T-N-T REPAIR

700 SERIES

TOUCH & SEW

TENSION REPAIR GUIDE

This guide will walk you through the entire process of cleaning, repairing and adjusting the top tension unit on any 700 Series Touch & Sew machine. Common models include: 750 – 758 – 756 – 770 – 771 – 776 – 778 – 775 – 774
As with all my guides, it is assumed the user is handy with their tools, and at some point in time, has had the machine open for oiling and cleaning. Even if you not that handy with a screwdriver, this guide should still be able to walk you through the repairing process. Always be sure to lay the parts out in order of removal, and pay close attention to how things are assembled before taking them apart

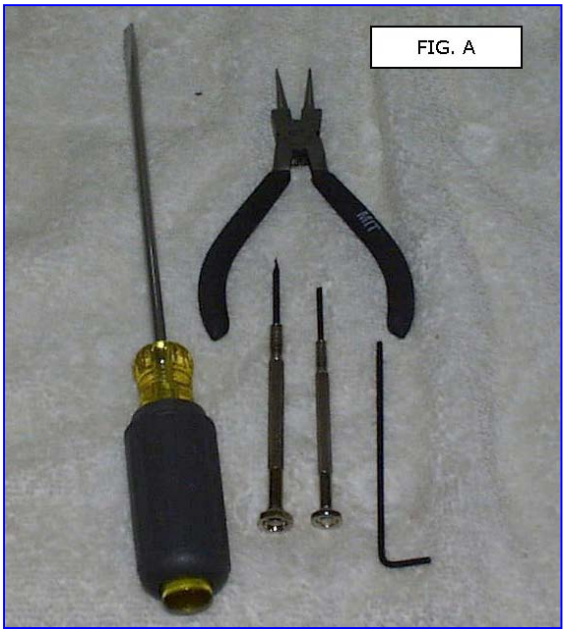


FIG. A

Basic Tool Requirements: fig A

1. Flat blade screwdriver, medium in size
2. Small needle nose pliers, or better yet, round nosed pliers
3. 5/64 Allan wrench
4. Flat blade Jeweler screwdrivers

Other Tools Handy To Have: fig B

1. A Moto-Tool / Dremel, would be nice, with a polishing wheel (gray stone type). See figure b
2. Fine sand paper, about 1200 – 1600 grit, higher if available
   Note: if you need to use the sand paper, rub it on some other surface first, so it is a little worn. All we need to do is clean any rust, or roughness of the tension discs
3. Crazy glue, or other type of epoxy, something that will hold very solid over a period of time

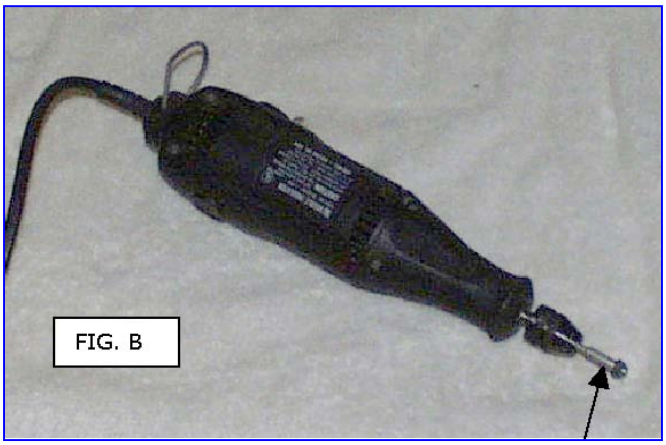


FIG. B

Basic Tension Parts:

Shown to the right, fig 1, is the basic T&S top tension unit

Lets break it down and become familiar with the parts, fig 2

1. 63 – tension cap / regulator nut
2. 64 – tension cap – plastic
3. 65 – tension cap friction washer
4. 66 – check spring
5. 67 – tension releasing pin
6. 57 – tension stud unit
7. 58 – tension discs (3 total)
8. 59 – tension releasing pin washer
9. 60 – pre-tension spring
10. 61 – pre-tension adjusting nut

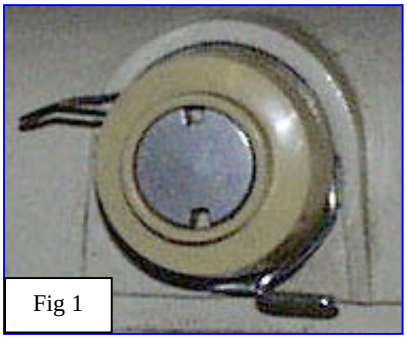


Fig 1

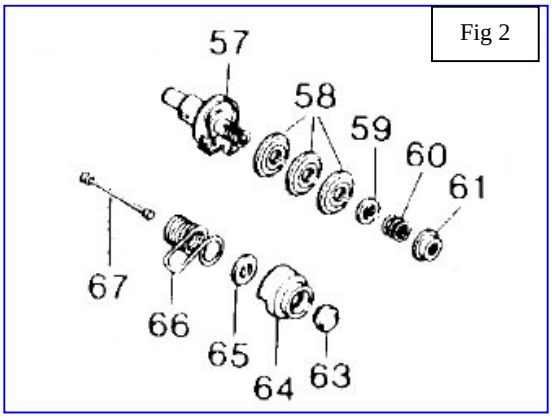


Fig 2

Panel Removal:

1. Open the side cover (face plate), fig 3, arrow
2. Depending on model, removing the arm top cover differs. Fig 3 depicts a machine with a solid arm top cover, while fig 4 depicts a machine with an arm top cover that may be opened to insert additional patterns. Depending on your model type, remove the arm top cover screw, shown in fig 3 & 4 bottom pictures, circled area
3. With the side cover open, lift the top from the right side, and slide off to the left. The arm top cover is spring loaded, so give it a little assistance in sliding off

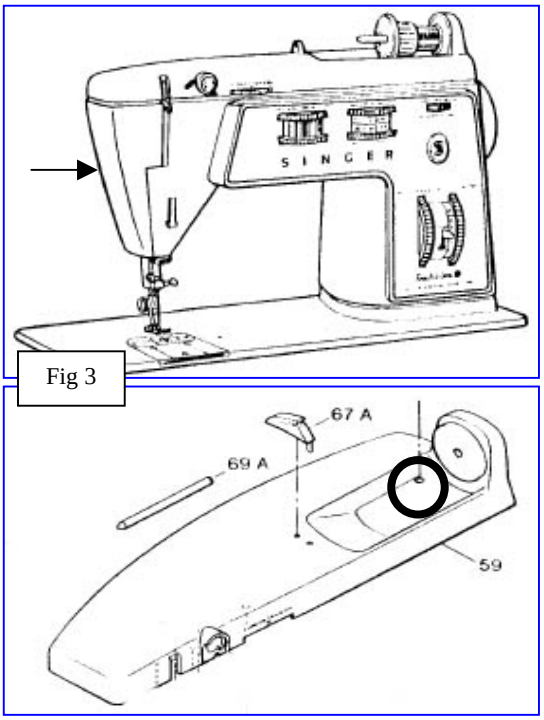


Fig 3

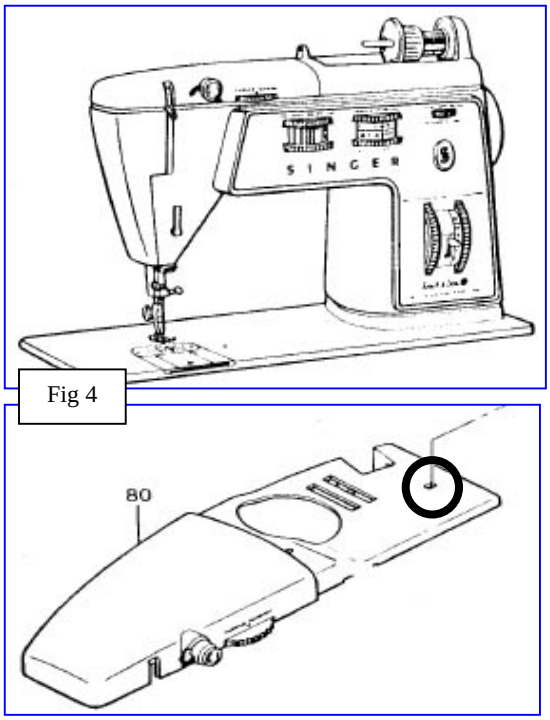


Fig 4

Tension Disassembly:

1. Using the rounded end needle noise pliers, or other tool available, remove the tension cap regulator nut. Turn counter clockwise, fig 1
2. Remove the plastic tension cap, and inspect for any damage. This part should be free of nicks, or other areas that could snag the thread during sewing. If it is damaged in anyway, replace, or repair so it is smooth on all back side surfaces, fig 1 arrowed
3. Remove the tension cap friction washer, shown on previous page, item 65 in the parts section
4. Remove the tension releasing pin's holding clip, fig 2 circled, pull straight up on it
5. Using the 5/64th Allen wrench, loosen the setscrew, fig 2 top arrow
6. Remove the top tension unit from the arm top cover. Note: pay attention to the releasing pin, as it fits into a little cupped area in the tension adjusting arm, fig 2 bottom arrow

Fig 1

In figure 3 we have the unit laid out in the order of disassembly: *left to right*
Tension cap regulator nut – plastic cap – friction washer – tension unit

7. With the tension unit in hand, carefully remove the backside of the check spring off the stud unit
8. Then remove the front of the check spring off the pre-pressure adjusting nut, at the same time being careful not to bend the check spring itself
9. Before removing the pre-pressure spring adjusting nut, observe its position on the tension stud. It is important that we place this unit back on in the same location when putting the unit back together

Fig 2

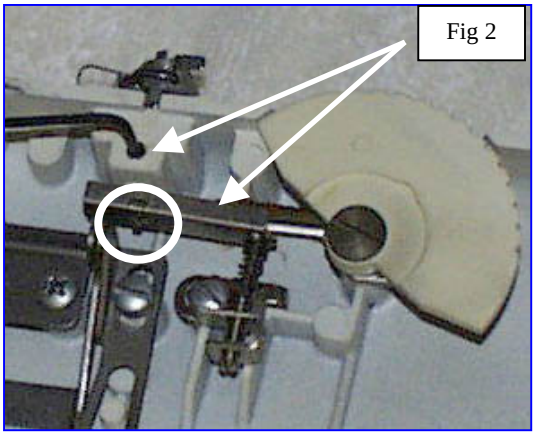


Figure 4 shows the entire unit disassembled: *left to right*

- Regulator cap nut
- Plastic cap
- Friction washer
- Releasing pin clip
- Check spring
- Pre-pressure adjusting nut
- Pre-pressure spring
- Tension releasing pin & washer
- Tension disc's (3)
- Tension stud

Be sure to lay the parts out in order as shown

Fig 3

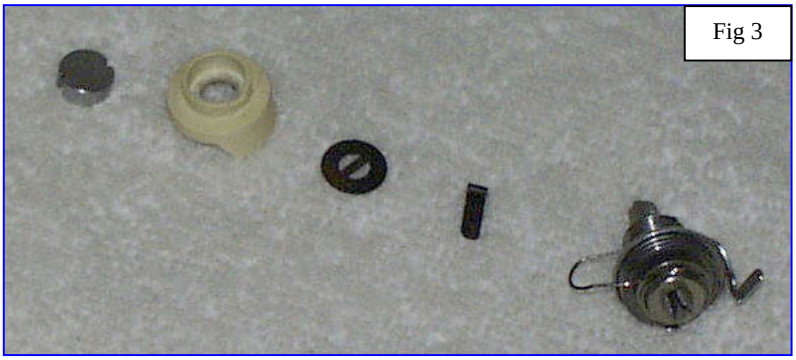
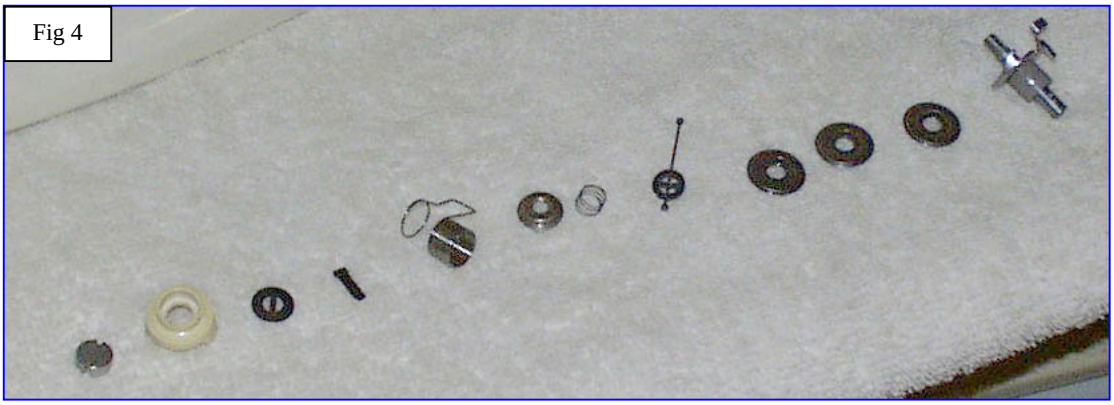


Fig 4



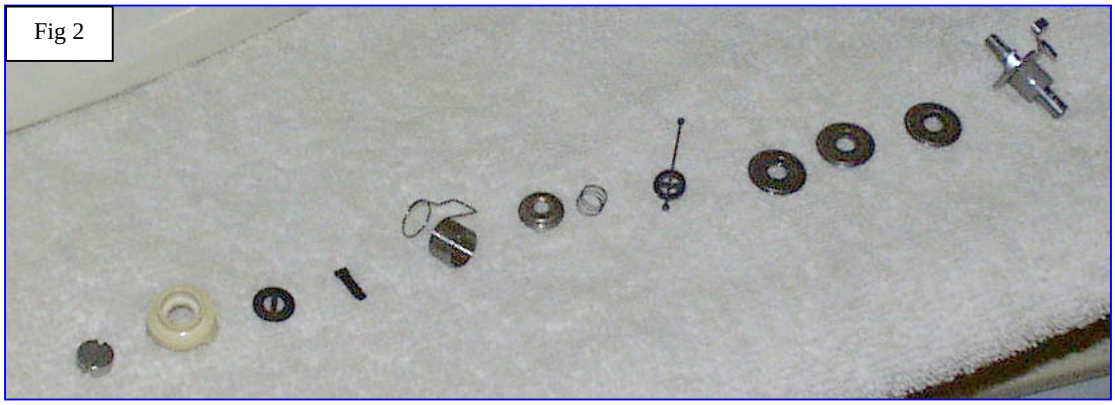
Tension Reassembly:

Before putting the unit back together, lets inspect some of the parts, and ensure they are in good working order. Any broken or damaged part will need to be replaced, or repaired as best possible until you can obtain a replacement part

1. Figure 1 shows us the tension stud disassembled. Normally this unit does not come apart as such. However in our case the plastic part (circled in fig 1) that holds pressure for the check spring is cracked and will require repairing. We may simply glue this part to the metal stud for the time being
2. Once repaired, reassemble the tension stud. Observe that the middle part in fig1 fits onto the stud snuggly, and actually rides on a little ringed area of the stud – shown in fig 1 by the arrow

Fig 1

Fig 2



3. Clean the tension discs of any rusting, or other debris. If necessary, using very fine sandpaper, smooth the discs. They must be very clean, and free of any thing that may hinder the thread flow between them. They should be very smooth
4. Reassemble the tension unit as follows
    a. Place the 3 discs back on the stud unit
    b. Insert the releasing pin through the middle of the stud, along with the washer
    c. Place the pre-pressure spring on
    d. Install the pre-pressure spring adjusting nut, placing it back where you observed it in step 9 on the previous page
    e. Carefully work the check spring back onto the front & back side of the tension unit
5. Place the tension unit back in the arm top cover, with the check spring facing down, fig 3, and ensure you have the thread guide position properly as well. One of the thread guide tangs fits into the arm top cover, fig 3 arrow
6. Turn the tension stud clockwise so the check spring just touches the machine casting, fig 4
7. Using a small tension screwdriver, or other tool, turn the tension stud an additional ¼ turn clockwise, hold in place and tighten the unit with the 5/64 Allen setscrew, fig 4 & 5
8. Work the tension releasing pin back into the cupped area, and install the releasing pin clip, fig 5

Fig 3

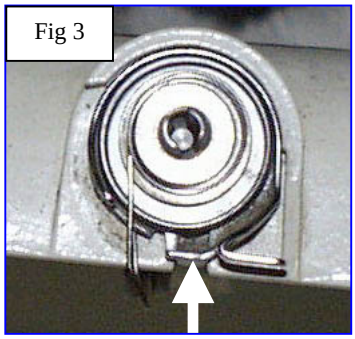


Fig 4

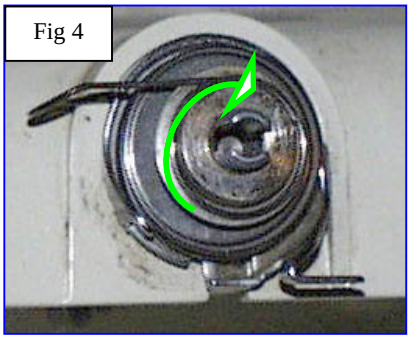
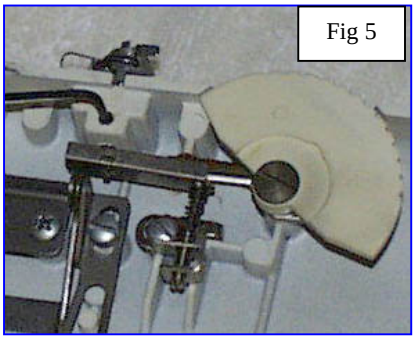
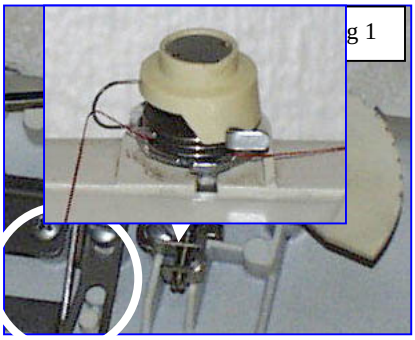


Fig 5



Adjusting The Tension:
If the tension was properly working at one time or another before having to repair it, it's a pretty safe bet that adjusting will not be necessary. These come preset from the factory, and should not require adjusting.


g 1

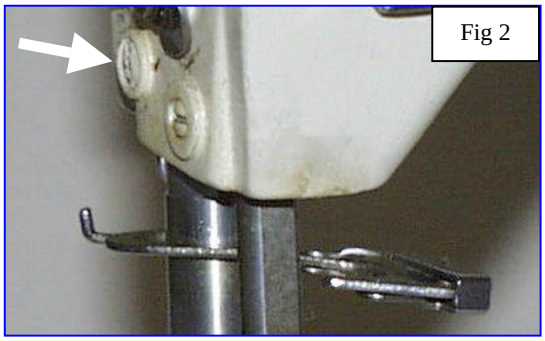
Common problems are the plastic part on the tension stud breaking, allowing the check spring to loose proper return pressure, the discs are full of crude, or rusted up, and finally the check spring itself was damaged. These items have been corrected with the above procedures, so actually the machine should be ready for use again. However, should you need to adjust the tension, fig 1 arrowed shows the adjusting screw. With the arm top cover off the machine, turn the tension dial to zero (0).

1. Thread the machine to the discs, ensure you don't hold the arm top cover as to activate the releasing mechanism, fig 1 circled
2. Gently pull on the thread at the zero setting, and start turning the dial to 5. You should feel a gradual increase in resistance as you pull the thread

If I recall, we use to tie the presser foot to the thread, and at 0, the presser foot would slowing, with a little resistance, drop towards the floor. At a setting of 1 on the dial, the foot would stop.
Again, do not adjust until you have actually tired the machine for proper stitching. It is very possible there are other things wrong with the machine that is affecting stitch quality. Needle to hook timing could be incorrect, feed timing could be incorrect, or the hook or needle plate are damaged from needle nicks. If you ever broke a needle while sewing, there is a chance it burred the hook point. These items are covered my other repair guides, as well as the factory manual. If you need to get deeper into the machine, I strongly suggest looking at the timing guide first, then followed by the full service manuals available. The factory guide has a good section on the theory of how the tension works as well.

Before assembling the arm top cover and putting the machine back together, I have one other tip for you, sort of a bonus if you will. Another problem area I've found is the lower thread guide. Over a period of time, it gets full of all sorts of gunk, and checking it out is well worth the time spent doing so. Just a word of caution, these units are easily broken, so do take care while working with it.

1. Turn the pressure dial to "Darn" or "Zero", fig 1
2. Loosen the setscrew shown in fig 2, and work the presser bar unit downward, working the thread guide with it
3. When lower enough, turn the unit counter clockwise to clear the needle bar, and slip off the presser bar guide
4. Remove the screw shown in fig 3
5. Slide the unit open, fig 4
6. Fig 4 arrowed is usually where you will find a bunch of gunk built up. Clean it out and reassemble in reverse order
7. When pushing the unit back underneath the machine casting, ensure you get the presser bar guide good and snug. The thread guide shouldn't wobble around a great deal, if at all



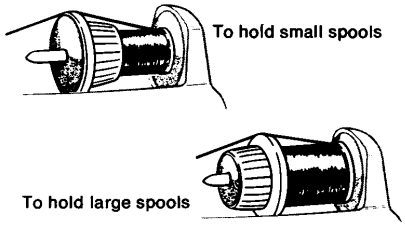
Reassemble Covers – Threading:
Install the side cover and arm top cover, thread the machine up and see how you've done
Tips on threading:

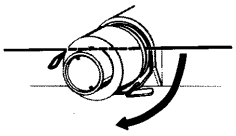
1. Turn the tension dial to 5, ensure the presser foot is up
2. Thread the machine as far as the take-up lever and stop
3. Pull on the thread some, and then set the presser foot down, continuing to pull on the thread. If you feel a significant increase in tension, the machine should be ready to go
4. If not, double check threading procedure, the T&S is an easy machine to thread incorrectly. Most common is missing the tension discs, or not getting the thread all the way between the discs. Tip: once you have looped the thread over, under and around the tension unit, make a X at the bottom of the tension unit with the thread. This usually ensures that both the thread guide paths are engaged on the tension unit. At the take up lever, hold the spool by hand, and pull the thread a little to ensure the thread does engage the tension discs.

Spools of various sizes are held firmly on the horizontal spool pin with the spool holder. Slip spool of thread onto spool pin and press holder firmly against spool so that thread unwinds from a stationary spool.

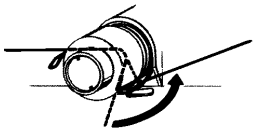
To hold small spools — press *small* end of holder against spool.

To hold large spools — press *wide* end of holder against spool.

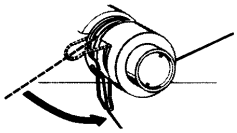




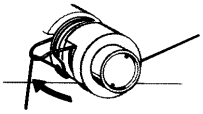
With two hands, slip thread horizontally *between* tension discs from the top.



With right hand, lead thread *under* thread guide on right side . . .

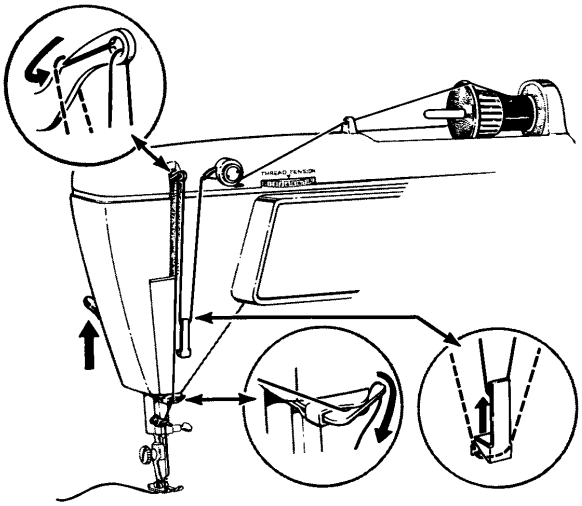


. . . and, with left hand, lead thread *over* spring and *under* guide on left side.



Allow spring to return to its normal up position and continue threading the machine.

THREADING THE NEEDLE



1. Turn hand wheel to raise take-up lever to its highest position, and *raise presser foot to release the tension discs.*
2. Lead thread through all points as shown, making sure to:
   - Thread tension discs as illustrated.
   - Thread take-up lever from *back* to *front,* guiding thread down over top of lever and then up into eyelet.
   - Thread needle from *front* to *back,* drawing about four inches of thread through eye of needle.

For greater convenience in threading the needle, use the built-in needle threader (see next page for instructions).

Good luck and happy sewing

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