



quilting

THE QUILT

BY Dawn Cavanaugh.

Tackling Tension

If “tension struggles” isn't at the top of your frustration list when you machine quilt, I'd wager it is definitely among the top three! Tension won't be so mysterious and irritating if you learn a few secrets about managing it and how the other choices you've made regarding your quilt top affect it.

Machine quilters have two tension devices on the machine that will impact our stitch quality—the tensioner that controls the top thread and the bobbin case (or hook assembly if you have a drop-in bobbin). However, those two mechanisms are only a small part of what ultimately affects tension. Once you know about all the other factors involved, your success rate will increase dramatically!

I machine quilt using a longarm quilting machine. Even though I'm moving the machine across the fabric, the tension concerns are the same as a person using a standard sewing machine and pushing the fabric under the needle. These hints

apply to both types of machine quilting.

It's often hard to know whether to adjust your top tension or your bobbin tension when things start to go wrong. Try to think of your quilting as a tug of war between your top and bobbin thread. In this scenario, however, we never want a “winner”—we always want a stalemate between the two sides. That will mean the thread is meeting in the middle of the batting layer and will produce good stitches. When one team starts to “win” the tug of war, it pulls the opposing team's thread to its side of the quilt. When the bobbin is winning the tug of war, you'll see little dots of top thread being pulled to the quilt

back because the bobbin is pulling harder than the top. When the top thread is pulling harder, you'll see bobbin thread showing on the quilt surface.

In a tug of war, we only have two solutions: take away power from the winning side (loosen the tension on the side that's pulling too hard), or give power to the losing side (tighten the tension on the side that's not pulling hard enough). If your bobbin is tugging the top thread to the back of the quilt, either tighten the top thread tension to give it more power, or loosen the bobbin tension to take away some of its power. If your top thread is tugging the bobbin thread to the top of the quilt, either loosen

the top tension or tighten the bobbin tension.

With machine quilting, the most common scenario is that the bobbin thread pulls the top thread to the back of the quilt. This causes little “dots” of top thread looping around the bobbin thread. Quilters often call this “flat lining” because the bobbin thread looks like a straight line with no clear stitch definition. Others call this problem “railroad tracks” because the small bumps of top thread wrapping around the bobbin thread look like railroad ties lying across a track. In either case, the problem is the same—the top thread tension is not tight enough, or the bobbin tension is too tight and is preventing the top thread from pulling the bobbin thread up into the quilt.

I think it is valuable if you understand just how a stitch is formed by your sewing or quilting machine. This will help you learn how to make good choices for

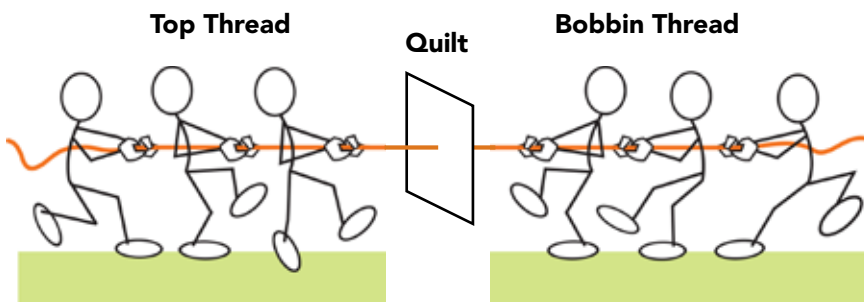
everything from needle size to thread weight to batting thickness.

In a perfect world, your machine’s needle would enter and exit your quilt sandwich straight up and straight down with every single stitch. That would allow your needle and the hook—the mechanical device that captures your top thread, carries it around your bobbin and locks it with your bobbin thread—to meet at precisely the right time to create a beautiful stitch balanced in the batting layer. Unfortunately, that’s not possible when you are moving either the quilting machine or the fabric. As you move your fabric or machine, the needle flexes and bends. Now the needle and hook meet differently as you sew—sometimes too soon or too late, or even too far away from each other (resulting in skipped stitches).

Needle flexing is the main culprit for “directional tension” trouble. Directional tension problems can be identified by analyzing which way

you were moving your longarm machine or fabric when the tension changed. If you notice a tension difference only when you move in one direction, needle flex is to blame. For example, longarm quilting machines will form the best stitches when you move from the left side to the right side of the table as you face the needle as shown in *Photo A*. This motion gives the needle the best opportunity to properly meet and form a locking stitch in the quilt layers. This motion is equivalent to a sit-down quilter “pushing” the fabric through the sewing machine opening when piecing. If your tension changes every time you move your quilting machine to the left or when you pull your fabric toward you on a home sewing machine, directional tension is to blame.

If you know that needle flex is causing the problem, there are several things you can do to reduce or eliminate it and your directional



If the top thread is pulling your bobbin thread to the top, either:

1. Loosen the top tension, or
2. Tighten the bobbin tension

If the bobbin thread is pulling the top thread to the back, either:

1. Tighten the top tension, or
2. Loosen the bobbin tension



Best tension is achieved by moving a longarm machine from left to right when standing on the needle side of the machine.

tension problems. Switch to a slightly larger needle, which will resist bending from the fabric pressure. Try going up one needle size and then check your tension again. You may need to tighten the tension a little in addition to going up a needle size if you are still seeing a few bumps of thread in the wrong place. The second suggestion is harder to do, but will have a big impact—slow down! Move your quilting machine or fabric more slowly so you don't flex the needle as much. If you get "eyelashes" on your quilt around the curves (*Photo B*), you're moving too fast for the needle to keep up. Your tension setting will also have an effect, but eyelashes are generally caused by rapid movement and needle flex. When you see eyelashes on the quilt, and you've slowed down considerably, check to be sure your machine is threaded properly. If you are still getting eyelashes, go up a needle size. Finally, adjust the tension again, keeping in mind that the eyelashes will appear on the side of the quilt where the thread is pulling too hard.

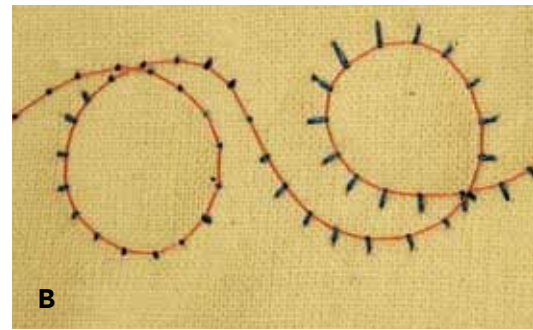
If you've slowed down, and have tried a larger needle, but still can't balance your tension, consider the batting thickness. Thin, dense batting does not provide much air space for your thread to lock in place. When your needle is moving and trying to pull the bobbin thread up from different angles, help it out by selecting a batting with

at least a little loft (for example, blended batting, low loft polyester, or washable wool). For the greatest chance of success, avoid extra-thin, 100% cotton batting for machine quilting. If your fabric is stretched on a longarm or midarm frame, avoid over-tightening the fabric, as that will compress the batting air space and make it more difficult for the needle to penetrate.

The strength and thickness of your thread can also affect your tension. Thicker threads pull harder on the needle and increase flexing. Choose a needle large enough to accommodate your thread. Use a lighter weight or thinner bobbin thread with thick or coarse top thread so that the needle has a better chance to tug it into the quilt layers before moving to the next stitch.

If you have a stitch regulator on your machine, choose a length in the mid-range of stitches, such as 11–12 per inch. This gets the needle in and out of the fabric more frequently as you move, and it reduces the drag on the needle between stitches. If you are manually moving the fabric, try pushing your foot pedal a bit more so that your sewing machine motor speed increases to make your stitches smaller.

Keep in mind that everyone battles thread tension at some point. Try some of these techniques (and watch for additional hints in upcoming issues) and you'll soon find that tension isn't such a scary monster after all!



When you see "eyelashes" on your quilt, check your thread path in the top and bobbin. The tension is too tight on whichever side the eyelashes appear. In this photo, the red bobbin thread is pulling the top thread to the back of the quilt. Loosen the bobbin tension and/or tighten the top tension. Finally, slow down to reduce needle flex around curves.



Author Profile

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