

## Working with your Top Tension

Quilters feel that machine tension is one of those sacred and revered areas that only the sewing machine repairman is allowed to venture into. In order to be a successful quilter you must take the initiative to learn how to change the tension in both the top and bottom of your machine. As long as you do it respectfully you shouldn't have trouble and you will have a whole new world opened up to you! You will learn how to achieve a perfectly balanced stitch and also be able to use any and all types of threads in your machine.

If you have a sewing machine that has a manual dial to control the tension you are able to change your top tension very easily without the aid of a computer.



If you have a computerized sewing machine, you may have been told that the sewing machine has already been calibrated for a perfect tension and you must NOT change the tension...period! It was more than likely set for a 50 wt. cotton thread.

If you leave your tension at the 50 wt. cotton setting you will never be able to successfully use the specialty decorative threads or heavier threads in your machine. That tension setting is too strong and will shred or compromise those threads as they pass thru the tension disks. You must be able to drop your top tension to a lower setting.

You need to get out your sewing machine manual and learn how to override the automatic tension on your machine or you will forever be stuck on the 50 wt. cotton thread setting. There is no fear here! If you get into an area where you really shouldn't be, simply turn the machine off and back on and it will automatically recalibrate itself.

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*The following was copied from Superior Threads' website...*

Sewing machines arrive from the factory preset to have the top and bottom thread form even stitches when sewing with a 50 or 60 wt. thread. If the top and bottom threads are identical in fiber and weight, adjustments may not be necessary. However, if we use cotton on top and poly underneath, or metallic on top and poly underneath, or a heavy thread on top and a fine thread underneath, it is necessary to adjust the tension settings. It is perfectly OK to use different thread types and weights on the top and bottom. Relying on a machine's automatic tension system is not enough.

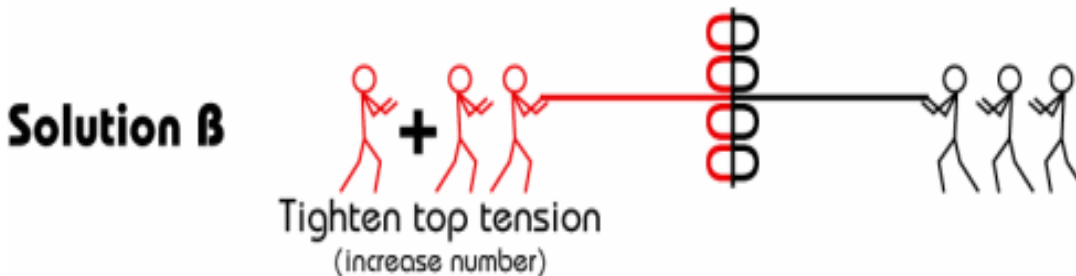
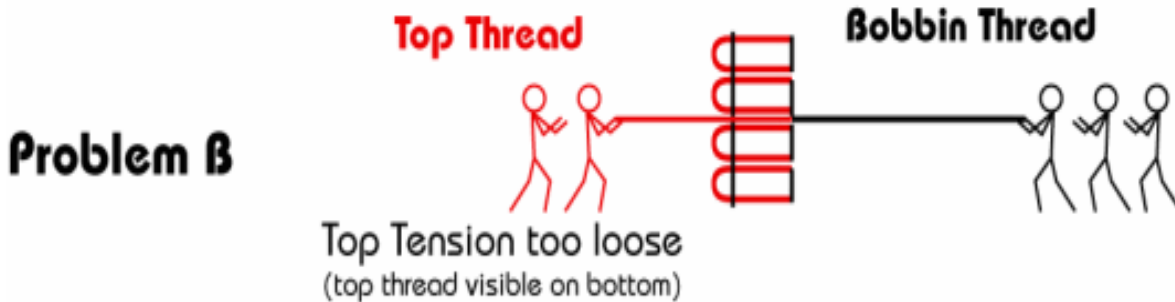
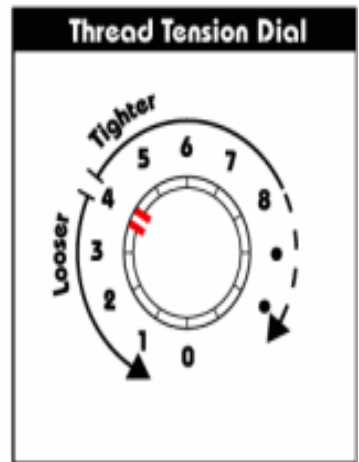
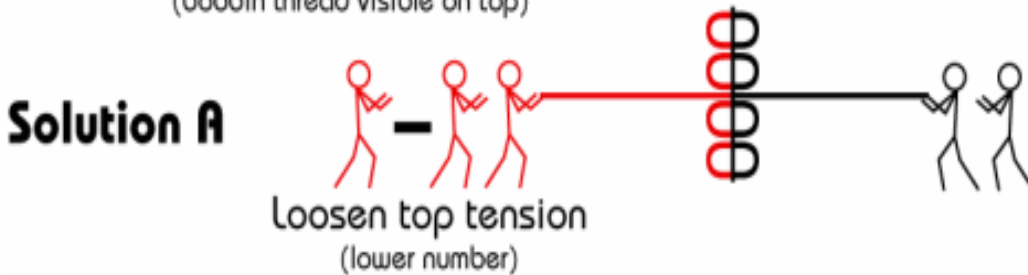
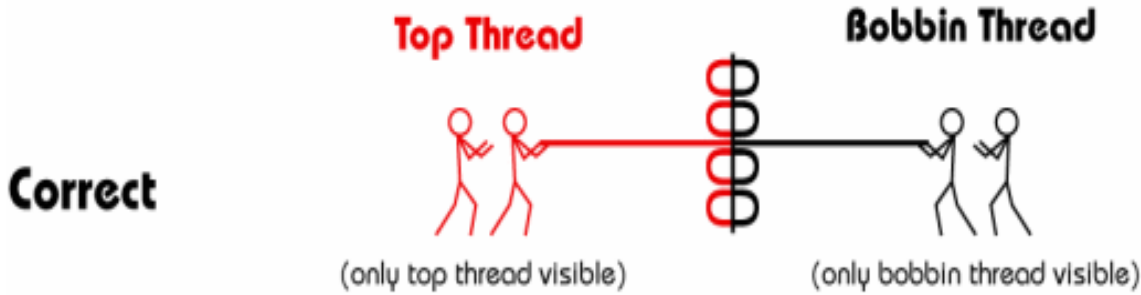
Think of the top and bottom thread as having a tug of war. (see illustration on next page). If the threads are identical and you are sewing on a single layer of fabric, both sides have equal strength and the result will be a draw. The sewing should therefore produce perfectly even stitches with no top thread showing underneath and no bobbin thread showing on top.

However, in the real world, the teams are rarely equal. One team will be stronger or bigger or faster than the other. We sometimes use decorative or sensitive threads on top. We also add stabilizer or batting. Sometimes we use a cotton bobbin thread and other times we use a polyester bobbin thread. All these factors make it necessary to adjust the tension for each project. By adjusting the top tension either up or down, we are able to add or take away strength on the top thread team to equalize the tug of war battle. These are some of things that affect stitch results:

1. **Batting.** This adds drag on top thread. Cotton batting tends to grab the thread more than poly batting, adding more friction on the thread.
2. **Fabric type.** Dense fabric puts more stress on the thread.
3. **Top thread thickness and type.** Metallic is less flexible than cotton or poly. Poly is usually stronger than cotton or rayon.
4. **Bobbin thread type.** Cotton bobbin thread tends to grab more than smooth filament polyester. Sometimes grabbing is preferred and sometimes it causes problems. A smooth filament poly thread (not spun poly) in the bobbin will work better with metallic and other sensitive threads because its smooth finish acts almost like a lubricant, sliding nicely with the thread.

*With each of these factors it may become necessary to either tighten or loosen your top/bottom tension. I always fidget with my top tension first and my bobbin tension last. You may need to loosen the top tension a bit to eliminate the little dots of bobbin thread coming thru to the top...if that doesn't work you may need to go to the bobbin and tighten it just a bit. If you have the top thread being pulled thru to the back try tightening the top tension a little OR loosening the bottom tension a little. It's a 50/50 scenario and you may have to adjust top and/or bottom several times before obtaining a balanced stitch.*

This guide on tension adjustments was copied from Superior Threads' website. If you want more great information on threads, tensions, problem solving, etc., please go to [superiorthreads.com](http://superiorthreads.com) and go to the "education" section. Bob Purcell is an amazing teacher and shares a wealth of great information!

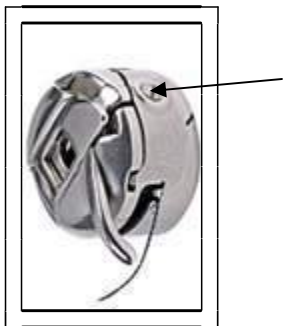


# Working with your Bobbin Tension

There are two types of bobbins...drop in and the standard silver bobbin case. This picture is a drop-in bobbin encasement. In most cases when you remove your top plate, this encasement can be easily removed. You will find two screw heads on the side that control your tension. One holds the tension spring itself and the other controls the bobbin tension. You never want to touch the tension spring screw! This has a **Phillips head** and may have a small arrow pointing to it.



The small screw with the **flat head** is your tension screw and is the one you may adjust. Follow the directions below for changing your tension...it is the same as it is for a standard bobbin case.



This is a picture of a standard bobbin case. This one shows the “finger” attachment that I will discuss on the next page. I want to draw your attention to the tension screw which is located right here in this particular picture. The easiest way I can describe how to find the tension screw on this type of bobbin case is for you to reach in your machine and grab the latch of your bobbin case and pull it out. Make sure the latch side of your bobbin case is facing to the left (or facing towards your left thumb). Turn the bobbin case towards you.

The first screw you come to is your tension screw. This is the one you adjust. If there is a second screw it holds the tension spring and you don't want to touch it.

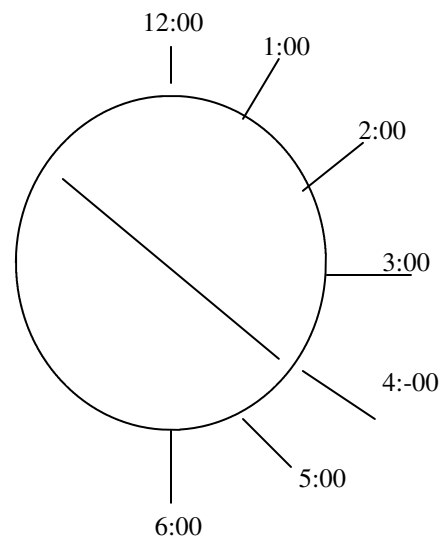
Think of your tension screw as the face of a clock. I usually look at the right hand side of the “line” of the screw and see where it is pointing.

In this example it is pointing to four o'clock. ***Before I change my tension, I write down 4 o'clock and also draw a circle with a line that matches where my screw is set.*** If I ever need to bring my bobbin tension back to where it was I have two references to refer to.

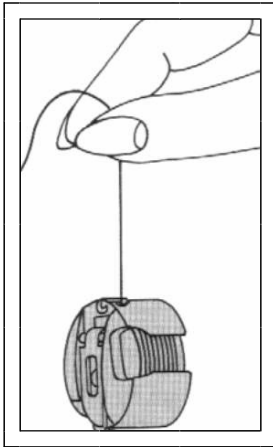
If you need to tighten the bobbin tension move the screw to the right to five o'clock.

If you need to loosen the bobbin tension move the screw to the left to 3 o'clock.

**Remember: Righty-tighty, lefty-loosey.** Never move your screw more than 1 hour at a time.



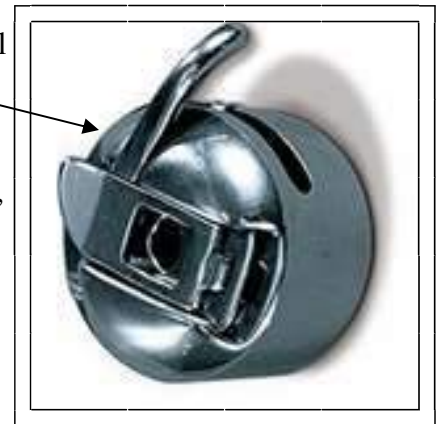
Put the bobbin case back in your machine and do a test run. If it is better but not perfect, change it another hour. If you change your bobbin tension in this fashion, never forgetting where you started, and only changing it in one-hour increments at a time, you will not have a problem. The fact that you wrote down where you started always allows you to go back to the beginning. It does require a little patience and respect!



Another way to check the tension on your bobbin case is doing the “drop test”. I put the bobbin in the case and pull out a couple inches of thread. I gently pick up the threaded bobbin case by the thread itself. The case should be able to be gently picked up and hold its own weight. A little bounce on the thread should allow the bobbin case to gently drop. If your tension is too loose you will be unable to pick up the bobbin case. If it is too tight it will not drop down when you give the thread a bounce. This guideline applies to both a standard bobbin case as well as the drop-in bobbin case. You have to be a bit more careful with the drop-in bobbins but it still works! Tighten or loosen your tension with the tension screw until you get the right “drop” to your case.

Some bobbin cases come with this finger attachment or a small wire pigtail. This is just another tool to help you adjust your bobbin tension.

If you find you need to **tighten** your bobbin tension just a little, try threading your bobbin thread through the hole in the end of finger or pigtail before changing the tension with the screw. Many times it will provide just enough traction so that you don't need to do any further adjustments.



While we are talking about bobbin tension, there is one often overlooked point that is critical and that is how well your bobbin is wound. Always make sure that you have a good, solid straight stacked wind to your bobbin. If the thread stacks like a cone or is loose and spongy, this will greatly impact your bobbin tension and stitch quality. Be sure to check the bottom of your machine and make sure it is clean and free of dust, lint and stray threads. Check the inside of your bobbin case and make sure it is clean too. I always use a folded end of a pipe cleaner to remove the stray lint and fuzz out of my machine...it's a great, cheap and easy to use tool and works like a magnet pulling everything out. Never use canned air to clean your machine. This only blows everything back in and jams into your gears and electronics.

# Balancing Your Decorative Stitches

When I am teaching my Open Thread Bar there is a lot of time spent working with machine tension...both top and bottom. Many of my students bring their computerized decorative stitch machines and spend the day playing with various threads using these stitches. Occasionally the stitches don't come out like the student expected. They are distorted, the shapes aren't as perfect as expected and no matter how much they fidget with the tension it just isn't perfect.

**Anita Zobens** is the Superior Educator in Canada and she provided me with some great information she shares in her thread classes and I've included it here for you. You can visit her website at: [www.cottonmillthreadworks.com](http://www.cottonmillthreadworks.com). Thank you Anita!

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When the stitches look totally distorted (student says "these don't look anything like the diagram!"), decorative stitches don't close at points (like that row of hearts for instance) - these are balance issues.

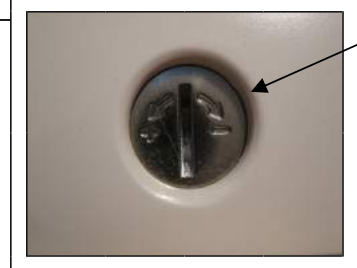
Most decorative stitch machines-but not all-have a largish circle on the body of the machine, either at the side or the front. Sometimes you need to remove the accessory box to access.

*(photo of a Juki Exceed F600 balance dial)*



This circle has a slot in the middle for a screwdriver or a coin, and a "plus" sign and a "minus" sign. To resolve the appearance of the stitch you simply turn to + or -, test sew, and if not correct try the other setting. When reverting back to another stitch change the setting back to midpoint.

*(photo of Janome Horizon balance dial)*



If you have a computerized machine you may need to go into the computer to correct this. Check your machine manual for instructions. *(photo of Bernina 440)*



Your machine manual will probably show the balance dial in the diagram but it may not be listed in the table of contents. So unless you've read your manual from cover to cover you may not even be aware of this very useful tool!