Make It You

Grace 19 SD



Assembly & Use

Grace COMPANY

Copyright February 4, 2026

Version 1.0

SD190

My Machine Details

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

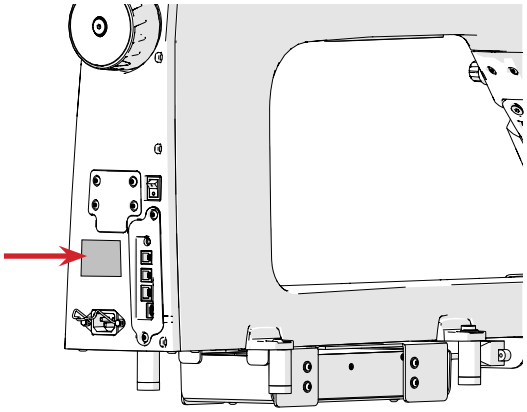
Machine: Grace 19 Sit-Down

Date of Purchase: _____

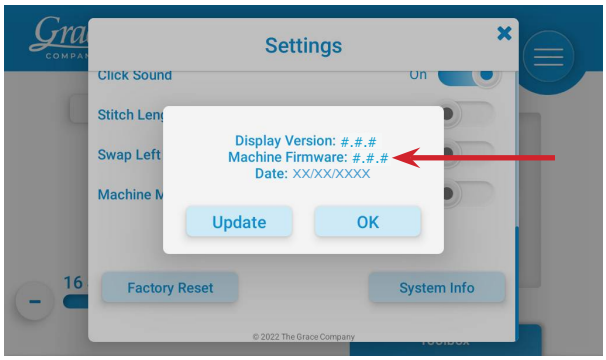
Serial Number: _____

Accessories You Own:

- ☐ Magnifique Magnifying Glass
- ☐ Quilt Perfect Ruler Kit
- ☐ 360 Wonderfoot
- ☐ 3-Piece Q'nique Hopping Foot Set
- ☐ 9-Piece Foot Attachment Set
- ☐ Horizontal Spool Holder
- ☐ Super Glide Foot



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



If you call for support, a technician might ask about your machine's firmware version. You can find this on the display after the machine is assembled and turned on. See "Check the Firmware" on page 86 for details.

Save these instructions.

Do not discard box or packaging.

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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 the use of the appliance 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 performed by children without supervision.
- Use this machine only for its intended purpose and use as described in this manual. Use only attachments recommended by the manufacturer as contained within this manual.
- Never operate this machine if it has a damaged cord or plug, it is not working properly, or it has been dropped, damaged, or dropped into water. Return the machine to the nearest authorized dealer or service center for examination, repair, or electrical or mechanical adjustment.
- Never operate the machine with any air openings blocked. Keep ventilation openings of the machine freed 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 the 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 the cord. Always switch off or unplug the appliance when leaving it unattended.
- Do not unplug by pulling on the cord. To unplug, grasp the plug, not the cord.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- Keep fingers away from all moving parts. Special care is required around the machine needle.
- Always use the proper needle plate. The wrong plate can cause the needle to break.
- Do not use bent or damaged needles.
- Switch the machine off when making any adjustments in the needle area, such as threading the needle, changing the needle, installing the hopping foot, etc.
- Always unplug the machine from the electrical outlet when removing covers, lubricating, or when making any other user servicing adjustments mentioned in the instruction manual.
- **CAUTION:** In order to avoid a hazard due to inadvertent resetting of the thermal cut-out, this appliance must not be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility.

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

These instructions indicate how the quilting machine is intended to be used and how to install the machine.

GROUNDING INSTRUCTIONS

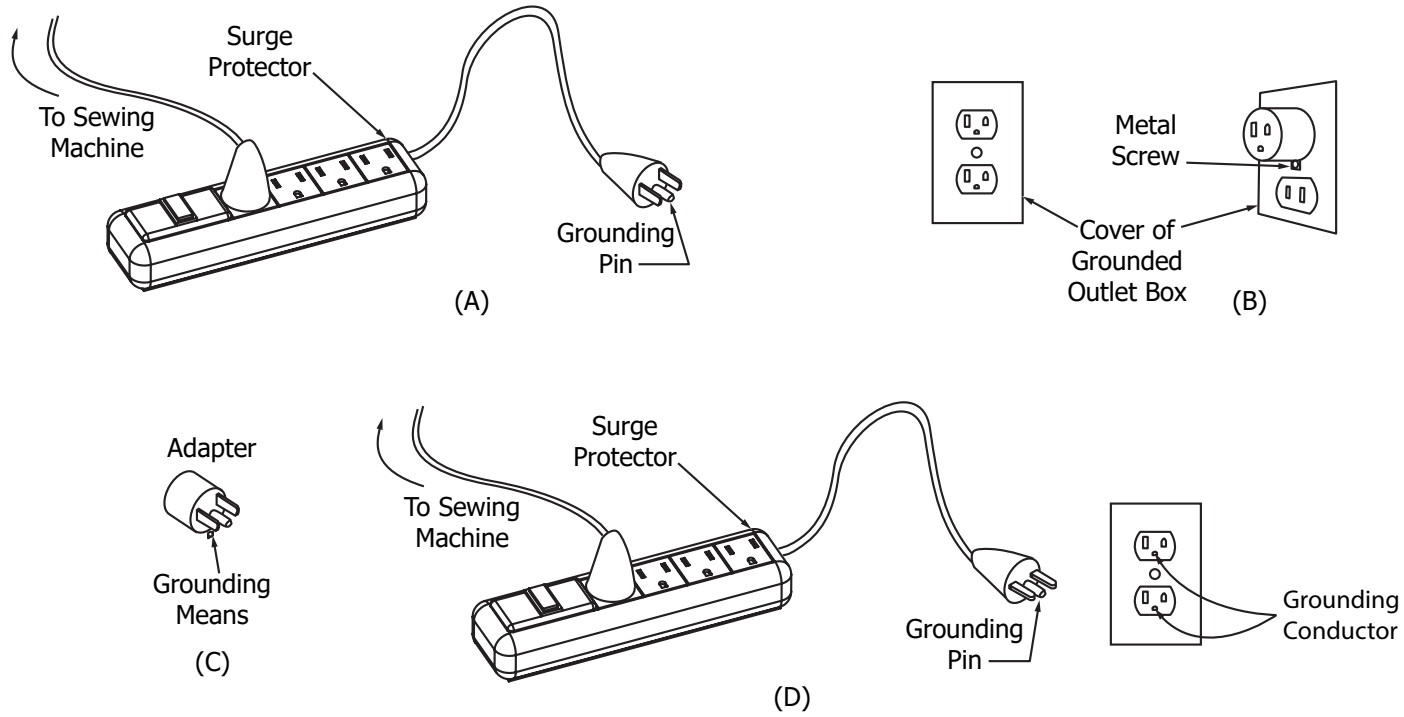
This product must be grounded. In the event of malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with a cord that has an equipment-grounding conductor and a grounding plug. Plug the cord from the 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 service person 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 below (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.

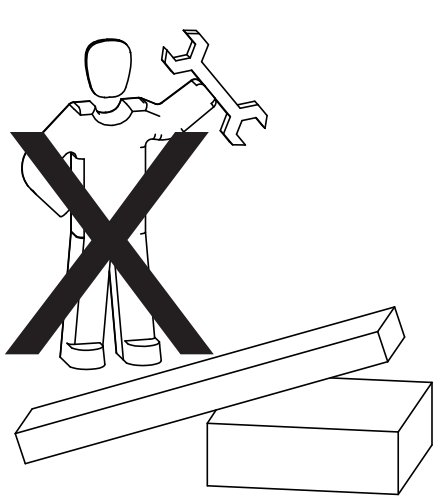
Warranty Information

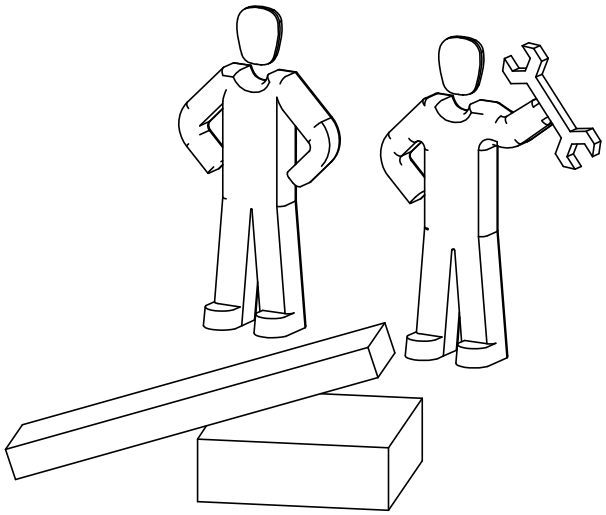
The Grace 19 quilting machine has a two-year limited warranty on all parts and a five-year limited warranty on its cast metal body. The table has a one-year limited warranty. Under these warranties, Grace Company will, at its discretion, repair or replace any part(s) with material or manufacturing defects. The customer is required to return the products 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 the following link:

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







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Product Specifications

Patent Information:
https://graceframe.com/ip

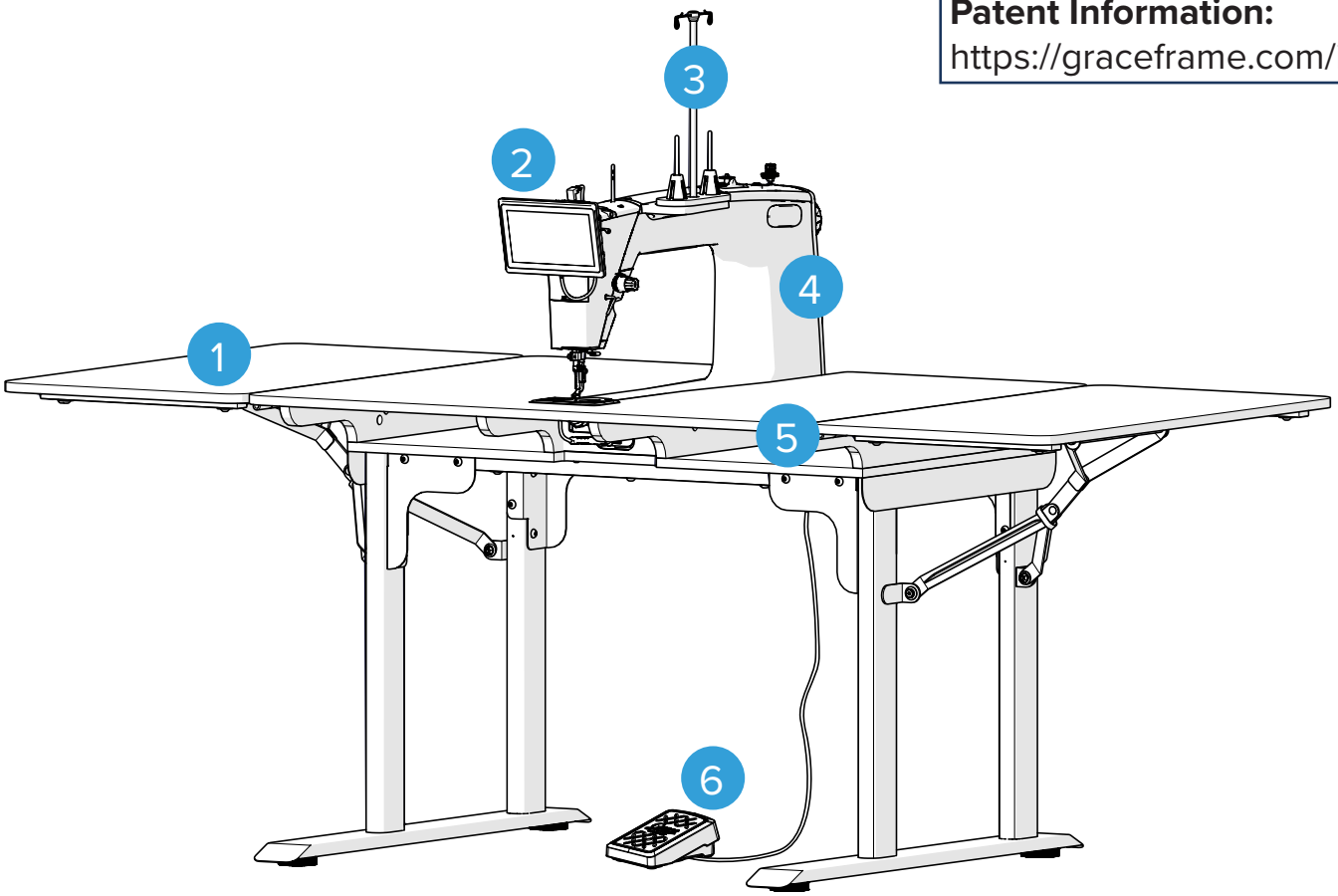


Table Dimensions:

- Width with leaves: 196.85 cm, or 77.5 inches
- Width without leaves: 105.41 cm, or 41.5 inches
- Depth: 88.26 cm, or 34.75 inches
- Height: 74.93 cm, or 29.5 inches
- Leaf width: 45.72 cm, or 18 inches

Machine Dimensions:

Body:

- Height: 714.14 mm, or 28.12 inches
- Width: 172 mm, or 6.77 inches
- Length: 713.15 mm, or 28.94 inches
- Weight: 19.7 kg, or 43.5 lbs

Quilting Arm:

- Height: 224.8 mm, or 8.9 inches
- Length: 482.6 mm, or 19 inches

Electrical:

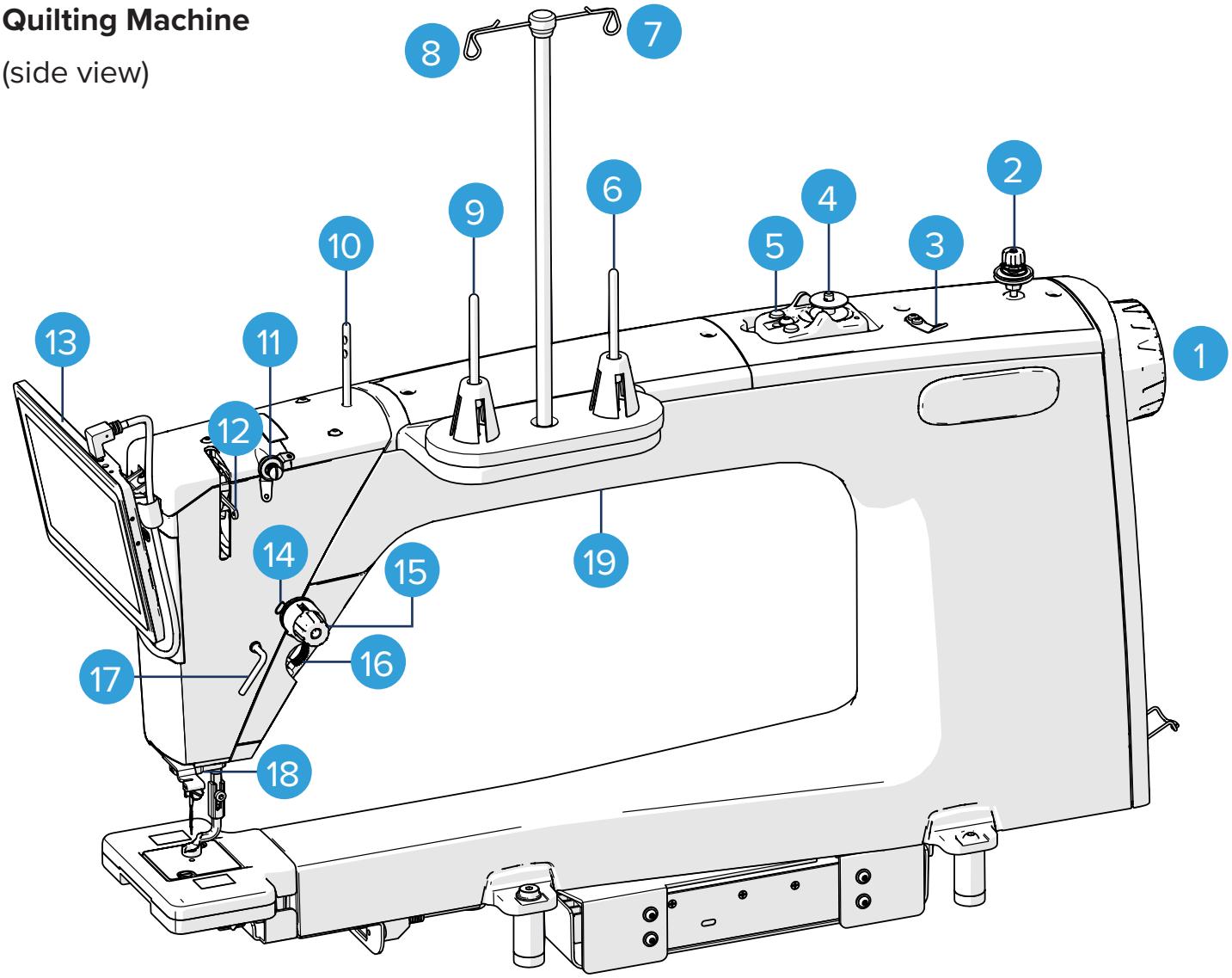
- Input Voltage: 110-220 VAC
- Peak Power Consumption: 450 W

Features:

1. Foldable leaves for extra space
2. 7-inch Touch Display
3. Dual thread mast and stands for quilting and winding bobbins at the same time
4. Grace 19SD Quilting Machine
5. Grace 19 Sit-Down Table
6. Foot pedal
- Stitches per minute (SPM): 90–2,600

Quilting Machine

(side view)



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

2 **Bobbin Thread Tensioner** (page 30)
Tensions thread when winding a bobbin.

3 **Bobbin Winder Cutter** (page 30)
Cuts wound bobbin thread.

4 **Bobbin Stand** (page 30)
Holds the bobbin for winding.

5 **Bobbin Winder Buttons** (page 30)
Starts and stops bobbin winding.

6 **Bobbin Thread Stand** (page 30)
Holds a cone of thread for winding bobbin.

7 **Thread Mast Bobbin Guide Loop** (page 30)
Guides the thread when quilting.

8 **Thread Mast Guide Loop** (page 37)
Guides the thread when quilting.

9 **Top Thread Stand** (page 37)
Holds a thread cone for threading machine.

10 **Thread Guide Rod** (page 37)
Positions the thread when quilting.

11 **Small Thread Tensioner** (page 37)
Tensions the thread when quilting.

12 **Take-Up Lever** (page 37)
Tensions the thread when quilting.

13 **7-Inch Touch Display** (page 22)
Provides access to quilting options.

14 **Tensioner Check Spring** (page 36)
Applies additional tension to thread.

15 **Large Thread Tensioner** (page 36)
Tensions thread as adjusted when quilting.

16 **Handle Bar Clamp**
Used to adjust handlebar position (frame quilting only).

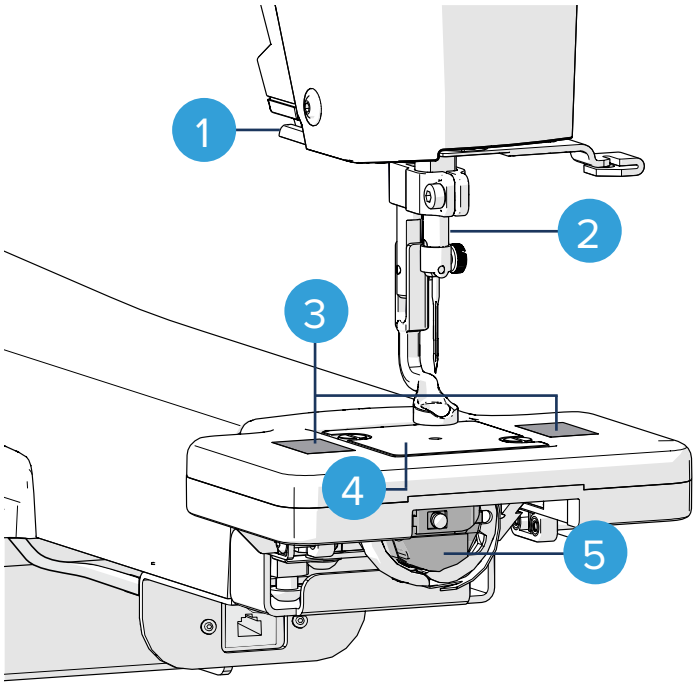
17 **Thread Guide** (page 37)
Positions the thread when quilting.

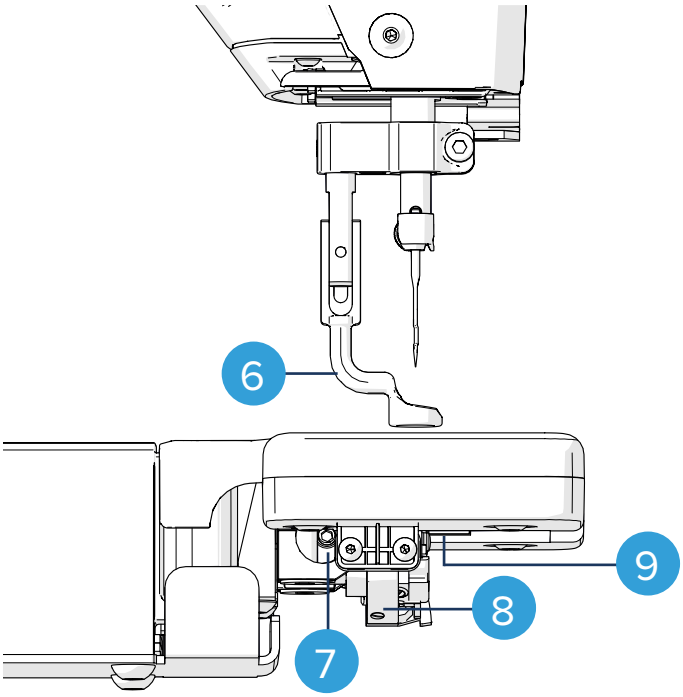
18 **Lamp**
Lights up the needle area.

19 **Throat Lights**
Lights up the quilt surface under the throat.

Quilting Machine

(needle area views)





1 **Thread Cutter** (page 37)
Cuts excess thread.

2 **Needle Bar** (page 75)
Holds the needle.

3 **Fabric Sensors** (page 55)
Senses fabric movement when quilting.

4 **Needle Plate** (page 83)
Covers the top of the hook assembly.

5 **Bobbin Case** (page 33)
Holds the M-class bobbin and tensions the bottom thread.

6 **Hopping Foot** (page 77)
Presses the fabric down when quilting.

7 **Timing Cutout**
Accesses the hook assembly set screws.

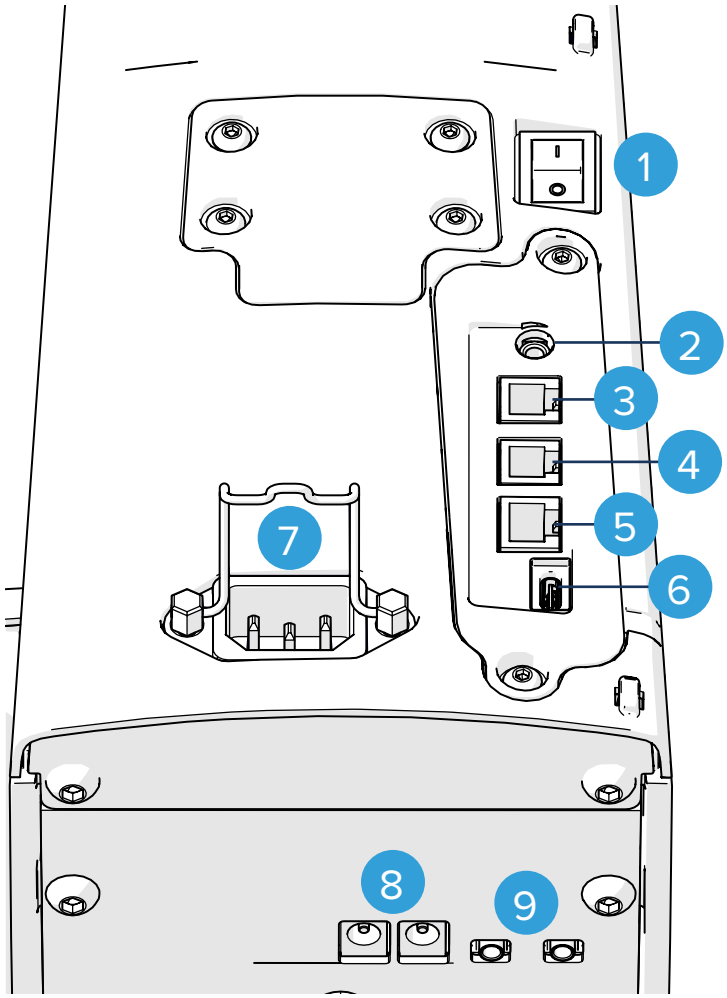
8 **Hook Assembly** (page 33)
Holds the bobbin case and hooks the top thread to create stitches.

9 **Bobbin Light**
Lights up the hook assembly area.

Ports & Plugs

Quilting Machine Back

(underside view)



1 **Power On/Off Switch** (page 26)
Turns the machine on and off.

2 **Foot Pedal Port** (page 25)
For plugging in the foot pedal.

3 **Lower Encoder Port**
Connects the bottom carriage encoder to the machine (frame-quilting only).

4 **Upper Encoder Port**
Connects the machine encoder to the machine (frame-quilting only).

5 **Quilter's Creative Touch / QuiltMotion Tablet Port**
For automation accessory (frame-quilting only).

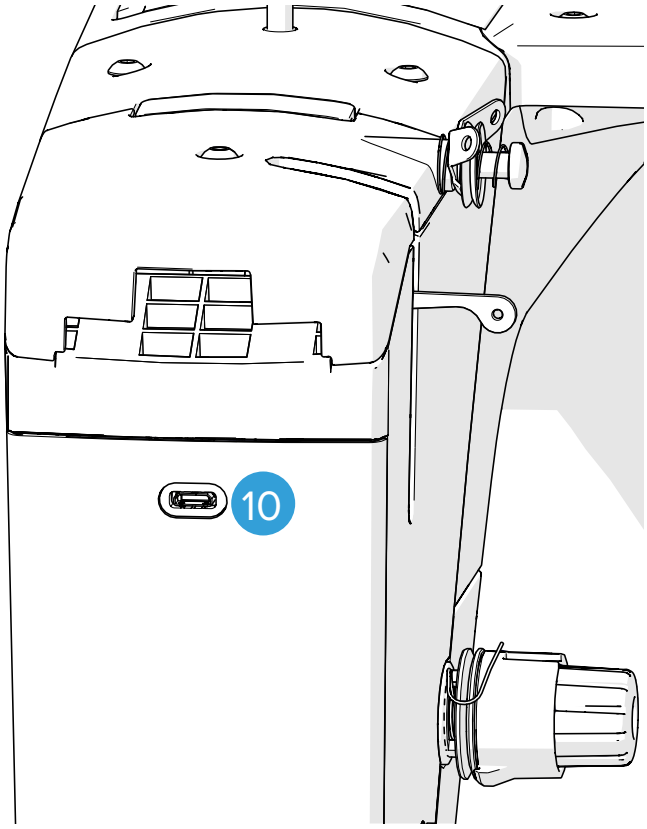
6 **USB-C Connector Port**
For updating the machine firmware.

7 **Power Port with Cable Retainer** (page 26)
Connects and holds the power cord to the machine.

8 **Laser Accessory Ports**
For the Q'nique Laser accessory.

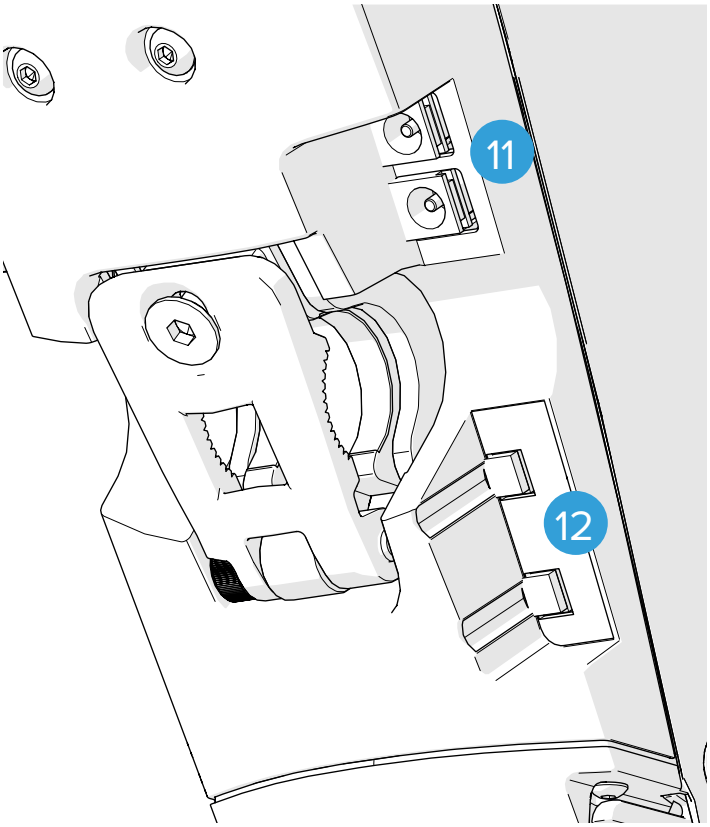
9 **Back Handle Ports**
For the accessory back handles (frame-quilting only).

Quilting Machine Front



10 **Display Cable Port** (page 22)
Connects the display cable to the machine.

Quilting Machine Throat (Back)



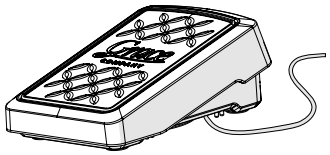
11 **Laser Accessory Ports**
For the Q'nique Laser accessory.

12 **Handlebar Ports**
Connects the handlebars to the machine (frame-quilting only).

Included Parts & Tools

Box 1 (Level One)

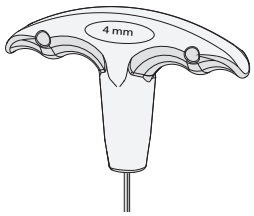
Foot Pedal



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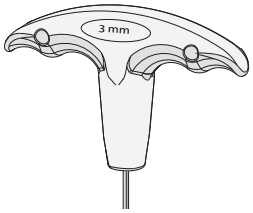
Tools Box

T-handle Allen Wrench 4 mm



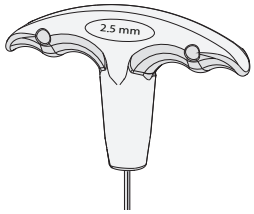
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T-handle Allen Wrench 3 mm



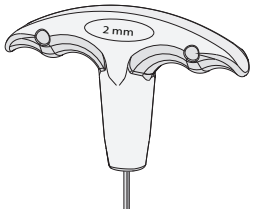
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T-handle Allen Wrench 2.5 mm



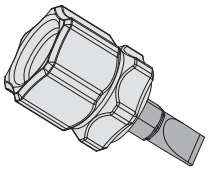
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T-handle Allen Wrench 2 mm



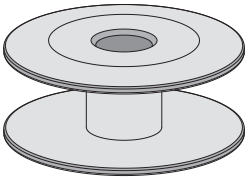
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Flat-head Screwdriver



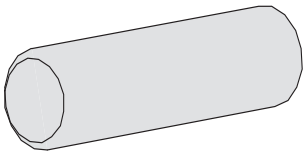
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M-Class Bobbin



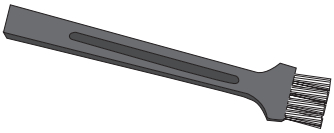
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Needle Magnet



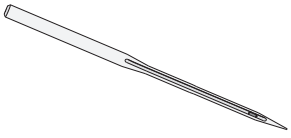
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Lint Brush



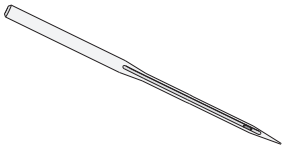
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Needle - Size 18 (one 10-pack)



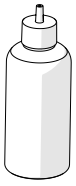
ACC-01-18213
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Needle - Size 16 (one 10-pack)



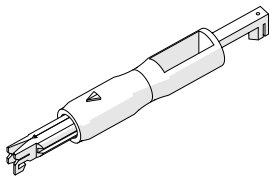
ACC-01-18214
See page 94

Oil Bottle



SMP-09-13888
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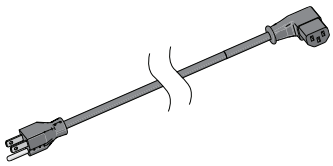
Needle Threader



SMP-08-17904
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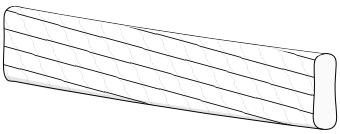
Installation Box

Power Cord



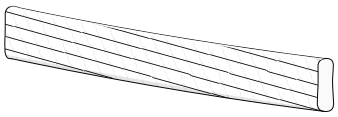
SMP-02-14466
See page 26

Thread Net 10 cm (3.9 inch)



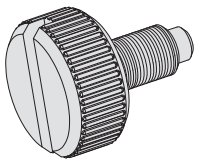
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Thread Net 14 cm (5.5 inch)



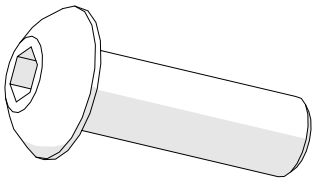
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See page 29

M3 Thumb Screw
(needle bar spare)



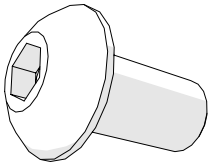
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See page 75

SBHCS M5 x 16 mm (x2)



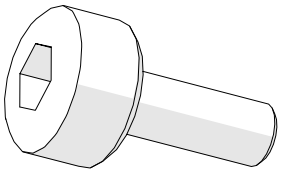
HDW-03-10857
See page 22

SBHCS M4 x 8 mm (x2)



HDW-03-10175
See page 24

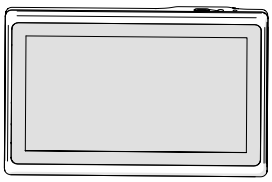
Hopping Foot Screw
(spare)



HDW-03-10966
See page 20

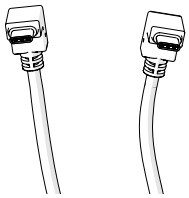
Display Box

7-Inch Display Assembly



SMP-09-18807
See page 22

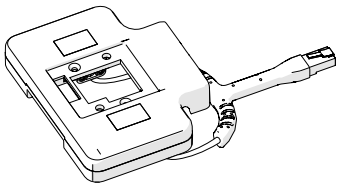
Display Cable



SMP-02-18854
See page 22

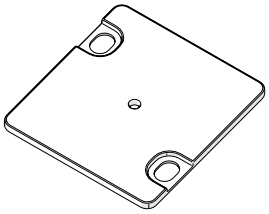
Fabric Sensor Box

Fabric Sensor Assembly



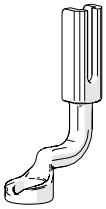
SMP-09-24738
See page 14

Needle Plate



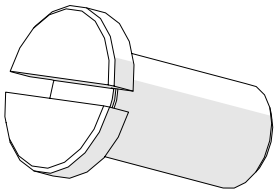
SMP-04-24762
See page 14

Standard Hopping Foot



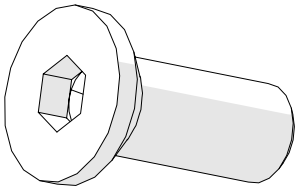
SMP-04-10057
See page 20

Needle Plate Screw M5 x 10 mm (x2)



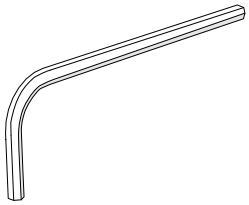
HDW-03-24799
See page 14

Socket FHS M3 x 8 mm (x2)



HDW-03-10224
See page 14

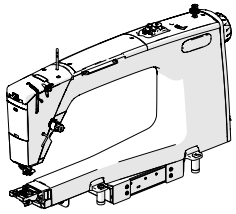
Allen Wrench 2 mm



HDW-03-11030
See page 14

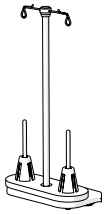
Box 1 (Level Two)

Machine Body



SMP-09-24745
See page 14

Thread Stand Assembly



SMP-09-16405
See page 24

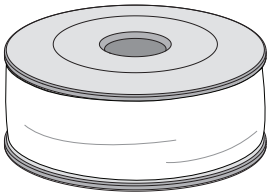
Training Panel Box

Quilting Machine Training Panel



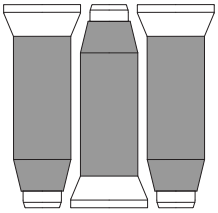
SMP-07-17303

M-Class Bobbin (pre-wound, x2)



See page 33

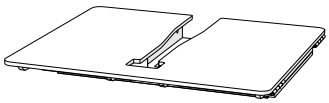
Finesse Thread Sample Cones (x3)



NOT-01-16071
See page 36

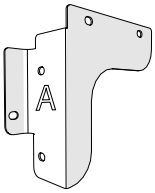
Box 2

Table Top



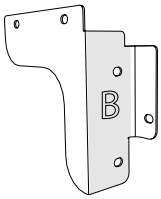
SMP-09-24885
See page 2

Table Bracket A (x2)



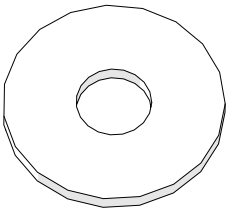
SMP-04-24869
See page 2

Table Bracket B (x2)



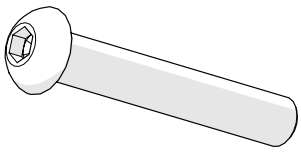
SMP-04-24870
See page 2

Washer M8 (x4)



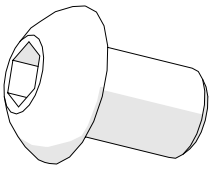
HDW-03-25179
See page 2

SBHCS M8 x 55 mm (x4)



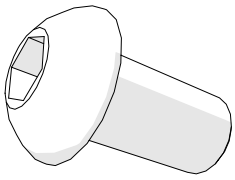
HDW-03-10726
See page 2

SBHCS M8 x 12 mm (x20)



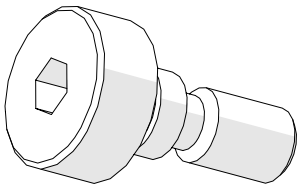
HDW-03-11054
See page 2

SBHCS M6 x 12 mm (x16)



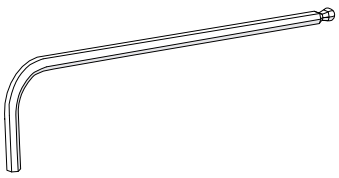
HDW-03-10744
See page 10

Shoulder Bolt M6 7 x 5 mm (x4)



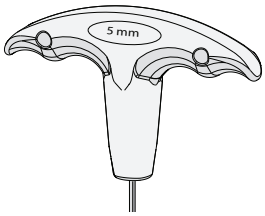
HDW-03-24939
See page 10

Ball End Allen Wrench 4 mm



HDW-03-25274
See page 10

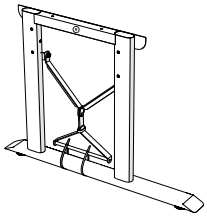
T-handle Allen Wrench 5 mm



HDW-03-11732
See page 2

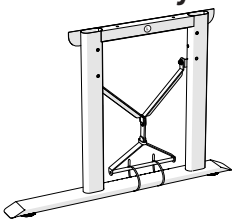
Box 3

Right Leg Assembly



SMP-09-24884
See page 2

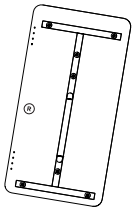
Left Leg Assembly



SMP-09-24883
See page 2

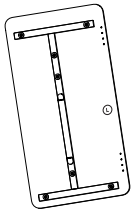
Box 4

Right Drop Leaf



SMP-09-24887
See page 10

Left Drop Leaf



SMP-09-24886
See page 10

Table & Machine Assembly

This section of the manual covers how to assemble your table and machine.

Task 1 - Attach the Table Legs 2

Task 2 - Level the Table 9

Task 3 - Attach the Table Leaves 10

Task 4 - Install the Quilting Machine 14

Task 5 - Install the Needle 17

Task 6 - Install the Needle Plate 19

Task 7 - Install the Hopping Foot 20

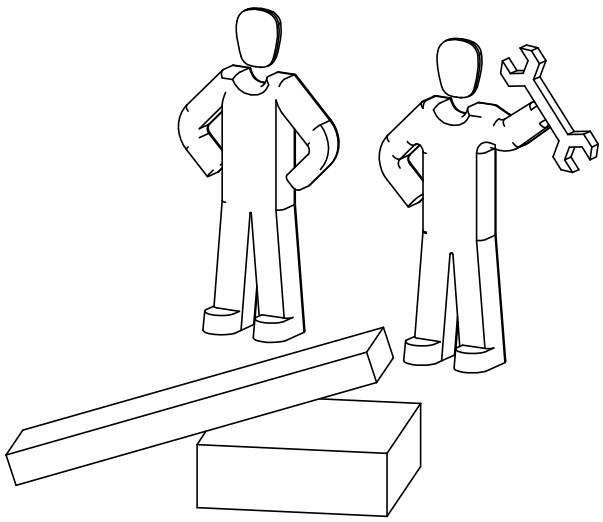
Task 8 - Install the Display 22

Task 9 - Attach the Thread Stand 24

Task 10 - Plug in the Foot Pedal 25

Task 11 - Power On the Machine 26

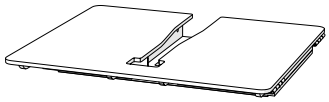
IMPORTANT: The table requires two people to assemble. Before proceeding, get a friend to help you.



Task 1 - Attach the Table Legs

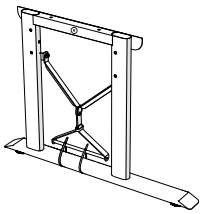
Parts & Tools Needed

Table Top



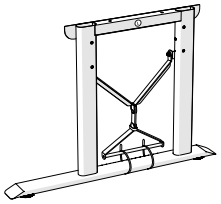
Box 2

Right Leg Assembly



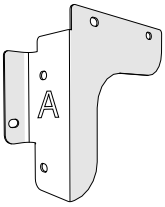
Box 3

Left Leg Assembly



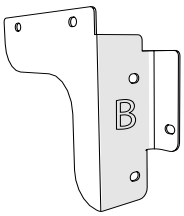
Box 3

Table Bracket A (x2)



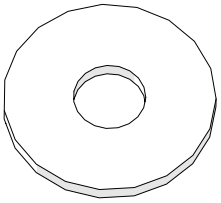
Box 2

Table Bracket B (x2)



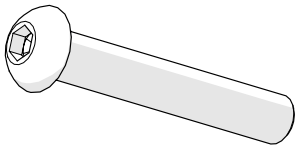
Box 2

Washer M8 (x4)



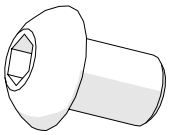
Box 2

SBHCS M8 x 55 mm (x4)



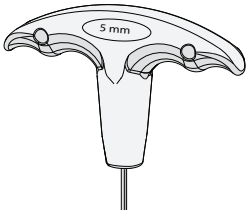
Box 2

SBHCS M8 x 12 mm (x20)



Box 2

T-handle Allen Wrench 5 mm

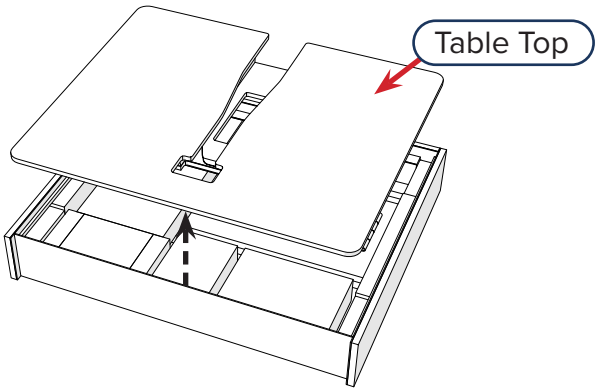


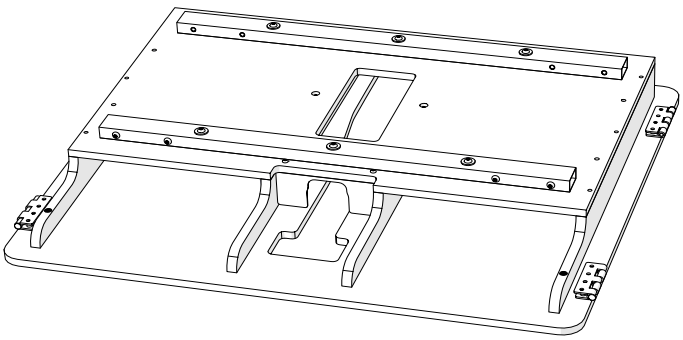
Box 2

Instructions

Take the following steps to attach the table legs to the table top:

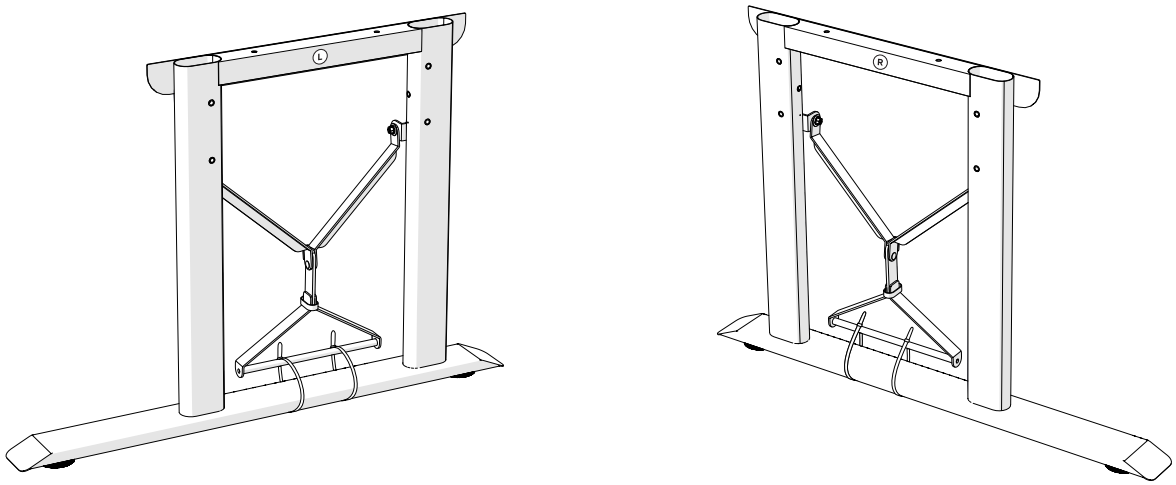
1. Remove the **table top** from Box 2 and turn it upside down on the floor.



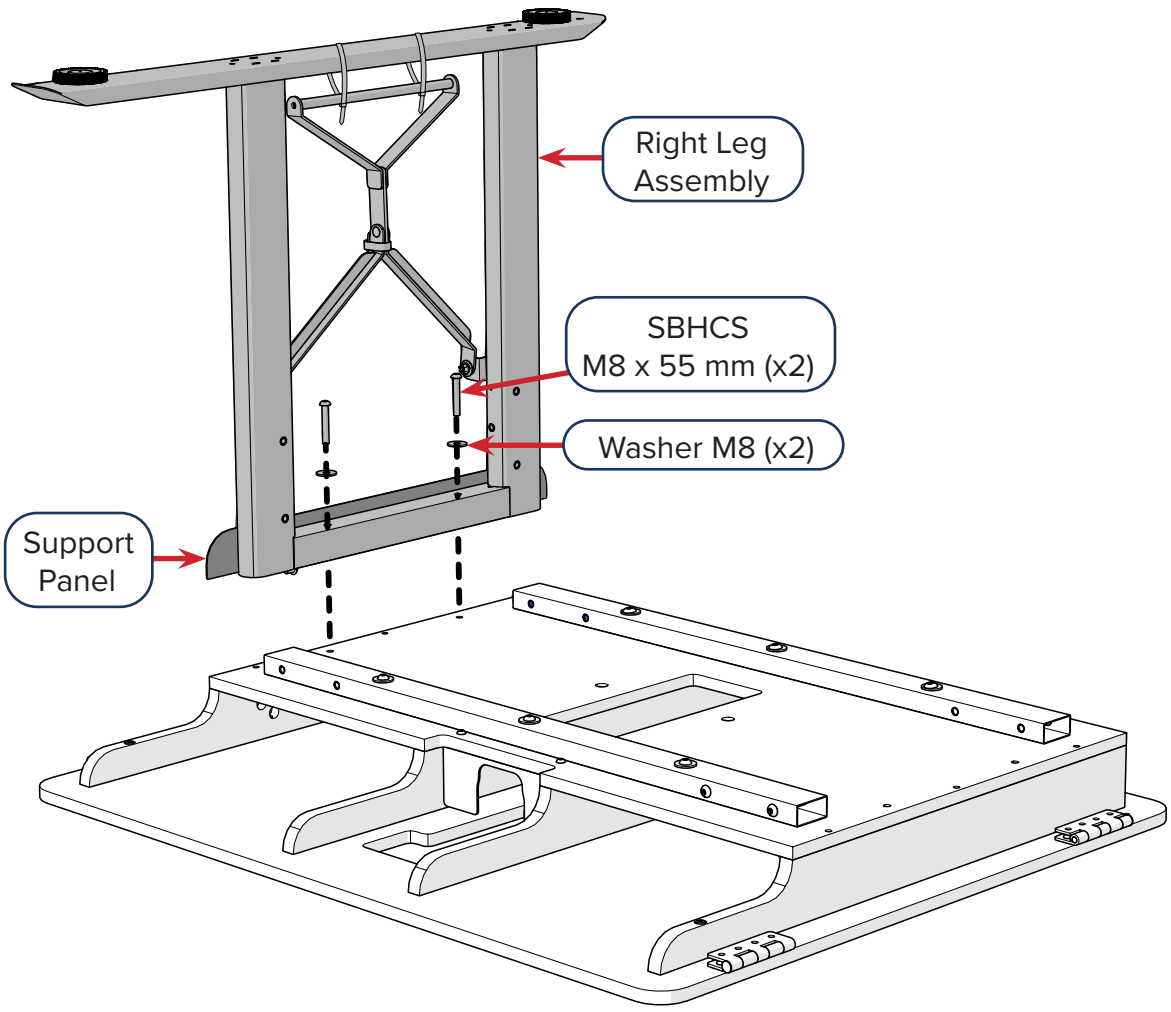


Task 1 - Attach the Table Legs (continued)

2 Remove both leg assemblies from Box 3 and lay them on the floor. Do not remove the zip ties from the legs.

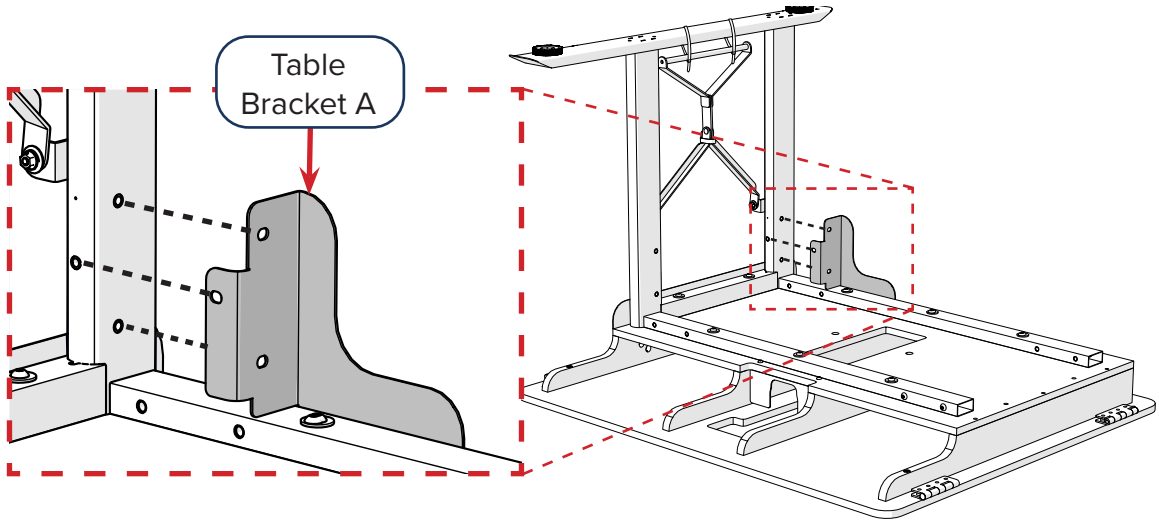


3 Align the **right leg assembly** with the holes in the table top. Make sure the **support panel** faces outward. Use the 5 mm T-handle Allen wrench, two **M8 x 55 mm SBHCS,** and two **M8 washers** to loosely attach the leg to the table top. Do not tighten.

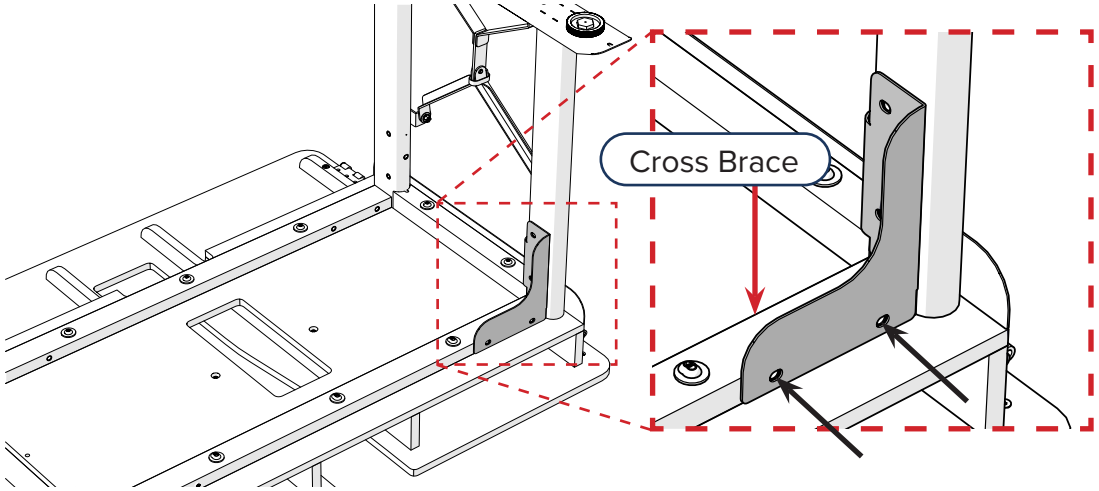


Task 1 - Attach the Table Legs (continued)

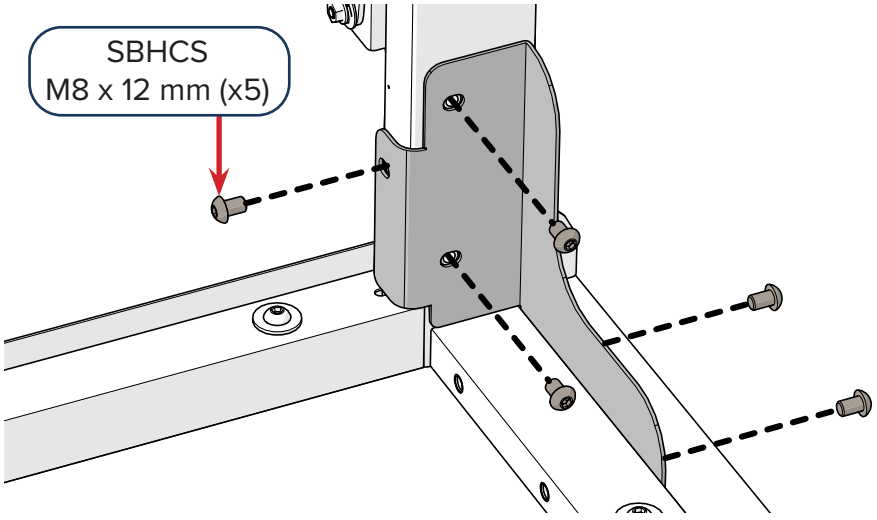
4 Align a **table bracket A** with the holes in the back table leg.



5 Notice there are holes on the back of the bracket that line up with the holes on the **cross brace**.

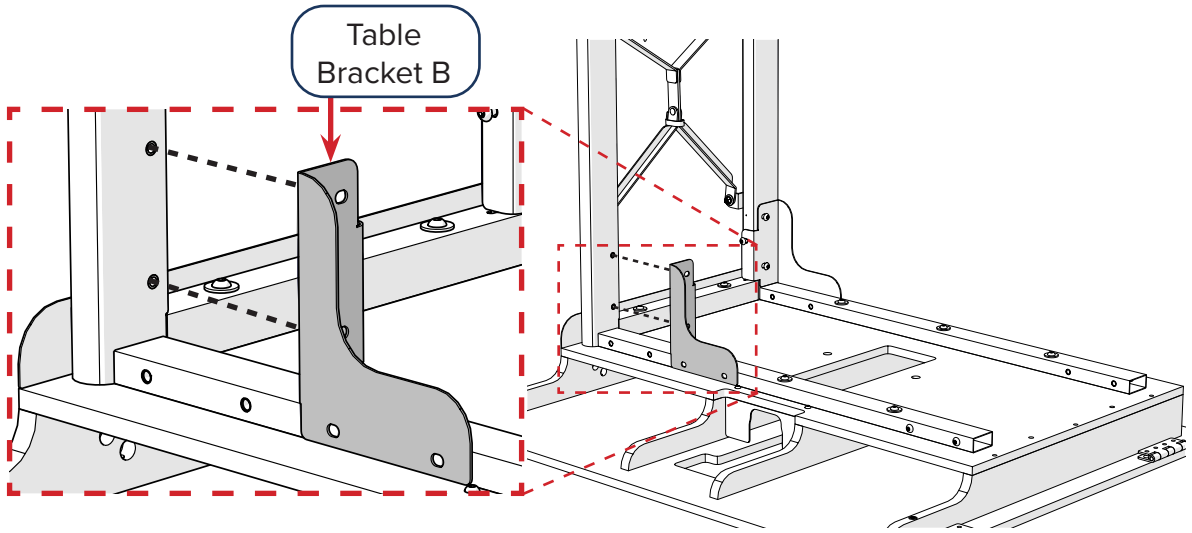


6 Use five **M8 x 12 mm SBHCS** to loosely attach the bracket to the table top. Do not tighten.

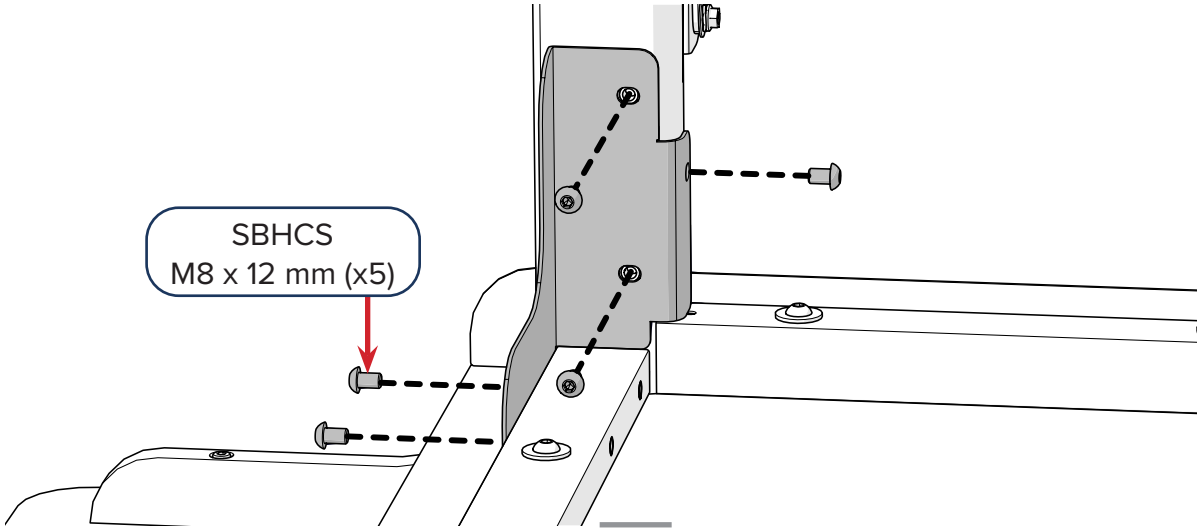


Task 1 - Attach the Table Legs (continued)

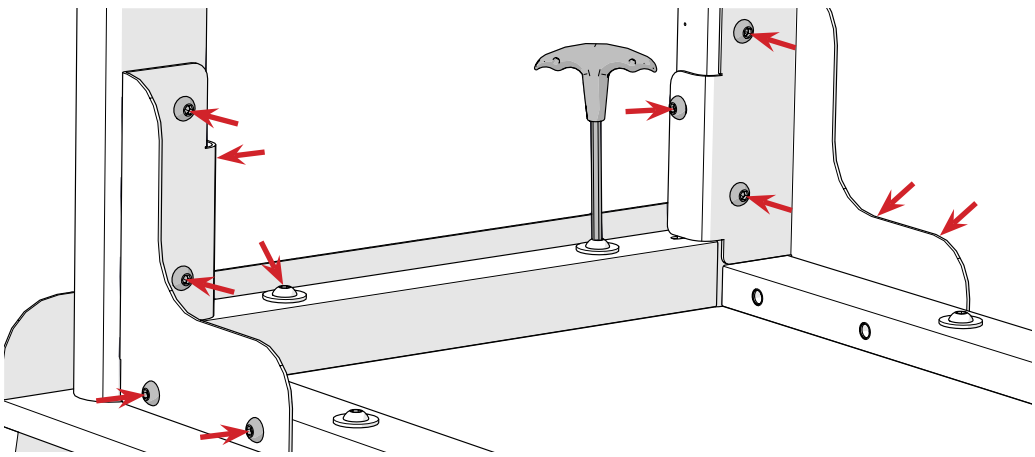
7 Align a **table bracket B** with the holes in the front table leg.



8 Use five **M8 x 12 mm SBHCS** to loosely attach the bracket to the table top. Do not tighten.

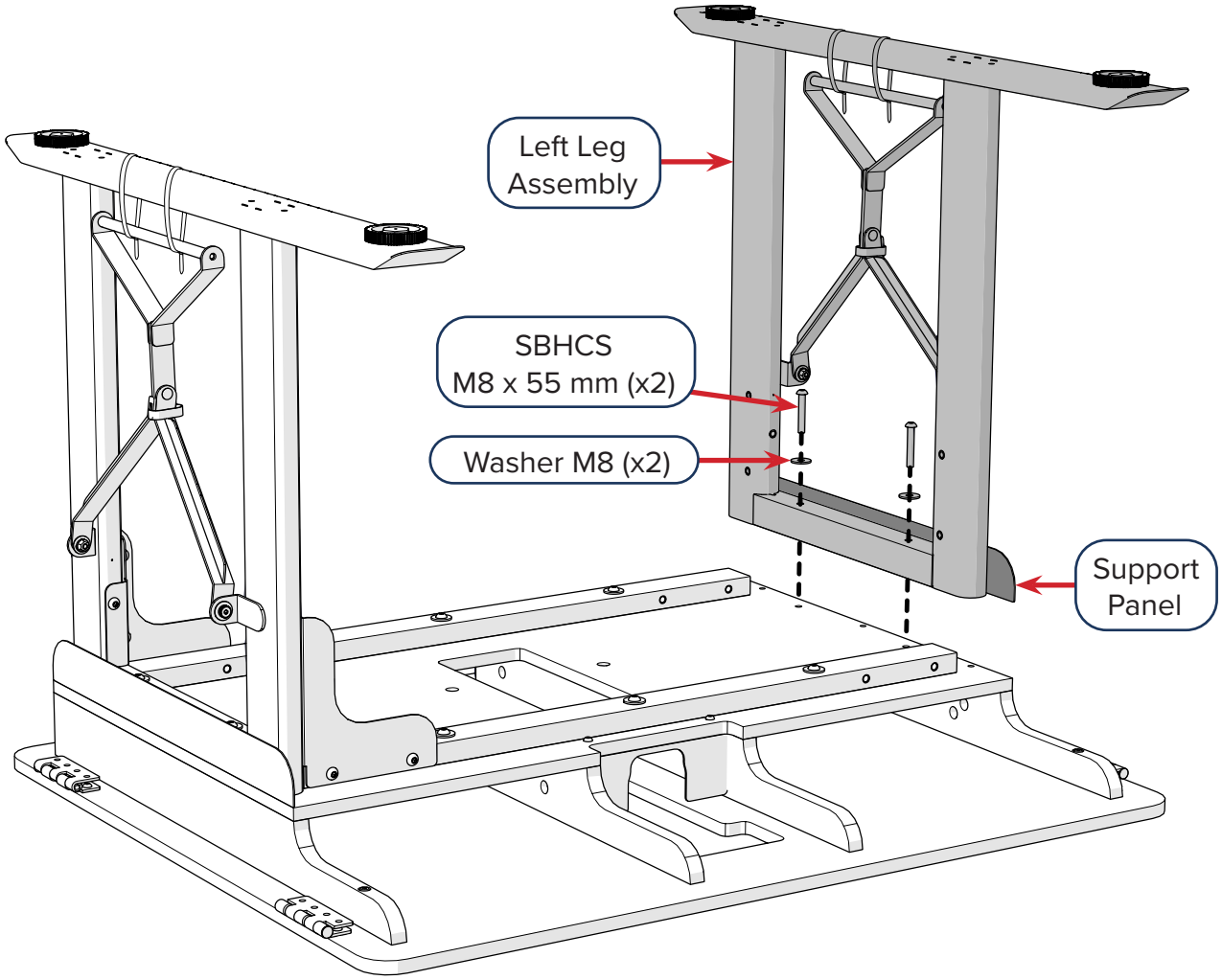


9 Use the 5 mm T-handle Allen wrench to secure all 12 screws. Tighten till you meet resistance, then tighten a quarter turn more. Do not overtighten. **Note:** For the best stability, tighten a screw on one leg, then switch to the other, swapping sides till all screws are secured.

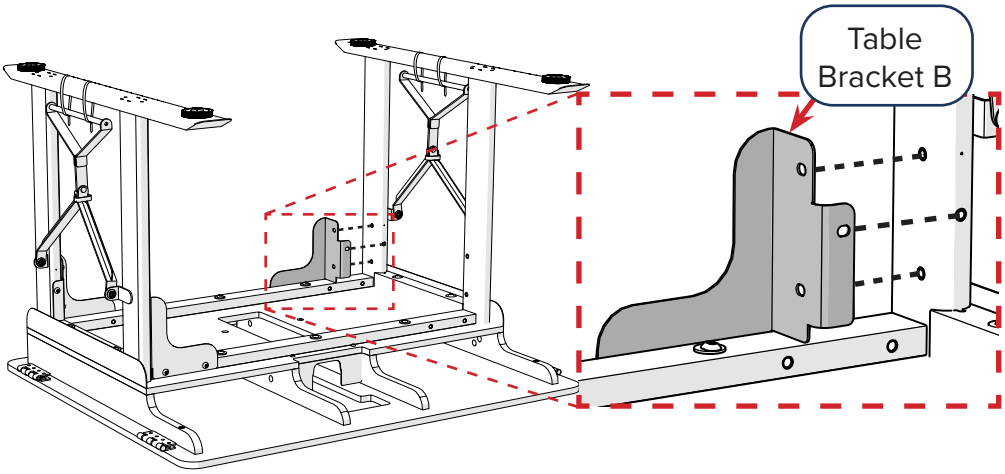


Task 1 - Attach the Table Legs (continued)

10 Align the **left leg assembly** with the holes in the table top. Make sure the **support panel** faces outward. Use the 5 mm T-handle Allen wrench, two **M8 x 55 mm SBHCS,** and two **M8 washers** to loosely attach the leg to the table top. Do not tighten.

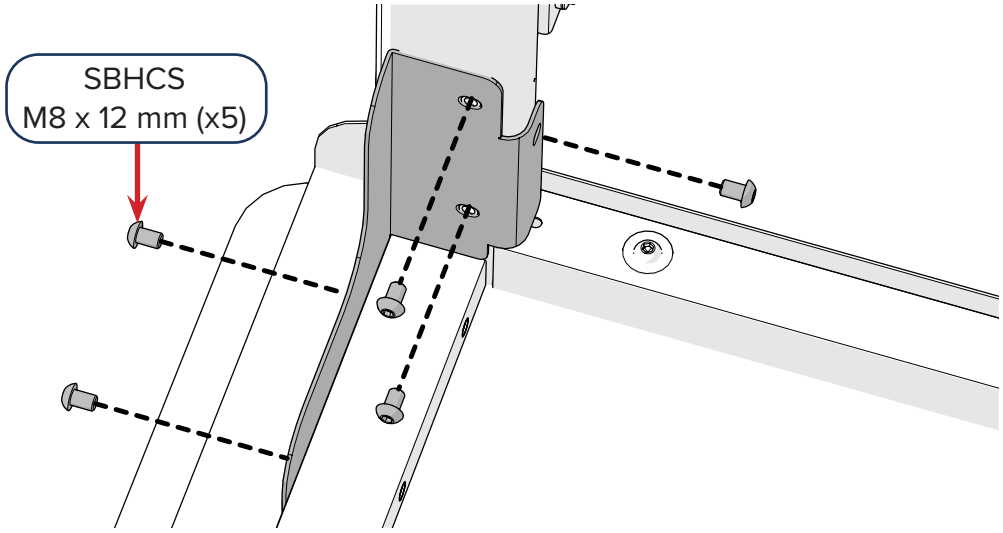


11 Align a **table bracket B** with the holes in the back table leg.

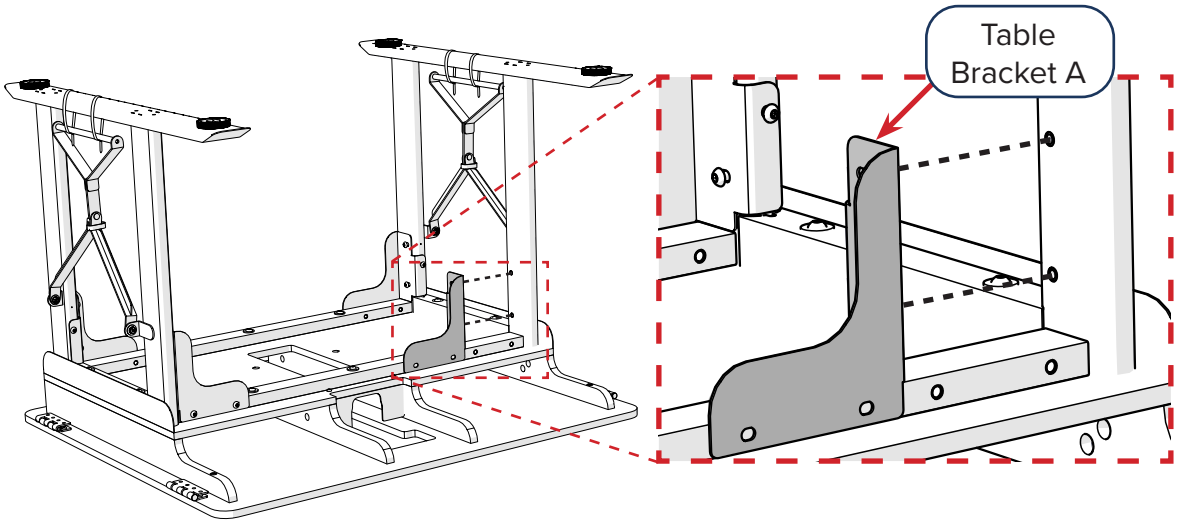


Task 1 - Attach the Table Legs (continued)

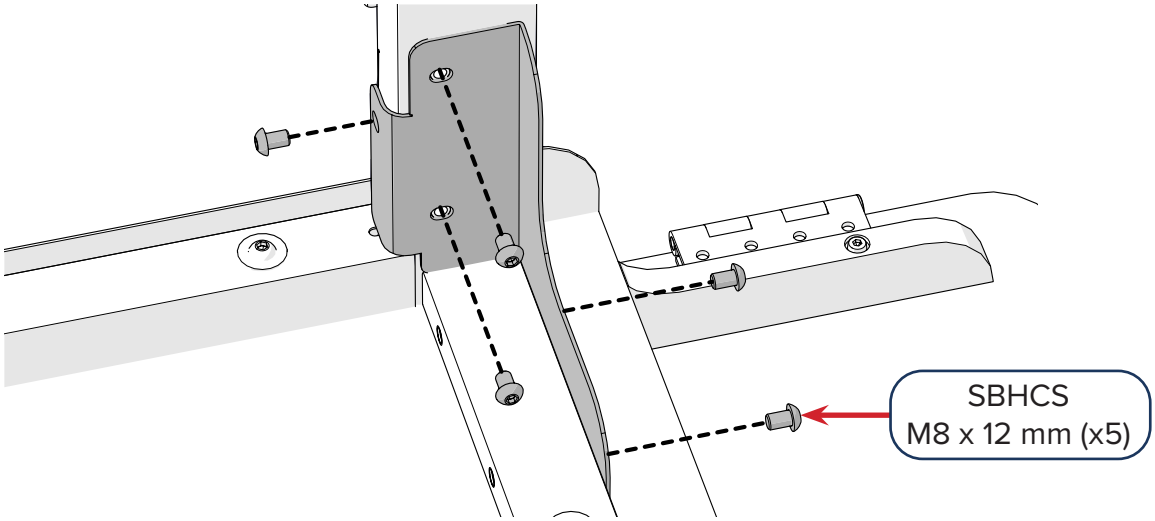
12 Use five **M8 x 12 mm SBHCS** to loosely attach the bracket to the table top. Do not tighten.



13 Align a **table bracket A** with the holes in the front table leg.

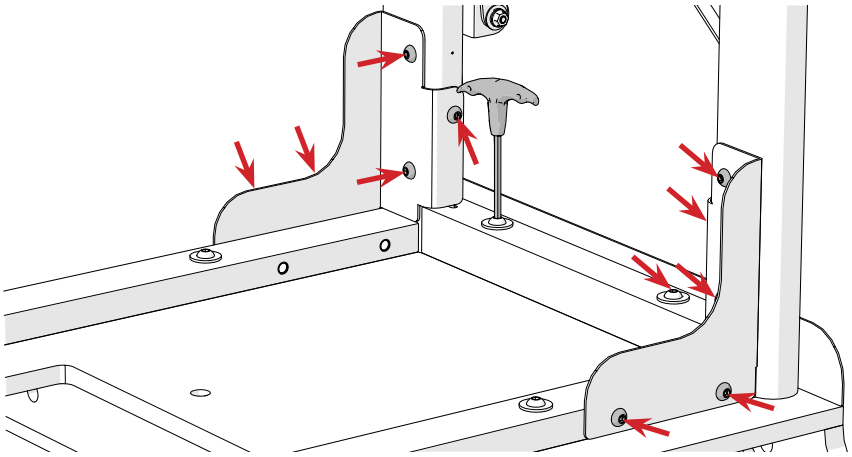


14 Use five **M8 x 12 mm SBHCS** to loosely attach the bracket to the table top. Do not tighten.

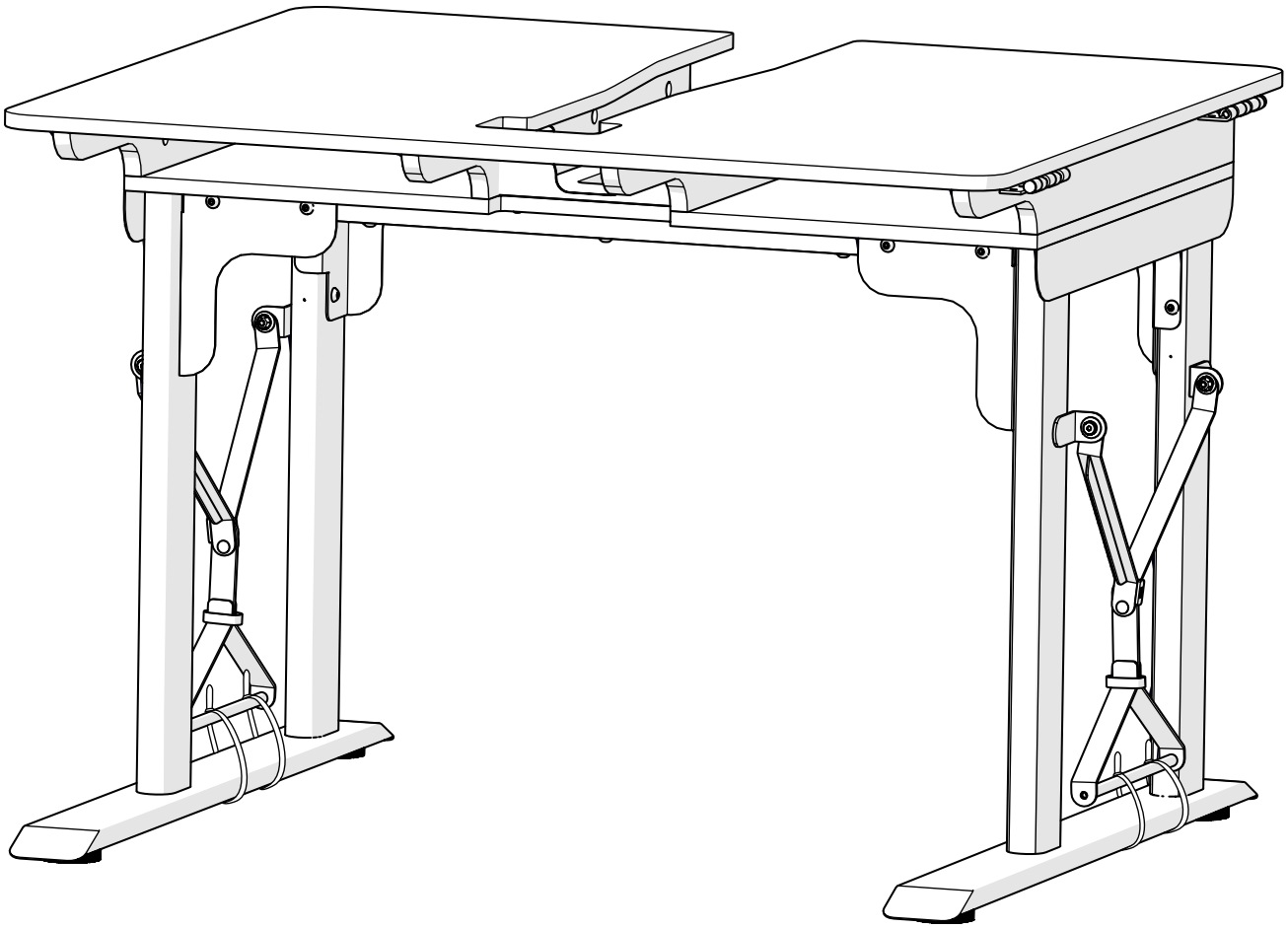


Task 1 - Attach the Table Legs (continued)

15 Use the 5 mm T-handle Allen wrench to secure all 12 screws. Tighten till you meet resistance, then tighten a quarter turn more. Do not overtighten. **Note:** For the best stability, tighten a screw on one leg, then switch to the other, swapping sides till all screws are secured.



16 With the help of a friend, turn the table upright.

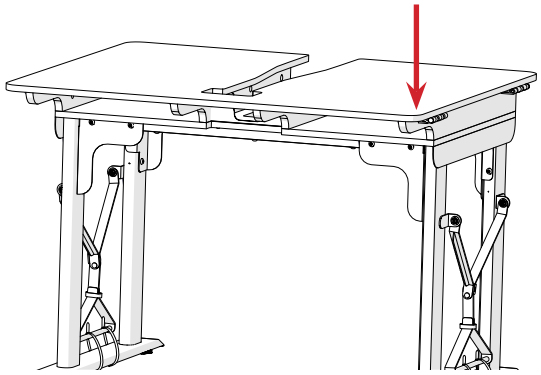


Task 2 - Level the Table

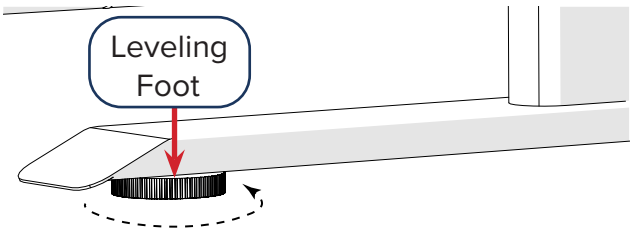
Instructions

Slight variations in the surface of your floor can affect how level the table is. Take the following steps to test the stability of your table and adjust the leveling feet as needed:

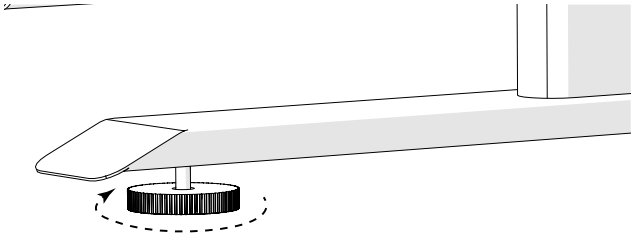
1. Press on the edge of a table corner to check for wobbling.



2. If the table doesn't wobble, skip this step. If it does wobble, adjust the **leveling foot** as needed under the corner you tested. Turn the leveling foot clockwise to shorten the height. Turn the leveling foot counter-clockwise to increase the height.



Turn clockwise to shorten the leveling foot.



Turn counter-clockwise to increase the height of the leveling foot.

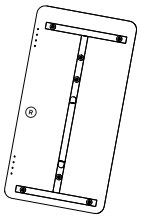
Note: Do not loosen the leveling foot fully, or it will come out of the table leg.

3. Repeat steps 1–2 for all of the table corners until you are satisfied with the stability. **Note:** You might need to retest corners you already tested after making adjustments to the other corners.

Task 3 - Attach the Table Leaves

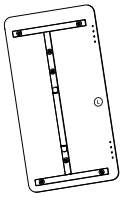
Parts & Tools Needed

Right Drop Leaf



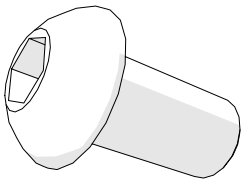
Box 4

Left Drop Leaf



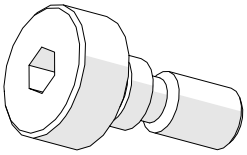
Box 4

SBHCS
M6 x 12 mm (x16)



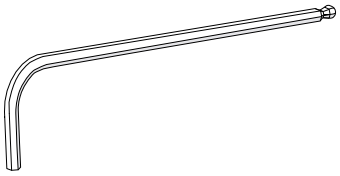
Box 2

Shoulder Bolt M6
7 x 5 mm (x4)



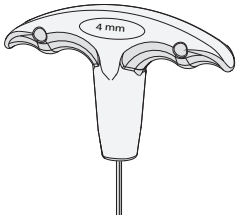
Box 2

Ball End Allen
Wrench 4 mm



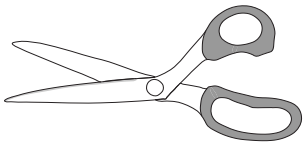
Box 2

T-handle Allen
Wrench 4 mm



Box 1: Tools Box

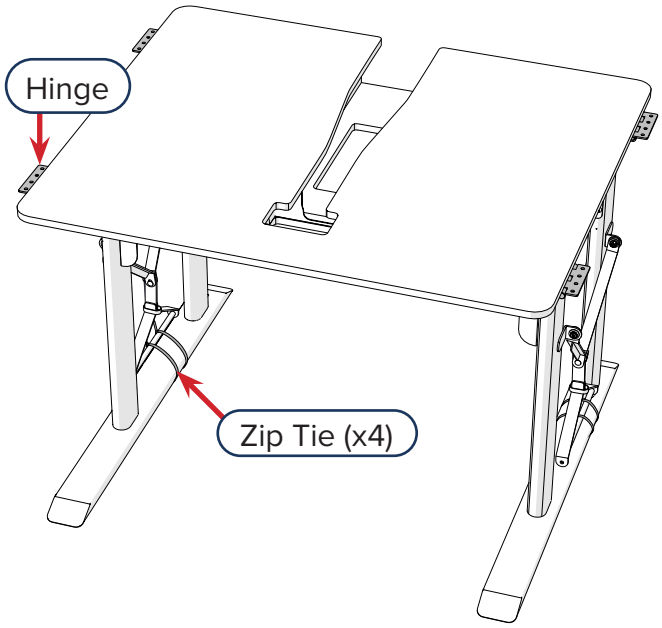
Scissors
(Not Included)



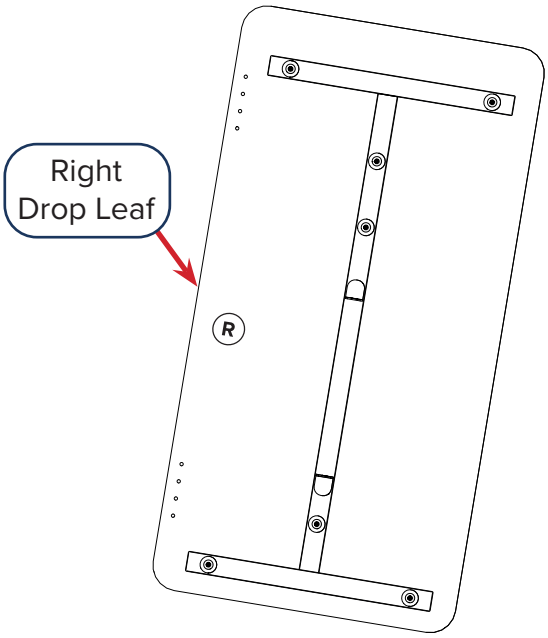
Instructions

Attaching the leaves to the table is a two-person job. Get a friend to help you, and take the following steps:

1. Extend the **hinges** on the table and cut the **zip ties** holding the drop leaf braces to the table legs.

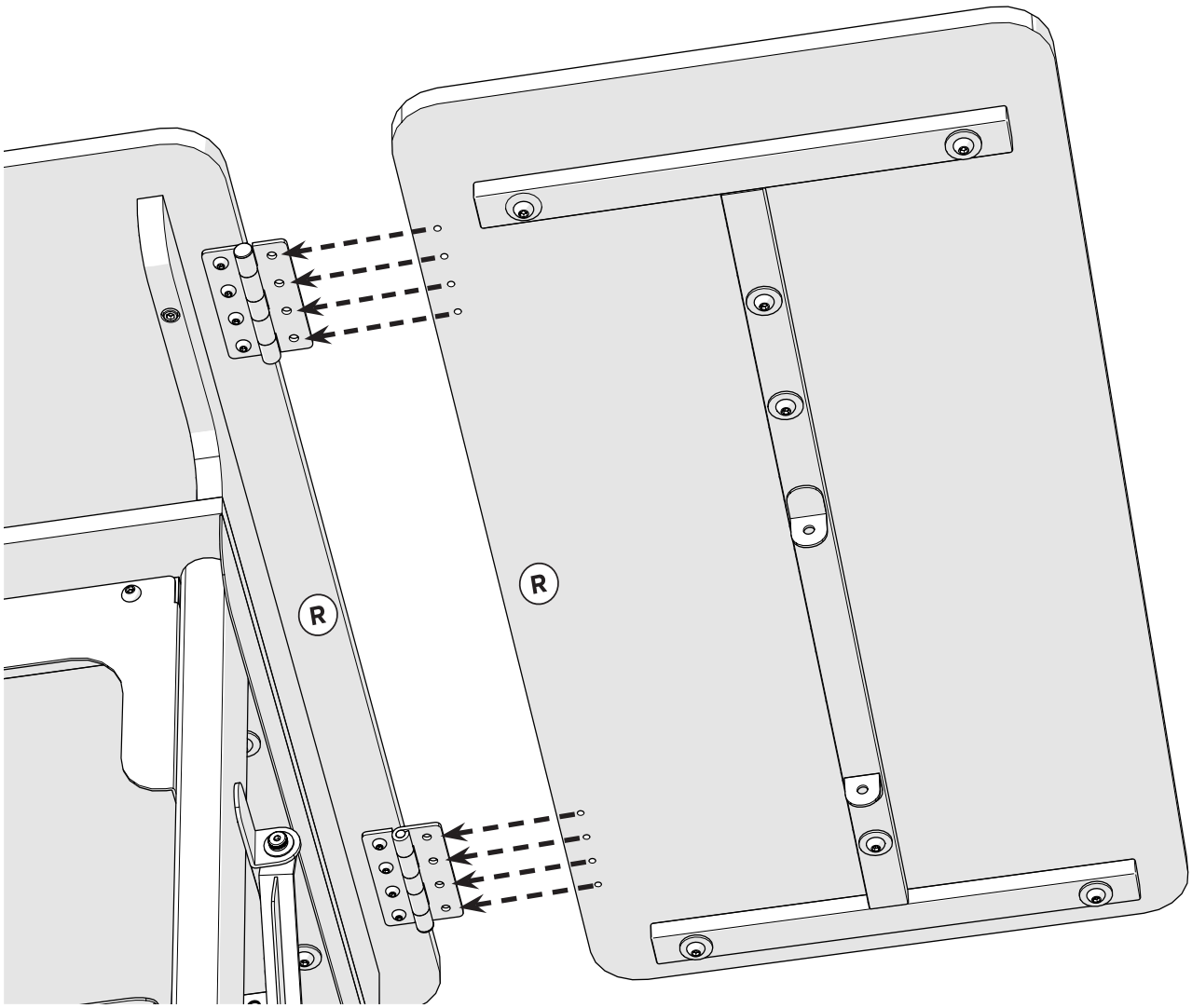


2. Remove the **right drop leaf** from Box 4. The right leaf has an R sticker to identify it.

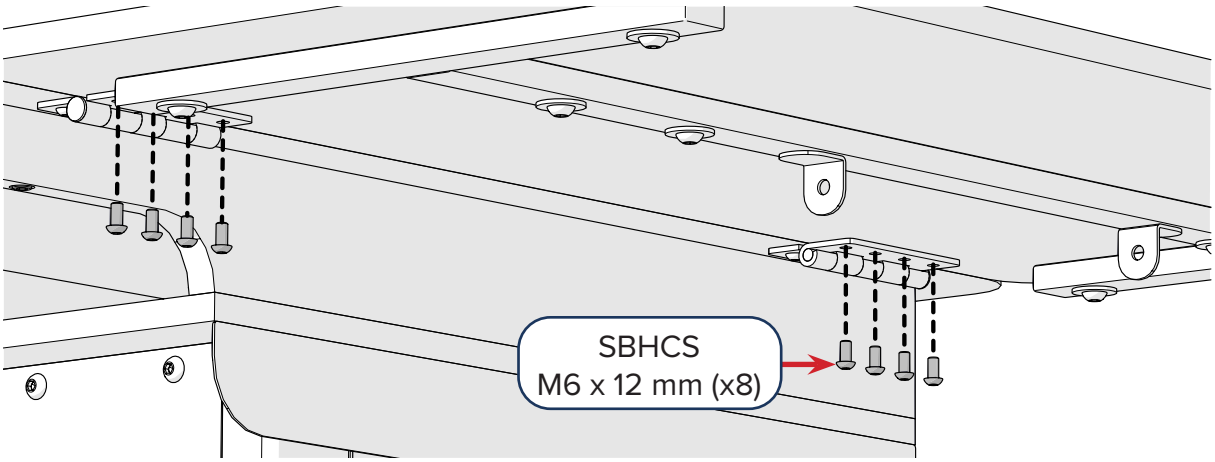


Task 3 - Attach the Table Leaves (continued)

3 Align the holes in the right drop leaf with the holes in the hinges on the right side of the table. The right side of the table is marked with an R sticker.

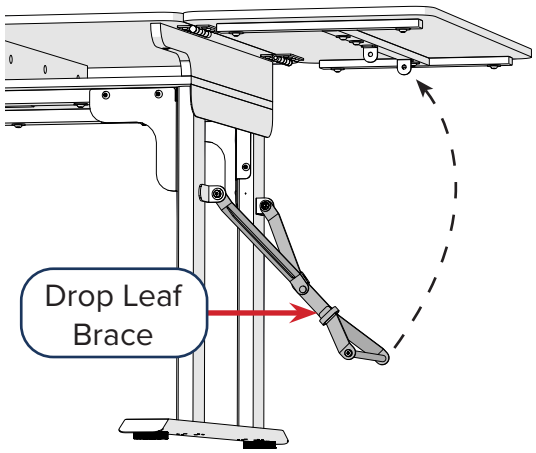


4 While holding the leaf, have a second person use the 4 mm T-handle Allen wrench and eight **M6 x 12 mm SBHCS** to secure the leaf. Tighten till you meet resistance, then a quarter turn more.

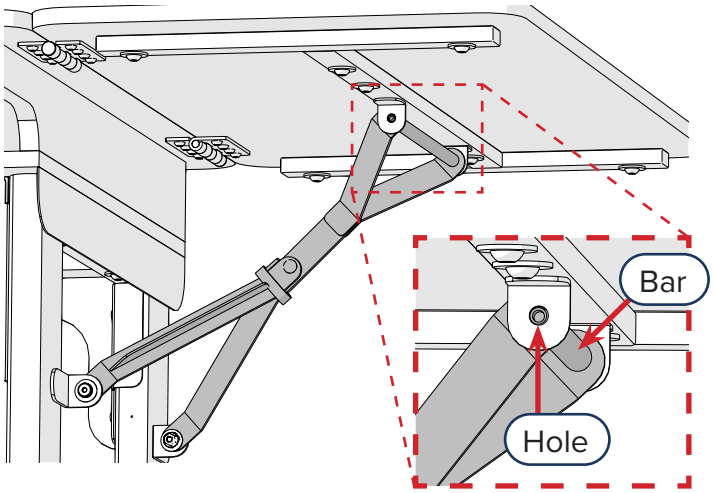


Task 3 - Attach the Table Leaves (continued)

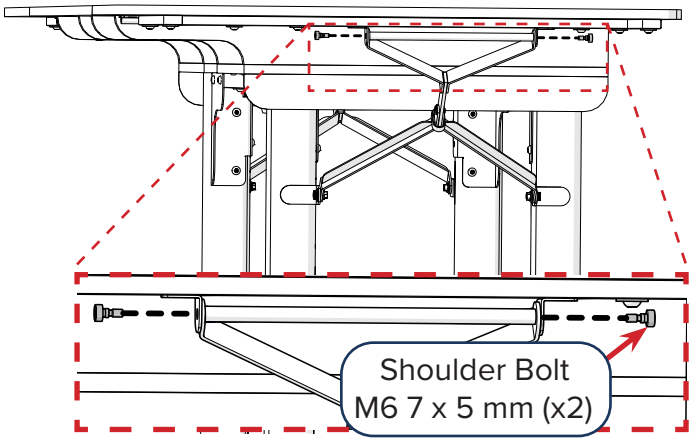
5 Continue holding the leaf while the second person raises the **drop leaf brace**.



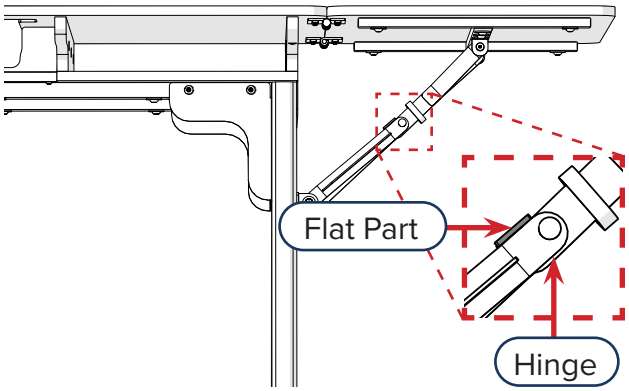
6 Align the **bar** of the drop leaf brace with the **holes** on the underside of the leaf.



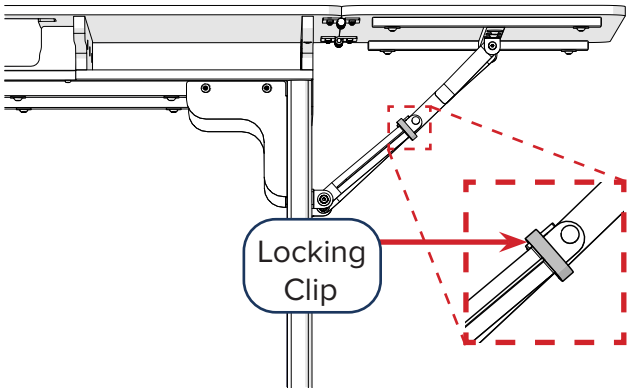
7 Use the 4 mm Ball End Allen wrench and two **M6 7 x 5 mm shoulder bolts** to secure the drop leaf brace to the leaf.



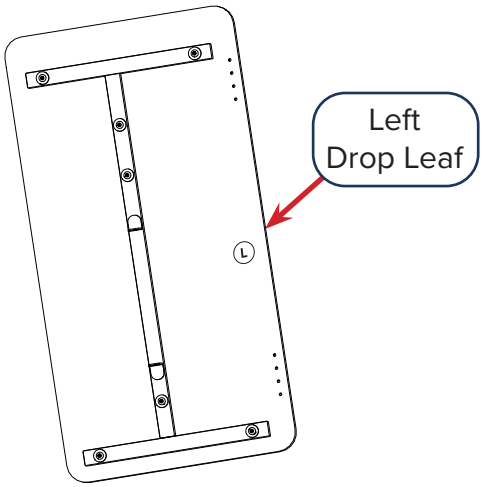
8 Push firmly on the **flat part** of the **hinge** to ensure the brace is fully extended. **Tip:** It is easier to reach the flat part when standing at the side of the table instead of the front.



9 Slide the **locking clip** over the hinge. **Important:** Without the locking clip in place, the hinge can close accidentally, causing the leaf to drop.

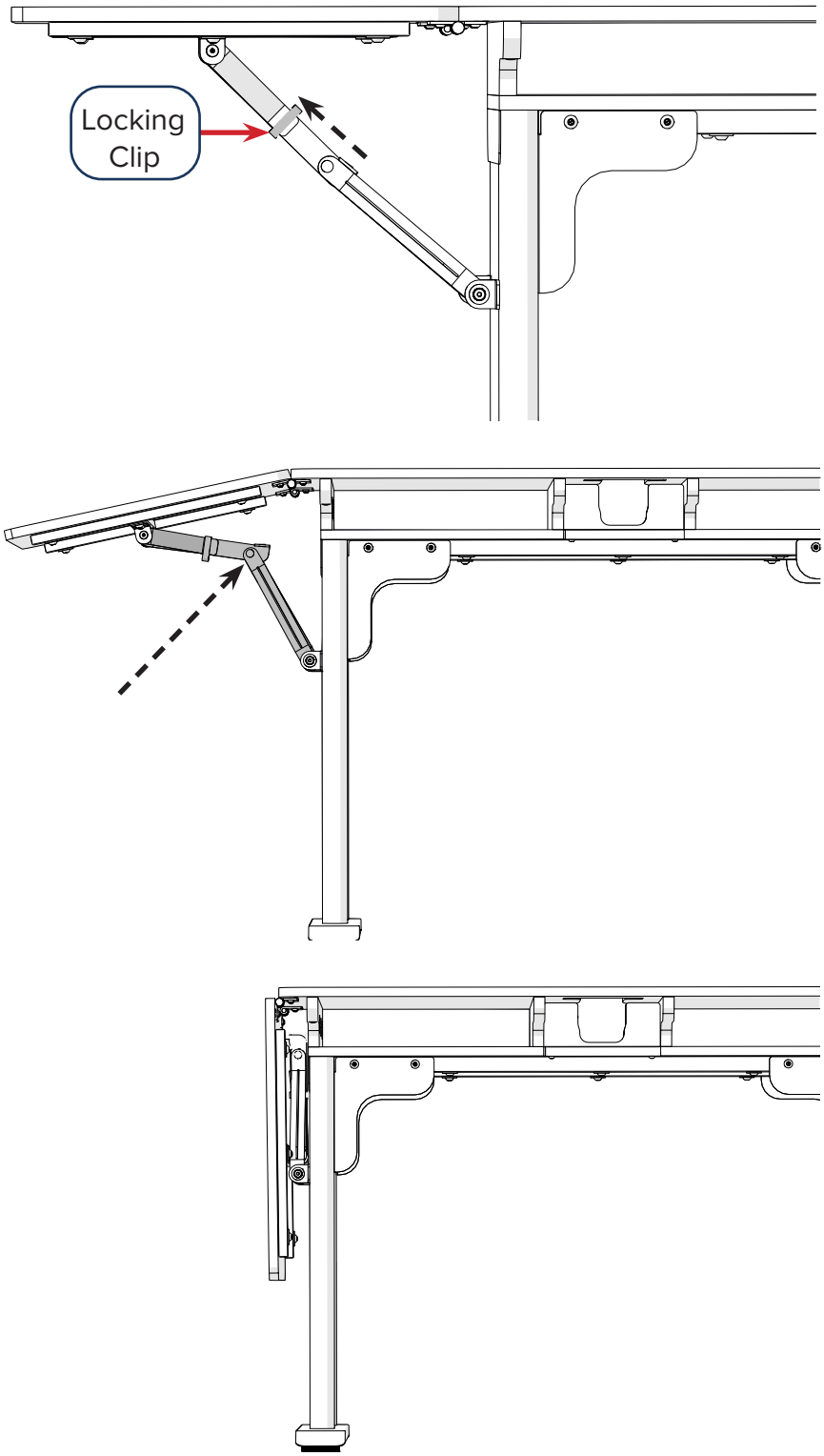


10 Repeat steps 2–9 with the **left drop leaf**.



Task 3 - Attach the Table Leaves (continued)

11 If you wish to lower the table leaves, raise the **locking clip** and push on the hinge to collapse the leaf.



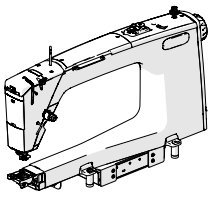
Tip: It is easier to reach the hinge when standing at the side of the table instead of the front.

Note: There is a white powder around the hinge that is a dry lubricant which protects the powder coating on the hinge assembly, and it's recommended you leave the powder on.

Task 4 - Install the Quilting Machine

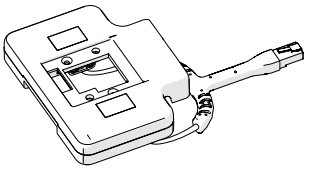
Parts & Tools Needed

Machine Body



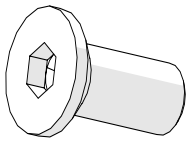
Box 1

Fabric Sensor Assembly



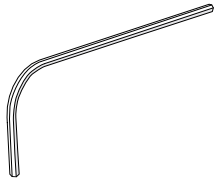
Box 1: Fabric Sensor Box

Socket FHS M3 x 8 mm (x2)



Box 1: Fabric Sensor Box

Allen Wrench 2 mm

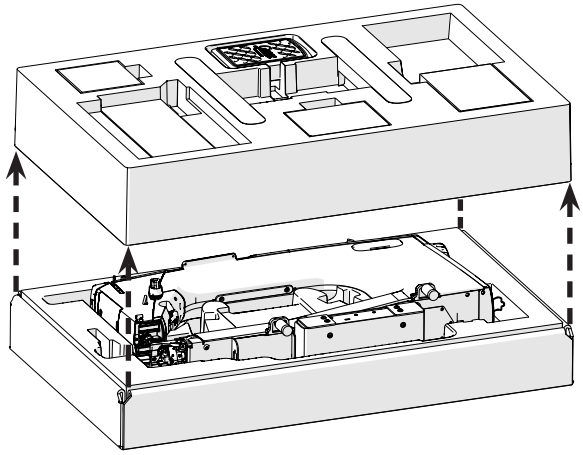


Box 1: Fabric Sensor Box

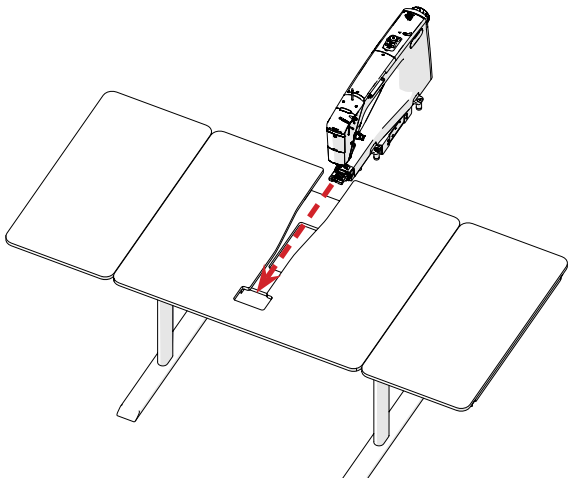
Instructions

Take the following steps to install the quilting machine on the table:

1. Remove the top layer of the packaging from Box 1 and set it aside.

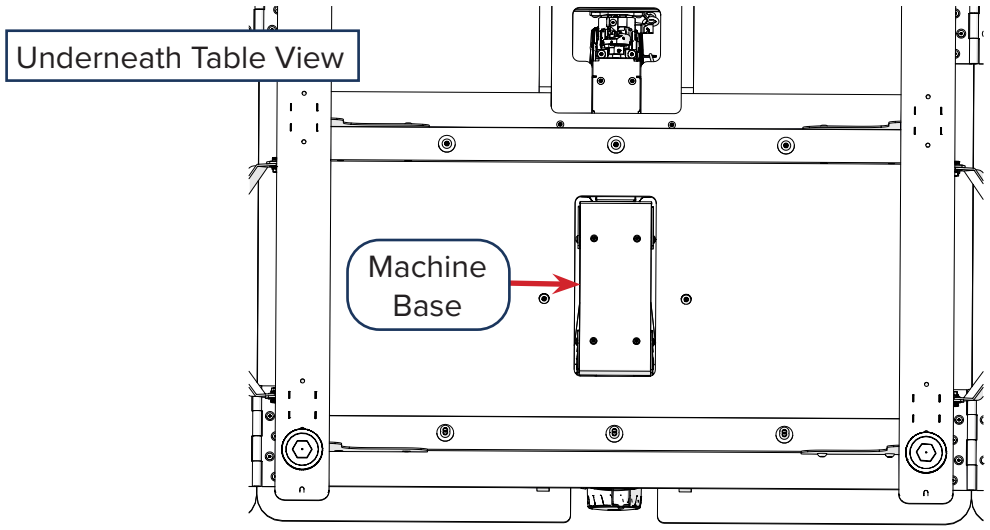


2. With the help of a friend, carefully lift the quilting machine out of the packaging and position it in the opening in the table. **Note:** Do not slide the machine. Lift it to adjust its position.

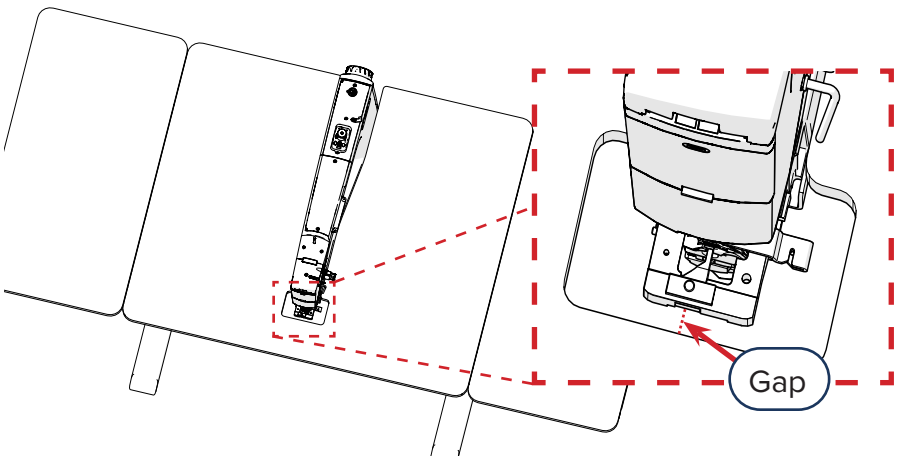


Task 4 - Install the Quilting Machine (continued)

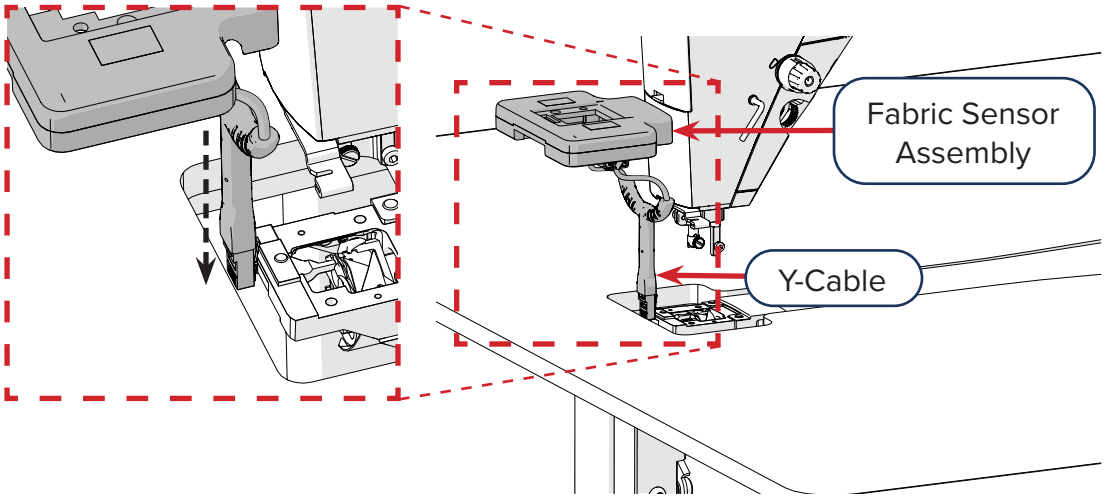
3 Look underneath the table to ensure the **base of the machine** sits in the slot.



4 Move the machine back as far as possible to widen the **gap** between the table opening and the machine. Be sure to keep the base of the machine in the slot.

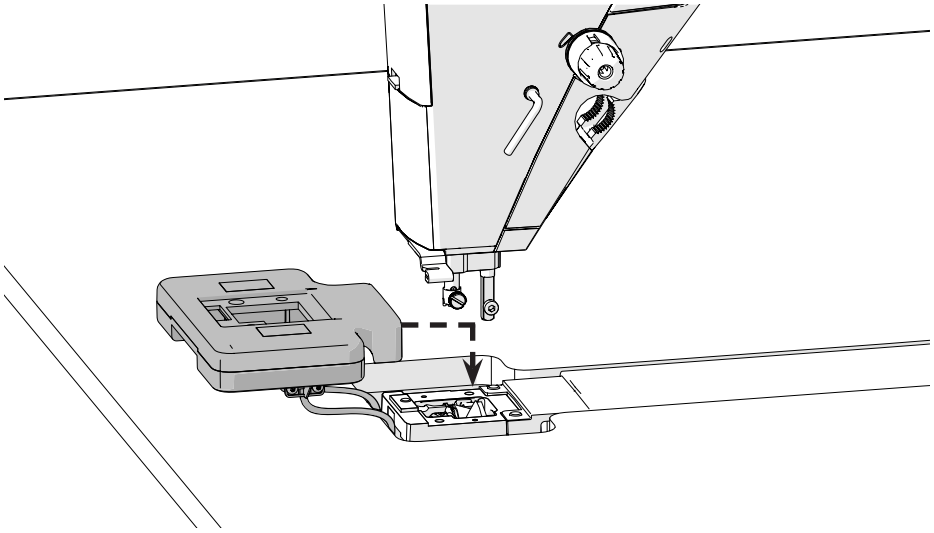


5 Slide the **Y-cable** of the **fabric sensor assembly** into the gap.

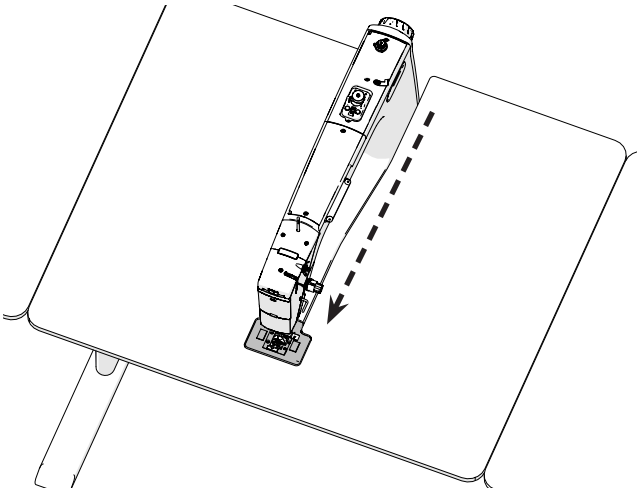


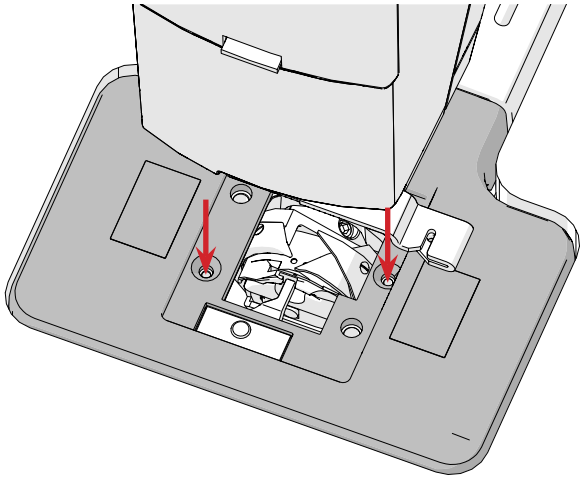
Task 4 - Install the Quilting Machine (continued)

6 Slide the fabric sensor assembly into the slot.

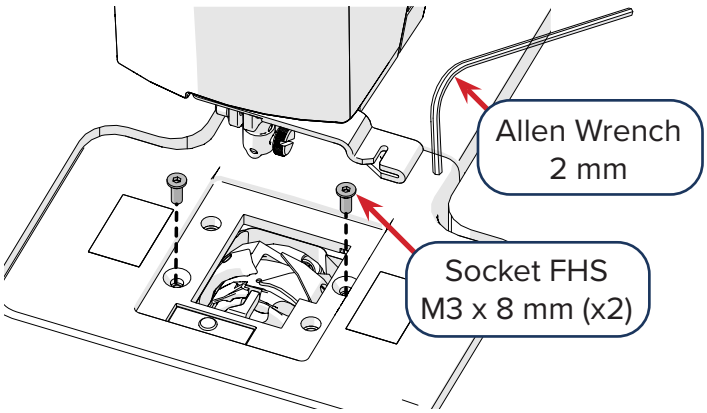


7 Shift the machine forward until the holes in the fabric sensor assembly align with the screw holes in the machine.

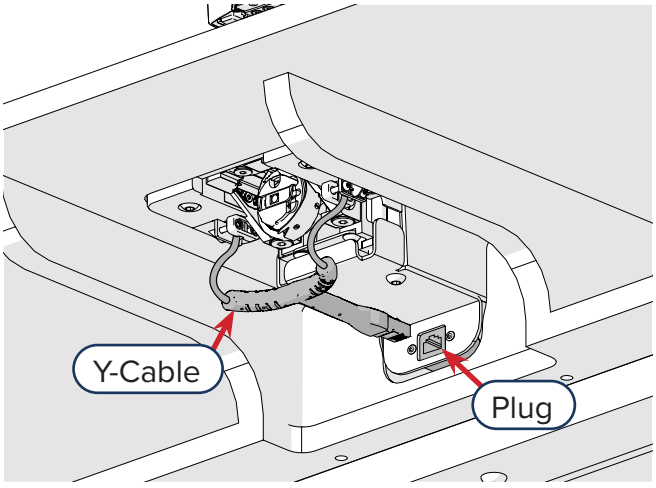




8 Use the **2 mm Allen wrench** and two **M3 x 8 mm Socket FHS** to secure the fabric sensor assembly to the machine. Tighten till you meet resistance, then a quarter turn more.



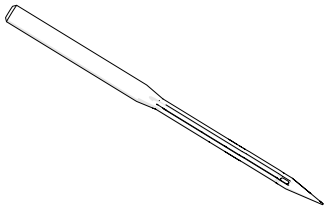
9 Look beneath the table. Insert the **Y-cable** into the **plug** until it clicks into place.



Task 5 - Install the Needle

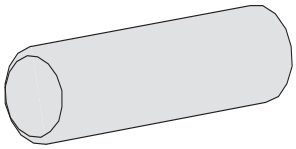
Parts & Tools Needed

Needle (Size 18)



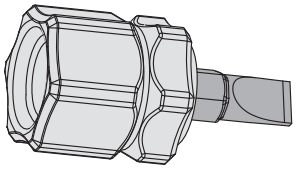
Box 1: Tools Box

Needle Magnet



Box 1: Tools Box

Flat Head Screwdriver

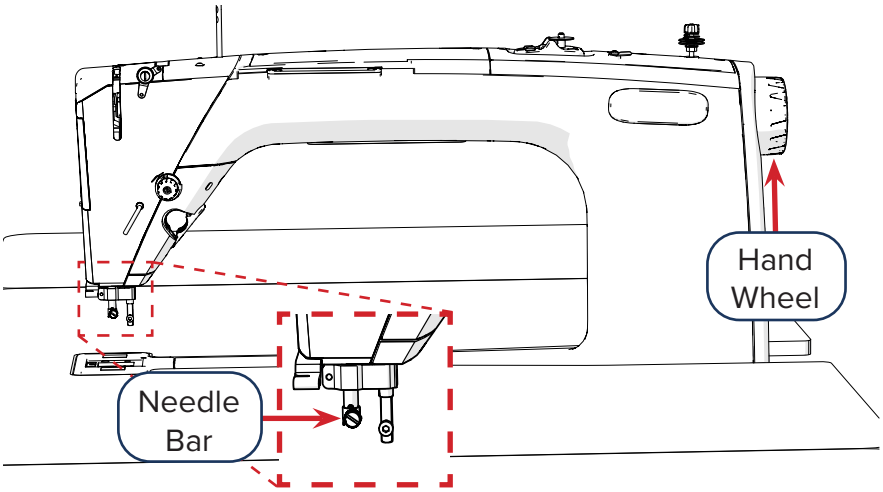


Box 1: Tools Box

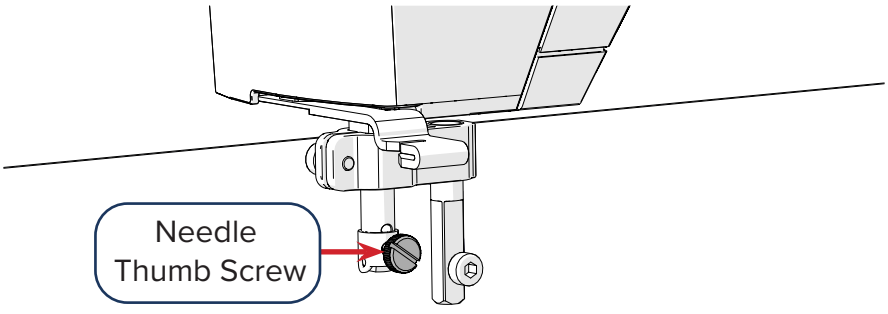
Instructions

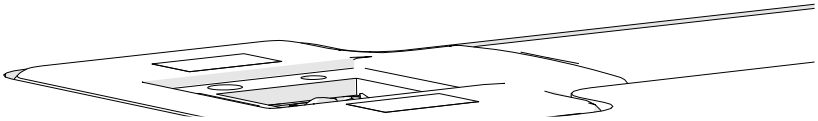
Take the following steps to install the needle:

1. Turn the **hand wheel** to raise the **needle bar** to its highest position.



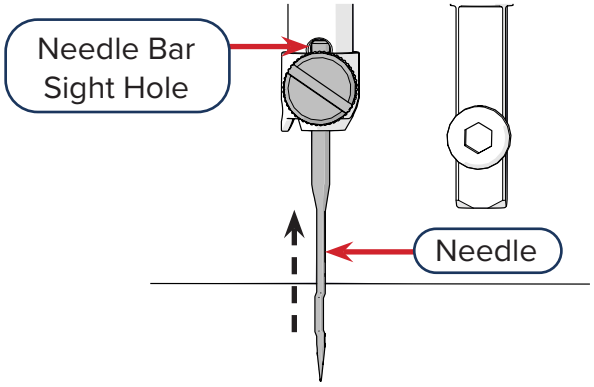
2. Loosen the **needle thumb screw**. If needed, use the flat-head screwdriver (in the Tools box in Box 1).



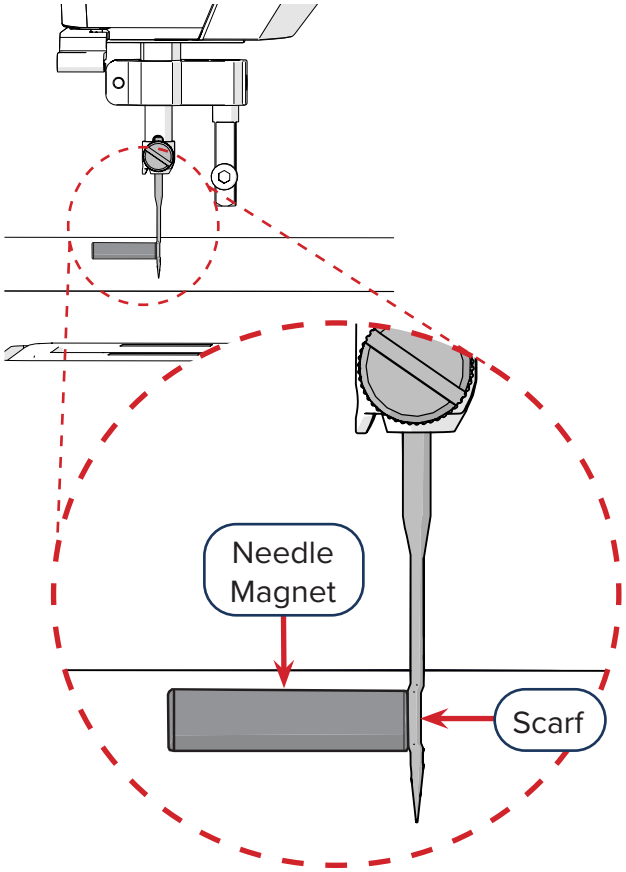


Task 5 - Install the Needle (continued)

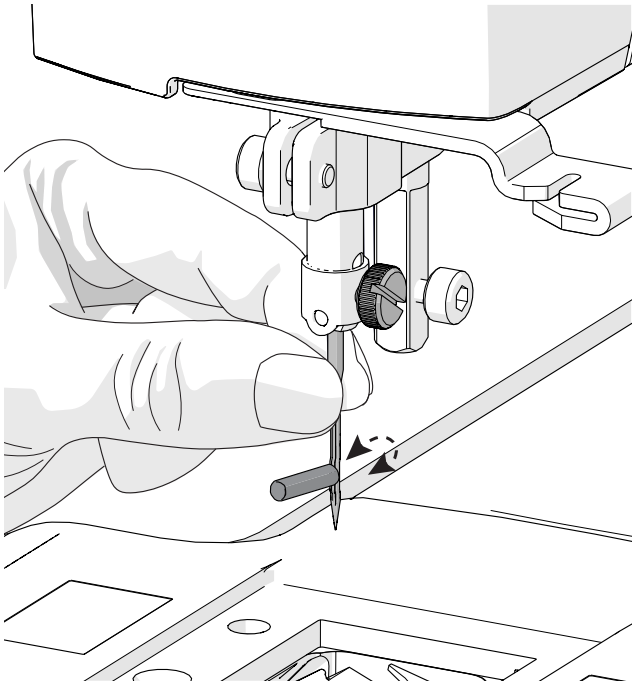
3 Insert the size 18 **needle** all the way into the needle bar. Check the **needle bar sight hole** above the thumb screw to make sure the needle is inserted all the way.



4 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.

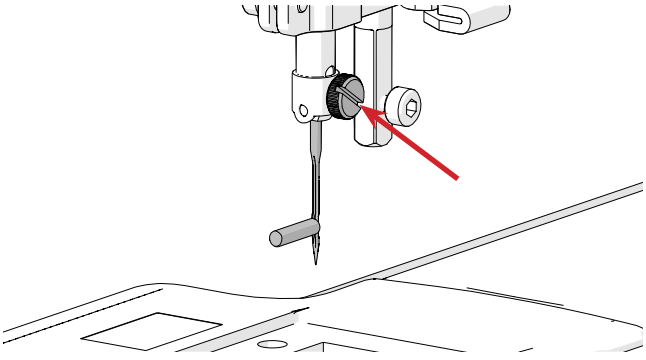


5 Use the needle magnet as a visual guide to check that the needle is straight. Twist the needle until the magnet points as straight out from the machine as possible.



Note: Do not attempt to adjust the needle by moving the magnet directly.

6 Hand-tighten the thumb screw to hold the needle in place. If you use a flat-head screwdriver, do not over-tighten the screw.

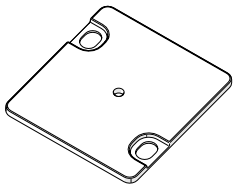


7 Remove the needle magnet and store it for safekeeping to reuse later.

Task 6 - Install the Needle Plate

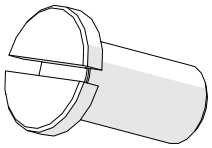
Parts & Tools Needed

Needle Plate



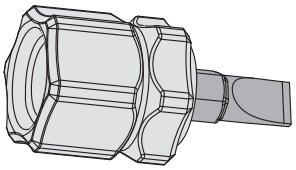
Box 1: Fabric Sensor Box

Needle Plate Screw M5 x 10 mm (x2)



Box 1: Fabric Sensor Box

Flat Head Screwdriver

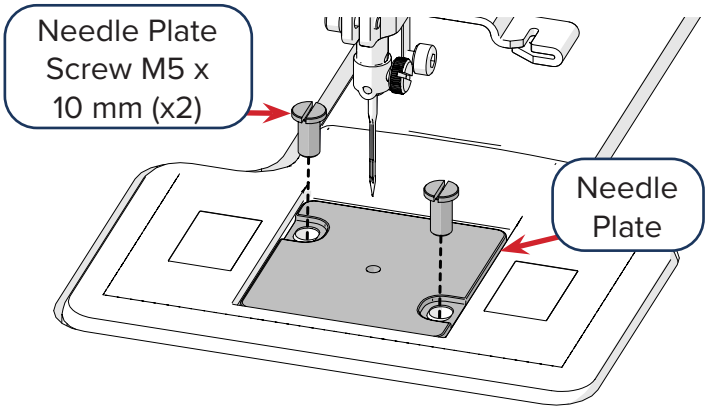


Box 1: Tools Box

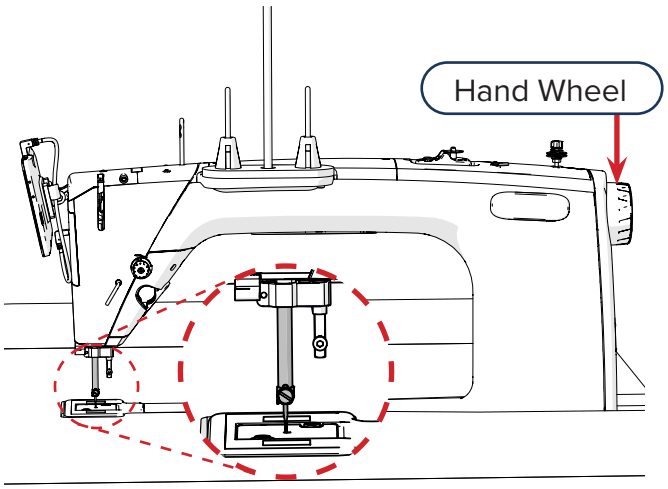
Instructions

Take the following steps to install the needle plate:

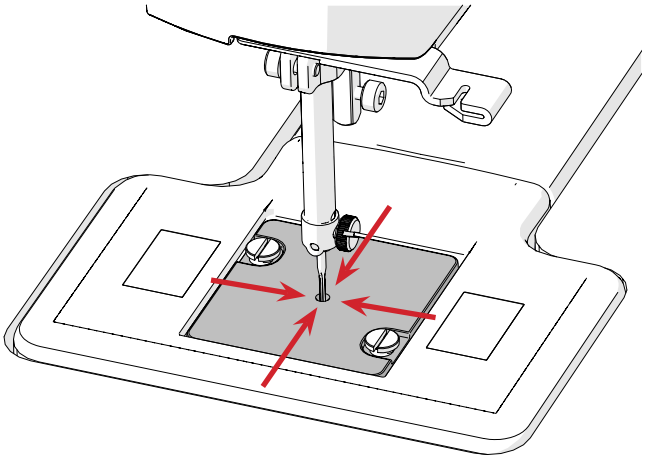
1. Align the **needle plate** with the screw holes on the machine and loosely attach two **M5 x 10 mm needle plate screws** into the plate. Do not tighten.



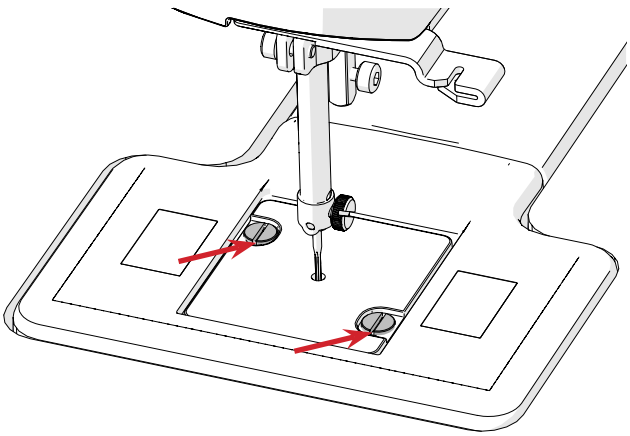
2. Use the **hand wheel** to lower the needle.



3. Adjust the position of the needle plate to center the needle in the opening.



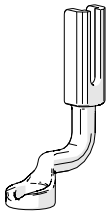
4. Tighten the needle plate screws with the flat head screwdriver till you meet resistance, then tighten a quarter turn more.



Task 7 - Install the Hopping Foot

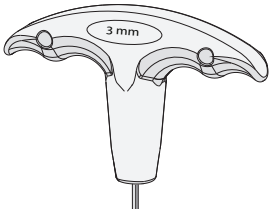
Parts & Tools Needed

Standard Hopping Foot



Box 1: Fabric Sensor Box

T-Handle Allen Wrench 3 mm

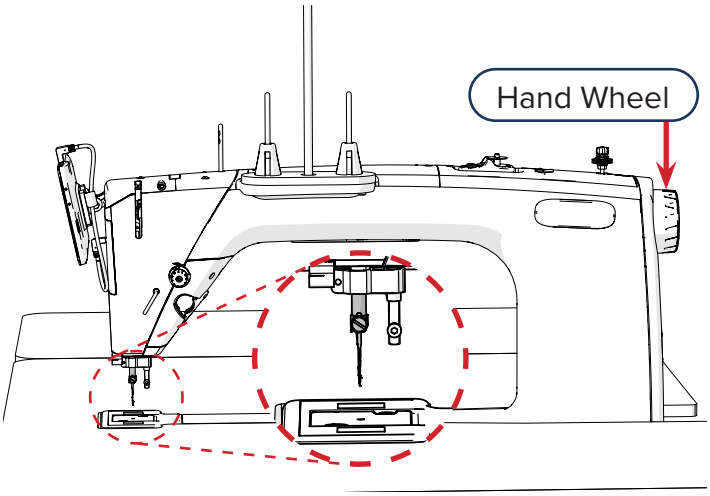


Box 1: Tools Box

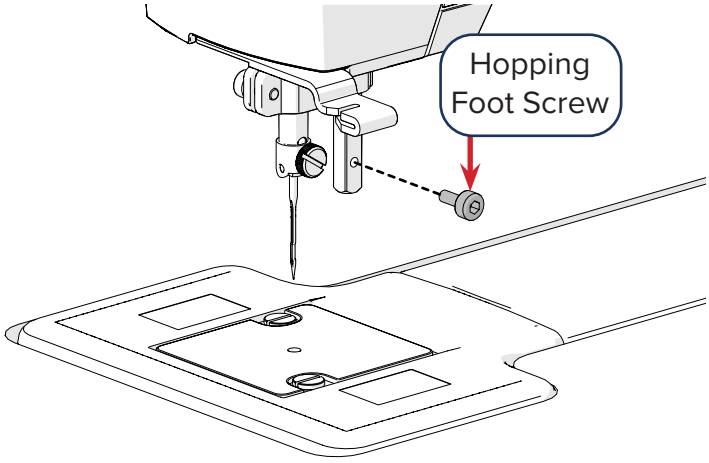
Instructions

Take the following steps to install the hopping foot and adjust the hopping foot height:

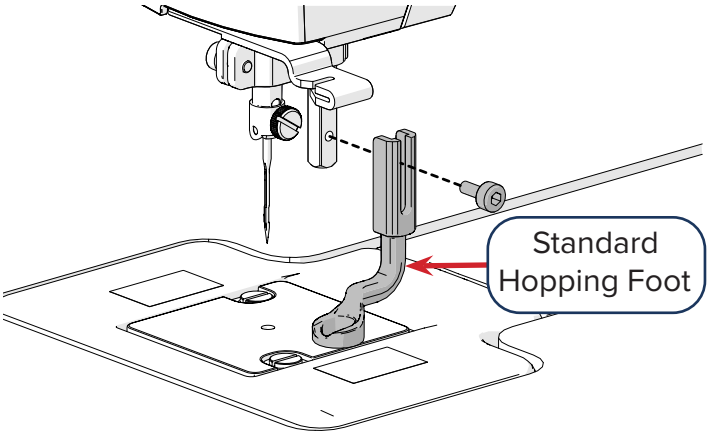
1. Use the **hand wheel** to raise the needle to its highest position.



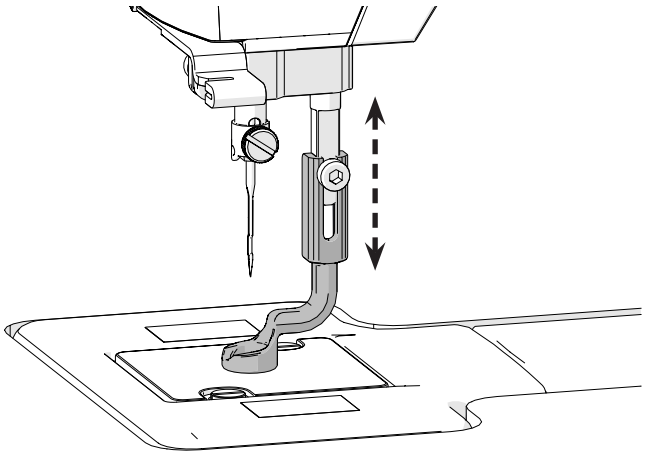
2. Use the 3 mm T-handle Allen wrench to remove the **hopping foot screw**.



3. Slide the **standard hopping foot** onto the collar and loosely attach the hopping foot screw.

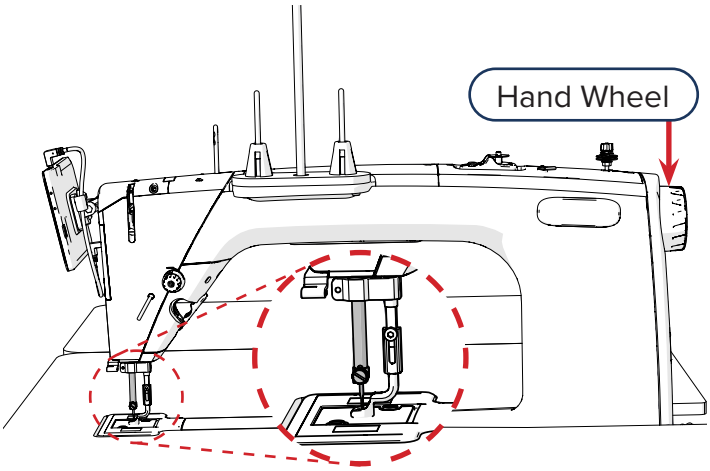


4. Make sure the hopping foot can slide freely. It it's too secure, loosen the screw.

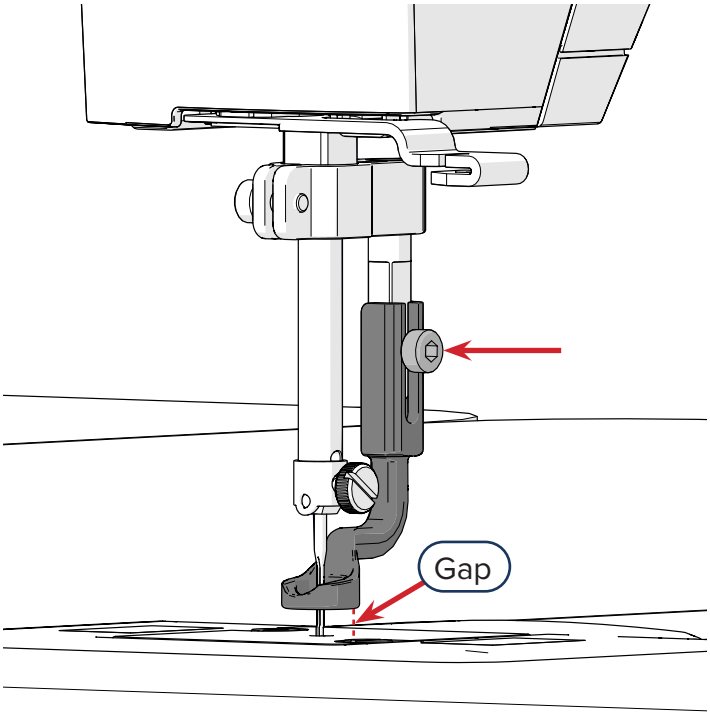


Task 7 - Install the Hopping Foot (continued)

5 Use the **hand wheel** to lower the needle to its lowest position.

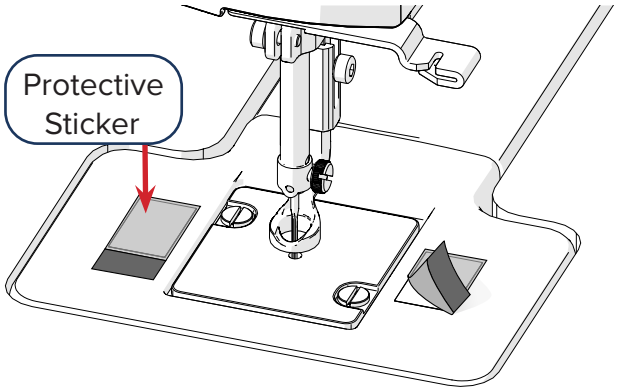


6 Raise the hopping foot to have a **gap** between the needle plate and the bottom of the foot. Use the 3 mm T-handle Allen wrench to tighten the screw till you meet resistance, then tighten a quarter turn more. Do not overtighten.



Note: You will adjust the hopping foot height for each project. See “Set the Hopping Foot Height” on page 44 for details.

7 Remove the **protective stickers** from the fabric sensors. Avoid touching the sensors to prevent fingerprint smudges on the glass.

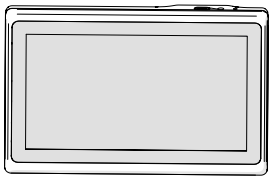


8 Use the hand wheel to raise the needle.

Task 8 - Install the Display

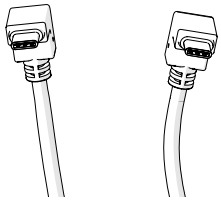
Parts & Tools Needed

7-Inch Display Assembly



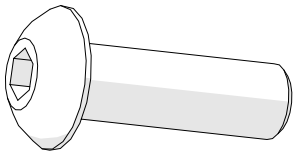
Box 1: Display Box

Display Cable



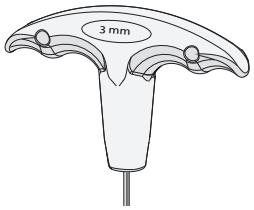
Box 1: Display Box

SBHCS M5 x 16 mm (x2)



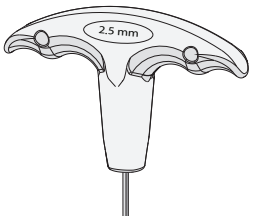
Box 1: Installation Box

T-handle Allen Wrench 3 mm



Box 1: Tools Box

T-handle Allen Wrench 2.5 mm

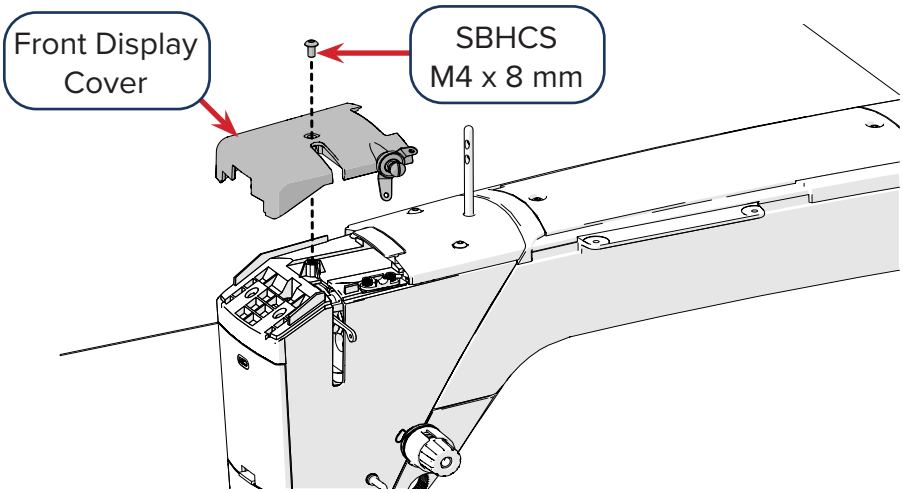


Box 1: Tools Box

Instructions

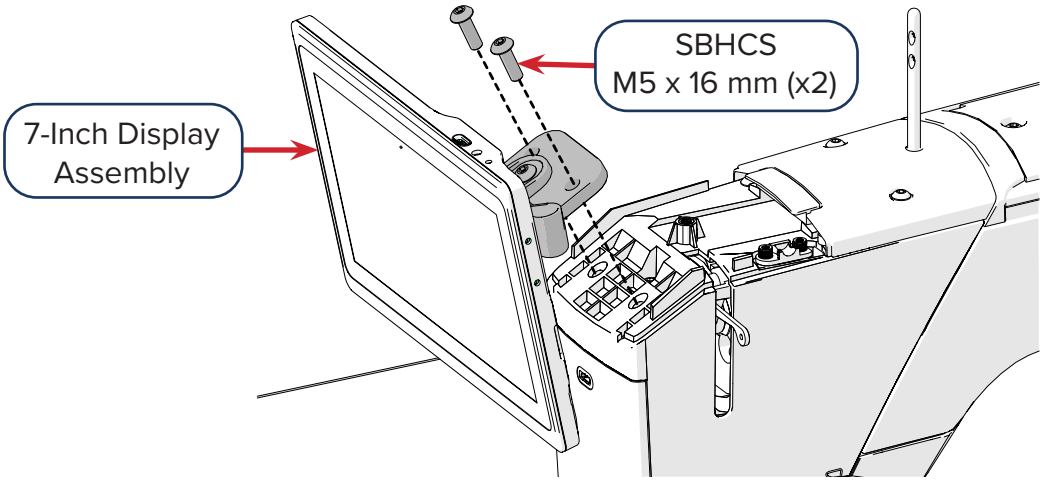
Take the following steps to install the 7-inch display assembly:

1. Use the 2.5 mm T-handle Allen wrench to remove the **M4 x 8 mm SBHCS** and **front display cover** from the machine.

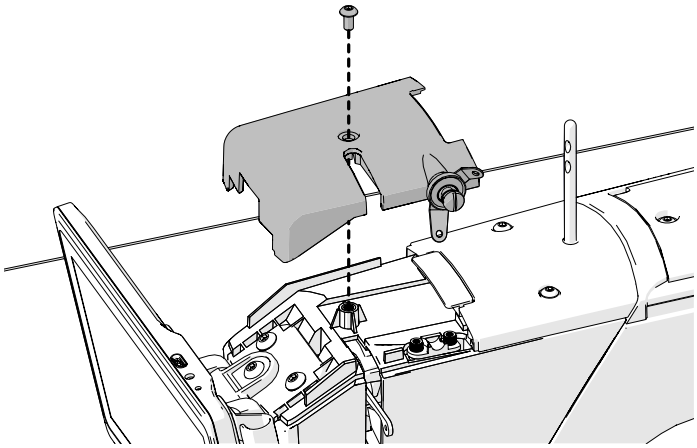


Task 8 - Install the Display (continued)

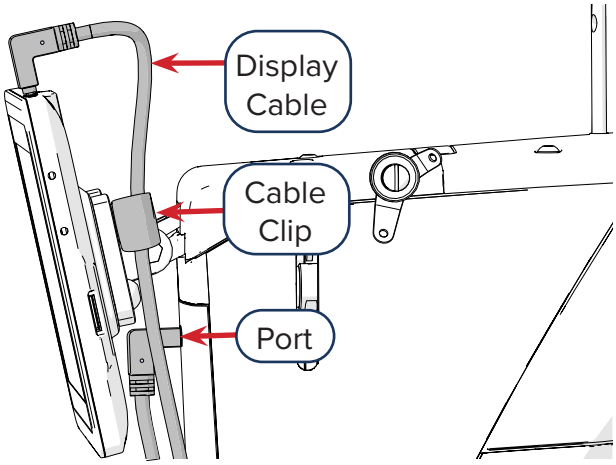
2 Use the 3 mm T-handle Allen wrench and two **M5 x 16 mm SBHCS** to attach the **7-inch display assembly** to the machine.



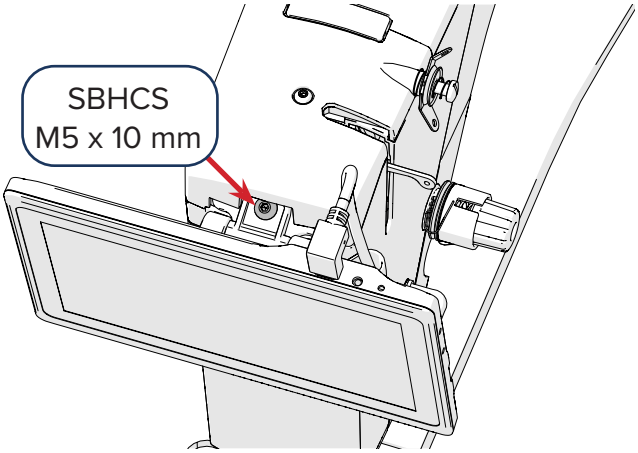
3 Use the 2.5 mm T-handle Allen wrench and the M4 x 8 mm SBHCS to re-attach the front display cover.



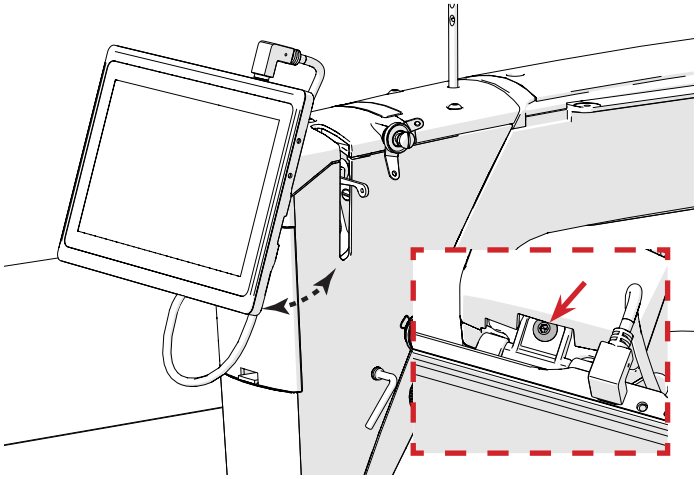
4 Plug the **display cable** into the display and the **port** on the machine. Press the cable into the **cable clip** to secure it in place.



5 To adjust the tilt of the display, use the 3 mm T-handle Allen wrench to loosen the **M5 x 10 mm SBHCS**, but do not remove it.



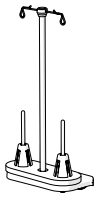
6 Tilt the display to your desired angle and tighten the M5 x 10 mm SBHCS.



Task 9 - Attach the Thread Stand

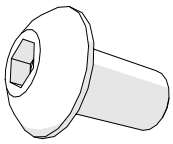
Parts & Tools Needed

Thread Stand Assembly



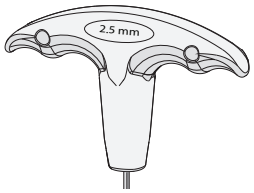
Box 1

SBHCS
M4 x 8 mm (x2)



Box 1: Installation Box

T-handle Allen Wrench
2.5 mm

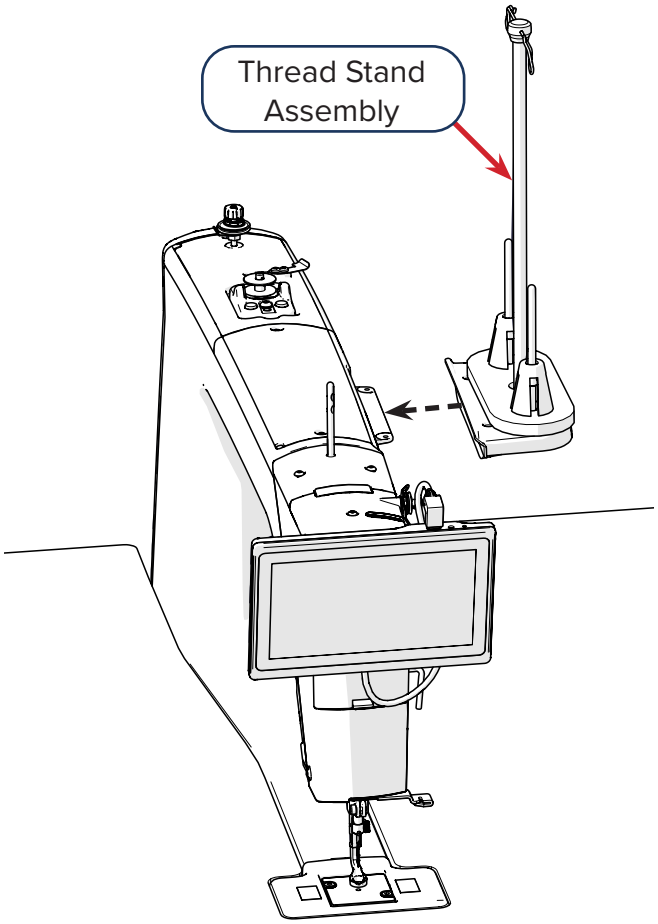


Box 1: Tools Box

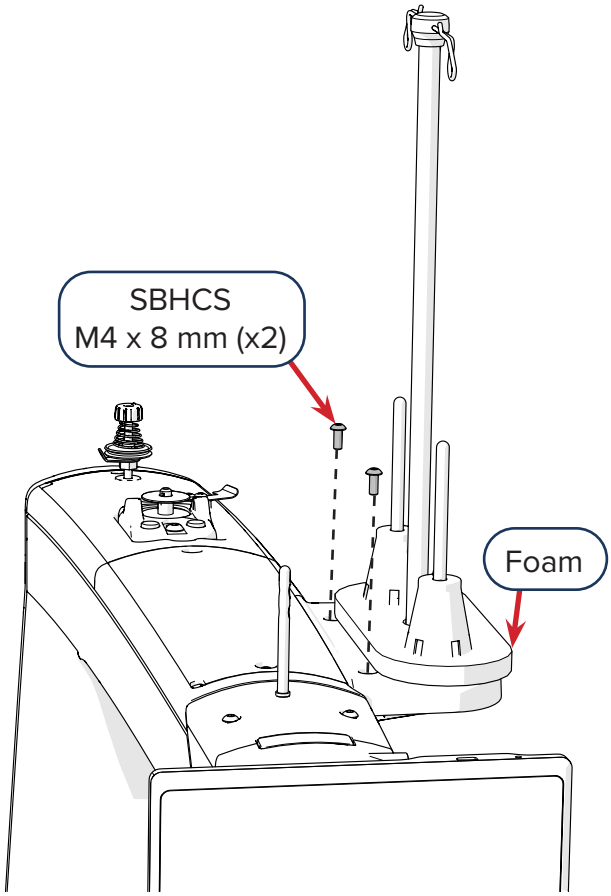
Instructions

Take the following steps to install the thread stand assembly:

1. Remove the **thread stand assembly** from Box 1. Slide the stand over the screw holes on the lip on the right side of the machine.



2. Use the 2.5 mm T-handle Allen wrench and two **M4 x 8 mm SBHCS** to fasten the thread stand in place.

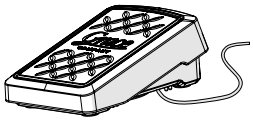


Note: If necessary, push back the **foam** on the thread stand to expose the screw holes.

Task 10 - Plug in the Foot Pedal

Parts & Tools Needed

Foot Pedal

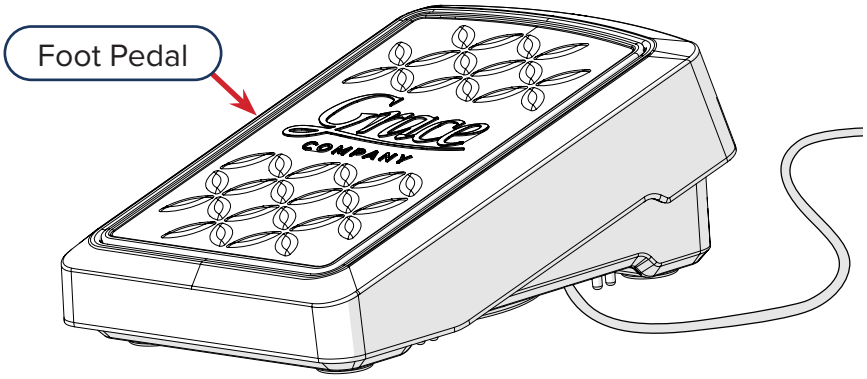


Box 1

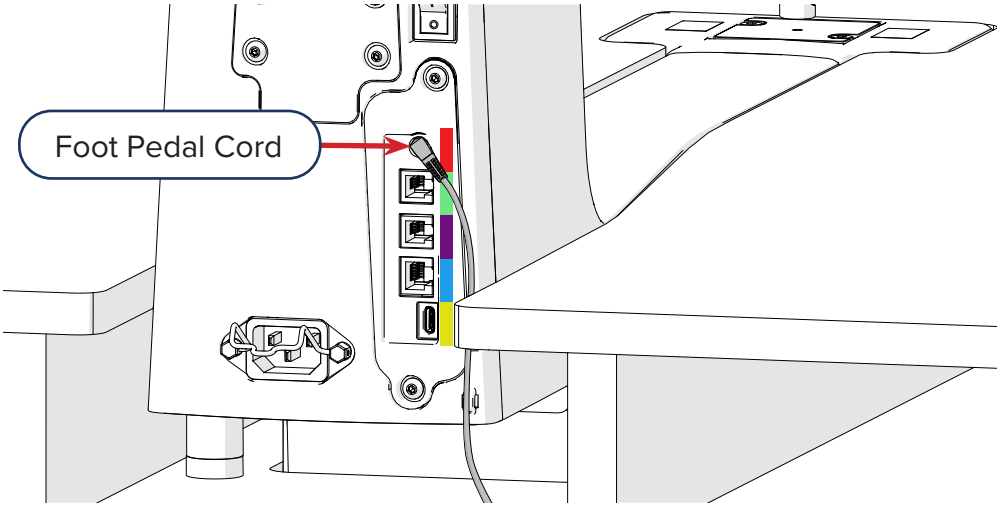
Instructions

Take the following steps to plug in the foot pedal:

1. Remove the **foot pedal** from Box 1.



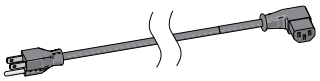
2. Plug the **foot pedal cord** into the port on the back of the machine next to the red sticker.



Task 11 - Power On the Machine

Parts & Tools Needed

Power Cord

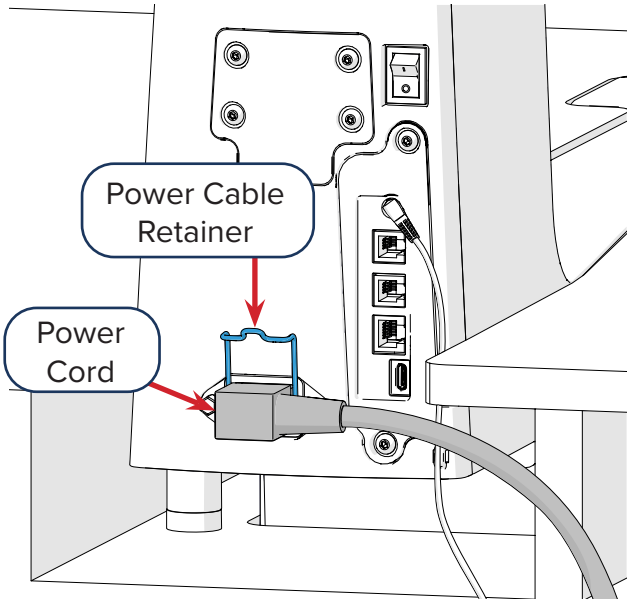


Box 1: Installation Box

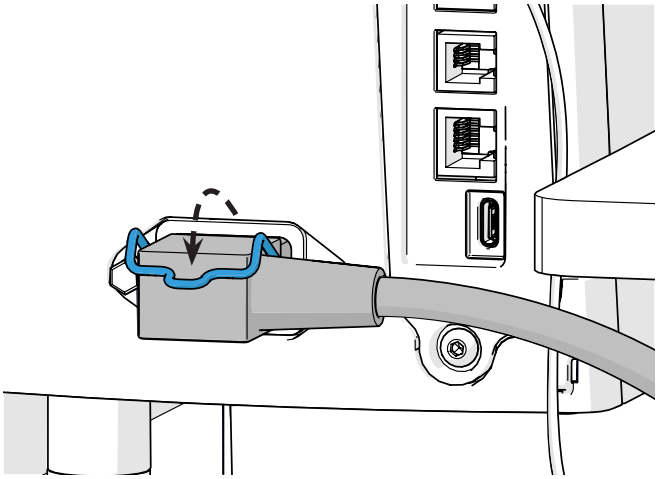
Instructions

Take the following steps to power on the machine:

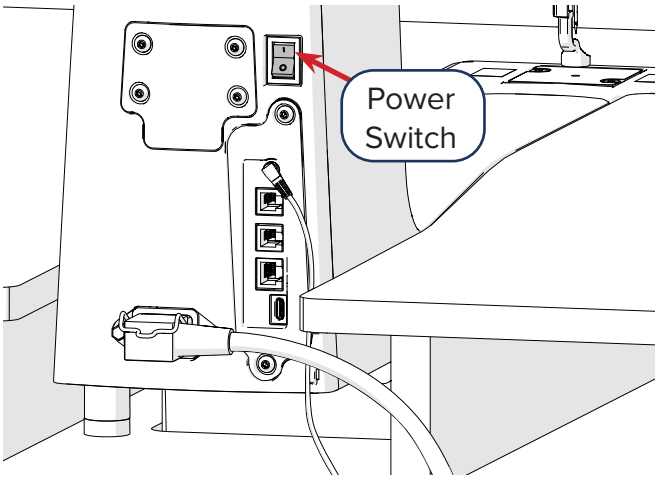
1. Remove the power cord from the Installation box in Box 1.
2. Lift up the **power cable retainer** (shown in blue) and plug the **power cord** into the back of the machine.



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



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



Quilting Preparation

This section of the manual covers how to prepare your machine for quilting.

Access the Help Guides 28

Use the Thread Nets 29

Wind a Bobbin 30

Load the Bobbin Case 33

Thread the Machine 36

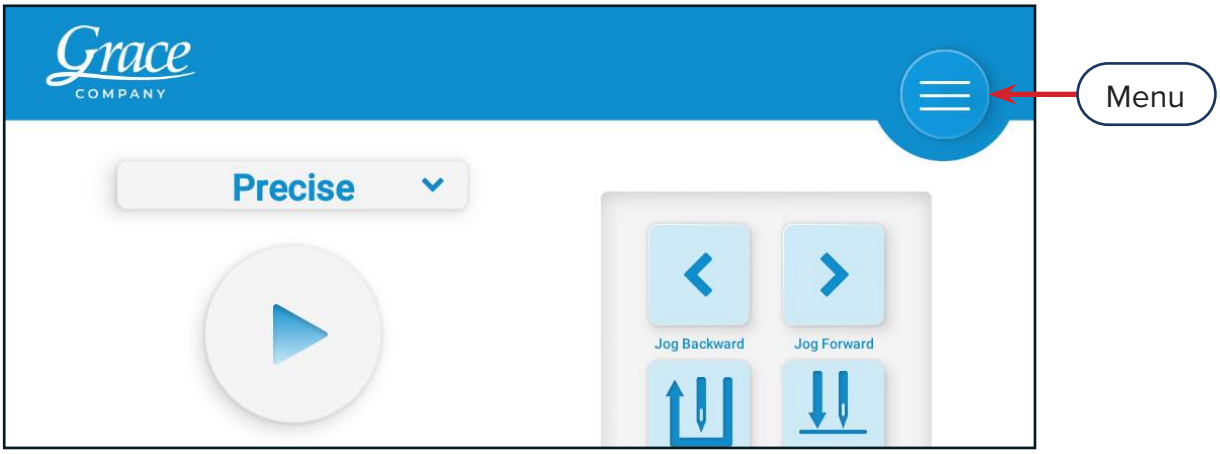
Prepare Your Quilt 42

Set the Hopping Foot Height 44

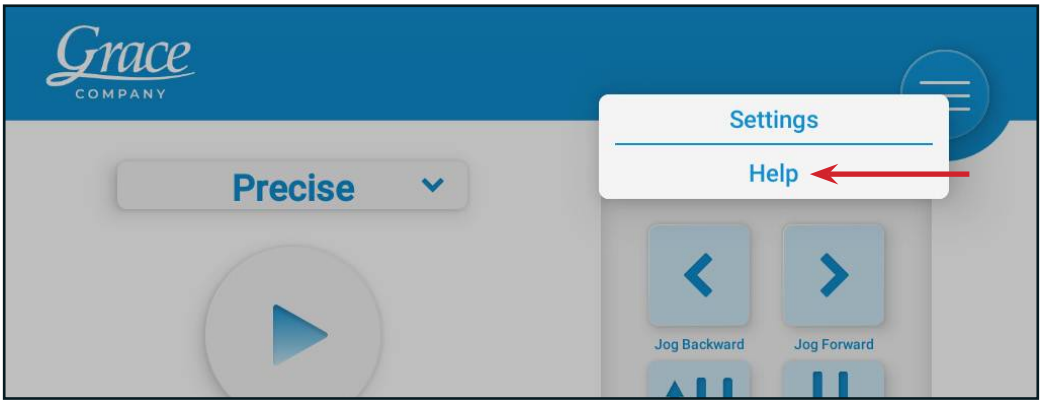
Access the Help Guides

For quick assistance while quilting, refer to the help guides on your machine. To reach the help guides, take the following steps:

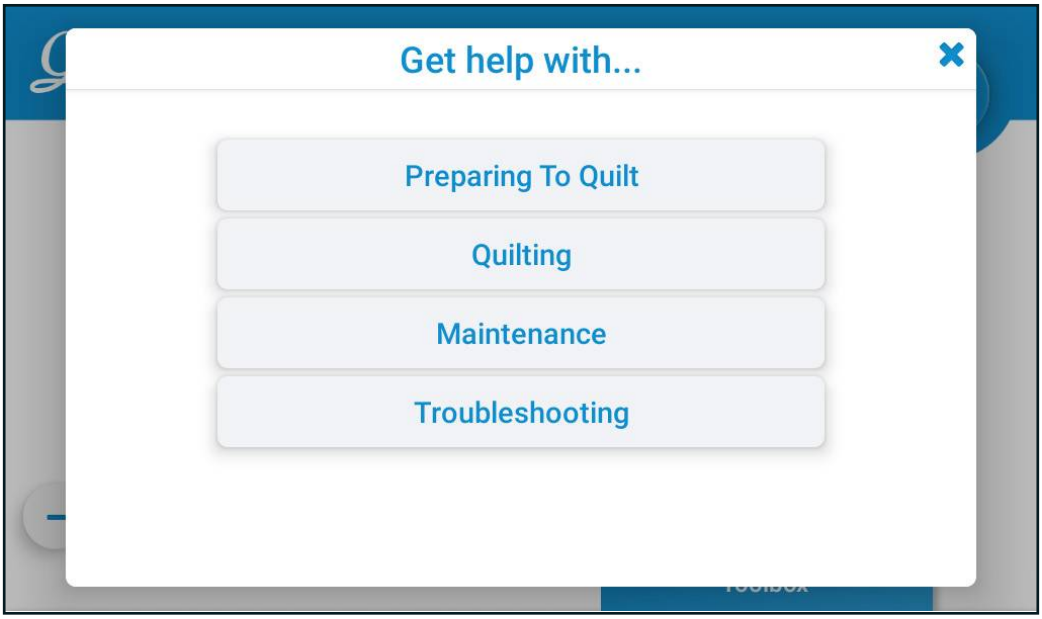
1. Press the **menu** icon in the top right corner of the screen.



2. Choose **Help**.



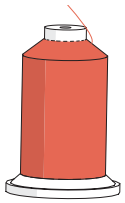
3. Select the item you need help with from the menu.



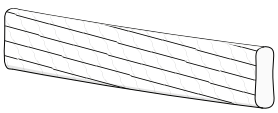
Use the Thread Nets

Parts & Tools Needed

Thread Cone

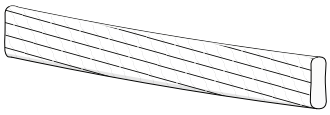


Thread Net 10 cm
(3.9 inch)



Box 1: Installation Box

Thread Net 14 cm
(5.5 inch)

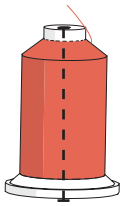


Box 1: Installation Box

Instructions

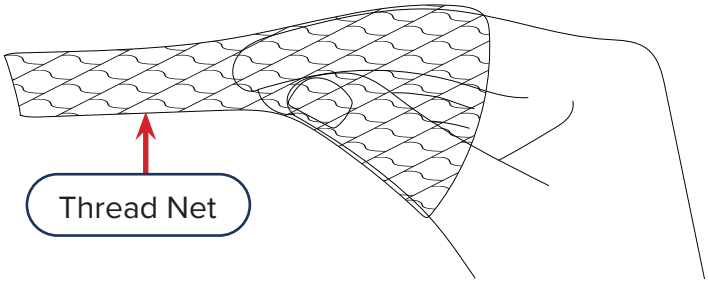
Thread nets help thread cones unwind evenly on the machine and prevent them from becoming tangled while in storage. Take the following steps to place a thread net on a thread cone:

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

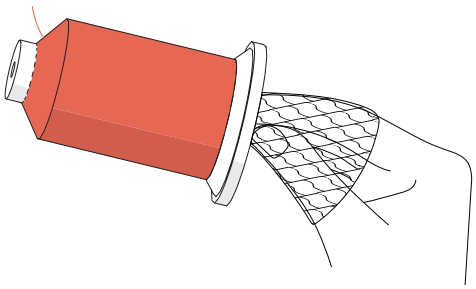


Thread Cone Height	Thread Net Size
3.9 inches or shorter	10 cm (3.9 inch)
Taller than 3.9 inches	14 cm (5.5 inch)

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

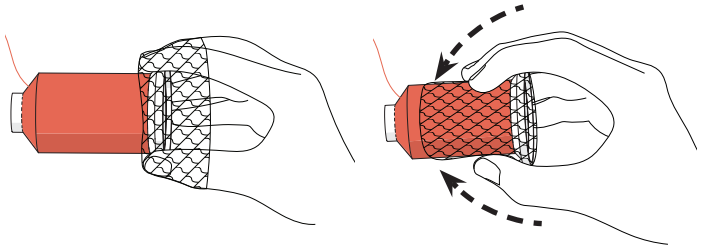


3. Insert the thread net about halfway into the underside of the thread cone.



Note: If the machine is currently threaded, you don't have to unthread the machine. Just lift the thread cone from the stand and work with it while the machine is threaded.

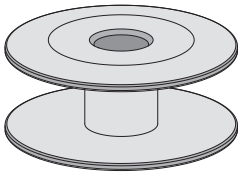
4. Use your fingers to widen the thread net and push it over the base of the thread cone. Cover at least half of the cone with the net, and leave the rest of the net inside the cone.



Wind a Bobbin

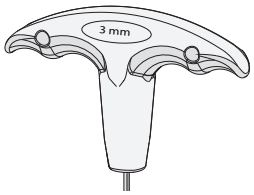
Parts & Tools Needed

Bobbin
(Class M, Large)



Box 1: Tools Box

T-handle Allen Wrench
3 mm (optional)



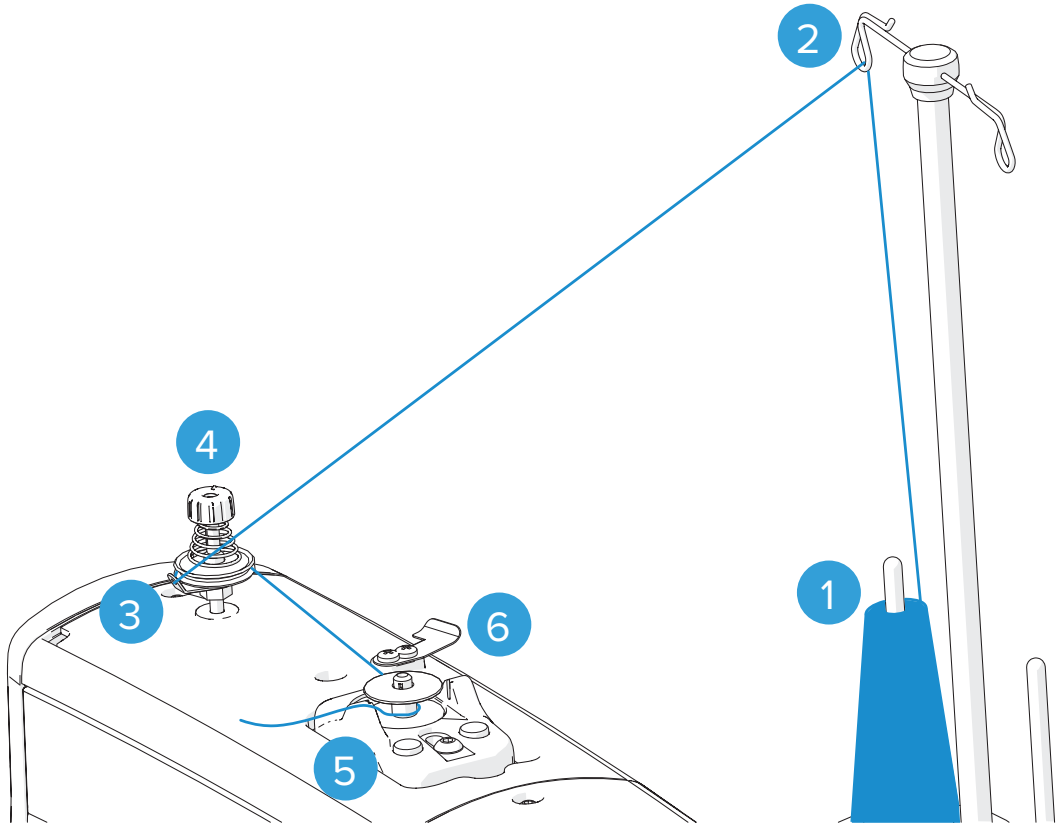
Box 1: Tools Box

Winding Instructions

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 page 96.

Note: This machine uses cone-style thread. Only use thread cones for this machine, unless you have the Horizontal Spool Holder accessory, which can be purchased from graceframe.com.

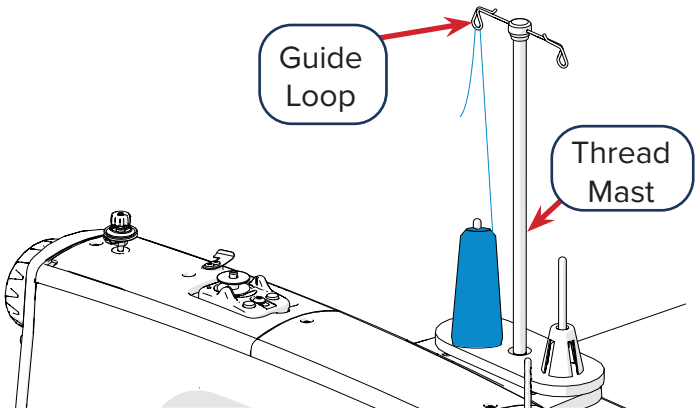
Overview of bobbin thread path (specific instructions on following page):



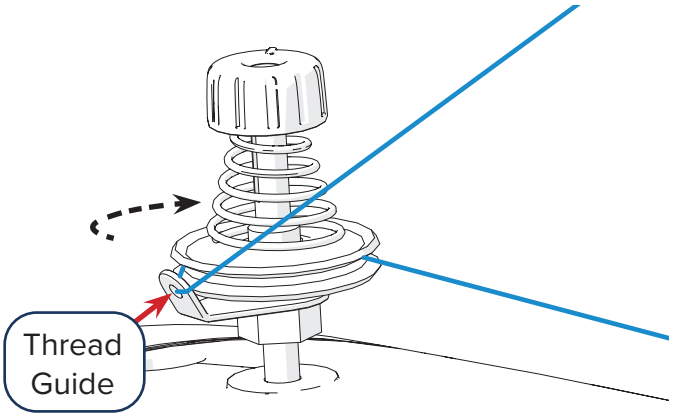
1 Thread Stand
2 Guide Loops
3 Tensioner Guide
4 Tensioner Discs
5 Bobbin on Bobbin Stand
6 Thread Cutter

Wind a Bobbin (continued)

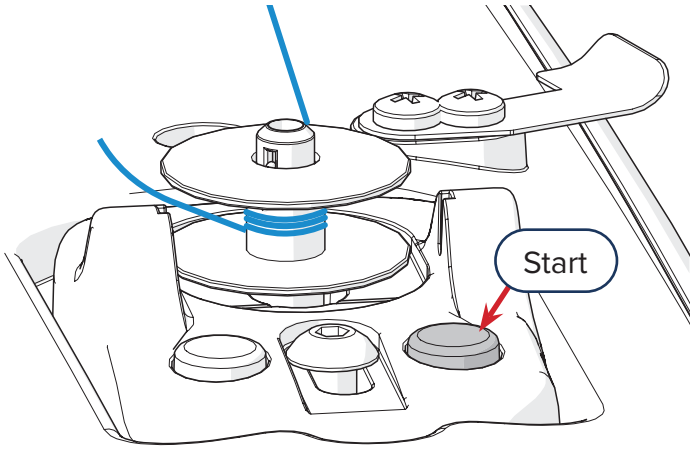
1 Place the thread cone on the back thread stand. Run the thread through the **thread mast guide loop** directly above the thread cone.



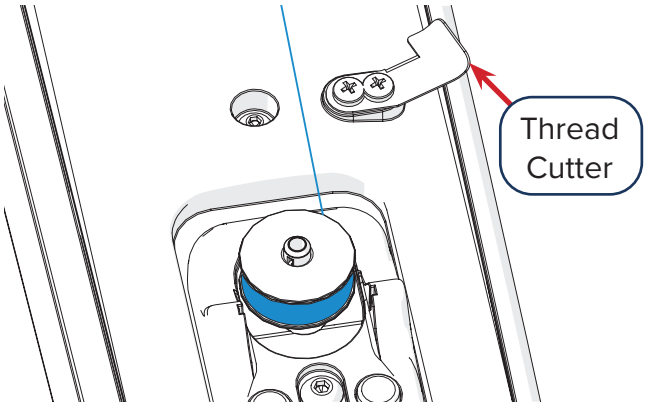
2 Feed the thread through the hole in the **thread guide**, then wrap it around the back of the tensioner, between the discs.



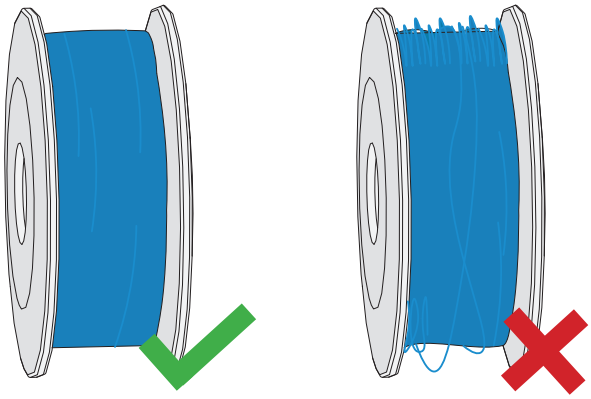
3 Wrap the thread clockwise around the empty bobbin. Press **Start** when ready to wind.



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

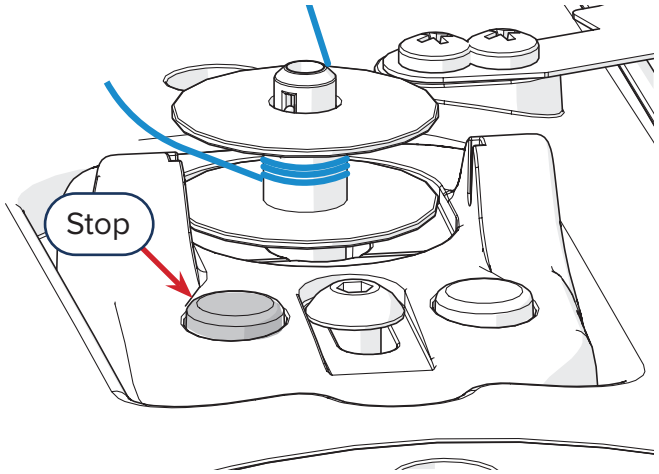


5 The bobbin thread should be neat and smooth, and not mounded to one side.



To troubleshoot bobbin winding issues, see page 88.

Note: To stop winding early, press **Stop**.

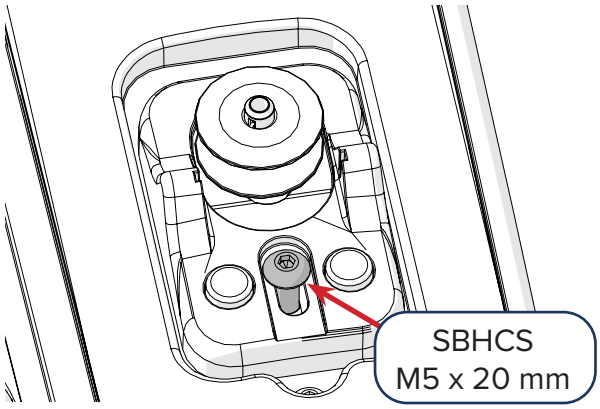


Wind a Bobbin (continued)

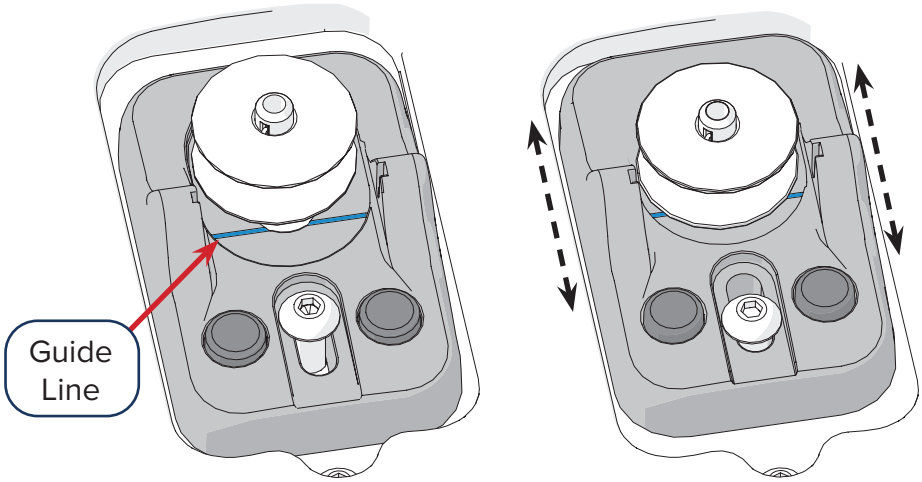
Adjust Fill Level Instructions

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

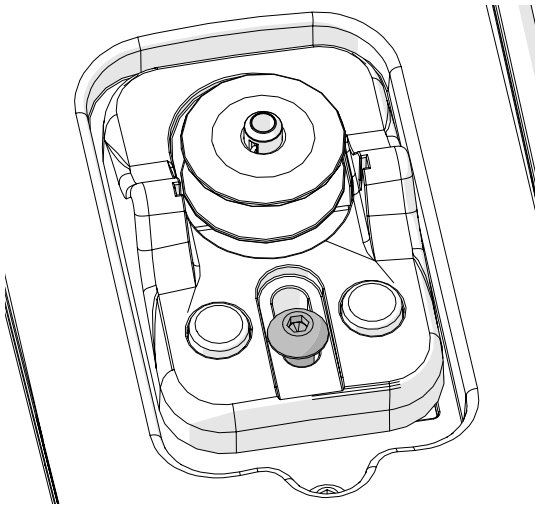
1. To adjust the bobbin winder, loosen the **M5 x 20 mm SBHCS** with the 3 mm Allen wrench.



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



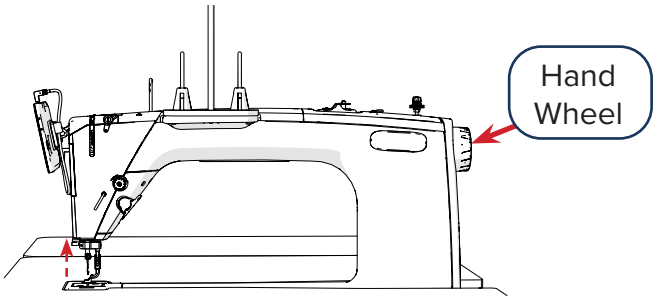
3. Tighten the M5 x 20 mm SBHCS to secure the bobbin winder in place.



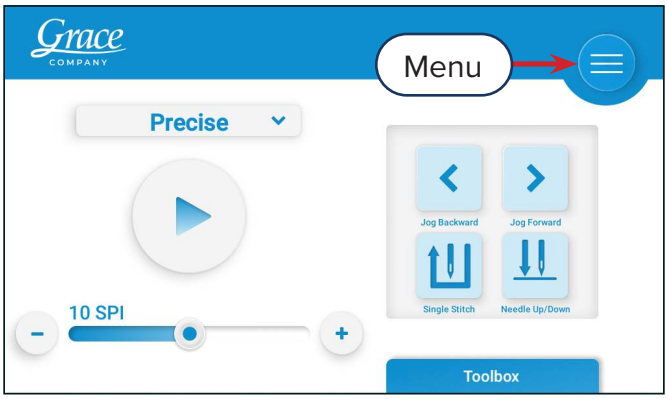
Load the Bobbin Case

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

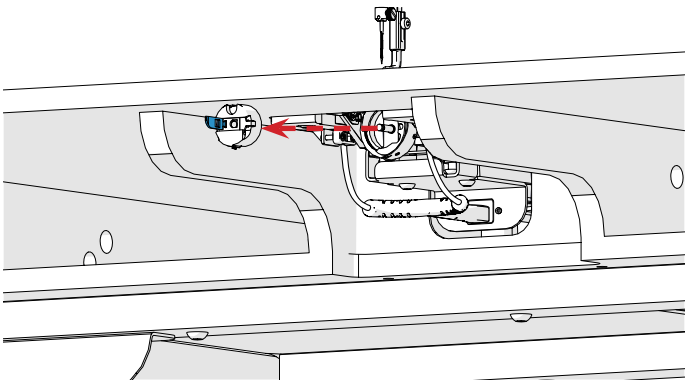
1. Check that the needle is up. If needed, rotate the **hand wheel** or press Needle Up/Down on the display to raise the needle.



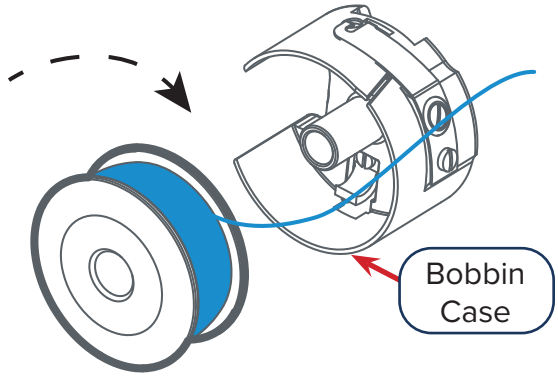
2. For your safety, press the **menu** icon on the display to open the Settings menu; this prevents the machine from stitching.



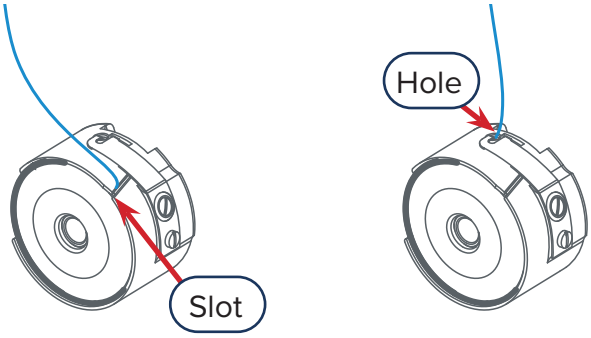
3. Pull on the bobbin case **release lever** (shown in blue) to remove the bobbin case from the hook assembly.



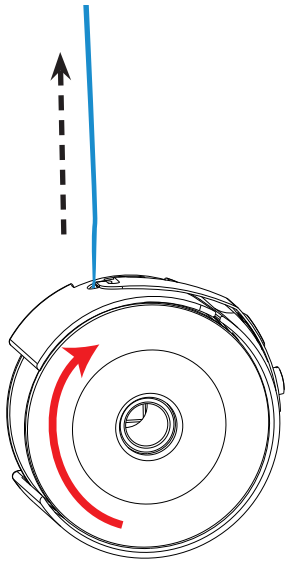
4. Place the wound bobbin into the **bobbin case**. Note the direction the thread is coming off the bobbin in relation to the case.



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



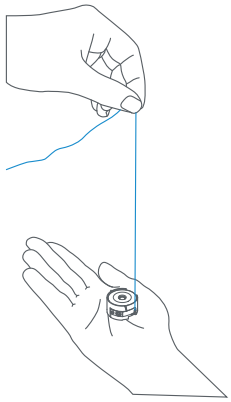
Note: If the bobbin is installed correctly, it turns clockwise when the thread is pulled.



Load the Bobbin Case (continued)

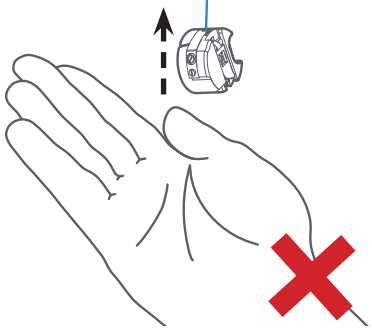
6 Test the tension of the bobbin case every time the bobbin thread is changed; bobbin tension is the foundation for correct thread tension.

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

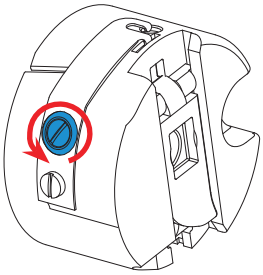


b Pull up on the thread. The thread should run freely and the bobbin should rise into a vertical position without lifting off your hand.

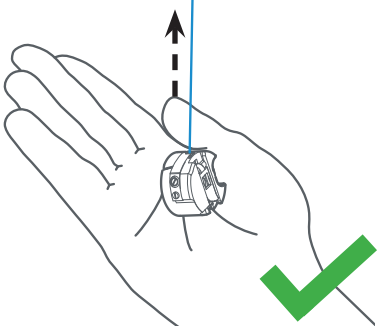
Too Much Tension



Too Much Tension: If the case lifts into the air, there is too much tension. Turn the **large screw** (shown in blue) counter-clockwise.

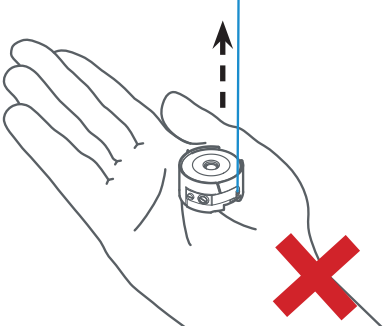


Correct Tension

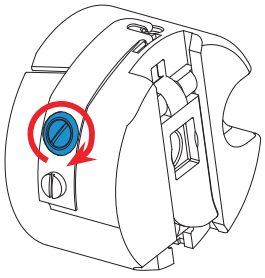


Correct Tension: If the bobbin case lifts into a vertical position but remains on your hand, the tension is correct.

Too Little Tension

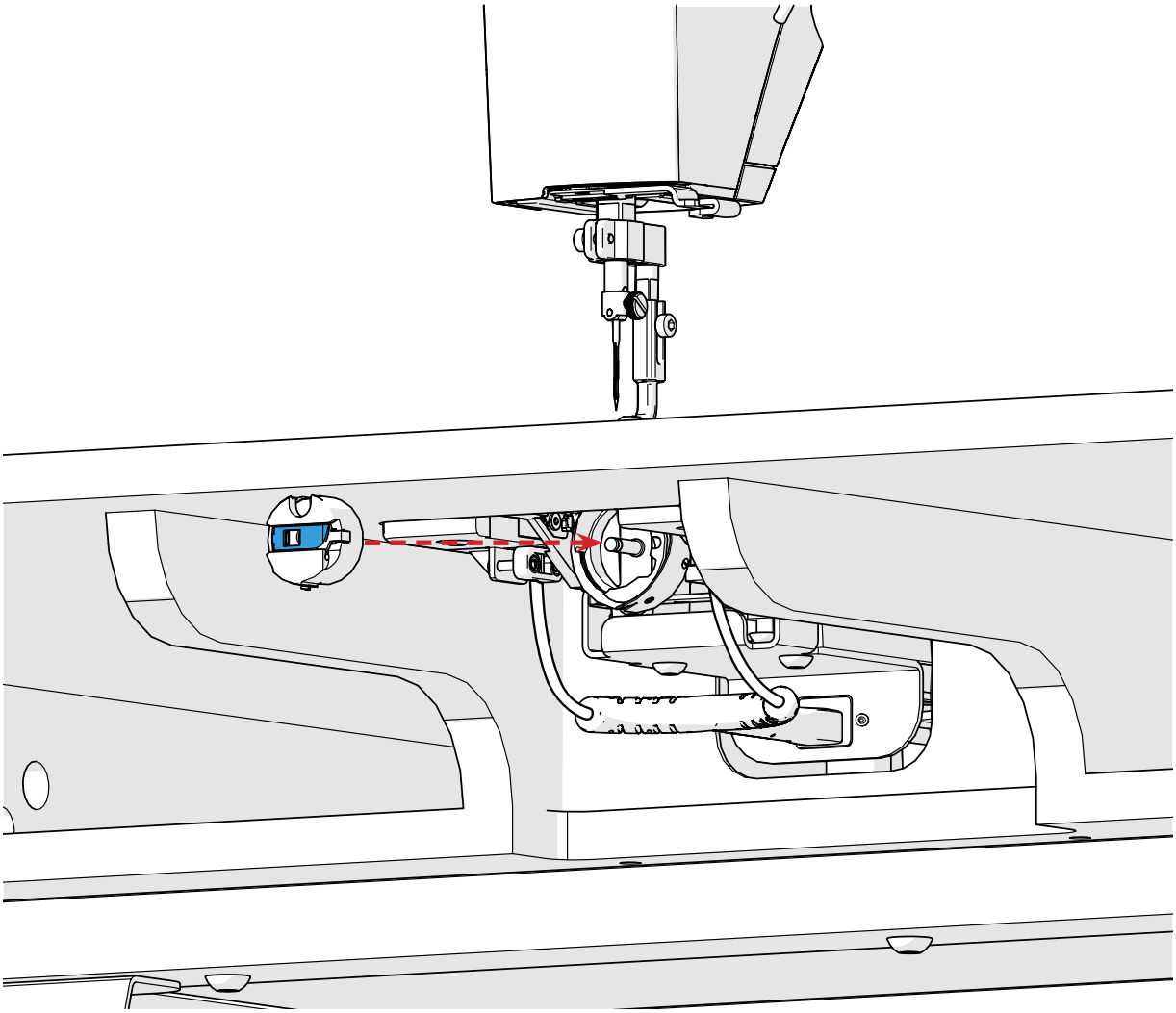


Too Little Tension: If the bobbin case remains on its side, there is too little tension. Turn the **large screw** (shown in blue) clockwise.



Load the Bobbin Case (continued)

7 Place the bobbin case inside the quilting machine with the **release 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.



Thread the Machine

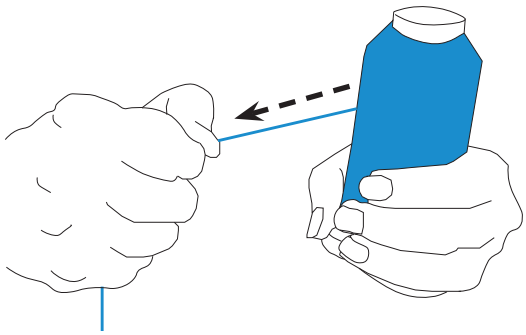
Before threading the machine, make sure you've selected quality thread for your project (see page 96). Choosing the right thread for the machine can prevent the thread from breaking or tangling up under the needle plate. Note the following:

- This machine uses cone-style thread, not thread from a spool. Do not use spool thread unless the Horizontal Spool Holder accessory has been installed.

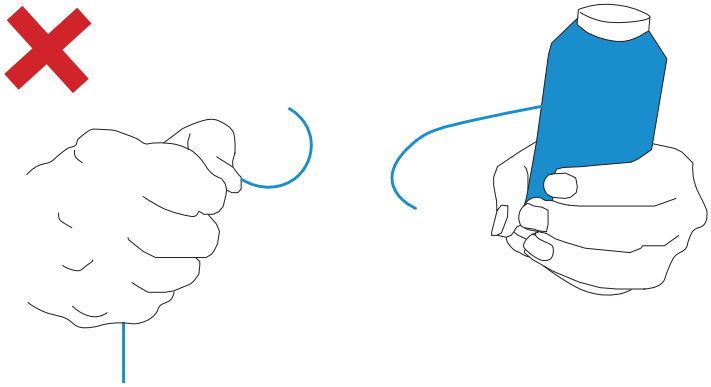


- Choose thread that is strong enough to pass the yank test, demonstrated below. Re-test thread as it ages because thread strength diminishes over time.

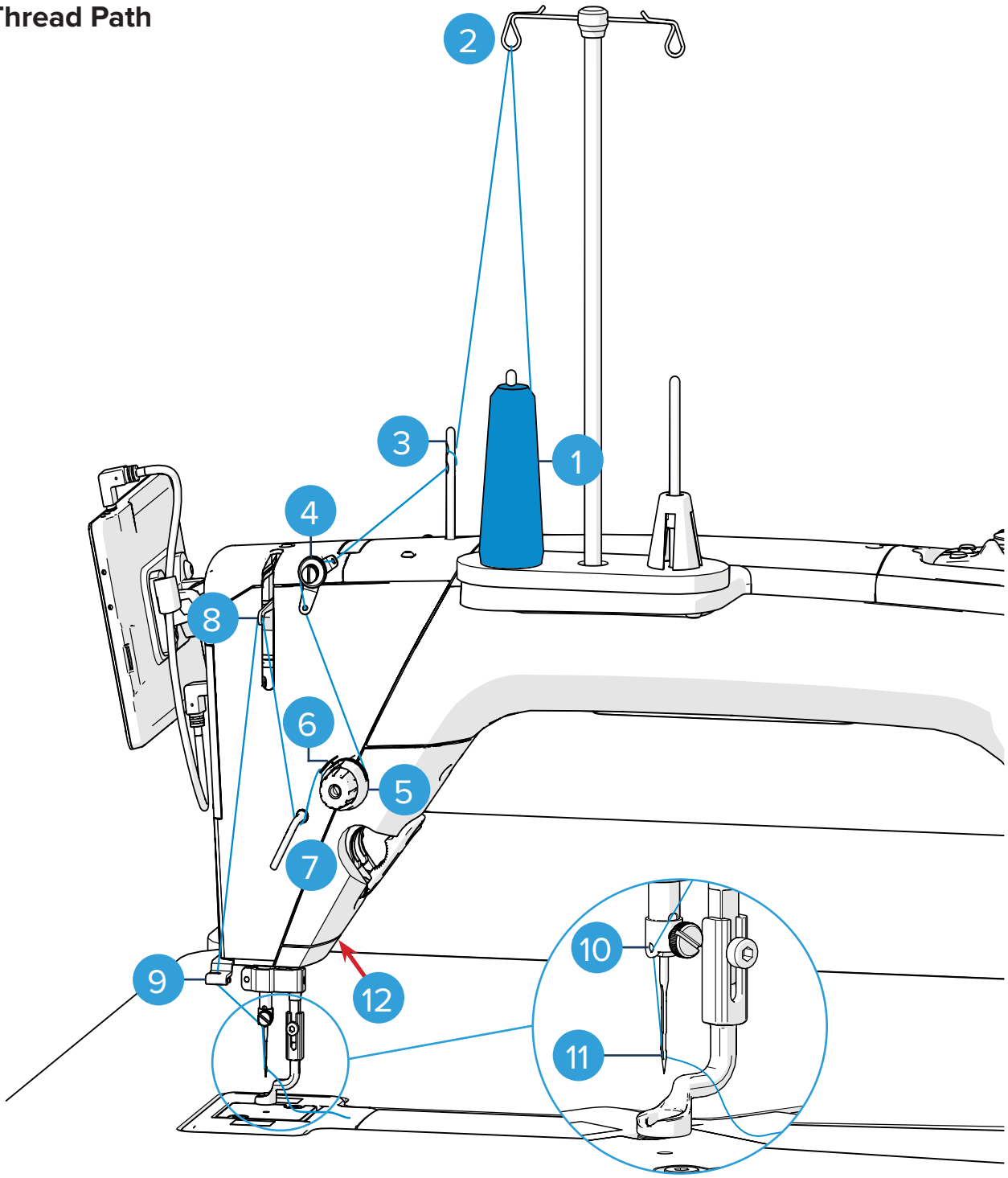
a Hold the cone in one hand and the end of the thread in the other.



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



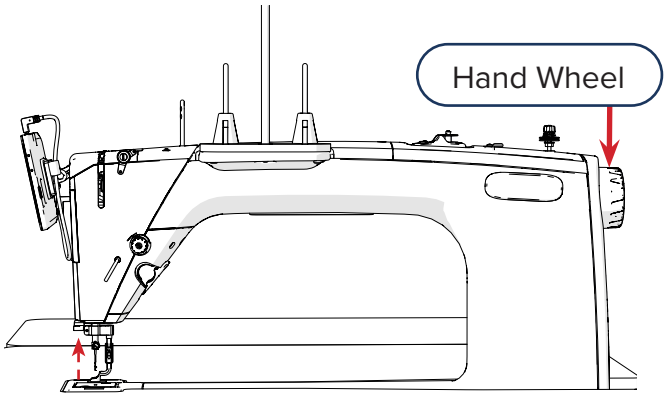
Thread Path



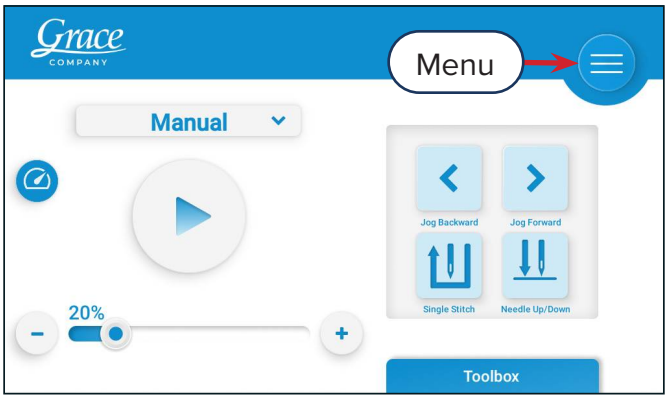
1. Thread cone
2. Thread mast guide loop
3. Thread guide rod
4. Small thread tensioner arms and discs
5. Large thread tensioner discs
6. Check spring
7. Thread guide
8. Take-up lever
9. Bottom thread guide
10. Needle bar eyelet
11. Needle eye
12. Thread cutter (optional)

Thread the Machine (continued)

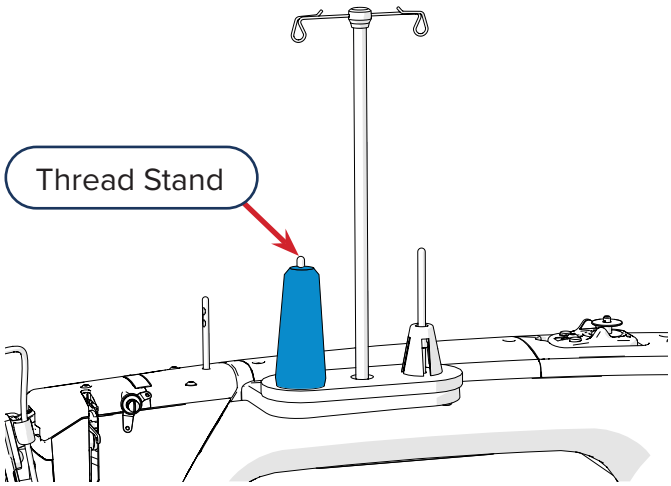
1 Rotate the **hand wheel** or press Needle Up/Down on the display to raise the needle to the top position.



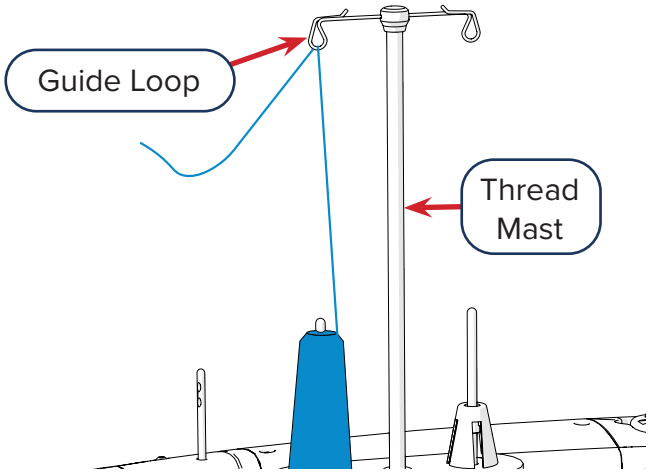
2 For your safety, press the **menu** icon on the display to open the Settings menu; this prevents the machine from stitching.



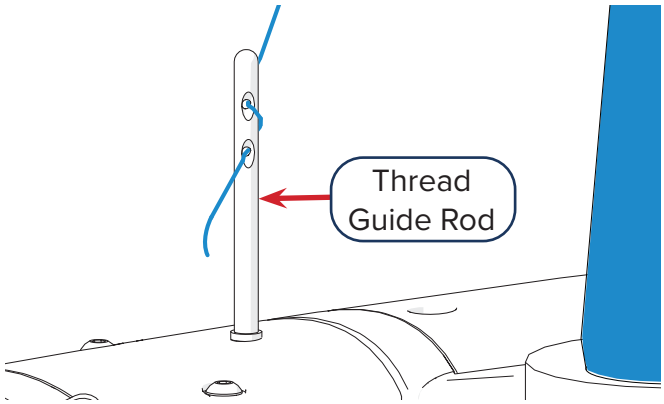
3 Slide the thread cone onto the front **thread stand**.



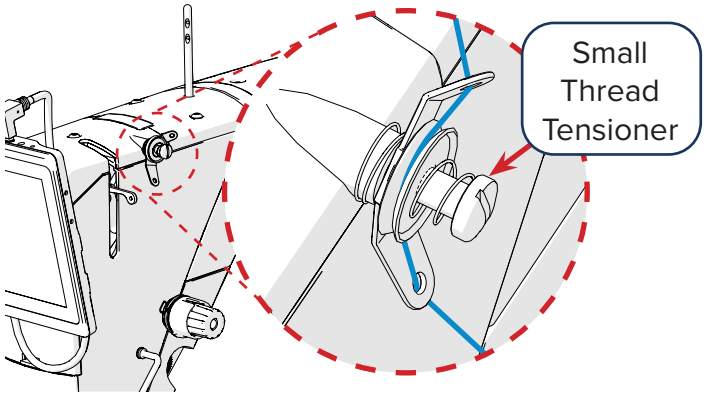
4 Pull the thread through the **thread mast guide loop** directly above the thread cone.



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

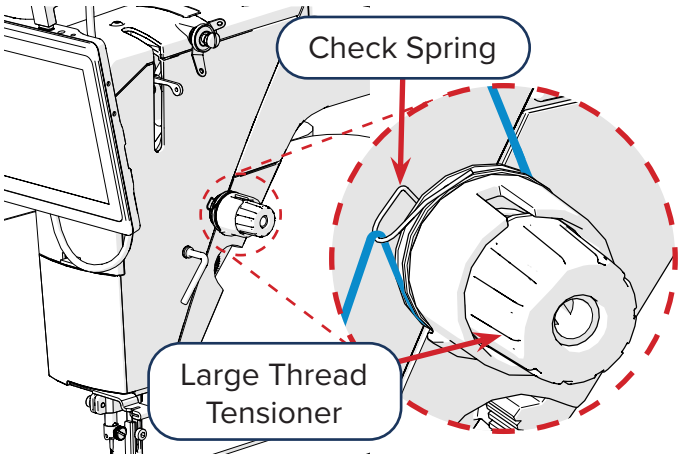


6 Run the thread through the top hole on the **small thread tensioner**. Then floss the thread <u>between</u> the two discs, and insert it through the bottom hole.

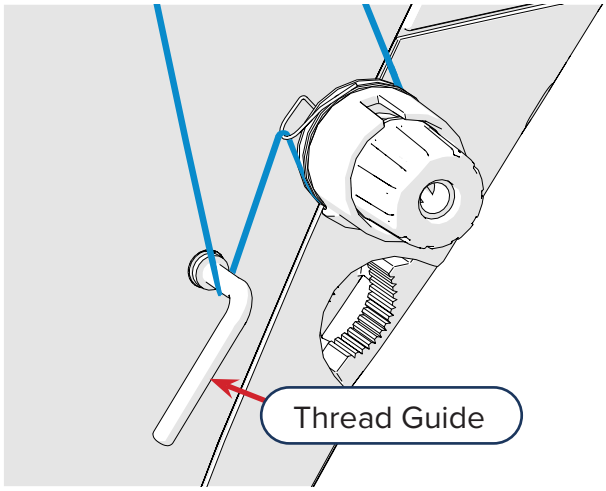


Thread the Machine (continued)

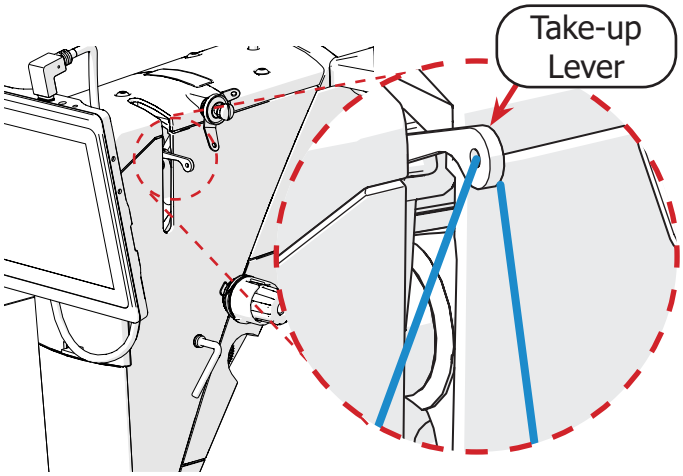
7 Floss the thread between the discs on the **large thread tensioner**. Wrap the thread over the **check spring**.



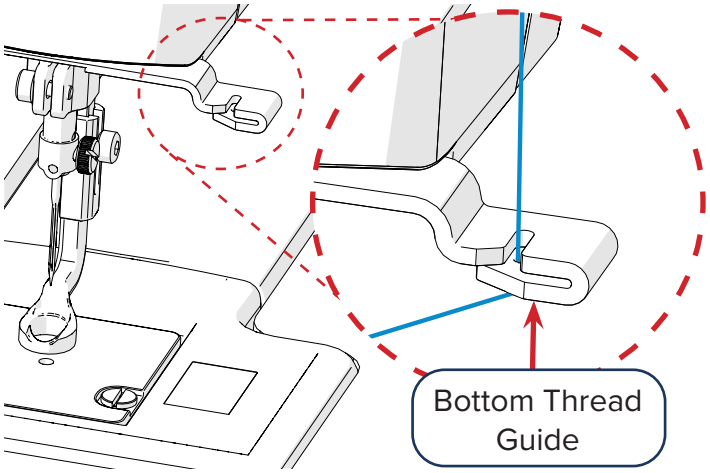
8 Next, run the thread under the **thread guide** near the large thread tensioner.



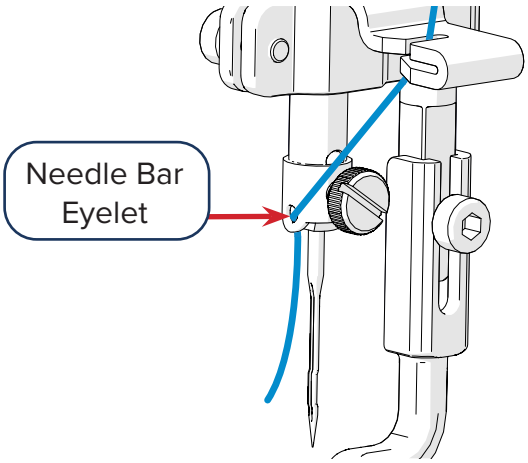
9 Pull the thread through the hole in the **take-up lever**.



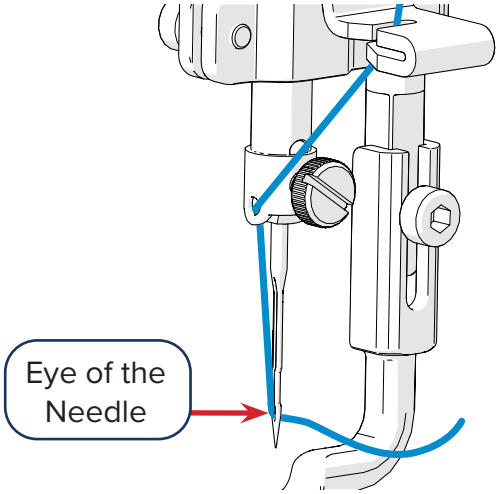
10 Slide the thread into the slot in the **bottom thread guide** and wrap it around the guide hook.



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



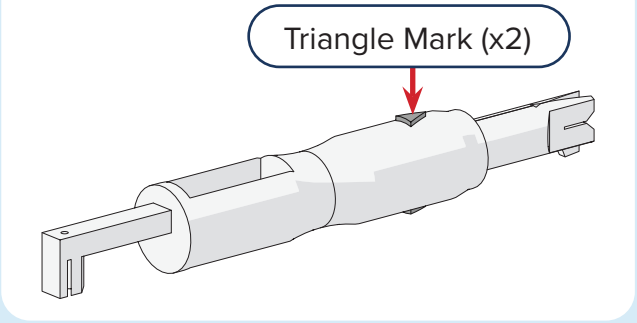
12 Thread through the **eye of the needle**.



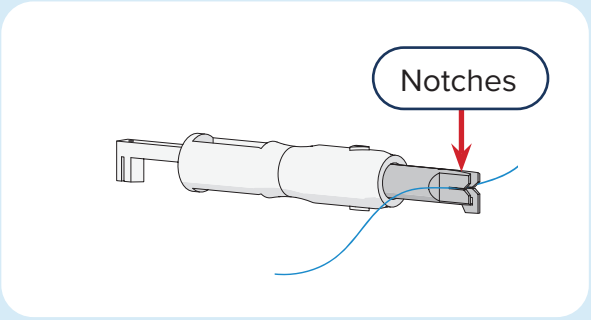
Thread the Machine (continued)

Tip: Use the needle threader (in the Tools box in Box 1) to assist with threading the needle:

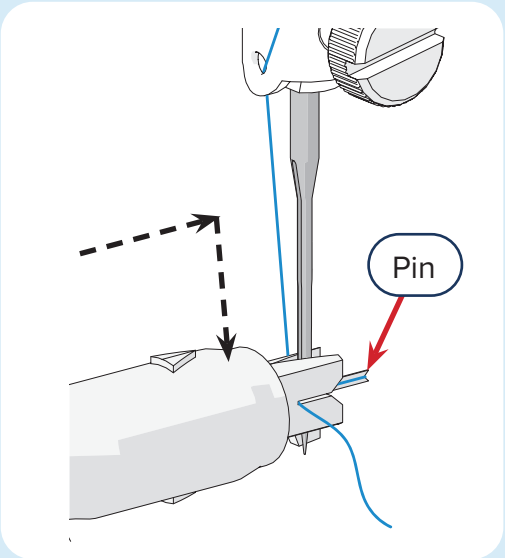
a Turn the needle threader so the **triangle marks** are on the top and bottom.



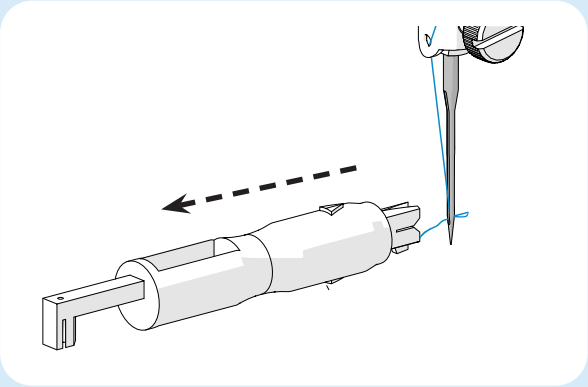
b Slot the thread horizontally into the **notches** on the tip of the threader.



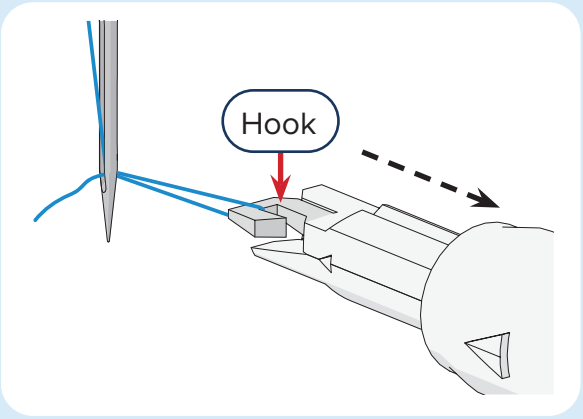
c Gently push the threader against the needle. Slowly slide it down until the **pin** emerges, pushing a loop of thread through the needle's eye.



d Slowly pull the threader away from the needle. **Note:** If the thread comes back with the threader, try again more slowly.

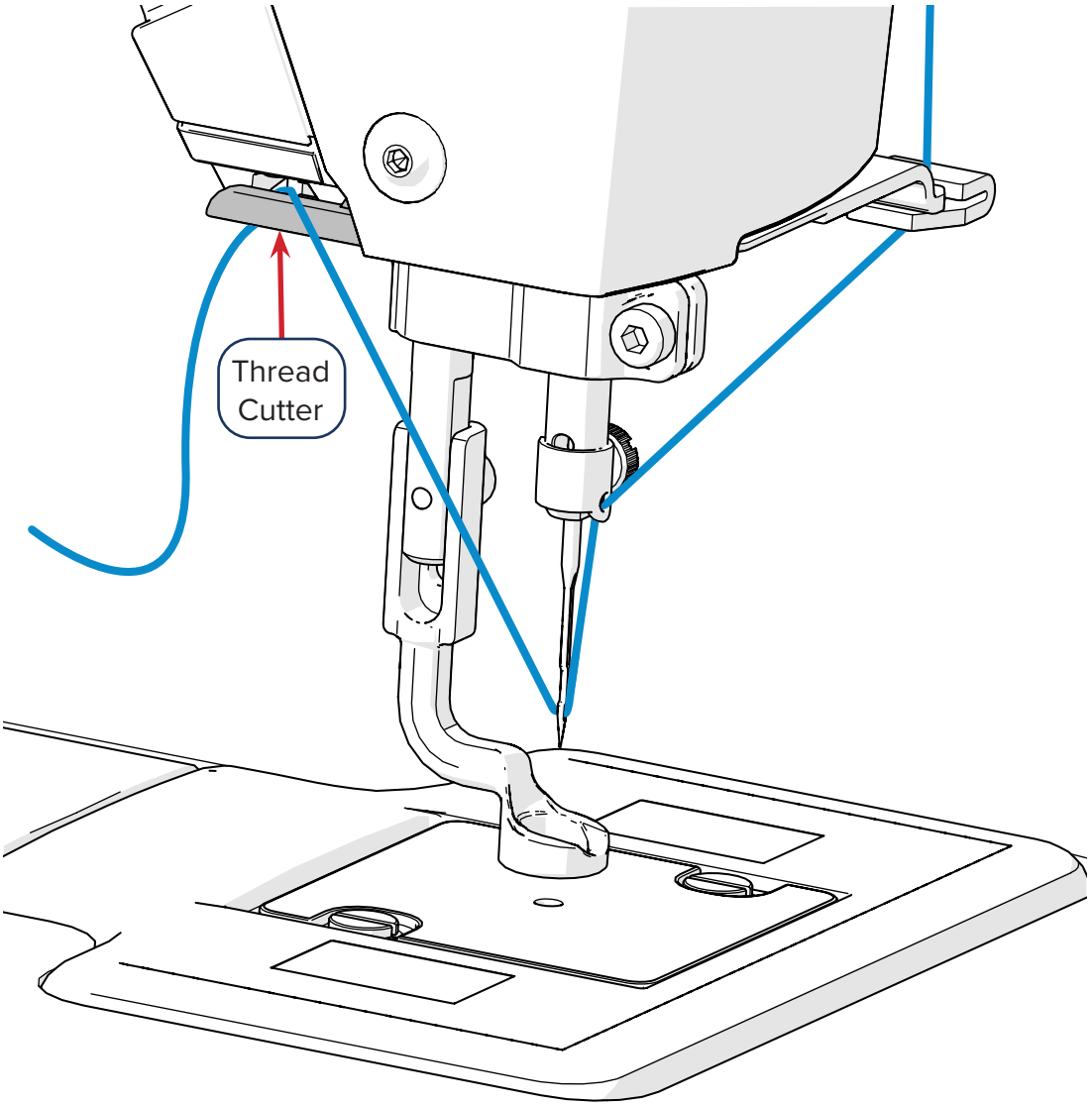


e Use the **hook** to grab the loop and pull the rest of the thread through the eye.



Thread the Machine (continued)

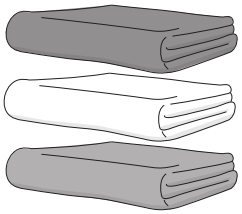
13 Loop excess thread over the **thread cutter** on the left of the machine to cut the thread.



Prepare Your Quilt

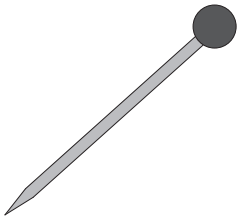
Parts & Tools Needed

Quilt Top, Batting, & Backing



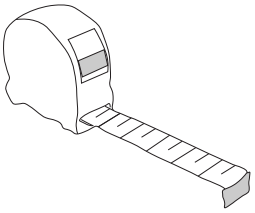
(not included)

Pins



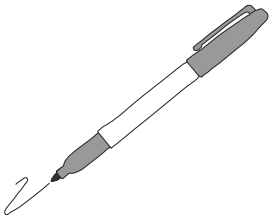
(not included)

Measuring Tape



(not included)

Fabric Marking Pencil or Chalk



(not included)

Terminology

The following terms are used in preparing your quilt:

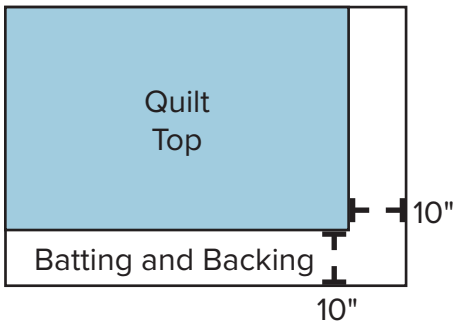
- **Quilt Sandwich:** Quilt top and quilt backing with a layer of quilt batting between them.
- **Right Side/Wrong Side of Fabric:** Some fabrics have a "right side" with prints, textures, or other qualities that the other side (the "wrong side") does not have. The wrong side might simply look faded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

Instructions

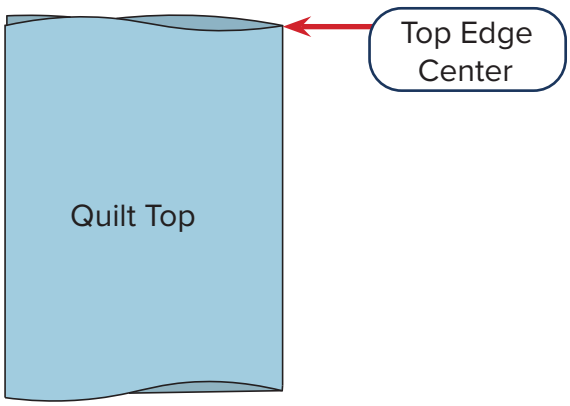
Take the following steps to prepare your quilt sandwich:

Tip: Use spare pieces of fabric so you can safely experiment and make mistakes. Use all three layers (quilt top, backing, and batting) when practicing.

1. Cut your **quilt backing** and **quilt batting** at least 10 inches longer than your quilt top. **Note:** The extra length gives you something to hold on to while moving your fabric, as well as more range around the fabric sensors, especially around the edges.

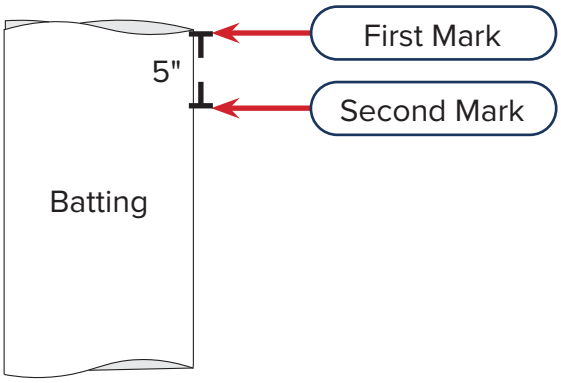


2. Fold your quilt top in half with the right side facing outward. **Mark the center of the top edge** with a pin or marker on the right side of the fabric.

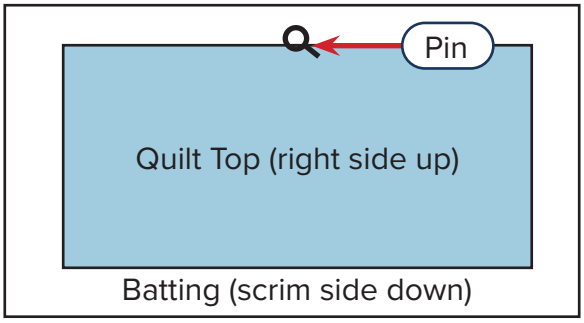


Prepare Your Quilt (continued)

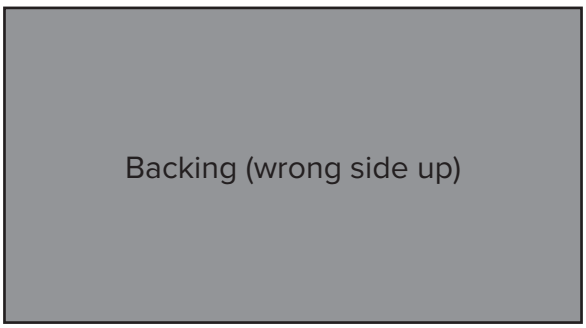
3 Fold your batting in half with the scrim side facing inward and **mark the center of the top edge** with a pin or marker. Then use a measuring tape or ruler to make a **second mark** 5 inches below the first.



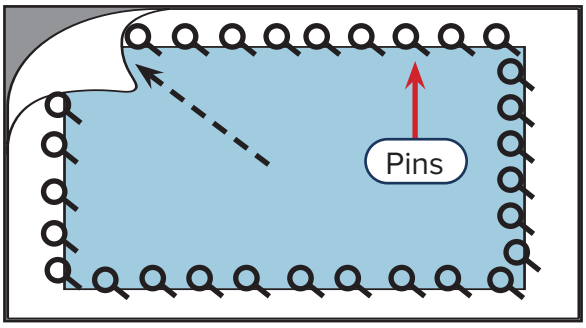
4 Align the mark on the quilt top with the second mark on the batting. **Pin** the two layers together with the right side of the quilt top facing up and the scrim side of the batting facing down.



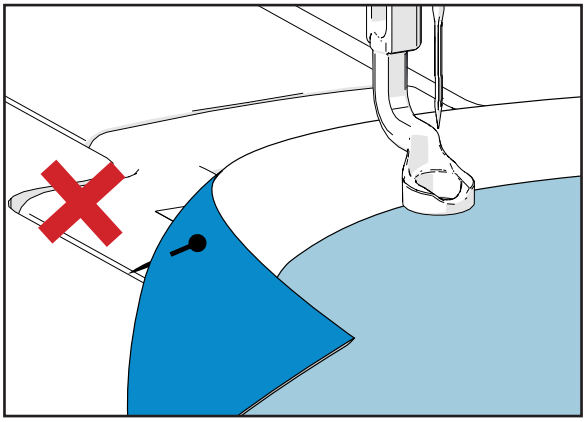
5 Lay your quilt backing down with the wrong side facing up.



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

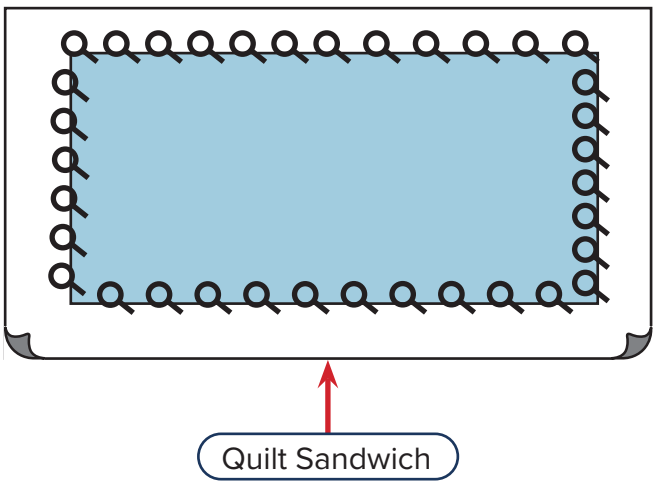


Important: Keep the ends of your pins on the top of the quilt sandwich to prevent catching on the table top around the fabric sensor assembly.



Tip: Some quilters like to use pin caps on the tips of their pins to prevent being poked while quilting.

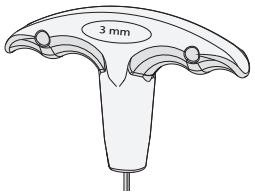
7 Roll up your **quilt sandwich** so you can easily carry it to the machine.



Set the Hopping Foot Height

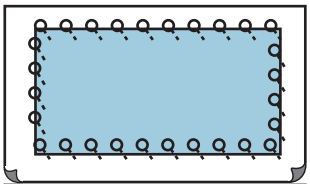
Parts & Tools Needed

T-handle Allen Wrench
3 mm (optional)



Box 1: Tools Box

Quilt
Sandwich



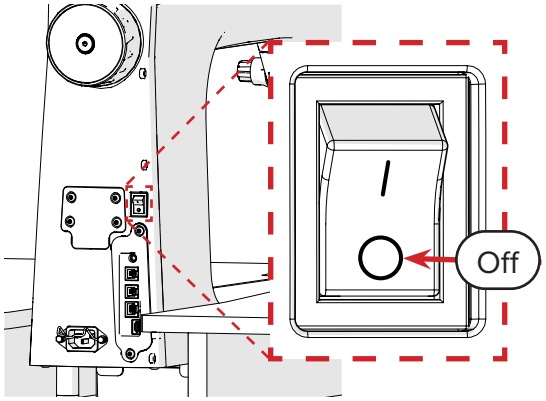
(not included)

Instructions

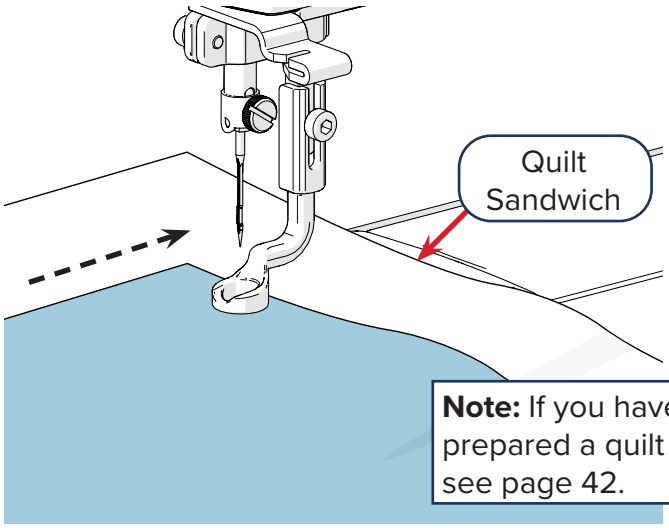
The hopping foot height depends on the thickness of your fabric and batting. Set the height at the start of each project. Incorrect height can lead to skipped stitches and tension problems.

Take the following steps to set the hopping foot height:

1. Power **off** the machine.



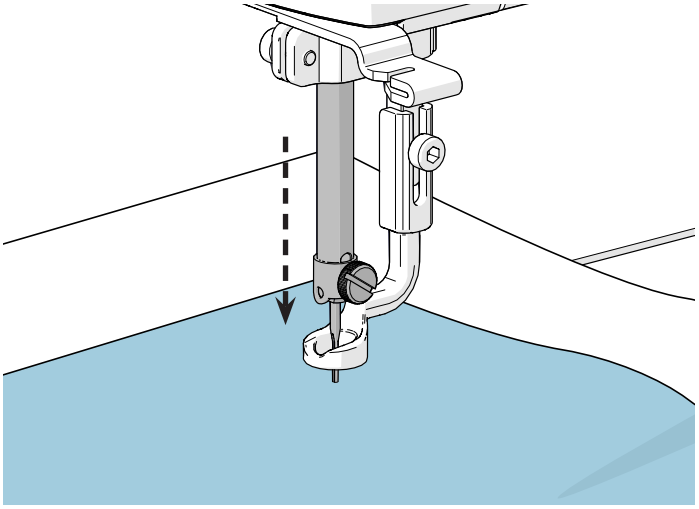
2. Slide your **quilt sandwich** underneath the hopping foot.



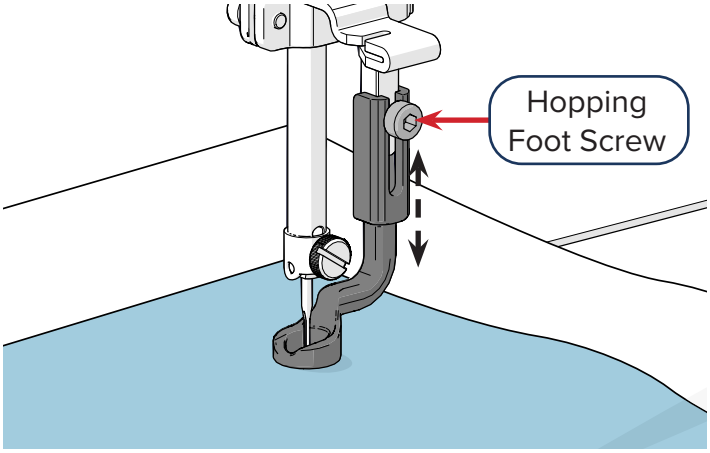
Note: If you haven't prepared a quilt sandwich, see page 42.

Set the Hopping Foot Height (continued)

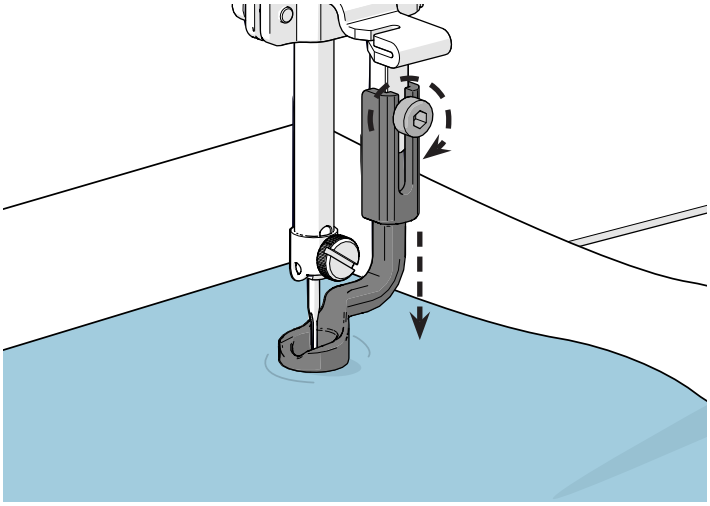
3 Use the hand wheel to lower the needle to its lowest position.



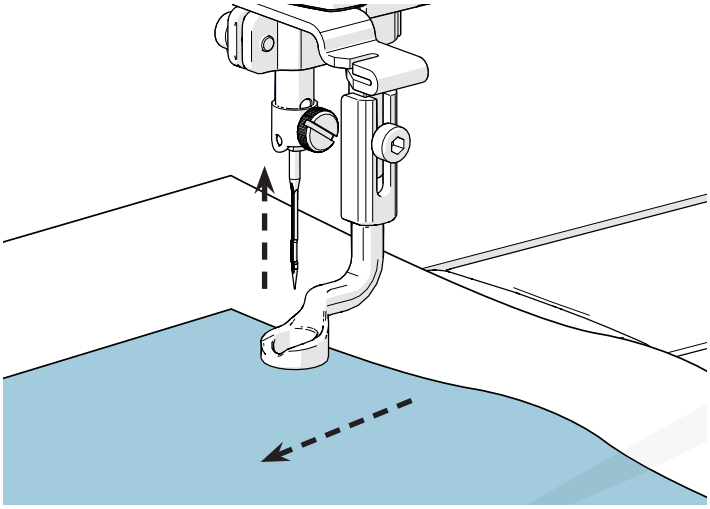
4 With the 3 mm Allen wrench, loosen the **hopping foot screw** but do not remove it. The hopping foot should slide freely.



5 Press gently on the hopping foot to flatten the fabric around it and tighten the screw.



6 Use the hand wheel to raise the needle and remove your quilt sandwich.



Note: If the machine skips stitches, the hopping foot might be too high. If the hopping foot is dragging on the quilt, the hopping foot might be too low.

Settings & Tools

This section of the manual covers how to choose your machine settings and use the tools.

Choose Machine Settings 47

Use the Calculator 50

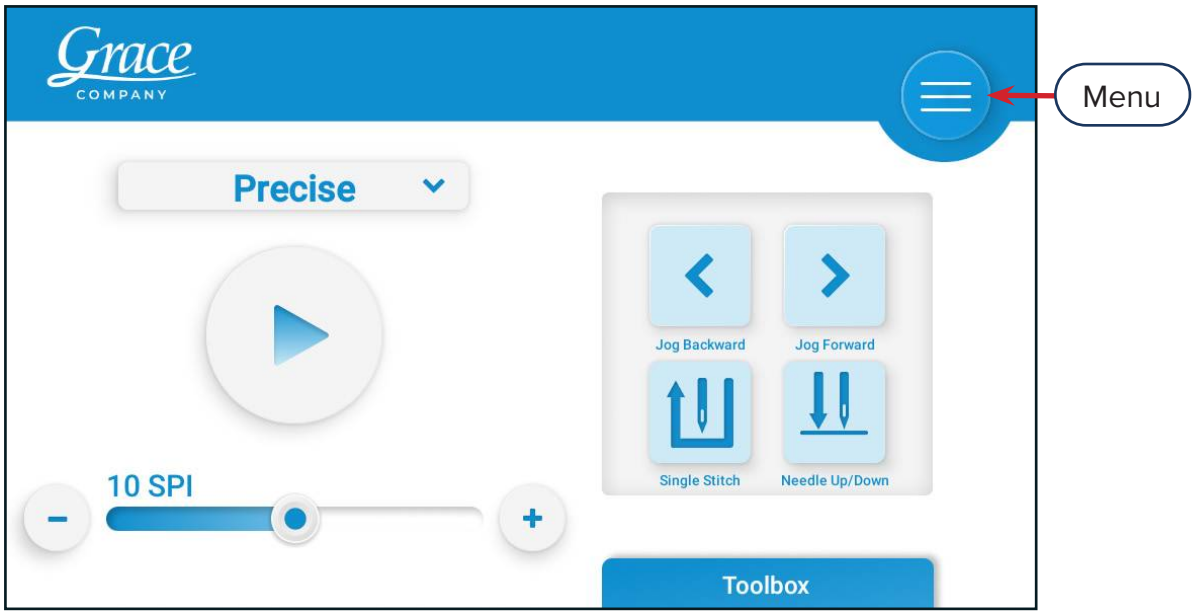
Use the Bobbin Estimator 51

Track Stitch Count & Run Time 53

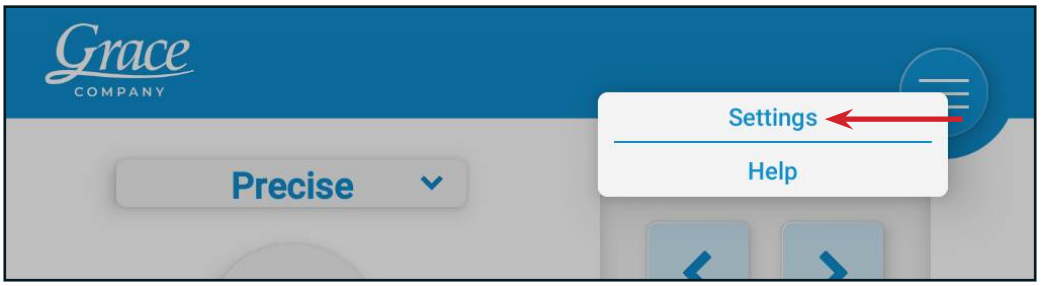
Choose Machine Settings

To customize your settings, take the following steps:

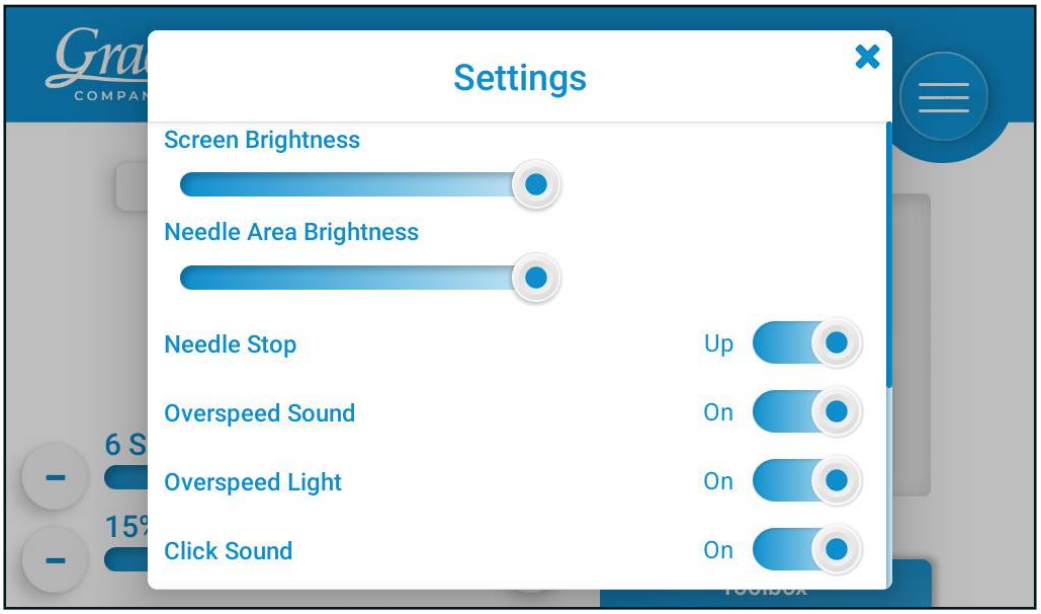
1. Press the **menu** icon on the top right corner of the screen.



2. Choose **Settings**.



The Settings menu opens.



Choose Machine Settings (continued)

The Settings menu (continued):

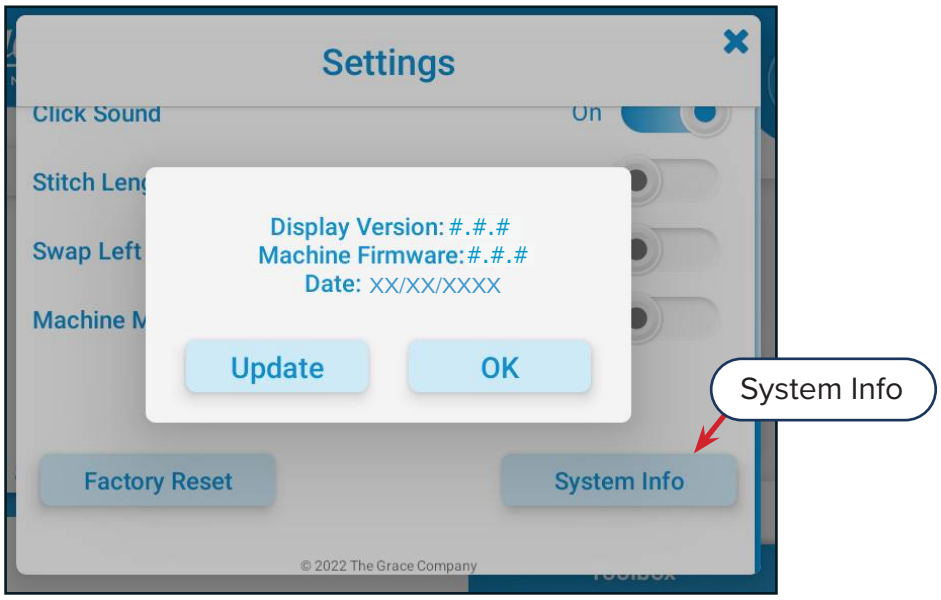


Note: Stitching is disabled while the Settings menu is open.

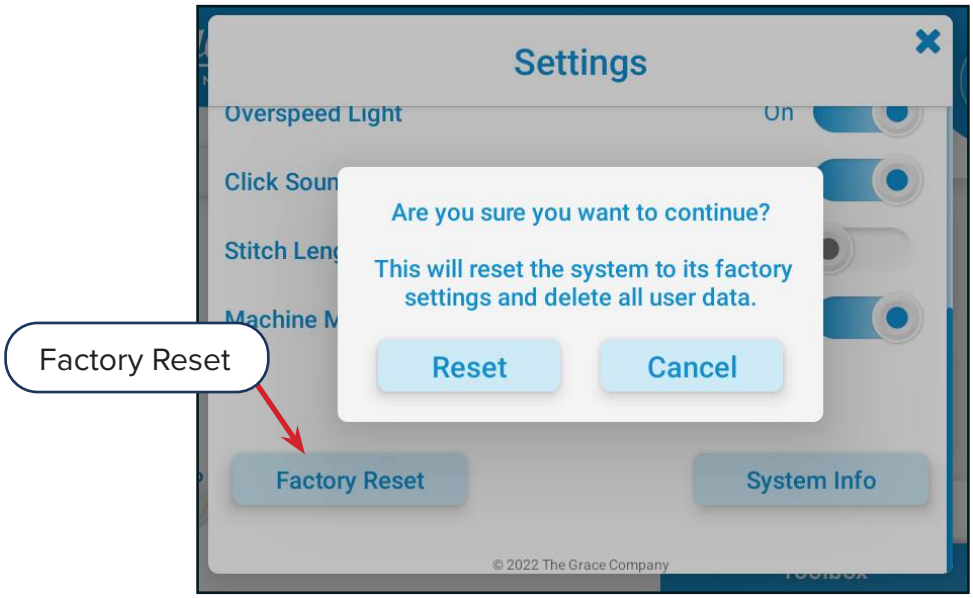
3 Choose desired settings:

- **Screen Brightness:** Use the sliding button to adjust the brightness of the display.
- **Needle Area Brightness:** Use the sliding button to adjust the brightness of the light over the needle area and those along the machine throat.
- **Needle Stop:** Choose whether the needle will default to the “up” or “down” position when stitching is inactive.
- **Overspeed Sound:** Choose whether to have the overspeed alarm on or off. When on, the overspeed alarm beeps when the fabric is moved more quickly than the regulated stitching can manage.
- **Overspeed Light:** Choose whether to have the overspeed warning light on or off. When on, the overspeed warning light activates when the fabric is moved more quickly than the regulated stitching can manage.
- **Click Sound:** Choose whether pressing on-screen buttons should make a click sound or not.
- **Stitch Length Units:** Choose to display machine stitch length in stitches per centimeter (SPC) or stitches per inch (SPI).
- **Machine Mode:** Choose between Sit-Down Quilting and Frame Quilting. The default is Sit-Down Quilting. Only change to Frame Quilting if you place your machine on a frame.
- **Fabric Sensor Sensitivity:** Choose between Normal and High sensitivity. The default is Normal. Only change to High if you are using a reflective fabric and you are experiencing problems with regulated stitching, such as skipped stitches or sensors failing to notice movement. This might help the sensors perform better for your fabric, though highly reflective fabrics might continue to have issues. Remember to switch back to Normal when you are done.

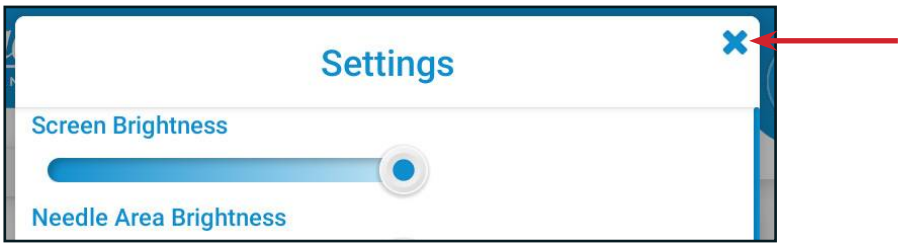
The **System Info** button accesses the System Information screen. This screen shows the display and firmware versions for your machine (see page 86), along with the date of the last firmware update.



The **Factory Reset** button returns all settings to their original default status.



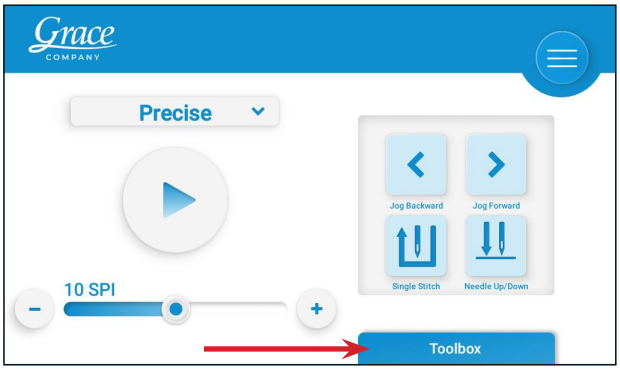
4 To return to the main screen, press the **X** in the top-right corner of the Settings menu or anywhere outside of the Settings screen.

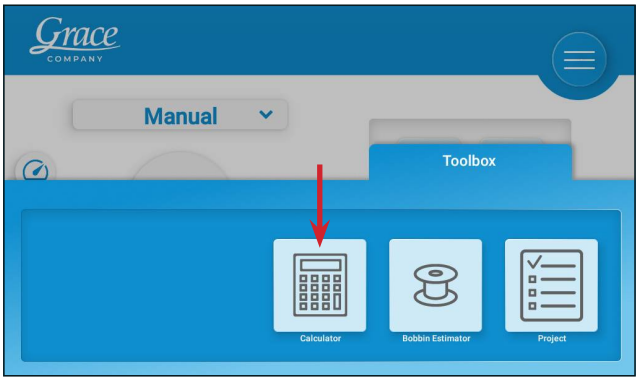


Use the Calculator

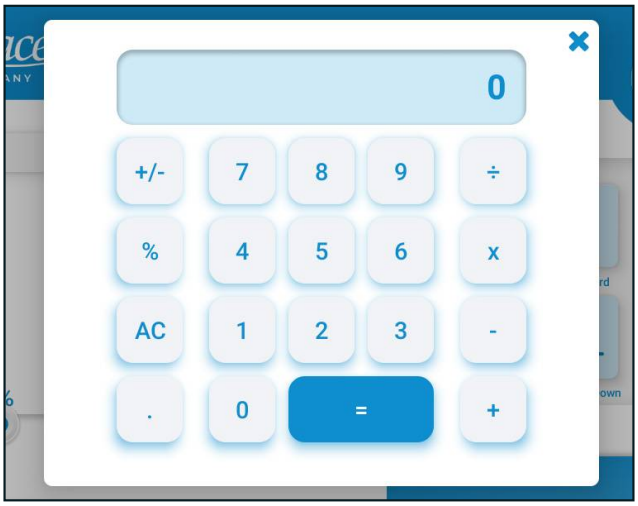
Your machine can be used to make quick calculations:

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

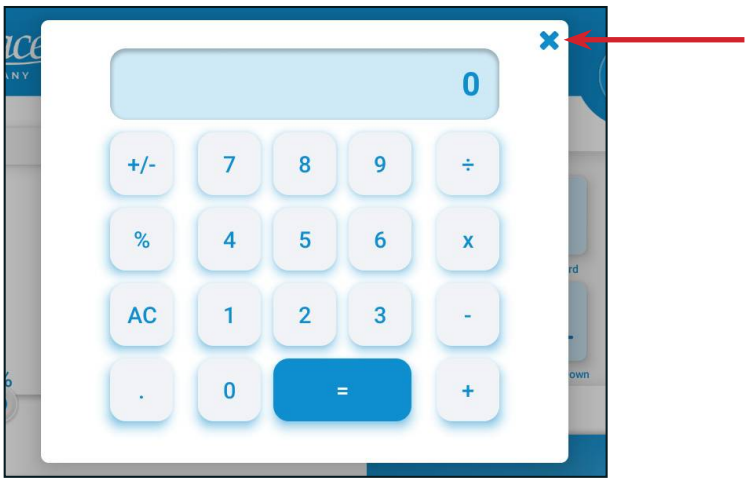




2. Use the calculator to add, subtract, multiply, divide, and find percentages.



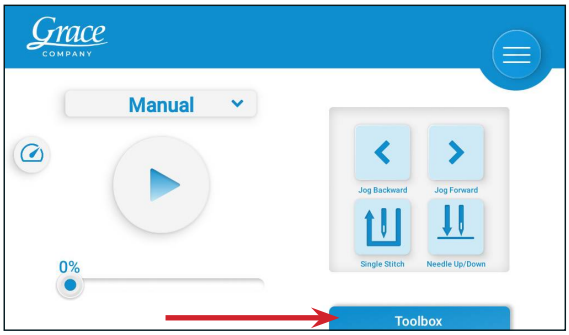
3. To return to the main screen, press the **X** in the top-right corner or anywhere outside of the calculator screen.

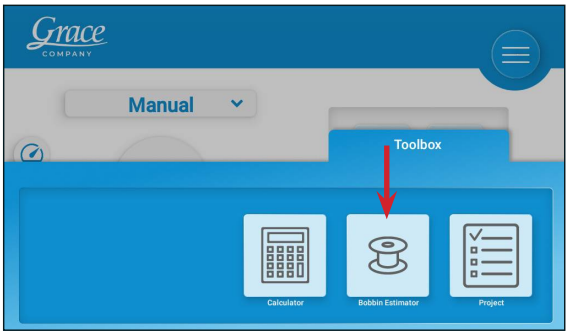


Use the Bobbin Estimator

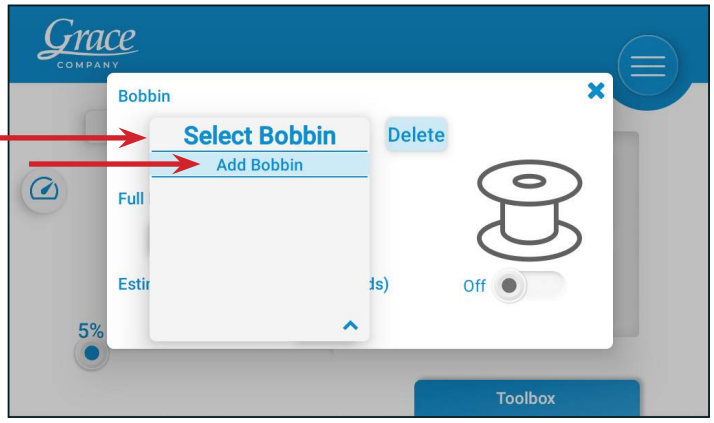
The bobbin estimator calculates the likely amount of thread remaining on the bobbin. To achieve the closest estimate, information must be accurately entered into the bobbin estimator. Take the following steps to use the bobbin estimator tool:

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





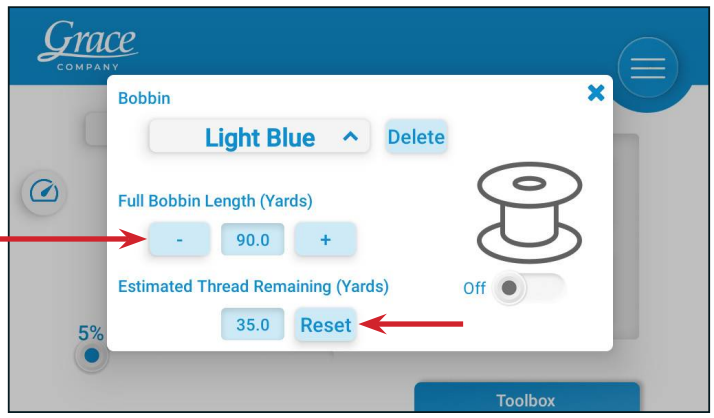
2. Press **Select Bobbin**. The drop-down menu will show a list of any bobbins you've added in the past. To add a bobbin, press **Add Bobbin**. An on-screen keyboard will appear so you can name the new bobbin.



Tip: Use a bobbin name you'll remember in case you switch it out before it's empty. If you use it again, you'll be able to select it from the list and continue with the correct estimate of remaining thread.

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

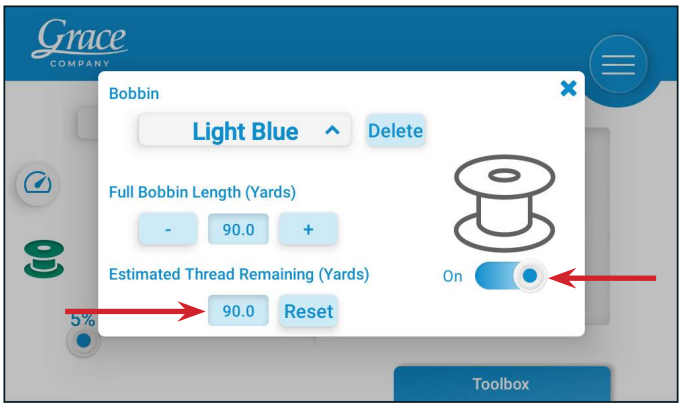
3. Enter the estimated **number of yards** on the bobbin. As a starting reference, an M-class bobbin fully wound with 40 wt cotton thread is around 90 yards. Yardage will vary depending on the fiber and weight of the thread. Press **Reset**. The Estimated Thread Remaining changes to match the Full Bobbin Length.



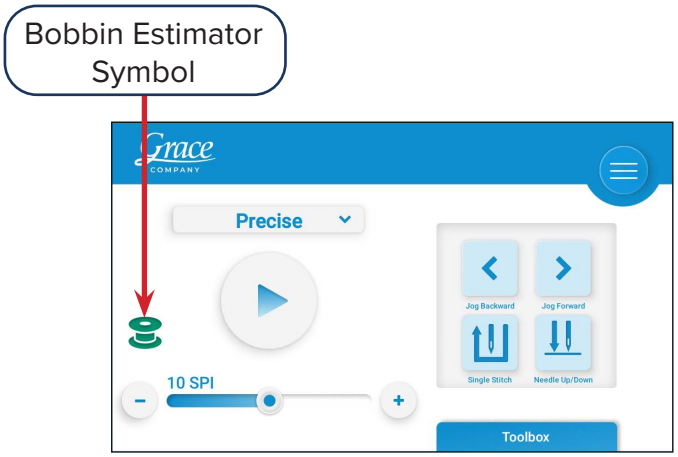
Tip: It may take some practice to estimate the length of a fully wound bobbin. Keep a record of your starting estimate. When you run out of bobbin thread, open the estimator tool and see how close your guess was. Use this information to adjust your starting estimate next time you use the same type of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

Use the Bobbin Estimator (continued)

4 Turn on the bobbin estimator. When on, any stitches the machine makes will subtract from the Estimated Thread Remaining.



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



21% - 100% remaining

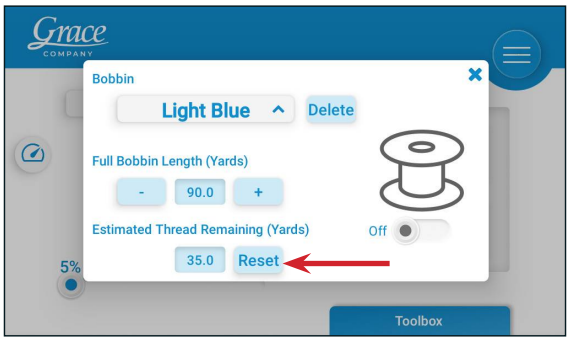
11% - 20% remaining

0% - 10% remaining

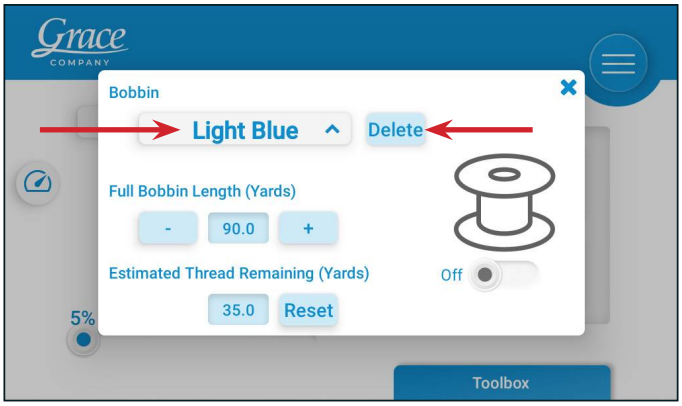
Note: Pressing the bobbin symbol on a quilting screen opens the bobbin estimator tool.

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

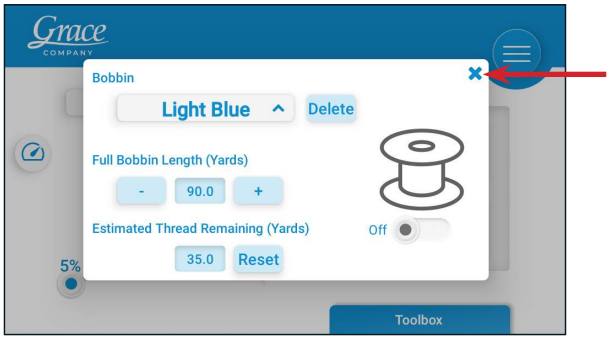
Press **Reset** to restore the Estimated Thread Remaining to the full estimate.



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



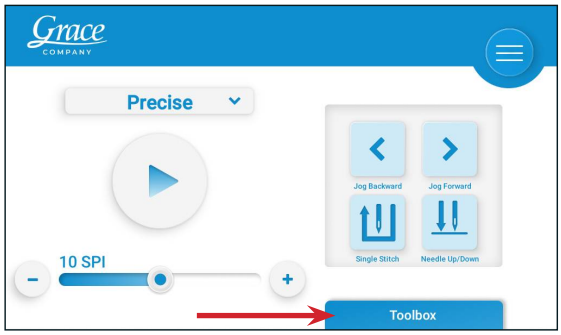
6 To return to the main quilting screen, press the **X** in the top-right corner or press anywhere outside of the Bobbin Estimator screen.

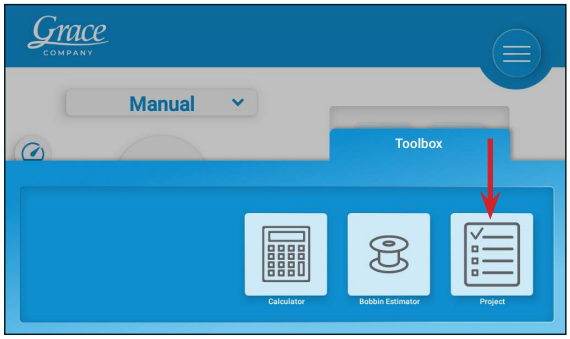


Track Stitch Count & Run Time

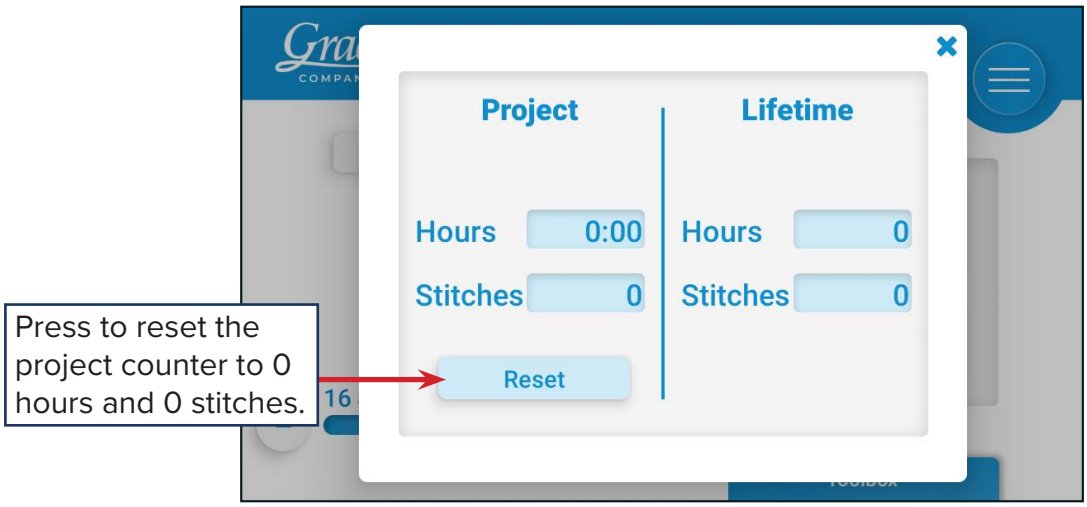
Use the Project tool to track the stitch count and run time for individual projects and for the lifetime of your machine.

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





2. Project shows the hours and minutes run and number of stitches created since the counter was last reset. Lifetime shows the hours the machine has spent running and the number of stitches it has made since it was manufactured.



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

The counters under Lifetime cannot be reset.

Quilting

This section of the manual covers how to use the quilting modes on your machine, test thread tension, and get started quilting.

Use Precise Quilting Mode 55

Use Cruise Quilting Mode 57

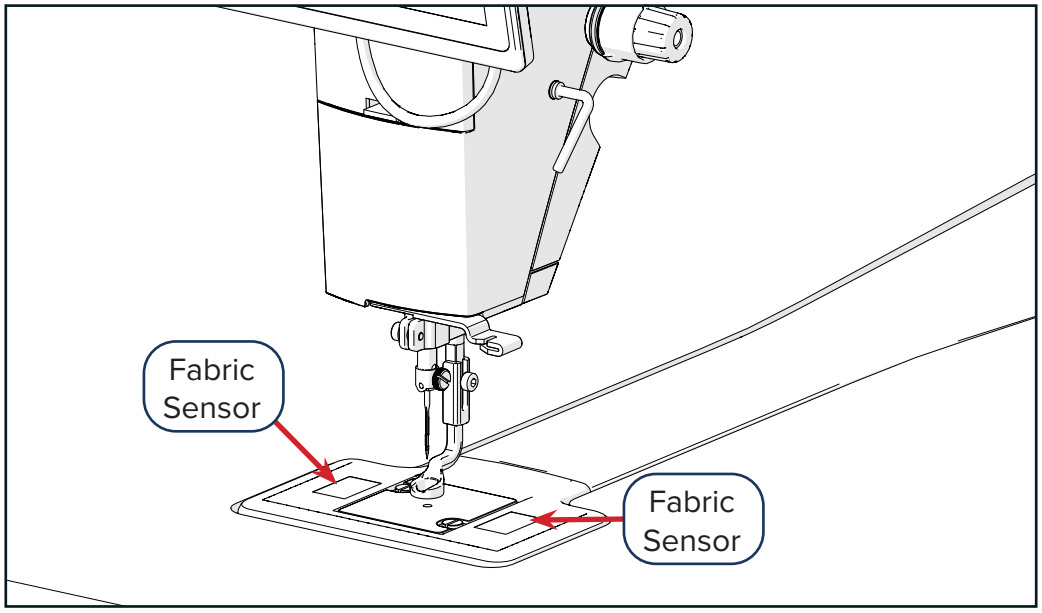
Use Manual Quilting Mode 59

Adjust the Thread Tension 61

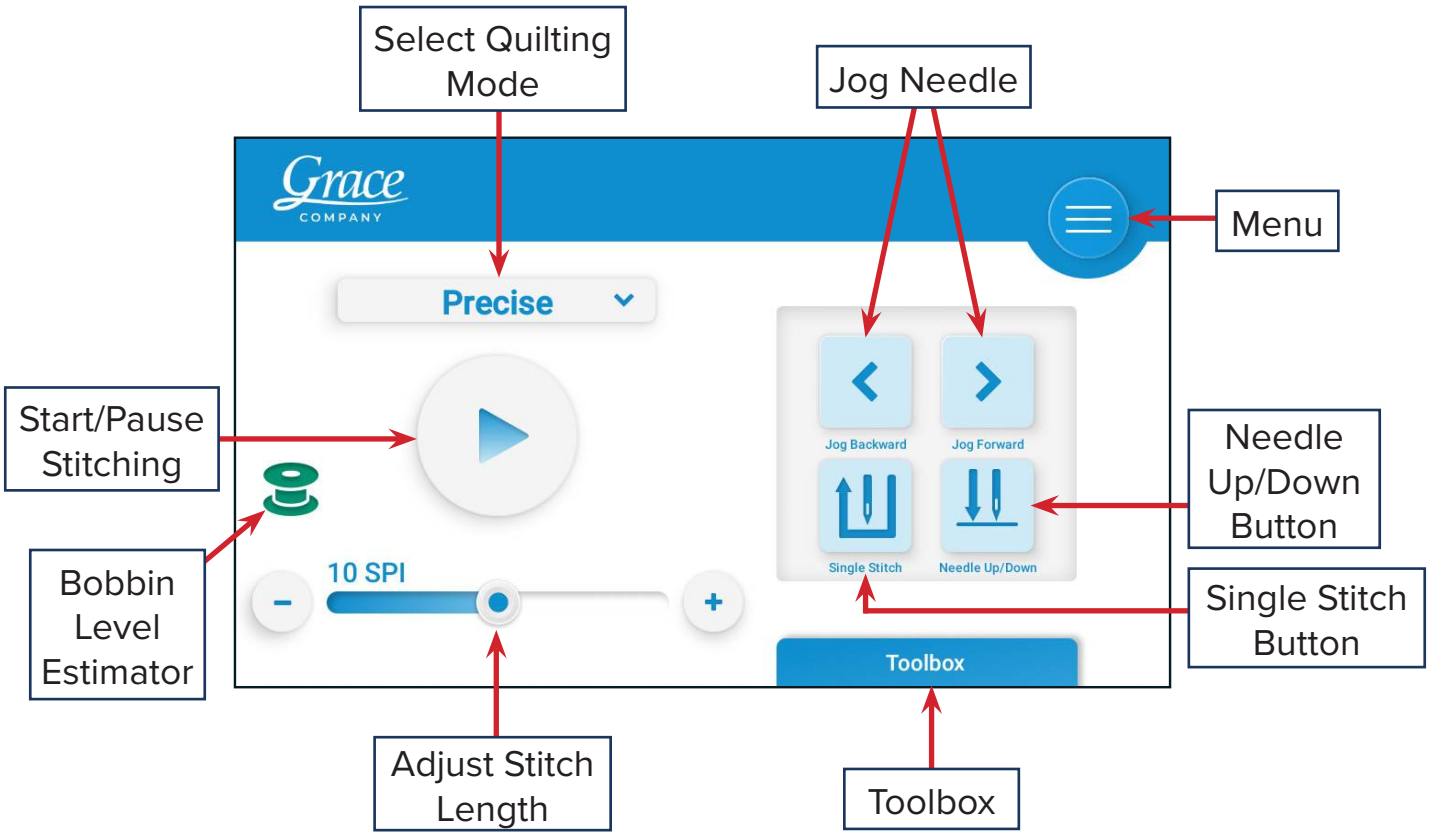
Get Started Quilting 64

Use Precise Quilting Mode

Precise mode is a regulated stitching mode, which means the machine assists you in making consistent stitches. You select the stitch length you want, and the machine adjusts to achieve that stitch length. In precise mode, the machine stitches when you move your fabric over the **fabric sensors**. Precise mode automatically stops stitching after five seconds of no movement over the sensors. The machine defaults to precise mode when turned on.



CAUTION: The fabric sensors cannot distinguish between your hand versus your quilt. Always be careful when putting your hands near the needle area when precise mode is turned on, in case you accidentally trigger stitching.



Use Precise Quilting Mode (continued)

To quilt in precise mode, take the following steps:

1. Tap the **select quilting mode** dropdown and choose **Precise.**
2. Choose your desired stitch length, measured in stitches per inch (SPI). Adjust the SPI with the [+] and [-] symbols or the sliding bar. Higher SPI means more stitches per inch, thus making a shorter stitch length.

   Note: If desired, you may use centimeters instead of inches to measure stitch length. To change units, go to the Settings menu (see page 47).
3. Position your fabric under the needle at your desired start position. You can use the jog needle buttons (Jog Backward or Jog Forward) to move the needle closer or farther from the fabric in small increments to help place your stitch.
4. Make a single stitch by pressing the Single Stitch button once or Needle Up/Down button twice.

   Note: While stitching is active, the Single Stitch and Needle Up/Down buttons are disabled.
5. Stitching is activated in two ways:

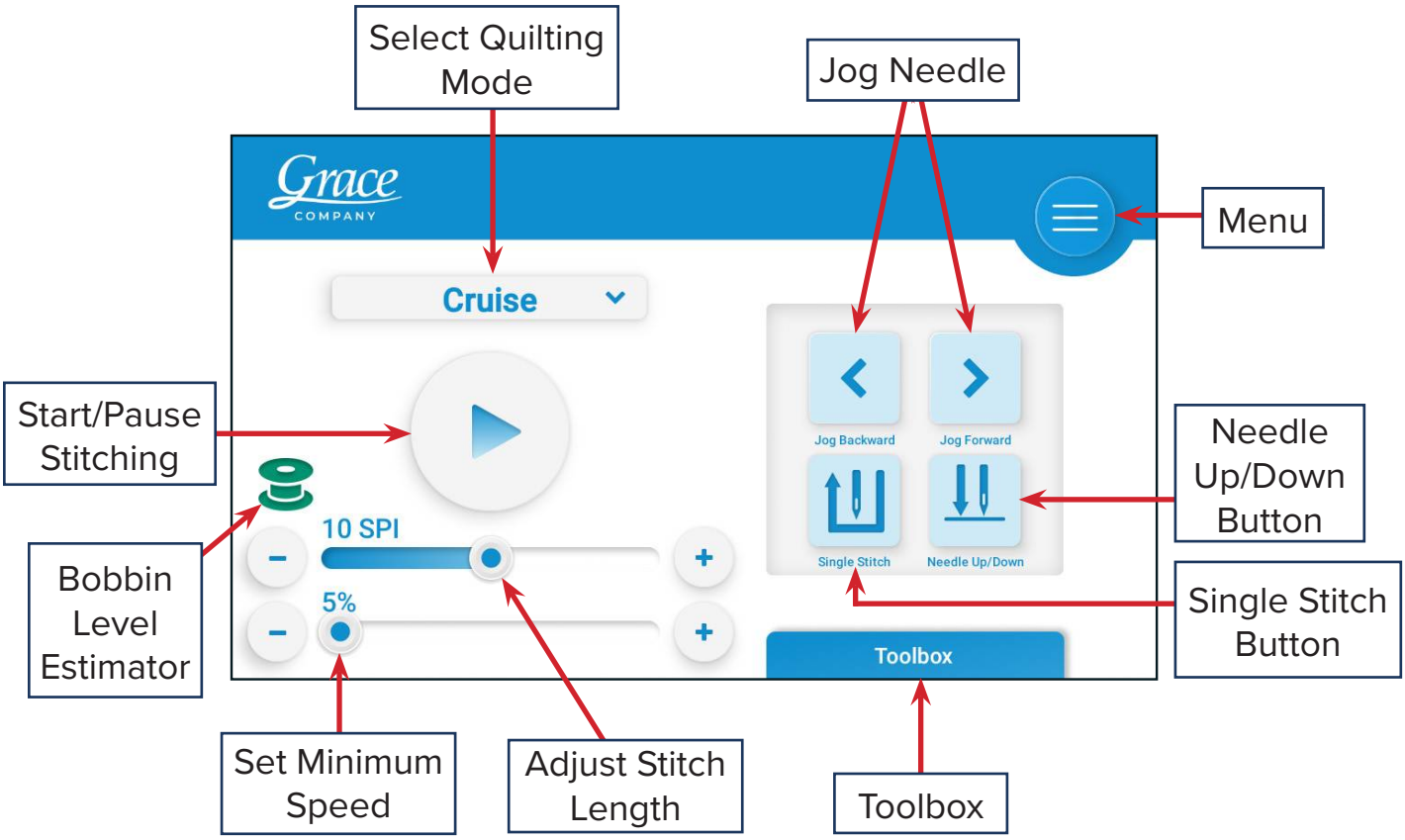
   - **Start/Pause button activation:** Press the Start/Pause button on the display and begin moving your fabric (stitching does not activate until you move your fabric over the sensors). If you pause for more than five seconds, precise mode automatically stops stitching. Press Start/Pause to begin again.
   - **Foot pedal activation:** Press the foot pedal down fully and begin moving your fabric (stitching does not activate until you move your fabric over the sensors). You must keep the foot pedal pressed to keep stitching activated. If you pause for more than five seconds, precise mode stops stitching even with the foot pedal pressed. Release the foot pedal and press it again to start once more.
6. Moving your fabric too quickly while quilting can reduce the quality of the stitch regulation. If this happens, the overspeed alarm will sound, a red LED light will shine on the needle area, and the Start/Pause stitching button will turn red. Slow your movement to stop the alarm, light, and display alert. Both the alarm and the light can be deactivated in the Settings menu (see page 47).
7. When activated, the bobbin level estimator shows on the left side of the display. For instructions on how to use the bobbin level estimator, see page 51.

   - When the icon is green, the bobbin is estimated to be between 21% and 100% full.
   - When the icon is yellow, the bobbin is estimated to be between 11% and 20% full.
   - When the icon is red, the bobbin is estimated to be under 10% full.
8. To deactivate stitching, press the Start/Pause button on the display or release the foot pedal, whichever is in use. You can also pause for five seconds, and precise mode will stop stitching. The needle will move into the needle stop position, either up or down, as indicated in the Settings menu (see page 47).

Use Cruise Quilting Mode

Cruise mode is another regulated mode. You choose the stitch length and a minimum speed. When cruise mode is on, the machine stitches continuously at the minimum speed. When you move your fabric, the machine adjusts to help make stitches at your chosen stitch length. This mode is helpful for continuous, smooth, or curvy designs.

IMPORTANT: Cruise mode continues to stitch in place (at the minimum speed) even when you stop moving your fabric. You must deactivate stitching when you are done, or you might damage your quilt and machine by continuously stitching in the same place.



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

1. Tap the **select quilting mode** dropdown and choose **Cruise.**
2. Choose your desired stitch length, measured in stitches per inch (SPI). Adjust the SPI with the [+] and [-] symbols or the sliding bar. Higher SPI means shorter stitch length.

   Note: If desired, you may use centimeters instead of inches to measure stitch length. To change units, go to the Settings menu (see page 47).
3. Choose the minimum speed you want the machine to stitch. This can be set from 5% to 25% of the machine's top speed of 2600 stitches per minute. Use the [+] and [-] symbols or the sliding bar to adjust the minimum speed.
4. Position your fabric under the needle at your desired start position. You can use the needle jog buttons (Jog Backward or Jog Forward) to move the needle closer or farther from the fabric in small increments to help place your stitch.

Use Cruise Quilting Mode (continued)

5. Make a single stitch by pressing the Single Stitch button once or Needle Up/Down button twice.

   Note: While stitching is active, the Single Stitch and Needle Up/Down buttons are disabled.

6. Stitching is activated in two ways:

   - **Start/Pause button activation:** Press the Start/Pause button on the display. Cruise mode stitches continuously. You must press the Start/Pause button again to stop.
   - **Foot pedal activation:** Press the foot pedal down fully. You must keep the foot pedal pressed to keep stitching activated. To stop stitching, release the foot pedal.

7. Moving your fabric too quickly while quilting can reduce the quality of the stitch regulation. If this happens, the overspeed alarm will sound, a red LED light will shine on the needle area, and the Start/Pause stitching button will turn red. Slow your movement to stop the alarm, light, and display alert. Both the alarm and the light can be deactivated in the Settings menu (see page 47).

8. When activated, the bobbin level estimator will show on the left side of the display. For instructions on how to use the bobbin level estimator, see page 51.

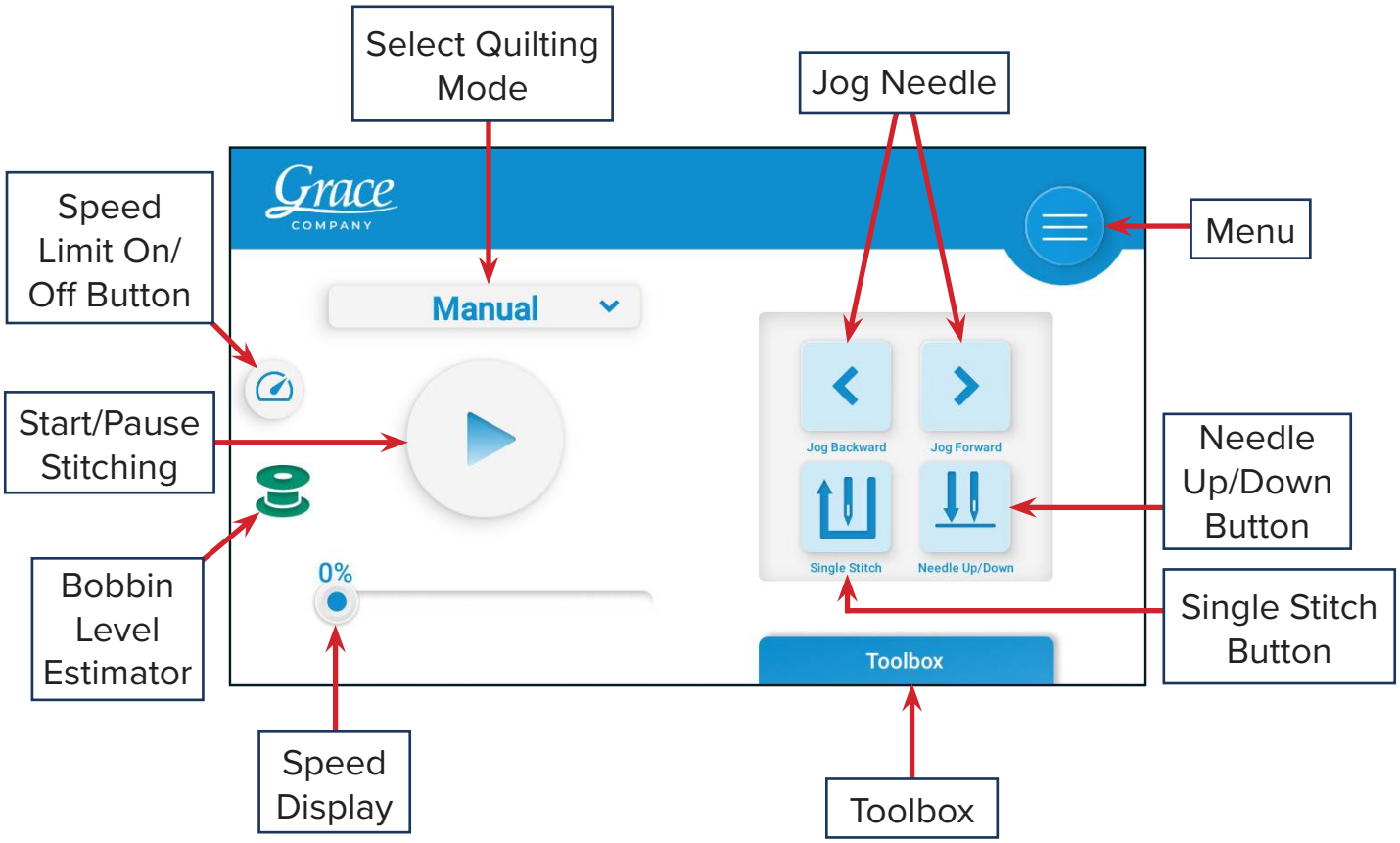
   - When the icon is green, the bobbin is estimated to be between 21% and 100% full.
   - When the icon is yellow, the bobbin is estimated to be between 11% and 20% full.
   - When the icon is red, the bobbin is estimated to be under 10% full.

9. To deactivate stitching, press the Start/Pause stitching button on the display or release the foot pedal, whichever is in use. The needle will move into the needle stop position indicated in the Settings menu (see page 47).

CAUTION: When cruise mode is on, the machine will stitch continuously, whether or not you are moving your fabric. Be sure to pause stitching if you stop moving your fabric or your machine will continue to stitch in the same place. This could damage your quilt and machine.

Use Manual Quilting Mode

In manual mode, there is no stitch regulation. You control the stitch length by moving the fabric at a stable speed. This mode is useful for small, continuous patterns or for times when you want direct control over your stitch length.



To quilt in manual mode, take the following steps:

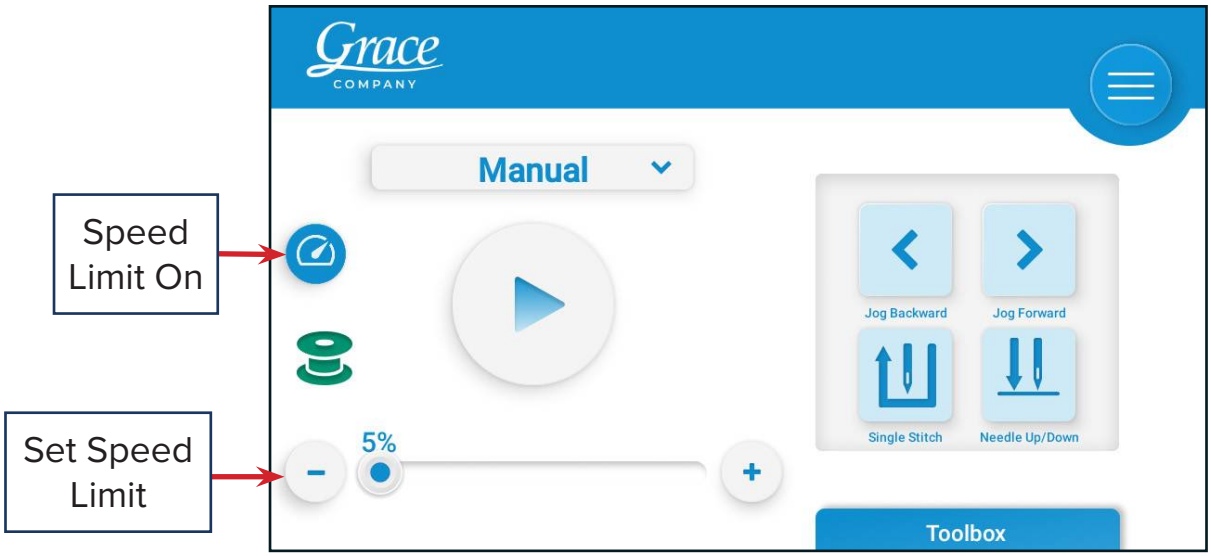
1. Tap the **select quilting mode** dropdown and choose **Manual**.
2. Choose whether or not to set a speed limit:

- **No Speed Limit:** Without a speed limit, you use the foot pedal to control the stitch speed, which can reach 2600 stitches per minute when the pedal is fully pressed. As you quilt, your speed is displayed on the screen as a percentage of the total possible speed.

  Note: You cannot use the Start/Pause button on the display without setting a speed limit. If you attempt to do so, you will be prompted with this warning: “Enable Speed Limit to use start button.”

- **Speed Limit:** Tap the Speed Limit button to set a speed limit. Choose a maximum speed for the machine by tapping the [+] and [-] symbols or by dragging the sliding bar. If you use the foot pedal to activate stitching, you can go slower than the speed limit by pressing lightly. If you press the foot pedal fully, the machine will stitch at the speed limit but not exceed it. With the Start/Pause button, the machine will continuously stitch at the speed limit. To remove the speed limit, tap the Speed Limit button to toggle it off.

Use Manual Quilting Mode (continued)



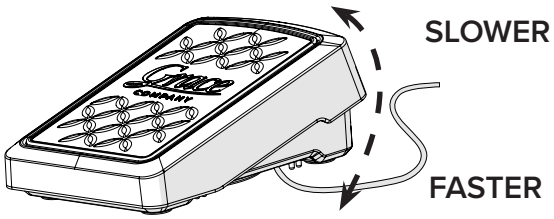
3. Position your fabric under the needle at your desired start position. You can use the jog needle buttons (Jog Backward or Jog Forward) to move the needle closer or farther from the fabric in small increments to help place your stitch.

4. Make a single stitch by pressing the Single Stitch button once or Needle Up/Down button twice.

   Note: While stitching is active, the Single Stitch and Needle Up/Down buttons are disabled.

5. Stitching is activated in two ways:

   - **Start/Pause button activation:** Press the Start/Pause stitching button on the display. **Note:** This option only works if a speed limit is set.
   - **Foot pedal activation:** Press the foot pedal to control your stitching speed. If you set a speed limit, you can press lightly to go slower than the speed limit or press the pedal down fully to quilt at the speed limit.



6. When activated, the bobbin level estimator will show on the left side of the display. For instructions on how to use the bobbin level estimator, see page 51.

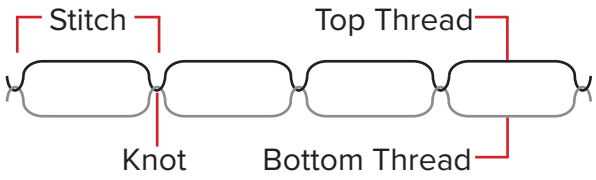
   - When the icon is green, the bobbin is estimated to be between 21% and 100% full.
   - When the icon is yellow, the bobbin is estimated to be between 11% and 20% full.
   - When the icon is red, the bobbin is estimated to be under 10% full.

7. To deactivate stitching, press the Start/Pause stitching button on the display or release the foot pedal, whichever is in use. The needle will move into the needle stop position indicated in the Settings menu (see page 47).

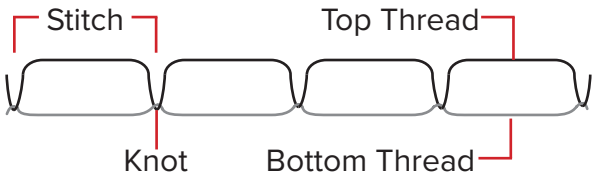
Adjust the Thread Tension

Thread tension is the interaction of the top and bottom threads. The top thread runs from the cone or spool, through the machine thread guides and tensioners, to the needle. The bottom thread comes from the bobbin and wraps around the top thread to form a stitch.

Balanced Tension: Top and bottom threads pull on each other evenly and knots are centered in the fabric layers.



Unbalanced Tension: Knots are pulled to one side of the fabric layers.

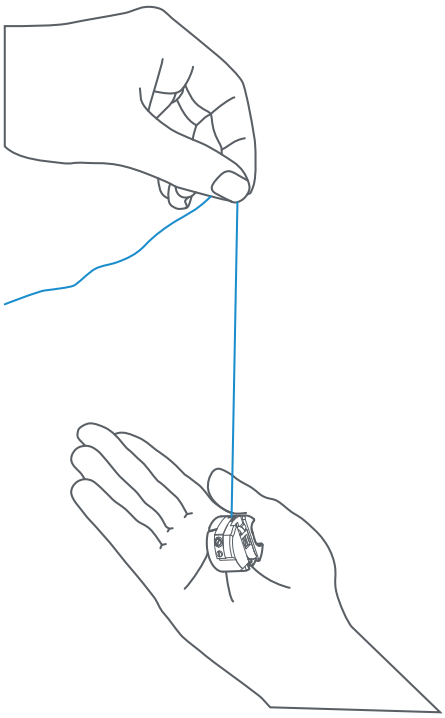


Thread tension is affected by factors beyond the top and bottom thread tension, including proper machine threading, correct hopping foot height, and more. For a detailed checklist, see the Tension Perfection Checklist that came with your machine.

Instructions

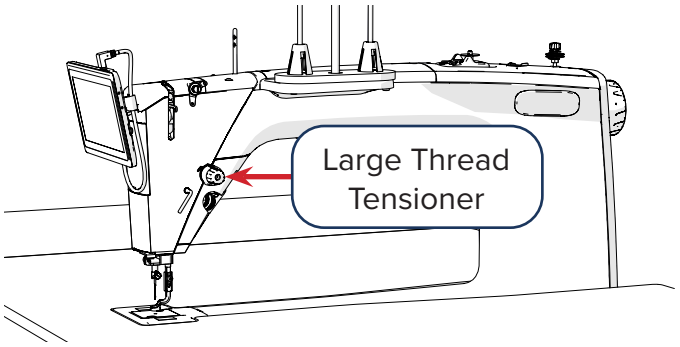
Test your thread tension on extra materials before sewing on a project. To adjust the thread tension, take the following steps:

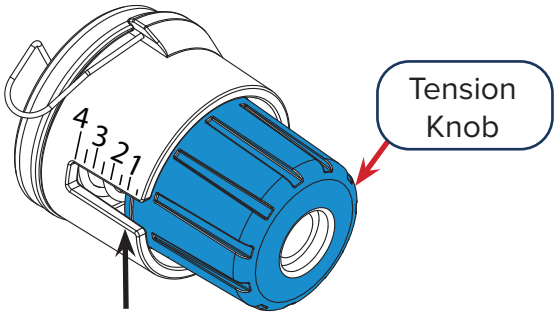
1. Set the bobbin (bottom thread) tension first. Bottom thread tension is the foundation for proper thread tension. Place the bobbin case on its side, on your palm. Pull up on the thread. The tension is correct if the thread runs freely and the bobbin rises into a vertical position without lifting off your hand. For details on how to adjust your bottom tension, see page 34.



Adjust the Thread Tension (continued)

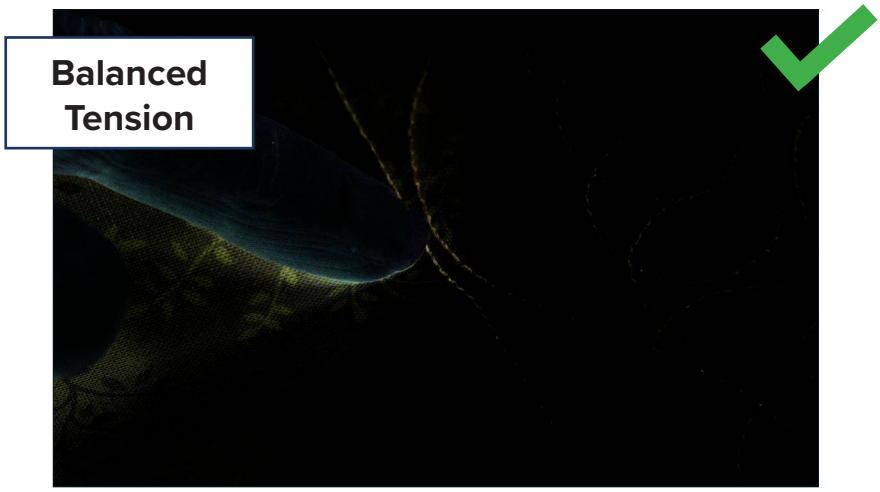
2 Loosen the **tension knob** on the **large thread tensioner** to set the tension to "1." The left edge of the tension knob lines up with the number that the tension is set to.

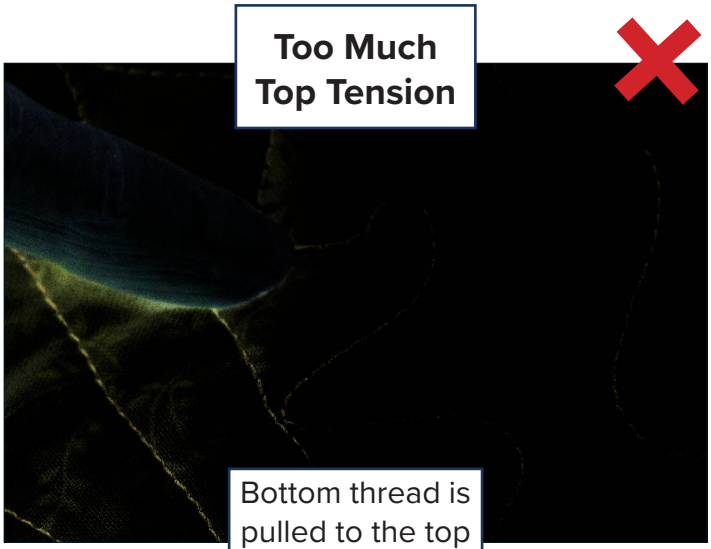


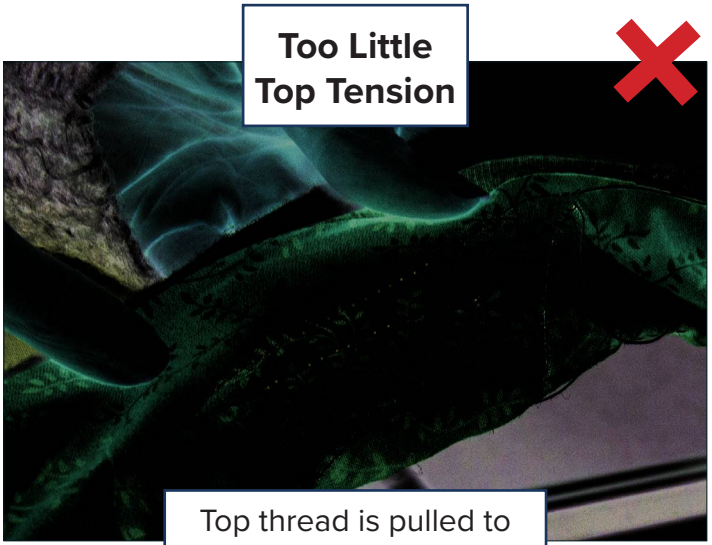


Note: Setting 1 is the lowest tension setting. This is an ideal starting place to find the correct top thread tension. Take care not to go past one: the tension knob might unscrew completely and fall off the machine. If that happens, see "Re-assemble the Thread Tensioner" on page 85.

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

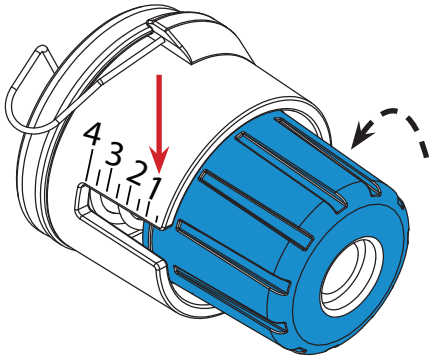




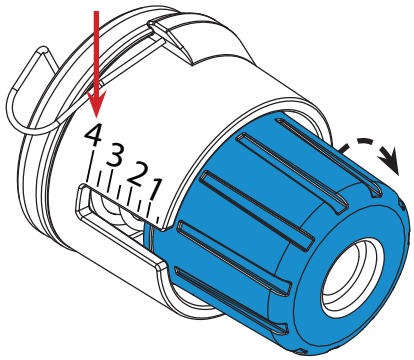


Adjust the Thread Tension (continued)

- If the bobbin (bottom) thread is pulled through the top layer of fabric, there is too much top tension. Loosen the tension by turning the large thread tensioner knob counter-clockwise toward setting “1.”



- 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 turning the large thread tensioner knob clockwise toward setting “4.” Stop turning the knob when the desired tension is achieved.

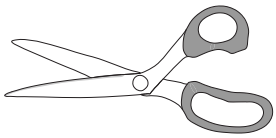


Unbalanced tension can cause skipped stitches, eyelashing, railroad tracks, and more. For details on specific stitch problems, see “Troubleshoot the Thread Tension” on page 99.

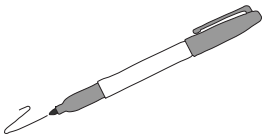
Get Started Quilting

Parts & Tools Needed

Scissors
(not included)



Washable Fabric
Marker/chalk
(not included)



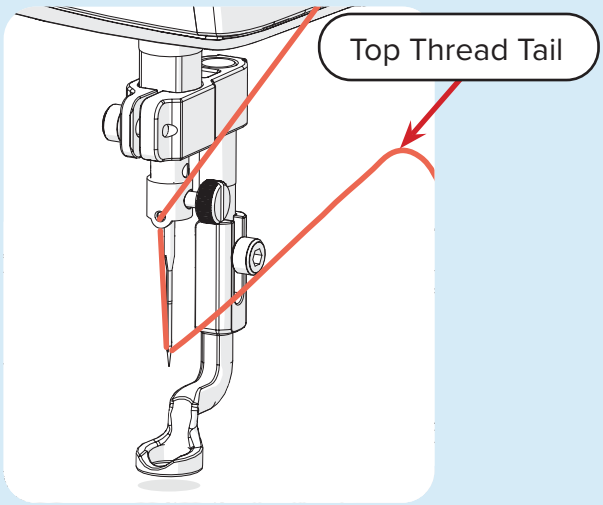
Instructions

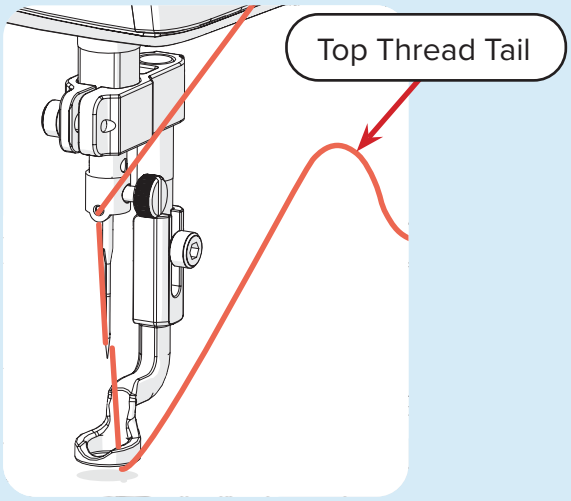
Now that your machine and quilt sandwich are prepared, it's time to quilt. Practice on scrap fabric to become familiar with the machine's settings and movements so you can quilt with confidence. It is normal to make mistakes, so don't get discouraged if your stitches don't look perfect right away.

1. Make sure the following items have been completed:
   - Your machine is threaded and tensioned.
   - Your practice fabric is prepped.
2. Use fabric chalk or a marker to draw a simple design on your practice fabric.
3. When you start stitching, the tail of the bobbin thread is underneath the quilt. Since you can't see it, it's easy to stitch over the tail and end up with an unsightly bunch of thread under the quilt. To prevent that, take the following steps to pull up your bobbin thread at the start of quilting:

   a. First, position your fabric beneath the needle where you want to begin stitching.

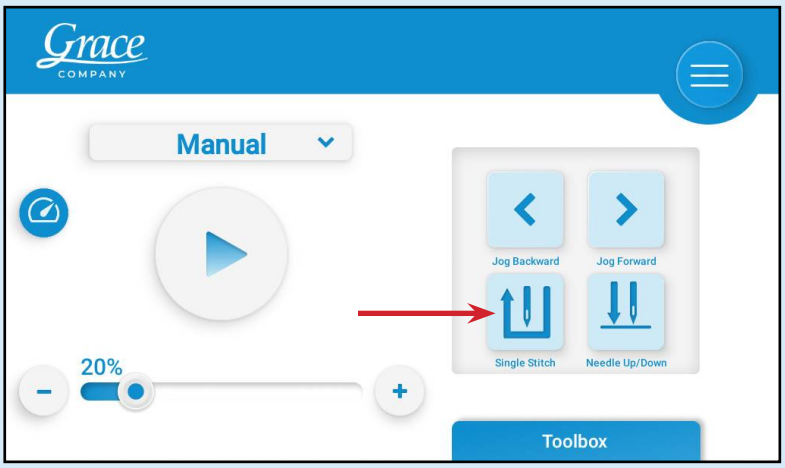
   b. Pick up and hold the top thread tail that is threaded through the needle.



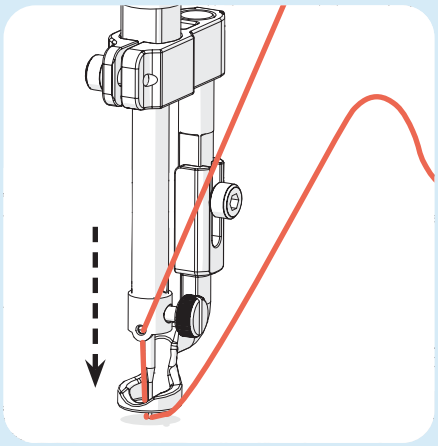


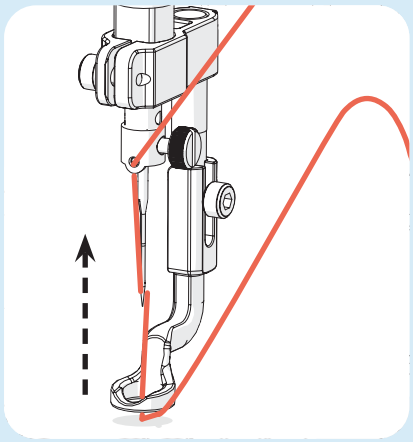
Note: It doesn't matter if the thread is under the hopping foot or not.

c While still holding the thread tail, press the Single Stitch button.

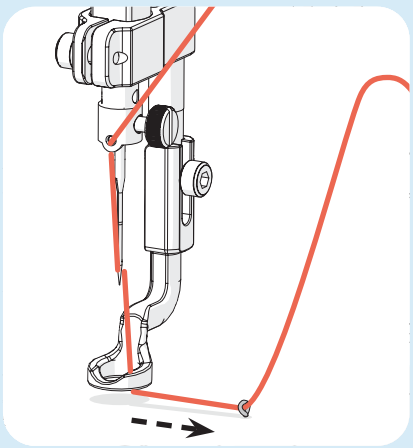


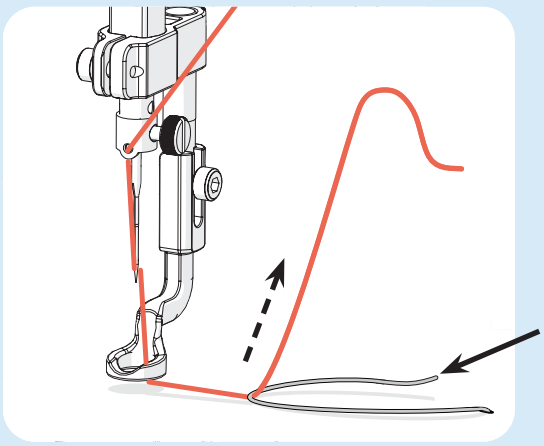
The needle will drop into the fabric and return to the surface, making a single stitch.





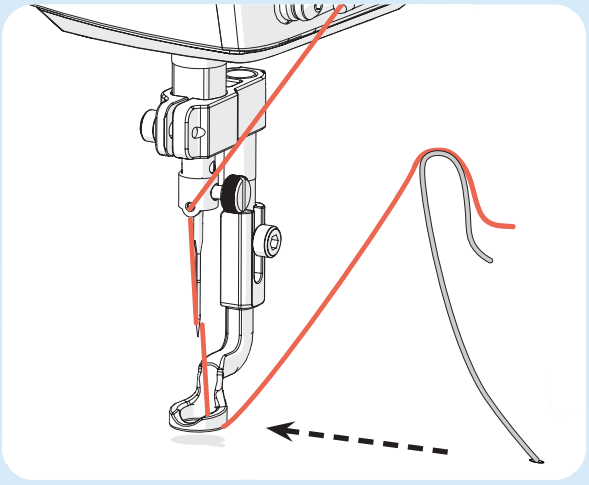
d Continue holding the thread tail and move the fabric away from the needle. A loop of bobbin thread is pulled up to the surface. Keep pulling until the bobbin tail comes out. **Note:** If the bobbin thread tail is short, it might take a few attempts to pull up the bobbin thread successfully. Installing the bobbin into the bobbin case with 3–5 inches of tail helps prevent this problem.

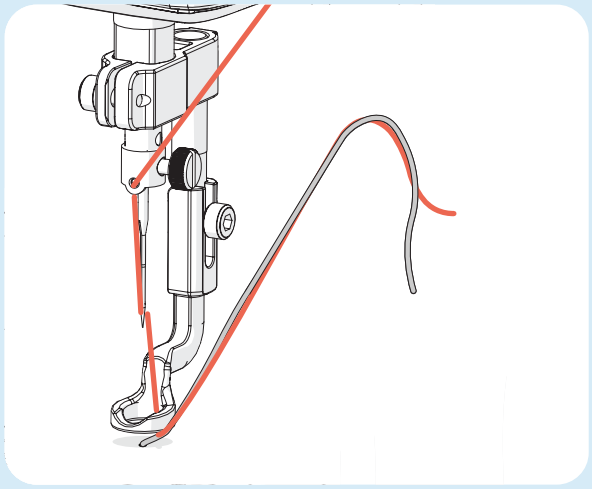




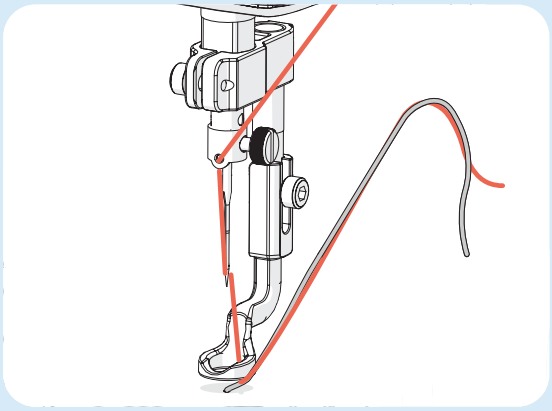
Get Started Quilting (continued)

e Gather up both thread tails and move the fabric back to the first stitch.

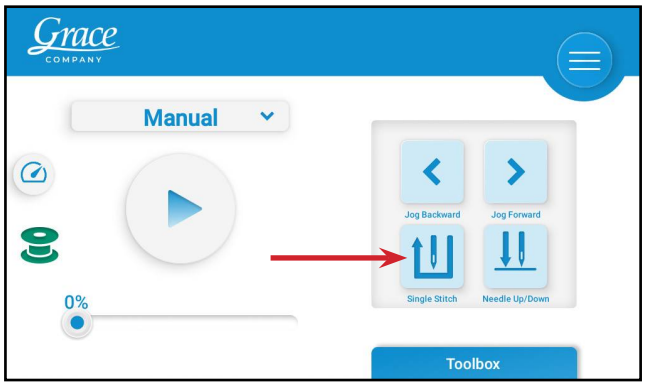


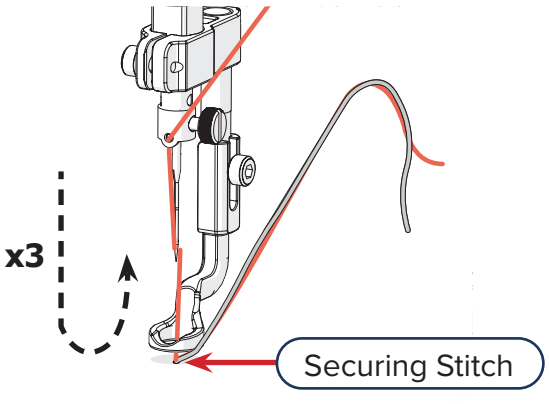


Important: When you move your fabric back to the original stitch, slack bobbin thread builds up right under the fabric. Pull on the bobbin thread tail until the resistance slightly increases (be careful not to keep pulling—you'll end up wasting thread).



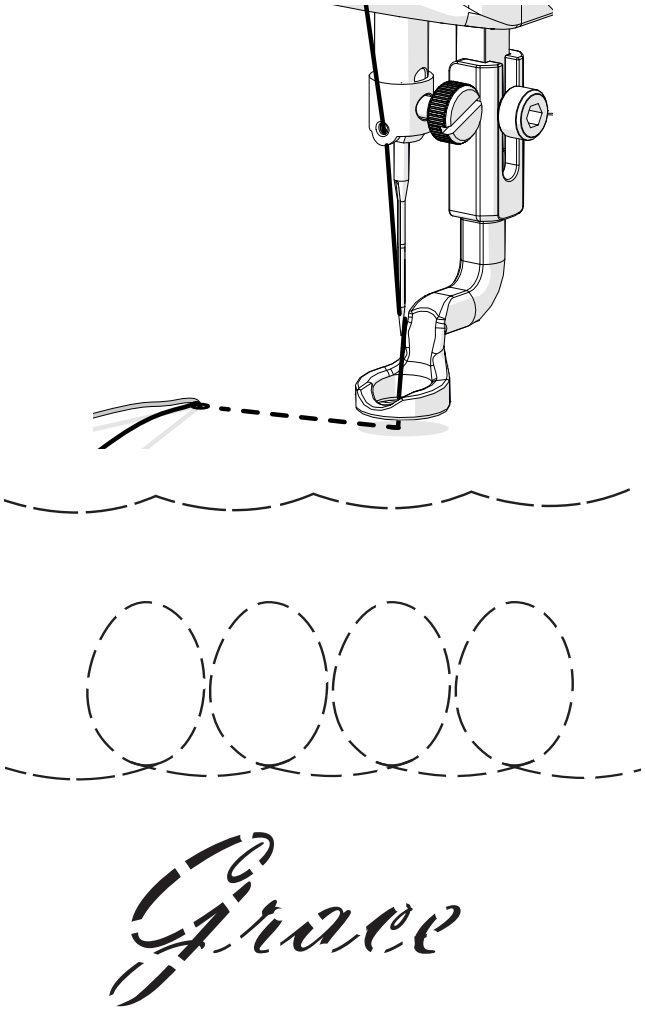
4 Press the Single Stitch button three times to make a **securing stitch**. Move your fabric slightly so the stitches are very close together but not in the exact same place.



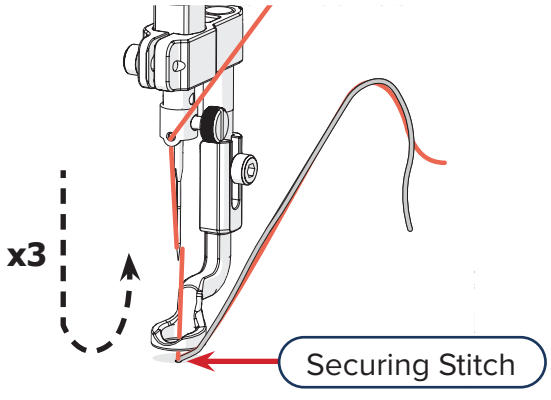


Get Started Quilting (continued)

5 Use any quilting mode and stitch over the design you drew on your fabric.

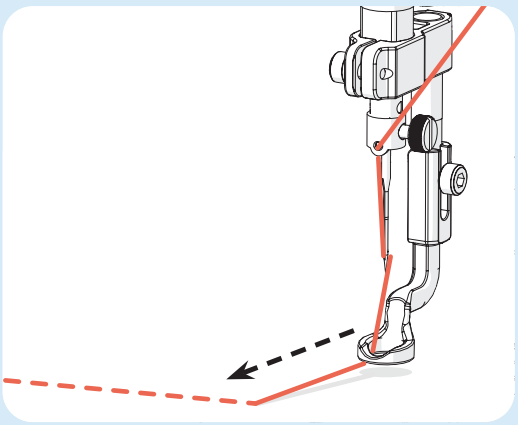


6 When finished, make a **securing stitch**. Secure your fabric every time you start and end a line of stitching.

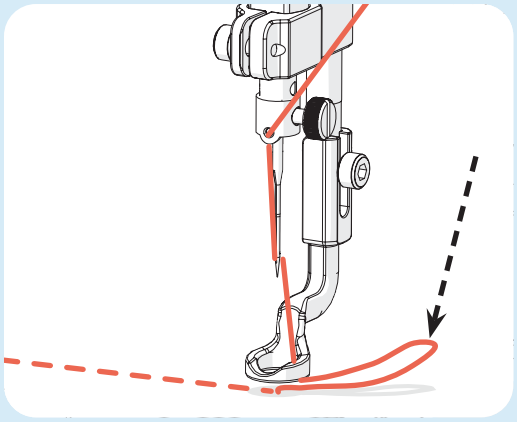


7 Take the following steps to pull up the bobbin thread at the end of stitching:

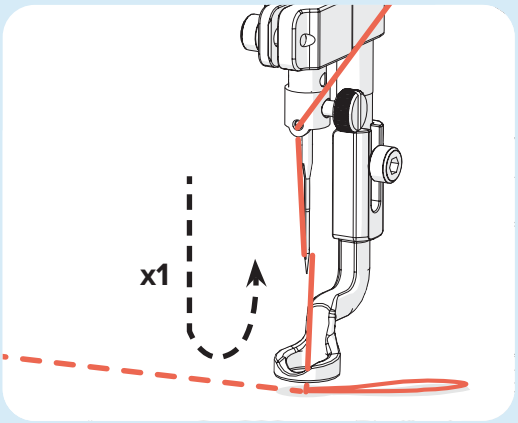
a Move your fabric away from the needle.



b Hold the top thread to make a loop and return the fabric to the needle position.

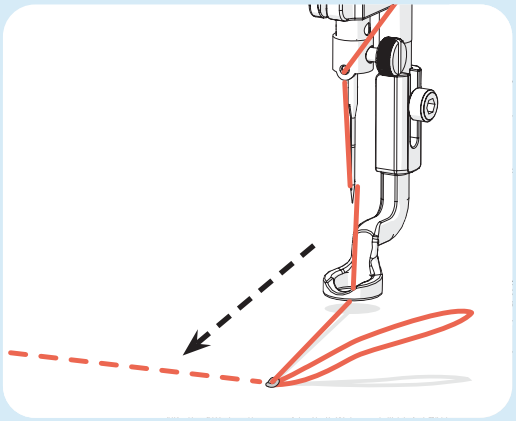


c Still holding the loop, press the Single Stitch button.

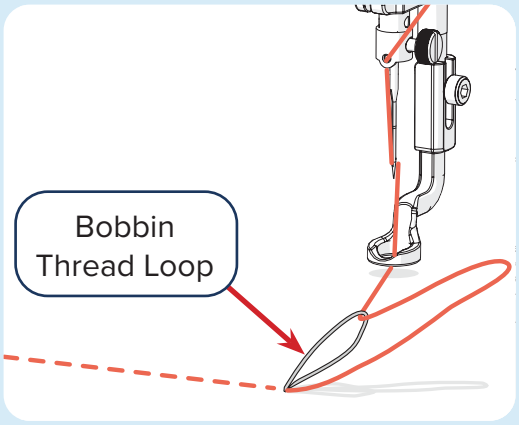


Get Started Quilting (continued)

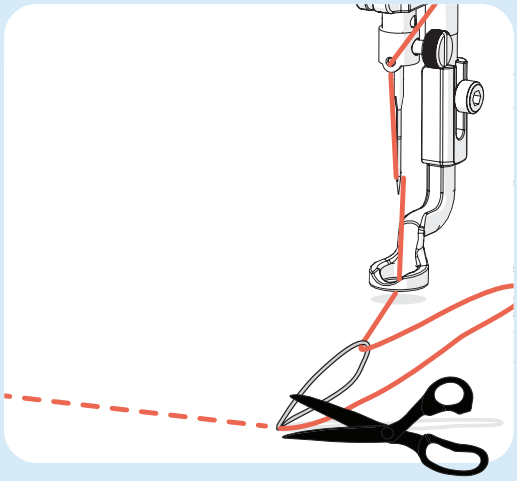
d Still holding the loop, move the fabric away from the last stitch again.



e As you move away, a **loop of bobbin thread** is pulled up. Keep going until the loop is big enough to grab.



f Trim away all the threads close to the tie off or last stitch.



8 You may now cut the thread tails from the start of your design.

Practice! Keep trying different stitches until you feel comfortable with the various quilting modes.

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

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

Machine Maintenance

This section of the manual covers important processes for machine maintenance and care.

Prepare the Oil Bottle 70

Oil and Clean the Machine 71

Clean the Fabric Sensors 74

Change the Needle 75

Adjust the Hopping Foot 77

Remove & Install the Needle Plate 83

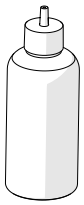
Re-assemble the Thread Tensioner 85

Check the Firmware 86

Prepare the Oil Bottle

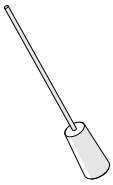
Parts & Tools Needed

Oil Bottle



Box 1 : Tools Box

Oil Bottle Applicator Needle

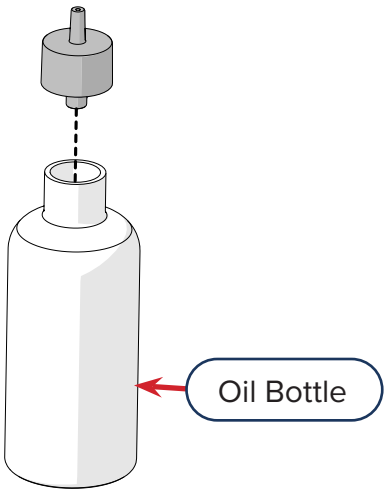


Box 1 : Tools Box

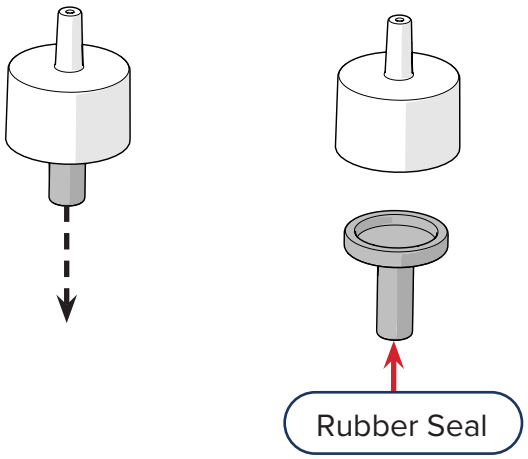
Instructions

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

1. Unscrew the cap from the **oil bottle**.



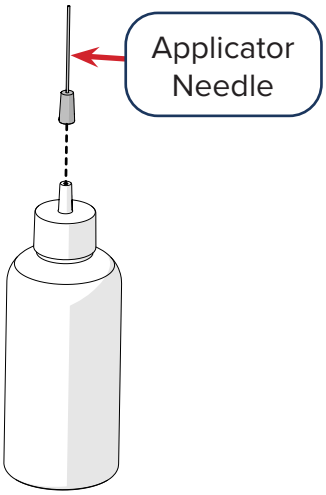
2. Pull the black **rubber seal** away from the lid. The seal can be discarded.



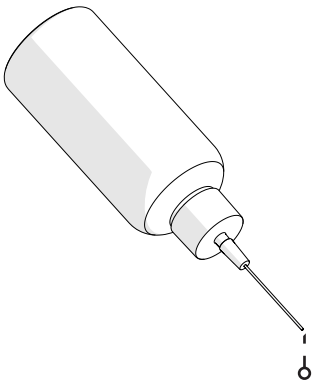
3. Screw the cap back onto the bottle.



4. Press the **applicator needle** onto the cap.



5. **To apply the oil:** Hold the bottle upside down and squeeze gently.



Oil and Clean the Machine

Parts & Tools Needed

Oil Bottle



Box 1: Tools Box

Lint Brush



Box 1: Tools Box

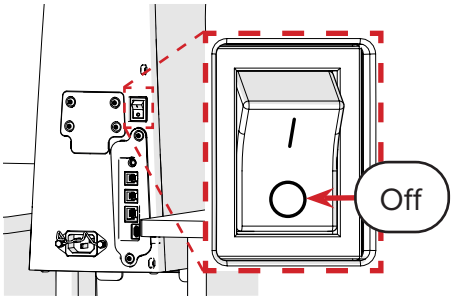
Tip: Use the hours counter on the Projects screen to keep track of quilting time. See page 53.

Instructions

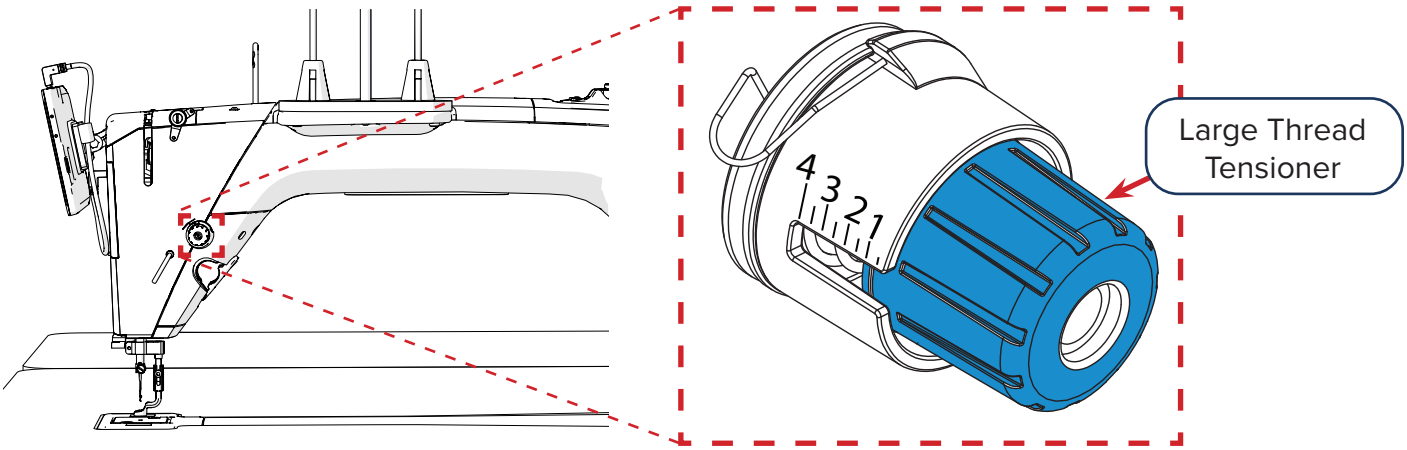
Oil & Clean	
Machine	• At the start of a new project • After 20 hours of use • After the machine sits unused for more than 30 days
Hook Assembly	• Every other bobbin change

Take the following steps to clean and oil the machine:

1. Turn **off** the machine's power and unthread the machine.

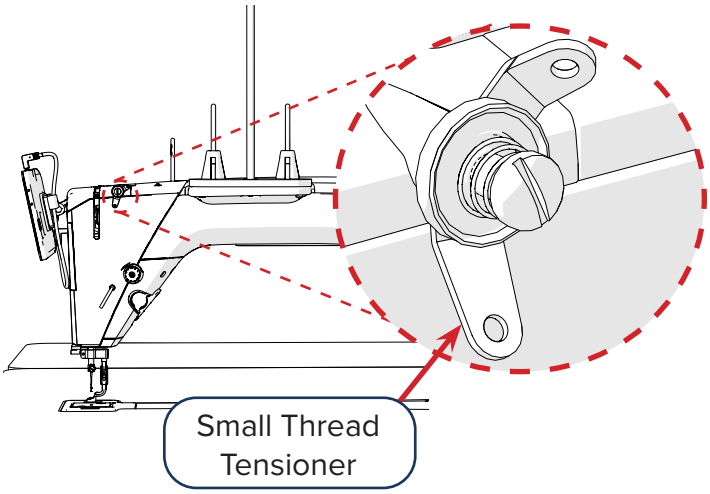


2. Twist the **large thread tensioner** knob to set the tensioner to 1. This exposes the tensioner discs. Use the lint brush to clear away the lint and thread remnants.

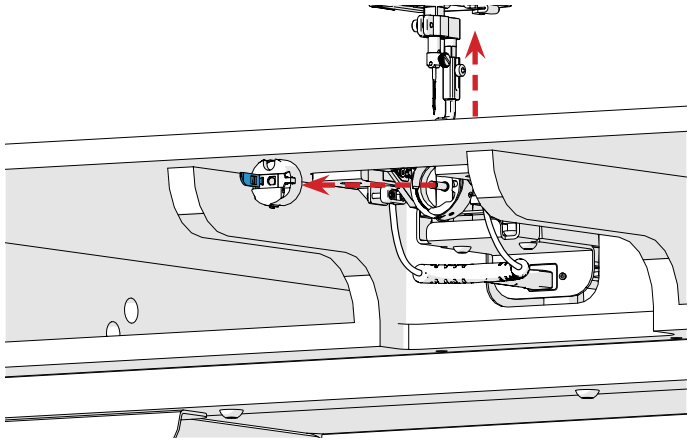


Oil and Clean the Machine (continued)

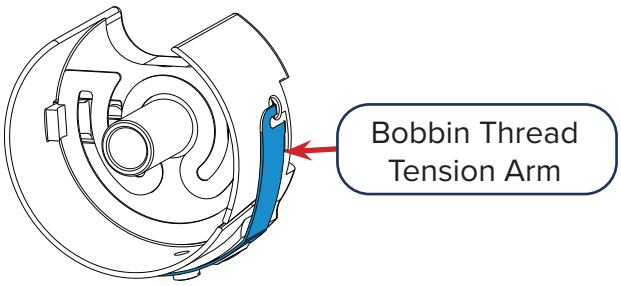
3 Clear any debris from the spring and discs of the **small thread tensioner**.



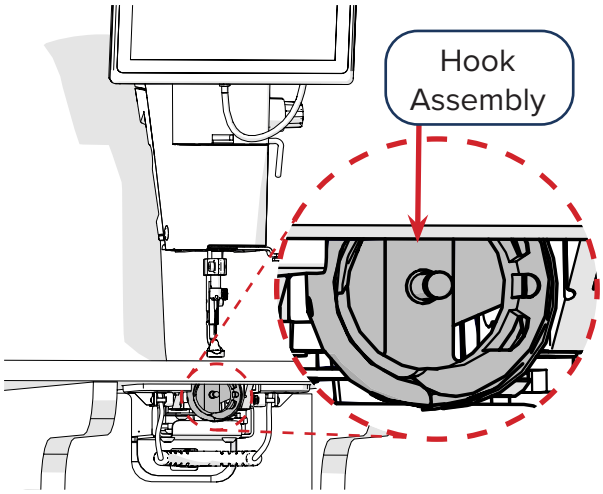
4 Raise the **needle**, then pull the **release lever** (shown in blue) on the bobbin case to remove the case from the hook assembly.



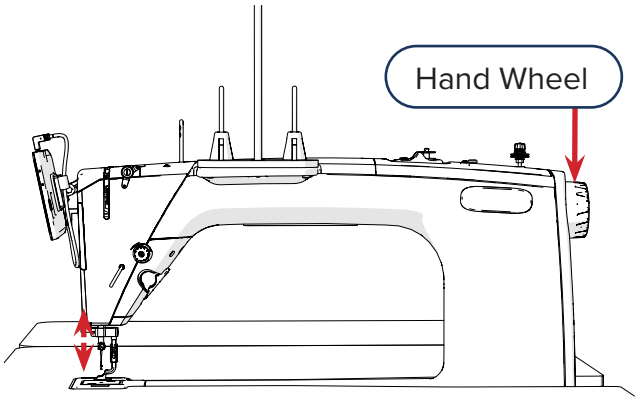
5 Remove the bobbin from the case. Clean the bobbin case with the lint brush. Be sure to clean the area under the **bobbin thread tension arm**.



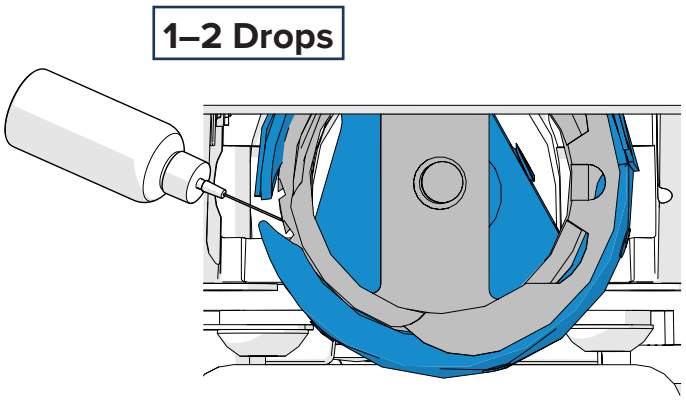
6 Clear away any lint, cloth, and thread remnants in and around the **hook assembly**.



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

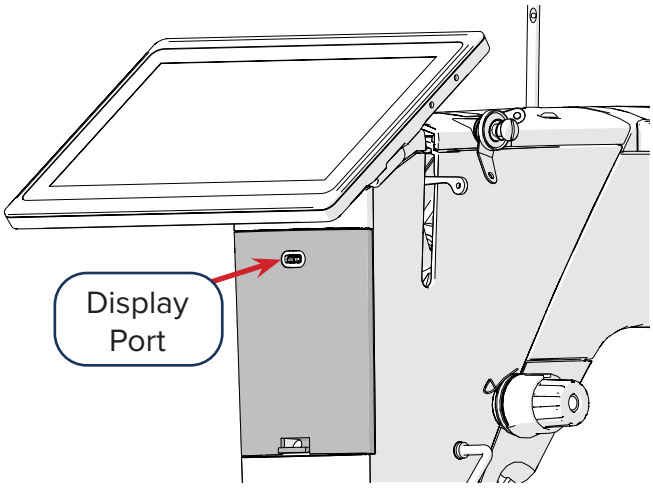


8 Place 1–2 drops of oil into the hook assembly between the **inner part** (shown in gray) and **outer part** (shown in blue).

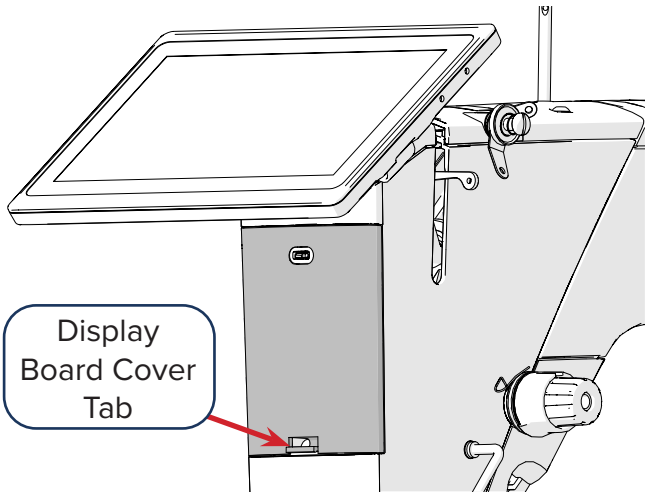


Oil and Clean the Machine (continued)

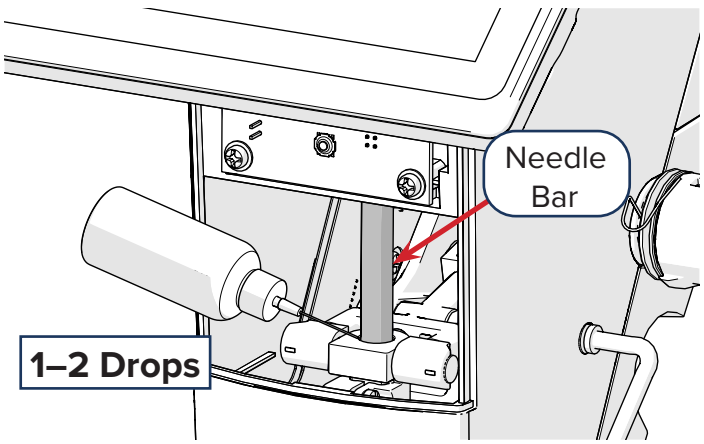
9 Unplug the display from the **port** on the machine.



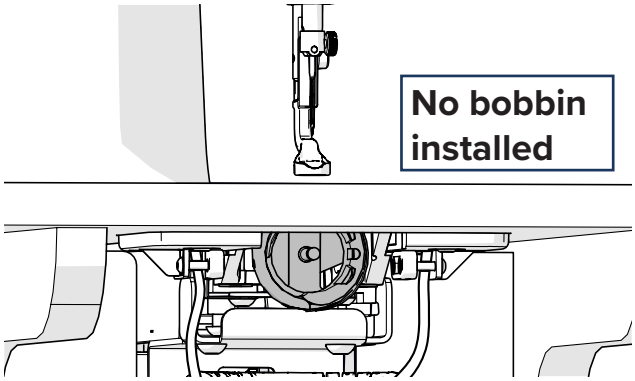
10 Pull the **tab** on the **display board cover** to remove the cover from the machine.



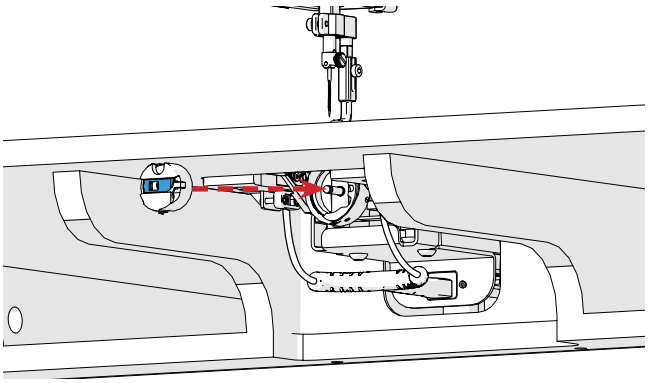
11 Place 1–2 drops of oil on the **needle bar**. Then replace the display board cover and plug the display back into the port.



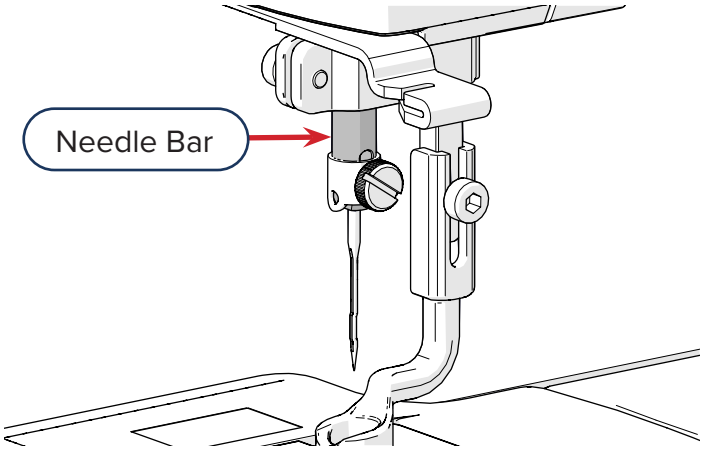
12 Power on the machine. **Without a bobbin installed**, run the machine in cruise mode for about 10 seconds. This will distribute the oil in the hook assembly without getting oil on your bobbin thread.



13 Replace the bobbin case with the release lever (shown in blue) at the 3 o'clock position. It should click into place. Do not pull on the lever while inserting.



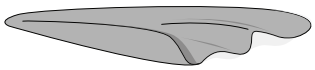
14 Wipe down the **needle bar** regularly to prevent oil from accumulating and dripping onto your quilt.



Clean the Fabric Sensors

Parts & Tools Needed

Soft Cloth



(not included)

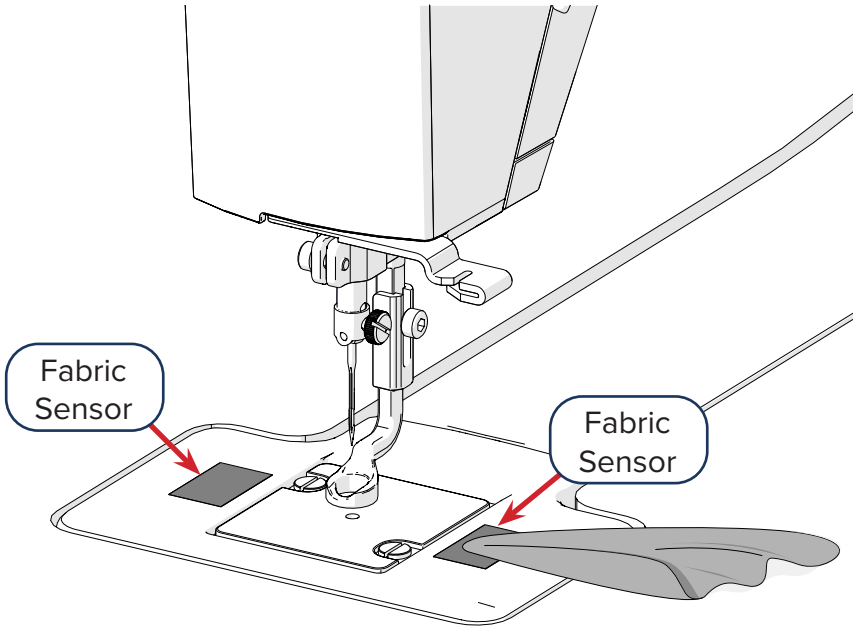
Instructions

The fabric sensors are essential for stitch regulation. Dirty sensors can affect the quality of stitches, resulting in skipped stitches or other stitch problems. Clean the fabric sensors regularly to keep them functioning at their best.

Note: Dark-colored fabric used for the quilt backing needs to be free of lint, as it can interfere with the performance of the fabric sensors.

Take the following step to clean the sensors:

1. Use a soft, scratch-free cloth, such as microfiber, to gently wipe away any lint or fingerprints from the **fabric sensors**.



Change the Needle

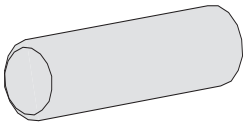
Parts & Tools Needed

Needle



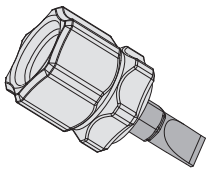
Box 1: Tools Box

Needle Magnet



Box 1: Tools Box

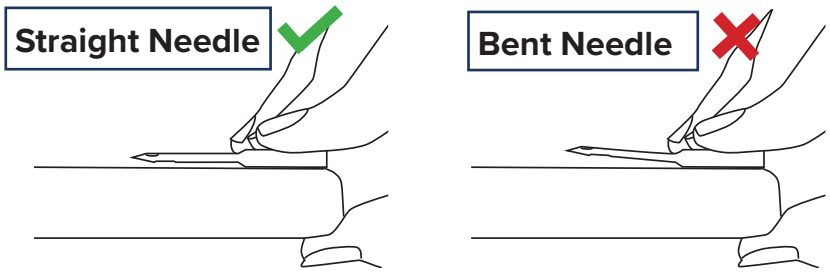
Flat-head Screwdriver



Box 1: Tools Box

Instructions

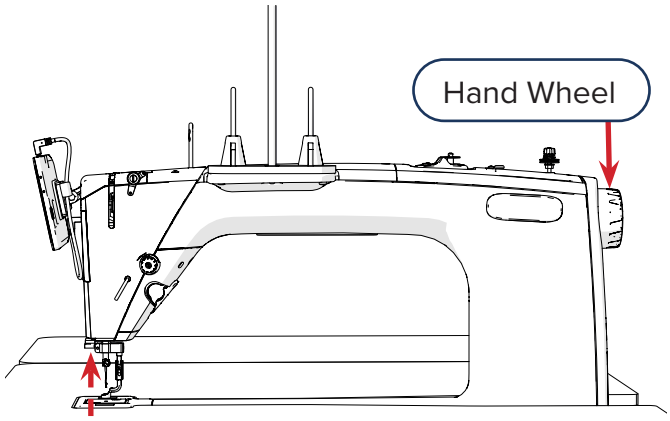
A broken, bent, or burred needle may break thread, damage fabric, or even damage the machine. Always check that the needle is in good repair before starting a new project, and replace the needle after eight hours of use.



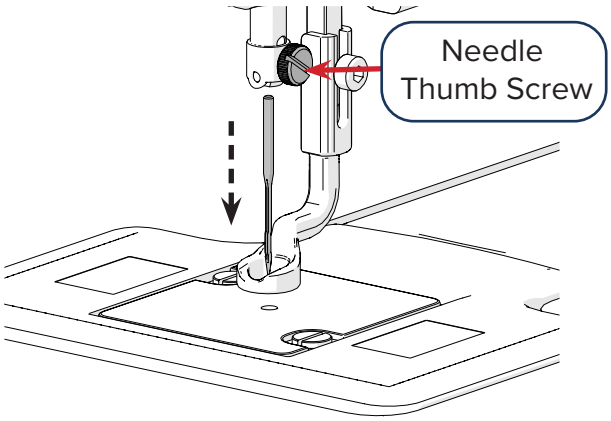
To avoid damage to the machine, please choose an approved needle style from the list below:

- DPx5 MR
- 134 MR
- 1955 MR

1. Turn off the machine's power.
2. Rotate the **hand wheel** to raise the needle to its highest position.

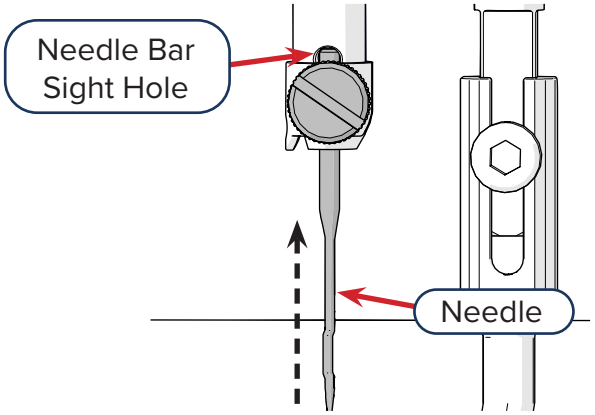


3. Loosen the **needle thumb screw** and remove the needle. If needed, use a flat-head screwdriver.

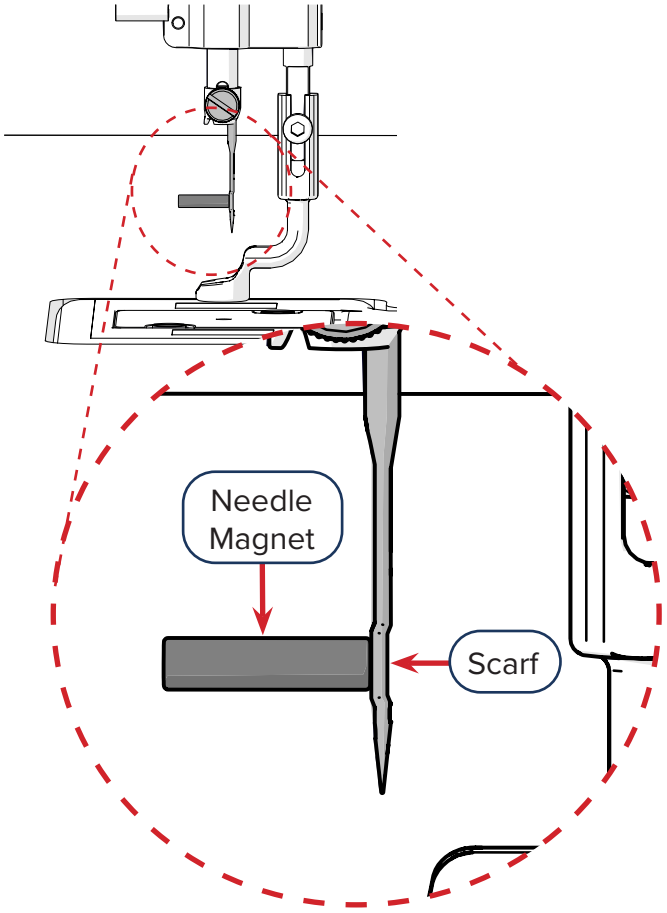


Change the Needle (continued)

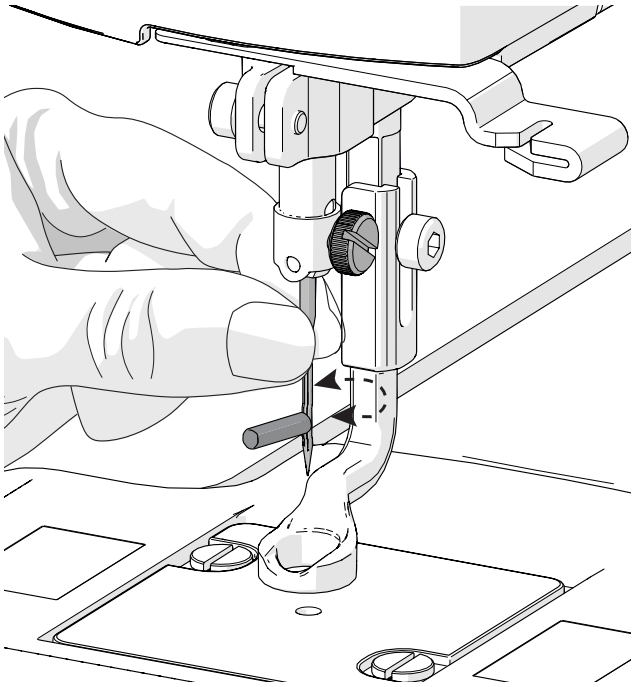
4 Insert the new **needle** all the way into the needle bar. Check the **needle bar sight hole** above the thumb screw to make sure the needle is inserted all the way.



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.

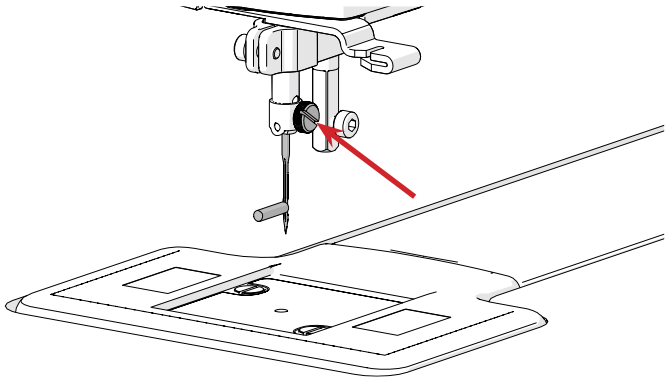


6 Use the needle magnet as a visual guide to check that the needle is straight. Twist the needle until the magnet points as straight out from the machine as possible.



Note: Do not attempt to adjust the needle by moving the magnet directly.

7 Hand-tighten the thumb screw to hold the needle in place. If you use a flat-head screwdriver, do not over-tighten the screw.

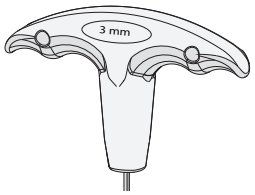


8 Remove the needle magnet.

Adjust the Hopping Foot

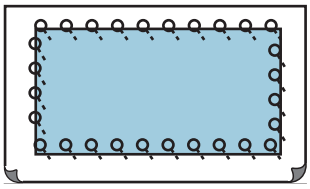
Parts & Tools Needed

T-handle Allen Wrench
3 mm (optional)



Box 1: Tools Box

Quilt
Sandwich



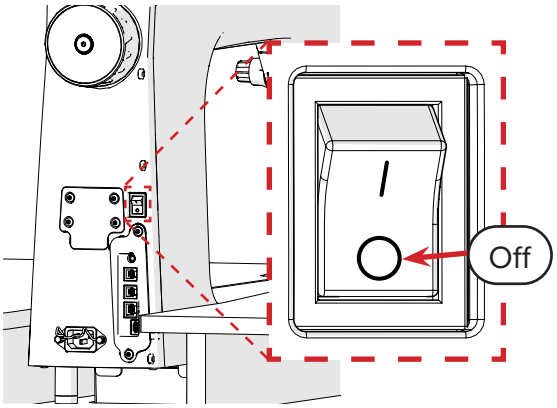
(not included)

Height Adjustment Instructions

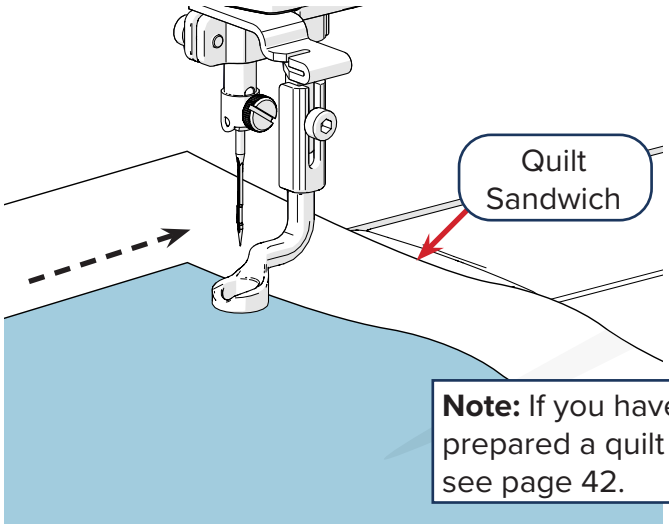
The hopping foot height depends on the thickness of your fabric and batting. Set the hopping foot height at the start of each project. Incorrect hopping foot height can lead to skipped stitches and tension problems.

Take the following steps to set the hopping foot height:

1. Power **off** the machine.



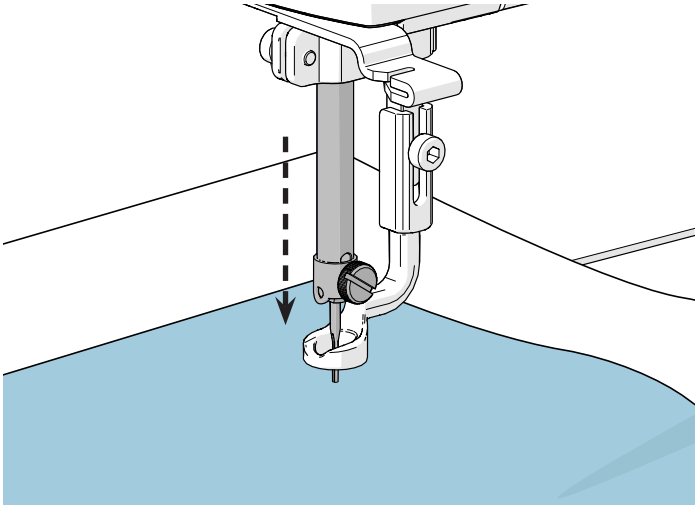
2. Slide your **quilt sandwich** underneath the hopping foot.



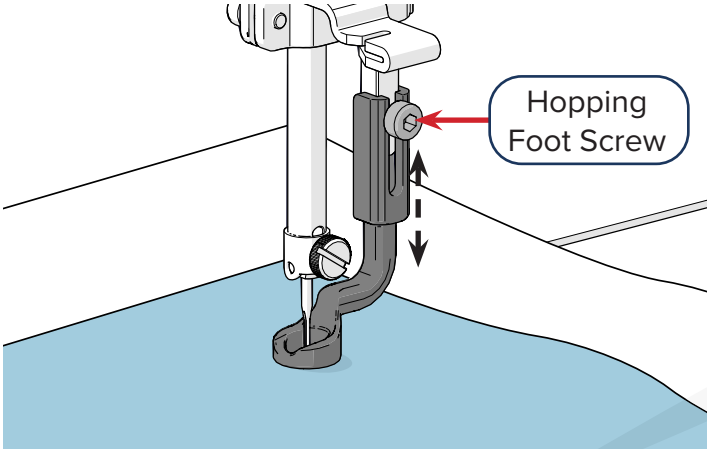
Note: If you haven't prepared a quilt sandwich, see page 42.

Adjust the Hopping Foot (continued)

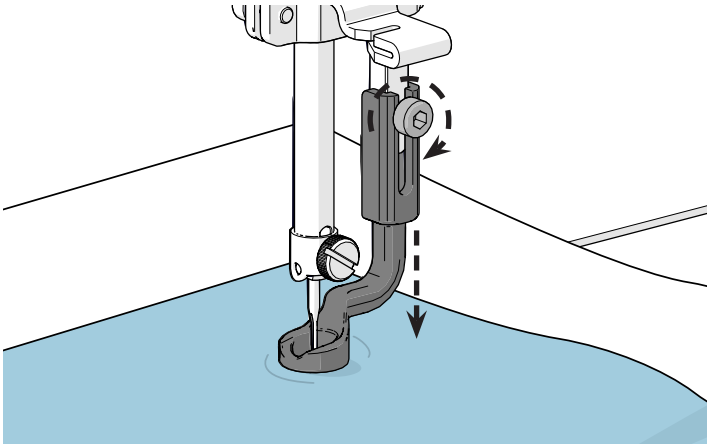
3 Use the hand wheel to lower the needle to its lowest position.



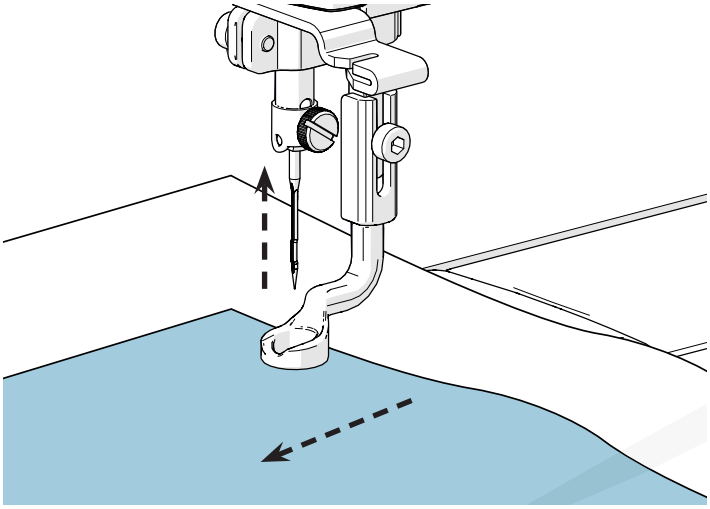
4 With the 3 mm Allen wrench, loosen the **hopping foot screw** but do not remove it. The hopping foot should slide freely.



5 Press down gently on the hopping foot to flatten the fabric around it, then tighten the screw.



6 Use the hand wheel to raise the needle and remove your quilt sandwich.

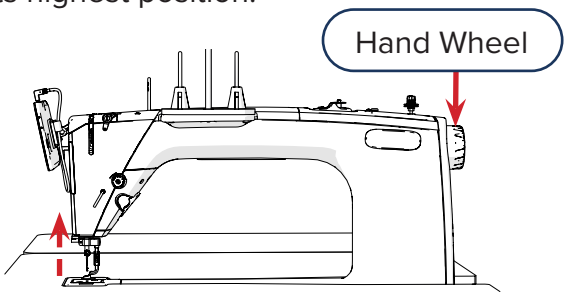


Note: If the machine skips stitches, the hopping foot is too high. If your quilt is difficult to move around, the hopping foot is too low.

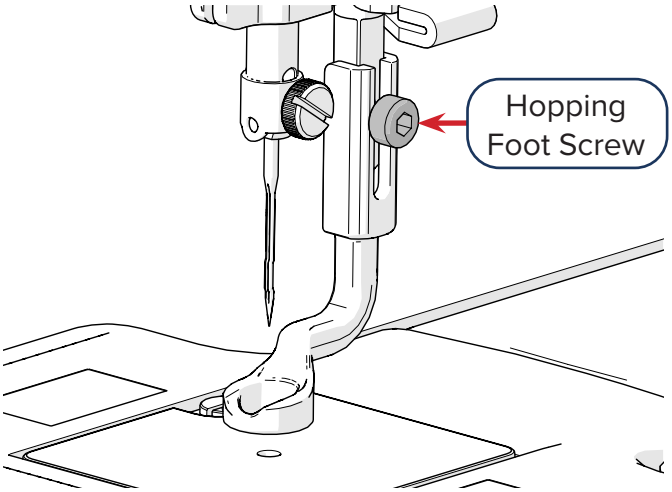
Rotation Instructions

Rotating the hopping foot collar improves line of sight for the area you want to stitch. If desired, take the following steps:

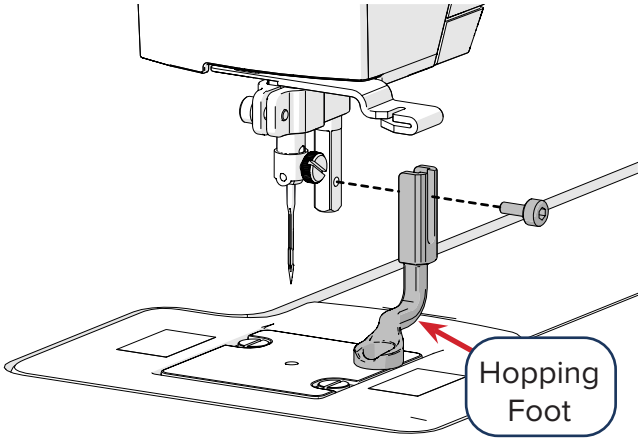
1. Power **off** the machine.
2. Rotate the **hand wheel** to raise the needle to its highest position.



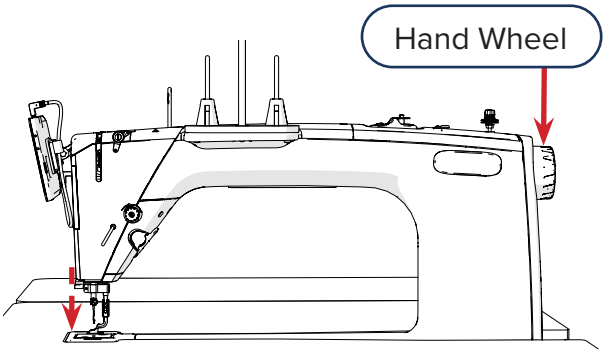
3. Use the 3 mm Allen wrench to remove the **hopping foot screw**.



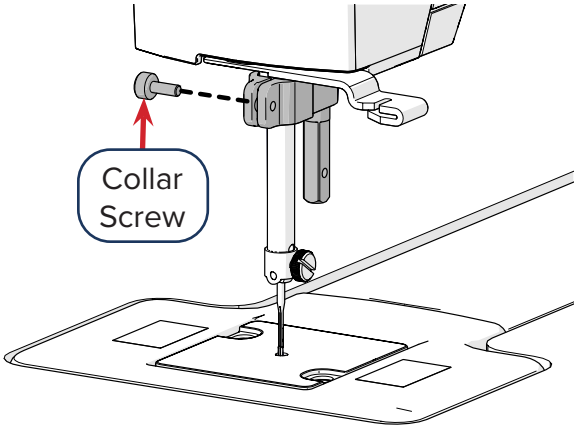
4. Slide the **hopping foot** from the collar.



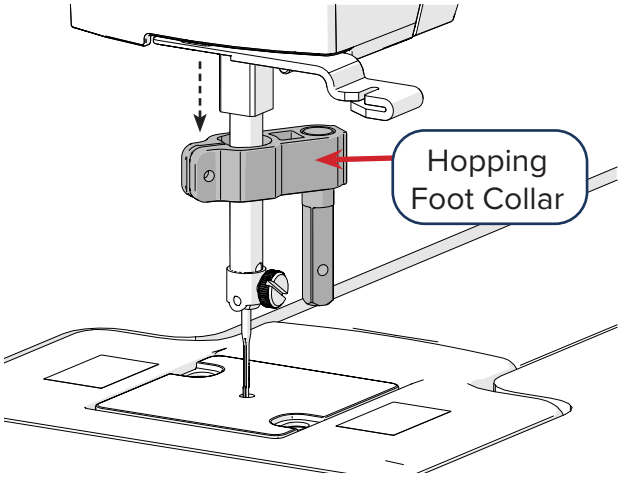
5. Rotate the **hand wheel** to lower the needle.



6. Use the 3 mm Allen wrench to remove the **collar screw** that holds the hopping foot collar to the presser bar.



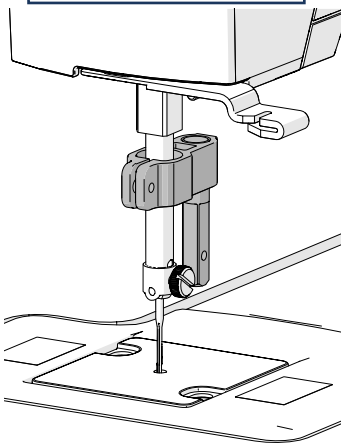
7. Lower the **hopping foot collar** below the presser bar so it rotates freely.



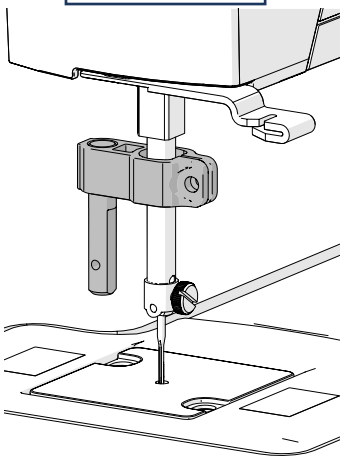
Adjust the Hopping Foot (continued)

8 Rotate the hopping foot collar to one of the two positions:

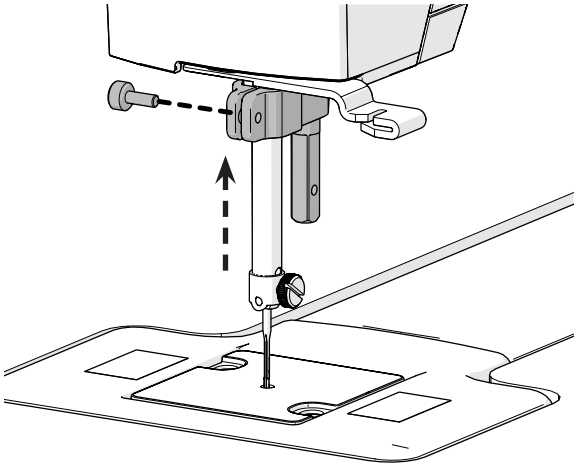
Standard Position

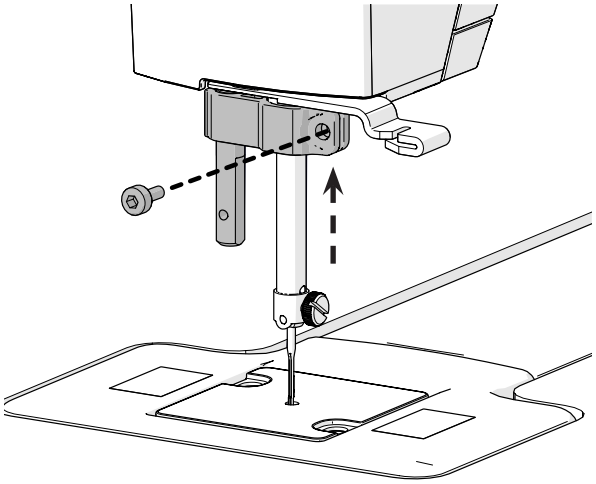


Left Position

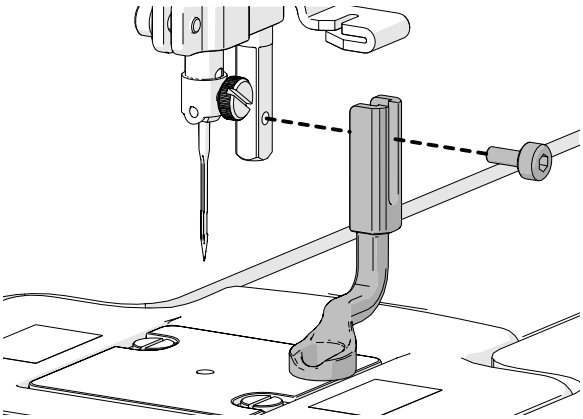


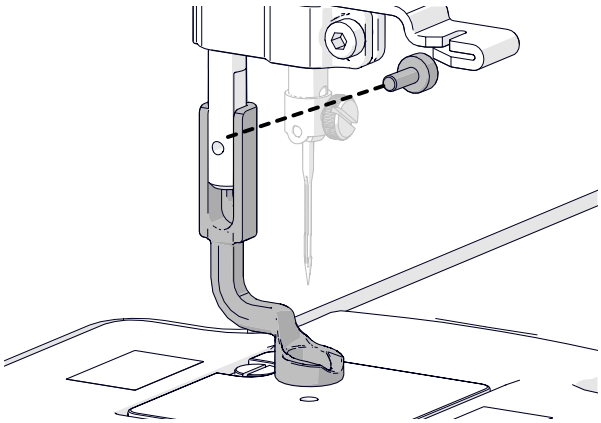
9 Lift the hopping foot collar back up to the presser bar and re-tighten the collar screw.





10 Use the handwheel to raise the needle, then slide the hopping foot onto the collar and screw it in place with the hopping foot screw.



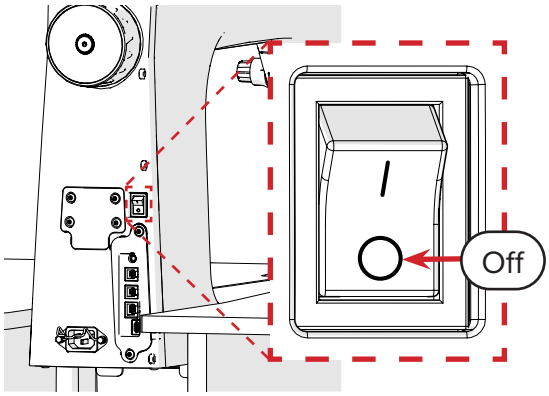


11 Set the hopping foot height. See page 77.

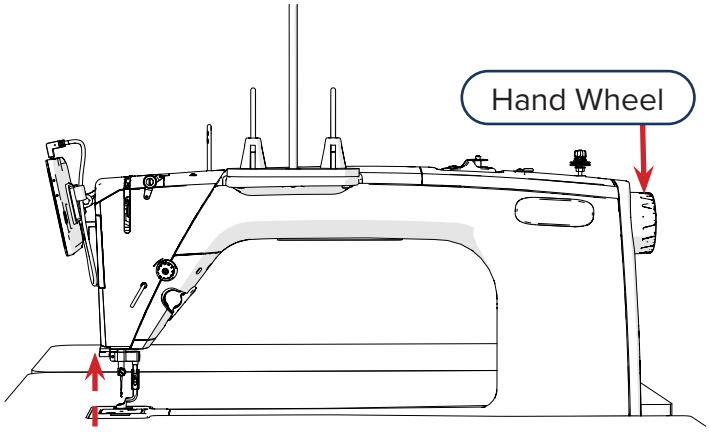
Removal Instructions

To remove the hopping foot, take the following steps:

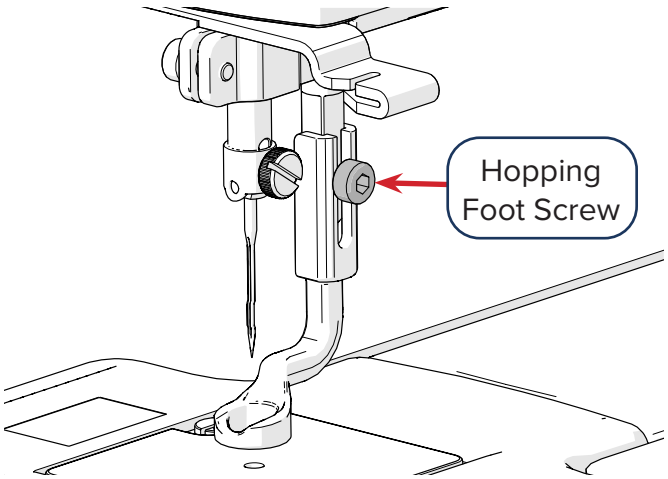
1 Power **off** the machine.



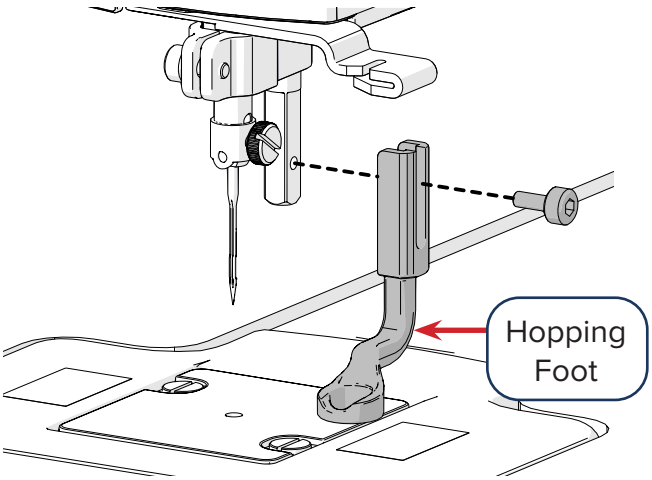
2 Rotate the **hand wheel** to raise the needle to the highest position.



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



4 Slide the **hopping foot** from the hopping foot collar.

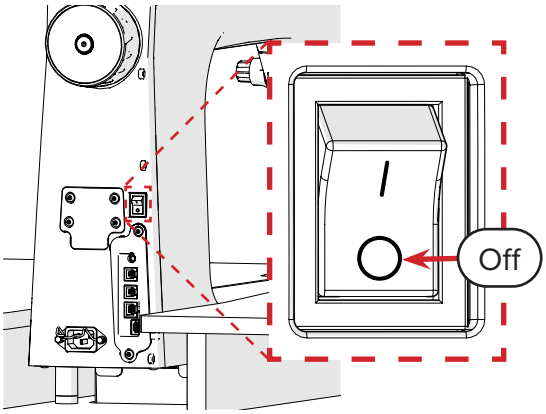


Adjust the Hopping Foot (continued)

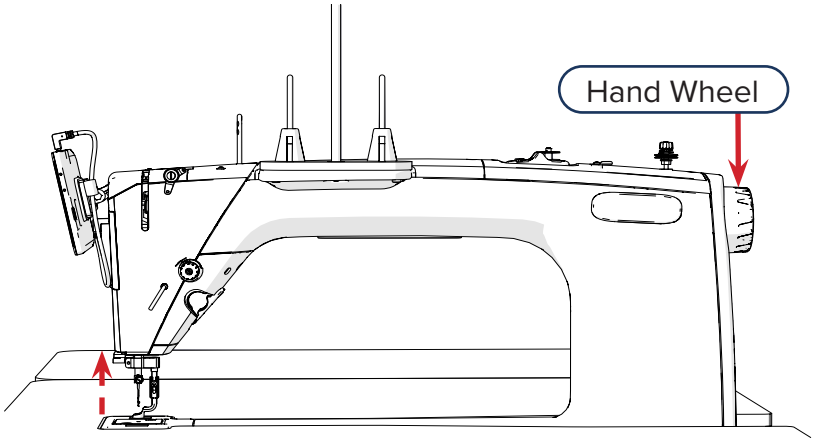
Installation Instructions

To install the hooping foot, take the following steps:

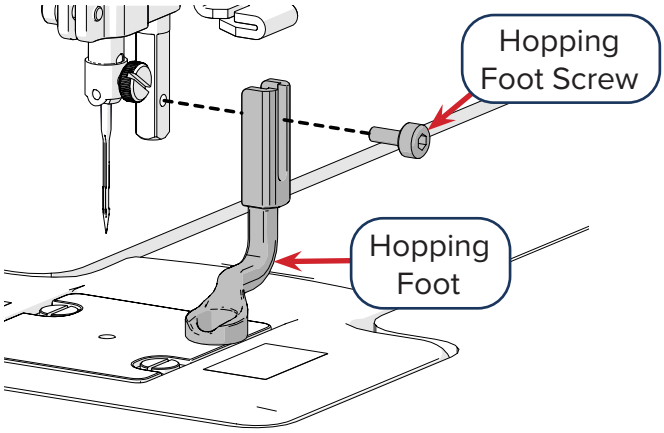
1. Power **off** the machine.



2. Rotate the **hand wheel** to raise the needle to the highest position.



3. Slide the **hopping foot** onto the collar. Use the 3 mm Allen wrench and **hopping foot screw** to attach the foot to the collar.

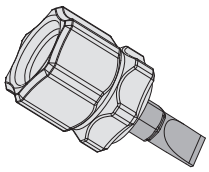


4. Set the hopping foot height (see page 77).

Remove & Install the Needle Plate

Parts & Tools Needed

Flat Head Screwdriver

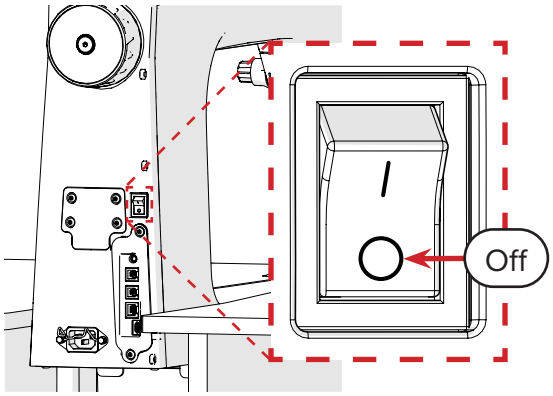


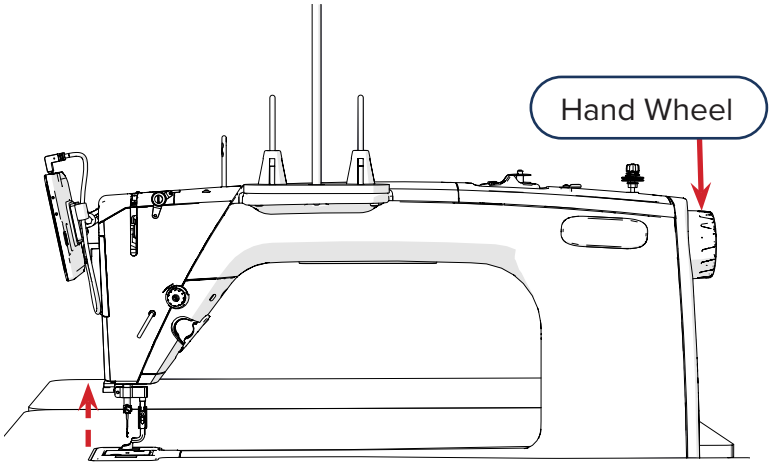
Box 1: Tools Box

Removal Instructions

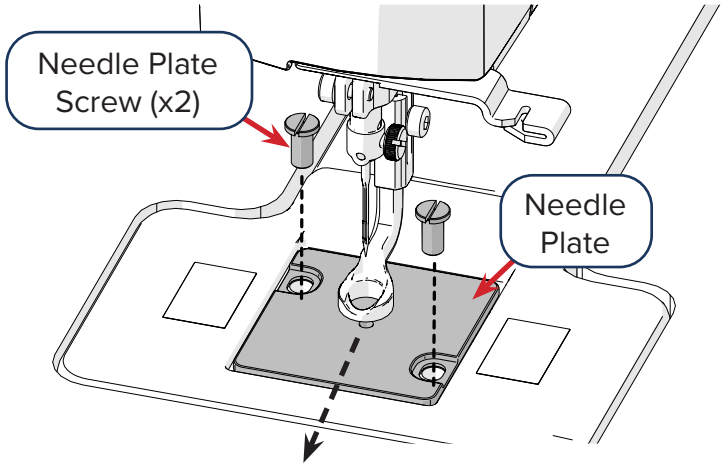
To remove the needle plate from the quilting machine, take the following steps:

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**. Slide the **needle plate** from the machine.

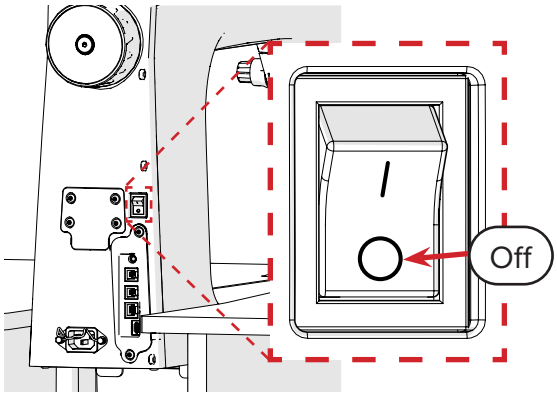


Remove & Install the Needle Plate (continued)

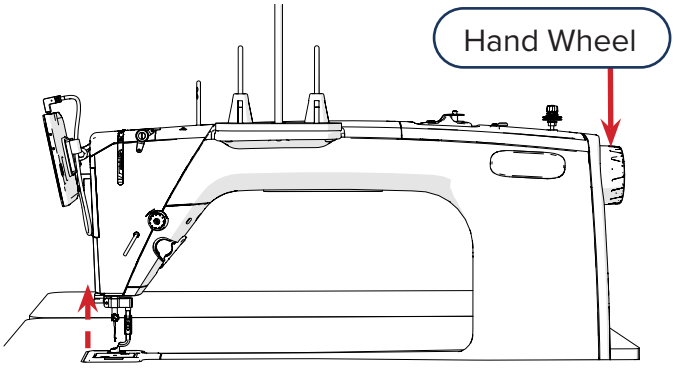
Installation Instructions

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

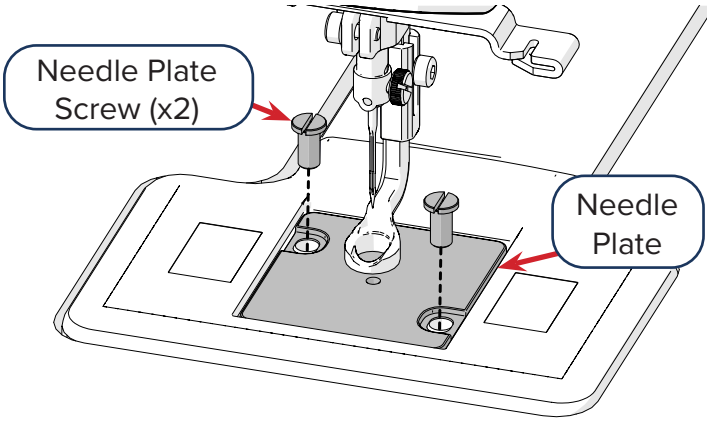
1 Power **off** the machine.



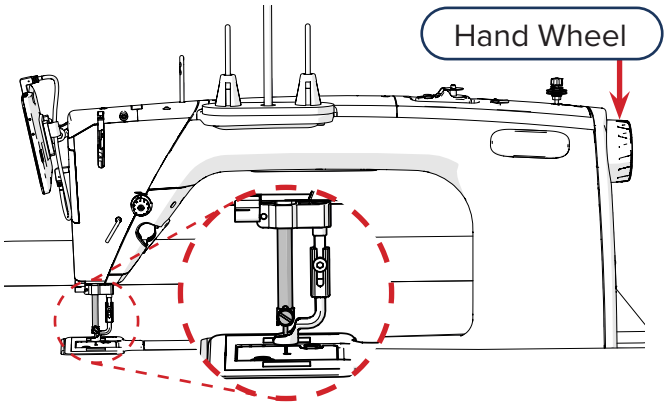
2 Use the **hand wheel** to raise the needle to the highest position.



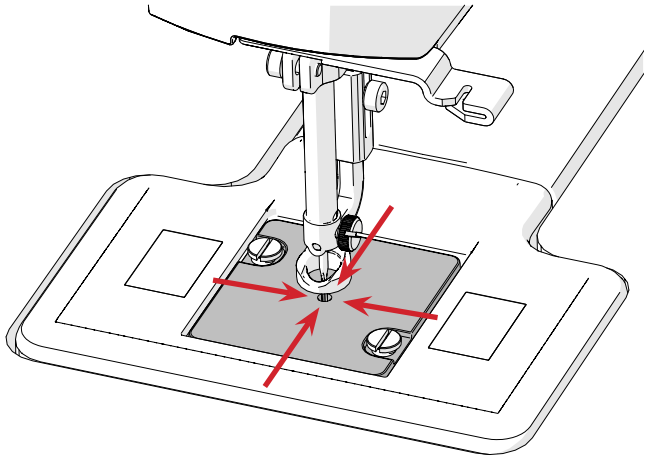
3 Align the **needle plate** with the screw holes on the machine and loosely attach the **needle plate screws**. Do not tighten.



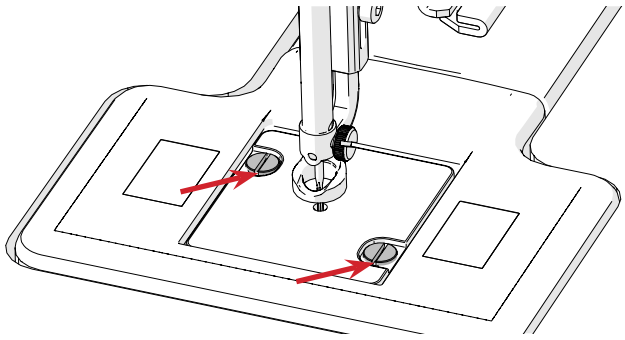
4 Use the **hand wheel** to lower the needle.



5 Adjust the position of the needle plate to center the needle in the opening.



6 Tighten the needle plate screws with the flat head screwdriver till you meet resistance, then tighten a quarter turn more.

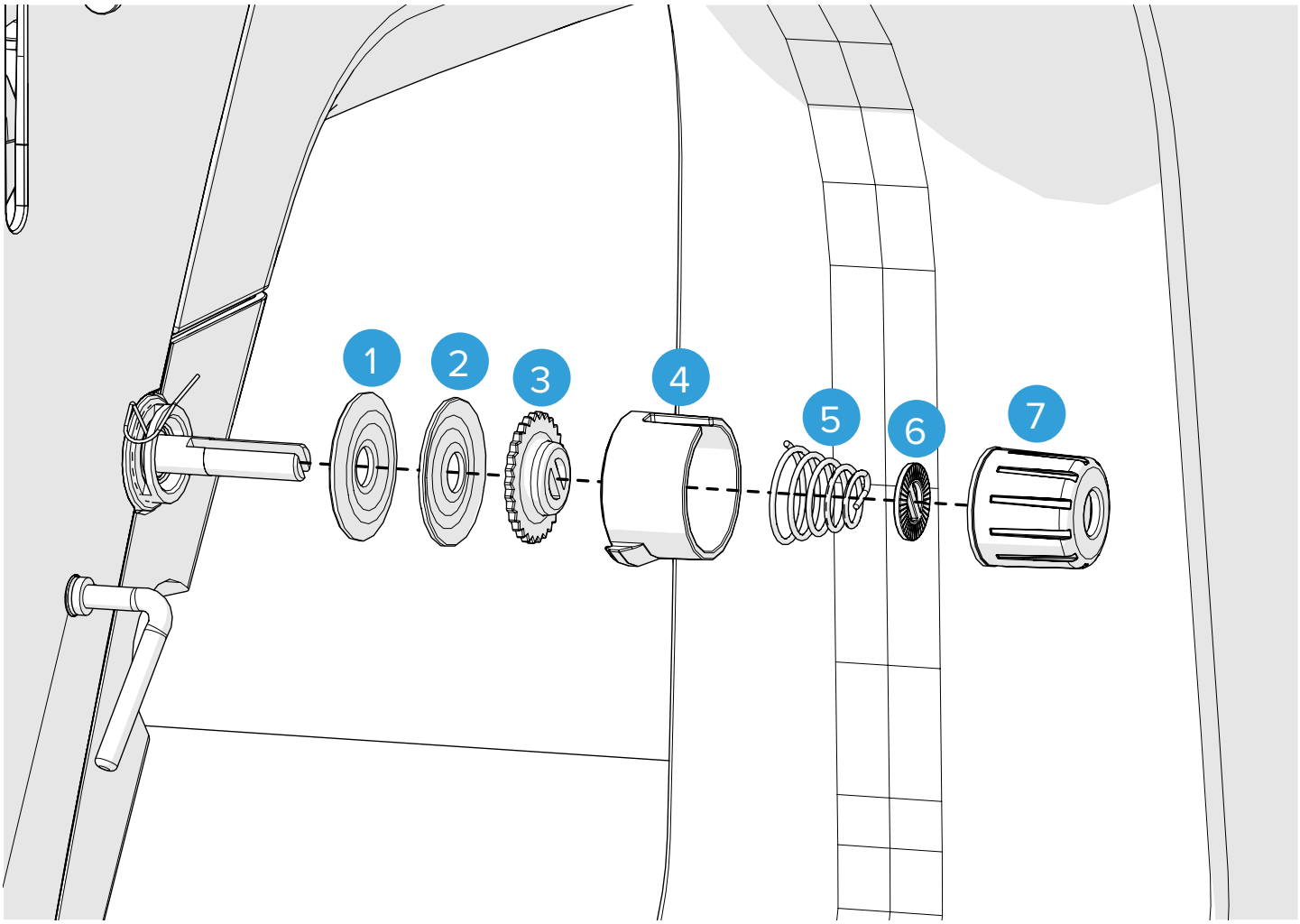


7 Reset the hopping foot height (see page 77).

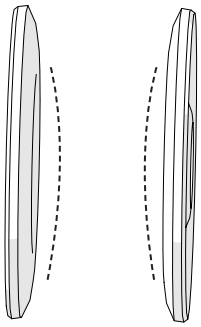
Re-assemble the Thread Tensioner

Instructions

If you over-loosen the large thread tensioner knob, the tensioner may come apart and need to be re-assembled. The following diagram is the order of the tensioner.



1 Tensioner Disc
2 Tensioner Disc
3 Meter Key
4 Meter
5 Spring
6 Keyed Washer
7 Knob



Note: Place the tension discs so the curved sides face each other.



Note: Install the keyed washer so the grooved side faces toward the knob.

Check the Firmware

The firmware versions for the machine and the display are found by pressing System Info at the bottom of the Settings menu.



The following information and options display:

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

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:

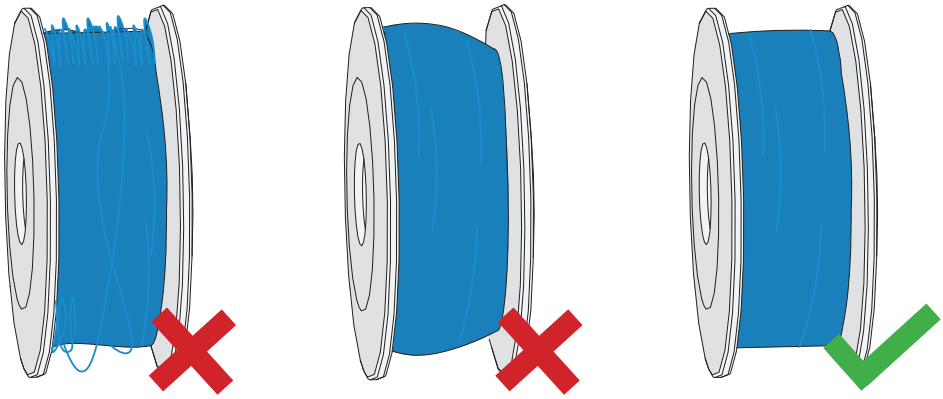
- Phone: (801) 485-6688
- Email: support@graceframe.com

Troubleshoot the Bobbin Winding 88

Remove and Install the Hook Holder 90

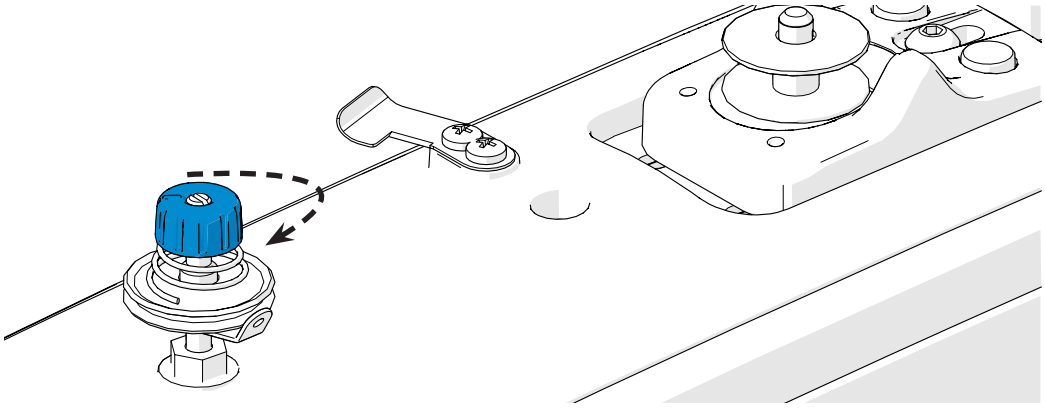
Troubleshoot the Bobbin Winding

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

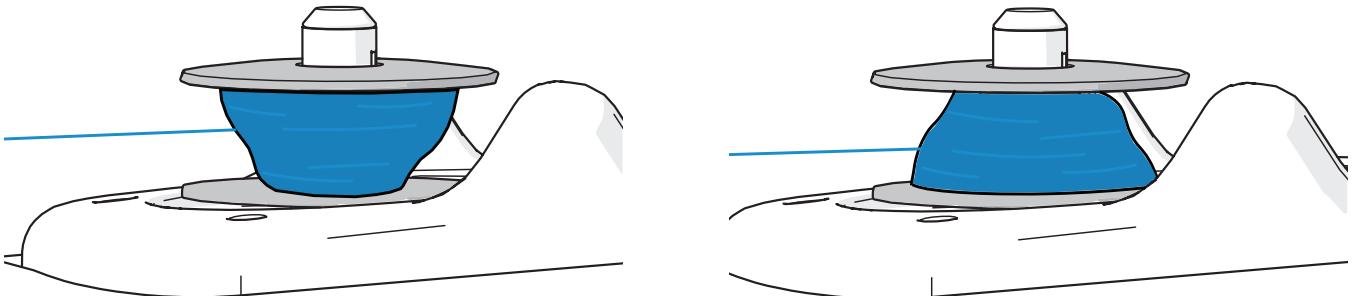
The tension of the bobbin wind is determined by the bobbin thread tensioner. Turn the **knob** (shown in blue) one full rotation clockwise and re-test the bobbin wind. Repeat until the bobbin wind is tight and smooth.



Bobbin Filling to One Side

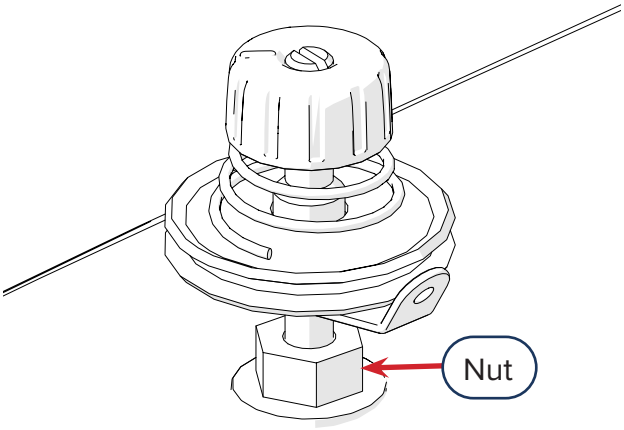
If the bobbin is filling to one side, the bobbin thread tensioner is positioned incorrectly and will need to be adjusted.

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

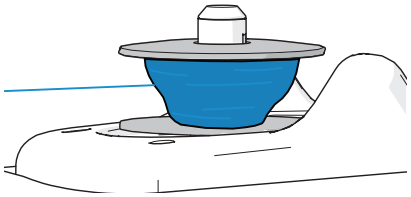


Troubleshoot the Bobbin Winding (continued)

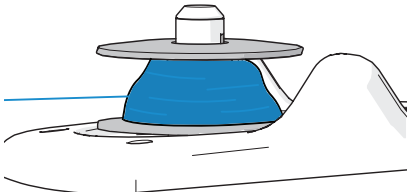
2 Unthread the bobbin thread tensioner. With a 7 mm wrench or needle-nose pliers, loosen the **nut** at the base of the tensioner.



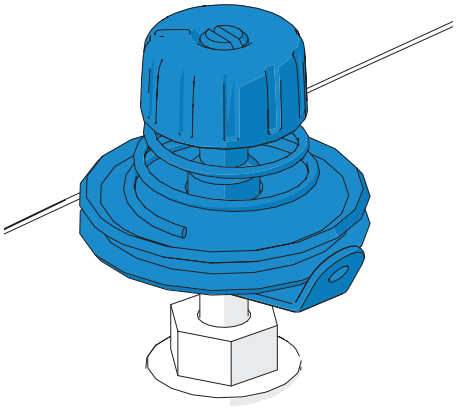
3 Turn the top part of the tensioner assembly (shown in blue) a full rotation to adjust the height of the tension discs.



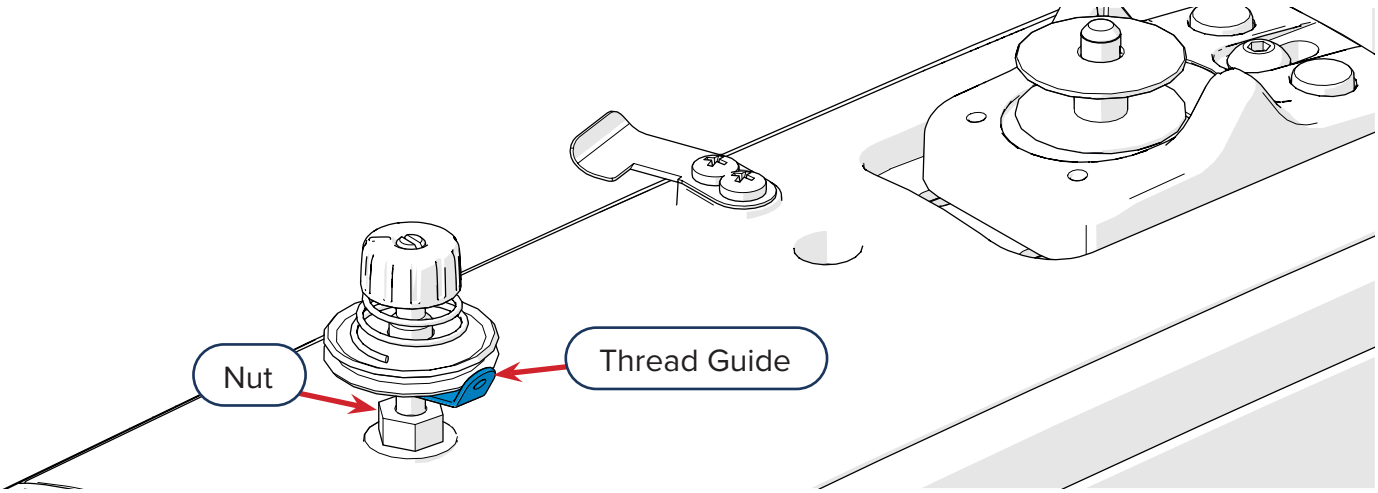
If the bobbin is filling more toward the top, turn the tensioner one full rotation clockwise and re-test.



If the bobbin is filling more toward the bottom, 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.

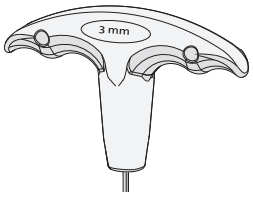


Remove and Install the Hook Holder

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

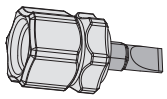
Parts & Tools Needed

T-handle Allen Wrench
3 mm



Box 1: Tools Box

Flat-Head Screwdriver

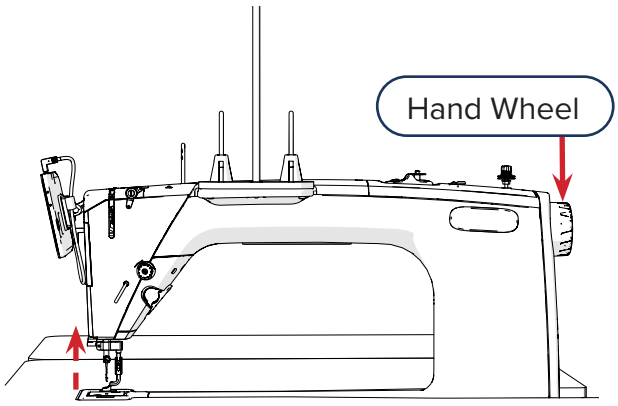


Box 1: Tools Box

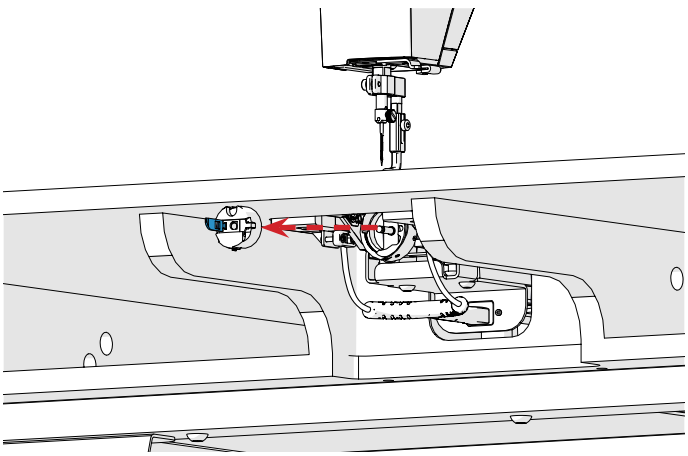
Removal Instructions

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. Please call 1-801-485-6688 before attempting this procedure.

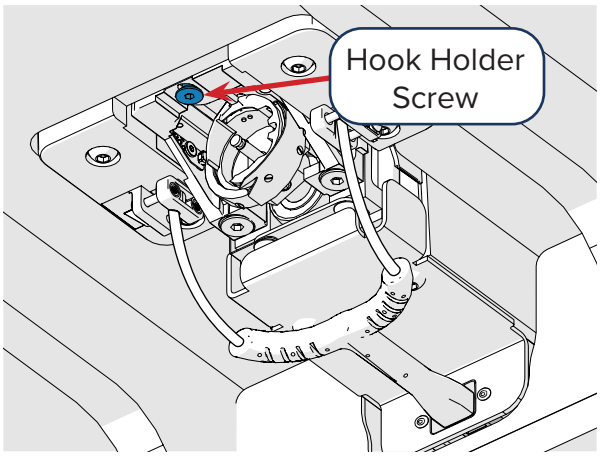
1. Power **off** the machine.
2. Raise the needle to the highest position with the **hand wheel**.



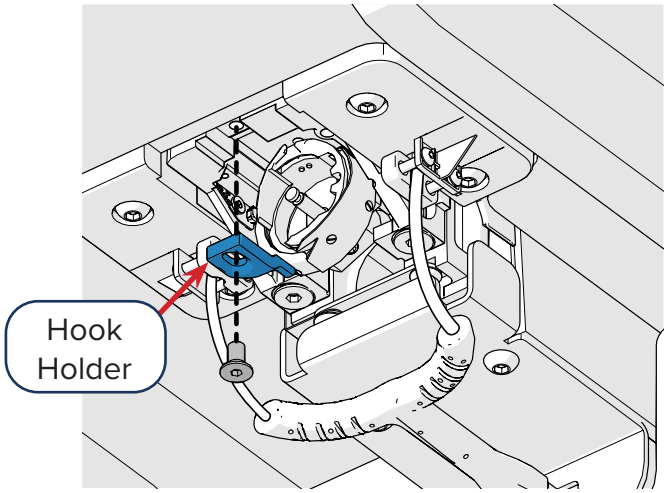
3. Pull on the bobbin case **release lever** (shown in blue) to remove the bobbin case from the hook assembly.



4. With the 3 mm Allen wrench, remove the **hook holder screw** that attaches the hook holder to the machine.



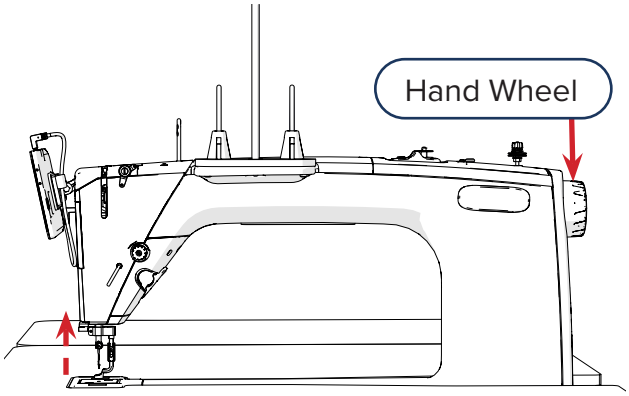
The **hook holder** will fall free of the machine.



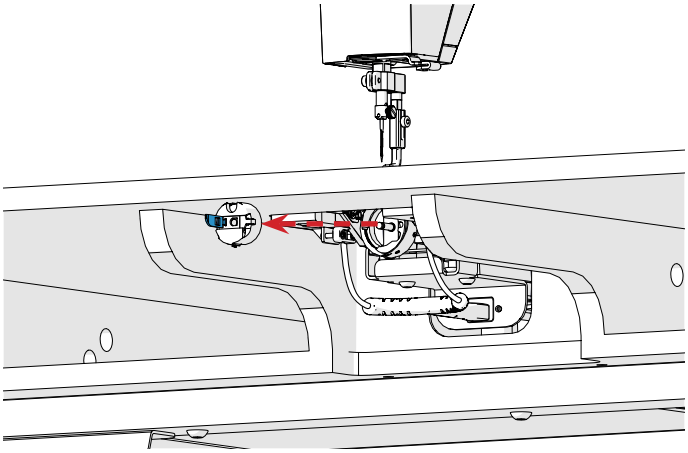
Remove and Install the Hook Holder (continued)

Installation Instructions

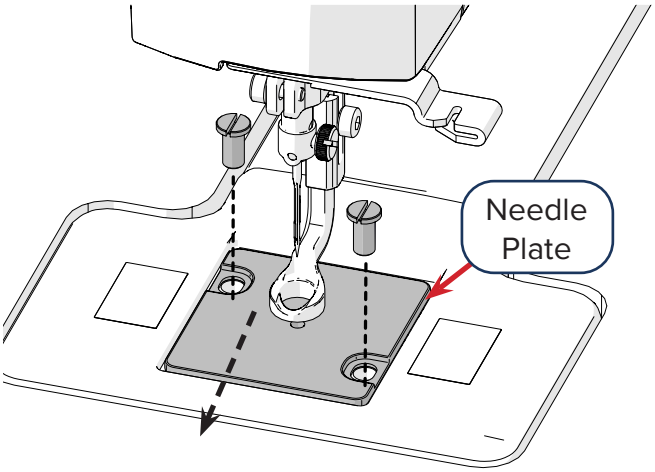
1. Power off the machine and raise the needle to the highest position with the **hand wheel**.



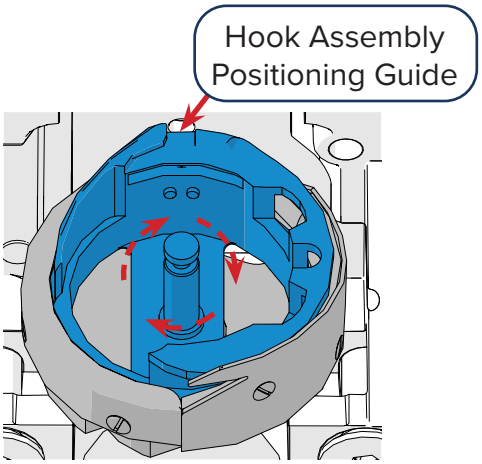
2. Pull on the bobbin case **release lever** (shown in blue) to remove the bobbin case from the hook assembly.



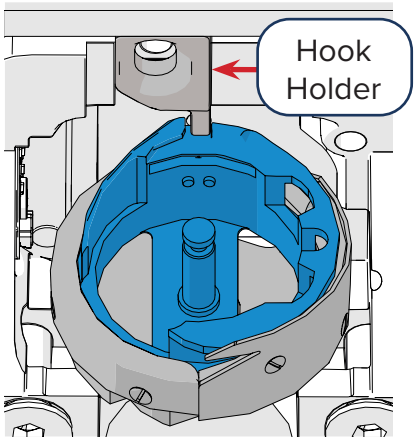
3. Remove the **needle plate** using a flat head screwdriver (see page 83).



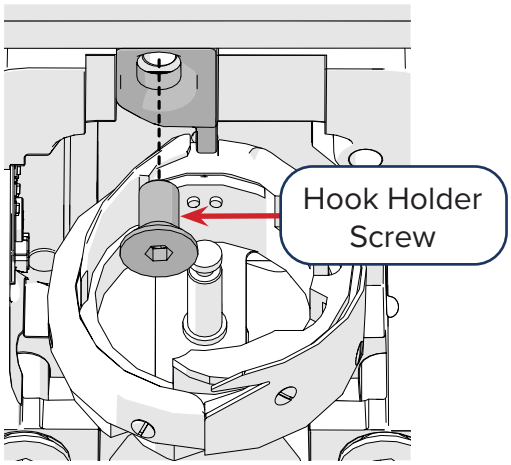
4. Turn the inside part of the **hook assembly** (shown in blue) so that the **positioning guide** is at the highest point.



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

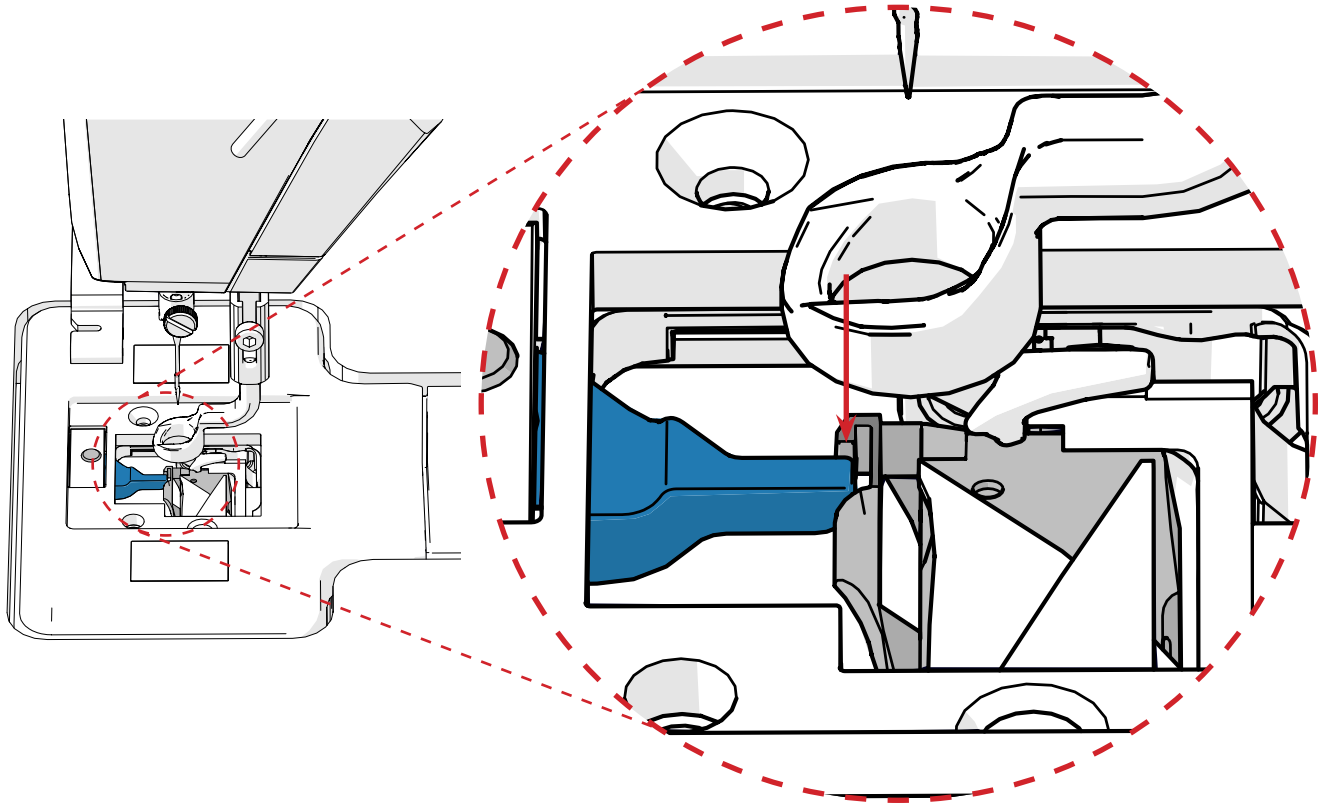


6. Loosely attach with the **hook holder screw**. Do not tighten.

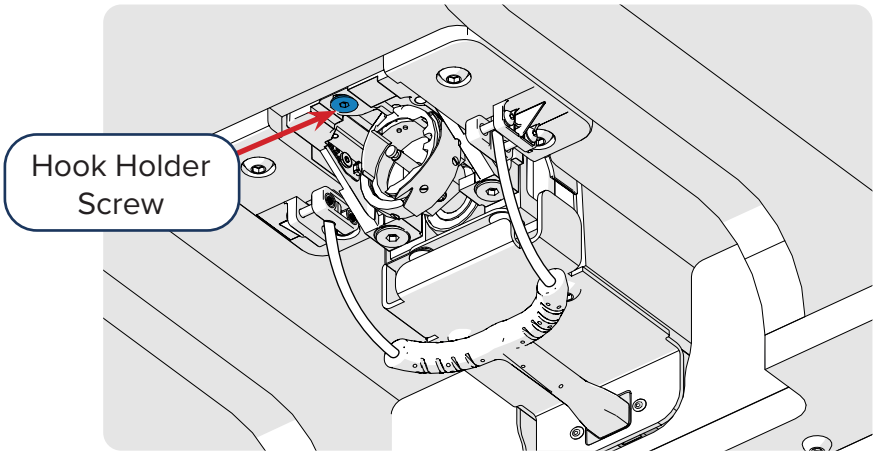


Remove and Install the Hook Holder (continued)

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 Re-install the needle plate (see page 83).

Appendix

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

Choose Your Needle 94
Choose Your Thread 96
Choose Your Fabric and Batting 98
Troubleshoot the Thread Tension 99
Troubleshooting Guide 101
Index 103

Choose 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 the needle. For best results:

- Purchase needles directly from graceframe.com. Needles from other sources might be poorly manufactured, leading to skipped stitches, breaking thread, and other thread tension problems.
- 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 (MR) needles. These needles can handle the rapid changes in direction needed for free-motion quilting.
- 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:

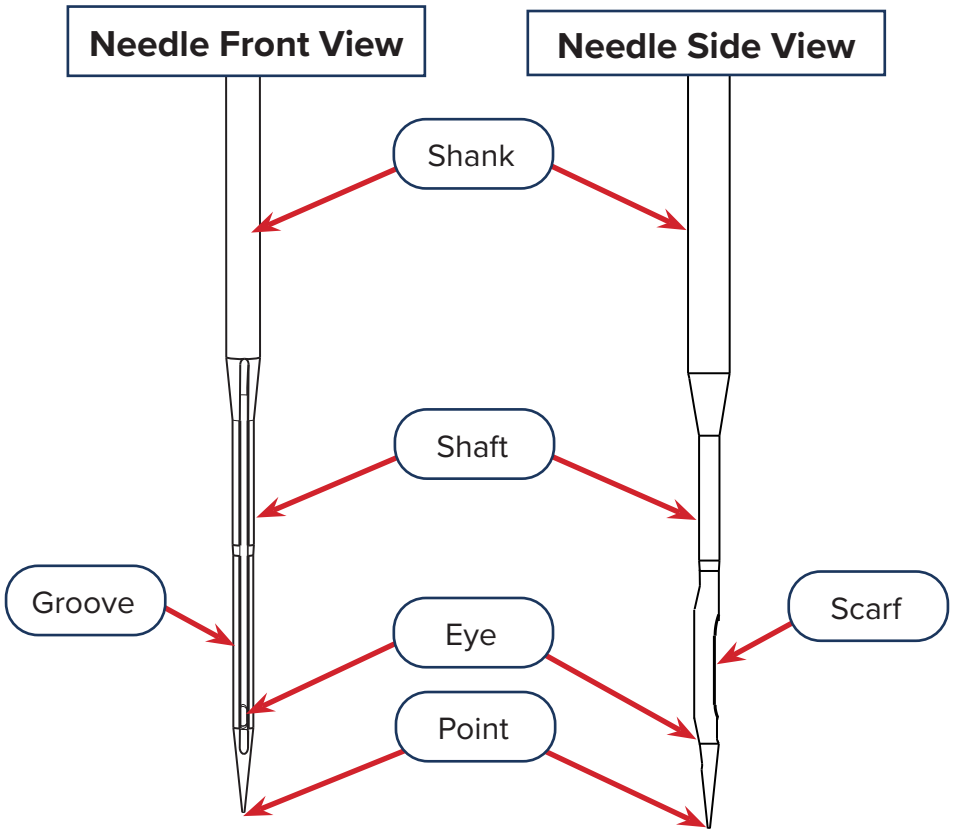
- DPx5 MR
- 134 MR
- 1955 MR

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. cotton 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.

Choose 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 page 36). It holds its color well over time (colorfast), and uses long fibers (extra-long staple) that resist 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 page 36).
- 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).
- Use similar thread for top and bottom thread.

Thread Type Guide

Threads can be multiple strands spun together, called ply, or they can be 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 into 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.

Choose Your Thread (continued)

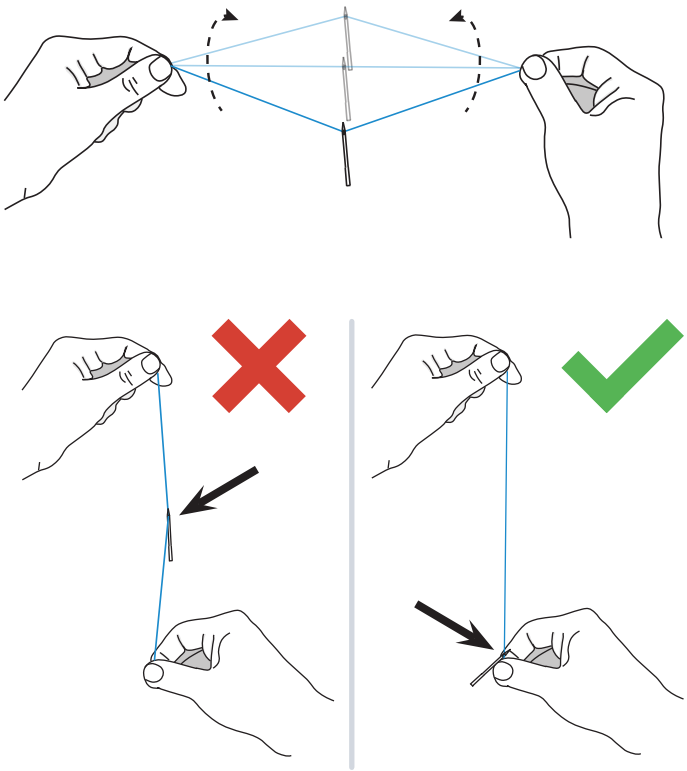
Tip: Not all manufacturers will have the same sizing method for their thread. Threads can be measured by weight, tex, denier, or scaling that is unique to its brand. Take the time to understand how the sizing works for a brand you're considering, and keep a few common sewing rules in mind:

- 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.

Testing Thread-Needle Compatibility

To test if your thread is thin enough for your needle:

1. Thread the needle with the thread you're testing.
2. Hold the thread horizontally with the needle dangling from the middle.
3. Swish the thread in circles until the needle spins.
4. Turn the thread vertically and wait for it to stop spinning.



Results:

- If the needle remains in the center, the thread is too thick. Use finer thread or a larger needle.
- If the needle drops toward your lower hand, the thread is not too thick.

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.

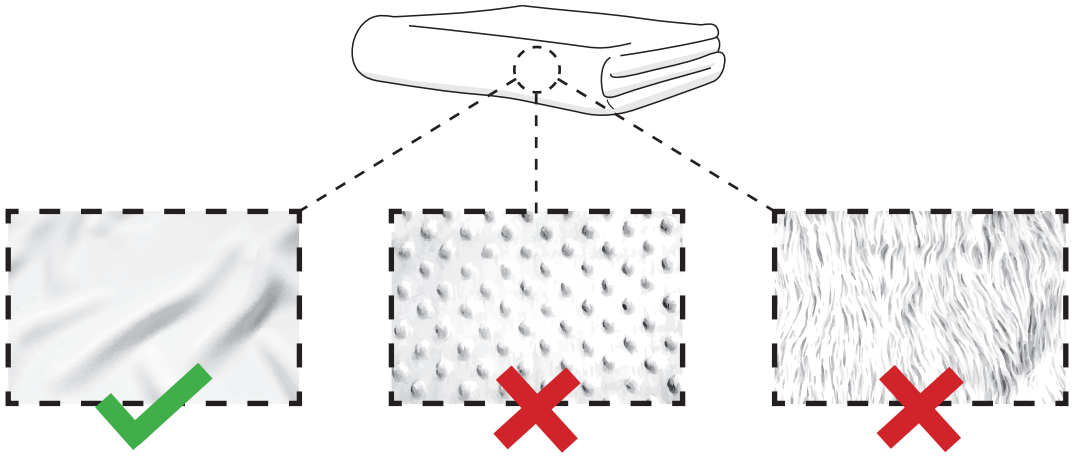
Thread Type	Processes
Cotton	• **Mercerized:** Treated to improve strength and colorfastness. • **Glazed:** Waxed or coated to give a polished appearance. The coating may rub off and build up in the machine. • **Gassed:** Exposed briefly to a gas flame to burn away fuzz and lint, giving a smooth appearance.

Choose Your Fabric and Batting

Thread Type	Processes
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.

Fabric

Some fabrics are not recommended for use with your 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. Avoid any fabrics that are difficult to pierce. Long-fibered fabrics with a high pile, such as faux fur or thick plush fabrics, can interfere with the fabric sensors and are also not recommended. When quilting, make sure any dark-colored fabric used for the quilt backing is free of lint, as it can interfere with the fabric sensors.



Faux fur and minky fabrics can cause the fabric sensors to malfunction, resulting in skipped stitches or other stitch problems when using stitch regulation modes (precise and cruise). If you wish to use these fabrics, use manual mode for a better stitching experience.

Batting

To choose the best batting for your project, consider the look and feel of the quilt that you're making. 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 desired. Generally, cotton has a lower loft while polyester has a higher loft.

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

Troubleshoot the Thread Tension

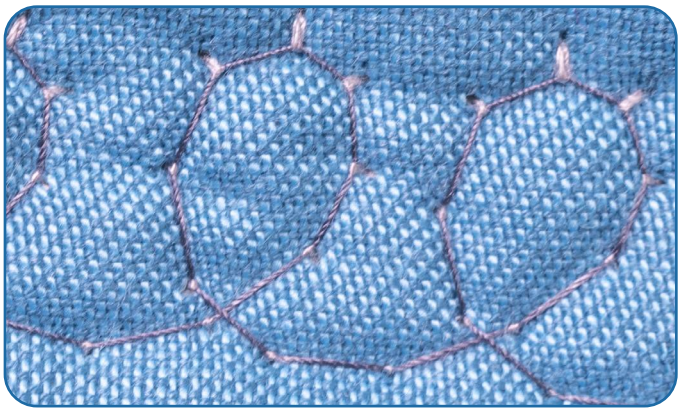
Thread tension is influenced by all of the following factors:

- The thread itself
- Proper machine threading
- Top thread tension (large tensioner)
- Bottom thread tension (bobbin case)
- Bobbin wind tension
- Needle
- Hopping foot height
- Fabric and batting
- Cleanliness of thread guides, bobbin case, hook assembly, needle plate, and fabric sensors

When thread tension is off, a variety of problems can arise. Review the stitch problems below to find solutions for specific stitch issues.

Eyelashing

Eyelashing occurs when the thread is being pulled from the other side of the fabric.

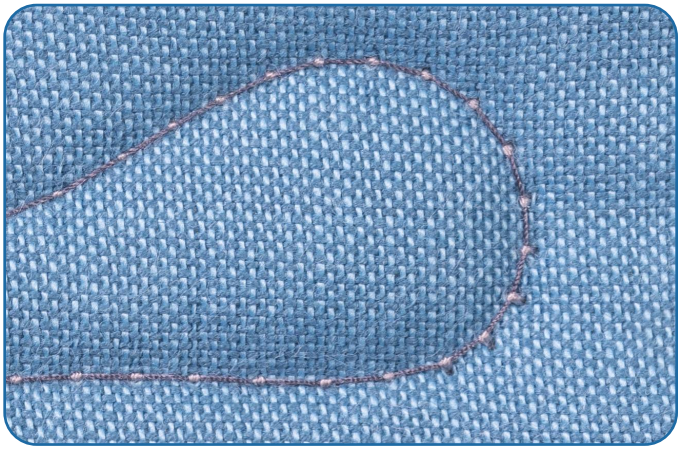


Eyelashing on the top: The bottom thread is being pulled up to the top layer of fabric. Eyelashing on the top of the quilt indicates an issue with the bobbin. Remove the bobbin from the case. Re-install the bobbin in the case and check the bobbin case tension (see page 34). Re-install the case in the machine. If the issue persists, reduce the top thread tension.

Eyelashing on the bottom: The top thread is pulled down to the bottom layer of fabric, indicating an issue with the threading on your machine. Check that the machine thread is fully flossed between the tension discs on the thread tensioners, and make sure the thread is hooked onto the check spring on the top thread tensioner. If the problem persists, re-thread the machine (see page 37), and tighten the top thread tension (see page 61).

Railroad Tracks

Railroad tracks occur when one thread looks like it's laying flat on the quilt, while the other thread crosses over it, like little railroad tracks.



Railroad tracks on the top: The tension on the top thread is too great, and the tension on the bottom thread is too slack. Remove the bobbin from the case. Re-install the bobbin in the case and check the bobbin case tension (see page 34). Re-install the case in the machine. Lower the top thread tension (see page 61).

Railroad tracks on the bottom: The top thread tension is too slack. Confirm the machine is threaded correctly (see page 37), paying special attention to the check spring on the top thread tensioner. Confirm the needle is straight, sharp, and correctly positioned. Double-check your hopping foot height (see page 44). Finally, increase the top thread tension (see page 61).

Troubleshoot the Thread Tension (continued)

Bearding



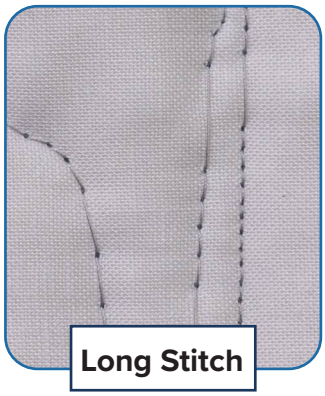
Bearding occurs when tufts of the batting material are pulled up through the top of the quilt. This happens when the batting has been installed with the scrim side up rather than down, or if there is a burr in the needle snagging the batting on the way back up.

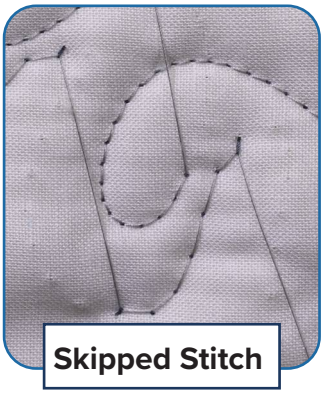
Thread Bunching



The thread is bunching up underneath the stitches due to excessive thread looping. This happens if the check spring on the top thread tensioner is bypassed when threading the machine, or if the thread was not flossed through the tension discs on the thread tensioners (see page 37). If the problem occurs only at the start of stitching, it could be that the bobbin thread tail coming out of the case is creating the looping. When installing the bobbin case into the machine, hold the tail toward you with your free hand.

Long or Skipped Stitches





Long Stitches: The fabric sensors are not properly tracking the movement of the fabric, so stitch regulation isn't working. Clean both fabric sensors with a scratch-free, soft cloth (see page 74). Reset the hopping foot height (see page 44).

Skipped Stitches: A skipped stitch has a tale-tell hole (or series of holes) where the needle penetrated the fabric in an attempt to make a stitch, but the bottom thread didn't catch the top, and the stitch wasn't completed. Check the needle orientation and that the needle is straight. Replace as needed (see page 75). Check your hopping foot height (see page 44). Check the machine threading (see page 37) and top thread tension (see page 61).

General Tension Troubleshooting

1. Check the bobbin tension (see page 34).
2. Check the top tension (see page 61).
3. Re-thread the machine (see page 37).
4. Test your thread quality (see page 36).
5. Reset the hopping foot height (see page 44).
6. Check your needle (see page 75).
7. Oil and clean the machine (see page 71).
8. Clean the fabric sensors (see page 74).

Troubleshooting Guide

Issue	Possible Causes	Solutions
Machine won't turn on.	Loose cables	Unplug the power cord and firmly plug it back in (page 28).
	Machine is not turned on	Flip up the power switch on the back of the machine (page 28).
	If your problem persists, contact a Grace Company support technician at **1-801-485-6688**.	
Machine is skipping stitches	Damaged needle	Check the needle (page 75).
	Machine is improperly threaded	Make sure all tensioners and guides are threaded correctly (page 37). Check for accidental double wrapping around the thread guides and tensioners.
	Bobbin case is improperly threaded	Make sure the bobbin is properly installed in the bobbin case (page 33).
	Bobbin is improperly wound	Make sure the bobbin is wound evenly and adjust the bobbin tensioner if needed (page 88).
	Unbalanced thread tension	Adjust the bottom thread tension (page 34), and then adjust the top thread tension (page 61) as needed.
	Improper distance between hopping foot and needle plate	Reset the hopping foot height (page 77).
	If your problem persists, contact a Grace Company support technician at **1-801-485-6688**.	
Thread is breaking	Damaged needle	Install a new needle (page 75).
	Unbalanced thread tension	Adjust the bottom thread tension (page 34), and then adjust the top thread tension (page 61) as needed.
	Machine is improperly threaded	Make sure all tensioners and guides are threaded correctly (page 37). Check for accidental double wrapping around the thread guides and tensioners.
	Bobbin case is improperly threaded	Make sure the bobbin is properly installed in the case. Insert the case firmly into the machine till it clicks in place (page 33).
	Stitching in place for too long	Keep your fabric moving to avoid stitches from building up in one place, or switch to regulated precise quilting mode (page 55).
	Debris on tension discs	Clean the machine (page 71).
	Burred bobbin	Check the bobbin for sharp edges and replace if needed.
	If your problem persists, contact a Grace Company support technician at **1-801-485-6688**.	

Troubleshooting Guide (continued)

Issue	Possible Causes	Solutions
Thread is bunching up in the bobbin area	Bobbin case improperly threaded	Make sure the bobbin is properly installed in the bobbin case (page 33).
	Bobbin improperly wound	Make sure the bobbin is wound evenly and adjust the bobbin tensioner if needed (page 88).
	Machine improperly threaded	Make sure all tensioners and guides are threaded correctly (page 37).
	Unbalanced thread tension	Adjust the bottom thread tension (page 34), and then adjust the top thread tension (page 61) as needed.
	If your problem persists, contact a Grace Company support technician at **1-801-485-6688**.	
Machine is running louder than usual	Hook assembly or other machine parts need oiling	Oil the machine (page 71).
	Bobbin winder is running	Press the stop button on the bobbin winder to turn it off.
	If your problem persists, contact a Grace Company support technician at **1-801-485-6688**.	
Other issue	Contact a Grace Company support technician at **1-801-485-6688**.	

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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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