Training:

HAPPY HCD-1501 Operations & Maintenance

Chapter 3: The Complete Steps for a Typical Sewing Job

Use this section as a condensed, all-in-one reference for all the steps involved in a typical sewing job. Be sure to follow the topics in order as listed.

Updated September 2, 2008: Added table of contents + instructions for USB jump drive

1. Pre-Prep Checklist

Follow this advance prep checklist before any sewing job:

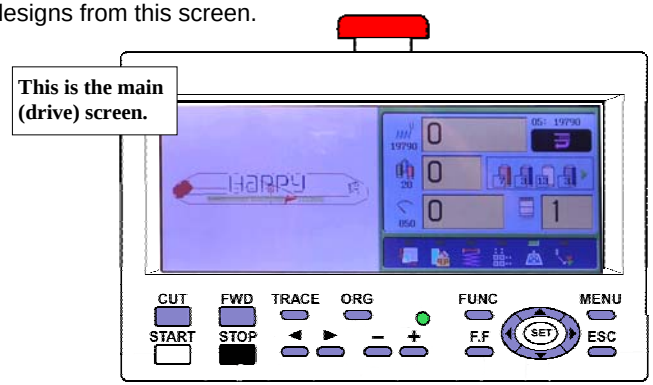
- **Machine Prep: Threaded and Oiled**
  - ***Properly oiled.*** At the very least, ensure 1 drop of oil on the rotary hook.
  - ***Bobbin properly threaded.*** New bobbin, properly threaded, and tensioned. Ensure that the bobbin case is inserted FULLY into the rotary hook.
  - ***Upper thread properly threaded.***
    - **Are all the colors for the design installed on the machine?** If this is a production job, use quality, well-cared-for thread cones. Also ensure that you've checked with your customer on any specific colors.
    - **Are all colors properly threaded ?** Ensure that at least the threads being sewn are threaded correctly at all points (thread feeds smoothly between metal disks of upper tension knob, spins the sensor wheel and lower tensioner wheel. Pull any loose, slack thread out from any thread, especially around the thread cones. Additionally, all thread ends should be docked in the thread holder behind the needles or in the thread holding spring.
- **Design Prep**
  - ***The digitized design:*** Be sure to check the following:
    - **Was it digitized specifically for the material or garment you intend to sew on?** If not, be prepared to run at least 1 test run to check for quality. Different fabrics and garments sometimes require different digitizing techniques. Stock designs, for example, may sew well on 1 garment type but not another.
    - **Know the design size.** We'll go over this later in this chapter. But remember, designs can sometimes be scaled from their original size, but not always. It is always best if the design was created for the intended sew size.
    - **Color sequence:** be sure that you know the color sequence of the design, which should be provided by the digitizer, the stock design catalog, or if you are the digitizer, get this from the software that you created it in.
- **Other Sewing Material Prep**
  - ***Hoop:*** Choose the smallest possible hoop that fits the design with some room to spare. If the design barely fits, go to the next larger size.
  - ***Backing and other material:*** Have the appropriate backing, topping or other material ready.

2. Getting the Design in to the Control Panel

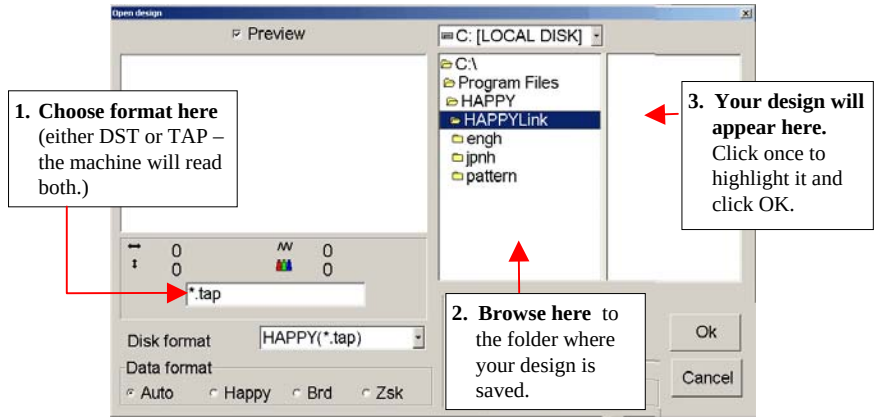
Steps to Transfer a Design by USB cable connection to a PC

Follow these steps to transfer your design by USB cable.

1. Ensure that the machine is powered on and at the main (drive) screen. Your PC will only be able to transfer designs from this screen.



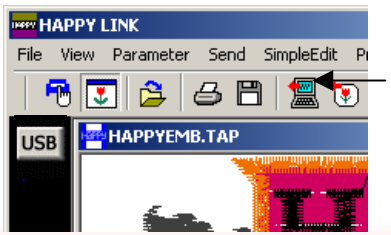
2. Connect the USB cable if you haven't already done so.



3. Launch the HAPPYLINK program and check to ensure the USB icon is lit.

4. Open your design by clicking on File…Pattern Open. The above dialog box appears. Follow the directions indicated above, and your design should open (in grey tones) into HAPPYLINK.

5. Click the Send Pattern Icon. The design will transfer from your PC to the machine.

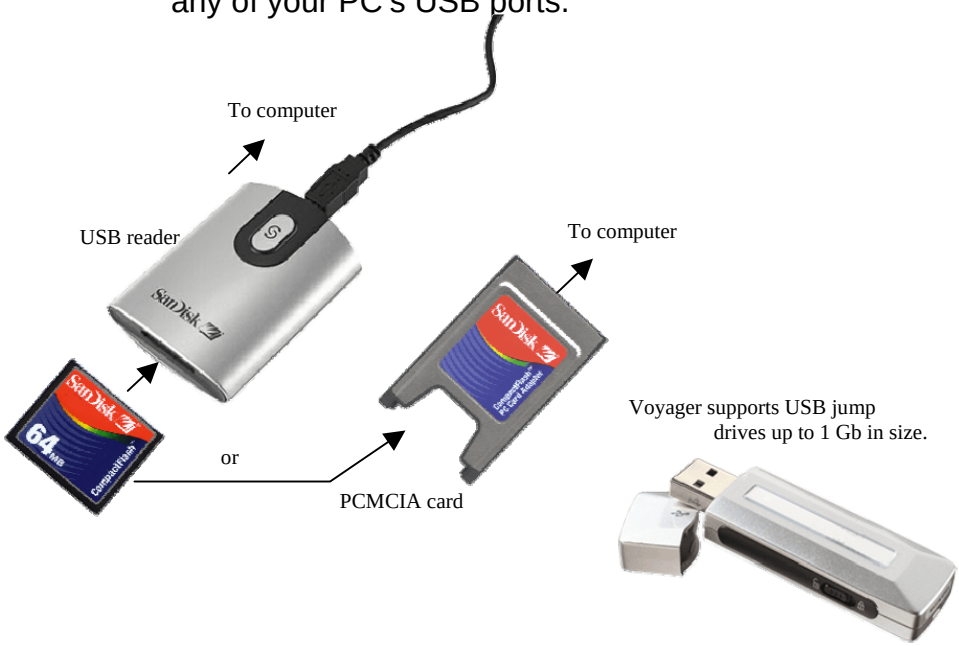


2. Getting the Design in to the Control Panel

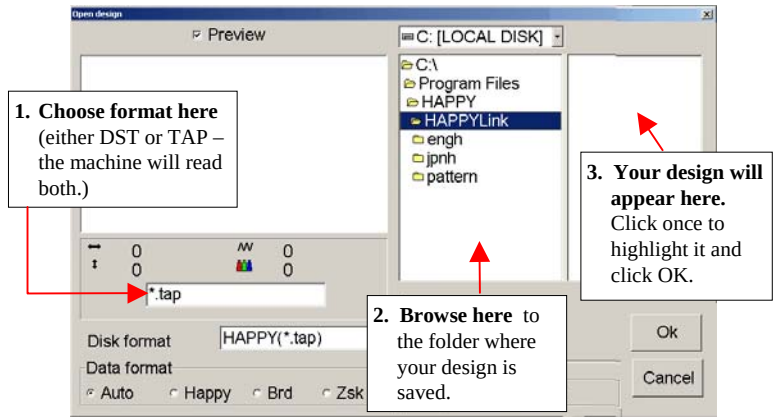
Steps to Transfer a Design by CF Card or USB Jump Drive

Follow the steps on these pages to transfer your design by Flash card or Jump drive.

1. **Connect the CF card or jump drive to your computer.** For a CF card, insert the card first into a PCMCIA adapter (if your laptop has this type of slot) or otherwise insert it into the USB reader. For USB jump drives, simply insert into any of your PC's USB ports.



2. **Start HAPPYLINK and open the design** you wish to transfer from File… Pattern Open. You'll see the dialog box below appear. Follow the directions below.

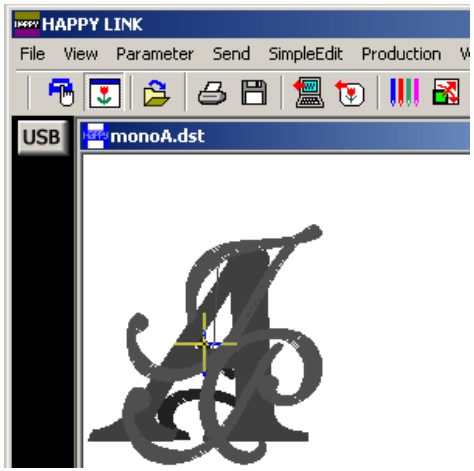


2. Getting the Design in to the Control Panel

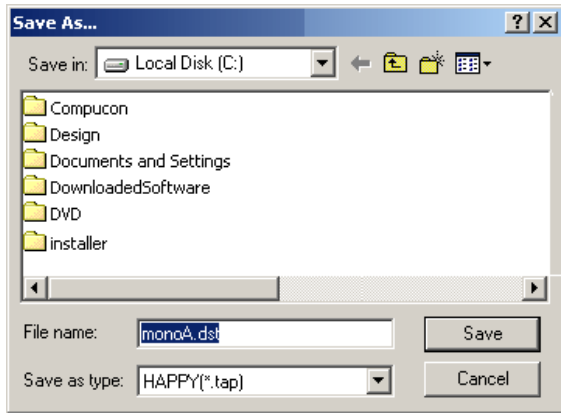
Steps to Transfer a Design by CF Card or USB Jump Drive

Follow the steps on these pages to transfer your design by Flash card or Jump drive.

3. **(optional step) Set the color sequence.** Click on the icon shown below to do so. Or if you choose, you can set colors in your machine.



4. **Save the file to the Compact Flash card.** Click on File…Save As. The dialog box shown below appears. Follow the directions below to save, ***then close HAPPYLINK.***



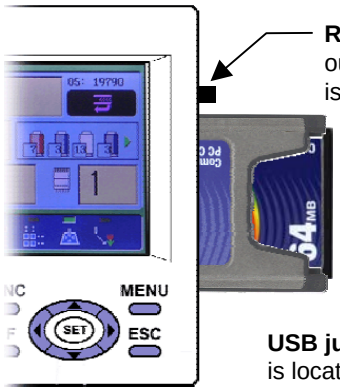
5. **Click on Safely Remove Hardware Icon** to shut off the card**.** You'll find this icon at the lower-right edge of the screen near the clock. Continue until the message "It is now safe to remove" appears.

2. Getting the Design in to the Control Panel

Steps to Transfer a Design by CF Card or USB Jump Drive

Follow the steps on these pages to transfer your design by Flash card or Jump drive.

6. **Insert the Flash card or USB jump drive into the machine.** For a CF card, you'll need to insert the card into the PCMCIA adapter sleeve.

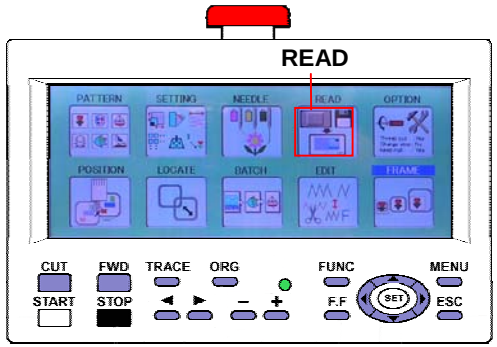


Release tab pops out when the card is inserted fully.

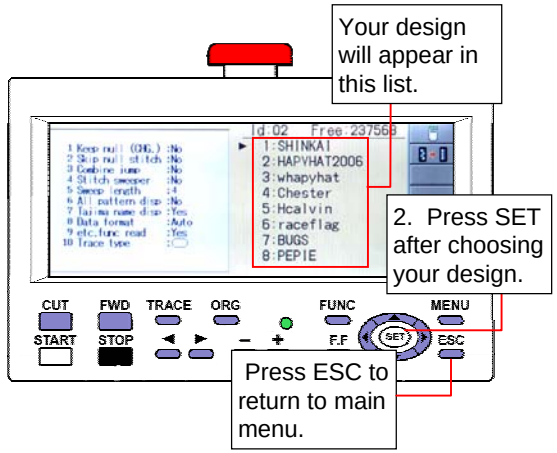
Insert card fully into slot until it snaps softly into place.

USB jump drive port is located behind the control panel at the end of the arm.

7. **Go to the Read screen** in the control panel to read the card. From the main (drive) screen press MENU and click the blue arrow keys to go to the READ and press SET. In the window that appears, choose Flash card or jump drive and press SET.



8. **Find your design in the list.** Any DST & TAP designs will show automatically in a list on the right. Choose your design with the blue arrow keys and press SET.

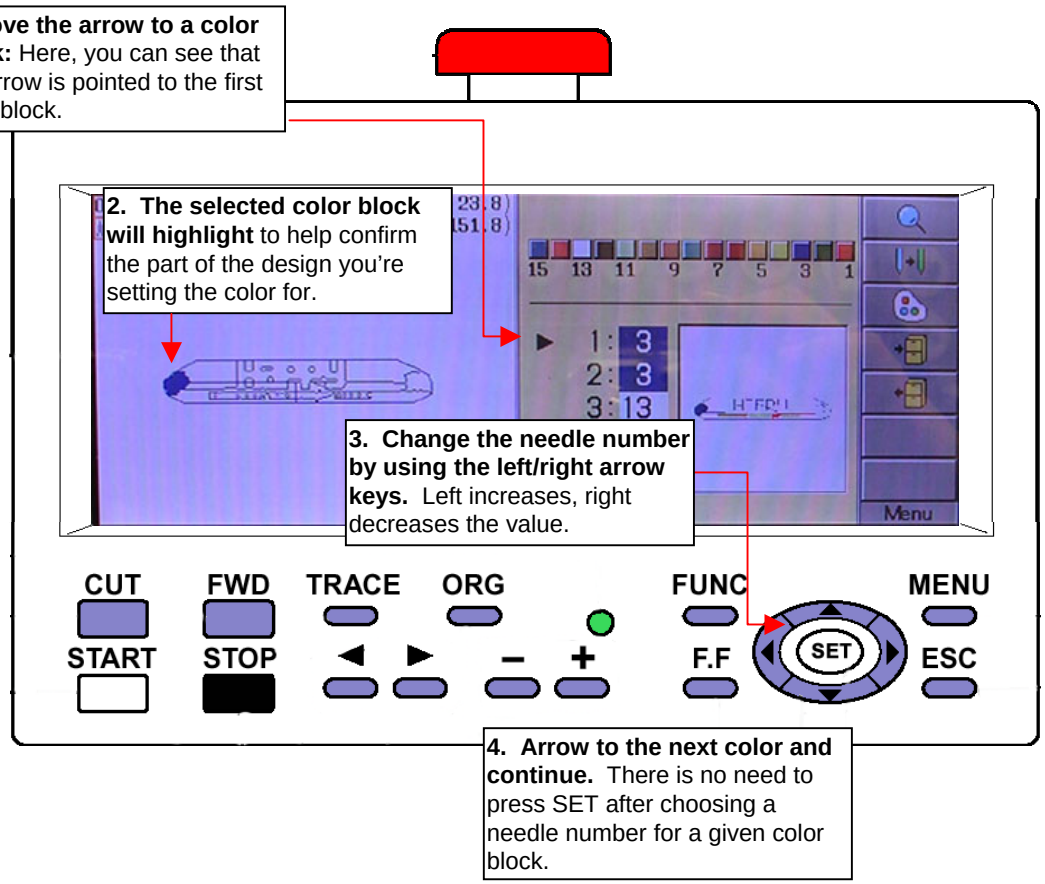


9. **Press ESC to return to the main (drive) screen.** Once the design is imported from the READ screen, press the ESC button until you've returned to the main Drive screen, where image of your design should now appear. (The next step will be to set the colors in the Needle screen.)

3. Setting Design Colors & Settings

Follow the steps on this page to set the color sequence for the design.

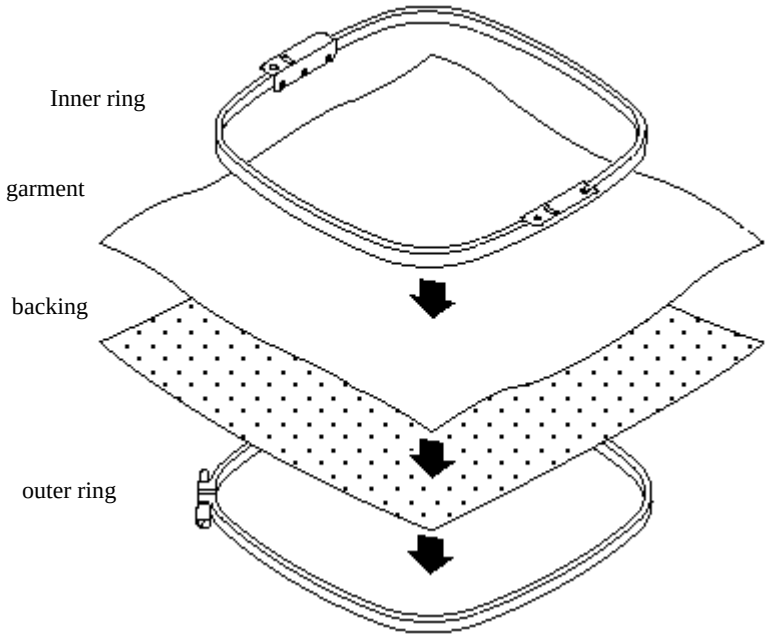
How to Set the Color Block Sequence for A Design:
Follow steps 1-4 on the right to set the color sequence for a design. When finished, press ESC to return to the main menu, and/or ESC again to return to the main sewing screen.



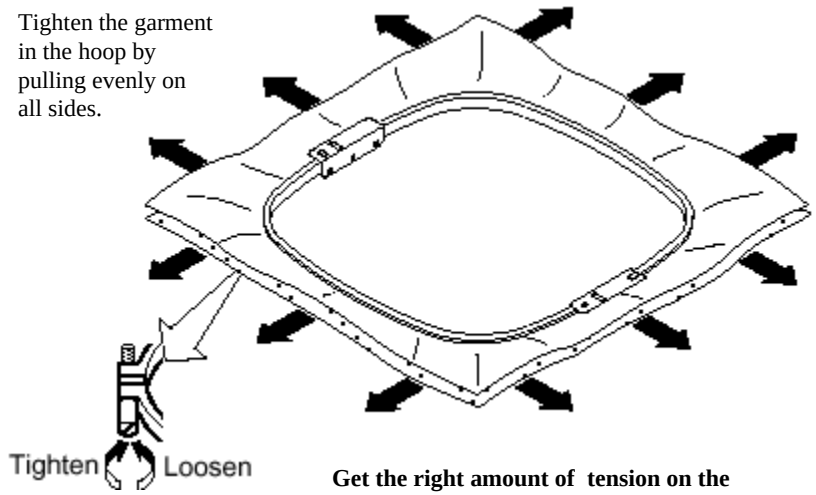
4. Hooping

As mentioned in Chapter 1, hooping contributes heavily to sewing quality. Be sure to follow these guidelines when hooping a garment.

1. **Choose the smallest hoop that will fit your design.** This results in better-quality sew-outs, but ensure that there is at least a little extra room in the hoop as a safety margin.
2. **Choose an appropriate backing or stabilizer for the garment and the design.** Depending on how stable or "stretchy" the garment is, you may need heavier, more stable backing (i.e. 1-2 layers of heavy cutaway) or lighter backings (simpler tear-away)
3. **Align the garment straight in the hoop –** In order for the design to sew level, the garment needs to be hooped level.



Tighten the garment in the hoop by pulling evenly on all sides.



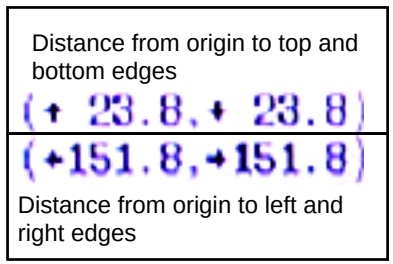
Adjustment screw compensates for different garment thicknesses.

Get the right amount of tension on the garment:
Too tight – hoop leaves "burn marks on the garment.
Too loose – garment will "pucker" as more stitches are sewn onto it.

5. Checking Fit and Position in the Hoop

Before sewing, it is important to verify that the design fits in the hoop you've chosen to prevent the machine from striking the hoop while sewing. While following the procedures on these pages to do this, the design position in the hoop can be checked to see if it's properly centered (or alternately, moved off-center in the hoop to a desired location).

1. **Verify that the design was digitized "center-center".** Most designs are digitized so that their origin points start and finish at its physical center, which ensures that the design will sew in the true center of the hoop. Some designs are not created this way. It is important to verify this in the Needle screen by checking, along the top edge, the 2 pairs of numbers (shown on the right), which show the distance from the design's origin point to the sides and top. If the 2 are matching pairs, then the design is properly centered. If not, you may either re-set this in the digitizing software, or move the design in your machine to compensate.

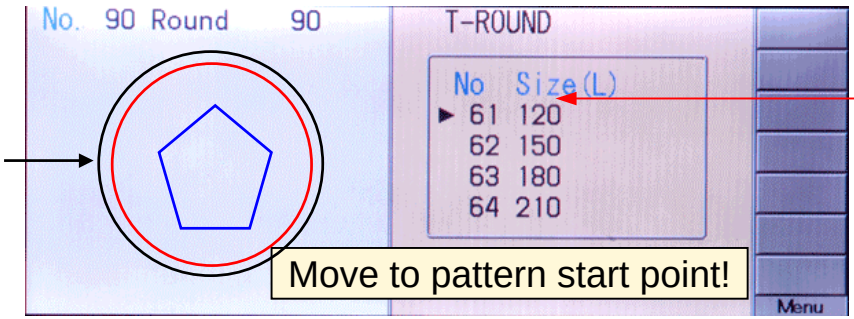


2. **Check design fit using the Frame screen.** Go to the Main Menu, choose Frame, and choose either Round, Square, or User hoops. Then, follow steps a-c below.

a. **Choose a hoop and press SET:** the right side numbers indicate hoop size in mm. (The left side number is an internal reference # and not useful)

b. **The hoops then appears here with the design outline inside.** Outer black line is the hoop itself, inner red line is the safety margin. The design outline appears in blue. The design should fit safely within the hoop if the blue outline does not cross the red safety line.

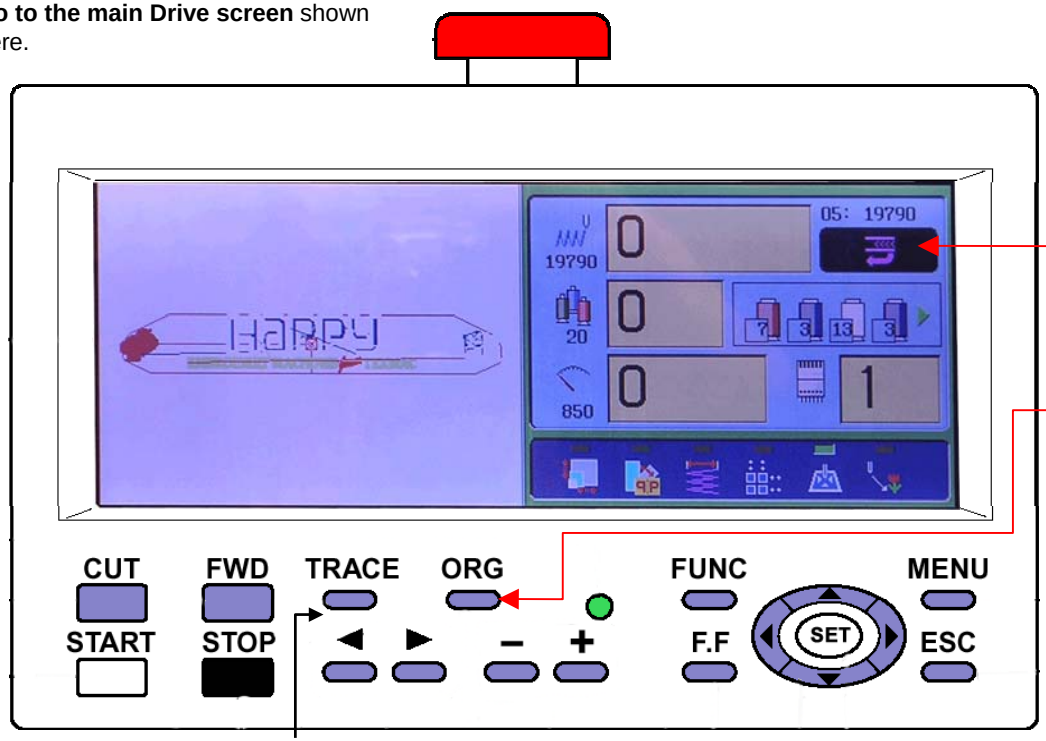
c. **Adjust position with the arrow keys** if desired. Press ESC when done.



5. Checking Fit and Position in the Hoop

At this stage, you're almost ready to begin sewing. First, it's also important to verify that the design fits using the Trace. Follow the steps shown below.

1. **Go to the main Drive screen** shown here.



2. **Ensure that the design is at the Origin point** by checking that this symbol is showing. If you need to return to the Origin, press the ORG button.

3. **Press TRACE** to let the machine begin tracing. The hoop will begin to move, and the presser foot will "point" to where the edges of the design will sew. Check to ensure that the design does not sew near the edges of the hoop. You can hold the TRACE to slow the trace movement.

4. **If not satisfied with the location, return to the Origin** by pressing the ORG button.

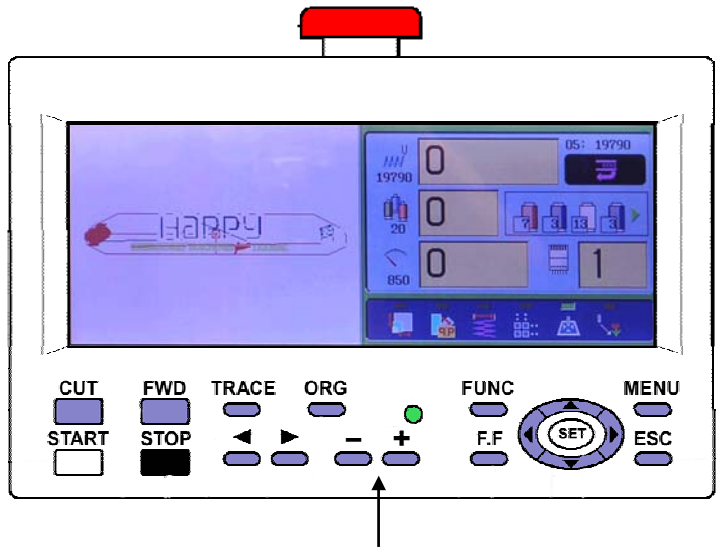
5. **Move the design** by moving the blue arrow keys.

6. **Go back to step 3 and repeat** if desired. You can watch the trace as many times as you wish until you're confident that the machine will clear the hoop.

6. Sewing

If you've followed all the previous steps carefully, just press START to begin sewing. While the machine should continue to sew until the design is finished, watch the sew-out, especially if you are just learning, and follow the guidelines on this page.

1. **Set the machine's top speed with care.** While your machine is capable of sewing at top speed on a regular basis, consider these general points:
   - ***Use top speed only when absolutely necessary*** to ensure longer machine life.
   - ***Higher speeds increase peak tensions on thread*** causing the design to sew more tightly than normal, and increase the risk of thread breaks
   - **Set machine speed based on your vibration and noise levels**. Depending on the mounting surface where you've installed your machine, you may find some speeds more "ideal" than others.
2. **Watch the design carefully to check for problems.** This is important if you intend to run a large number of designs on the machine. Look out for:
   - ***Efficient digitizing –*** are all unnecessary color changes eliminated? Was the design created in the most efficient sequence?
   - ***Thread breaks that crop up in the same spot*** – this is something that can be fixed with Stitch Sweeper on later runs.
   - ***Quality of the sew-out*** – quality problems can be fixed with adjustments to tension, hooping, or in fixing the design in a digitizing program.



Adjust machine top sewing speed using these + and – keys.

7. An Example: Sewing a Tension Test Design

A useful example is to sew a tension test, which not only walks you through the complete process of sewing a job, but also accomplishes the task of helping you adjust the tension on the upper (colored) thread. Follow the steps in this exercise to (1) to sew the design, then (2) adjust tension accordingly until tension is properly adjusted.

1. **Transfer the tension test design** called "H Test" into your control panel. You can download this from www.happyemb.com in the Service section.
2. **Ensure that the bobbin** tension has been set correctly using the drop test.
3. **Set the color sequence** In the Needle screen to 1, 2 ,3 ....etc to 15
4. **Hoop an ideal fabric** (2 layers of cutaway backing is usually good enough)
5. **Sew a sample** on the 32 cm square hoop.

6. **Examine the results by flipping the embroidery over.** Check each stripe to ensure there is a white strip of bobbin thread approximately 25% to 33% of the total width of the satin stitch, centered, for each color sample.
   - ***Colored thread is too loose*** if, on a given stripe, the bobbin thread strip is very thin or non-existent
   - ***Colored thread is too tight*** if, on a given color, the bobbin thread strip is wider or full-width
7. **Adjust the tension knobs accordingly:**
   - ***Make major adjustments using the upper tensioner*** (it places the initial gross tension on the thread.
   - ***Make finer adjustments with the lower tensioning knob***, but do so 2-3 full turns in either direction to effect a noticeable difference.
8. **Re-sew the tension test design again** in a different spot on the same hooping and compare, then repeat this procedure until you're confident that all threads are sewing consistently at correct tension.