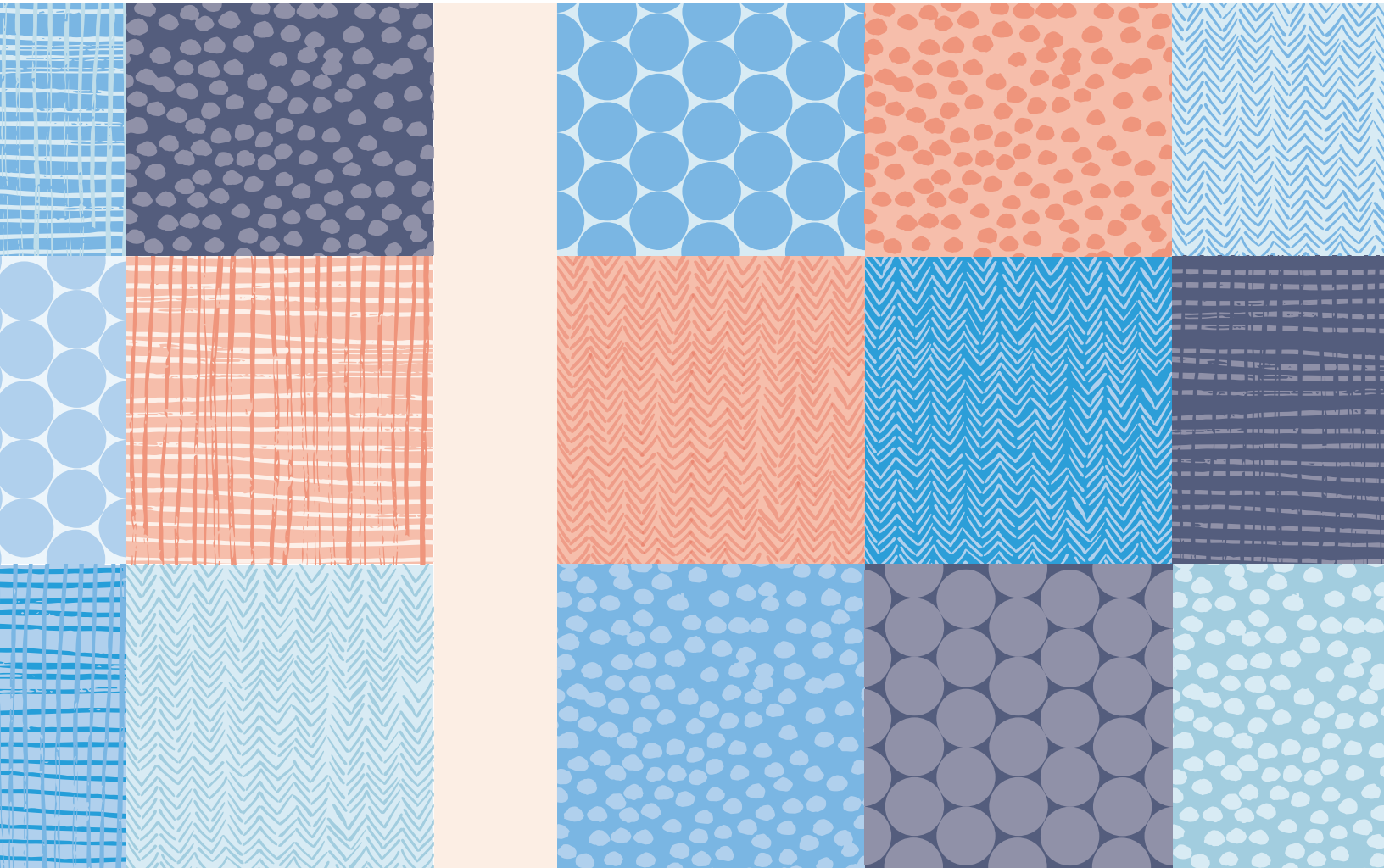


# Have a Seat; Let's Quilt

A guide for learning about your new *Grace19SD*



*Grace*  
COMPANY



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## WELCOME TO THE EXCITING WORLD OF HOME-BASED QUILTING!

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Whether you're a life-long quilter with a new Grace 19 Sit-Down or you're starting a new hobby, Grace Company is here to guide you toward success on your personal quilting journey.

**Read these instructions, refer to them often, and soon you'll be confident using your Grace 19 Sit-Down.**

Regardless of your quilting experience, you might want to use the included fabric panel to become acquainted with your setup. Using the provided panel lets you master your new equipment worry-free.

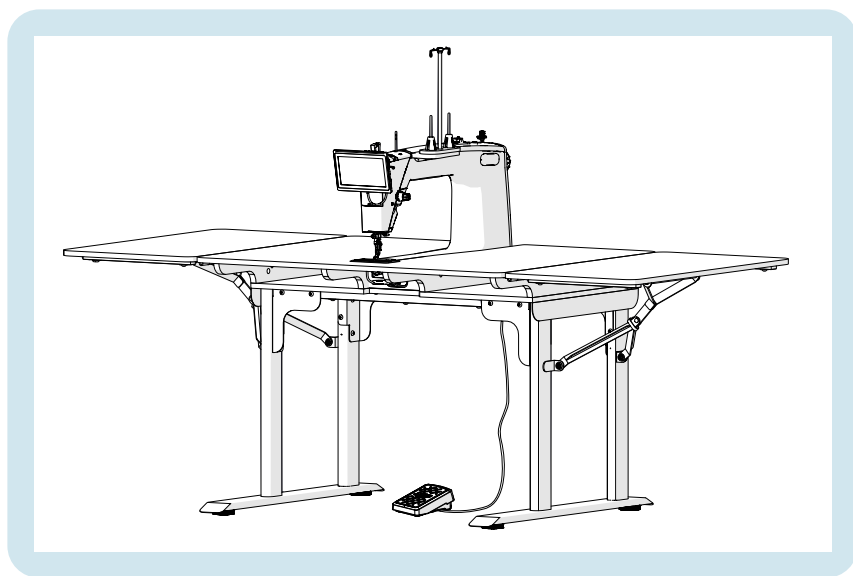
Use the notes section at the back to write down important insights or to doodle your quilting designs. You can even write on the panel fabric—remember, this is practice!

**Now, go have fun!**

# Introduction

## MEET THE GRACE 19 SIT-DOWN

Your new **sit-down machine** and table make the ideal setup for creating quilting projects of any size! With your machine embedded in the tabletop, you can easily move your fabric around to create designs. Your machine has three quilting modes, including two regulated stitching modes and manual mode. Manual mode has a speed limit feature, which sets your machine speed, giving you even more control over the quality of your stitches. Your table has two extendable leaves, allowing you to easily manage large quilts.



## THE PANEL

This booklet will guide you through a quilting project using the fabric panel that came with your machine. The panel is a stand-in for a quilt top, so you can get the hang of your new machine without the pressure of stitching directly into your latest masterpiece. You will learn about each quilting mode on your machine, explore your machine settings, learn about the bobbin estimator and other tools, and gain confidence quilting with your new sit-down machine.

Repeat the steps in this booklet as many times as you like with scrap fabric for additional practice and fun. The more you practice, the more your confidence will grow!



## THE SUPPLIES

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You need the following supplies to complete this practice project:

- Your Grace 19 Sit-Down Machine Manual (came with machine)
- Quilt panel (came with machine)
- Pre-wound bobbin (came with machine)
- Thread cone (came with machine)
- Batting
- Fabric for quilt backing
- Scissors
- Fabric pencil or marking tool
- Pins
- Measuring tape or 12-inch ruler
- Quilting gloves (optional; helps with gripping fabric)

### VOCAB REVIEW

**Sit-Down Machine:** A stationary quilting machine mounted on a table, allowing the user to quilt from a seated position.

### **Before you start, make sure:**

your table and machine are fully set up,  
you have all your supplies, and  
you are ready to have some fun!

# 1

## Lesson One: Making Your Quilt Sandwich

Your Grace 19 Sit-Down came with a quilt panel for you to practice the lessons in this guide. You will need to add batting and backing fabric to make a quilt sandwich. It's best to cut the quilt backing and batting to be larger than the quilt top. This allows for stretching of your quilt top and provides extra fabric to hold on to as you quilt along the edge of the quilt top.

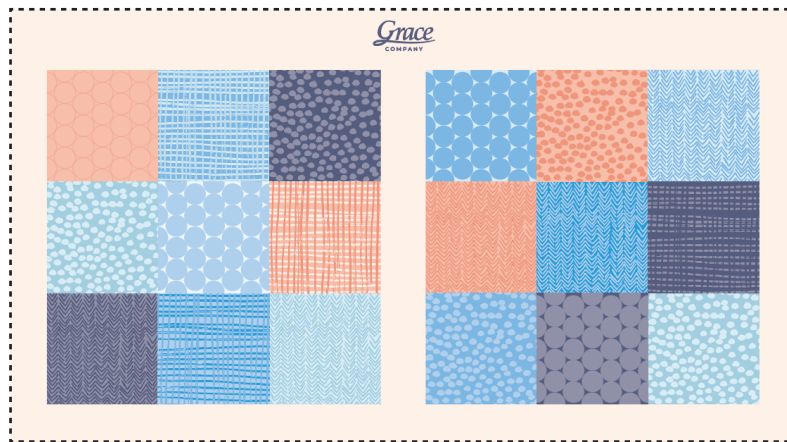
### KEY CONCEPT

Your batting and backing should be larger than your quilt top to give you extra fabric to hold on to when quilting near the edge of your quilt top.

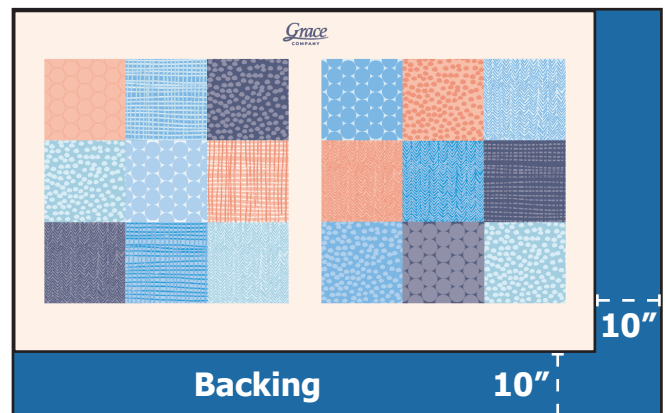
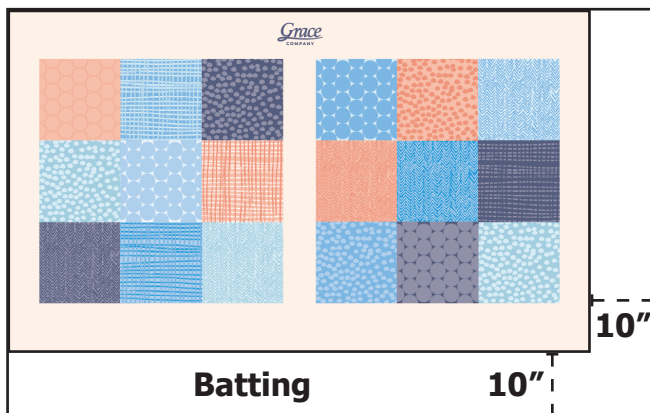
### PRACTICE STEPS

Take the following steps to make your quilt sandwich:

- 1 Trim the panel along the dotted lines, if it isn't already.



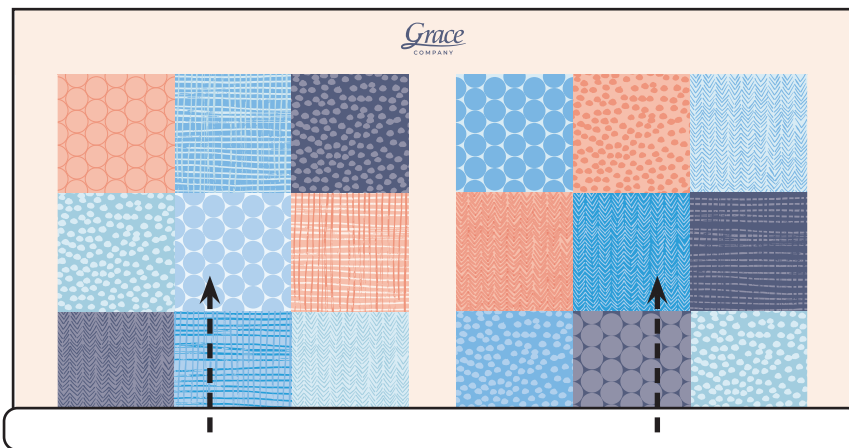
- 2 Cut your **batting** and **backing** to be **10 inches longer and wider** than the quilt panel. Align your panel with the top and left edges of the fabric or batting, then use a ruler to mark 10 inches out from the bottom and right edges.



- 3 Fold the quilt panel in half vertically and mark the center of the top and bottom edges.



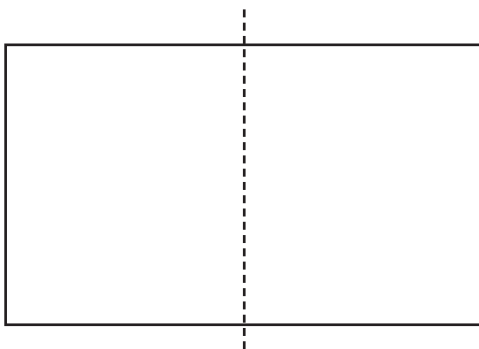
- 4 Now spread the quilt panel out flat with the right side facing up. Start at the bottom and roll up the panel. This will make it easier to place later.



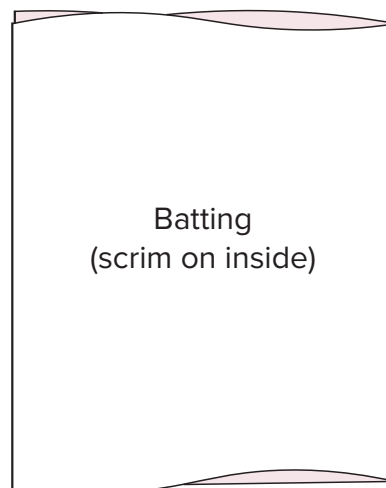
### RIGHT SIDE?

The right side of the fabric (for both your quilt top and backing) is the side you want to be visible when your project is finished. It might have a pattern on it or be brighter than the other side.

- 5 Fold your batting in half vertically so the scrim is on the inside.



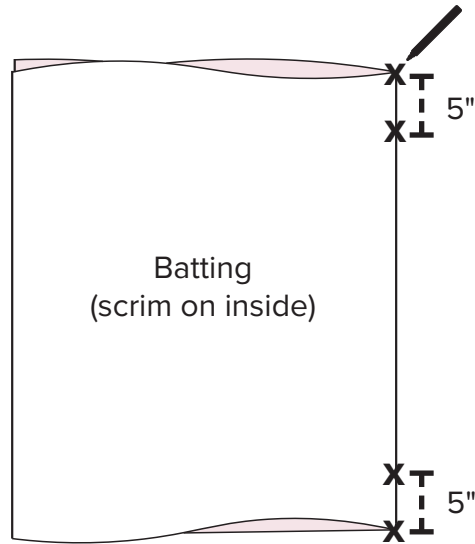
When folding vertically, remember the batting is wider than it is tall.



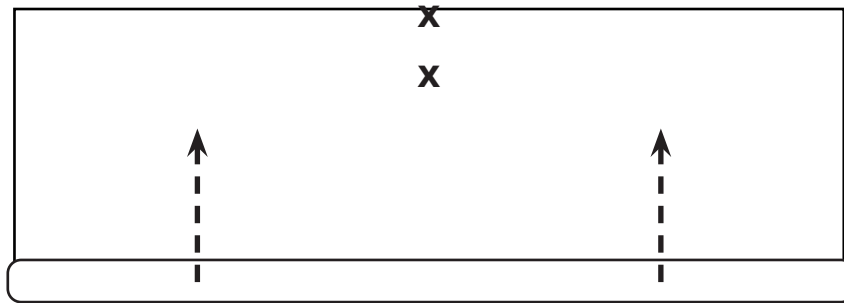
### SCRIM?

The scrim side is a structural layer on some types of batting. It often feels coarse or pimply, while the other side feels smooth or puffy.

- 6 Mark the center of the top edge. Then mark 5 inches below that point. Next, mark the center of the bottom edge and mark 5 inches above it.



- 7 Spread your batting out flat with the marks facing up (scrim side facing down). Start at the bottom and roll up the batting. This will make it easier to place later.



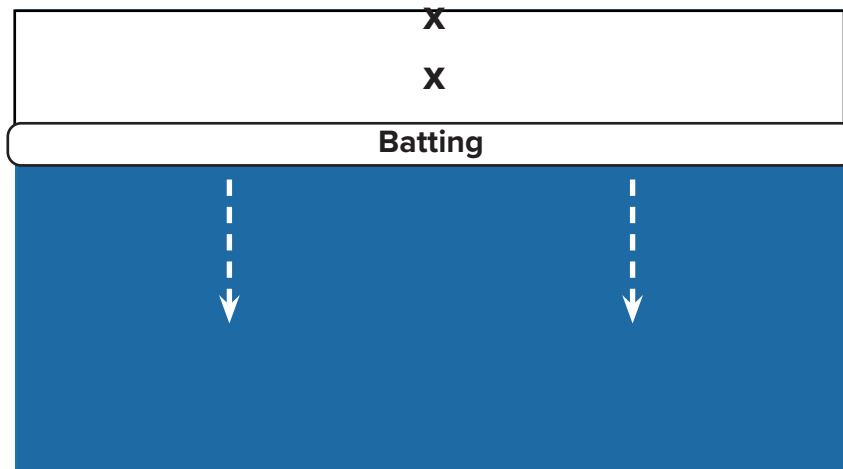
- 8 Lay the quilt backing down flat with the wrong side facing up. Smooth it free of any wrinkles.

**Backing  
(wrong side facing up)**

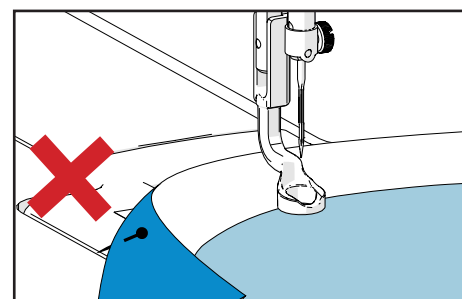
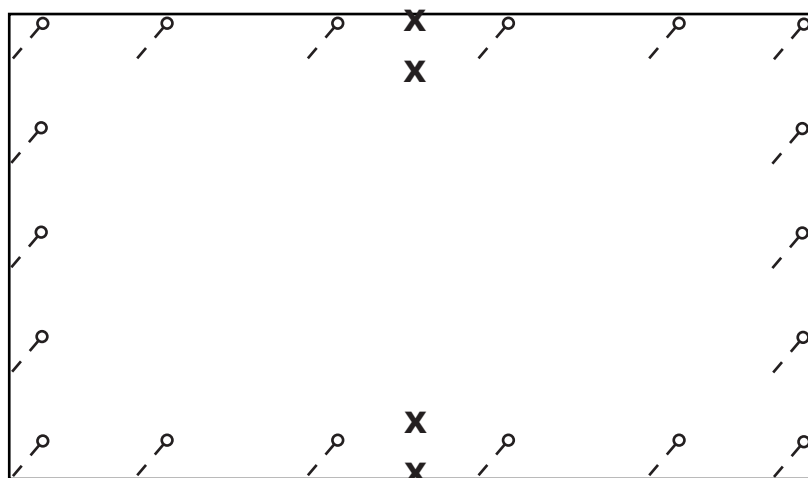
### WRONG SIDE?

The “wrong side” is the side of the fabric you want to be on the inside of the finished product. It is sometimes more faded than the right side.

- 9 Line up the top edge of your batting with the top edge of the backing. Carefully unroll the batting so it lays neatly over the backing.

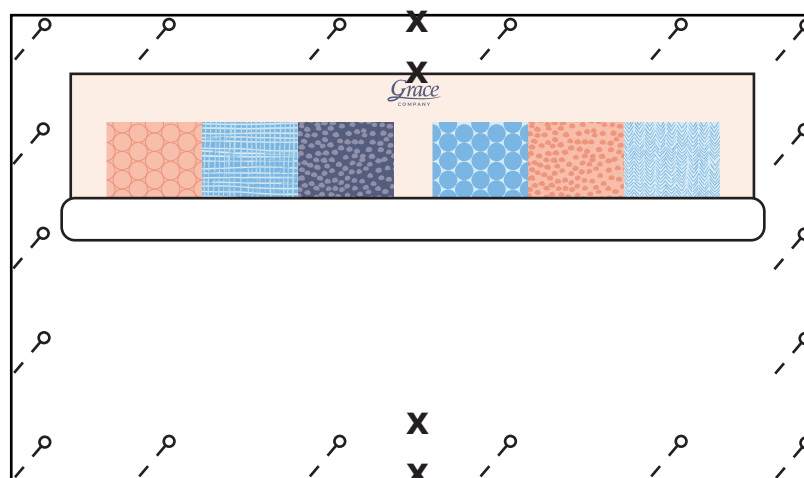


- 10 Smooth out any wrinkles and pin the layers together.

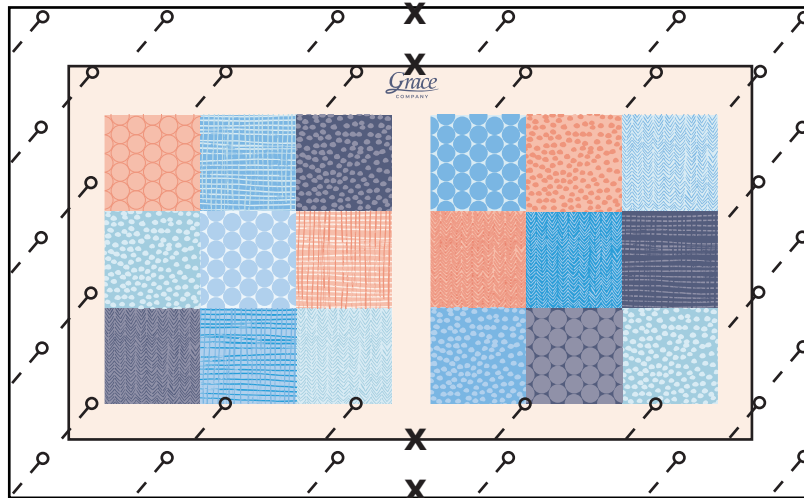


Keep the ends of your pins on the top of the quilt sandwich to prevent catching on the table top around the fabric sensor assembly.

- 11 Now align the top center mark of the panel with the mark 5 inches below the top of the batting.



- 12 Carefully unroll the panel, smooth out any wrinkles, and pin the layers together.



### CLEAN YOUR BACKING FABRIC

Remove lint from the right side of the backing fabric, particularly if the fabric is a dark color. Lint can interfere with the fabric sensors and can cause skipped stitches or other stitch problems.

## 2

### Lesson Two: Getting Ready to Quilt

Proper thread tension and correct machine threading are essential for successful quilting. Before quilting, you need to prep your machine by testing your bobbin tension, placing your bobbin in the machine, and threading the machine.

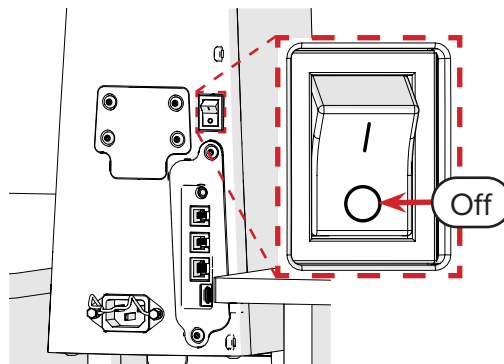
### KEY CONCEPT

Learning to properly thread your machine and adjust the bobbin tension will set you up for quilting success.

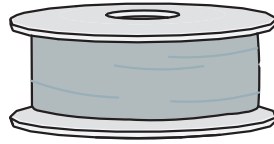
### PRACTICE STEPS

Take the following steps to prep your machine:

- 1 While preparing the quilting machine, power it **off** for your safety.

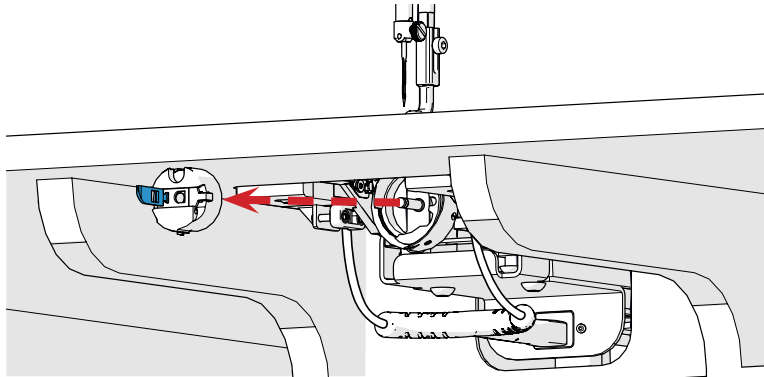


- 2 Grab one of the smokey quartz pre-wound bobbins that came with your panel.

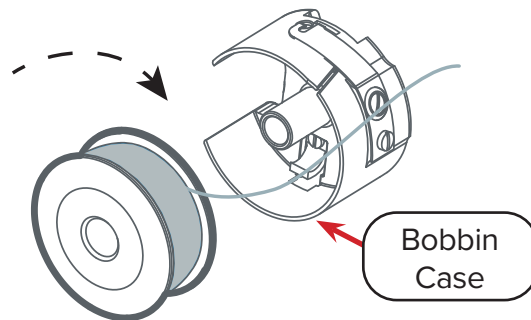


- 3 Remove the bobbin case from your machine's hook assembly (under the table) by pulling on the lever (shown in blue).

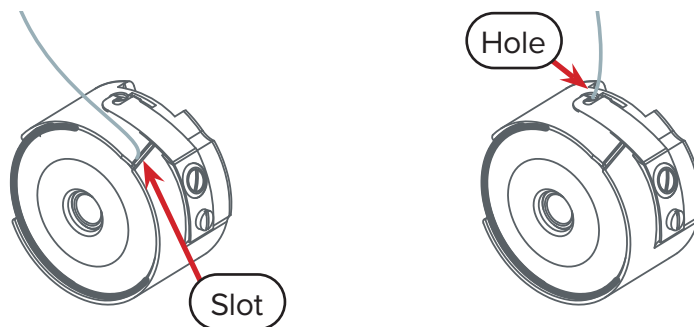
**Note:** The bobbin cannot be removed if the needle is down.



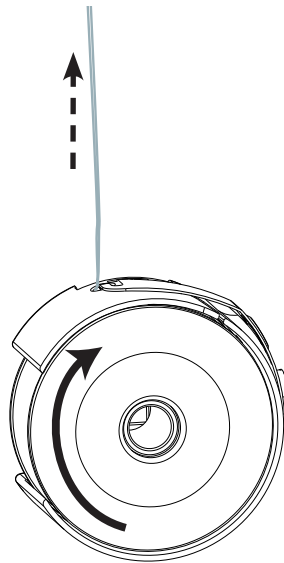
- 4 Install the bobbin into the **case**, as shown below. The bobbin must be installed so the thread is coming off the bobbin in the correct direction.



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

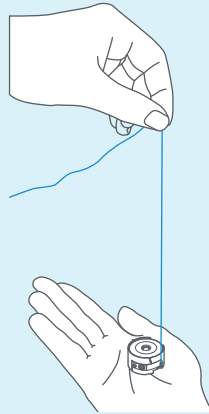


**Note:** If the bobbin is installed correctly, the bobbin will spin clockwise when the thread is pulled.



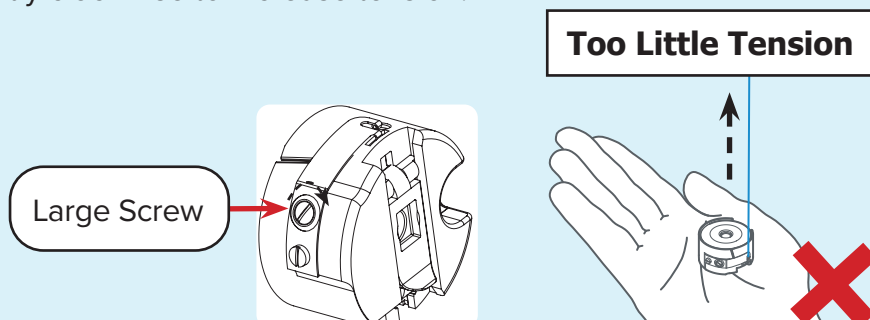
- 6 Test your bobbin case tension every time a new bobbin is installed, even if you're not changing thread. Good tension in the bobbin case is essential to prevent stitch problems. To learn more about tension and possible stitch problems arising from imbalanced tension, see your machine manual for details.

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

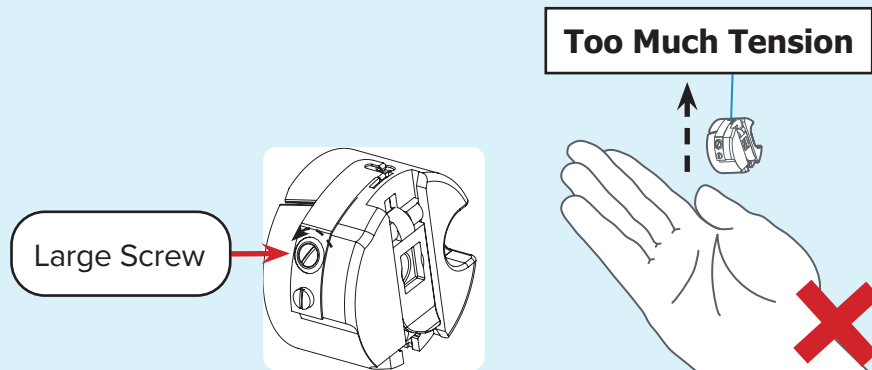


- b Grab the bobbin thread tail and lift it up. The thread should run freely from the bobbin case as you pull. Then the bobbin case should rise to a vertical position without lifting off your palm.

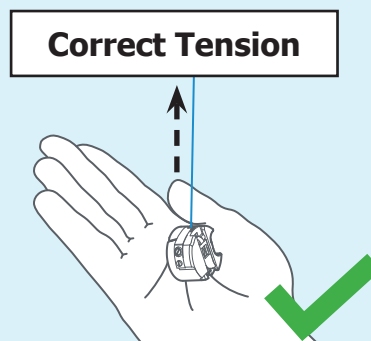
- If the case remains on its side, there is not enough tension. Turn the **large screw** slightly clockwise to increase tension.



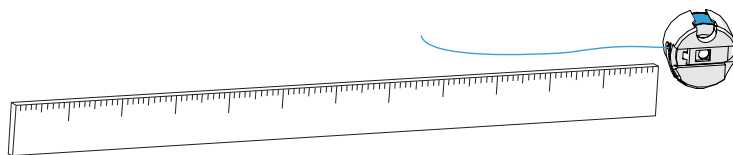
- If the case lifts into the air, there is too much tension. Turn the **large screw** slightly counter-clockwise to loosen it.



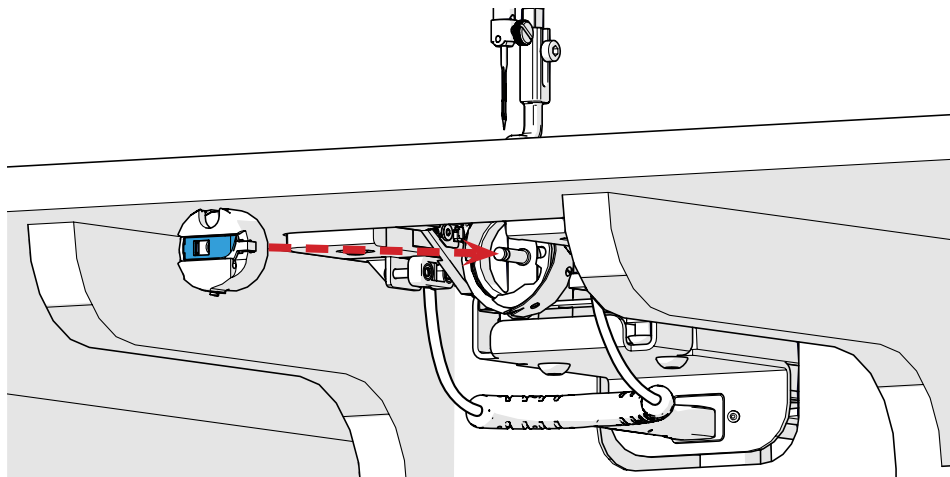
- If the case stays in your hand but lifts into a vertical position, the tension is correct.



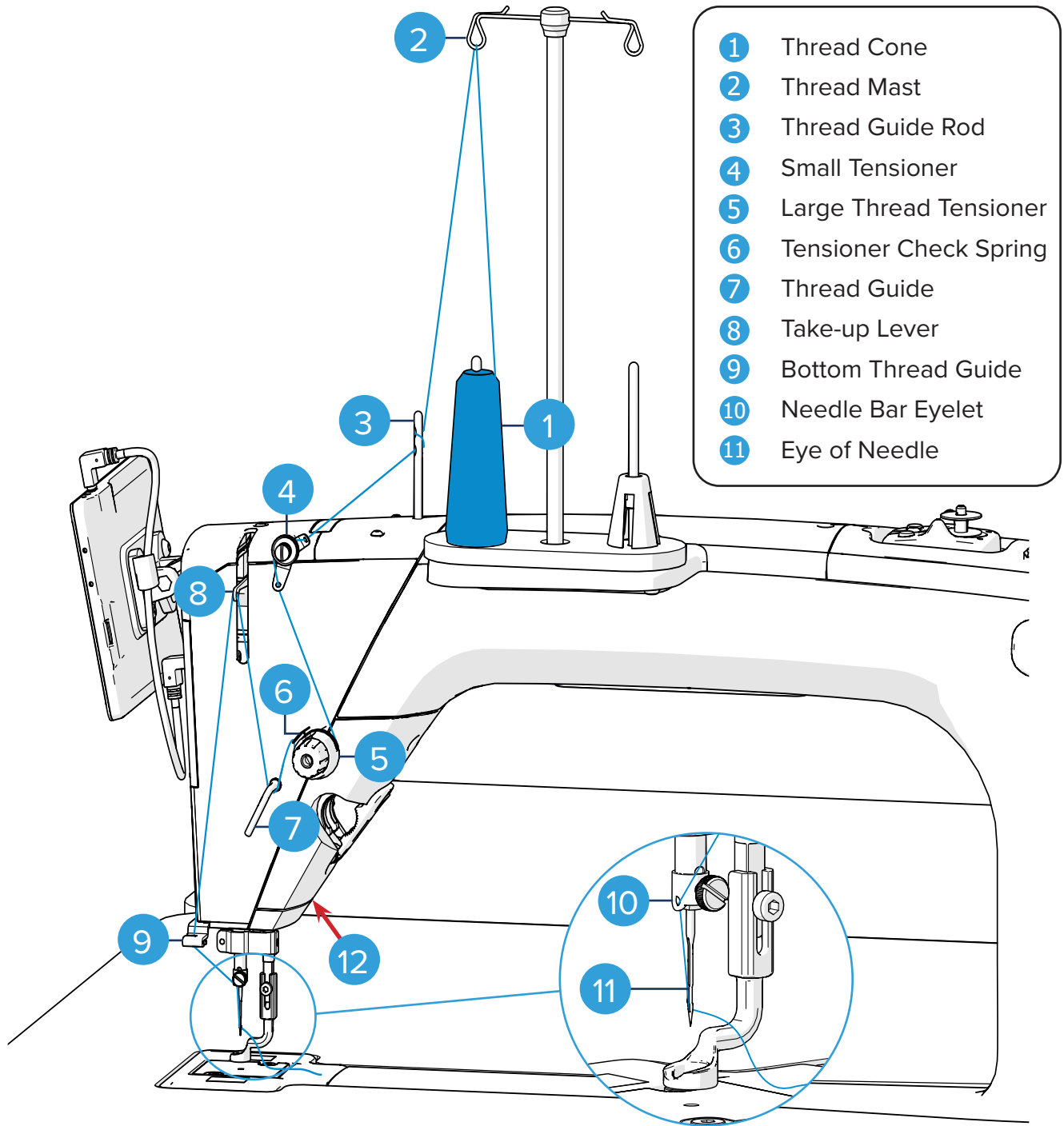
- 7 If your bobbin tail is excessively long after testing, trim it back so there is about 4–5 inches of tail coming from the bobbin case.



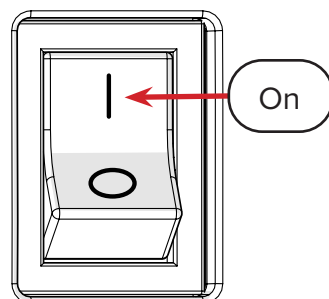
- 8 Install the case into the machine with the lever at the 3 o'clock position. Make sure to press it in all the way. It should click into place.



9 Thread the machine. Refer to your manual for details.



10 Now that your machine is threaded and your bobbin installed, turn **on** your machine.



# 3

## Lesson Three: Choosing Your Settings

Your machine has a variety of customizable features to improve your quilting experience. In the Settings menu, you can choose to measure stitch length in inches or centimeters, adjust screen brightness, toggle the overspeed alarm on and off, and more.

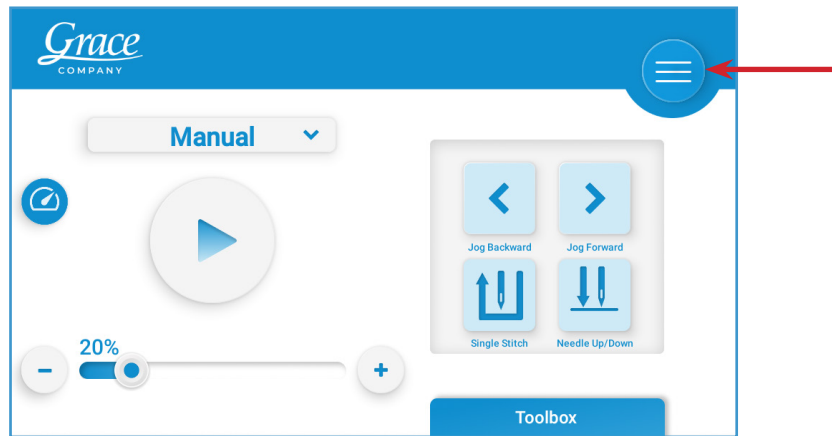
### KEY CONCEPT

Becoming familiar with the settings can help you achieve your ideal quilting setup.

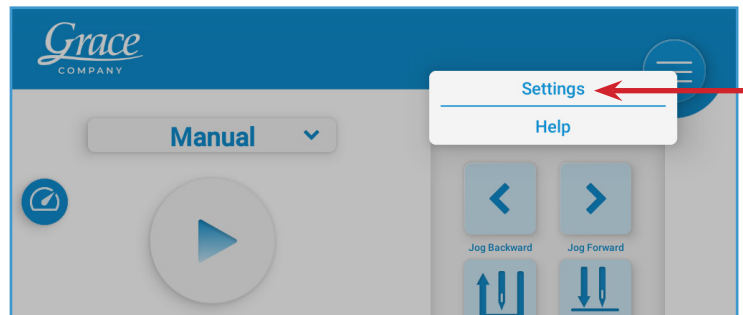
### PRACTICE STEPS

Take the following steps to choose your settings:

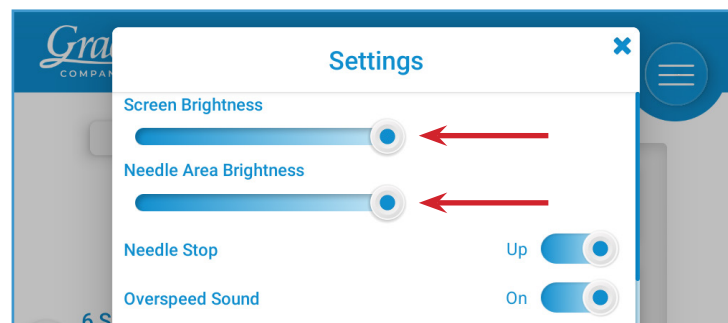
- 1 Press the **menu** icon in the top-right corner of the screen.



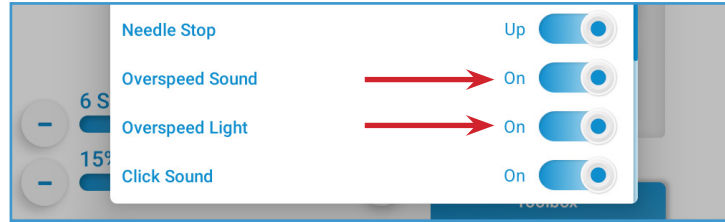
- 2 Choose **Settings** to open the Settings menu.



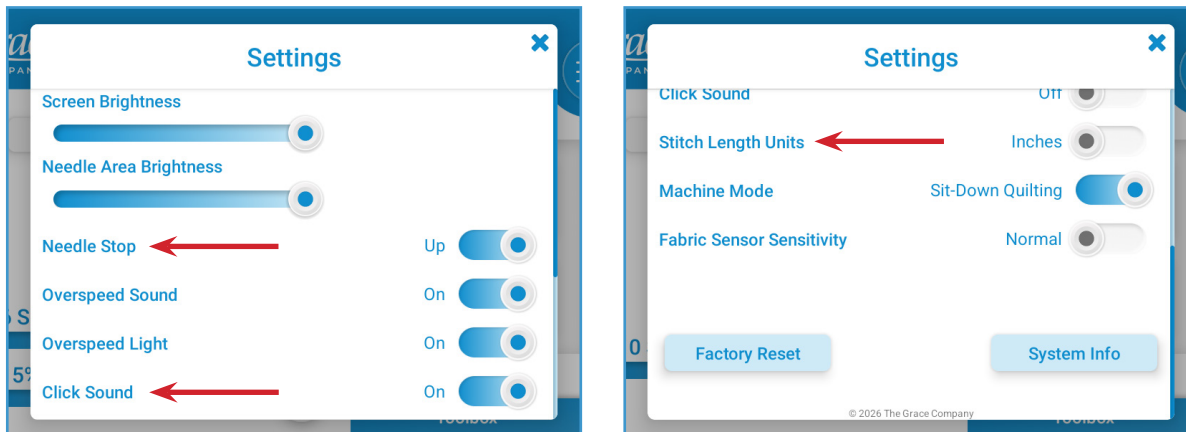
- 3 Adjust your **Screen Brightness** and **Needle Area Brightness** levels as desired.



- 4 For this guide, leave the **Overspeed Sound** and **Overspeed Light** turned on. You can turn them off later if you like.

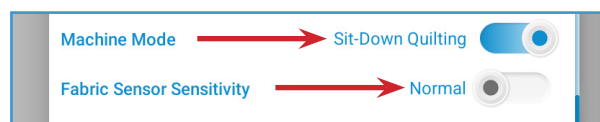


- 5 Adjust the following settings according to your preference:



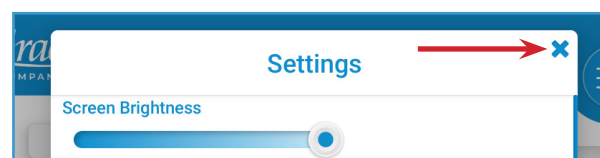
- **Needle Stop:** Choose the needle position when the machine stops, either Up or Down.
- **Click Sound:** When this setting is on, pressing on-screen buttons makes a click sound.
- **Stitch Length Units:** Choose to display stitch length in inches or centimeters.

- 6 The following two settings should only be changed in specific circumstances:



- **Machine Mode:** Choose between sit-down quilting and frame quilting. The only time you would change this setting is if you wanted to transition your machine to a frame setup instead of the sit-down table.
- **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.

- 7 When you're satisfied with your settings, press **X** in the top-right corner, or tap outside the Settings menu.



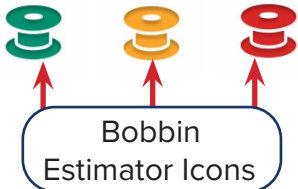
## 4

## Lesson Four: Using the Bobbin Estimator

### KEY CONCEPT

The bobbin estimator can help you know when your bobbin thread is running low.

It can be difficult to gauge how much bobbin thread you have left when you're quilting, especially if you've stepped away from a project for a while. The bobbin estimator tool helps you track how much thread you likely have left.



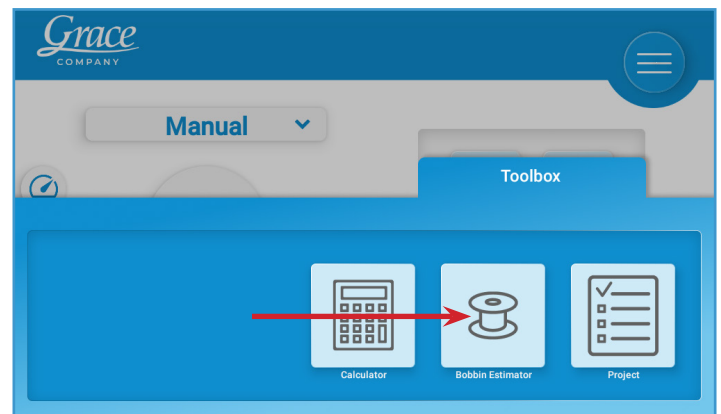
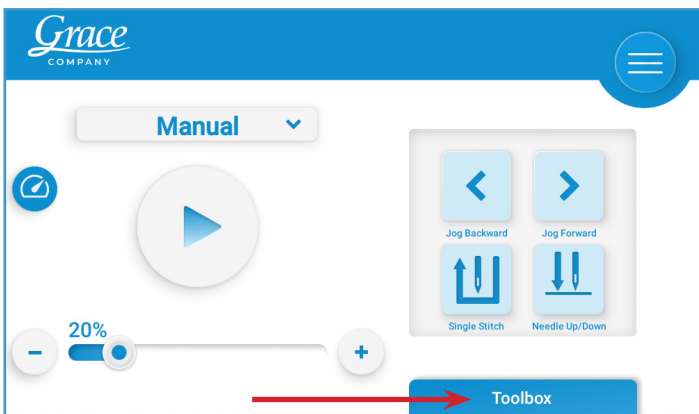
You provide a starting estimate for the thread length, and then the estimator subtracts from that length as you quilt. When the estimator gets low, it indicates on the display with the **bobbin estimator icons**.

The estimator works best when the estimated thread length is as close as possible to the actual thread length. When estimating, consider thread type and weight. Finer weight thread will wrap around the bobbin more times than thicker thread and thus fill a bobbin with more yards of thread. As you practice, you will quickly gain confidence in gauging thread length, and then the estimator will reliably help you know when to replace your bobbin.

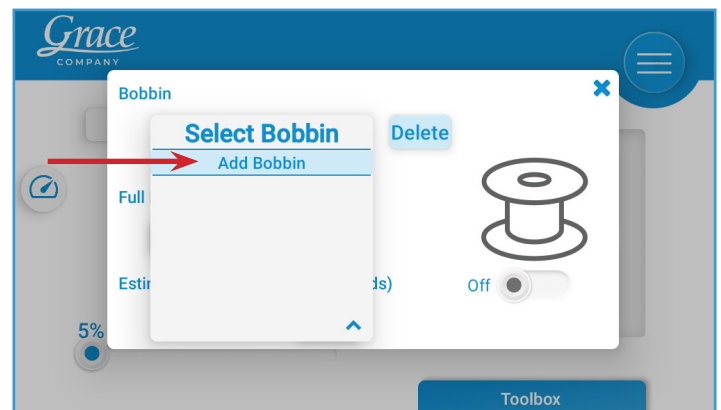
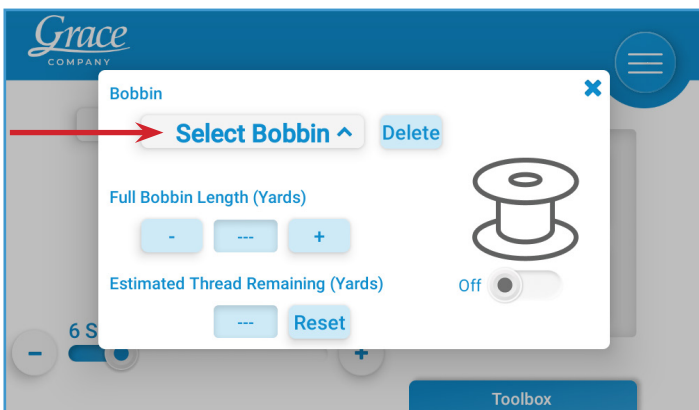
## PRACTICE STEPS

Take the following steps to use the bobbin estimator:

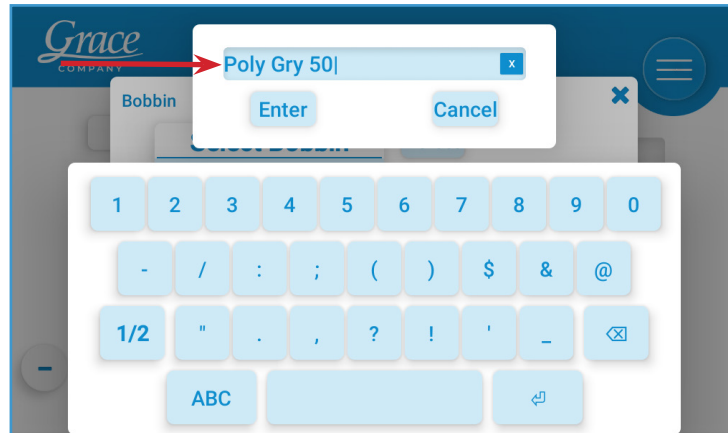
- 1 Open the **Toolbox** and select the **Bobbin Estimator**.



- 2 Press **Select Bobbin** to open the drop-down menu. If you've added any bobbins in the past, they will show up in this list. Press **Add Bobbin**.

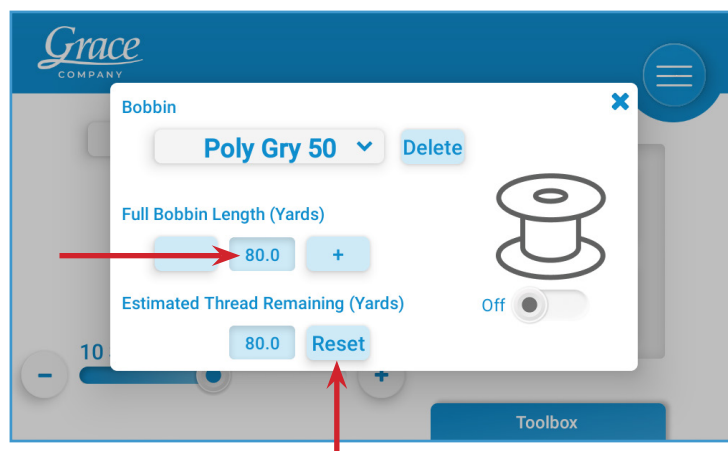


- 3 A keyboard will appear on screen allowing you to choose a name. Enter **Poly Gry 50** for your bobbin. This stands for polyester, gray, 50 weight.

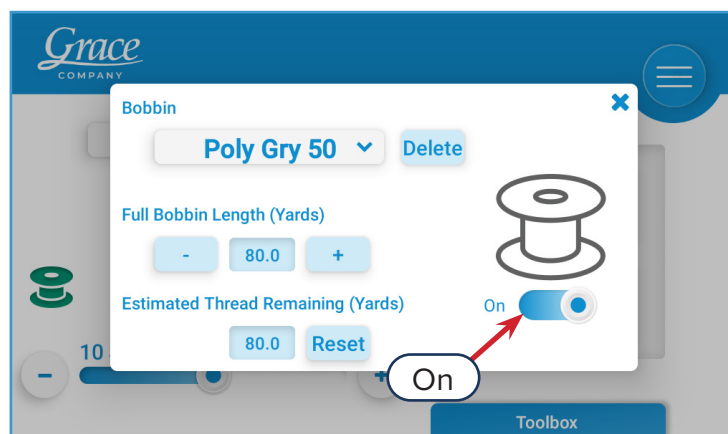


**Note:** You'll want to use bobbin names that allow you to recognize your bobbin if you switch it out before it's empty. Then when you put it back in later, you'll be able to select it from the list and continue with the correct estimate of remaining thread.

- 4 Set the Full Bobbin Length to **80** yards (that's the length of the pre-wound bobbin). Press **Reset**. The Estimated Thread Remaining changes to match the Full Bobbin Length.






- 5 Turn **on** the bobbin estimator. Now when any stitches are made with the machine, the yard count under Estimated Thread Remaining (Yards) will decrease. Press the X in the top right corner to close the screen, or tap outside the estimator tool.



- 6 The **bobbin estimator icon** appears on the home screen.



-  21% - 100% remaining
  -  11% - 20% remaining
  -  0% - 10% remaining
- A green icon indicates the bobbin is estimated to be between 21% and 100% full.
  - A yellow icon indicates the bobbin is estimated to be between 11% and 20% full.
  - A red icon indicates the bobbin is estimated to be under 10% full. When this happens, come to a good stopping point and check the bobbin to see if it needs to be refilled.

## BOBBIN ESTIMATOR RECAP

The estimator uses the Full Bobbin Length to gauge when the bobbin will run out. If the Full Bobbin Length isn't accurate, the bobbin estimator will be off.

If you wind a bobbin using your Grace machine, a good starting guess is 70 yards. Next time the bobbin indicator turns red, check your bobbin. Is there a lot of thread on the bobbin? If so, use a higher starting number next time you use that thread. On the other hand, if the bobbin runs out before the estimator icon turns red, start with a lower number.

With a little experimentation, you'll figure out a good starting number for your various thread types. Feel free to use the Notes pages in the back of this guide to write down thread types and estimates for your bobbins.

## 5

## Lesson Five: Using the Tools in the Toolbox

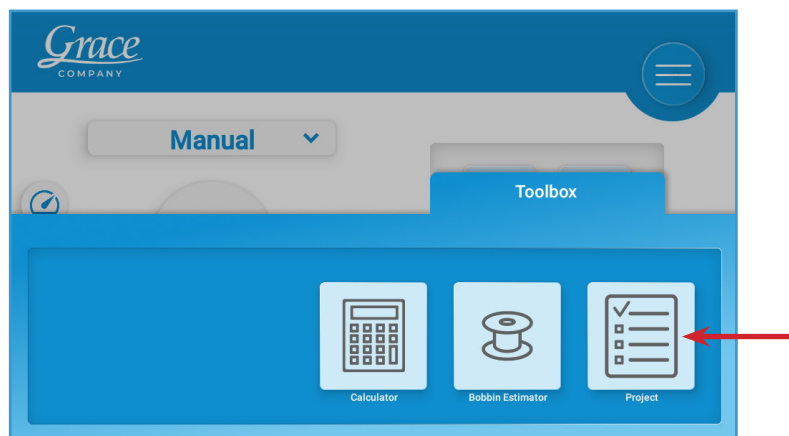
There are several other tools in the Toolbox on your machine, including a project tracker and a calculator. The project tracker counts both your time and the number of stitches on a project. It also maintains a count of the time and stitches over the life of the machine. The calculator is a quick resource to help you in your projects.

### KEY CONCEPT

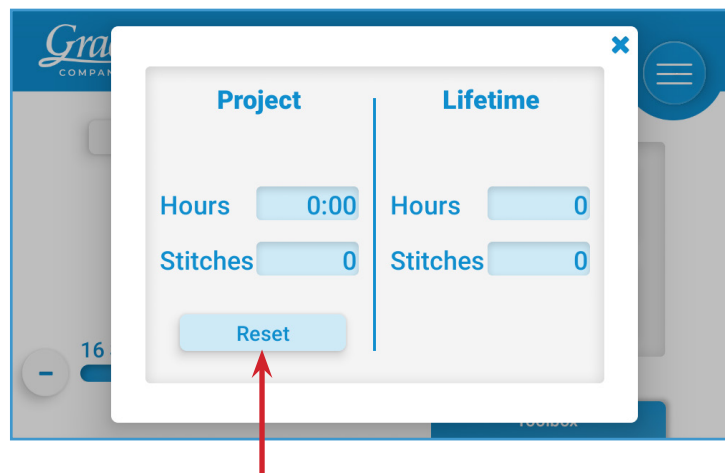
The toolbox contains a calculator and project tracker to assist you in your projects.

## PRACTICE STEPS

- 1 To use the project tracker, select **Project** from the Toolbox.



- 2 In the project tracker, choose **Reset**. The hours and stitches on the left side of the screen will reset to zero, allowing you to track the time and stitches for your new project. If desired, you can use the project tracker to keep track of when to oil your machine. It's recommended to oil your machine after 20 hours of use.



- 3 To use the calculator, choose it from the Toolbox.



## 6

### Lesson Six: Pulling Up the Bobbin Thread

#### KEY CONCEPT

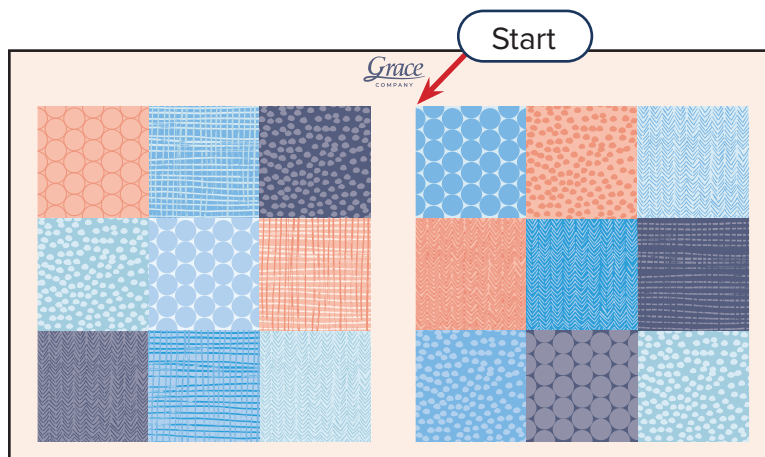
Pull up your bobbin thread at the start and end of stitching to keep the back of your quilt looking neat.

Every stitch made with a sewing machine has two threads: the top thread (from the cone or spool on the machine) and the bottom thread (from the machine's bobbin). 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. 'Pulling up the bobbin thread' is the strategy to bring the bobbin thread to the top of the quilt so it can be trimmed away with the top thread tail. You need to pull up the bobbin thread every time you start quilting and every time you finish a design or want to change positions.

#### PRACTICE STEPS

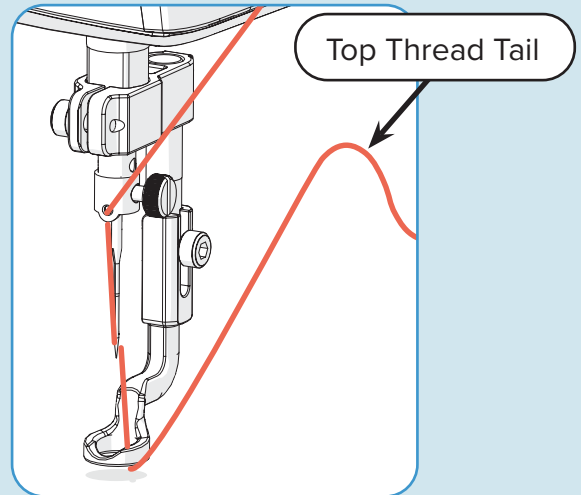
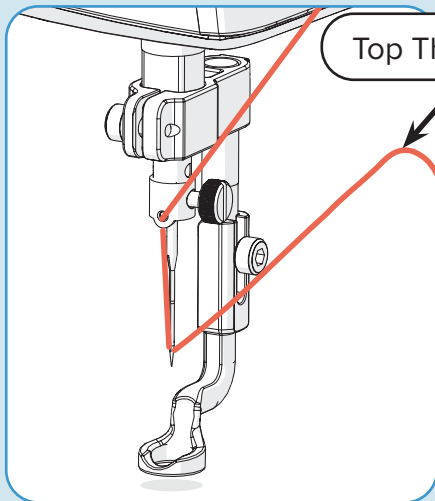
Take the following steps to pull up the bobbin thread:

- 1 Position your quilt sandwich on your Grace 19 Sit-Down so the needle is beneath the **start** point shown below.



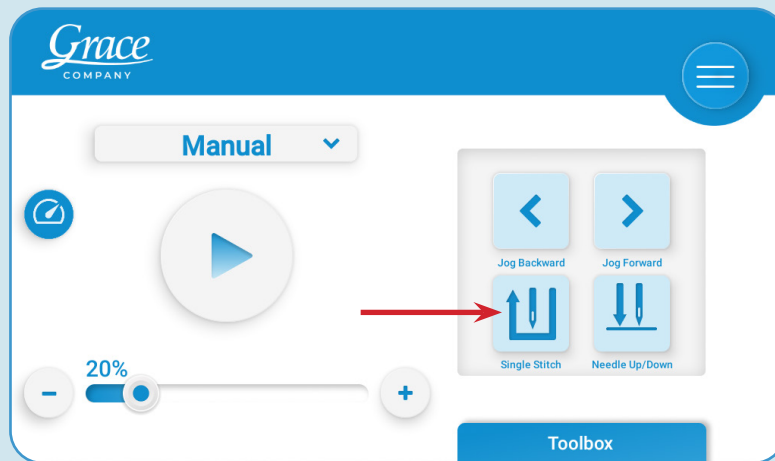
2 Follow the steps below to pull up the bobbin thread at the start:

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

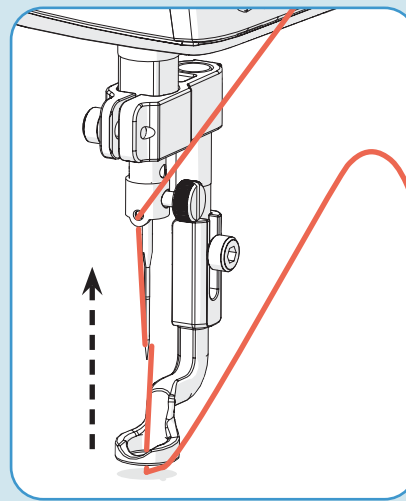
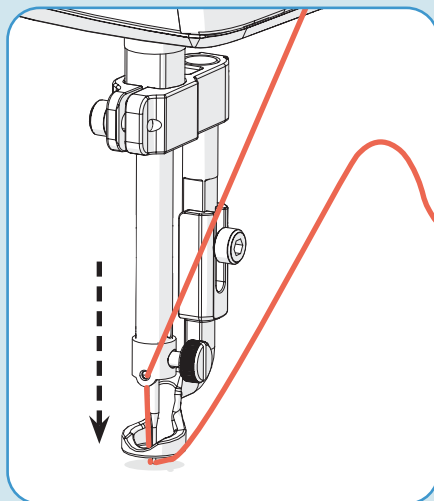


**Note:** It doesn't matter if the thread is under the hopping foot or not.

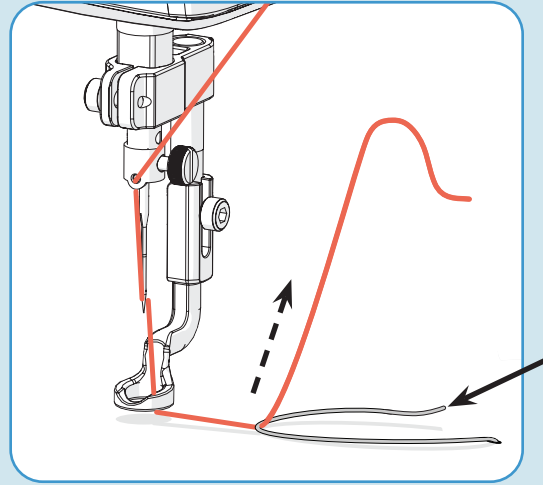
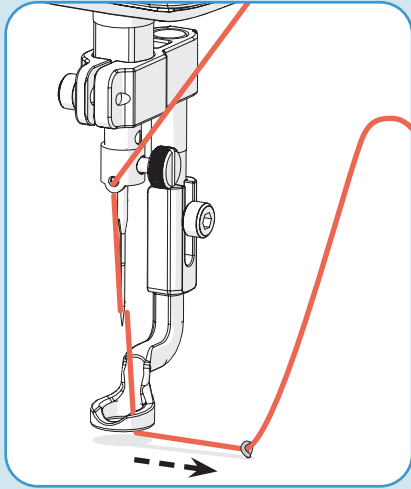
b While still holding the thread tail, press the Single Stitch button.



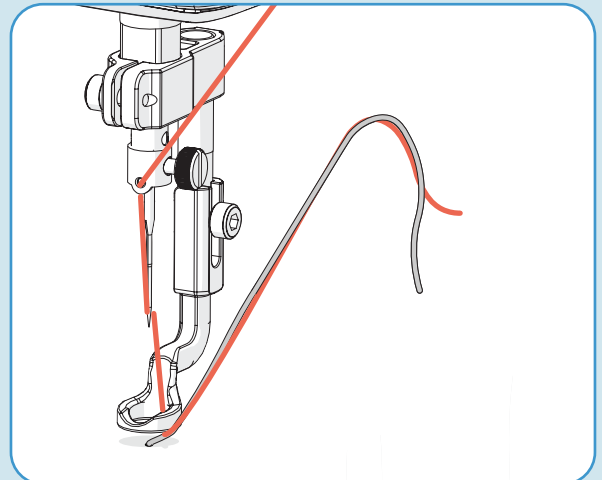
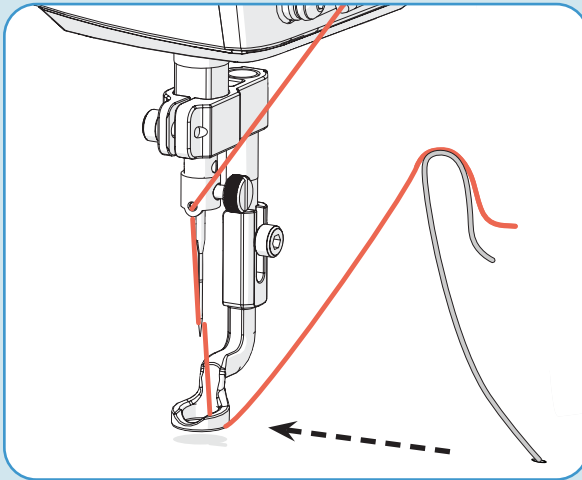
The needle will drop into the fabric and return to the surface, making a single stitch.



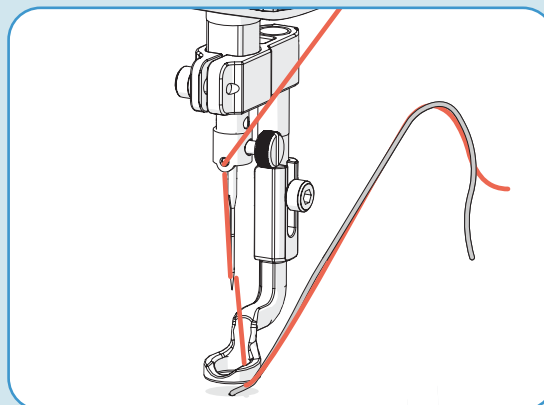
- c Continue holding the thread tail and move the fabric away from the needle. A loop of bobbin thread is pulled up to the surface. Keep pulling until the bobbin tail comes out. **Note:** If the bobbin thread tail is short, it might take a few attempts to pull up the bobbin thread successfully. Installing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



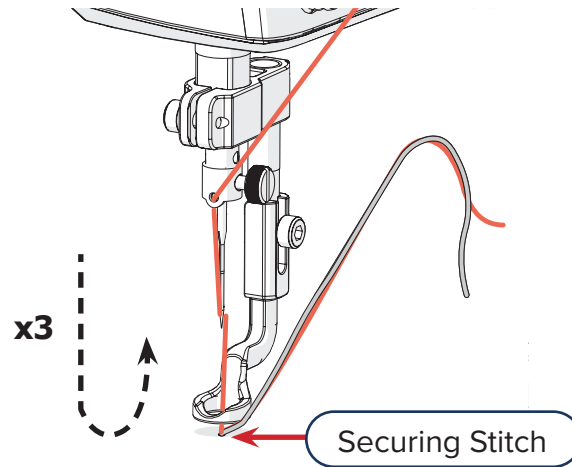
- d Gather up both thread tails and move the fabric back to the first stitch.



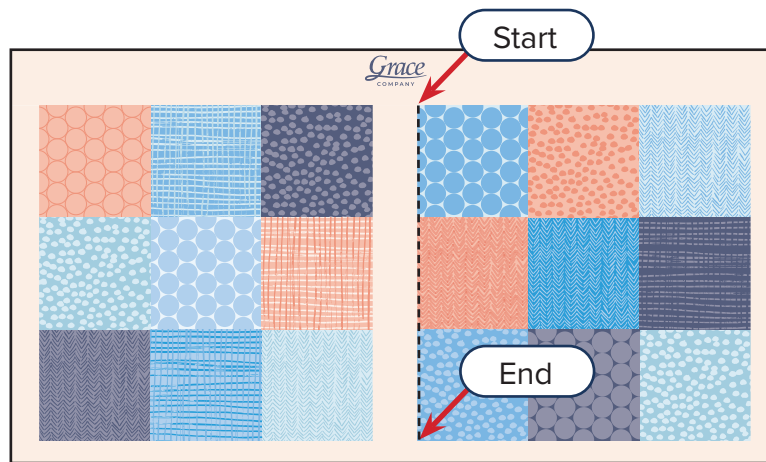
**Important:** When you move your machine back to the original stitch, slack bobbin thread builds up right under the fabric. Pull on the bobbin thread tail until the resistance slightly increases (be careful not to keep pulling—you'll end up wasting thread).



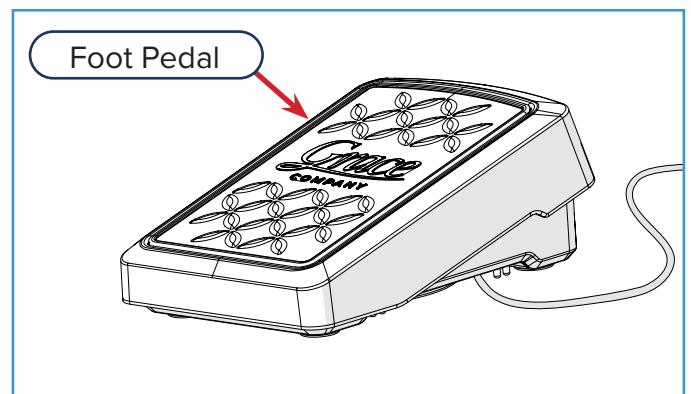
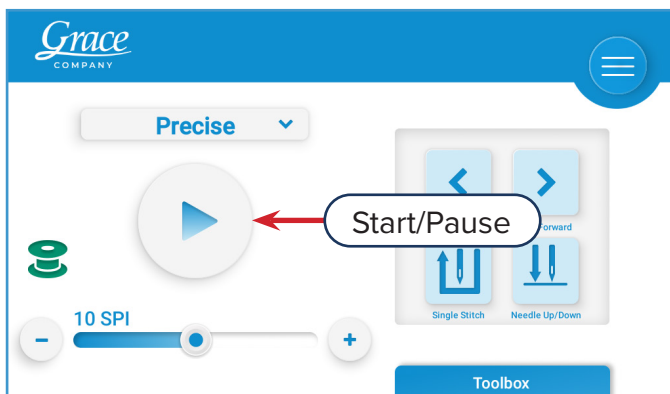
- 3 Press the Single Stitch button three times to make a **securing stitch**. Move your fabric slightly so the stitches are very close together but not in the exact same place.



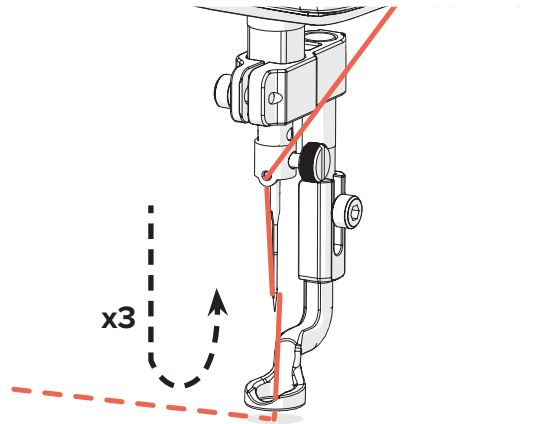
- 4 With the bobbin thread pulled up, you are ready to quilt. Stitch a straight line from the **start** point to the **end** point. We'll go over each stitching mode in detail soon, but for now, you can use the default setting on your machine, which is precise mode.



To begin stitching, you can either press the **Start/Pause** button on the display or use the **foot pedal**. To use the foot pedal in precise mode, press the pedal down all the way.

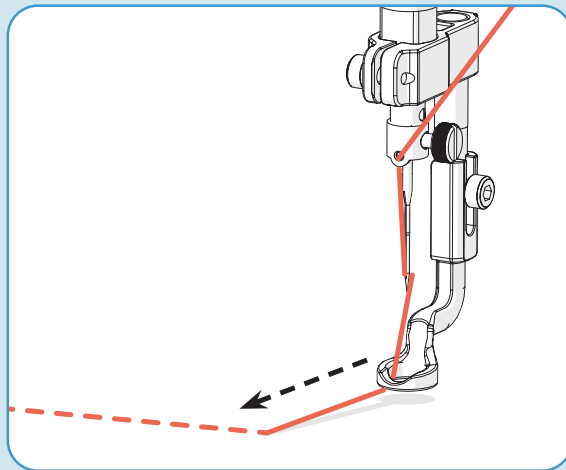


- When you reach the end point, make three stitches close together to create a securing stitch.

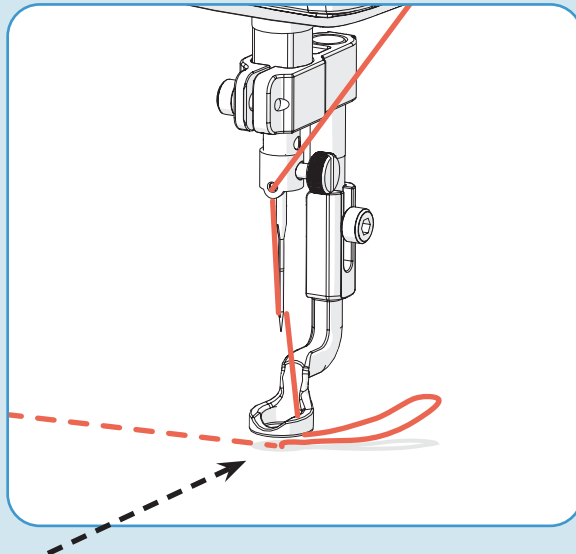


- Now you need to bring up the bobbin thread again. The steps for pulling up the bobbin thread at the end are a little different than the steps for pulling it up at the start. Follow these steps:

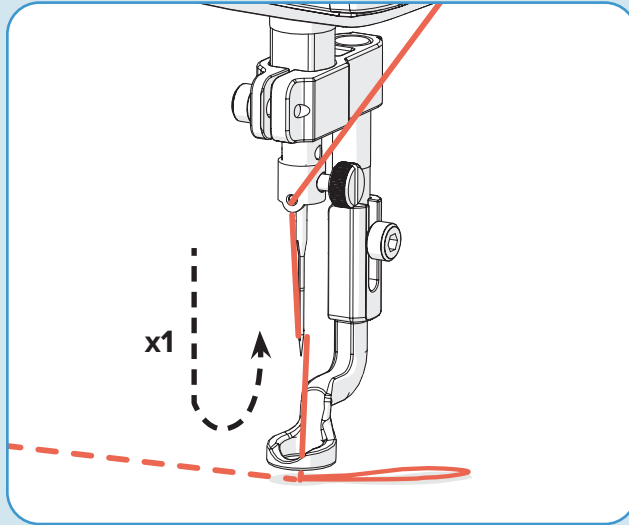
- Move your fabric away from the needle.



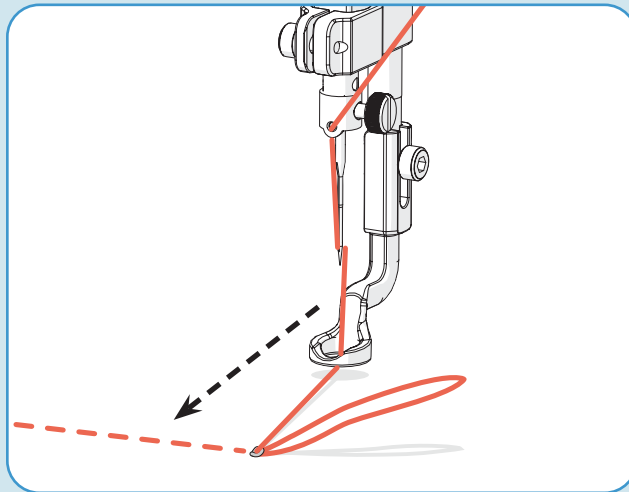
- Hold the top thread to make a loop and return the fabric to the needle position.



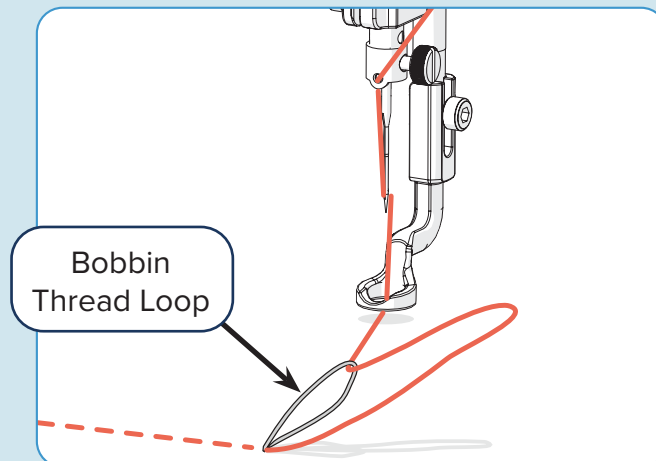
- c Still holding the loop, press the Single Stitch button.



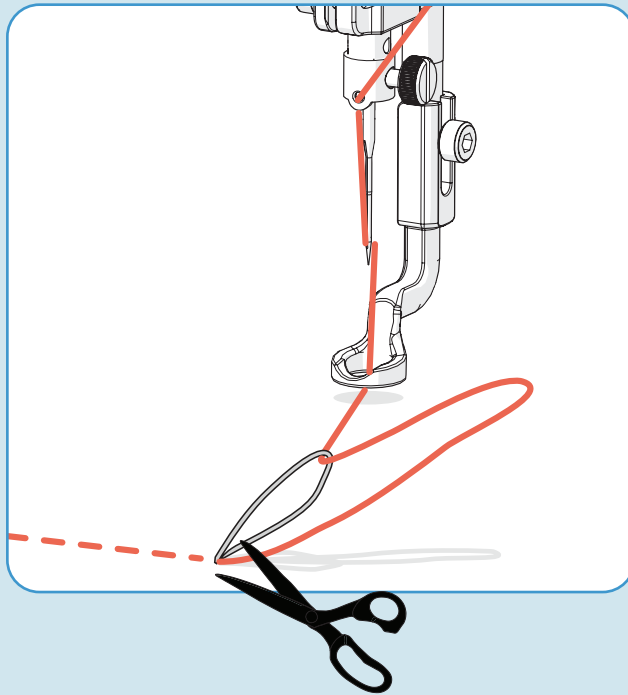
- d Still holding the loop, move the fabric away from the last stitch again.



- 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.



- 7 Trim the thread tails at the start of quilting.

## REFLECTION

Do you feel confident in pulling up the bobbin thread, both at the start and at the end? If you'd like more practice, feel free to make more stitches on your panel to do so.

## EXTRA CREDIT: SHOULD I TACK DOWN MY QUILT EDGES?

Tacking down the edges of your quilt isn't necessary and might cause wrinkles and puckering, because most sit-down quilters smooth out their fabric as they progress through their quilt, and if the edges are tacked down, there isn't anywhere for the smoothed fabric to go. Instead of tacking down, use basting spray or pins to hold the layers together.

Some quilters prefer to start at the top of their quilt and work their way down, smoothing as they go. Others like to start in the center, then smooth as they work outward. Experiment with your quilts to determine what works best for you.

## VOCAB REVIEW

**Tie-On:** The process of pulling up the bobbin thread at the start of stitching and making a securing stitch.

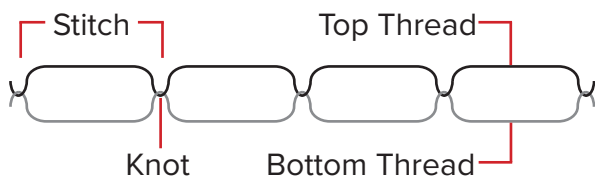
**Tie-Off:** The process of making a securing stitch at the end of stitching and pulling up the bobbin thread.

# 7

## Lesson Seven: Check 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.

With good thread tension, the top and bottom threads are balanced, pulling on each other evenly, with the **knots** tucked neatly into the center of the fabric layers.



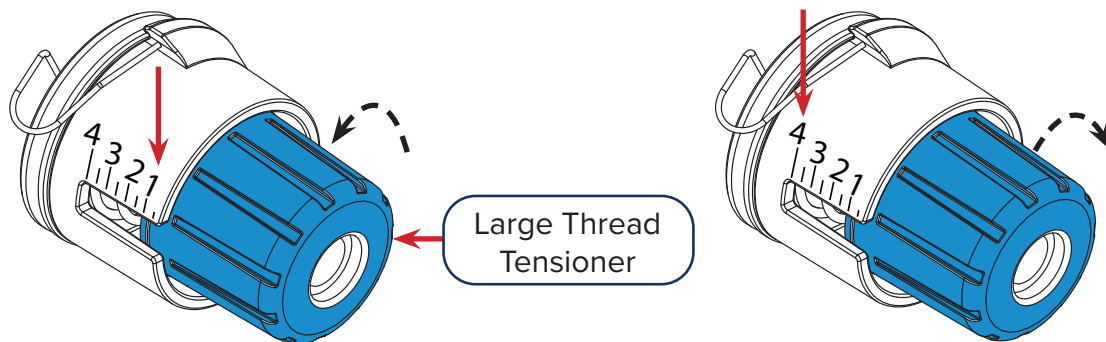
**Unbalanced Tension:** Knot pulled to one side of the fabric layers.

When the tension isn't balanced, the knots are pulled to the top or bottom layer of fabric. The quilt might pucker, and the stitches are less secure and might look messy. Other factors can influence thread tension as well, including proper threading, the hopping foot height, and more. For a detailed checklist, refer to the Tension Perfection Checklist that came with your machine.

### PRACTICE STEPS

Take the following step to check the tension on the stitches you just sewed:

- 1 Inspect your top and bottom stitches. If the knots are pulled to either the top or bottom, adjust the **large thread tensioner** as described below. See your manual for details.



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."

**IMPORTANT:** Check your tension as you sew and make adjustments as needed.

### VOCAB REVIEW

**Top Thread:** The thread that runs from the cone or spool to the needle on the machine.

**Bottom Thread:** The thread that comes from the bobbin.

**Knot:** The place where the bottom thread wraps around the top thread to form a stitch.

## 8

## Lesson Eight: Quilting in Manual Mode

### KEY CONCEPT

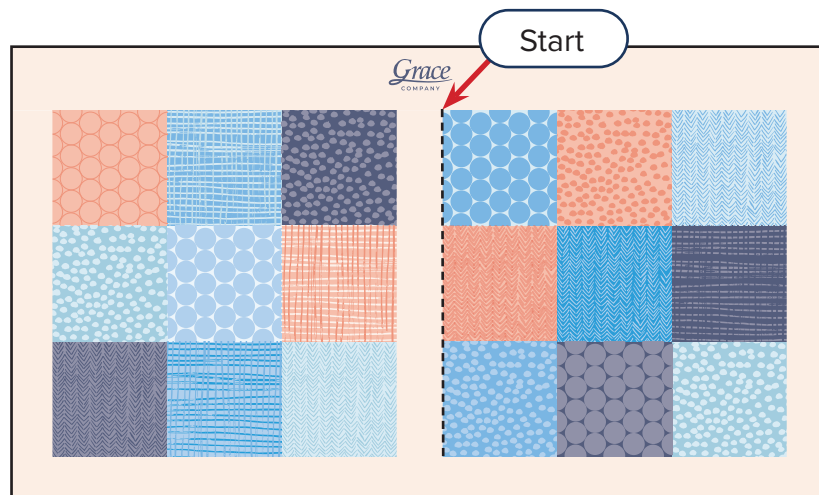
Manual mode is an unregulated stitch mode where you control the length of the stitches by how fast or slow you move the fabric, as well as how fast you set the machine speed with either the foot pedal or a speed limit.

There are three quilting modes on your Grace 19 Sit-Down: two regulated stitching modes and manual mode. Regulated stitching modes assist in making stitches a consistent length. Manual mode, on the other hand, is not regulated, and it's up to you to control stitch length by moving the fabric at a stable speed. Manual mode is useful for small, continuous patterns or for times when you want direct control of your stitch length.

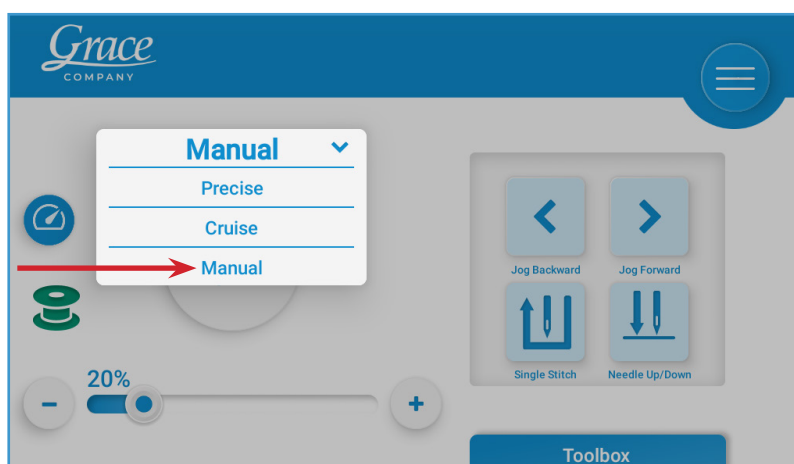
### PRACTICE STEPS

There are two ways to use manual mode: with a speed limit or without a speed limit. First, we'll quilt in manual mode without a speed limit as it's the most unassisted mode. You must use the foot pedal to set the machine speed as well as move your quilt at the same time. Controlling both the machine and fabric speed can be tricky, so don't be surprised if your stitches are a little wild. Follow these steps:

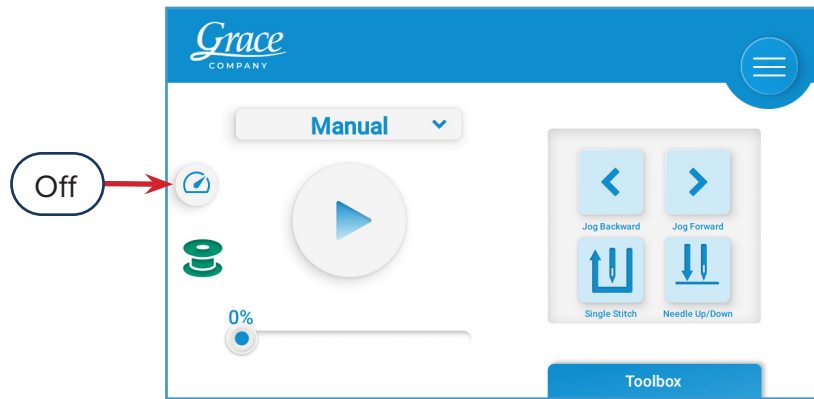
- 1 Position your fabric underneath the needle at the **start** point shown below.



- 2 Tap the dropdown to select your quilting mode and choose **Manual**.

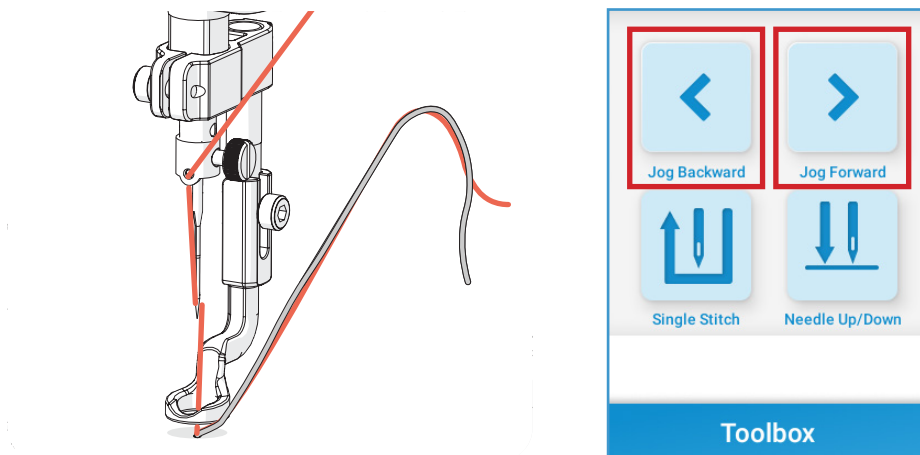


- 3 Press the speed limit icon to toggle it **off**, if it's not already.

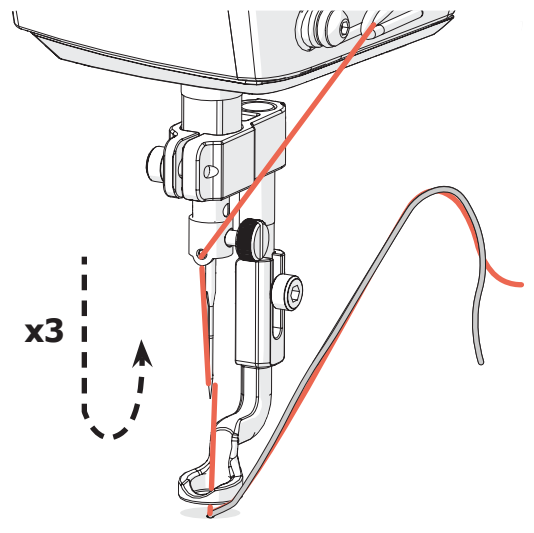


**Note:** Without a speed limit set, you must use the foot pedal to quilt, because the Start/Pause button on the display does not work. If you try to use the Start/Pause button without a speed limit, a warning will appear: “Enable Speed Limit to use start button.”

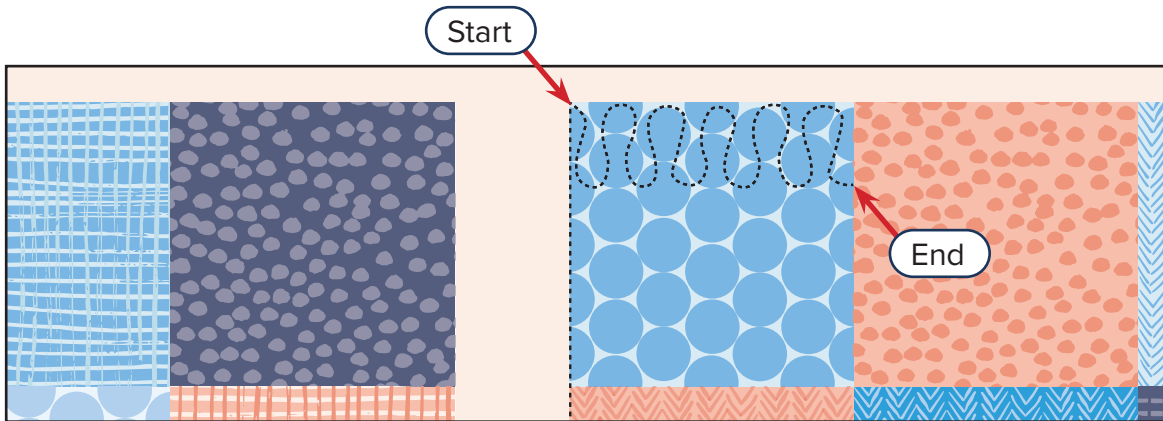
- 4 Pull up your bobbin thread (refer to Lesson Six on page 21 as needed). If you like, use the **Jog Backward** or **Jog Forward** buttons to move the needle closer or farther from the fabric in small increments to help place your stitch.



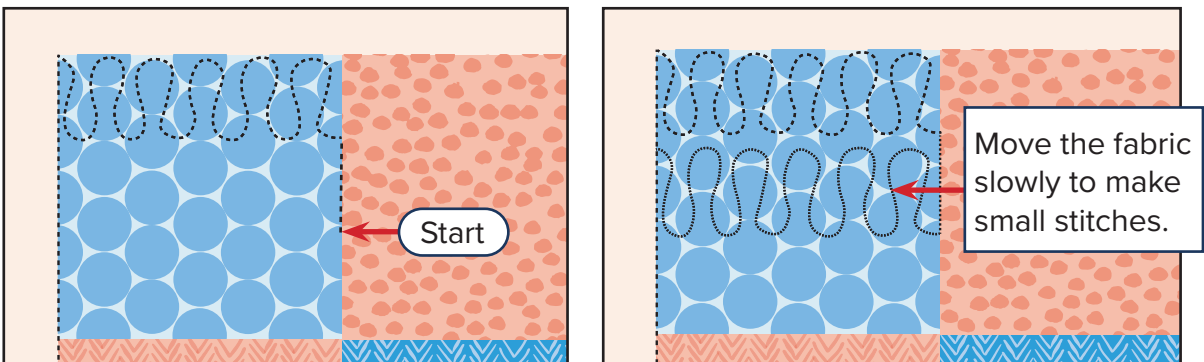
- 5 Be sure to make a securing stitch after pulling up your bobbin thread.



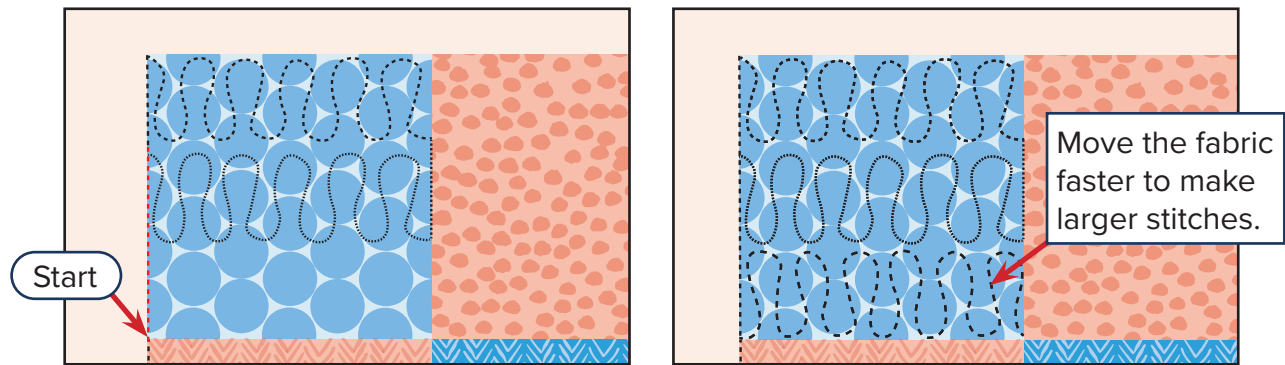
- 6 Use the foot pedal to **start** quilting. Try making the loops below to reach the **end** point. Notice how you must control both the speed of the machine with the foot pedal and the speed you are moving the fabric. This can feel tricky, and your stitches might not be a consistent length.



- 7 Stitch down the side of the square to reach the **start** point. Make a second row of loops. As you do, set a fast pace with the foot pedal and move the fabric slowly. Notice your stitches are tight and small.



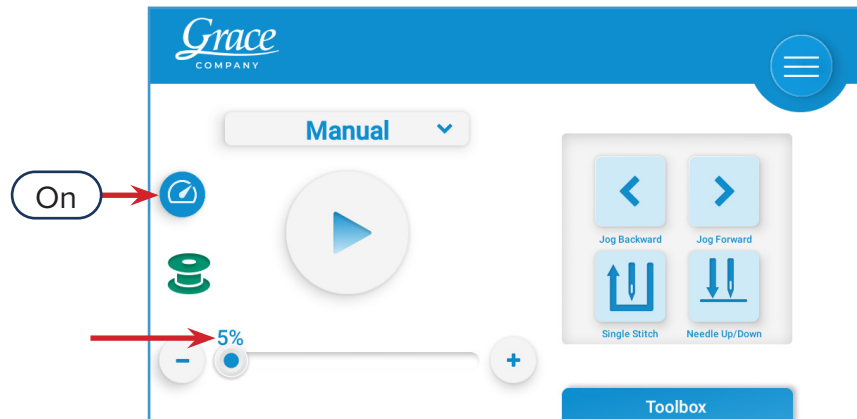
- 8 Stitch over your previous stitches (this is called travel stitching) to reach the **start** point. Continue quilting and make a third row of loops. This time, move the fabric more quickly and decrease the machine speed to make large stitches. Notice the difference in stitch size from the previous row.



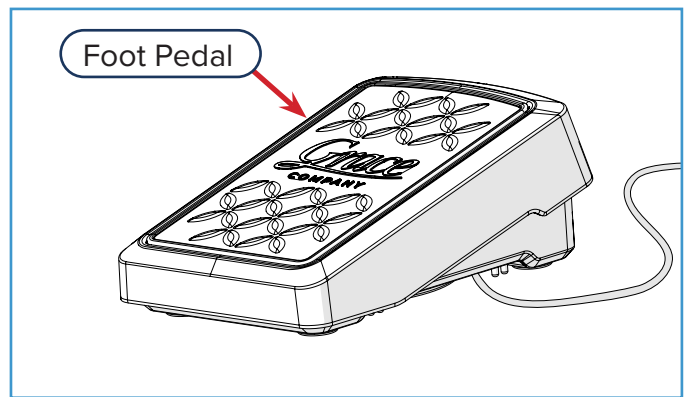
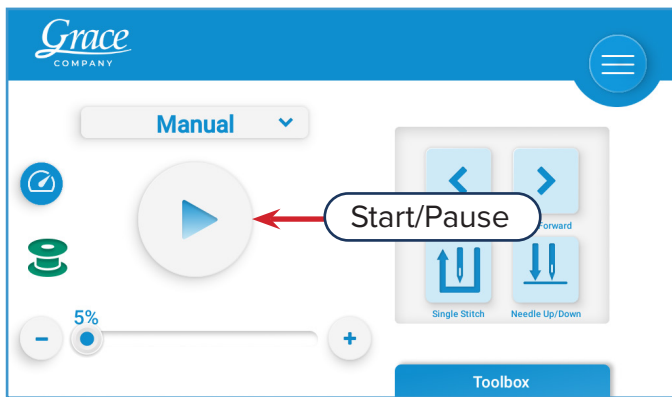
**Note:** Manual mode is great for times when you want to control the length of your stitches by yourself. Sometimes quilters use manual mode to achieve precise control over their stitches, particularly when moving over small, complex designs.

Now let's quilt in manual mode with a speed limit. A speed limit sets a stable speed for the machine, allowing you to focus on moving your fabric. Follow these steps:

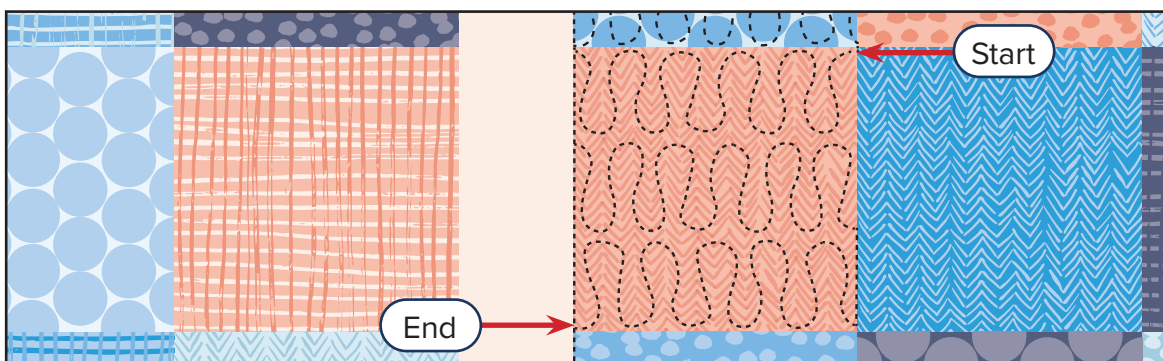
- 1 Toggle **on** the speed limit button. Set a speed limit of 5% by tapping the [+] and [-] symbols or by dragging the sliding bar.



- 2 There are two ways to begin stitching:
  - Press the **Start/Pause** button on the display. The machine will continuously stitch at the speed limit. Be ready to move your fabric. If you turn on the Start button and do not move your fabric, you might damage your quilt or machine. Press Start/Pause again to stop.
  - Use the **foot pedal**. Press lightly to go slower than the speed limit or press the pedal down fully to stitch at the speed limit. To stop stitching, release the foot pedal.

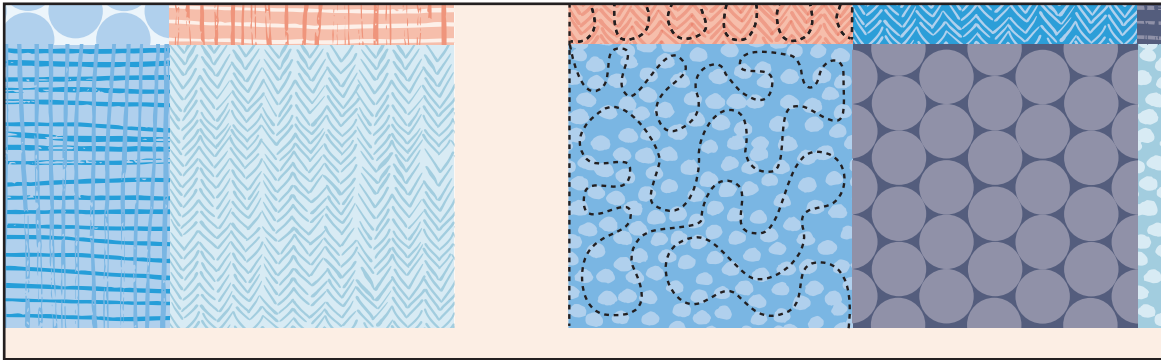


- 3 Stitch the loops in the second square from the **start** point to the **end** point. Travel stitch as needed to reach the end of the square.

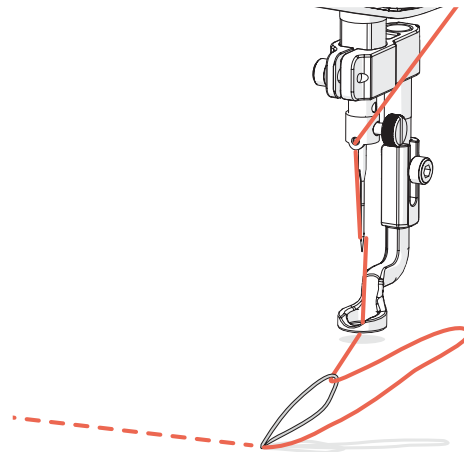
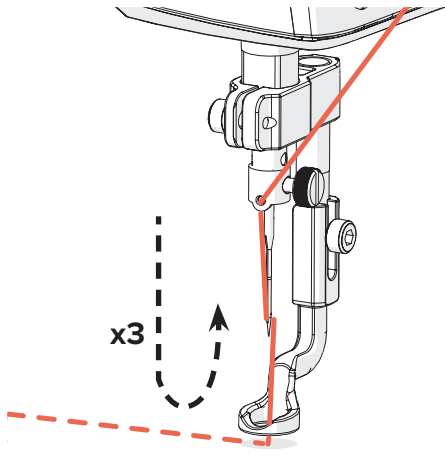


**Tip:** If the 5% speed limit feels slow, try 10% instead.

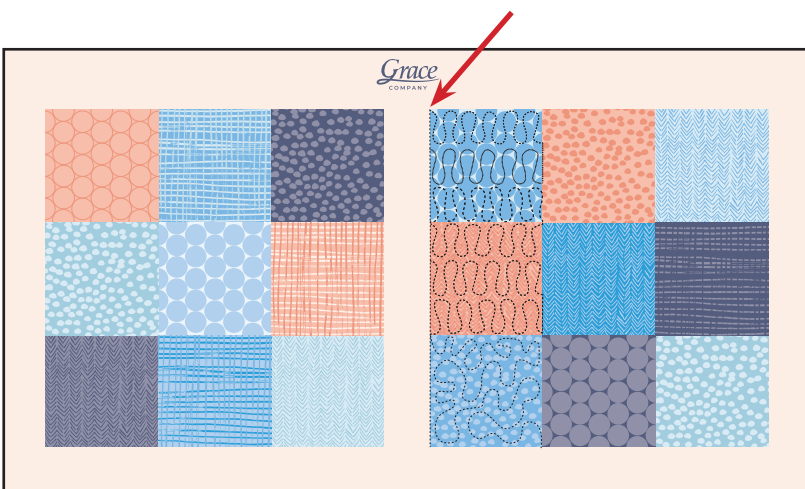
- 4 For the third square, try a faster speed limit, such as at 15%. Experiment with using the foot pedal versus the Start/Pause button on the display to control the machine. Feel free to make any design of your choice. It's your practice!



- 5 When you finish the square, make a securing stitch, then pull up your bobbin thread and trim the thread tails. Refer to Lesson Six on page 21 as needed.



- 6 Trim the thread tails at the start of your stitching.



## VOCAB REVIEW

**Manual Mode:** An unregulated mode where the quilter controls stitch length.

**Speed Limit:** A maximum speed set on manual mode. A speed limit can make it easier to sew even stitches.

**Travel Stitch:** A term for quilting over already sewn stitches as a way to reach a new area.

## REFLECTION

Did you prefer manual mode with a speed limit or without? Was it challenging to control the speed of the machine and the movement of the fabric at the same time? With a speed limit set, did you prefer using the foot pedal or the Start/Pause button on the machine?

# 9

## Lesson Nine: Quilting in Precise Mode

Precise Mode is a regulated stitching mode, which means the machine will keep your stitches a consistent length, even if you move your fabric quickly or slowly. The **fabric sensors** track movement. If you stop moving your fabric, the machine stops stitching. Keeping the fabric sensors clean and free of fingerprints keeps them working optimally. See your machine manual for details.

Stitch length is measured in stitches per inch (SPI) or stitches per centimeter (SPC). The default is SPI, but you can change to SPC in the Settings menu. An average stitch length is usually between 9–12 SPI, or 3.5–4.7 SPC.

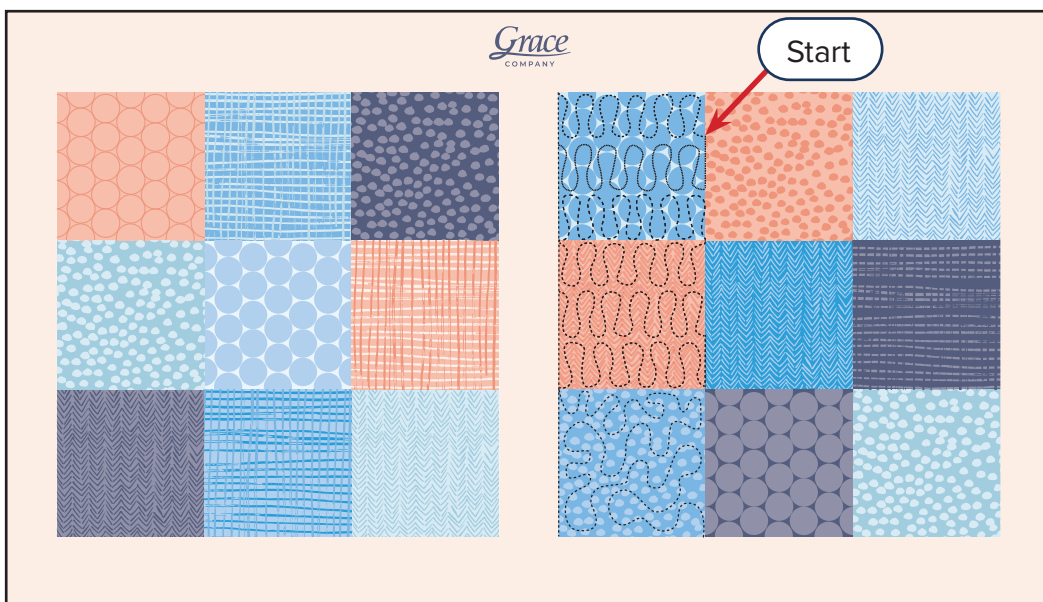
It is possible to move your fabric too quickly for stitch regulation to work properly. When this happens, the overspeed alarm will sound and a red light will shine over your needle area. If you want, you can disable the alarm in the Settings menu.

Precise quilting mode is great for exactly what the name suggests—precision in your stitch placement. In this mode you are able to pause and plan your next stitch carefully, and you can count on all of your stitches looking even and uniform.

### PRACTICE STEPS

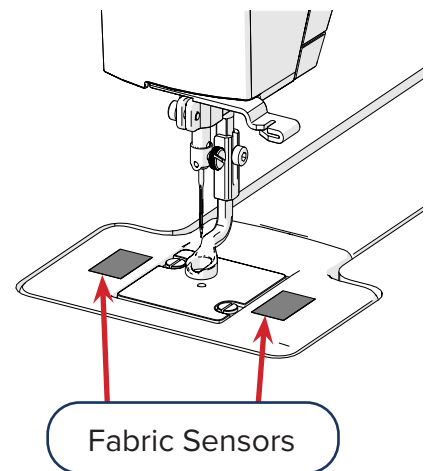
To quilt in precise mode, take the following steps:

- 1 Position your fabric underneath the needle at the **start** point shown below.

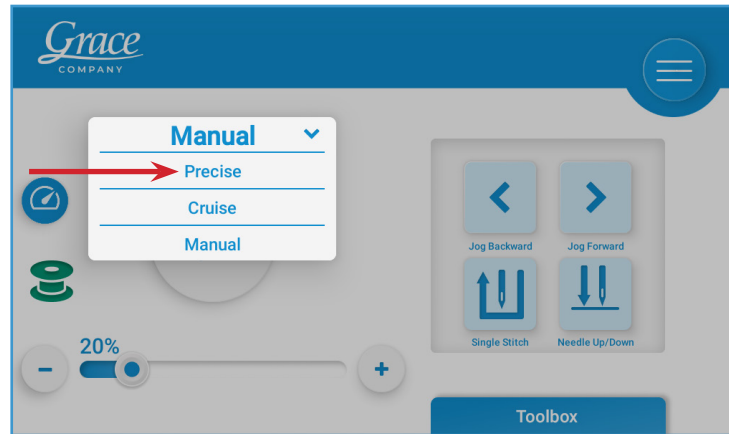


### KEY CONCEPT

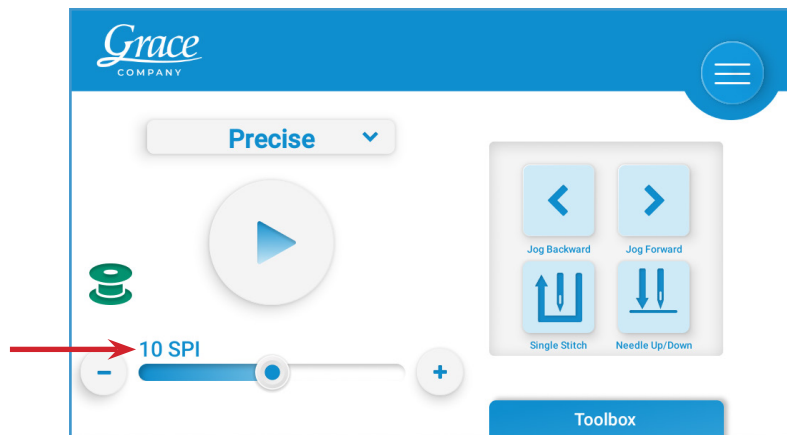
In precise mode, the machine automatically stops when you stop moving your fabric over the fabric sensors.



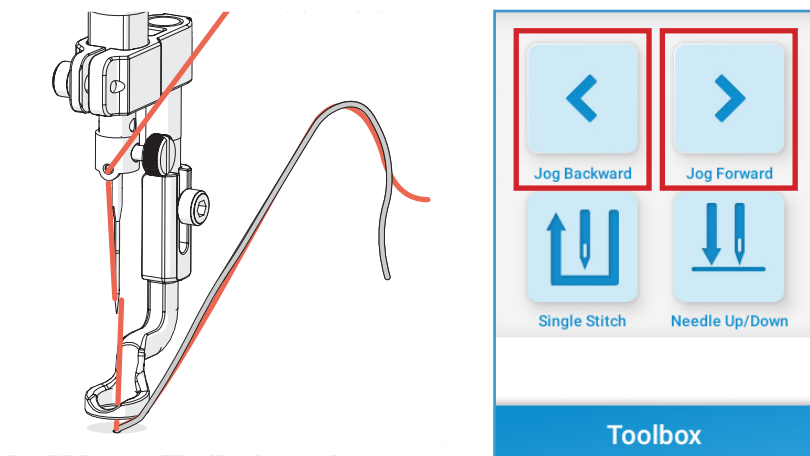
- 2 Tap the drop down to select your quilting mode and choose **Precise**.



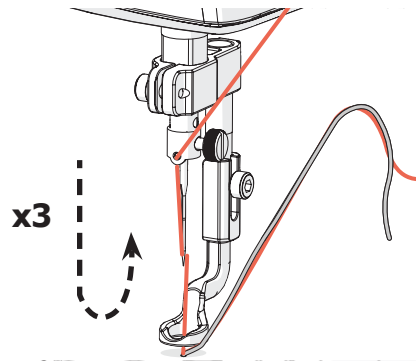
- 3 Use the [+] and [-] buttons or drag the slider on the display to set your stitch length to 10 SPI, or 3.9 SPC.



- 4 Pull up your bobbin thread (refer to Lesson Six on page 21 as needed). If you like, use the **Jog Backward** or **Jog Forward** buttons to move the needle closer or farther from the fabric in small increments to help place your stitch.



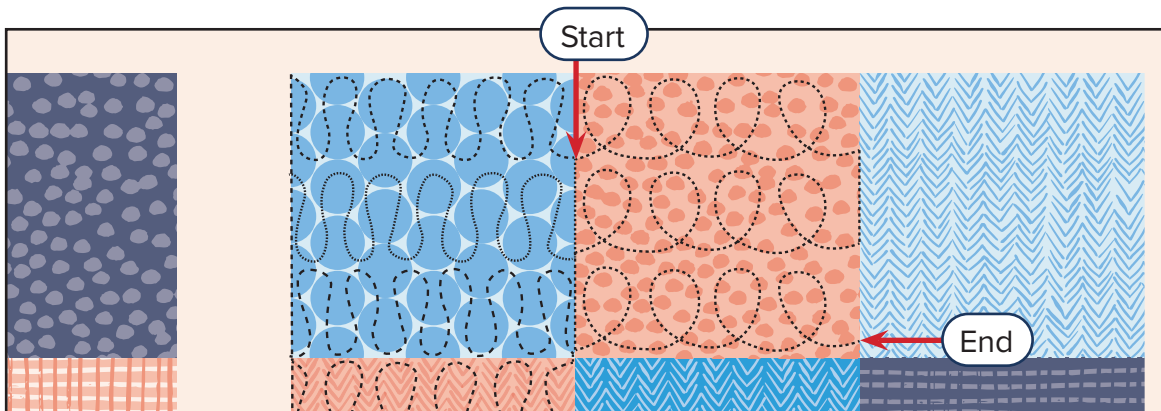
- 5 After pulling up your bobbin thread, press the Single Stitch button three times to make a securing stitch.



- 6 There are two ways to start quilting:

- Press the Start/Pause button on the display. Move your fabric over the sensors to trigger stitching. To stop, either press Start/Pause again or pause movement for 5 seconds, and precise mode will stop automatically.
- Use the foot pedal. Press down fully to turn on precise mode, then move your fabric over the sensors to trigger stitching. To stop, either release the foot pedal or pause movement for 5 seconds, and precise mode will stop automatically. To start again, release the foot pedal and re-engage it.

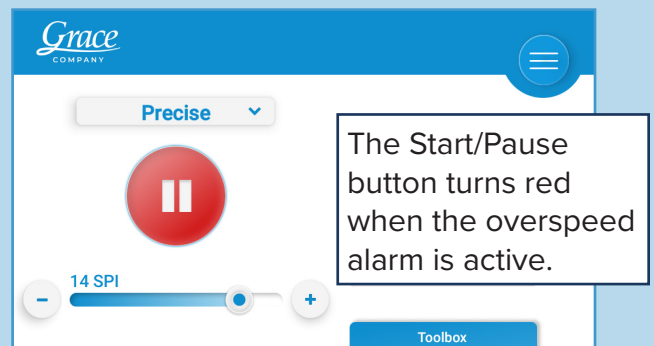
Quilt the looping design shown below from the **start** point to the **end** point.



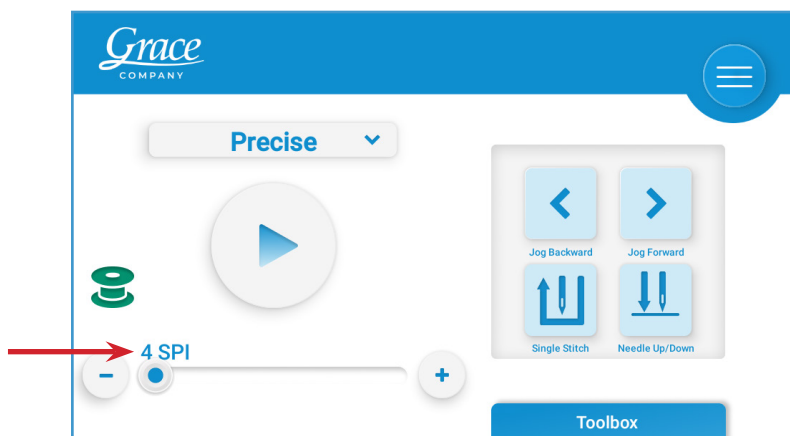
**CAUTION:** The fabric sensors cannot distinguish between your hand versus your quilt. Always be careful when putting your hands near the needle area when precise mode is turned on, in case you accidentally trigger stitching.

## WHAT IS THE OVERSPEED ALARM?

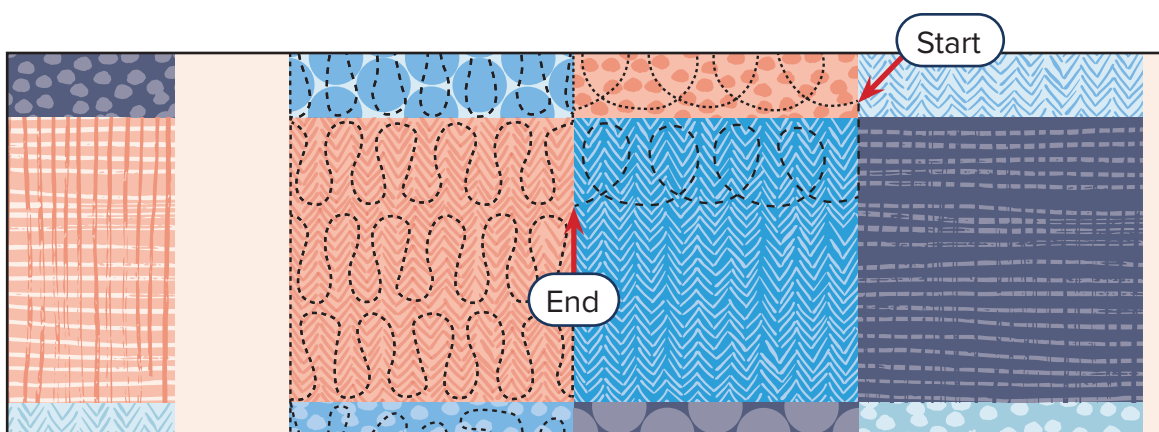
If you move your fabric too quickly for stitch regulation to work, the **overspeed alarm** will sound, a red light will shine over the needle area, and the Start/Pause button will turn red. The alarm means you need to slow down for stitch regulation to work. You can disable the alarm in the Settings menu.



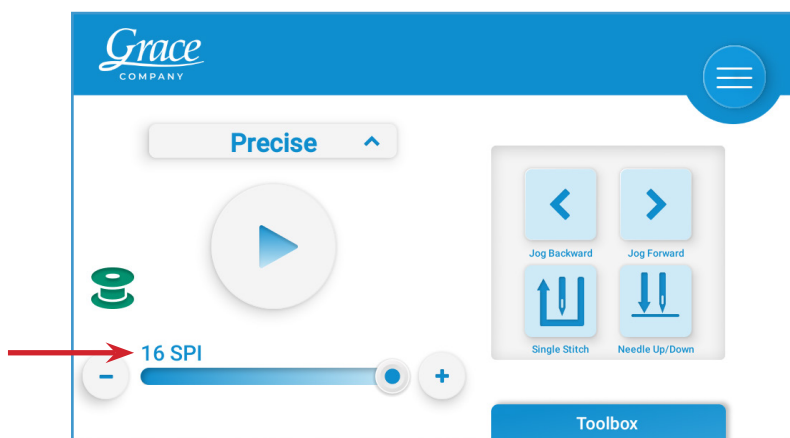
- 7 Change the stitch length to **4 SPI**, or 1.6 SPC.



- 8 Continue the looping pattern across the first row of the next square down from the **start** point to the **end** point. Notice the lower stitch length makes longer stitches.



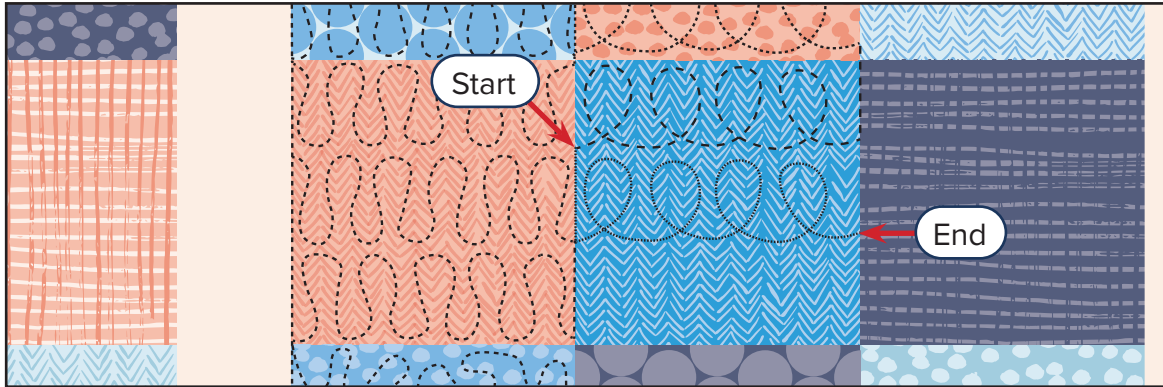
- 9 Now change the stitch length to **16 SPI**, or 6.3 SPC.



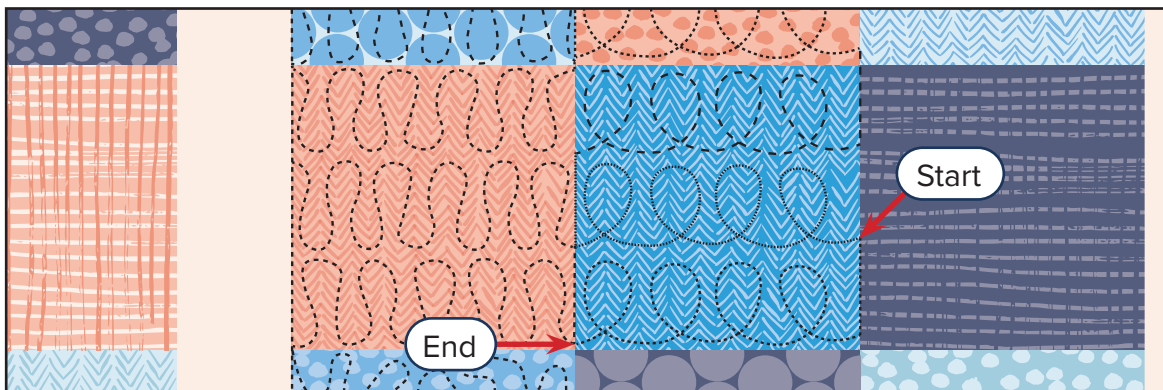
### KEY CONCEPT

A lower stitch length means fewer stitches per inch and makes longer stitches.  
A higher stitch length means more stitches per inch and makes smaller stitches.

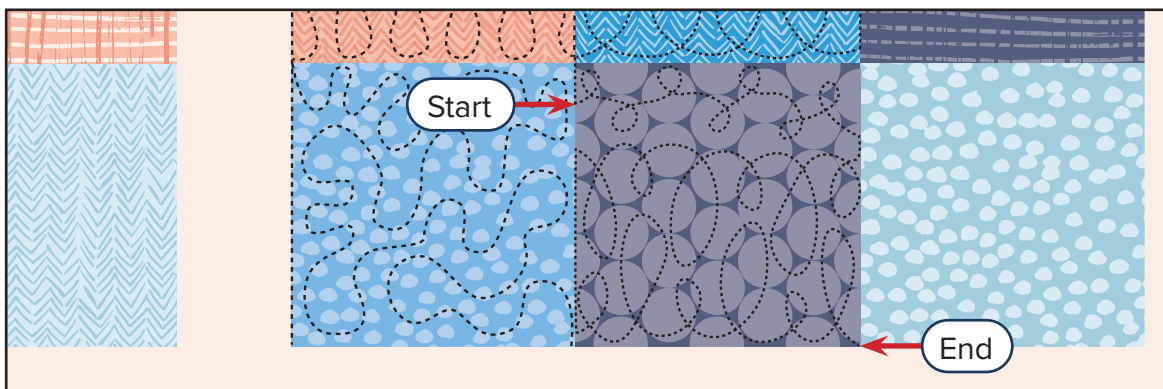
- 10 Continue the looping pattern across the second row from the **start** point to the **end** point. Notice the higher stitch length makes shorter stitches.



- 11 Choose your stitch length for the last row of loops and quilt from the **start** to the **end**.



- 12 The last square in this column is for free-style practice. Experiment with stitch length and try the different methods of controlling the machine: either the foot pedal or the Start/Pause button on the display. Try to activate the overspeed alarm by moving the fabric too quickly, so you can see what happens. Quilt from the **start** point to the **end** point.



## REFLECTION

Did you find a stitch length you prefer? Do you enjoy using the foot pedal or the display to start and stop stitching? How did precise mode feel compared to manual mode?

## VOCAB REVIEW

**Stitch Regulation:** Machine technology that maintains consistent stitch length.

**Precise Mode:** A stitch regulation mode that makes stitches of a precise length and stops stitching when you stop moving the fabric.

# 10

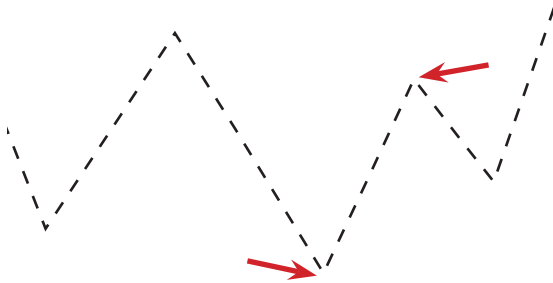
## Lesson Ten: Quilting in Cruise Mode

### KEY CONCEPT

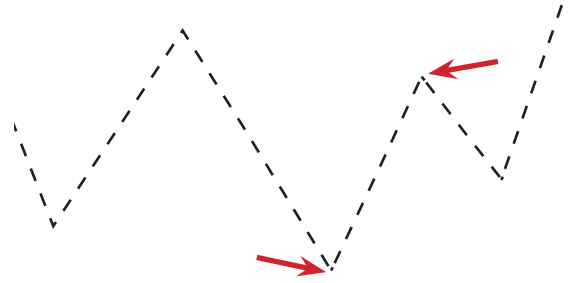
Cruise mode stitches in place at a steady rate even if you are not moving your fabric.

Cruise mode is a regulated quilting mode. Like precise mode, cruise mode assists in keeping your stitches a consistent length. However, when you stop moving your fabric, stitching continues. You need to press Start/Pause on the display to stop cruise mode when you are done stitching.

Cruise mode is great for making sharp corners. By pausing your movements at a corner, a stitch can be placed where it might not regularly end up in precise mode.



In precise mode, the regulated stitching may skip corners to keep the stitch sizes consistent.

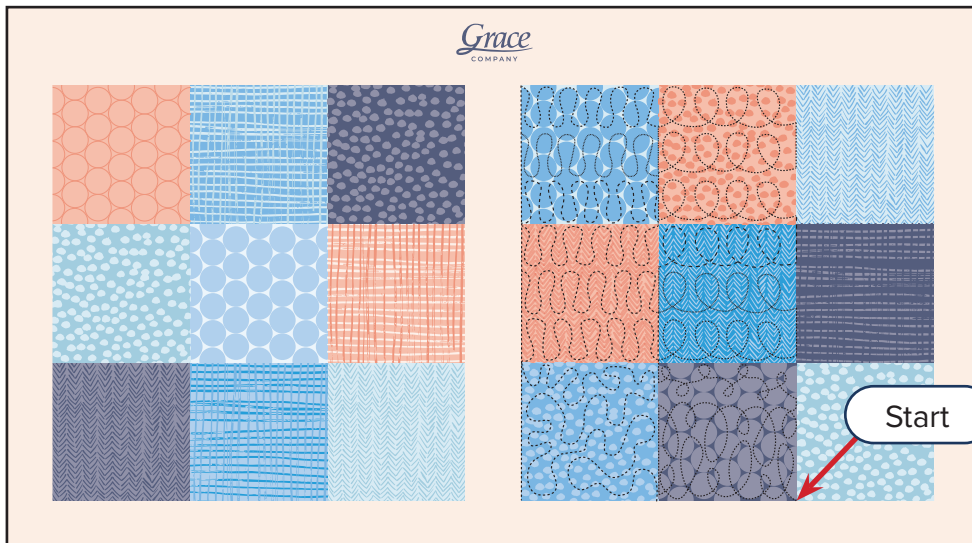


In cruise mode, pausing your movement at the corners allows you to “fill in” the missing stitch.

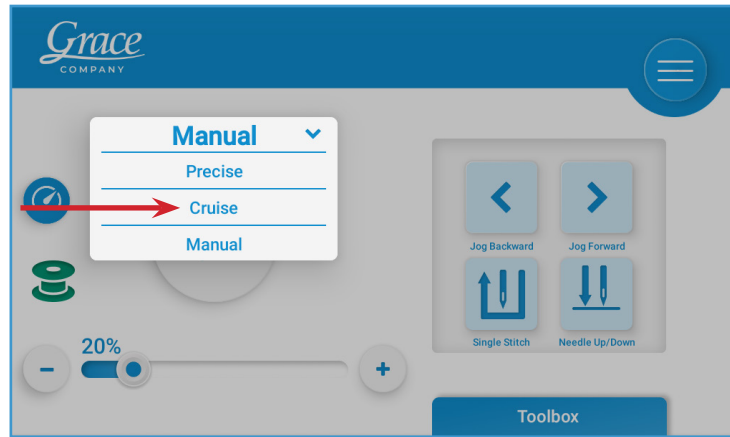
### PRACTICE STEPS

To quilt in cruise mode, take the following steps:

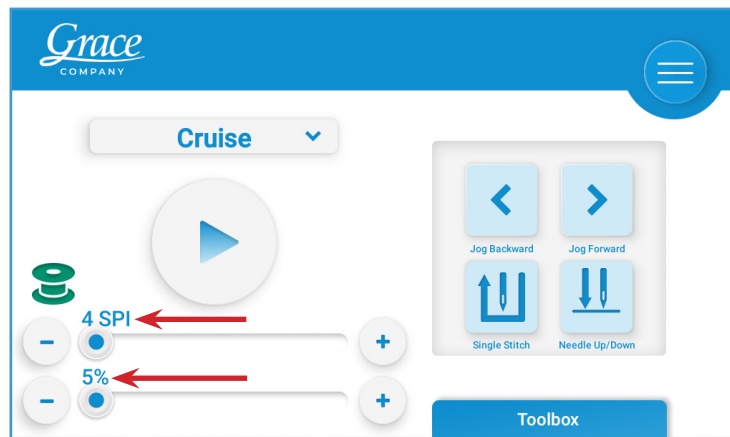
- 1 Position your quilt at the **start** point. If you finished the last square in the bottom corner, then you are already at the start point. If not, stitch over to the start point or tie-off (pull up the bobbin thread at the end) and then tie-on (pull up the bobbin thread at the start).



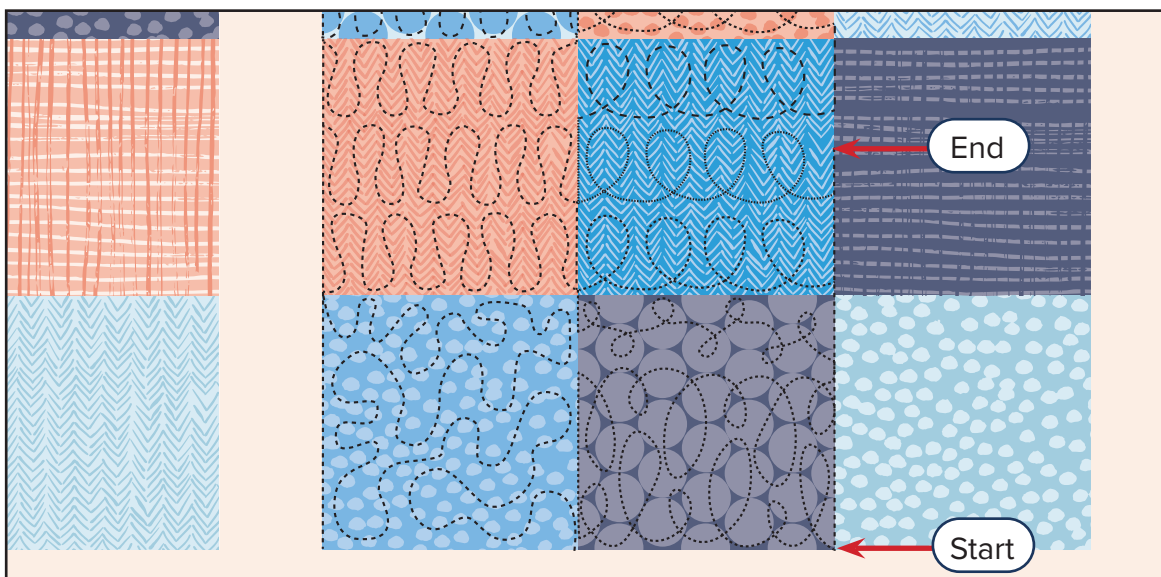
- 2 Tap the drop down to select your quilting mode and choose **Cruise**.



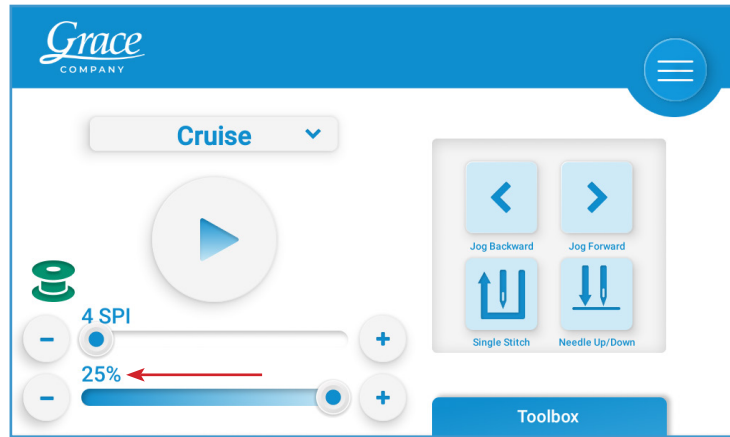
- 3 Set your stitch length to **4 SPI** and your minimum speed to **5%** by dragging the sliders or using the [+] and [-] buttons.



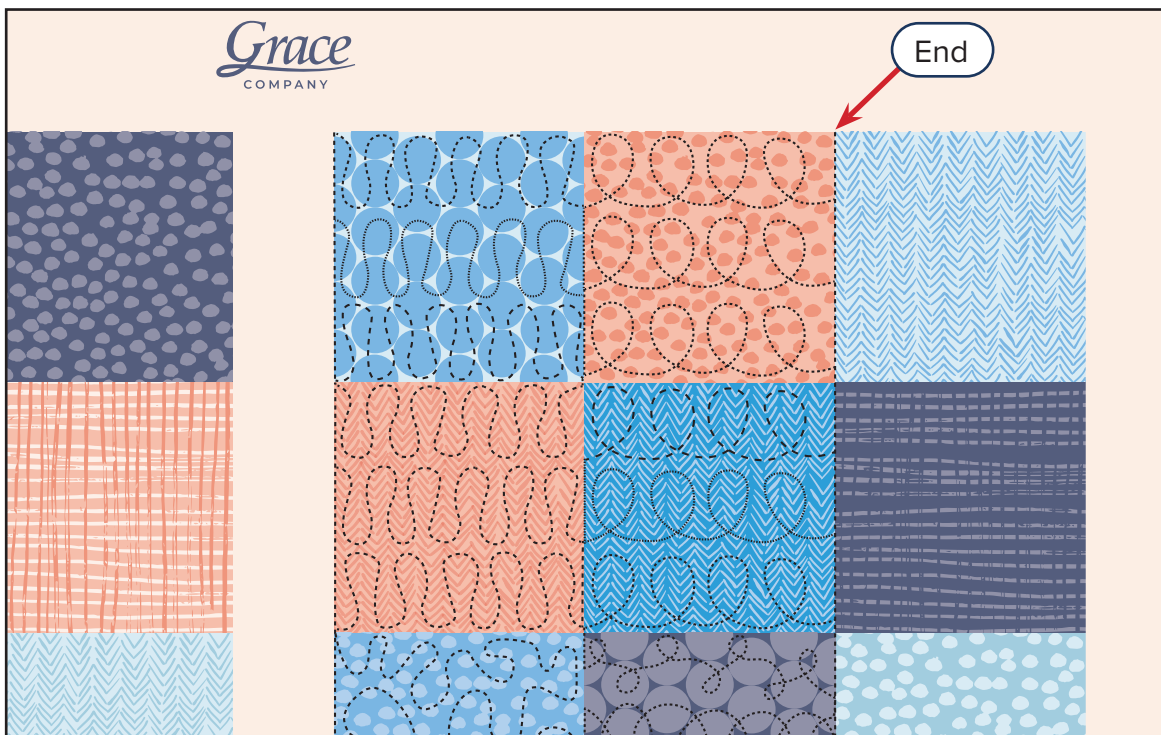
- 4 To start quilting, choose a method to control the machine: either the foot pedal or the Start/Pause button on the display. To use the foot pedal, press down fully to turn on cruise mode. **Start** at the bottom edge between squares and stitch a straight line halfway up the panel. Press Start/Pause or release the foot pedal when you reach the **end**.



- 5 Change the minimum speed to **25%**.

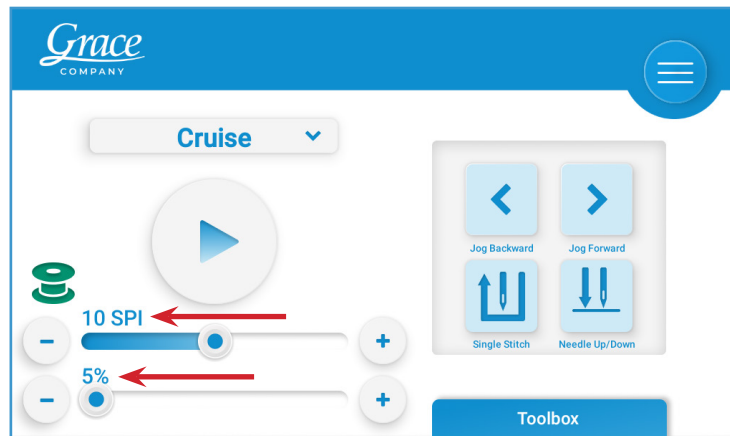


- 6 Continue stitching the line until you reach the **end** of the square at the top edge.

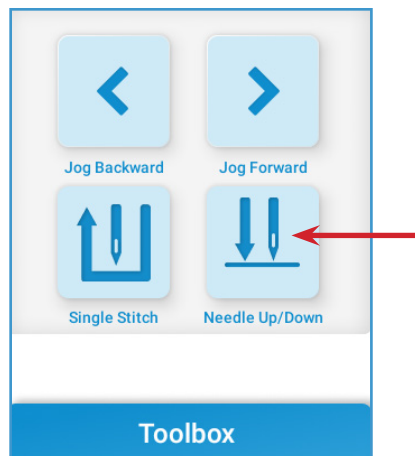


Compare your stitches between those at 5% and 25% minimum speed. You might notice a difference despite your SPI not having changed. This is because the minimum speed is always applied, even when you are not moving your fabric. You will have to move your fabric faster than the minimum speed in order to maintain the stitch length. When your speed is set to 5%, outpacing the minimum speed is easy. But when the minimum speed is set to 25%, it can be harder to maintain stitch regulation.

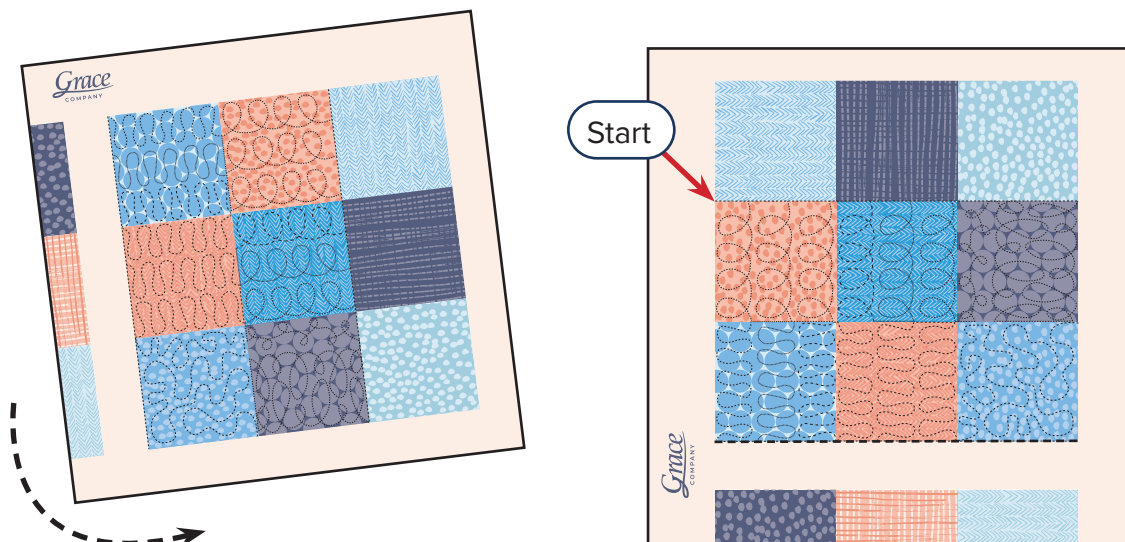
- 7 Set the stitch length to **10 SPI** and the minimum speed to **5%**.



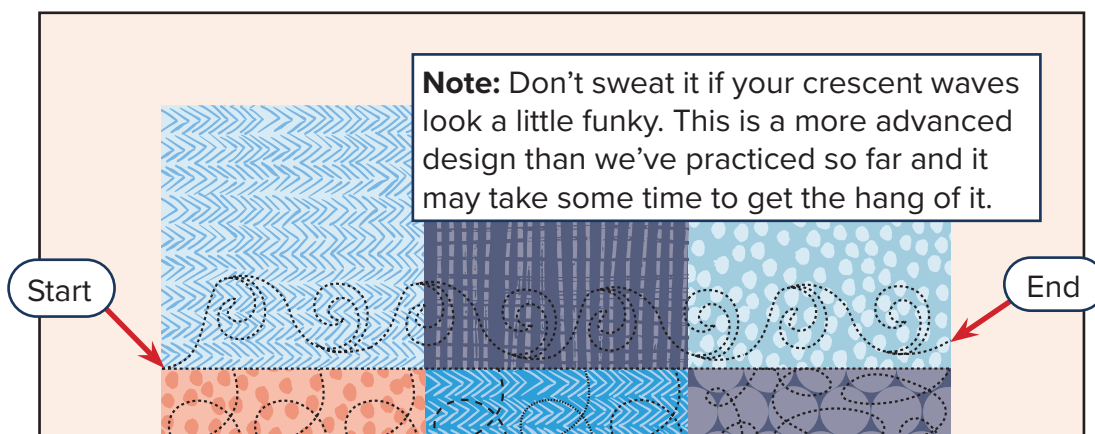
- 8 Use the **Needle Up/Down** button to lower the needle into the fabric. If you changed your needle stop position to Down in the settings, then the needle should already be down, and you can skip this step.



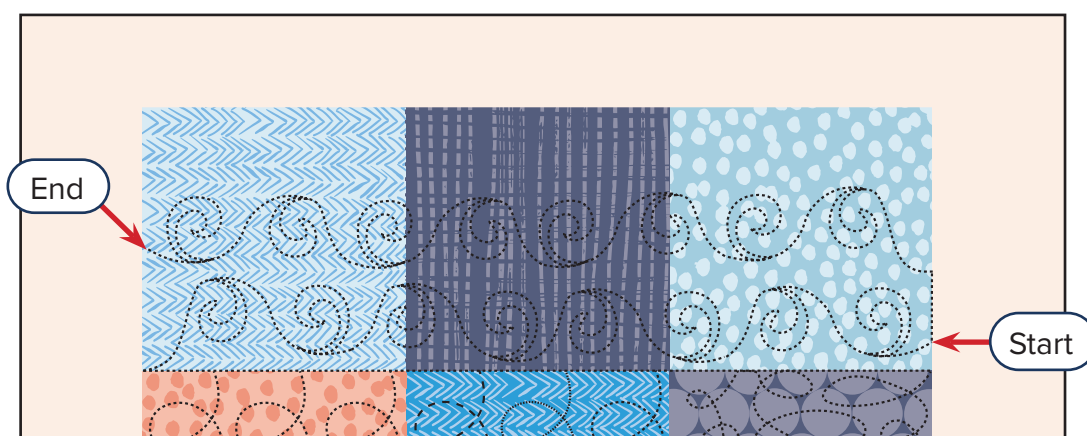
- 9 With the needle lowered, rotate your fabric to align your panel with the **start** point shown below. Having your needle lowered keeps your fabric in place as you turn it.



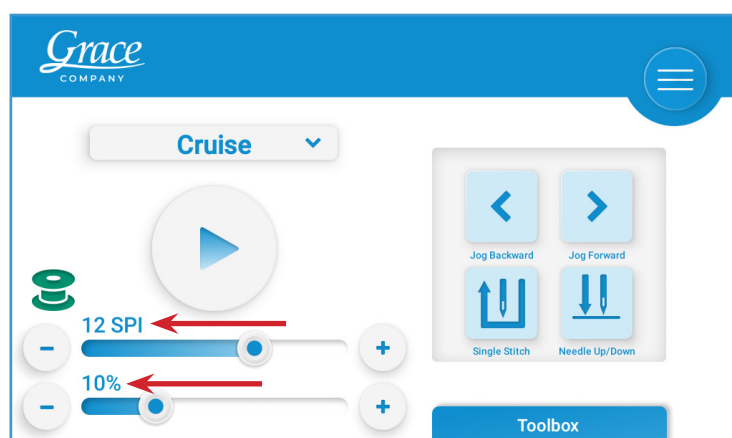
- 10 Stitch a row of the crescent wave design below across all three squares from the **start** point to the **end** point. At the tip of each crescent, briefly stop moving your fabric, allowing the machine to stitch in place to achieve sharp corners on your design.



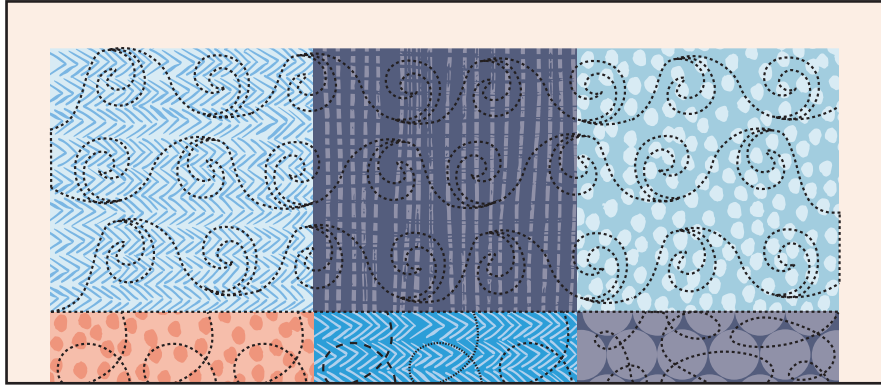
- 11 Stitch another line of the wave design, and this time **start** from the right and **end** at the left.



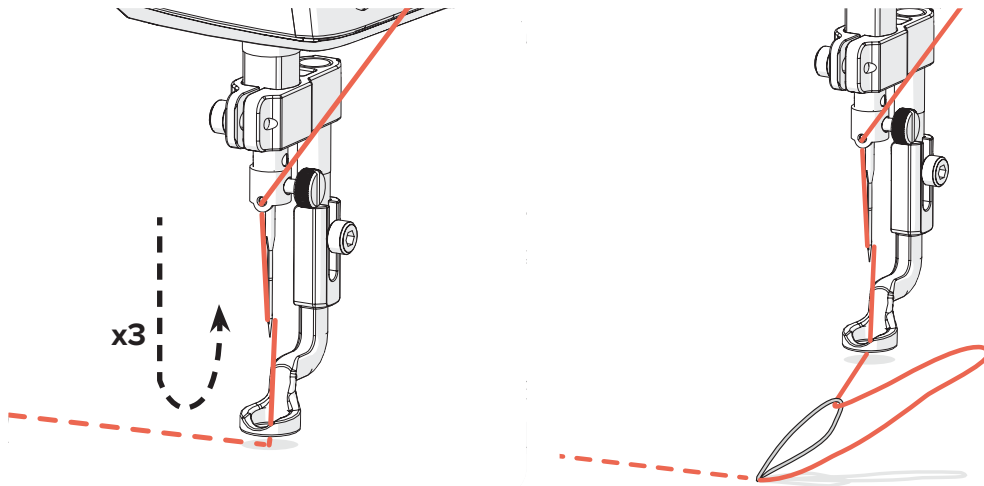
- 12 Now set your stitch length to **12 SPI** and to **10%** minimum speed.



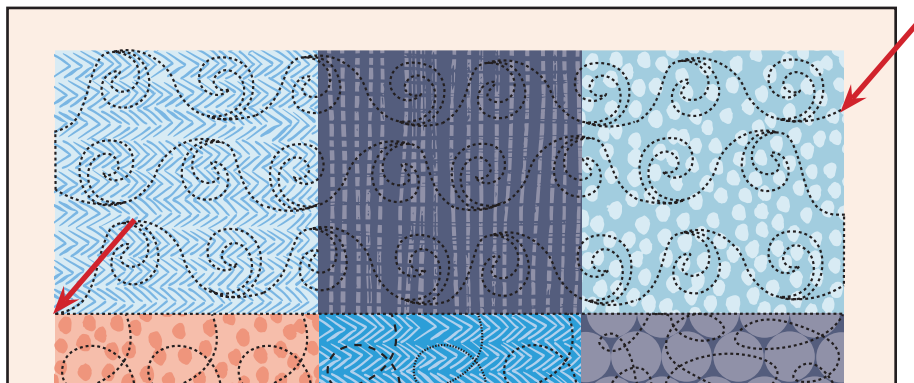
- 13 Complete the final row of the crescent wave design. Concentrate on the feel of the machine. Cruise mode often offers a smoother feel than precise mode.



- 14 When you are finished, make three stitches in place to secure your last stitch, then pull up your bobbin thread. Refer to Lesson Six on page 21 as needed.



- 15 Trim the thread tails at the start and end of your stitching.



## REFLECTION

How did cruise mode compare to precise mode? Does quilting in one mode seem more intuitive than another? As you practice, you'll develop familiarity and muscle memory with the various modes and learn which modes you prefer in which situations.

## 11

## Lesson Eleven: Additional Practice

### KEY CONCEPT

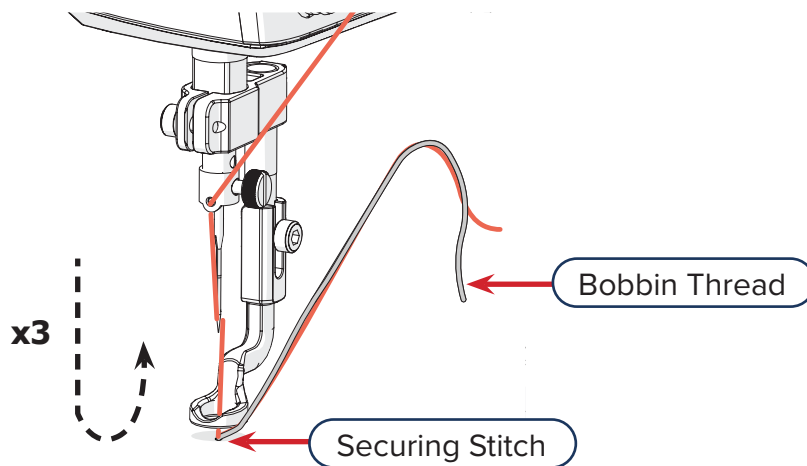
The first step to quilting success is being willing to try new things. Experiment and have fun!

The remainder of the panel is reserved for free-style practice. Try out any design you like, and experiment with the different quilting modes.

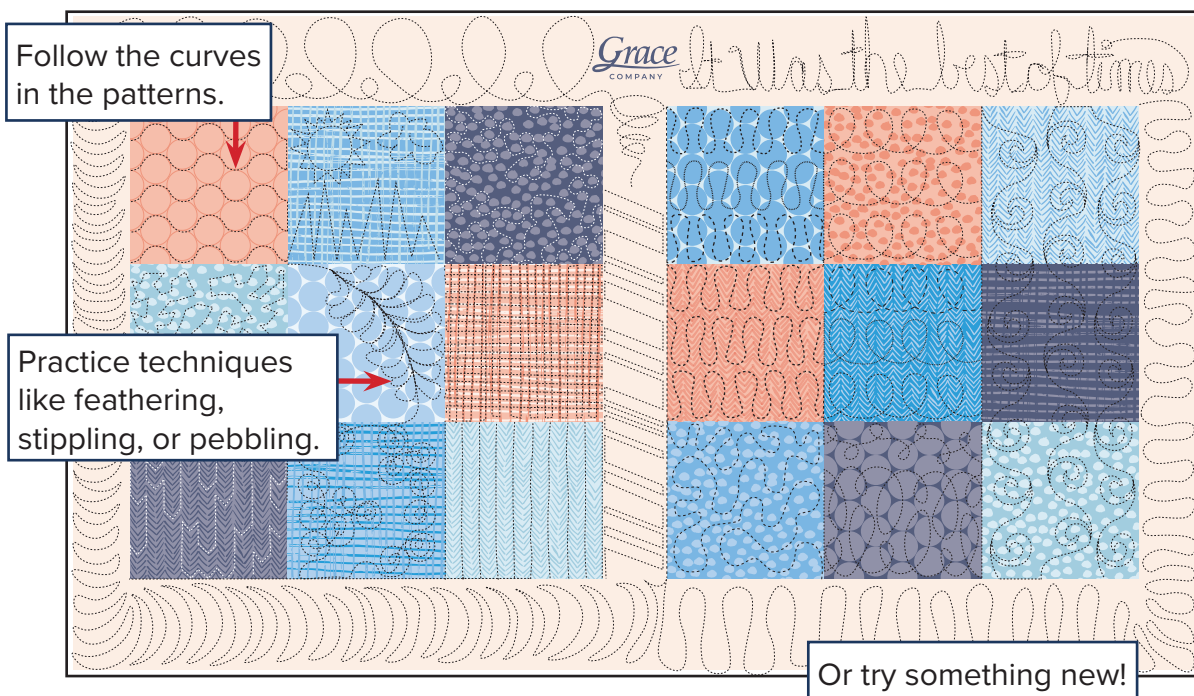
### PRACTICE STEPS

Take the steps below to practice. If your bobbin runs out of thread, refill it, and reset the bobbin estimator. The bobbin estimator icon remains red until you start stitching again.

- 1 Pull up your **bobbin thread** and make a **securing stitch**.



- 2 Practice until you've filled up the remainder of the panel. Try out designs you've seen on quilts you admire or pull ideas from your own creativity.



## NOTES

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## NOTES

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