

Long Arm Tips and Troubleshooting

Achieving good stitch quality

Understanding how your long arm machine makes a stitch will help you make the proper adjustments to make the perfect stitch. The technique all long arm machines use to make a stitch is different than the home sewing machine. The home sewing machine is designed to press together two layers of fabric and sew while the fabric is held in place by the presser foot. Long arm machines are designed to press and sew multiple layers together while the machine is moving. The difference is that there is practically no needle deflection on a standard sewing machine and a large amount of needle deflection on the long arm. The higher the tension, the more the needle will deflect. 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. If the pokies are objectionable to you, use the same color thread on both top and bottom.

TIP: A general rule of thumb is that if the stitch looks bad on the top it is the bottom tension. If the stitch looks bad on the bottom it is the upper tension. The upper and lower threads play tug of war with each other.

Tension

You need correct tension on the top and bottom threads, but you must also have correct tension on the quilt held between the rails. You should have a small amount of “sag” in your fabric. This allows enough movement of your quilt layers for the needle to penetrate and make good stitches. Before you start making adjustments to your machine ask yourself, “What changed?” If your machine was stitching great and all of a sudden it has loopies on the back or puckers, “What changed?” Did you just change the bobbin? Did you recently change the needle? Did you just roll the quilt? Look at your bobbin, a sloppy wound bobbin will not create a good stitch. Make sure that the threads on the bobbin are snug and evenly wound. Check to see if there is a piece of lint in the bobbin case.

Tension Trouble Shooting Checklist

- Have I oiled my machine?
- Is the quilt too tight on the frame?
- Is the thread jumped out of the tension discs?
- Check your threading. Has anything been missed or has the thread flipped itself around something?
- Is the hopping foot too high or too low?
- Do you need to change your needle?
- Is your needle in properly?

Top Thread Breaking

- Check that your thread is coming off the spool freely and that it is threaded through the thread guide directly above the spool of thread
- Check to see if the thread has looped itself around the spool pin.
- Check to see if the needle is in correctly, with the scarf facing the back of the machine.
- Have you recently changed the needle? Is it as high as it will go in the needle bar?

Eyelashes

- Eyelashes on the back of the quilt can be caused by too little top tension. Turn the thread tension clockwise 2 clicks
- Repeat until stitch quality is good. Remember the upper and lower thread play tug of war with each other.

Loose Top Stitch

- Is the bobbin thread inserted in the slot of the bobbin case?
- Adjust the tension knob 2 clicks. Repeat until stitch quality is good.

Quilt Top Puckers

- Is your backing fabric stretched too tight? While the backing fabric needs to lie flat and without wrinkles, stretching it too tight can make the quilt top pucker when you release the backing fabric.
- The top tension may be too tight. Adjust the tension knob 2 clicks. Repeat until stitch quality is good.

Skipped Stitches

- In skipped stitches, the needle penetrates the fabric, but does not form a stitch.
- Check to see that your machine is threaded correctly. Look at the check spring. Does the thread lay in the check spring? When properly threaded the check spring will move up and down as the machine is stitching and the thread is flowing freely.
- Check the needle. Be sure it is all the way up into the shaft and the scarf is toward the back. If it has been used for more than 8 hours, replace the needle.
- Check that your fabric is not rolled too tight on the rails. You need a small amount of “sag” in your fabric.
- Check that the height of your foot is set correctly.

Long Stitches

- Long stitches are different than skipped stitches. With long stitches the needle is not penetrating the fabric, but rather traveling too far before the needle goes down again, forming a stitch.
- In regulated mode, this is almost always a problem with the encoders. Check both encoders sure they are securely plugged into the back of the machine
- Make sure you have oiled your machine recently.
- In manual mode, you may need to either increase the speed on the Home screen or drive the machine slower.

Cannot Turn Hand Wheel

No matter how hard you try to keep the bobbin area free of loose threads and lint, you may get a jam. It is usually caused from a piece of thread that is caught in the bobbin area.

- Turn the power off.
- Remove the bobbin case.
- Facing the hand wheel, rotate the hand wheel clockwise to back the jam out of the bobbin race. (This may take some work to get it worked free.)
- Normally when the thread is dislodged you will be able to make a full rotation with the hand wheel.
- Clean the bobbin area with a soft brush.

Correcting Common Issues

Skipped Stitches	Corrective Measure
The needle is damaged, dull, bent, or installed improperly	<ul style="list-style-type: none"> • Replace the needle often, normally once or twice per day for continuous quilting or at least once per quilt. Recommended needle is GROZ-Beckert 110/18 • Always change the needle if the needle has struck any hard object such as a straight pin, etc. The tip of the needle can become damaged or burred, resulting in fabric damage as well as skipped stitches, thread breakage or shredding. • Always change the needle if it has been hit, bumped or pulled off center while maneuvering the machine about the quilt. A slightly bent needle can be a major cause of skipped stitches.
Needle has not been positioned properly	<ul style="list-style-type: none"> • Position the needle properly to the needle bar. Inspect the position of the needle to make sure the needle is at the 6 o'clock position. If you stand directly in front of the needle (facing the bobbin case side of the machine), you will see the entire needle eye directly facing you. This is 6 o'clock position • Make sure (1) the needle is installed all the way into the needle bar to the needle stop hole in the needle bar, (2) the long groove in the needle is toward the front (bobbin case side), and (3) the scarf/scooped out part of the needle is toward the hand-wheel. The needle can sometimes be rotated to 5:30 o'clock (slightly right) or 6:30 o'clock (slightly left) in order to adjust for a more positive thread loop pickup by the hook point
Thread tension too tight	<ul style="list-style-type: none"> • Loosen top tension. Re-check top and bobbin tension
Improper threading	<ul style="list-style-type: none"> • Inspect that the thread take-up lever, thread stirrup or tension spring are all threaded correctly.
The Needle Breaks	Corrective Measure
The needle is bent or not installed properly	<ul style="list-style-type: none"> • Replace or correctly change the needle. Make sure that the needle is pushed up into the needle bar clamp until it can go no farther (visually check that it is up to the top of the stop/sight hole above the needle bar clamp screw). Failure to do so can cause damage in the bobbin area and throat plate.
The needle hits the needle plate	<ul style="list-style-type: none"> • Replace needle with a new one.
Stitches are Puckered	Corrective Measure
Tension is not balanced	<ul style="list-style-type: none"> • Balance the tension of the needle thread after ensuring the bobbin tension is adjusted correctly
Stitch Quality is Poor	Corrective Measure
Tension is not balanced	<ul style="list-style-type: none"> • Adjust the tension of the needle thread after ensuring the bobbin tension is adjusted correctly
Bobbin case is damaged, corroded, dirty, etcetera	<ul style="list-style-type: none"> • Since thread slides over the surface of the bobbin case at a high speed, make sure the case is free of any lint or foreign matter that could impede thread passage through the machine.
Moving the fabric or depressing the foot pedal inconsistently	<ul style="list-style-type: none"> • The speed setting should be adjusted to a value that will allow you to sew comfortably and confidently with the foot pedal fully depressed. Discover a method of holding the fabric that is most comfortable

Tension is Poor	Corrective Measure
Lint caught under the tension spring in the bobbin case	<ul style="list-style-type: none"> • With some threads, lint and other material can build up under the tension leaf spring and begin to lift the spring. This reduces the spring's ability to compress against the thread. By inserting a needle under the spring and clearing out the lint, the bobbing tension will return to the previously set tension.
Poorly wound bobbin	<ul style="list-style-type: none"> • If the bobbin is wound too tight or too loose it can lead to poor and inconsistent tension. Make sure when the bobbin is wound that the thread tension is not so tight that the wound bobbin thread feels hard and causes the bobbin sides to bulge. It should also not be so loose that the thread is spongy, which can cause the thread to tangle as it is wound.
Hand Wheel Won't Rotate	Corrective Measure
Thread is entangled and caught in the hook	<ul style="list-style-type: none"> • Turn off the machine and remove the power plug from the electrical outlet. Remove the bobbin case from the machine. Lubricate the hook, then manually rotate the hand wheel clockwise and counterclockwise several times. Remove the thread caught in the hook.
Thread Nests Under Quilt	Corrective Measure
Not enough tension on top thread	<ul style="list-style-type: none"> • Check that the machine is threaded correctly. Make certain that the thread is flossed snugly in place between the two tension discs. If the machine is correctly threaded, tighten the top tension by rotating the tension knob clockwise.
Improper threading	<ul style="list-style-type: none"> • Refer to the threading diagram and threading instructions
Motor Fails to Run	Corrective Measure
On/Off switch is off or power cord is loose	<ul style="list-style-type: none"> • Turn the machine on only by using the switch on the back of the power pod. Verify the power cord is plugged in tightly at both the machine and the power source.
Needle Thread Breaks	Corrective Measure
Top and bobbin tension not balanced	<ul style="list-style-type: none"> • Check the tension of the top tensioner and bobbin for proper balance.
Thread cones/spools are poor quality or may have severe twisting or thread rot	<ul style="list-style-type: none"> • Look for severe twisting of threads when approximately 12 to 15 inches has been pulled off, with ends pinched together. Cotton threads are particularly susceptible to dry rot which makes thread brittle. Do not use poor quality thread, or thread that is rotted or brittle.
The machine head has been threaded incorrectly or thread spools are not positioned correctly	<ul style="list-style-type: none"> • Check that the machine is threaded correctly. • Inspect for accidental double wrapping of thread on thread guides. • Inspect the thread stand making sure the eyelets of the stand are directly over the spools. • Inspect the vertical positioning of the thread cones. Tipped cones can dramatically affect thread tension and can cause breakage.
Particles in tension discs	<ul style="list-style-type: none"> • Inspect for particles and remove any lint or debris.
Bobbin rotation is not smooth	<ul style="list-style-type: none"> • Change the bobbin. The slightest hesitation of the bobbin rotation can be the cause of dramatic tension change and thread breakage. • Clean bobbin case and housing
Needle is burred, bent or dull, or installed incorrectly	<ul style="list-style-type: none"> • Change the needle
Improper needle/hook relationship	<ul style="list-style-type: none"> • Timing of the machine is improper. Consult a repair technician

Damage or burr at the needle hole in the needle plate or any other place along the thread path	<ul style="list-style-type: none"> • If the thread is shredding at the needle plate, check for burrs or jagged edges. Gently rub with metal cloth to remove the sharp edge.
Wrong type of needle	<ul style="list-style-type: none"> • Use recommended needles. Using the wrong needle with a smaller shank diameter causes many problems. This may cause skipped stitches because the needle is positioned too far away from the hook point. It can also cause the needle to hit the hook, breaking the needle.
Other possible causes:	<ul style="list-style-type: none"> • The needle is too close to the hook, which causes friction and a possible collision of the hook point and the needle. • Needle plate damage. • Hook damage. • Broken needle inside needle bar clamp, preventing the needle from insertion to the top of the clamp.
No Visible Display	Corrective Measure
Cable unplugged	<ul style="list-style-type: none"> • Check the communication cable that connects the display to the machine and make sure the connection is secure