Breakthrough Technology Allows For Laser Decorating On Caps

By Ed Balady

One of the newest techniques in the decorated apparel industry is laser bridge technology. This involves a laser-cutting unit that is built over a multihead embroidery machine that is programmed to move from head to head cutting or etching fabric that is inside or laying on top of an embroidery hoop.

This process enables decorators to produce more sophisticated appliqué designs up to four times faster than traditional methods as well as opening up the doors to a whole new world of decorating options that were not production friendly before.

But one substrate a laser bridge machine cannot do is headwear. The reason is the mechanics of how the laser bridge and the embroidery machine interact. In order for the laser to move into position on a bridge to cut the fabric, the embroidery machine has to drive the frame or hoop that holds the garment out from underneath the needles to the area where the bridge shuttle can reach to laser cut it.

On a garment, you have a relatively large area that can be decorated, but on a cap brim, the area that effectively can be embroidered ranges between 4 and 5 inches wide and 2 to 3 inches high.

The embroidery machine normally must push out its pantograph between 7 and 10 inches before the laser bridge shuttle can reach the embroidery work area. When the cap driver is mounted and the machine is set to cap mode, this is not possible. So cap laser cutting is not possible on a laser bridge machine.

This limitation changed in January 2009 when the first singlehead laser cutter for embroidery machines was released. The laser is connected to the embroidery machine head itself at either the left or right side and acts as an additional needle, except instead of stitching, it cuts or perforates the fabric layers.

Hand in hand with the machine technology to laser cut caps is the software. The laser cutting program has to be compatible with the digitizing software. The machine has to know when to cut and when to embroider. To accomplish this, the laser program instructs the machine to make a 1 mm length outline stitch just as it would for a traditional appliqué, and this becomes the cutting line for the laser. Once the material is cut, then the machine automatically begins the embroidery process as is normal for an appliqué. So from a production standpoint, moving from the laser-cutting stage to the embroidery stage is seamless and does not require any intervention by an operator.

This process does require a cap laser attachment, but once installed, it does not have to be removed to do the embroidery or to do any other type of substrate. It remains on the machine.

Although originally developed for a singlehead embroidery machine, a singlehead laser can be attached to each head of a multihead machine. In fact, you can attach the same laser on up to four heads. For larger multiheads, combination systems are available. For example, for a 12-head, there would be a master laser for four heads and then two slave units for the other two sets of four heads.

File name: Bito_CapLaserApplique_1.jpg
Although using a laser to cut appliqué on caps is not possible with a laser bridge machine, it can now be accomplished with a new type of machine that attaches directly to the head of an embroidery machine. *Photo courtesy of Bito, Oceanside, N.Y.*

File name: Bito_Cap Etching.jpg
Using new technology which includes a singlehead laser and a special attachment, headwear can be cut or etched right on the embroidery machine. If you look at the right-hand edge of the cap, you can see some words that have been etched. *Photo courtesy of Bito, Oceanside, N.Y.*

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