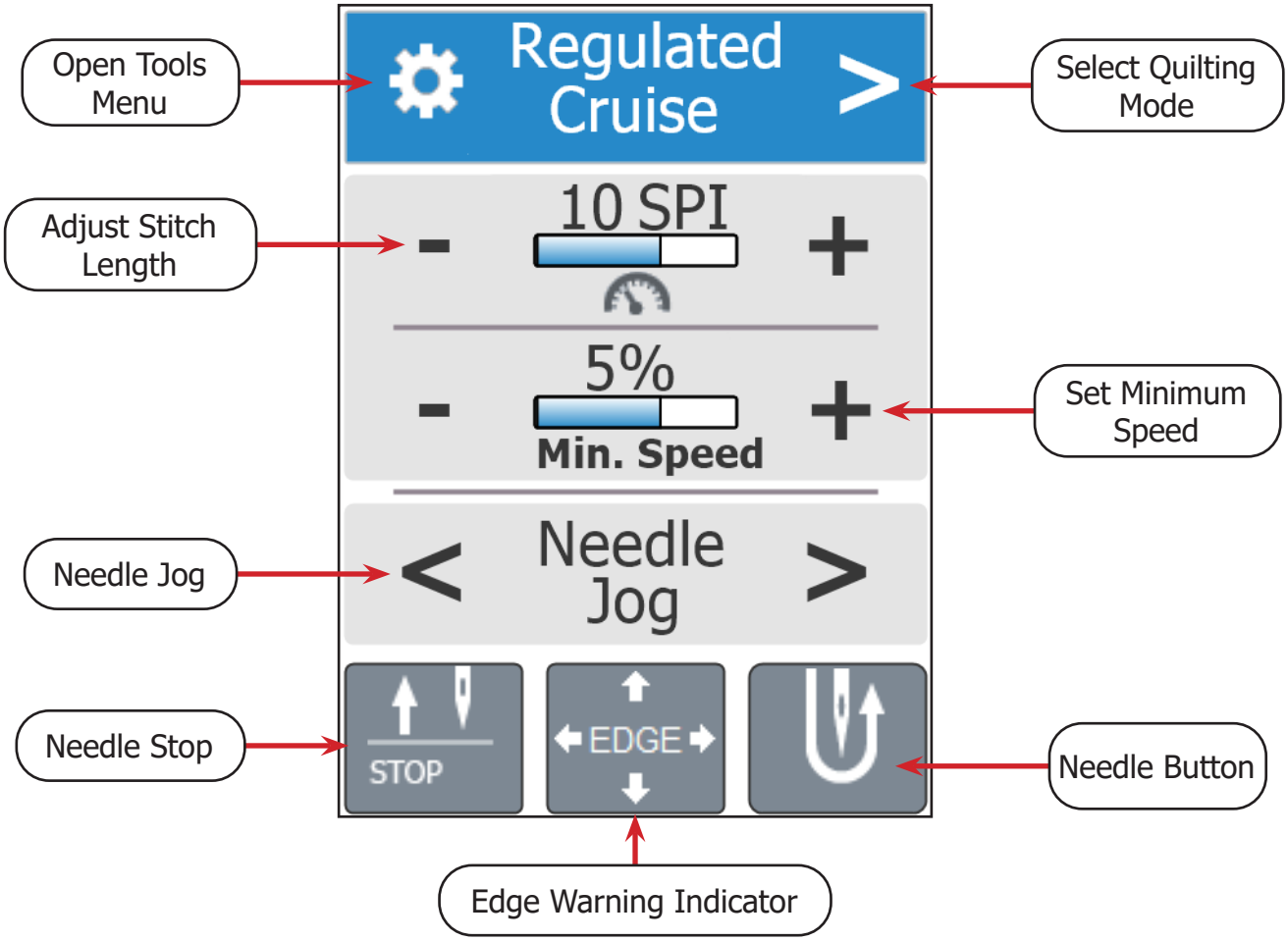
7. To deactivate stitching, press the start/stop quilting button on the handlebars. The needle will move into the needle stop position indicated by the **needle stop** button on the bottom of the quilting mode screen. Press the needle stop button to set the needle to stop in either the up or down position.



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 to cycle through the four quilting modes until you reach **Regulated 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: The unit of measurement can be changed in the **Machine Settings** menu (see page 42).

   Use the − + symbols to adjust the stitch length. Higher SPI means shorter stitch length.

2. Determine the **minimum speed** at which the machine will stitch in place 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 1700 stitches per minute.

   Use the − + symbols to adjust the minimum speed.

Using Cruise Quilting Mode (continued)

3. When stitching is inactive, press the **needle button** on the display to make single or half stitches. This can also be done with the needle button on the right handle. To switch the type of stitch between a half stitch or full stitch, go to the **Machine Settings** menu (see page 42)

   Note: While stitching is active, the needle buttons on the display and the handlebar controls are disabled.

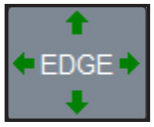
4. Position the quilting machine over the quilt. If needed, use the **needle jog** buttons to move the needle closer or farther from the fabric in small increments to help place your first stitch.

   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, the overspeed alarm will sound and a red LED light will shine on the needle area. Slow the machine's movement to turn off the alarm and light. Both the alarm and light can be deactivated in the **Machine Settings** menu.

6. When activated, the arrows on the **edge warning indicator** on the bottom of the quilting mode screen will turn green.

   For instructions on how to use the edge warning alert, see page 54.

7. You may find that you need to take measurements while you quilt. Press the **tools menu** button and select **measure** to open the measure tool. For instructions on how to use the measure tool, see page 60.

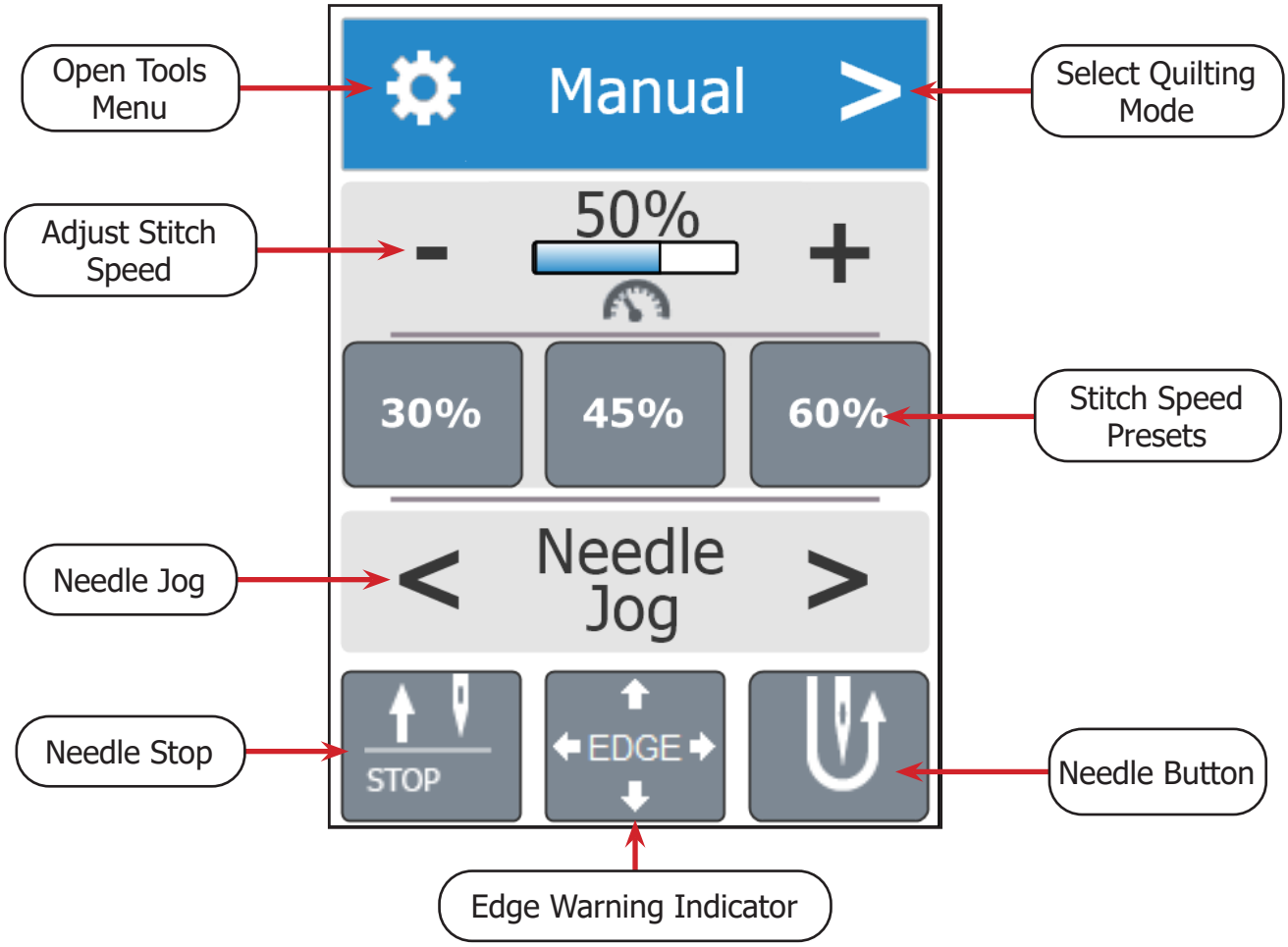
8. To deactivate stitching, press the start/stop quilting button on the handlebars. The needle will move into the needle stop position indicated by the **needle stop** button on the bottom of the quilting mode screen. Press the needle stop button to set the needle to stop in either the up or down position.

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 to cycle through the four quilting modes until you reach **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 1700 stitches per minute.

   Use the − + symbols to adjust the machine speed.

2. When stitching is inactive, press the **needle button** on the display to make single or half stitches. This can also be done with the needle button on the right handle. To switch the type of stitch between a half stitch or full stitch, go to the **Machine Settings** menu (see page 42).

Note: While stitching is active, the needle buttons on the display and the handlebar controls are disabled.

Using Manual Quilting Mode (continued)

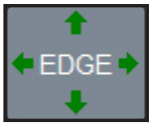
3. Position the quilting machine over the quilt. If needed, use the **needle jog** buttons to move the needle closer or farther from the fabric in small increments to help place your first stitch.



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

4. Moving the machine too quickly while quilting can reduce the quality of the stitch regulation. If the machine is moved too quickly, the overspeed alarm will sound and a red LED light will shine on the needle area. Slow the machine's movement to turn off the alarm and light. Both the alarm and light can be deactivated in the **Machine Settings** menu.

5. When activated, the arrows on the **edge warning indicator** on the bottom of the quilting mode screen will turn green.



For instructions on how to use the edge warning alert, see page 54.

6. You may find that you need to take measurements while you quilt. Press the **tools menu** button and select **measure** to open the measure tool. For instructions on how to use the measure tool, see page 60.

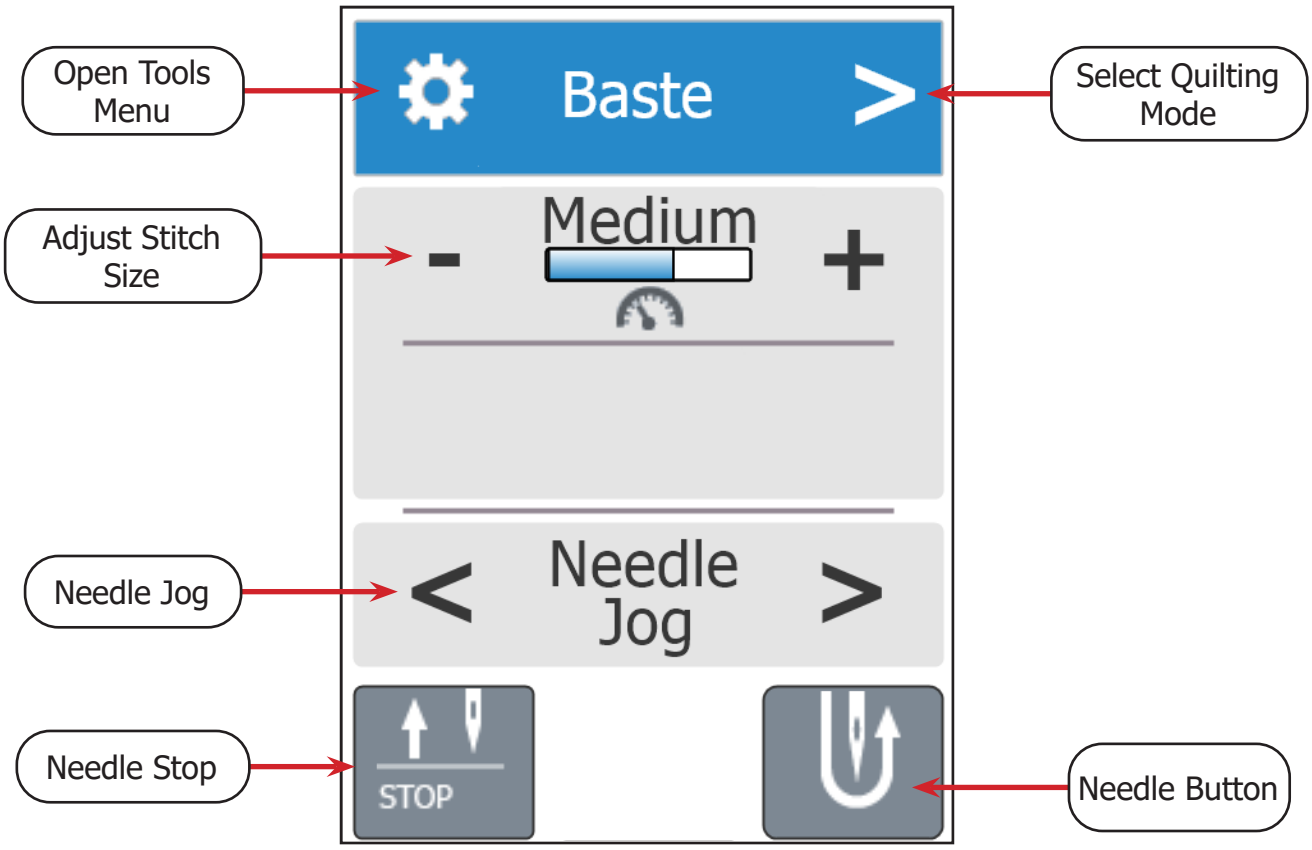
7. To deactivate stitching, press the start/stop quilting button on the handlebars. The needle will move into the needle stop position indicated by the **needle stop** button on the bottom of the quilting mode screen. Press the needle stop button to set the needle to stop in either the up or down position.



Using Baste Quilting Mode

Use basting mode to create loose, temporary stitches to hold layers of fabric together while quilting.

To switch to baste quilting mode, press the **select quilting mode** button to cycle through the four quilting modes until you reach **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.

   Use the − + symbols to adjust the stitch size.

2. When stitching is inactive, press the **needle button** on the display to make single or half stitches. This can also be done with the needle button on the right handle. To switch the type of stitch between a half stitch or full stitch, go to the **Machine Settings** menu (see page 42).

   Note: While stitching is active, the **needle button** 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, the overspeed alarm will sound and a red LED light will shine on the needle area. Slow the machine's movement to turn off the alarm and light. Both the alarm and light can be deactivated in the **Machine Settings** menu.

5. Edge Warning is not active in Baste Mode.

6. You may find that you need to take measurements while you quilt. Press the **tools menu** button and select **measure** to open the measure tool. For instructions on how to use the measure tool, see page 60.

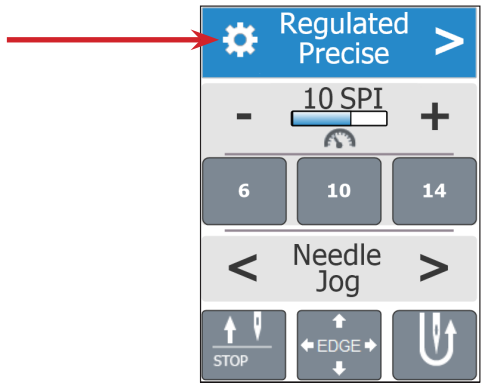
7. To deactivate stitching, press the start/stop quilting button on the handlebars. The needle will move into the needle stop position indicated by the **needle stop** button on the bottom of the quilting mode screen. Press the needle stop button to set the needle to stop in either the up or down position.

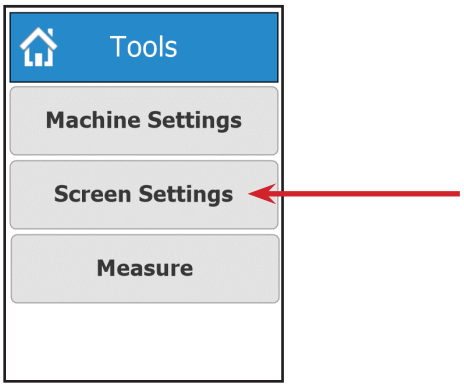


Screen Settings

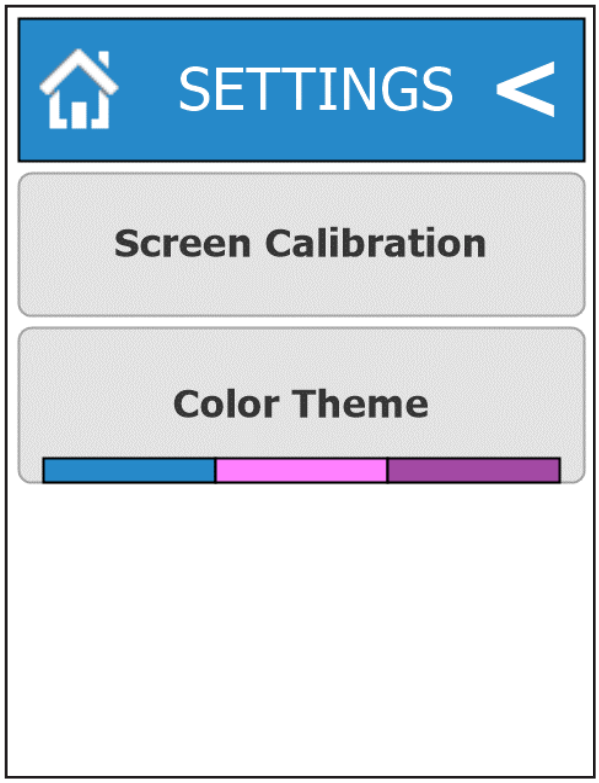
The Screen Settings menu allows you to calibrate the display's touchscreen as well as select a color theme for the display.

1 To access the screen settings menu, click on the **tools** icon in the top left corner of the screen and select **Screen Settings**.

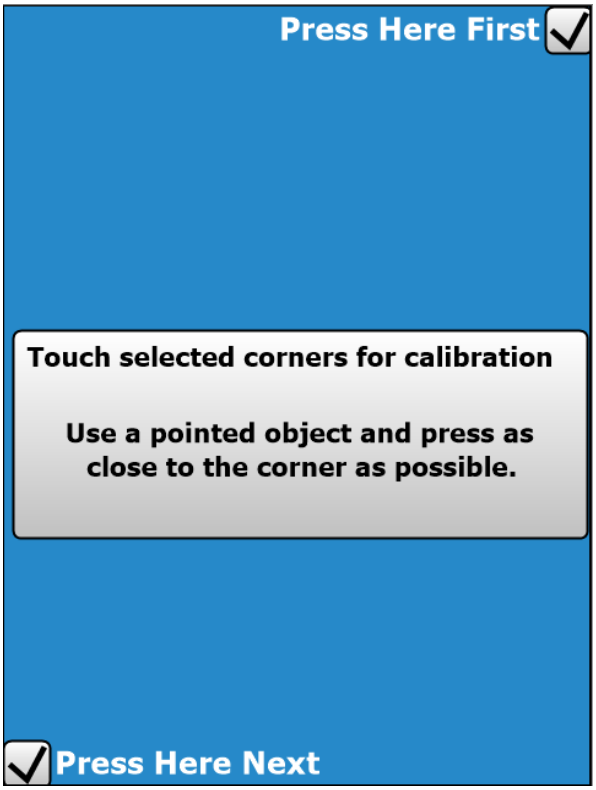




2 The Screen Settings menu opens.
Press the **Color Theme** button to cycle through the three color modes.
Press the **Screen Calibration** button to open the calibration screen.



3 To calibrate the screen, follow the prompts to click in the top right corner and then the bottom left corner.



4 Click **Finished** when done to return to the screen settings menu.

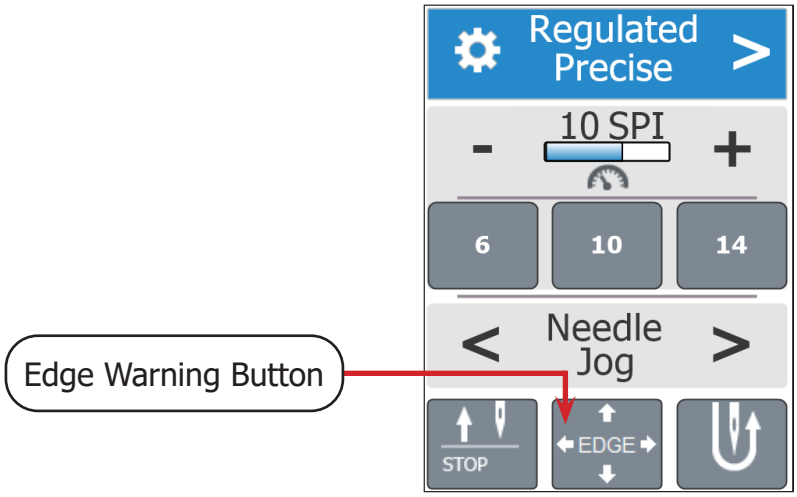


Using the Edge Warning

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.

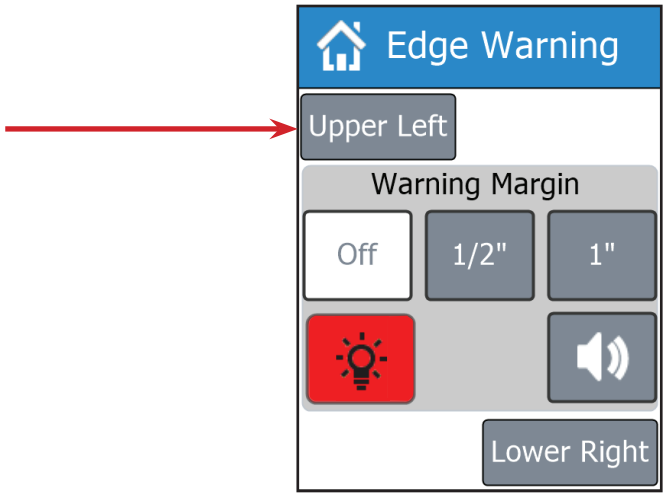
Take the following steps to use the edge warning tool.

1 To access the edge warning tool, press the **edge warning button** on the bottom of the quilting mode screen.

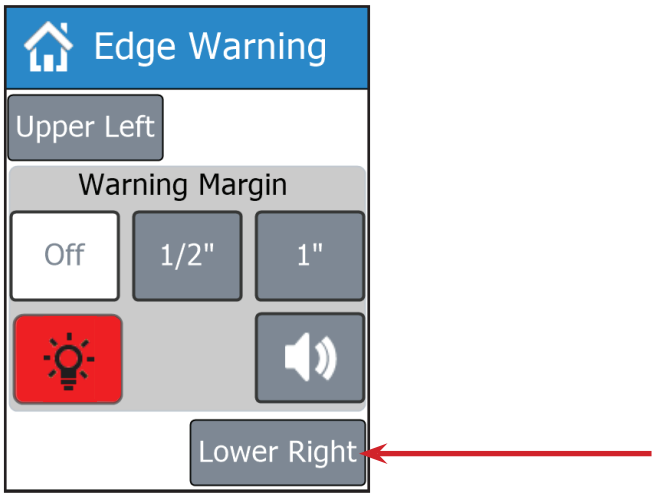


Note: Edge Warning is automatically deactivated in Baste Mode.

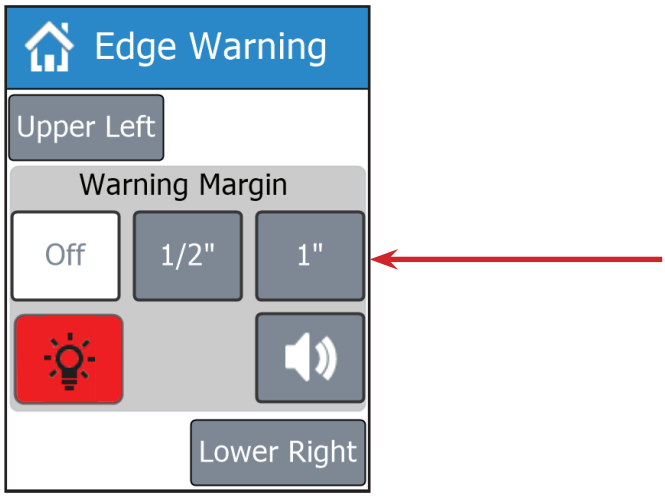
2 Move your machine so that the needle area is positioned at the location you want to be the top left corner of your safe area. Then press the **Upper Left** button.



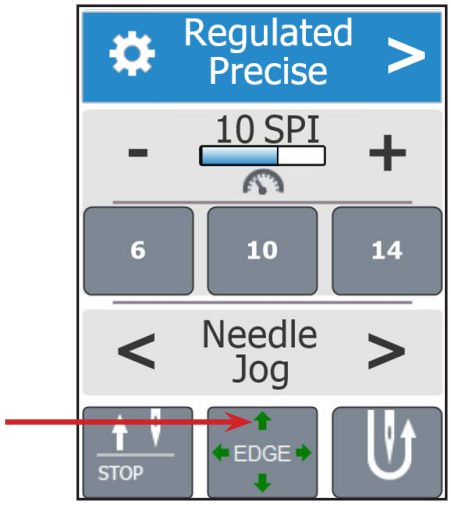
3 Now move your machine to the location you want to be the bottom right corner of your safe area and press the **Lower Right** button.



4 Choose whether you want the edge warning to notify you when the machine is within one inch or half an inch of the set boundaries. The edge warning is now set.



5 The arrows on the edge warning button in the quilting mode screen will turn green when edge warning is activated.



Using the Edge Warning (continued)

6 If you approach any of the boundaries while quilting, an alarm will sound and a red LED light will shine on the needle area



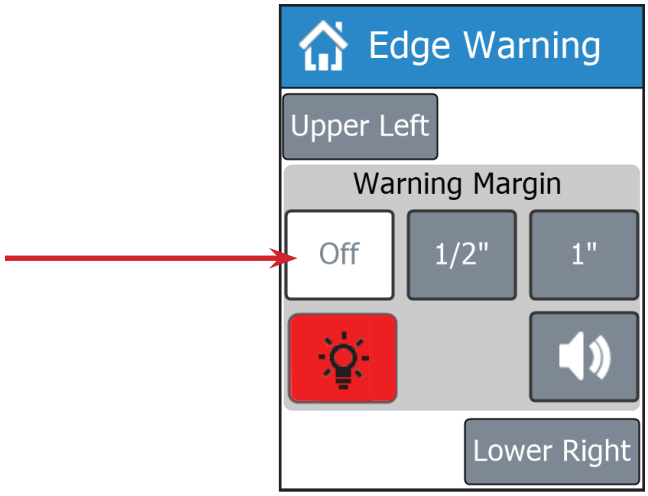


7 To turn off the alarm and red light, return to the established "safe area."
The light and the alarm can each be deactivated in the edge warning screen.





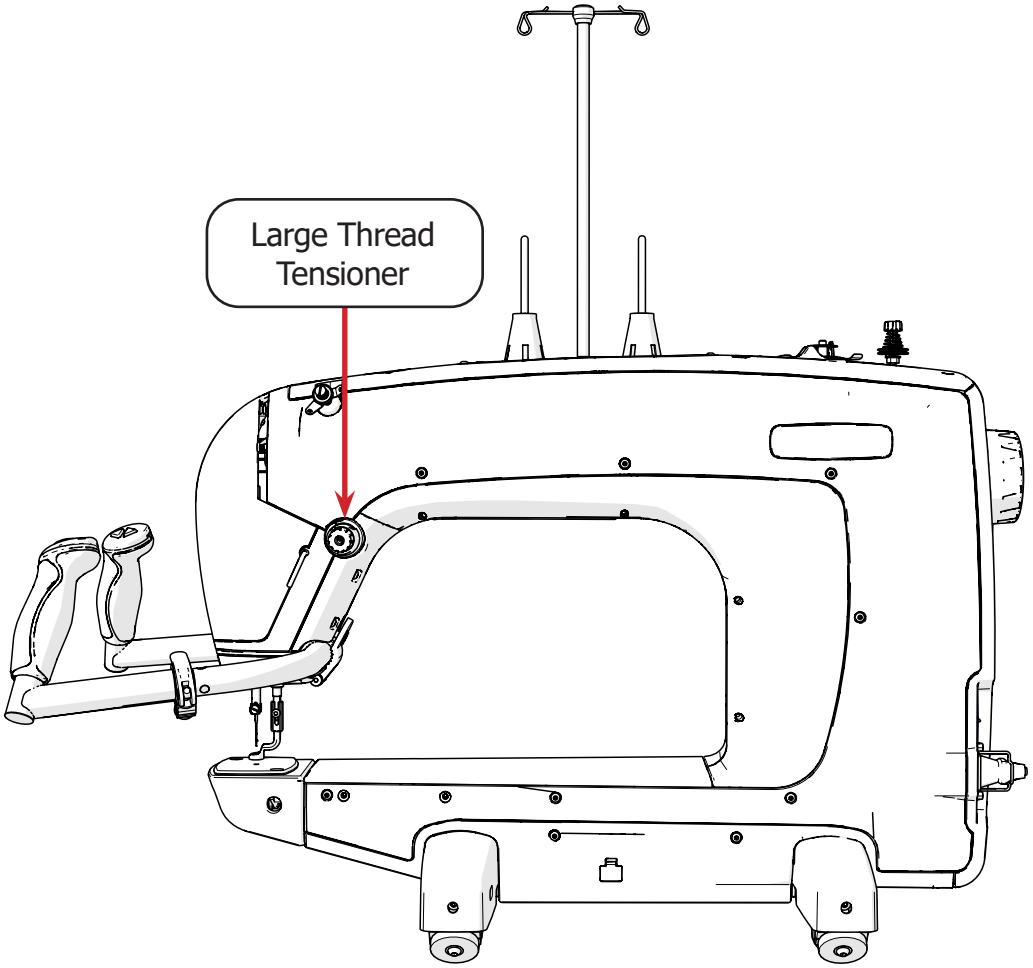
8 If you do not want the edge warning to be activated, press the "Off" button on the edge warning screen.



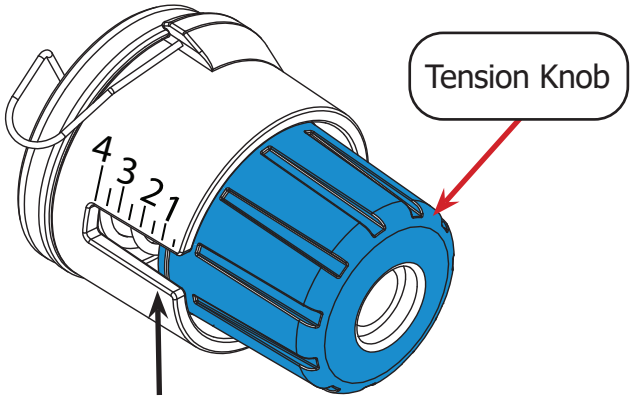
Adjusting Thread Tension

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 addressed in "Task 8 - Loading the Bobbin Case" (see page 30). This should be done before adjusting top tension.



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.

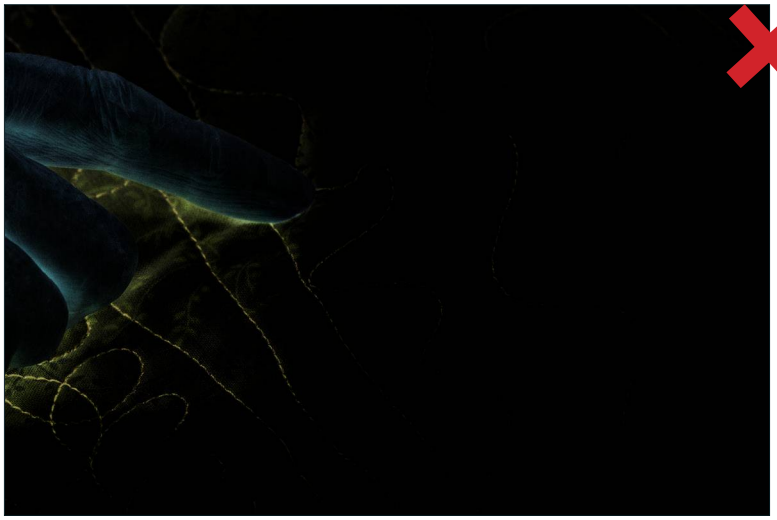


Note: Setting "1" is the lowest tension for your machine, and is an ideal starting place to find the correct top tension.

Adjusting Thread Tension (continued)

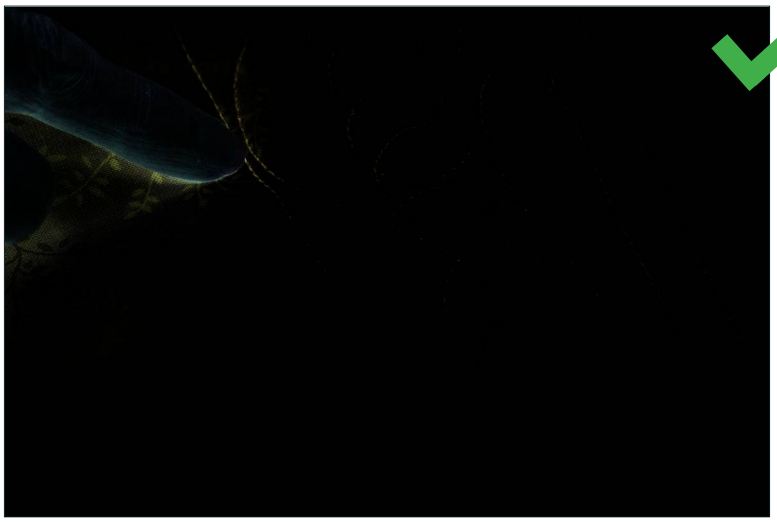
2 Slowly increase the tension while stitching into scrap material. When the thread tension is balanced, the top and bottom thread will knot in the middle of the fabric layers.

Too Much Top Tension

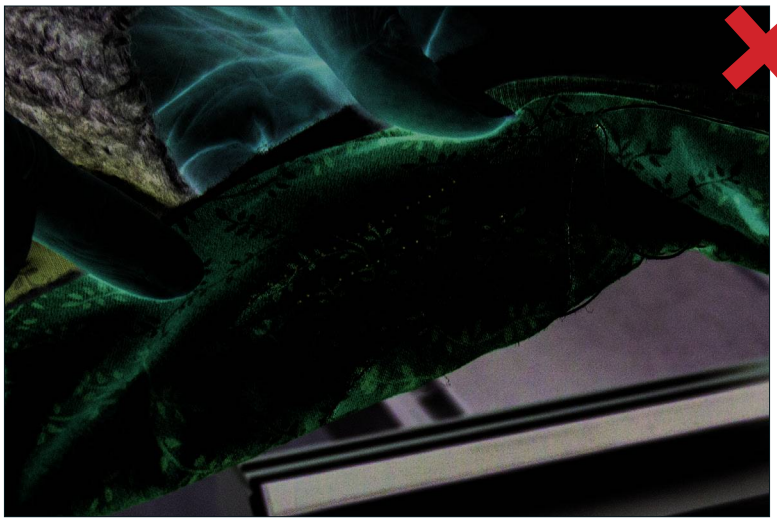


Bottom thread is pulled to the top of the fabric.

Balanced Tension

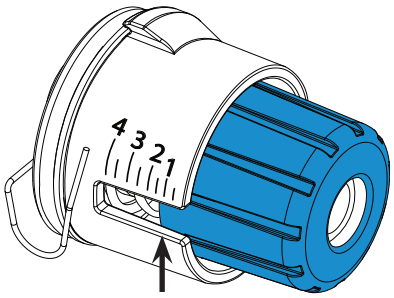


Too Little Top Tension

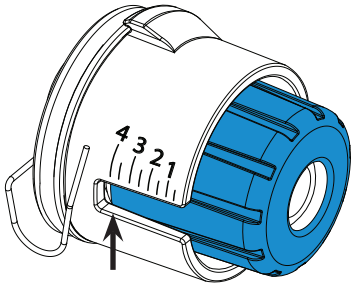


Top thread is pulled to the bottom of the fabric.

- 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.



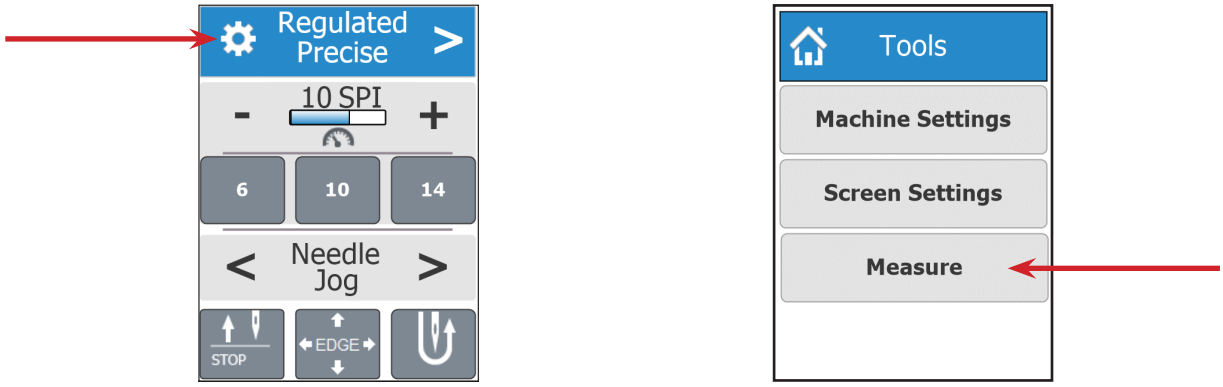
- If the **top thread** is pulled down through the bottom layer of fabric, there is too little top tension. Increase the tension on the top by slowly turning the large thread tensioner knob toward setting "4." Stop turning the knob when desired tension is achieved.



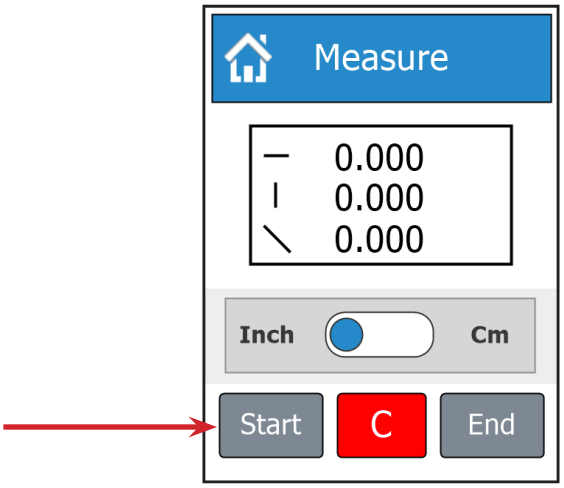
Taking Measurements

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

1. To access the measure tool, click on the **tools** icon in the top left corner of the screen and select **Measure**.

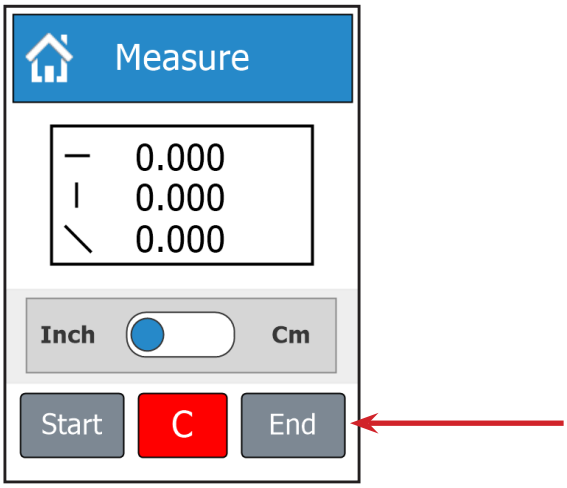


2. Move your machine so that the needle is at the location where you want to start your measurement and press the **Start** button.

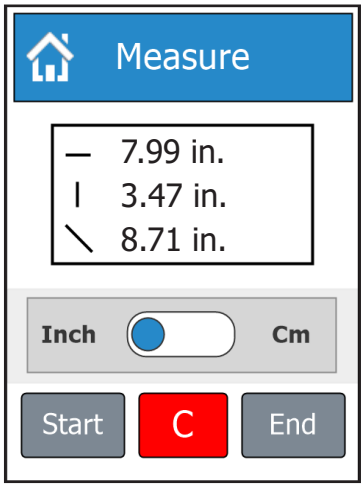


Note: You can select either inches or centimeters for your unit of measurement.

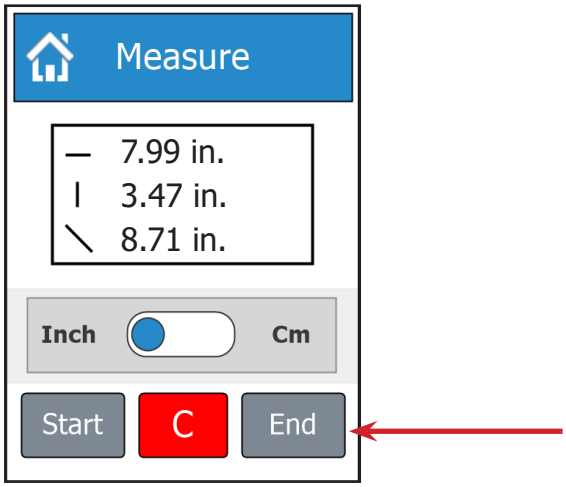
3. Move your machine so that the needle is at the end of your measurement and press the **End** button.



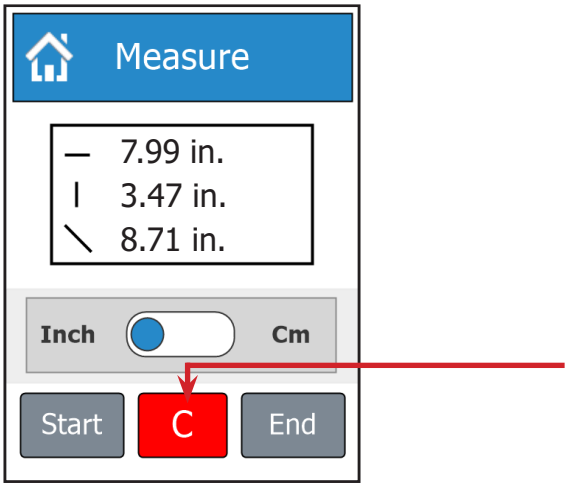
4 The screen will display the horizontal, vertical and diagonal distances from your start point to your end point.



5 Press the **End** button again if you want to create a measurement with the same start point but a new end point.



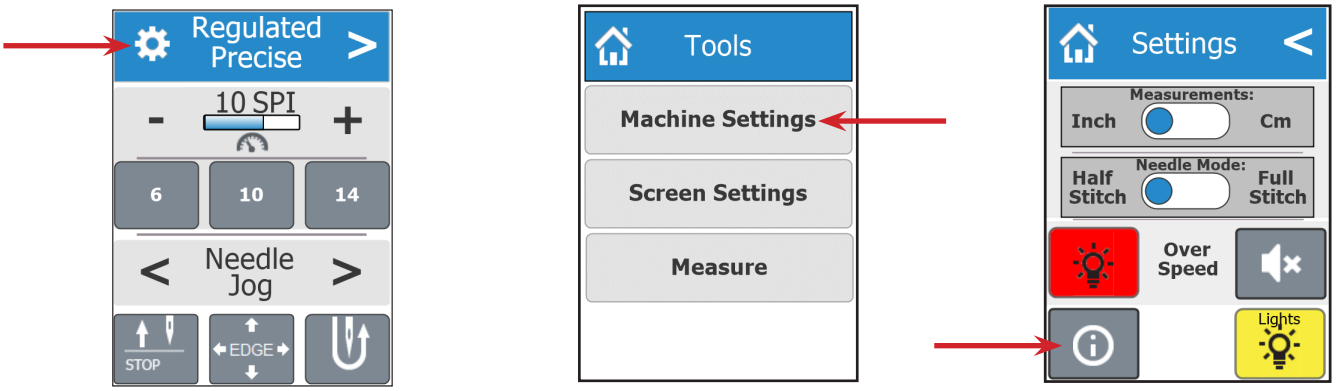
6 Press the **clear** button once you no longer need to save the measurement or if you are ready to make a measurement with a new start point.



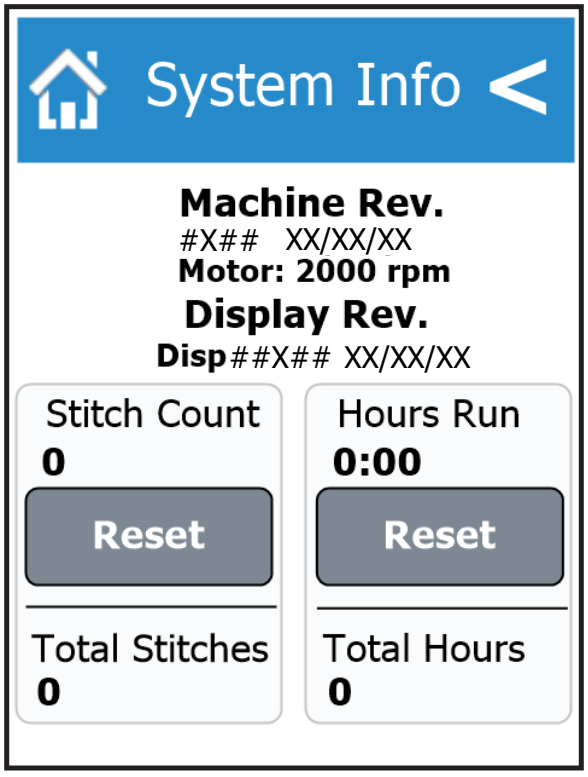
System Info

The System Info screen shows the firmware versions of your machine and display. It also shows the stitch count and run for both the current project and the life of the machine.

1. To access the measure tool, click on the **tools** icon in the top left corner of the screen and select **Machine Settings**, then press the **info button**.



2. This screen will show the version details for your machine and display. It also shows the run time and stitch data for both the current project and lifetime of the machine.



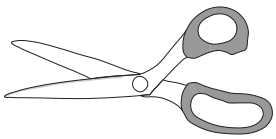
Tip: It's recommended to oil your machine after 20 hours of use. The "Hours Run" counter can help keep track of when your machine is due to be oiled. After cleaning and oiling your machine, press the **Reset** buttons under "Hours Run" and "Stitch Count" to start the counters back at zero.

The counters under "Total Stitches" and "Total Hours" cannot be reset.

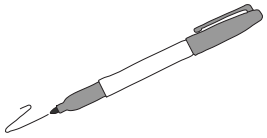
Getting Started

Parts & Tools Needed:

Scissors
(not included)



Washable Fabric
Marker/chalk (not
included)



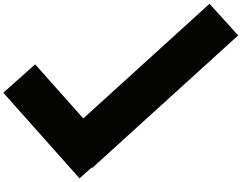
Instructions

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:

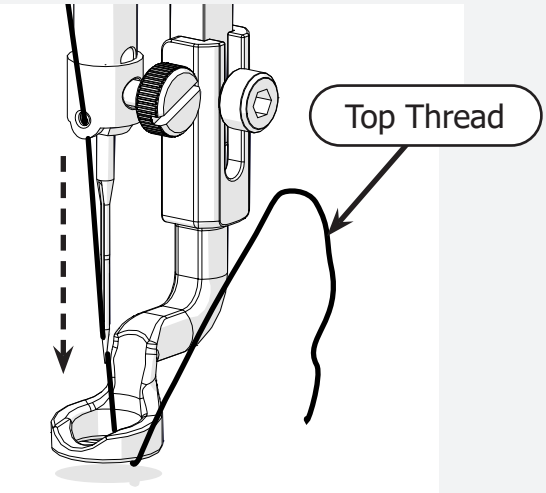
   - Your machine is threaded and tensioned.
   - Your practice fabric is attached.
   - You have established any machine settings you want to use.



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.

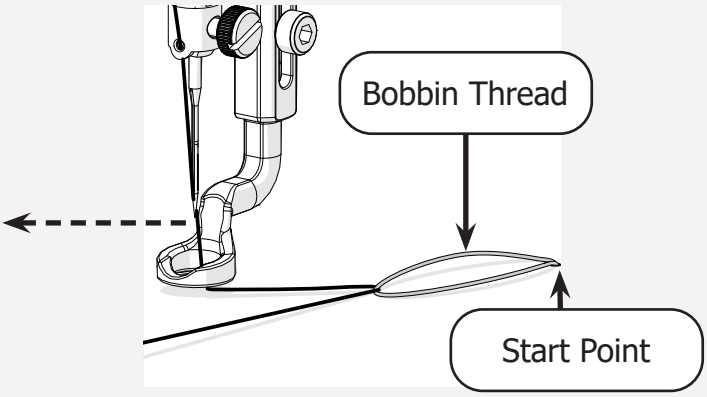
   a. First, position the needle directly above where you want to begin your pattern.

   b. Pull on the **top thread** so that it is tight and make a full stitch or two half stitches using the needle button on the display.

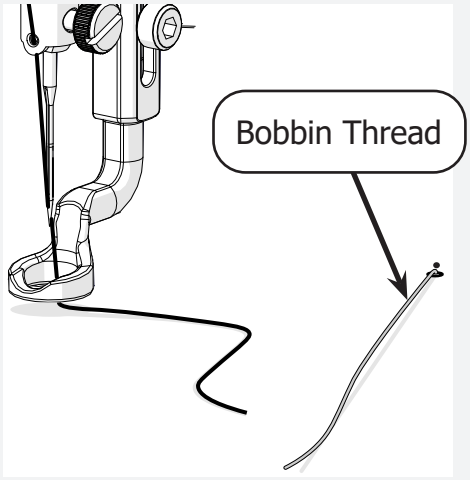


Getting Started (continued)

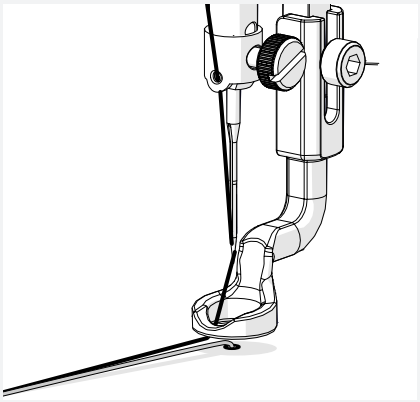
c While still tightly holding the top thread, move the machine several inches to the side. Your top thread should pull a loop of **bobbin thread** through the **start point** to the top of the fabric.



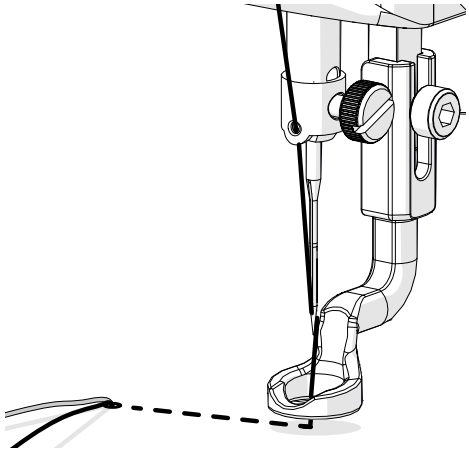
d Pull on the loop of **bobbin thread** until the loose end of the thread comes up from underneath the fabric.



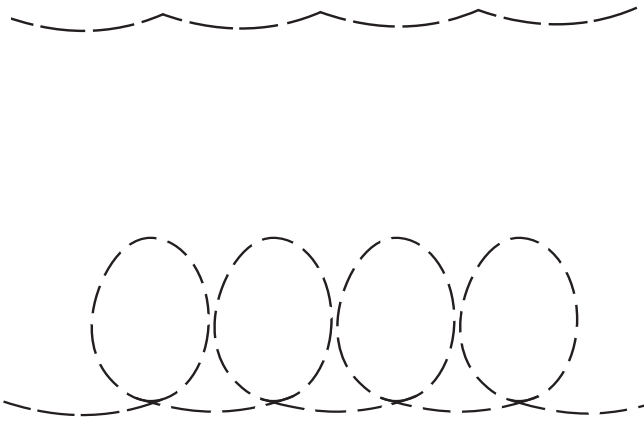
e Pull on the bobbin thread while moving the machine back to the start point. This makes sure that there is no loose thread underneath the fabric.



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

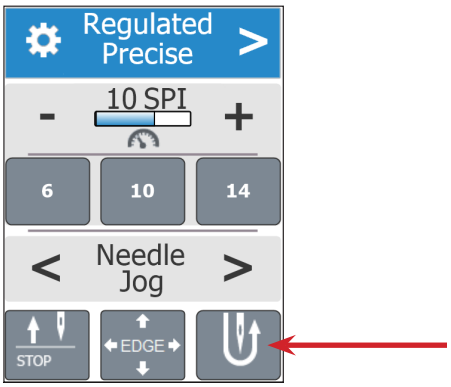


4 With fabric chalk or a marker, draw a simple pattern or write your name on the fabric and then stitch over it to practice.



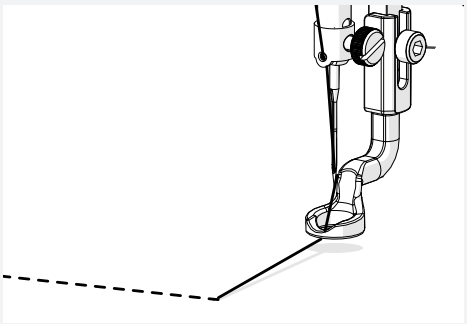


5 Complete the pattern by making a tie-off stitch. Use the **needle button** to make a few small stitches very close together.

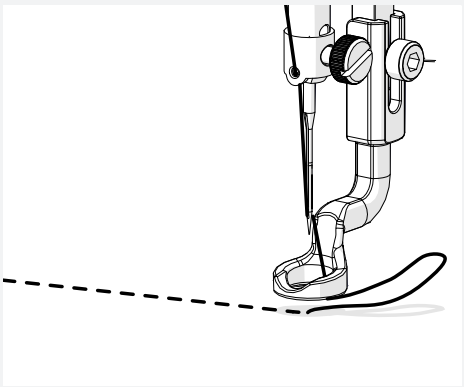


6 To pull up the bobbin thread after making a tie-off, take the following steps:

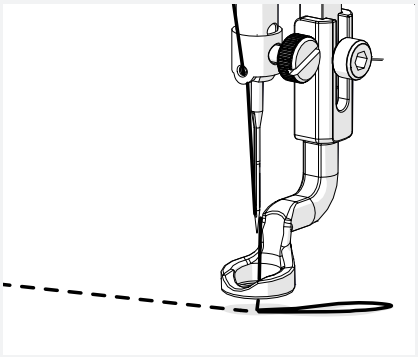
a Move the machine away from the tie-off stitch.



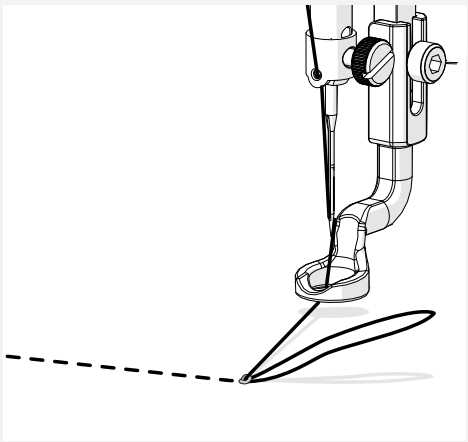
b Hold the thread to make a loop and return the machine to the tie-off stitch.



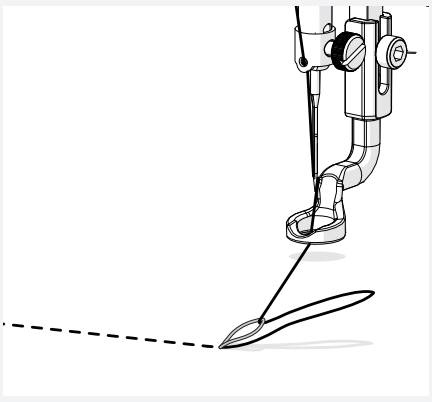
c Make a single stitch over the tie-off.



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.

If you have any accessories that you have not installed yet, you may do so now.

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

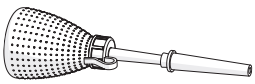
Reinstalling the Needle Plate ..... page 78

Reinstalling the Anti-Backlash Spring ..... page 80

Preparing the Oil Bottle

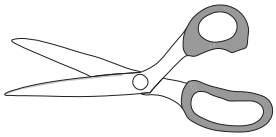
Parts & Tools Needed:

Oil Bottle



Power Cord/Oil Bottle Box

Scissors

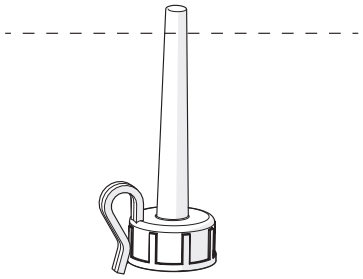


(Not included)

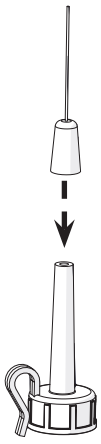
Instructions

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

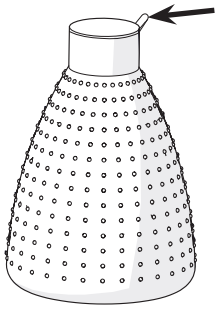
1. Snip off about 1/4th of an inch from the tip of the plastic lid with a pair of scissors.



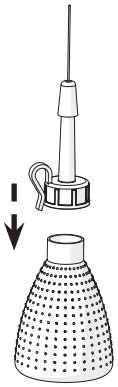
2. Place the applicator needle onto the top of the cap.



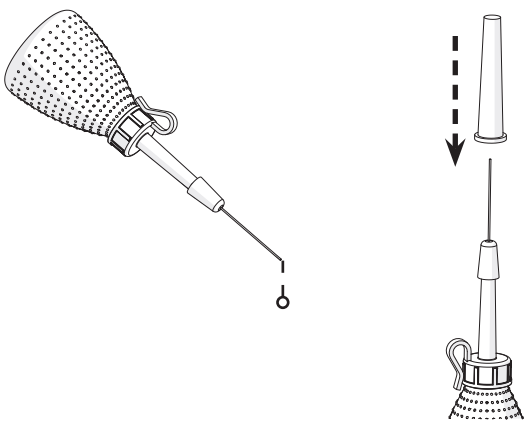
3. Peel the safety foil off the opening of the oil bottle.



4. Carefully screw the lid onto the oil bottle.



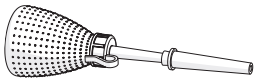
5. Hold bottle upside down and squeeze gently to apply oil. When not in use, cover the applicator needle with the safety cap.



Oiling and Cleaning

Parts & Tools Needed:

Oil Bottle



Lint Brush



Tools Box

- Compressed Air Can (optional; not included)

Instructions

Oil and Clean:	
Machine	• At the start of a new project • After 20 hours of use • After sitting without use for more than 30 days
Hook Assembly	• Every other bobbin change

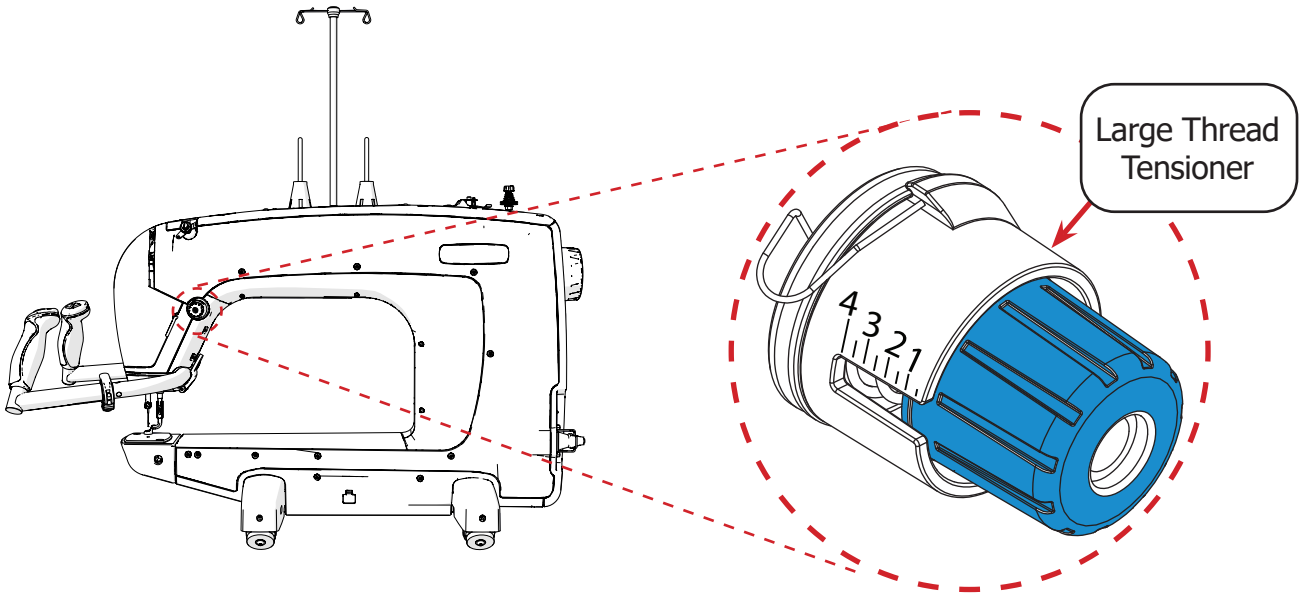
Tip: The Hours Run counter on the System Information page can be used to track hours of quilting time (see page 62).

Take the following steps to clean and oil the machine:

1. Power off the machine.

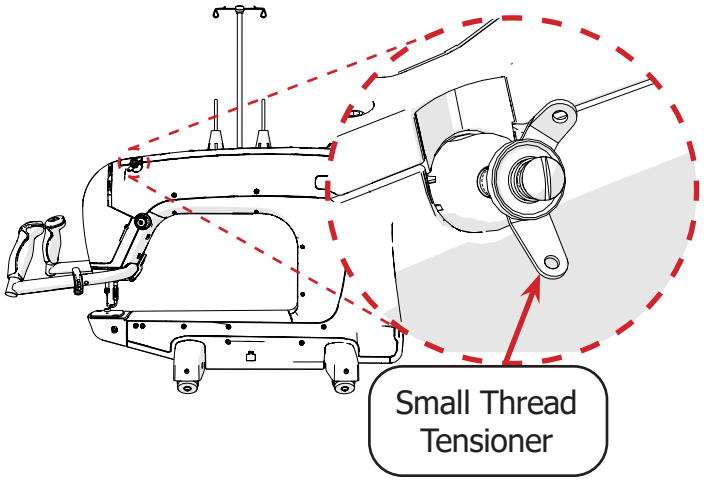
2. Set the **large thread tensioner** to "1" to expose the tensioner discs. Use the lint brush or a can of compressed air to clear away lint and thread remnants from between the discs.

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

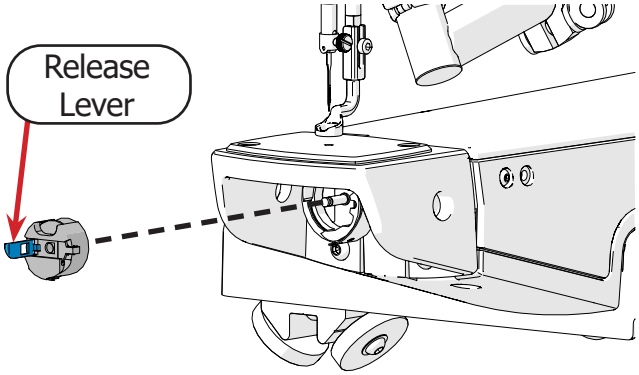


Oiling and Cleaning (continued)

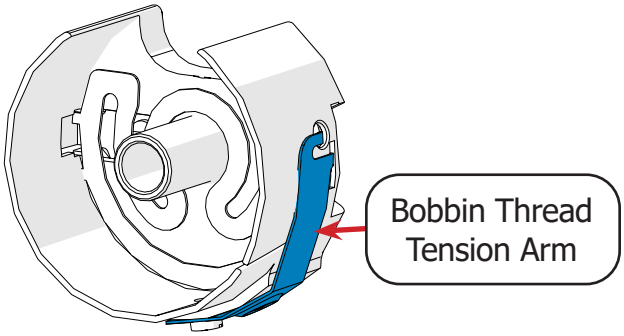
3 Clear debris from the spring and discs of the **small thread tensioner**.



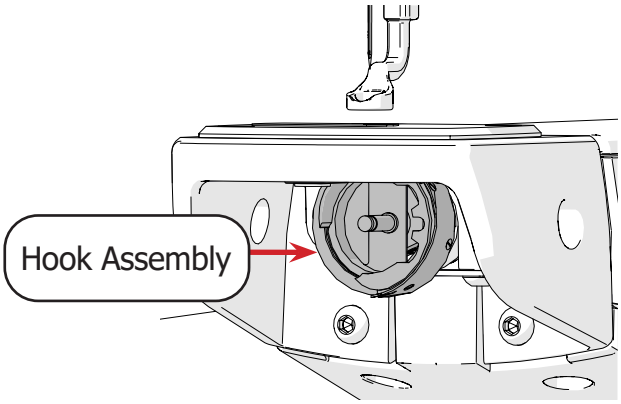
4 Pull the **release lever** (shown in blue) on the bobbin case to remove it from the hook assembly. If the case won't release, raise the needle with the hand wheel at the rear of the machine.



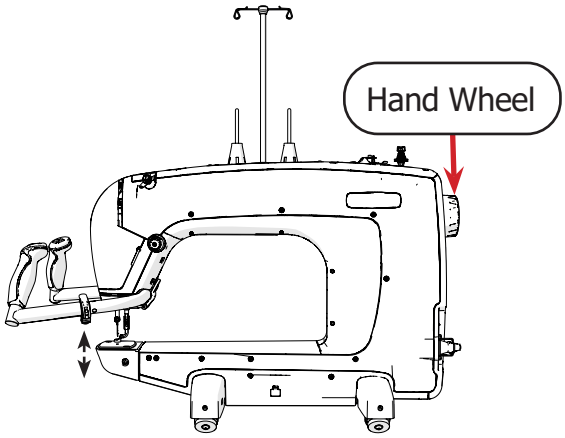
5 Set the bobbin aside. Clean the bobbin case with the lint brush or compressed air. Be sure to clean the area under the **bobbin tension thread arm**.



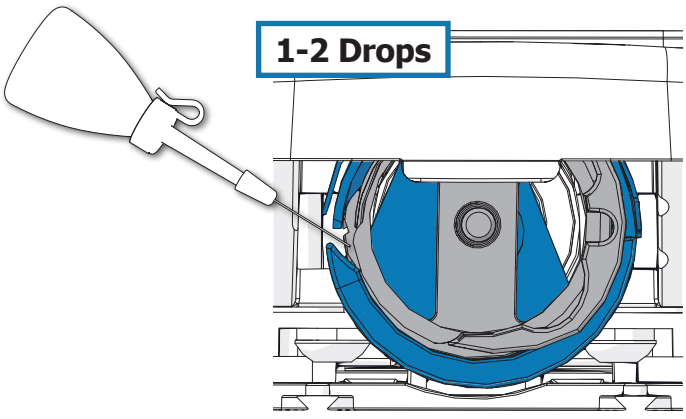
6 In and around the **hook assembly**, clear away any lint, cloth, and thread remnants.



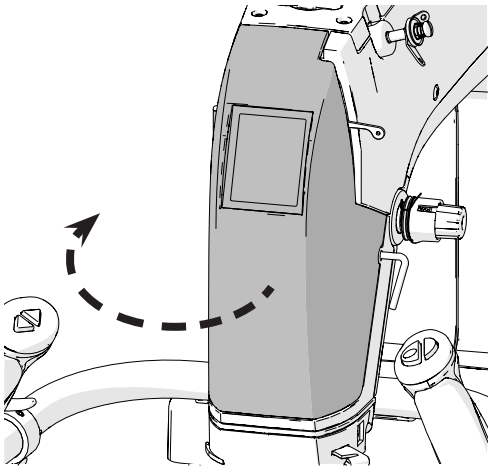
7 Rotate the **hand wheel** until the needle is halfway down. This will put the hook in the best position for oiling.

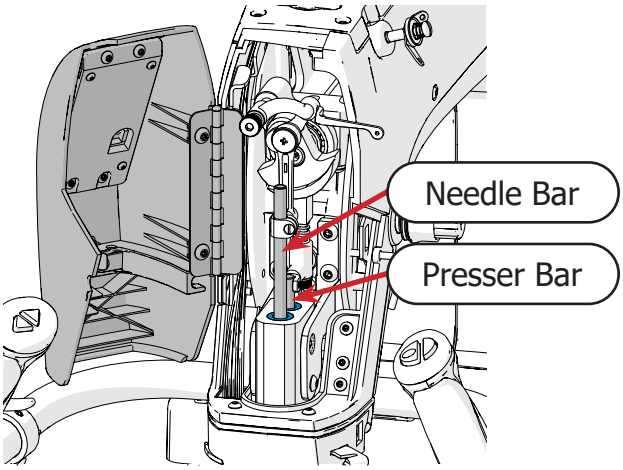


8 Place one to two drops of oil into the hook assembly between the **inner part** (shown in gray) and **outer part** (shown in blue).



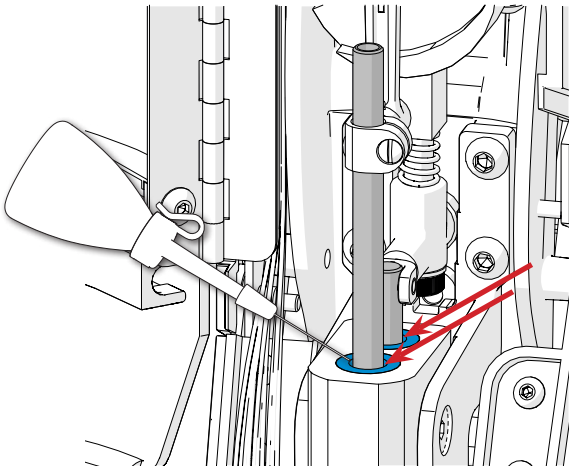
9 Pull on the sides of the front cover of the machine to open the cover and access the **needle bar** and **presser bar**.





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

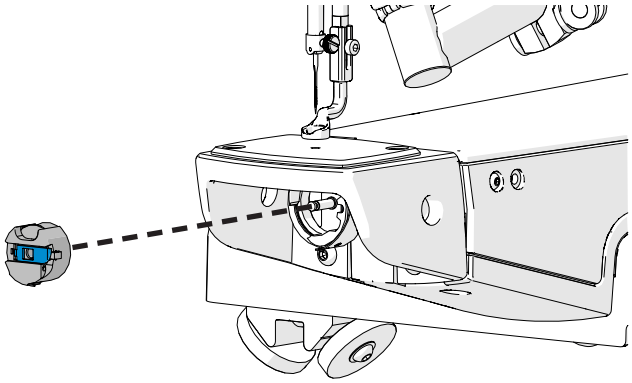
Close the front cover when finished.



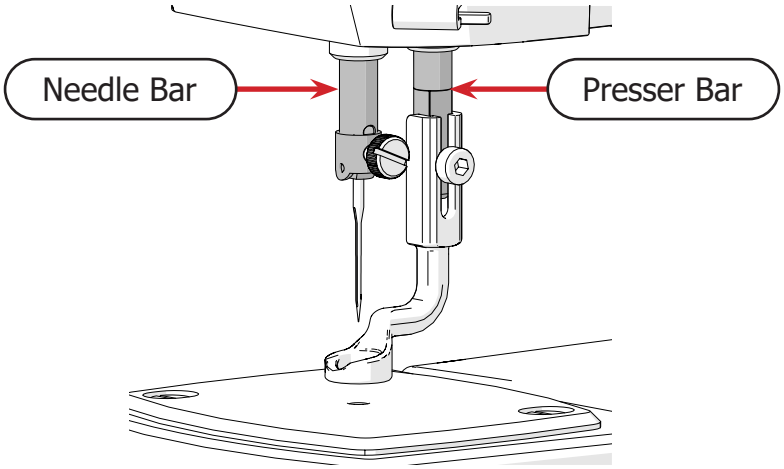
11 Power up the machine and run it for about ten seconds to evenly spread the oil around the hook assembly.

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 30).



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 94.

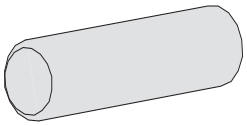
Parts & Tools Needed:

Needle



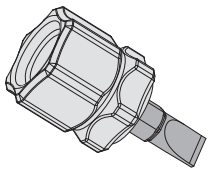
Tools Box

Needle Magnet



Tools Box

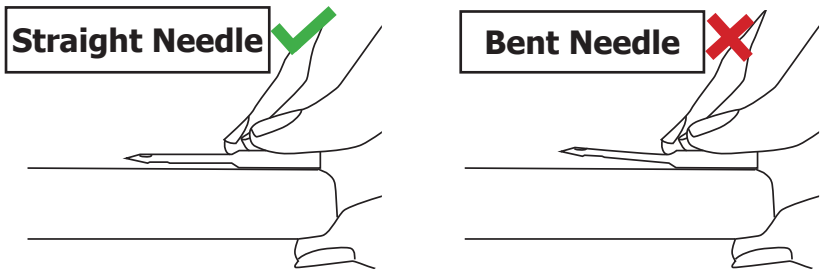
Flat-head Screwdriver



Tools Box

Instructions

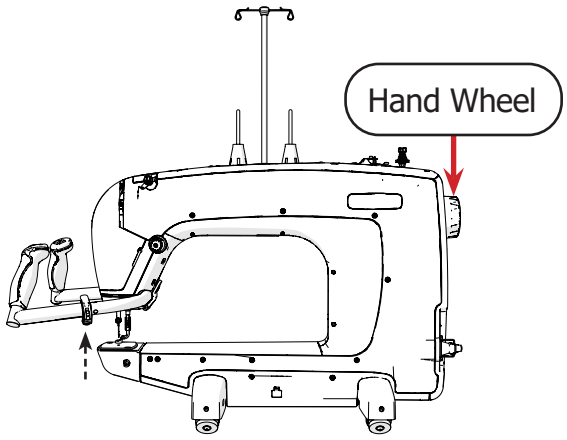
A broken, bent, or burred needle may break thread, damage fabric, or even damage the machine. Always check that the needle is in good condition before starting a new project, and replace the needle after eight hours of use.

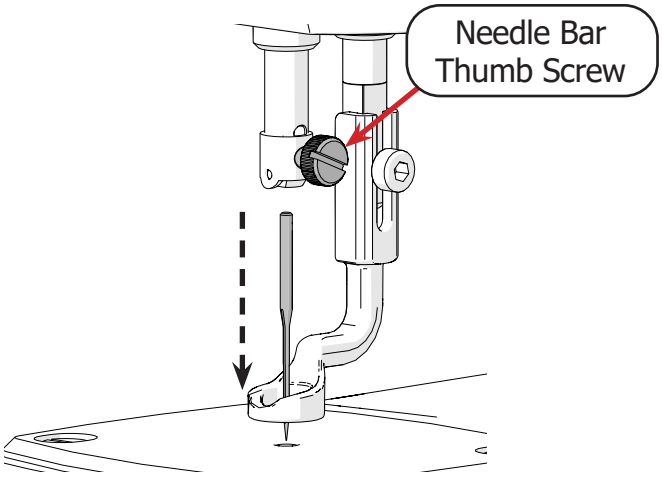


To avoid damage to the machine, please choose an approved needle style from the list below:

- DPX5 MR
- 134 MR
- 1955 MR

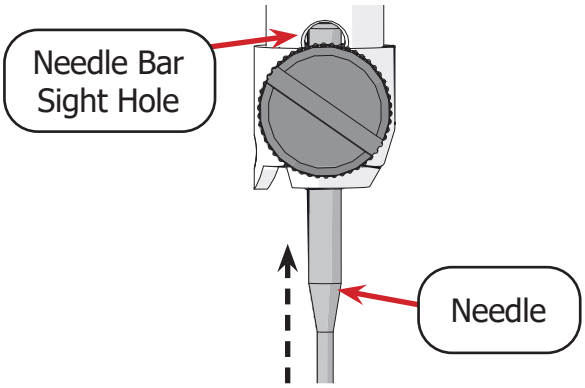
1. Power off the machine.
2. Raise the needle to the highest position with the **hand wheel**.
3. Loosen the **needle bar thumb screw** and pull out the needle. If needed, use a flat-head screwdriver to loosen the screw.



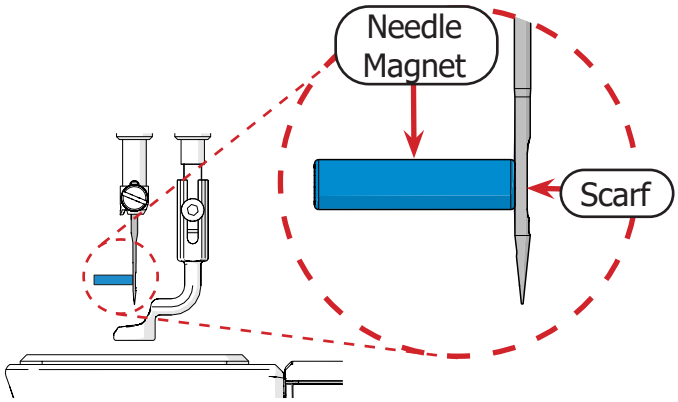


Changing the Needle (continued)

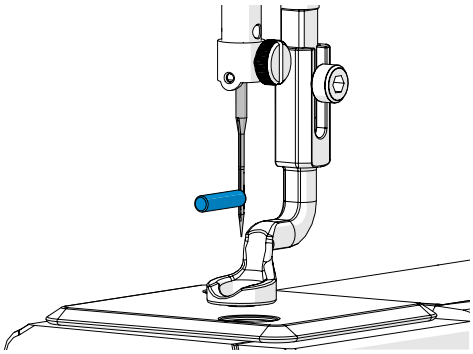
4 Insert the new needle all the way into the needle bar. Check the **needle bar sight hole** above the thumb screw to make sure the **needle** is inserted all the way.



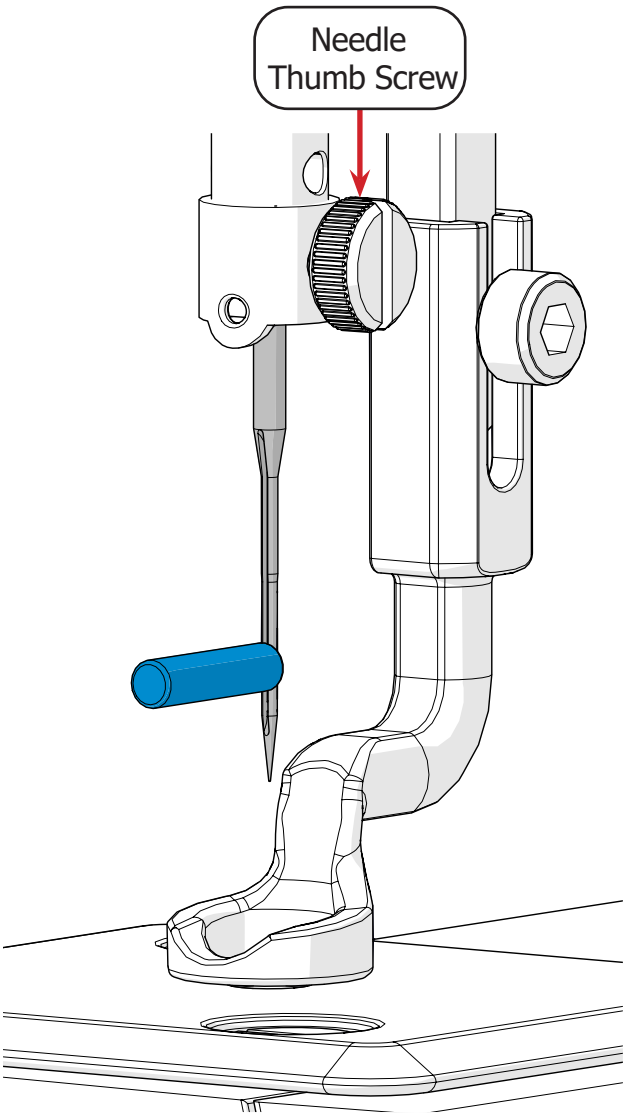
5 The **scarf**, a cut-out on the back of the needle, should face the throat of the machine. Place the **needle magnet** on the opposite side of the scarf.



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.



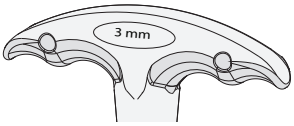
7 Hand-tighten the **needle thumb screw**. Do not over-tighten if using the flat-head screwdriver.



Adjusting the Hopping Foot

Parts & Tools Needed:

T-handle Allen Wrench 3 mm



Tools Box

Hopping Foot Height Tool



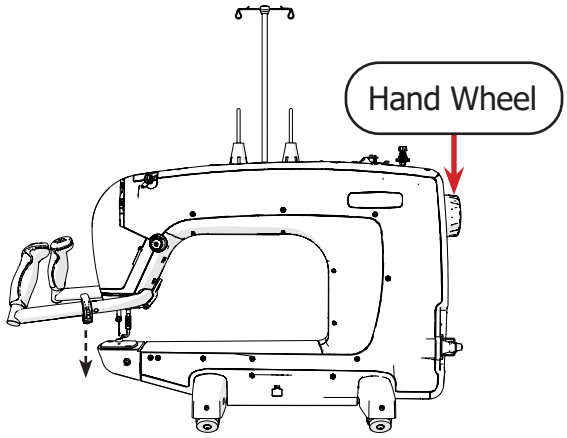
Tools Box

Height Adjustment

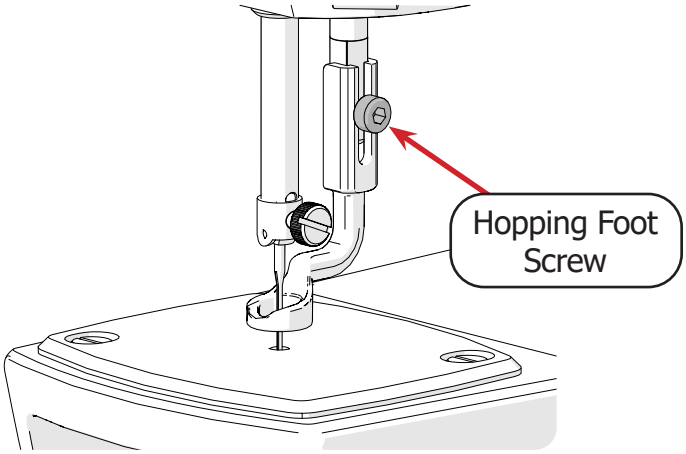
When quilting with thick fabric or batting layers, the hopping foot may press down on the quilt too tightly and begin to drag. Alternatively, having the hopping foot too high can result in skipped stitches. The hopping foot can be raised or lowered to correct these problems.

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

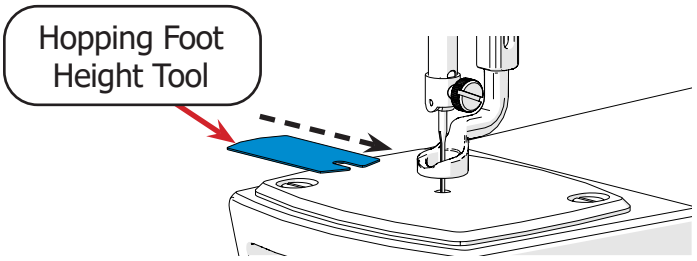
1. Move the machine so it is not over fabric. Then use the **hand wheel** to drop the needle bar to the lowest position.



2. Use the 3 mm Allen wrench to loosen, but not remove, the **hopping foot screw**.

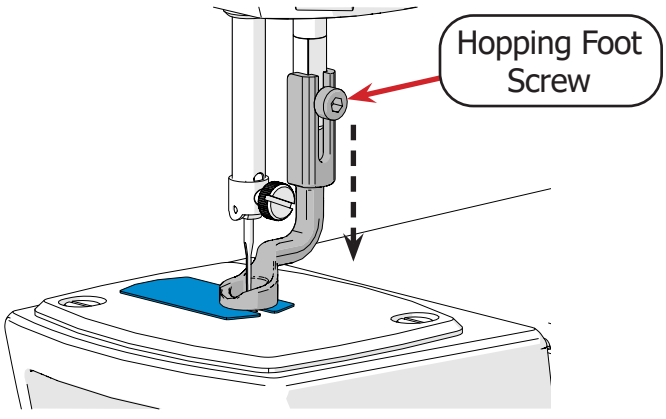


3. Slide the **hopping foot height tool** (shown in blue) underneath the hopping foot with the needle inside the slot.



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.

4. Lower the hopping foot until it rests on the height tool. Re-tighten the hopping foot screw with the 3 mm Allen wrench.

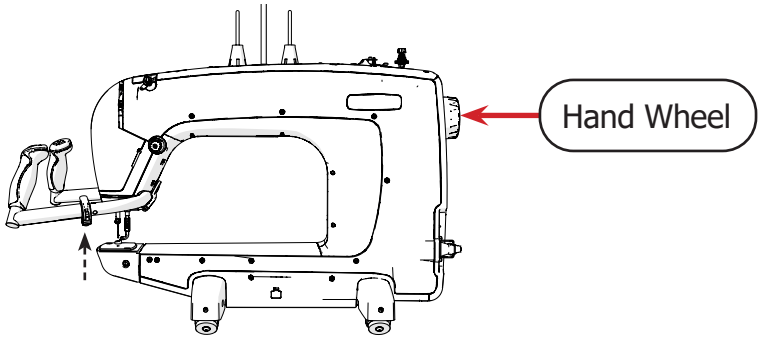


Adjusting the Hopping Foot (continued)

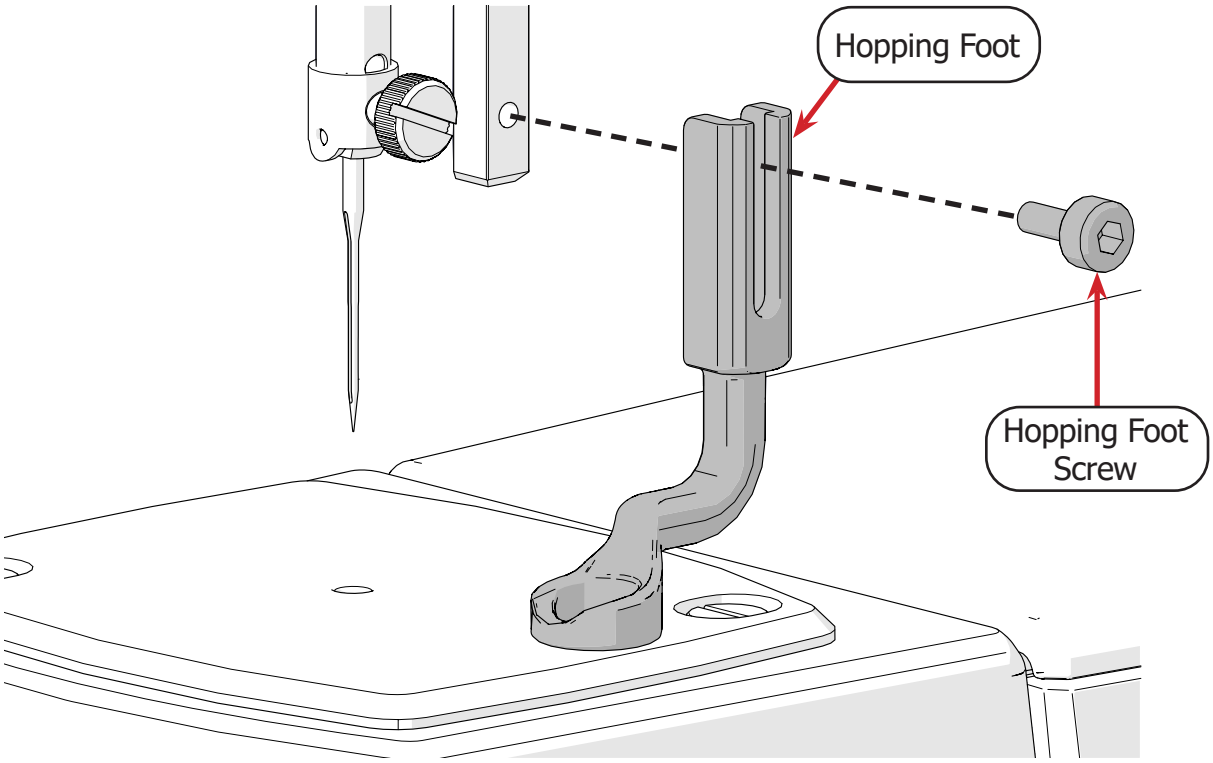
Removal Instructions

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.



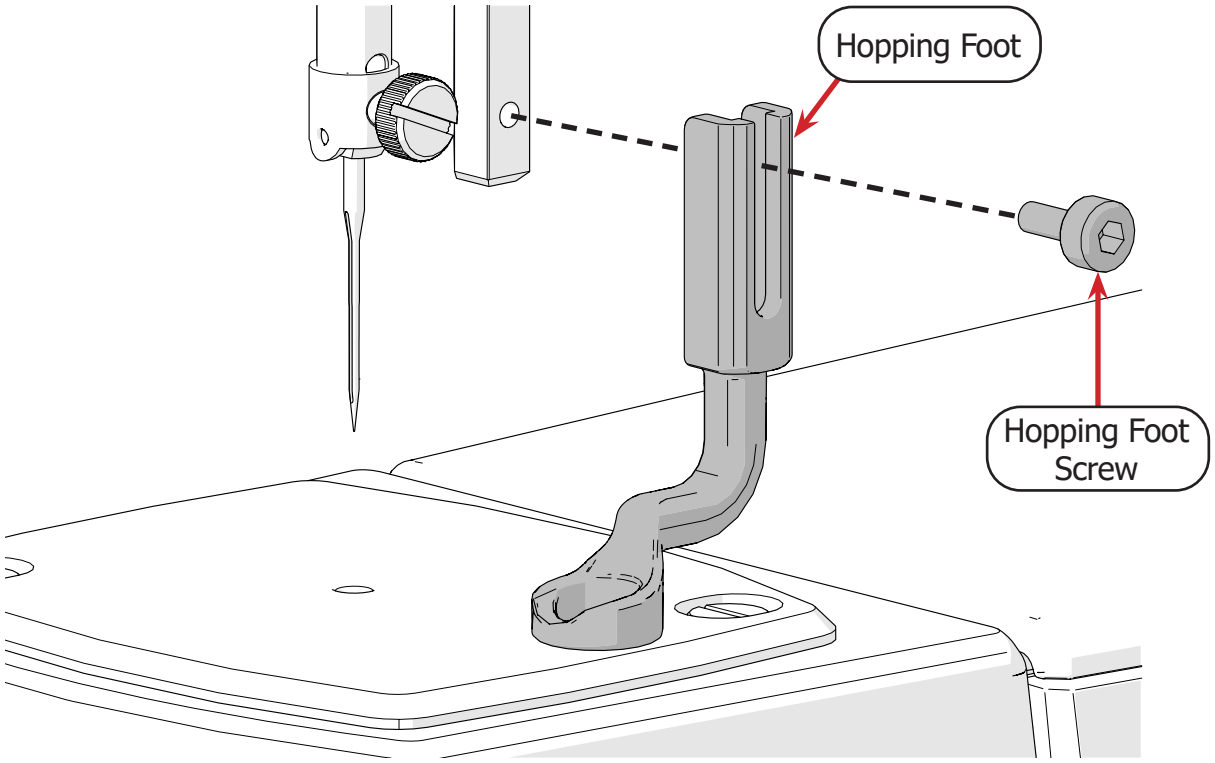
3. Use the 3 mm Allen wrench to remove the **hopping foot screw** and **the hopping foot.**



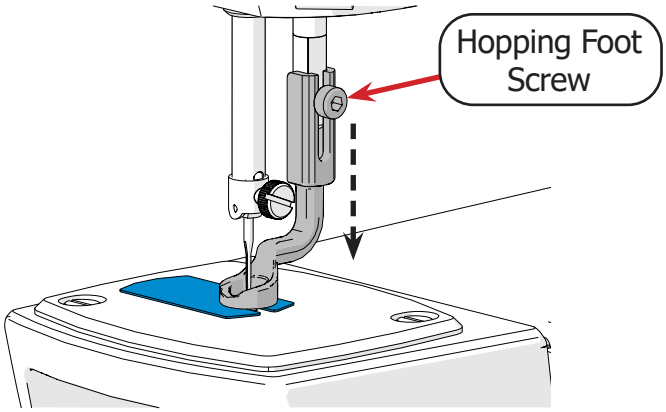
Installation Instructions

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.



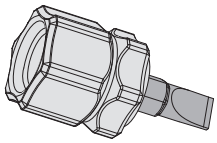
3. Adjust height as needed (see page 75).



Reinstalling the Needle Plate

Parts & Tools Needed:

Flat-head Screwdriver

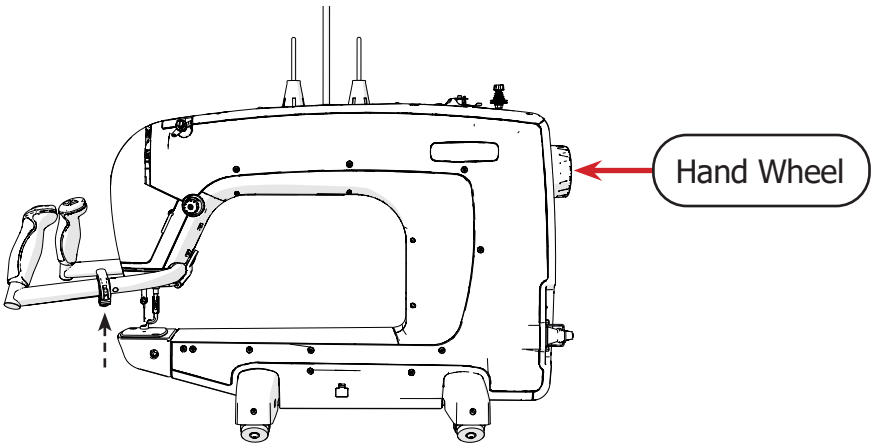


Tools Box

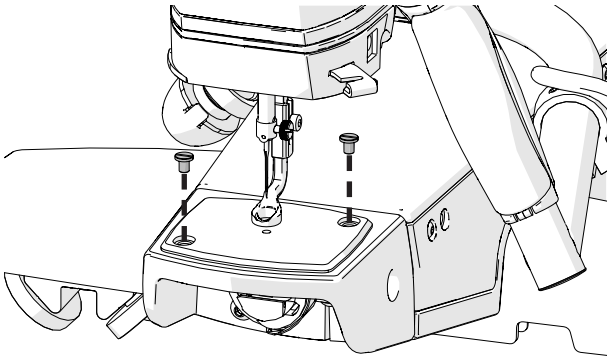
Removal Instructions

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

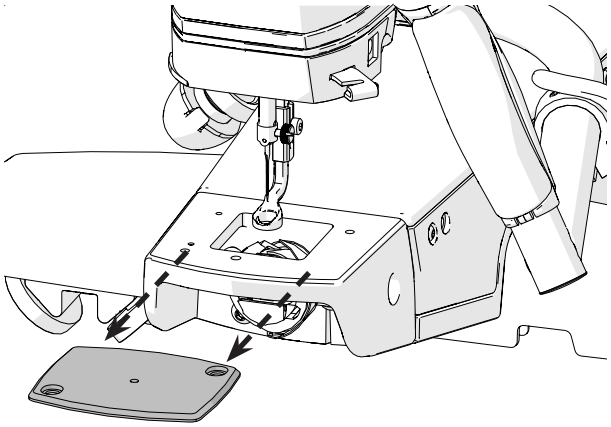
1. Power off the machine and raise the needle to the highest position using the **hand wheel**.



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



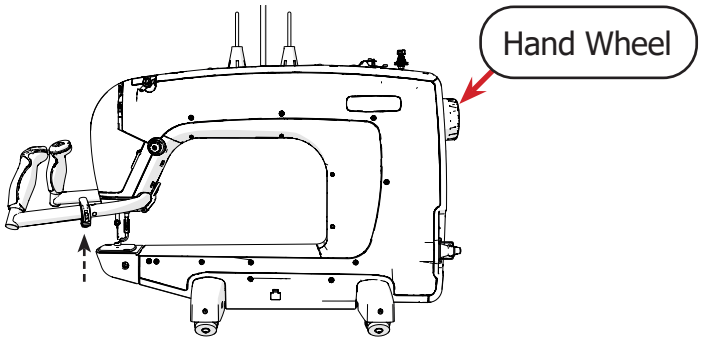
3. Slide the **needle plate** (shown in gray) from the machine.



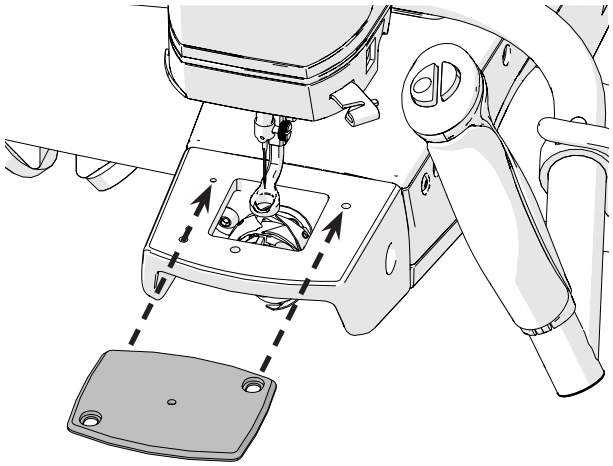
Installation Instructions

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

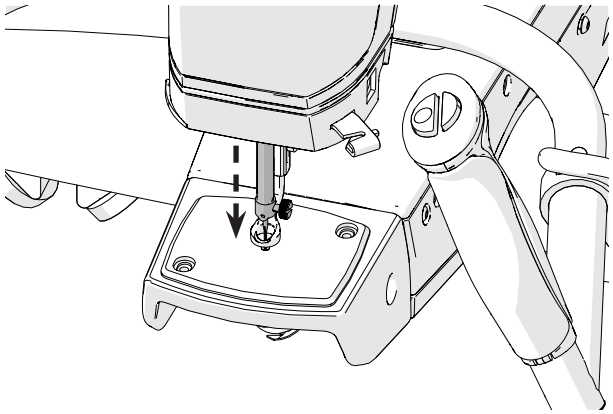
1. Power off the machine. Raise the needle to the highest position using the **hand wheel**.



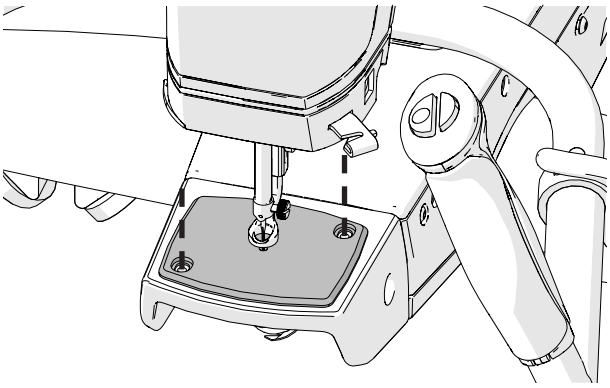
2. Slide the **needle plate** (shown in gray) onto the machine.



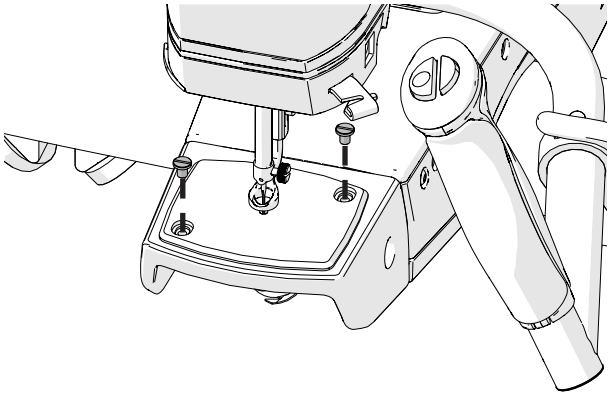
3. Slowly lower the needle with the hand wheel. The needle should slide into the center hole without contacting the needle plate.



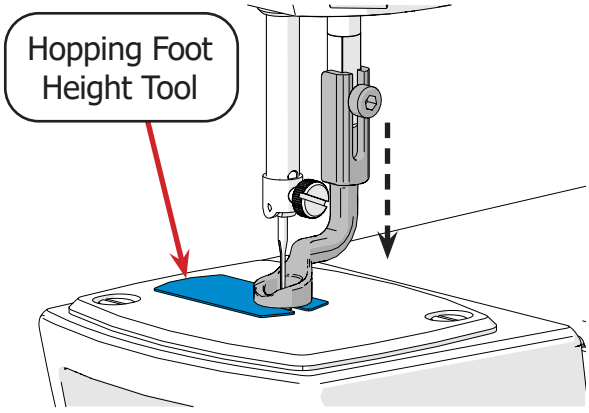
4. Align the screw holes on the needle plate with those on the machine.



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.



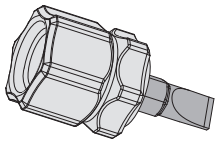
6. Use the **hopping foot height tool** to adjust the height of the hopping foot.



Reinstalling the Anti-Backlash Spring

Parts & Tools Needed:

Flat-head Screwdriver

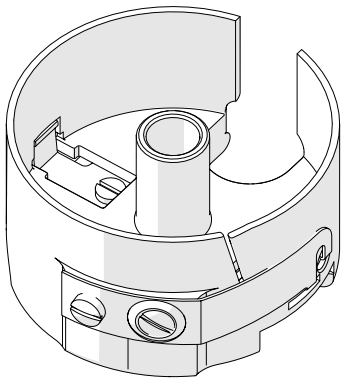


Tools Box

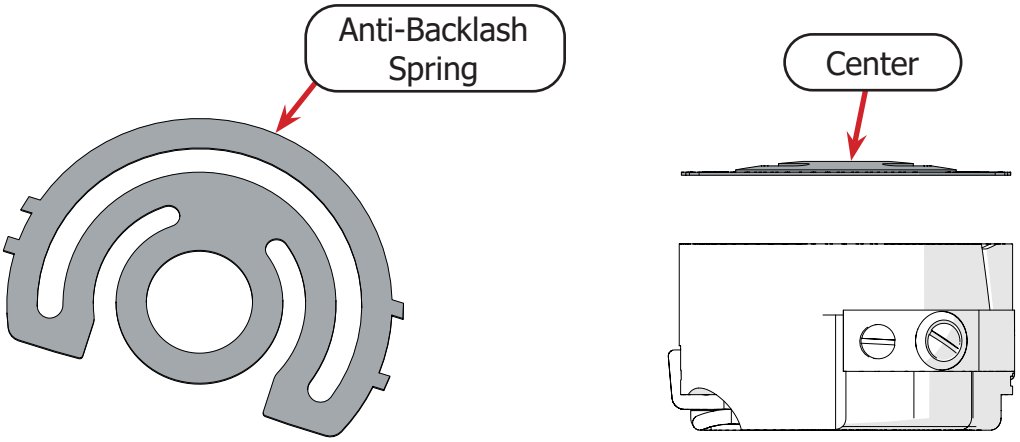
Instructions

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.

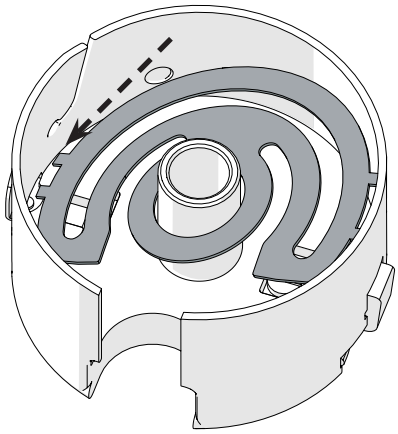


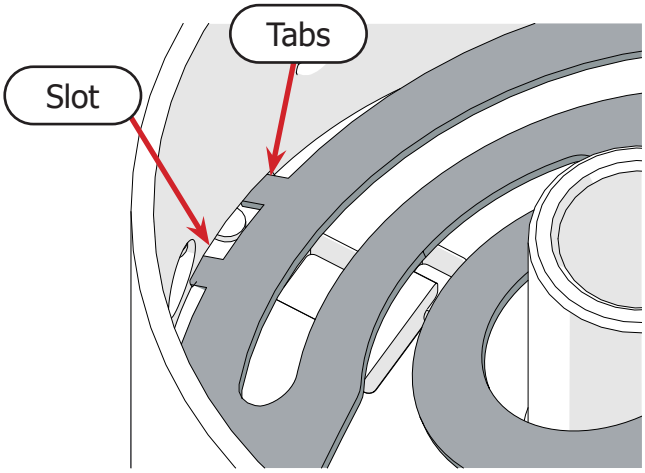
2. Position the **anti-backlash spring** so that the **center** section is raised above the edge of the spring.



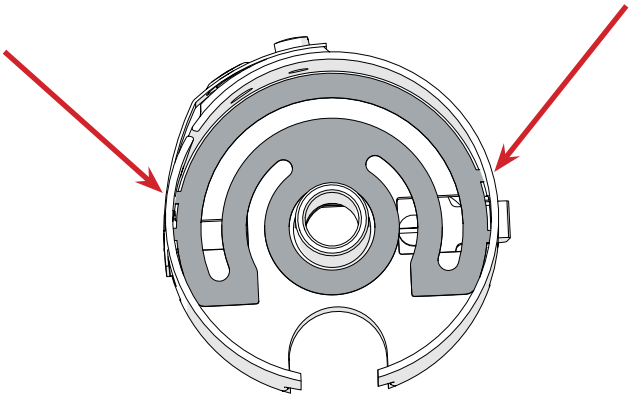
Reinstalling the Anti-Backlash Spring (continued)

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

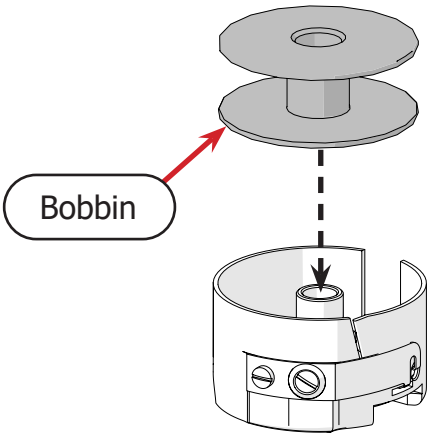


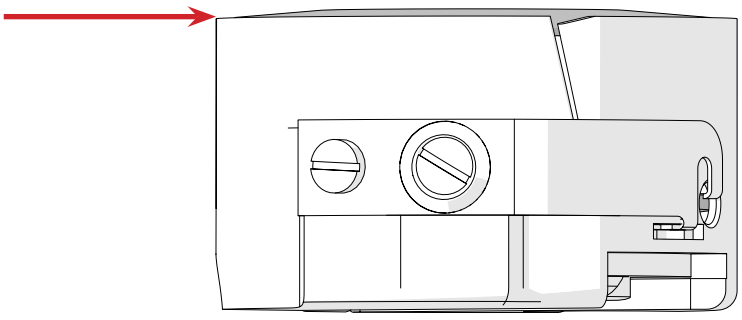


4 Press the other side of the spring down and insert the other tabs on the other side. Use the small flat-head screwdriver to make sure all four tabs are fully secured.



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:** (801) 485-6688
- **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.

Replacing the Encoder Spring .....page 83

Reinstalling the Hook Holder .....page 86

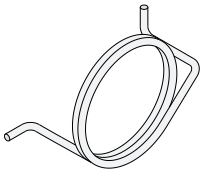
Timing the Machine .....page 89

Replacing the Encoder Spring

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

Parts & Tools Needed:

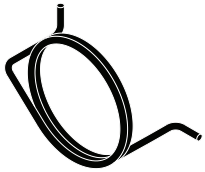
Upper Encoder Spring (Silver)



Enocer Box

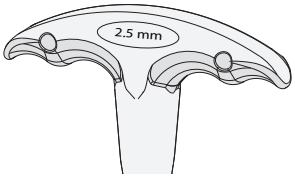
OR

Lower Encoder Spring (Black)



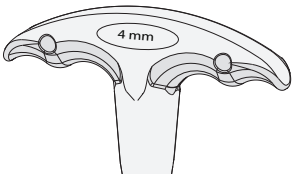
Encoder Box

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:

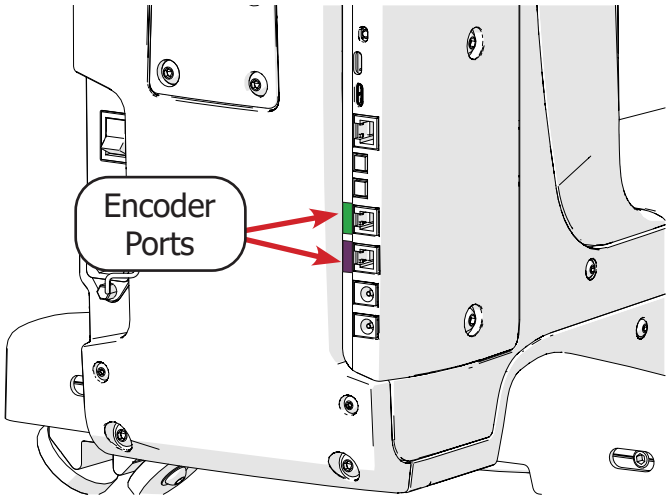


Upper Encoder: Attached to the wheel on the machine. Use the silver spring.

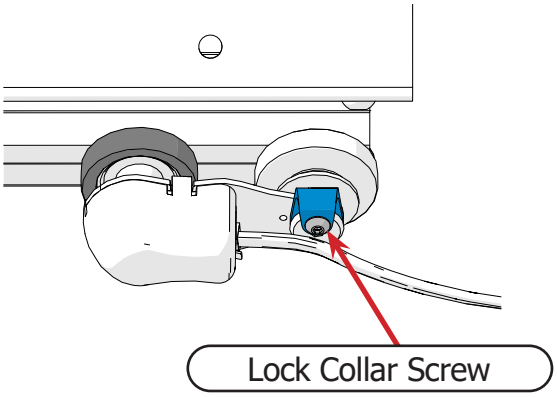


Lower Encoder: Attached to the wheel on the bottom carriage. Use the black spring.

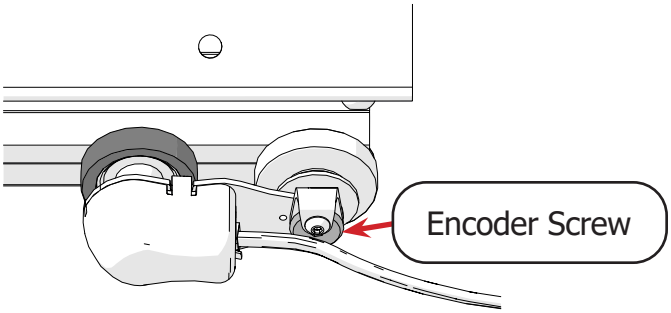
2. Unplug the encoder cable from the machine.



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

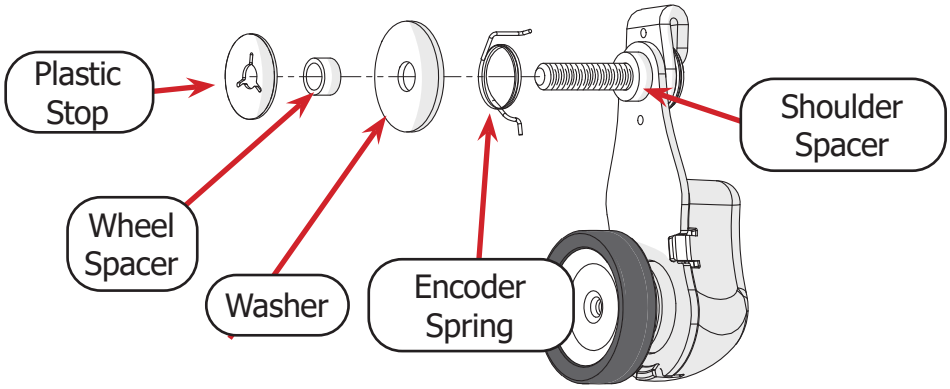


4. Use the 4mm Allen wrench to loosen the **encoder screw** and remove the encoder and wheel.

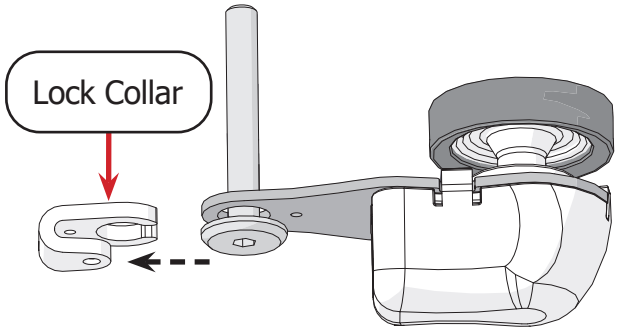


Replacing the Encoder Spring (continued)

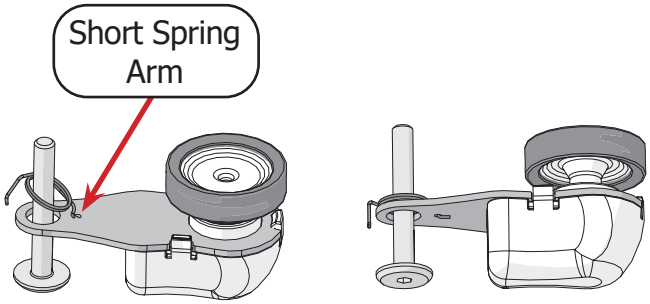
5 Remove the **plastic stop**, **wheel spacer**, **washer**, broken **encoder spring,** and **shoulder spacer** from the encoder.



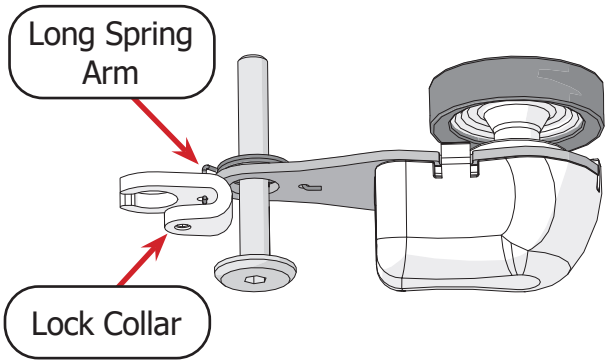
6 Pull on the **lock collar** to remove it from the encoder screw.



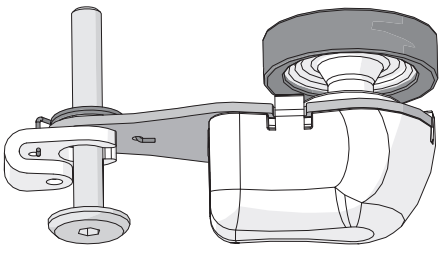
7 Place the replacement spring over the encoder screw, and insert the **short arm** of the spring all the way through the hole on the encoder base.



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

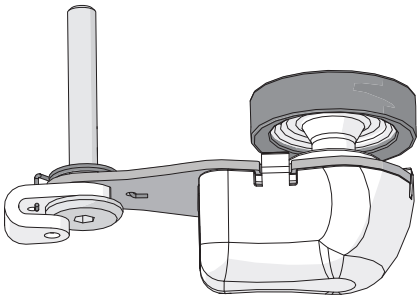


9 Without allowing the arm to slip out of the lock collar, rotate the collar until it wraps around the encoder bolt.

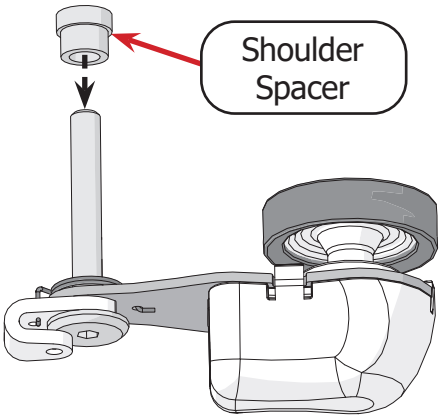


Replacing the Encoder Spring (continued)

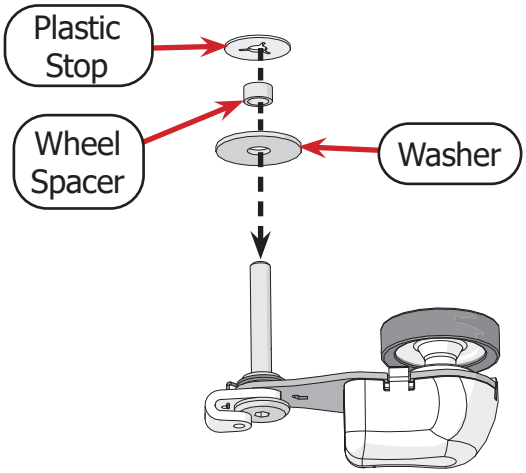
10 Adjust the screw and lock collar so the head of the screw slides in between the lock collar.



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.



13 Complete the assembly instructions for the encoder you repaired.



For the upper encoder (silver spring) assembly instructions, see page 22.



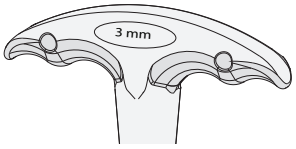
For the lower encoder (black spring) assembly instructions, see page 2.

Reinstalling the Hook Holder

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

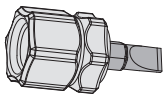
Parts & Tools Needed:

T-handle Allen Wrench 3 mm



Tools Box

Flat-head Screwdriver

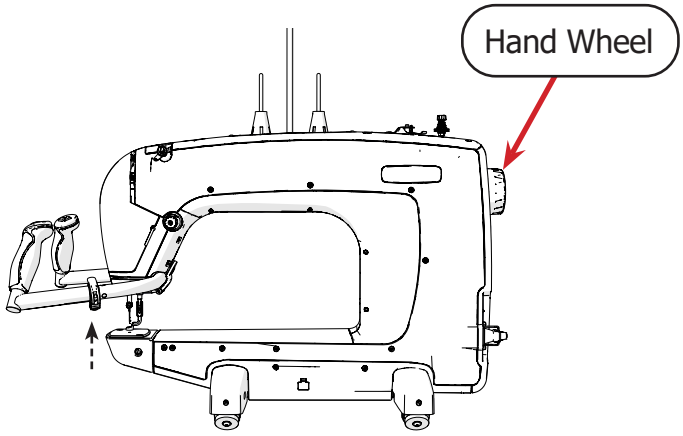


Tools Box

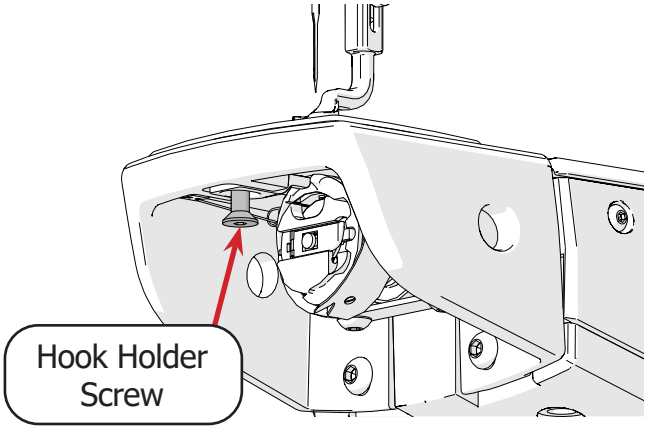
Removal Instructions

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.

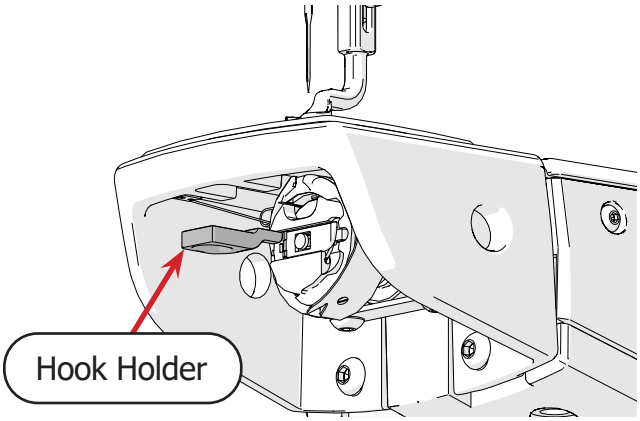
1. Power off the machine and raise the needle to the highest position using the **hand wheel**.



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



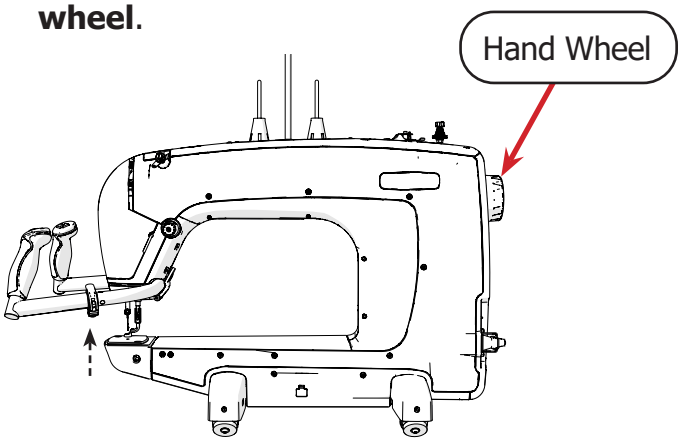
3. The **hook holder** will slide free of the machine.



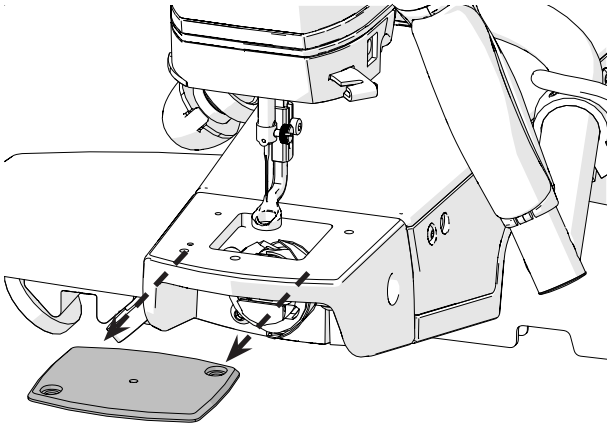
Reinstalling the Hook Holder (continued)

Installation Instructions

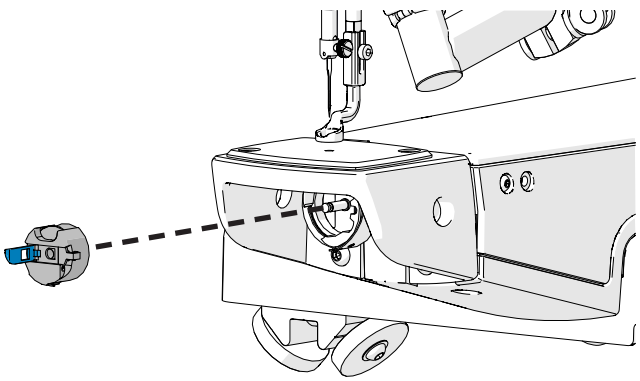
1. Power off the machine and raise the needle to the highest position using the **hand wheel**.



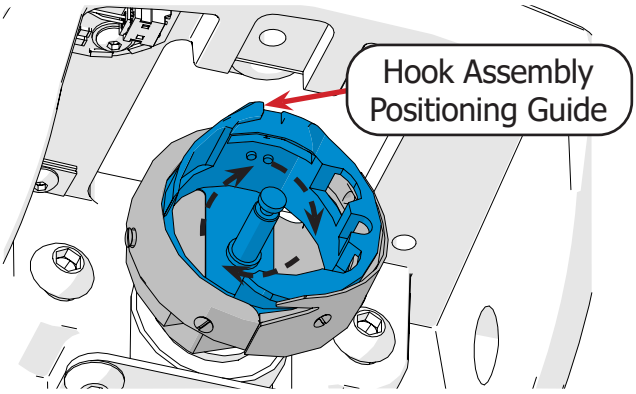
2. Remove the needle plate (see page 78).



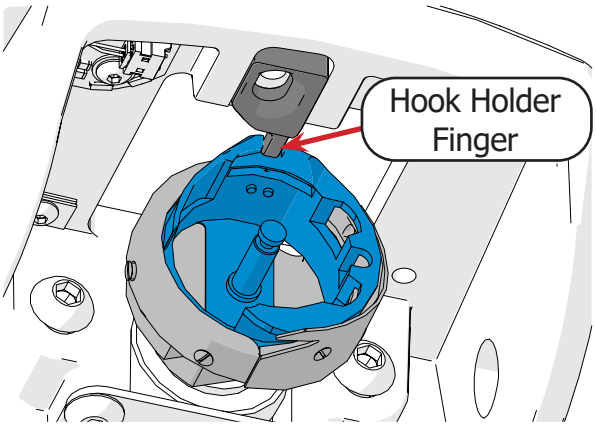
3. Remove the bobbin case from the hook assembly (see page 30).



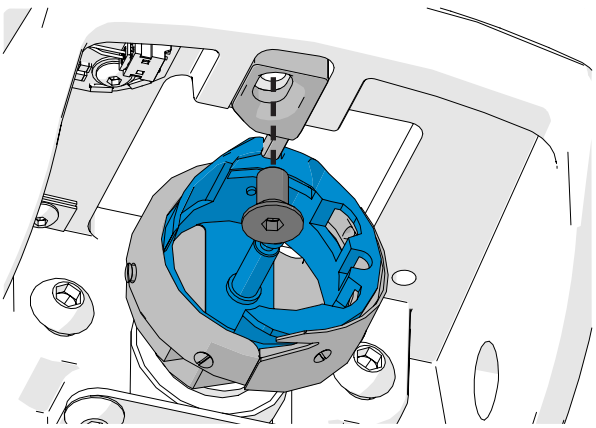
4. Turn the inside part of the **hook assembly** (shown in blue) so that the **positioning guide** is at the highest point.



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

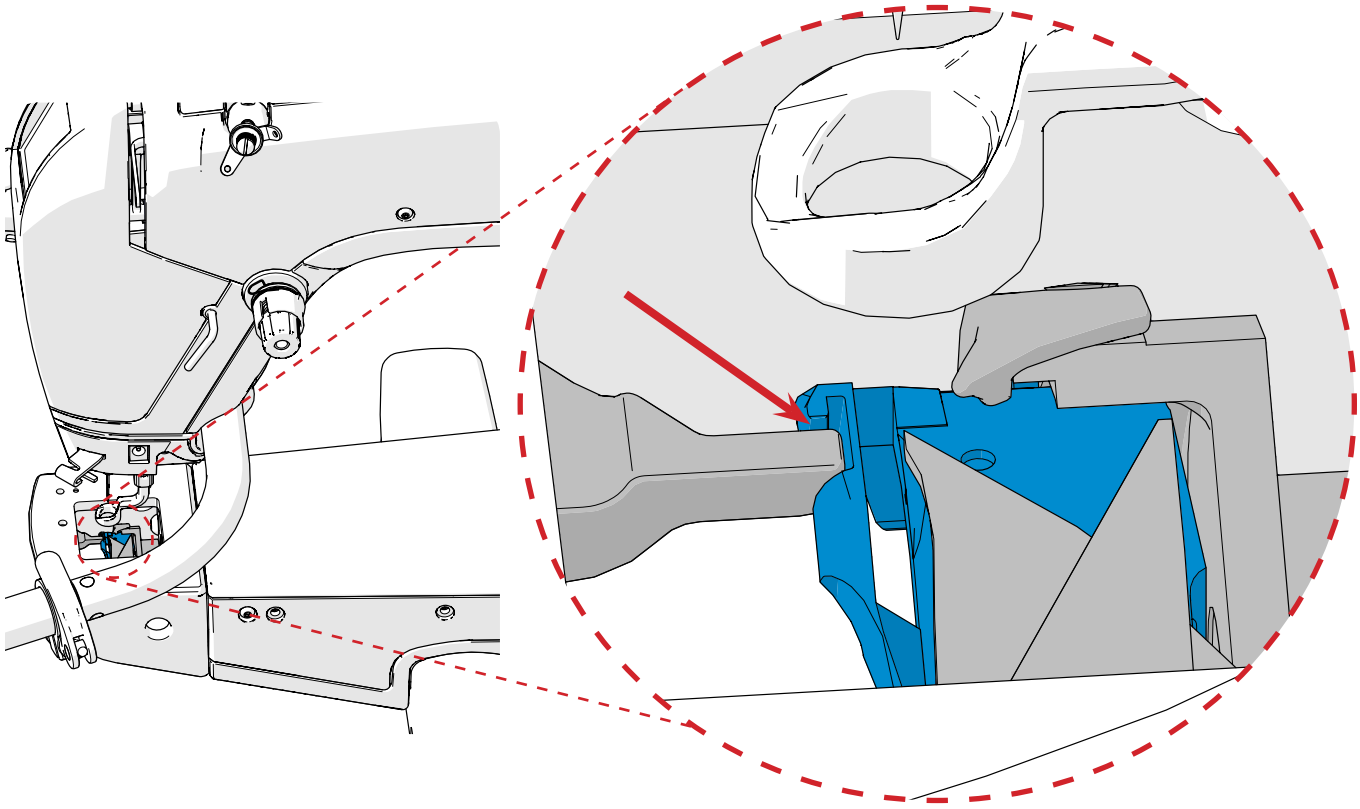


6. Attach loosely with the **hook holder screw**. Do not tighten.

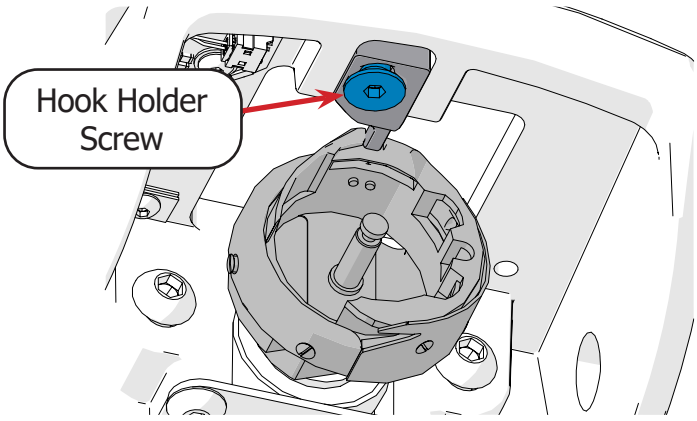


Reinstalling the Hook Holder (continued)

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

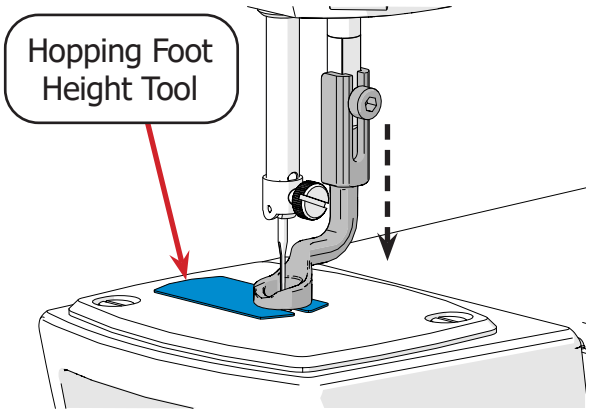


8 Tighten the hook holder screw to fasten the hook holder in place. The inside part of the hook assembly should no longer rotate freely by hand.



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

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

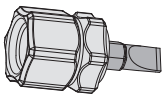


Timing the Machine

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

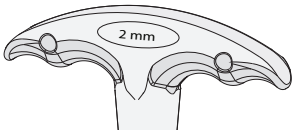
Parts & Tools Needed:

Flat-head Screwdriver



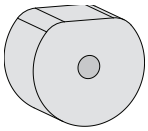
Tools Box

T-handle Allen Wrench 2 mm



Tools Box

Timing Spacer Tool

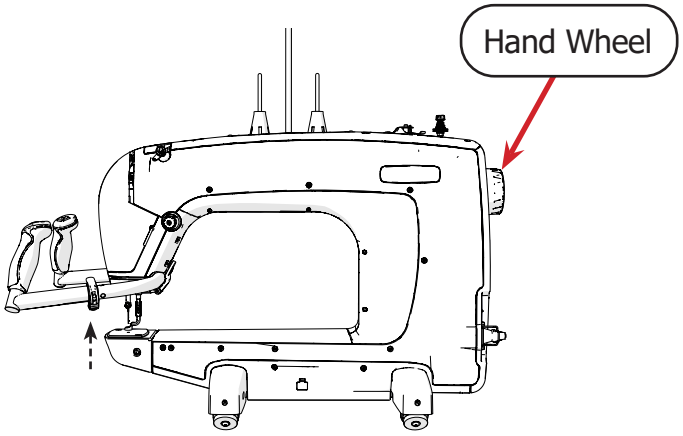


Tools Box

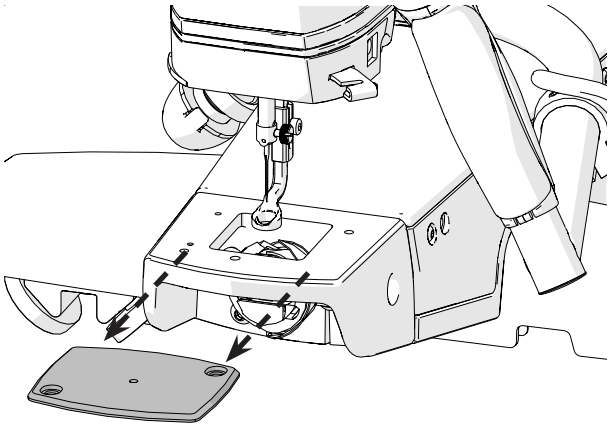
Instructions

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.

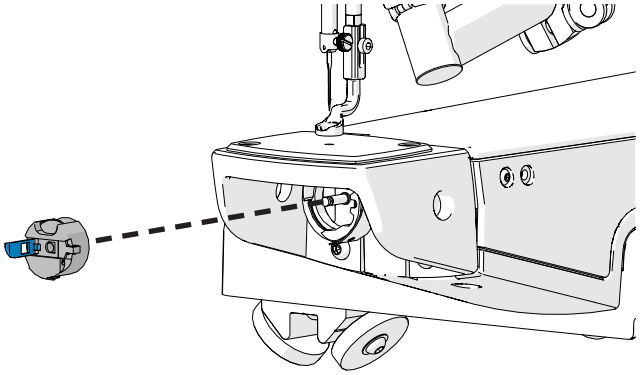
1. Power off the machine and raise the needle to the highest position using the **hand wheel**.



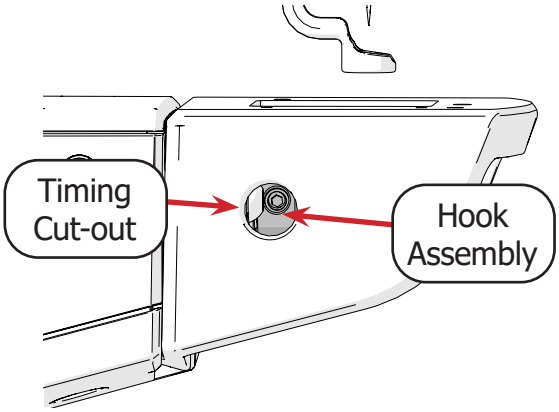
2. Remove the needle plate (see page 78).



3. Remove the bobbin case from the hook assembly (see page 30).

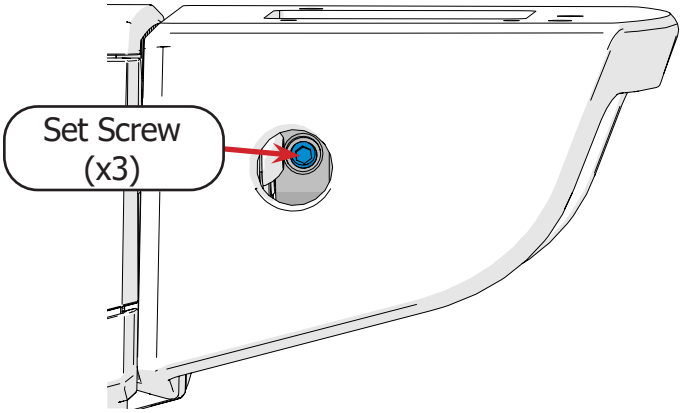


4. Look into the machine's **timing cut-out** and turn the hand wheel. The **hook assembly** will rotate.

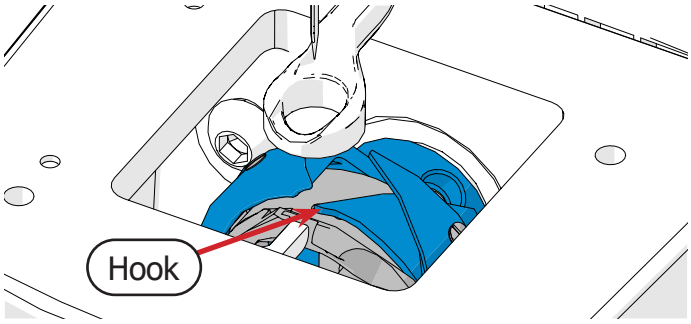


Timing the Machine (continued)

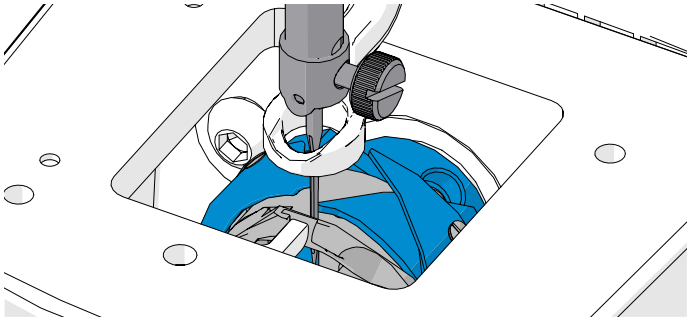
5 As each of the **3 set screws** aligns with the cut-out, loosen them with the 2 mm Allen wrench. DO NOT remove these screws.



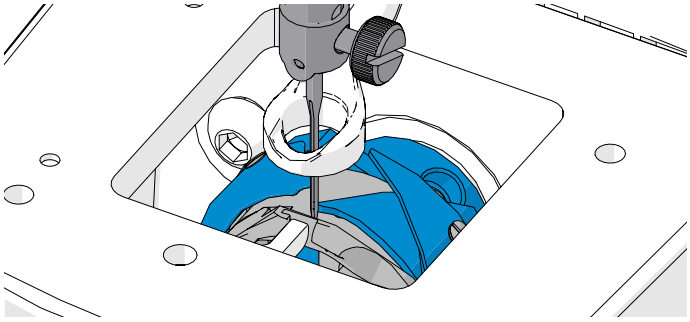
6 The **outside** part of the hook assembly (shown in blue) now rotates by hand. Turn the outside part of the hook assembly so that the **hook** is at the top.



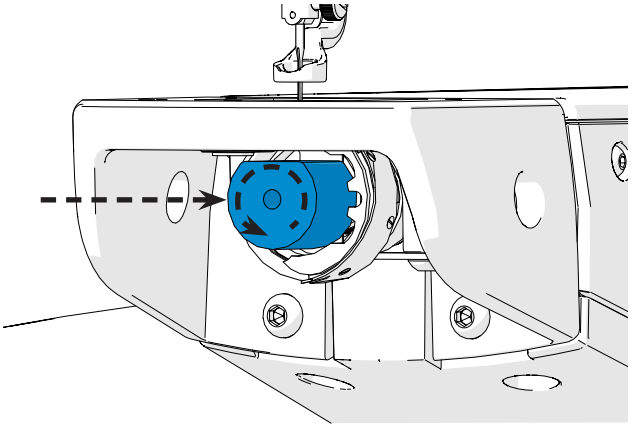
7 Carefully rotate the hand wheel to drop the **needle** (shown in gray) all the way to the lowest point. Continue rotating the hand wheel the same direction. The **needle** should begin to raise up.



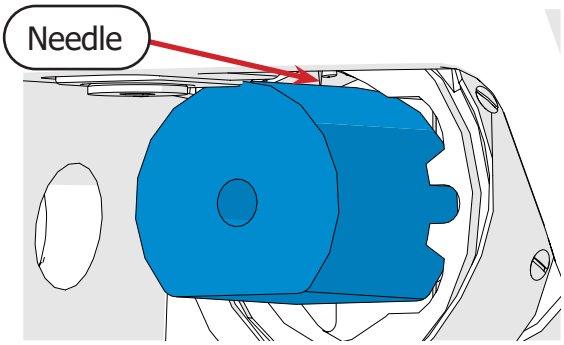
8 Stop raising the needle once the eye is about level with the **hook** (shown in blue). Do not continue to raise the needle. If the needle reaches the top of its rotation (over the hopping foot), start over at step 7.



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.

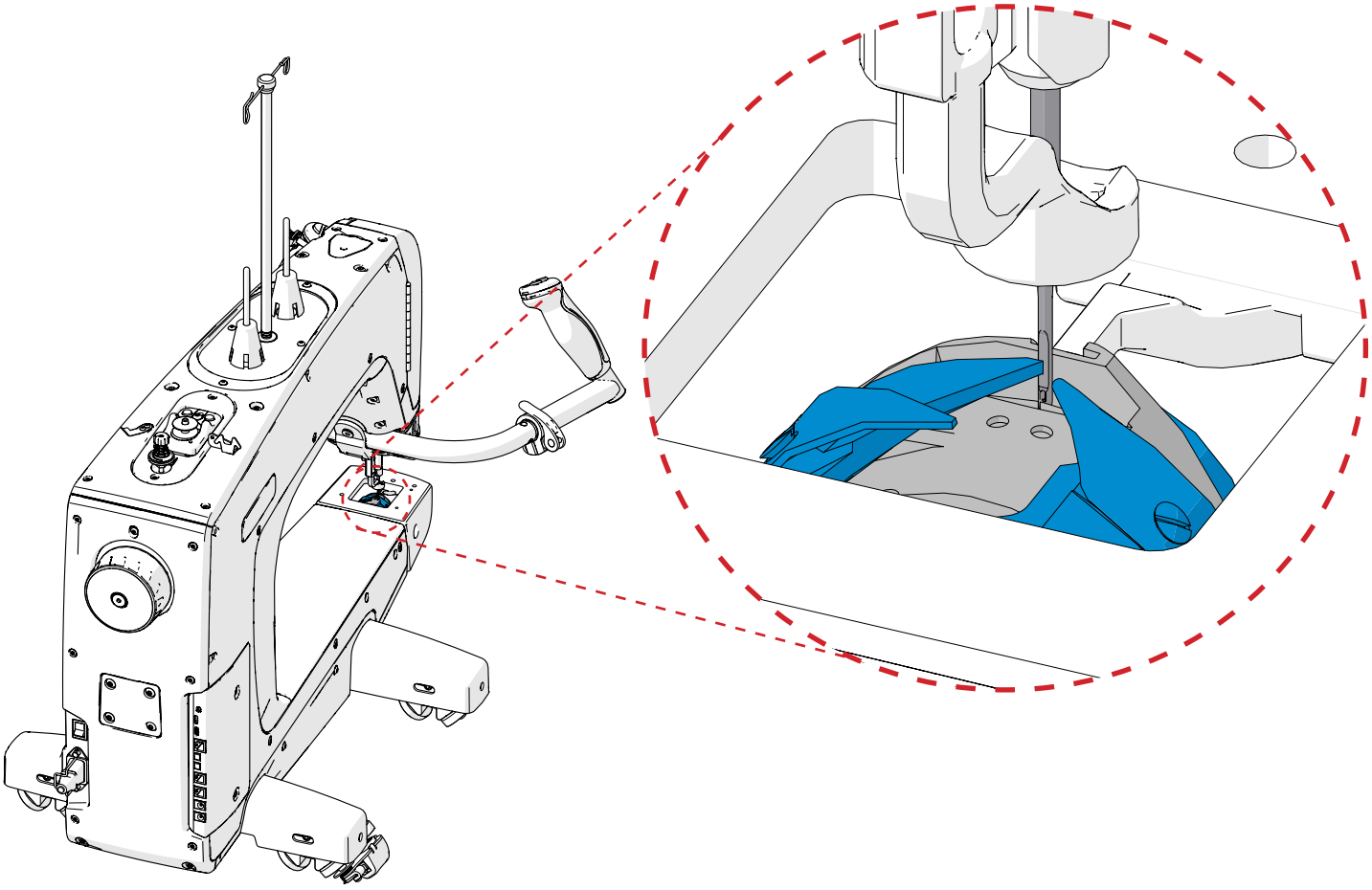


10 Turn the hand wheel the opposite direction to bring the **needle** back down until it rests on top of the **timing spacer**. Do not let the **needle** rise to the top before bringing it back down or you will need to repeat steps 7-10.



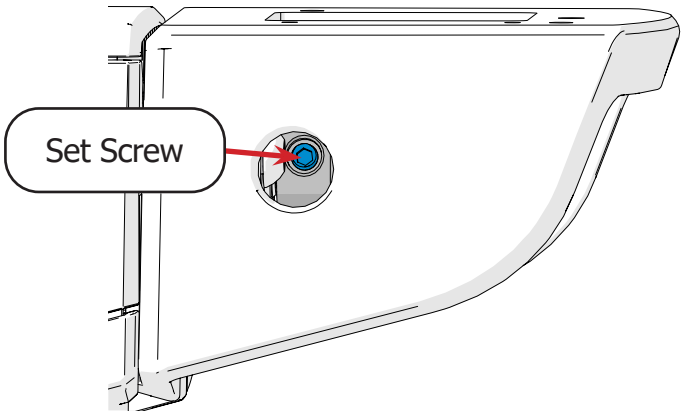
Timing the Machine (continued)

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.



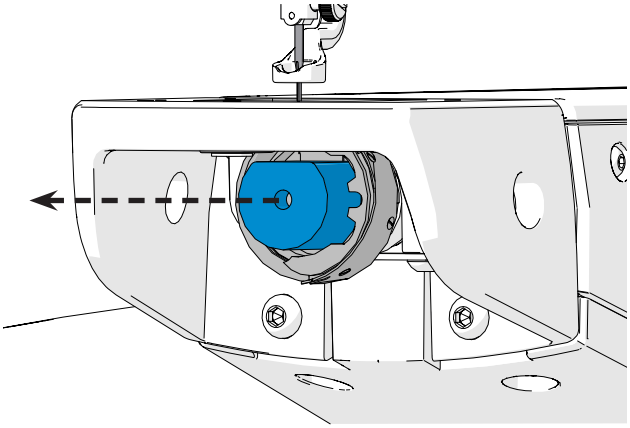
12 Pull the hook assembly toward the front of the machine until the hook is as close to the needle as possible without touching

13 Use the 2 mm Allen wrench to tighten one of the three **set screws** through the timing cut-out window on the left.



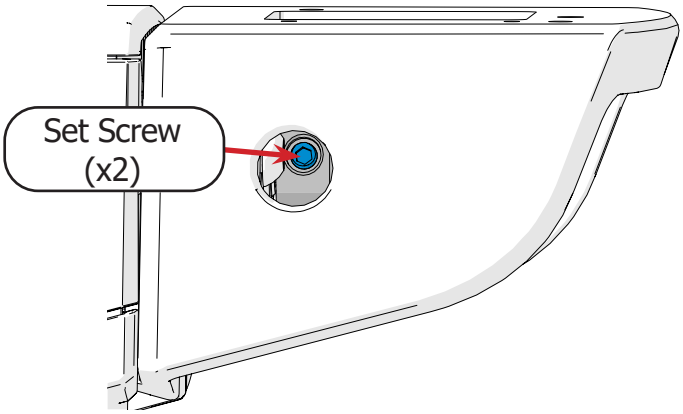
Timing the Machine (continued)

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 30).

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 94**

Choosing your Thread ..... **page 96**

Choosing Your Fabric and Batting ..... **page 99**

Adjusting the Bobbin Winder ..... **page 100**

Troubleshooting Guide ..... **page 102**

Index ..... **page 104**

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:

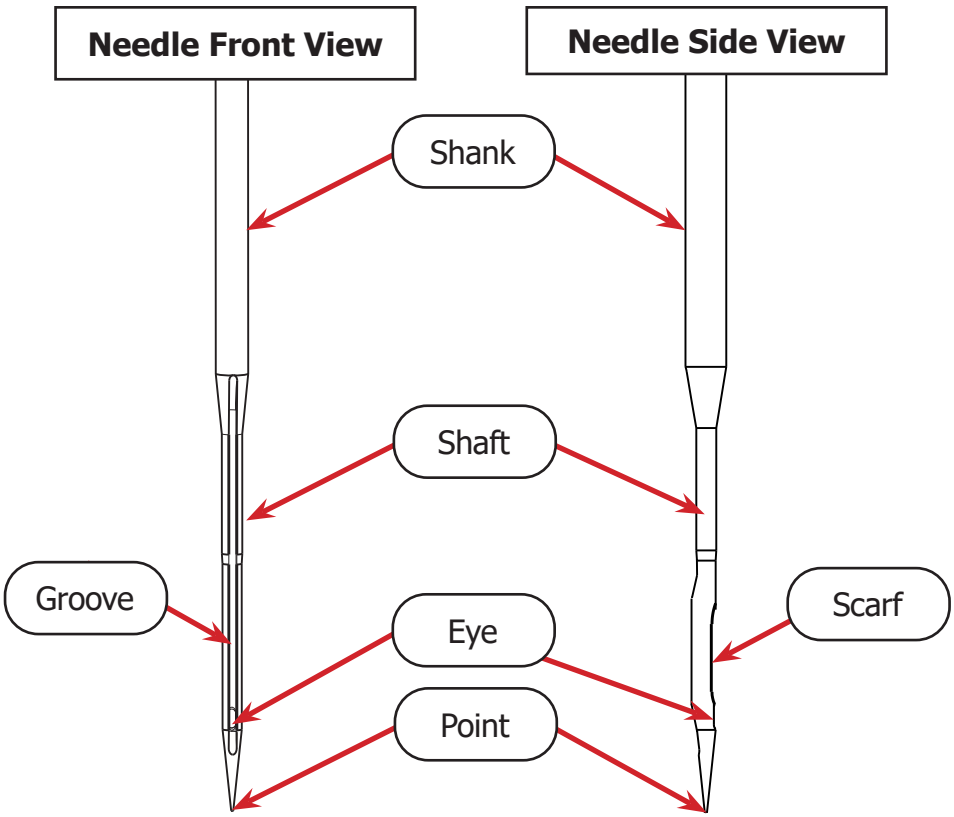
- DPX5 MR
- 134 MR
- 1955 MR

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	• mono-filament • 100 wt. silk • 60 wt. polyester
16 / 100	• mono-filament • 60 wt. polyester or cotton • 50 wt. cotton
18 / 110	• 50 wt. polyester • 40 wt. cottons and polyester • 30 wt. cotton and polyester
20 / 125	• 30 wt. or heavier of any thread

Needle Diagram



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

Choosing Your Thread

Choosing the best thread for your project is just as important as choosing the correct needle. Good thread is strong and can pass the "Yank Test" (see "Task 9 - Threading the Machine" on page 32). 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 9 - Threading the Machine" on page 32).
- 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	• Cotton • Linen • Rayon
Polyester	• Knit or Stretch • Woven synthetic
Silk	• Silk • Wool • Basting thread for all fabrics

Thread Size

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

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

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

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

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

Thread Processing

Sometimes thread is processed to change its properties. The chart below lists the processes common to cotton and polyester. No extra processing or treatments are typical for silk.

Thread Type	Processing
Cotton	• **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	• **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

3283 Snow White	3293 Charcoal	2979 Rainbow	2989 Prism	2999 Cherry Blossom	3009 Deep Forest Green
3284 Pearl White	3294 Midnight Blue	2980 Sunny Spring Day	2990 Tropical Sunset	3000 Candy Apple	3010 Vintage Turquoise
3285 Light Wool	3295 Obsidian	2981 Strawberry Lemonade	2991 Aurora Lights	3001 Pomegranate	3011 Seaside Teal
3286 Ice Blue	3296 Marigold	2982 Pastels	2992 Mango Salad	3002 Dusk Rose	3012 Ocean Wave
3287 Pink Rose	3297 Leafy Green	2983 Raspberry Ice	2993 Camp Fire	3003 Cotton Candy	3013 Bright Blue Sky
3288 Lilac	3298 Blue Sapphire	2984 Circus Tent	2994 Mountain Jungle	3004 Tangerine Punch	3014 Lavender Blossom
3289 Light Sand	3299 Magenta	2985 Twilight Pink	2995 Desert Flower	3005 Grapefruit	3015 Amethyst
3290 Thicket Brown	3300 Amber	2986 Mauve Orchid	2996 Primary School	3006 Lemon Zest	3016 Mountain Mist
3291 Desert Tan	3301 Royal Purple	2987 Blueberries	2997 Mojito	3007 Light Spearmint	3017 Riverbed Slate
3292 Smokey Quartz	3302 Ruby Red	2988 King of Atlantis	2998 Florence	3008 Green Tea	3018 Canyon Shale

Choosing Your Fabric and Batting

Fabric

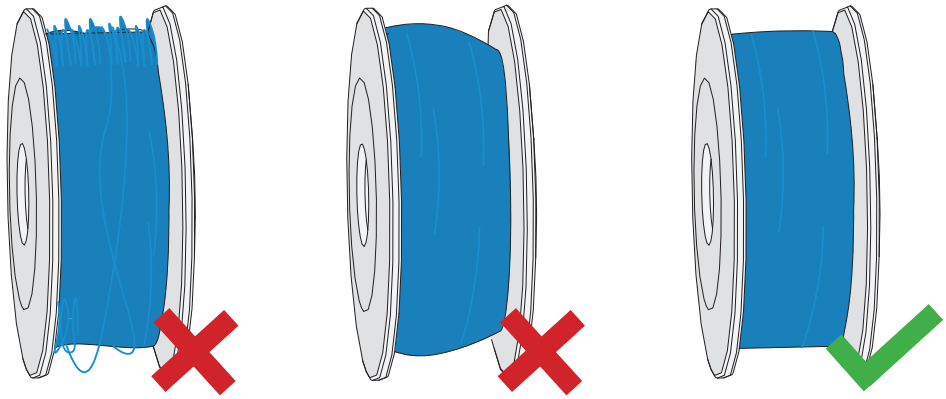
Some fabrics are not recommended for use with the quilting machine. Thick fabrics, such as denim or leather, have a lot of resistance that can bend or snap a needle, and misalign or break internal machinery. When quilting, avoid any fabrics that are difficult to pierce, and take care that the fabric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

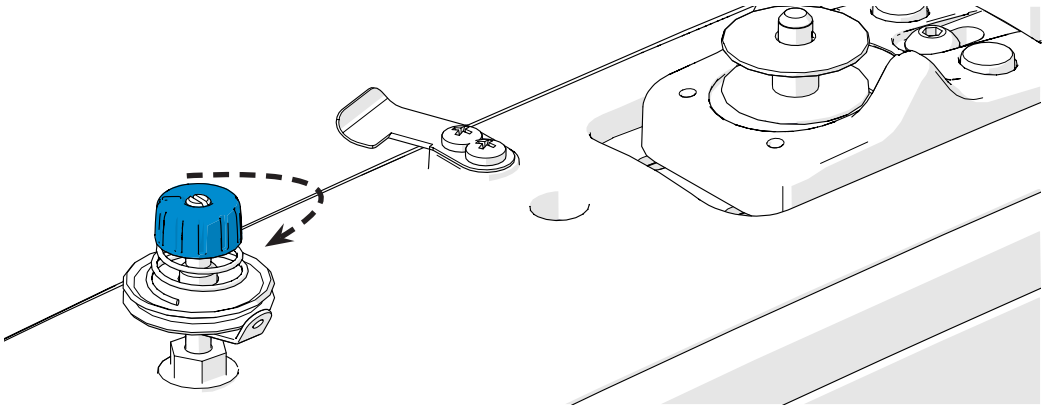
Adjusting the Bobbin Winder

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



Bobbin Wound Too Loose

The tension of the bobbin wind is determined by the bobbin thread tensioner. Turn the knob one full rotation clockwise and re-test the bobbin wind. Repeat until the bobbin wind is tight and smooth.



Bobbin is Filling to One Side

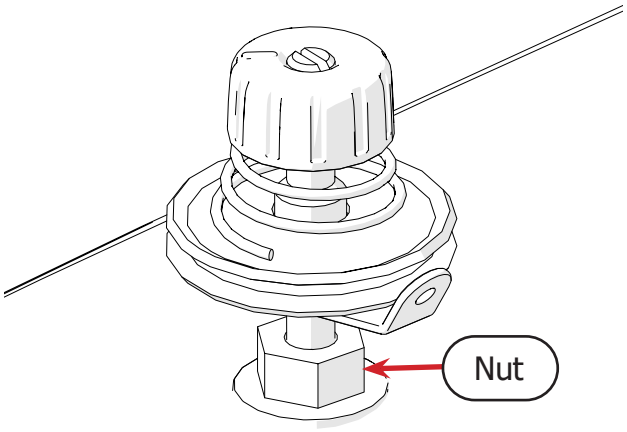
If the bobbin is filling to one side, the bobbin thread tensioner is positioned incorrectly and will need to be adjusted.

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

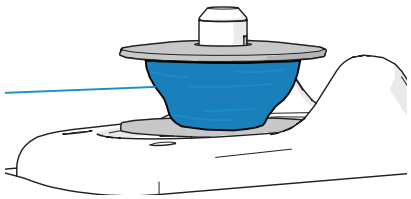


Adjusting the Bobbin Winder (continued)

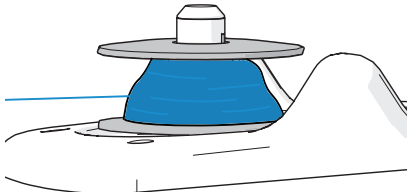
2 Unthread the bobbin thread tensioner. With a 7 mm wrench or needle-nose pliers, loosen the **nut** at the base of the tensioner.



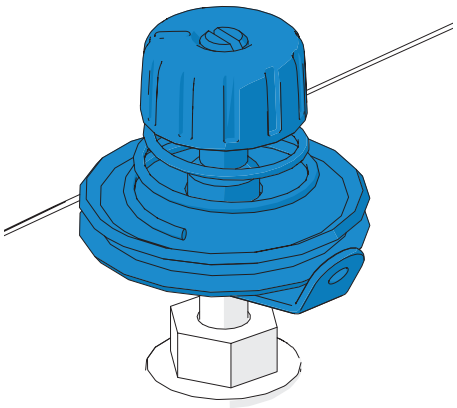
3 Turn the top part of the tensioner assembly (shown in blue) a full rotation to adjust the height of the tension discs.



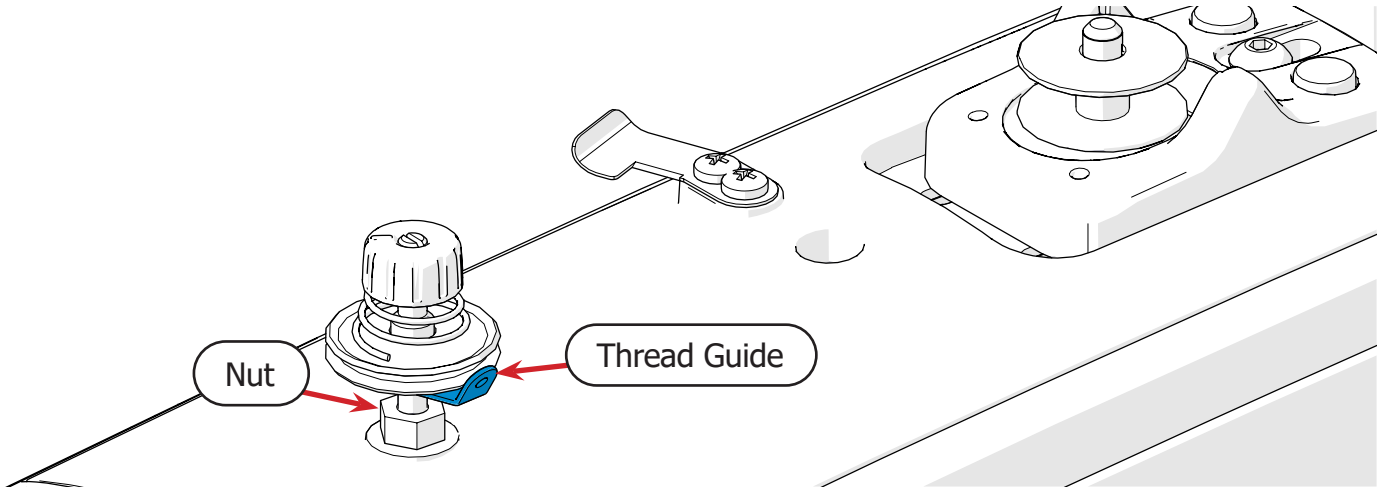
If the bobbin is filling more toward the top, turn the tensioner one full rotation clockwise and re-test.



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



4 Once the bobbin is filling correctly, re-tighten the **nut**. Make sure the **thread guide** is on the correct side of the tensioner assembly.



Troubleshooting Guide

Issue	Cause(s)	Solution
Machine won't turn on.	Loose cables	Check that all cables are securely plugged in (page 24).
	Machine is not turned on	Check power button is pressed down on right side (page 24).
	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 32).
	Bobbin wound or threaded incorrectly	Check that the bobbin was inserted the correct direction in the case (page 30).
	Incorrect thread tension	Adjust top thread tension (page 57). Adjust bottom thread tension (page 27).
	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 57). Adjust bottom thread tension (page 27).
	Machine improperly threaded	Check guides and tensioners for accidental double-wrapping (page 32).
	Stitching in place too long	Keep machine moving to avoid stitch build-up in one place, or switch to regulated precise quilting mode (page 45).

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 30).
	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 27).
	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 27).
	Machine improperly threaded	Check that all tensioners and guides were threaded (page 32).
	Incorrect thread tension	Adjust top thread tension (page 57). Adjust bottom thread tension (page 27).
	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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