PFAFF

Perfection starts here. ™

creative stylist™ MN110

User's Guide

This household sewing machine is designed to comply with 2006/42/EC (Machinery) and UL1594.

IMPORTANT SAFEGUARDS AND WARNINGS

WHEN USING EMBROIDERY MACHINES, THE FOLLOWING SAFETY PRECAUTIONS MUST BE FOLLOWED TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, AND/OR INJURY.

- The embroidery machine is provided with the following warning label:
- Exercise the important safeguards and warnings associated with the label.
- Improper use of this embroidery machine may result in temporary, permanent or fatal injuries.
- To prevent injuries, keep hands, body parts and other objects away from needle bar rack, guide rail, etc.
- Keep the machine away from heat sources.
- This embroidery machine is only for indoor household use. Do NOT use outdoors.
- Do NOT use embroidery machine for other than its intended use.
- This embroidery machine is NOT intended to be used by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge unless they are supervised while using the embroidery machine and given instruction on how to use the embroidery machine by the person responsible for their safety. The person who is giving instruction MUST have read and understand how to use this embroidery machine and assumes total responsibility for the safety of the person they are supervising.
- Children must NOT use this embroidery machine.
- Children should be supervised to make sure that they do NOT play with packing materials, plastic bags and/or the embroidery machine.
- Close supervision is necessary when the embroidery machine is used near children.
- To protect against electrical shock, do NOT immerse cord plug or embroidery machine in water or other liquids.
- Turn off and unplug the embroidery machine from the electrical outlet when NOT in use and before cleaning. To unplug the embroidery machine, grab the power plug and pull it outwards from the electrical outlet. Do NOT pull the power cord.
- Make sure the embroidery machine is turned off before inserting and/or removing parts.
- It is recommended to regularly inspect the embroidery machine. Do NOT operate the embroidery machine with a damaged cord, plug, needles, bobbins, etc., or after the embroidery machine malfunctions or has been damaged in any manner.
- Do NOT use accessory attachments that are NOT recommended by the embroidery machine manufacturer, since it may cause injuries and malfunctions of the embroidery machine.
- Do NOT touch needles or sharp embroidery machine parts when installing or removing embroidery frames, accessory fittings or while providing maintenance to the embroidery machine.
- Do NOT over extend power cord or let it touch hot surfaces.
- Do NOT place embroidery machine on or near hot gas, an electric burner, an oven, a gas or electric cooktop, an open flame, an iron, or steam embroidery machine.
- To turn off the embroidery machine press the "Stop" button, turn off the power switch at the rear of the embroidery machine and then unplug the power cord from electrical outlet. See the Turning off section for more information.
- When using the embroidery machine, provide adequate air space above and around the sides of the machine for circulation. Do not block any ventilation opening while the embroidery machine is being used and make sure the ventilation opening is free from the accumulation fluff, dust and NOT covered by a cloth.

- For extra protection, when operating the embroidery machine, use safety glasses and closed toe shoes to prevent injuries.
- To replace the needles, use tweezers or pliers to grab the needle. Do NOT use your fingers.
- Do NOT leave the embroidery machine unattended while in use, and press "Stop" in the case of an emergency. See the Turning off section for more information.
- The embroidery machine weighs about 95 pounds and should be carried between two people. Only lift the embroidery machine from its base and use caution to prevent back, knees and/or other types of injuries or damage to the embroidery machine.
- Do NOT lift or grab embroidery machine by the touch-screen or any of the removable parts.
- The embroidery machine's power cord MUST be plugged into a UPS power supply to protect it from a power surge, power outage and to provide enough time for embroidery job to be completed in case of a power outage.
- If there is a power outage and the embroidery machine is NOT plugged into a UPS power supply, it will turn off. If it is plugged into a UPS power supply, once the job is completed, turn off the embroidery machine and unplug it from the UPS power supply.
- If there is a power outage, turn off the embroidery machine and unplug it from the electrical outlet.
- Do NOT operate the embroidery machine if it is covered by or touching flammable materials, including towels, curtains, draperies, walls or anything similar.
- Do NOT store any flammable liquids near the embroidery machine.
- Do NOT operate the embroidery machine in a place where sprays are used or oxygen is stored.
- Do not store the embroidery machine in a place with direct sunshine or high humidity. Do not use or store the embroidery machine close to a heater, iron, halogen lamp or another high-temperature object.
- Do NOT place any item on top of the embroidery machine while in operation.
- Do NOT store any materials or items other than the manufacturer's recommended accessories on top or beneath the embroidery machine when NOT in use.
- Do NOT use any materials that are not recommended for the embroidery machine such as paper, cardboard, plastic, foam and other such materials or their likes.
- Use extreme caution MUST be used when moving the embroidery machine to prevent any injuries. It is recommended that the embroidery machine NOT be moved while it is being used or plugged into the electrical outlet.
- To prevent needle breakage, do not use damaged needles or an incorrect needle plate.
- Keep foreign objects away from embroidery machine openings to avoid personal injuries.
- When using scissors or seam rippers, keep hands and fingers away from the cutting direction to avoid injuries and only use them for their specified purpose.
- Do NOT use the embroidery machine on an unstable surface. Place the embroidery machine on a stable, leveled, and durable surface or use the embroidery machine stand.
- Do NOT use the embroidery machine stand to store anything else but the embroidery machine and its accessories.
- If the embroidery machine falls to the floor, it has been splashed with or soaked in water or other liquids do NOT use it – contact your local dealer to schedule an appointment with a qualified technician to service the embroidery machine. Contact your local PFAFF® dealer.
- Do NOT use the embroidery machine if it begins to heat up, color changes or deformation occurs, stop using the embroidery machine immediately, turn it off, and unplug it from the electrical outlet. Then contact your local PFAFF® dealer.
- Never wear loose articles of clothing that can be caught by the needles or any part of the embroidery machine while it is being used.

- The end user MUST never attempt to repair or modify the embroidery machine in any way and MUST contact their local PFAFF® dealer or customer service to schedule repairs with a factory certified technician. Working on the PFAFF® embroidery machine by the end user may result in voiding of the warranty.
- VSM Group AB, its owners, partners, officers, employees, affiliates, manufacturers, factories, importers, promoters, parent companies and anyone else who does business with them are NOT responsible or liable for anyone misusing the embroidery machine, modifying the original embroidery machine in anyway, servicing it with unauthorized personnel, not following or ignoring instructions, or using the embroidery machine for anything else other than its intended use.
- Three-prong plug: The embroidery machine has a 3-prong plug. To reduce the risk of electric shock, this plug is intended to fit into the outlet only one way. If the plug does not fully fit into the outlet, contact a qualified electrician. Do not attempt to modify the plug in any way. Do NOT use an extension cord with this embroidery machine.
- Tamper-resistant screw: This appliance is equipped with a tamper-resistant screw to prevent removal of the outer cover. To reduce the risk of fire or electric shock, DO NOT attempt to remove the outer cover. There are no user-serviceable parts inside. Authorized service personnel should ONLY do the repair.
- Power cord: To prevent damage, electric shock or fire hazard, do NOT operate the embroidery machine with a damaged power cord or if power plug is not completely inserted into the electrical outlet. If the power cord is damaged, please contact your local PFAFF® dealer.
- If the LED lamp is damaged or broken, it must be replaced by the manufacturer or it's service agent or a similarly qualified person, in order to avoid a hazard.

SAVE THESE INSTRUCTIONS
THIS EMBROIDERY MACHINE IS FOR INDOOR HOUSEHOLD USE ONLY

SERVICING OF DOUBLE INSULATED PRODUCTS
In a double-insulated product, two systems of insulation are provided instead of grounding. No ground means is provided on a double-insulated product, nor should a means for grounding be added to the product. Servicing of a double-insulated product requires extreme care and knowledge of the system and should be done only by qualified service personnel. Replacement parts for a double-insulated product must be identical to those parts in the product. A double-insulated product is marked with the words 'DOUBLE INSULATION' or 'DOUBLE INSULATED'.

READ ALL INSTRUCTIONS PRIOR TO OPERATING
- This manual is a comprehensive step-by-step user instruction guide on how to use the 10-needle home embroidery machine with the 7-inch HD LCD touch-screen panel.
- Make sure to read, understand and follow all these instructions.
- To address any questions relating to ordering parts, operating the 10-needle home embroidery machine with the 7-inch HD LCD touch-screen panel, troubleshooting, maintenance or service, please contact your local dealer.

WATTAGE
110V/60Hz or 220V/50Hz available

CUSTOMER SERVICE, SUPPORT AND TRAINING
If you should have any questions regarding your embroidery machine or training, please contact your local PFAFF® dealer to schedule an appointment.

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IMPORTANT – BEFORE GETTING STARTED

- Make sure the temperature of the environment surrounding the machine is in between the 40°F – 104°F (5°C – 40°C).
- In the case of lightning, make sure to turn-off the embroidery machine
- Set up the embroidery machine near an electrical outlet.
- Keep the machine free of dust.
- Do not keep liquid near the embroidery machine.
- Make sure all packaging materials have been removed.
- Make sure all base feet are at the same height.
- Make sure all base feet are locked.
- Exercise caution when removing parts.
- Do not plug the embroidery machine into the socket until the machine is set-up and ready to begin.
- Wear glasses and gloves when lubricating the embroidery machine.
- Do not block the ventilation of the embroidery machine.
- Make sure the embroidery machine is not in direct sunlight.
- Set the embroidery machine two inches (2") away from the wall.
- Lift the embroidery machine with at least two people.
- Lift the embroidery machine from he bottom – ONLY.
- Make sure there are no objects underneath the embroidery machine
- Make sure there are no objects within the moving range of the embroidery machine.
- Set the embroidery machine on a leveled, balanced and durable surface.

QUICK REFERENCE GUIDE/CHECKLIST

Before embroidery machine operation, please confirm the following steps have been performed.

Step	Operation	Reference page
1	Important: Before getting started	7
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11	Check embroidery area	36
12	Start embroidery	42
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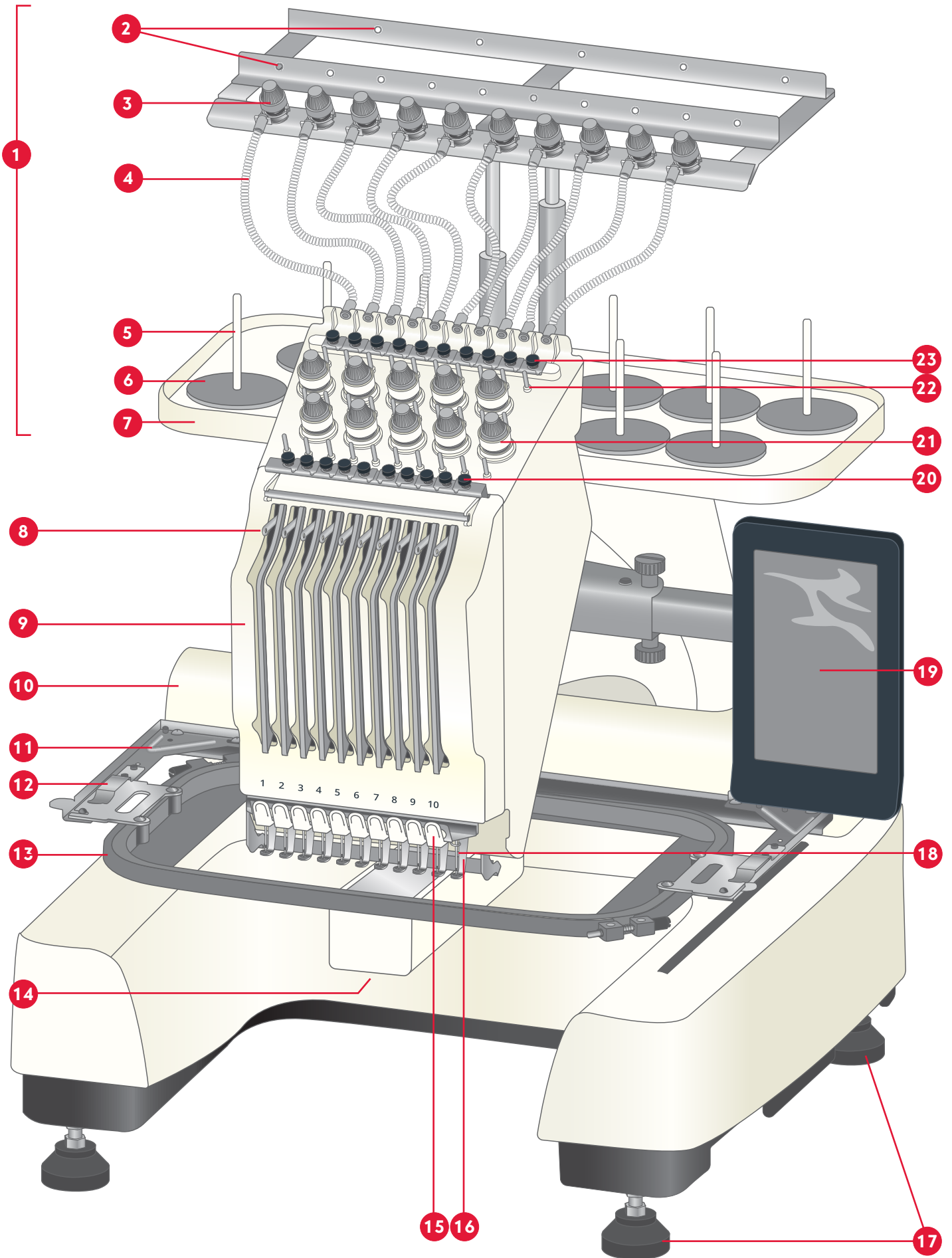
INTRODUCTION

EMBROIDERY MACHINE OVERVIEW

Embroidery machine may vary slightly from what is illustrated.

FRONT VIEW

1. Thread stand
2. Thread guides
3. Upper thread tension
4. Thread guide tube
5. Spool pin
6. Sponge cushion
7. Thread rack
8. Thread take up lever
9. Needle bar frame
10. Embroidery arm
11. Flat hoop support
12. Hoop holder
13. Hoop
14. Bobbin housing unit
15. Thread cutter
16. Presser foot
17. Base feet
18. Needle
19. Color touch screen
20. Lower thread tension clip
21. Lower thread tension knob
22. Thread guide
23. Upper thread tension clip

REAR VIEW

1. Hand wheel/Degree knob
2. Power switch (On/Off)
3. Power cord socket
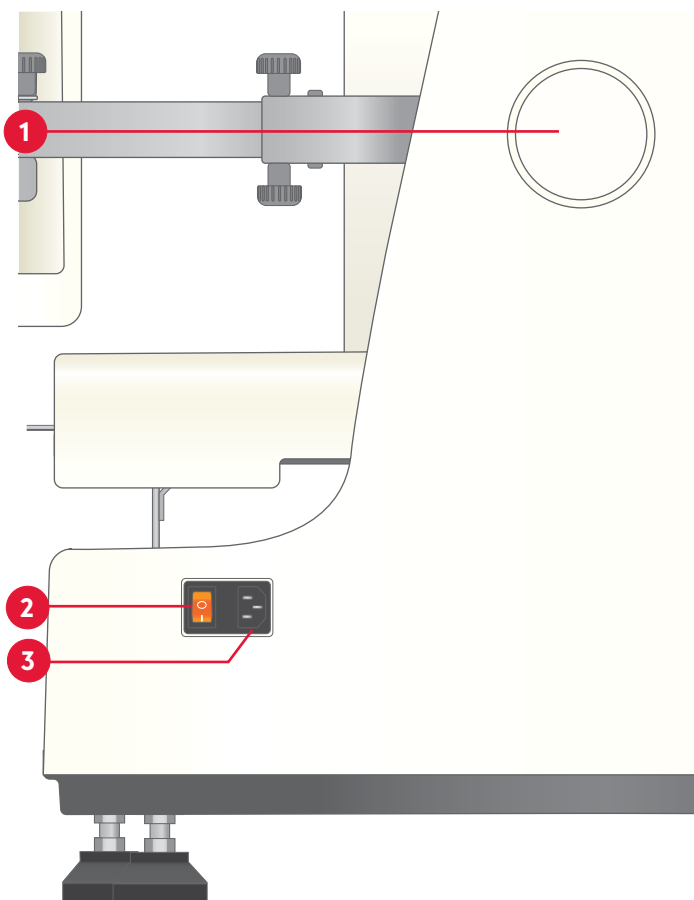
DISPLAY OVERVIEW

1. Color Touch Screen
2. Start/Stop button
3. Thread trimming button
4. 100-degree button
5. Speaker
6. Panel arm adjusting knobs
7. Panel adjusting knob
8. USB port
9. Computer network interface (insert internet cable)
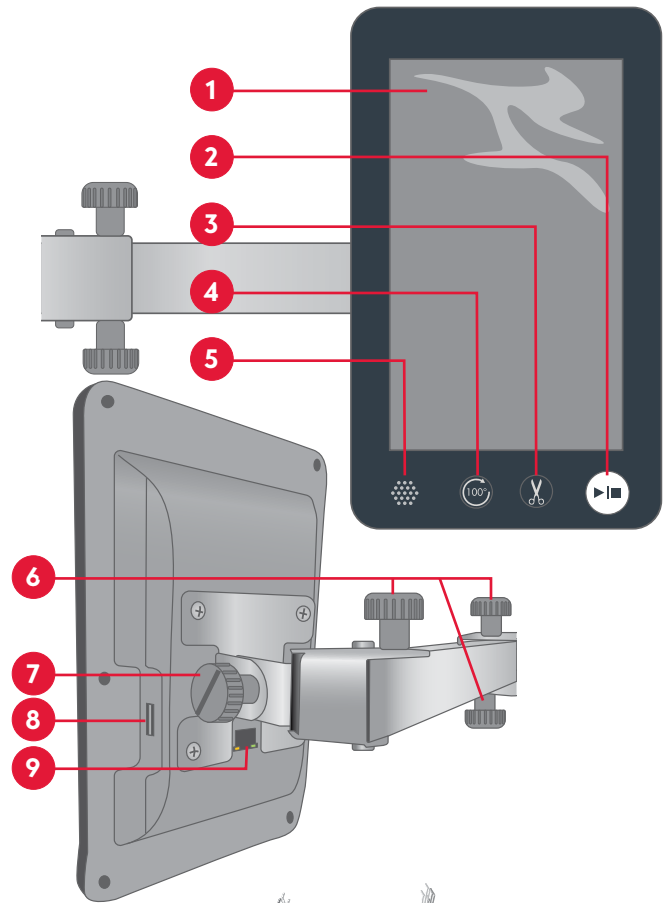
EMBROIDERY HOOP OVERVIEW

1. Cap hoop (260X60mm)
2. Embroidery hoop A (70x50mm)
3. Embroidery hoop B (110x110mm)
4. Embroidery hoop C (190x140mm)
5. Embroidery hoop D (310x210mm)

TOOLBOX AND SPAREPARTS

(not pictured)

- Sponge Cushion x5
- Bobbins
- Needle Pack-DBxK5 75/11
- USB stick
- Brush
- Scissors
- Adjustable screw driver 4 by 107 mm
- Double end wrench
- Oil can – 40 grams
- Electronic Bobbin Winder
- Threading tool
- Spare parts box-D type
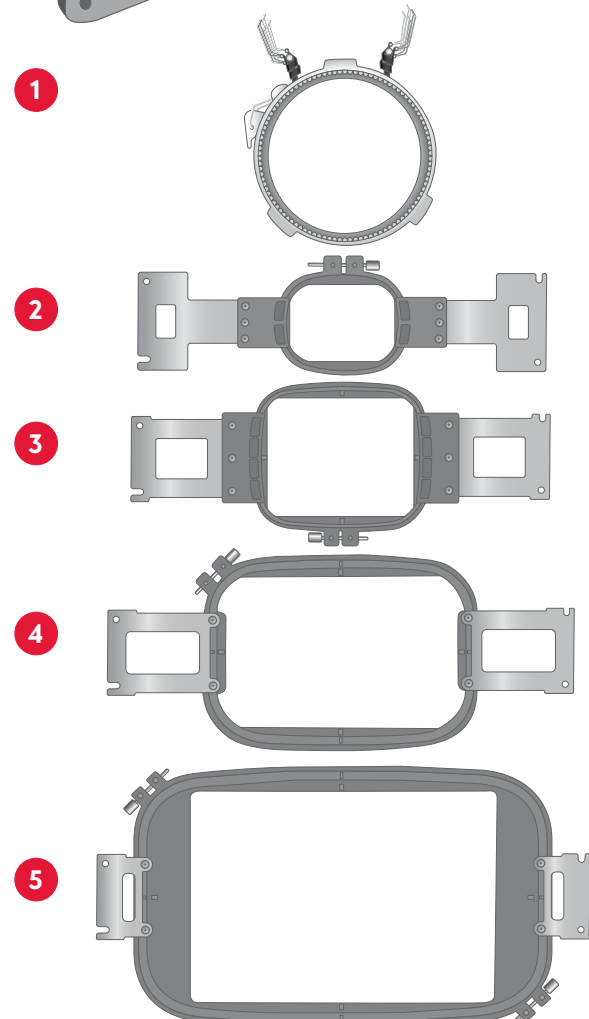
PREPARATION

UNPACK YOUR EMBROIDERY MACHINE

It is recommended to keep all shipping materials.

Practice safety by using two (2) people to carry the embroidery machine.

1. Carefully remove the box by pulling upwards, using the cutouts found on the sides of the box.

2. Identify all of the accessories encased within the exterior of the styrofoam surrounding the embroidery machine.

3. Remove the accessories:
   • Cap driver
   • Thread stand
   • Flat hoop support
   • Toolbox
   • Ethernet cable
   • Cap station
   • Thread cone holders
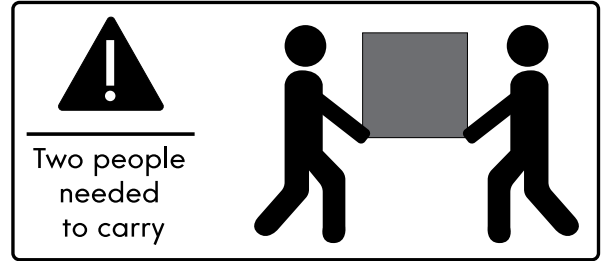   • Embroidery hoops
   • Connecting cable
   • Power cord

Two people needed to carry

4. Remove the styrofoam.

5. Remove the Velcro tie from the plastic bag covering the embroidery machine.

6. Pull the plastic cover down.

7. Lift the embroidery machine from the bottom and place it on top of the stand. Use caution.

8. Remove the protection film.

ADJUST AND SECURE YOUR EMBROIDERY MACHINE

To avoid accidents or injuries, lift the embroidery machine between two (2) people.

Keep the embroidery machine two inches (50 mm) away from the wall.

Do not block the embroidery machine's ventilation.

• Set up the embroidery machine on top of a leveled, balanced, and durable surface. Make sure to remove all packaging materials from the embroidery machine.

• Adjust the height of the base feet by rotating the adjusting nuts (1) clockwise or counter clockwise. Once desired height has been achieved, lock the base feet by tightening the lock nut (2).

   Make sure all feet have the same height.

• Adjust the length of the display arm, by loosening the adjusting knobs (3).

• Tilt the display by loosening the panel adjusting knob (4), then tighten it again to hold the panel in place.
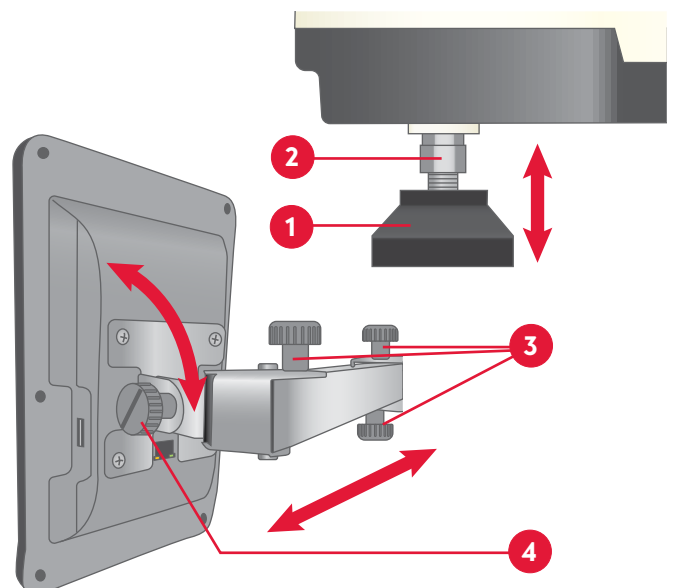
THREAD STAND ASSEMBLY

Assemble the thread rack by inserting a spool pin in each hole. Put a sponge cushion onto each spool pin. If needed, put a plastic thread reel onto each spool pin. The plastic thread reels are used to help keep the thread spool in place as the machine runs and/or when using larger spools.
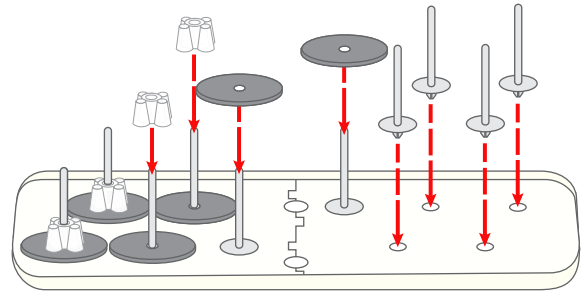
ATTACHING THE THREAD STAND TO THE MACHINE

1. Loosen the lower screws (A) on the thread stand columns.

    Lift off the thread stand.

2. Remove the lower lock nuts (B) on the thread stand columns.

    Place the thread rack onto the thread stand columns.

    Replace and tighten the lower lock nuts (B) to the thread stand columns.

    If needed, also tighten the upper lock nuts (C).

3. Put the assembled thread stand back onto the machine.

    Tighten the lower screws (A) on the thread stand columns to secure the thread rack.

    Loosen the upper screws (D) on the thread stand columns to adjust the height of the thread stand columns.
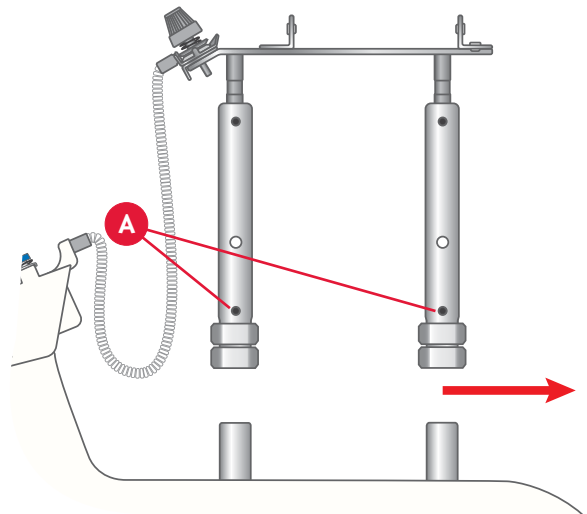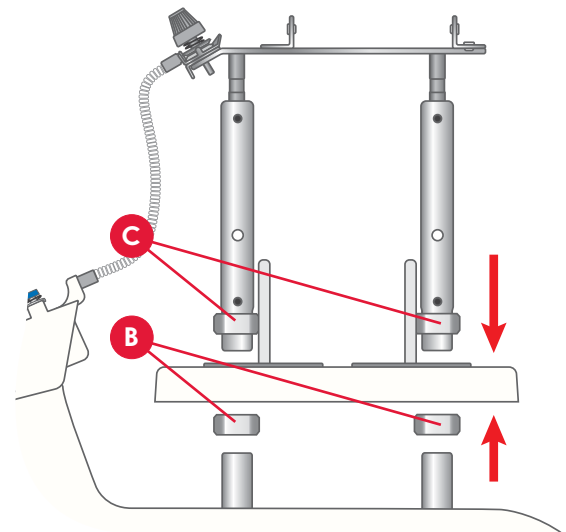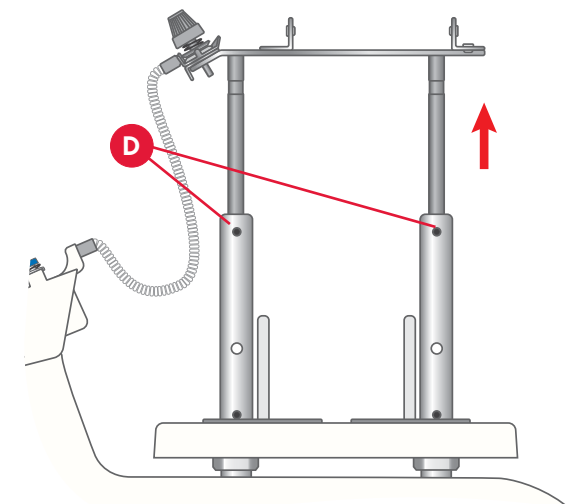
GETTING STARTED

To prevent injury, keep hands and other objects away from the needle bar rack.

- The main power switch is located on the back of the embroidery machine.
- The "O" icon (1) turns the embroidery machine OFF.
- The "I" icon (2) turns the embroidery machine ON.
- Once the embroidery machine is turned on, the needle bar rack will automatically move to the position of needle bar 5.
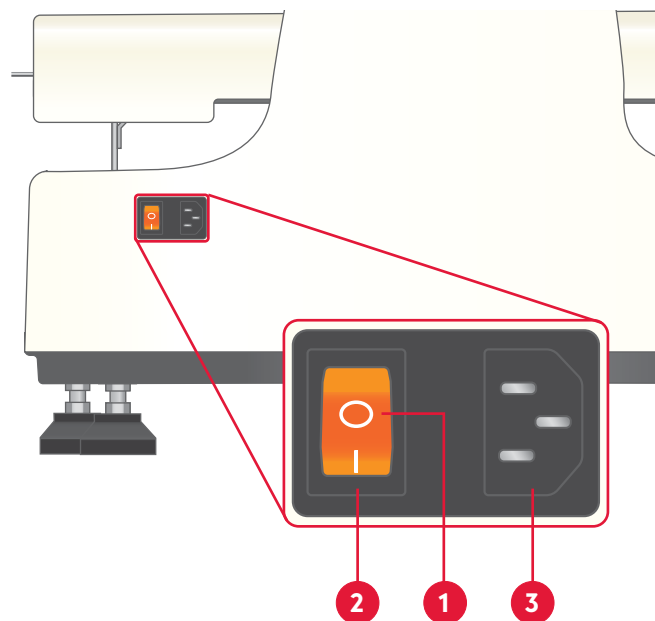
TURNING ON

- Insert the power cord into the back of the embroidery machine (3).
- Connect power supply cord to an electrical outlet.

  A surge protector is highly recommended.

- Move the main power switch on to "I."

  The needle bar rack will automatically move to the position of needle bar #5 and the Color Touch Screen will turn on.

TURNING OFF

To prevent injury, make sure embroidery machine is turned off when not in use.

In the case of a power outage, while the embroidery machine is in use, perform steps one (1) and two (2) identified below.

1. Move the main power switch to "O."
2. Disconnect the power supply cord from the electrical outlet.
3. Disconnect the power supply cord from the embroidery machine.

ELECTRONIC BOBBIN WINDER

Among the accessories, you find the electronic bobbin winder. This device is commonly used in home and commercial embroidery to wind bottom thread, also known as bobbin thread.

SPECIFICATIONS

Packing size	Product size	Voltage	Net weight	Gross weight
355 X 90 X 115 mm	225 X 80 X 215 mm	AC90~240	490 G	540 G
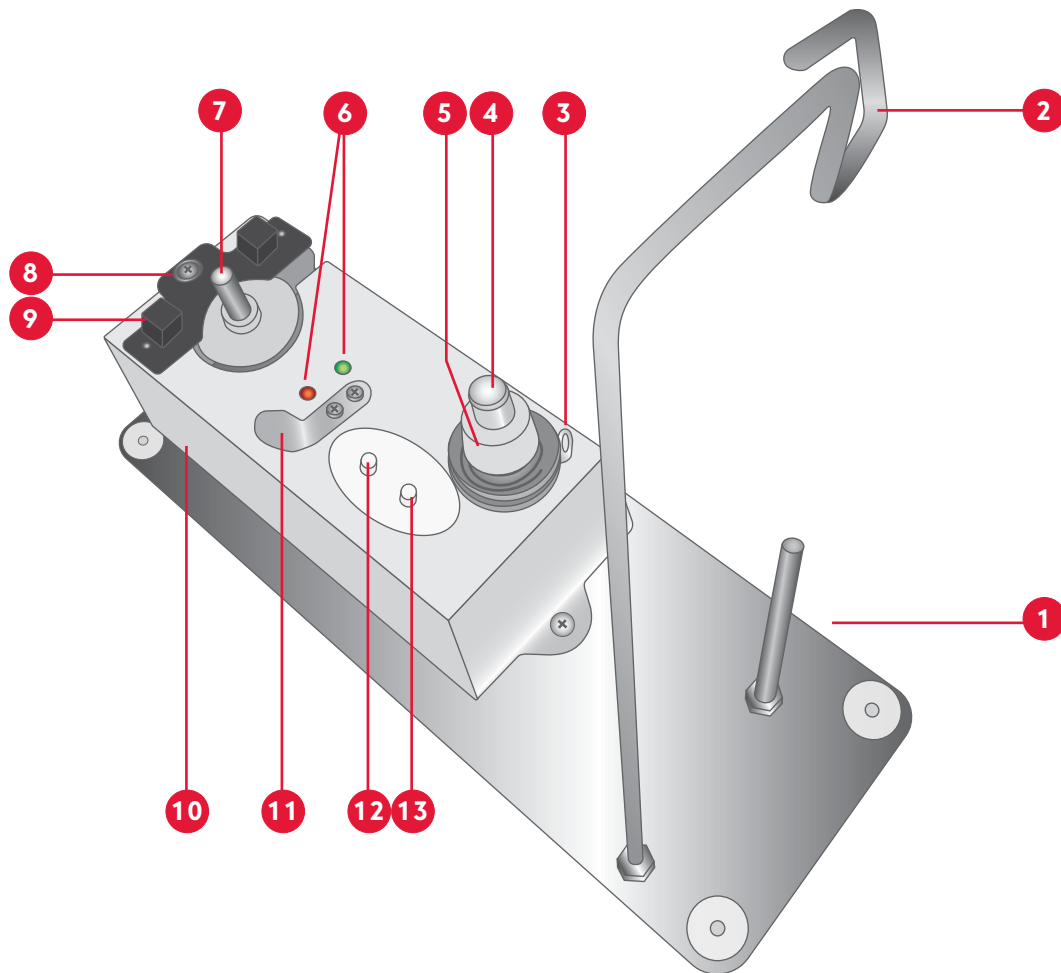
BOBBIN WINDER OVERVIEW

1. Bobbin thread/Spool pin
2. Thread guide
3. Thread tension guide
4. Adjusting bolt - adjusts the height of the tension unit
5. Thread tension knob - adjusts thread tension
6. Indicator light;
   green - working mode
   red - power on
7. Winding motor
8. Thread amount adjuster - loosen the screw and move to determine the amount of thread wounded to the spool
9. Detection sensor - detects when bobbin is full
10. Main motor - controls the system carrier
11. Thread cutter
12. Start button - start winding
13. Stop button - stop manually

ASSEMBLING THE BOBBIN WINDER

Inspect the package and device for any damages. If there are no damages, install the main engine to the bottom plate, with the two screws (1).

Attach the thread guide (2) and the spool pin (3) as illustrated.
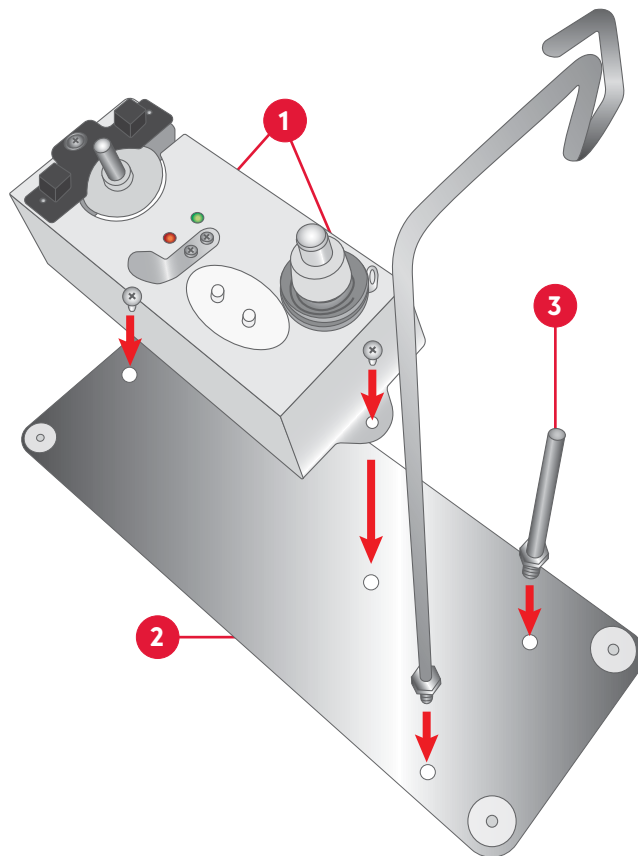
WINDING THE BOBBIN

- Place the bobbin thread spool on the spool pin (1).Guide the thread through the thread guide (2), and through the hole in the tension thread guide (3).

- Place the thread between the thread tension discs under the thread tension knob.(4).

- Place a bobbin on the winding motor (5) and wind a few turns of thread clockwise around it. Touch the "Start" button to start winding. The winding motor stops automatically when the bobbin is full.
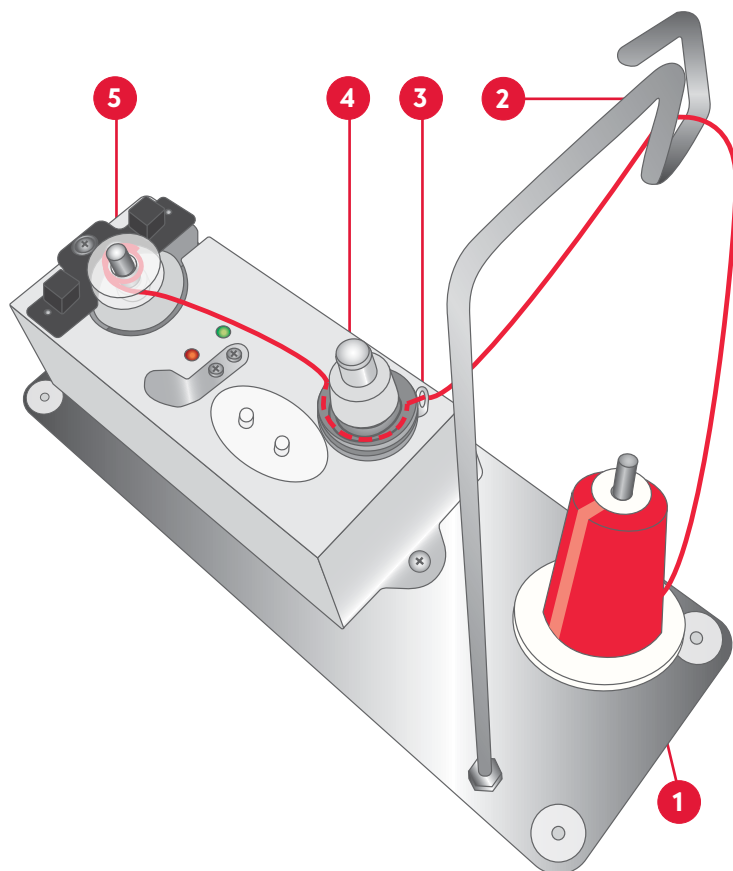
BOBBIN OVERVIEW

1. Bobbin
2. Tension spring
3. Opening
4. Bobbin case
5. Bobbin case release latch
6. Thread guide/Pig tail
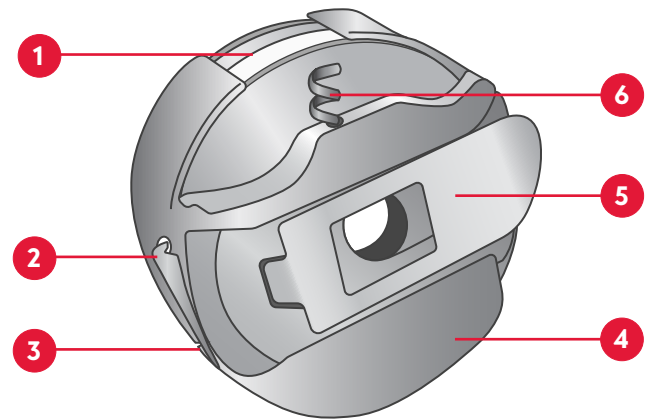
- An "L" size/style bobbin must be used for your embroidery machine.

- The bobbin case can be found in the tool box.

- Remove the foam piece in the rotary hook before use.

- The embroidery machine will not indicate remaining quantity of bobbin thread. Before starting your embroidery, make sure sufficient bobbin thread for the embroidery design.

- If the bobbin runs out of thread, the embroidery machine will display a thread break ("T-break") notification. See the Thread break section for more information.

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

- Clean the bobbin case when replacing the bobbin.

- Open the needle plate and clean the trimming set area weekly.

- Wind self-wound bobbins or buy pre-wound commercial bobbins in disposable cartridges.

- For a high speed, commercial embroidery machine, a smooth and consistent release of thread is required for proper function. Commercial pre-wound bobbins are economical and they run smoothly. It is better to run a polyester bobbin, than a cotton bobbin because it leaves less lint.

PLACING THE BOBBIN IN THE BOBBIN CASE

Inserting your bobbin correctly will help your embroidery machine run smoothly.

An issue with the bobbin thread affects all needle bars.

- Hold the bobbin with the thread in the clockwise direction (1).

- Insert the bobbin into the bobbin case (2).

- Pass the thread through the opening slit (3).

- Pull the bobbin thread under the tension arm and exit the notch at the other end (4).

- Turn the bobbin over, and pull on the thread. Make sure the bobbin rotates in a clockwise direction.

- Wrap the thread around the pigtail twice (5).
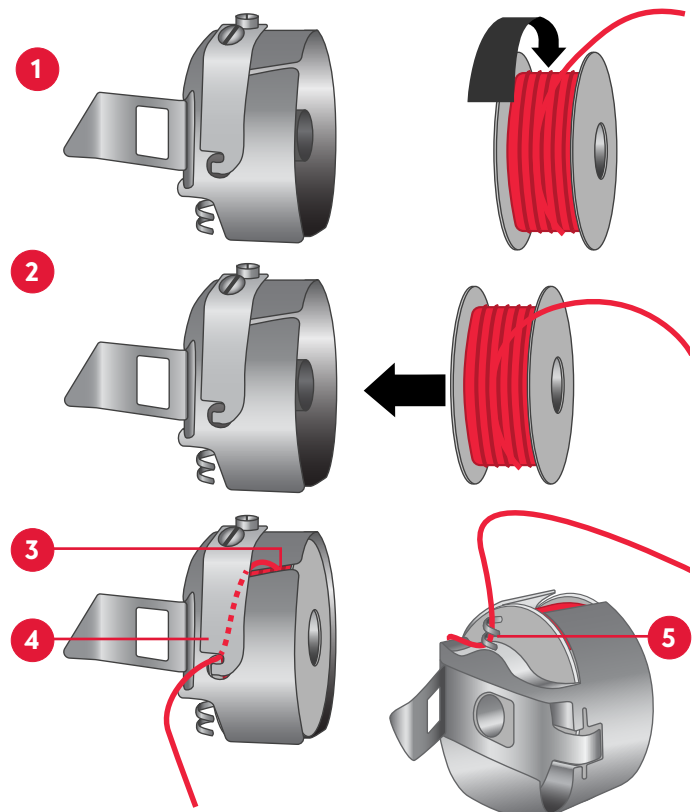
INSERTING THE BOBBIN CASE INTO THE ROTARY HOOK

Note: When inserting the bobbin case into the rotary hook, make sure the thread tail is no longer than 3 inches (7 cm). A longer tail can wrap around the shaft and create a buildup of thread. If the thread is not long enough, the needle will be unable to grab it.

- Hold the bobbin case by the bobbin case release latch with the pigtail facing up.
- Insert the bobbin case into the rotary hook by aligning bobbin case with the rotary hook groove (1).
- Push in the bobbin case slightly and make sure the bobbin case clicks into place.
- Close the bobbin housing unit.
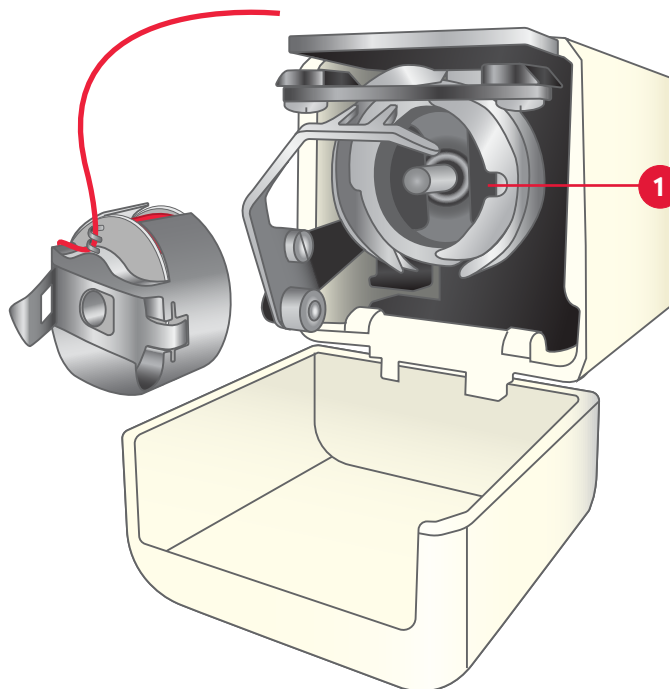
REMOVING THE BOBBIN

1. Open the bobbin housing unit.
2. Identify the thread hook. If thread hook is not forward, then pull it forward.

Note: Do not pull thread hook beyond its capacity. It only moves to a certain extent.

3. Grab the bobbin case by the bobbin case release latch.
4. Gently remove the bobbin case from the machine.
5. Remove the empty or nearly empty bobbin from the bobbin case and discard or rewind.
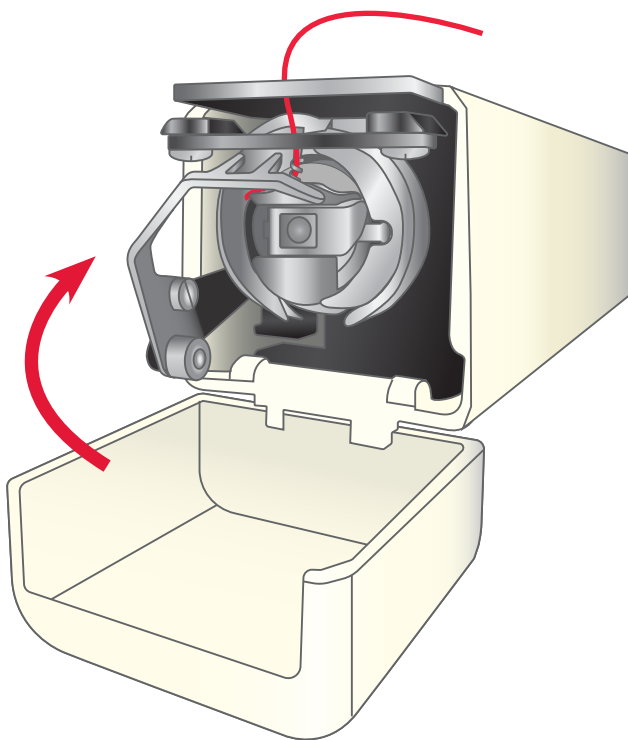
THREADING THE TOP THREADS

To complete top threading, please follow the threading instructions carefully. Incorrect threading may cause thread or needle breakage. The threading paths are numbered from 1-10, they can be threaded in any order, but must follow it's own threading path. The example below illustrates threading path #10.

Note: A pair of tweezers might be a good help when threading the machine.
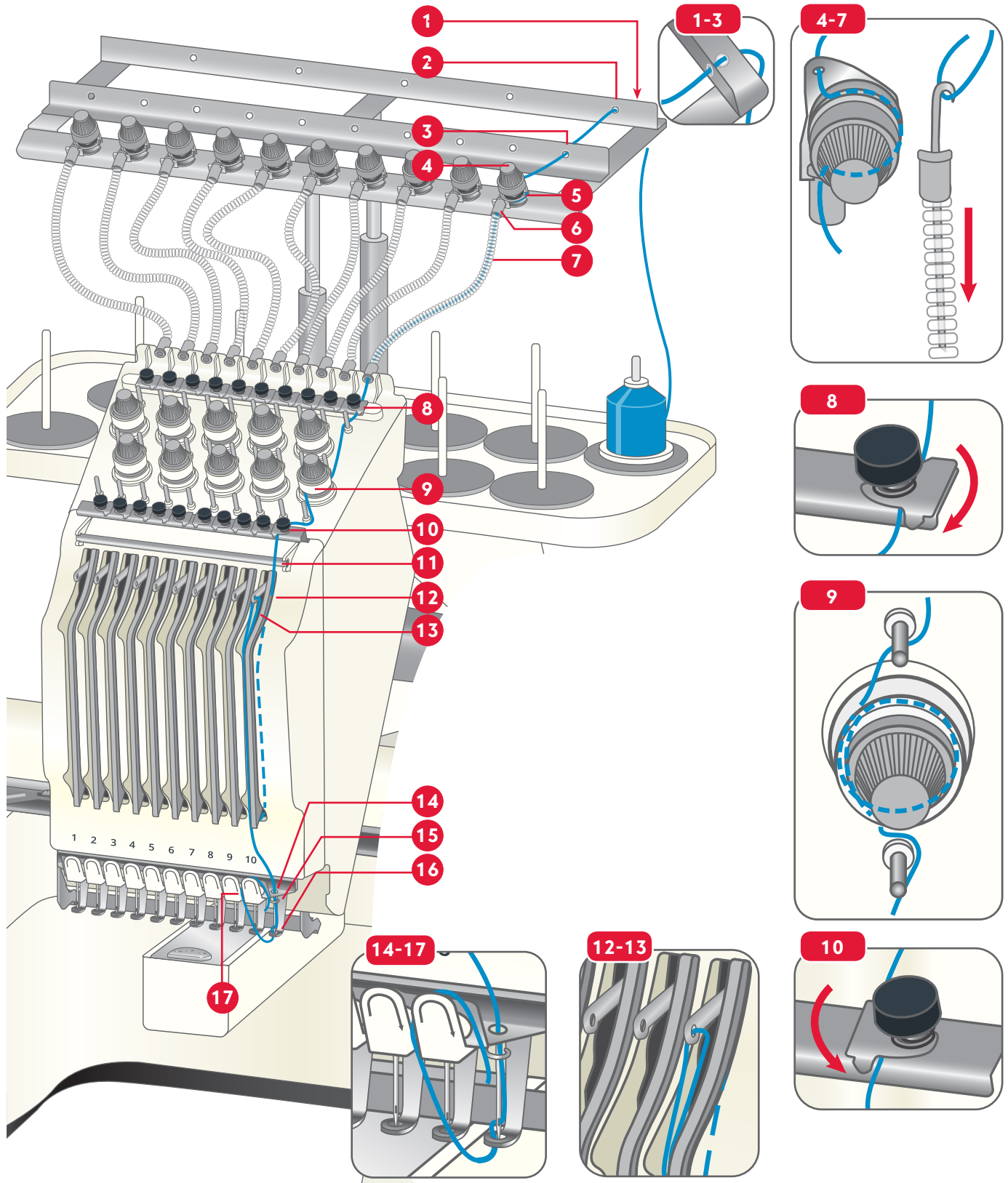
THREADING THE THREAD RACK

- Place a thread spool on the spool pin at the rear right. Pull out some thread.

- Pass the thread through the bottom eyelet of the rear metal rack (1).

- Proceed to pull the thread through the vertical eyelet (2).

- Pass the thread through the corresponding eyelet of the front metal rack (3).

- Feed the thread through the eyelet of the upper tension knob (4).

  Pass the thread (from right to left) in between the tension plates (5).

- Hold the upper end of the thread guide tube (6), and carfully remove it, by pulling it upwards and then out.

  Repeat with the other end of the tube.

- Take the threading tool, and insert it completely into the thread guide tube. Hook the thread around the threading tool (7).

- Carefully pull the threading tool (and thread) back through the tube (7).

  Unhook the thread.

  Snap the plastic tube ends back into place.

  Pull the thread out of the tube (enough thread to be able to continue threading down the entire thread path down to the presser foot).

THREADING THE TOP OF THE MACHINE

- Guide the thread from right to left under the upper thread tension clip (8).

On the machine cover, there are arrows guiding you through the correct threading path.

- Thread around the thread guide as indicated by the arrows.

- Turn the thread 1,5 turns around the lower thread tension knob (9).

- Thread around the thread guide as indicated by the arrows.

- Guide the thread from left to right under the lower thread tension clip (10).

  Note: For spool 1-5, thread from right to left, For spool 6-10, thread from left-right.

THREADING THE NEEDLE BAR FRAME

- Pass the thread over the upper thread course (11).

- Pass the thread down through the right path of the threading slot (12). Pull the thread around the bottom of the divider and bring the thread up again.

- Pass the thread through the eye of the take-up lever from right to left (13), and then down through the slot again.

THREADING THE NEEDLE

- Lead the thread through the eylet in the needle bar (14).

- Pass the thread behind the thread hook from right to left (15).

- Thread the needle from front to back and then through the hole in the presser foot (16).

- Pull the thread up and around the thread cutter (17), from the left to the right.

FAST THREADING OF THE TOP THREAD

You can quickly replace a thread spool by tying the old thread to the new thread. Follow the steps below to correctly replace a spool.

1. Clip the thread from the spool you would like to replace. Clip the thread right above the spool, making sure the thread is still in the thread path.

2. Remove the old spool and place the new thread spool on the spool pin.

3. Securely tie the new thread to the previous thread. Use a knot that will pull easily through the needle's eye. The best knots are the square knot and the weaver's knot.

4. Grab the thread under the presser foot, and pull the new thread all the way through the needle.

5. If the knot does not make it through the needle eye, cut off the knot and re-thread the needle.
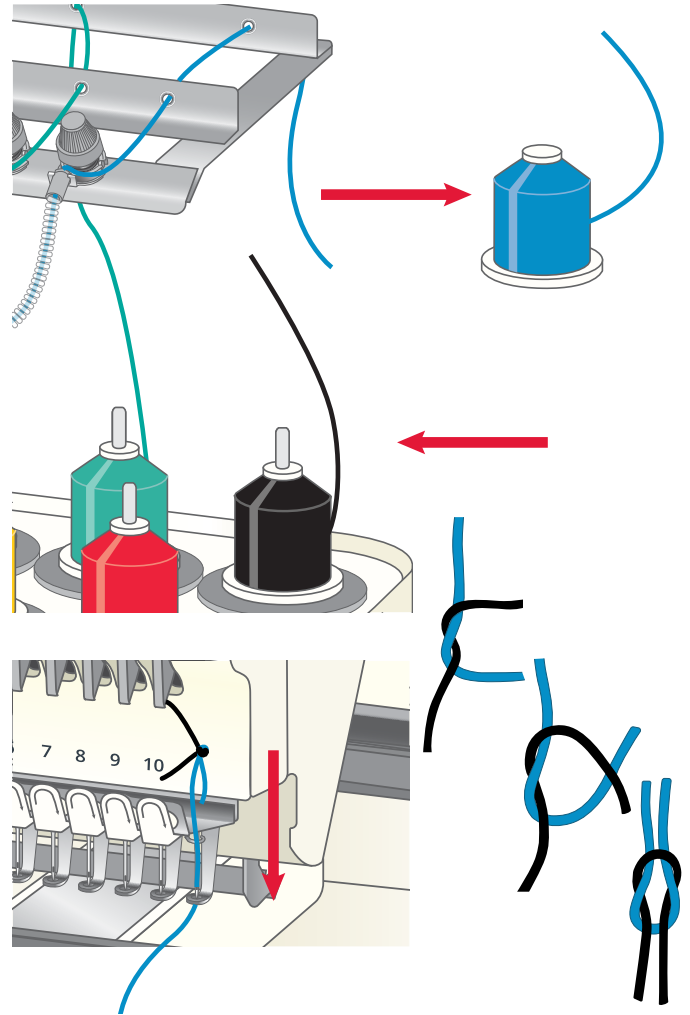
FLAT HOOP SUPPORT

Your embroidery machine comes with a flat hoop support, 4 hoops and a cap attachment (see overview on page 10).

Before embroidering with any of the hoops, the flat hoop support must be attached to the embroidery arm. Adjust the support to fit to the different hoop sizes.

ATTACHING THE FLAT HOOP SUPPORT

- Install the flat hoop support (1) by aligning the holes on the frame (2) with the dowels on the embroidery arm connecting plate (3).
- Secure the flat hoop support to the embroidery arm connecting plate with the two M4x8 screws provided (4).

REMOVING THE FLAT HOOP SUPPORT

Loosen and remove the two screws (4). Lift off the flat hoop support and put it aside.

Once removed, keep the flat hoop support away from any part of the embroidery machine.

ADJUSTING THE WIDTH OF THE FLAT HOOP SUPPORT

The width of the flat hoop support can be adjusted to fit each embroidery hoop. Move the left arm of the flat hoop support to the right/left to adjust the width.

Make sure that the flat hoop support does not collide with the 10 needle bar rack or any other part of the embroidery machine.

- Select the hoop you will use.
- Loosen the two screws (1) on the flat hoop support by turning them counterclockwise. Do not remove the screws.
- Adjust the width of the flat hoop support to fit the hoop by pushing it to the right or left (2).
- Retighten the screws to secure the width of the flat hoop support.

POSITIONING THE FLAT HOOP SUPPORT

To position the flat hoop support to fit the different-sized hoops, place the hoop you will use and move the left arm to the right until it reaches the side of the hoop. The hoop should fit into the flat hoop support tightly to ensure the hoop is secure as the machine stitches.
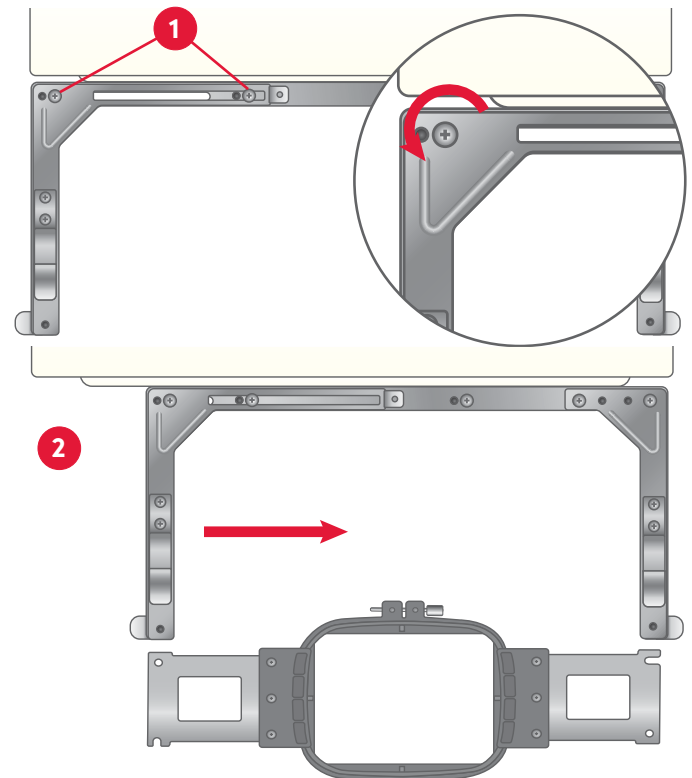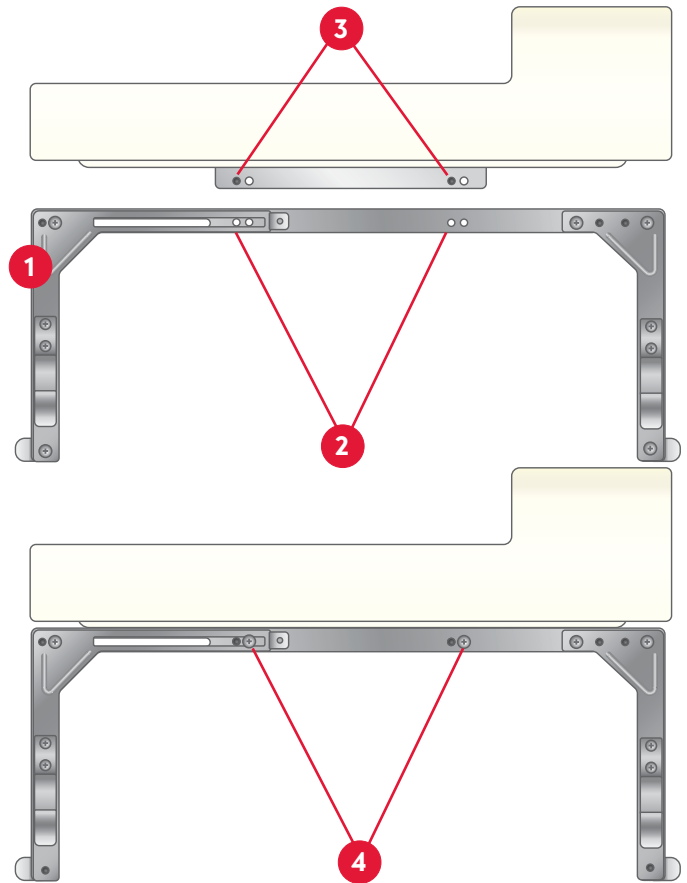
ATTACHING THE HOOP

If the hoop is not correctly attached, it may affect the presser foot, damage the embroidery machine or it can cause personal injury.

Before attaching the hoop, make sure there is sufficient thread inside of the bobbin.

- Align the left and right side by pushing both sides in simultaneously until the embroidery hoop locks in place.

- Insert the embroidery hoop into the flat hoop support (1).

- Push both sides of the hoop simultaneously into the flat hoop support until it clicks in place.

- Make sure that the notch of the embroidery hoop connects securely to the dowels on the flat hoop support (2).
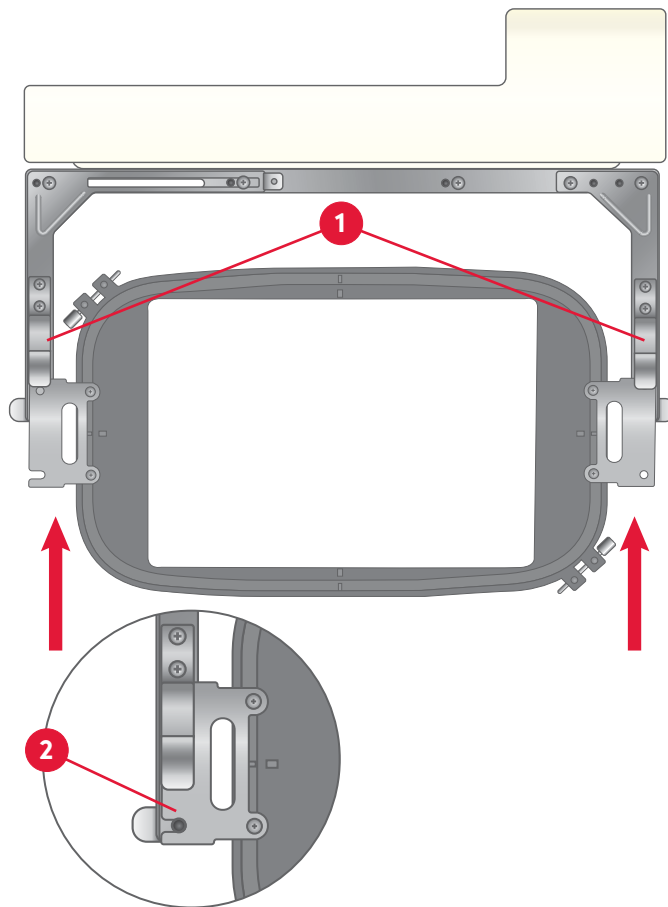
REMOVING THE HOOP

- Hold around the hoop and flat hoop support as illustrated.

- At the same time, push the levers of the flat hoop support down and the hoop upwards.

- Pull the hoop towards you and remove it from the flat hoop support.
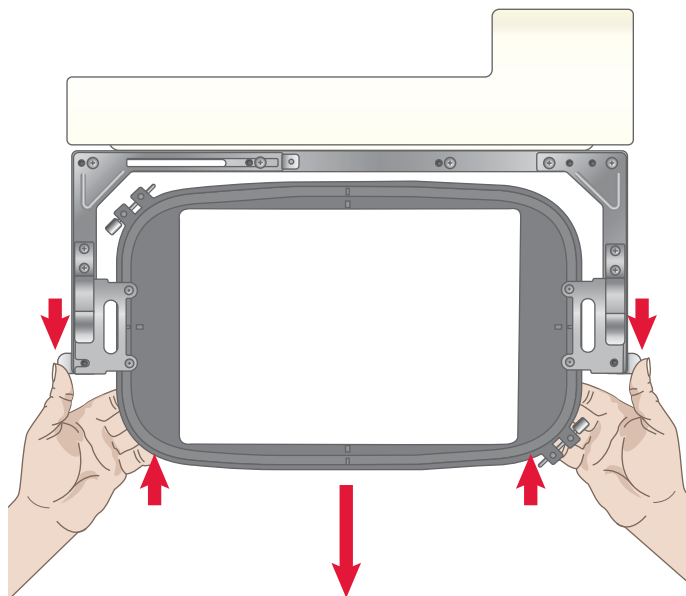
HOOPING THE FABRIC

For the best embroidery results, place a layer of stabilizer beneath the fabric. When hooping stabilizer and fabric make sure that they are smooth and securely hooped.

1. Loosen the screw(s) (1) on the outer hoop (2). Remove the inner hoop (3). Place the outer hoop on a firm flat surface. There are center markings on the outer and inner hoops. Those markings should line up once hooped.

2. Place stabilizer and fabric, with the right sides facing up, on top of the outer hoop. Place the inner hoop on top of the fabric.

3. Push the inner hoop firmly into the outer hoop.

4. Tighten the screw(s). The fabric should be taut in the hoop for the best results.
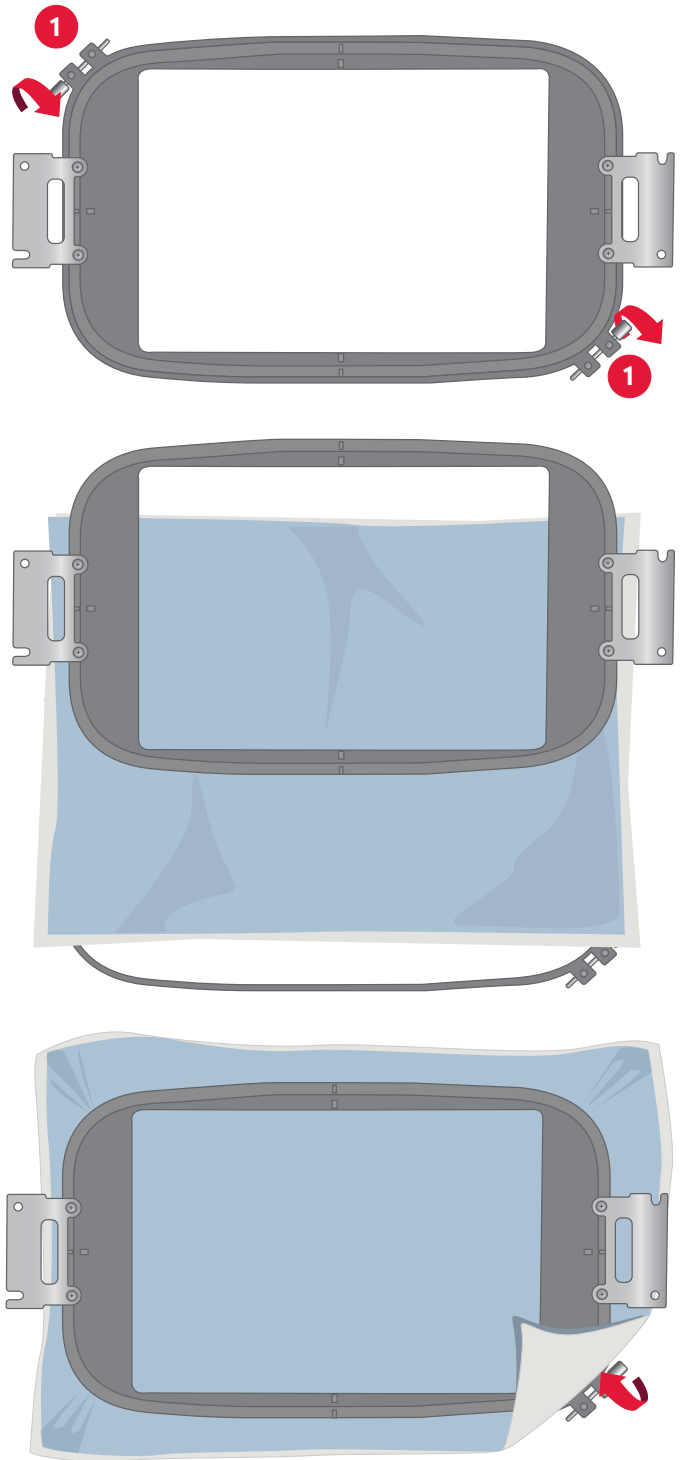
CAP HOOP

There is a special accessory allowing you to embroider on caps. There is a cap hoop (1), a cap driver (2) (placed on the machine) and one cap station (3) (placed on a table for easier hooping).

CAP DRIVER INSTALLATION

Tools & Parts:

- 1 cap driver
- 2 4x8 screws
- 1 screwdriver

1. Remove the flat hoop support (page 21).
2. Position the cap driver in-line with the railing (located on the bottom of the embroidery arm).
3. Place the cap driver around the free arm aligning the wheels of the hoop (1) with the rail under the free arm (2).
4. Push the cap driver towards the embroidery arm.
5. Align the two sets of holes on the embroidery arm railing with the holes on the cap driver.
6. Match the set of holes on the cap driver with the metal dowels on the embroidery arm (3).
7. Insert and tighten a screw in the other two holes (4).
9. Make sure the cap driver is tightly secured.

CAP STATION INSTALLATION

1. Select a location to clamp your cap station onto.
2. Twist the knob counterclockwise to separate the knob from the cap station device.
3. Make sure enough room is available to fit the width of your desired location.
4. Slide the cap station onto your desired location.
5. Twist the knob clockwise to tighten the grip of the cap station to the desired location.
6. Make sure the cap station is securely attached to the desired location.

For a more permanent solution, screw the cap station onto a table through the provided holes. To decrease wear and tear, it may be helpful to insert a piece of cardboard or cloth between the clamps and the table's edge.
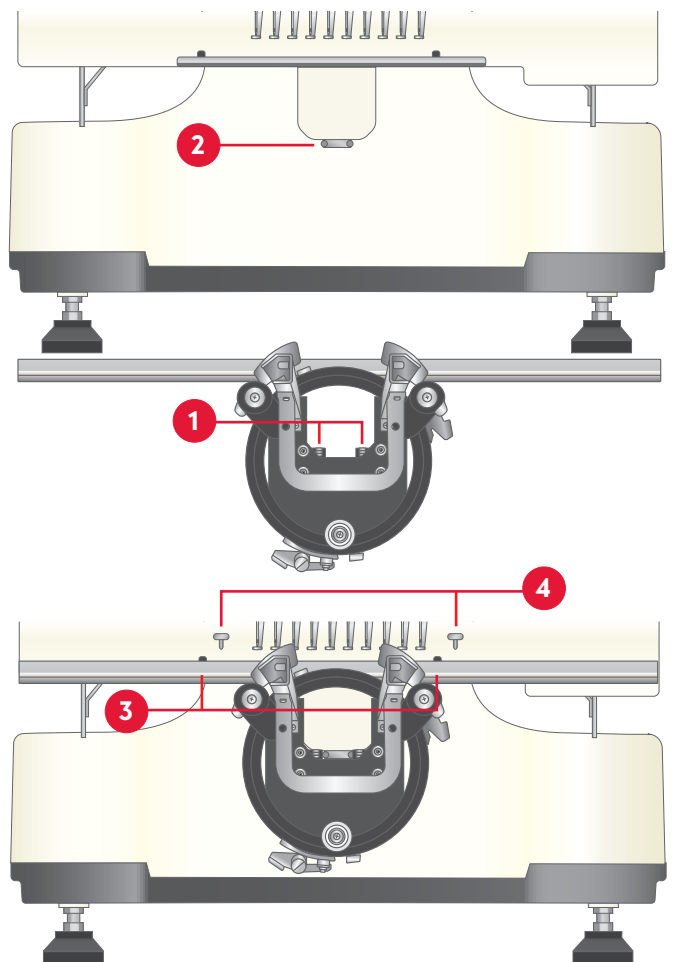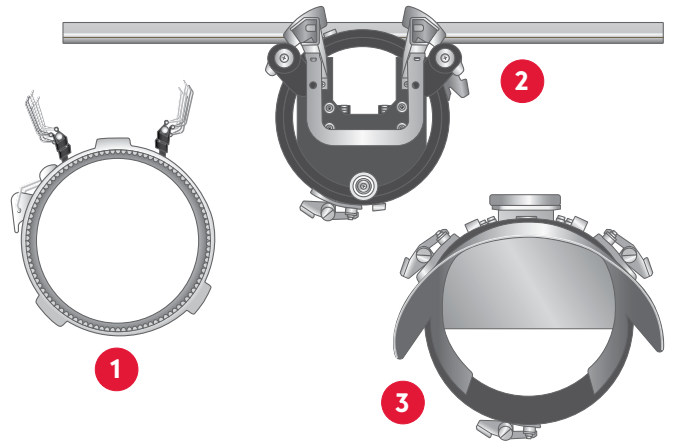
HOOPING THE CAP

1. Take the cap hoop and connect the open metal notch to the center tab on the cap station.
2. Slide and push the cap hoop towards the cap station.
3. Make sure all three spring locks are connected.
4. Unfasten the flexible metal band and position it to the left of the cap hoop.
5. Pull back the sweatband of the cap.
6. Place the backing below the metal tab.
7. Slide in the sweatband between the metal tab and the backing.
8. Make sure extra fabric is out of the way.
9. Position the flexible metal band back over the bill of the cap.
1. Connect the clasp to the cap ring latch and snap it into place.
11. To remove from the cap station, release the three latches positioned.

ATTACHING THE CAP HOOP TO THE CAP DRIVER

1. Rotate the cap hoop 90 degrees to either the left or right.
2. Push the hoop onto the embroidery arm until the cap hoop connects to the cap driver.
3. Rotate the cap hoop back into an upward position with the bill of the cap facing upwards.
4. Align the center metal tab on the cap driver with the metal opening of the cap hoop.
5. Grab the cap driver from the back.
6. Slide and push the cap hoop towards the cap driver.
7. Make sure all three spring locks are connected.

REMOVING THE CAP HOOP FROM THE CAP DRIVER

1. Release the three latches on the cap driver.
2. Rotate the cap hoop 90 degrees to either the left or right.
3. Slide the cap hoop away and off from the cap driver.

REMOVING THE CAP DRIVER FROM THE EMBROIDERY ARM

1. Untighten and remove each screw.
2. Disengage the cap driver from its connection to the metal dowels.
3. Slide the cap driver away from the embroidery machine.

TENSION

FACTORS THAT AFFECT THREAD TENSION

- Thread color dyes affect the texture of the thread, which can affect how smoothly it slides through the embroidery machine.
- Polyester threads would require nearly twice the amount of tension as rayon.
- If you change the weight of the thread, tension will require adjustment.
- Embroidery machine speed may affect tension – the slower the speed, the better the quality.
- Excess dust and lint along the thread path can affect thread tension.

If needed, adjust the thread tension as described in below sections.

CHECK THREAD TENSION

The tension of the bobbin and top threads affect the stitching that comes from every needle bar. Ideally, the tension (for satin stitching) will produce a one-third (1/3) bobbin thread running exactly down the center of the column, with one-third (1/3) top thread running down each side (1).

If a small amount of the bobbin thread is visible, or there are thread loops on the right side, the top tension is too loose (2).

If a large amount of the bobbin thread is visible, the top tension is too tight (3).

Under normal use, the user should temporarily stop the embroidery machine and check thread tension after the first 100 stitches of each color.

Because of different types or thicknesses of cloth or backing being used, embroidery results may be different from what is expected; make samples before mass production.

ADJUSTING THE THREAD TENSION

Each design may require different tension settings. You can adjust the tension of the machine even while it is running. Experiment by making small quarter (1/4) turns on the upper tension knobs. until you feel comfortable with your design.

- For metallic and polyester threads, turn the tension knob counterclockwise once.
- For light color rayon threads, turn the tension knob counterclockwise 1-2 times.
- For white rayon thread, turn the tension knob counterclockwise 1-2 times.
- For medium color rayon threads, turn the tension knob counterclockwise 1-2 times.
- For dark color rayon threads, turn the tension knob counterclockwise 2-3 times.
- For black rayon thread, turn the tension knob counterclockwise 3 times.
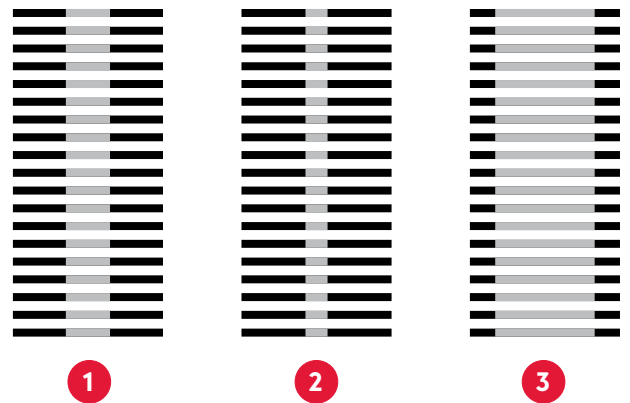
Adjust Upper Thread Tension

- Rotate the tension knob clockwise to tighten the tension (1).
- Rotate the tension knob counterclockwise to loosen the tension (2).

Adjust Bobbin Thread Tension

- Loosen/tighten the tension adjusting screw in small increments (3).
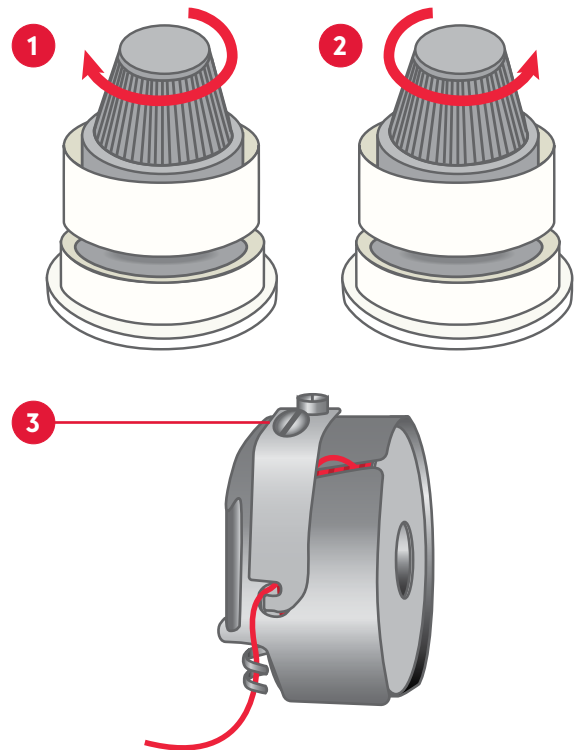
CHANGING THE NEEDLE

Discard old needles in a sharp-safe container.

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

- Turn off the embroidery machine.
- Remove the needle excess. If broken needle pieces are not on the garment, look in the bobbin area.
- Loosen the needle screw (1).
- Release the needle.
- Insert a new needle. Make sure the front groove (2) faces completely forward and the needle scarf (3) to the back. Push the needle upwards as far as it will go.
- Tighten the screw (4).
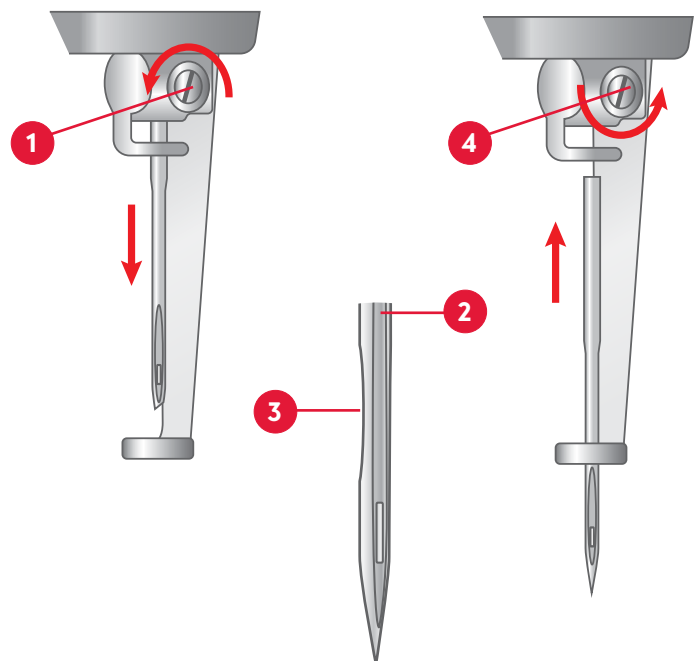
CONTROL PANEL FUNCTIONS

START/STOP

- Before starting to embroider your selected design, make sure that there is no object within the work area of the embroidery hoop. If the embroidery hoop collides with something, the embroidery design will misalign.

- The Start/Stop button is located at the bottom right-hand corner of the control panel (1).

- The Start/Stop button will illuminate red when not in embroidery mode. Once you set the machine in embroidery mode by touching "Enter Embroidery Status" the button turns green, and the machine is ready to embroider.

To Start

1. Press the Start/Stop button.
2. Allow the embroidery machine to complete the first color thread.

- The current thread will automatically trim.

- The needle bar case will move to the position of the second color thread and resume embroidery.

Note: Allow the embroidery machine to continue its process until the last color thread has completed.

- The embroidery machine will automatically stop. The Start/Stop button will illuminate red and a buzzer will sound.

To Stop

1. Press the Start/Stop button.
2. Make sure the button illuminates RED.

TRIMMING

The trimming function (2) is used for a manual trim of a desired thread.

100-DEGREE BUTTON

Rotate the degree knob (4) at the back of the embroidery machine to 100 degrees.

Press the 100-degree button (3) to calibrate and set the machine in embroidery mode.
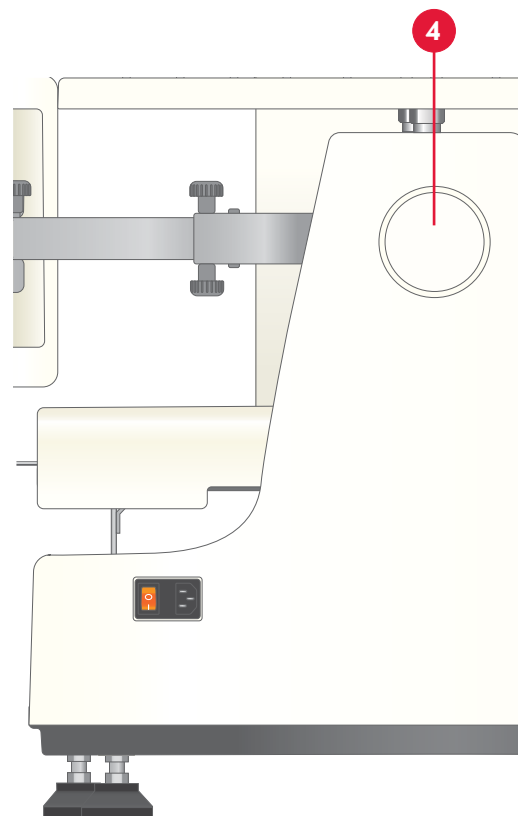
COLOR TOUCH SCREEN

THE TOUCH SCREEN

The control panel is a touch-screen comprised of two sections:

– The display at the top half of the screen.

– The keys on the bottom half of the screen.

1. *LED lamp switch* – LED lamp ON/OFF switch

2. *Design preview zone* – Displays the selected design and shows a preview of the embroidery frame position and embroidery progress.

3. *Button function zone* – General-purpose key, move frame, set embroidery machine, parameter, one-key frame movement, embroidery machine speed control, etc.

4. *Embroidery parameter display zone* - Displays embroidery machine parameters, such as design name, number of stitches and embroidery frame type

5. *Embroidery machine networking process* – Displays embroidery machine software version, date, time and embroidery machine's IP address

There are five different views that can be displayed on the touch-screen:

1. Home page

2. Logo selection page

3. Color sequence selection page

4. Design setting page

5. Comprehensive setting page

Page #1 – Home

Page #2 – Logo selection

Page #3 – Color sequence selection

Page #4 – Design setting
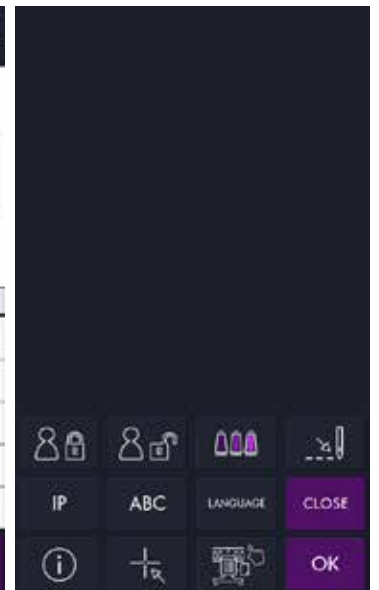
Page #5 – Comprehensive setting

HOME PAGE – OVERVIEW

1. Design name
2. Display design stitch numbers
3. Display current number of stitches
4. Display design direction and rotation angle
5. Display design scaling
6. Display array number
7. Display X and Y position
8. Display size of embroidery frame
9. Display coordinate parameter
10. Display X and Y position
11. Display current position of needle
12. Design selection and management
13. Color setting and color change mode switch over
14. Set design parameters
15. Display stitch floating mode
16. Embroidery parameter setting
17. Enter/exit ready status
18. Comprehensive setting
19. Display software version, date, time and IP address
20. Display networking status
21. LED lamp on/off switch
22. Design display
23. Display the size of current embroidery hoop
24. Reduce embroidery speed
25. Increase embroidery speed
26. Hoop offset
27. Return to starting point
28. Control frame movement in Y direction
29. Control frame movement in X direction
30. Switch over high/low speed of frame movement and raise/lower machine speed
31. Control frame movement in X direction
32. Trace design function - press to open additional tracing functions
33. Go to end point
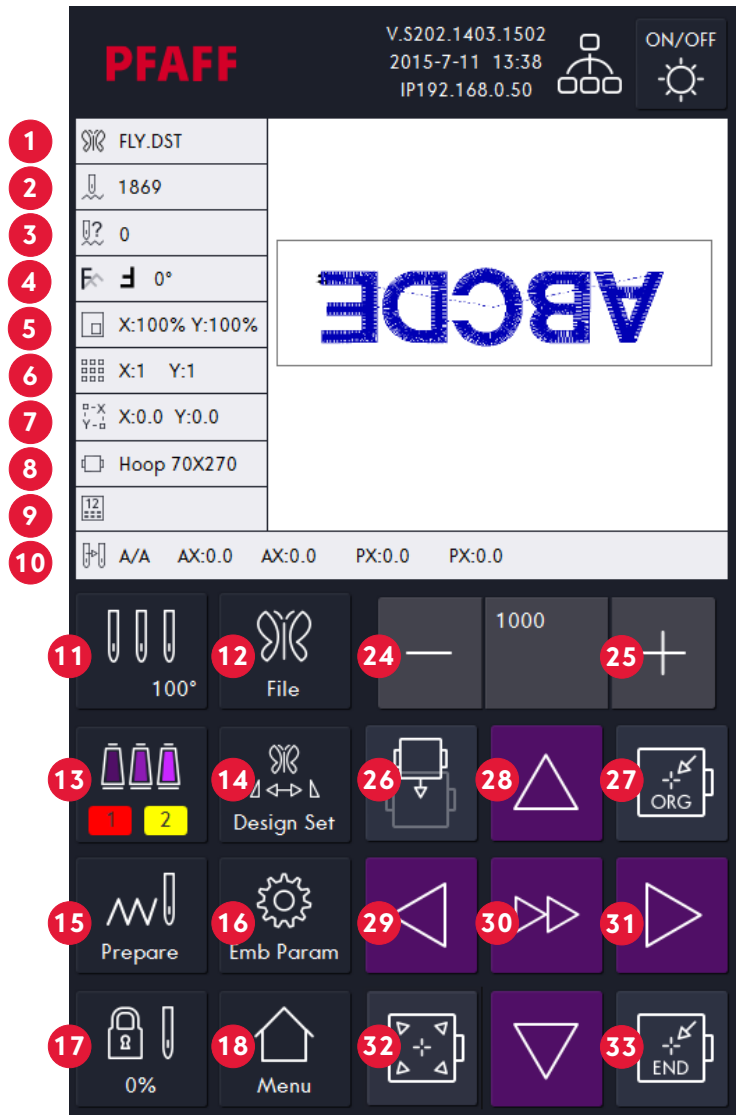
LOGO SELECTION PAGE – OVERVIEW

1. Switch to external storage
2. Switch to internal storage
3. Previous page
4. Next page
5. Delete a design
6. Save design in embroidery machine memory
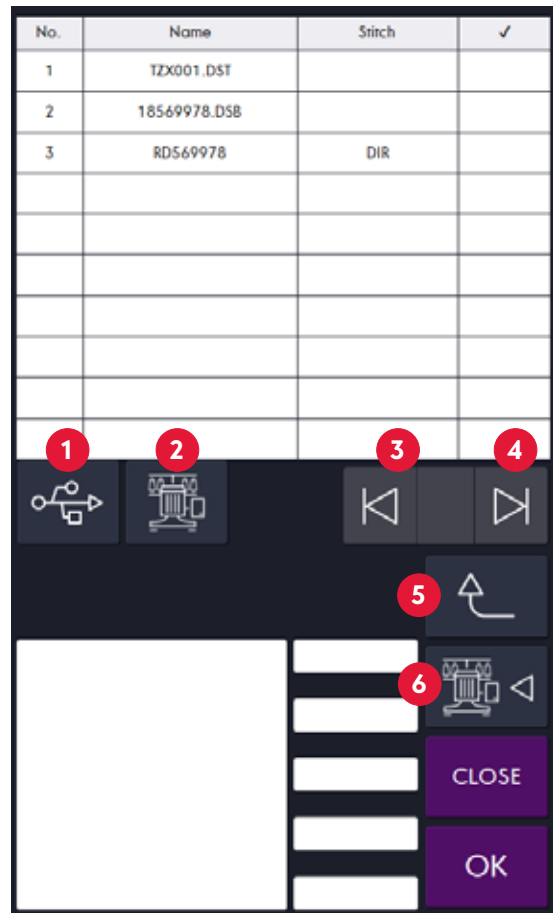
COLOR SEQUENCE PAGE – OVERVIEW

7. Set offset point
8. Low-speed embroidery
9. Switching needle bar
10. Color change mode
11. Previous page
12. Next page
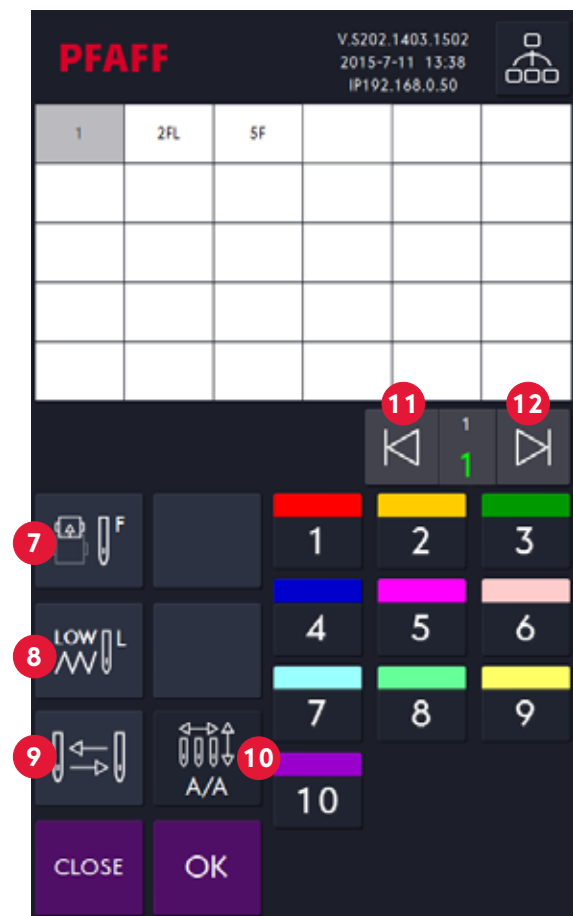
DESIGN SETTING PAGE – OVERVIEW

13. X-direction scaling
14. Design rotation angle
15. Number of X-direction array
16. X-direction array space
17. Satin stitch compensation
18. Y-direction scaling
19. Design rotation angle
20. Number of Y-direction array
21. Y-direction array space
22. Status of current embroidery frame
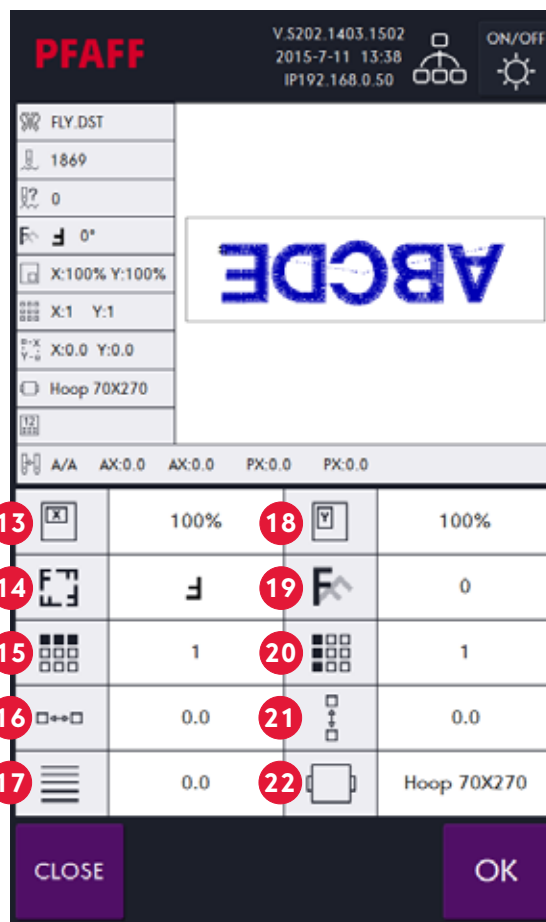
COMPREHENSIVE SETTING PAGE – OVERVIEW

23. User restriction setting
24. IP setting
25. On-board lettering library
26. Software information
27. Origin operation
28. Relieve user restriction
29. Display color setting
30. Power-on automatic resetting
31. Language setting
32. Embroidery machine testing
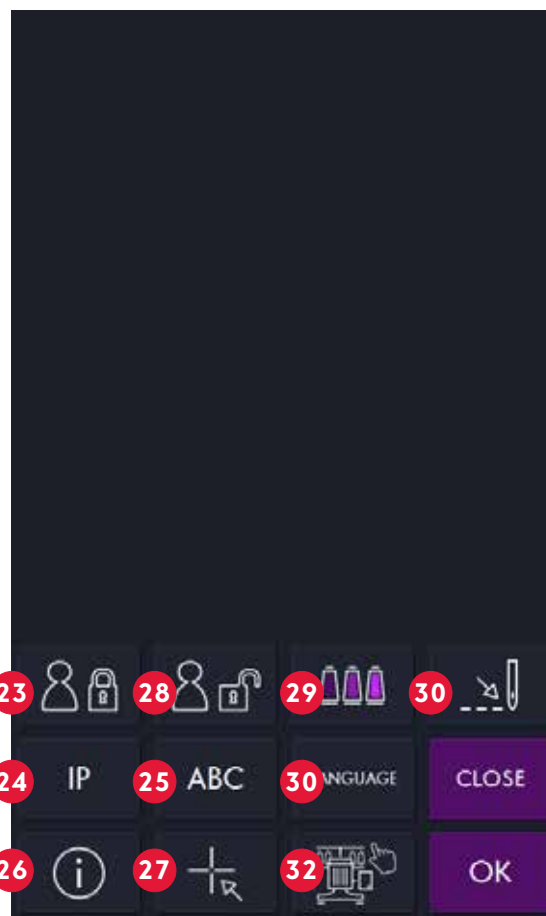
IMPORTING/UPLOADING A DESIGN

Make sure that the file intended to be uploaded into the embroidery machine is a .DST or a .VP3 file. If the file is not a .DST/.VP3 file, the embroidery machine will not recognize it.

If your embroidery file is in another file type, you will need to change the file type by using the provided software.

1. Insert the memory stick into the right side of the display (1).
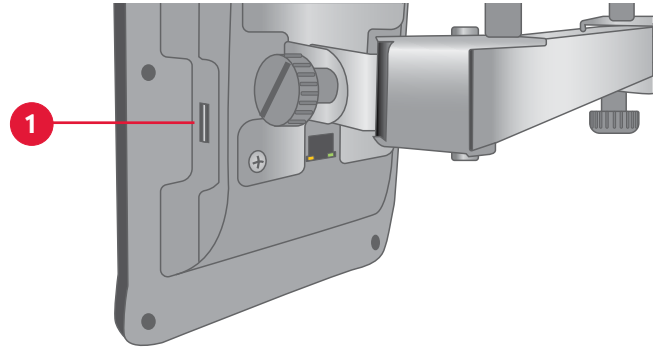
2. Make sure that the embroidery status is set to unlocked (1).
3. Press the file icon (2).

   - A new screen will be displayed.
4. Press the memory stick icon (3).

   -A list of available files located on the inserted memory stick will appear.

   -You can turn the pages by pressing the forward and backward arrows (4).
5. Locate your desired design and select it.

   -An image of the design will appear on the touch-screen, along with a star icon on the right-hand side of the panel.
6. Press the transfer icon (5).

   -A message reading "Loading" will appear on the screen.
7. Press the OK button.
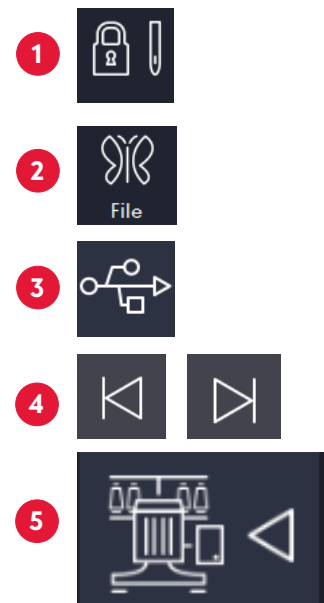
SELECTING A DESIGN
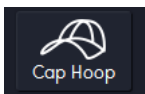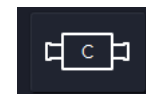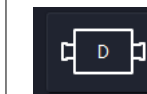
1. Make sure that the embroidery status is set to unlocked. For instructions on how to set the embroidery status to unlock, see the Embroidery status section.

2. Press the file icon (1).

   -A new screen will display.

3. Locate your desired design in the list of files, and then select it.

   -An image of the design will appear on the touch-screen, along with a star icon on the right-hand side of the panel.

4. Press the OK button.

   -A message indicating "Reading" will appear on the screen.

   -Once the embroidery machine completes reading, you will be taken back to the home screen.
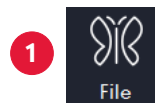
SELECTING AN EMBROIDERY HOOP

1. Press the design set icon (2).

   -A new screen will display.

2. Press the embroidery hoop selection icon.

3. Locate the image of the desired embroidery hoop. See table below for images of each embroidery hoop.

4. Press the OK button.

• A message indicating "Reading" will appear on the screen.

• Once the embroidery machine completes reading, it will position itself into the correct preset embroidery hoop position.
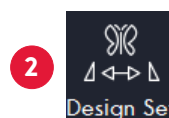
Icon	Cap Hoop	A	B	C	D	OTHER
Name	Cap embroidery hoop	Embroidery hoop A	Embroidery hoop B	Embroidery hoop C	Embroidery hoop D	Others
Embroidery Area	260 by 60 mm	70 by 50 mm	110 by 110 mm	190 by 140 mm	310 x 210 mm	

SELECTING THE COLOR SEQUENCE

1. Press the color sequence icon.

2. Locate and select the desired color (2).

   -Select the colors according to the color stop sequence identified in the embroidery software/run sheet.

   -The first box will display in color.

3. Press the needle selection number (3).

Note: Print the color analysis/color film sheet from the embroidery software, in order to know the color sequence of the design.

4. Repeat step two (2) until all colors and needle selections have been made.

5. Press the OK button.

• You will be taken back to the home screen.

COLOR CHANGE MODE

The machine has three (3) color change modes. The color change modes allow for a fully automatic (A/A), semi-automatic (A/M) or manual (M/M) process.

Color changes take place according to the color sequence selections made for the design.

• A/A is for fully automatic mode – this is the default selection (4). In automatic mode, there will be no stops between color changes.

• A/M is for semi-automatic mode (5). Here, the embroidery machine will stop upon completion of each color stop. Press the Start/Stop button to resume.

• M/M is for manual mode (6). Here, the embroidery machine will stop upon completion of each color stop. This option is to be used along with needle selection.

HOW TO SWITCH TO COLOR CHANGE MODE

1. Press the color sequence icon (7).

2. Locate the color change mode icon.

3. Press the color change mode icon once to change the mode from the default fully automatic mode to semi-automatic, or press the color change mode icon twice to change to the manual mode (8) .

4. Press the OK button. You will be taken back to the home screen.
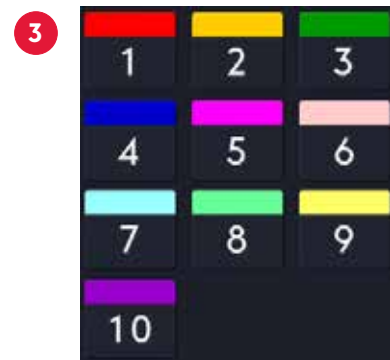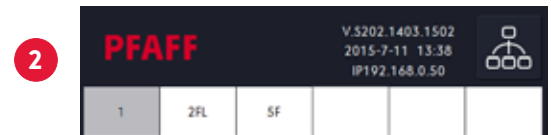
NEEDLE SWITCH DISPLAY ICON

With this icon, users can move the machine head to a specific needle number manually.

Tip: Before starting a new design, select needle #1 using the needle switch display icon (9) to help visualize the design tracing.
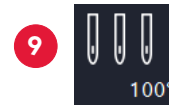
EMBROIDERY DESIGN TRACE

- When the design exceeds the range of the embroidery hoop, the preview line surrounding the design will appear in red.
- When the design is within the embroidery hoop range, the preview line will be in black.
- Embroidery design tracing should take place before beginning a new design to make sure the selected design and the frame embroidery hoop are in coordination.

HOW TO TRACE YOUR DESIGN

1. Press the trace design icon (10).

   A menu with different tracing options opens. Press the corner check icon (11). The embroidery hoop automatically moves within the maximum range of design, and if the position of the needle is not correct, the embroidery machine will position itself accordingly.

2. A message stating, "Enter embroidery status?" will display.

3. Press OK.

USING FLOAT MODE

Float is used to describe fast-forwarding or rewinding. This feature can only be accessed when the embroidery machine is on a locked embroidery status mode. To check the status of the embroidery machine, see the Embroidery status section.

F.L represents floating on low speed.

F.H represents floating on high speed.

ADD represents manual mode.

HOW TO FLOAT THROUGH A DESIGN

1. Press the stitch floating mode icon.

   Pressing the stitch floating mode icon once will display the "F.L" icon (1).

   Pressing the stitch floating mode icon twice will display the "F.H" icon (2).

   Pressing the stitch floating mode icon three times will display the "ADD" icon (3).

2. To rewind or fast-forward a design, either in F.L or F.H mode, press and hold the plus (+) or minus (-) icon until you reached your desired placement.

   To fast-forward a design in manual mode, press the + to enter the exact location by stitch amount (4).

   To rewind a design in manual mode, press the - to subtract by stitch count to reach your exact location (5).

   Press the color spool icon (6) to travel from one color sequence to another.

3. Once you have reached the desired position, press the stitch floating mode icon until you exit from the options.

4. Press the Start/Stop button to resume the embroidery.
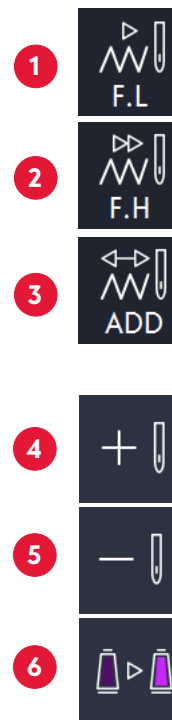
OFFSETTING THE HOOP ON ONE NEEDLE

This function is used to offset the frame on a specific needle during appliqué embroidery.

1. Press the color sequence icon (7).

   The color sequence page will display (8).

2. Select the needle or color you wish to add the frame out sequence to.

3. Select the needle you desire.

4. Select the hoop-out icon (9).

   This will add the letter "F" to the selected needle number for identification purposes.

   Repeat steps three (3) and four (4) until all your needle selections have been made.

5. Press the OK button.

   You will be taken back to the home screen.
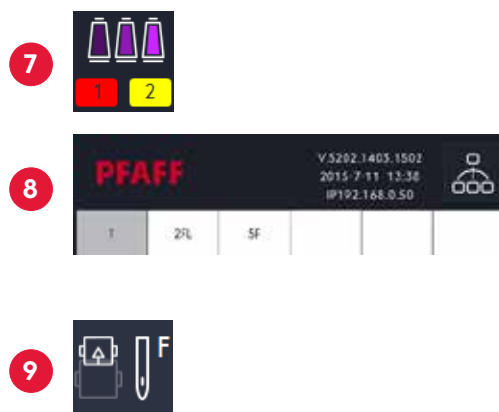
SETTING LOW SPEED ON A SPECIFIC NEEDLE

This function is used to select a low speed option on a specific needle or needles that require a lower speed due to thread type or intricacy of design area.

1. Press the color sequence icon (10).

   The color sequence page will display.

2. Select the needle or color to be reduced in speed.

3. Select the needle you desire.

4. Select the low speed icon (11).

   This will add the letter "L" to the selected needle number for identification purposes.

   Repeat steps three (3) and four (4) until all your needle selections have been made.

5. Press the OK button.

   You will be taken back to the home screen.
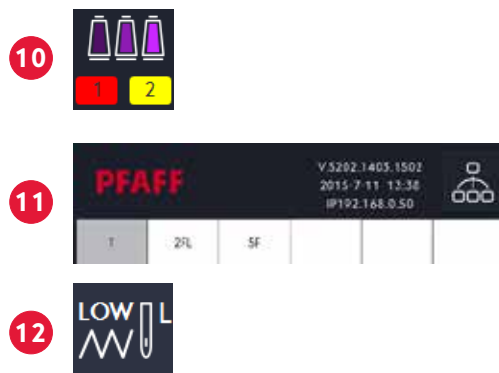
EMBROIDERY STATUS

This function is used to determine if the embroidery machine is in setup mode (unlocked) or in embroidery mode (locked).

To begin a new design,

1. Locate the embroidery status icon (1).
2. Identify if it is locked or unlocked.
3. If it is unlocked, continue with setting up the new design, or if it is locked, press the embroidery status icon.

   The following message will prompt, "Remove embroidery status?"

4. Press OK to confirm.
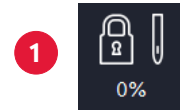
TRACING THE EMBROIDERY AREA

This function is used to determine if the design to be embroidered has been properly positioned.

1. Press the trace design icon (2).

   The following message will prompt, "Enter embroidery status?"

2. Press OK to confirm.

   A menu with different tracing options opens. Press the corner check icon (3). The embroidery machine will now begin to trace the set design.

   Follow the tracing needle to make sure that it stays within the embroidery hoop range.

DELETING A DESIGN

This function is used to delete a design from the memory of the embroidery machine.

1. Press the file icon (4). A new screen will display.
2. Press the embroidery machine memory icon (5).
3. Press the desired design to delete in the upper portion of the screen.

   A star will appear to the right of the design, and the design will appear on the lower part of the screen.

4. Press the delete icon (6). A message stating "Delete Design?" will show.
5. Press OK.
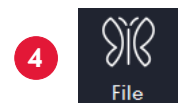
ADDING A FONT

This function is used to add a desired font to a design. Make sure that the embroidery status is unlocked. For instructions on how to set the embroidery status to unlock, see the Embroidery status section.

1. Press the menu icon (1).

2. Press the ABC icon (2).
3. Type the letters or words desired for the design.
4. Press OK.

5. Select a font.
6. Press OK. The newly added letters or words will display on the screen. At this time, you may edit the design further.
7. Press OK.
8. Press the import to screen icon (3).
9. Press the escape button three times. You will be back at the home page.

10. Click the file icon (4). The font design will be displayed on the design list.

11. Select the design.
12. Add colors (5).

13. Press the trace design icon (6). The following message will prompt, "Enter embroidery status?"
14. Press OK. The embroidery machine will position itself at needle #1 and begin the tracing of the design.
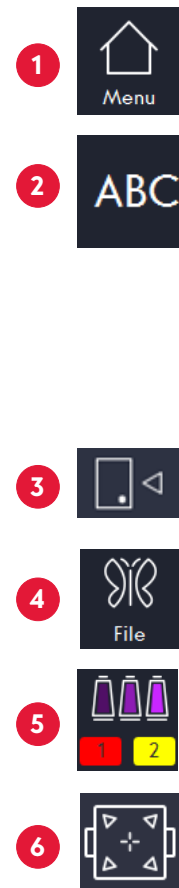
HOW TO ABORT A JOB

This function is used to abort an embroidery job in process. This process terminates the entire job.

1. Press the origin (1) icon. The following message will prompt, "Terminate embroidery and return to the origin?"

2. Click OK. The frame will move to a center position and the design will reset.

HOW TO ADJUST SPEED

This function is used to adjust the speed of the stitches incrementally. The number displayed in red is the current speed of the embroidery machine.

1. Press the increments icon (2).

2. Press the plus (+) or minus (-) button (3).

• If the increments button is displaying one (1) arrow, then the speed can be reduced or increased by 10 stitches per minute.

• If the increments button is displaying two (2) arrows, then the speed can be reduced or increased by 50 stitches per minute.

HOW TO BRING THE HOOP OUT

This function is used to bring the hoop from underneath the needles, so the embroidery is accessible to the user. This function is mostly used when doing appliques.

1. Press the hoop offset icon (4).

   The embroidery hoop will move from underneath the needles.

2. Press the hoop offset icon (5).

   The embroidery hoop will return the embroidery hoop back into position.

EMBROIDERY PROCESS

COMPLETING A FLAT DESIGN (START TO FINISH)

PREPARE

1. Select the desired embroidery hoop. See the Embroidery hoop specifications section.
2. Place the fabric with backing onto the embroidery hoop. See the Framing fabric section.
3. Install the flat hoop support. See the Flat hoop support installation section.
4. Insert the USB into the USB port on the right side of the panel. See the Importing/uploading a design section.
5. Make sure the embroidery status is set to unlocked. See the Embroidery status section.

EMBROIDER

6. Click on the file icon (1).

7. Select your design.
8. Press the machine icon alongside the blue arrow to import the design into the embroidery machine's memory (2).

9. Now select the machine icon on the top row (3).

10. The last imported design will be the last one in the list. Select the desired design.
11. Press OK.

12. Click on the design set button (4).

13. Select the embroidery hoop selection icon on the bottom right (5).

14. Select the preset embroidery hoop size.
15. Press OK.
16. Press Close.

17. Press the color sequence setting icon (6).

18. Choose the colors of your design.
19. Press OK.
20. Trace your design to make sure that it fits within the embroidery hoop and to check its placement (7). See the Embroidery design trace section.

21. Press Start (8) to begin embroidering your design.

COMPLETING A CAP DESIGN
(START TO FINISH)

PREPARE

1. Install the cap driver. See the Cap driver installation section.

2. Set the cap and the backing on the cap embroidery hoop, on the cap station. See the Cap embroidery hoop section.

3. Grab the extra fabric near the back of the cap and secure it with the supplied binder clips, making sure the binder clips are facing inward. See the Framing fabric section.

4. Insert the cap embroidery hoop onto the cap driver. See the Cap installation section.

5. Insert the USB into the USB port on the right side of the panel. See the Importing/uploading a design section.

6. Make sure the embroidery status setting is set to unlocked. See the Embroidery status section.

EMBROIDER

7. Click on the file icon (1).

8. Select your design.

9. Press the machine icon alongside the blue arrow to import the design into the machine's memory (2).

10. Now select the machine icon on the top row (3).

11. The last imported design will be the last one in the list. Select the desired design.

12. Press OK.

13. Click on the design set button (4).

14. Select the embroidery hoop selection icon on the bottom right (5).

15. Select the preset cap embroidery hoop size.

16. Press OK.

17. Press Close (to go back to the main panel).

18. Press the color sequence setting icon (6).

19. Choose the colors of your design.

20. Press OK.

21. Trace your design to make sure that it fits within the hoop and to check its placement (7). See the Embroidery design trace section.

22. Press Start (8) to begin embroidering your design.

MAINTENANCE AND CARE

This is the most important maintenance that needs to be completed.

Repeat the following process every time before using your embroidery machine to make sure the embroidery machine runs smoothly.

Wipe down the outer surface with a soft cloth and clean the bobbin with the toolkit brush.

Use sewing machine oil ONLY for lubrication points (included in the toolbox).

White lithium grease can be found at any hardware store. It does not come in your toolbox.

ROTARY HOOK

Apply lubrication oil to the rotary hook every third to fourth hours when in constant use, but first turn off the embroidery machine and unplug it from the electrical outlet.

- Remove the bobbin.
- Add two to three drops of embroidery machine oil to the rotary hook (1).
- Replace the bobbin.
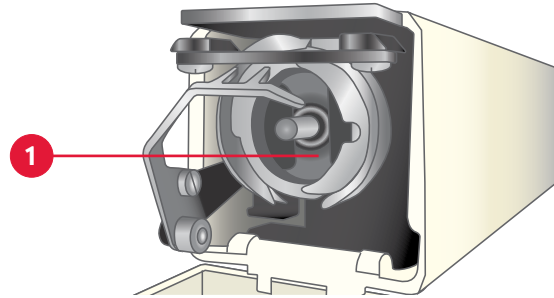
MACHINE HEAD

Use white lithium grease every five months

- on the metal wheels (2)
- on the bottom metal bar (3) (both are located behind the machines head)

Repeat the process on each side of the machine's head, using the manual needle switch display icon on your panel to needle #1, then to needle #10.

- Needle switch display icon
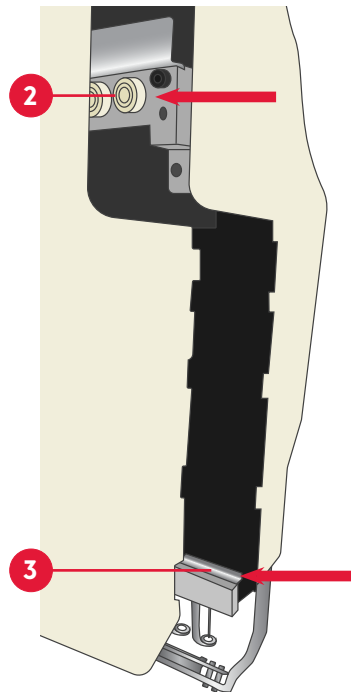
LEVER ARMS

Apply a few drops of lubrication oil to the lever arms (4) every week of continuous use. Do not drop on all ten arms at the same occasion. The oil will spread.
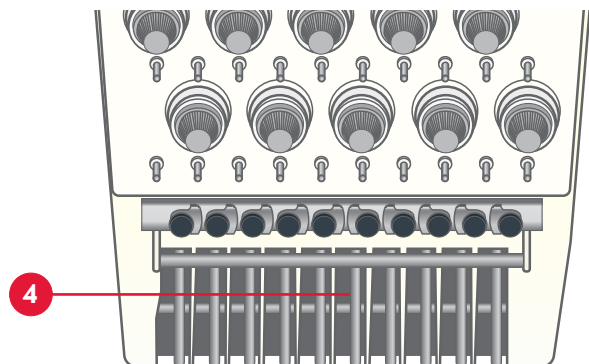
HEAD RAIL

Apply 2 or 3 drops of sewing machine oil to the metal rail (1) every week. Repeat the process on each side of the machine's head manually, using the manual needle switch display icon (2) on your panel to needle #1, then to needle #10.

Add grease every 5 months on the black metal bar (3). Repeat the process on each side of the machine's head manually, using the manual needle switch display icon (2) on your panel to needle #1, then to needle #10.
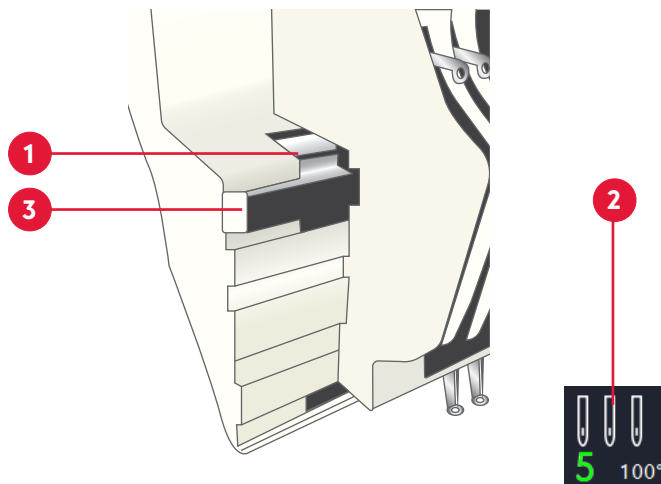
BOBBIN CASE MAINTENANCE

Clean the accumulated lint from underneath the tension plate with the corner of a business card or remove it with the bobbin thread itself – like dental floss.

Note: Resist the temptation to blow the lint off the case – this deposits damaging saliva onto your bobbin case. You may use an air gun to blow/remove the lint from the bobbin case.

TROUBLESHOOTING

THREAD BREAK

If thread breaks occur on just some of the needles, check for defective needles or needles not inserted properly.

If thread breaks are occurring frequently on all the sewing head's needles, then hook timing needs to be corrected.

Check the thread path to make sure it is following the correct path from the thread cone to the needle. Incorrect thread tensions will give you thread breaks.

Tight tension could lead to missed stitches, thread breaks, pulling, puckering and thread stress.

Loose tension causes the thread to pile up and loop.

Inspect the needle position and determine if an actual thread break has occurred.

IF NO THREAD BREAK IS APPARENT:

- Check all the thread paths.
- Perform a manual trim.
- Check the bobbin supply.
- 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.

IF A THREAD HAS BROKEN:

- Follow the correct thread path.
- Thread the needle.

REASONS

Defective thread

- Pull thread until the defective part has passed. If that does not work, try replacing the thread with a new cone.

GARMENT OR FABRIC

If the fabric is too thick, needles tend to bend slightly as they pass through, causing the thread to scrape against the needle plate, resulting in the thread shredding. To fix this problem, try a larger needle.

Hidden obstructions in the garment: bulky seams, inside pockets, hidden buttons.

Make sure the embroidery hoop is hooped properly. Loosely framed fabric will bounce up and down during sewing. See the Hoop Fabric section.

Excessive backing will apply greater friction to the thread and needle and cause thread or needle breaks.

EMBROIDERY DESIGN

Too high density of thread in the design can cause needle deflection, which leads 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 five (5) to ten (10) percent.

Extremely short stitch lengths may cause the thread to pile up in one area. Known as nesting, this issue causes thread to shred and break.

PREVENTION

To prevent thread breaks, store threads properly in a dark, cool place.

Old threads not stored properly will cause thread breaks.

Prolonged exposure to air, light, age and heat will make threads become brittle.

Do NOT use tape to tie off thread ends, since tape leaves a stick residue that causes friction and breaks.

Check for burrs in the thread guides, needle eye, thread plate and hook.

NEEDLE BREAK

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 another sharp-safe container.

After three consecutive thread breaks on a needle, the needle should be changed

Check the following common reasons to see why your needle(s) may be breaking.

- Needle is worn out or old
- Designs with too many stitches
- Hitting the embroidery hoop
- Fabric moving while needle is penetrating

TIMING OVERVIEW

Timing refers to the synchronization of the rotary hook and the needle. Proper timing is essential for embroidery quality and to prevent issues. If the space between the needle and the hook point (1) is out of range, the thread will not catch, causing thread breaks. If it is too close, it will cause broken needles.

- The machines timing degree is 195 degrees. The space between the needle and the hook should be 0.1 to 0.3 mm.

0.5-1.5mm

0.1-0.3mm
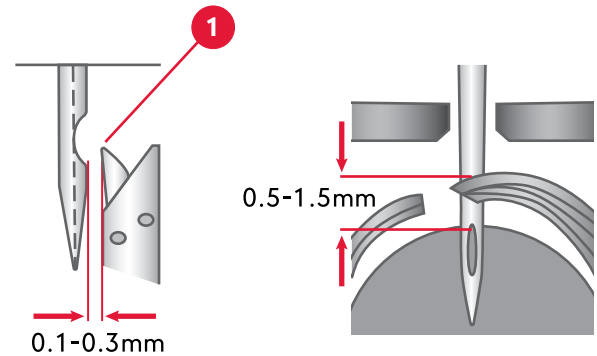
BOBBIN TENSION

If you suspect that the bobbin is not rotating smoothly in the embroidery machine, try the following.

1. Place the bobbin case with the bobbin face down, flat on a flat surface.

2. Pull a few inches of the thread out.

   - If the bobbin is not spinning freely, the odds are that it is not spinning freely in the embroidery machine either.

3. Retest the case with another bobbin.

ERROR MESSAGES

THREAD BREAK ("T-BREAK")

If a thread break occurs, the embroidery machine will stop automatically. If you need instructions on how to thread the needle, see the Threading a needle section.

1. Identify the thread break by locating the "T-break" icon on the panel.

2. Click on the "T-break" icon to display the stitch float mode icon.

3. Back up your design to the desired stitch.

4. Press the float mode key three (3) times until the stitch icon appears.

5. Thread the needle.

6. Press the "Start button".

NEEDLE BREAK

- Replace damaged or bent needles.

- Make sure to thread the needle from the front to the back and down the presser foot. If you need instructions on how to thread the needle, see the Threading a needle section.

- Needles break for different reasons.

The most common reasons are:

- A worn out or old needle.

- Designs with too many stitches and/or are high density for the design area.

- Something is blocking the stitch path.

- The needle is hitting the embroidery unit.

- The fabric is moving while the needle is penetrating.

1. Remove the needle break excess.

   - A tweezer might be a useful tool to remove the remaining pieces.

2. Take a screwdriver and loosen up the screw specific to the needle.

3. Remove the released needle.

4. Insert a new needle. Make sure the big groove and the needle hole are facing completely forward.

5. Tighten the screw.

6. Thread the missing path. Make sure to thread the needle from the front to the back and down the presser foot.

MAIN AXIS NOT AT 100 DEGREES

When your main access is not at 100 degrees, an error message will be displayed on your screen.

1. Click OK.
2. Press the 100-degree button (1).

IF YOU ARE STILL RECEIVING THE ERROR MESSAGE

1. Clear the message from the screen.
2. Turn off the embroidery machine.
3. Rotate the degree knob (2) at the back of the embroidery machine to 100 degrees.
4. Press the 100-degree button (1).

NOTE: If you are still experiencing issues, please contact your local dealer where you made your initial purchase.
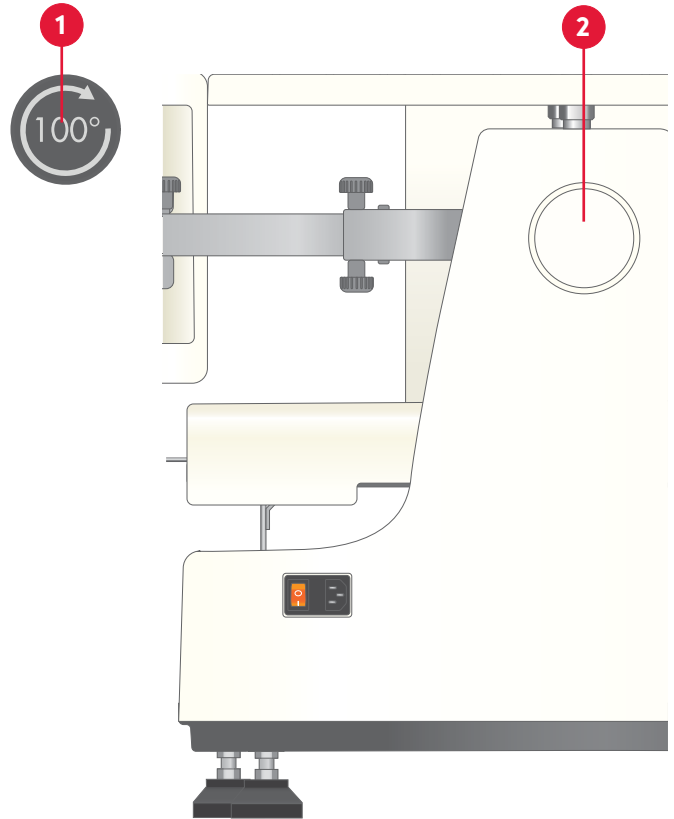
THREADS, STABILIZERS & NEEDLES

THREAD FIBER CHOICES

Lightweight threads are used for fine fabrics, small and delicate details and small fonts. The standard weight for lightweight threads is 60, 70 and 80.

- If this type of thread is being used – increase density slightly by five (5) to ten (10) percent.

Medium-weight threads are used to fill large embroideries with fewer stitches. The weight of a medium-weight thread is 30.

- If this type of thread is being used – decrease stitch count by 15 percent. Multi-color threads of medium weight have a weight of 35 (35 is the most widely used).

Heavyweight threads are used to create the look of hand embroidery. The weight for heavyweight thread is 12. If this type of thread is being used:

- Use long floating stitches
- Perform tension adjustment around 100-110 stitches
- Perform needle change around 100-110 stitches
- A special set-up time is required

RAYON THREAD

- Available in sizes 30, 40 and 60
- Widely used by U.S. embroiderers
- More expensive than other fibers
- Beautiful, supple, friendly fiber
- Natural fiber made from cellulose
- Not one of the stronger fibers
- Handling properties are superior to other fibers
- Used for embroidery thread and looks very rich when sewn into fabric
- Slight equipment problems can cause an unacceptable number of thread breaks when using
- Susceptible to damage by environmental factors, such as light, heat and cold
- Black and white tend to break more frequently due to the bleaching and dying processes

POLYESTER THREAD

- Excellent sewing ability
- Good choice for embroiderers
- May be too strong for certain lightweight, delicate goods
- Strong resistance to thread breaks, which can aid in production efficiency
- Can accept neon dyestuffs
- Excellent resistance to abrasion and bleaching
- Good choice for items that will be subjected to sunlight, chlorine or harsh laundering
- Polyester is stiffer than rayon, and it may require some tension or spring adjustment

METALLIC THREAD

- Stiffer than other varieties with an interesting construction
- Metallic film glued to a nylon or polyester core
- Quality varies widely among manufacturers
- If you have experienced difficulty in sewing with a metallic thread, try:

    -Using a smaller size metallic

    -Using a larger eye needle

    -Thread the metallic through the packing peanut attached to your thread tree

    -Check programming

    -Check density

    -Check stitch lengths

COTTON THREAD

- Easy to adjust tensions
- Matte finish that is sometimes preferred to the shiny look of the other thread types
- Available in a broad range of sizes from very large to very fine

THREAD CONSUMPTION

How much thread will you need for a particular job?

- Thread consumption varies according to the type of stitch.

    Longer stitch lengths use more top thread than fill stitches.

- A 5,000-yard cone yields about 9,000,000 stitches.

    Bobbin thread yield is about 25,000 to 30,000 stitches per bobbin for style "L."

- The amount of yards per bobbin varies according to thread type.

BOBBIN FIBER CHOICES

- Be sure to keep the tails no longer than three (3) inches.
- You might need to adjust the bobbin case, rather than the top tensioner if similar symptoms are exhibited on all needle bars.
- For lightweight 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 five (5) to ten (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. In addition, there is weight 35, which is most widely used for multi-color threads.
- For heavyweight 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. Adjust tension and change needle to 100 or 110.

COTTON

- Not as strong as its synthetic counterparts
- Friendly texture, which allows for a wider range of adjustments in bobbin tension settings
- Releases lint, which 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

- Very fine nylon is quite strong and a bobbin can hold many yards
- Small diameter and slick texture, which tends to make consistent tension on bobbin cases

CONTINUOUS FILAMENT POLYESTER

One long filament comprises the thread. These run much cleaner in the bobbin case and are much stronger. There are three (3) different sides of bobbins: (1) Paper sided – the most common; (2) Sideless – all thread with no sides; (3) Plastic sided – the plastic slides better and runs smoother in the bobbin case.

- Most popular thread amongst U.S. embroiderers
- Consistent, strong, thin, and reliable, high-quality thread
- Allows for no slub
- Allows for no lint
- Allows 127 yards to be held on a standard style "L" bobbin
- Can run a higher tension on both the top and bottom
- More expensive

SPUN POLYESTER

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.

- Texture similar to cotton
- Releases no lint
- Most economical and popular
- Requires less plate pressure
- With tight bobbin tension, 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 snags
- With loosening bobbin, tension will allow bobbin thread to 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
- With erratic bobbin, tension usually results from a catch in the bobbin case

MAGNA GLIDE

This type of bobbin has a magnet in the center, which helps keep more consistent tension on the bobbin thread. When using this type of bobbin, a gunmetal colored pieced in the bobbin case, called the brake, might need to be removed.

BACKING/STABILIZER

- Used as stabilizer
- Foundation for a good embroidery
- Designed to support or even replace the fabric
- Helps hold the fabric as flat as possible to prevent distortion in the embroidery
- Different types of backings/stabilizers are used in embroidery
- The correct backing depends on the fabric being used

  - Heavyweight garments – use thin backing

  - Lightweight garments – use thick backing

- Comes in the color black or white

  - 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 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.

  - 1 oz. to 1.5 oz. – Lightweight

  - 2 oz. to 2.75 oz. – Medium-weight

  - 3 oz. to 3.5 oz. – Heavyweight

There are three (3) things you need to consider when choosing backing:

1. Stability of fabric:
- Stretchy or loose fabrics require a heavy backing
- Stable and tight woven fabrics require a light or medium backing
2. Stitch density:
- Higher density fabrics require heavier backing
3. Washability:
- Fabric washed frequently requires a heavy backing
- Backing becomes softer after several washes

CUT-AWAY

- Weights range from 1 oz. (light) to 3.75 oz. (heavy)
- Used for permanent support – remains permanently affixed to the fabric – excess is cut away with scissors
- Provides the most stability
- Heat set fusible
- Offers the sharpest embroidery on highly detailed designs that include small lettering
- Used on loosely woven and unconstructed caps
- Best used on knits, since it prevents the design from stretching out with frequent washing or wearing
- When choosing cut-away:

  - Lightweight for a design with a light stitch density

  - Heavyweight for dense designs

TEAR-AWAY

- Light support
- Comes in light to heavy weights
- Backing is removed by tearing off
- Use several layers of light to mediumweight backing for support
- Best used on firmly woven, natural-fiber fabrics
- Recommended for strong and stable fabrics, or for when you do not want the backing to show on the back, such as the backs of towels, caps, and bags
- Easier to remove one sheet at the time than using a heavier tear-away and trying to remove it

SPECIALTY BACKING

- Poly mesh/No show
- A lightweight woven cut-away that is soft, thin and strong
- Designed to provide extra stability on knit shirts
- Does not show through light color garments
- Used on low stitch count designs on polos and T-shirts
- Combine a no-show backing with a tear-away
- Removable with water or with heat

TOPPING

- A plastic film used on the top side of an embroidered item to prevent stitches from shrinking into textured fabrics
- Used for temporary support
- Used on delicate, mesh-like and difficult to mark fabrics like pique, fleece or corduroy
- Requires the use of backing on the back of the fabric to support your fabric
- To remove the plastic film, tear-away the topping or use water

FOAM

- Adds dimension to lettering on caps for a 3D effect
- Available in a variety of colors
- Available in 2 mm and 3 mm sheets
- 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
- Excess foam needs to be removed
- Pieces that remain can be easily eliminated by applying a hot hair dryer over the area

POLY MESH BACKING

- Extremely thin backing that is extremely strong due to its fibers
- Used to add a lot of stability, without the bulk of a heavyweight cut-away backing
- Great for the newer tech garments that are very thin and contain fluidity to the fabric
- Adds stability without ruining the movement of the garment
- If needed, use two pieces of poly mesh on a stretchy material

FUSIBAL BACKING

- Used on stretchy materials
- Once fused to the garment, the garment and the backing become one
- Stable material
- Cover up a finished piece of embroidery, such as an infant's onesie, where the stitches and the backing could irritate the baby's skin
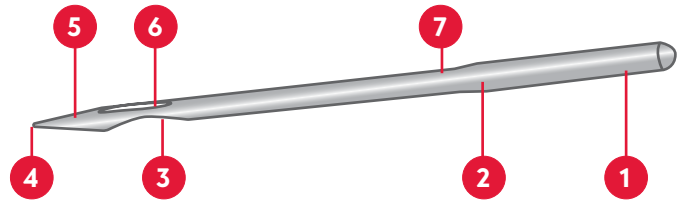
NEEDLES

ANATOMY OF A NEEDLE

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

NEEDLE LIFETIME

Many variables will determine how long a needle will last. The lifetime of a needle depends on what material the needle is made from, point type and the type of material being sewn on.

WHEN TO CHANGE THE NEEDLE

Look for performance changes on your machine such as thread breaks, poor stitch quality, fabric pulls, unusual noises or reduced stitching speed.

SELECTING A NEEDLE

- Choose the right needle to make sure 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 (3) things to consider when choosing the right needle for the job:

  -Finish

  -Size

  -Point

- DBxK5 is an established standard system for an embroidery machine. It is a medium point needle with a larger eye that allows a smoother flow of thread through the eye of the needle. It is slightly less durable due to thinner eye wall. Since the eye of the needle is larger, there are fewer thread breaks. Use ballpoints for stretch materials; use sharps for cotton.

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

BLADE SIZE

- 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.

- The two (2) number designation is a combination of the European and Asian 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.

  -The second number, such as 11 or 14, is an Asian numbering system, also formerly used by Singer. In this system, the 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 stockings, etc.

- Size 70/10 – Good needle for the newer tech garments. It is used to sew moisture management (wicking), antibacterial, body temp management type garments, especially t-shirts and golf shirts.

- Size 65/9 or 60/8 – Good needles for very light/ delicate materials. They are used to sew silks or fine linens. Also, used to get the stitches closer together, such as when you might sew extremely detailed designs like a detailed patch or small lettering.

- Size 80/12 – Good needle for heavier materials. Used to sew heavy canvases, vinyl, lighter leathers, ball caps, visors, etc.

- Size 90/14 – Good needle for metallic thread. It has a larger eye. Used to sew canvases and belts, since it is a very stiff needle.

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 (5) to seven (7) times longer than chromium-plated counterparts. They also reduce friction on the thread, which could save time, labor and reduce the frequency of thread breaks.

- Titanium needles are a golden color and are available in popular sizes.

POINT TYPES

Different point types are necessary to avoid damaging and to penetrate cleanly on a variety of fabric types.

Always use the smallest possible needle in order to create the smallest hole.

Heavy materials cause the needle to bend, or deflect, which causes needle breaks, thread breaks, missed stitches and more. Control needle deflection by slowing the speed of the machine down and/or changing the size of the needle.

Acute round point

- Used primarily on woven fabrics.

- Sharp point needle (SPI).

Slender sharp point

- Used to penetrate high thread count fabrics, microfibers and certain synthetics

- Normal round point (R).

Normal sharp point

- Used for woven fabrics, including finished caps.

Light ballpoint

- 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.

- Light ballpoint (SES).

Medium ballpoint

- Designed to spread heavy yarns such as those used in heavy knitted fabrics.

- Two (2) primary point types used for sewing and embroidering: sharp point and light ballpoint.

- Medium ballpoint (SUK).

NEEDLE AND THREAD MATRIX

Refer to the chart below to view the application range of threads and needles used for general embroidery.

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				

BACKING AND NEEDLE RECOMMENDATIONS

Fabric	Recommendations
Canvas	Use a light to medium tear-away. Sharp needles are better for longer runs. We recommend using a 75/11 sharp or normal round point needle.
Canton fleece	Use 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. We recommend using a 75/11 light ballpoint needle.
Coated or waterproof	Use a light to heavy tear-away backing. We recommend using a 75/11, 80/12 sharp or light ballpoint needle.
Corduroy	Use a medium topping and light to medium tear-away. We recommend using a 75/11 light ballpoint needle.
Cotton sheeting	Use a heavy cut-away or tear-away/wash-away. Great for children's clothing. We recommend using a 75/11 light ballpoint needle.
Denim	Use a heavy cut-away or tear-away/wash-away. We recommend using a 75/11 light ballpoint needle.
Dress shirt (woven)	Use a heavy cut-away or tear-away/wash-away. We recommend using a 75/11 or 70/10 light ballpoint or 80/12 needles for small details.
Golf shirt	Use a light to heavy cut-away. Heavy knits require a medium to heavy cut-away; medium knits require a light cut-away. We recommend using a 75/11 light ballpoint needle.
Headwear	Use a medium to heavy tear-away. We recommend using a 75/11 or 80/12 sharp needle.
Leather and vinyl	Use a light tear-away. We recommend using a 75/11 or 80/12 light ballpoint needle on stiff or spongy leather (upholstery luggage). We recommend using a 70/10 or 80/12 sharp needle on soft, supple garment leather.
Lingerie or silk	Use a water-soluble or tear-away. We recommend using a 70/10 light ballpoint needle or 80/12 needle depending on the thread.
Lycra or spandex	Use a medium cut-away or water-soluble tear-away. We recommend using a 70/10 medium ballpoint needle.
Nylon windbreaker	Use a light to heavy cut-away. We recommend using a 75/11 light ballpoint needle.
Satin jacket	Use a light to heavy cut-away. Cotton-on-cotton is a nice look. We recommend using a 75/11 light ballpoint needle.
Sweather knit	Use a medium to heavy cut-away. We recommend using a 75/11 light ballpoint needle.
Sweatshirt	Use a heavy tear-away or cut-away. We recommend using a 75/11 light ballpoint needle.
T-shirt	Use a light, water-soluble or tear-away or medium cut-away. We recommend using a 75/11 light ballpoint needle.
Terry Cloth	Use a medium-weight, water-soluble tear-away and topping. We recommend using a 75/11 or 80/12 light ballpoint needle.

We reserve the right to change the machine equipment and the assortment of accessories without prior notice, or make modifications to the performance or design.

Such modifications, however, will always be to the benefit of the user and the product.

Intellectual Property

Please note that on disposal, this product must be safely recycled in accordance with relevant National legislation relating to electrical/electronic products. Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. When replacing old appliances with new ones, the retailer may be legally obligated to take back your old appliance for disposal free of charge.

If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being.

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