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SEWING BLOG

Clean Stitches: How to Adjust Sewing Machine Tension

By **Christine Haynes** on March 18, 2015

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When I am teaching new sewers, if the stitch looks a little off, usually the first thing they go for is the tension. Often, it isn't in fact the tension that is set incorrectly, rather their needle is old, the type of needle being used is incorrect or often the stitch length and width is set wrong. Sometimes though, it is actually your tension that needs correcting.



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All machines have a dial, usually with numbers along it and metal discs behind it. The higher the number, the more tension pressure is placed on the threads by the discs, and therefore distributing less thread into the machine. The lower the number, the less tension pressure is placed on the threads, and more thread is being fed into the machine.

Note, this is for the spool of thread at the top of the machine, not your bobbin. The bobbin also has its own tension dial, but as it is easy to throw the bobbin tension off alignment with the slightest of adjustment, I would suggest never changing the tension on your bobbin without the assistance of a repair shop.

Typically you can set your machine to "auto" or the middle number on the tension dial that is highlighted on your machine, but when you change to thicker or thinner fabrics, the tension might need to be adjusted to accommodate for the change in weight.

And, if you are using a serger or overlock machine, you need to check it each and every time you sew, since there is no "standard" or "automatic" setting on a serger due to the loopers that wrap themselves around the raw edge of the fabric. Below are examples of the most common stitches—straight, zigzag, and serger—and what a good stitch looks like, along side those that are too loose and too tight.

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[Sewing Machine Thread Bunching Up? Here's Why!](#)

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LET US SEE HOW AN IDEAL STITCH SHOULD APPEAR AND HOW TO ACHIEVE THIS STITCH YOURSELF!

STRAIGHT STITCH



Above is the top layer of the straight stitch, with the ideal setting in the center, and more tension on the left, and less tension on the right. The stitch on the left is puckering the fabric because it is too tight, and the threads on the right are a bit too loopy.



The underside of the same stitch is pictured above. The middle stitch still looks ideal, with the puckered stitch on the far left. The straight stitch with too little tension is really terrible on the underside, with the threads forming giant loose loops, resulting in a very poorly sewn seam that will not hold in place.

ZIGZAG STITCH



For a zigzag stitch, the differences are a little less obvious on the top layer. Above we have the ideal setting again in the center, with the stitch on the far left with too much tension, and the stitch on the right with too little tension.

The stitch on the left has slightly pulled the fibers of the fabric together to form a small hump between the zigzag points. The stitch on the far right is too loose from point to point, so you can see a bit of shadowing under the stitch itself.





Much like the straight stitch, the real problem for the zigzag stitch shows up on the underside. The ideal stitch is centered, the stitch with too much tension is on the far left, and the stitch with too little tension is on the far right.

The upper threads on the stitch on the far right are being pulled to the underside, creating loops where there should be points. On the stitch that's too tight, it is again forming a small hump and the actual zigzag is narrower than the ideal stitch, as it's pulling too tightly from point to point.

SERGER STITCH

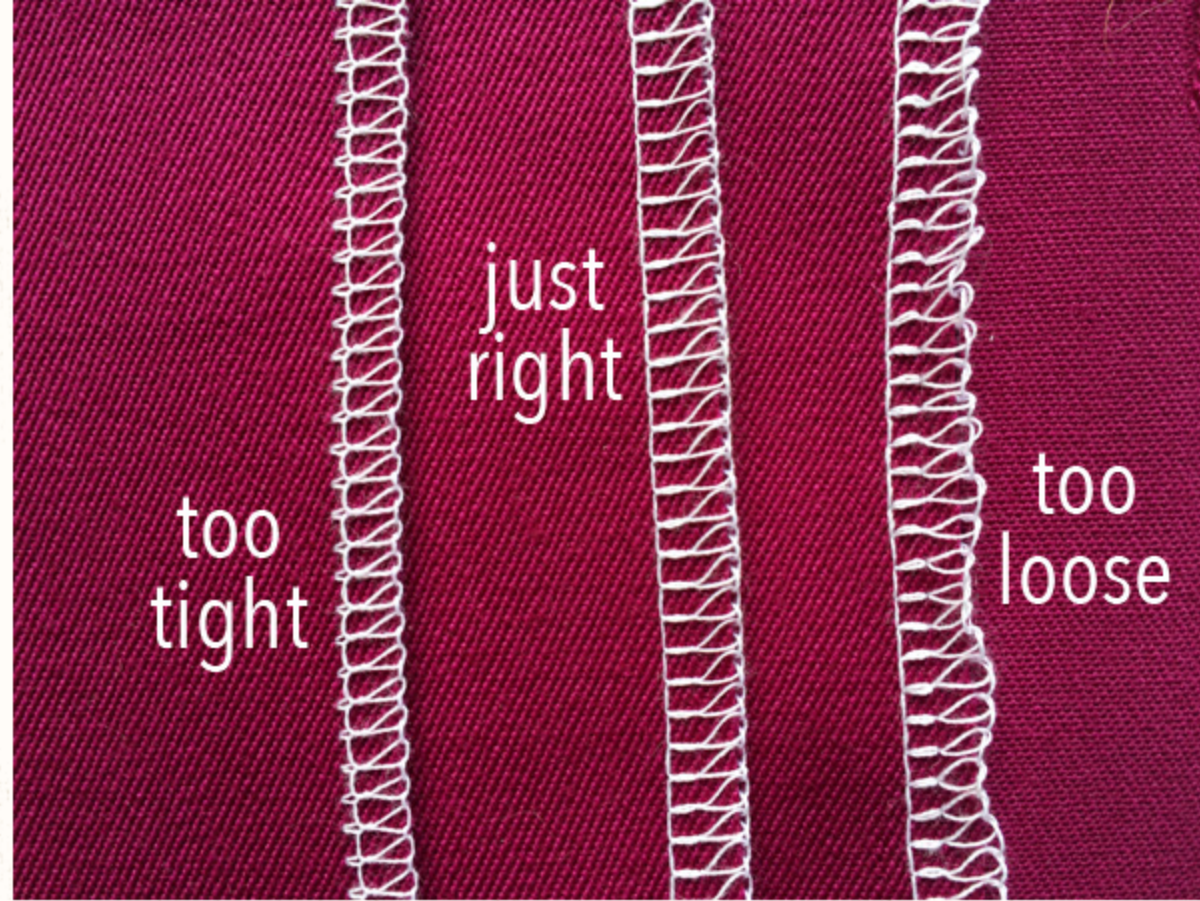


With a serger stitch, there are four threads to consider: the two straight stitches, and the upper and lower looper stitches. Each and every time you use your serger, you should test your stitch. The stitch in the center shows an ideal balance between the straight stitches and the looper stitches. On the right, the looper threads have not been altered, but the tension on the straight stitches has been lowered, making the stitch much too loose.

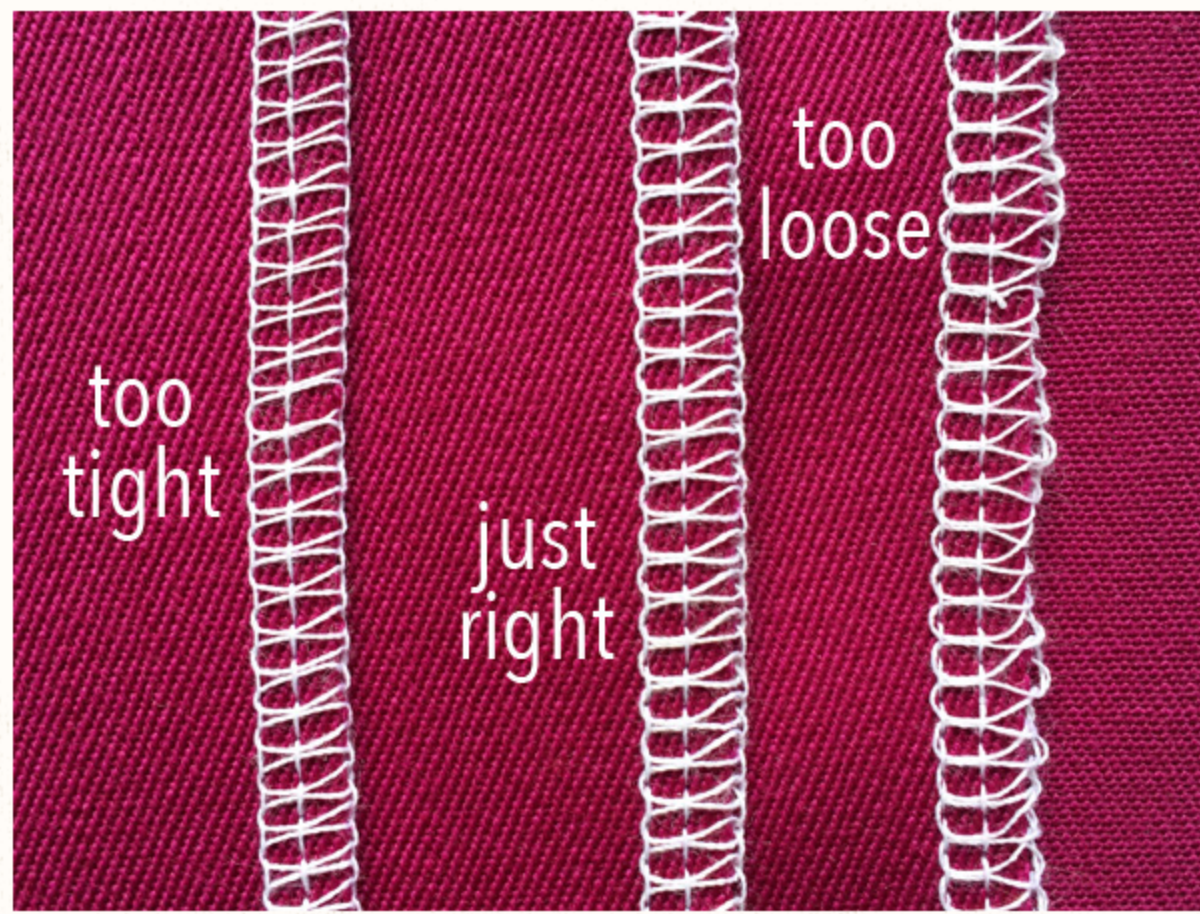
Interestingly, it makes the looper threads appear too loose, when they have not been changed at all in all three of these stitches. The stitch on the far left is the tension turned up all the way, and the only real way to spot this is that the straight stitches are so tight, they appear nearly invisible on the second row. They have also pulled the looper stitches beyond the center point.



The underside of the same stitch is pictured above. The ideal setting is in the center, nicely balanced between the threads and loopers. On the right, the lack of tension has created an absolute mess, as the threads cannot pull the loopers correctly. On the far left, the balance is off, a much more subtle correction to make, much like the previous image.



Lastly, these stitch examples show the opposite of the previous ones—these have only had their upper and lower looper threads changed, and the straight stitches have remained constant from left to right, despite the change in appearance. At the center, we again have our ideal stitch, perfectly balanced. On the right, the tension has been lowered and the loopers are much too loose. On the left, the additional tension has pulled the threads to the side of the straight stitch, as it is far too tight.



The underside of the same stitch shows again too much looping on the far right, with the much too loose tension. On the left, the only real sign that this is incorrect is that the loops are not meeting at the cut edge of the fabric, and rather have been pulled to the back side. The ideal stitch has the loopers meeting and joining directly centered on the cut edge of the fabric.

To test your stitch for sewing, always cut a scrap of exactly what you will be sewing—same fabric, interfacing, and quantity of layers—and give it a pass through all the stitches you intend to sew it with. I also suggest sewing on both the crossgrain and the length of grain, as well as on a curve or bias should it apply. That way you can get a clear image of what your stitch will really look like while sewing the finished project.

Always better to be safe than sorry!

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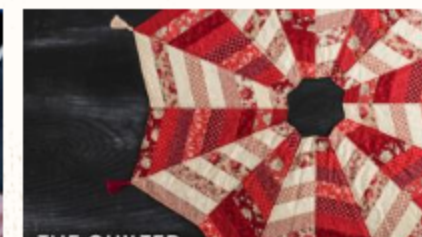
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43 COMMENTS



betty

March 18th, 2015

Why does my machine skip stitches but doesn't bunch underneath. In zigzag for example it will work right then its almost like the bobbin thread isn't being caught by the needle thread! Its put my quilting at a stand still and I have a lot of projects to finish by Christmas!! If possible can I get a emailed reply?!

[Reply](#)



Barbara

March 18th, 2015

your timing is out a little you need to take it and have serviced

[Reply](#)



Pam

March 19th, 2015

Your needle may be in backwards. Causes skipped stitches everytime.

[Reply](#)



BIG

April 24th, 2015

If the needle was backwards, it wouldn't stirch

[Reply](#)



BIG

April 24th, 2015

Tensions, not timing

[Reply](#)



BIG

April 24th, 2015

Everyone says it's the Timing, you have 2 adjustments off and it'll fix it

[Reply](#)



Toosinelda

October 24th, 2017

My machine was skipping stitches and it was suggested that my needle might be dull. That fixed it right away. Apparently, if the needle is dull, it doesn't penetrate the fabric each and every time. Just a thought. I hate fooling with tension!

[Reply](#)



Ellen Culberson

March 18th, 2015

Good to know

[Reply](#)



Sue

March 18th, 2015

What is happening when the top layers looks good, no puckering, but the underside layer is puckering?

[Reply](#)



Yvonne Bahr-Olson

March 18th, 2015

Love the mini lessons and sewing hints

[Reply](#)



BIG

April 24th, 2015

Top tensions is too tight

[Reply](#)



BIG
April 24th, 2015

Tensions

[Reply](#)



Roseann Difiore
March 20th, 2015

Love the adjustment lesson

[Reply](#)



Rebecca Wiltshire
March 21st, 2015

Am I right in assuming the tension needs to be tighter, the thinner the fabric? I also have problems with the bobbin area. Once I've finished sewing a piece, I seem to end up with 3 pieces of thread instead of 2 and it makes it so right to pull, it snaps or pulls the fabric out of shape! Thanku in advance

[Reply](#)



Carrie
May 24th, 2015

Rebecca, mine does the same thing! And I've tried loosening and tightening the tension! So I would like to know too please! 😊

[Reply](#)



Jon
July 14th, 2016

This happens when your thread take-up lever is not in the top position when you stop sewing and try to remove your material. That lever has to ALWAYS be all the way up.

[Reply](#)



Susan Ramsay
March 20th, 2017

Yes, when the take-up lever is up, the last stitch has been completed. If it is not completed, you have a loop which looks like a 3rd thread.

[Reply](#)



pyxye
November 18th, 2016

Try setting the presser foot adjustment so that the feed dog teeth are lower to loosen the tension as heavier fabric feeds through, or higher to tighten the grip on thin fabrics.

[Reply](#)



Ann Tynes
March 22nd, 2015

I've just bought a serger so I can make an "edge" on strips of fabric. How can I make a "tight", close together stitching that doesn't have a space between the stitches? I want to make tiny, close together stitches that lie next to (butt up against) one another. If anyone can help me, I would be MOST appreciative. Thank you so much!

[Reply](#)



BIG
April 24th, 2015

Dealer or online, it makes a difference, plus Singer is only a "name" it's a crappy make now that's is been bought out by a China brand called TTI

[Reply](#)



Susan Ramsay
March 20th, 2017

I saw an ad or something that mentioned Singer has auto correct tension. I felt just like you; get back to American made, but maybe we should give them a second chance.

[Reply](#)



Donna
May 30th, 2017

Well, that makes sense. My mother's old singer from the 60's never had issues. Mine from recent years has nothing but issues.

[Reply](#)



BIG
April 24th, 2015

Being a repair technician, it's very easy to estimate your machines

[Reply](#)



Pauline
April 24th, 2015

sometimes a new needle makes a big difference to 'skipping stitches.
I want to know how to get a decent flatlock stitch from my Bernina 800DL. Shop was useless were't even aware the machine would do it and the book instructions are not working out. the tensions are all wrong.
Thank you in advance

[Reply](#)



Ann alongi
May 4th, 2015

Just finished top of move over quilt I am not happy .Have been quilting for over 20 years This is first time I don't no how to correct prob.it is so twisted and out of shape .please help,!!!!,,,,,,,,,,,,,thank you in advance ann

[Reply](#)



Beverly Dilges
June 1st, 2015

Stitching problems may be caused by the tension but now with the new stretch and knit fabrics, it may be necessary to use the silicone lubricant — comes in a little “squirt” bottle — in the fabric department of sewing and discount stores — that can be used to lubricate the thread. I run a couple of lines of it on the top thread before filling the bobbins and if it is an especially slippery fabric, again on the top spool of thread. Also, you have to have a supply of various needs to try. I keep sharp, knit, stretchy and regular sewing machines needles and in various sizes. Sometimes a brand-new needle is required to make a pretty stitch.
Also, if sewing on the wrong side (as doing a hem) it may be necessary to tighten the top tension—this pulls the thread tighter on the underside. Practice on a scrap of fabric first, if possible.

[Reply](#)



Beverly Dilges
June 1st, 2015

Needles!

[Reply](#)



Tina
June 5th, 2015

I am having thread gather on the under side of my fabric each time I begin sewing. Is this a tension problem? Should I take it in to have it looked at? Tension is a little loose on the underside of the fabric but the top side looks perfect.

thanks

Tina

[Reply](#)



Susan Ramsay
March 20th, 2017

Start out slowly and hold the bobbin and needle threads to the back until a few stitches are taken. I have also seen someone pull the bobbin thread to the top after one stitch and hold them that way.

[Reply](#)



Stacy
January 13th, 2016

This was an excellent article. The pictures were,perfect. I knew what was wrong with my machine and fixed it. Thank you.

[Reply](#)



Jo Burton
January 17th, 2016

When I top stitch with my con sew 226r2 , the underside stitches look better than top. Almost like it's sewing upside down. Any thoughts what might be happening?

[Reply](#)



Clare
September 12th, 2016

I have the exact same problem – although not using the same machine. Did you ever find the solution?

[Reply](#)



Cathy E.
March 18th, 2017

I also have same problem. Bottom stitches looks great – top stitches not so great. Any idea what is going on?

[Reply](#)



Samantha
October 2nd, 2017

Same here.. I think my bobbin tension may b the problem? Crazy! I've tried every common setting there is!

[Reply](#)



Norma
February 16th, 2016

I'm new to serging and have a problem. My loopers are not engaging with the needles to make a stitch. The needles are sewing away and making stitches but loopers just aren't catching the threads to make any stitches. Any help would be great.

[Reply](#)



Christine Heeren
March 24th, 2016

Can you help me? It seems my stitch is wobbly and I'm not sure why. I have tension at mid, stitch width at 2, and my needle isn't old. I would like to send you a pic if possible.

[Reply](#)



Becky
April 10th, 2017

Hi everyone am new in d fashion industry I have this electric machine that d niddle keeps stalking down. How to I fix it

[Reply](#)



Christy Read
May 22nd, 2017

My machine goes from zigzag to straight while sewing heavy double fabric. What can I do?

[Reply](#)



Rosemary G
October 2nd, 2017

Just acquired a New Davis pre-World War. When I took it to a service technician he said he could not find parts. Said it was missing the Stitch regulator. Do you have any contacts that might have parts? I am in Missouri.

[Reply](#)



Jane
November 1st, 2017

My butterfly machine refuse to sew lycra and neoprene material.what am I going to do

[Reply](#)



Alie
March 1st, 2018

My zig zag stitch I think is too loose, that's how it looks in the picture on this page. However, it's the top stitch, not the bottom that looks like that. The bottom looks like a normal zig zag stitch, the top isn't a normal looking zig zag. I tried adjusting the tension knob, but it didn't seem to

the top isn't a normal looking zig zag. I tried adjusting the tension knob, but it didn't seem to make any difference. Not sure what to do...

[Reply](#)



Merry Pinbender

March 11th, 2018

If you haven't solved your problem it sounds like too much tension from the bobbin. Check that your bobbin in correctly. If it's in with the thread feeding off in the opposite direction (away or toward the tension bar) it will appear that the top tension is too tight. On older machines it may be necessary to adjust the bobbin tension when using heavier threads . I was taught to "feel" the tension (practice)and to only make a quarter turn adjustment at a time (right is tight, left is loose). ALWAYS check your instruction manual. If you decide to try this it may help to make a small dot/mark with a marker next to the screw in line with the slot in the head of the screw and make notes of all adjustments. (ie:3 quarter turns right). This will allow you to return to the original tension.

Other checks are to make sure your thread hasn't escaped any of the guides by rethreading your machine and double check your needle for size and type.

Hope this helps!

[Reply](#)



Teach You To Sew

March 17th, 2018

This is a really awesome, easy to follow guide. I showed this to my granddaughter who was having one heck of a time adjusting her sewing machine tension. Helped her out a lot! Thanks!

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