

VISION by Gammill User Manual



Copyright © 2010 Gammill, Inc. All Rights Reserved



Gammill Vision™ User Manual

IMPORTANT MACHINE INFORMATION

It is our goal to ensure that Customers have information on the tools and accessories (standard and optional), that are available for use with Gammill® quilting machines. Some of the tools and accessories detailed in this Manual may be optional equipment.

We recommend that you consult with your Authorized Gammill Dealer or Sales Representative for the most current list of standard and optional equipment. Standard equipment, optional equipment, and pricing are subject to change without notice.

Copyright © 2010 Gammill, Inc. All Rights Reserved
Publish Date: February 2010

All rights reserved. No parts of this work may be reproduced in any form or by any means – graphic, electronic, or mechanical, including photocopying, recording, taping, or information storage and retrieval systems – without the written permission of the publisher.

Products that are referred to in this document may be either trademarks and/or registered trademarks of the respective owners. The publisher and the author make no claim to these trademarks.

While every precaution has been taken in the preparation of this document, the publisher and the author assume no responsibility for errors or omissions, or for damages resulting from the use of information contained in this document or from the use of programs and source code that may accompany it. In no event shall the publisher and the author be liable for any loss of profit or any other commercial damage caused or alleged to have been caused directly or indirectly by this document.

Our thanks to Pat Barry for writing this manual, and Alan Barry for many of the pictures.

Table of Contents

Section 1 - Tour your Gammill Vision™	6
Gammill Vision™ - Front View	6
Gammill Vision™ - Right SideView	7
Gammill Vision™ - Left Side View	8
Gammill Vision™ - Back View	9
Gammill Vision™ - Top View	10
Gammill Vision™ - Bottom Crosstrack (aka Carriage)	11
Tour Your Table	12
GS-1PA Table	12
Home-Pro Table	13
Section 2 – Getting Ready to Quilt	13
About the manual	13
About the instructions	13
Threading the Machines	13
Back Section	14
Middle Section	15
Front Section	16
Threading the Gammill Vision™ 18-8	17
Using the On-board Bobbin Winder	17
Winding bobbins while quilting	18
Winding bobbins before quilting	18
Using a Stand-alone Bobbin Winder	19
About the Bobbin Case	19
Inserting the Bobbin Case	20
Setting the Tensions	20
Set the Intermittent Tension	20
Set the Rotary Tension	21
Set the Bobbin Case Tension	21
Checking the Top Thread Tension	21
Changing the Top Thread Tension	22
Section 3 - Navigating The Screens	23
Turning on (and off) the machine	23
Initialization	23
Main Screen - Carousel of Patented Applications	24
Stitcher Modes	24
About the Stitch-regulator	24
Channel Locks	25
Stitch Monitor	26
FM Tuner	28
Tools / Diagnostics	29
Settings / Preferences	30
Main Screen - Settings	30
Main Screen - Setting Changes	30
Main Screen - Status Information	32
Stitcher Status Button	32
Needle Positioner	33

Laser Light	33
Automatic Tie-offs	34
Stitch Counters	34
Bobbin Factor Icon	35
Bobbin Fill Gauge	35
Stitch Counter Icon	36
Run-time Clock Icon	37
Section 4 - Let's Quilt !	38
Standard Procedures	38
Pull up the bobbin	38
Tie-off Stitches to Begin	39
Continuous Line Designs	39
Tie-off to End	39
Trim	39
Explore Stitching Modes	40
Regulate	40
Coast Regulate	40
Constant	41
Baste	41
Explore the Settings / System Preferences	42
Laser Light	42
Response	42
Coast Spread	42
Coast Threshold	42
The 4 th scale	43
System Alarms	43
Thread Break Alarm	43
Too Fast Alarm	43
Bobbin Empty Alarm	43
Turning Off Alarms	44
Needle Positioner	44
System Volume	45
Calibration	45
Section 5 - Quilting Techniques	47
How To Relocate the Screen	47
How To Start and Stop (a line of stitching)	48
How To Restart (a line of stitching)	48
How To Test the Tension	49
Adjust the bobbin tension	49
Adjust the top thread tension	50



Congratulations on the purchase of your new Gammill Vision™ Quilting System. Gammill has added high tech electronics to its 'Best of Class' stitching mechanism, giving you an exceptional quilting experience!

The new features incorporated into the Gammill Vision™ are a result of suggestions from current customers plus Gammill's dedication to providing the best quilting system possible to meet your needs. The Gammill Vision™ is complete with options that enable you to adjust the stitching to suit your style.

The first and most obvious improvement is the touch screen, which displays the color icons for all of the features. Operating instructions are easier to find and understand using the new icons. What isn't as obvious are the technological improvements behind these features. The new technology enables you to easily learn, use, and maintain your new quilting partner. It also allows you to update your system as new and exciting features are added in the future.

There is a new 'Coast' mode that combines the stitch-regulator with constant speed for efficient transition to micro-stitching. The stitch-regulator operates at higher speeds, but the machine automatically switches into constant speed when the machine speed drops below the *adjustable* Coast threshold. This enables you to stitch motifs using the regulator, and automatically switch to constant speed to micro-stipple the background.

We still offer the 'Regulated' mode but now you can *adjust* it to fit your speed. High-speed quilters are prone to getting the occasional long stitch at take-off points. Slow-speed quilters may see extra stitches in the points. Regardless of your speed preference, you can now easily set the regulated mode response to adjust the stitching to suit your speed.

Another step toward trouble-free quilting is the optional digital video camera. Turn on your camera and see the stitch quality on the underside of the quilt. No more flashlights and mirrors!

There are other self-diagnostic checks occurring while you are stitching. They are happening in the background so they don't disrupt your stitching unless a warning is needed. The early warning system is a true time saver.

Thank you for choosing the Gammill Vision™ – we are sure you will enjoy it!

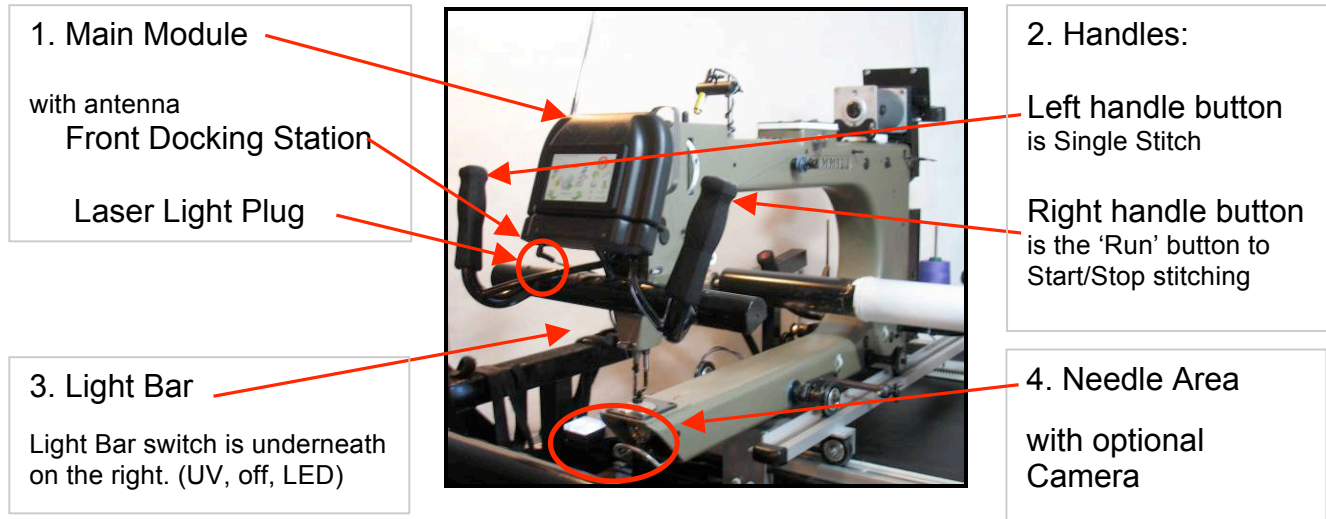
Please read this manual before operating your new machine, even if you have used a Gammill Quilting System before. There is some new information that will make your quilting experience easier, and you don't want to miss it.

Section 1 - Tour your Gammill Vision™

This chapter is dedicated to introducing the Gammill Vision™, and some new terminology. Some terms will be familiar and some will be new, but if you understand the terms, the explanations included later in this manual will make more sense. Consider this section an overview; complete instructions are in later sections.

Gammill Vision™ - Front View

Here is a picture of your state-of-the-art Gammill Vision™.



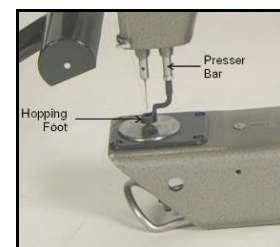
1. Main Module – displays all the instructions and icons. The Main Module is actually a separate module that fits into a docking station that is attached to the machine. There is a docking station at the front and at the back of the machine, so the module can be moved to the back of the machine when doing pantographs.

Caution: Be sure to have the power off when moving the module from one end to the other.

2. Handles – there are two handles in the front and in the back, and they function the same way. In the left handle is the Single Stitch button that controls the single stitch and needle position functions. In the right handle is the Run button that controls the starting and stopping of the stitching. Often the right button is red and is called the Red button.

3. Light Bar – there is a long thin light fixture attached to the handles. The light switch is on the right side, hidden by the black guard. Flip the switch away from you to get natural light (LED). Flip it toward you to turn on the black light (UV) which is very helpful when using glow-pencil markers or when quilting with white thread on white fabric.

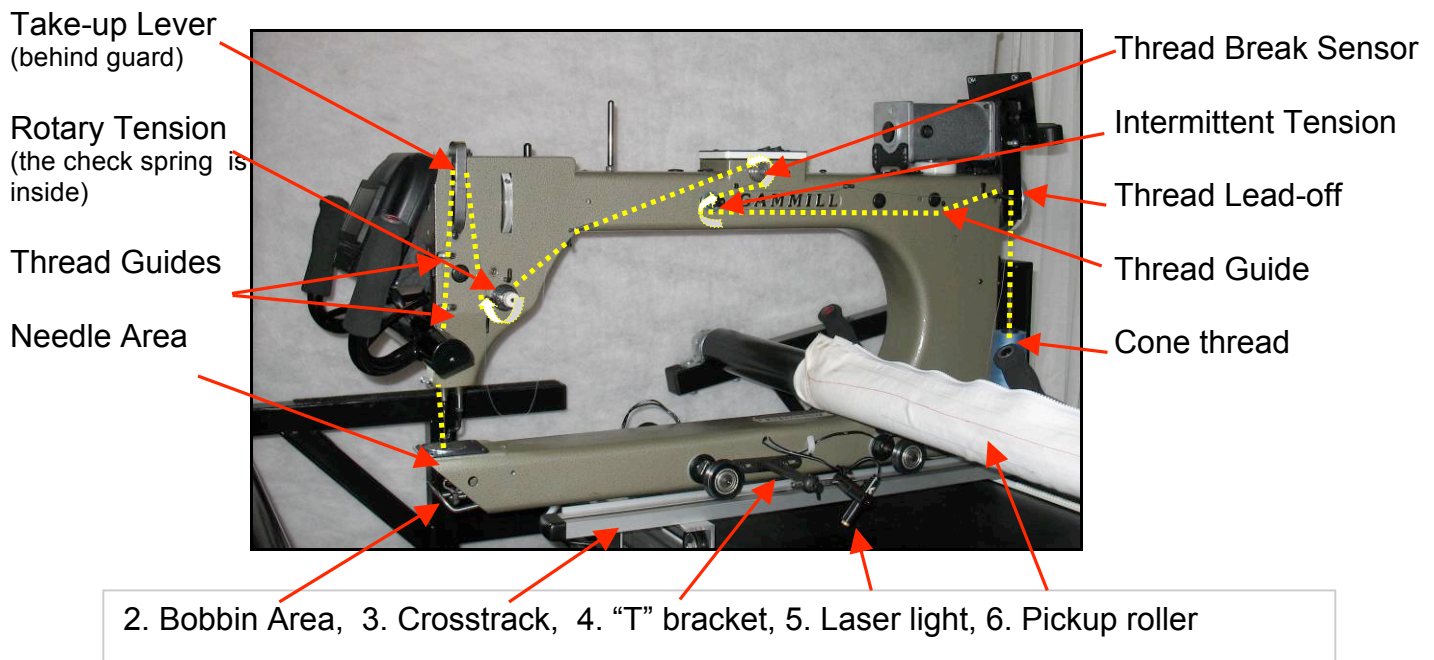
4. Needle Area – The needle bar holds the needle in place. The hopping foot is a circular guard that surrounds the needle. The hopping foot is more than just a safety guard. It is instrumental in creating a good stitch, and it also allows the use of templates and rulers. The shape makes it safe to guide the machine along the edge of a template or ruler for a perfect stitch line or design. The camera also helps insure a good stitch.



Needle area in front

Gammill Vision™ - Right SideView

The right side of the Gammill Vision™ has the threading path and tension devices.



1. Thread Path – Threading the machine can seem complicated but it is actually easy because the thread guides clearly mark the path. In this example, thread comes off the cone, going straight up into the first guide called the thread lead-off. There are two more guides that take it into the intermittent tension assembly, and it is wrapped around the silver cylinder (which is a thread break sensor wheel) and then to another guide and to the rotary tension assembly. Two 'L' shaped guides help keep the thread in the check spring. From there it goes to the take up lever, through more guides and finally through the eye of the needle. Detailed threading instructions are given in the following pages.

2. Bobbin Area – is the open area below the needle. The bobbin and bobbin case are larger than most domestic sewing machines so they hold more thread, and run out less often. The sewing hook (also known as hook race or hook) spins around the bobbin, catching the thread and making the stitch. Be sure nothing ever obstructs this motion. This area will look familiar very soon since you will clean the bobbin area with a small brush every time the bobbin is changed. .



3. Crosstrack – Also known as the carriage, is a platform that holds the machine. It has two tracks so the machine can roll front-to-back. It sits on two tracks on the table which allow it to roll left to right. The crosstrack has the vertical channel lock attached as well as one of the encoders for the stitch-regulator.

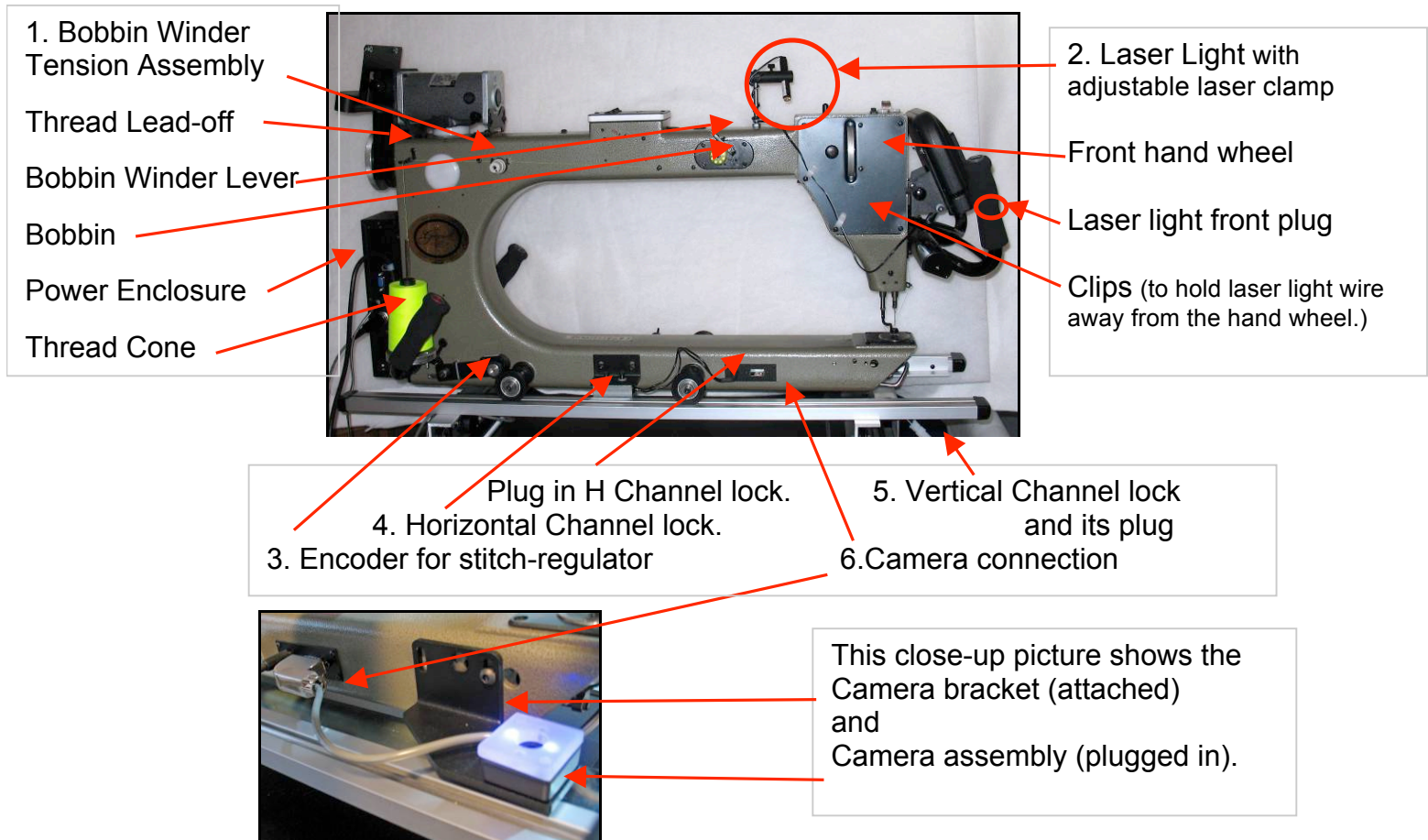
4. "T" Bar is a bracket shaped like a 'T' that is screwed into the side of the machine. The bracket can hold the stylus vertically when it is being used to align the machine with a mechanical template like the WorkStation or the Design Center. The bracket can also hold the stylus horizontally for attaching the adjustable laser clamp when it is being used to hold the laser light while stitching pantographs.

5. Laser Light – is being held in a special clamp that allows it to be turned so it points in virtually any direction. When attached to the 'T' bracket, as shown here, the laser light is used to follow pantographs which are stitched from the back of the machine. When using the laser light at the back, plug it into the Power Enclosure on the left side at the back of the machine. It only fits in one place on the Power Enclosure. The laser light and clamp can also be moved to the front for use when working at the front of the machine, as shown in the next paragraphs.

6. Pick Up Roller – will hold the quilt layers after they are quilted. It must be located inside the throat space to ensure the machine can move freely. It starts out small – taking just a few inches but as the quilt nears completion, the size increases and this reduces the amount of quilting space left free for stitching.

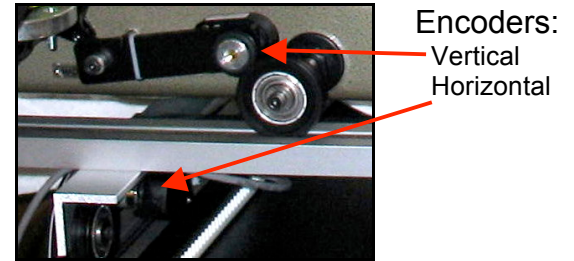
Gammill Vision™ - Left Side View

The left side of the Gammill Vision™ has an on-board bobbin winder.



1. Bobbin Winder – How convenient it is to wind bobbins while you stitch so they will be ready when you need the next one! The bobbin winder has a thread path, which travels from the cone of thread, up through the guides, through the tension assembly and over to the bobbin. The bobbin sits on a post that will spin when the machine is stitching. The bobbin winder lever is lowered into the bobbin. As the bobbin fills, the lever is pushed up and will eventually pop up, stopping the bobbin winder from turning.
2. Laser Light – has been moved from the back of the machine to the front. It is still being held by the adjustable laser clamp that allows easy adjustments, but now it is attached to a post on the top of the machine. In this position, it is easy to follow stencils and block patterns. The light plugs into the bottom side of the front Docking Station and the wire is held by the white clips, preventing it from touching the front hand wheel.

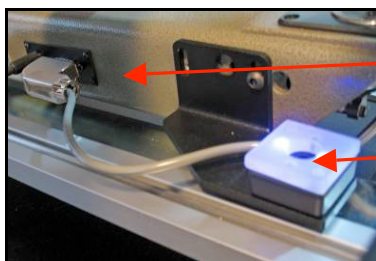
3. Encoder – The stitch-regulator has two encoders that 'ride' the wheels and measure how fast the machine is moving and in which direction, so it knows when to make the next stitch. The encoder riding the wheel on the machine monitors the Vertical movement (front to back). There is another encoder that is located on the underside of the crosstrack that monitors the horizontal movement (side to side). Between these two encoders, the stitch-regulator can determine when to stitch.



4. Horizontal Channel Lock – is a magnet attached to the side of the machine that locks onto the crosstrack preventing it from moving forward and backward, hence the Horizontal lock. The channel lock is set on and/or off by touching the icon on the screen. The lock plugs into the adjacent electrical plug on the side.
5. Vertical Channel Lock – is a magnet attached to the front of the crosstrack that locks onto the table preventing it from moving side to side, hence the Vertical lock. The channel lock is set on and/or off by touching the icon on the screen. The lock plugs into a wire connection at the front of the crosstrack. This cable at the back of the crosstrack plugs into the right side of the Power Enclosure.
6. Camera connection – The larger of the two electrical plugs is for the camera connection. Each plug has a unique shape so it can only fit in one place.

Camera Assembly

The camera assembly is held in place by a bracket that screws into the side of the machine. It takes a video image of the under side of the quilt so you can examine the stitch quality on the back. The camera also has both LED (white) lights and UV (black) lights to help you see the stitches on the back of the quilt. The bracket looks like it is touching the crosstrack, but it is not.



Camera assembly is plugged in, and the lights are on.
The camera lens is in the middle.
The image will be displayed on the screen.

Gammill Vision™ - Back View

The machine can be operated from either the front or the back. All handle buttons remain active regardless of the Main Module's location.

1. Main Module and the rear Docking Station. The screen can be moved to the back dock very easily, as shown. Lightly pull it straight up to remove and reverse to install.

2. Handles on the back operate just like the handles on the front; The Single Stitch button is in the left handle and the Run button is in the right handle.
3. Vertical Spool Holder Extension – is 4" long, and is located on top the regular spool holder. It is used for small spools or cones of cross-wound thread.
4. Power Enclosure, cords, and connectors - Each of the cords can connect in only one spot, so getting the machine plugged in is easy.



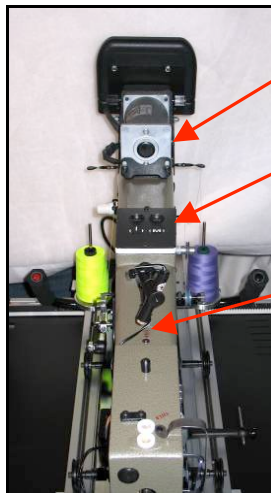
1. Main Module (at rear)
Rear Docking Station
2. Handles & buttons
Left is single stitch
Right is Run
3. Vertical Spool Holder Extension
4. Power Enclosure cords and connectors

The Vision™ uses standard household current (110, grounded). A high quality surge protector is recommended to protect your investment.

Gammill Vision™ - Top View

The top of the machine contains the power switches and more.

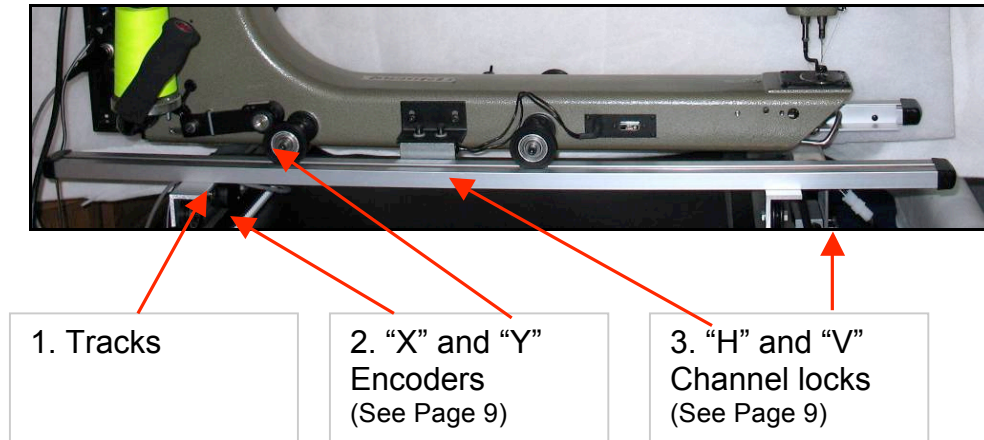
1. Motor - is mounted toward the back of the machine. The motor turns a belt which has a black plastic covering for safety.
2. Power and Motor Switches are mounted in the middle. They can easily be reached when standing in the front or the back of the machine. Turn power on first, then motor.
3. Post - In front of the switches is the post for the laser light. This is where the laser is attached when working at the front of the machine.



1. Motor
2. Power and Motor switches
3. Post for laser mount

Gammill Vision™ - Bottom Crosstrack (aka Carriage)

Each machine has a special platform called a crosstrack or carriage, which allows the machine to move freely around the table. The crosstrack has channel locks which use magnets to stop the machine from moving. It also has encoders that detect and measure motion which is an important element of the stitch size regulation. The machine's wheels fit into tracks on the crosstrack, enabling the machine to move front to back. The crosstrack's wheels fit into tracks on the table, enabling it to move side to side.



Tracks (also called rails) are specially designed to allow the wheels to move smoothly. There are two tracks on the crosstrack (for the machine's wheels) and two tracks on the table (for the crosstrack's wheels).

Tour Your Table

The Gammill Vision™ is available in three sizes; V18-8, V26-10, V30-12. The first number is the distance in inches from the needle to the back of the throat area, and the second number is the height of this space. The tables used for the Gammill Vision™ are the same as the tables used for the same size Plus (stitch regulated) or Standard (non-stitch regulated) machines.

The V18-8 is paired with the Home-Pro table, which is available in 10' and 12' lengths. The V26-10 and the V30-12 require the GS1 table. The standard size for the GS1 table is 12' but custom lengths are available.

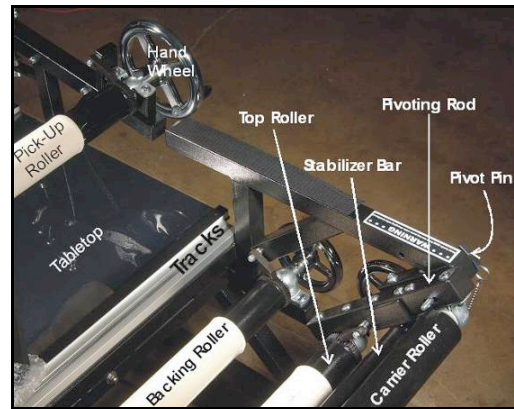
GS-1PA Table

This close-up picture shows the right side of the table, with many of the parts labeled.

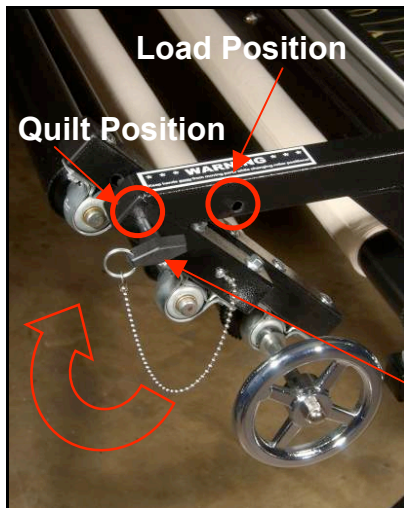
Leaders are strips of canvas that are attached to three rollers; Pickup roller, Backing roller and the Top roller.

The layers of the quilt will be attached to the canvas leaders using pins, zippers, hook & loop tape, or even plastic staples!

When fabric is loaded, these three rollers hold it taut using locking levers (dogs) that fit into the gear shaped end of each roller, near the hand wheel.



GS1 Table Parts

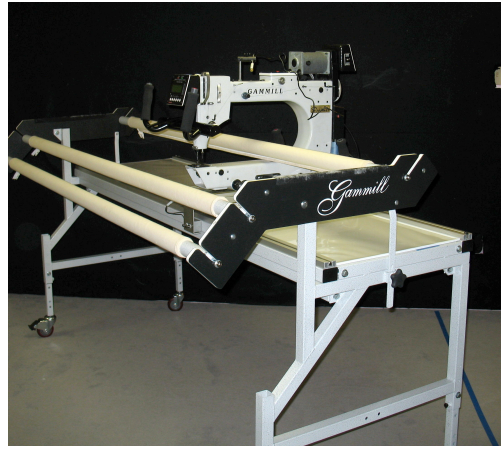


This picture shows the right side of the table from a different perspective.

1. The Pivotal Access (PA) Assembly consists of the metal bar holding the three rollers
Top roller (with the hand wheel)
Stabilizer bar
Carrier bar (or belly bar).
 2. Also shown is the pivot pin, and the two pivot pin holes which control the angle of the assembly.
-
1. The PA Assembly is incredibly useful! It can be released (just pull out the pivot pin) so it can pivot the top roller up, exposing the batting and backing layers. This is very useful for removing stray threads and smoothing the batting layer.
 2. It has two fixed positions; Quilt and Load. When in Quilt position, the PA assembly is slanted back, making it comfortable to sit while quilting. The picture shows the quilt position. In load position, the PA assembly is vertical, not slanted, which makes the quilt layers easier to load. To switch from one to the other, remove the pivot pin, reposition the PA assembly and re-insert the pin.

Home-Pro Table

The *Home-Pro* table is perfect for home use and has a very sturdy metal frame. The rollers, leaders, table top and crosstrack all function in the same way as the GS-1PA table.



Section 2 – Getting Ready to Quilt

Now that you have been introduced to your new Gammill Vision™ quilting system, it is time to get ready to quilt. The previous section defined many new terms – most of them were names for the various parts of your quilting system. There will be more new terms, but since you know the names of the machine parts, the new terms will make more sense.

About the instructions

The following sections provide step-by-step instructions and lots of good tips.

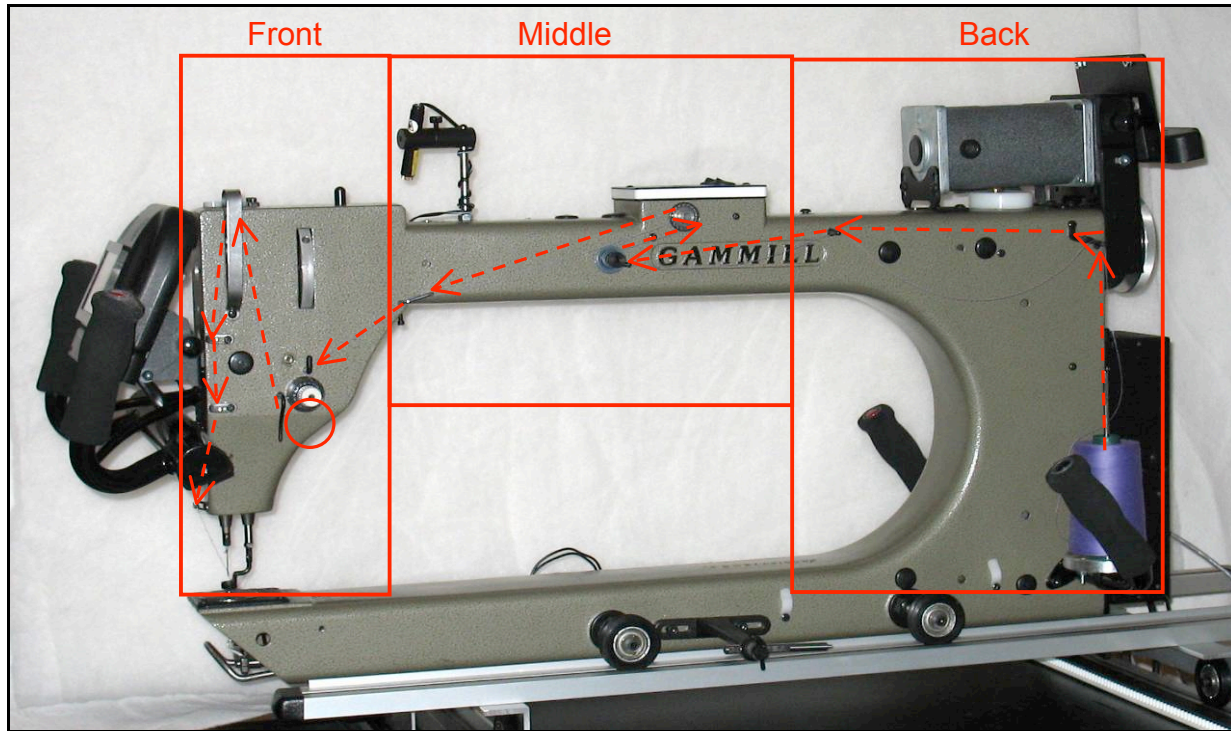
- Instructions are either numbered or listed as bullet points.
- Each set of instructions might be prefaced with a paragraph of **‘Prep Steps’** so you know what needs to be done before you start the process.
- Often the instructions have some tips or suggestions that are **printed in a smaller font**.
- **‘Your Turn’** means you should take a few minutes and try the exercise.
- Many instruction sets are followed by a paragraph entitled **‘Beyond the Basics’** which introduce alternative methods or techniques that you might want to try in the future.

As you grow in experience and exposure, you are sure to find different methods of performing basic quilting techniques. There are certainly many ways to do these techniques and the ones described here are (hopefully) simple and clear.

Threading the Machines

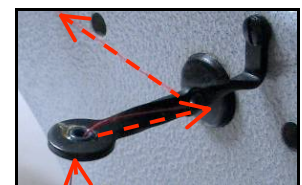
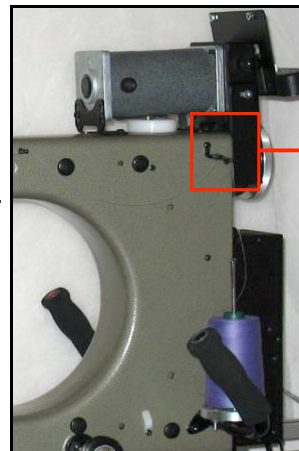
Now that you have taken a quick tour of your new quilting system, it is time to thread the machine. There may still be some new terminology, but the text and pictures should help define them.

The Gammill Vision™ 26-10 and 30-12 have the same thread path. The V18-8 is a little bit different as we will see later in this section. Complete details are given by area, beginning with the cone of thread at the back of the machine and working forward. Enlarged areas are often photographed from a different perspective so the details will be shown more clearly.



Back Section

1. Draw some thread off the cone. Take it straight up and into the first thread guide called the thread lead-off. Thread is wound onto a cone in a crisscross method and needs to have it drawn off by pulling the thread straight up so it does not twist.
2. Follow the twist of the metal and put the thread through the second eyelet in the guide, from the back to the front. See the enlarged diagram.
3. The thread goes through another guide a few inches forward.



Looking at the thread lead-off from behind shows it has two eyelets.

Middle Section

4. Bring the thread forward and through the thread guide that is attached to the intermittent tension. If this assembly were a clock, the thread guide would be positioned at about 3:00.

When the stitcher is running, the intermittent tension actually moves in and out about 1/32". This action is intended to add tension at just the right time to aid in pulling the thread up from the bottom of the quilt. This action makes it harder to pull thread from the thread spool and easier to pull thread from below the quilt, preventing loops. This is a patented feature on the Gammill Vision™ 26-10 and the Gammill Vision™ 30-12 (the Gammill Vision™ 18-8 does not have this stroking feature on the intermittent tension).

5. Wrap the thread clockwise around the tension assembly once (which is really about 80% of the way). The thread should fit inside the two blue - gray tension disks.

Be sure the thread always stays between these two disks because when it slips out, the under side of the quilt will have poor tension. If the tension is too tight, the thread will quickly work its way out of the disks.

6. Bring the thread back to the thread break sensor and wrap it counterclockwise 1 $\frac{3}{4}$ turns. The thread will sit inside a "V" shaped track. This sensor turns when the machine is stitching. If it stops turning for 50 stitches, the Thread Break Alarm will sound.

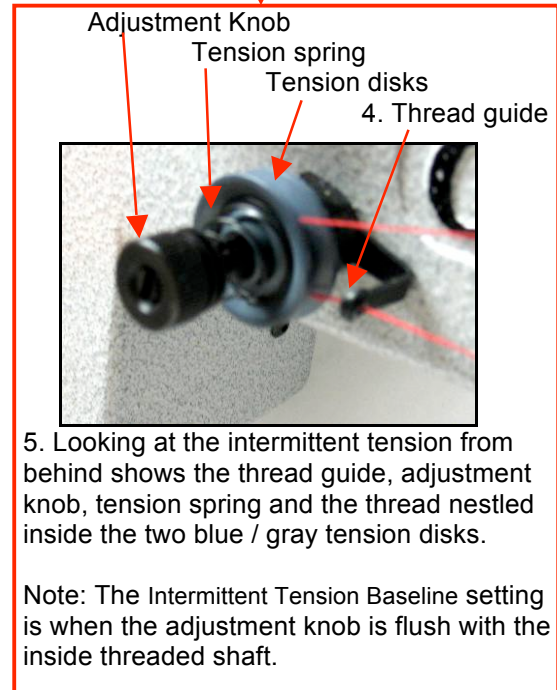
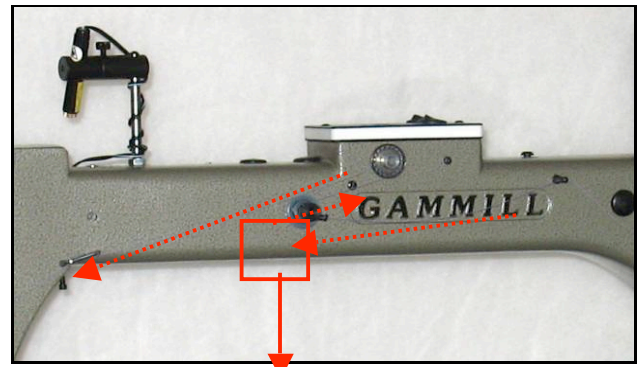


7. From guide toward Rotary Tension.

Sometimes the Thread Break Alarm will sound even if the top thread has not broken. Stiff or slippery thread can slip out of the track. Running out of bobbin thread can also cause the alarm to sound.

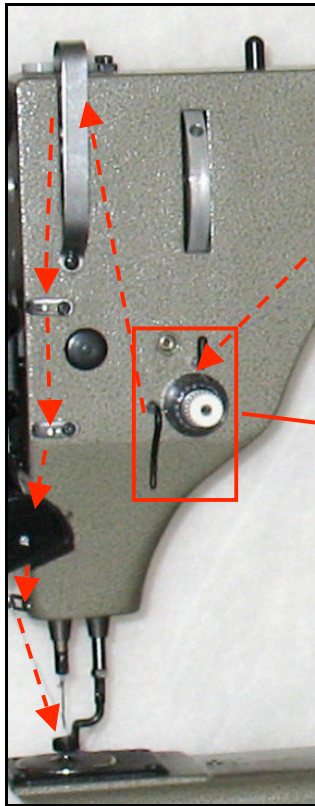


6. Around Thread Break Sensor 1 $\frac{3}{4}$ times



7. Pull the thread forward to the next thread guide, bringing it down through the first hole and up through the third hole.

Front Section



8. Bring the thread down, over the Top (right angled) bracket.

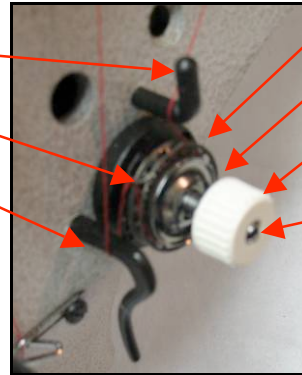
9. Wrap the thread around the rotary tension assembly $1\frac{3}{4}$ in a clockwise direction, making sure the thread stays in the “V” shaped track. The thread path is not quite two full rotations.

Looking at the rotary tension from above shows the brackets, guides and check spring.

Top bracket

Check spring

Bottom bracket.



“V” Thread track

Tension spring

Adjustment knob

Threaded Shaft

10. Guide the thread up far enough so it catches the wire of the check spring. The check spring has a ‘U’ shape, and it moves a bit. Gently move the check spring down and forward to make it easier to get the thread into the ‘U’ shape.

Note: The Rotary Tension Baseline setting is when the adjustment knob is flush with the inside threaded shaft.

11. Bring the thread back down and under the Bottom (angled) bracket. As you pull on the thread, the check spring will move from about 10:30 to 9:00 position, and back.

12. The thread then goes through the eyelet in the take-up lever (hidden behind the guard) from back to front.

13. Bring the thread down, through the remaining thread guides.

14. Thread the needle, from front to back.

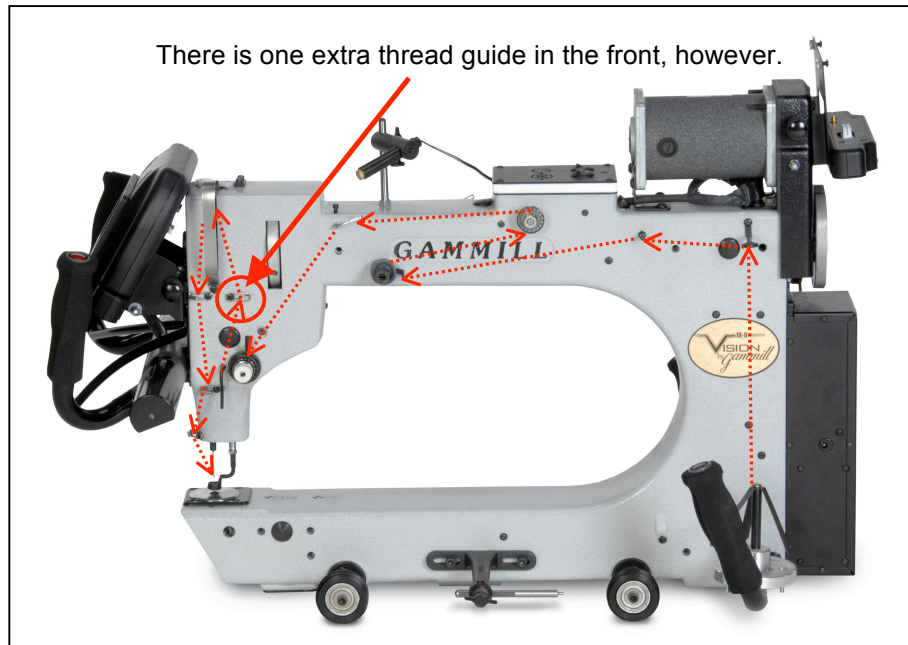
Beyond the Basics -

Tip for easy thread changes – When you need to change the thread, don’t pull the current thread out and rethread using the new color. Instead, go to the back of the machine and cut the thread even with the top of the cone. Remove the original cone and replace it with the new color. Draw off some thread from the new cone, and securely tie the ends of the two colors together. Now, go the front of the machine, take the thread out of the needle, and pull on the thread until the new color is in place. Cut off the knot and rethread the needle.

Important! Check that the new color thread is still securely tucked into the intermittent tension disks and that it is still in the track around the thread break sensor, and rotary tension assembly.

Threading the Gammill Vision™ 18-8

Threading the smaller, V18-8 machine is virtually the same.



Your Turn

Go ahead and thread the machine. Pay special attention to how the thread fits into the tension assemblies. Rotate both tension knobs until they are flush with the screw they surround. This is the normal 'Start' position for all tension adjustments. Pull on the top thread, and notice the resistance – that is good!

Using the On-board Bobbin Winder

This feature allows you to wind bobbins either while you are quilting, or not. The bobbin winder uses its own cone (or small cone) of thread, so if you have two cones of the same color, you can wind bobbins while you quilt. If you don't have two cones of the same color, you can wind bobbins before you begin to quilt.

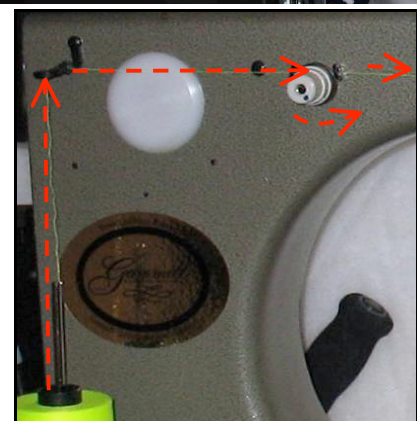


1. Draw some thread off the cone on the left side of the machine. Just like before, take it straight up and into the first thread lead-off guide.

2. Follow the twist of the metal and put the thread through the second eyelet in the lead-off guide, from the back to the front.

3. The thread goes through another guide a few inches forward.

4. The thread must go under the tension disk and through the guide on the other side. Don't wrap the thread around the tension disk. Keep the thread in the lower half only. Sometimes it

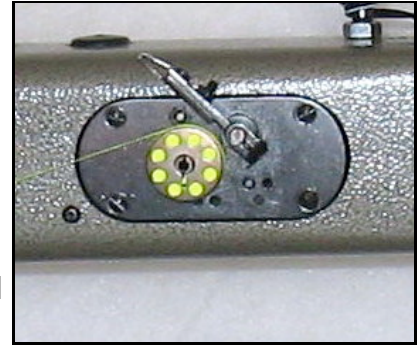


is easiest to thread the first tension disk guide, then the second, and pull a loop around to the bottom of the tension disks, and then pull on the thread from both sides to get the thread to pass between the tension disks.

5. Bring the thread forward through the next thread guide and up to the on-board bobbin winder.

Winding bobbins while quilting

1. Place an empty bobbin on the bobbin winder spindle. There is a little wire spring on the end of this spindle that will hold the bobbin in place. If you look closely at an empty bobbin, you will see a small notch on the inside edge.



2. Don't try to align the wire with the notch. Just push the bobbin onto the spindle and then turn the bobbin until it clicks into place.

3. Wrap the thread clockwise around the center of the bobbin 6-8 times, securing the end.

4. Push the bobbin winder arm down. It will slide to the inside of the bobbin. Now, bring it back up about $\frac{1}{4}$ ", so it is not touching the center of the bobbin.

5. Now, when you begin to quilt, the bobbin will wind. When the bobbin is full, the arm will pop up and the bobbin will stop revolving.

The bobbin should not be soft and mushy, but it also should not be so tight that you can't feel a little give when pressing on the thread with your fingernail.

Winding bobbins before quilting

If you need to wind bobbins before you begin to quilt, you will be running the machine from the Diagnostics screen.

Detailed instructions for using the Diagnostics are in the next section, so don't worry if you don't understand the following steps yet – You will!

1. Load an empty bobbin as described above.
2. Be sure the bobbin case is not in the machine.
3. Remove the thread from the needle and take-up lever.
Wrap it around the foam covering of one of the handles. This prevents tangling.
4. Choose Diagnostics from the Initial Screen carousel.
5. Change the speed setting to about 30-50%.
6. Start by pressing the red button in the Upper Left Corner of the screen.
7. When the bobbin is full, it will stop winding automatically.
8. Turn the machine off.
9. Remove the bobbin.

Beyond the Basics – If you are familiar with the previous stitch regulated machine called the 'Plus', you may wonder if Constant speed can still be used to wind bobbins. The answer is 'yes' but it is easier to use the Diagnostics screen – and – you won't be adding to the stitch counter like you would if you were using the Constant Stitch mode.

Using a Stand-alone Bobbin Winder

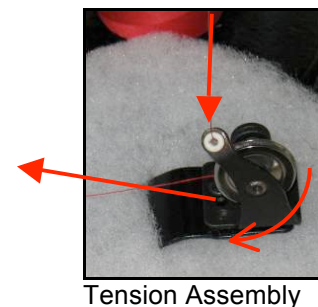
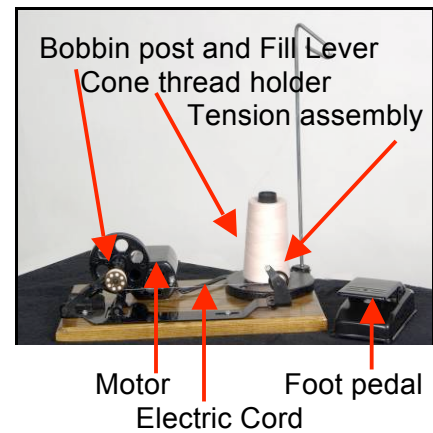
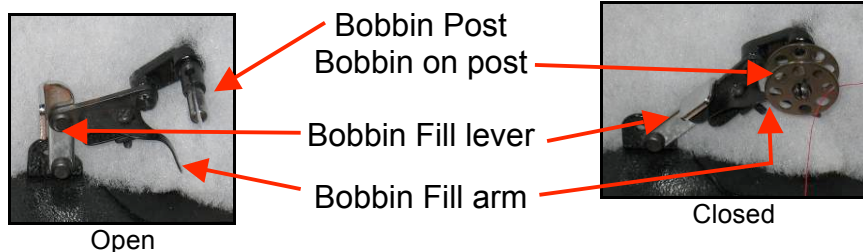
One of the Gammill available accessories is a stand-alone bobbin winder. Just like the on-board bobbin winder, the stand-alone winder has a cone thread holder, a tension assembly, bobbin post and a bobbin-fill lever and arm. In addition, this winder has a foot pedal, motor and electrical cord.

Batting was placed behind various parts to help display the details.

The bobbin post, fill lever and arm are shown below.

* When in the 'Open' position, the fill lever is straight up, and the fill arm is angled down so there is enough room for the empty bobbin to be pushed onto the bobbin post.

* When in the 'Closed' position, the fill lever is angled forward and the fill arm moves up into the bobbin, without touching either side.



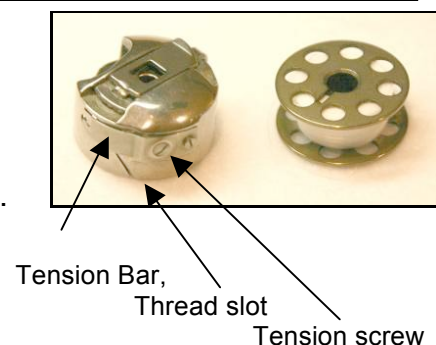
Batting was placed behind various parts to help display the details

1. Cone thread is mounted on the holder and the thread is drawn straight up and around the thread guide, then down to the tension assembly.
2. The thread goes through the eyelet, **around and between** the tension disks, clockwise.
3. Draw the thread back toward the empty bobbin and wrap it around 6-8 times, clockwise.
4. Step on the foot pedal to start the motor and fill the bobbin.
5. When the bobbin is full, the Bobbin Fill Lever will pop to the Open position and the bobbin winder will stop winding.

Your Turn	<p>Follow the steps (1-5) above to wind a bobbin.</p> <ul style="list-style-type: none">* Adjust the tension knob if needed. Right to tighten, Left to loosen. Remember, the bobbin should not be soft and mushy, but it also should not be so tight that you can't feel a little give when pressing on the thread with your fingernail.* If the thread pops out from between the tension disks, it is too tight.
------------------	--

About the Bobbin Case

Once the bobbin is wound, it can be inserted into the bobbin case. The bobbin case is similar to those used with domestic sewing machines, but larger (size M), so it holds more thread. Exactly how much more depends on the thickness of the thread. Our bobbin case also has a thin metal piece inside called an anti-backlash spring. This prevents the bobbin



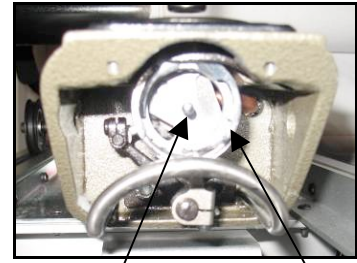
thread from over-spinning when the machine comes to a sudden stop.

A bobbin fits easily into the bobbin case, and should spin freely, in a clockwise direction. The case has a thin metal tension strip with two screws. The smaller one is holding it on to the case, and the larger one adjusts the tension – right to tighten and left to loosen. When making adjustments, turn the screw about 5 -10 minutes of a revolution at a time.

Inserting the Bobbin Case

There is a spring loaded handle on the outside of the bobbin case and part of this sticks out about 1/8". When inserting the bobbin case, align this bump to the notch in the rotary hook assembly (about 4:00 position). Push in the case and listen for the click to verify that it is properly inserted.

Hint: Use the spring loaded handle to remove the bobbin, but don't use it to insert the bobbin because it often prevents the 'click', which is your assurance that the bobbin case is in properly.



Rotary hook shaft and notch

Setting the Tensions

The following text contains concepts that a novice quilter may not know yet, but don't worry. Tension setting concepts are explained here, and reviewed again in the Techniques Section - which includes exercises on checking the tension. By then you will have learned how to load a quilt and run the machine. The concepts are reviewed again in the Care Section - which includes troubleshooting suggestions for poor stitch quality.

A good stitch is a balanced stitch. This means little or no thread from one side shows up on the other side. Factors other than tension may make the stitch look imperfect. If the batting is very thin, or the threads are very thick, or the two thread colors are very different it will be almost impossible to not see the thread from the other side.

Start with a thread made specifically for longarm quilting machines. A&E's PermaCore 30 wt thread is a great choice for the beginning quilter. This has a poly core that gives it strength, and durability. Once you have bonded with your machine you can try other brands / types / weights.

Set the Intermittent Tension

- The **Intermittent Tension Baseline** setting is when the adjustment knob is flush with the inside threaded shaft, so start there.
- Intermittent tension adjustments might be needed on every quilt combination you do because the thread, fabric, batting and backing all affect the stitch quality. Turn the thumb screw to the right (clockwise) to tighten and the left to loosen. When adjusting the tension, always turn the intermittent tension knob at least ½ turn at a time. It's a coarse adjustment and less than ½ turn will not appreciably change the tension.
- If the tension is too tight, the thread will quickly work its way out of the disks.

- Be sure the thread stays nestled between the two tension disks. If it slips out, the quilt will have poor tension.

Set the Rotary Tension

- The Rotary Tension Baseline setting is when the adjustment knob is flush with the inside threaded shaft, so start there.
- The Rotary Tension should remain loose – just tighten it enough so the wheel rotates when stitching. Turn the thumb screw to the right (clockwise) to tighten and the left to loosen. Once this is set, it rarely needs to be changed.

Set the Bobbin Case Tension

The ‘**Bobbin Baseline**’ for tension is determined like this:

1. Put a full bobbin into the bobbin case, place it in your hand flat, so the bobbin can be seen. Pull on the thread and make sure the bobbin is rotating clockwise.
2. Slide the thread through the slot and under the tension strip, until it is coming out of the small space in the side.

Properly loaded bobbin & case turns on its side but does not lift up off the surface.



The first time you use a new thread type, size or brand:

1. Tighten the tension screw on the bobbin case first (so the bobbin and case lifts off your hand when you pull on the thread slowly).
2. Loosen gradually (loosen the tension screw 10 minutes at a time until the bobbin case remains in your hand when you pull the thread slowly).
3. Adjust if needed (tighten the tension screw 5 minutes to make sure you didn't over-loosen the bobbin).

When refilling the bobbin:

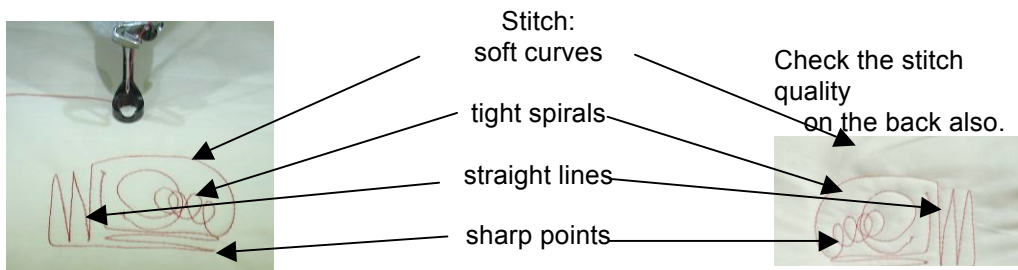
- After inserting a full bobbin, try to pick the bobbin case up by the thread. The tension should be tight enough to turn the bobbin case onto its side. And, it should be on the verge of coming off your hand but should not lift off your hand. Adjust as needed.

Checking the Top Thread Tension

1. Start with a properly tensioned bobbin case.
2. Attach a test piece.
3. Pull up the bobbin, tie-off and stitch at a normal speed. Include some soft curves, tight spirals, straight lines (horizontal and vertical) and sharp points. Look closely at the stitch quality.
4. Remove the pins and check the underneath too.

Attach a test piece.





Changing the Top Thread Tension

- If the tension is poor on the back of the quilt - top thread loops, bobbin thread laying flat, eyelashes or stitches not embedding in the fabric - then tighten top tension $\frac{1}{2}$ turn at a time to "pull" the stitch (the bobbin and top thread connection) into the middle of the quilt.
- If tension is poor on top then check the bobbin case first. If it seems OK, loosen the intermittent tension $\frac{1}{2}$ turn at a time until stitch balance is achieved.

Section 3 - Navigating The Screens

Turning on (and off) the machine

If the machine is not turned on yet, do it now. Plug in the power cord using an extension if needed. **Please use a high quality surge protector!** Locate the two switches on the top of your machine. Always turn the Power on first, and the Motor on second. (O is OFF, and I is ON). Reverse this order when turning the machine off. Each switch is labeled, using the universal symbols for 'Power' and 'Motor'. These universal symbols may not be familiar to you, so it might be good to label your machine with the words instead of the icons. It really is important to do this in the correct sequence.

ON : 1st the Power 2nd the Motor



These icons are the universal symbols for :
Power

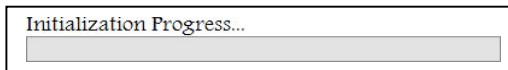
Motor

OFF : 1st the Motor 2nd the Power

The machine will take about 10 seconds to load the firmware. Firmware is a new term, which means the Gammill Vision™ system isn't just hardware, and it isn't all software, it is a combination of both – consider it a really smart quilting machine.

Initialization:

During the Initialization process, the Gammill Vision™ will perform some internal diagnostic checks. The progress bar shows it is loading. Be patient – it may take a minute.

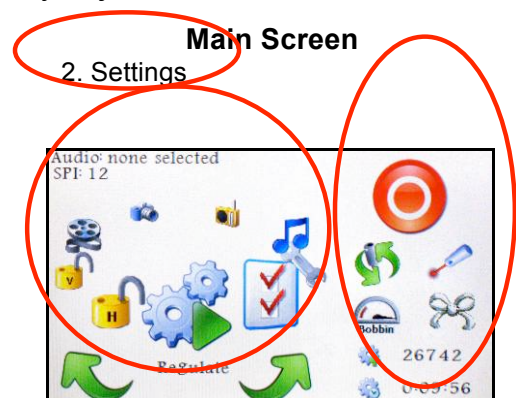


When it is done, it will display the **Main Screen** which is a *touch screen* which means you don't need a mouse or keyboard to initiate any of the features, you just touch the icon on the screen.

There are three important areas of the Main Screen:

1. Carousel of Icons - for all the features.
2. Settings – for current activity.
3. Status Information – for quick review.

The stitching feature icons are displayed in a circular fashion, called a carousel. The icon at the front of the carousel is the active icon. It is the only carousel icon that can be initiated. Touching any of the background icons in the carousel will do nothing.



The green arrows are used to rotate the carousel, until the desired icon is at the front. The left green arrow will rotate the carousel clockwise and the right rotates it counterclockwise.

Often times touching an icon will bring up a secondary screen, which presents more options for you to choose. You don't have to make a choice – you can return to the primary screen just by pressing the Exit Icon (that looks like a door).



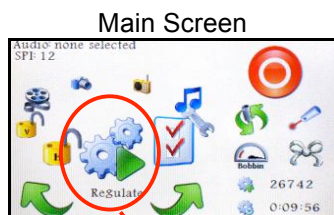
Main Screen - Carousel of Patented Applications

Touch the screen and get the icons to revolve. It may feel awkward at first, but you will soon appreciate the fact that you don't have to memorize any codes or key sequences. The icons are all in front of you! Here is a list of icons, and what they do.

Your Turn	Go ahead and try turning the carousel. Touch the green arrow to move the carousel counterclockwise as you read the following section.
------------------	---



Stitcher Modes



The Main Screen starts with the Regulate icon in front.

The icon in the front determines how the stitcher will respond.

- To change the mode, press the icon once, and the next stitch mode will be presented.
- Repeat until the desired mode appears.

Your Turn	Press Regulate to change to Coast	Press Coast to change to Constan	Press Constant to change to Baste	Press Baste to return to Regulate
------------------	------------------------------------	-----------------------------------	------------------------------------	------------------------------------

About the Stitch-regulator -

There is one position on the carousel for the stitch-regulator, but four modes within the stitch regulation software. Pressing the 'Regulate' Icon will rotate through the choices.



Regulate – means every stitch will be the same length – or as close as possible. The encoders measure the speed and direction of the wheels and feed the information back to the software, which calculates when to take the next stitch. The target is to have every stitch exactly the same.



Coast – means the stitch-regulator is used at higher speeds but not at the lower speeds. This allows the quilter to stitch motifs using the stitch-regulator, and then slow down to do micro-stitching without the regulator (constant speed). This eliminates the need to stop and turn off the regulator when moving from the designs to the backgrounds or detail work.

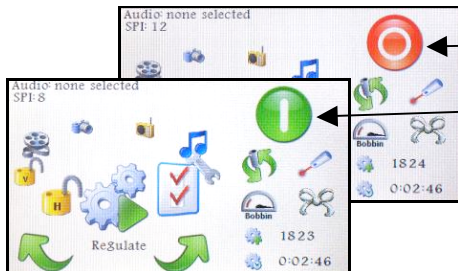


Constant – means the stitcher is stitching at a constant pace, without regard for the movement of the machine (aka sewing head). The encoders are not sending movement information to the software. The stitch length will vary, depending on how fast the operator moves the machine.



Baste – means to take very large stitches, similar to doing a sequence of single stitch. These are measured in inches per stitch instead of stitches per inch.

When using any of these stitching choices, the machine won't begin to quilt until the stitcher is started. Use the buttons in the handles or press the Stitch Button. When the stitcher is running, the color of the Stitch Button changes.

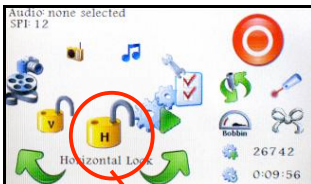


Stitch Button (red) shows the stitcher is off.

Stitch Button (green) shows it is on.

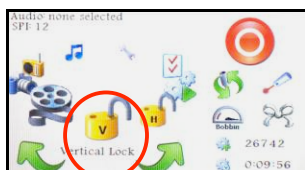
Thanks to the stitch-regulator, even when the stitcher is 'on' it won't stitch until you move the machine.

Channel Locks



The Horizontal Channel Lock icon is next. It looks like an open padlock with the letter "H". That means the channel lock is 'off'. A closed padlock indicates the lock is 'on'.

Your Turn	Press the icon to lock the machine so it only moves side-to-side.	→		Press the icon again to unlock	→	

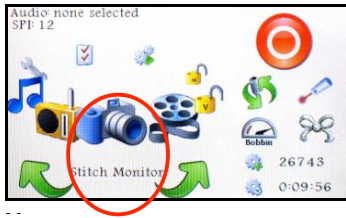


The Vertical Channel Lock icon is next. It looks like an open padlock with the letter "V". That means the channel lock is 'off'. A closed padlock indicates the lock is 'on'.

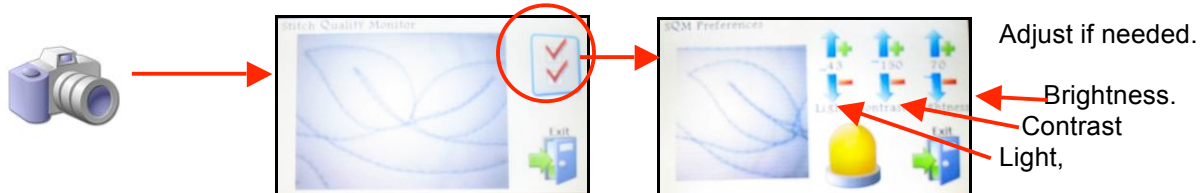
Your Turn	Press the icon to lock the machine so it only moves front-to-back.	→		Press the icon again to unlock	→	

Beyond the Basics: When both the horizontal and vertical channel locks are locked, the machine will not move. This is very convenient when replacing the bobbins.

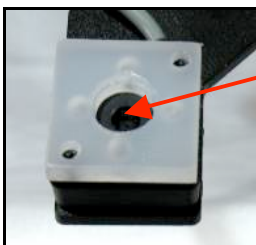
Stitch Monitor



The Stitch Monitor icon is next. The monitor uses a digital video camera to view the stitch quality, and displays the image right on the screen.



Press the Settings Icon to adjust the camera settings if desired.



Camera Closeup

The Camera eye is in the middle of the white collar.
LED (white) lights are on each side.
UV (black) lights are on the top and bottom.

One of the camera settings is a light icon.



The Yellow refers to the daylight, or white LED light.

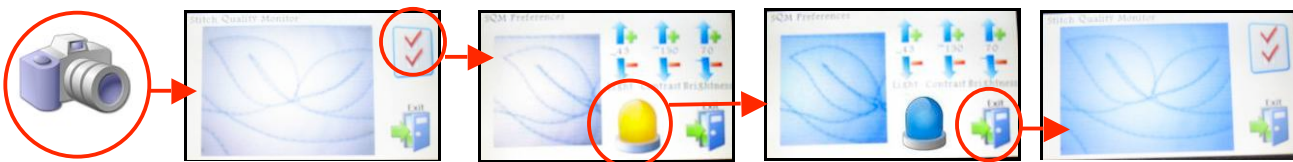


The Blue refers to ultraviolet lighting, or black UV light.

Try both types of lighting and choose the one with the clearest image.

1. Press the Camera Icon, and wait a few seconds for the image to appear.
(be sure the machine and camera lens are over/under the quilt).
2. Press the Camera Settings Icon.
3. Press the Camera Light Icon (yellow to blue or blue to yellow).
4. Press Exit to see a larger screen image.

The following series of screen shots shows the effect of changing the lighting.



The color of the thread and fabric impact the image clarity too. Try changing the Light intensity, contrast and/or brightness to get the clearest image.

1. Press the Camera Settings Icon again to adjust other camera settings.
2. Change the Light intensity, Contrast and/or Brightness by touching the scales.
Touch the up arrow to increase, and the down arrow to decrease.
The adjustments take effect immediately, so fine tuning the picture is fast and easy.
3. Press Exit when done to see the larger image
4. Press Exit again to return to the stitching.

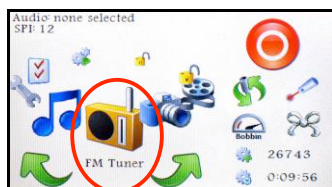
Your Turn	Press the Camera icon to show the image on the screen. (It takes a few seconds) Position the machine over some quilted area of the quilt. Look at the screen image of the underside. Change the light choices (LED to UV and back) Press up / down arrows to adjust the image quality if desired. Press Exit to return to the monitor screen. Press Exit to return to the Main Screen.
------------------	--

Beyond the Basics: When working at the front of the machine, put the laser light on the front mount, and point the laser at the camera lens. This helps to identify the exact placement of the camera image.



Camera eye is 3 ½" to the left of the needle.

FM Tuner



The FM Tuner works just like an FM radio. This is a great option for people who enjoy listening to the radio while they quilt.



FM Radio Band
Speaker (on / off selector)
Volume Scale

Your chosen station frequency
call number and sometimes the
song title and artist appear.

Exit

Scan buttons

(Scan Reverse, Step Reverse, Step Forward, Scan Forward)



Turn Power Off
before raising antenna
Or removing the module.

To turn the radio On,

1. Press the FM Tuner Icon to display the radio dials.
2. Press the Speaker Icon to turn on the speaker.
3. Use the scan buttons to look for a station on the FM band.
 - Scan Forward and Scan Reverse go to the next station.
 - Step Forward or Step Reverse change the setting 0.1 MHz at a time.
 - If the signal strength is > 30%, the call numbers will appear on the screen (if the radio station transmits that information).
4. To Set one of the radio buttons, press it firmly and hold (just like a car radio)
5. Press the up / down arrows on the Volume scale to raise/lower the volume.
6. Press Exit to return to the Main Screen.

Note: Some radio stations can broadcast the song name and artist.

If your radio station has this capability, it will appear just above the FM band.

To turn the radio Off,

1. Press the FM Tuner Icon to display the radio dials.
2. Press the Speaker Icon to turn the speaker off.
3. Press Exit to return to the Main Screen.

Your Turn

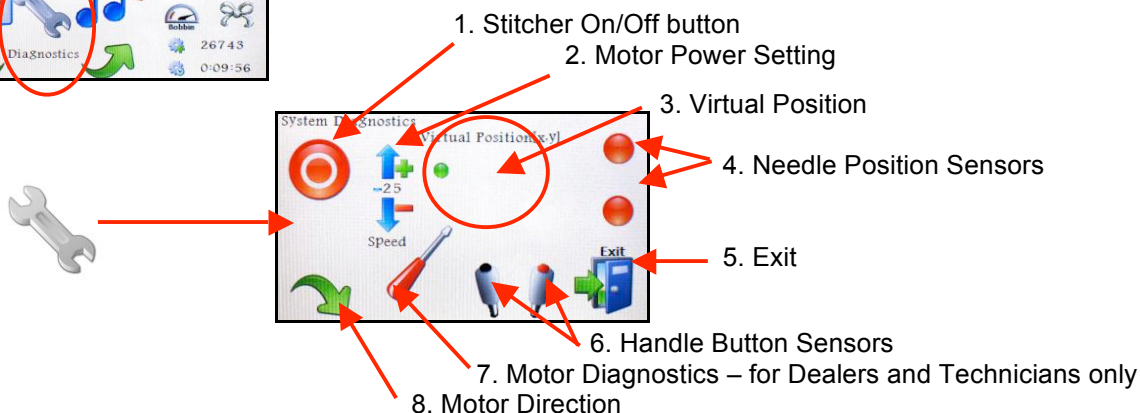
Find your favorite radio station, and set one of the five buttons.
Press the FM Tuner icon to display the radio dials.
Press the speaker icon to turn it on, Use the Scan buttons to find a station.
Press and hold one of the Preset Buttons until you hear the bell.
Press Exit to close the screen.

To turn off the radio, Press the FM Tuner icon again,
Press the speaker icon again to turn it off, and then Press Exit.

Tools / Diagnostics



The Tools / Diagnostics icon is next. Diagnostics are tests that check the operation of your machine and stitcher.



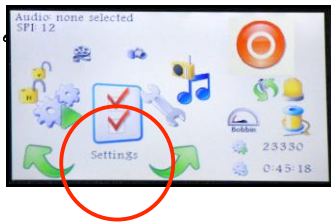
From this screen you (and your technician) will be able to check the operation of your machine. These checks are explained in detail in the maintenance section of this manual – just an overview is given here:

1. Stitcher On/Off button
2. Motor Power setting-to adjust to desired speed during maintenance and bobbin winding.
3. Virtual Position - shows machine head movement testing the x, y encoder sensors.
When the machine head is moved, this dot will move also.
4. Needle Position sensors –
The red dot on the top – turns green when the needle is at its highest point.
The red dot on the bottom – turns green when the needle is at its lowest point.
5. Exit – return to the Main Screen.
6. Handle Button Sensors – verify that the machine is acknowledging the pressing / and releasing of the buttons in the handles.
7. Motor Diagnostics – are tests “For dealer/technician use only”
8. Motor Direction – Clockwise arrow shows forward, counter-clockwise shows reverse.

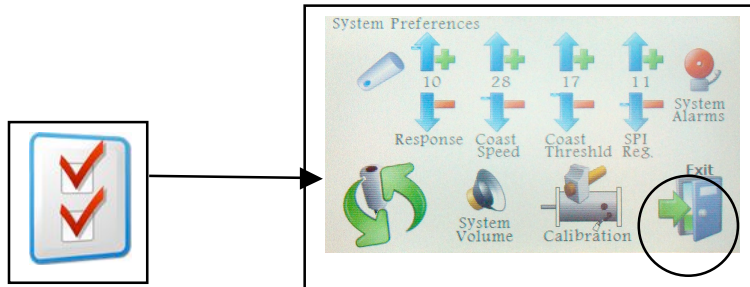
In Section 2, you learned how to wind bobbins before you begin to stitch. Review the details in that section if needed because here is your chance to try it!

<p>Your Turn</p>	<p>Wind a bobbin using the On-board winder (review the details given in Section 2).</p> <ol style="list-style-type: none"> 1. Load an empty bobbin. 2. Remove the bobbin case. 3. Remove the thread from the needle & take up lever. Wrap it around the foam covering of one of the handles. This prevents tangling. 4. Choose Diagnostics from the Main Screen carousel. 5. Change the motor speed setting to about 30-50%. 6. Make sure the motor is in forward position. 7. Press Start 8. When the bobbin is full, it will stop automatically. 9. Turn off the motor 10. Remove the bobbin.
-------------------------	---

Settings / Preference



The Settings / Preferences icon is next. This is where you set your preferences as defaults. It is a good idea to learn how the features work first, and then determine your preferred settings. Some of the settings are explained as you learn each feature. The rest are explained in detail, at the end of the next section.



Your Turn

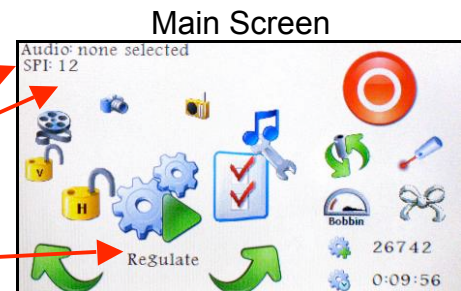
Go ahead and look at the System Preferences.
Most of these values are new to you, so please don't change them yet.
Press Exit to return to the Main Screen.

Main Screen - Settings

The upper left corner of the Main Screen displays the settings for features currently active.

This example shows us that there is no audio active, and that the current stitch size is 12 **SPI**.

It also shows the current stitch mode is 'Regulated'.

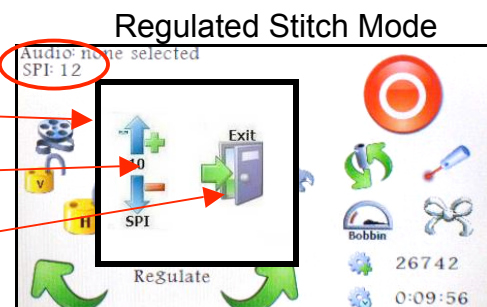


If the current stitch mode was Coast, **SPI** would be displayed, just like Regulated mode.
If the current stitch mode was Constant, the **Speed** would be displayed in the Settings area.
If the current stitch mode was Baste, the **IPS** (Inches Per Stitch) size would be displayed.

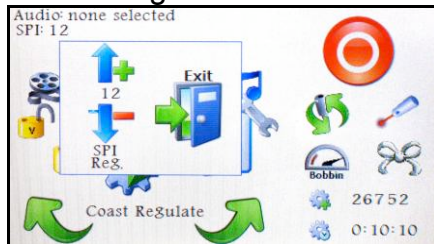
Main Screen - Setting Changes

From the Main Screen, you can change the stitch size setting for any current stitch mode.

- Touch the screen in the upper left corner area another dialog box appears.
- Touch the up arrows on the scale to increase or decrease the setting.
- Press Exit to return to the Main Screen.

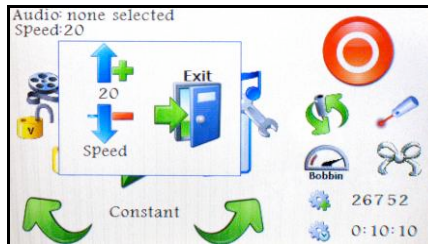


Coast Regulated Stitch Mode



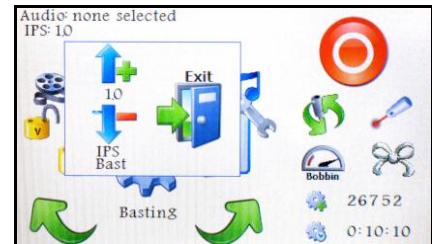
The range for Regulated is 8-24 SPI.

Constant Stitch Mode



The range is 1-100% motor power.

Baste Stitch Mode



The Baste Range is $\frac{1}{2}$ to 4 IPS (Inches Per Stitch) in $\frac{1}{2}$ "

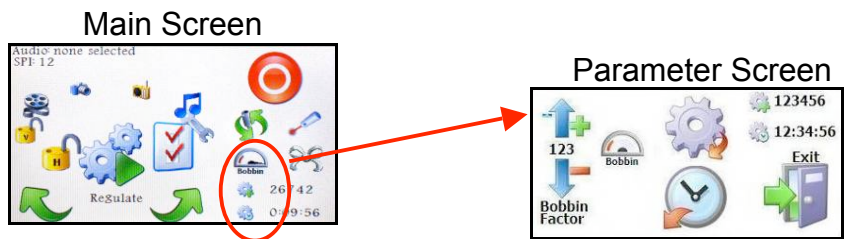
Regulated and Coast Regulated both use SPI (Stitches Per Inch) as the setting displayed on the Main Screen. Any changes to the Coast Speed or Coast Threshold need to be done using the Carousel Settings Icon.

Main Screen - Status Information

Now that you have been introduced to all of the icons on the carousel, it is time to look at the status information on the right side of the Main Screen.

Each of these icons displays the status of a frequently used piece of information so they need to be easily accessible. The most important status icon is the Stitcher Status Button which is also the most prominent and the most commonly used.

Several of the other icons represent counters that can be reset. Touching the lower right corner of this screen will display a parameter screen that allows us to reset these counters when needed. All of this will be explained in detail on the following pages.



Stitcher Status Button



The Stitcher Status Button in the upper right corner shows when the stitcher is Off or On.

This is important since the stitcher is so quiet. Remember, the stitcher does not stitch unless it is being moved, so it could be 'on' even though it is not actively stitching.

As a safety feature, stitcher will turn itself off if it has not been moved in 3 seconds.

The icons are color coded like a stop light, but also contain a symbol to differentiate them for people who are color blind. The red button has a '0' (or a circle) in it and the green button has a '1' (or a line) in it. These are the Universal symbols for On and Off, respectively.



Your Turn	To change the Stitcher Status, press the Stitcher Status Button on the screen -OR- press the right handle button. Press it again to turn the stitcher off.
------------------	---

Needle Positioner

This icon looks like the left machine handle. That is because the needle positioner determines how the button in the left machine handle operates. To turn the needle positioner on, you can touch the "Needle Positioner" Icon on the main screen.



Two green arrows mean the needle positioner is off, so the left handle button makes a complete stitch every time it is pressed.



One green and one red arrow mean the positioner is on so the left handle button makes a half stitch every time it is pressed. If the needle is in the 'up' position, pressing the button once makes it go down, and stay there, in the fabric. Press it again, and the needle returns to the 'up' position. This is helpful when quilting because it holds the machine in place, not allowing it to move (and draw off extra thread).

If the needle is in the 'down' position when starting a continuous line of stitching, it will return to the 'down' position when the stitching is stopped. This is especially useful with templates because it prevents the machine from moving when you need to reposition the template or adjust your grip.

Your Turn	Touch the needle positioner icon on the main screen. Note the color change. Press the left handle button to see how the needle responds when the positioner is on and off.
------------------	--

Laser Light

The laser light can be used when working at the back of the machine or in the front. When working in the back doing pantographs, the laser light is held by a clamp attached to the "T" bracket on the side of the machine. When in this position, the light plugs into the black plastic Power Enclosure casing in the back.

Back mount



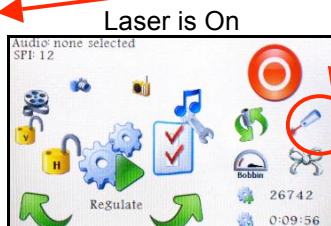
Front mount



When working in the front of the machine doing free motion work, the laser light clamp attaches to the post at the top of the machine, near the front. When in this position, the light plugs into the front docking station.



Regardless of where the light is positioned, it is turned off or on by touching the icon.

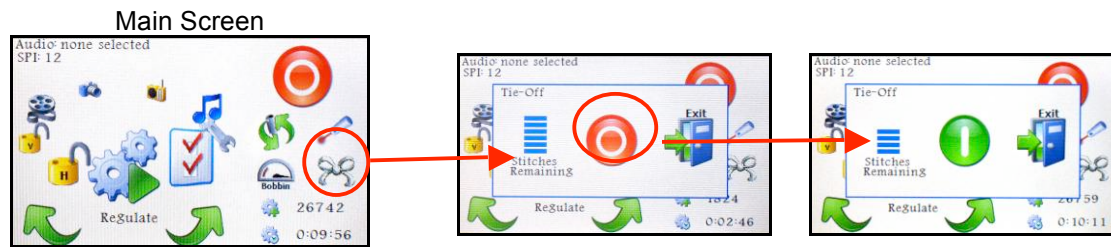


Your Turn	Touch the laser icon on the Main Screen to turn the light on and off.
------------------	---

Automatic Tie-offs



A truly unique feature of the Gammill Vision™ is the ability to do perfect tie-offs. This minimizes the size of the tie-off knot and makes it practically invisible. And, it is so easy!

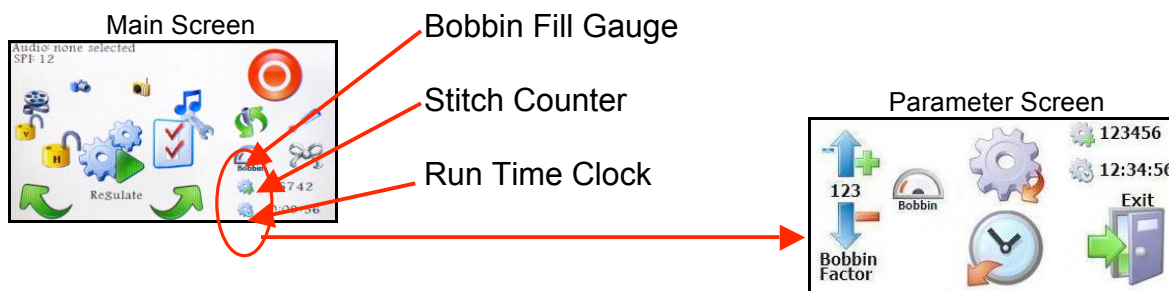


Press the Tie-off Icon on the Main Screen and the countdown window appears. Press the Stitcher status button to begin. The status button turns green, but you must move the machine just a bit to start the tie-offs. It will take 6 stitches at 30 stitches per inch and stop stitching. When ready, you can continue your quilting, using any of the stitcher modes.

<p>Your Turn</p>	<p>Practice doing tie-offs at the beginning and ending of a quilted design.</p> <ul style="list-style-type: none"> • Move the machine into position and pull up the Bobbin thread. • Touch the Tie-off icon to start the beginning tie-off knot. • Touch the Stitcher Status button. • Move the machine just a little and the tie-off stitches will begin. • When it stops, cut the threads. • Choose any stitching mode, stitch a design, and stop. • Touch the Tie-off icon to start the ending tie-off knot. • Touch the Stitcher Status button. • Move the machine just a little and the tie-off stitches will begin. • Pull up the Bobbin thread and trim the threads.
-------------------------	---

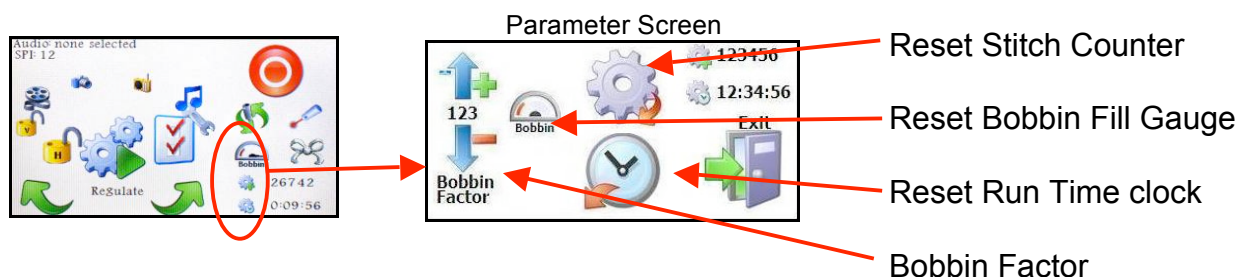
Stitch Counters

The last three icons in the lower right corner are all numeric counters of some kind. There is a Bobbin Fill Gauge which is an estimate of when the bobbin thread is likely to run out, a Stitch Counter that accumulates the number of stitches taken and a Run Time Clock which counts the minutes spent stitching. Each of these numeric counters can be reset so you can collect metrics on each quilt you do.



Touch the screen in the vicinity of the numeric counters and a parameter screen appears. It is this parameter screen that allows you to reset any/all of the counters and begin the counts anew. It also contains another scale "Bobbin Factor" that helps estimate when the bobbin will

run out. Since threads vary in size or thickness, the amount of thread on a bobbin can vary also. The Gammill Vision™ estimates the amount of thread on the bobbin, using the bobbin factor that you set.



The Bobbin Factor scale ranges from 1 to 50.

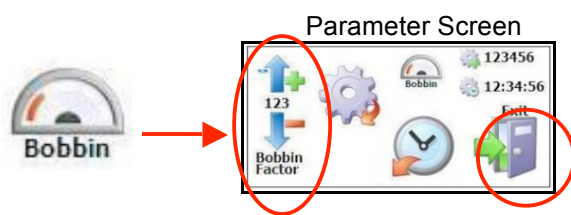
Press the top arrow to increase (more thread) and the bottom arrow to decrease (less thread).

Bobbin Factor Icon

Change the Bobbin Factor every time you change the bobbin thread weight.

To do this:

1. Press the Bobbin Icon to display the Parameter Screen.
2. Press the Up or Down arrows to adjust the scale.
3. Press the Exit when done.



Your Turn	Set the Bobbin Factor to your favorite thread size. <ul style="list-style-type: none"> • Press the bobbin Icon to display the Parameter screen. • Press the up and down arrows to change the setting. The default of 40 works well for most standard longarm quilting machine threads. • Press Exit when done.
------------------	---

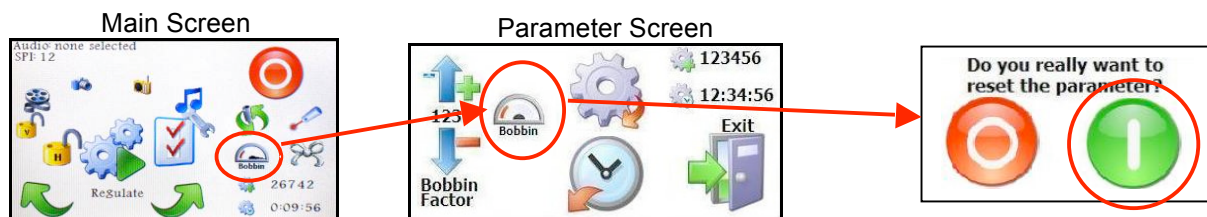
Beyond the Basics: Use the Bobbin Factor settings to adjust for partial bobbins. If you are using a thread with a factor of 40, you have run out of bobbin, and you only have a half-full bobbin left, go ahead and use it, but change the factor to 20. Doing this will enable you to use the bobbin tracking capabilities even with partial bobbins.

Bobbin Fill Gauge

Every time a full bobbin is used, be sure to reset the Bobbin Fill Gauge.

To do this:

- * Press the Bobbin Icon on the Main Screen to display the Parameter screen.
- * Press the Bobbin Icon on the Parameter Screen to reset the counter.
- * Answer the question:
 - “Do you really want to reset the parameter?”
 - Yes if you are sure (press green circle)
 - No if you are not (press red circle)
- * Press Exit when done to return to the Main Screen.



Any time you reset any counter, the machine will ask : “Are You Sure?” Instead of showing the words ‘Yes’ or ‘No’, it will display two status dots. Green means ‘Yes’ and red means ‘No’. Just press the dot that conveys your answer.



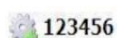
Red is always a negative answer (Ex: Off, No, Stop, Cancel)



Green is always a positive answer (Ex: On, Yes, Go, OK)

Your Turn	Press the bobbin Icon to display the Parameter screen. Press the bobbin reset icon to reset the counter. Press the green button to confirm that you really do want to reset the bobbin counter. Press Exit when done.
------------------	---

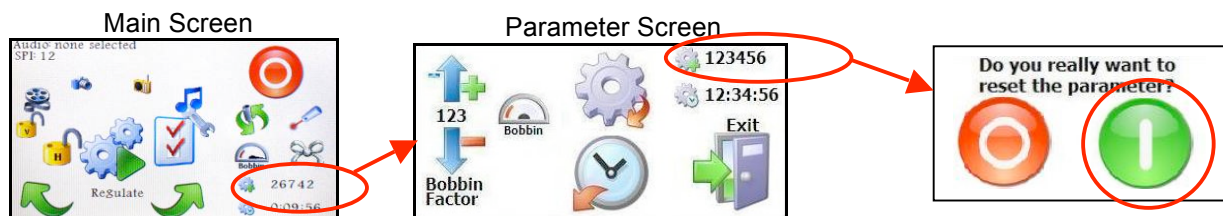
Stitch Counter Icon



People are often interested in the number of stitches taken on their quilt. By resetting the counter before every quilt, you can provide this information.

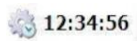
To Reset the Stitch Counter:

- Press the Stitch Counter Icon on the Main Screen to display the Parameters.
- Press the Stitch Counter Reset Icon to reset the counter.
- Answer the question: “Do you really want to reset the parameter?”
If you answer ‘Yes’ the Parameter Screen will show a Stitch Count of zero.
- Press Exit when done to return to the Main Screen.



Your Turn	<ul style="list-style-type: none"> • Press the stitch counter to display the Parameter screen. • Press the stitch counter reset icon to reset the counter. • Press the green button to confirm you do want to reset the counter, or the red button if you don't. • Press Exit when done.
------------------	--

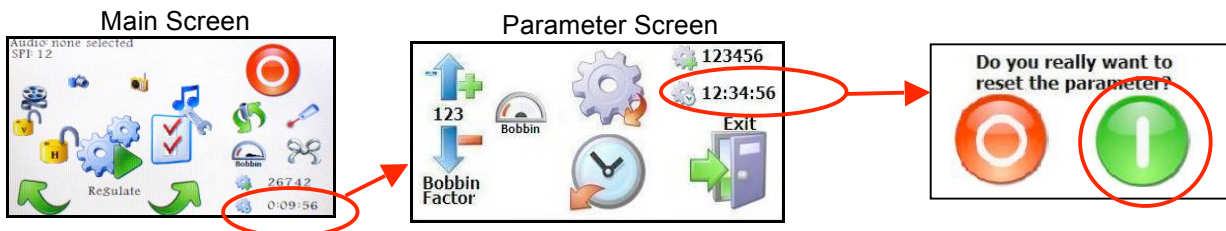
Run-time Clock Icon.



It is possible to track the total amount of time spent stitching a quilt. The run-time clock only records the time when the machine is stitching. This is a really good method for tracking time and measuring productivity and for the maintenance of your machine. Be sure to reset the counter before beginning and record the time when done.

To Reset the Run-time Clock:

- Press the Run-time Clock Icon on the Main Screen to display the Parameters.
- Press the Run-time Reset Icon on the Parameter Screen to reset the counter.
- Answer the question: “Do you really want to reset the parameter?”
The Parameter Screen will change, showing Run-time of zero hours, minutes & seconds.
- Press Exit when done to return to the Main Screen.



Your Turn

- Press the Run-time to display the Parameter screen.
- Press the Run-time Reset icon to reset the clock.
- Press the green button to confirm that you want to reset the run-time clock or press the red button if you don't.
- Press Exit when done.

Section 4 - Let's Quilt!

In this section, you will learn how to do some standard procedures: Pull up the bobbin, take Tie off stitches, Trim and more. You are encouraged to spend some time trying each of the stitching modes so you can set your own preferences, which are explained in depth at the end of this section.

Prep Steps: The power is on, fabric is loaded, side clamps are attached, machine is threaded and the bobbin is inserted.

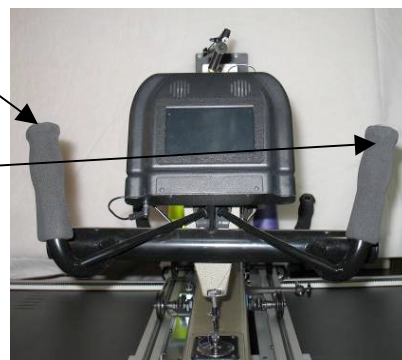
Work With The Handle Buttons -

The stitching mechanism (also called the 'Stitcher') will not start unless you press one of the buttons in the handles.

To take a single stitch, use the Single Stitch button (in left handle). Press and release the button to take one stitch.

To begin to stitch continuously, use the Run button (in right handle). Press and release the button to begin a line of stitching. Move the machine at a controlled pace.

To stop stitching, use the same Run button in the right handle. Press and release the Run button to stop.



Vision - Front View

Your Turn	If the fabric is loaded, but you haven't secured the top edge yet, do it now. Use the basting feature to take a series of big stitches across the top. Remove any pins that are still in the quilt top.
------------------	---

Standard Procedures

There is a Logical Sequence of Steps that most quilters follow when quilting. These steps are described here, with specific instructions on how to perform each one. The standard name for these procedures is given in 'Quotes'.

Pull up the bobbin

1. Bring both threads to the top side to prevent knots on the underneath.

Your Turn #1	(If needed, move the machine on to the fabric. The fabric will fit under the hopping foot.) To begin, hold the thread with one hand and take a single stitch. Without letting go of the top thread, move the machine away 6-8 inches. The top thread pulls up the bobbin thread. This is called " Pulling up the bobbin ".
---------------------	---

Tie-off Stitches to Begin

2. Hold both threads and take some tiny stitches so the stitches won't come undone later.

Your Turn #2	Hold both threads with one hand. Touch the Tie-off Icon (white bow), move the machine just a bit, and it will take 6 tiny stitches, almost on top of each other. These stitches secure the thread so you can trim off the extra thread, and the stitches will not come undone. Do this at the beginning and end of each line of quilting. These are called " Tie-off Stitches ".
---------------------	---

Continuous Line Designs

3. Start the stitcher and move it to stitch the design in one continuous line.

Your Turn #3	Touch the Stitcher Icon (or press the button in the right handle) to start. Move the machine at a comfortable pace, making a few loops, drawing a leaf or writing a name. These are examples of " Continuous Line Designs ". To end, stop moving the machine and Touch the Stitcher Icon again (or press the button in the right handle again).
---------------------	--

Tie-off to End

4. At the end of the stitching, more tiny stitches are made to secure the threads,

Your Turn #4	Touch the Tie Icon (white bow), move the machine just a bit, and it will take 6 tiny stitches, almost on top of each other. These " Tie-offs " can't be right on top of each other or they won't lock. They must have a couple threads of the fabric to anchor them.
---------------------	---

Trim

5. Finish by bringing the bobbin thread to the top side and trim the threads.

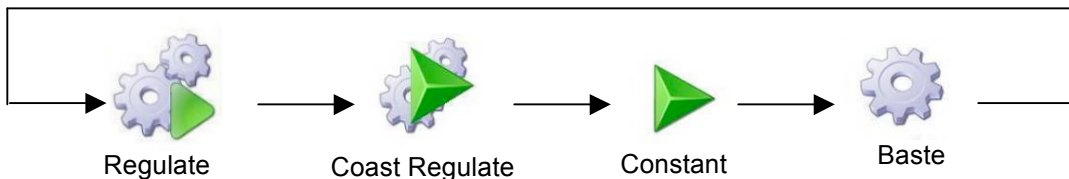
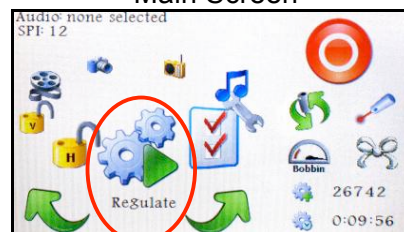
Your Turn #5	Push the machine away about 6-8 inches. Pick up the top thread, and without letting it go, bring the machine back and do one last stitch on top of the tie-offs. Still don't let go of the top thread, and push the machine away again about 6-8 inches. The bobbin thread will come to the surface as a loop. Trim all the threads flush with the quilt top. This is called " Trim ".
---------------------	---

All of the steps above will be used repeatedly, throughout this text and throughout all of the instructions for different quilting techniques. From this point forward, these steps will be referred to by name only. So if you see an instruction that says 'Pull up the bobbin thread', it is assumed that you know how to do it.

Explore Stitching Modes

Touch the green arrows on the Main Screen and get the icons to revolve until 'Regulate' is in front. Now, by touching the Regulate Icon, it is possible to rotate through the different stitching modes.

Main Screen



'Regulate'



means the stitches will be the same length – or as close as possible. The stitch-regulator encoders measure the speed and direction of the wheels and feed the information back to the software, which calculates when to take the next stitch. The target is to have every stitch exactly the same size.

Your Turn

Pull up the bobbin thread. Take a few tie-off stitches, using the Tie-off Icon. Choose Regulated mode of stitching.

- Press the right handle button to begin stitching.
- Move the machine around to get the 'feel' of it.
- Move it a little faster to make it stitch faster and notice the stitches are the same length.
- Press the right handle button to stop the stitcher.
- Tie-off and trim the threads.

'Coast Regulate' means the stitch-regulator is used at higher speeds but not slow speeds.



The **Coast Threshold** is the speed where the stitch-regulator smoothly transitions into constant speed (or vice versa). The non-stitch regulated stitching speed is called the **Coast Speed**.

The Coast mode allows the quilter to stitch designs using the stitch-regulator, and then slow down to do micro-stitching the background in Coast speed (like constant) without having to stop the machine to switch modes. The Coast Speed and Coast Threshold can be changed in the Setting \ Preferences.

Your Turn

Pull up the bobbin thread. Take a few tie-off stitches using the Tie-off Icon. Choose Coast mode of stitching. Be prepared to move the machine as soon as you begin because it will start in Constant speed.

- Begin. Increase your speed until the stitch-regulator starts. It will behave just like regulated mode.
- Slow down gradually. At some point (called the **Coast Threshold**), the machine begins to stitch at a constant speed.
- Speed up again, and the stitch-regulator kicks in again.
- Stop, tie-off and trim the threads.

Both Regulate and Coast Regulate share a new feature – the “Too Fast” alert. This is a System Alarm that warns you if the machine is moving faster than the stitch-regulator can stitch accurately. The machine will sound three short chimes, and if the movement continues to be fast, the triple chime will be repeated, until the motion slows. This alarm can be disabled by accessing the Settings \ Preferences \ System Alarms, described in the next few pages.

‘Constant’ means the machine is stitching at a constant rate, without regard for the movement of the sewing head. The encoders are not sending movement information to the software. The stitch length will vary, depending on the operator only.



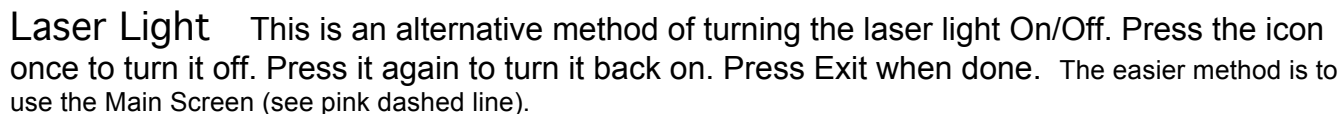
Your Turn	<p>Pull up the bobbin thread. Take a few tie-off stitches. Choose Constant mode of stitching. Be prepared to move the machine as soon as you begin.</p> <ul style="list-style-type: none"> • Press Start and begin to quilt. • Moving the machine very slowly makes tiny stitches. • Moving the machine fast will make big stitches. • Stop, tie-off and trim the threads.
------------------	--

‘Baste’ means to take very large stitches, similar to doing a sequence of single stitches. These are measured in inches per stitch (IPS) instead of stitches per inch (SPI). Basting is often used to secure the three layers together at the edges. If the basting stitches are going to be removed, don’t use the automatic tie-offs because they are too hard to remove.



Your Turn	<p>Pull up the bobbin thread. Take a few large tie-off stitches if the basting will be removed. Choose Baste mode of stitching.</p> <ul style="list-style-type: none"> • Press the Run button (in the right handle) to begin stitching. • Move the machine around to get the ‘feel’ of it. • Stop, tie-off if needed and trim the threads.
------------------	---

Now that you have learned how to operate the machine, it is time to set your own stitching preferences. The four scales at the top of the Preferences screen relate to the stitcher mechanics. The following text describes the differences but all quilters have their own ‘touch’. The settings that work for one person may or may not work for you. Practice using different settings and see which ones you prefer.



- If the setting is on the low end of the scale, it means the machine will accelerate at a slower rate. This is a good choice for people who tend to change speeds slowly.
- If the setting is on the high end, it means the machine will respond faster, and is less likely to have long stitches coming out of the corner.

Coast Threshold This is the transition speed when the Coast mode switches between regulated and non-regulated stitch lengths. The range is 1–100 %. Press the 'up' arrow to increase, the 'down' arrow to decrease, and press 'Exit' when done.

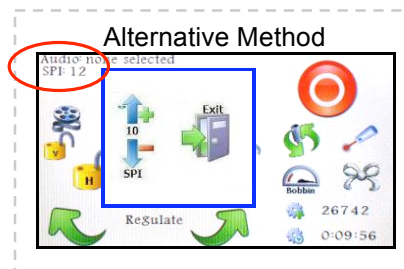
Page 42

and as soon as the free motion motor speed exceeds 30%, the stitch-regulator kicks in and all the rest of the stitches will be consistently 12 Stitches/Inch. If the speed drops to below 30%, the stitch-regulator stops, constant speed resumes at 20% motor speed.

The 4th scale This defines the stitch size using parameters that vary by stitch mode.

If mode is Regulated	then the 4 th scale is labeled SPI (Stitches/inch)
If mode is Coast Regulated	then the 4 th scale is labeled SPI Coast (Stitches/inch)
If mode is Constant	then the 4 th scale is labeled Speed (Motor power %)
If mode is Baste	then the 4 th scale is labeled IPS (Inches per stitch)

An alternative method is to use the Main Screen when changing the stitch size for the current stitching mode. Just touch the upper left corner of the Main Screen, and make the change in the dialog box that appears. Press Exit when done. This was explained in the previous section - Explore Stitching Modes.



System Alarms

There are three system alarms that can be used if desired: Thread Break alarm, Speed alarm and Bobbin Empty alarm. Each is a series of three chimes, in rapid succession. The chimes will repeat if the issue is not resolved. A warning message also appears when a thread break is detected.

Thread Break Alarm

The actual Thread Break Sensor on the machine is a small silver cylinder that spins freely. When stitching, the thread moves from the intermittent tension to the rotary tension assembly and spins this cylinder. If the cylinder is not moving when stitching, the Gammill Vision™ assumes the thread has broken, and an alarm is triggered after 50 stitches and a warning message appears on the screen.



On occasion it is nice to turn this off – for example when slick thread is being used and it slips in the sensor's wheel. If slipping in the wheel is an issue you might try wrapping the thread and additional turn around the wheel.

Too Fast Alarm

It is possible to move the machine so fast that the stitch-regulator isn't able to keep up, especially when the stitch length is very small and the speed very fast. When this happens there are three chimes that happen in quick succession. The machine will continue to stitch, and the quality will be fine, but the stitch length may vary. If the speed does not decrease, the alarms will continue every few seconds.

Bobbin Empty Alarm

Another very nice feature of the Gammill Vision™ is the ability to determine when the bobbin thread is getting low. Although the alarm is labeled 'Bobbin Empty', it actually warns you that the bobbin thread is getting low. This feature is adjustable, meaning you can adjust the

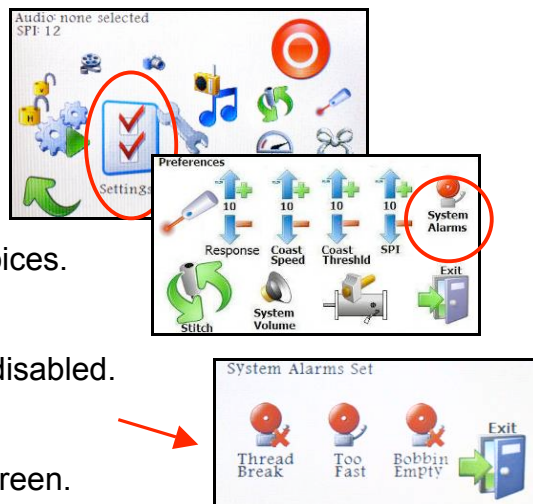
parameters that calculate how much thread is still on the bobbin. The alarm will sound when the bobbin is $\frac{1}{4}$ full, and again when it is $\frac{1}{8}$ full, and again when it is empty.

Turning Off Alarms

Some people prefer to turn off the system alarms, so here is how to do that using the Settings \ Preferences.

To turn off (or on) the system alarms:

- Turn the Carousel to Settings icon.
- Press the Settings icon to get the Preferences.
- Press the System Alarms Icon to show alarm choices.
- Press the Alarm Icon you wish to change.
When a red 'X' appears on the icon, it has been disabled.
- Press the Exit icon to return to the Preferences.
- Press the Exit icon again to return to the Main Screen.



Instead of turning off an alarm, some people choose to just minimize the volume of the alarms. The system volume feature is explained on the next page.

Needle Positioner

This is one of the system preferences that also appears on the Main Screen (in the Status Info area) so you have seen this before. To review what the needle positioner does:



When the needle positioner is off, the single stitch button makes a complete stitch every time it is pressed.

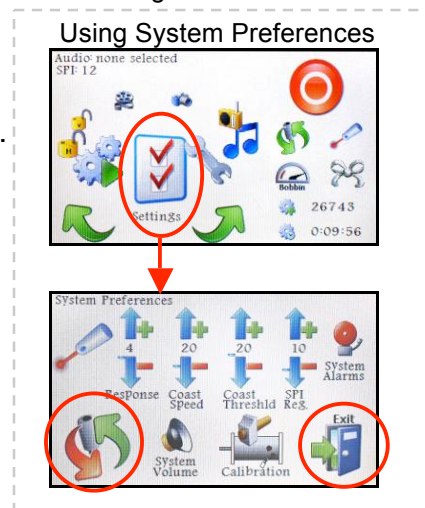


When the needle positioner is on, the single stitch button makes a half stitch every time it is pressed.
If the needle is in the 'up' position, pressing the button once makes it go down, and stay there, in the fabric. Press it again, and the needle returns to the 'up' position. In regulated Stitch, if the needle is down when you push the red button to start stitching, the needle will first rise out of the fabric and then begin regulated stitching.

To use the System Preferences method of changing it:

1. Turn the Carousel to Settings.
2. Press the Settings Icon to get the System Preferences.
3. Press the Needle Positioner Icon.
4. Press Exit to return to the Main Screen.

The fastest way of changing the Needle Positioner is from the Main Screen – just press the Needle Positioner Icon.



System Volume

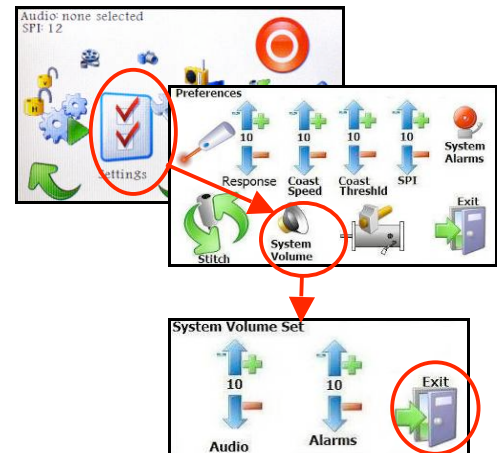
This setting allows you to change the volume of your machine – both for the standard operations (Audio) and for the exceptions (Alarm).

Audio Volume - includes the sounds you hear when touching any of the carousel icons. These sounds confirm that your ‘touch’ has been recognized.

Alarm Volume - includes the Thread Break alarm, the Bobbin Empty alarm, and the Speed alarm. It is possible to turn off these three alarms, but it is not possible to turn off the standard audio responses.

To change the System Volume,

1. Turn the Carousel to Settings.
2. Press the Settings Icon to get System Preferences.
3. Press the System Volume to display the scales.
4. Press the Up or Down arrows to adjust the volume.
5. Press Exit to return to the Preferences screen.
6. Press Exit to return to the Main Screen.



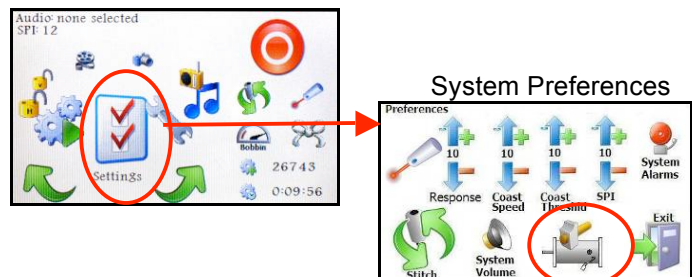
The volumes settings range from 1 to 25.

Calibration

Calibration is a check of the motor, comparing the motor speed with the number of stitches made at that speed, for a specific time interval. It can be done at any time, but is recommended if you notice the stitches per inch aren't correct.

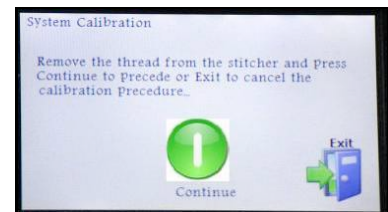
To re-calibrate the motor:

1. Turn the Carousel to Settings.
2. Press the Settings Icon to get the System Preferences.
3. Press the motor Calibration Icon.



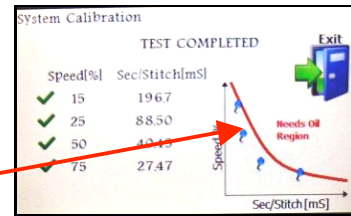
4. A System Calibration screen appears with instructions on how to proceed. It is important to remove the bobbin and to remove the thread from the needle before continuing.

If you decide not to run the routine, press the Exit Icon and return to the Preferences screen. Otherwise, press the 'Continue' Icon.



The stitcher will begin to stitch slowly, at 15% of the motor speed. After a few seconds, it speeds up to 25% of the motors speed, then up to 50% of the motor speed and finally 75% of the motor speed. When it is done, a chart is displayed, showing the results.

The actual numbers aren't critical – in fact they may vary from one day to another based on room temperature and how long the machine has set idle. What is critical is that the results are below certain values – as shown by the red line on the graph.



The four pins on the graph show the test results for the four speeds. The machine will automatically re-calibrate itself to the proper stitch length. Press Exit when done.

Note: Any time a result is plotted that is above the red line on the graph, it means the machine is "tight" and may need oil or other maintenance.

Your Turn	<p>Run the calibration program yourself.</p> <ul style="list-style-type: none"> * Press the Calibration icon to get the message screen. * Remove the bobbin * Un-thread the needle and remove it from the take-up lever. (wrap the thread around one of the foam handles to prevent it from getting snarled up). * Press the Continue icon – the stitcher will begin the test. * Verify that the four results are below the red line on the graph. * Press Exit to return to the System Preferences screen. * Press Exit again to return to the Main Screen.
------------------	---

Section 5 - Quilting Techniques

Now that you have had a tour of your new quilting partner, and you have been introduced to 'What' you can do, let's explore 'How' you do it!

How To Relocate the Screen

Before you begin to quilt, you will need to determine which side of the table to use. Many techniques are done from the front of the table, but pantographs and the Work Station are used from the back of the table. So, the touch screen module might need to be moved from one docking station to the other.



Turn off the motor and then turn off the power (in this sequence) before raising the antenna or removing the screen module.

If the screen module is removed while the power or motor are still on, it could cause serious damage.

Step #1 Gently lift the screen module up, separating it from the docking station.
It will lift up about 1/2" which disconnects the electrical connections.

Step #2 Carefully tilt the screen module forward, separating it from the bracket behind it.
This bracket has two screws which fit into slots in the back of the screen module.

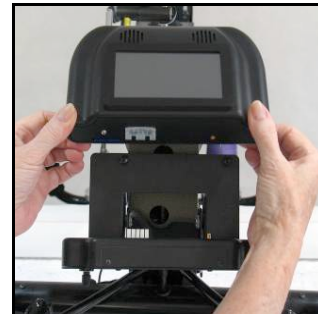
Step #3 When the screen is free from the bracket, it will lift off the dock completely.



Step #1



Step #2



Step #3

Looking at the bottom of the screen module.

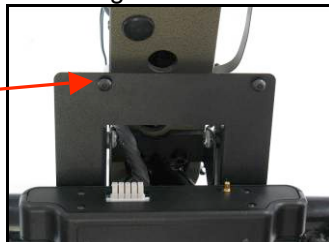
There is a small brass plug for the camera connection, a larger white plug for the electrical connections, and a disk drive for the SD card.

Look at the back of the screen module to see the slots that fit into the bracket.

Back of the Screen Module



Docking Station Bracket



Bottom of the Screen Module



Brass Camera Connection
White Electrical Connection
Disk Drive for the SD Card

When moving the screen module to the other docking station, carefully align the slots to fit the screws in the bracket, then align the two plugs. Press the screen module down, to make a secure connection. Now, it is safe to power up.

First turn on the power and then turn on the motor.

The screen will now go through its initialization process, and you are ready to quilt!

How To Start and Stop (a line of stitching)

One of the first skills to master is how to start and stop a line of stitching without getting the threads all knotted under the quilt. In a previous section five terms were explained, and all five will be used here.

Prep Steps - Your table is in the 'quilt' position, the fabric layers are loaded, the side clamps are in position, your machine is threaded, the bobbin is in place, power is on, and the stitching mode is set to 'Regulated'.

Start Process -

1. Use the single stitch button (left handle) to pull up the bobbin thread.
2. Take some tie-off stitches using the Tie-off Icon.
3. Press the Run button (right handle) and stitch a continuous line design.

Stop Process -

1. Press the Run button (right handle) again when done.
2. Use the tie-off feature or the single stitch button (left handle) to tie-off.
3. Trim (Pull up the bobbin thread and cut or bury the threads).



Pull up bobbin



Tie offs



Continuous
Line Design



Trim



Finished

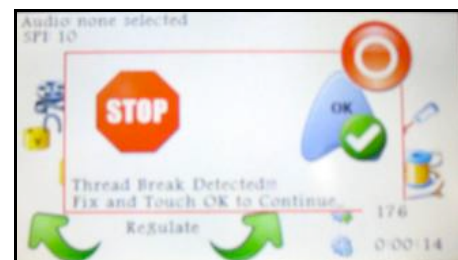
**Your
Turn**

Practice starting and ending a line of stitching. If the underlined terms are not familiar to you, please review the instructions in previous section, Let's Quilt.

How To Restart (a line of stitching)

Eventually, the top thread will break for some reason. So, it is important to know how to restart the line of stitching and disguise the interruption if possible.

Prep Steps - You have been stitching along normally and the thread breaks. If you have not disabled the Thread Break Alarm, the machine will sound three rings, in quick succession, and this Warning will appear on the screen:



Process -

1. Stop, turn off the stitcher and determine the cause. (There is a section on troubleshooting stitch quality which will help explain some causes and solutions).
2. Pick out the last couple stitches if possible, so you can be sure there won't be any thread knots on the underside of your quilt. Secure the loose threads by tying them in a knot if desired.

3. Rethread the machine, paying special attention to the thread path. Check that the thread is still wedged inside of the intermittent tension disks, and that it is still wrapped around the rotary tension assembly.
4. Restart the stitching. Move to the place where the thread broke, pull up the bobbin thread and take some tie-off stitches over the last few stitches.
5. Continue stitching.

Your Turn	Practice restarts by cutting the thread yourself at the take-up lever. It sounds crazy but it is better to learn restart procedures on a practice piece.
------------------	--

Beyond the Basics –

Look at the broken ends of the top thread. Here are some clues:

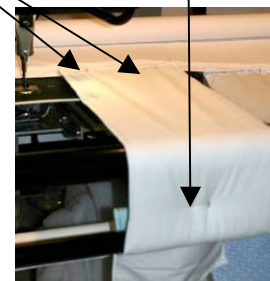
- If the thread is frayed, check that the thread is in the guides properly and not rubbing on anything else.
- If the thread is frayed and the broken end curls like the letter 'J', it is probably time to change the needle.
- If it is cleanly snapped off, look for something that obstructed the stitch path.

How To Test the Tension

Prep Steps -

- Bobbin tension is set to 'baseline'.
- Intermittent tension is set to 'baseline'.
- Rotary tension is set to 'baseline'.
- Machine is threaded, the bobbin is in place.
- Test piece is pinned on to the table.

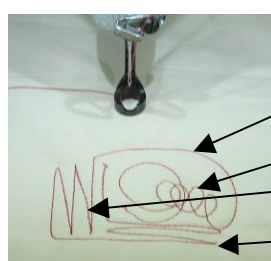
Pin test piece to the top leader and around 1 roller



Process –

Pull up the bobbin, tie-off and stitch at a normal speed. Include some soft curves, tight spirals, straight lines (horizontal and vertical) and sharp points. Look closely at the stitch quality.

Remove the pins and check the underneath.



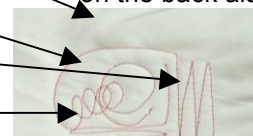
Stitch:
soft curves

tight spirals

straight lines

sharp points

Check the stitch
quality
on the back also.



Adjust the bobbin tension

- Remove the bobbin case and use a very small screwdriver to turn the tension screw right to tighten, and left to loosen. This change should be made in very small increments – about 1/10th of a turn, at a time.
- Put the bobbin into the case, slide the thread under the tension bar and place it on a flat surface, handle side down.
- Pull on the thread, and be sure the bobbin is turning clockwise inside the case.

- Try to pick the bobbin case up by the thread. The tension should be tight enough to turn the bobbin case onto its side and be on the verge of coming up off the table but it should not lift up. Adjust as needed and try again.

Adjust the top thread tension

5. Start with a properly tensioned bobbin case.
6. The Rotary Tension should remain loose – just tighten it enough so the wheel rotates when stitching. Turn the thumb screw to the right (clockwise) to tighten and the left to loosen. Once this is set, it rarely needs to be changed.
7. Intermittent tension adjustments might be needed on every quilt you do. The thread, fabric, batting and backing all affect the stitch quality. Turn the thumb screw to the right (clockwise) to tighten and the left to loosen. When adjusting the tension, always turn the intermittent tension knob at least $\frac{1}{2}$ turn at a time. It's a coarse adjustment and less than $\frac{1}{2}$ turn will not appreciably change the tension.

Note: A good stitch is a balanced stitch. This means little or no thread from one side shows up on the other side. Factors other than tension may make the stitch look imperfect. If the batting is very thin, or the threads are very thick, or the two thread colors are very different it will be almost impossible to not see the thread from the other side.

- If the tension is poor on the back of the quilt -- top thread loops, bobbin thread laying flat, eyelashes or stitches not embedding in the fabric-- then tighten top tension $\frac{1}{2}$ turn at a time to "pull" the stitch (the bobbin and top thread connection) into the middle of the quilt.
- If tension is poor on top then check the bobbin case first. If it seems OK, loosen the intermittent tension $\frac{1}{2}$ turn at a time until stitch balance is achieved.

Your Turn	Adjust the tension on your machine, and re-check the stitch quality.
------------------	--



For questions, please contact:

Gammill, Inc.

1452 Gibson St. West Plains, MO 65775

Toll Free : 800-659-8224

Office Hours are 8 AM – 5 PM CST, Monday – Friday

www.GAMMILL.com