# Handi Quilter Tension Adjustment Information

## Tension Theory

### Nicer and Stronger

Proper tension setting will not only provide a nicer looking stitch, but also a stronger stitch. The bobbin case is the foundation of the tension setting and is always done first with a full or mostly full bobbin with the thread that will be used. The top tension is then set to match with the thread to be used on the top.

### Knots in Center

When the tension is properly balanced, the knots (the location where the top and bottom threads meet and hook together) will be in the center of the quilt in the batting. This provides not only the best looking stitch, but also the strongest stitch. If we ever have a straight line of thread on the top or the bottom of the quilt, then we can pull the straight thread right out, because there is no friction between the knot and the fabric. This is because the knot is on the top or bottom of the fabric. A strong stitch has fabric resistance and friction between each stitch, because the knot is in the center of the batting and fabric.

### Thread Not Properly in Top Tension

Many people will not pull the top thread properly into the top tension assembly. There is a very good explanation for this, which, when understood, will eliminate this issue.

The Handi Quilter quilting machine does not have a presser foot lever or top tension release mechanism like all regular home sewing machines. On a home sewing machine, the top tension is released when the presser foot is raised, allowing the thread to come freely out of the machine. When a home machine is threaded, the tension disks are released and open for the thread to easily fall between the disks.

This is not the case with the HQ quilting machine. Consequently, the top tension is always tight and the tension disks are never open. Therefore, the thread must be pulled or “flossed” up between the tension disks or it will stay outside the disks and float without tension, causing serious tension problems and/or thread nests.

It is also possible to bend the needle while it is threaded, if care is not taken while moving the machine around the quilt, because the top tension is never released. Locking off a stitch and trimming the threads before moving across the quilt, will eliminate this problem.

**Two Signs of Thread Not in Top Tension Properly**

1. If the top tension is tightened too much, it will become impossible for the thread to be pulled in between tension disks, which will result in significant tension issues. The operator will become frustrated, as it will seem that no matter what they do, the tension does not change or improve. This again, will be because the thread is not in the tension enough to be between the tension disks. This will make the tension seem inconsistent.
2. The thread can be seen going around the outside of the tension disks, having the appearance of being in the disks, while it is not. When the thread is deep in between the disks, all the way, it is not visible.

**Needed Paradigm Shift**

Most people have been told their entire life to NEVER touch their bobbin case tension. Because of this, they are very reluctant to adjust the bobbin case tension. Many are also scared to touch the top tension assembly.

Machine quilting is a very different application. We are basically doing freehand embroidery over a quilt. Quilters like to use many thread colors and types and often mix these threads. Consequently, tensions must be always checked and often changed/adjusted. Every time a new bobbin is inserted and a top thread is changed, the tensions should be checked and adjusted if necessary. Tensions must be understood in order to do this.

**All Threads are Not Created Equal**

There are many types, brand, qualities and colors of threads. Threads make a huge difference in stitch quality. Tensions are affected by the color of the thread. The darker the thread the heavier the dye and the tighter the tension will be. Some threads require less tension because their breaking point is lower.

**Tug of War**

Tensions are a tug of war between the top tension mechanism team and the bobbin case tension team. The batting in the center of the quilt material is the line in the sane. When either the top tension team or the bottom tension team is stronger, it pulls the other into the “mud hole” and we have a mess (loops or nests). It should be noted that we are not trying to have the same amount of resistance on the top and the bottom. We are trying to get the knots into the center of the batting and fabric on the quilt for a pretty and strong stitch.

## Adjusting Tensions

### Tension Foundation

The bobbin case is the foundation of tension adjustment.

### Properly-Wound Bobbin

The bobbin must be wound consistently and evenly for good tension.

### Properly-Inserted Bobbin

Having a properly inserted bobbin with thread wound clockwise, then backtracking out and under the bobbin case tension spring is very important.

### Bobbin Case Check and Adjustment

To test that the bobbin tension is correct, hold the bobbin in the palm of your hand with the open end facing up. Wrap the thread around your index finger and while pulling up on the thread, slightly move the finger front to back (not up and down, which is inconsistent). The bobbin case should lift UP on its side, but NOT lift out of your hand. If it will not lift up onto its side, it is too loose and if it lifts out of your hand, it is too tight.

The small screw in the center of the tension spring is where the adjustment is made. Turn clockwise to tighten and counterclockwise to loosen the bobbin case tension.

**Note:** Turn the screw only slightly, a degree or two at a time. A little adjustment on the bobbin case makes a big difference. *If the bobbin case screwis turned a degree or two, the top tension knob will have to be turned ¼ turn to ½ turn or more. A little adjustment on the bottom requires a lot on the top.*

### Top Tension Check and Adjustment

**Important Note:** The top tension should be adjusted only after the bobbin case foundation tension adjustment is made.

### Pull or Floss Thread Completely into Top Tension Assembly

When threading the machine, make sure that the thread is pulled or flossed completely into the top tension assembly. After threading through the eye of the take-up lever, pull down on the thread, towards the needle, before threading the last thread guide and needle eye, to see if the thread feels loose or likely to break.

After a while, you will develop a feel for what the top tension resistance should feel like with the thread that you use regularly. For example, if the thread has no resistance, it is probably not in

the top tensions disks fully. If it feels too tight and ready to break, it is probably wrapped around something it shouldn't be.

**Adjust the Top Tension Until the Knots are in the Batting**

It is recommended to adjust on a quilt sample on the side and to sew only a few seconds, at slow to medium speed, until tension settings are close or are set correctly. Many people sew full speed and for many seconds or minutes before checking to make sure the tensions are correct. Do not make this mistake.

**Improperly Set Tensions**

If both tensions are too tight, puckering, gathering or thread breaking will be seen. If both threads are too loose, the threads will look loose and undefined, like dead worms thrown down on the table.

**Check Tensions Occasionally**

If you change the bobbin or top thread, or anything else (like the needle, a different quilt, etc.), recheck the tensions quickly. Tensions should be checked throughout the quilt. This will prevent the problem of sewing a whole quilt, only to find that the tensions "looked fine" on top, but were bad on the bottom and will have to be ripped out. Check by looking and feeling both on top and the bottom of the quilt.

**Consistency**

Consistency is a very important and powerful ally. More consistency brings fewer variables. More variable bring more problems. Once you find a brand and type of thread that works well for you, stick with it and reduce the variables which increase your grief. You should be as consistent as possible, especially with threads, needles and bobbins.