

BERNINA QUILTING WORKBOOK

for BERNINA 7 Series, 5 Series, 4 Series, and 3 Series



BERNINA
made to create



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INTRODUCTION

Welcome to the Quilting Workbook for your BERNINA 3, 4, 5, or 7 Series sewing machine. The following tutorials and exercises will help you become familiar with your BERNINA sewing machine and all its quilting capabilities. Once you have mastered the techniques, you are sure to 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 your BERNINA.

Sew at your own pace. You can also follow along with the corresponding [BERNINA Skill Hub](#) online course for your machine. In that course, you will find helpful videos and unique learning tools. In addition to the workbooks, online courses, and classes from your BERNINA dealer, there are tutorials and helpful information built directly into the machine.

The machine display screens illustrated throughout this workbook are based on the 7 PRO Series models. Display interfaces on other machines may vary slightly.

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



PREPARING TO STITCH

EXERCISE MATERIALS

Fabric & Stabilizer

- Cut (9) 2 ½ squares of quilting cotton in two colors: 5 in Color A, 4 in Color B (Exercise 1, 2)
- Cut (2) 5" squares of quilting cotton (Exercise 3)
- Cut (1) 8" square of quilting cotton (Exercise 4)
- Cut (4) 18" x 21" pieces of woven fabric (Exercise 5, 6, 7, 8)
- Cut (1) 12" x 15" piece of woven fabric
- Cut (1) 5" square of fusible webbing
- Cut (1) 5" square and (1) 12" x 15" piece of tear-away stabilizer
- Cut (1) 8" square and (2) 18" x 21" pieces of low- to medium-loft batting
- Apply fusible web to the back of (1) 5" square and cut out a shape (heart) for appliqué. Fuse this to the center of the other 5" square of woven fabric. Place tear-away stabilizer under the square (Exercise 3)
- Prepare two quilt sandwiches: Place (1) 18" x 21" piece of low- to medium-loft batting between (2) 18" x 21" pieces of woven fabric. Spraying adhesive basting spray (such as 505 Spray) between the layers is a helpful method to prevent shifting. One quilt sandwich will be used in Exercises 5-7, and one will be used for Exercise 8

Notions

- 80/12 Microtex needle
- Cotton or polyester thread

- Basting spray adhesive
- Pins (optional)

Hoops & Presser Feet

- Large Oval Hoop
- Mega Hoop
- Darning Foot #9
- Open Embroidery Foot #20/20C
- Free-motion Embroidery Foot #24 or Adjustable Stippling Foot #73
- Embroidery Foot #26
- BERNINA Stitch Regulator #42
- Walking Foot #50
- Adjustable Rulerwork Foot #72/72S
- Patchwork foot best suited for your machine
 - Patchwork Foot #37 or Patchwork Foot with Guide #57 for 5.5 mm machines
 - Patchwork Foot #97 for 9 mm machines
 - Patchwork Foot #37D, #57D, or #97D for 9 mm machines with Dual Feed

MACHINE SETUP PREFERENCES

Before beginning the exercises, set up your machine for sewing. Review the manual and/or the following video references for your machine to attach the module and prepare for embroidery.



[3 Series](#)



[4 Series](#)



[5 Series](#)



[7 Series](#)

PATCHWORK SETTINGS

SECURING PROGRAM

Many of the stitches in your BERNINA were designed with quilters in mind, and they can be found in the Quilt Stitches folder. The very first stitch in the folder, #1301 (Fig. 1), is the Quilting Securing Program. This stitch has short running stitches programmed to secure at the beginning and end. The tension is set to work best with cotton piecing threads.

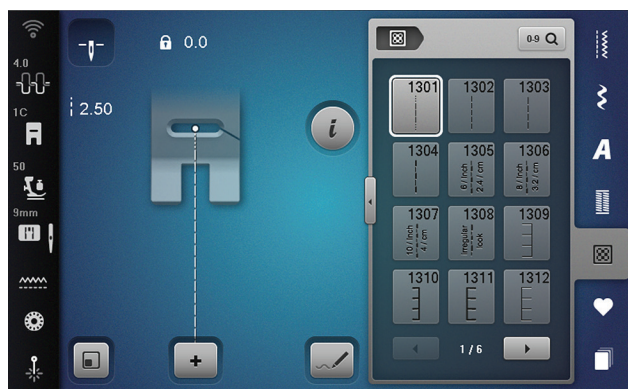


Fig. 1

Selection Menu » Quilt Stitches

1. Select stitch #1301 (#1324 in B 740).
2. Sew a seam. The seam will begin with four short running stitches and then continue at a standard stitch length (default is 2.5 mm).
3.  When you reach the end of the seam, stop before going off the edge of the fabric, then tap the Quick Reverse button. When you press down on the foot control again, the machine will sew another four running stitches and then stop on its own.

PROGRAMMABLE SETTINGS

Your BERNINA includes many features and settings to help optimize your quilting processes from patchwork to appliqué to quilting.

Hover

The Hover feature will automatically raise the presser foot slightly when the machine is set for the needle to stop down. This is a particularly useful tool with patchwork like chain piecing.

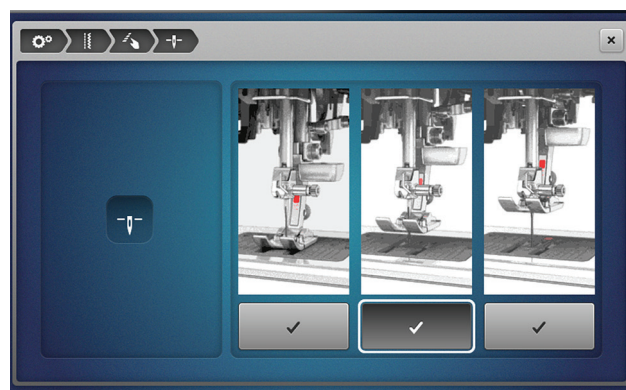


Fig. 2

Home » Machine Setup » Sewing » External Buttons » Needle Stop Down

The default setting is Medium, raising the presser foot only several millimeters from the fabric (Fig. 2). Low will set the foot at the lowest position above the fabric, meaning the presser foot will not raise. High will raise the presser foot to the highest position.

Programmable BERNINA Foot Control

The BERNINA Foot Control has a Back-kick feature activated by pressing your heel on the back edge. On select models, you can program additional functionality (Fig. 3), allowing you to keep your hands on your fabric at all times.

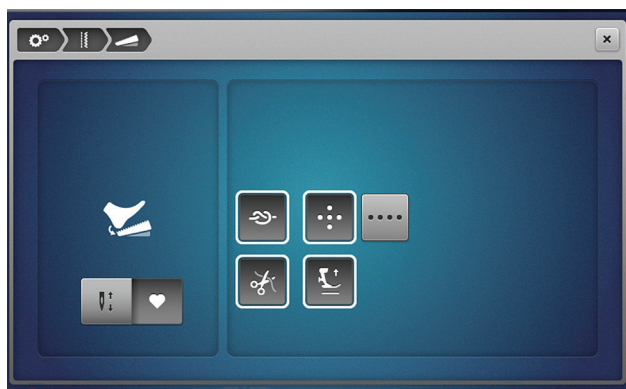


Fig. 3

**Home » Machine Setup » Sewing »
Programming the Foot Control**

The default functionality of Back-kick is Needle Up/Down and it takes a half-step in the stitch sequence, either raising or lowering the needle depending on its position. However, if you toggle this setting off, your machine model may have additional options for programming custom Back-kick settings, such as:

- Securing stitch: activate a securing stitch and choose whether that stitch secures in place or sews a series of short running stitches. If you select running stitches, you may also customize how many stitches the machine will sew (from two to six stitches).
- Cut upper and lower thread.
- Raise presser foot.

The programmable foot control comes standard with some machines but not all. However, most machines are compatible with this accessory, so if your machine doesn't include one, you can purchase a compatible BERNINA Foot Control from your dealer to enable the Needle Up/Down feature with Back-kick.

Securing Button

If you prefer not to use a stitch with built-in securing stitches, you can manually insert a securing stitch at any point by pressing the Securing button. The type of securing stitch sewn can be customized (Fig. 4) for most machines (not available on the B 435, 335, and 325).

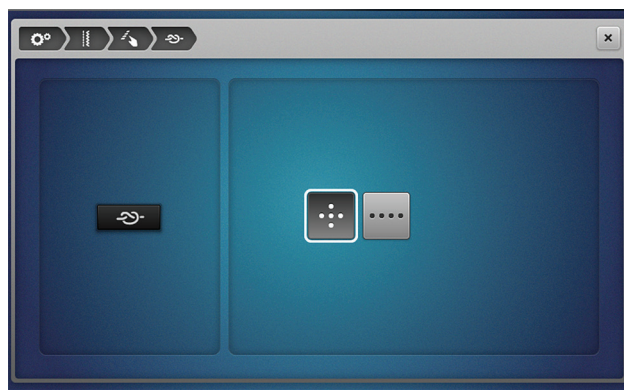


Fig. 4

**Home » Machine Setup »
External Buttons » Securing**

Here, you can choose between Securing in Place or Running Stitches. If you select Running Stitches, you can customize how many stitches the machine will sew, from two to six stitches.

BERNINA DUAL FEED

The BERNINA Dual Feed, available on select models, is a mechanism engineered to aid the feeding of multiple layers of fabric underneath the presser foot. The Dual Feed lever comes down from the back of the machine (Fig. 5) to fit into Dual Feed-compatible presser feet (marked with the letter “D”) and helps grab and pull fabric from behind the foot as it moves under the needle.

Dual Feed can improve your piecing to ensure that points and patterns match in your patchwork.

- The presser foot must be raised to engage or disengage Dual Feed.
- Dual Feed must be engaged when sewing with Dual Feed presser feet. Without the lever engaged, the sole of the presser foot is incomplete and will not produce ideal results.
- If fabric feeding needs more refinement, adjust Presser Foot Pressure.

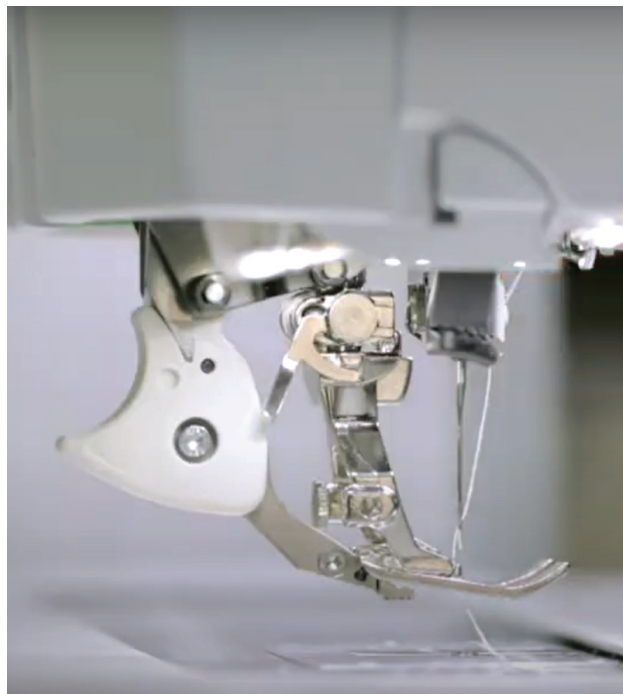


Fig. 5

Exercise 1

PATCHWORK SEAMS

Materials & Machine Settings

 (9) 2 ½" squares of woven fabric (five squares in Color A, and four in Color B)

 **Needle:** 80/12 Microtex

 **Needle Position:** Center

 **Presser Foot:** Patchwork Foot #37/37D or #97/97D (for 9 mm machines)

- For B 790 ULTRA, 790 PRO, 770 QE PRO, 770 QE PLUS, 735 PRO, 735, 5 Series, 4 Series, and 3 Series, in Sewing Mode, select:

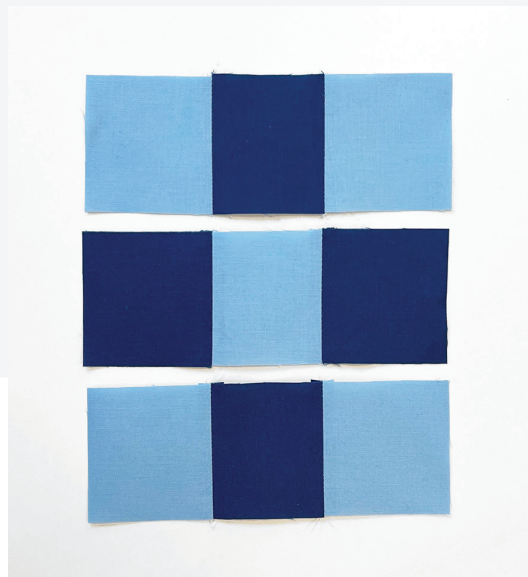
Sewing » Quilt Stitches » #1303

- For B 740, select:

Practical Stitches » stitch #1

and set the Stitch Length to 2.0 mm.

- Align one square each of A and B with right sides together.
- Place fabric under the presser foot, aligning raw edge at right side with the edge of the presser foot.
- Sew edges together, keeping aligned with presser foot and ¼" markings on stitch plate.
- Piece together two more pairs of 2 ½" squares without cutting the threads (chain piecing).
- Piece a third square onto each pair until you have three short rows of squares in alternating colors (A-B-A, B-A-B, A-B-A).
- Press seam allowances open or toward the darker color.



Tip:

For patchwork projects, the Straight/CutWork Stitch Plate helps improve performance and achieve accurate straight stitches without fabric flagging.

Exercise 2

STITCH COUNTER

Materials & Machine Settings

 (3) rows of pieced squares of woven fabric (from Exercise 1 Patchwork Seams)

 **Needle:** 80/12 Microtex

 **Needle Position:** Center

 **Presser Foot:** Patchwork Foot #37/37D or #97/97D

The Stitch Counter, available on the B 790 ULTRA, 790 PRO, 770 QE PRO, 770 QE PLUS, 590, and 570 QE, is a tool that records a seam length and allows you to stitch the same seam length repeatedly until overwritten or cleared. It is useful when chain piecing repetitive seams.



1. In Sewing Mode, select:

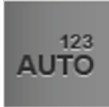
Sewing » Quilt Stitches » stitch #1303

2.  Open the Information Menu.

3.  Select Stitch Counter. When active, the Stitch Counter icon will show in the Stitch Altering Area and the Quick Reverse icon will blink on screen.

4. Align two rows of squares, right sides together, in alternating colors, then place the fabric under the presser foot with the right raw edge to the edge of the presser foot.

5. Sew edges together, staying aligned with presser foot and ¼" markings on stitch plate.

6.  At the end of the seam, tap the Quick Reverse button. The Stitch Counter display, shown above the Stitch Length setting, will change to AUTO and show the length of the programmed seam (Fig. 6).

7. Cut threads and align the remaining row of your 9-patch block. When you resume sewing, the machine will automatically stop after the saved number of stitches.

To reprogram the Stitch Counter seam length, select CLR or tap the icon to turn it off and back on. To resume stitching a programmed seam length after the function has been turned off, tap the Stitch Counter icon twice until it once again reads AUTO.

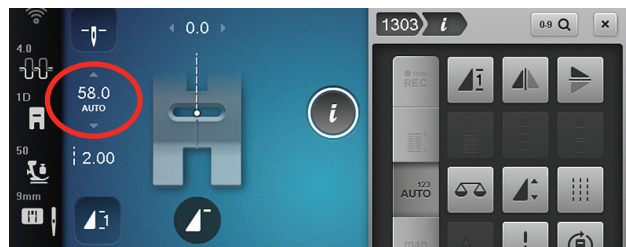


Fig. 6

APPLIQUÉ

Appliqué is a process of sewing layers of fabric on top of one another, rather than pieced edge to edge with joining seams, to add dimension or design to your project. The stitching is often visible with appliqué. Appliqué can be done manually, or it can be accomplished as an in-the-hoop project using embroidery designs digitized for appliqué (for machines with embroidery capabilities and module).

QUILT STITCHES FOLDER



Along with the quilting securing program used in piecing, there are many additional stitches built into your BERNINA for a variety of quilting techniques. There are straight stitches calibrated for using finer cotton threads often used in quilts, stitches that imitate the look of hand quilting, textured stitches for crazy patchwork techniques, and a variety of appliqué stitches. Among the appliqué stitches are a variety of blanket stitches, a satin stitch, and a narrow blind stitch. If the built-in stitches do not suit your project or liking, remember that any stitch on your BERNINA can be adjusted in width or length to perfection.

NEEDLE POSITION

Adjusting the needle position on your stitch can make it easier to precisely align fabrics for perfect placement. It is recommended to use a presser foot with good visibility, such as Open Embroidery Foot #20/20C/20D. This foot has a wide opening in front of the needle and defined “toes” to which you can align your appliqué fabric. When the needle is moved to the far left or right position using the Needle Position buttons below the Multi-function Knobs,

and the fabric is guided against the inner edge of the foot, the stitch will land neatly along the edge of the appliqué.

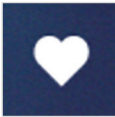
PINPOINT LASER



With the fine point of the Pinpoint Laser the B 790 ULTRA and 7 PRO Series, you can see exactly where your needle is going to land in the fabric before it drops. This is useful with appliqué stitches, as you can be sure your stitch will catch the background and/or appliqué fabric with each step of the needle. The Pinpoint Laser can be toggled on or off at any time in the Status Bar.

SAVE TO PERSONAL MEMORY

You can save any stitch for later use, including customized settings like length, width, or upper thread tension, by saving it to the machine in the Personal Memory.

-  Select the Personal Memory icon.
-  Select Save Stitch in Personal Memory.
- If available, choose the desired folder for your saved stitch.
- Confirm save location with the green check mark.

To retrieve the stitch, select Personal Memory and then Stitch Pattern Selection.

IN-THE-HOOP APPLIQUÉ

Fabrics can be appliquéd automatically in Embroidery Mode with an embroidery hoop using specialized designs (Fig. 7).

Some appliqué designs may be built into your BERNINA embroidery machine, and there are many available for purchase from retailers such as OESD.

In-the-hoop (or ITH) appliqué designs are digitized to include a few particular elements to complete this technique in embroidery:

- **Placement Stitch:** This is a single line of stitching indicating where the appliqué should be placed in the hoop. Your fabric may be precut to this shape or larger than the placement line, but will need to be secured in place with some type of adhesive (such as fusible web or spray adhesive).
- **Cut Line Stitch:** There are two methods for cutting your fabric — either pre-cut (in which case you can skip the cut line) or by placing a piece of fabric larger than the placement line over the placement line and then stitching the cut line. Trim the fabric up to (but not through) the cut line before moving on to the next stitch.
- **Tack-down Stitch:** After the appliqué fabric is placed in the hoop, the tack-down stitch secures the appliqué fabric to the background fabric and stabilizer.
- **Final Appliqué Stitch:** also known as the cover stitch. This is a more decorative stitch (such as a satin, blanket, or feather stitch) to cover the tack-down lines and raw edges of your appliqué.



Fig. 7

Exercise 3

APPLIQUÉ HEART

Materials & Machine Settings

 Fused appliqué heart square with (1) 5" square of stabilizer

 **Needle:** 80/12 Microtex

 **Needle Position:** 5 (right)

 **Presser Foot:** Open Embroidery Foot #20/20C

1. In Sewing Mode, select:

**Sewing » Quilt Stitches »
stitch #1309 (#1329 for B 740)**

2. Increase the stitch width to 3.2 mm and the stitch length to 3.0 mm (Fig. 8).
3. Move the needle position to the right (5) using the right needle position buttons located under the Multi-function Knobs.
4. Set Needle Stop Down.
5. Place your appliqué underneath the presser foot and lower the foot.
6. Align the raw edge of your appliqué with the inside of the right edge of the presser foot.
7. Sew all the way around the appliqué, pivoting around curves and points with the needle down in the far-right step of the blanket stitch. Tap Pattern Begin for a clean start when changing direction.
8. When you reach your starting point, hold the Quick Reverse to backstitch 3-4 stitches then cut threads.



Fig. 8

FEATURE FOCUS

Stitch Designer

A fantastic feature on your B 790 ULTRA / PRO / PLUS is the Stitch Designer. With it, you can create your own decorative stitch patterns or alter designs already built into the machine. You already know BERNINA offers you Total Stitch Control, but Stitch Designer takes this to a new level!

Try making a unique blanket stitch for your next appliqué project:

1. Select the Stitch Designer icon at the bottom of the Stitch Altering Area.
2. Select New Stitch Design.
3. Select Snap to Grid.
4. Tap on one point at the center-top of Stitch Design Area.
5. Count down 2 points and tap.
6. Count left 4 points and tap, then tap again on the previous point (Fig. 9).
7. Count down again 2 points and tap.
8. Count left 3 points and tap, then tap again on the previous point.
9. Repeat Steps 5-6. Each square in the grid is 1 mm, so what looks large to you on the screen is quite small stitched out (Fig. 10).
10. Select the green check mark to confirm and return to the Sewing Screen.



Fig. 9

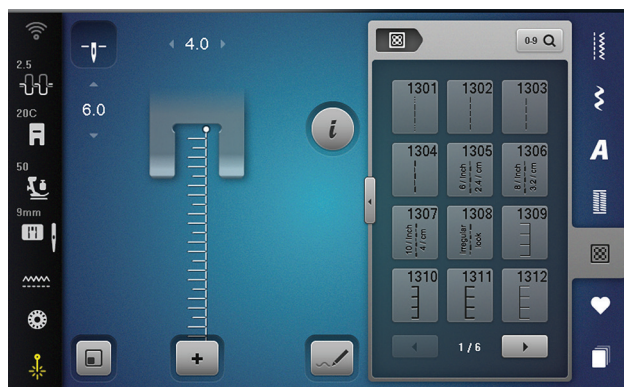


Fig. 10

FOUNDATION PAPER PIECING

Foundation paper piecing is a technique that allows you to achieve complex angles and points. Designs are printed on paper and the patchwork is sewn with the fabric on the back side of the paper with the printed design facing up, stitching precisely on printed lines. The paper is then removed from the patchwork before layering batting and backing for quilting, or other preferred finishing.

Exact instructions for foundation paper piecing will vary by quilt pattern, but this technique universally benefits from a few key tips:

- **Strong seams:**

Because the paper foundation of the quilt block is torn out after the seams are sewn, this technique requires very strong, secure seams.

Reducing your stitch length to 1.60 to 1.80 mm will not only result in stronger seams but also create more perforations in the foundation paper, making it easier to remove and reducing the chance of popping a seam while tearing the paper.



- **Precise placement:** Following the exact printed lines on your paper foundation is key to achieving your desired result. Use a presser foot with clear visibility, like the Open Embroidery Foot #20/20C or Reverse Pattern Foot with Clear Sole #34/34C/34D.

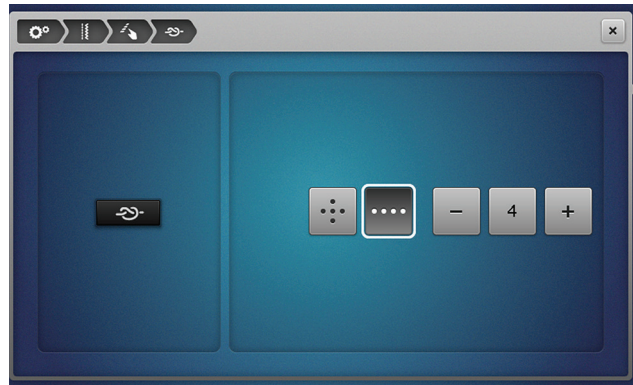


Fig. 11

- **Programmable securing:** Some securing options could create more bulk than desired, particularly when many seams are intersecting. Program your securing stitch (with either the Securing button, Back-kick on the Foot Control, or Thread Cutter) to sew with running stitches for securing with the least amount of bulk (Fig. 11).
- **Use the Pinpoint Laser:** If your machine has a Laser (B 790 ULTRA, 790 PRO, 770 QE PRO, and 735 PRO), activate it to see exactly where the needle will land so your seams start and end precisely on the printed lines.

WALKING FOOT QUILTING

Quilting on your domestic sewing machine can be as simple as utilizing the feed dog to feed the quilt through the machine. The Three-sole Walking Foot with Seam Guide #50 (Fig. 12) or Walking Foot #50W (Fig. 13) is the ideal presser foot for this process because it is engineered to move bulky layers efficiently, with minimal shifting of layers. The foot comes with three interchangeable soles and two guides to aid you in a variety of applications.

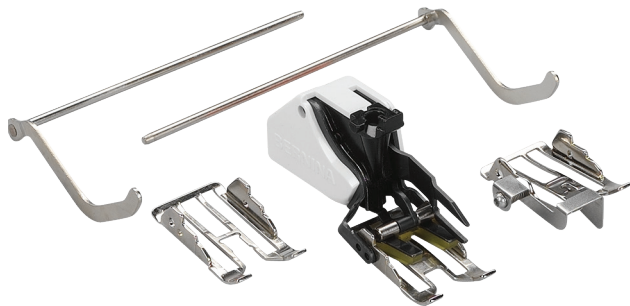


Fig. 12



Fig. 13

WHY A WALKING FOOT?

A standard presser foot relies on the feed dog of the machine to move fabric under the foot and through the machine. The walking foot is designed to help feed fabric from the top and the bottom and move it all together.

The walking foot incorporates a set of rubberized feet that are mechanized to move in sync with the movement of the feed dog to grip your fabric and move it through the machine with even feeding. This mechanism works by having a small U-shaped fork that sits around the needle bar so that the foot moves with each stitch.

THREE INTERCHANGEABLE SOLES

Three different soles are included with the walking foot — a standard closed-toe sole, an open-toe sole, and a sole with a guide aligned to the center needle position.

- The standard closed-toe sole works well for most applications. There is a small groove in line with the center needle position to aid in guiding fabric.
- The open-toe sole may be a better option when more visibility is needed in stitching, like when using a wider stitch to quilt, such as a serpentine stitch. There is clear visibility of the needle in all positions.
- The sole with center guide is ideal for applications such as stitching in the ditch, edge stitching, or even appliqué on bulky fabrics like wool. Fabric is easily positioned against the guide and the needle position can be adjusted to sew precisely in line with or alongside the guide.

Tip:

Did you know BERNINA makes two different walking feet? The Three-sole Walking Foot #50 has been a beloved tool for years but its needle opening limits stitches to only 5.5 mm wide. Introduced in 2026, the Walking Foot #50W provides an option for wider stitching with the same smooth, even feeding of the original foot.

WALKING FOOT VS DUAL FEED

At first glance, the Walking Foot and Dual Feed may appear to do similar things — they both help feed fabric from the top. So when should you use each option?

The Walking Foot is ideal for handling bulk and many layers that might shift while stitching. This makes it the best option for quilting.

Dual Feed can be used with a wide range of compatible presser feet for specialty applications, such as a zipper foot or a non-stick sole. Dual Feed will help two layers of fabric feed more evenly, like when seaming rows in a quilt or matching a pattern in your backing.

Exercise 4

STRAIGHT LINE QUILTING

Materials & Machine Settings

 9-patch block from Exercise 2; (1) 8" square of quilting cotton; (1) 8" square of low- to medium-loft batting

 **Needle:** 80/12 Microtex

 **Needle Position:** Center

 **Presser Foot:** Walking Foot #50 with Edgestitch Sole



PART ONE: STITCH-IN-THE-DITCH

1. Create a quilt sandwich by placing batting between the 9-patch block and the quilting cotton. Use spray adhesive or safety pins to prevent the layers from shifting.
2. Attach and then, if available on your machine, select Walking Foot #50 from the Presser Foot Selection menu (Fig. 14).
3. On screen, select:

**Sewing » Quilt Stitches » stitch #1302
(#1325 in B 740)**

4. Set Needle Stop Down in the Stitch Altering Area. This will prevent your stitch from shifting when you need to pause and readjust your quilt.
5. Place your quilt sandwich underneath the presser foot, aligning the center guide with a seam in your patchwork.

After you start quilting, pause to look behind the presser foot and inspect your stitch. The quilting should fall invisibly into the patchwork seam, but you may need to adjust your needle position slightly to make this so. The direction you have pressed your patchwork seams can affect how neatly the presser foot guide, and thus the quilting seam, falls into the ditch. If your quilting is clearly visible, try moving the needle position to better align with your seam.



Fig. 14

Tip:

If your machine has the Pinpoint Laser, use it here! You can ensure your seam falls in the ditch neatly even before you start sewing.

PART TWO: CHANNEL QUILTING

6. Change to the closed-toe sole on the presser foot.
7. Place the collar on to the back side of the walking foot housing, with the screw fully loosened. Line up the holes in the collar with the holes along the top of the housing.
8. Slide the straight bar of the left seam guide through the holes in the collar and walking foot. Set the guide to measure 1" from the groove at the center needle position on the walking foot sole. Tighten the screw on the collar to secure.
9. Place the quilt under the presser foot and line the guide up to the seam of the first row of your patchwork. Sew across the quilt, keeping the guide on the last line of stitching.
10. Practice adding rows of stitches to your 9-patch. Consider trying a serpentine stitch.

SERPENTINE STITCH

A beginner friendly way to quilt with the walking foot is to sew rows of wavy lines. When you use a wavy line stitch, the eye is not drawn to imperfections in the same way as a straight line that could veer or slip to one side of a seam.

In the Quilt Stitches folder, you will find some variations on the serpentine stitch already programmed into the machine—stitches #1317 (#1396 in B 740), #1318, and #1319 (Fig. 15). On machines with a 9 mm maximum stitch width, these stitches are programmed at the maximum width and can be sewn as is with the Walking Foot #50W. If using the narrower Walking Foot #50, the stitch width must be reduced to 5.5 mm

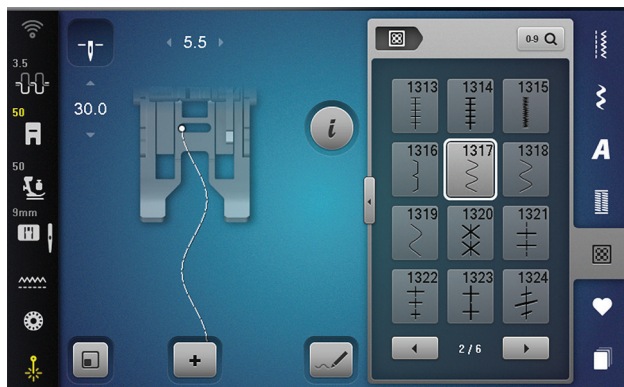


Fig. 15



Fig. 16

Serpentine Alternative

If your machine does not include a built-in quilting serpentine stitch, existing stitches may be adjusted to create a similar look.

All the serpentine stitches are derived from stitch #4, a practical stitch for sewing stretch (Fig. 16). The difference with the programmed stitches is that they have been optimized for smooth curves at various lengths, while maintaining a consistent and normal stitch length.

Select stitch #4 and increase the stitch length to 2.5-3.25 mm to create a similar look on your machine. You can even save it to your Personal Memory for later use.

FEATURE FOCUS

Presser Foot Pressure



Another option for controlling how evenly a fabric feeds through the machine is to adjust Presser Foot Pressure. Some machines control Presser Foot Pressure on-screen (Fig. 17), while others adjust it with a manual dial (Fig. 18 and 19).

When working with thick fabrics, a reduced presser foot pressure enables the fabric to be moved more easily beneath the presser foot. When working with thin fabrics, a higher presser foot pressure prevents the fabric from slipping easily.



Fig. 18

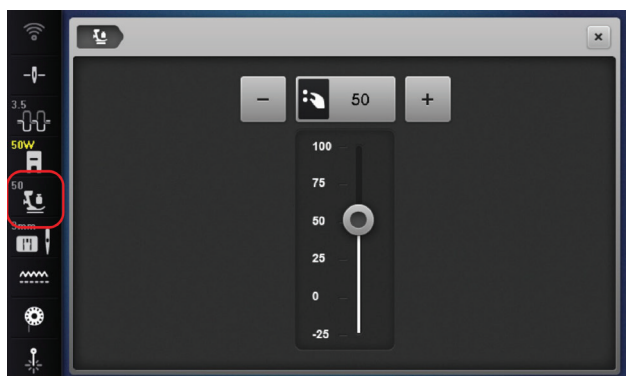


Fig. 17



Fig. 19

FREE-MOTION QUILTING

BERNINA STITCH REGULATOR

The BERNINA Stitch Regulator (BSR) is an accessory designed to assist in free-motion stitching techniques by helping keep the stitch length regular and consistent. A sensor on the presser foot detects fabric movement and adjusts needle speed to create even stitches. The BSR is compatible for the B 475 QE and above and included as a standard accessory for some models.

FEATURE FOCUS

Kick-start



You can sew with stitch regulation in one of three ways: with the BERNINA Foot Control (as you would when traditionally sewing), with the Start/Stop button on the front of the machine, or with Kick-start (on some models).

Kick-start, located in the Stitch Altering Area, allows the Back-kick on the Foot Control to operate as a Start/Stop button on the machine. When active, the Kick-start screen remains open, and any other programmed functionality of the Back-kick (i.e. needle up/down, thread cutting, etc.) is disabled.

Modes & Settings

The BSR offers different modes of operation (Fig. 20). Which mode you use will vary depending on your desired quilting technique and preference.

- Mode 1:** The needle will stitch constantly, even without the fabric moving, until deactivated, with either the foot control or Start/ Stop button.
- Mode 2:** The motor is engaged only when the fabric is moved under the foot, giving you time to stop and think about the path the needle is taking. NOTE: If there is no movement for over seven seconds, the stitch regulator will automatically deactivate.
- Mode 3:** (B 790 ULTRA, 790 PRO, 770 QE PRO, 770 QE PLUS only) (Fig. 21) Used for free-motion basting. Basting stitches can be set to either 2 stitches per inch (SPI) or 4 SPI.

You may also use either a straight stitch or zigzag stitch for Modes 1 and 2. Choose a straight stitch for more traditional quilting styles or a zigzag stitch for a more textured look, like thread painting.

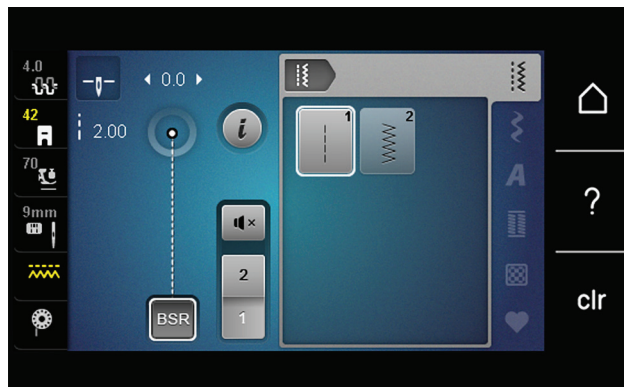


Fig. 20

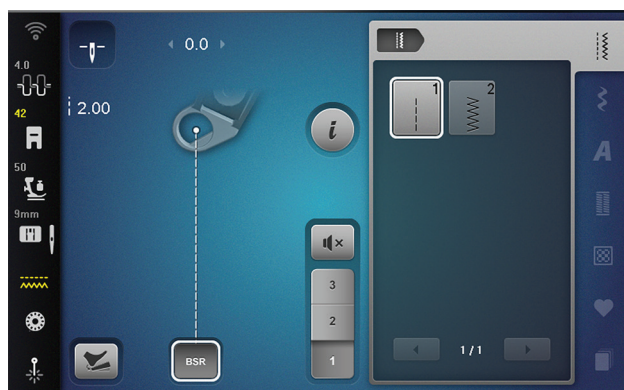


Fig. 21

BERNINA INTEGRATED STITCH REGULATOR

Much like the original BSR accessory, the BERNINA Integrated Stitch Regulator (BISR) is designed to assist with free-motion stitching techniques by helping to keep the stitch length regular and consistent. However, a machine with BISR has a sensor built-in, eliminating the need for a separate accessory. The advantage of using the integrated option is that any free-motion presser foot can be used with the BISR.

Home » BERNINA Integrated Stitch Regulator

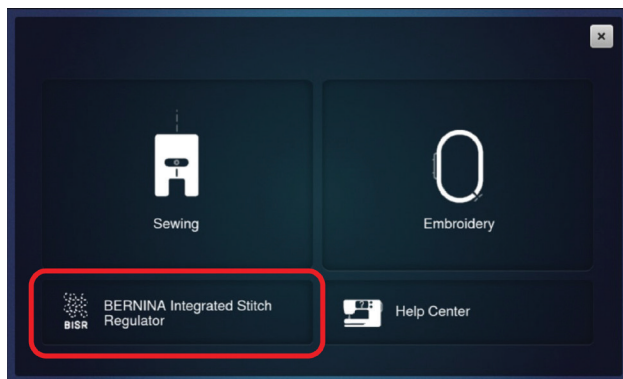


Fig. 22

The 5.5 mm/BISR Stitch Plate must be attached to the machine in order to for the machine to enter the BERNINA Integrated Stitch Regulator mode.

Modes & Settings

The BISR performs in much the same way as the BSR attachment, with three different Modes of operation and either straight stitch or zigzag functions.

However, there are some additional features to further control your stitching.



Fig. 23

- **Stitches per Inch:** Control your desired stitch length in stitch regulation. This ranges from 2 to 24 SPI with the default being 12.
- **Revolutions per Minute (RPM):** This option is only available with Mode 1. This setting controls the minimum speed of the needle in RPM. Because the needle does not stop stitching in Mode 1, this is the speed your needle will stitch when you slow your movement to a stop. The minimum is 100 and the maximum is 1000, with the default being 250.

Exercise 5

FREE-MOTION WITH STITCH REGULATION

Materials & Machine Settings

 18" x 21" quilt sandwich marked in four equal quadrants

 **Needle:** 80/12 Microtex

 **Needle Position:** Center

 **Presser Foot:** BERNINA Stitch Regulator #42

For the B 475 QE and above with the BERNINA Stitch Regulator #42:

- Attach the BERNINA Stitch Regulator foot and plug it in to the back of the machine. Lower feed dog by pressing button on the right side of the machine.
- Attach the Straight/Cutwork Stitch Plate.

For the B 790 ULTRA:

- Attach a free-motion presser foot, such as Free-motion Embroidery Foot #24 or Darning Foot #9.
- Attach the 5.5 mm/BISR Stitch Plate.
- Navigate to the BERNINA Integrated Stitch Regulator

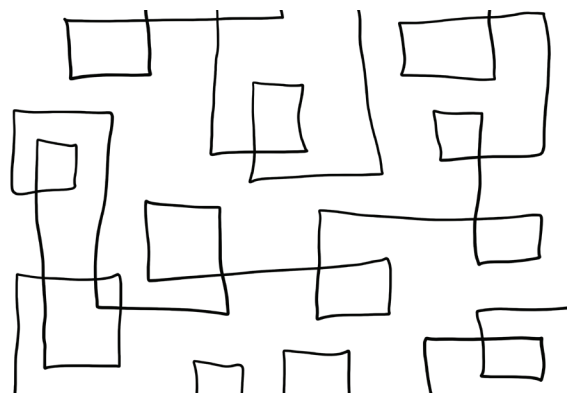


Fig. 24

Home » BERNINA Integrated Stitch Regulator

1. Prepare to work in one quadrant by placing the fabric under the presser foot. If applicable, activate the Pinpoint Laser in the Status Bar (ULTRA and PRO models only).
2. Select Mode 1.
3.  Bring the bobbin thread to the top of the fabric by holding the needle thread and pressing the Needle Up/Down button two times.
4. Practice quilting meandering boxes (Fig. 20) in one quadrant of your sandwich using Mode 1. Try other designs that include crisp points, like hearts or leaves.
5. Select Mode 2. Practice filling a second quadrant of your sandwich with meandering curves (Fig. 20) in this mode. Try designs with smoother curves and no points, like pebbles or stippling.

Exercise 6

FREE-MOTION W/O STITCH REGULATION

Materials & Machine Settings



The marked 18" x 21" quilt sandwich from Exercise 5



Needle: 80/12 Microtex



Needle Position: Center



Presser Foot: Free-motion Embroidery Foot #24 or Darning Foot #9

1. Select Straight Stitch #1 (Fig. 21).
2. Attach the Straight/Cutwork Stitch Plate.
3. Attach a free-motion presser foot and lower feed dog by pressing button on the right side of the machine.
4. Place fabric under the presser foot. If applicable, activate the Pinpoint Laser in the Status Bar (B 790 ULTRA and 7 PRO Series only).
5. Bring the bobbin thread to the top of the fabric by holding the needle thread and pressing the Needle Up/Down button two times.
6. Practice quilting in one of the remaining quadrants of your quilt sandwich, adjusting the needle speed with your foot control to match the fabric movement under the presser foot. Quicker, more agile movements require more speed than slow, gentle movements.

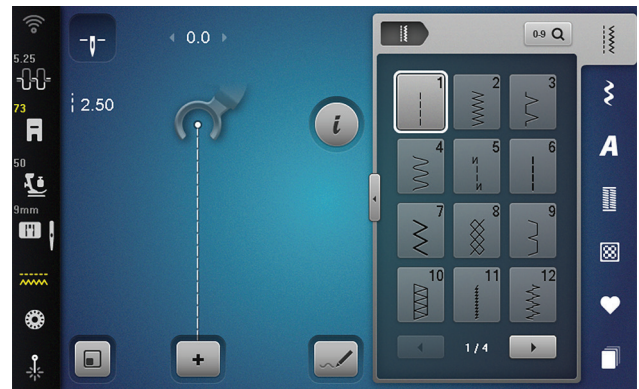


Fig. 25

RULERWORK QUILTING

Materials & Machine Settings

 The marked 18" x 21" quilt sandwich from Exercise 5

 **Needle:** 80/12 Microtex

 **Needle Position:** Center

 **Presser Foot:** Adjustable Ruler Foot #72/72S

Rulerwork is a quilting technique that uses Adjustable Ruler Foot #72/72S and clear template rulers to guide quilting designs. There are many different styles and shapes of rulers available to help you create endless custom quilting designs.

Rulerwork is a skill that requires some practice to learn. There are several great tutorials online and in books to help you learn how to work with rulers.

1. Attach Adjustable Ruler Foot #72 or Adjustable Ruler Foot with Slit #72S. Lower feed dog by pressing button on the right side of the machine.
2. In the Stitch Altering Area, set the needle to Stop Down.
3. B 790 ULTRA only: Attach the 5.5 mm/BISR Stitch Plate and navigate to the BISR:



Fig. 26

Home » BERNINA Integrated Stitch Regulator

4. Hold the needle thread and press the Needle Up/Down button two times to pull the bobbin thread to the top of the fabric.
5. Lower the needle and presser foot, then place the edge of the ruler up next to the foot (Fig. 22).
6. Hold the ruler with fingertips and, with enough pressure to move the ruler and fabric as one, gently guide along the presser foot edge.
7. Fill the remaining quadrant of the quilt sandwich with designs created using rulers.
8. For a longer line, stop and reposition the ruler to begin again. Always begin with the foot down and needle down before placing the ruler next to the foot.

COMPUTERIZED QUILTING

This chapter is for embroidery capable BERNINA machines equipped with the embroidery module.

Computerized quilting allows you to automate your quilting process using the embroidery module and hoops (Fig. 23). Quilting can be laid out using built-in quilting embroidery designs, Customizable Quilt Designs, or by using decorative stitches to create a one-of-a-kind design. Note that BQM designs are only compatible with the 7 PRO Series machines and up.

This chapter will guide you through both options and share tips for successful stitchouts.



Fig. 27

HOOPING QUILTS

Hooping quilts is different than standard embroidery hooping with fabric and stabilizer. Quilts are bulky, heavy, and have multiple layers that all must be hooped smoothly. Here are a few tips for successfully hooping your quilts.

- **Pin-less basting:** Baste your quilt sandwich without safety pins. Using pins can create challenges with hooping and add significant weight to your quilt. Instead, use temporary adhesive spray, fusible batting, thread baste (BSR Mode 3), or any combination of these.

- **Try a Clamp Hoop:** BERNINA Clamp Hoops (optional accessories) are designed for computerized quilting. They include a thick acrylic template with markings for quilt blocks in $\frac{1}{4}$ " increments. Line the template up on the quilt top, press the quilt down into the hoop, and secure with clamps around the edge.
- **Keep re-hooping simple:** After first hooping your quilt and placing it on the machine, minimize moving the quilt by re-hooping at the machine. To re-hoop, remove the inner ring of the embroidery hoop (or clamps, if using a Clamp Hoop), reposition the quilt, then replace the inner ring or clamps.

QUILTING EMBROIDERY DESIGNS

All BERNINA machines can read and use quilting designs in the traditional embroidery file format with an EXP extension. These designs can be a single, double, or even triple-line run for varying degrees of boldness. You can find them built-in on the machine or purchase separately.

CUSTOMIZABLE QUILT DESIGNS

Customizable Quilt Designs (BQM files) are stitching files that perform differently than standard embroidery files. These are the same files used by BERNINA Q-matic longarm software and can be resized to any size with stitches recalculated for your SPI setting. To preserve the customizable properties of BQM designs, load them via USB stick. With the exception of the B 790 ULTRA, saving directly on the machine converts them to EXP files and removes resizing capabilities.

CUSTOMIZABLE QUILT DESIGN EDITING

On the B 790 ULTRA, there is a collection of tools in the Information Menu to give you more control in editing your customizable quilting designs. In this Quilting menu, you will find the several tools to help you layout and customize your computerized quilting designs.

Show Start/Stop



Activate this to clearly see where each design starts and ends. When this is active (highlighted in yellow), green and red crosshairs will appear on the designs at the first and last stitch, respectively. This allows you to visualize the direction of stitching on your design. Once turned on, it will remain on until deactivated.

Flip Start/Stop



When arranging multiple quilting designs, they may align visually, but their stitching paths might not allow one design to move continuously into the next. Flip Start/ Stop will reverse the stitching path without altering the design visually. Flip Start/Stop only works with customizable quilt design formats.

Match Start/Stop



To ensure that designs are aligned perfectly, Match Start/Stop will align the selected designs together so that one design will start precisely where the previous one ended with no gap between the two.

Connect



This feature lets you link multiple quilt designs and allow them to sew out together as one design.

- **Connecting Stitches:** When designs are connected, the designs are merged so that they sew out continuously from one into the next, without individual starts and stops. If there is space between where one design stops and the next begins, the machine will insert a straight line of stitching to connect them.
- **Connect with Jump Stitch:** Designs are similarly merged, however if there are gaps between starts and stops, the machine will secure and leave a jump stitch that can be trimmed later on.

Crop



Trim and customize quilting designs to suit your project. The crop line, shown in blue, will divide your design. Elements in the darker, shaded area of the screen will be cropped off, leaving only the parts in the light.

- **Crop to Line:** Set a line on the machine screen to cut through your design. The line can be moved left to right, up and down, rotated, or set by positioning two points within your design.
- **Crop to Hoop:** Trims off any portion of the design exceeding the boundary of the hoop. You may also choose to set an inner margin, adjustable in 1 mm increments.

Set SPI for Quilt Designs

Machine Setup » Embroidery » Quilting Stitch Length

The stitch length for Customizable Quilt Designs can be set as long as 4 SPI or as short as 24 SPI (Fig. 24) n. Any time a design in this format is set up and stitched out, it will stitch at the set SPI.

If you make a change to your SPI settings while preparing a Customizable Quilt Design, you must change the setting before going to Stitchout for the stitch length change to take effect.

Tip:

More intricate designs with tighter curves may necessitate a shorter stitch length (higher number) in order to maintain smooth curves.

Securing Stitches

When Quilt Settings are turned on at Stitchout (more about that below), a unique quilting securing stitch will sew out to secure your designs. This securing stitch is a series of short running stitches that create less bulk than a traditional embroidery securing stitch. On select models, you can adjust how many stitches the machine takes to secure your designs at the beginning and end.

Adjust Fabric Thickness

Machine Setup » Embroidery » Fab- ric Thickness

This setting in Machine Setup will help create more balanced stitches in computerized quilting, regardless of design format (EXP or BQM). Increasing the



Fig. 28

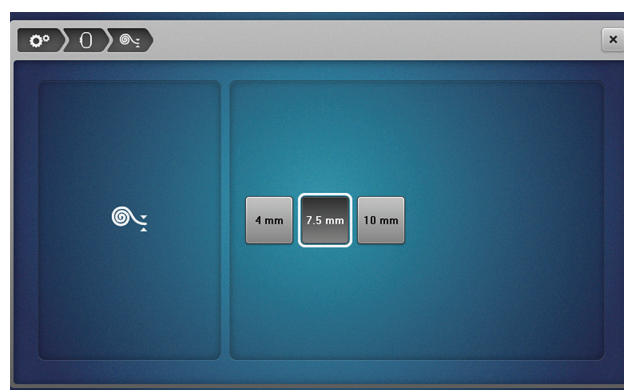


Fig. 29

machine's Fabric Thickness setting improves tension for thicker batting and foam interfacing (Fig. 25).

- For low-to-moderate loft quilt batting, set the Fabric Thickness to 7.5 mm.
- For high loft batting or foam interfacing, set the Fabric Thickness to 10 mm.

Quilt Stitchout Settings

Computerized quilting requires unique settings to ensure the designs stitch out as beautifully balanced quilting stitches rather than traditional embroidery. Here are some tips to achieve great results when sewing computerized quilt designs.

- Use the same thread (fiber and weight) in both the needle and bobbin. You may wish to use contrasting colors for testing your design, but use the same color for best results in your final project.
- Test your thread/fabric/batting combination. You may need to adjust your machine, such as the SPI setting.
- Adjust the thread tension. Compared to traditional embroidery, computerized quilting requires more tension on the upper thread to create a balanced stitch. In the Status Bar, select Upper Thread Tension. Increase the thread tension as desired.

TIPS FOR QUILTING STITCHOUT

When you have finished arranging your quilting designs, select Stitchout. Attach the embroidery hoop to the module arm when prompted. Be sure all loose quilt sections are clear from under the hoop before stitching.

Handling quilts with the embroidery module takes some practice, but here are some good rules for working with quilts in the hoop.

-  **Quilt Settings:** (*ULTRA and PRO models*) Tap the Quilt Settings icon to toggle the feature on. When Quilt Settings are turned on, the Thread Away and Thread Cutting settings are disabled. There will be no automatic thread cuts or Thread Away movement between thread cuts. A unique quilting securing stitch will also be activated. This securing stitch is a series of short run-

ning stitches that create less bulk than a traditional embroidery securing stitch.

-  **Color Resequencing:** Tap the Color Resequencing icon to toggle the feature on. This will have the machine read all designs or objects that are the same color as one unified item. The machine will not stop or secure between quilting designs. This will allow designs that are aligned properly to stitch in one continuous line.
- **Pull Up Bobbin Thread:** Holding your needle thread tail, press the Needle Up/Down button to use the Thread Up command and bring your bobbin thread to the top side of your quilt. It is important to hold and manage your thread tails at the start of stitching only when Quilt Settings are active.
- **Press the Start/Stop button:** Begin stitching with the Start/Stop button. The machine will slowly stitch the securing stitches then proceed at speed into the quilting design. Stop the machine after securing, trim or move excess threads, then press Start to continue and finish the quilting design. When the design is finished stitching, cut threads as desired.
- **Work center outward:** As you work from the center of the quilt outward, always keep the bulkiest part of the quilt out of the free-arm area. This will make it less likely that part of the quilt will slip under the hoop in the sewing process. At the end of stitching, use the Go to Stitch function to return to the last stitch, bring up the bobbin thread, and trim.

Exercise 8

DECORATIVE STITCH QUILT BACKGROUND

Materials & Machine Settings

 18" x 21" quilt sandwich

 **Needle:** 80/12 Microtex

 **Hoop:** Mega Hoop

 **Presser Foot:** Embroidery Foot #26

Decorative stitches can be used to quilt fabric in the hoop and many of them work well for simple all-over quilting designs or quilted backgrounds.

1. In Embroidery Mode, open a design:

**Sewing Stitches » Quilting Stitches »
stitch #18 in B 790 PRO (stitch #17 in B 590)**

2. Select the Mega Hoop from the Hoop menu.
Close the Hoop menu.

3. Open the Information Menu.

4.  Select Endless Embroidery. This function will stack the design as many times as it will fit vertically in the selected embroidery hoop.

5. Deselect any of the yellow-highlighted Reference Points. Tap the green check mark to confirm and close Endless Embroidery.

6. Use the upper Multi-function Knob to move the design to the left. Move the design as far left as you can without the hoop outlining in red.

7.  Select Duplicate to copy the design to the right of the original.

8.   Select Mirror Image Left/Right and Mirror Image Up/Down.

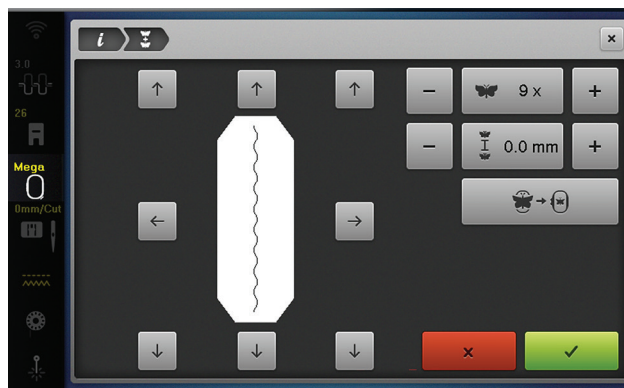
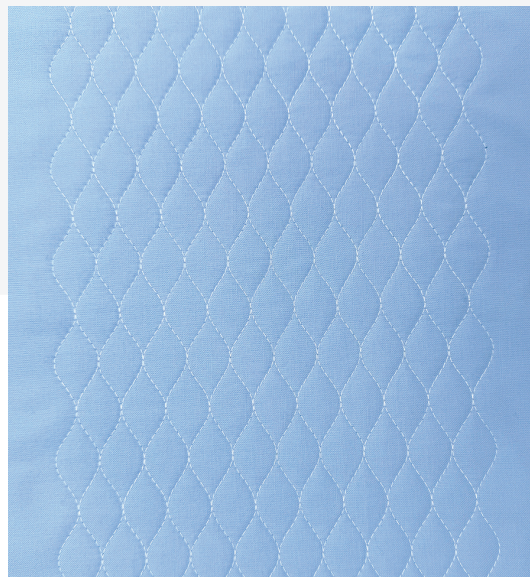


Fig. 30

9.  Select all layers in the composition by tapping the bottom layer in the Layer Bar.
10.  Select the Group tool.
11. Select Group + to group the two rows together. Return to the Information Menu.
12. Select Duplicate four more times to create a total of five layers in the Layer Bar.
13. Select all layers in the composition by tapping the bottom layer in the Layer Bar.
14.  Select Move.
15.  Tap the Center function to bring the entire composition to the center of the hoop (Fig. 27) (Fig. 28).

16. Close the Information Menu.

Your new decorative stitch composition can be stitched out in one full hooping on a small piece of fabric for small projects or quilt the stitch composition on a larger project by continually re-hooping and repositioning the design.

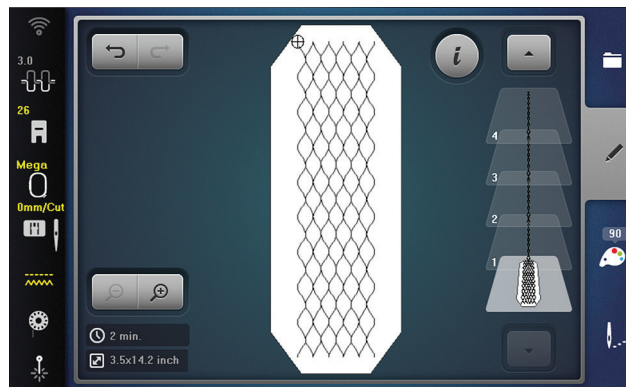


Fig. 31

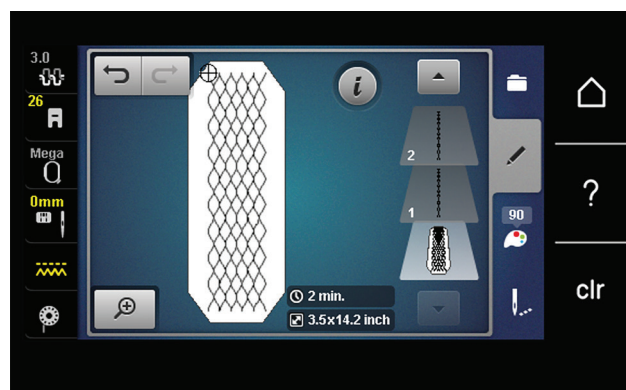


Fig. 32

Exercise 9

ARRANGE & CONNECT QUILT DESIGNS

Materials & Machine Settings

 12" x 21" quilt sandwich

 **Needle:** 80/12 Microtex

 **Hoop:** Maxi Hoop or Large Magnetic Hoop

 **Presser Foot:** Embroidery Foot #26

Several settings and tools on the B 790 ULTRA will help you arrange quilting designs with as few starts and stops as possible. Work through the following exercise to see how to align and connect designs for continuous quilting.

Part 1: Arranging Quilt Designs

1. In Embroidery Mode, open a design:

**New Motif » Embroidery Motifs folder »
Folder #2 » design #8**

2. In the Hoop Selection Menu, select your hoop (Maxi or Large Magnetic Hoop).
3. Open the Information Menu.
4. Select Rotate. Rotate the design 90 degrees then return to the main Information Menu.
5. Select Endless Embroidery. Deactivate all markers then select confirm.
6. Select the Quilting Menu. Activate Show Start/Stop. You can now see green and red crosshairs at the first and last stitches of each repeat of the original design.
7. Select Match Start/Stop. The designs will move so that one design starts exactly where the previous design stopped.

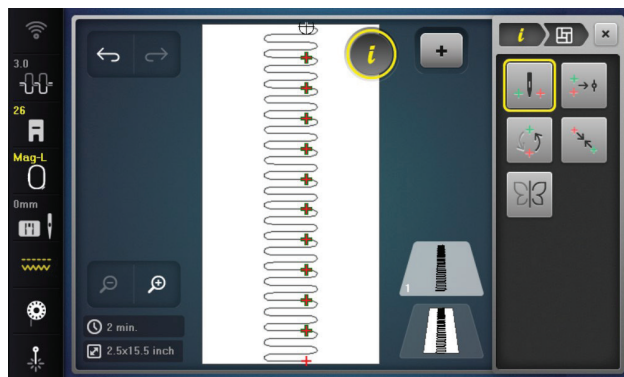
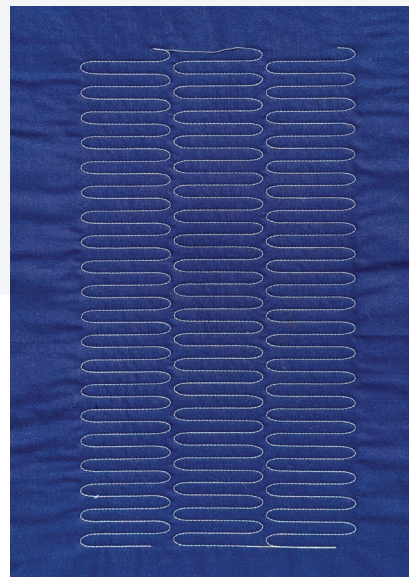


Fig. 33

Part 2: Connect

8. Select Connect. Select Connecting Stitches then confirm. The designs are now merged and connected to sew continuously with just one start and end of the whole design.
9. Move the design created in Part 1 to the right edge of the hoop (Fig. 38).
10. In the Information Menu, tap Duplicate two times. There are now three rows of quilting in the hoop, indicated by three layers in the Layer Bar.
11. Select Layer 2.
12. Select the Quilting Menu then select Flip Start/Stop. The sewing path is now reversed.
13. At the bottom of the Layer Bar, tap Select All.
14. In the Quilting Menu, select Connect. Select Jump Stitch and confirm. The three rows will now sew sequentially, with securing at each start and stop, and be connected by a jump stitch between securing indicated on screen by a dotted line (Fig. 39).
15. Stitch out the designs. At the Stitchout screen, activate Quilt Settings and be sure to hold both upper and bobbin thread tails as you begin stitching.



Fig. 34

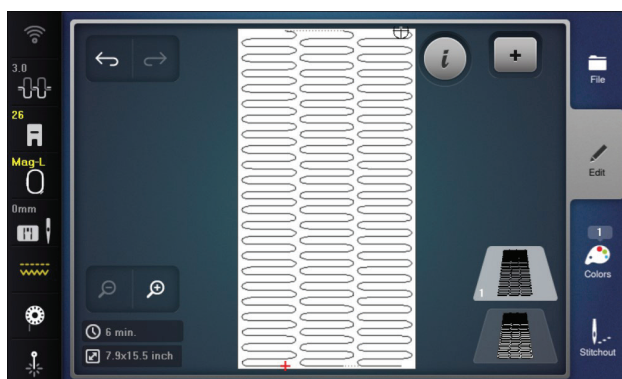


Fig. 35

Exercise 10

CROP QUILT DESIGNS

Materials & Machine Settings



Two 12" x 15" quilt sandwiches



Needle: 80/12 Microtex



Hoop: Oval Hoop



Presser Foot: Embroidery Foot #26

In this exercise, explore how the Crop tool can customize a quilting design to better suit your project.

Use one small quilt sandwich for each part of this exercise.

Part 1: Crop to Hoop

1. After stitching the design from Exercise 9, return to the embroidery Edit screen.
2. In the Hoop Selection Menu, select the Large Oval Hoop.
3. Open the Information Menu.
4. Select the Quilting Menu. Select Crop. Attach the embroidery hoop when prompted.
5. Select Crop to Hoop. Increase the Inner Margin to approximately 0.20" and select confirm.
6. Close the Information Menu. Select Stitchout and stitch the design as it is set to fill the hoop.

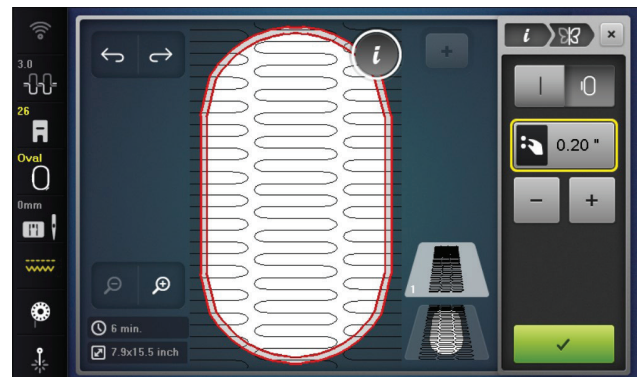


Fig. 36

Part 2: Crop to Line

On the remaining quilt sandwich, draw a rectangle approximately 4" x 6" and hoop so the rectangle is roughly centered in the stitching area.

1. Select File then Open Design:

**Embroidery Motifs folder » Folder #2 »
design #102**

2. Open the Information Menu.
3. Select Resize. Increase the design size to 120% then return to the main Information Menu.
4. Select the Quilting Menu then select Crop.
5. Select the upper dot on the crop line. Use the Multi-function Knobs to align your laser point with the upper right corner of the rectangle drawn on your fabric.
6. Select the other dot on the crop line. Use the Multi-function Knobs to align your laser point with the lower right corner of the rectangle drawn on your fabric. Select confirm to crop the bottom edge of your design (Fig. 42).
7. Deselect the current dot by tapping on it.
8. Select Rotate then 90 degrees. Then select Move.
9. Repeat the process, moving the two dots to align with the corners of the rectangle, so that the part of the design you wish to crop off is in the shaded part of the screen. Then select confirm to crop.
10. Deselect all dots and again select Rotate, then 90 degrees, then Move.
11. Repeat steps 8 and 9 to crop the left and top edges of the design. Then close the Information Menu.

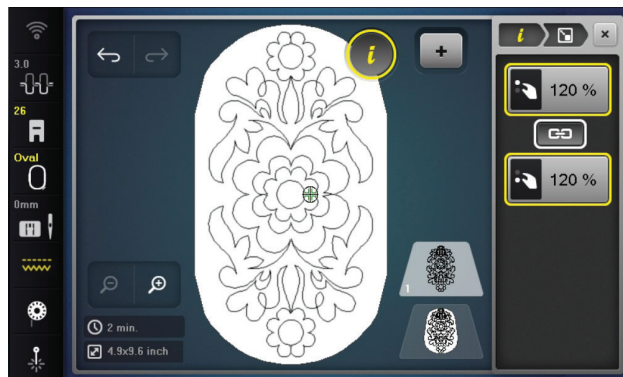


Fig. 37

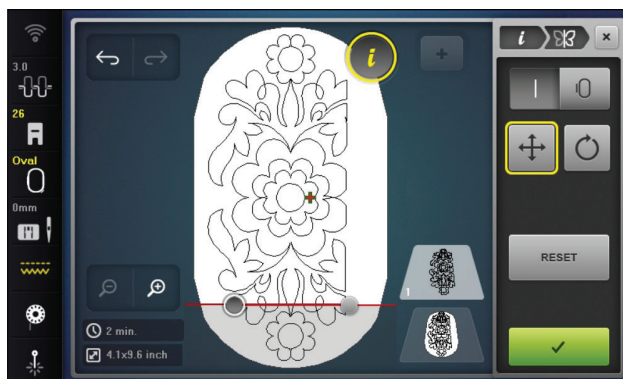


Fig. 38

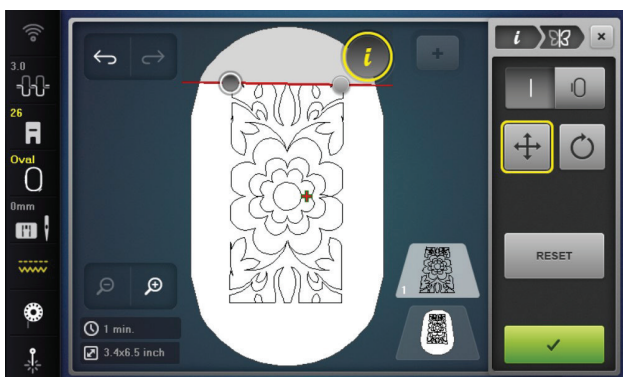


Fig. 39

12. Select Stitchout. Stitch the design to perfectly fill the rectangle drawn on your fabric.

LETTERING

An important part of the quilt making process is labeling your work for generations to come. Embroidering a label for your quilt is quick, easy, and will hold up through years or even decades of use and washes.

On the sewing side of the machine, consider using the Alphabet Stitches and Combi Mode to create a simple row of text that can be stitched onto the binding of a quilt for a quick and clever way to add a name or date.

SIMPLE COMBI MODE LABEL

Follow along at your machine screen or refer back to these directions to use this method of quilt labeling on the binding.

1.  Open Combi Mode on your screen.

2. Select:

Stitch Selection » Alphabets » Block

3. Type the word "SEW" (notice the option for upper/lower case letters, numbers, and characters) (Fig. 29).

4. Open the Information Menu.

5.  Select Editing a Combination. All letters in the combination will be selected. Return to the Information Menu.

6.  Select Repeat. This will set the Repeat to 1 (Fig. 30), meaning the machine will sew out the entire stitch combination one time and stop automatically.

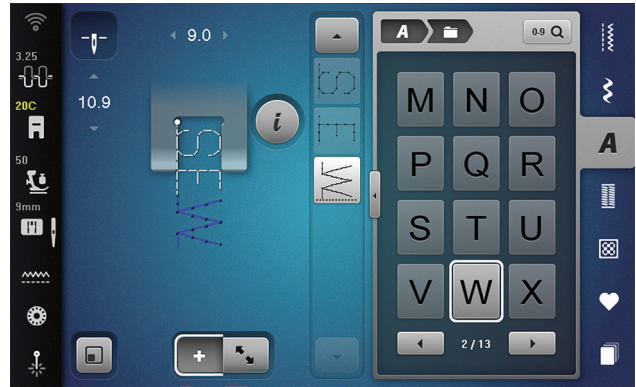


Fig. 40

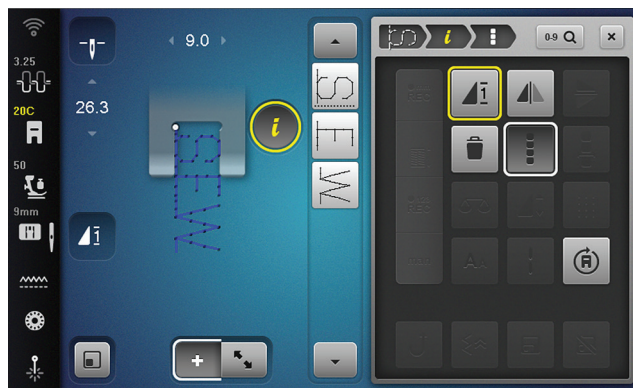


Fig. 41

Remember, you can save combination stitches in your Personal Memory to use over and over again.

LETTERING IN EMBROIDERY

A nice touch to a handmade quilt is a beautiful embroidered label on the back of the quilt. The lettering in embroidery on your BERNINA offers you a wide range of built-in fonts for custom labels. Stitch out the following exercise in Embroidery.

EMBROIDERED QUILT LABEL

Materials & Machine Settings

 12" x 15" piece of woven fabric hooped with (1)
12" x 15" piece of tearaway stabilizer

 **Needle:** 80/12 Microtex

 **Hoop:** Oval Hoop

 **Presser Foot:** Embroidery Foot #26

This simple label can be created on any embroidery capable BERNINA machine.

1. In Embroidery Mode, select:

Alphabets »
Swiss Block or Deco Block

2. Type in the phrase "Made with Love" (Fig. 31). Note the option for upper/lower case letters, numbers, and characters. Select Confirm.
3. Select the Large Oval Hoop from the Hoop menu. Close the Hoop menu.
4. Open the Information Menu.
5.  Select Rotate. Select +90 to rotate the design 90 degrees (Fig. 32). Return to the Information Menu.
6.  Select Resize. Reduce the design size to 80%. Return to the Information Menu.
7.  Select Altering Stitch Type/Density. Reduce the density to 85% and confirm.
8.  Select Add Motif.



Fig. 42



Fig. 43



Fig. 44



Fig. 45

9. Select the Swiss Block or Deco Block, then type in the current month and year (Fig. 33). Confirm with green check mark.
10. Again, Rotate the design 90 degrees, Resize to 80%, and reduce Stitch Density to 85%.
11. Select Move. Use the upper Multi-function Knob to position the second row of lettering to the left of the first. When read, the date should be below "Made with Love."
12. Select all layers in the composition by tapping the bottom layer in the Layer Bar.
13. Select Move, then tap the Center function to bring the entire composition to the center of the hoop (Fig. 34). Close the Information Menu.

FEATURE FOCUS

Multi-Line Lettering

On the B 790 ULTRA, 790 PRO, 770 QE PRO, 735 PRO, and 700 PRO, the same result can be accomplished much more simply by using Multi-Line Lettering.

1. Repeat Steps 1-2 from the Lettering Exercise.
2.  Tap Return, then type the current month and year on the new line. Confirm with green check mark.
3. Repeat Steps 3-7 from Lettering Exercise.
4.  Select Word Art, then use the lower Multi-function Knob to reduce the Line Spacing to approximately -60.
5. Select Center Alignment. Close the Information Menu.

MACHINE REFERENCE INDEX

This workbook encompasses a wide variety of machines and not all of the listed functions and exercises are applicable to every model. Please refer to this reference guide for all the functions and exercises that apply to your specific machine model before beginning.

Embroidery functions and exercises apply to embroidery capable machines that include the embroidery module. Please note that the embroidery only models, the B 700 PRO, 700, and 500, are not specifically included in this workbook, though the computerized quilting exercises are applicable to them.

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B 790 ULTRA

Every function and exercise in this workbook is applicable to the B 790 ULTRA.

NOTES

BERNINA
made to create