take control of your sewing machine
With just a few simple techniques, tricks and tips, author Charlene Phillips teaches you to stop feeling frustrated with sewing machine glitches and errors, and to finally take control of your machine. Inside this CraftAble, you’ll discover how to maintain your machine to prevent mechanical issues, and how to troubleshoot problems when they do arise. You’ll be amazed at how a few simple steps can avoid hours of frustration!

Crucial for every sewist, you’ll want to keep this information near your sewing machine for reference anytime you run into a sewing machine issue. From skipped stitches to tunneling and tension troubles, this CraftAble gives you invaluable information for avoiding annoyance while sewing. Excerpted from Charlene Phillips’ user-friendly reference book, *The Sewing Machine Classroom*, you’ll be thrilled with the wealth of information found in the following pages.

Take control of your sewing machine and achieve wonderful results every time you sew!
take control of your sewing machine

Time to master your sewing machine! Spending a few minutes on general maintenance after each sewing project will save you time and frustration later. When errors do arise, a few simple tricks and techniques will easily solve most stitch problems.
general maintenance

A few minutes of cleaning at the end of each project can prevent many machine and stitching problems. Just running fabric under the needle creates lint, and if you are not using quality thread, even more lint is accumulating in your machine every time you sew. Lint settles in the bobbin area, around the feed dogs and even in the tension discs. Simply covering the machine when it’s not in use keeps out dust, lint and hair. Computerized machines especially benefit from covering to protect the printed circuit board.

CLEANING

Since many sewing problems are caused by lint, dust and lodged pieces of thread, a good rule is to clean the machine at the first sign of stitch problems. A daily brushing of lint and dirt is preventive maintenance. Lint, dirt and threads build up in various parts of the machine and become drenched with oil and lubricant. This gummy mess wreaks havoc on your machine and is frustrating for you.

Use the nylon lint brush that came with the machine. I keep a narrow paint brush by each machine for quick cleaning. Each time you change bobbin thread, give the bobbin area a quick cleaning. Fluff out the brush and each bristle will reach and catch the dust much better. A pair of tweezers easily grabs stray pieces of thread hiding in and around the feed dogs and bobbin area.

Remove and throw away the needle. Remove the presser foot, needle plate and bobbin case. If your machine has a hook race, remove it also. Using the lint brush, clean under the feed dogs and around the bobbin area. Blow dislodged dirt outwards with compressed air.

Keep tweezers on hand to fish out rogue threads from the bobbin area.

Check the machine’s manual for oiling places. If in doubt about oiling your machine, check with your machine mechanic.

If your machine continues to have problems, take it to a sewing machine repair shop. Be sure to have them give a good cleaning to areas you don’t normally attend.

Follow your manual’s instructions or ask your machine mechanic to show you general cleaning methods for your specific machine. Always start at the top and work down the machine, moving dust downwards.

sewing 101

Never blow into your machine—your breath contains moisture.
Hold both ends of the fabric between your thumb and index finger, one at each end of the stitching line. Pull on the stitching with quick, even force until one of the threads breaks.

**TENSION DISCS**

While tension discs are easily seen on older machines, the area is quite hidden on newer ones. Raise the presser foot to relieve tension. Fold a piece of clean muslin and gently slide it into the tension discs to dislodge dust and lint. Use a can of compressed air to blow out the dust and lint that dislodges. Be sure to blow everything out and away from the machine, not back into it.

**TEST FOR BALANCED TENSION**

Keeping a balanced tension is a major component for perfect stitches. The needle and thread come together to make a stitch, but the tension allows the correct amount of thread to pass through the machine and to the bobbin. Maintaining balanced tension pressure is key so that the same amount of thread flows from the spool and the bobbin simultaneously.

When the tension is too tight, the bottom thread is pulled up to the top side of the fabric. Too little upper thread is fed through, causing seams to pucker and thread to break easily.

When the tension is too loose, the upper thread is pulled down to the bottom side of the fabric. Too much thread passes through, resulting in weak seams that can easily pull apart.

Test upper and lower tension before each project or when adding a new foot or thread type. To test, use one color in the bobbin and another color feeding through the top—this helps you quickly recognize balanced tension. When testing specialty thread, decorative stitches or a satin stitch, always place tear-away stabilizer under the fabric or between a folded piece of fabric to replicate regular sewing.

To test, cut a 6” (15cm) square of fabric. Fold the fabric on the bias and stitch 1⁄2” (12.7mm) from the fold. Are stitches balanced on both top and bottom? Did puckering occur? Hold both ends of the fabric between your thumb and index finger, one at each end of the stitching line. Pull on the stitching with quick, even force until one of the threads breaks. If the upper thread broke, the upper tension is too loose. If both threads break (when using considerable force), both tensions are balanced.
Your machine may have automatic tension and you will rarely need to touch the tension adjuster for most of your regular sewing. There are times, however, when you will need to manually adjust the tension. Sewing silks, knits or with specialty threads may require tension adjustment. Additionally, using a specialty sewing foot can require adjustment.

When adjusting tension, put the presser foot down and have the machine threaded. To increase tension, move to a higher number. To decrease, adjust to a lower number.

**ADJUSTING BOBBIN TENSION**

Rarely does bobbin tension need to be adjusted for regular sewing. You will, however, need to adjust when using a thicker thread such as pearl cotton or ribbon. Bobbins have a spring screw which regulates tension on the thread.

Before adjusting bobbin tension, check:

- **Threading:** Recheck the thread path. Does the thread move smoothly through all guides? Be sure to thread with the presser foot up, which releases the upper tension and allows thread to move properly through all guides and tension. Check that thread is moving freely and not snagging. Be sure there is not a burr on the spool of thread, and that the spool is placed on the spool pin to unwind correctly. If using a bobbin of thread on the spool pin, it may not unwind smoothly.

- **Lint:** Dirt and lint cause many stitch problems. Check the bobbin area for lint and thread ends. Use a lightweight, lint-free cloth to clean in and around the bobbin area. If using a can of air to spray out lint, remember to spray outward.

- **Improperly filled bobbin:** Remove all remaining thread from a bobbin before filling with new thread. Wind at a consistent speed according to the manual instructions. Wind nylon threads slowly or by hand to prevent them from stretching. When winding heavier, specialty threads, wind slowly. Only use a bobbin designed for your machine. The wrong bobbin can cause skipped stitches, thread breakage or machine damage.

- **Damaged parts:** Check that the needle is not bent. Check for any burrs along the thread path in the tension, thread guides, needle plate, presser foot, bobbin case, bobbin area or take-up lever.

- **Fabric, thread and needle:** Use the needle size appropriate for thread and fabric: If the needle hole is too large or too small, thread will not pass through, nor stitch properly. Change to a larger or smaller needle as necessary.

- **Using heavyweight thread:** If stitch problems occur, loosen the upper thread tension. This allows heavier bobbin thread to lie flat on the surface of the fabric. Since the heavier threads will not penetrate the fabric, this may be the only adjustment necessary. If stitching is still inferior, bypass the bobbin thread tension following the instruction manual.

Only as a last resort, adjust the bobbin case tension screw. Follow instructions in your sewing machine manual. When adjusting the bobbin tension, do so in quarter increments. This makes it easier to return to the original position.
TEST BOBBIN TENSION

If your machine has a removable bobbin case, you can test bobbin tension by holding the thread tail and letting the case dangle, giving thread a quick jerk. Does the case slip down easily? The thread should support the weight of the bobbin and the case. If the thread slips down, tighten the bobbin screw about a quarter of a turn. Thread the machine and test sew to check the stitch quality.

BYPASS BOBBIN THREAD TENSION

For any type of specialty bobbin work, the bobbin tension should be loosened or bypassed completely. Some machines have a wider slot on the side of the bobbin case that allows thicker threads to pass through; on these cases, the bobbin tension need only be slightly adjusted. Other machines may have a special bobbin available with a pigtail or finger (wire hole) to insert thread. If your bobbin does not accommodate thicker threads, there are several other methods to try depending on your machine model.

• Loosen the bobbin tension spring by quarter turns until the thread flows smoothly.

• Machines that do not have a bobbin case: Place the bobbin in the bobbin hole without placing the thread through the bobbin tension. Let the bobbin thread hang freely. Pull the bobbin thread up as you do normally.

• Machines with a bobbin case: Don’t put the thread through the tension spring of the bobbin case. Let the bobbin thread hang freely. Pull the bobbin thread up as normal.

Purchase a second bobbin case to use for specialty threads. Adjustments can be made to this bobbin case while still maintaining factory tension on your regular bobbin case.
TENSION CONTROL

A machine’s stitching should be smooth with even stitches on the top and bottom of the fabric. The upper needle thread is controlled by thread guides and the tension dial located on the upper part of the machine. Even if your machine has automatic tension control, there are times when the tension needs to be tweaked. Fabrics such as leather and denim will require a different setting than delicate fabrics. Thread weight also makes a difference on tension setting. Grab some scraps before beginning a project and test different tension settings until you have the best one for your fabric and thread. Jot notes in your journal; over time, you will have a record of the correct tension on various projects.

To adjust the tension, turn the regulator dial located at the top of the machine. If yours is a numeric dial, it may go from 1–10—from loosest to tightest. Just remember, the lower the number, the looser the tension.

If the tension is too tight, turn the dial to a lower number and test the stitch. Lower the dial and retest if necessary. If the thread is too loose and appears crooked, the tension may be too loose. Turn the dial to a higher number and test the stitch. Repeat if necessary until a perfect stitch is formed.

Whether your machine’s tension dial moves up and down or from side to side, all machines basically have the same four components to control tension—thread guides, tension discs, regulator for upper thread and bobbin case spring for bobbin thread.

sewing 101

Does the fabric suddenly begin to pucker while sewing? The tension may have changed. Stop and check all the thread guides—the thread may have “jumped” out of one. Rethread properly and continue sewing.

When to Loosen, When to Tighten?

- Loosen tension when blind hem stitching begins to pull and pucker.
- Loosen tension to prevent fagoting stitches from pulling the two sides together.
- Loosen tension to pull the upper thread to the underside (creating a nice raised effect) when making buttonholes, satin stitching and for some decorative stitching.
- Loosen tension to reduce tunneling.
- Loosen tension to reduce puckering when sewing on the lengthwise grain of fabric.
- Tighten tension to enhance the raised effect of twin pin tucks. Loosen when puckering occurs.
- Tighten tension to perfect hemstitching holes. Loosen when puckering occurs.
- Tighten tension to automatically make gathers.
putting the right foot forward

There are as many types of presser feet as there are sewing tasks. Some are utilitarian, such as the zipper and blindhem foot, while others help add creative touches, such as the couching foot. Using the right foot improves stitching appearance and reduces time spent on tedious tasks.

Each foot is specially designed for a specific job. Knowing which foot to reach for frees up your time for more creativity. The foot might be designed to hold cording securely under the machine needle or to accurately stitch very close to edges. Although not often looked at when selecting which foot to use, the underside of each foot is crucial for the proper feeding of fabrics. For example, a straight-stitch foot is flat on the bottom with a narrow opening, but a satin stitch foot has an indented bottom which allows fabric to move freely instead of bunching up over the dense stitching. When adding pin tucks to a project, grab the grooved pin-tuck foot for perfectly straight lines.

Take advantage of the many feet available. You’ll achieve professional results and save time.

INTERCHANGEABLE FEET

Snap-On Feet

Most sewing machines made after the 1980s use snap-on feet. They are attached to the machine through a foot holder, also called a shank attachment. The foot holder is screwed onto the presser bar, with a lever on the back. At the bottom of the foot holder is a horizontal bar. Pushing the lever down removes and attaches the snap-on feet onto the bar. The length and width of this bar varies among manufacturers and machine models, so be sure to purchase the correct one for your machine.

Many machines with the snap-on foot can also use screw-on, low-shank feet. Rufflers, for example, rarely are made to snap-on; instead, they screw directly onto the presser bar. A quick and easy measure will let you know whether your snap-on foot can also utilize low-shank feet.
Measure from the machine bed to the middle of the screw hole to determine the shank of your machine.

To check the shank of your machine, lower the presser foot and measure from the machine bed to the middle of the screw hole. If this distance measures ½" (12.7mm), your machine can use screw-on low-shank feet as well as snap-on feet.

Feet for BERNINA, Kenmore, Janome, Baby Lock and other machine models may have a shank designed to specifically fit that machine type. For most of these machines, if you need to use a low-shank foot, check to see if a low-shank foot adaptor is available for your machine.

**Screw-On Feet**

Machines made prior to the 1980s most likely have a screw-on foot, either low-, high- or slant-shank. It is important to determine which shank your machine has because only those feet will fit. To remove and add a new foot, remove the regular presser foot by loosening the screw to the left of the machine’s foot. Attach the new foot and tighten the screw. If your machine is a low-shank, you may be able use snap-on feet. To do so, purchase a snap-on presser foot holder that fits your machine.

Whenever placing a new foot on your sewing machine, always ensure the needle clears the opening. If your machine has an adjustable needle position, also check to see if the needle is clear when moving it right or left of center.
common stitch problems, causes and solutions

Every sewer runs into an occasional puckered seam or dropped stitch. Nothing is more frustrating than happily sewing along—until the needle breaks! You replace the needle—and it breaks again. Or the thread breaks and no matter how many times you rethread, it breaks again. You try adjusting tension up, down, and up again but nothing solves the problem.

Knowing what the problem might be and troubleshooting methods to try goes a long way toward enjoying all your sewing time. For a needle that continually breaks, you might first check the needle for damage, check the threading path, or check for trapped lint in the feed dogs or bobbin area. Surprisingly, the most common causes of sewing problems are improper threading, a dirty machine and a damaged needle.

SKIPPED STITCHES

Are skipped stitches raising your frustration level? The needle could be the cause of the problem. It might be an improper type or size, or it might possibly be damaged and moving roughly through the fabric. The needle could be covered with residue from fabric sizing, or it might even have lint on it. Although not easily seen, fabric clings to the needle each time it goes through the hole in the needle plate. With the thread so close to the needle, if there is a problem with the needle, it can’t make a loop large enough for the shuttle hook to catch and create the stitch.

- Needle may be bent or damaged. Replace with a new one.
- Needle may be the incorrect size or type. Replace to match fabric type and thread size.
- Thread take-up lever has not been threaded. Rethread, ensuring thread goes through all guides.
- Bobbin may be low on thread. Check and replace with a full bobbin.
- Tension may be too tight. Loosen slightly.
- Try a universal needle, a topstitching needle or a ballpoint depending on fabric.
- The needle may not be set properly. Reset, ensuring it is fully inserted.
- If sewing a straight stitch using a zigzag needle plate, the fabric may be penetrating the needle hole of the needle plate. Change to a straight-stitch plate. If not available, try covering the zigzag hole with tape and make a small hole in the tape for the needle.
- When sewing over different heights of fabric seams, the foot may not be level. Try holding the front toe down as you sew, or make a leveler out of cardboard to raise the foot to the height of the seam. Place the leveler behind and in front of the presser foot as needed while sewing. Check to see if there is a leveler for your machine.
NEEDLE BREAKS

- Needle may be too thin for the fabric. Replace with a larger size.
- Needle may not be inserted in the presser bar all the way. Replace with a new needle and make sure it's fully inserted.
- The presser foot may be the wrong one for the sewing task. If sewing a stitch that goes side to side, be sure the needle hole is wide enough to accommodate the needle without hitting the foot.
- Thread may be tangling around the spool. Untangle and ensure the thread pulls from behind the spool of thread. Check for burrs on the thread spool and along the thread path. Use a spool cap.
- The bobbin may be inserted incorrectly, or not at all.

UPPER THREAD BREAKS

- Tension may be too tight. Slightly loosen.
- Threading may be incorrect. Rethread.
- Needle may be bent or have a small burr. Replace with a new needle.
- Needle may be the wrong size or type. Check fabric type and thread size for proper needle.
- Thread quality may be poor; it may have a knot in it. Rethread with higher quality thread.
- Thread take-up lever may not be threaded. Rethread.
- Areas the thread passes over may be damaged (thread guides, tension, take-up lever, etc.). Check for noticeable damage, and take to repair center for further troubleshooting.
BOBBIN THREAD BREAKS

- Bobbin may not be wound properly. Remove bobbin and check for gaps in the thread.
- Bobbin may not be inserted correctly. Remove and reinsert, checking that the bobbin is firmly in place. If your bobbin has a bobbin case, make sure you hear the “click.”
- Lint may be caught in bobbin area. Remove the bobbin, clean the bobbin and bobbin case area, and add oil. Follow manufacturer’s manual for proper cleaning and oiling.
- Bobbin may not be in the machine. Remove the tangled stitches and insert the bobbin.
- Bobbin case may not be threaded correctly. Be sure thread is inserted into slot. (This also controls the bobbin tension.)
- Needle plate may be damaged. Remove it and feel for any rough areas. Small burrs can be rubbed out with a very fine polishing cloth.

sewing 101

A pair of tweezers is handy to keep by the sewing machine to pull out tiny threads caught in the machine.

FACTOR IS CREEPING

Does the bottom fabric creep away from the top fabric while sewing? Pulling and tugging will not keep the fabric together (and may break the needle). When sewing, the fabric is held in place by the presser foot, which pushes upper fabric forward at the same time the feed dogs pull the lower fabric backwards. Some fabrics creep during this process, resulting in one piece of fabric that’s longer than the other.

To prevent creeping:

- Stitch on the grain of fabric.
- Hold fabric taut while sewing.
- Use a stiletto to push upper fabric toward the needle while sewing.
- Use a roller foot or walking foot.

Be sure thread is securely inserted into slot.

To prevent creeping, use a stiletto to push upper fabric toward the needle while sewing.
FABRIC PUCKERS

- Try polyester or polyester core thread, if appropriate for the fabric, as polyester thread has a slight stretch.
- The thread may be too heavy for the fabric type. Try a finer thread.
- Use the same size thread for both the needle and the bobbin.
- Needle may be bent or the point is blunt. Replace with a new needle.
- Presser foot may be too light on the fabric. Increase pressure. For machines without pressure regulators, adjust with the stitch tension.
- Upper tension may be incorrect. Test with a 6" (15cm) swatch of fabric and adjust.
- Try a shorter stitch, such as twelve to fifteen stitches per inch.
- Lightweight fabrics pucker most when stitched on the lengthwise grain. Hold fabric firmly in the back and front of the needle while sewing.
- Fabric may not be feeding properly. Place a piece of pattern tissue or wax paper between fabric and the feed dogs.

Place a piece of pattern tissue or wax paper between fabric and the feed dogs to help fabric feed properly.

Pull threads to the rear when starting to sew, eliminating tangling and bunching on the bottom of the fabric.

MACHINE JAMs OR DOES NOT FEED FABRIC

- Lint may have accumulated in bobbin area. Clean out threads and lint under needle plate, in bobbin area and bobbin case. Clean lint from feed dogs. There could even be a broken needle part in the path.
- Hold threads at the rear when starting to sew. This keeps the first stitches clean and eliminates tangling.
- The stitch length may be set at zero. Select the proper stitch length.
- Presser foot pressure may be set too low. Increase the pressure.
- Feed dogs may be lowered. Raise the feed dogs.

TUNNELED STITCHES ON LIGHTWEIGHT FABRICS

- Narrow the stitch width.
- Add appropriate stabilizer to the back of the fabric.
THREAD BUNCHES

- Feed dogs may be down. Raise the feed dogs.
- Threads may be bunched under the presser foot when starting to sew. Hold threads to the back.
- Bobbin area may have tangled threads. Remove the needle plate and clean.
- Check the needle threading path.

MACHINE JAMS/KNOCKING NOISE

- Presser foot may be loose. Tighten.
- You may be pulling on the fabric while sewing. Don’t pull, just guide gently.
- Dust may have accumulated in the feed dogs. Remove needle plate and clean.
- Lint may be in the hook (if your machine has a hook). Remove the hook, clean it thoroughly and oil it.
- Threads may be bunched under the presser foot when starting to sew. Hold threads to the back.
- Needle may be bent or dull. Replace the needle.
- Machine may need to be oiled. Follow machine manual for oiling spots.

MACHINE STOPS SUDDENLY WHILE SEWING

- Machine may have been running at a low speed for an extended time. To prevent overheating, some machines will turn off automatically. If not, turn the machine off for about twenty minutes and then turn it back on.

NEEDLE WILL NOT MOVE

- Presser foot may be up. Put presser foot down.
- Thread may have run out. Replace empty spool and rethread.
- Thread may be tangled in bobbin area. Clean out.
- Buttonhole lever may be engaged. Disengage.
- Bobbin fly wheel may be engaged. Disengage.

STITCHES ARE NOT FORMING PROPERLY

- Bobbin case may not be threaded properly. Rethread properly.
- Spool cap may be the wrong size for thread spool. Replace with the proper size.
- Thread may not be properly pulled into tension or thread sensor guide. Rethread.
- Needle may be bent. Replace with a new needle.
- Poor quality buttonhole stitches: Stabilize the fabric, position the buttonhole lengthwise on the fabric grain and use the proper buttonhole foot.
- Poor quality decorative stitch: Use the correct presser foot for the stitch and stabilize the fabric.
- Poor quality straight stitch: Increase stitch length and check tension setting.

MACHINE IS UNTHEADING

- Raise take-up lever before sewing.
- Cut thread ends at least six inches at the end of each seam. Pull thread tails behind and under the presser foot.
- Gently hold the threads to the back when beginning to sew.
- Ensure needle is set properly.
make the most of your sewing machine!

Be sure to get your own copy of *The Sewing Machine Classroom* by Charlene Phillips. Inside, you’ll find page after page of answers to all of your sewing questions. Learn how to maximize your sewing machine’s potential by choosing the appropriate fabrics, needles and threads. Then discover how easy it is to make everything from buttonholes to pin tucks to lace. A must-have for every sewist, learn to master your machine, one step at a time!

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