

## TIPS FOR AVOIDING THREAD BREAKS:

Even though machines have been designed and constructed to prevent production problems, thread break will occur and can be a troublesome to many embroiders. There are some simple solutions to keep them to a minimum.

There are actually many elements that can cause thread breaks such as:

1) For the top thread,

- a) there is a scratch on the hole of the top plate;
- b) the machine is not threaded correctly;
- c) the thread is trapped under the spool;
- d) the wrong needle selection has been made;
- e) there is oil or dust in the bobbin case;
- f) the needle is bent, dull or inserted incorrectly;
- g) the upper thread is knotted or tangled;
- h) the thread is too large for the eye of the needle;
- i) the upper tension is too tight;
- j) the rotary hook is rough or damaged.
- k) and the list goes on...

2) For the bobbin thread:

- a) the bobbin is inserted incorrectly;
- b) the bobbin tension is too tight
- c) the bobbin is incorrectly wound
- d) the upper thread is tangled.
- e) and the list goes on.....

The following are ways to eradicate the problems:

### THREAD:

- a) Thread tension. Upper thread tension should be no more than 100 to 150 grams. Bobbin tension should be no more than 25 to 35 grams. Refer to our TIPS FOR ADJUSTING THREAD TENSION. Thread tension should be checked from time to time.
- b) Change thread cone. Problem could be coming from the bad production lot of that particular thread or the thread cones have been kept in a bad storage condition.
- c) Check thread path to find areas where thread touches that can cause friction and abrasions that can cause thread to break.
- d) Check whether it is actually a thread break or just a thread pull out. Thread pull out usually occurs after the thread is trim.
- e) If thread breaks occur abruptly without fraying, check to see if the thread is getting caught under the cone on the thread rack. Also make sure the thread dispenses vertically off the cone. If thread leaves the cone at an angle, it could cause breakage.

### NEEDLE:

- a) Try replacing the needle.
- b) Look for burrs or rough edges in the presser foot, holes in the needle plate and finally the rotary hook-point and castoff
- c) Adjust the needle depth.
- d) Check the timing of the rotation of the rotary hook or in other words hook-timing to avoid the needle hitting the bobbin case before it should.

e) Check bobbin quality. Worn or damaged bobbin cases also can cause top-thread breakage. Try using a new bobbin case.

#### DIGITIZING:

a) Check for the stitch length in certain parts of the design. If the stitch length is too short, thread breaks can occur. If designs are digitized with no stitches shorter than .60 mm and none longer than 9 mm, thread will not break.

b) Check for the density of the design. If the density is too much, it can prevent needle penetration and so the thread can break.

c) Each part of the design should be LOCKED and FIXED with stitches to prevent unraveling. This will also prevent the thread from pulling out of the needle at startup and at stop.

#### FABRIC:

Certain fabrics also can cause thread breaks. Materials such as low-melt polyester or polypropylene foam, found in mesh-back baseball caps and canvas bags, can melt under the heat of the needle and gum up the needle's eye. Materials made from blended nylon fibers, which are found in products such as carpeted mats, are abrasive against sewing threads.

In the end everything should depend on the operator's analytic skills. If the operator is on the look out during the sewing of the design, he can immediately figure out whether its an actual thread break or if its just the thread pull out.

The operator can test several points by pulling on the upper thread as it passes through the needle's eye and the presser foot. He should check tension and texture and identify problems with the cone, thread path, thread quality and needle.

The operator should check thread tension, needle orientation, bobbin quality and bobbin tension consistency. Next, he should check the thread path, and if necessary, rethread the needle path in question. If breakage still occurs, he should check the design by noting location of thread breaks within the design and paying attention to stitch length. If the stitches seem too short or long, the operator should ask the digitizer to check the design. However, if the design doesn't have any questionable areas, look for mechanical causes.