

*A-1 Elite*  
*With High*  
*Performance*  
*StitchRite*  
**MANUAL**

**version 1**

[Keep this Book!](#)

The last page of this book contains numbers that we will need if we ever need to service your machine.

**S&D Stitches, Inc.**

Written by Dee Dee Townzen  
Printed May 14, 2004



# Table of Contents

<b>Introduction .....</b>	<b>5</b>
<b>The A-1 Quilting Machine .....</b>	<b>6</b>
THE MACHINE .....	6
THE TABLE .....	7
ACCESSORIES .....	8
OPTIONS .....	11
<b>Getting Ready to Sew .....</b>	<b>15</b>
THREADING THE MACHINE .....	15
LOAD FABRIC .....	16
" SQUARE UP " YOUR QUILT .....	18
A WORD ABOUT STITCH QUALITY .....	18
<b>StitchRite Operation .....</b>	<b>19</b>
TURN ON THE POWER .....	19
TURN ON THE WORK LIGHT .....	19
FRONT AND REAR CONTROLS .....	19
SINGLE STITCH .....	20
NEEDLE UP/DOWN SWITCH .....	20
LASER SWITCH .....	21
GREEN INDICATOR LIGHT .....	21
MODE SELECTOR DIAL .....	21
CONSTANT SPEED MODE .....	21
STITCH REGULATION MODE .....	21
<b>How to Care for Your Machine.....</b>	<b>23</b>
CLEAN LINT FROM MACHINE .....	23
OIL MACHINE .....	23
REPLACE CHECK SPRING .....	24
SET ROTARY HOOK TIMING .....	24
ADJUST NEEDLE BAR .....	25
SET HOPPING FOOT TIMING .....	25
<b>Troubleshooting.....</b>	<b>26</b>
POOR STITCH QUALITY .....	26
STITCHES ARE SKIPPED WHEN SEWING .....	26
BOBBIN THREAD BREAKS .....	26
TOP THREAD KEEPS BREAKING .....	27
THE MACHINE DRAGS MAKING IT HARD TO MOVE .....	27
IT'S HARD TO CONTROL WHERE YOU MOVE THE MACHINE .....	28
<b>StitchRite Setup Parameters.....</b>	<b>29</b>
MOTOR SPEED CALIBRATION .....	29
CALIBRATE SPEED MODE .....	30
AUTO CALIBRATE SPEED MODE .....	30
SINGLE STITCH SETTINGS .....	31
SETTING THE SINGLE STITCH SPEED .....	31
TEST SWITCH INPUTS .....	32
TEST ENCODERS .....	32
SETTING THE NEEDLE STOP POSITION .....	33
<b>How to get help .....</b>	<b>34</b>



## Introduction

Congratulations! We believe you will enjoy the High Performance StitchRite control system on your A-1 Elite longarm machine. Stewart and Kelly Plank own Plank Manufacturing in Springfield, Missouri. They designed and manufacture the A-1 Longarm Quilting machine. Stan and Dee Dee Townzen own S&D Stitches, Inc. in Rogers, Arkansas. They produce the StitchRite needle positioner, StitchRite control system, and CompuQuilter computerized quilting system. Plank Manufacturing and S&D Stitches have teamed up to bring you the A-1 Elite HP Quilting Machine. It features the A-1 Longarm quilting machine, StitchRite HP stitch regulator with built-in needle positioner and all the most popular options. We believe it is the best stitch regulated quilting machine money can buy.

StitchRite has three modes, constant speed mode, stitch length regulation mode, and Foot Pedal Mode. In constant speed mode, the machine runs at a set speed and you control stitch length by how fast you move the machine head. In stitch regulation mode, the machine controls stitch length by changing the motor speed to match how fast you move the machine head. In foot pedal mode, the speed is controlled with a foot switch like you home sewing machine.

A word of caution; like all software, StitchRite is continually being improved. These instructions are for Version 1 of the High Performance StitchRite. If you have a different version, there may be slight differences in some of the instructions. If you have questions about a different version, please e-mail us at [stan.townzen@sd-stitches.com](mailto:stan.townzen@sd-stitches.com) and we will be glad to help you. We strongly encourage you to let us know about your experiences with StitchRite. Your comments, corrections to this booklet, and suggestions for improvement are welcome and appreciated.

We warrant our product to be free of manufacturing defects for a period of one year. We will always stand behind our product and any warranty problems will be fixed at no charge. If you want to upgrade to a newer version, there will be a nominal fee to cover our costs.

With the StitchRite system, you need to do smooth starts and stops to avoid getting a long first stitch and a short end stitch. As with all computer systems, it takes time for the system to respond to your movements so abrupt changes in movement will give you stitches that are too long or short. After a little practice you, will find it very easy to control the stops and starts.

# The A-1 Quilting Machine

Stewart Plank, manufacturer of the A-1 Model 923 Quilting machine uses his machine shop and aircraft mechanic skills to design and develop the finest, smoothest operating quilting machine available. His stated mission is to produce the “best quilting machine in the world” and we believe he has achieved that goal. He continues to develop innovations to make the machine even better.

## The Machine

The A-1 industrial quilting machine is the only light weight cast aluminum machine made in the USA. It is machined with a high-tech process to produce tighter tolerances. It has precision made cast iron bushings and hardened steel bushings on the needle bar and lower shafts instead of the usual brass. When you retime your machine, you won't have to pry your hook off. All quality machines use them. Not all quilting machines do!

Bores of the cast molded bearings (the holes the bearings and shaft fit into) are precision machined into the casting. It's what separates A-1 from the rest. It's the most accurately manufactured longarm quilting machine in the world.

An A-1 innovation is the integrated molded bearing mounts like those on machines that mass produce garments. The take-up lever assembly is the best in the world; not from Taiwan. All these features contribute to the high quality of the A-1 to help ensure a long, useful life.

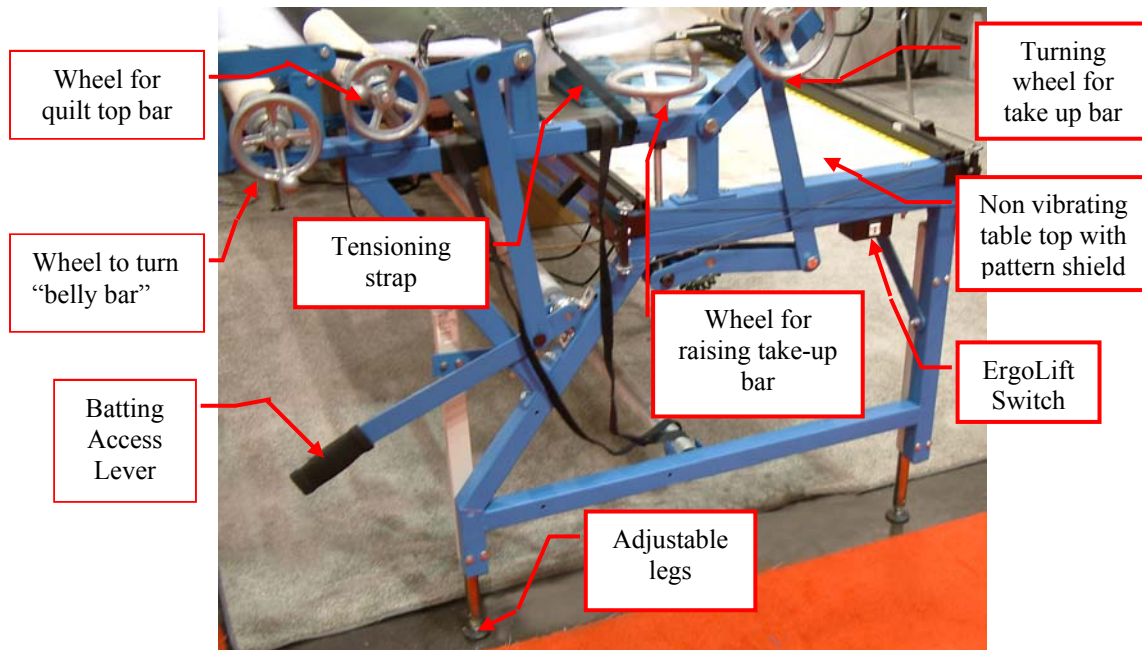
Plank Manufacturing is the only producer of quilting machines to offer the exclusive webbing design in the casting to make it stronger and more stable. There are four high quality ball bearings on the main shaft and high-tech phenolic wheels are used. These features make the A-1 run smoothly with a minimum of vibration, giving you better control of your stitching and less fatigue.

The A-1 has a brushless heavy duty DC motor that is powerful enough to run at all speeds, including very slowly. It has gear timing because that is simply the best timing method.

The throat size is 9 inches tall and 23 inches deep. This gives you a sewing area of 9" x 16". This depth is based on the average arm stroke so you can easily thread it from either side. It allows you to sew the largest area possible without undue fatigue caused by reaching too far. You will be able to sew longer with greater comfort. The height gives you plenty of space to quilt a king size quilt with extra high loft batting and still keep the weight of the machine to a minimum.

The machine has ergonomically designed handle bars to make using the machine easier and more comfortable. It has a coiled cable to keep it away from your feet as you move back and forth along the table. All wheels are adjustable for perfect leveling of your machine. That includes the carriage.

## The table



The table for the A-1 has received the same attention to detail as the machine to make the entire quilting experience as fun and easy as possible. It comes in your choice of 10, 12 or 14 feet long. You can make a king size quilt on the 12 foot table. The longer table simply makes loading the quilt easier since you can move the machine head out of the way.

The table features a sturdy, non-vibrating plywood top. It also has a specially designed, non-vibrating single piece track. The bars are 2-3/8" non-bowing tubes and the fabric tensioning gears have 36 fine tooth adjustments for very accurate tensioning.

The table height is adjustable by removing the 5/16" bolts, raising or lowering the table to the desired height and replacing the bolts.

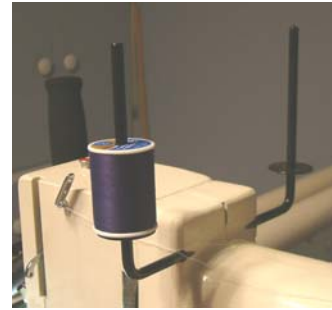
As you quilt, more and more of the quilt is rolled up onto the take-up bar. Eventually, the machine will drag across it as you sew. To avoid this, you simply turn the wheel at the end of the machine to raise the take up bar. This single crank mechanism makes it easy to evenly raise and lower the take up bar.

The table has a pattern shield. When you hand guide the machine to do a pantograph pattern, you simply slip the pattern under the shield. The pattern will stay still and you can use tape or grease pencil to mark where to start and stop. When you change quilts or patterns, simply remove the marks. No harm done to your table or pattern.

## Accessories

### Twin Thread Spool Holders

You may be aware that thread on spools is wound differently than that on cones. Because the cone is stationary, the thread must turn first one way and then the other to prevent it from becoming twisted into knots. Thread on spools is wound one way around and around the spool. Because of this, spools must be mounted so that the spool can turn as thread is pulled off. The A-1 Longarm Quilting Machine comes equipped with two vertical spool holders. This also allows you to sew with two threads at the same time and the laser can also be mounted on them.

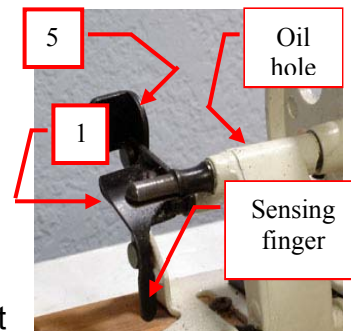


### Light

The A-1 Longarm Quilting machine comes equipped with a fluorescent work light. A switch on the side of the fixture turns it on and off. The power for the machine must be turned on for the light to come on. If you turn the power off without turning the light off, the light will turn off until you turn the power back on. The tube for the fixture is available wherever light bulbs are sold. It is part number F6T5.

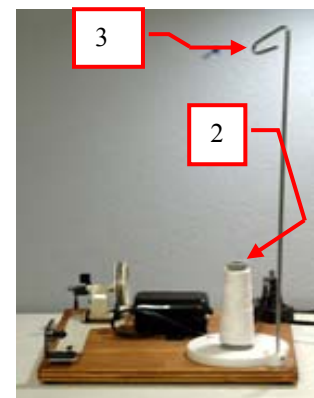
### The Bobbin Winder

1. Place an empty bobbin on the spindle.
2. Place a cone of thread on the holder.
3. Bring the thread up through the guide over the cone of thread.
4. Take the thread through the hole on the top of the tensioner from outside toward center. Pull thread around the tensioner from front to back making sure it goes between the plates.
5. Push trip mechanism forward until it snaps into position.
6. Take the thread under the bobbin and wrap it several times around the bobbin.
7. Still holding the end of the thread, step (or push) on the foot control.



The bobbin will fill until the trip mechanism is pushed by the thread. It will then disengage the wheel. The bobbin should fill to just below the rim. Having the bobbin too full will cause tension problems. If the bobbin winder winds too much thread before stopping, adjust the trip mechanism as follows.

Loosen the screw at the top of the trip mechanism and move it forward so that the sensing finger is closer to the bobbin and trips sooner. Then retighten the screw.



The thread on a properly wound bobbin should have even layers of thread. A poorly wound bobbin is shown in the photo at the right. If your bobbin looks like this, check to be sure the thread is going between the plates on the tension assembly.

If the motor runs and the wheels turn but the bobbin doesn't turn, you can hold the bobbin more tightly by prying the spindle arms apart slightly with a sturdy screwdriver.

One note about winding bobbins. When I first used mine, I saw sparks from the motor and it frightened me. Stanley and my sons assured me it was normal and okay. I still didn't like it but finally got used to it. After three years of using it without a fire or shock, I can assure you, it is normal and it is okay.

The bobbin winder assembly needs to be oiled occasionally. Put a drop of oil where indicated in the picture on page 8, then run the bobbin winder without thread. CAUTION! The bobbin winder will sling oil when you do this. Put a piece of cardboard behind it to protect the wall or whatever is behind it.

We recommend that you unplug the bobbin winder when not in use. It is possible that in your absence something could fall on the foot pedal. This could result in the bobbin winder running continuously. The result could be the motor overheats and damages the motor or possibly even start a fire. Better safe than sorry.

## The Bobbin

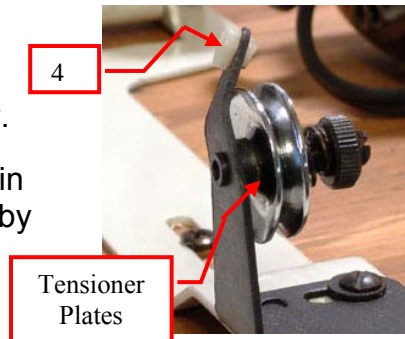
The A-1 Longarm Quilting machine uses a large capacity "M" bobbin so you have fewer bobbin changes per quilt.

### To remove the bobbin case:

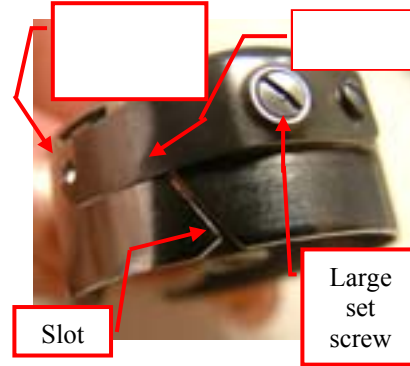
1. Make sure power is off.
2. Turn the hand wheel to bring the needle bar to the highest point
3. Reaching under the machine, grasp the latch and pull the case from the center post of the hook.

The bobbin will fall out of the case when you release the latch and turn it over.

Fill the bobbin according to the instructions on page 8. Holding the bobbin case so that the latch is toward you, pull on the thread. You should be able to see the correctly installed bobbin turning to the left inside the case. Sometimes when there is a tension problem, it helps to put the bobbin in so that it turns to the right.



Check the tension of the bobbin by holding the loaded bobbin case in one hand. Pick up the bobbin in the case by the thread with your other hand. A slight bounce should cause the bobbin case to slide down the thread. If the thread slides out of the case as you pick it up, it needs more tension. If it barely moves down the thread or doesn't move at all, it needs less tension. Use a screwdriver to turn the largest set screw on the bobbin case to adjust tension. Remember, righty tighty, lefty loosey.



**To replace the bobbin:**

1. Hold the case with the slot near the top.
2. Insert the bobbin into the case.
3. Pull thread into the slot.
4. Draw the thread down and under the spring.
5. Draw the thread up and into the delivery eye.

**To replace the bobbin case:**

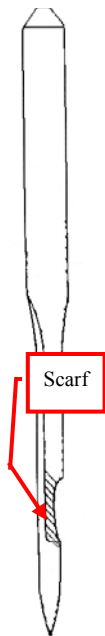
1. Holding the latch open, replace the case on the center post of the hook.
2. Release the latch and make sure the loose end of the thread is free.
3. Press the case back until the latch catches in the groove on the post. You will hear a click as it snaps into place. Don't force it or you can get it stuck in the wrong position and lose the tension spring trying to get it out. You can sort of jiggle it into the correct position then a slight push will cause it to lock into position with a snap.

Lint has a tendency to build up in the bobbin case especially with cotton threads. A tiny amount of lint can cause a huge headache! Check the bobbin each time you change it to keep it clean.

**The Needle**

A size 18 needle will be installed on your machine initially. If you need another size or break a needle, you can easily install one. Using the medium flat head screw-driver, loosen the screw holding it in place and remove the old needle.

Look closely at the needle. The shank is round. It does not have a flat side like your home sewing machine needle has. There is a scarf, or notch, in one side. The scarf must face the back of your machine. I could never remember which way it went until I finally realized why it had to face the back. This may help you.



When the needle goes down through the fabric into the bobbin case, a hook comes around behind the needle to pick up the thread. The thread is under tension and that notch has to be there to provide a way for the hook to get between the needle and the thread in order to pick up the thread.

Holding the needle so that the scarf faces the back of the machine, push the needle up into the holder and tighten the screw. Dick Fuller, an accomplished longarm quilter, has made the great suggestion of putting a long pin into the eye of the needle to help you get the needle straight.

There is more than one school of thought on how often to change a needle. Some use a new needle for every quilt, others when they can hear the needle "pop" through the fabric indicating the needle is dull.

A needle can be damaged in several ways. You can hit a pin or an embellishment on the quilt. Or you might move the machine head while the needle is in the fabric causing the needle to flex and hit the plate instead of the hole in the plate. This may cause the timing of the machine to be off or can simply make a burr on the needle. Whatever the cause, if there is a burr on the needle it will damage the fabric. If you look closely, you can see where the needle caught a thread of the fabric and pulled it instead of going between two threads. Of course if this happens the needle must be replaced.

The A-1 Longarm Quilting machine uses the following needles. The larger the number, the larger the needle.

MR 3	85/13	90/14
MR 3.5	85/15	100/16
MR 4	105/17	110/18
MR 5	120/19	130/21

## Options

### ErgoLift

ErgoLift is an A-1 Quilting Machines first. It is a system that raises or lowers the table to a comfortable height. You can easily adjust the height so that it is most comfortable for you and change it if someone taller or shorter than you wishes to use the machine. You can set it so that you can stand or sit on a stool or chair to quilt. It can adjust the table so that someone in a wheelchair can use the machine. Perhaps most importantly, it allows you to vary the position of the table to reduce fatigue by changing which muscles are being used while you quilt. This works in much the same way as moving your car seat on a long journey.

Depending on which option you chose, there are three ways to operate the ErgoLift. One is manually. There is a crank at the end of the table which you turn to raise or lower the table.

Another option is the electrical switch to operate the lift. At the end of the table is a toggle switch. You push it up to raise the table and down to lower the table.

There are also two types of foot switches affectionately known as the “tippy-toe” switch available to operate the ErgoLift. To operate the single unit type, you step on the left button to raise the table and the right button to lower it. With the power strip type switch, you step on one strip to raise the table and the other to lower it.

Whichever switch you chose, you will save yourself many backaches with this great innovation.

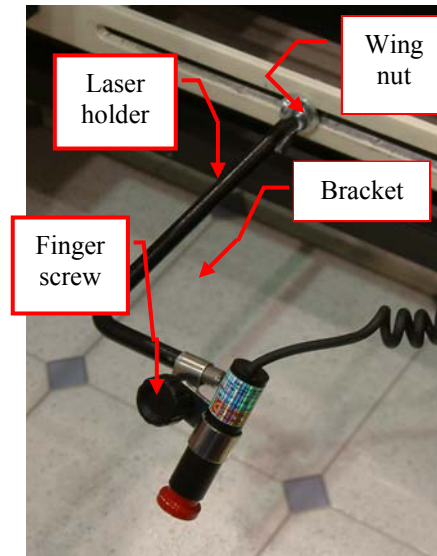
## Laser

The laser can be mounted on the forward dual thread spool holders or side of the machine.

**CAUTION! Lasers can damage eyes! Never allow a laser to be pointed into someone’s eyes.**

The laser is turned on and off by a switch on the front and rear panels. The switches on the front and back panels work like the 3-way light in your house. If the laser is on, either switch will turn it off. If the laser is off, either switch will turn it on. If the power to the machine is off, the laser will be off. If you leave the laser on and turn off the power, the laser will come back on when you turn the power to the machine back on.

To use the laser light mounted on the side of the machine, you will work from the back side of the machine.



1. First, to mount the laser on the side, slide the bracket onto the holder and tighten the finger screw.
2. Next, move the machine head to the point where you want to start sewing on the quilt. Put the needle in the cloth to hold the machine head in place. Your machine will sew better if you will sew from right to left on this side of the machine.
3. Put your pattern under the shield and line it up with a line on the decorative cover of the table top to get it straight.
4. Be sure the edge of your quilt is far enough away from you to allow the machine to reach the part of the pattern closest to you.
5. Loosen the wing nut and position the laser holder approximately in the center of the area you will sew then retighten the nut.
6. Turn the laser on and point it at the spot on the pattern where you want to begin. The laser will swivel back and forth and front to back so you can precisely align the light to the position desired.

7. Take the needle out of the fabric and move the machine along the track watching to see where the dot of light is going. If necessary, adjust the pattern so that it runs parallel with your quilt.
8. Mark the point where you want to stop sewing. Without this mark, you will continue sewing off the edge of the quilt because you are watching the dot of light following the pattern and not where the needle is sewing.
9. Go to the beginning point of your pattern. To pick up your bobbin thread, take a single stitch by pushing the black button on the handle bar. Holding the end of the top thread, move the machine an inch or so and pull on the thread. It will bring the bobbin thread to the top so you can reach it.
10. Holding both threads, take a couple of stitches to anchor the thread.
11. Check to be sure your machine is in the mode you desire (speed or stitch regulated).
12. Push the red run switch in the handle bar and begin sewing. Move the machine to follow the line of the pattern with the laser light.
13. At the end mark, turn the machine off by pushing the red button again.
14. Take an anchor stitch and bring the bobbin to the top the same way you did in the beginning.
15. Put a finger in the loop of the bobbin thread and pull until the loop is a couple of inches long. The side that moves is pulling thread off the bobbin. Cut the other side close to the quilt. Cut the top thread close to the quilt.
16. Move your machine back to the beginning. If there is room to sew another row, move your laser and do so. If not, index your quilt and sew the next row.

A word about following patterns. You need to remember you will not give the pattern to your customer. You will give her the quilt. She will not know, nor care if you followed the pattern accurately. She will care if it looks good. If you find yourself off the pattern while sewing, gently move back toward the line. It will look great. If you jerk back onto the line, it will look like an error and you will probably frog stitch it. (Frog stitch = ripit ripit.)

You may want to use the laser mounted on the top to sew a motif that is printed on paper in a block. Using this technique, you will probably be working from the front of the machine.

1. First mount the light by sliding the bracket over the thread spool holder. Which holder you use will depend on two things. If you are right handed and prefer to guide the machine with both hands, you will probably be most comfortable mounting the laser on the right spool holder. If you are right handed and prefer guiding the machine with one hand, you will likely use the left spool holder. Likewise, if you are left handed and use two hands, you will probably prefer the left holder. If you use one hand, you will probably prefer the right holder. Try it both ways and use the one with which you can see best and are most comfortable.

2. Lay your pattern on the top of the quilt beside the block you want to sew.
3. Your laser will swivel the same way it does on the side mount. Point it so the dot of light is on the point where you want to begin sewing.
4. Pull up your bobbin thread and anchor your stitch the same as using the laser on the side.
5. Sew your pattern, again following the line with the dot of light.
6. When you finish, anchor your thread, pull up the bobbin and cut the threads the same as in the side mounted laser instructions.

Another way to use the laser is to make a pattern for CompuQuilter. See “How to make a pattern” for detailed instructions.

## Dual lights

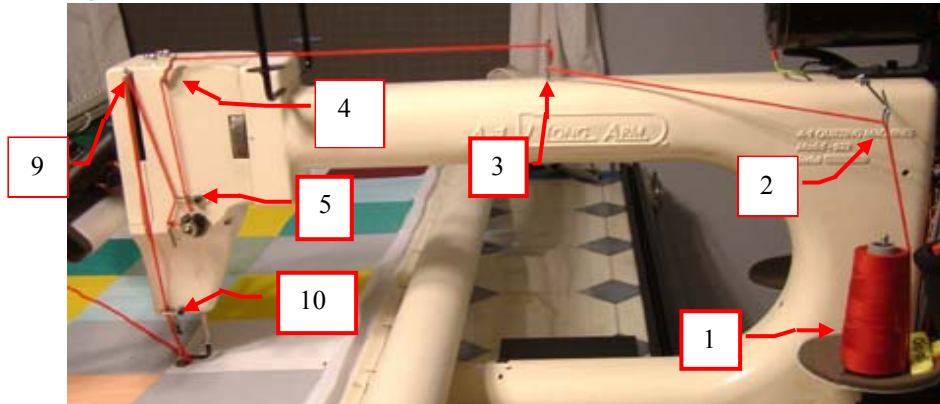
Some quilters need two different types of light when they work. One is the obvious work light to illuminate the area in which you are working. The other is a black light used together with a special powder to mark the quilt. The optional dual lights allow you to have a regular fluorescent bulb in one fixture and a black light in the other. This eliminates the need to switch the bulbs back and forth. This is another A-1 innovation! Replacement tubes are available from [Bulbs.com](http://Bulbs.com) on the internet. It is Philips part number 358416.

## Batting Access Lever

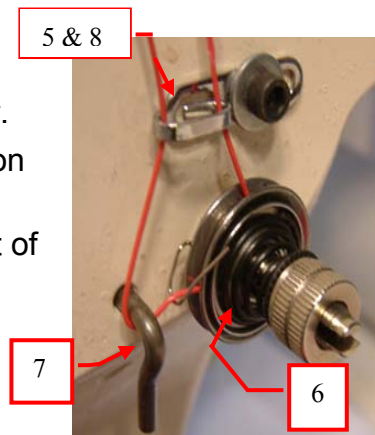
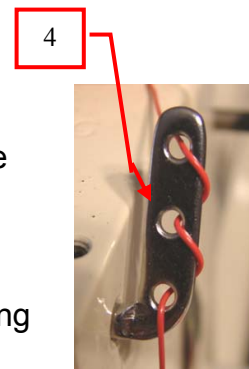
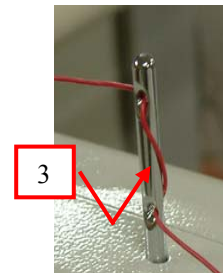
A batting access lever is available on the A-1 Longarm Quilting machine. When you grasp the handle of the lever, the top roller raises up. You can hook it so that it stays up to free your hands to work on the quilt. It is used to reach under the top of the quilt to smooth the batting and to get those dark threads that would show through the top or to retrieve items that inadvertently get left inside the quilt such as pins, scissors, rulers, etc.



## Getting Ready to Sew Threading The Machine



1. Place a cone of thread on the holder.
2. Pull thread through guide above the cone of thread.
3. Take thread through the bottom hole of the first guide post from front to back. Take the thread around the post and come through the top hole, again front to back.
4. Take the thread through the top hole of the next guide going back to front. Come around and take the thread through the middle hole and then the bottom hole the same way.
5. Slip thread into the thread guide above the tensioner.
6. Pull thread through the tensioner from back to front all the way around to the starting place. Be sure the thread is going between the plates and go far enough to catch the check spring.
7. Pull thread down under the thread guide. The check spring should come down as you pull.
8. Bring thread back up through the same thread guide above the tensioner.
9. Take thread through the hole in the take up lever.
10. Bring the thread down through the thread guide on the right of the machine.
11. Bring the thread through the thread guide in front of the needle.
12. Finally, thread the needle front to back.



## Load Fabric

Now that you have your machine set up, you need to load a quilt. Begin by measuring the quilt top. I, like most quilters, spread the top on the living room floor. Write down the length and width. You'd be amazed at how quickly you can forget those numbers.

Lay the backing on top of the quilt top. Check to be sure the back is at least 3 inches larger on each side than the top. When machine quilted, the back shrinks up more than the top. My experience is that the width doesn't shrink up as much as the length. If the backing is not wide enough, you know it before sewing your first stitch. But if the backing is not long enough, you don't discover that fact until you have the entire quilt finished. I can tell you, it is not fun to frog stitch an entire quilt so check it now.

If you are cutting batting from a large roll, now is the time to do that. If you are using a packaged batt, you can skip this step. If it is a wide quilt, I lay the batting on top of the quilt on the floor and roll it out, using the top to measure. Be sure to cut the batting a few inches longer than the top. It also may shrink up a little during quilting. If you cut it too short, you will have to baste a piece on the end. That will work just fine but does take a lot of unnecessary time.

If I am using a 45" wide batt on a quilt that is shorter than about 42 inches, I wait to cut the batt until after I have loaded the top and backing. Then I set the roll on top of the bars and roll it out to a couple of inches longer than the quilt is wide. Then I cut it off at that length.

Check to see if there is a top and bottom to the quilt top and/or backing. Most fabrics and quilt designs as well as quilting patterns do not have a direction, but some, such as hearts don't look good upside down. Near the center, mark the bottom of each layer with a pin. Even though the batting has no top or bottom, it is important that you know which side is the top/bottom and which is the side.

Now, pick up the backing of the quilt. To make it easier to handle, fold the backing in half, wrong sides together. Lay the backing across the rails. Standing on the front side of the machine, bring the pin in the backing to the center mark on the canvas leader of the rail closest to you. Put a pin through the canvas and one layer of the backing. Open the backing up and smooth it out. Starting at the center and moving toward each side, pin the backing to the leader. When you are finished, roll the backing up onto the rail smoothing as you go. Be sure there are no wrinkles in the backing and that it rolls up straight.



Center of backing at center of leader

Go around to the back of the machine. Pull the backing up over the rail. Adjust the fabric so that it goes straight from the front bar to the back. You can see shadows if the fabric isn't straight. Starting at the center and proceeding toward the sides, pin the backing to the leader. Roll the fabric up on the front bar but leave some slack in the material.



**Pinning from center to edge**



**Exaggeration of shadows**

Next, pick up the quilt top. Fold it in half, this time with right sides together. Drape it over the rails the same way you did the backing. Standing at the front of the machine, bring the pin in the center of the bottom to the center mark on the remaining leader. Pin the top and roll it up the same way you did the backing.



**Pinning backing to back of machine**



**Center fold at center mark on leader**

Now, pick up the batting and remove the pin. Lay it over the backing and pull it through the two bars on the front of the machine. Line the top of the batting up with the edge of the leader on the back side of the machine. I always leave a couple of inches of batting overlapping the leader so that if the customer wants to add a wide binding, there will be batting inside the binding. Smooth the batting out so that it is straight and somewhat even.

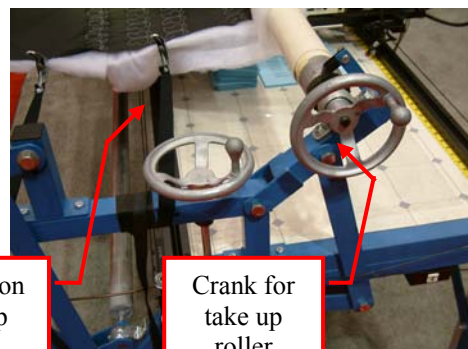
Next, pull the top over to meet the leader of the bar on the back side of the machine. I line the top up to the leader and put a few straight pins through the fabric layer only - not through the leader.

Finally, attach the adjustable tensioning straps to the sides of your quilt as shown in the photo. Adjust the straps by pulling them taut and fasten them to the Velcro strips on the frame of the table. The tension should be tight enough that the straps just hold the fabric still and not so tight that they distort the quilt.

Check to see that your take up bar is all the way down to the lowest position. As you complete the quilt, you will have to raise this bar to have clearance between the quilt and the machine. You will do that by turning the crank at the end of the table. This system ensures that the quilt is raised equally on both ends.



Top pinned over batting and backing



## "Square up" Your Quilt

There is one more step I take before actually beginning to quilt. Find a point of reference, often the seam between the border and the center of the quilt. Attach only the cable that prevents the machine from moving front to back (see page 22). Move the machine so that the edge of the presser foot is against the seam of the quilt top. Watch the presser foot as you glide it along to the other side to see if it is following the seam. If not, tug gently on the quilt top to get it in line with the presser foot and put a pin through the top of the quilt sandwich only (not the leader). This sometimes (but not always) eliminates the need to have the computer skew the sewing path to match the quilt.

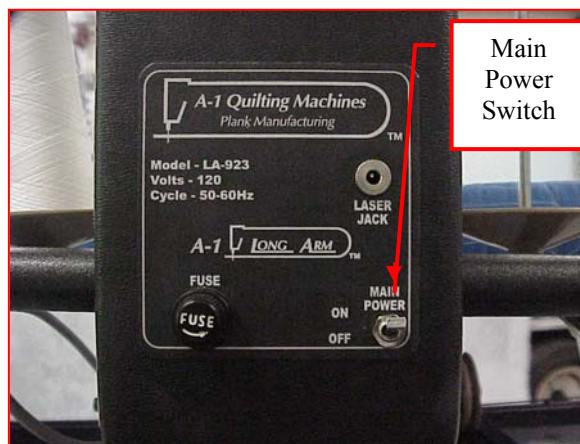
## A word about stitch quality

In theory, good stitches will interlock in the batting between the quilt top and backing. In real life, this goal is rarely achieved. For this reason, you need to be aware that you will have "pokies" if you use different colors of thread on top and in the bobbin. Pokies are where you can see tiny dots of the contrasting thread where the bobbin catches the top thread. If there is slightly more tension on the top than on the bottom, then you will see the pokies on the top side of the quilt. If the greater tension is on the bobbin, then you will see the pokies on the back of the quilt. Sometimes it matters and sometimes it doesn't. It is often a matter of personal preference. If these pokies are objectionable to the quilt owner, you will need to use the same color thread on both top and bottom.

## StitchRite Operation

### Turn on the power

The power switch is located on the back of the machine head. When the switch is up, the power is on and when it is down, the power is off. When the power is turned on the red indicator light on the right side of the machine (toward the back) will turn on. The machine uses a 5mm x 20 mm 5 amp slow acting fuse. It is Radio Shack part number 270-1084.



### Turn on the work light

The work light is turned on and off with a switch on the side of the light. The power to the machine must be on for the light to come on. If you turn the power off without turning the light off, the light will go off until you turn the power back on. The part number for the fluorescent tube is F6T5.

### Front and rear controls

There is a button in each handle bar. On the front handle bars, the button on the left (black) is the single stitch button. The one on the right (red) is the on/off button for the sewing motor. The rear handle bars are just the opposite. The button on the left (red) is the on/off button for the sewing motor and the one on the right (black) is the single stitch button.

The switches plug into a circuit board behind the front control panel. If you are left handed and would prefer the buttons were switched, this can be done by unplugging the switches and reversing them.

The buttons in the handle bars have a built in time delay. You must hold the button down for about 1/4 second before anything will happen. This is to prevent accidental starts triggered by a noise spike on the power line or inadvertently hitting the button.

There is a control panel on the front of the machine and another on the rear of the machine. Each function on these panels will be described later in these instructions. The control panel on the front affects only the buttons on the front handle bars and the rear control panel affects only the rear handle bar buttons. For example, let's assume the front control panel is set on speed control and the rear panel is set to stitch regulation. If you turn the sewing motor on from the

front, it will be in speed control. If you turn the sewing motor on from the back, it will be in stitch regulation mode. The one exception to this is the laser light which will be covered later.

## Single Stitch

When you press the single stitch button, the machine will take a single stitch. The needle will stop up or down based on the needle stop up/down switch setting on the control panel. You use this to pick up the bobbin thread or make an anchor stitch. If you hold the single stitch button down, the single stitch will repeat about every half second. You can use this to baste a quilt.

## Needle up/down switch



Sometimes you will want to leave the needle in the fabric so that when you advance the quilt, it will move the machine with the quilt and you can continue sewing where you left off. Otherwise, you will probably want to have the needle stop out of the fabric to avoid accidental tearing of the quilt if you move the machine head. This switch allows you to choose whether the needle stops up or down. It works in both speed control and stitch regulation modes.

If you have the needle up/down switch set in the up position and want to change to the down position, you can stop and flip the switch. You can then take a single stitch to get the needle to stop down in the quilt. If you then want to change back to the up position, just flip the switch and begin sewing. When you stop, the needle will then stop in the up position.

If you have the switch set to the needle down position and need to change the bobbin, you will need to change to the needle up position and take a single stitch. After you have installed a new bobbin, you can change the switch back to the needle down position.

## **Laser switch**

The laser switch turns the laser light on and off. The switches on the front and back panels work like the 3-way light in your house. If the laser is on, either switch will turn it off. If the laser is off, either switch will turn it on. If the power to the machine is off, the laser will be off. If you leave the laser on and turn off the power, the laser will come back on when you turn the power to the machine back on.

## **Green indicator light**

You will notice that the green indicator light on the control panel is marked "arm\*run". If the machine is sewing, of course that light is on to indicate the machine is running. However, it will also alert you that the machine is "armed" so the machine will begin sewing when you move the machine head.

## **Mode selector dial**

There is a dial on the control panel. The left half of that dial is numbered 8 through 15. Past the 8 are the letters BS. The right half is numbered 1 through 10. Beyond the number 10 are the letters FS. If the dial is set anywhere on the left side of the dial up to the "B", the machine is in stitch regulation mode. If the dial is set anywhere on the right side of the dial up to the "FS", the machine is in constant speed mode. The motor must be turned off to change modes.

## **Constant speed mode**

The numbers 1 through 10 on the speed mode side of the dial are approximately equal to a speed of 200 to 2600 RPM. You can adjust the speed while sewing. If you go past the 1 setting into stitch regulation side, the machine will run at the lowest speed. It will not change to stitch regulation mode until you turn the motor off and turn it back on.

To start sewing in constant speed mode, press the motor on/off button in the handlebar, then release the button. Be prepared to move as soon as you press the button to avoid piling up several short stitches. You control the stitch length by controlling how fast you move the machine head.

To stop, press the motor on/off button again. The machine will take a single stitch and stop with the needle up or down based on the needle up/down switch setting.

## **Stitch regulation mode**

The stitch regulation mode is selected when the selector dial is set on the left side of the dial. The numbers indicate stitches approximately equal to 8 to 15 stitches per inch. The stitch length can be continuously adjusted within that range so long as the machine head is not moving.

To begin sewing in stitch regulation mode, press and release the motor on/off button in the handle bar. The green indicator light will come on. When you move the machine head, it will begin sewing. To regulate stitch length, the sewing motor will speed up and slow down based on how fast you are moving the head. When you briefly stop moving the machine head, it will stop sewing. When you move again, it will sew again. If you stop for one second, the machine will position the needle according to the needle up/down switch without having to hit the single switch button. This makes it easier when using rulers to have the needle stop in the fabric and when not using rulers to be sure the needle is not in the fabric.

You can take a single stitch with the sewing motor on in stitch regulation mode, so long as the head is not moving. Then just start moving again to continue sewing your pattern.

To stop sewing, stop moving the machine head. When the machine stops sewing, press the motor on/off button. The machine will take a single stitch and stop with the needle up or down based on the needle up/down switch setting. The machine will not recognize the on/off button in stitch regulation mode while the machine is moving. You must stop the machine before turning the motor off.

If you don't move the machine head for about four seconds, the stitch regulator will turn off. When the regulator times out and turns off, it will leave the needle where it is and not take a single stitch. This is done for safety. If you forget to turn the sewing motor off while you change the bobbin, the stitch regulator could time out and take a single stitch while your fingers are in the way.

## **Basting mode**

To enter Basting Mode, turn your selector dial fully counter clockwise to the "B". When you push the run button and begin moving your machine head, it will take a stitch approximately every ½ inch. In this mode, single stitch will not work and the needle will not stop in the down position.

## **Foot Pedal**

The optional foot pedal is attached to your machine by a plug on the back of the machine and the foot pedal is placed on the floor. To use this feature, set your selector dial full clockwise on "FP" then press the run button. If the green Led blinks at you, it is telling you that the foot pedal is not plugged in. You step on it to run the machine. It works just like the accelerator on your car or the foot pedal on your home sewing machine. If you don't use it to run the motor for approximately 20 seconds, it will turn itself off. It can be removed when not in use.

**Caution:** If you unplug the foot pedal while the green LED is turned on, the motor will run at maximum speed until you turn it off.

# How to Care for Your Machine

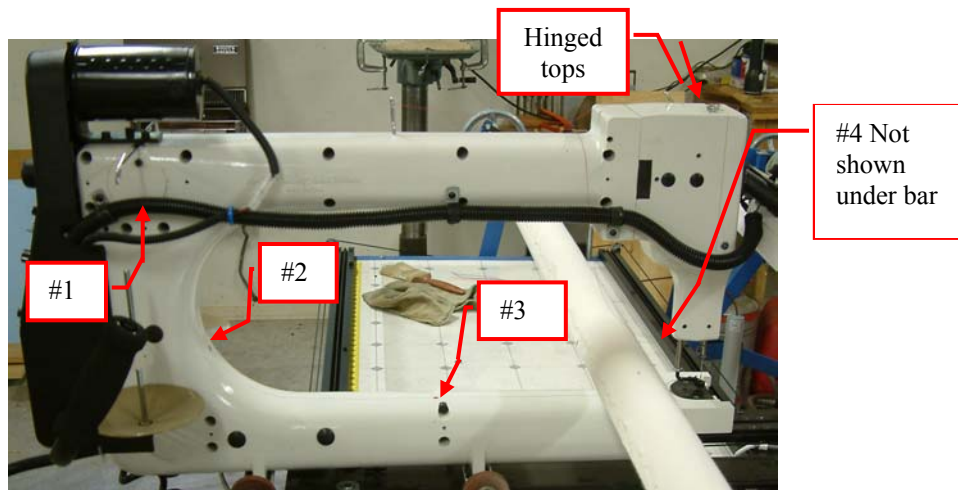
## Clean Lint from Machine

Periodically check for lint on your machine and table. We use a paint brush to clean the tracks on the table and around the bobbin area. Each time you change bobbins, you should clean out any lint that has collected in the bobbin case as well as behind the bobbin case.

## Oil machine

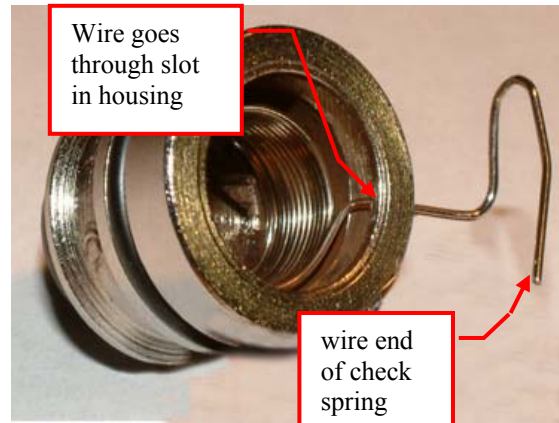
The machine uses an oil wick lubrication system and needs to be oiled after about 8 hours of usage. Use the light machine oil that came with the machine. Lift the red hinged top on the tiny ports on top of the machine and put one drop of oil in each. Put one drop in each of 4 places marked with red paint. In addition, the hook race needs to be oiled. Many accomplished users oil the hook race every time they change the bobbin. This does make the machine run smoother.

After oiling, be sure to run the machine on a scrap of cloth until no trace of oil can be seen on the cloth. It is easiest to see any oil on white cloth.



## Replace Check Spring

1. Using a 3/32 Allen wrench (hex key) loosen the set screw behind the tension assembly.
2. Pull the tension assembly straight out.
3. Loosen the screw on the tension assembly housing with a small, flat head screwdriver.
4. Remove the broken check spring from the housing. You can probably just turn it over and dump the spring out of the housing. If it won't come out that way, get a small needle nose pliers or tweezers to pull it out.
5. Thread the wire end of the check spring through the slot of the housing starting from the inside and going to the outside. When it is as far as it can go, push the spring down inside the housing.
6. Place the tension shaft into the center of the spring. There is a groove in the bottom of the shaft. Turn the housing until the check spring catches the groove in the shaft bottom. It will then slide together.
7. Rotate the shaft back and forth to be sure the spring arm applies tension on the spring. If it doesn't move and try to spring back, you don't have it seated in the groove properly. Try again.
8. Turn the shaft clockwise until the spring arm touches the edge of the slot. Rotate  $\frac{1}{4}$  turn clockwise. The spring is now under tension so hold onto it and tighten the set screw with the flat head screwdriver.
9. With your finger, push on the spring to be sure it bounces back. If it does not, it slipped when you tightened the set screw.
10. Put the housing back into the machine with the spring at the 11 o'clock position. Using the hex key, tighten the set screw.



## Set Rotary Hook Timing

1. Remove two Phillips head screws holding the throat plate.
2. Remove throat plate.
3. Loosen, but do not remove, all of the hook set screws.
4. Finger tighten one set screw so that the hook will not rotate on the shaft while making adjustments.
5. Using the thumb wheel, rotate the machine clockwise until the needle rises approximately  $\frac{3}{32}$ ".

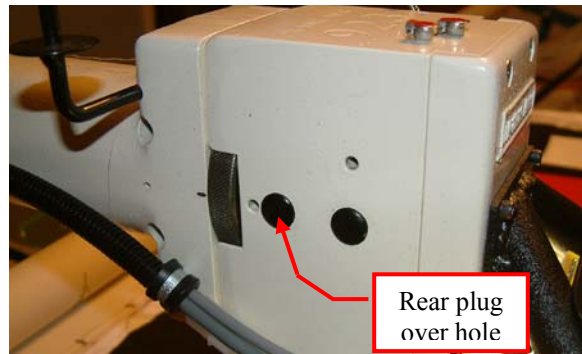
6. While looking at the POINT of the Sewing Hook, make sure it passes through the center of the needle scarf or slightly below.
7. Replace the throat plate using the two set screws, making sure the needle is centered in the needle hole.

## Adjust Needle Bar

1. Remove bobbin case.
2. Remove three Phillips head screws from the front handlebars.
3. Using the hand wheel, place the needle bar into the lowest position.
4. Loosen the set screw with a small screwdriver.
5. Raise or lower the bar until the full needle eye is visible while looking at the Sewing hook. None of the needle above the eye should be visible.
6. Make sure the bar has not pivoted from its original position.
7. Tighten the set screw.

## Set Hopping Foot Timing

1. Remove throat plate by removing the two screws that hold it in place.
2. Remove plug over rear hole in machine head.
3. Rotate thumb wheel until you can see a set screw inside the hole.
4. Using a 1/8" hex key, loosen the set screw.



5. Keep the hex key in the screw head and use it to hold it still while you rotate the thumb wheel. This will keep the drive wheel from turning so that you are changing the location of it on the shaft.
6. Adjust so that the hopping foot is in its lowest position when the needle is in its lowest position. As you turn the thumb wheel, the needle will begin to come back up just before the hopping foot begins to come back up.
7. Tighten set screw.
8. Replace the plug over the hole and the throat plate.

## Troubleshooting

### Poor stitch quality

Loose top stitch: Turn the thread tensioner clockwise  $\frac{1}{4}$  turn. Repeat until stitch quality is good.

Quilt top puckers: Top tension is too tight. Turn thread tensioner counterclockwise  $\frac{1}{4}$  turn. Repeat until stitch quality is good.

Check to see that the machine is threaded correctly. Be sure the thread is not wrapped around the needle and that it goes through the check spring properly. This can cause puckering on the top (too much top tension) or loops underneath the quilt (not enough top tension).

If the take up roller is too high, tension problems resulting in poor stitch quality can result.

“Eyelashes” on the back of the quilt can be caused by too little top tension. It is usually something extreme such as the machine not being threaded properly.

### Stitches are skipped when sewing

First, check to see that your machine is threaded correctly. It is easy to cause the thread to not go through the check spring.

Tension, tension, tension. This probably causes more problems than anything else. You need correct tension on the top and bottom threads but you also must have correct tension on the quilt.

Check the tension of the bobbin following the instructions on page 9.

Reduce the tension on the quilt by turning the take up roller a notch or two.

If you still have problems, time the machine according to the instructions on page 26.

Replace the needle. Be sure it is all the way up into the shaft and the scarf is toward the back.

Hopping foot needs to be timed. Follow instructions on page 26.

Take up roller may be too high. Turn the hand wheel to have a more flat surface across your quilt.

### Bobbin thread breaks

Remove the bobbin from the case. Look inside the bobbin assembly to see if thread is wound around the shaft. If so, your bobbin is freewheeling inside the case. Put a small scrap of batting inside the case and replace the bobbin. This will provide friction to prevent the problem.

## **Top thread keeps breaking**

Check your rhythm. If you are making jerky moves, the thread can break. Try slowing down and holding your elbow against your side and keeping your wrist still. This will help you control your movements because you are then moving your body instead of your wrist.

Be sure your machine is properly threaded. Sometimes the thread will get caught under the spool as it comes off and will prevent the thread from moving. If this happens repeatedly, lift the cone on the holder and put it back gently. This will create a small space under the cone so the thread will not get caught.

Be sure the first thread guide is centered over the top of the cone of thread.

Check to be sure the tension check spring is not broken. It should be in the 11 o'clock position. If it is broken, of course, replace it according to instructions on page 25.

Look at your stitch quality. If it is good, the tension is good and should not be adjusted.

Change the needle. A burr on the needle can be so small it is hard to see but still large enough to cut the thread.

Polish the hook point with 800 grit emery cloth. Again, a tiny burr can cut the thread.

Time the machine according to the instructions on page 26.

Adjust needle bar according to the instructions on page 26.

Very rarely, the problem could be the thread. Specialty threads may not be strong enough to withstand the tension of being used as a top thread. If that is the case, the thread will probably work in the bobbin. I know that won't help you if you have already started the quilt but you will know next time you want to use that thread.

It is possible but not likely that cotton thread may be too old. You can test it's strength by pulling on it. It will stretch quite a bit but it is surprisingly hard to break without jerking on it.

The thread can become too dry during storage and this will cause it to break. This can happen in an arid region of the country or in buildings being heated in the winter. You can correct this problem by spritzing the thread with water. CAUTION: only spritz the thread, don't get it wet. You may also prefer to put the thread in the freezer for several hours. When you take it out of the freezer, the temperature difference will cause the thread to draw moisture from the air.

## **The machine drags making it hard to move**

Check to be sure you have clearance between the machine and the quilt. Do this by sliding your hand between the machine and quilt. You should have about the width of your finger clearance. If you do not have the clearance, turn the wheel counter clockwise to raise the take up roller.

## **It's hard to control where you move the machine**

There is probably lint or thread in the track and the wheels are running over it. Clean the track with a brush. Check the wheels to be sure thread or lint didn't stick to them. If there is, remove it. Your machine should then move smoothly.

## StitchRite Setup Parameters

The four switches in the handle bars are used to calibrate the machine. Be sure to note where the instructions distinguish between front and rear buttons and single stitch and run buttons.

### Set Cruise Mode Speed

1. Turn the power off.
2. Set your rear needle up/down to the “down” position.
3. While pressing the **front single stitch button**, turn on the power. When the power is on, you can release the front button.
4. To increase the speed, press the **rear single stitch button**. The speed will be increased 50 RPM each time you press the button. The LED will blink 2 times.
5. To decrease the speed, press the **rear run button**. The speed will be decreased 50 RPM each time you press the button. The LED will blink 3 times.

### Switch Between Standard S/R and Cruise Mode

It is very easy to switch stitch regulation modes.

1. Turn the power off.
2. Set your rear needle up/down switch to the “up” position.
3. While holding the front single stitch button, turn the power on. When the power is on, you may release the button.
4. To switch to standard stitch regulation mode, press the **rear single stitch button**. The LED will blink one time.
5. To switch to Cruise Mode, press the rear run button. The LED will blink two times.
6. Turn off the power to save your changes.

The machine will stay in the selected mode until you change it.

### Motor Speed Calibration

There are two methods available to calibrate the motor speed. The first, Calibrate Speed Mode, is used when the system is setup the first time at the factory. If for some reason the DC motor drive needs to be replaced, you will use these instructions.

The second method, Auto Calibrate Mode, is used to fine tune the speed if it drifts at a later date. Normally, once the speed is set at the factory it should not need adjustment.

## Calibrate Speed Mode

To set the machine in Calibrate mode, first turn the power switch to the off position. While holding the front run button down, turn the power switch to the on position.

The motor will start running at half the maximum speed. The Single Stitch Speed Setting and Auto Calibrate settings will be set to 0. The system is designed for the machine to run at a maximum speed of 2600 RPM so half that speed is 1300 RPM.

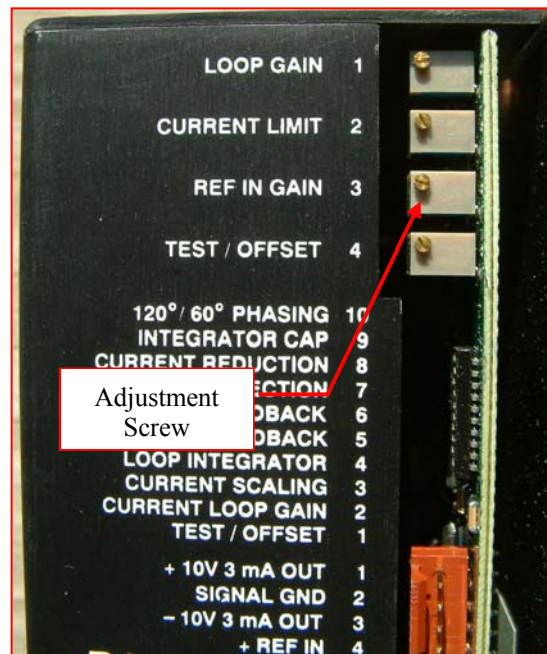
If the speed is correct, the green indicator light on the back panel will be on continuously. You can simply turn the power off and turn it back on to exit calibrate mode.

If the speed is too fast, the light will blink 3 times, pause, and repeat.

If the speed is too slow, the light will blink 2 times, pause, and repeat.

### To set the speed, follow these steps.

1. From the rear of the machine look under the carriage on the left hand side to find the drive pictured at right.
2. On the drive there are four screws. Number 3, labeled REF IN GAIN is the one you will use. To increase the speed, use a small screwdriver to turn the adjustment screw clockwise about 5 degrees; to decrease the speed, turn it counterclockwise about 5 degrees.
3. Wait about 4 seconds to see if the light quits blinking. If it doesn't, repeat step 2 until the light is stays on continuously.
4. When the speed is set correctly, press the **front run button** until the motor stops.



## Auto Calibrate Speed Mode

To use Auto Calibrate Speed Mode, turn the power switch to the off position. Set the rear needle up/down switch to stop down. Then while holding the **rear run button** down, turn the power switch to the on position. The motor will start

running at half the maximum speed, 1300 RPM. The motor will continue to run for approximately 20 seconds then turn off. The computer measures the average RPM and calculates a factor to correct the speed.

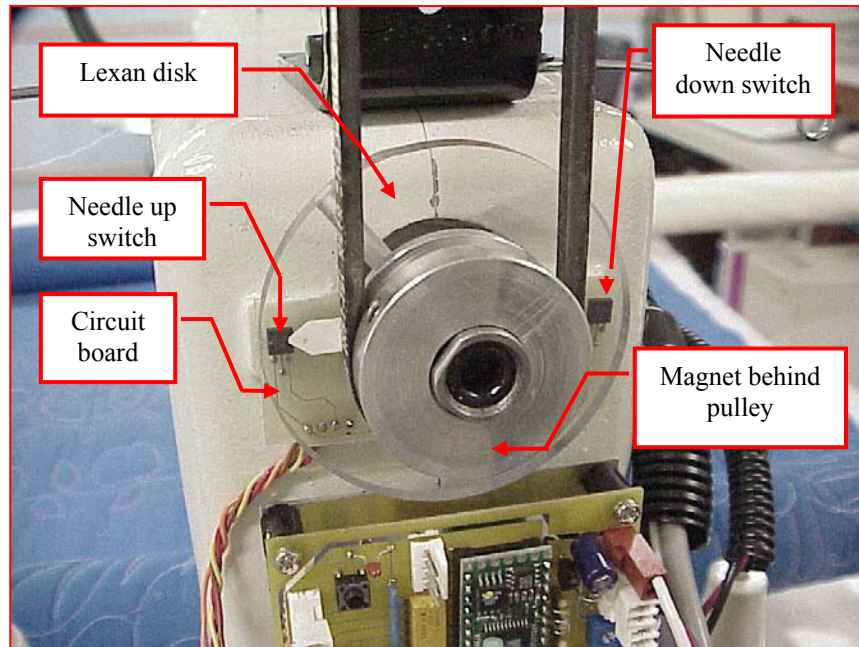
This mode does not reset the Single Stitch Speed Setting.

## Single Stitch Settings

The speed of the motor needs to be set so that the needle always stops in the correct position when you take a single stitch. If it is too fast or too slow, it won't stop in the correct position accurately.

Stopping a motor is like stopping your automobile, neither can stop instantaneously. To stop at a specific point, you apply the brakes before you get there. The faster you are going, the sooner you must apply the brakes. Just like your automobile, the faster the motor is going, the farther it will travel before coming to a stop.

On the main drive shaft on the back of the machine head is a clear lexan disk. There is a magnet mounted on this disk. On the machine head is a small circuit board with two magnetic switches. The one on the left detects if the needle is up and the one on the right detects if the needle is down. The speed is set so that when the motor stops, the magnet will be in the two to four o'clock position. At this point, needle is in its highest position.



## Setting the Single Stitch Speed

To set the Single Stitch Speed, turn the power switch to the off position. Set the rear needle up/down switch to stop up. Then while holding the **rear single stitch** button down, turn the power switch to the on position. The machine will take a single stitch.

Each time you press the **rear single stitch** button the speed of the motor will increase by about 10 RPM. If you press the **rear run** button, the motor speed

will decrease by about 10 RPM. Keep pressing the buttons until the magnet stops at the two to four o'clock position. You can test where the needle will stop without changing it by pressing the **front single stitch** button.

To exit set up mode, turn the main power switch off, then on again.

## **Test switch inputs**

Tests all switch inputs to see if the computer can see the switches. To test the switch inputs, set both the front and rear needle up/down switches to the stop up positions. Then while holding the rear run button, turn on the power. Push each of the following buttons front run button, rear run button, front single stitch button and rear single stitch button. After pushing each button, the rear LED will come on for about a second.

To test needle positioner switches, rotate the drive shaft until the magnet is over the switch. At that point, the LED will come on. Rotate the drive shaft until the magnet is over the other switch. The LED should come on again.

Flip the front needle up/down switch to the stop down position, and the rear LED will come on. Flip the rear needle up/down switch to the stop down position, and the rear LED will come on.

If any of these tests fail, there is either a bad switch or a bad connection.

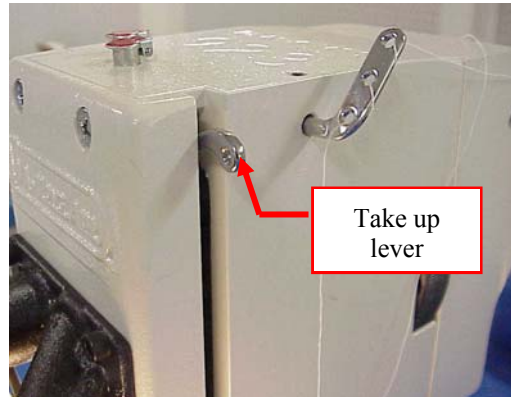
## **Test encoders**

This test will see if the computer is seeing the encoders. To test the encoders, set the rear needle up/down switch to the stop down position. While holding the rear single stitch button, turn on the power. With the rear needle up/down switch set to the stop down position, move the head from left to right and the rear LED will come on. This indicates that the computer is seeing the left to right encoder.

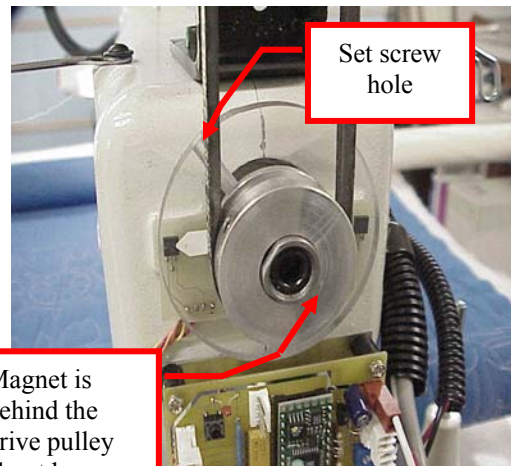
Set the rear needle up/down switch to the stop up position. Move the head from front to rear and the rear LED will come on again indicating the computer is seeing the front to rear encoder.

## Setting the Needle Stop Position

Most of the time you will want the machine to stop with the needle at the highest position and just beginning to come back down. The needle must be out of the bobbin assembly to change the bobbin. Also at that point, the hook releases the thread so that you can pull the thread without breaking it. Following are instructions to accomplish this.



There is a hole in the side of the lexan disk opposite the magnet. At the bottom of the hole is a set screw holding the disk. Using a 1/16" Allen wrench, loosen the screw. Rotate the machine drive pulley until the needle is at its highest point. Holding the drive so it won't turn, rotate the disk until the magnet is in the two to four o'clock position. Make sure the disk is next to the drive pulley and not pushed against the circuit board. Tighten the disk set screw. Next rotate the machine drive pulley and check to see that there is clearance between the magnet and the switches. If there isn't, then move the disk so that it is snug against the pulley.



## How to get help

For more information about our company and our products, please visit our web site at [www.sd-stitches.com](http://www.sd-stitches.com).

Of course, we will always be delighted to hear your questions or comments. You may contact us at:

A-1 Quilting Machines  
3232 East Evans Road  
Springfield, MO 65804  
(800) 566-4276  
e-mail [a1qm@aol.com](mailto:a1qm@aol.com)

or

S&D Stitches, Inc.  
6412 W. Southgate Road  
Rogers, AR 72758  
Phone: 479-273-5112  
e-mail: [stan.townzen@sd-stitches.com](mailto:stan.townzen@sd-stitches.com)

Machine serial number: \_\_\_\_\_

Software version number: \_\_\_\_\_ v3 01/14/03 \_\_\_\_\_

CPU Board version number: \_\_\_\_\_ v6 07-02 \_\_\_\_\_

Needle Positioner version number: \_\_\_\_\_ v1 \_\_\_\_\_

Rear Panel version number: \_\_\_\_\_ 06-02 \_\_\_\_\_

Front Panel version number: \_\_\_\_\_ FP-2 \_\_\_\_\_