QUICK START GUIDE

PT SERIES MT SERIES TC SERIES

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RiCOMA
A Passion for Excellence

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MT Stand Assembly

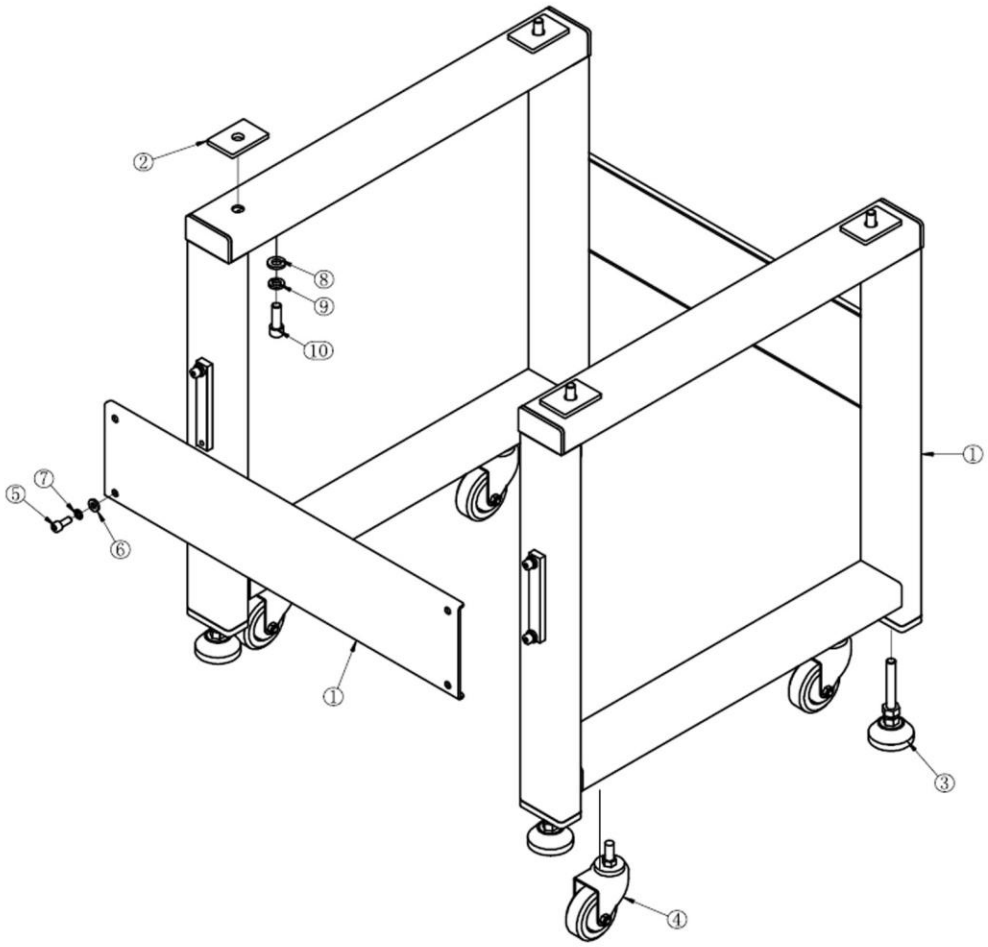


Figure 1

MT Stand Parts List

No.	Part Name
1	Connecting Plate-lower rack-1T
1	Connecting Plate-lower rack-2T
2	Side rack-lower rack-MT-A
3	Cushion block-lower rack-MT
4	Common screw-3” flat high-strength polyurethane wheel
5	Universally adjustable foot cup-nylon
6	Plain washer-M8
7	Spring washer-M8
8	Hexagonal socket head cap screw-M8x20
9	Spring washer-M12
10	Hexagonal socket head cap screw-M12x35
11	Plain washer-M12

Tools Required (Included in Toolbox)

Multi Use Open end Wrench
6mm Hexagon Wrench
10mm Hexagon Wrench

TC Stand Assembly

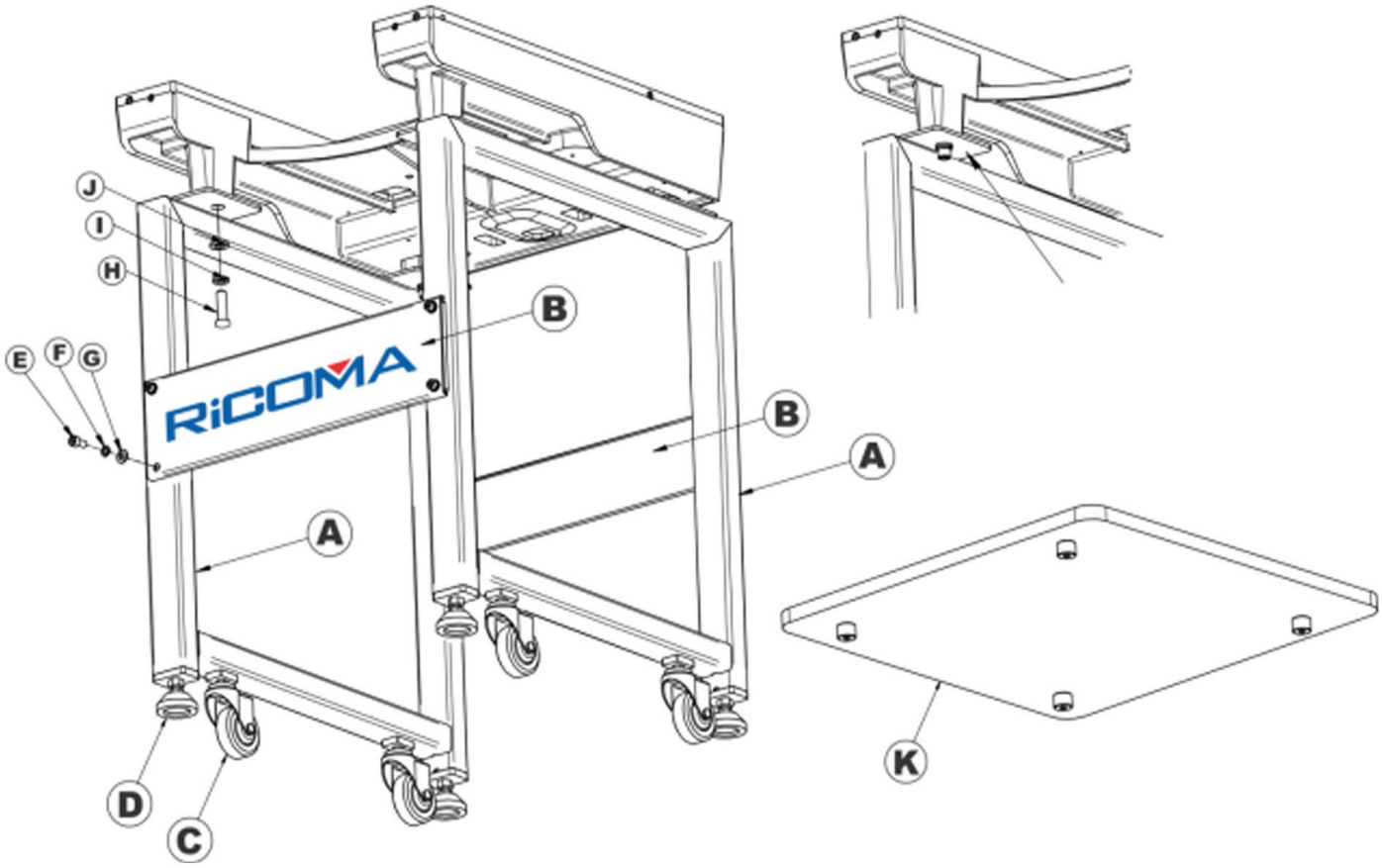


Figure 2

TC Stand Parts List

A	Side Columns (x2)
B	Column connecting plates (x2)
C	Casters (x4)
D	Leveling Pegs (x4)
E	6mm Bolts (x4)
F	Small Lock Washers (x4)
G	Small Flat Washers (x4)
H	10mm Bolts (x4)
I	Large Lock Washers (x4)
J	Large Flat Washers (x4)
K	Accessory Table (x1)

Tools Required (Included in Toolbox)

Multi Use Open end Wrench
6mm Hexagon Wrench
10mm Hexagon Wrench

Threading

Initial Threading – Rack and Panel

Tip:

If you allowed enough room to walk behind your machine, place the colors that you will use the most on the front row. This will allow you to tie on new colors to the cones at the back of the machine while the machine is running.

Your machine is shipped in a packaging crate without thread support stands attached, first locate the thread stand. Remove the Allen head screws from the top of the bar where it will support the thread stand, set the screw aside.

On the thread stand support bar have two small Allen screw on each bar. Remove the screw and pull the bar in the up position, then tighten back the two small Allen screw for each bars.

Place the thread stand on top of the support bars with the angled bars facing up and secure it with the Allen screw that you removed earlier.

Figure 3

Attach the thread carrier tubes between the slot just below the top thread tension knob and the slot above the first thread guide on the tension base. You may find it easiest to work from the center out. If so, count the slots on top and bottom to make sure you are attaching the tubes correctly at the top and the bottom.

On your welcome kit there are two boxes containing the thread for your machine. Each cone is individually wrapped.

To remove the wrapper, simply hold the plastic firmly, twist and pull.

To release the tail of the thread unsnap the base of the cone, and unwind until the thread is completely out of the base.

Figure 4

Place the thread colors that you want as your initial selection over the spindles on the thread stand. Keep in mind the needles of your RiCOMA machine will be as follow.

Figure 5

Connect the thread from the spool to the thread connected on each needle on the machine with a knot (Fig 6).

Pull the thread though until the knot reached the needle. If it doesn't pass through the needle, cut the knot and thread the needle from the front to the back and down the presser foot. Repeat this process with all the needles of your machine.

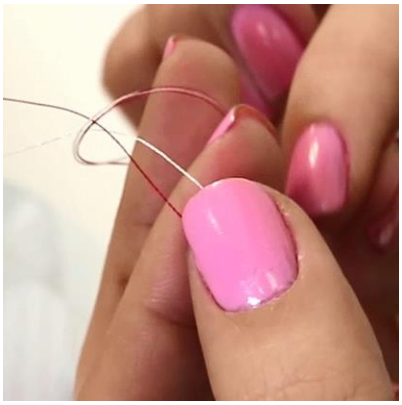


Figure 6

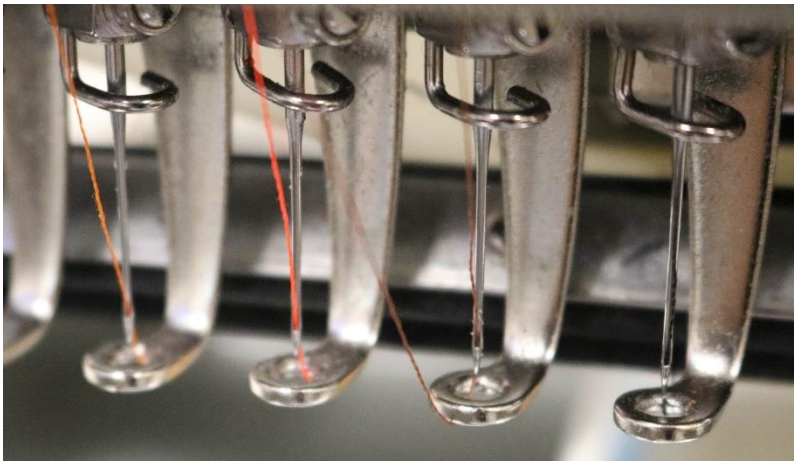


Figure 7

Threading Sequence

Tip:

If possible, try not to place colors that are very similar, such as black and navy blue, in close proximity to each other. This could lead to accidental misuse of similar color.

If you need to thread your machine from the beginning you need to follow the following steps. You will use every eyelet on the thread tree to guide the tread in a straight path toward the first tension knob. To assure that you use each eyelet, follow this procedure.

Figure 8

1. Place the thread spools on the stand and thread the first three cones in this order: Back, middle, front. Repeat this threading order with the next three cones, starting with the cone on the back row, then the cone on the middle and finally the cone on the front row (Fig 8).
2. Start threading each spool through the eyelets on the upper thread tree.
3. Place the thread through the small eyelet at the top of the first tension knob. Pass the thread to the right side of the top tension knob in between the tension disks, making sure to be inside the tab at the 3 o'clock position. Make sure the metal plates are not left opened (Fig 9). They should be touching after inserting the thread (Fig 10).

Incorrect

Figure 9

Correct

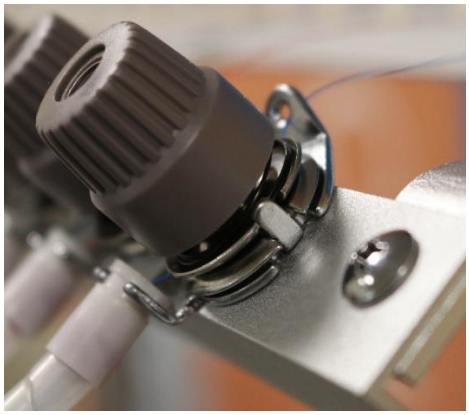


Figure 10

4. Remove the plastic thread tube and use the threading insert tool among your accessories. Wrap the thread all the way around the slit securely and pass the threading insert all the way through the tube and out through the bottom. Connect the plastic tube on each end (Fig 11 and Fig 12).

Figure 11

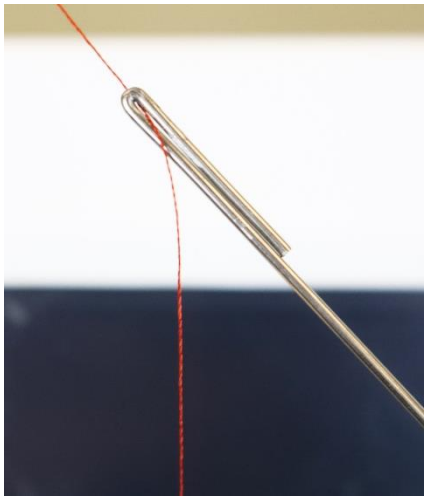


Figure 12

5. To place the thread under the clip guide, pull on the clip. The clip pops up and you can easily slide the thread underneath (A).

6. Pull the front disk of the tension knob toward you and slip the thread to the right side of the tension knob (B).

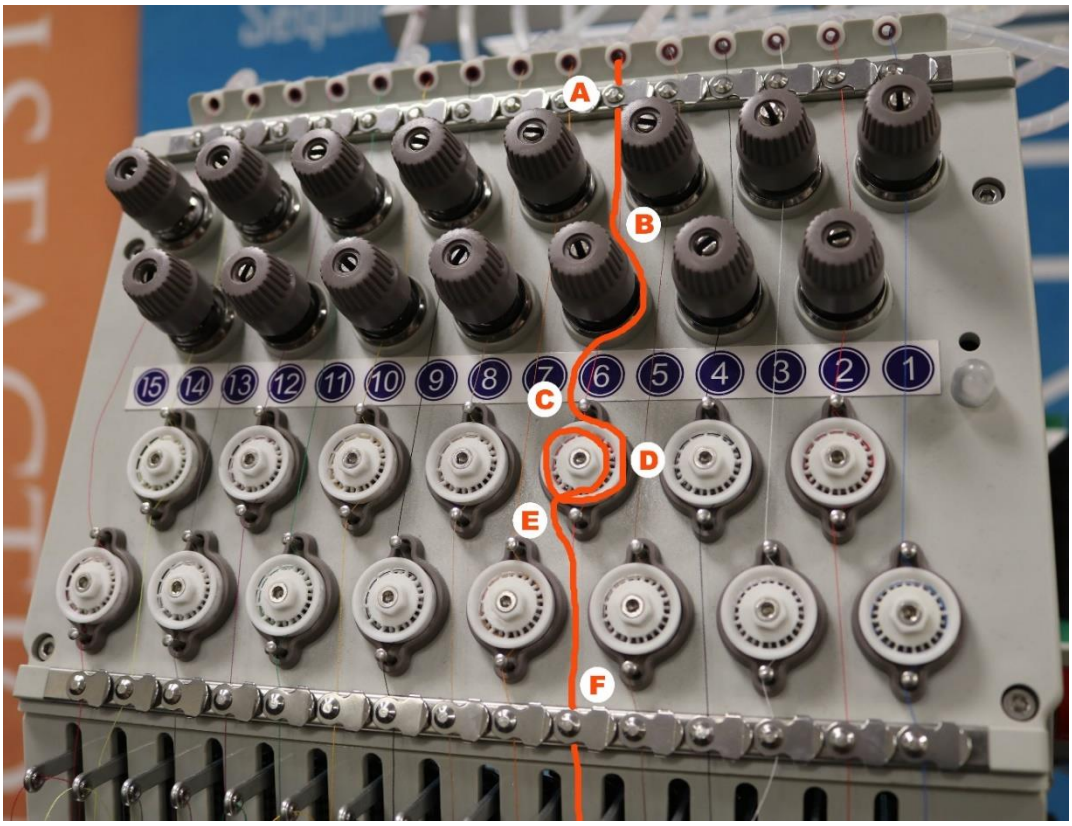


Figure 13

7. There is a post just below the number of the needle, above the T.B. (Thread Break) wheel. Pull the thread to the left side of the post above the T.B. wheel (C). Guide the thread to the right side and under the T.B. wheel in a clockwise direction for a full turn (D). The thread should exit at the bottom of the T.B. wheel to the left side of the post (E).

8. Place the thread under the clip guide by pulling the clip (F). Slide the thread underneath. Next you will thread the check spring and take-up lever. Begin by lifting the lever to place the check spring into threading position. The lever should be up for threading. From the right side, pass the thread under the bars (G) down and through the round spring (H).

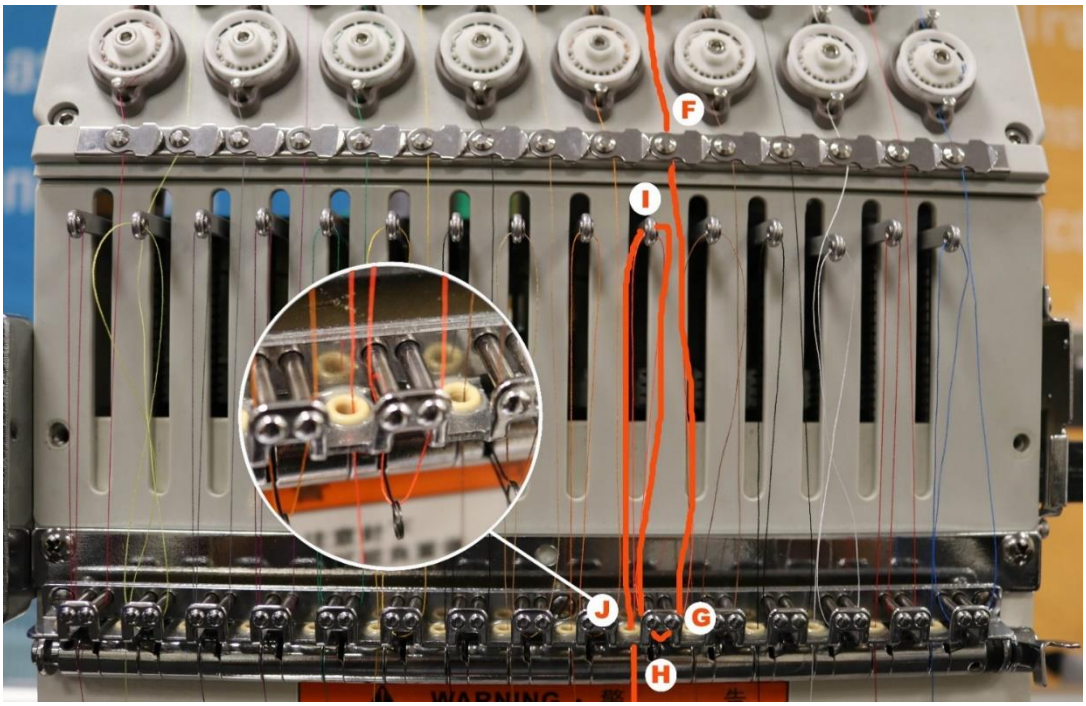


Figure 14

Later, when you are embroidering, you can use this lever to adjust the springs to give better performance according to the weight of fabric being embroidered. When embroidering heavy materials place the spring lever on a lower position, one or two clicks down. Place them higher for lightweight materials, one or two clicks up.

8. Pull the thread up toward the take-up lever from the right side to the left side (I) and pass the thread through the lever and down through the ceramic eyelet (J). Place the thread through the next ceramic eyelet (K). Place the thread behind the thread guide near the top of the needle (L). You will need a bit of practice to do this quickly, but don't skip this important guide, which keeps the thread straight as it feeds to the needle.

Figure 15

Tip:

If you run out of thread completely on a needle bar, re-thread, matching the thread path to a correctly threaded neighboring needle bar.

9. Pass the thread through the eye of the needle from the front and down through the presser foot (M). Pull the thread up into the spring to be held until needed for embroidery.

After all needles are threaded you can command the machine to trim each threaded needle to pull the thread from the spring to be held behind the needle

in the thread holder. This is optional, but will eliminate the need to snip the thread tail that will remain after the first stitch is made while the thread tail is held in the wire.

Stand back and look at the front panel of the machine to make sure that all needles appear to be threaded correctly. If they seem to be uniform, you are ready to stitch a test pattern.

Figure 16

Knot Tying

Master basic knot tying and you will save time and materials.

For tying new thread colors to old, you want to use a knot that will pull easily through the needle's eye.

The two top knots are the square knot and the weaver's knot.

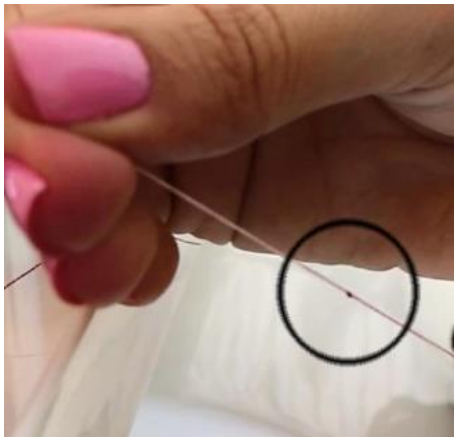


Figure 17

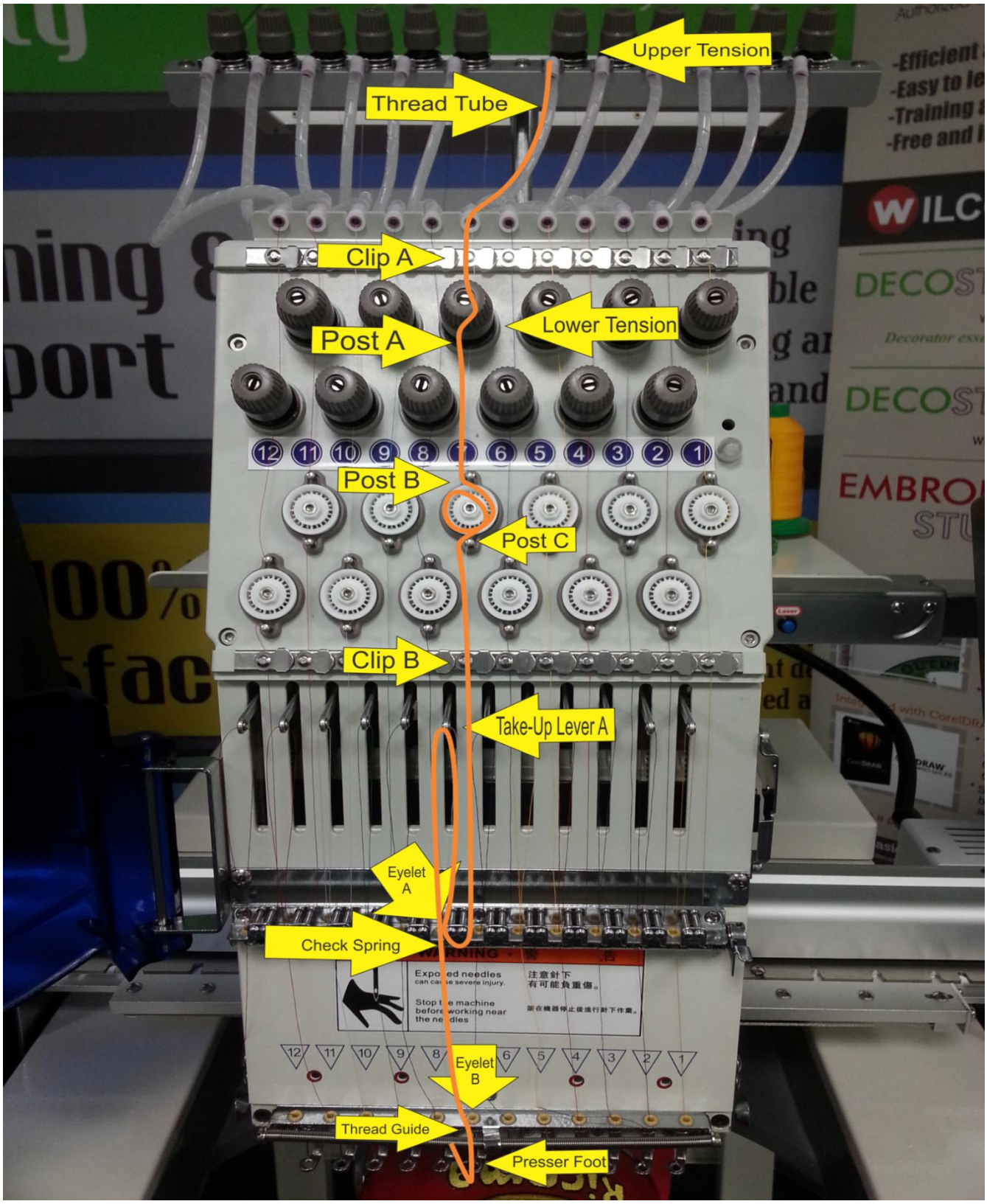

Upper Tension
Thread Tube
Clip A
Post A
Lower Tension
Post B
Post C
Clip B
Take-Up Lever A
Eyelet A
Check Spring
Eyelet B
Thread Guide
Presser Foot

Figure 18

Thread Break Troubleshooting

If thread breaks are happening often please check the following options to fix the problem:

1. Check the thread path to make sure it is following the correct path from the thread cone to the needle.
2. Incorrect Thread Tensions will give you thread breaks. If the tension is too tight it could lead to missed stitches, thread breaks, pulling, puckering and thread stress. Loose tension causes thread to pile up and loop.
3. Always inspect the needle position and determine if actual thread break has occurred. If no thread break is apparent, check all the thread paths. Then do a manual trim and check the bobbin supply. If thread has broken, follow the correct thread path and rethread the needle.
4. Defective Thread. First, pull off a few yards to pass a bad section of thread and if that doesn't work, try replacing the thread with a new cone.
5. If thread breaks occur on just some of the needles check for defective needles or needles not inserted properly.
6. Replace damage and bent needles.
7. Make sure the bobbin is installed properly. Remove any lint or dirt build-up in the bobbin case. Make sure the thread trimmer knife is fully retracted.
8. If thread breaks are occurring frequently on all sewing head's needles the hook timing needs to be corrected.

Adjusting the Timing of a Needle and Hook

For TC and PT Series: The timing of the needle is set up at 195 degrees and the relation between the needle and the hook is as follows.

For MT Series: The timing of the needle is set up at 200 degrees and the relation between the needle and the hook is as follows.

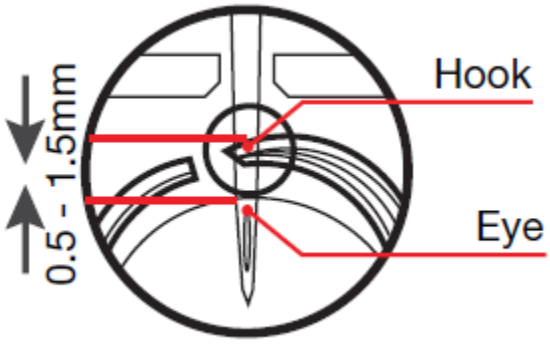


Figure 19

Tip: If the space between the needle and the hook point is out of range, the thread will not catch, causing thread breaks, and if too close causing broken needles.

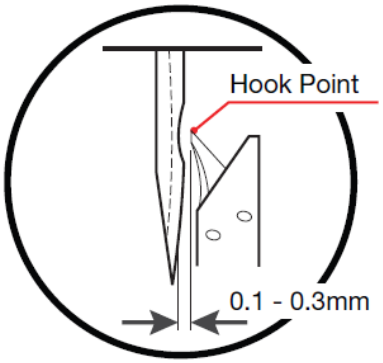


Figure 20

The space of the needle and the hook of 0.1 ~ 0.3 mm is proper.

Thread Break can occur because of:

The Garment or Fabric

1. If fabric is too thick needles tend to bend slightly as it passes through causing the thread to scrape against the needle plate resulting in the thread shredding. To fix this problem try a larger needle.
2. If there is any hidden obstruction in the garment such as bulky seams, inside pockets, hidden buttons.
3. Make sure the item is hooped properly. Loosely hooped fabric will bounce up and down during sewing.
4. Excessive backing will apply greater friction to the thread and needle and cause thread or needle breaks.

The Embroidery Design

1. Too high density of thread in the design can cause needle deflection, which lead to thread shredding and breaks. Too many stitches in a small area can cause thread breaks. Try deleting short stitches or increasing the design by 5-10%.
2. Extremely short stitch lengths may cause thread to pile up in one area known as “nesting”, resulting in thread shredding and breaks.

Thread Break Preventions

1. To prevent thread breaks store threads properly. Really old threads not stored properly will cause thread breaks. Prolonged exposure to air, light, age and heat will make threads become brittle. If this occurs replace the threads with new ones and store new thread in a dark, cool place.
2. Do NOT use tape to tie off thread ends, since tape leave a stick residue that causes friction and breaks.
3. Check for burrs in the thread guides, needle eye, thread plate and hook.

Needles

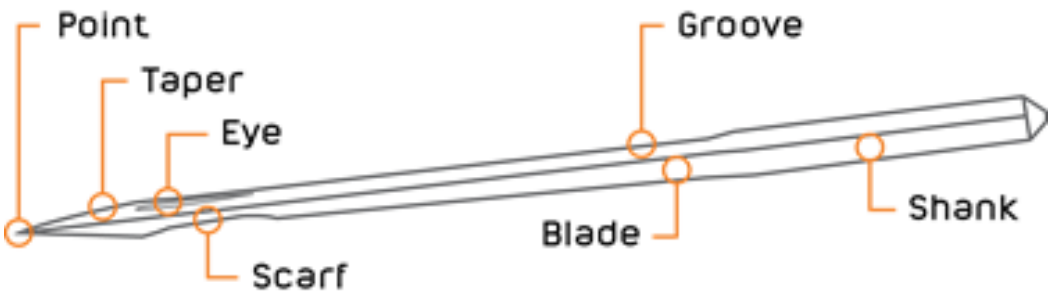


Figure 21 Needle Parts

Anatomy of the Needle

1. **Shank**, it is the top part of the needle that goes into the needle bar (into the machine).
2. **Shaft/Blade/Shank**, it is the part of the needle from the bottom of the shank, down to the top of the needle.
3. **Tip**, it is the part of the needle below the eye.
4. **Point**, it is the very bottom of the needle, which is the first to penetrate the fabric.
5. **Eye**, it is the area where the thread passes through the needle.
6. **Groove/Thread Groove/Front Groove**, it is the groove that runs from top to bottom, along the face (front) of the needle.
7. **Scarf**, it is the half-moon cut out on the back of the needle, just above the eye where the rotary hook passes behind the needle.

How long do needles last?

There are many variables that will determine how long a needle will last. It is depends on what material is the needle made from, what type of point, what type of material are you sewing on, etc. All of these affect how long the needle will last.

How do I know when to change a needle?

Look for performance changes in your machine such as thread breaks, poor stitch quality, garments are getting pulls in the fabric, machine sounds different when it sews, or having to sew slower. Needles are fairly inexpensive and are easy to change.

Why do needles break?

Needles break for different reason. The most common reasons are the following:

- Needle is worn out or old.
- Designs with too many stitches and/or high density for the design area.
- Smoothing blocking the stitch path.
- Hitting the hoop.
- Fabric moving while needle is penetrating.

Changing a Needle

A basic guideline that many professional embroiderers use to determine when to change needles is the “three strikes” rule. Here’s how it works. When there have been three consecutive thread breaks on a needle, it should be changed.

When changing a needle it is very important that the scarf of the needle always faces the BACK of the machine. If the needle is not positioned correctly the machine will not work properly.

Tip: Changing Needles

Changing a needle is one of the simplest types of troubleshooting. Set the needle aside while you determine whether a fresh needle corrects the problem.
If you determine that the needle was the likely cause of the problem, discard in an old medicine bottle or other sharp-safe container.

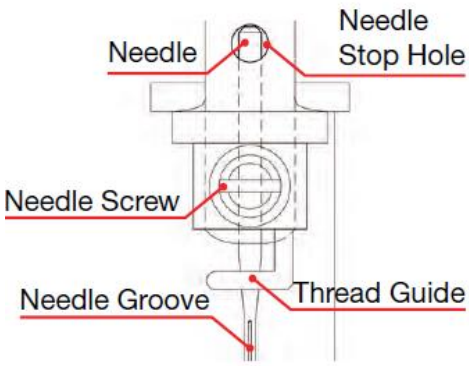


Figure 22

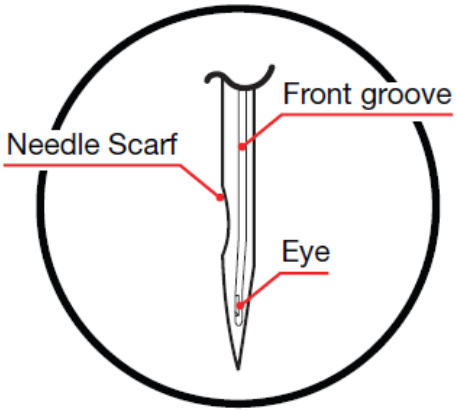


Figure 23

Figure 24

1. Begin by removing the broken needle part from the garment. If it is not in the garment, look into the bobbin area (Fig. 24).
2. Proceed by loosening the set screw above the needle with a straight slot screwdriver. Loosen only enough to remove the screw.
3. Discard the spent needle in a childproof pill bottle or other sharp-safe container.
4. Needles have a long groove on the front and a short scooped out section called the scarf on the rear.
5. With the long groove facing the front of the machine, insert the new needle by placing the point through the presser foot and then inserting the butt into the needle hole until it can be inserted no further (Fig 25).
6. Verify that the long groove of the needle is still facing forward. Tighten the needle screw while holding the needle firmly to keep it from slipping down (Fig 26). If necessary hold the needle with a wooden toothpick in inserted into the eye. Never use a metal object for this because it could scratch the eye of the needle resulting in thread breaks.

Figure 25

Selecting a Needle

Choosing the right needle is important to ensure quality stitches. Embroidering with a needle that is too small or too big for the thread and fabric can result in thread breaks or even skipped stitches. There are three things to consider when choosing the right needle for the job and that is the finish, size and point.

DBxK5 is an established standard system for embroidery machine. It is a medium point needle with a larger eye that allows smoother flow of thread through the eye of the

Figure 26

needle. It is slightly less durable due to thinner eye wall. Since the eye of the needle is larger there are less thread breaks. Use ballpoints for stretch materials; use sharps for cottons.

DBx7ST is ideal for metallic threads. It has an extremely large rectangular eye that allows easy passage of thread.

Blade Size

One of the first things we consider when selecting a needle is the blade size, such as size 75/11 or 90/14. If you have ever wondered why there are two numbers in this designation, the reason is that it is a combination of the European and American size designation numbering systems. The first number, such as 65 or 80 is the European designation, and refers to the actual measurement of the blade diameter. For example, a size 80 needle has a .80 mm blade width. The second number, such as 11 or 14, is an Asian numbering system, also formerly used by Singer. In this system, a smaller number indicates a smaller blade diameter.

Size 75/11

Good overall needle. It is used to sew everyday items like golf shirts, sweatshirts, dress shirts, light jackets, lighter canvas, aprons, holiday's stockings, etc.

Size 70/10

Good needle for the newer tech garments. It is used to sew moisture management (wicking), anti-bacterial, body temp management type garments, especially t-shirts and golf shirts.

Size 65/9 or 60/8

Good needle for very light/delicate materials. It is used to sew silks, fine linens. Also used to get the stitches closer together, such as when you might sew extremely detailed designs like a detailed patch or very small lettering.

Size 80/12

Good needle for heavier materials. Used to sew heavy canvas, vinyl's, lighter leathers, ball caps, visors, etc.

Size 90/14

Good needle for metallic thread. It has a larger eye. Used to sew canvas and belts too since it is a very stiff needle.

You should choose a finer blade on more fine woven or knitted fabrics, and a larger blade for tough fabrics that could cause needle deflection. The point must also enter the fabric easily so it does not deflect when it contacts the fabric, which could cause the needle to strike the surrounding metal or inside the hole in the needle plate.

Needle Finishes

Most sewing and embroidery needles have a chromium plating to enhance durability and appearance. Titanium coated needles are more expensive than chromium-plated needles, but they can last as much as five to seven times longer than chromium plated counterparts. They also reduce friction on the thread which could result in reduced thread breakage, saving time and labor. Titanium needles are a beautiful golden color and are available in the most popular sizes.

Point Types

Different point types are needed to penetrate cleanly and without fabric damage on a variety of fabric types. The needle point types used for commercial embroidery include:

- Acute Round Point – designation SPI
  Slender sharp point.
  Used to penetrate high thread count fabrics, microfibers and certain synthetics.

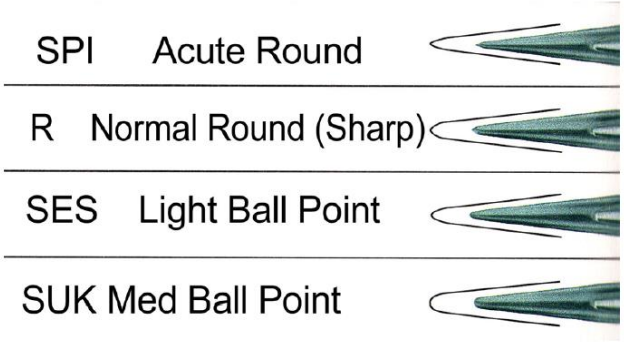


Figure 27 Needle Types

Sharp Point is used to sew woven materials. They will cut the material when they need to, but often find their way into the existing holes of the fabric, just like the ball point needles. Woven materials are made on a loom, and are made out of many individual threads. If one thread is broken, then other threads stay intact. Your machine comes shipped with sharp point needles. For Groz-Beckert needles, RG is the designation for sharp point needles.

- Normal Round Point designation R
  Normal sharp point.
  Used for woven fabrics, including finished caps.

Ball Point is used to sew knit materials. It is a non-cutting needle. It works by finding its way into the wholes that already exist in the material. If you put holes in a knit material it will unravel due to the fact that they are made of one continuous thread. For Groz-Beckert needles, FFG is the designation for ball point needles.

- Light Ball Point – designation SES
  Designed to spread yarn in knitted fabrics rather than piercing them to maintain the structural integrity of the knit. This is the most popular needle type and is considered a "universal" point type, suitable for most knit and woven fabrics.

- Medium Ball Point – designation SUK
  Used to spread heavier yarns such as those used in heavier knitted fabrics. Here are two primary point types used for sewing and embroidering: sharp point and light ball point.

Always use the smallest needle we can get away with, to create the smallest hole. Heavier materials cause the needle to bend, called deflecting, which causes needle breaks, thread breaks, missed stitches, etc. We control the needle deflection by slowing the speed of the machine down and/or changing the size of the needle.

The Relation between a Needle and a Thread

The application range of a thread and a needle use for general embroidery is as follows.

Size of a Needle			Size of a Thread			
U.S.A.	Japan	Germany	Cotton	Silk	Nylon	Rayon
0.25	9	65	70~80	100~120	130~150	70~100
0.27	10	70				
0.29	11	75	50~60	80~100	100~130	100~130
0.32	12	80				
0.34	13	85	50~60	60~70	80~100	130~150
0.36	14	90				

Figure 28

Bobbins

You have the choice of winding your own bobbins or buying pre-wound commercial bobbins in disposable cartridges. Self-wound bobbins tend to be inconsistent in the way the thread releases from the spool.

Figure 29

For high speed commercial embroidery machine a smooth and consistent release of thread is required to function properly. Commercial pre-wound bobbins are economical and they run smoothly.

You must use an “L” size/style bobbin for your RiCOMA machine. It is better to run polyester bobbin not cotton. They leave less lint.

On average, bobbins usually last for about 35,000 to 42,000 stitches depending on the stitch length of your design.

They are two different ways the polyester bobbins are made.

Spun

Little fibers are spun together to form a thread. The fibers on this bobbin have a tendency to shear off, and usually collect under the tension spring of the bobbin case. Over time, this may affect your tensions. It is not as strong.

Filament

One long filament that comprises the thread. These run much cleaner in the bobbin case and are much stronger.

There are three different sides of bobbins.

- Paper Sided, which are the most common.
- Sideless, all thread with no sides.
- Plastic Sided, which some people feel the plastic slides betters in the bobbin case and runs smoother.

Magna Glide Bobbins

They have a magnet in the center, which helps keep more consistent tension on the bobbin thread. When running these you might have to take out the gun metal colored pieced in the bobbin case, called the brake.

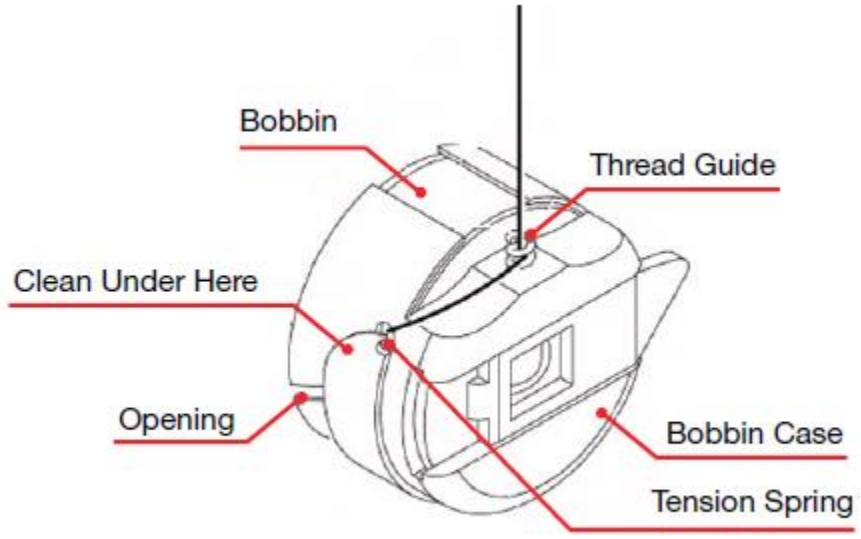


Figure 30

Bobbin Placement and Replacement in Case

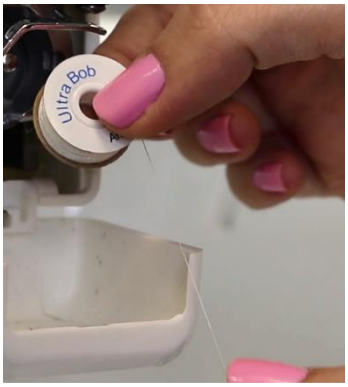


Figure 31

1. Remove the bobbin case by lifting the latch and pulling it toward you.

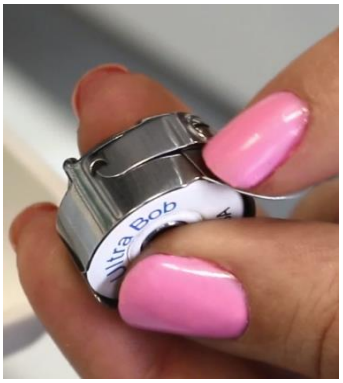


Figure 32

2. Pull out the empty or nearly empty bobbin and discard or rewind.
3. Hold the bobbin by the latch in one hand.
4. Bobbin goes into the bobbin case with the thread going clockwise (Fig. 31). Insert into the case.
5. Pass the thread through the opening slit (Fig. 32).
6. Pull the bobbin thread under the spring and exit the notch at the other end (Fig 33).
7. Turn the bobbin over and pull on the thread. The bobbin should rotate in a clockwise direction.
8. Place the thread into the small pigtail twice (Fig 34).
9. Grab the bobbin case by lighting the latch and insert into the machine, with a tail no longer than about 3 inches (Fig 35). A longer tail can wrap around the shaft and create a build-up of thread.

Figure 33

Figure 34

When it performs well, we take the bobbin for granted. But when you have trouble with bobbin thread, it confounds all efforts toward efficient production. That's because the bobbin affects all needle bars. This makes it impossible to achieve better sewing by simply switching to another needle bar(s). Such a vital element commands closer examination.

Figure 35

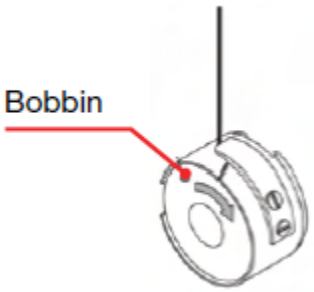


Figure 36

When viewed from behind, the bobbin should turn clock-wise.

Adjusting the Bobbin Case

The tension on the bobbin case affects the stitching that comes from each and every needle bar. The most widely accepted tension test is sewing a one-inch tall satin column and examine the reverse side. The textbook bobbin tension setting that you are shooting for is shown in Fig. 1, one-third bobbin thread running exactly down the center of the column, with one third top thread running down each side.

Tension

Adjusting the Bobbin Tension

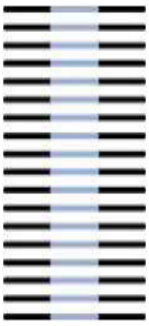


Figure 37
Balanced
Tension

Proper tension is essential to good embroidery. If tension is too tight, unwanted bobbin thread may begin to show on top of your garment and you may begin to experience frequent thread breaks.

Depending on the thread type you are using tension would need to be adjusted. Poly threads require nearly twice the amount of tension as rayon threads. When stitching on caps, thick materials or using small lettering, the bobbin tension may need to be tightened slightly.

Bobbin tensions should be 18 to 22 grams (up to 25 grams when embroidering caps).

Proper tensions for satin stitches should reveal 1/3 bobbin down the middle of the column and 2/3 top thread color on the underside of the embroidery.

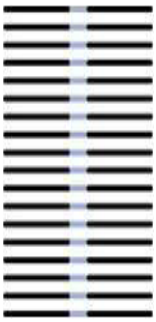


Figure 38
Too Little
Bobbin

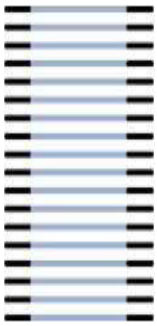


Figure 39
Too Much
Bobbin

To adjust the bobbin there is a bobbin tension adjusting screw on the bobbin case. The big screw controls the tension of the bobbin case tension arm.

If you are still experiencing bobbin thread on top of the garment after tensioning your bobbin thread, be sure that you are not using a damaged bobbin case, as this may cause undesirable results. Other factors can include improper top thread tensioning and damaged needles.

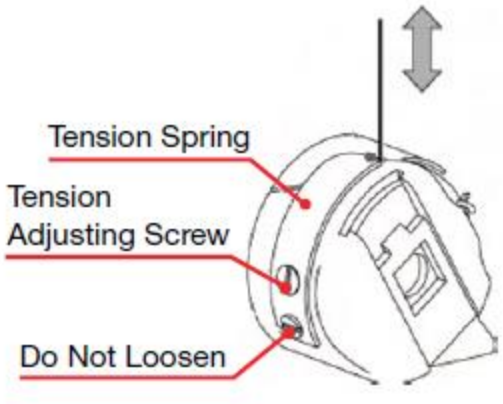


Figure 40

Adjusting the Top Thread Tension

Before you start moving your tension knobs, be sure to check the bobbin thread tension as this may lead to undesirable tension results of your top thread. Bobbin tensions should be 18 to 22 grams (up to 25 grams when embroidering caps).

Rayon thread tensions should be at 100 to 120 grams.
Polyester thread tension should be at 120 to 150 grams.
If using a specialty thread, such as supertwist, lower the tension to prevent thread breaks.

If too little bobbin thread is showing, you need to tighten the upper tension knob slightly by turning the knob to the right. If too much bobbin is showing you need to loosen the upper tension slightly by turning the tension knob to the left.

Proper thread tensioning is essential to good embroidery. Tension that is too loose will cause your thread to loop. Tension that is too tight will make your bobbin thread to show on top and you may begin experiencing frequent thread breaks.

The top tension knobs will need to be adjusted depending on the thread type and color.

- For metallic and polyester threads, turn the top tension knob 0-1 turn counter clockwise.

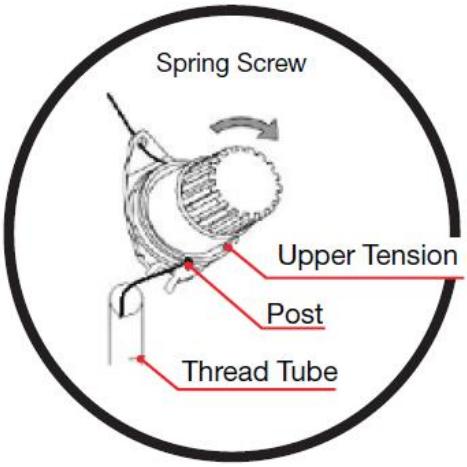


Figure 41

- For light color rayon threads, turn the top tension knob 1-2 turns counter clockwise.
- For white rayon threads, turn the top tension knob 1 turn counter clockwise.
- For medium color rayon threads, turn the top tension knob 1 ½ - 2 ½ turns counter clockwise.
- For dark color rayon thread, turn the top tension knob 2 – 3 turns counter clock wise.
- For black rayon thread, turn the top tension knob 3 turns counter clockwise.

If you are experiencing thread breakage often tensioning your bobbin and upper threads, be sure that your needle is fresh. Old needles may produce burrs and lead to frequent thread breaks.

Care of the Bobbin Case

Clean lint from beneath the tension plate with the corner of a business card, or remove it with the bobbin thread itself used like dental floss.

Resist the temptation to blow the lint off the case--this deposits damaging saliva on your bobbin case.

Fiber Choices

Cotton

Tip:

Be sure to keep the tails short – no more than three inches.

This fiber isn't exactly a popular choice, but it definitely has its followers. Although not as strong as its synthetic counterparts, cotton users value its friendly texture, which allows a wider range of adjustments for bobbin tension settings. One undesirable trait of using a cotton bobbin is that it is linty, and this lint has a tendency to collect under the bobbin tension plate. Lint build-up can lead to "springing" the tension plate, causing it to fail to hold any tension on the bobbin thread.

Nylon

Tip:

One tip-off that you need to adjust the bobbin case rather than the top tensioner is similar symptoms exhibited on all needle bars.

Nylon bobbin thread exhibits almost exactly the opposite characteristics from cotton. Advantage: Very fine nylon is still quite strong, so a bobbin can hold many yards of thin nylon thread. Disadvantage: Its small diameter and slick texture make it tricky to keep consistent tension on bobbin cases. It is extremely slippery so tension can be difficult to maintain.

Continuous Filament Polyester

This fiber is the most popular among U.S. embroiderers. It is strong, thin and reliable. No slub, no lint, just a consistent high-quality thread whose size allows 127 yards to be held on a standard style "L" bobbin. These are the reasons why American embroiderers use this bobbin fiber more than any other fewer bobbin changes or breaks mean less downtime.

Filament Polyester is fifty percent more expensive but it can run a higher tension on both top and bottom.

Spun Polyester

Spun polyester has a number of benefits that make it my number one bobbin fiber choice. Its texture is similar to cotton, without the lint problem. It is also the most economical and popular type of thread. Spun polyester bobbins require less plate pressure. They leave a lint build up in the bobbin case which needs to be removed and maintained.

One reason that it has been overlooked is that many people mistakenly think that a bobbin (Style L) will hold only 94 yards of this thread. While that's true of size 100 spun poly, several suppliers put up size 120 spun poly on embroidery bobbin bodies. This size yields 120 yards per bobbin, only seven yards shy of continuous filament polyester.

Bobbin tension that is too tight can result in a narrow column, or even a single strand of bobbin thread down the center of a satin column. This can cause the embroidery to unravel easily if the bobbin thread ever gets snagged.

Bobbin tension that is too loose can let bobbin thread be pulled by the top thread to the top side of the embroidery. Even if the bobbin thread stays put on the underside of the work, chances are that columns will not have clean crisp edges.

Erratic bobbin tension usually results from a catch in the bobbin case. This is one reason why I like to pull out a few feet of bobbin thread to see if there is a point in the rotation of the bobbin in the case that is not smooth. This catch can be the result of an ill-fitting bobbin that has been overfilled or that has a manufacturing defect. If you suspect that the bobbin is not rotating smoothly in the machine, here's a way to check. Place the bobbin case with the bobbin face down, flat on the machine table. Pull a few inches of thread out. If the bobbin isn't spinning freely on the machine table, the odds are that it isn't spinning freely in the machine either. Retest the case with another bobbin.

Top Thread

Fiber Choices

Figure 42

For Light weight threads the weight is 60, 70, and 80. This specialty thread is used for fine fabrics, small delicate details and small fonts.
If you are using this type of thread, increase density slightly by 5 to 10 percent.

For Medium weight threads the weight is 30. This specialty thread can be used to fill large embroideries with fewer stitches. If you are using this type of thread, decrease stitch count by 15 percent. It saves production time. Also there is weight 35 most widely used for multi-color threads.

For Heavy weight threads the weight is 12. This specialty thread creates the look of hand embroidery. If you are using this type of thread use long floating stitches. There is special set-up time required for this thread. You should do tension adjustment and needle change to 100 or 110.

Rayon Thread

Rayon thread is widely used by U.S. embroiderers. Rayon is a very beautiful, supple and friendly fiber. It is a natural fiber, made from cellulose. Its handling properties are superior to other fibers used for embroidery thread, and it looks very rich when sewn into fabric. Unfortunately, it is not one of the stronger fibers. Even slight equipment problems can cause an unacceptable number of thread breaks when using rayon thread.

Rayon is more expensive than other fibers and is susceptible to damage by environmental factors, such as light, heat and cold. It is available in sizes 30, 40 and 60.
In Rayon thread, black and white tend to break more frequently because of the bleaching and dying processes. White is bleached heavily to get the brilliant white color, and black is weakened by the amount of pigment it must absorb to have a rich black color.

Tip:

Polyester thread is a great choice for towels and infant items that will be bleached.

Polyester Thread

Years ago, polyester embroidery thread was very hard to handle because this fiber is very stretchy by nature. This resulted in looping, which caused operators to tighten down on tensions. This compounded the problem because this stretched the polyester fiber even more. When the thread's memory caused it to regain its original length, the embroidery was often puckered. Today's polyesters are greatly improved and many have excellent

sew ability. The color ranges have also improved, making it a good choice for embroiderers. It may be too strong for certain lightweight, delicate goods, but its resistance to thread breaks can add to production efficiency. We recommend 100% Polyester thread for all embroidery projects.

Polyester is one of the two embroidery fibers that can accept neon dyestuffs. The neon colors that you are using in your shop are very likely to be polyester fiber. Poly has excellent resistance to abrasion and bleaching. It is a good choice for items that will be subjected to sunlight, chlorine or harsh laundering.

Polyester is stiffer than rayon, and may require some tension or check spring adjustment. Try different settings using the threading lever on the right front of your RiCOMA machine. This is a simple way to adjust the check spring to be suitable for a change in thread type.

Metallic Thread

Avoided by many embroiderers, this beautiful thread type can be tamed.

Figure 43

This thread is stiffer than other varieties, and it has an interesting construction. Metallic is a metallic film glued to a nylon or polyester core. The quality varies widely among manufacturers so talk to other embroiderers to find a brand that performs well.

If you have experienced difficulty in sewing with metallic, try:

- Using a smaller size metallic.
- Using a larger eye needle.
- Thread the metallic through a packing peanut attached to your thread tree.
- Check your programming.
- Are densities appropriate for metallic?
- Are there too many short stitch lengths, or small turning stitches?

Tip:

Buy the best metallic brand on the largest spool you can afford. The larger diameter of the spool produces fewer kinks as it unwinds.

Cotton Thread

For a homespun look, or doing small personalization on dress shirts, cotton is ideal. Cotton thread makes it easy to adjust tensions. It also has a matte finish that is sometimes preferred to the shiny look of the other thread types.

It is available in a broad range of sizes from very large to very fine. At one time, it was the favored thread for detailed golf logos. Today, it is used for appliqués that are intended to have a home-made look.

Thread Consumption

Thread consumption varies according to the type of stitch being made. Longer stitch lengths, such as long satins or jump stitches, use more top thread than fill stitches. Using an average mix of stitch types, a 5,000 yard cone yields about 9,000,000 stitches. If the cone costs $9, this would be about one cent per thousand stitches.
Bobbin thread yield is about 25,000 to 30,000 stitch per bobbin for style L. (The amount of yardage per bobbin varies according to thread type.)

Backing

Backing is also known as stabilizer. It is the foundation for a good embroidery. Designed to support or even replace the fabric, it helps hold the fabric as flat as possible to prevent distortion in the embroidery.
There are different types of backings/stabilizer used in embroidery. To choose the correct one it will depend on the fabric you will be using it.
There are three things you need to consider when choosing backing:

- Stability of Fabric: stretchy or loose fabric needs a heavy backing. On the other hand, stable and tight woven fabrics need a light or medium backing.
- Stitch Density: the higher the density the heavier the backing.
- Washability: If the fabric will be washed frequently use a heavy backing. Backing will get softer after many washes.

Backing comes in black and white color. White is the most common, and is used on most embroidery. Black is sometimes used on darker garments. Especially if there is any chance the backing might be seen or bleed through, such as on pique knit shirts.

Backing comes on rolls or pre-cut. Rolls are usually used on larger sewing areas. Pre-cut backing is more convenient for left chest type logos.

Backing comes in different weights. Choose the weight of the backing based on how much you need to stabilize the fabric. The goal is to eliminate the stretch. The more the garment stretches, the heavier the backing needs to be.

a) 1 to 1.5 oz. – Light-weight
b) 2 to 2.75 oz. – Mid-weight
c) 3 to 3.5 oz. – Heavy-weight

If needed, you can use multiple pieces of backing, and sometimes use a combination of backings.

There are different categories of backing used in embroidery.

Figure 44

Cut-away

It is used for permanent support and it provides the most stability. It comes in light to heavy weights and heat set fusible. It offers the sharpest embroidery on highly detailed designs that includes small lettering.
It remains permanently affixed to the fabric and the excess it cut away with scissors. There is a variety of weights from 1 oz. (light) to 3.75 oz. (heavy). Best used on knits since it prevents the design from stretching out with frequent washing or wearing. It is also used on loosely woven and unconstructed caps. When choosing cut-away use a lightweight for design with a light stitch density and a heavy cut-away for dense designs. This is typically used on materials that stretch, such as knit materials. To check the stretch, grab the material with your two hands approximately 8" apart and pull on the fabric. Make sure you are in the middle of the fabric, not near an elastic waistband or a zipper. If there is substantial stretching, you should use cutaway backing.

Tear-away

It is used for light support since it is less stable than a cut-away backing. It comes from light to heavy weights and also adhesive back. The backing is removed by tearing off. This is typically used on garments that don't stretch, such as terry cloth, robes, blankets, leather, etc. When your fabric requires strong support use several layers of light to medium weight backing. It is easier to remove one sheet at the time than using a heavier tear-away and trying to remove it. It is best used on firmly woven, natural-fiber fabrics. It is recommended for very strong and stable fabrics or when you don't want the backing to show on the back, such as back of towels, caps and bags.

Specialty backings

Poly mesh/No show is a lightweight woven cut-away that is soft, thin and strong. It is designed to provide extra stability on knit shirts. This type of stabilizer would not show through light color garments. It is used on low stitch count designs on polos and T-shirts. For best results we recommend to combine a No-show backing with a tear-away. This type of backing is removable with water or with heat.

Topping

It is a plastic film used on the top side of an embroidered item to prevent stitches from shrinking into textured fabrics. It is used for temporary support. They are used on delicate, mesh-like and difficult to mark fabrics like pique, fleece, terry cloth or corduroy. When using this type of stabilizer on the top of the fabric you will still need to use backing on the back of the fabric to support your fabric. To remove the plastic film rip the topping off or use water to remove since it is water soluble.

Foam

It is used to add dimension to lettering on caps for a 3D effect. It is available in a variety of colors in 2mm and 3mm thickness sheet. The foam sheet is laid on top of the area that will be dimensional and then stitched over with a column fill that uses short stitches to cut the foam. The excess foam will need to be pulled away. Some stray pieces of foam that remain can be easily be eliminated by applying a hot hair dryer over the area.

Poly mesh backing

This is an extremely thin backing, yet is extremely strong because of the fibers throughout it. This backing is used when we want to add a lot of stability but we do not want the bulk of a heavyweight cutaway backing. It is great for the newer tech garments, where they are very thin and have a lot of fluidity to the fabric. Poly mesh will add stability without running the movement of the garment. If needed you can use two pieces of poly mesh on a very stretch, tech golf shirt.

Fusible backings

It is used on very stretchy materials. Once fused to the garment, the garment and the backing become one. Stable material. It is also used to cover up a finished piece of embroidery, such as an infant's onesie, where the stitches and the backing would otherwise irritate the baby's skin.

Backing and Needle Recommendations

Canvas

Use a light to medium tear-away. 75/11 sharp or normal round point needles. Sharp needles are better for longer runs.

Canton Fleece

Use a light tear-away polyester backing to maintain colorfast-ness if a garment is subjected to extensive sunlight, chlorine, salt water or industrial laundering and bleaching. 75/11 light ball point needles.

Coated or Waterproofed Fabrics

Use a light to heavy tear-away backing. 75/11, 80/12 sharp or light ball point needles.

Corduroy

Use a medium topping and light to medium tear-away. 75/11 light ball point needles.

Cotton Sheeting

Use a heavy cutaway or tear-away/wash-away. Cotton-on is great for kids' clothes. 75/11 light ball point needles.

Denim

Use a heavy cut-away or tear-away/wash-away. 75/11 light ball point needles.

Dress Shirt (Woven)

Use a heavy cut-away or tear-away/wash-away. 75/11 or 70/10 light ball point or 80/12 needles for small details.

Golf Shirt

Use a light to heavy cutaway. Heavy knits require a medium to heavy cut-away; medium knits require a light cut-away. 75/11 light ball point needles.

Headwear

Use a medium to heavy tear-away. 75/11 or 80/12 sharp needles.

Leather and Vinyl

Use a light tear-away. 75/11 or 80/12 light ball point on stiff or spongy leather (upholstery luggage): 70/10 or 80/12 sharp on soft, supple garment leathers.

Lingerie or Silk

Use a water-soluble tear-away backing. 70/10 light ball point or 80/12 depending on thread.

Lycra or Spandex

Use a medium cutaway or water-soluble tear-away. 70/10 medium ball point.

Nylon Windbreaker

Use a light to heavy cutaway. 75/11 light ball point needles.

Satin Jacket

Use a light to heavy cutaway. Cotton-on-cotton is a nice look. 75/11 light ball point needles.

Sweater Knit

Use a medium to heavy cutaway. 75/11 light ball point needles.

Sweatshirt

Use a heavy tear-away or cutaway. 75/11 light ball point needles.

T-Shirt

Use a light, water-soluble tear-away or medium cut-away. 75/11 light ball point needles.

Terry Cloth

Use a medium weight, water-soluble tear-away and topping. 75/11 or 80/12 light ball point needles.

Tension

Proper tension on your machine is needed to reduce thread breaks. The tension settings may vary by thread manufacture; however, all brands are very similar. Polyester threads would require nearly twice the amount of tension as rayon.

Depending on the type of thread you will use, you would need to adjust the tension knobs. To have a great quality design make the following adjustments if needed.

- For metallic and polyester threads, turn the tension knob 1 turn counter clockwise.
- For light color rayon threads, turn the tension knob 1-2 turns counter clockwise.
- For white rayon thread, turn tension knob 1 turn counter clockwise.
- For medium color rayon threads, turn tension knob 1-2 turns counter clockwise.
- For dark color rayon threads, turn tension knob 2-3 turns counter clockwise.
- For back rayon thread, turn tension knob 3 turns counter clockwise.

Thread color dyes affect the texture of the thread which can affect in how smoothly it slides through the machine. If you change the weight of the thread you will need to adjust the tension. Machine speed may affect the tension as well. The slowest the speed the better the quality. Excess dust and lint along the thread path can affect the thread tension.

Lever Springs Tension

The tension of your machine is controlled by the tension knobs and the lever. The lever spring controls the tension of all the needles. We recommend maintaining the lever spring on a 90 degree angle.

- For sewing heavy materials place the springs lower.
- For sewing lightweight materials place the springs higher.

Figure 45

Hoops and Brackets

With your RiCOMA machine you received a total of eleven (11) hoops. Two of each sizes from hoop "A" to Hoop "E" and one "F" size hoop great for the back of jackets. To determine the hoop size you would use, the logo size and placement will determine this factor. Upload your design to make sure it fits the pre-set hoop from your RiCOMA machine (Only applies to TC and MT series).

Tip:

Keep U-shaped notch on hoop pointed toward direction of insertion while hooping.

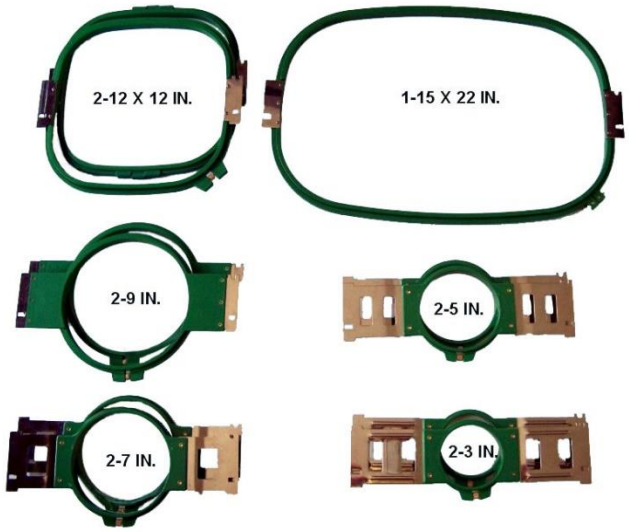


Figure 46

When hooping, always use the smallest hoop that your design will fit in. This will give you the best hooping tension on your fabric. Whenever you are using a square or rectangular hoop, the only places you are really getting true holding power (a grip) on the fabric, is in the corners. Adjust the hoop tight enough to hold the weight of the garment, but not so tight that you strip the adjustment screw out of the hoop. Round hoops have equal holding power all around the circle.

Magnetic Hoops

Magnetic hoops are really good option if you are hooping a really thick material. It will hold your garment better and it is also great for bags. Another option is the 8 in 1 hoops. They are great for small placements to reach.

Hoop Master

This hooping board is excellent to aid the embroiderer with a uniform placement of the hoop into the garment. The board will hold the outer ring of the hoop, then you would place the garment over the board following the outer hoop ring.

Attaching Brackets and Inserting a Hoop

To properly insert the hoop into the brackets there are some options to take into consideration.

1. The pantograph has more resistance when the machine is powered on, making the job of attaching the brackets easier.
2. Locate the two hoop brackets in your accessories. Make sure to place the brackets with the curve side facing to the inside and the flat side facing to the outside (Fig. 47).

Figure 47

3. You will attach these brackets to the pantograph rail of the machine to hold the hoops, which will be clipped into the brackets (Fig. 48).

Figure 48

4. The bracket placement for the regular size hoops is in an offset location.
5. As you face the machine the slots for the regular size hoops on the left side are the third set in from the edge. (Position 5 and 6 from the outside of the pantograph to the inside of it for hoops A-E; for hoop F use position 1 and 2). Slip the open end of the bracket onto the rail and attach using the provided bolts with a 2.5 Allen wrench (Fig. 49).

Figure 49

6. On the right side, as you face the machine, the slots for the regular size hoops are the third set in from the edge. (Position 5 and 6 from the outside of the pantograph to the inside of it for hoops A-E; for hoop F use position 1 and 2). Slip the open end of the bracket onto the rail and attach using the provided bolts with a 2.5 Allen wrench.
7. The metal arms of the hoops are design to slip under the clips on the hoop brackets. The open-ended slot should be on the leading edge of the hoop because it will fit under the clip.

To remove the arms simply loosen the Allen screws. You do not have to remove them all the way. Then pull the arms straight out towards the front of the machine.

How to Insert the Hoop into the Machine

1. To insert the hoop into the machine, place the U-shaped notch on the right side of the machine and towards the bracket. When hooping, you must remember to orient the garment so that the leading edge of the hoop is the one with the U-shaped notch.

Figure 50

2. When inserted correctly and completely, the edge of the hoop slips under the recessed notch at the end of the clip. The notches in the hoop are held securely under the prongs near the end of the clips (Fig.51).

Tip:

Always do sew out on two pieces of backing or on a piece of the same material of the garment. This helps to see if the correct backing/topping and hooping methods have been applied. Also if the tension of the thread and bobbin are correct.

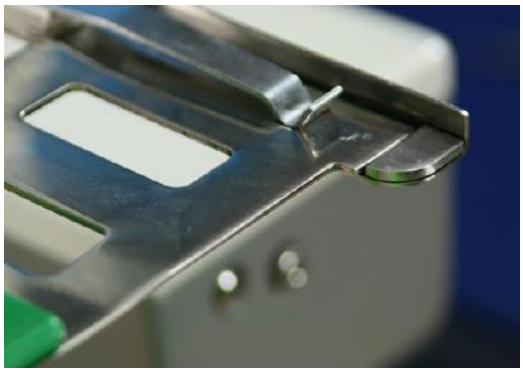


Figure 51

3. To attach the extra-large hoop, the brackets must be attached to the outermost slots on each end of the pantograph rail.

4. To correctly attach the extra-large hoop, recess the bottom hoop so that it clears bracket hardware. The wall of the extra-large hoop is taller to accommodate this.

How to Remove the Hoop from the Machine

To remove the hoop, lift the hoop arms to release the pressure on the notched areas (Fig. 52 and Fig. 53). The hoop brackets will hold the hoops very tightly at first, and it will gradually become easier to lift the hoop from the bracket.

Figure 52

Figure 53

How to Hoop and Hooping Recommendations

Hooping properly is one of the most important steps to successful embroidery. Your RiCOMA machine comes with 11 hoops of different sizes. Make sure you select the hoop that will fit your design.

When hooping your fabric be sure to choose the correct stabilizer for your garment. Stabilizers will add rigidity to your fabric and guard against stretch, they should not be too heavy or too light. Please refer to our backing section for more information on which backing to use for your project.

When your garment is hooped correctly you will be able to run your fingers over the fabric without it moving or rippling. If your garment is too loose, remove the hoop and repeat the process. Never pull the fabric or tighten the hoop to even it out. This will cause puckering and design position problems if you stretch out the material while hopped.

There are many tools to help embroiderers hoop effectively. For hard to hoop materials or really stretchy materials you may want to use a temporary adhesive spray or sticky backing to provide more stability to your garment.

For hooping multiple players and for more uniformly hooping of multiple items you may want to use a hooping system, like a hoop master.

Hoop Marks (Burns) are marks left behind when you separate the two pieces of the hoop. These are easily removed by steaming spraying the area with sizing or spraying distilled water on the area and gently rubbing it with a soft brush or a cloth.

Hooping a Golf Shirt

1. To hoop a golf shirt, we must determine the proper position. A good starting point is 7-1/2" from the shoulder to the center of the design. The distance from the center front depends partly on the design width.
2. The design should always be slightly closer to the center placket or center front than to the armhole seam.
3. If desired, mark the placement with a disappearing marker, or a piece of masking tape or painters tape.
4. Some embroiderers insert the hoop through the large bottom opening to avoid unbuttoning the collar. This also reduces the chance of soiling the collar area during embroidery. Regardless whether you prefer to load the shirt through the neck opening or bottom opening, you must remember to orient the hoop so that the leading edge of the hoop (the edge placed into the machine) is the one with the U-shaped notch.
5. Insert the bottom hoop ring, with the adjusting screw facing the bottom of the shirt. It's best to have the adjusting screw facing toward the bottom shirt opening for ease of adjustment in the event that the hoop is adjusted too tightly or too loosely.
6. Position the stabilizer over the bottom hoop, completely covering it.
7. Insert the top hoop ring into the bottom hoop, either bottom to top or top to bottom, keeping the shirt fabric smooth.
8. Insert the ring and check that the fabric is taught. Try to lift the fabric from the stabilizer – if it is difficult to lift the fabric from the stabilizer you have hooped the fabric correctly.
9. The stabilizer should extend from all sides of the hoop. If it does not, re-hoop.

Figure 54 Correct Hooping

Figure 55 Incorrect Hooping

Hooping a Hoodie or Jacket

1. Too hoop a hoodie or jacket, we must determine the proper position. A good starting point is 8” from the shoulder center of the design. The distance from the center front depends partly on the design width.
2. The design should always be slightly closer to the center placket or center front than to the armhole seam.
3. Open the zipper and the place the bottom ring inside (Fig. 56).
4. Position the stabilizer over the bottom hoop, completely covering it (Fig. 57).

Figure 56

Figure 57

5. Insert the top hoop ring into the bottom hoop, either bottom to top or top to bottom, keeping the jacket’s fabric smooth (Fig. 56).
6. Insert the ring and check that the fabric is taught. Try to lift the fabric from the stabilizer – if it is difficult to lift the fabric from the stabilizer you have hooped the fabric correctly.
7. The stabilizer should extend from all sides of the hoop. If it does not, re-hoop. (Fig. 59).

Figure 58

Figure 59

Hooping Placement Recommendations

Beach Towels

Logo should be centered 5” above the hem. Monogram size should be 4”-5”.

Bath Towels

Logo should be 2” above border or 4” above the hem. Monogram size should be 3 ½” – 4”.

Hand Towels

Logo should be 1” to 1 ½” above the border or 2” above the hem. Monogram size should be 2 ½” – 3”.

Fingertip Towels

Logo should be centered 2 ½” from the hem. Monogram size should be 2 ½”.

Wash Cloths

Logo should be 2” above the hem or 1 ½” above the border. Monogram size should be 1” – 2”.

Napkins

Logo should be centered in the corner of the napkin on opposite side of the label. Monogram size should be 1” – 2”.

Pillowcases

Logo should be placed 3” above the hem. Monogram size should be 1 ¼” – 2 ¼”.

Sheets

Logo should be centered 2” above the sewn band of the sheet, but sewn on the reverse side so its visible when the sheet is folded over (many customers prefer full names – especially on children’s sheets). Monogram size should be 3” on hem or 3”-5” above the hem.

Robes – Men’s

Logo should be 7” to 10” from the shoulder seam and 3” to 5” from the center.

Robes – Women’s

Logo should be placed 4” to 6” from the shoulder seam and 3” to 5” from the center.

Hooping Caps

When sewing caps we are going to use the cap driver, the cap station, a cap ring, a blank cap and a piece of backing, usually tear away.

The Cap driver is the part that is mounted on the machine which holds the cap and cap ring during the sewing process. This has an angular rotation.

The cap station it what holds the cap ring so you can hoop the cap. The cap station should be mounted on your machine stand or on a sturdy table. Once the cap station is mounted you can attach the cap ring into the cap station. Make sure all three latches are lock into place.

Hooping the front, sides, or front and sides of a cap

1. Start by preparing your cap removing the cardboard, making sure the bill of the cap is as flat as possible and open any type of closure, if any, on the back of your cap.
2. If sewing just the front of the cap, pull out the sweatband below the bill of the cap from the front seam on the left to the front seam on the right. If sewing the sides of the cap or 270 degrees (from ear to ear) the sweatband needs to be out, from the stitching at the left rear seam, to the stitching on the right rear seam before it folds back out.
3. The cap ring can be adjusted depending on the thickness of the material of the cap. To adjust the metal strap, loose the three screws with the help of pliers. Tight the screws once you had acquire the new position for the band.
4. Once the cap ring is placed into the cap station, open up the metal band and let it rest on the left side of the cap ring.
5. Grab your piece of cap backing. Size of backing will depend on the size of your design.
6. Place the backing under the bill stop; the metal tab on the top of the ring.
7. Start placing the hat on the cape frame making sure the cap is outside of everything.
8. The sweatband needs to be placed under the bill stop and the bill is pushed up tight against the bill stop, not on top of it. Make sure the sweatband is out on the sides, up to the left and right rear seams.
9. Bring the strap across the top of the cap, with the bill in the middle of the two metal strap pieces. Make sure the finished edge of the cap is 1/8” inside the teeth on the left side of the strap. The teeth of the strap should catch where the corner of the bill is. The finished edge of the cap is flush with the lower edge of the metal strap. The teeth of the strap must catch the right corner where the bill ends.
10. Set the clasp into the catch and pull down on the hat to make sure it is tight (not wrinkled) on the sides.
11. Push forward on the strap ensuring the bill is tight to the bill stop as you tighten it by lifting up on the clasp.

12. Pull the sides of the hat straight down and using the metal clips clip them to the metal bars inside the cap to keep the cap tight. Repeat this on the other side. Make sure the handle of the clips face the center of the hat, they should not stick out.

Hooping the back of the Cap using a Round Hoop

1. Grab your 12cm or 15cm hoop.
2. Find a surface that is the width of the bottom ring of the hoop you have chosen. The corner of a table would work.
3. Place the bottom ring on that surface.
4. Place your backing on top the bottom ring. Using adhesive spray on the backing or sticky backing would be helpful.
5. Place the cap on top of the bottom ring and backing.
6. Get the material smooth, without any wrinkles.
7. Line up the top of the hoop so it is straight.
8. Push the hoop together.

How to Install the Cap Driver

If you have a PT series machine, you might want to move the pantograph forward, which is done by using the Up or Down Arrow buttons on the control panel.

If you have a MT or TC machine, first change the hoop selection to a Cap under design set. This way the pantograph will move forward.

1. Remove the hoop arm or brackets from the machine by loosen the Allen screws.
2. Set the cap driver on the machine, so that the hole in the back of the rounded part goes around the bed arm.
3. Push the cap driver towards the back of the machine ensuring the bearing, located behind the round part, are lined up on the track, and located on the underside of the bed arm.
4. Push the cap driver back until it meets the section where the hoop arms were mounted.
5. The right screw will go into the 6th hole from the right end and the left screw will go into the 6th hole from the left end.
6. Push the cap driver all the way back, so it is tight to the pantograph, as you tighten the Phillips screws.
7. Using the directional arrows on your panel, make sure the cap driver is moving freely front to back as well as side to side.

How to Remove the Cap Driver

To remove the cap driver, loosen the Phillips screws, and then pull the cap driver towards the front of the machine. You do not have to remove the screws completely.

How to Install the Table for TC and PT Machines

The table is used to support “heavy” items while sewing.

1. Remove the Phillips screws on both sides of the machine.
2. Place the table on top of the frame, around the bed arm.
3. Push the table all the way back.
4. Place the Phillips screws through the table bracket and into the machine.
5. Tighten the screws.

The MT machine does not bring a table since this machine is already capable for bulky and heavy items.

Operating Speeds for Flats and Caps

When the cap driver is on the machine, we generally run the machine between 500-650 stitches per minute.

When the cap driver is not on the machine, when sewing flats, we generally sew between 650 and 850 stitches per minute.

Operating speed is determined by the quality of the design and the product you are sewing on. You would want to run your machine as fast as possible to do more production but keep in mind that quality on your final product is the most important. While sewing, be in the look of how clean and tight, lose or loopy the stitches are. If this is the case, slow the speed of the machine until you have nice tight and clean stitches.

If you are experiencing an excessive amount of thread breaks and you know you have a good design, you have hopped the garment correctly, tension and threading is correct, proceed by slowing the machine down to try to prevent thread breaks from happening.

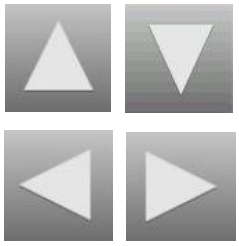
To adjust the speed on your machine use the speed up and speed down buttons on your PT machine. On your MT and TC machine use the plus (+) and minus (-) buttons. Please note you can increase your speed with increments of 10 or 50, depending on the frame movement option set up located in the center of the directional arrows.

Operation Panel and Key Function Introduction for RiCOMA TC & MT

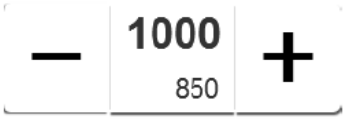
Manual trimming key: take manual trimming in operation status and preparation status.

Spindle jogging key: Press the key and job the spindle to 100 degree.

Selection key: Used to select frameshift and lifting spindle speed.



Up, down, left and right keys: Move hoop in embroidery card and preparation status.



Lifting spindle speed key: - key for deceleration, and + key for acceleration.

Set the start point and walk the surrounding of pattern.

Origin operation key.

Offset point operation key.

Working mode switching key (automatic color changing, automatically starting embroidering way).

Manual color changing key, left side displays current needle position and right side displays spindle degree.

Color changing setting key, left side displays current color needle bar and additional settings, and right side displays next needle bar and additional settings.

Embroidering way switching key (normally embroidering).

Embroidery status switching key.


Returning to stop point key.


Back key.

Select pattern embroidery and input embroidery card.

Set related parameters of patterns, and it can only operate embroidery under embroidery preparation status.

Comprehensive Setting.

Embroidery Parameters Setting.

 Connected network.

AX/AY: Display relative origin coordinates of embroidery card.

 Disconnected network.

PX/PY: Display absolute origin coordinates of embroidery card.

Network Connection

Please find a how-to video link below as well as a download link for the software program needed to make the network connection from the computer to the embroidery machine as seen in the video.

How-to-video: https://www.youtube.com/watch?v=YITWq5YdUVs
File download: https://drive.google.com/file/d/0B0mi2DtPyzIlcEo0emI0WThLWWc/view?usp=sharing

If the settings in the video don't work, please try:
1) Change PC IP to 192.168.0.50 and Machine IP to 192.168.0.51.
2) If you need to connect through a router, please set router IP 192.168.0.1.

How to Upload a Design on a TC and MT Machine

After USB disk us inserted, make sure the embroidery status is removed by pressing on the Lock key located on the top right corner. Then press 

key to enter into embroidery card management interface. It will read the contents in U disk, as in the following Fig. 60.

When embroidery card interface is selected, press  key to switch to USB disk interface.

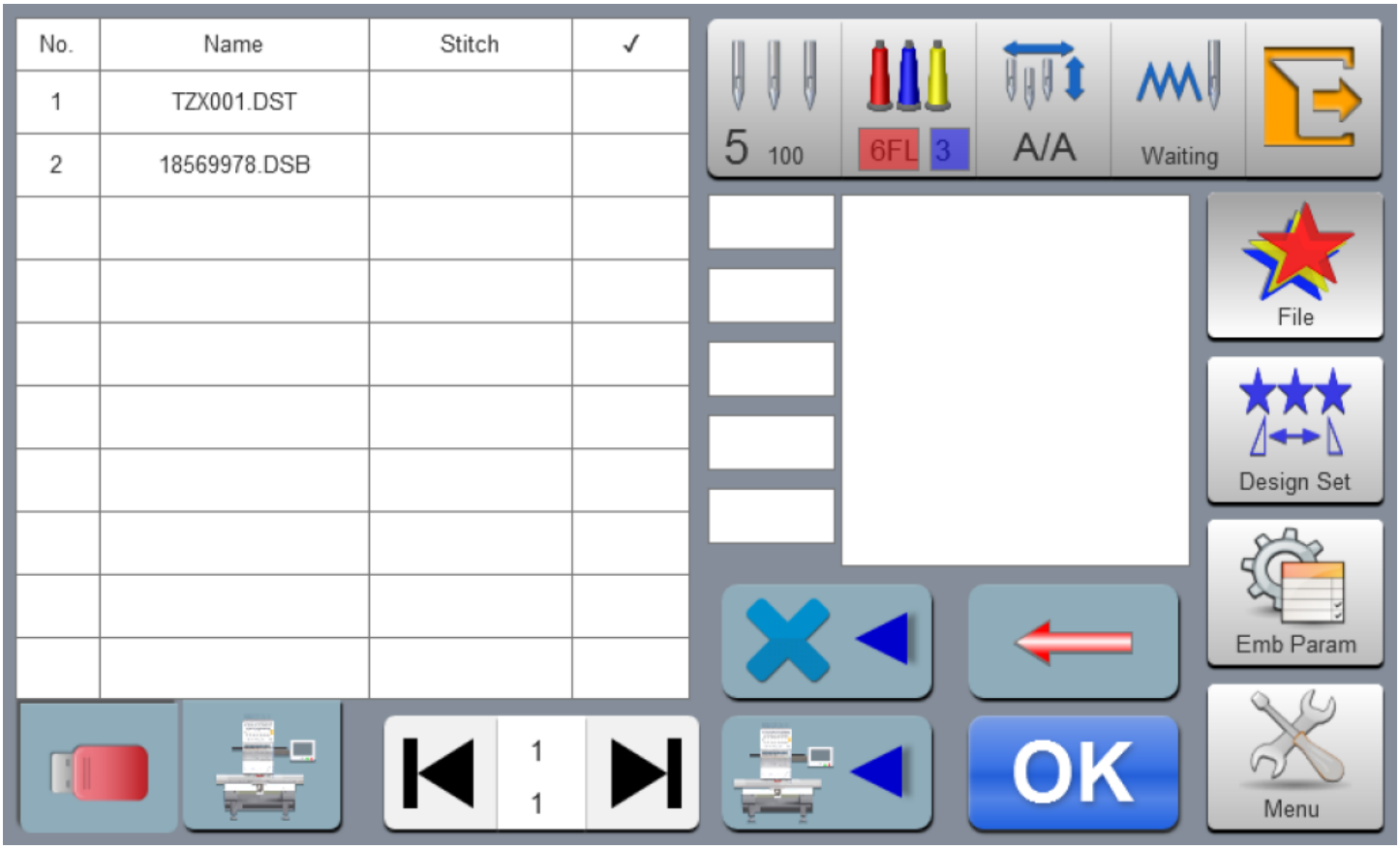
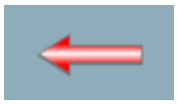


Figure 60

Click embroidery card to input. Multi-option is available (which requires software support.) Press 

key to preview currently selected file. Currently selected stitch number, color, size and other related information and thumbnail are displayed on the right side. Press  key to save in the memory. Input speed is popped up automatically to display memory number and input speed. After input is completed, it returns to U-disk operation interface automatically and it can continue taking input operation.

If it enters into subdirectory of U disk, press  key to return to previous interface.

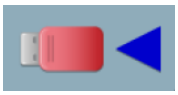
Press  key to return to main interface.

Delete a Design from the Memory Card

In embroidery card management interface, press key to enter into single  deletion operation.

The machine's memory holds 200 designs or 2,000,000 stitches. Be sure to delete designs you would not use anymore.

Output Embroidery Card to U-disk

In embroidery card management interface, select embroidery card to input. Click  key to input into U disk.

Upper value in 

means current page, and lower value means max pages of current embroidery card number. Left and right keys can take page turning. However, max page turning value cannot be larger than max pages of current embroidery card.

Embroidery Status Switching

It has 3 embroidery statuses, i.e. preparation status, working status and running status. It can take status switching via keys on interface. It enters into running status after drawing the rod to start embroidering.

Preparation Status

In preparation status, it can take spindle jogging, trimming, hoop switching, manual color changing, embroidery card parameter setting and embroidery card selection and other operation.

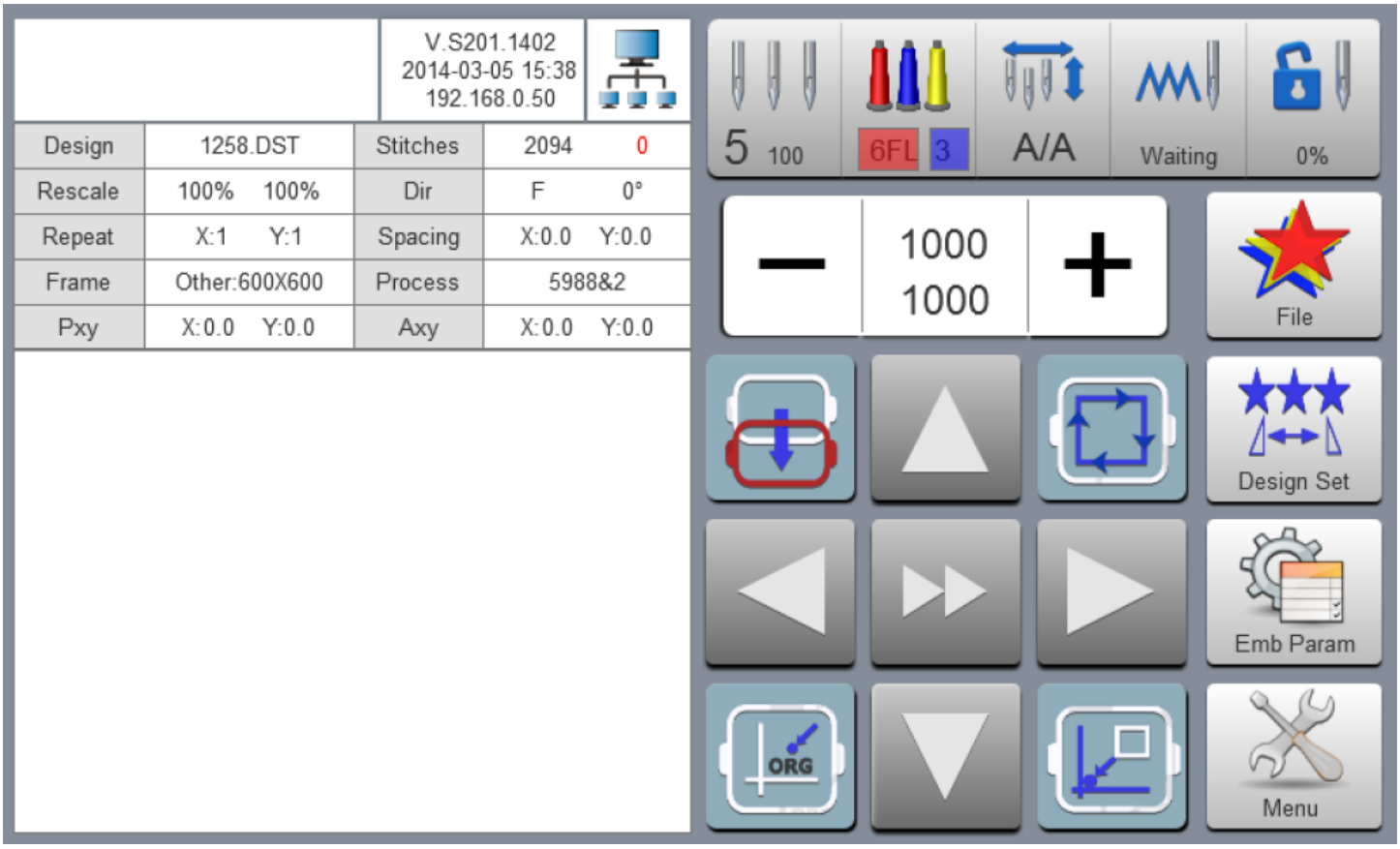


Figure 61

In preparation status, press 

key, and pop up “Into Embroidering Status or Not”. Press key 

to enter into working status (Fig. 61).

Working Status

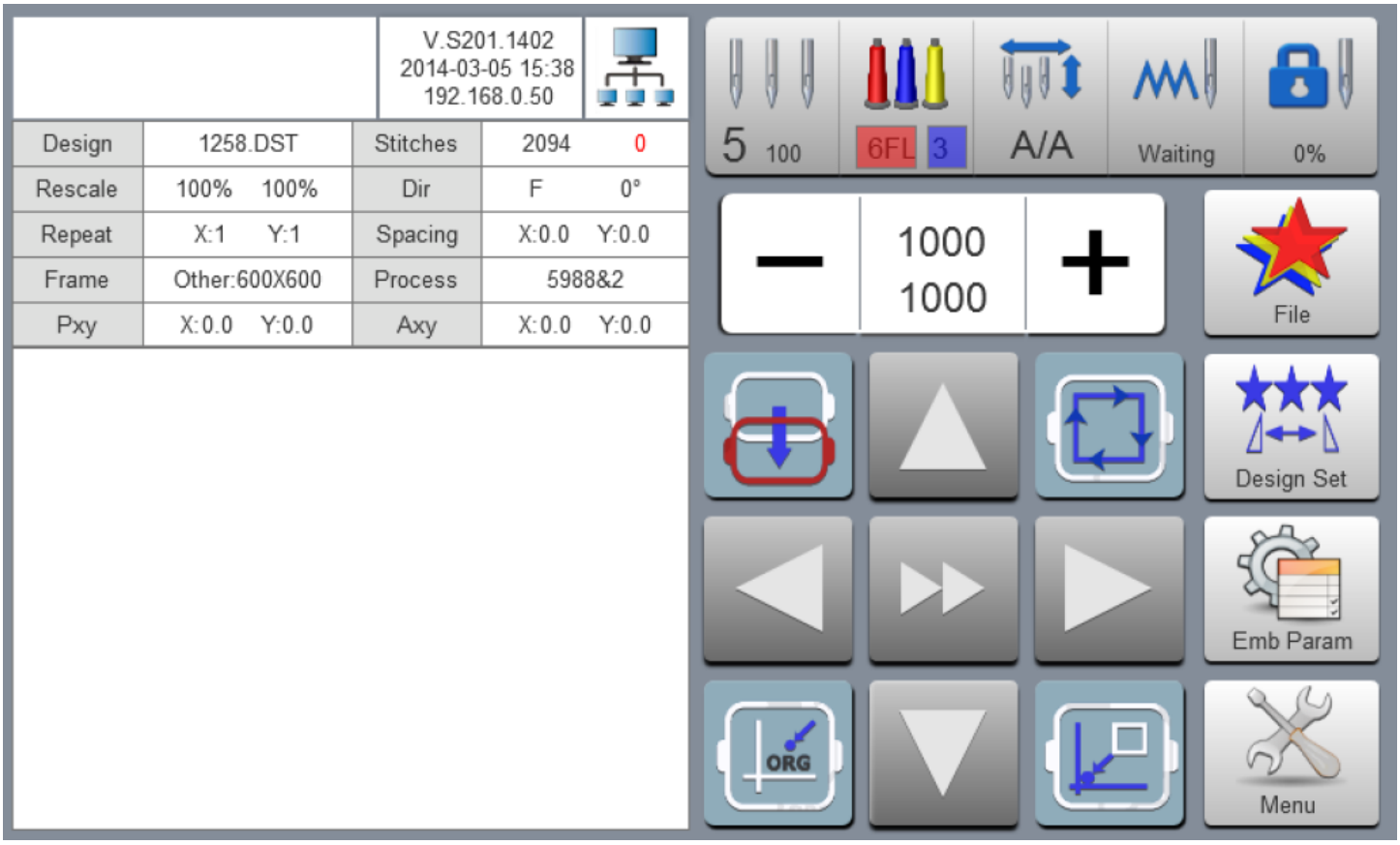


Figure 62

In working status, press 

key and pop up “Release embroidery status or not”. Press 

key to enter into preparation status (Fig. 62).

Set Embroidery Card Parameters

In preparation status, press 

key and take embroidery card parameter setting operation (Fig. 61).

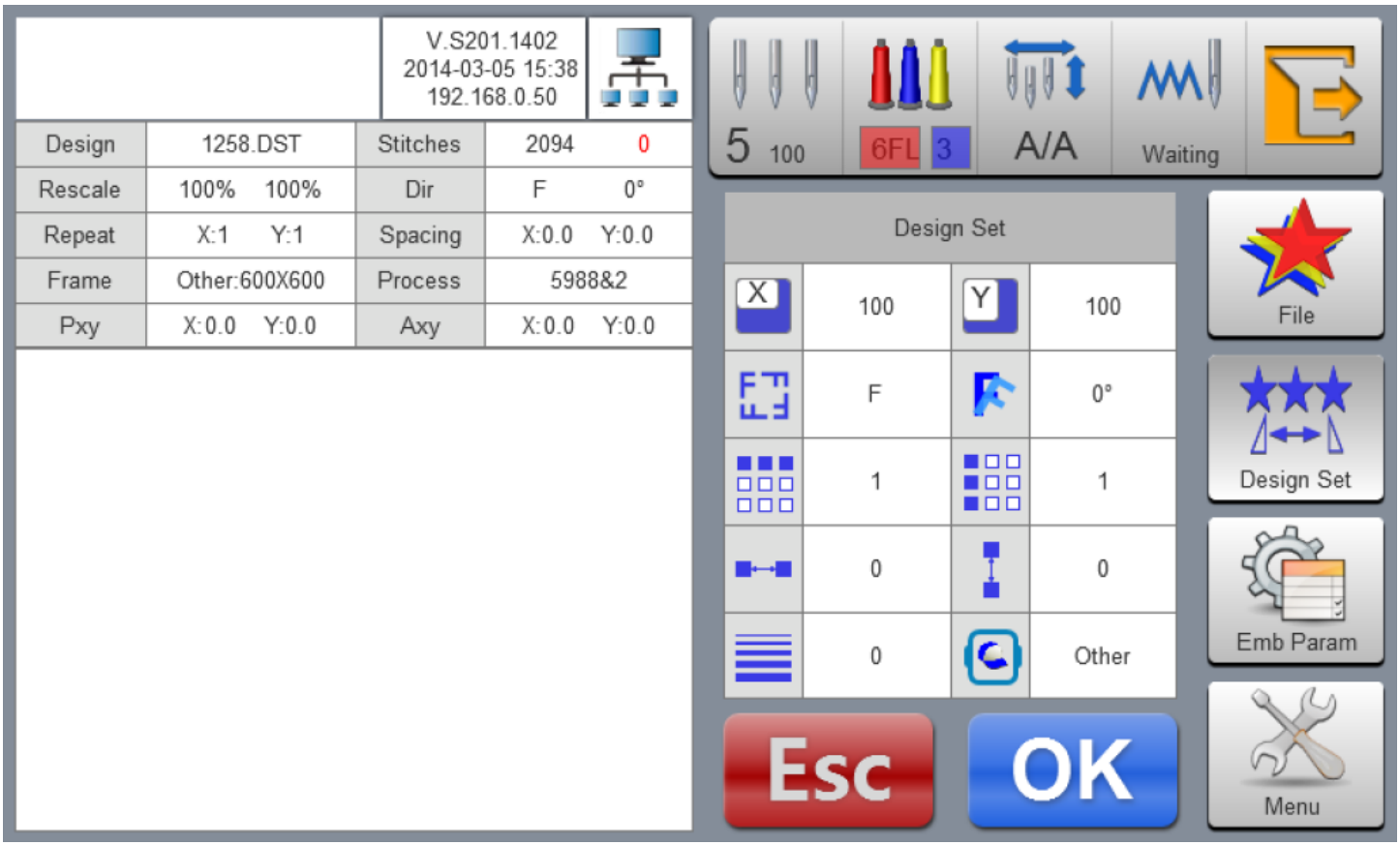


Figure 63

Modify values according to the embroidery. After modification is completed, press OK key to save modification. Press Esc key to return to main interface.

Parameter Range Description

Rotation directions: totally 8, i.e. default 0°, 90°, 180°, 270°, 0°mirror, 90°mirror, 180°mirror and 270°mirror
Rotation angle: 0-89° (the angle is calculated after rotation direction)
X/Y direction multiplying power: 50%-200%

X/Y replication number: 1-99

X/Y direction space: 0-±999.9mm

The control system takes mm as unit. It is input in 0.1mm when inputting digits, i.e. it shall input 1000 when inputting 100mm.

X/Y compensation (satin stitch): 0-±0.3

Switch Hoop

In embroidery card parameter setting interface, press the input box behind  to enter into hoop switching operation (Fig. 62).

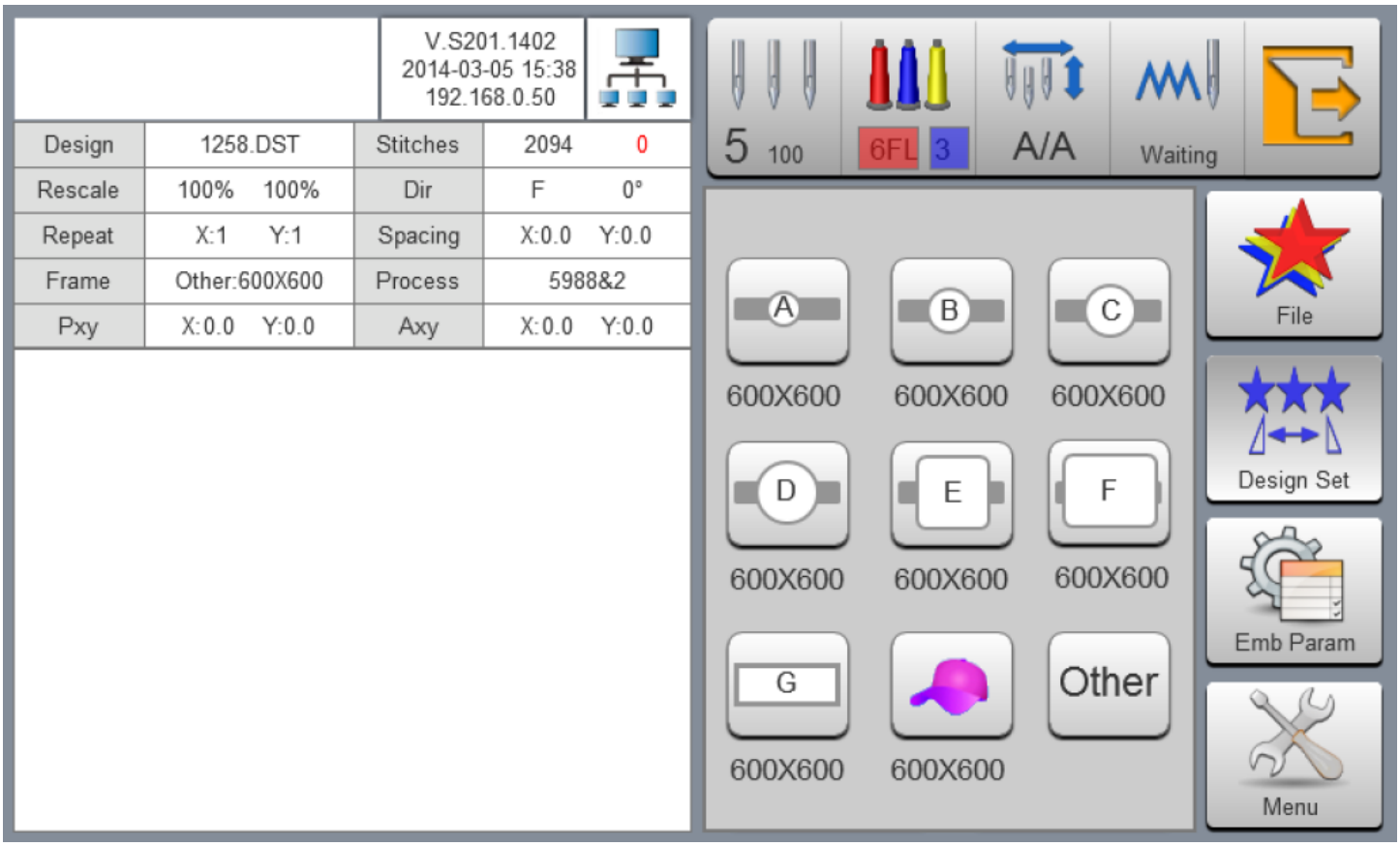


Figure 64

Select current embroidery used hoop type. When hat frame and A-G hoops are selected, the hoop will search absolute origin automatically, and stop at center of selected hoop. Please pay attention to the hoop movement.

See Hoop Setting on embroidery range of hat frame and A-G hoops.

Other hoops don't take absolute origin searching. Embroidery range is also confirmed by software limits setting (See Software Limits Setting on detailed operation).

Select interface behind hoop and return to preparation status automatically. If hoop type is not selected, the system will continue to use previously used hoop type automatically.

After hat frame is selected for using, currently selected embroidery card will be rotated 180° automatically, and other hoops are not changed.

Working Status

In working status, it can take embroidery card origin (starting point) setting, embroidery card origin returning, offset point returning, stop point returning, color changing sequences setting, spindle jogging, manual trimming, working mode changing, embroidering mode switching, embroidery card contour, embroidery range checking and embroidering point returning operation in power failure.

Embroidery Card Origin (Starting Point) Setting

In working status, move the hoop to required embroidery card origin (starting point). Press  key to take origin setting. The hoop walks along the max range of embroidery card. If the position is insufficient, it modifies the origin (starting point) automatically. After being modified, it prompts error if the position is still insufficient. After the origin (starting point) is positioned, AX/AY coordinates are clear.
If current embroidery card is in embroidering process, it will pop up a prompt box. Operate according to the requirements.

Offset Point (Highest Point of Hoop Center) Setting

Offset point is mainly for conveniently embroidery material drawing and releasing and applique placement.
In “Other Parameters” of “Embroidery Parameters”, set “Automatic offset out of hoop’ as “Yes”. After it is set properly, the hoop returns to embroidery card origin to start embroidering after start-up every time. After the embroidery is completed, it is out of the hoop and stops at the offset point.
Offset out of the hoop depends on the set dimensions of hoop, and it is deviated to the highest position of currently selected hoop automatically.

Return to Origin (Starting Point)

In the embroidering process, if it is required returning to the origin to re-start the embroidering, it can take the operation.

Press 

key and the system will pop up “Terminate embroidering and return to the origin?” Press 

key and the hoop is moved to the embroidery card origin and stop. AX/AY coordinates are cleared.

In and Out Hoop Operation

In the embroidering process, if is required returning to the offset point, it can take the operation.

Press  key once and the hoop is moved to the offset point and stop. Press the key gain, the hoop is moved to stop point and stop and it can continue embroidering.

Return to Stop Point

In the embroidering process, after hoop is moved manually, when it is required returning to the stop position of embroidery machine, it can take the operation.

Press  key to take operation of returning to the stop point. After the key is pressed, it is moved to the manual frameshift position automatically and stopped.

Set Color Changing

Color changing setting includes color changing sequences setting and needle bar replacement.

In working interface, press 

key to enter into color changing interface. It defaults to enter into color changing sequences operation (Fig. 65).

Figure 65

Set Color Changing Sequences

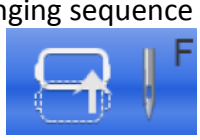
In color changing sequences setting interface, press number key to enter into color changing sequences setting. Change color 1-200 times from the 1st page (the system supports max 200 times of color changing sequences). When the interface is opened, the cursor is started from the last value position with needle bar automatically. Press the number key and input corresponding needle bar number of current color changing sequence. The cursor is moved to next color changing sequences automatically.

In the setting process, if current needle bar number has error, click the selected number to reset the value.
If there is no color changing sequence setting, it uses current needle bar to take embroidering.
If color changing times are not set as the max color changing number of current embroidery card, use currently set color changing number to take cycle orders.

Upper value in 

means current page, and lower value means max pages of current embroidery card number. Left and right keys can take page turning. However, max page turning value cannot be larger than max pages of current embroidery card.

Applique Offset, Low Speed Embroidering and Needle Bar Replacement

If a certain color changing sequence that the cursor is located requires offset out of hoop (appliqué) at the end of embroidery, press 

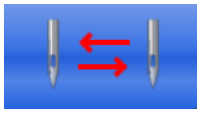
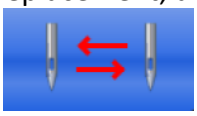
key once before No Input needle bar and “F” is displayed behind current needle bar number. If to cancel offset out of hoop setting, press 

once again.

If a certain color changing sequence that the cursor is located requires deceleration for embroidery at the end of embroidery (slowed speed is set at “low embroidering speed” in “speed parameters” of embroidery parameters, press 

key once before No Input needle bar and “F” is displayed behind current needle bar number. If to cancel low embroidering speed setting, press 

once again.

If all color changing sequences of a certain set needle bar shall be replaced by another needle bar for embroidering, after pressing  key, click the needle bar for replacement, all identical needle bars are selected, Replace needle bar values according to requirements. Press  key once again to exit replacement operation.

After the setting is completed, press 

key to save current setting.

Change Working Mode

In working status interface, press 

key to change working mode. Change one mode when processing the key once (cycle changing) and the key display is changed along with it. The working modes are 

automatic color changing and automatic lifting mode, 

automatic color changing and manual lifting mode and 

manual color changing and manual lifting mode successively.
In manual color changing and manual lifting mode, set color changing sequences are invalid.
It still is modified mode after the machine is shut off and powered on again.

Embroidering Mode Switching on a TC and MT Machine

Embroidering mode switching is mainly to achieve compensation operation. The user can move the embroidery needle to specified location via air embroidering.

In working status interface, press 

key to change embroidering mode. Change one mode when processing the key once (cycle changing) and the key display is changed along with it. The embroidering modes are 

normal embroidering, 

low speed empty stitch embroidering, 

high speed empty stitch embroidering and 

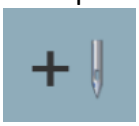
positioned emptying successively.

Low speed empty stitch embroidering:
In stop status, press start key (low speed empty forwarding) once and the spindle is not moved. The hoop is forwarded along the embroidering stitches. Press stop key again and stop low speed forwarding.
In stop status, press stop key (low speed empty backing) once, and the spindle is not moved. The hoop is backed along the embroidering stitches. Press stop key again and stop low speed backing.

High speed empty stitch embroidering:
In stop status, press start key (high speed empty forwarding) once and the spindle and the hoop are not moved. Embroidering stitches are increased. Press stop key again, and the hoop is moved to stitch forwarding position directly.

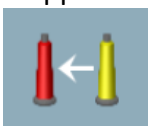
In stop status, press stop key (high speed empty backing) once and the spindle and the hoop are not moved. Embroidering stitches are decreased. Press stop key again, and the hoop is moved to stitch backing position directly.

Positioned emptying:
In stop status, key on right side is switched to the positioned emptying operation interface.


Adding specified stitches: After pressing the key, a figure keyboard is popped out. Press figure key to input required stiches. Press  key and the hoop is moved to specified stitches and stopped automatically.


Reducing specified stitches: After pressing the key, a figure keyboard is popped out. Press figure key to input required stiches. Press  key and the hoop is moved to specified stitches and stopped automatically.


Forwarding one color: After pressing the key, it is moved to start position of following color and stopped automatically.


Backing one color: After pressing the key, it is moved to start position of previous color and stopped automatically.

Embroidery Card Contour Operation

After the embroidery card origin is set, if empty stitches embroidery card contour and embroidering embroidery card contour are required, it can use the operation.
The operation is only operated after setting embroidery card origin and before taking bar drawing. It cannot be operated after the bar drawing.

Empty Stitches Embroidery Card Contour

After setting start point and searching embroidery card contour, press  key and the hoop is started idling from start point along the contour (precise range). After idling is finished, it returns to start point automatically.

Operation of Returning to Embroidering Point in Power Failure

The operation is mainly applied for sudden power failure in embroidering process and when the hoop appears blocking. It takes operation after powering on.
When the hoop type is “Other”, the operation is only valid when absolute origin of hoop is searched before embroidering.

In working status, press 

key to enter into machine operation interface. Press 

key and the system prompts “Press OK to start searching absolute origin”. Press 

key to start searching absolute origin. Then it is moved to embroidering position before power failure and stopped. Draw the bar and it can continue embroidering.

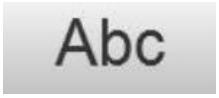
Embroidery Running Status on a TC and MT Machine

In embroidering running status, it can only take spindle lifting speed operation.

Press 

key to slow or accelerate the spindle speed. Press  key to select lifting speed.

Letters to Generate Embroidery Card

In the machine operation interface, press 

key to enter into letter interface (Fig. 64).

Figure 66

Press key to select required letters or other signs. Press 

key to switch upper-case and lower-case letters. Press 

key to clear letter. After entering is completed, press 

key to skip to setting interface (operation cannot be continued if embroidery is not released), as in the following (Fig. 65).

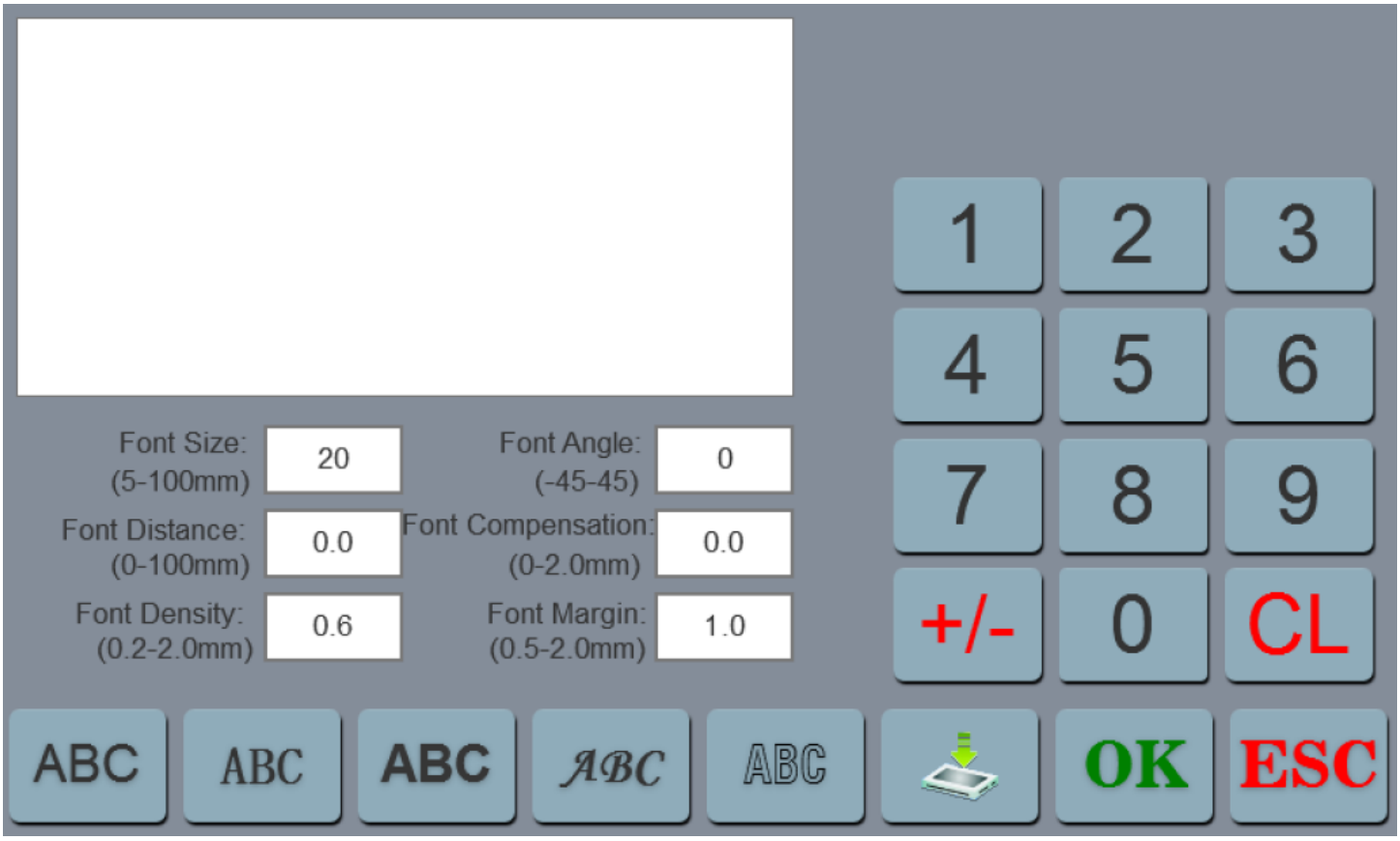


Figure 67

Set letter related parameters. After setting is completed, press key below to select required letter type (5 types). Press  key to generate letter pattern. On the left upper corner, it can see the generated embroidery card. Press  key to save embroidery card in memory.

Manual Operation for Color Changing

In working or preparation interface, press  key to take manual color changing operation. The interface will pop up the figure leeboard. Press corresponding figures according to requirements to switch color to specified needle bar.

Manual Trimming

Either in embroidery preparation or working status, it can take trimming operation.

Press  key on panel to take bottom facial suture trimming operation.

Start and Stop Embroidering on a TC and MT Machine

After setting all parameters related to the embroidery, you can start embroidering.

Under the embroidering pattern status, when the machine stops: Press “Start” button to start embroidery a job, press “Stop” button to back stitch.

Machine Head Indicator Lights on a TC and MT Machine

When working status, the indicator light is green.

Encountering a thread break while embroidering, the indicator light will be red.

Embroidery Process from Start to Finish on a TC Machine

1. Exit Work Status

In working status, press 

key and pop up “Remove embroidery status”. Press 

key to enter into preparation status.

2. Select a Design

If you need to import a design please refer to How to Upload a Design on Page 50. If the design it’s already imported into the machine’s memory, go into 

then select the machine’s memory icon 
.

Look for the DST file name of your logo. Once you select it press 

.

3. Select a Hoop

Go into design set by pressing on the 

key. Select the hoop selection key 

.

Select the pre-hoop size you will be using that fits your design. (NOTE: The frame will move and center.)

Press 

to return to the main menu screen.

4. Select the Color Sequence

Press 

key to enter the color selection window. Select your color sequence according to the color sequence (color film/color analysis) printed out from your embroidery software. Keep in mind, the colors on the panel are just default colors. You need to choose the number of the needle that has the color spool needed for your design.

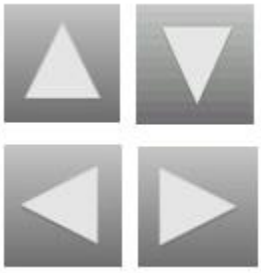
Press  followed by  to save and continue to the main menu screen. If needed, you can add the offset or low option to any specific color stops.

Figure 68

5. Trace your Design

Tracing your design it's a really important step that cannot be skipped. Press the tracing  key on the main menu and see how your machine's head will move to needle #1 and do a complete tracking of your design. Tracking your design will eliminate the option of hitting a hoop. When pressing the  key, a message staying "Enter embroidery status" will appear, press  .

After doing the tracing of your design if you are in need of moving your design placement, use the directional

 keys on your panel and then press  again to make sure the placement is correct.

6. Press Start

After tracing, you are now inside the embroidery status and you can start embroidering by pressing the START button on the bottom of the panel.

Cap Operation on a TC & MT Machine

Note: Before installing the cap driver into your TC and MT Machine you must into the embroidering preparation status and switch the frame to “Cap”. To stitch to a cap, switch to cap mode using the Cap/Clothes key from the Design Set 

key. Go into “Design Set” then into  and select the  pre-set hoop selection.

Tip:

When embroidering caps, change needles often. The tough backing in caps dulls needles quickly. Change about every eight hours of needles use.

Changing this setting changes the limit switch settings of the machine to be appropriate for the smaller size of the cap frame. The limit switches are intended to stop the machine when you are about to exceed the size of the frame to avoid possible damage. If your design exceeds the limits of the cap frame, you will see a limit error message. To avoid getting this message which will stop the machine during embroidery, always trace the design. To trace, press the Trace Design  Key. This display indicates that the machine is properly set to run a cap. 

The design is rotated 180 degrees as indicated by the F symbol, and the cap icon indicates that the machine has been placed in cap operation mode.

Cap Selection for TC, MT and PT Machines

Tip:

You may need to tighten your bobbin case slightly when embroidering caps to prevent bobbin thread from showing on the top of the embroidery.

Choose a cap that fits your frame. The shape of the visor board inside your cap should match as closely as possible to the curvature of your cap frame. Mike Meade, owner of Pacesetter Caps, recommends that you cut the visor board off a cap and place it against your frame. If there are large gaps at the center or sides, registration problems are likely to occur in these locations.

If the cap doesn’t fit your frame order samples of caps in the styling that you want, search until you find one that does fit more closely. Choose the best cap that your customer’s budget will allow. Cheap caps result in high wastage rates, which translate to expensive machine time for which you will not be paid. Then factor in the extra time that operators

spend in trying to get acceptable sewing quality on the cap, and possible reprogramming time.

Cap Framing for TC, MT and PT Machines

Frame snugly. As with flat goods, the better the goods are framed, the better the resulting embroidery quality. Frame consistently. When you do the framing operation the same way every time, it is more likely that caps will come out centered and straight. Avoid pulling on the cap when it is in the frame, because this can result in crooked embroidery.

Cap Sewing Techniques for TC, MT and PT Machines

Try toppings and backings for clarity. It seems impossible that a cap could benefit from additional backing, but it can. Especially if the backing is adhered to the frame. Many embroiderers like to use a 3oz. tear-away product inside their caps for better clarity on lettering and detail. Toppings are beneficial on heavy twill, corduroy, Polar Fleece® and other textured cap fabrics.

You may need to tighten the tension on the bobbin case. For some reason, sewing in the round makes our bobbin want to pull up to the top side of the work. It helps to use a spun polyester bobbin on caps because it has more texture and is easier to keep balanced. Many embroiderers keep a set of cases adjusted for caps.

Cap Programming for TC, MT and PT Machines

Tell your digitizer that the design will be for a finished cap. Your digitizer will use special techniques like:

- Reduce or eliminate details and outlining where possible.
- Increase column width. The X-axis columns tend to sew narrower on caps than on flat goods.
- Lengthen fill stitch length to reduce needle penetrations and stress on cap. Longer fill stitch length on a cap does not affect its serviceability, reduces stress (on you and the cap) and run time.
- Enlarge lettering to at least 3/8” in height if possible.
- Digitize in independent sections. Results in more color changes, but improves registration on many designs.

- On six-panel caps many digitizers like to “tie” the two panels together and cover with stitches. The two front panels are actually separate and need to be unified and stabilized.
- Work from the center out. There is debate concerning this technique, but for certain designs, there is little doubt that it helps to cover the center of the cap first.

Operation Panel and Key Function Introduction for RiCOMA PT

Function of Keys

- Numeric keys: Manual color changing in the embroidery patter status, changing data in the selected area in any other status.

Value switching: switching to full screen browse of patterns in memory; switching the coordinate display of the origin of the pattern and the embroidery frame in the Embroidering pattern status; changing the positive-negative value of the data in the selected area in any other status.

Key: Used for machines with over 9 needles, it is used for manual changing of color or setting of the color changing needles in the Embroidering pattern status and for jumping transition when creating a new patter by shifting the frame. When shifting frame to create flower pattern, used for needle skip.

Clearing: clearing statistics and displacement of the embroidery frame in the Embroidering pattern status, clearing values in any other number inputting menu.


Select: selecting the speed for shifting the frame and rising/descending the man shaft in the Embroidering pattern status; when setting color changing, it can be used to select whether to enable the patching embroidery function; in any status, it can be used to select variable set values.


Arrow keys: shifting the embroidery frame in the Embroidering pattern status; in any other status, use the Up and Down keys to shift line and the Left and Right key to switch menus.

Inching: used for inching operation of the main shaft.


Color changing mode switching: selecting which mode of color changing during the embroidering.


Color changing setting: setting the order of color changing and frame shifting for patching offset.

 Idling switching: in the Embroidering pattern status, it is used to switch between normal embroidery and high/low-speed idling.

 Rotating direction: in the Embroidery Preparation Status, it is used to select the rotating direction of the pattern.

Origin operation: in the Embroidering pattern status, it is used for setting and returning to the origin as well as returning to the offset point and the limit checking.

Returning to the stop point: returning to the stop point after manually shifting the frame during the embroidery.

 Speed up/down and page up/down: in the main shaft rotating speed testing in the Embroidering pattern status and the Embroidery Running Status, they are used to increase and decrease the speed rotating of the main shaft. In multi-window operation, they are used to turn pages up and down.

 Manual trimming: manual trimming operations in the Embroidering pattern status.

Pattern management: managing patterns in memory and exporting patterns in the Embroidery Preparation Status and the Embroidering pattern status.

 Auxiliary functions: used in any status to carry out some auxiliary operations for the embroidery, e.g., magnifying and rotating the pattern, embroidering the beeline, setting the embroidering parameters, mechanical parameters as well as user management etc.

 Pattern management: managing patterns in memory and exporting patterns in the Embroidery Preparation Status and the Embroidering pattern status.

Hat frame switch; switch between hat frame and adult clothes frame.


Embroidery preparation key: switching between the Embroidery Preparation Status and the Embroidering pattern status.

Esc key: quitting the current operation and returning to the parent operation status.


Confirm key: confirming completion of the current operation.

Displaying Icons


Starting point or offset point not defined Offset point defined Starting point.


Offset point defined.


Starting point defined.


Auto color changing and automatically starting embroidery.


Auto color changing and manually starting embroidery.


Manual color changing and manually starting embroidery.

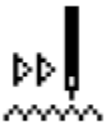

(Changing) embroidering pattern.


(Flashing) stopped upon thread breakage.

Start and stop.

Pattern embroidery completed.


Low-speed idling.


High-speed idling.


Adult clothes embroidering.


Hat frame embroidering.


Internet connecting.


Internet connecting break.

High-speed frame shifting (speed up) mode.

Low-speed frame shifting (speed up) mode:

AX/AY: Displaying the coordinates of the origin corresponding to the pattern.

PX/PY: Displaying the coordinates of the origin corresponding to the embroidery frame.

How to Upload a Design on a PT Machine

There are two primary modes of operation of the Control panel – Management Status and Working Status. You must place designs into the machine's memory to stitch them. You may input designs to the memory in either Management status or Working status. You may select designs only when in Management Status. You can stitch only in Working Status.

This key toggles between Management and Working Status. If the display is in Working Status, Press this key  if needed to enter Management Status.

Tip:

If you can't access the function you want, check the screen to see if you are in Working or Management Status.

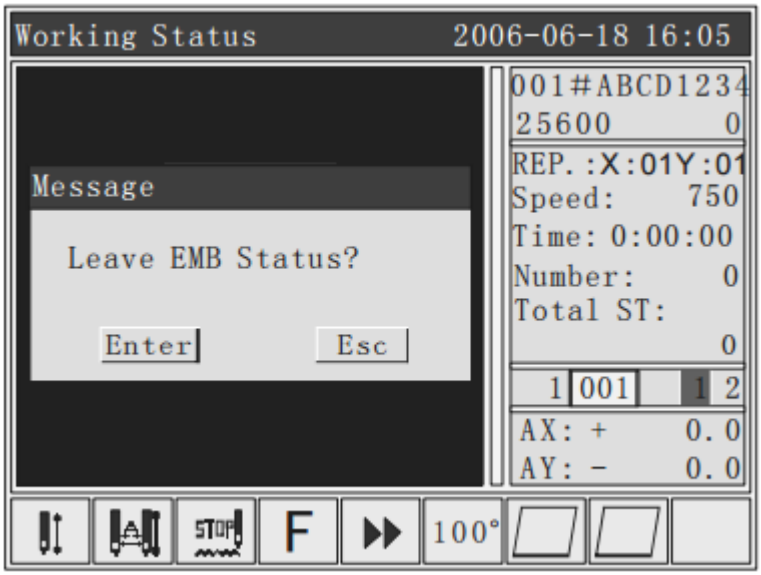


Figure 69

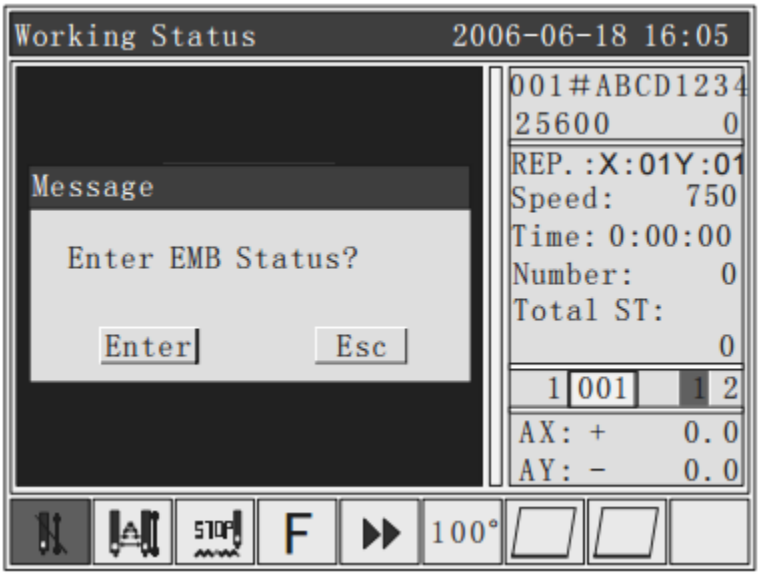


Figure 70

1. Insert the memory stick containing embroidery designs into the side of the control panel. Press the Memory key  to access the Memory options. Scroll to number 2, Input Design, using the down arrow key or press the #2 numerical key.

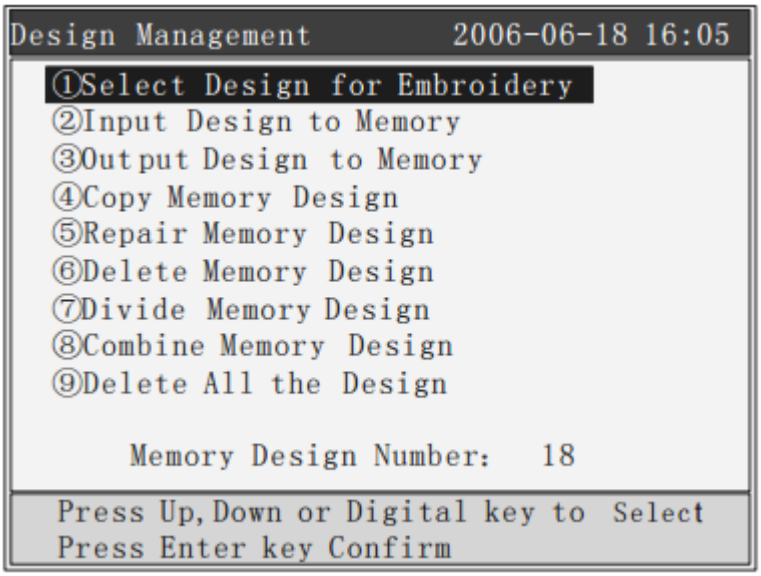


Figure 71

2. Scroll to the desired design using the up and down arrow keys on the keypad. Press Enter.

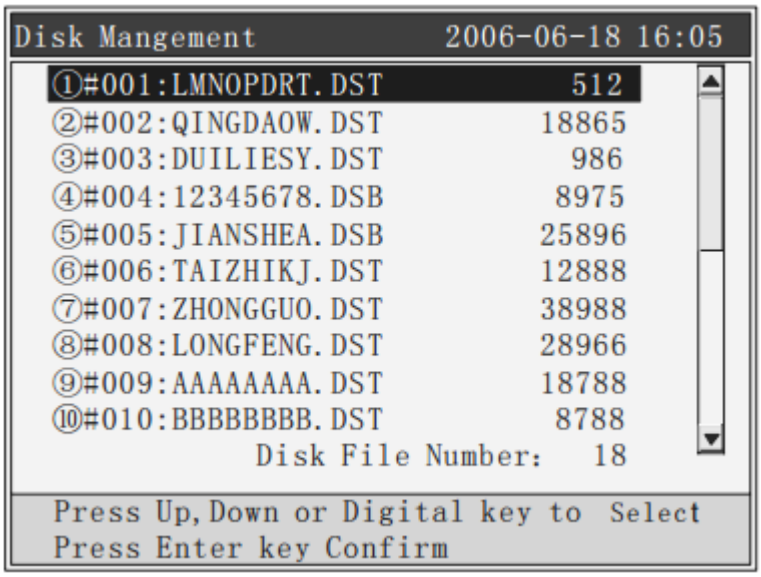


Figure 72

3. The next available memory slot number is displayed, if you want to store the design in this memory slot, press enter.

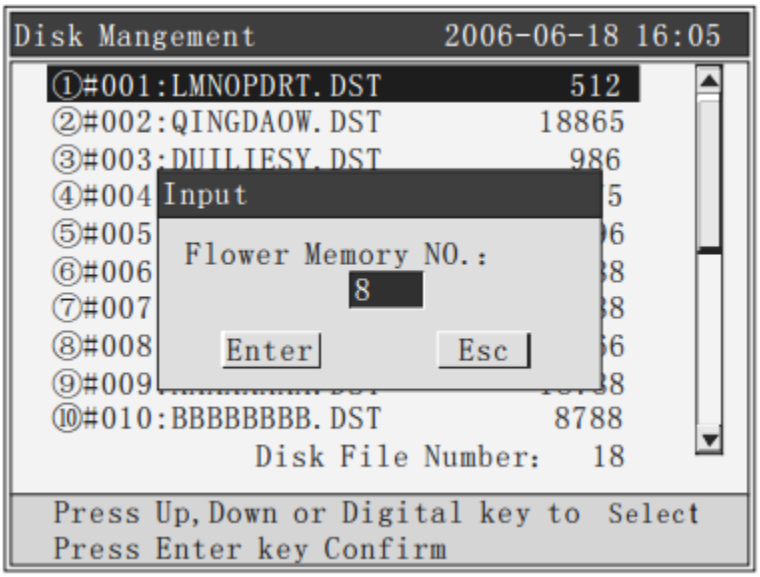


Figure 73

4. If you would like to change to a different memory slot for any reason, press the Clear button. Type the number of the desired memory slot using the numerical keys. Press Enter.
5. The message “Copying, please wait” appears. When the design has been successfully copied to memory, you will hear three short beeps.

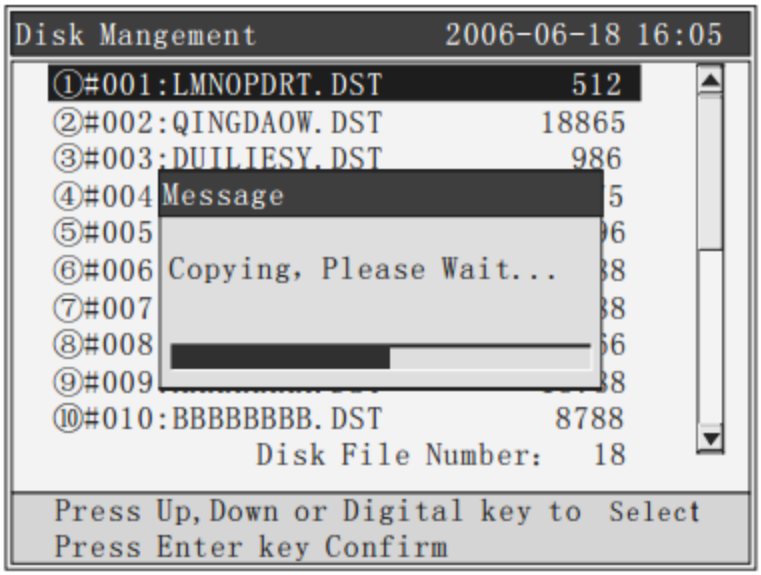


Figure 74

6. Press the Memory Key  . Press enter to choose the first memory option “Select Design for Embroidery.” Press Enter.

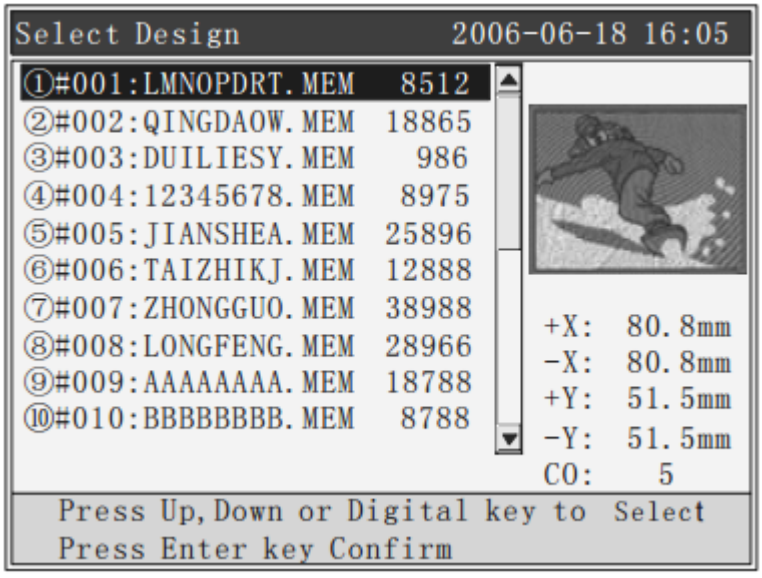


Figure 75

7. Scroll using the up and down arrow keys or press the numerical key to highlight the desired design.
8. Press the plus-minus key to see the design in full screen mode if needed to verify that the correct design has been selected.

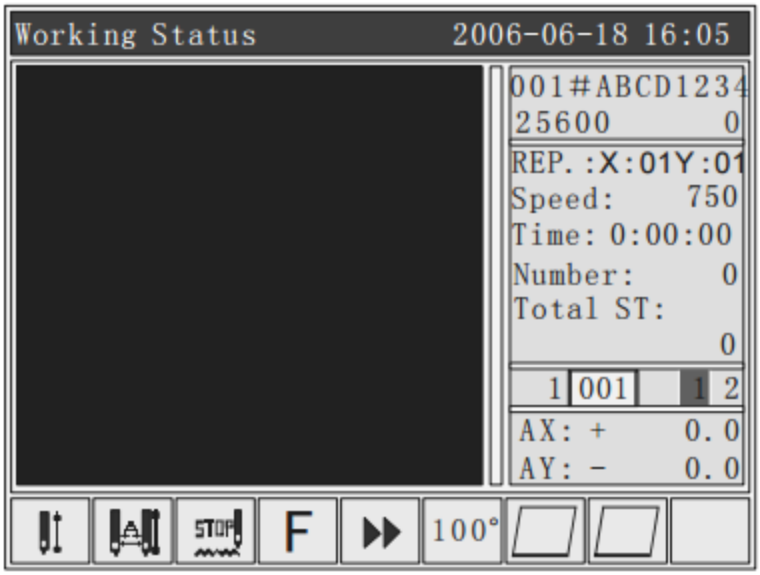


Figure 76

9. Press Enter to return to the Design Selection Screen. Press Enter to select the design. The Design Parameter Screen Appears. Press Enter.
10. Press the Status  Key to enter Working Status. Press Enter.

Set Color Change

To change colors manually, press the Color Change  Key, which acts as a toggle to switch between automatic and manual color change modes. When the letter M is highlighted, you can change colors by pressing the appropriate numerical key during the stitching sequence.

To select needle 10, press the ten plus key and then the zero numerical key. To choose needles higher than ten, press the ten plus key and the appropriate numerical key.

To change colors automatically, press the Color Change Key until the letter A is highlighted.

Set Color Change Sequence

Press the Color Sequence  Key. The Set Stitch Color Screen appears.

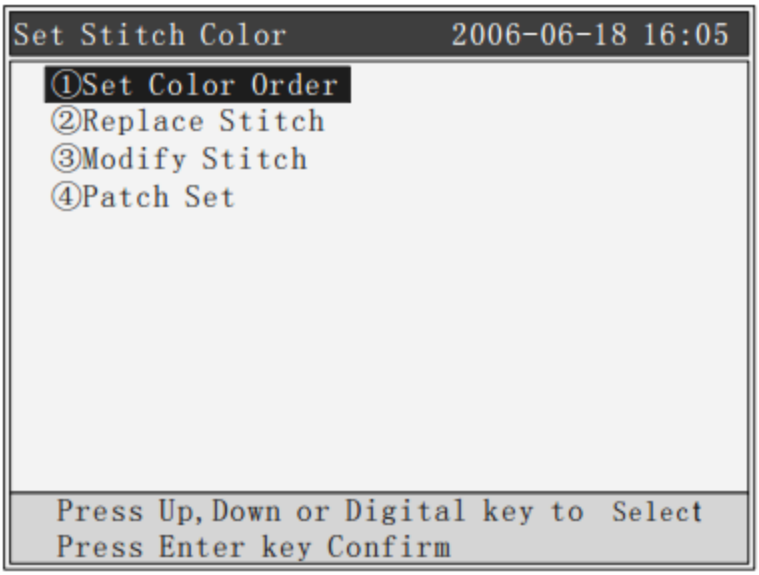


Figure 77

Press enter to select the first option, Set Color Order. Use the arrow keys to move to the first color in the sequence.

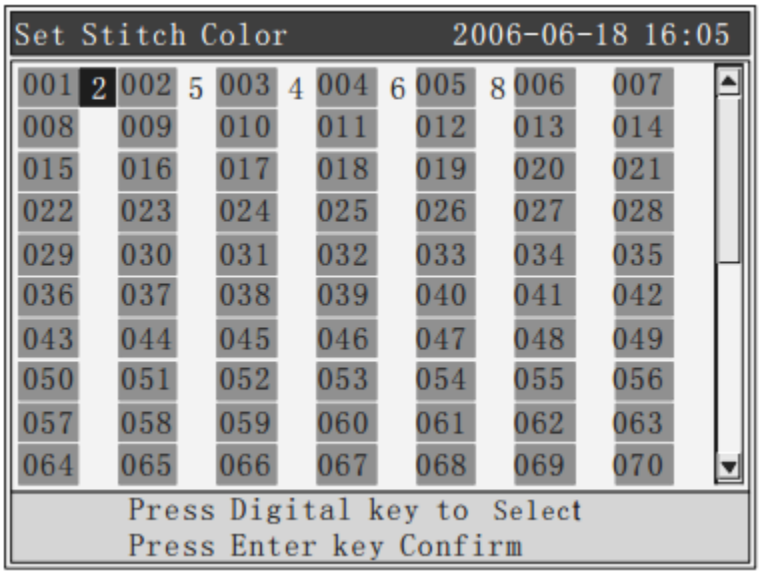


Figure 78

Use the numerical keys to assign the first color. Press  -  to input the needle number corresponding to the current color changing order. If there are over needles, press  for the

operation (e.g., if there are 10 needles, press  +  key for the color changing settings to operate), the cursor will automatically move to the next color changing order. During the setting, if the previous needle number is wrong, press  to move the cursor to the position of the wrong needle number for modification. If any color changing needle needs frame shifting for patching offset (patching embroidery), move the cursor to the required needle and press  once, the background of the current needle number will turn red. To cancel the frame shifting for patching offset setting, just press  again. Press Enter to save the current setting, in this function, the system will save the data prior to the location of the cursor.

In the embroidering pattern menu, the background of the needles with frame shifting for patching offset in the color changing order is red, and that of needles without frame shifting for patching offset is yellow.

The highlight automatically advances to the next color for assignment. Continue assigning until all colors in the design have a designated needle number. Press Enter.

Embroidering Mode Switching on a PT Machine

The purpose of idle embroidery operation is to realize the embroidery repairing. The user can move the embroidery needle tracking to the specific position through idle embroidering in the embroidering pattern status, press  to switch to the idle embroidering status. There are 3 statuses: low-speed, hi-speed idling and normal embroidery.

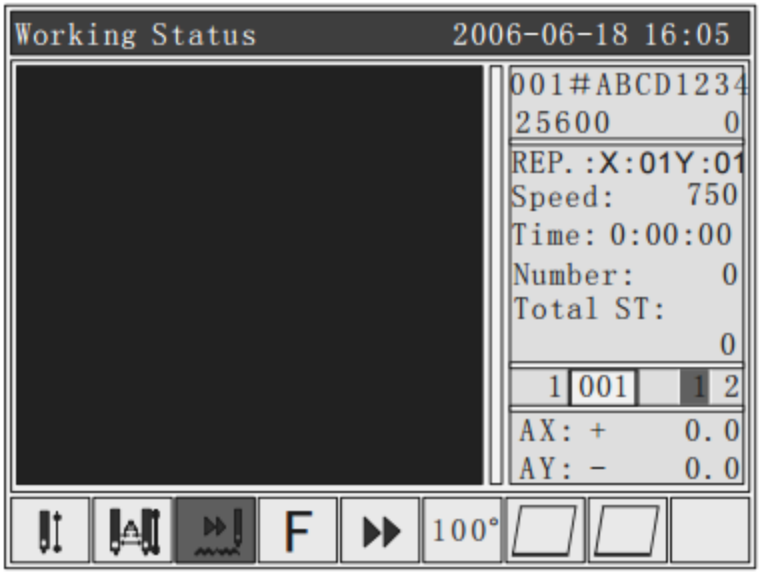


Figure 79
High-Speed Idling Status

Pull the bar rightwards (hi-speed idling forward) once, the main shaft and the embroidery frame stay still, the number of stitches of the embroidery ascends, after pulling the bar leftwards to stop the machine, the embroidery frame will directly move to the position of the forward needle tracking.

Pull the bar leftwards (hi-speed idling backward) once, the main shaft and the embroidery frame stay still, the number of stitches of the embroidery descends, after pulling the bar leftwards to stop the machine, the embroidery frame will directly move to the position of the backward needle tracking.

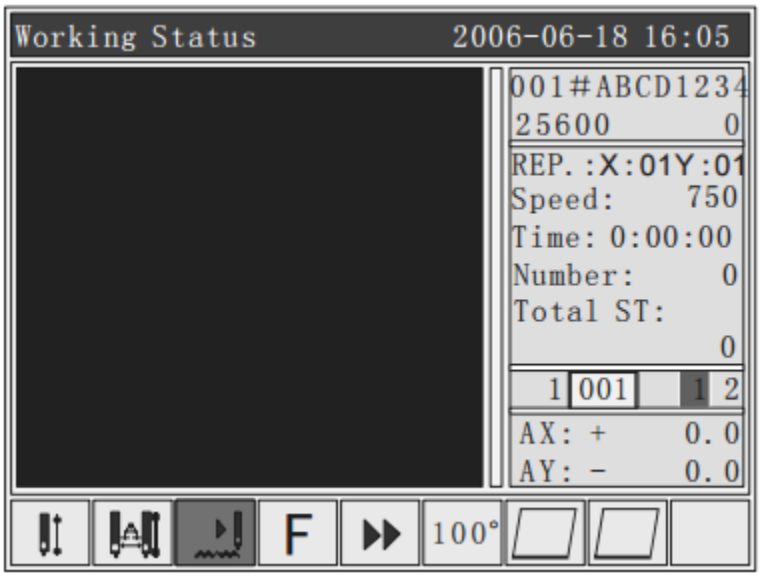


Figure 80
Low-Speed Idling Status

Pull the bar leftwards (low-speed idling backward) once, the main shaft and the embroidery frame stay still, the embroidery frame will move backwards along the embroidery needle tracking, and the pull the bar leftwards to stop the low-speed idling.

Origin Point Operations

There are 5 functions of the origin point operations: Returning to the origin, returning to the offset point, setting the origin, auto searching of the origin and limit checking. In the Embroidering Pattern Status and then press 

, see the figure below:

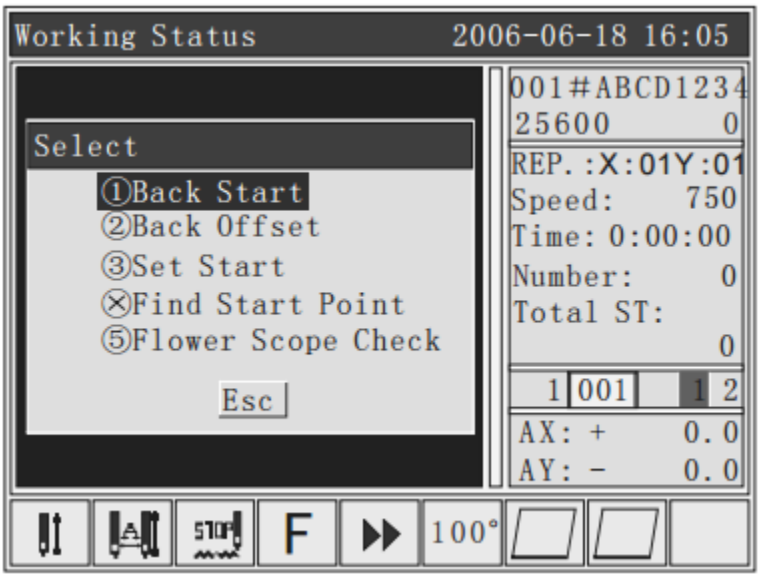


Figure 81

Tracing your Design

Trace the design to assure that it fits within the frame. Move to needle one by pressing the numerical key number one. Position Needle one in the Center of the frame using the directional arrow keys.

Press the Home 

key. Scroll to number 3 or press the numerical key number 3, Set Start.

Press Enter to set the origin point of the design.

Press the Home key. Scroll to number 5 or press the numerical key number 5, highlighting Design Range Check. Press Enter.

As the hoop begins to move, watch needle one to make sure it is within the hoop at all times. You will hear three short beeps at the end of the design trace.

If the trace verifies that the hoop is large enough for the design and that the design will stitch in the proper location, you are ready to press the green START button. If in doubt, repeat the trace by pressing the Home

Key and choosing option five.

Set Pattern Directions

In the embroidery preparation status, press  to change the direction of the pattern. Each time you press the key, the direction will be changed once.

There are 8 directions available 0° (default), 90°, 180°, 270°, 0°mirror, 90°mirror, 180°mirror and 270°mirror, which are cyclic.

Embroidery Running Status on a PT Machine

In the embroidery running status, only the operation for the lifting speed of the main shaft is available. Press

 to increase or decrease the rotating speed of the main shaft, press  to select high or low speed of lifting.

Start and Stop Embroidering

After setting all parameters related to the embroidery, you can start embroidering.

Under the embroidering pattern status, when the machine stops: Press “Start” button to start embroidering the job, press “Stop” button to back stitch.

Under the embroidering pattern when back stitching: Press “Stop” button to stop back stitching.

Under the embroidering pattern status, when machine running: Press “Start” button more than 3 seconds, the main shaft will start embroidering job at the minimum speed; press “Stop” button to stop embroidering job.

Machine Head Indicator Lights on a PT Machine

When working status, the indicator light is green.

Encountering a thread break while embroidering, the indicator light will be red.

Manual Trimming on a PT Machine

Manual trimming can be used to trim both the upper thread and the bottom thread at the same tome or only the bottom thread. In the Embroidering Pattern Status, press  to carry out manual trimming.

Embroidery Process from Start to Finish on a PT Machine

1. Exit Work Status

In working status, press  key to remove the embroidery status.

2. Select a Design

Press the memory  key, then choose the first memory option “Select Design for Embroidery.” Press Enter. Select the desired design using the up and down arrow keys or the numerical keys. Press the plus-minus key to see the design in full screen mode if needed to verify that the correct design has been selected. Press Enter to return to the Design Selection Screen. Press Enter to select the design. The Design Parameter screen appears. Press Enter.

3. Select Hoop or Cap

To stitch a cap, switch to cap mode using the Cap/Clothes 

key on the keypad.

4. Select the Color Sequence

Press the Color Sequence  Key. The Set Stitch Color Screen appears. Press enter to select the first option, Set Color Order. Use the arrow keys to move to the first color in the sequence. Use the numerical keys to assign the first color. The highlight automatically advances to the next color for assignment. Continue assigning until all colors in the design have a designated needle number. Press Enter.

5. Trace your Design

Tracing you design it is really important to assure that it fits within the frame. Move to needle one by pressing the numerical key number one. Position Needle one in the Center of the frame using the directional arrow keys. Then press the 

key. Scroll to number 3 or press the numerical key number 3, Set Start. Press Enter to set the origin point of the design. Press the Home key. Scroll to number 5 or press the numerical key number 5, highlighting Design Range Check. Press Enter. If the trace verifies that the hoop is large enough for the design and that the design will stitch in the proper location, you are ready to press the green START button. If in doubt, repeat the trace by pressing the Home Key and choosing option five.

Doing Cap on a PT Machine

Under embroidering preparation status, press “hat frame switch” button, (Note: before this operation, please confirm whether you install the mechanical parts of the hat frame, or it will cause mechanical parts damages).

1. To stitch a cap, switch to cap mode using the Cap/Clothes 

key on the keypad.

   Changing this setting changes the limit switch settings of the machine to be appropriate for the smaller size of the cap frame. The limit switches are intended to stop the machine when you are about to exceed the size of the frame to avoid possible damage. If your design exceeds the limits of the cap frame, you will see a limit error message.

2. To avoid getting this message which will stop the machine during embroidery, always trace the design. To trace, press the home key and choose option number three. Then press enter to set the design origin. Press the Home key again, select option 5, and press the Enter key to begin the trace.

3. This display indicates that the machine is properly set to run a  cap. The design is rotated 180 degrees as indicated by the F symbol, and the cap icon indicates that the machine has been placed in cap operation mode.

Lubrication on a TC and PT RiCOMA Machine

Turn off power to the machine before cleaning or oiling.

1. Daily, remove the bobbin case and clean the hook assembly area with a soft brush, air compressor with a moisture filter or approved canned compressed gas product, such as Dust Off.
2. Twice a day, with the bobbin case removed, place a drop of oil on the race of the hook, where the two sections of the hook meet (Fig. 82).

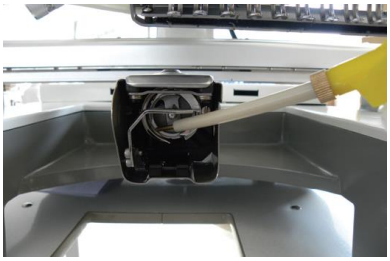


Figure 82 Oil Hook

3. Once or twice a week remove the needle plate and clean around the trimmer knives with a soft brush, air compressor with a moisture filter or approved canned compressed gas product, such as Dust Off (Fig. 83).

Figure 83 Clean Knives

4. Once a week, place a drop of oil directly on the needle bar through the slots in the needle case. Alternate between lubrication the upper and lower needle bar sections (Fig. 84).

Figure 84 Oil Needle Bars

5. Once a week, oil the track of the needle bar case (Fig. 85).

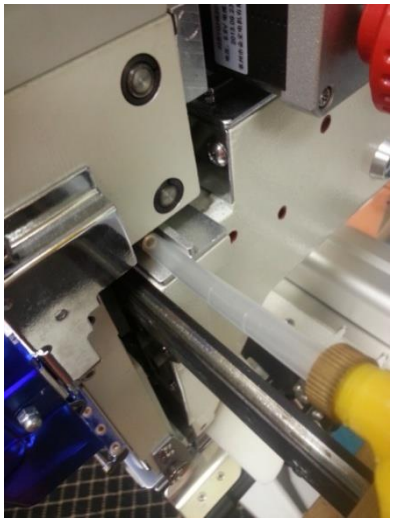


Figure 85 Oil Track Needle Bar Case

6. Once a week, oil each port on the cylinder arm. One is just behind the needle plate and the other is at the rear of the cylinder arm (Fig. 86).
7. Don't over-oil. After oiling, stitch on a test swatch before returning to production to assure excess oil doesn't stain garments.

Figure 86 Oil Cylinder Arm Ports

Figure 87 Oil Marked Ports

8. Once every three months resupply grease (White Lithium Grease) to the:
    a. Hook Shaft Gear (Fig. 88).
    b. Color Change Cam (Fig. 89).

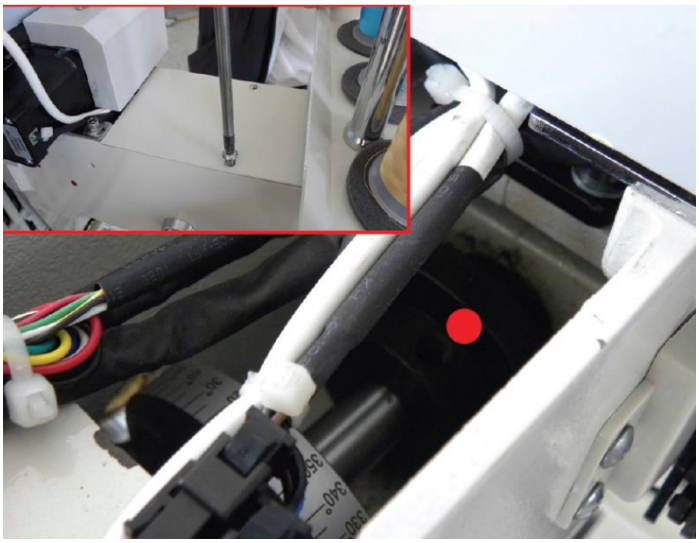


Figure 88 Oil Hook Shaft Gear

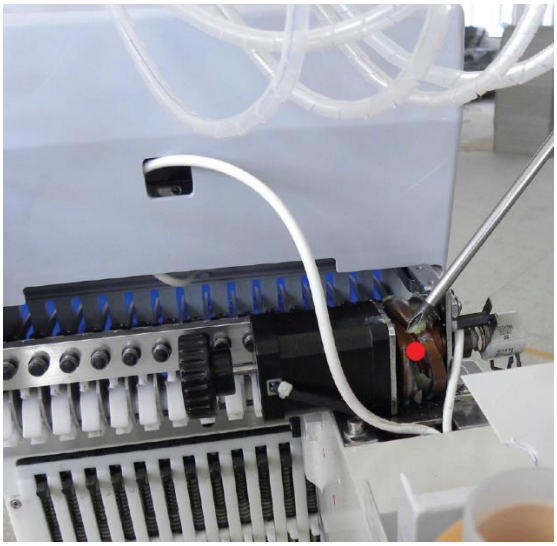


Figure 89 Color Change Cam

Lubrication on a MT RiCOMA Machine

Turn off power to the machine before cleaning or oiling.

1. Daily, remove the bobbin case and clean the hook assembly area with a soft brush, air compressor with a moisture filter or approved canned compressed gas product, such as Dust Off.
2. Twice a day, with the bobbin case removed, place a drop of oil on the race of the hook, where the two sections of the hook meet (Fig. 90).
3. Once or twice a week remove the needle plate and clean around the trimmer knives with a soft brush, air compressor with a moisture filter or approved canned compressed gas product, such as Dust Off.

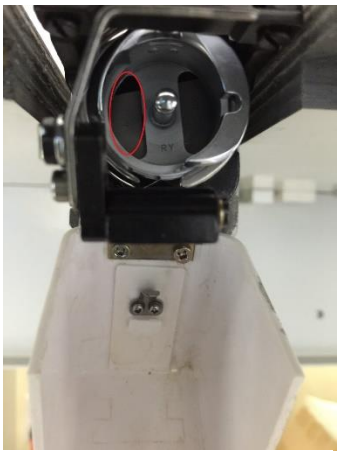


Figure 90

Figure 91

4. Once a week, place a drop of oil directly on the needle bar through the slots in the needle case. Alternate between lubrication the upper and lower needle bar sections (Fig. 91).
5. Once a week, oil the track of the needle bar case (Fig. 92).
6. Once a week, oil each port on the cylinder arm. One is just behind the needle plate and the other is at the rear of the cylinder arm (Fig. 93).

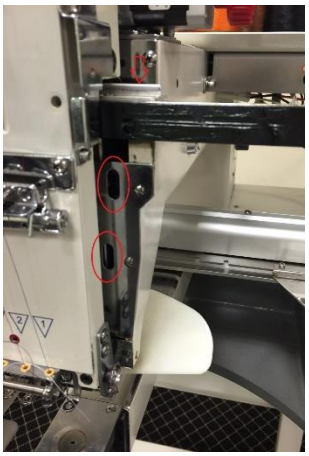


Figure 92

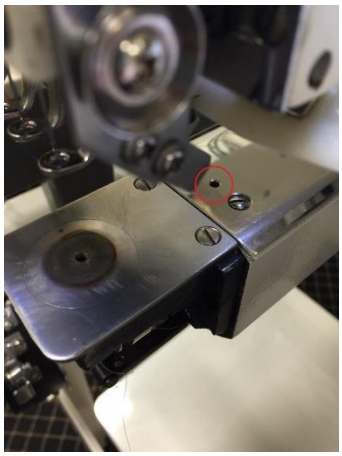


Figure 93

7. Once every three months resupply grease (White Lithium Grease) to the:
    a. Hook Shaft Gear.
    b. Color Change Cam (Fig. 94).

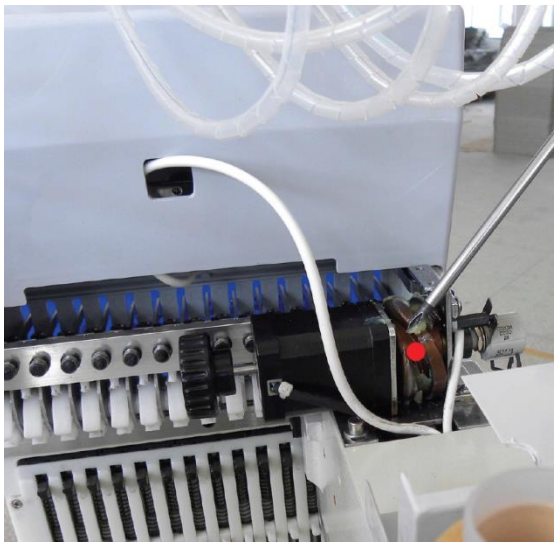


Figure 94 Color Change Cam

c. On the black metal bar and the wheels on the back of the machine resupply grease (White Lithium Grease) every 5 months of use (Fig. 95 and Fig. 96).

Figure 95

Figure 96

Don’t over-oil. After oiling, stitch on a test swatch before returning to production to assure excess oil doesn’t stain garments.

Common Errors

Emergency Stop Error

This is caused when the Emergency Stop switch has been pushed in usually during shipping or under an emergency (panic) situation. If you get a dialogue box on the screen stating “Emergency Stop!” or the machine is beeping resolve this issue by turning the Emergency Stop switch in the direction of the arrows indicated on the face of this button (clockwise). Be sure to not pull it out. It will pop out by itself, when your turn it. Pulling on it could damage the switch.

Needle Error / Color Change Error

This means the machine does not recognize which needle is over the needle plate. This might be because the embroidery head is positioned between two needle positions. This often happens during shipping. Also, when the machine is performing a color change, there is a drop in the power supply, coming to the embroidery machine. This can also happen is by accident the passivity knob behind the embroidery head is turned. If you get a dialogue box on the screen stating “Needle Error!” the machine is beeping and on the needle display on the panel shows a “0” or question mark resolve this issue by first pressing ESC to clear the dialogue box. Then very slowly turn the red or black passivity knob until there is any number where the “0” was displayed.

Main Axis Error or Main Axis not at 100 Degree

The machine needs to be at 100 degrees for normal operations. An error 100 or main axis error means the main axis (shaft) is not lined up on 100 degrees, which is the proper position for the machine to start and stop sewing. This error can be cause if a needle hits the hoop, if you get a bad bird nest, during shipping, or by accidentally turning the black knob on the side of the machine near the sight window.

For TC and PT Series

If you get a dialogue box stating “Main Axis not at 100 degrees”, the machine is beeping, and on the control panel the shaft indicator display is not at 100 or it has a “?” this can be resolve by clearing out the message. Then look into the site window or at the main shaft indicator display on the control panel. Then push in and turn the black passivity knob next to it counterclockwise to about 2-3 full turns until the display reads 100. On

the site window, the red dot should be line up with the 100 degree line. Then press the 100 degree key on your panel.

On the PT Series you can also press the Origin button (m.org). Once you press this button, a dialogue box pops up. Using the Arrow buttons or the Numeric buttons, highlight "100 degree" (Option 1) then press the Enter button.

For MT Series

If you get a dialogue box stating "Main Axis not at 100 degrees", the machine is beeping, and on the control panel the shaft indicator display is not at 100 or it has a "?" this can be resolve by clearing out the message. Then look into the site window located on the left side of the machine or at the main shaft indicator display on the control panel. Then using an Allen wrench turn counterclockwise to about 2-3 full turns until the display reads 100. On the site window, the red dot should be line up with the 100 degree line. Then press the 100 degree key on your panel.

Resolving a Thread Break

When a thread breaks occurs the machine will stop and starts beeping. The thread almost always will break at the lower portion of the embroidery head. To fix this issue thread the machine from where the thread is broken all the way though the needle and down the presser foot. Then hold the thread into the holding spring and leave around 1 inch of thread hanging. If too much thread is left on the spring it will not be pulled to the underside of the embroidery. If too little thread is left the thread will not catch the bobbin.

Now that you have threaded the machine you need to back up the machine so you do not have any missed stitches on your design. When a thread breaks occurs the machine continues to advance forward momentarily so it's recommended to back up so there is no gap or missed stitch areas on your design. To rewind, press the "STOP" button to back up and let the machine back up for approximately 10-12 stitches. Then press the "STOP" button again to stop the machine from backing up further. Now press the "START" button to resume sewing your design.

Bobbin Runs Out

When the bobbin runs out the machine will stop and start beeping. On the TC and MT series it will also show you a "T. Break" message on your panel. You will know the difference between a thread break and a bobbin run out because the top thread will still be attach to the garment. Proceed to remove the bobbin case from the rotary hook. Remove the old bobbin and replace it with a new bobbin. Insert the bobbin case back into the machine. Now proceed to back up your machine so there is no missed stitches left behind.

RiCOMA
A Passion for Excellence

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