

BERNINA 990

Embroidery Workbook



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INTRODUCTION

Welcome to the BERNINA 990 Embroidery Workbook. In the following exercises, you will become familiar with machine embroidery and how to use the B 990. Learning to use the B 990 to its fullest capabilities will ensure you love your machine for many years to come.

It is highly recommended to work through the activities in this workbook in sequential order, without skipping any lessons, at least once. Once you have completed all the exercises, keep this workbook as a reference guide as you use your machine and explore the creative possibilities. Then, after a period of using your machine, come back to the exercises again to reaffirm the knowledge you have been putting into practice. Revisiting the lessons regularly will cement your confidence in machine embroidery, as well as the BERNINA 990.

Sew at your own pace. You can also follow along the BERNINA 990 Skill Hub online course for helpful videos and unique learning tools. In addition to the workbooks, online course, and classes from your BERNINA dealer, there are many instructional videos and tutorials built directly into the machine.

Instructional video tutorials are available on the [bernina.com](https://www.bernina.com) website and the [BERNINA International YouTube channel](#) too. You will also find inspiring sewing projects and eBooks on the BERNINA website at [bernina.com](https://www.bernina.com) in the [Learn & Create](#) section.



PREPARING FOR EMBROIDERY

EXERCISE MATERIALS

Fabric & Stabilizer

- Cut (3) 10" x 15" dark-colored woven fabric
- Cut (3) 10" x 15" sheets of stabilizer

Notions

- Temporary adhesive spray
- Chalk
- Straightedge ruler
- Various colors of embroidery thread

Hoops & Presser Feet

- Large Oval Embroidery Hoop
- Embroidery Foot #26L

SETTING UP THE MACHINE

When the embroidery module is attached, the B 990 will automatically start in Embroidery Mode when the machine is turned on. If you have been sewing and then wish to embroider, select Embroidery Mode from the Home Screen or using the Shortcut icon. When in Embroidery Mode, the B 990 will automatically lower the feed dog.

Main Menu » Home » Embroidery

Review the manual and/or the following video references to attach the module and prepare for embroidery.

Set Up the Machine



In this video, learn how to change your presser foot and stitch plate, activate Dual Feed, add the Slide-on table, and set up the Foot Control and Free Hand System Lever.

Thread the Machine



Learn how to thread your bobbin and needle in this tutorial.

Embroidery Mode Settings



This video explains the settings you'll need for working in embroidery mode, such as Upper Thread Tension, Embroidery Speed, Design Position, Hoop Calibration and more.

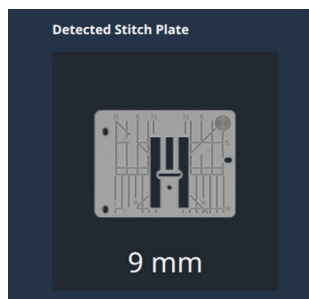
Attach the Module



This tutorial walks you through attaching the embroidery module to the machine. You'll also move through important aspects of the embroidery interface.

FEATURE FOCUS

Automatic Stitch Plate Detection



The BERNINA 990 will automatically recognize the stitch plate attached. If you select a stitch that is incompatible with a particular stitch plate (for



Fig. 1

example, a zig-zag stitch with the straight stitch plate attached), the machine will show the stitch in red to indicate that it cannot complete the stitch with the existing plate. You will see an indication of which stitch plate is attached in the Status Bar on the left-hand side of the machine screen.

HOOPS

Setting up the Hoop and Stabilizer

For each exercise, use the Large Oval Hoop, a 10" x 15" piece of fabric, and 10" x 15" piece of stabilizer.

1. Separate the inner and outer rings of the embroidery hoop.
2. Loosen the screw. It should be loose enough that fabric and stabilizer both will EASILY fit into the hoop.
3. Lay the outer hoop on a hard, flat surface.
4. Secure stabilizer to the back of the fabric by lightly spraying the stabilizer (not the fabric) with temporary adhesive spray. Adhere the stabilizer to the back of the fabric.
5. Place fabric and stabilizer on a firm surface.

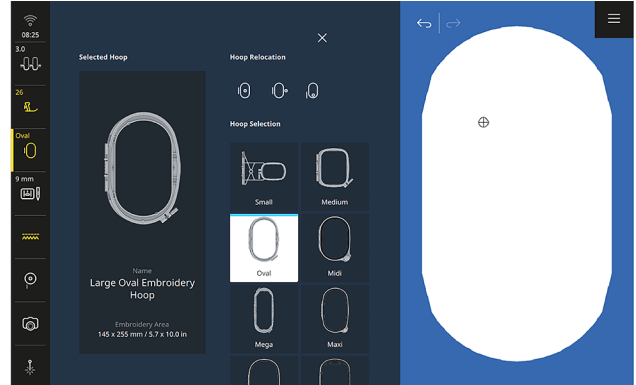


Fig. 2

6. Grasping both inner hoop and fabric/stabilizer, lift and insert them into the outer hoop, making sure that the arrows align at the edges of both the inner and outer hoops.
7. Tighten the screw on the hoop, but DO NOT DISTORT THE FABRIC as you do so. Hooped fabric should be taut, but not stretched or distorted (Fig. 1). Do not tug on the fabric to get rid of bubbles or to get the fabric taut. Re-hoop as needed until it has been hooped sufficiently.

Attaching the BERNINA Hoop

Pre-selection

If a hoop is not already attached to the module, you can select a hoop beforehand.

1. Select the Hoop Selection icon from the Status Bar.
2. Scroll through the options with your stylus or finger and select Large Oval Hoop (Fig. 2).

Attaching Hoop to the Module

Do not attach the hoop to the machine until prompted by the machine to do so.

1. Hold the hoop, with the right side of the fabric facing up and the attaching mechanism to the left, and position underneath the presser foot.
2. Squeeze both attaching mechanisms toward each other.
3. Position the hoop above the bracket of the module's embroidery arm.
4. Press down until the hoop clicks into place.
5. Release the attaching mechanisms.

The hoop is automatically recognized by the machine, indicated by the selected hoop showing in yellow in the Status Bar and in the Hoop Menu, the Selected Hoop will show a dark background.

Removing the Hoop

1. Squeeze both attaching mechanisms of the hoop toward each other.
2. Remove the hoop.

FEATURE FOCUS

Re-positioning the Hoop



You can reposition an embroidery hoop with the Hoop Relocation icon.

- **Centered:** Hoop moves to center for easier threading of the needle.
- **Sewing Position:** Arm moves to the left center so you may remove the embroidery module (you will be prompted to remove the hoop).
- **At the Rear:** Hoop moves to the back for easy access to the bobbin.

ESSENTIAL NAVIGATION

In this section, learn about how to adjust the embroidery settings on the machine and how to work with embroidery designs.

EMBROIDERY SETTINGS

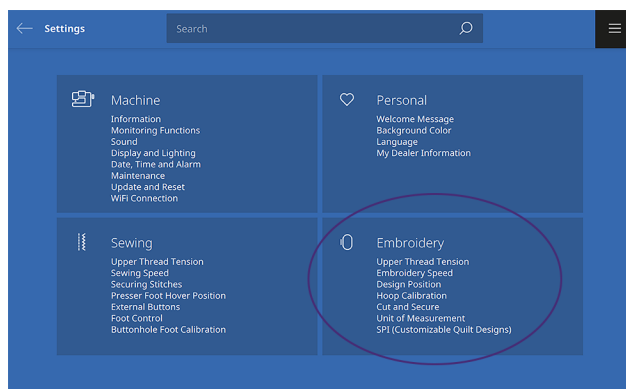


Fig. 3

Embroidery Settings can be accessed by selecting the Main Menu, then selecting Settings. Next, select “Embroidery” to view embroidery settings (fig. 3).

Main Menu » Settings » Embroidery

- **Upper Thread Tension:** This sets the tension up or down for all embroidery designs. The default tension will work for most projects. This should only be used if you find an adjustment is needed.
- **Embroidery Speed:** Sets the maximum embroidery speed. The default is 1000 SPM, which is the max for the B 990. However, you can reduce the speed if you prefer to always stitch slower.
- **Design Position:** The default position is “Center of Hoop”. If you are transferring designs to and from BERNINA Embroidery Software, change this setting to “Saved Position.”
- **Hoop Calibration:** After a firmware update, it is recommended to calibrate the hoops.
- **Cut and Secure:** Here you can turn on Quilt Settings (which can also be changed in the Stitchout Summary, to be covered later). You can also set “Thread cut after start” which tells the machine to stitch a few stitches and then stop, allowing you to trim the thread tails. This can be helpful when quilting in the hoop, as the bobbin thread should be pulled to the top for the initial stitching.
- **Unit of Measurement:** You can choose inches or millimeters. For the activities in this workbook, choose millimeters.
- **SPI (Customizable Quilt Designs):** Allows you to set the stitches per inch for your customizable quilt designs.

FILE FORMATS

The B 990 is one of many BERNINA embroidery machines that reads multiple formats. The native format for BERNINA machines is the BERNINA EXP extension which, when exported from BERNINA Embroidery Software, often includes two additional supporting files: a BMP file that provides a preview of the embroidery motif, and an INF file with the color information. If the INF file is missing, the embroidery may not be displayed in the actual color, but only in standard colors. In that case, simply follow the thread chart that is provided with most designs, or enter the colors manually in the color overview of the motif on the machine. See your machine’s manual for more information.

Besides the BERNINA embroidery file format, your machine can also read: PES, PEC, XXX, PCS, JEF, and DST.

In addition to embroidery formats, your B 990 can also read customizable quilt designs (longarm formats): BQM, HQF, PAT, PLI, QLI, and TAP.

FEATURE FOCUS

File Manager

In the File Manager, you can load and manage embroidery designs. You can access it by tapping the Add Design (+) icon in the Layer Bar. There are multiple folders on the main screen to help you navigate to the type of motif you would like to work with. Note that to the right of the File Manager is the Quick Access Bar, which offers shortcut icons that correspond to the different File Manager options:

- Embroidery designs
- Lettering
- Sewing stitches
- Personal Folder
- USB (when applicable)


The File Manager enables you to access any design within the machine, such as the on board embroidery designs, customizable alphabets, and sewing stitches, all of which can be embroidered. Here you can also access the Personal Folder (to save and manage your own designs) and the USB stick, which will appear as a blue USB icon when a stick is inserted into the machine. You can even create folders within your USB stick and Personal Folder

to aid in the organization of your embroidery files. In the Toolbar at the top of the screen you have options to rename, cut, copy, paste, select all, or delete files and/or folders. You can also search for designs, create new folders or gather folder or file information from the Toolbar.

DESIGN SELECTION

There are two ways to select a pre-installed design from the File Manager.

Folder Navigation

1.  From the Layer Bar, select the Add Design (+) icon to open the File Manager.
2. Select the Embroidery Designs folder.
3. Select the Lace folder. Notice the path in the Navigation Bar that shows the folder layers you are in (Fig. 4).
4. Tap the Back button twice to return to the main File Manager screen.

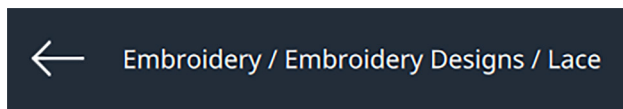


Fig. 4

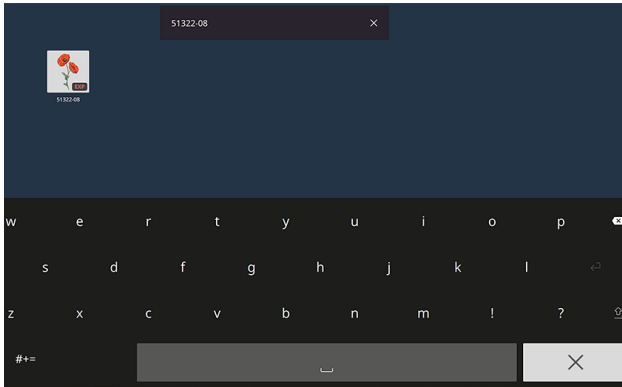


Fig. 5

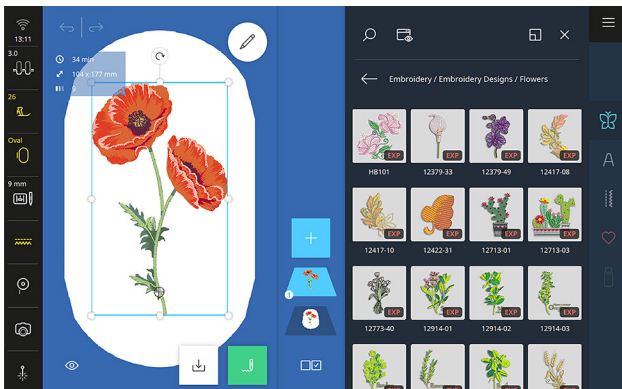



Fig. 6

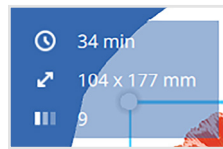
Search Function

With the Search function, you can locate a design by name or number within a folder.

1. Select the Embroidery Designs folder.
2. Select the Flowers folder.
3.  Select the Search icon at the top of the File Manager screen. A screen search window will appear.
4. Enter the design number, 51322-08, using the number pad. As the numbers are input, the search preview narrows down all designs that include the input number. Eventually, the search will narrow down to the exact number (Fig. 5).

5. You will see a preview of the design; select it with a one-finger touch. Once selected, the design is added to the Design Altering Area and Layer Bar (Fig. 6).

Stitch Information



In the upper left corner of the screen you will see stitch information, including the total time to stitch the design, the size, and the number of colors.

You can also see this information at a glance before choosing a design by long pressing on the design. A pop-up window (Fig. 7) will appear with the following information for you to review:

- A full-color picture of the design
- The design name and file type
- Total stitch time
- Stitch count
- Thread colors
- Recommended hoop
- Design size

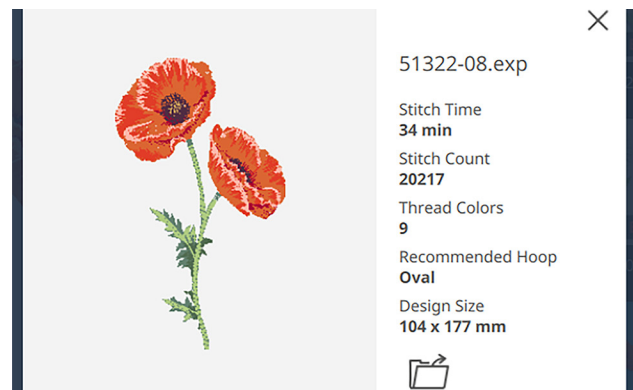


Fig. 7

BASIC EDITING



In this section, explore embroidery design editing. Begin with design 51322-08 on screen (from the previous chapter).

BOUNDING BOX



Each design or selection has a blue rectangle around it called the Bounding Box. Using touch gestures, the nodes (white dots) enable you to resize and/or re-shape your design on the screen. They are located at each corner and at the center of each side.

By selecting one of the corner nodes and dragging, you will resize the design proportionally. By resizing with one of the center side nodes, you will modify the design disproportionately. To rotate the design, use the circle with the curved arrow to move the design along a central radius.

Tip:

When more than one design is selected, the Bounding Box is reshaped to fit the entire selected area of all the selected designs. Resize modifications are then made on all selected designs in the Bounding Box. When multiple selections or Select All is chosen, only proportional sizing is allowed.

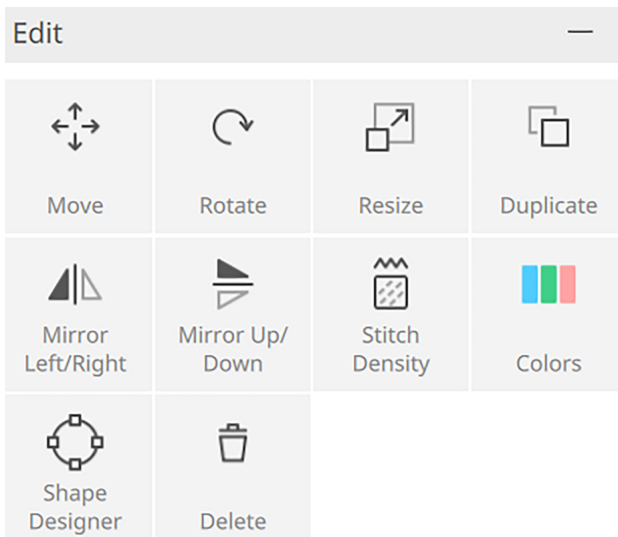
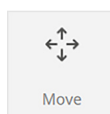


Fig. 8

EDIT SUBMENU


The Edit Submenu (Fig. 8) appears when you open the Edit Menu and you can select the options for how you wish to edit the design. Many of these functions can also be performed with touch gestures on the screen.


Move



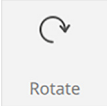
When the Move icon is selected in the Editing submenu, the dialog will open and display the current X and Y axis position values and you have a variety of ways to move your design around.

- Move the embroidery motif with your finger directly on the screen.
- Move the embroidery motif horizontally with the upper Multi-function Knob, and vertically with the lower one.
- Move the embroidery motif with the plus (+) and minus (-) icons.

-  Center the embroidery motif by tapping the Center Motif icon.
- Reset the embroidery motif by tapping the yellow boxes (they will reset to blue).

-  Rotate the Embroidery motif in 45-degree increments, clockwise counterclockwise.
- Reset the embroidery motif to 0-degree rotation by tapping the yellow box.

Rotate

 The design can be rotated in 1-degree increments with the plus (+) and minus (-) buttons in the dialog box. You can also rotate by 45 degrees clockwise and counterclockwise.

- Rotate the embroidery motif in the Design Altering Area using the rotation arrow icon on the Bounding Box.
- Rotate the embroidery motif with the Multi-function Knobs.
- Rotate the embroidery motif with the plus (+) and minus - icons.
- Rotate the embroidery motif with the slider (Fig. 9).

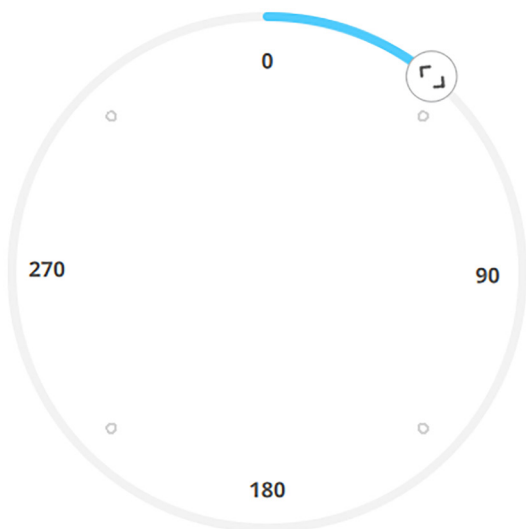
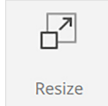



Fig. 9

Resize


 In addition to resizing the design with the Bounding Box nodes, you can also change the embroidery motif size with the Resize icon.

Resize Proportionally

 In the Resize dialog box, the Proportional icon is on by default; it is the chain-looking icon in the blue box. This locks the height and width to maintain proportion when resizing. Resizing proportionally also works with Multiple Selection; designs are modified at the same percentage together.

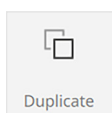
- Resize the embroidery motif proportionally by dragging the corners of the Bounding Box.
- Resize the embroidery motif proportionally using the plus (+) and minus (-) icons.
- Resize the embroidery motif proportionally using the Multi-function Knobs.
- Reset the embroidery motif to size default by tapping the yellow boxes.

Resize Disproportionally

 In the Resize dialog box, deselect the Proportional icon (the chain-looking button) to unlock. It will now look like a broken chain.

- Resize the embroidery motif disproportionately by dragging any of the center side nodes of the Bounding Box.
- Resize the embroidery motif disproportionately using the plus (+) and minus (-) icons.
- Resize the embroidery motif disproportionately using the Multi-function Knobs.
- Reset the embroidery motif to size default by tapping the yellow boxes.

Duplicate

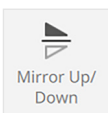
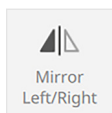


When selected, the current selected design will be duplicated. The duplicated layer is always added to the top layer.

This function also works with Multiple Selection. When multiple or all designs are selected, a layer is added to the top, which you can see in the layer bar to the right.

Tap Duplicate to copy the design. Note the new layer.

Mirror



The Mirror Left/Right and Up/Down icons flip the selected layers on the vertical or horizontal axis. When a design has been modified, the icon will have a yellow bar. Tap it to reset.

These functions also apply to Multiple Selection.

- Mirror the duplicated layer using the Mirror Left/Right icon. **Note:** when the function has been selected, it has a yellow highlight.

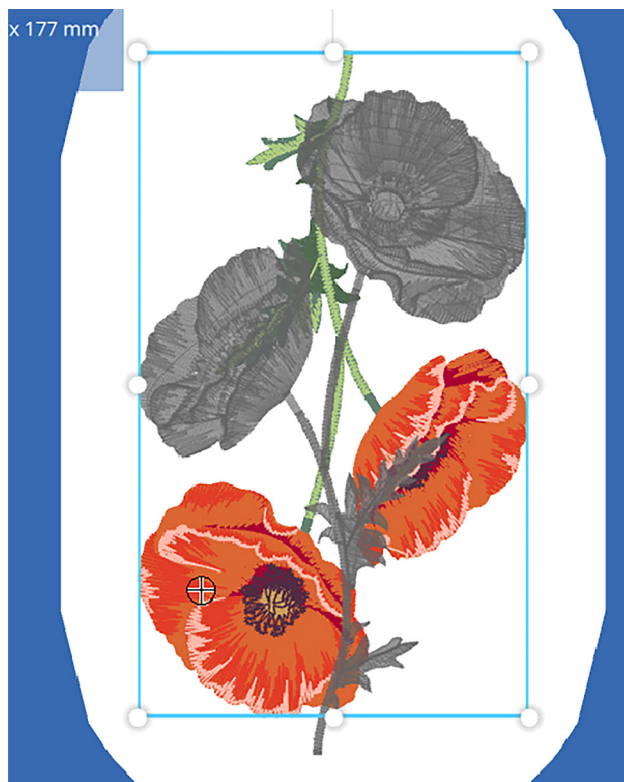
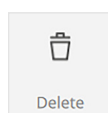


Fig. 10

- Select the original motif layer and mirror it with the Mirror Up/Down icon (Fig. 10).
- Tap the Undo button to reset the mirror image of the original design.

Delete



You can delete selected motif(s) by selecting the Delete icon. A confirmation window pops up to confirm. The green checkmark will delete the item(s), the "x" will close the window. This function works in Multiple Selection and Select All modes.

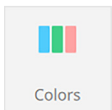
Stitch Density



With this icon, you can adjust the stitch density of embroidery designs. Values range from 25 to 300%; the default is 100%.

- Adjust using the plus (+) and minus (-) buttons.
- Use with the bottom Multi-function Knob to adjust by percentage. Change to 60%.
- Tap the green checkmark to confirm. The image will then change in the Design Altering Area to reflect the change.
- Tap the Undo button to return to the original stitch density.

Colors



Thread colors can be easily modified in embroidery designs by using the Colors icon. The thread colors are shown in the order they will be stitched for the selected layer(s).



Fig. 11

The following are displayed in the Color Overview Menu (Fig. 11) when you tap the Color icon:

- Color
- Thread color order
- Icon representing the type of embroidery being done (thread, cut, paintwork, crystal)
- Thread color number
- Thread brand
- Change Thread Color icon

Change Thread Color Icon



By selecting the Change Thread Color icon, you can change the thread colors individually.

This will open a new menu (Fig. 12), allowing you to modify the current thread color and/or brand.

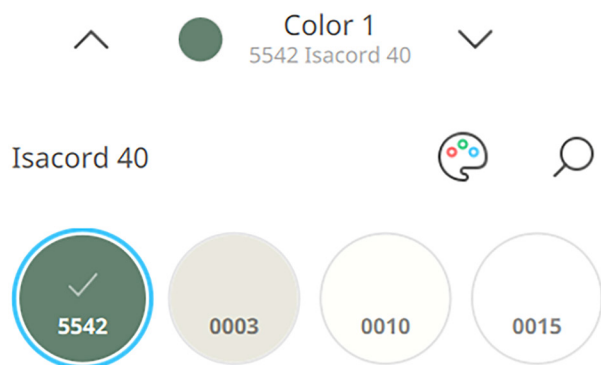


Fig. 12

The overview shows all the threads as colored circles with the manufacturer's thread number. The current color is always the first color in the first row; it has a blue circle around it and a checkmark in the center.

- Search for a color number in the current thread brand by selecting the search icon. When selected, the window opens with the number pad and an array of available color numbers from the brand.
- Enter a thread color number, then tap the checkmark to select that thread color. Selecting the "x" at the bottom of the screen will exit the Search Menu.
- You can also scroll through the other colors in the embroidery motif(s) using the up/down

arrows on the Color Number Bar, just above the Palette icon above the colors.

- Select a new color from the color options, scrolling with your finger. The color will change on the Design Altering Area (Fig. 13).

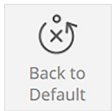


Tap the small Palette icon to change the thread brand for that individual color.

- Select a brand and then tap the desired color (Fig. 14).

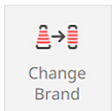
Modified colors are shown with a yellow bar to the left of the thread color information (Fig. 15).

Back to Default



Select the Back to Default Icon to reset the colors to their original threads.

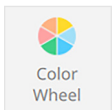
Change Brand



On the main Colors menu, you will see the Change Brand Icon. This allows you to change the thread brand for all colors.

Tapping it opens the Palette menu, where you can select a new brand. All the thread colors in the design will be reassigned to hues in the new manufacturer, based on the closest color value (RGB).

Color Wheel



By selecting the Color Wheel icon, you have more ways to edit and change the colors within the design.

- Select the color you wish to change, and notice its corresponding node highlighted on the Color Wheel.

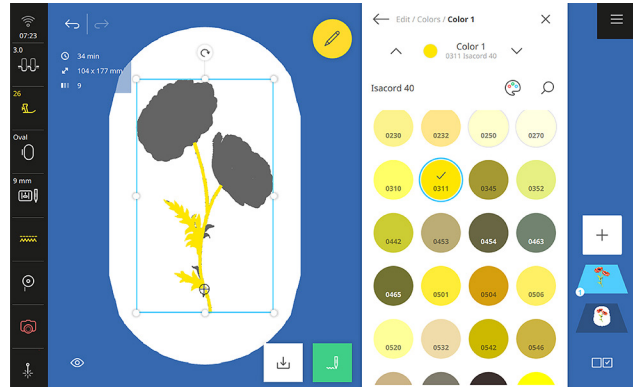


Fig. 13



Fig. 14

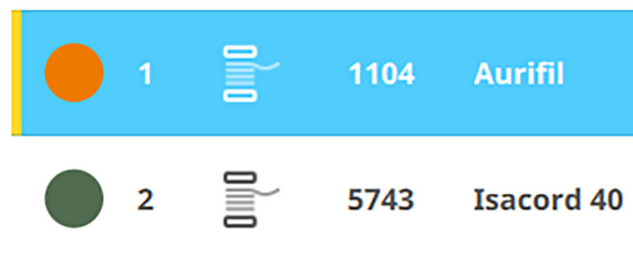


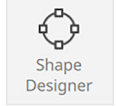
Fig. 15

- Use your finger to move the node to a new color area on the wheel; see how it changes in the embroidery motif (Fig. 16). If needed, open Edit » Colors » Color Wheel again.
- Use the Left/Right slider at the top of the Color Wheel to change the overall hue of the design. All colors will be adjusted.
- Use the Brightness slider below the Color Wheel to adjust the value of your selected color (Fig. 17).

The color preview will auto populate with the closest thread color that manufacturer has.

Once colors are adjusted, the new values are updated in the Color Overview Menu.

Shape Designer

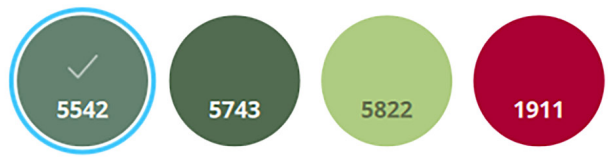


The Shape Designer feature allows you to arrange embroidery motifs around a designated shape and with options such as count, width, height, mirror, and justify. You can create some truly unique design combinations. Delete any designs.

Add Design » Embroidery Design » Mini

1. Select design #OC86074.
2. Select the Oval Hoop.
3. Select Shape Designer from the Edit Submenu.
4. Select the hexagon shape.
5. Under Item Count, use the plus (+) and minus (-) buttons to change the number of motifs to 6 (values range from 1 to 100 and can be reset by tapping the adjusted value box).

Colors



Hue



Brightness



Fig. 16

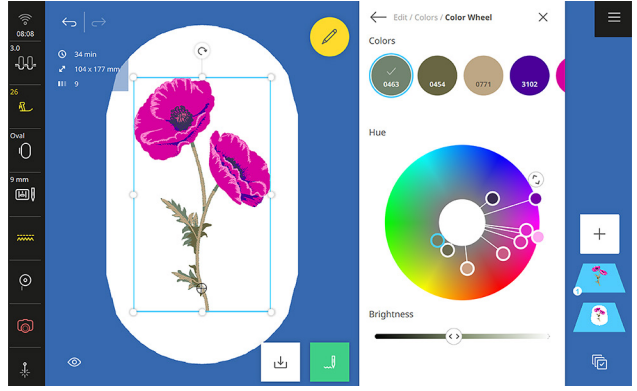


Fig. 17

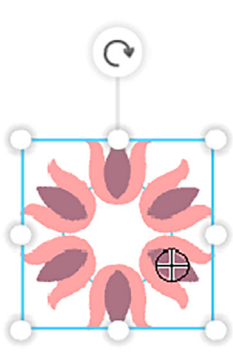


Fig. 18

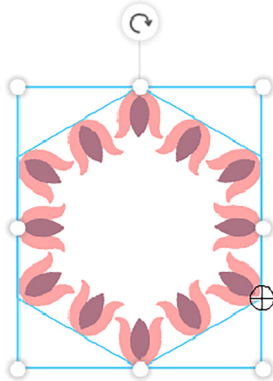


Fig. 19

6. Ensure the Proportional icon is selected (the chain link) and in either the Shape Width or Height boxes, adjust the shape to 22%.
7. Close out of the Edit Menu and admire the look (Fig. 18).
8. Reopen the Edit Menu and Shape Designer function.
9. Change the Item Count to 12.
10. Change the width and height to 67%.
11. Tap the Inside icon under Justification. **Note:** When Inside is selected, the designs are placed inside the shape and the top of the Bounding Box aligns with the shape baseline. When Outside is selected, the designs are moved to outside the shape and the bottom of the Bounding Box aligns with the shape baseline.
12. In the Rotate box, rotate the design by 45% four times (Fig. 19).

ARRANGE SUBMENU

The second submenu in the Edit Menu is Arrange (Fig. 20). Its functions include: Group, Ungroup, Move Forward, Move Backward, and Align, and Match Start/Stop.

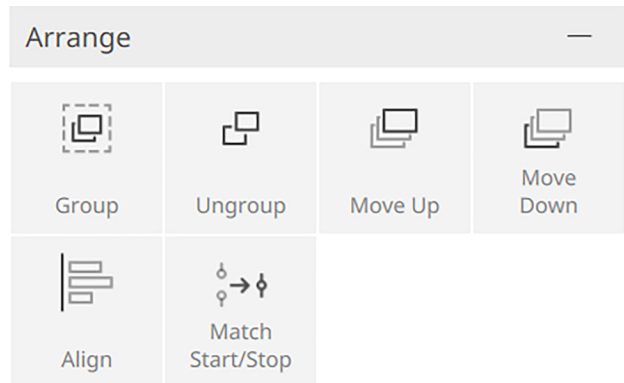
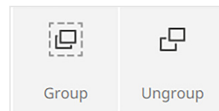


Fig. 20

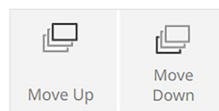
Group and Ungroup



The Group icon groups selected layers together and sets it in the bottommost layer. You can select multiple layers to group.

You can ungroup layers, motifs, and even thread elements in a design. The layers are then displayed individually in the Layer Bar and can be edited separately with functions such as delete, move, rotate, etc.

Move Up and Move Down



The Move Up icon moves a motif or layer up one layer at a time in the Layer Bar. The topmost layer, indicated by the highest number,

is stitched last.

Likewise, the Move Down icon enables you to move a selected layer downward in the Layer Bar, one layer at a time. The bottommost layer, labeled as layer 1, is stitched first, followed by layers 2, 3, 4, etc.

Designs or motifs can also be rearranged in the Layer Bar by dragging and dropping into position. Tap and hold on the layer you wish to move. When the layer is highlighted in white in the Layer Bar, you can then drag it into the desired order.

Align



You can select multiple designs or layers and align them perfectly with the Align function. You must have multiple layers to see this option in the Arrange submenu.

Justification options (Fig. 21) include:

- **Align Left:** Designs are aligned to the leftmost boundary of selected items.
- **Align Vertical Center:** Designs are aligned to the vertical center of the boundary boxes.
- **Align Right:** Designs are aligned to the rightmost boundary of selected items.
- **Align Top:** Designs are aligned to the topmost boundary of selected items.
- **Align Horizontal Center:** Designs are aligned to the horizontal center of the boundary boxes.
- **Align Bottom:** Designs are aligned to the bottommost boundary of selected items.

You will experiment with the Arrange submenu in a future exercise.

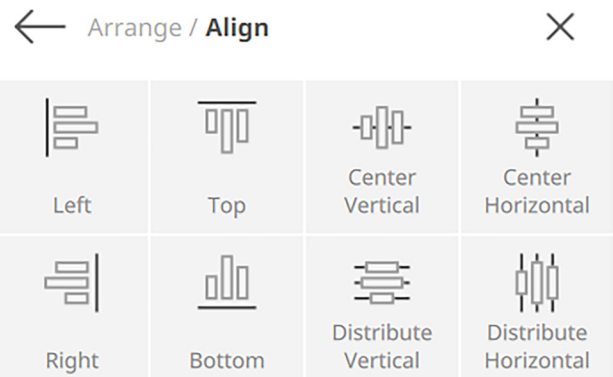


Fig. 21

Match Start/Stop



With Match Start/Stop, you can precisely align two designs end to end, like customizable quilt designs or sewing stitches. This will move the start point of a motif to the end point of the previous design.

Use this feature in combination with the Reduce Thread Changes function in the Stitchout Summary to ensure designs stitch continuously without stops.

FEATURE FOCUS

Contextual Icons

Icons on the B 990 are contextual. This means they will only be available when you are able to use them. For example, if you only have one object on the screen, icons that do not apply, such as “Group,” will be grayed out.

Exercise 1

BASIC EDITING

Materials & Machine Settings

🧵 (1) 10" x 15" piece of fabric and (1) 10" x 15" piece of stabilizer

🪡 **Needle:** Jersey Needle 80/12 130/705 H-SUK

🪡 **Hoop:** Oval Hoop

🪡 **Foot:** Embroidery Foot #26L

Hoop your fabric and attach to the module following the instructions on page 3. Delete any designs currently on your screen before beginning.

Add Design » Embroidery Designs » Borders

1. Select design #12445-18.
2. Select the Oval Hoop.
3. Using the Rotate icon just above the design, rotate the design 90 degrees (Fig. 22).
4. Select the Edit Menu.
5. Select Duplicate.
6. Tap Mirror Up/Down once (Fig. 23).
7. In Selection Options, choose Select All.



8. Tap Duplicate once.
9. In Selection Options, Choose Single Select.



10. Move the flower borders so they alternate up and down and do not overlap (Fig. 24).
11. In Selection Options, Choose Select All.
12. Choose Align from the Arrange Submenu.

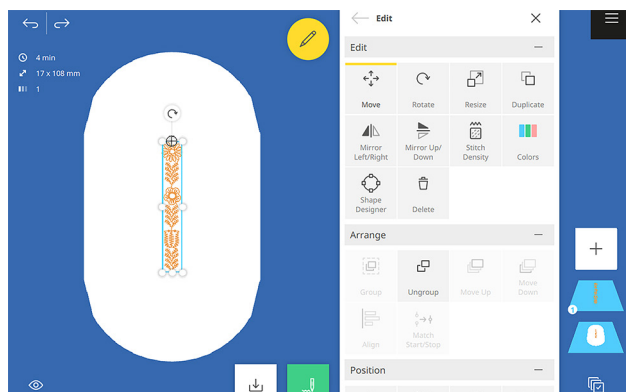


Fig. 22

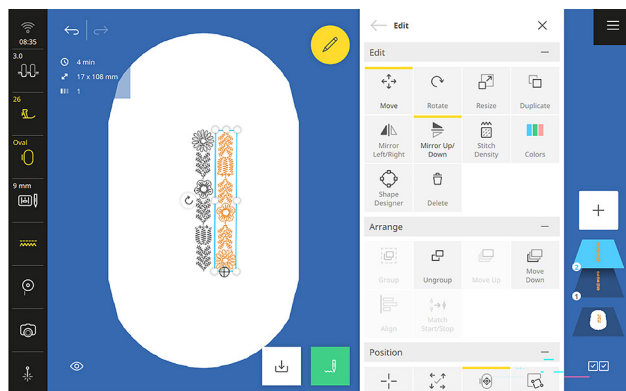


Fig. 23

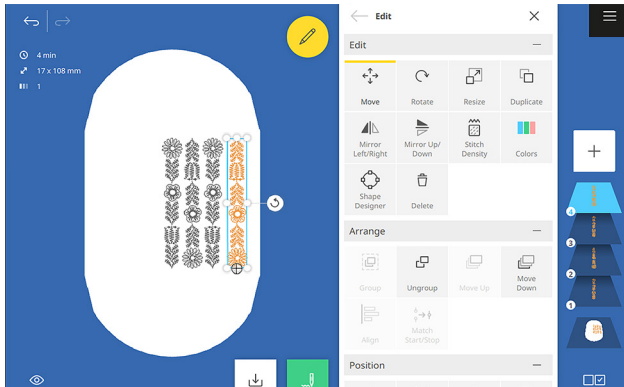


Fig. 24

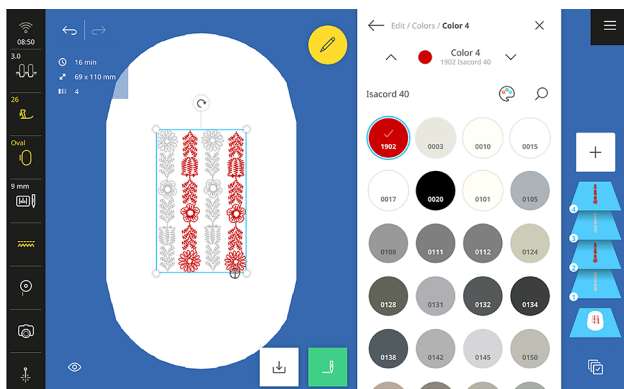


Fig. 25

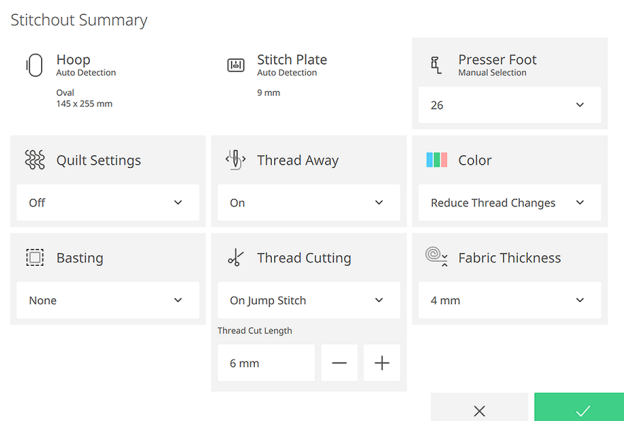





Fig. 26

13. Select Center Vertical.
14. Select Distribute Horizontal.
15. Return to the Edit Menu with the Back Arrow at the top of the Arrange Menu.
16. Select Move from the Edit Menu.
17.  Touch the Center Icon to return the design to the center of the hoop.
18. Return to the Edit Menu. Select Colors.
19.  Using the Change Thread Color icon, alternate the design colors with Isacord 0015 and 1902 (Fig. 25).
20.  Select Stitchout.
21. In the Stitchout Summary (Fig. 26), select:
 - o Presser Foot: #26
 - o Thread Away: On
 - o Color: Reduce Thread Changes
22. Select Confirm.
23. Stitch the Design in hoop.
24. Tap Finish Embroidering when the stitching is complete.

LETTERING

The BERNINA 990 features advanced lettering in embroidery. Lettering can be created on its own or added to other designs, and can be set to any desired size with full stitch recalculation.

ADD LETTERING

Delete any designs on the screen.


Add Design » Alphabet Folder

1. Choose the Art Deco Block lettering. A keyboard will appear where you can type your message. The keyboard looks like the one you might find on your computer or smart phone and works similarly.
2. Type in the word “Magic” (Fig. 27).

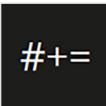
Text is shown in the selected font. New font styles can be selected in the font overview above the keyboard.

Keyboard Shortcuts

Upper and Lower Case

 The default for text is to capitalize the first letter and then use lowercase letters. You can choose upper or lowercase letters by toggling off or on the Cap Lock icon. You can also double-tap the Cap Lock icon for all caps.

Special Characters

 Access special characters, like “È,” by long pressing on the keyboard character or by using the Special Character icon at the bottom left of the keyboard.

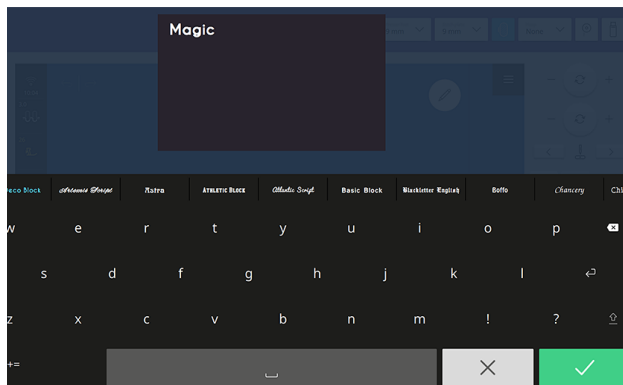




Fig. 27

Numbers

 Numbers can be accessed with the Number icon at the bottom left.

Multi-line lettering and Justification

 To enter more than one line of text, use the Enter icon.

If your text has more than one line, you can align your text with the three justification icons at the top left of the keyboard: align left, align center, and align right. You will use this function in a later exercise.

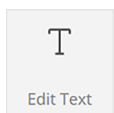


3. Touch the green checkmark to confirm and place your “Magic” lettering on the screen.
4. Select the oval hoop.

EDITING LETTERING

Lettering editing options are in the Lettering submenu of the Edit Menu (keep in mind the menu is not visible if lettering has not been selected). These enable you to customize and refine the look of your text.

Edit Text



Edit or modify your text with the Edit Text icon. Confirm your changes with the green checkmark; cancel your changes with the gray “x”. You can also edit text with the Context Menu (tap and hold in the Design Altering Area).

Transform



In the Transform menu, you can change the shape of the lettering. Choose from: Horizontal (default), Vertical, or Arched.

- Select Vertical. Your lettering transforms to vertical text (Fig. 28).
- Tap Undo once to revert to the original arrangement.
- Select Arch. Here you can adjust the curve of the baseline up or down using the plus (+) or minus (-) icons or the top and bottom Multi-function Knobs (Fig. 29). Note that Vertical and Arch options cannot be used with multi-line lettering. Experiment with these settings.

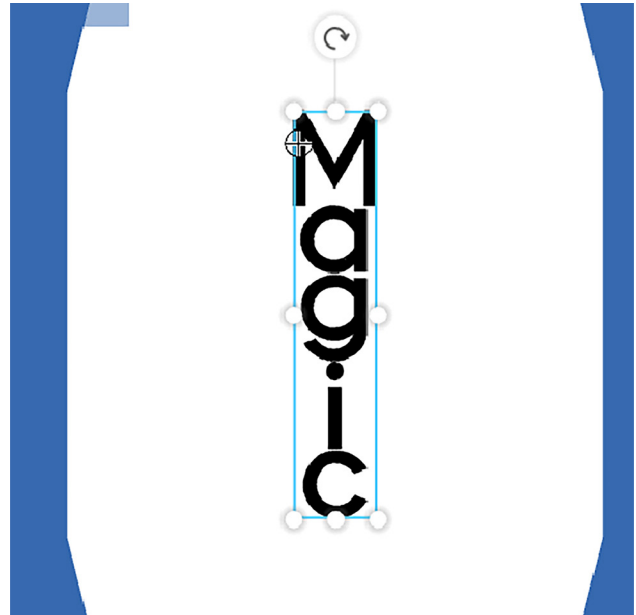


Fig. 28



Fig. 29

- Touch the yellow box to reset the arch to 0.
- Return to the Lettering menu using the back arrow key twice.

Spacing



The space, or kerning, between letters can be adjusted with the Spacing function. The top and bottom Multi-function Knobs or the plus (+) and minus (-) can adjust the spacing from -500 to 500.

- Increase the spacing to widen the space between letters (Fig. 30).
- Tap the minus (-) button to a negative number to reduce spacing between letters.
- Touch the yellow box to reset the spacing to 0.

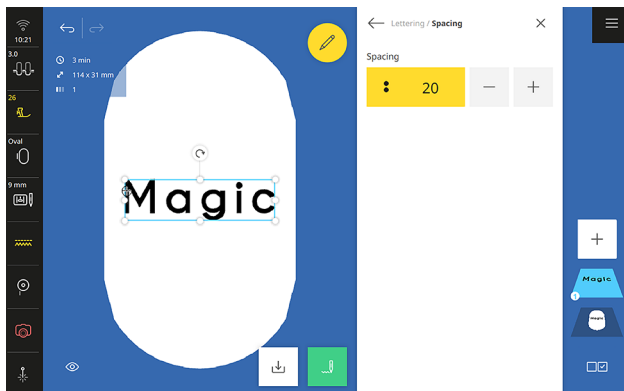
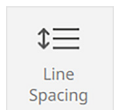


Fig. 30

Line Spacing



The distance between the lines can be adjusted with the Line Spacing function. Line spacing is only active with multi-line text.

Just like with Spacing, the top and bottom Multi-function Knobs or the plus (+) and minus (-) can adjust the spacing from -500 to 500.

Styling




Multiple adjustments can be made to lettering in the Style menu: Stitch Density, Pull Compensation, and Satin Value.

- **Stitch Density:** Stitch Density adjusts the density of stitching in the letters and can be modified with the Multi-function Knobs or the plus (+) and minus (-). Values range from 25% to 300%.
- **Pull Compensation:** Pull Compensation adjusts for the fabric being pulled in when the lettering is stitched. The amount of pull can be adjusted with the plus (+) and minus (-) buttons, at values from -1.0 mm to 2.0 mm, depending on the fabric type and pull of the lettering.
- **Satin Value:** The Satin Value will change a satin stitch fill to a step stitch. The size in mm shown will adjust anything over that length to become a step fill stitch. Value can be adjusted with the plus (+) and minus (-) buttons in a range of 0.5 mm to 15 mm.

Exercise 2

SHAPE DESIGNER AND LETTERING

Materials & Machine Settings

 (1) 10" x 15" piece of fabric and (1) 10" x 15" piece of stabilizer

 **Needle:** Jersey Needle 80/12 130/705 H-SUK

 **Hoop:** Oval Hoop

 **Foot:** Embroidery Foot #26L

Hoop your fabric and attach to the module following the instructions on page 3. Delete any designs currently on your screen before beginning.

Add Design » Embroidery Designs » Mini

1. Select design #OC86074.
2. Tap Add Design again and select design #OC86069.
3. Select the Oval Hoop if not already selected (Fig. 31).
4. In Selection Options, choose Select All.



5. Tap the Edit Menu and select Shape Designer.
6. Choose the Circle Shape (Fig. 32).
7. Set Item Count to 8 and Justification to Inside (Fig. 32).
8. Select Add Design.
9. Choose Lettering and select Art Deco Block.
10. Type "Create" (enter) "Your" (enter) "Magic".

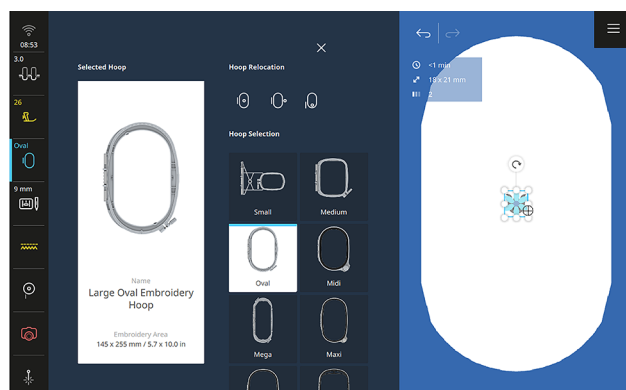
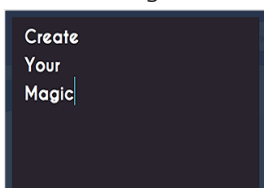


Fig. 31

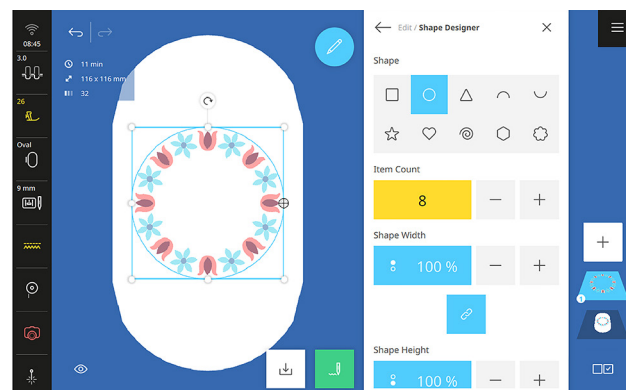


Fig. 32

11. Preview different fonts by selecting them above the keyboard. Select Atlantic Script and Confirm.
12. Tap the Edit Menu and select Edit Text.
13. Select Center Justification and choose Confirm (Fig. 33).
14. Using the on-screen handles, reduce the design to fit within the circle. Move the lettering to place it as desired (Fig. 34).
15. Tap and hold the lettering layer in the Layer Bar and drag it below the wreath design (Fig. 35). This will make the lettering sew before the wreath.
16. Select Stitchout.
17. In the Stitchout Summary, select:
 - Presser Foot: #26
 - Thread Away: On
 - Color: Reduce Thread Changes
18. Select Confirm.
19. Stitch the Design in hoop.
20. Tap Finish Embroidering when the stitching is complete.



Fig. 33



Fig. 34



Fig. 35

PLACEMENT

Discover how to perfectly place your embroidery design in this chapter with the Position Submenu.

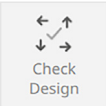
POSITION SUBMENU

The following functions are under the Position Submenu (Fig. 36): Design Center, Check Design, Virtual Positioning, Pinpoint Placement, Endless Embroidery, Match Start/Stop, and Flip Start/Stop.

Design Center

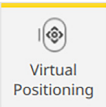
The needle moves to the center position of the selected layer(s). The hoop must be on the machine to activate.

Check Design

 Verifies the position of the embroidery motif before stitchout by moving the hoop so that the needle is centered over each location tapped. A hoop must be attached to use this function; if the icon is selected and no hoop is attached, a prompt will appear to attach the hoop.

You can also use the plus (+) or minus (-) icons, or Multi-function Knobs, to move the embroidery design horizontally or vertically (Fig. 37). The hoop will move in conjunction with the design movement.

Virtual Positioning

 The B 990 moves the attached hoop to the position of your selected point in the design on the screen, or where the selected crosshair symbols is. As long as this icon is active (highlighted yellow) and the hoop is attached, the position within the hoop on screen

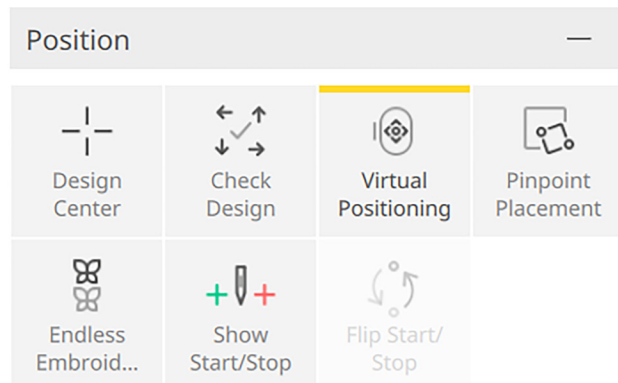


Fig. 36

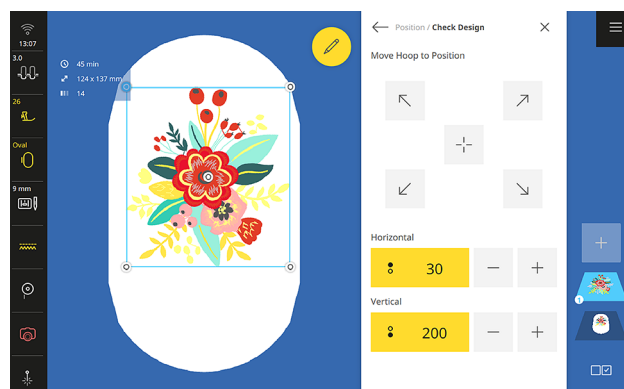
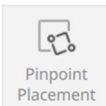


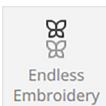
Fig. 37

can be tracked. This allows you to precisely place to a single stitch if desired.

Pinpoint Placement

 Allows embroidery motifs to be placed within the hoop in a specific position. You will explore this tool in Exercise 3 on page 25.

Endless Embroidery

 The Endless Embroidery function allows for easy alignment of embroidered borders that are longer than the hoop. The design is multiplied to fill the hoop,

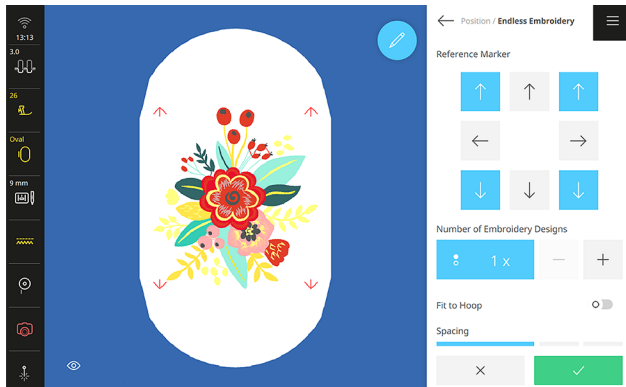


Fig. 38

and marker positions are inserted to help with the re-positioning of the embroidery hoop (Fig. 38).

- **Reference Marker:** Set or modify marker points by selecting the arrow buttons; the blue arrow icon corresponds to the red arrow marker point shown in the Design Altering Area. Arrows are generated as they are selected and are all grouped together on a single separate layer.
- **Number of Embroidery Designs:** Select the number of desired motif repeats using the top Multi-function Knob or the plus (+) and minus (-) buttons in the dialog. Repeats are added without spacing as default.
- **Fit to Hoop:** When Fit to Hoop is toggled on, the designs will resize to fit the selected hoop automatically.

- **Spacing:** Adjust the spacing between design repeats by using the bottom Multi-function Knob or the plus (+) and minus (-) buttons. Value is changed 0.1 mm increments, ranging from -300 mm to 300 mm. You will see the modifications in the Design Altering Area.

After making all the selections, you will confirm your settings and continue with your stitchout.

To repeat and continue your Endless Embroidery design, rehoop the fabric so that the stitched-out marker positions are within the stitching field of the hoop. Use Pinpoint Placement with Free Point Selection to align your next hooping, selecting and matching the points of the marker positions. Read more about Pinpoint Placement later in this book.

Show Start/Stop

Displays the first and last stitch of each individual embroidery design in the Design Altering Area. Green indicates the first stitch, and red is placed at the last stitch.


Flip Start/Stop

Reverses the stitch path of customizable quilt designs.

Exercise 3

PLACEMENT

Materials & Machine Settings

 (1) 10" x 15" piece of fabric and (1) 10" x 15" piece of stabilizer

 **Needle:** Jersey Needle 80/12 130/705 H-SUK

 **Hoop:** Oval Hoop



 **Foot:** Embroidery Foot #26L

PREPARE HOOPED FABRIC

- On a 10" by 15" piece of dark fabric, use a straightedge ruler to draw two non-parallel chalk lines at opposite angles approximately 4" down from the top of the fabric for the first line and another 3-4" below that one for the second line.
- Using the hoop template as a reference, draw a diamond shape that will fit within your oval hoop, below the two reference lines (Fig. 39).

ATTACH HOOP & SCAN FABRIC

Hoop your fabric following the instructions on page 3. Delete any designs currently on your screen before beginning.

1.  Select the View icon.
2.  Select the Hoop Background icon.

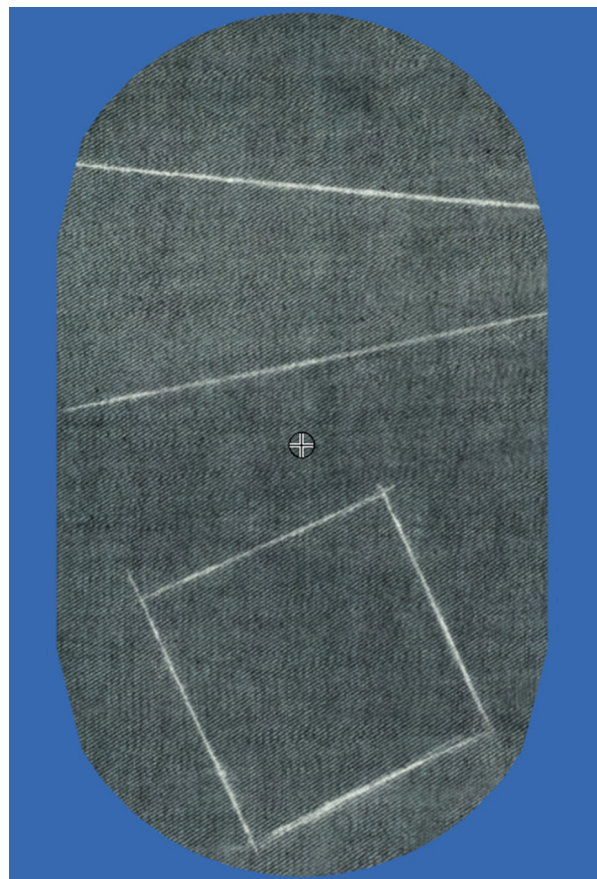
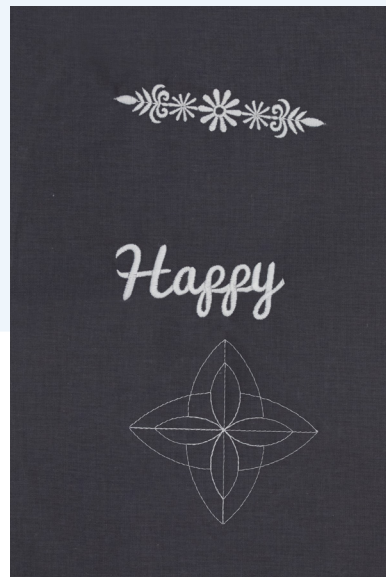


Fig. 39

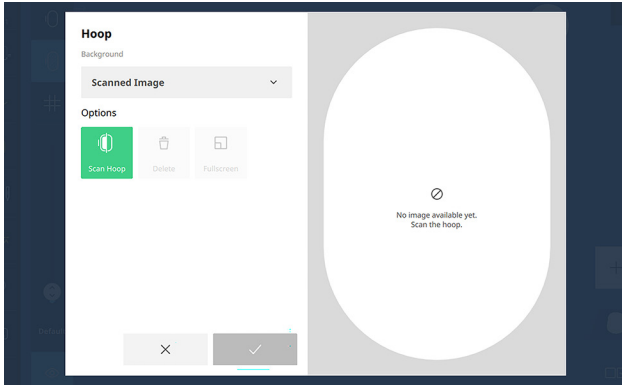


Fig. 40



Fig. 41

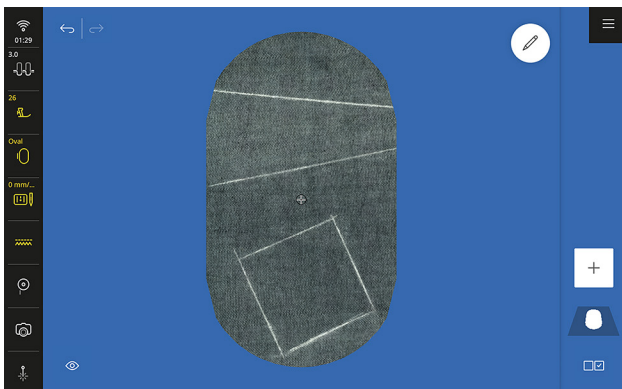


Fig. 42

3. Select Scanned Image from the dropdown, then Scan Hoop (Fig. 40).
4. Attach the hoop when prompted to do so (Fig. 41). You will receive a message to make sure the area is clear for the hoop to move. Select the green check to confirm.
5. The hoop will now be scanned (Fig. 42).
6. When the machine finishes scanning, select the green check mark to confirm the scanned image and close the Hoop Background menu.


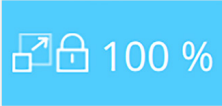
FEATURE FOCUS

Pinpoint Placement and Pinpoint Laser

With Pinpoint Placement (in the Position Submenu), positioning points allow for the precision placement of a design while rotating and resizing the design to embroider correctly, even if the hooping is crooked. It is highly recommended to use the Pinpoint Laser when using any Pinpoint Placement mode. It makes it easy to precisely center your needle over the correct placement on the fabric.

DESIGN PLACEMENT

Add Design » Embroidery Designs » Borders

7. Select design #FB038 (Fig. 43).
8.  Turn on the Pinpoint Laser.
9. Select the Edit Menu, then choose Pinpoint Placement in the Position submenu.
10.  Select Retain Size. This will keep the size of the design locked,

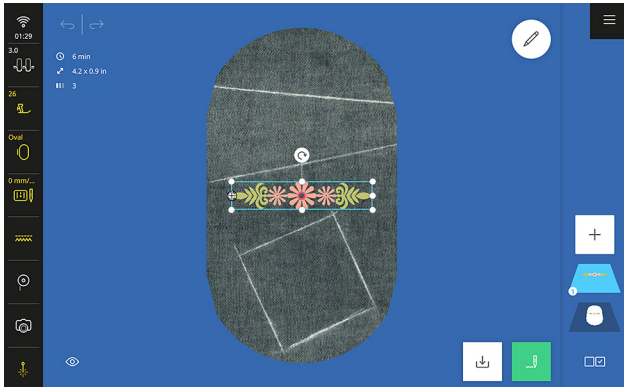


Fig. 43

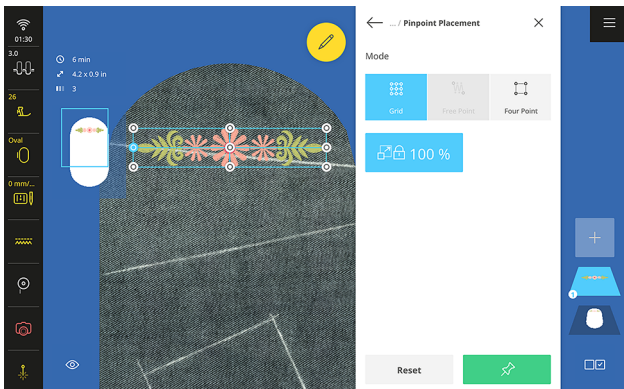


Fig. 44

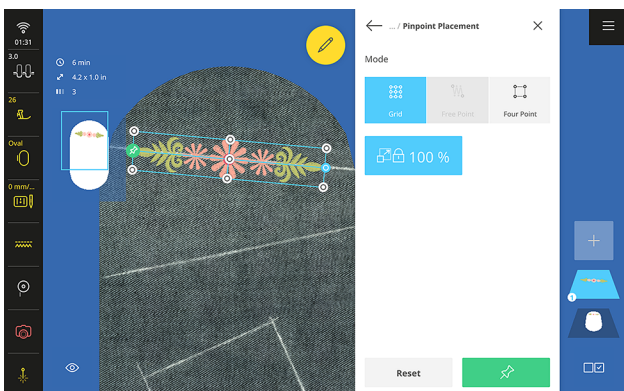


Fig. 45

allowing only for reposition-able movement of the design. When it is off, the design can be rotated, moved, and resized.

There are three modes for placement: Grid, Free Point, and Four Point. We'll use each of these in the following steps.

Grid Placement



Grid (default positioning) allows for the positioning of an embroidery motif based on the nine points of the motif's Bounding Box. When you select a point

in the 9-point grid, the hoop will move to match this reference point in the design. Only two points can be positioned in Grid mode.

11. Select Grid.
12. Tap the reference point on the middle left of the grid on the design in the Design Altering Area.
13. Use the Multi-function Knobs to move this point onto the left side of the top line marked on your fabric. Zoom in if needed and use the Pinpoint Laser to confirm placement (Fig. 44).
14. When the point is aligned, select the green thumbtack icon to pin this point.
15. Now select the middle reference point on the far right side of the grid on the Design Altering Area.
16. Use either Multi-function Knob to rotate the design until satisfied with its placement on the line (Fig. 45).
17. Select the green thumbtack to confirm the placement.
18. Return to the Edit Menu using the back arrow.

Free Point



Free Point placement allows the positioning of a design based on any two stitches in the embroidery motif. The Zoom slider, as well as the zoom touch gestures, can zoom in on a specific stitch within the design. When you select a stitch, the hoop will move to match where this reference point lies on the fabric. Only two points can be positioned in Free Point mode.

Add Design » Lettering » Atlantic Script

19. Type "Happy", then confirm with the green check.
20. Go to the Edit Menu.
21. Select the Edit Menu, then choose Pinpoint Placement in the Position submenu.
22. Select Free Point.
23. Select the bottom left corner of the letter H.
24. Use the Multi-function Knobs to move this point onto the second drawn line and select the green thumbtack to set in place (Fig. 46).
25. Select the bottom of the upper portion of the letter "y" (the portion that would rest on the line if writing on lined paper).
26. Use the Multi-function Knobs to align this portion of letter on top of the line, too. Now "Happy" looks like it was written on lined paper with the "y" going below the chosen baseline (Fig. 47).
27. Select the green thumbtack to set the design. The placement points will disappear once the second point is set.
28. Close the Edit Menu.

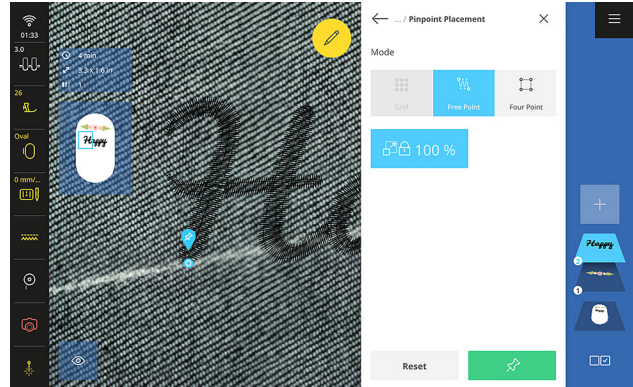


Fig. 46

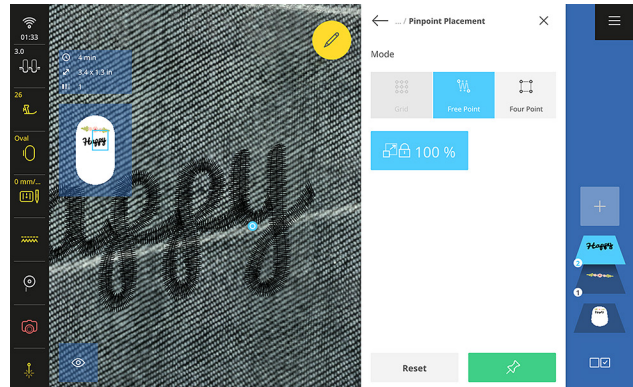


Fig. 47

Four Point



Four Point placement allows the embroidery motif to be positioned within the hoop based on four points. You will have two different options when using Four Point: Fit and Morph (Fig. 48).

When morph is selected, the embroidery motif can be transformed to fit within the desired design shape. Note that this may distort or change the look of the design and thus performs best with line-work designs like quilting designs. When you select a point, the hoop will move to match where this reference point lies on the fabric.

Add Design » Embroidery Designs » Inspirations » Quilt

29. Select design #Q102. Zoom out to see the design.
30. Select the Edit Menu.
31. Resize the design to fit in the hoop.
32. Select Pinpoint Placement, Four Point, then Morph.
33. Select one corner of the design.
34. Use the Multi-function Knobs to align that point to match a position marked on the hooped fabric (Fig. 49).
35. Repeat with all four points of the design (Fig. 50).
36. Set an inner margin of 6 mm (Fig. 51). The design is now set within the shape, with an equidistant margin from the sides.
37. Close the Edit Menu.

Four Point Placement



Fig. 48

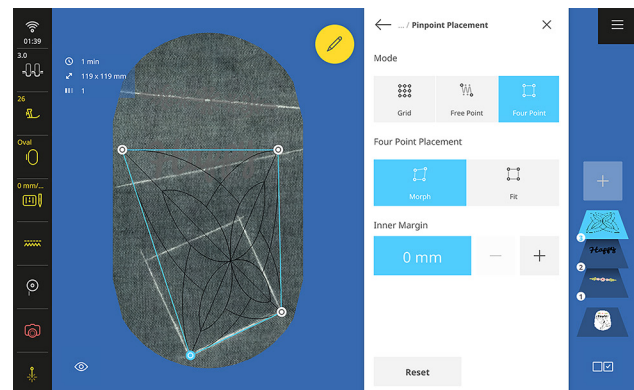


Fig. 49

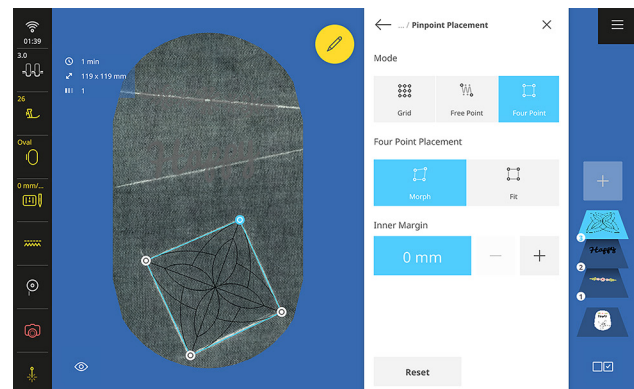


Fig. 50

Inner Margin



Fig. 51

-
38. Select Stitchout.
 39. In the Stitchout Summary, select:
 - Presser Foot: #26
 - Color: Single Color
 40. Select Confirm.
 41. Stitch the Design in hoop in all white.
 42. Tap Finish Embroidering when the stitching is complete.

FEATURE FOCUS

Fit

When Fit is selected, a design can be made to fit within the boundaries of the desired design shape, without distorting the design within the shape. When you select a point, the hoop will move to match where this reference point lies on the fabric.



SAVING DESIGNS

The Save icon appears as soon as you have added a design. This section goes over how to save your customized designs for future use.

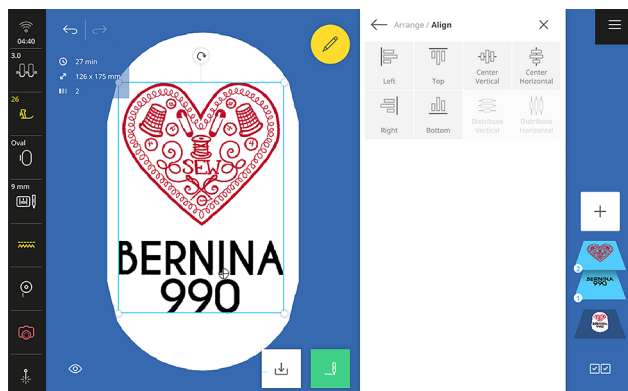


Fig. 52


SAVE TO PERSONAL FOLDER

You can save any design, including all the customized stitch settings you created, by saving it to the machine in the Personal Folder.

Delete any designs on the screen.

Add Design » Lettering » Art Deco

1. Type "BERNINA 990" with a line break between "BERNINA" and "990".
2. Select Center Justification.
3. Confirm with the green checkmark.
4. Select the Oval hoop is needed.
5. Tap Add Design, then from the Embroidery Designs folder, select the Hobbies folder.
6. Select design #12796-07M.
7. Rotate the heart 90 degrees using the Rotate handle.

8. Use your finger on the Design Altering Area to move the heart above the word "BERNINA".
9. Resize and move as needed.
10. Select both layers.
11. Select the Edit Menu.
12. Tap Align from the Arrange submenu, then choose Center Horizontal (Fig. 52).
13.  Select the Save icon at the bottom the screen.
14. Type "B 990" for the file name.



15. Confirm with the green checkmark.
16. Confirm again to save the design in the Personal Folder (Fig. 53).

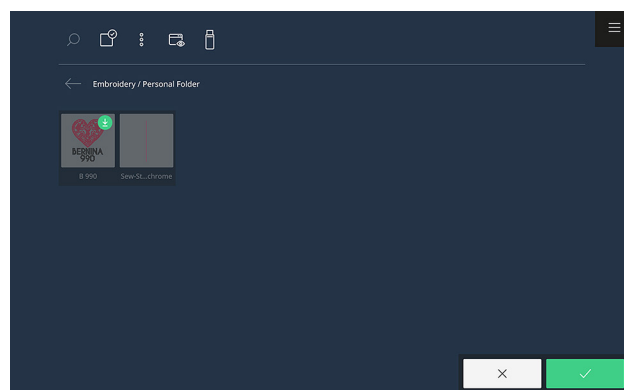


Fig. 53

RETRIEVE FROM PERSONAL FOLDER

1. Delete your design from the screen.
2. Select Add Design (+) icon in the Layer Bar.

3.  Select the Personal Folder.

4. Select the saved "B 990" design to place it on the screen (Fig. 54).

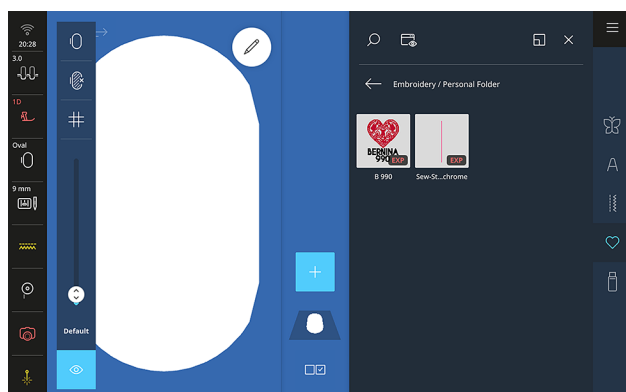


Fig. 54

SAVE/OPEN FROM USB



You can save a design to a USB stick to use in software or free up space in your B 990.

1. Select the Save icon at the bottom of the screen again.
2. Name the motif as desired using the keyboard.
3. Confirm name with the green checkmark.
4. Select the USB icon at the top of the screen.
5. Confirm save with the green checkmark.

To retrieve your motif from a USB, select the Quick Access Bar to the right of the File Manager, then the USB icon, to find your motif.

STITCHOUT SUMMARY

You have seen the Stitchout Summary while working through the exercises in this workbook. Let's go over it in a little more detail now.

STITCHOUT SUMMARY



When it is time to stitch out your embroidery motif, select the green Stitchout needle icon at the bottom right of the screen.

The Embroidery Stitchout Screen (Fig. 55) allows for final adjustments of common embroidery settings. You can change these options with every stitchout. Modifications are kept until they are changed or factory settings are restored.

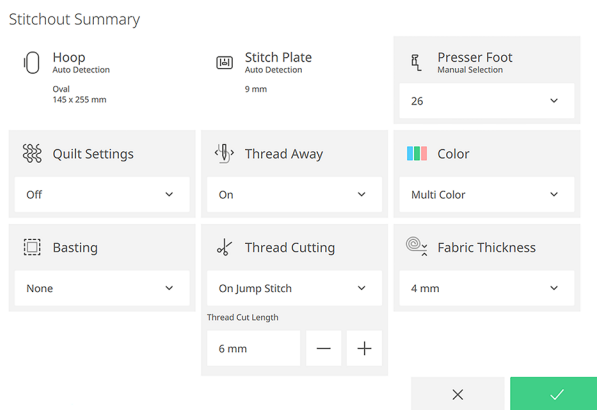


Fig. 55

- The Hoop status shows the detected hoop. If a hoop is not attached, it is highlighted in red. A hoop does not need to be attached to the machine to enter this screen.
- The Stitch Plate status shows the detected plate. If a plate is not attached, it will be highlighted in red.

- You can select a different foot from the Presser Foot drop-down menu (Fig. 56) or select it from the Presser Foot recognition screen on the Status Bar. Only compatible embroidery feet are shown in the dropdown menu. If a presser foot is not selected, the machine will prompt you to attach one.

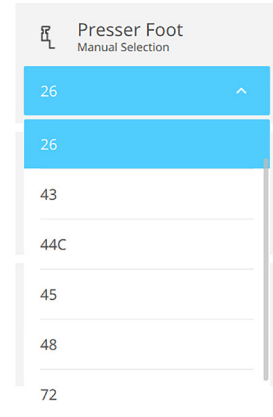


Fig. 56

- Quilt Settings adjust several cut and secure settings at once. It is suggested for all customizable quilt designs, such as BQM. Selecting it requires you to pull the thread up at the beginning and end of a stitchout the with Needle Up/Down button. The default is off.
- The Thread Away function causes a swift movement of the hoop after a thread has been cut that pulls the top thread up out of the fabric and brings it out of the way so the top side of the embroidery project will be perfectly clean with no thread to clip. Thread Away mode can be turned off or on when the Quilt Settings are turned off. Thread Away Mode is turned on by default.

- The Color dropdown menu has multiple options for how colors are handled during embroidery.
 - Multi Color: Causes the motif to stitch out as is. After each color, the machine stops so you can change the threads.
 - Single Color: Embroiders the design with the color currently threaded without interruptions, even if many colors are used.
 - Reduce Thread Changes: Combines like colors together, resulting in less thread changes. Use caution when selecting this for layered embroidery designs, as it will affect the stitching order of the design.
- Basting allows for the addition of a basting box around the design or hoop.
 - Off: This is the default option and will not stitch out a basting box.
 - Around Design: A basting box will be added around the outside of the embroidery motif(s) being stitched. When Around Design is selected, you will also be presented with the option to choose how far the basting box stitches from the edge of the design.
 - Around Hoop: A basting box will be added around the whole outside of the embroidery hoop.
- Thread Cutting allows you to cut with every color change, cut by jump stitch length, (defined by millimeter), or never. Default is set to Jump Stitch, 6 mm length.
 - Off: Threads are never cut.
 - On Color Change: Jump stitches are only cut when the machine transitions from one color to another.
 - On Jump stitch: Cuts all jump stitches in the design, determined by connecting stitch length from 1 mm to 15 mm.
- Fabric Thickness offers better automatic tension. You can set the value to 4 mm (default), 7.5 mm, or 10 mm.

Once satisfied with the settings, tap the green checkmark to confirm the selections and continue to the Embroidery Stitchout Screen. Tap the gray “x” icon to return to the Edit screen.

STITCHOUT SCREEN

The Embroidery Stitchout Screen appears when the design is ready for Stitchout (Fig. 57). Once here, you can begin to stitch by pressing the Start/Stop button.

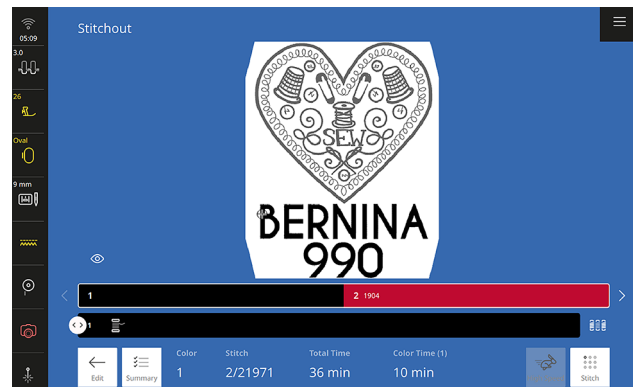


Fig. 57

Design Preview



The Design Preview displays the design as it will be stitched out. Only the current color layer is shown, with the other color layers grayed out. Use the View icon to modify the viewing size in the Design Preview Area.

Color Bar



The color bar beneath the Design Preview offers a lot of helpful information about the stitchout.

All colors in the stitchout are shown in relation to the number of total stitches in the design. The more stitches, the longer the bar. Use the arrows or swipe to scroll through the bar and view additional colors in the design. When a color is selected, the hoop is moved to the starting position for that color, and the color shows in the Current Color Bar.

Current Color Bar



Below the Color Bar is the Current Color Bar, showing the current color to be stitched. The slider progresses as the color is stitched out and can be moved to jump to a different position in the color layer when the machine is not stitching. The hoop is moved to the position of the slider.

Color Change



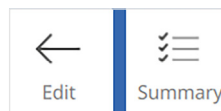
Next to the Current Color Bar is the Color Change icon. The color stitching order can be adjusted in the same way as done in the Stitchout Summary screen: Multi Color, Single Color, and Reduce Thread Changes. The changes you make here override your settings from the Stitchout Summary.

Embroidery Information

Color	Stitch	Total Time	Color Time (1)
1	2/21971	36 min	10 min

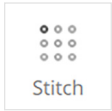
Embroidery Information Bar shows the current stitchout information: current color number, current stitch number/total stitch number, total time to stitch, and current color time.

Navigation



Return to the Stitchout Summary with the Summary icon or to the Design Altering Area with the Edit button to make additional edits. Any changes made in the Summary screen are automatically applied to the stitchout.

Stitch



With the Stitch icon, you can return to a specific point in the embroidery design. This is necessary after a thread break.

When selected, the window appears with the number pad and the current stitch placement from the canceled process. Navigate through stitches one at a time with the plus (+) and minus (-) buttons. Use the upper Multi-function Knob to navigate through stitches in single-stitch increments or the bottom knob to navigate in 50-stitch increments.

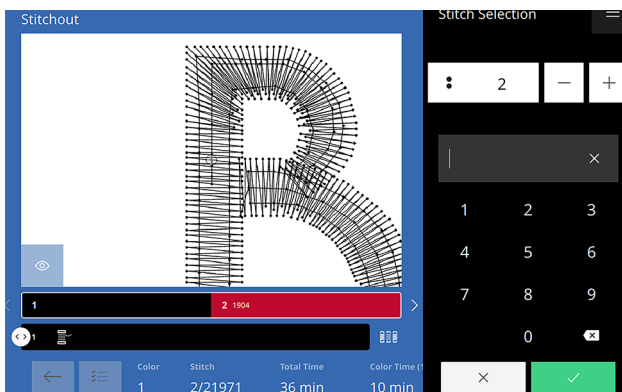
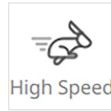


Fig. 58

You can also type in the specific stitch number on the number pad (Fig. 58). When the green checkmark is selected, the window is closed, and the hoop position is moved to the input stitch number. If a number is outside of range, the position is moved to the last position.

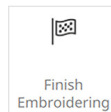
When the current stitch has been changed, the stitch number button changes to yellow to show it has been modified.

High Speed



When High Speed is selected, the embroidery will stitch at the fastest speed allotted for the current embroidery design. Slower speeds are recommended for specialty threads or fabrics.

Finish



To complete the design, select “Finish Embroidering.”

CONCLUSION

Now that you have worked through this workbook, you will be familiar with the operation of embroidery on your B 990 machine. You can learn more about using your machine by using the instruction manual, the Help Center built in to the B 990, the BERNINA Skill Hub, and your local BERNINA dealer.





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