



## TECHNICAL BULLETIN

### THREAD BREAKAGES DUE TO MACHINE MAINTENANCE

Embroidery machines undoubtedly are a part of one of the most expensive apparatuses in the textile manufacturing industry. They are highly technical and complex and require a high level of precision and care during operation. With technological advancement, the process has become more streamlined and the quality of the product has improved dramatically. Such technical machinery naturally requires proper maintenance. In the absence of such maintenance, problems can occur. This article discusses some of the common thread problems that occur due to the performance lags in the mechanisms of the embroidery machine, that are caused by ineffective maintenance.

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#### THREAD GUIDES

As the name suggests, these guide where to put the thread in the embroidery machine. The guide ensures that the thread remains in place during operation. Thread guides also help keep the thread from being tangled inside the embroidery machine. During preventive maintenance, you must ensure that your thread guide is free of all damage and the surface of the assembly is smooth. Any rough areas or bents can tangle the embroidery thread during high-speed embroidery operations.

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#### THREADING THE MACHINE

Threading the machine is an essential part of preparing it for operation. If the threading is not done properly, the result will not be as promising as expected. If the thread is not tightly wound, it will come off the thread tension disc. However, if it is too tightly tied, it may pull off the thread from the rest of the assembly. Therefore, it is necessary to maintain a balance. Remember to make sure that the threading of the needle is done properly.

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#### THREAD TENSIONS DISCS

Ensure that the pressure foot is in a raised position while you are threading the needle. When the pressure foot lifter is raised, the tension between the discs is released and therefore, the thread slips between the discs smoothly.

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#### BOBBIN WINDING

The practice of winding one thread over the leftover thread in the bobbin causes thread tension. Ensure to tidy up and free up all the spare bobbins. Always begin new embroidery with a new evenly wound bobbin.

Make sure no thread tails are hanging from the bobbins when they are inserted into the bobbin cases. The hanging tails can potentially jam the machine and may cause the upper thread to break. You must also make sure that the bobbin winder is working correctly and is using the correct



tension in order to wind the spool while avoiding overfilling of the bobbins. With an evenly wound spool, the bobbin will smoothly slip into the bobbin case.

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### **BOBBIN THREAD**

Always ensure good quality thread is being used in the bobbin. Special bobbin threads are also available in generic colors to provide stability to the embroidery operation. The special purpose bobbin threads are strong but of fine count, ensuring more thread being wound on the bobbin and eliminating the need for frequent bobbin filling. The special purpose thread makes the embroidery design less bulky, and a more flexible and softer feel can be achieved at economic prices.

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### **BACK SPIN**

When the thread spool spins back on itself, it causes a twist at the bottom of the spool pin. This happens when the circle of felt that sits right under the spool is lost. The felt should be removed in order to prevent back spin.

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### **CLEANING**

No maintenance routine is complete without a thorough cleaning of the machine. Make sure the machine manual is being followed. A basic cleaning routine is accomplished easily and quickly by following these steps:

- ✓ The tension discs can be cleaned by the edges of a clean piece of muslin cloth folded in half.
- ✓ Make sure the tension springs are up so that the muslin fabric can go easily between the disks, removing any dust or lint present.
- ✓ Use compressed air to effectively remove loose particles from all parts of the machine by moving the can back and forth. Even if you must remove a small amount of dirt or lint, do not blow into the machine as your breath contains moisture and the moisture can cause erosion on the metallic parts.
- ✓ Once a production run is complete, remove the needles, bobbin, and bobbin case. Clean under the bobbin area thoroughly with a small brush and muslin cloth.
- ✓ Make sure the bobbin case is cleaned. Use compressed air to directly remove lint or loose threads from the assembly.

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### **DEFECTIVE NEEDLE**

Even though the embroidery needles come quality-proofed from the supplier, defective needles may still be present, and they can cause excessive thread breakages. During the maintenance job, make sure the needle being used is not bent or blunt. This will hinder the smooth performance of the needle and cause irregular embroidery and thread breakages.



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## **NEEDLE HEAT AND ABRASION**

Based on the embroidery speed, machine run-time, stitch density and number of layers of the fabric being embroidered, excessive heat generation in the needle and the subsequent abrasion takes place. During maintenance, the operator must ensure that the correct embroidery needle is being used, based on the demand of the outcome, and that the machine parameters are set accordingly. Excessive heat can create static charges due to the high friction between the needle and the medium, and the result is a probable fire hazard.

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## **DEFECTIVE MACHINE PARTS**

The following checks should be made to ensure a healthy performance of the embroidery machine parts:

- ✓ Ensure the area around the embroidery foot is not damaged. If that is the case, replace the assembly.
- ✓ Ensure the bobbin case and the bobbin is correctly installed.
- ✓ Check the area around the hole of the needle plate. Replace if damaged.
- ✓ The needle should not hit or touch the needle plate, it should instead pass through the hole without any contact.
- ✓ Make sure the sliding surface of the hook race is smooth. In case there are burrs and scratches replace the assembly.

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## **NEEDLE TIMING**

During maintenance, it is important to check the synchronization of the needle with the shuttle. Place the needle into its lowest position, then raise the needle to 3/32 of an inch. While it is in the position, the shuttle hook should meet just above the eye of the needle. In case it does not, your machine requires further adjustment.