

PRO[®] 

1501-II

by DataStitch

Quick Start Guide



Table of Contents

Threading.....	3-4
Attach Thread Support Stands	3
Threading Sequence	3
Thread Path Diagram	4
Needles.....	5-6
Changing a Needle	5
Selecting a Needle.....	6
Blade Size	6
Needle Finishes.....	6
Point Types.....	6
Bobbins	7-9
Bobbin Change	7
Adjusting the Bobbin Case	7
Care of the Bobbin Case	7
Fiber Choices.....	8
Tension Issues	9
Top Thread.....	10-11
Fiber Choices.....	10-11
Hoops and Brackets	12-13
Cap Operation	14-15
Control Panel Diagram.....	16
Quick Reference Operation	17-22
Load Design Into Machine Memory	17
Select Design From Memory	17
Enter Color Changes	18
Center the Design.....	18
Tracing a Design.....	19
Replace or Modify Thread Colors	19
Start the Embroidery Machine	20
Automatic or Manual Color Change.....	21
Moving Forward or Backward	22
Selecting Cap or Flat Embroidery Mode.....	22
Lubrication	22-23

Threading

Attach Thread Support Stands

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.

Place the thread tree on top of the support bars with the angled bars facing up and secure it with Phillips head screws that you removed earlier.

Attach the thread carrier tubes between the slot just below the top thread tensioner 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.

Place one foam thread disc over each hole in the thread stand base. Secure them by inserting a plastic thread spindle over each foam base.

Place the 15 thread colors that you want as your initial selection over the spindles on the thread stand.



Thread Base Assembly

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 a similar color.

Threading Sequence

You will use every eyelet on the thread tree to guide the thread in a straight path toward the first tensioner. To assure that you use each eyelet, follow this procedure. 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 to complete threading each spool through the eyelets on the upper thread tree.

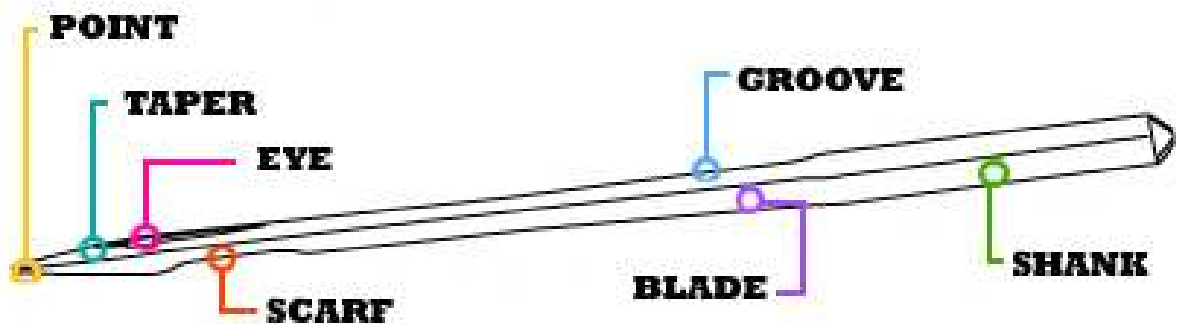
Needles

Changing Needles

A basic guideline that many professional embroiderers use to determine when to change needles is the “3 strikes” rule. Here’s how it works. When there have been three consecutive thread breaks on a needle, it should be changed. 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.

Changing a Needle

1. Needles should be changed after three or more thread breaks on the same needle in a short time period.
2. Begin 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.
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. If necessary hold the needle with a wooden toothpick inserted into the eye. Never use a metal object for this because it could scratch the eye of the needle resulting in thread breaks



Needles

Selecting a Needle

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 .80mm 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.

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 metal surrounding 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:

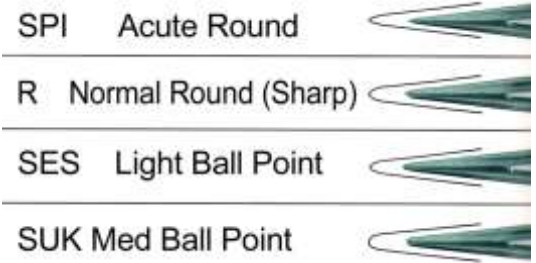
Acute Round Point - Designation SPI
Slender sharp point

Normal sharp Point - Used to penetrate high thread count fabrics, microfibers and certain synthetics.

Normal Round Point -Designation R
Used for woven fabrics, including finished caps.

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.

Bobbins



Bobbin thread in center, viewed from reverse side of embroidery.

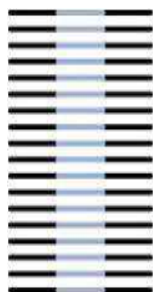


Fig. 1 Balanced Tension

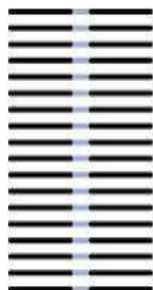


Fig. 2 Too little bobbin

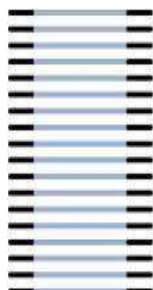


Fig. 3 Too much bobbin

BOBBIN CHANGE

1. Remove the bobbin case by lifting the latch and pulling it toward you.
2. Pull out the empty or nearly empty bobbin and discard or rewind.
3. Hold the bobbin by the latch in one hand.
4. Hold the bobbin with the thread coming over the top and to the left. Insert into the case.
5. Pull the bobbin thread under the spring and exit the notch at the other end. Turn the bobbin over and pull on the thread. The bobbin should rotate in a clockwise direction.
6. Place the thread into the small pigtail. Insert into the machine, with a tail no longer than about 3 inches. A longer tail can wrap around the shaft and create a build-up of thread.

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.

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.

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 using it like dental floss. Resist the temptation to blow the lint of the case--this deposits damaging saliva on your bobbin case.

Bobbins

FIBER CHOICES

Cotton

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 cotton as a 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

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.

Nylon is frequently used in so-called sideless bobbin or belbobs. This style of bobbin is either adored or abhorred--if you haven't yet tried, you'll have a definite opinion.

Continuous Filament Polyester

This fiber is the most popular among U.S. embroiderers. It is strong, thin and reliable. No slubs, 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.

Spun Polyester

Spun polyester has a number of benefits that make it my number one bobbin fiber choice. Its texture is similar to that of cotton, without the lint problem.

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.

Bobbins

TIP:

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

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.

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.

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

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.

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 polyester are greatly improved and many have excellent sewability. 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.

Polyester is one of the two embroidery fibers that can accept neon dyes. 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 embroidery machine. This is a simple way to adjust the check spring to be suitable for a change in thread type.

Top Thread

FIBER CHOICES

TIP:

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

Metallic Thread

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

A smaller size metallic thread.

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?

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.

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.

Thread Consumption

How much thread will you need for a particular job?

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.)

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.

Hoop Brackets

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. You will attach these brackets to the pantograph rail of the machine to hold the hoops, which will be clipped into the brackets.
3. The bracket placement for the regular size hoops is an offset location. The slots are not centered on the pantograph rail.
4. As you face the machine, the slots for the regular size hoops are the third set in from the edge. Slip the open end of the bracket onto the rail and attach using the provided bolts.
5. On the right side, as you face the machine, the slots for the regular size hoops are the second pair in from the edge. Tighten both bolts loosely and attach a hoop. Now tighten snugly, but not so much that you damage the threads.
6. The metal arms of the hoops are designed 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.
7. To insert the hoop into the machine, place the U-shaped notch toward 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.
8. 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.
9. To remove the hoop, lift the hoop arms to release the pressure on the notched areas. The hoop brackets will hold the hoops very tightly at first, and it will gradually become easier to lift the hoop from the bracket.
10. To attach the extra large hoop, the brackets must be attached to the outermost slots on each end of the pantograph rail.
11. 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.



TIP:

The clips are stiff at first, but they get looser with use and it becomes easier to insert the hoops.

HOOPING A GOLF SHIRT

TIP:

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

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, rehoop.



Cap Operation

TIP:

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

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.

1. To stitch a cap, switch to cap mode using the Cap/Clothes key on the keypad.
2. 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.
3. If your design exceeds the limits of the cap frame, you will see a limit error message.
4. 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.
5. You must also rotate the design to stitch on a cap. Press the Rotate key and press enter twice for a rotation of 180 degrees.
6. 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

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 of a cap that you are using 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 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.

Framing

Frame snugly. As with fat 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 Operation

Sewing Techniques

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, PolarFleece® and other textured cap fabrics.

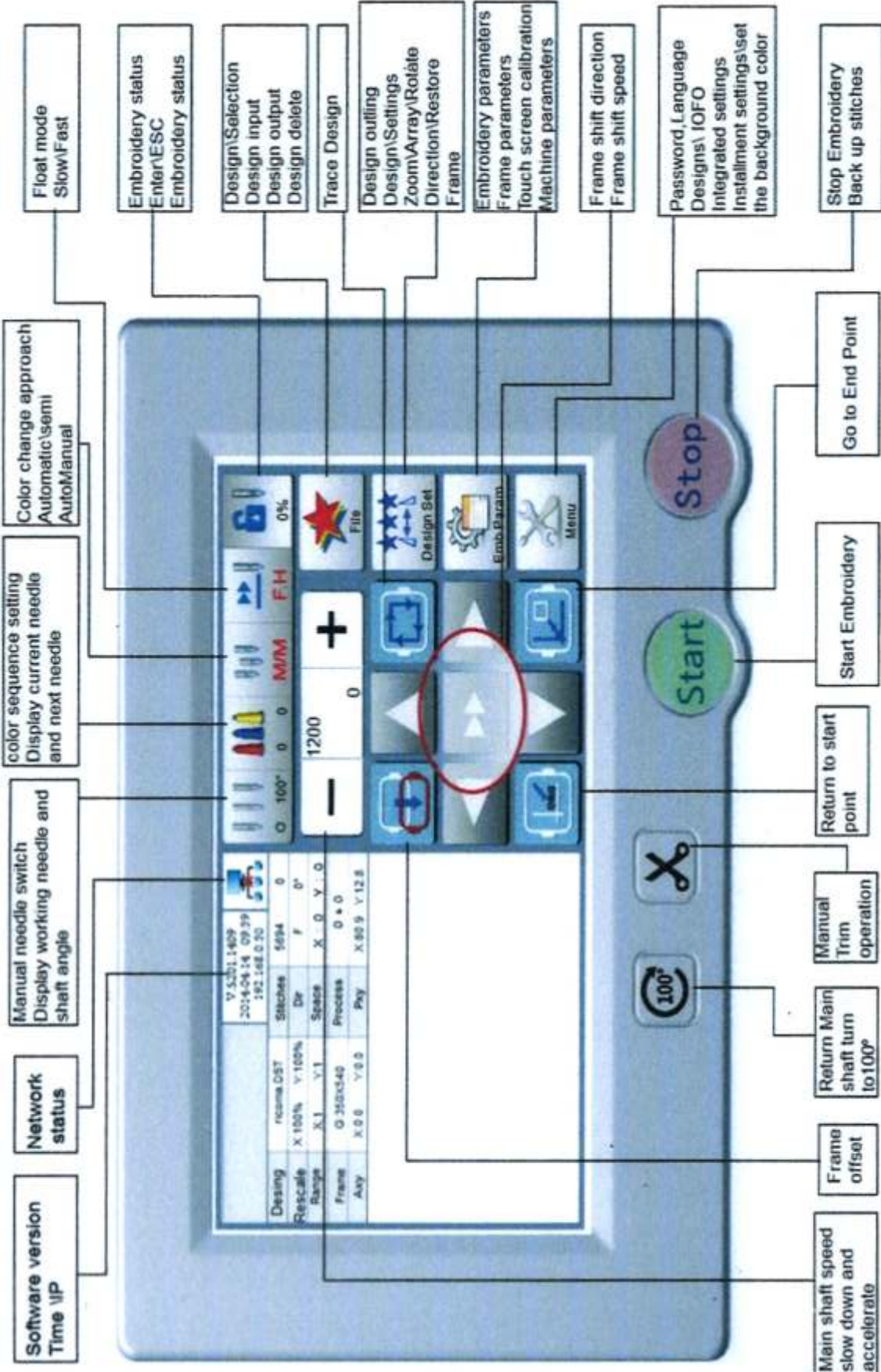
You may need to tighten the tension on the bobbin case. For some reason, sewing in the round makes our bobbin want to pull up to the top side of the work. It helps to use a spun polyester bobbin on caps because it has more texture and is easier to keep balanced. Many embroiderers keep a set of cases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



Programming

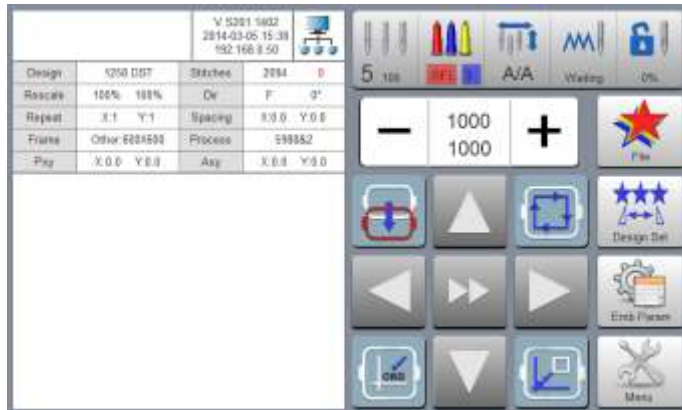
Tell your digitizer that the design will be for a finished cap. Your digitizer will use special techniques like:

- Reduce or eliminate details and outlining where possible.
- Increase column width. The X-axis columns tend to sew more narrow 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.
- 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.




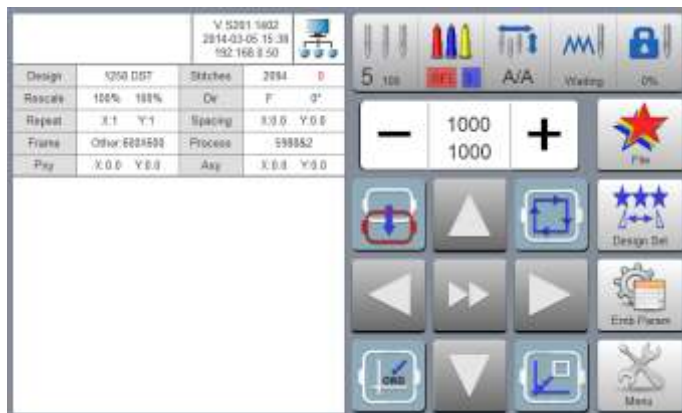
Embroidery Status Mode

The machine has 2 embroidery statuses, i.e. preparation status & operation status. Switching between statuses can be done via pressing  key on main interface.





Preparation Status

In the preparation status, press  key, and a pop up appears "Enter Embroidering Status". Press the OK key to enter into operation status.

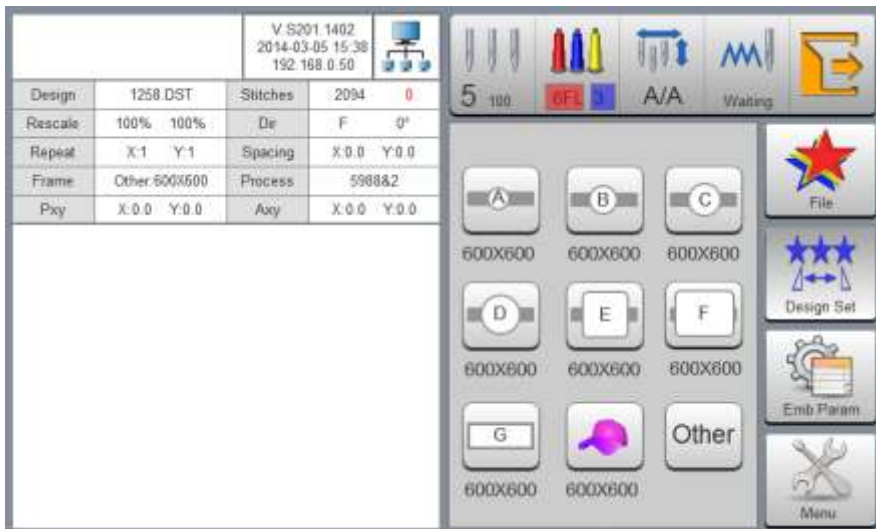


Working Status


Hoop Selection

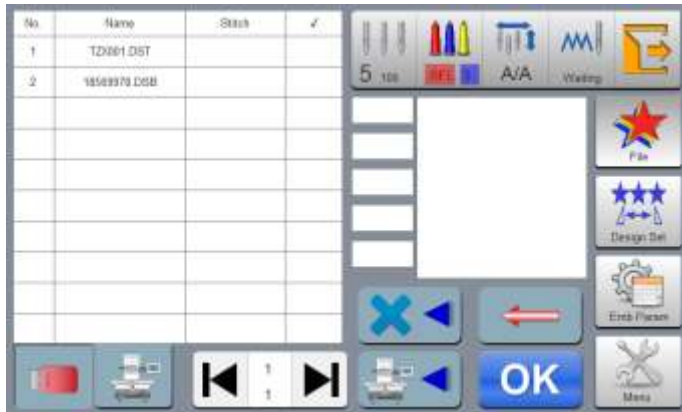
In preparation status, press  . To select current embroidery used hoop type, press  .

When hat frame or A-G hoops are selected, the hoop will automatically stop at center of selected hoop. You should repeat this step each time you power-on the embroidery machine. When you return to preparation status, you will see the stitch area of the selected hoop displayed.




Load design Into Machine Memory


1. After USB drive is inserted, press  key to enter into embroidery design management interface. It will read the contents of the USB drive, as shown below.




2. Select the embroidery design to input. Press the   key to Page-Down or Page-Up.

Press the  key to save into the memory of the machine. A text box that reads "Loading" pops up automatically. After input is completed, it returns to design management interface automatically and it can continue taking input operation.


Select Design From Memory

1. In the main interface, press  key to enter into the embroidery designs management interface, as shown above.

If a USB drive is connected, press the  key to enter into the memory of the machine. If no USB drive is connected it will automatically read the memory of the machine.

2. Select the design you wish to embroider. Design stitch number, how many job orders, size and other related information and thumbnail are displayed on the right side of the screen. Press the OK key. A text box that reads "Reading" pops up automatically. After reading the design, it returns to the main interface.



Enter Color Changes

1. Press the  Key. This will open the Color Change Interface shown below.




2. The numbers 1-15 correspond to the thread on your embroidery machine. The colors represented on the screen may not match what is loaded on the machine. Choose your colors based on the actual thread. When all your colors are entered, press OK.

Appliqué Offset


If in a certain color change sequence, the offset mode is required or out of hoop (appliqué) at the end of embroidery, press  key once the letter "F" is displayed on the right hand side of current needle bar number. Press  key to cancel offset, out of hoop setting.

Embroidery Design Origin Setting (Starting Point)


In the operation status, move the hoop to the required embroidery design origin (starting point). Press  key to set origin setting. The hoop walks along the max range of embroidery design. If the position is insufficient, move the embroidery design origin (starting point) until satisfied. After the origin (starting point) is positioned, AX/AY coordinates are clear.

If current embroidery design is in embroidering process, it will pop up a prompt box. Operate according to the message requirements.

Embroidery Design Trace Operation

The Embroidery Design Trace Operation is use to check the location of the design. After the embroidery design origin is set, press  key to initialize the trace function. A pop-up will appear saying "Enter Embroidery Status" press OK. If design location is not in the place needed, try again until satisfied.

Embroidery Design Trace Contour Operation

After setting start point and tracing the design, a new option will appear on the right side of the trace icon, press  key and the hoop will start to move slowly, outlining the design with more precision from start point along the contour (precise range). After the trace contour is finished, it returns to starting point automatically.

Lubrication

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.
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.
4. Once a week, place a drop of oil in the ports marked with a red dot.
5. Once a week, place a drop of oil directly on the needle bar through the slots in the needle case. Alternate between lubricating the upper and lower needle bar sections.
6. Once a week, oil the track of the needle bar case.
7. 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.
8. Don't over-oil. After oiling, stitch on a test swatch before returning to production to assure excess oil doesn't stain garments.



1. Clean Hook Area



2. Oil Hook



3. Clean Knives



4. Oil Marked Ports



5. Oil Needle Bars



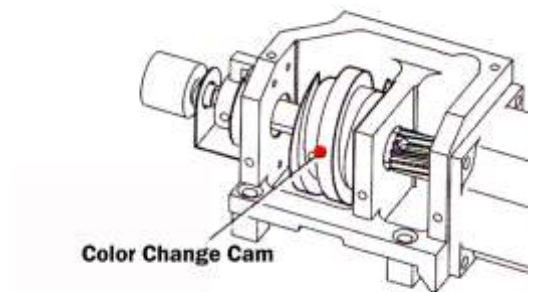
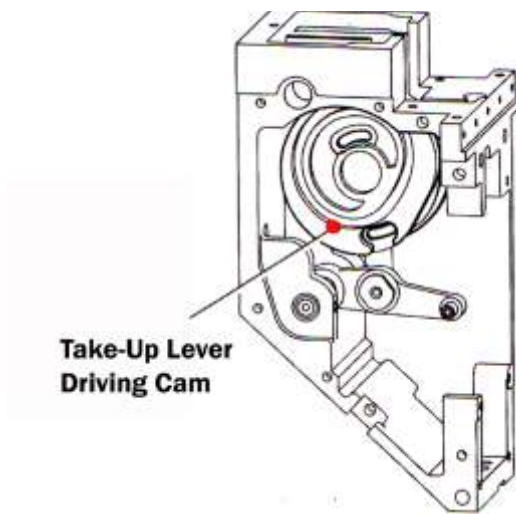
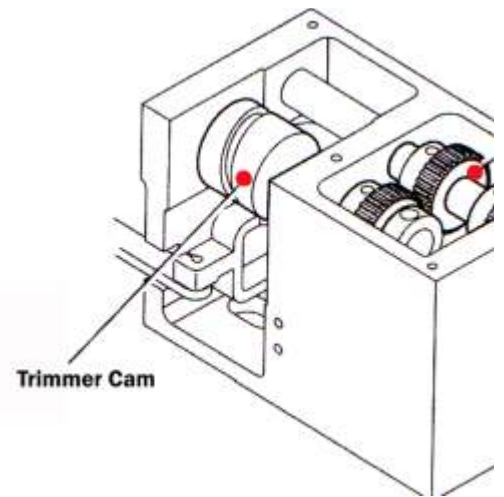
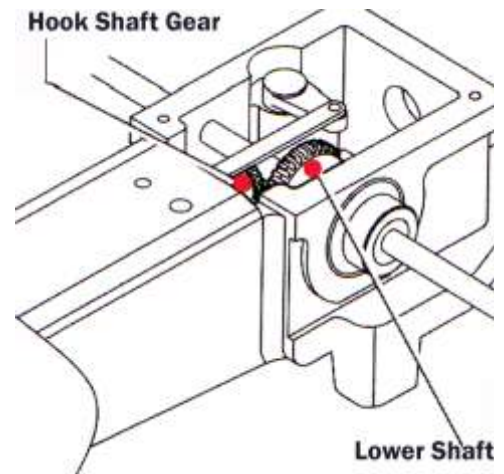
6. Oil Track Needle Bar Case



7. Oil Cylinder Arm Ports

Once every three months resupply grease to:

- a. Hook shaft gear
- b. Trimmer cam and gear
- c. Take-up lever driving cam
- d. Color change cam





Data Stitch
113 Dennis Junction Road
Weatherford, Texas 76088
817-594-9577
www.datastitch.com