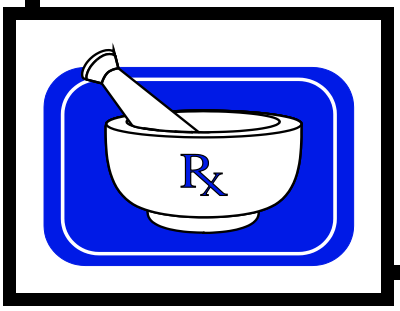
Sew Well!

How to get top performance from your sewing machine

David L Axline



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How to get top performance from your sewing machine

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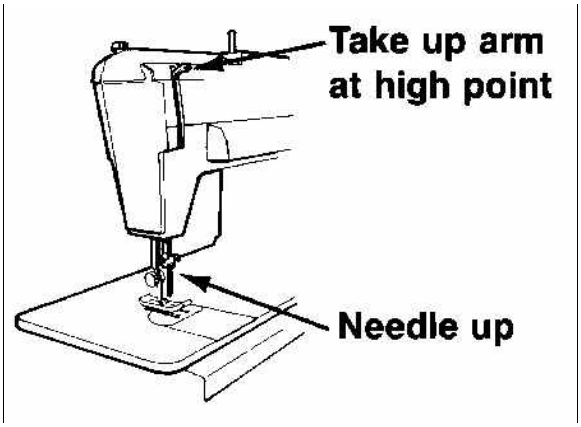
RULE #1 OF SEWING MACHINE OPERATION

There are so many things to remember when you are using your sewing machine. Many of them become second nature the more you sew... some become habits ... and a few become **"bad habits".**

Most often the bad habits form when you have not been taught the proper techniques for getting peak performance from your machine. These bad habits lead to sewing frustration, discouragement, and stress.



One of the most frequent mistakes made in operating a sewing machine is **starting to sew** with the needle and Take-up Arm in the wrong position. The second most frequent mistake is **removing the fabric** at the end of a seam with the needle and Take-up Arm in the wrong position.

☞ **RULE #1** ☜

The Take-up Arm MUST be at its highest point AND the needle up ...
When you start sewing
and
When you remove the fabric

This is the point at which your machine has completed a stitch and is ready to begin another. (The "Take-up Arm" is the small arm, through which the thread passes, that moves up and down above the needle near the top of your machine.)

Do these phrases sound familiar?

◆ *"Whenever I start to sew, the thread jumbles all up underneath the cloth!"*

◆ *"When I pull the fabric out of my machine, there are 2 or 3 threads coming out of the bobbin area!"*

◆ *"When I start to sew my needle comes unthreaded!"*

Each of these problems are caused by not following the above rule. It's very important that the ***Take-up Arm is at its highest point ... when the needle is up.***

Remove the thread from your machine and watch the movement of the Take-up Arm as you turn the hand wheel toward you (counter-clockwise). You will quickly see the position at which the Take-up Arm is at its highest point and the needle is up.

Many of the newer models of machines automatically stop themselves with the Take-up Arm at its high point and needle up to prevent problems with thread jams. This has greatly reduced sewing frustration, especially when rush projects and long hours make doing all the right things more difficult.

You should also be certain, when you start to sew, that you have about 4 inches of thread coming out of the needle. The thread should pass **under the presser foot** and out the **left or right side**. The needle thread should be clamped to the fabric when you start to sew.

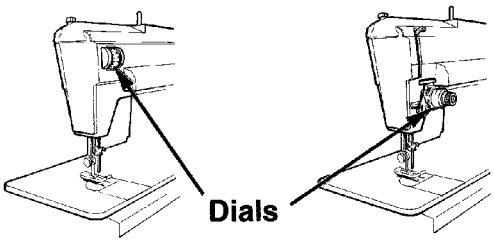
When you remove fabric from your machine be certain that the needle thread extends down **under the presser foot** and you are pulling to the side or back ... **never toward the front**. Never pull sideways directly against the needle or you will bend it.

Practice this rule at all times with your sewing machine and you'll find that it works ...***Sew Well!***

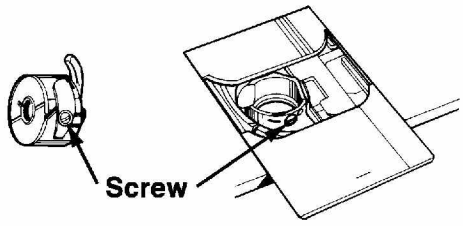
UNDERSTANDING TENSION ADJUSTMENT

The problems associated with sewing machine “tension controls” can often be remedied with a better understanding of the control’s function. These controls are generally ***not*** the cause of poor stitching, but become the focus of attention.

The Tension Controls



Typical upper tension controls



Typical lower tension adjusting screw

The *upper tension* (the calibrated dial on the front of your machine) and the *lower tension* (the small adjustment screw on your bobbin case) work together to maintain a uniform resistance on the thread, creating a balanced stitch. A balanced stitch is one that is not looping to the top *or* the bottom when sewing a seam.

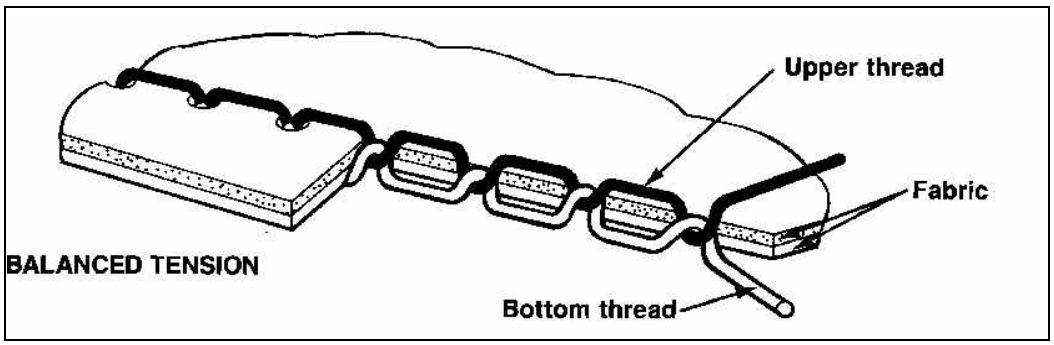
Since both controls are adjustable, it is possible to get a stitch that appears "balanced" even though *both* tensions are set *too loose* or *both* are *too tight*. If both are too loose, the seam line would separate under stress. If both are too tight the seam would pucker severely. As a general rule, proper tension setting is achieved when:

The small knots in the stitches are not lying, *severely*, to the top or the bottom.

The fabric is not puckering adversely.

The seam is secure under stress.

Balanced Tension

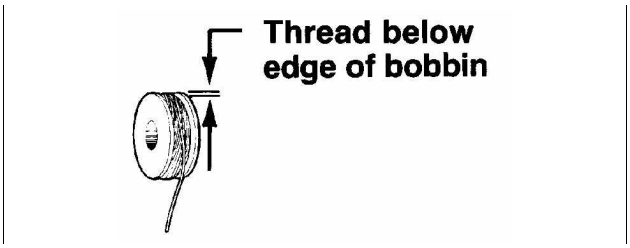


The "balanced" tension diagram above, shows the small knot midway between the top and bottom of the fabric. Theoretically, this is the ideal configuration. However, the tension balance is considered acceptable if the knot is *embedded in the fabric* when viewed from either side. It is not essential that the knot be embedded *exactly* the same depth on both the top and bottom.

Common Causes Of Poor Tension

More often than not, problems assumed to be "tension" malfunctions are related to things other than the two tension controls. Assuming your machine has been properly calibrated, the upper tension will be set in the middle of its range for normal tension. If changing this setting, up or down, 2 numbers from the midpoint does not correct poor stitch conformation, something else is causing the problem. Start by reviewing the following:

1. Check the machine threading BEFORE changing tension settings. Be especially careful to watch for places where the thread is pinched or wrapped in a sewing machine component. *This is the number one cause of a radical change in tension from previous performance.* A single wrap of thread around the needle is one of the most frequent problems.



2. Check the bobbin fill. Loosely wound bobbins, caused by missing the bobbin winder pre-tension, can cause cross winding and excessive drag on the bobbin thread. Overfilled bobbins cause drag inside the bobbin case. Fill your bobbin to the point where the highest dome of thread is below the rim of the bobbin.

3. Check the needle size to see if it's too small for the weight of thread or the density of the fabric. Avoid using a needle smaller than a size 10 (70 European) with standard threads (50 weight). Heavy threads will drag through the eye of the needle causing distorted tension. A needle that is too fine will not pierce a large enough hole in a tightly woven fabric (like ripstop nylon), causing tension to appear to be out of balance.

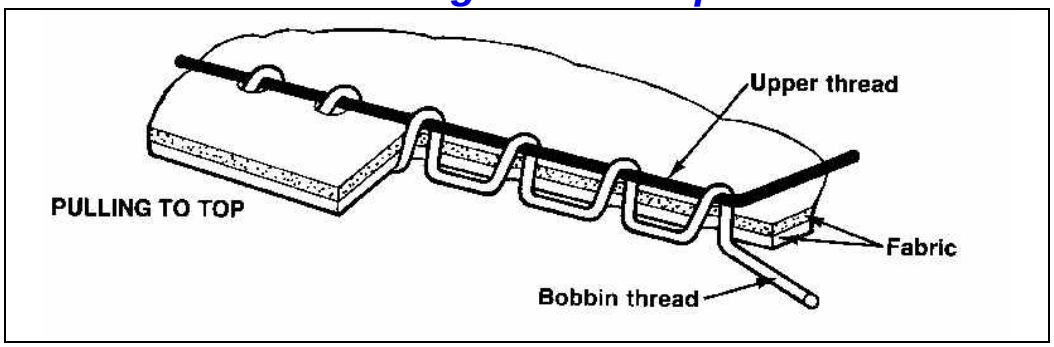
4. Check to see if the thread is too coarse for the size of the needle or weight of the fabric. The ideal thread will be strong, smooth, and fine (thin) for all fabrics. A quality thread of this type will cure more tension problems than most other remedies we find. Remember, the thread is "sawing" back-and-forth in the fabric, much like the action when using dental floss. A coarse, rough thread will certainly not aid in maintaining a smooth uniform seam.

5. Check to see if you are using the same *brand* and the same *weight* of thread on the top and in the bobbin. Different brands of thread will vary in texture, smoothness, and weight. Mixing a standard thread with a heavier top stitching thread or fine lingerie thread will definitely have adverse effects on the tension balance.

Evaluating Poor Tension

The following are just a few of the more frequent causes of tension problems. It is important that you take the time to *evaluate* the possible causes of the poor stitch and *then* take corrective action. *DON'T start by turning the tension controls!*

"Pulling To The Top"



[APPEARANCE]: The *upper* thread is lying in a straight line and the bobbin thread is being drawn to the top.

[EVALUATION]:

1. Something is causing an abnormally heavy drag on the *upper thread*--- preventing it from pulling down into the cloth.

OR

2. There is little or no drag on the *bobbin thread* allowing it to be pulled, by the top thread, to the upper surface.

[POSSIBLE CAUSE]:

UPPER THREAD

1. The upper tension control is turned to an extremely high number.

2. The upper thread is wrapped around a thread guide or the spool pin.

3. The upper thread is twisted around the needle.

4. The upper thread is pinched in a component on the sewing machine. (Other than the tension disks.)

5. The upper thread is caught on the rim of the thread spool.

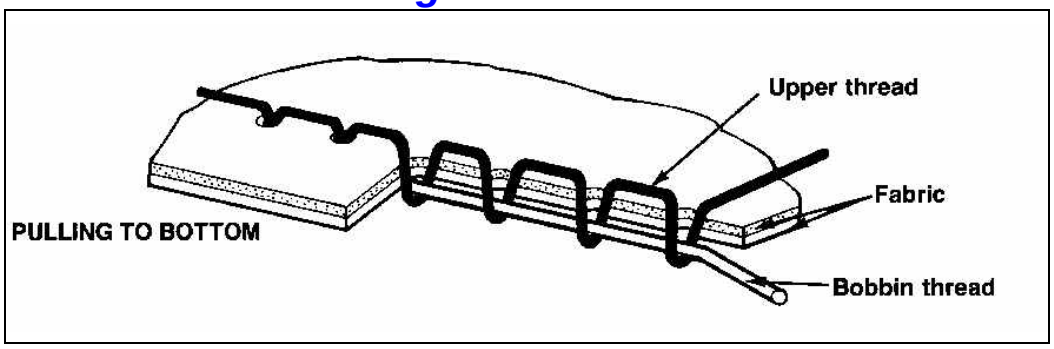
BOTTOM THREAD

1. The bobbin thread is not under the bobbin case tension spring.

2. There is a build up of lint *under* the tension spring on the bobbin case. This build up holds the spring away from the bobbin case and releases the lower tension.

3. The bobbin case tension spring is bent, eliminating lower tension. (This is usually caused by pulling the spring away from the case when installing or removing the bobbin thread.)

"Pulling To The Bottom"



[APPEARANCE]: The *lower* (bobbin) thread is lying in a straight line and the upper thread is being drawn down to the bottom.

[EVALUATION]:

1. Something is causing an abnormally heavy drag on the *bobbin thread*---preventing it from pulling up into the cloth.

OR

2. There is little or no drag on the *upper thread*, allowing it to be pulled, by the bobbin thread, to the underside.

[POSSIBLE CAUSE]:

UPPER THREAD

1. The upper tension control is turned to a very low number or "0".

2. The upper thread is not *between* the disks in the tension control.

3. The presser foot lift lever is not lowered. When the presser foot is raised the tension disks are spread, releasing the upper tension.

4. There is a slug of thread between the upper tension disks preventing them from clamping the thread.

BOTTOM THREAD

1. The bobbin is over filled or improperly filled causing a drag inside the bobbin case.

2. The bobbin is bent causing it to wobble and drag inside the bobbin case *while in the machine*.

3. The bobbin thread is pinched in the bobbin case latch or other shuttle components.

4. There is a buildup of thread or lint on the shuttle post (the post you place your bobbin case on) inside the machine. (Look all the way back to the base of this post.)

Take the time to understand this information and you'll be much better equipped to help your machine to work...***Sew Well!***

USING TENSION ADJUSTMENT PROPERLY

Now we are going to review some of the common areas where we must deviate from normal tension for better performance. Each of these adjustments involve changing the ***Upper Tension Dial ONLY!!*** *The Upper Tension is calibrated with numbers or index marks that will allow you to return to the normal setting when you are finished with the special setting. Be certain that you have recorded where the* ***normal setting*** *is before you make adjustments.*

1. Basting.

Normally, when doing a basting stitch, the intention is to remove the stitch at some point later in the construction. To make the stitch removal easier, the upper tension control should be turned to a lower number until the stitch appears like the "Pulling To The Bottom" diagram shown previously. Usually the reduction is about 2 to 4 numbers below the normal setting. Reduce the upper tension until the lower thread lies in a straight line on the back side. However, stop before loose "loops" appear on the back. Remove the basting by pulling the lower thread.

2. Sewing very thin synthetic non-stretch fabric.

Stitching on very thin *non stretch* fabrics (especially synthetic blends) at normal tension can cause puckering and drawing of the seam line. The upper tension should be lightened one or two numbers to reduce the drawing effect. It is also advisable to practice the following special fabric handling technique while stitching:

(a). Sew onto the fabric until it extends behind the presser foot an inch or two.

(b). Place the *tips* of the index and middle finger of one hand, firmly down on top of the fabric coming out *behind the presser foot.*

(c). Place the *tips* of the same fingers on your opposite hand, firmly down on the fabric about 3 inches *in front of the presser foot.*

(d). Gently "stretch" the fabric between your two hands making it taut as you sew the seam.

(e). Sew until your front hand reaches the presser foot; stop and reposition your hands.

(f). An alternative to the previous step is to let the fabric "drag" beneath your finger tips on your front hand and move only your back hand with the fabric.

DON'T BEND THE NEEDLE! This procedure takes a little practice, but its worth the effort, especially on long straight seam lines.

3. Stay stitching.

Stay stitching on thin fabrics requires a slightly reduced upper tension setting. This will prevent the stitching from puckering the single thickness of fabric. Don't reduce the tension enough to form "loops" on the back side.

4. Satin stitching.

(Satin stitching is a zig-zag stitch with a very short stitch length which results in a solid bar of stitching on the cloth; ie. applique edging, decorative stitches such as arrowheads, diamonds, scallops etc., machine embroidery and buttonholes.) The upper thread tension should be turned to a lower number to allow the stitching knots to be visible on the back side only, leaving the top side smooth and "satin" in appearance. Usually a reduction of 1 to 3 numbers is adequate. This will also reduce the drawing effect of the zig-zag stitch on a single thickness of a relatively thin fabric. (In most cases, satin stitching on a single thickness of a thin fabric requires a stabilizing material on the back side of the cloth, in addition to reducing the upper tension. This will eliminate the “tunneling” or “ridging” effect of the stitching.)

5. Buttonholes.

Buttonholes are a form of *satin stitching* and the tension is handled in the same manner.

6. Zig-Zag stitching.

Basic zig-zag stitching on thin materials or single thicknesses of fabric to finish the raw edges, also requires a reduction in the upper tension. Lowering the upper tension prevents the “tunneling” or "ridging" effect between the left and right side of the zig-zag stitch. The wider the zig-zag, the more important the reduction. A reduction of 1 to 3 numbers is usually adequate.

The use of the "3-step" zig-zag, if your sewing machine has this stitch, is advised for edge finishing of single thicknesses, to reduce the “tunneling” effect that can be caused by a plain zig-zag.

7. Gathering.

Many forms of gathering are accomplished by using special presser feet and ***increasing*** the upper tension considerably above normal. This is a deviation from the previous six areas in which we reduced upper tension. Consult your operating manual or your dealer for more information on the techniques.

Fine tuning your tension for the application and fabric will certainly lead to a project that comes out...***Sew Well!***

THE TENSION RELEASE SYSTEM

This sounds like the "Cure All" for your sewing frustrations. On the contrary, it may be the cause of some of them.

The Purpose Of The Tension Release

The Tension Release System eliminates drag on the top thread when you remove the fabric from your sewing machine. As you lift the lever on the back of your machine to raise the presser foot, a mechanism, actuated by the lift lever, spreads the tension discs releasing the thread.

Try this. With the presser foot *down*, try to spread the tension discs with your finger nail. The discs are clamped firmly together. Now *raise* the presser foot with the lift lever. Notice how the clamping force is removed from the tension discs and they are free to wiggle around with a small gap between them.

Common Problems Caused By This System

Understanding this system can eliminate a great deal of frustration caused by its, inadvertent, misuse. Two very frequent mistakes made while using your sewing machine are related to the Tension Release System.

1. The first mistake occurs when you forget to *lower* the presser foot *lift lever* before starting to sew. This is more apt to occur when you are working on heavy or bulky fabrics. You place the fabric in the machine and because of its thickness, the presser foot appears to be down and compressing it. You neglect to lower the presser foot lift lever. When you start to sew, large loops of thread form on the back side of the fabric and possibly jam the machine. There is no upper tension. The *lift lever* must be down before the tension discs will clamp the thread, providing the required upper thread tension. ***Never*** attempt to sew with the presser foot *lift lever* raised.

2. The second mistake often occurs when you are threading your sewing machine. Your presser foot should be up, in order to assure that your top thread goes completely down between the tension discs. (The presser foot *lift lever* spreads the discs.) This assures that the thread can slide easily into position between the tension discs. Threading the machine with the tension discs clamped together will prevent the thread from going between the discs until several stitches are taken. This usually results in loops on the back of the fabric, or jamming, at the beginning of the seam. ***Always*** thread your machine with the presser foot *lift lever* raised, giving the tension discs the gap necessary to allow the thread to slide easily between them.

Understanding the function of the Tension Release System will reduce sewing frustration and help your machine to perform... ***Sew Well!***

THE NEEDLE
THE "HEART" OF THE SEWING MACHINE

The single most important element in good sewing machine performance is the *needle*.

...that delicate little component that you've learned to detest because its eye seems to be getting smaller every time you buy one.

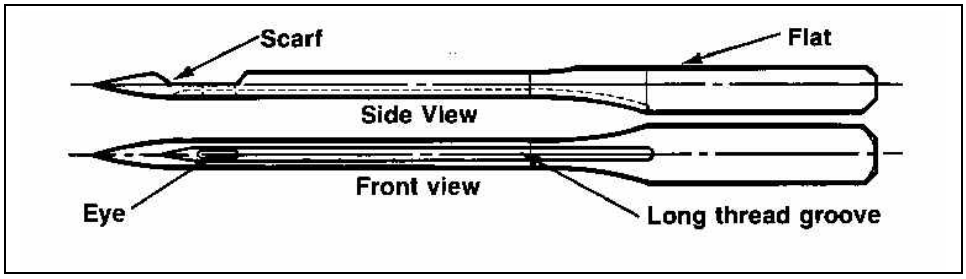
AND...

...you're certain that it has a built-in "self destruct mode" that takes over when you're down to the *last one*...on your last buttonhole... on Sunday evening... and tomorrow's the deadline.

There is no better way to avoid problems with sewing machine needles than to understand their **delicate nature** and **vital importance** to your sewing machine's performance.

The Important Parts of the Needle

Choosing the correct needle for your sewing machine ***and*** your project is very important to your machine's performance. Understanding the key parts of the needle will help you to make the correct choice. We'll concentrate on the four parts of the needle that are critical to good performance on most of the conventional fabrics.



1. The Needle "Scarf".

The scarf is the recessed area near the eye on the back side of the needle. (The side with the flat) This recess provides the space for the point on the sewing machine shuttle to catch the upper thread as the point passes behind the needle.

It is important that the needle you use has a long flat scarf, as opposed to a shallow "dished-out" or curved scarf. Most of the *better quality* needles are manufactured with the long flat scarf. Needles with the shallow curved scarf will cause skipping, frayed thread and generally poor performance.

2. The Needle "Eye".

When you select high quality needles, the eye will be highly polished to protect the thread during stitching. As your sewing machine stitches, the thread, passing through the eye of the needle, "saws" back

and forth much like using dental floss. If the eye is rough or the thread is poor, this action can cause the thread to fray and "skin" up the front of the machine, eventually breaking.

3. The Needle "Point".

Two common needle points are used most often in basic sewing. The "sharp" point is used for heavy woven fabrics, such as denim, coatings, canvas, heavy wools, etc. The sharp point reduces the force required to penetrate the fabric and will not injure the fibers when passing through.

The "universal point" is the more common needle and is used on the majority of the fabrics sewn today. Instead of being sharp, its point is a very slight ball, which prevents fracturing the synthetic fibers in our newer fabrics. The ball configuration on the point allows the synthetic fibers to skid aside as the needle passes through. However, it is sharp enough to perform well on most fabrics.

4. The Needle "Weight".

Choosing the correct needle weight will be a subject offered in a future newsletter. In general, the heavier the fabric, the heavier the needle required; however, a paradox exists in this relationship. The heavier the needle, the more force required to push it through the fabric.

On the other hand, thin materials will usually require a fine, thin, needle to prevent an adverse "punching" effect.

There are exceptions to these general rules. The ultimate solution is to use as fine a needle as possible, without developing machine performance problems.

Common Needles To Stock

It is impossible, in this limited space, to cover all of the needle and application combinations encountered in sewing. It's important to have a good supply of needles and seek out quality brands to be successful. The following needle types and sizes should be kept on hand for most sewing applications.

1. Universal point--size 10 (or 70 European Numbering)

This needle is for thin, delicate fabrics such as tricot, thin silks, and sheer fabrications. (NOTE! The eye of a size 10 needle is the smallest eye that our "standard" 50 weight threads will pass through without creating adverse sewing effects.)

2. Universal point--size 12 (or 80 European Numbering).

This needle is for ***the majority of your sewing*** on all fabrics heavier than those listed in the preceding group, but not as heavy as the fabrics in the group that follows.

3. Sharp--size 16 (or 100 European Numbering).

This needle is for heavy denim, canvas, vinyl, etc. The sharp point is beneficial in piercing with less resistance.

Installing The Needle Properly

Very Important!

There is only one *correct* way to install the needle in your sewing machine.

Consult your owner's manual for the proper direction to face the "flat" on the needle when it's being installed. Also be certain the needle is **all the way up** in its holder and tightened securely.

The needle is the number one cause of thread breakage, or poor performance of the sewing machine. Either improper installation or needle condition are the cause of the majority of poor sewing machine performance complaints. Check this ***before*** looking elsewhere for problems... even if you have had the sewing machine 20 years and ***know*** how to put the needle in the correct way! You may eliminate hours of frustration.

Protecting The Needle During Sewing

We'll analyze six of the seven most common abuses. The seventh, and most common abuse, “Crossing Thick Seams Improperly” is covered in detail in another section.

1. Sewing without proper fabric support.

Never allow your sewing machine to "drag" the fabric into the feeding system. Where possible, lift up a loose "dome" of fabric in front of the presser foot, sew the dome out, and lift up another.

Don't allow the fabric to fall off the back of the machine. The weight of the fabric will pull adversely against the needle and feeding system, causing poor machine performance.

Try to keep all of your fabric at the same level as your feed system. Your fabric support surface should be at the same level as your feed teeth and presser foot. This is why a cabinet or sewing table with a surface at the level of the feed system always provides the best sewing performance.

A portable sewing machine setting on top of a table causes the poorest performance. The dragging effect created by the fabric hanging off the left edge of the portable machine causes the fabric to pull to the left as you sew. Not only will this have a tendency to flex the needle, but it is very difficult to sew a straight line.

Remember, when your needle is in the cloth during sewing, the feed teeth are **down** below the surface. This allows outside forces on the fabric to flex the needle, causing poor machine performance.

2. Pivoting the fabric on the needle to turn a corner.

When you raise the presser foot to pivot on the needle for turning a corner, take precautions to protect the needle. To emphasize the effects of this condition, visualize the potential distortion of the needle when pivoting a massive amount of cloth, such as a drapery panel. Now consider the possibility of distortion when pivoting a 6 inch square of

calico on the needle.

When pivoting heavier garments, (jeans, slacks, coats, etc.) with your needle in the fabric, place the needle at its **lowest** point, before raising the presser foot. **Then**, after pivoting and dropping the presser foot, bring the needle out of the fabric, by turning the hand wheel the proper direction. Do this **before** you continue to sew. If you have flexed the needle, it will spring back to vertical as it leaves the fabric. Starting to sew without doing this, will probably bend or break your needle.

3. Using the reverse button at the wrong time.

You have just stopped your sewing machine at the end of a seam, on a relatively thick piece of fabric, with the needle point touching the cloth. You press the reverse button, step on the foot control and break your last needle. Sound familiar?

It's best when you stop your sewing machine to press the reverse button, that you are certain the needle is out of the cloth **before** pushing the button.

It is equally important when you press the reverse button, that the fabric is free to move. If, for example, you have just crossed a heavy seam, the presser foot will not be able to back up over it in reverse. The fabric will stall and the delicate needle will suffer again.

When you stop your machine with the needle touching the surface of a relatively thick piece of cloth and press the reverse button, the cloth will move toward you bending the needle.

4. Changing the dials on your machine at the wrong time.

Never change a selector, length, width, or needle position dial on your sewing machine with the needle in the cloth. This frequent cause of bent needles sneaks up on you when you least expect it, and, more often than not, when you can least afford to break a needle.

Those of you with “automatic needle up” on your machine never have to worry about this problem. This feature has been one of the best needle protection improvements added to sewing machines.

5. Removing the fabric from the sewing machine improperly.

When removing the fabric from your sewing machine, always have the top thread coming down **under** the presser foot and out the side or back. This is necessary to keep the thread pulling downward, not sideways, on the needle. Absolutely, **never pull the fabric straight out the front**, toward you. The needle is delicate and it will bend enough to cause poor performance even though it doesn't appear to be damaged at a glance.

6. Pulling the fabric toward the front or back during sewing.

"A gentle pull to help get the cloth through the machine can't hurt.... Can it?"

OR

White knuckles from holding back on that $50 per yard fabric that you're certain the sewing machine is going to "eat" if you let it.

Don't, under any conditions, try to assist the feeding system of the machine by outside influence on the fabric. **You cannot win**. Eventually, you will damage your needle.

Let the sewing machine feed system do its job. If the fabric is not feeding through easily enough, lengthen the stitch to give the feed teeth more bite. **Don't pull!**

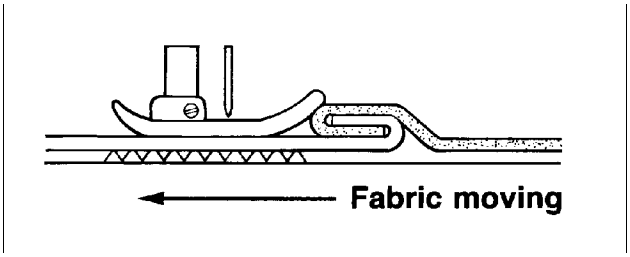
Conversely, sew slower or shorten the stitch length rather than hold back on the fabric. Mechanically, the feed system is designed to prevent broken needles. If you override it, you and the needle will lose.

The needle is truly the heart of your sewing machine. Use a quality needle, suitable for the application, installed correctly and in good condition and your sewing machine will perform... ***Sew Well!***

CROSSING THICK SEAMS

"I hate mending seams on blue jeans!" "I'm always breaking needles when I cross over them!" Sound familiar? This tip may not make you enjoy the job, but it will certainly help to prevent broken needles.

Your sewing machine is not like a Sherman Tank. When you come to a radical change in thickness, like the seam line in the hem on blue jeans, DON'T attempt to sew up and over it. (And DON'T grab hold of the fabric behind the presser foot to pull... even though it seems like a logical solution.)



Take a close look at what is happening when you meet a heavy seam. The feed teeth are trying to pull the fabric through... but the curled up "toe" on the front of the presser foot is preventing the fabric from moving. In the midst of this tug-of-war, the needle is trying to enter the fabric and do its job. The solution is to help the feed teeth and protect the needle.

To reduce the effects of this problem, you should use a device called a "wedge". The wedge is used to raise the presser foot, to a height closer to the thickness of the seam, to eliminate the resistance caused by the toe of the foot. The following are a few examples of devices used as a wedge:

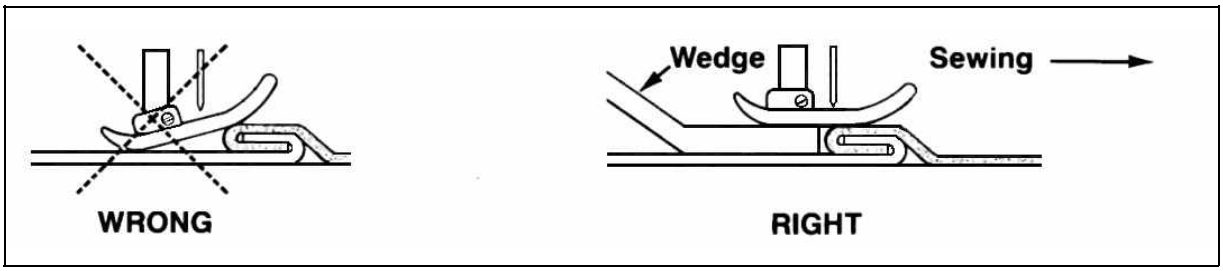
A piece of one-eighth inch thick yard stick, about 3 inches long.

A heavily stitched pad of denim (5 to 7 layers thick), 1 inch wide and 3 inches long.

Three tongue depressors stacked and glued together.

The Viking (Husqvarna) Sewing Machine Co. offers an excellent device for this purpose called a Button Standoff Reed.

When crossing a thick seam, follow this procedure:



Stop your sewing machine as the toe of the presser foot hits the heavy seam.

Place the needle in its lowest position.

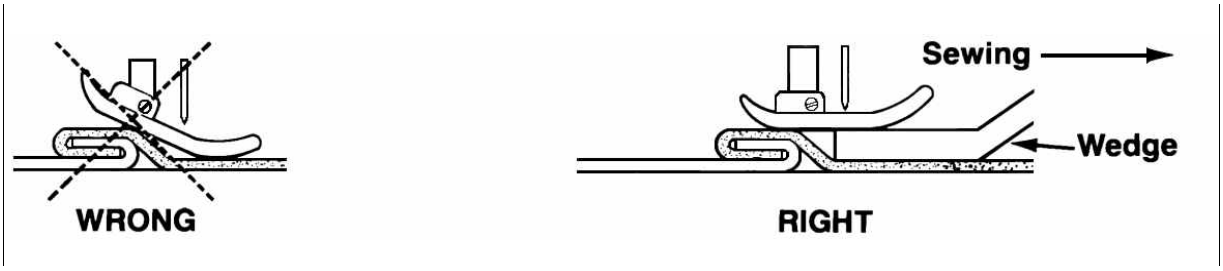
Raise the presser foot and place the wedge under it, behind the needle.

Lower the presser foot down on the wedge.

Sew slowly and steadily across the thick seam.

Simple, but very effective!

If you are thinking of accomplishing the same thing by simply raising the presser foot with the lift lever and sewing on... DON'T! Lifting the lever releases your upper tension and sewing in this condition will cause large loops on the back of your fabric, jammed threads and your project locked to the needle plate of your sewing machine.



It's also a good idea to use the wedge when going off the heavy seam, back to normal thickness. In this case, however, you will:

Place the wedge in front, *and to one side*, of your presser foot.

Sew until the “heel” of the presser foot is off the thickness.

Remove the wedge.

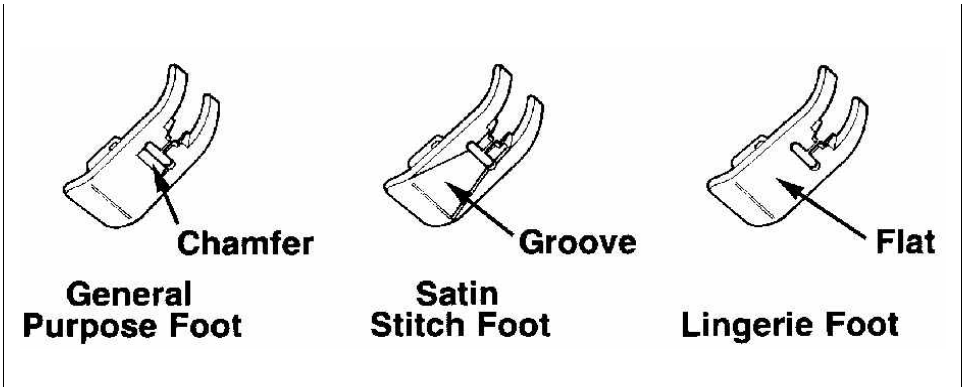
This final step will be a problem if you neglected to keep the wedge out of the needle's path.

If you don't use the wedge, when dropping off a heavy seam, the presser foot travels out into air about one-half its length, rapidly pivots downward, forcing the fabric backward, and often bends or breaks the needle.

Use this approach when crossing all radical changes in thickness as you sew... you'll find that it works... ***Sew Well!***

USE THE RIGHT PRESSER FOOT

The **General Purpose Foot** and the **Satin Stitch Foot** are included with most quality sewing machines. The **Lingerie Foot** is available, as a option, for most brands. The outside shape of your presser foot may differ from the drawings. However, we are primarily concerned with the *bottom* of the foot.



General Purpose Foot

This foot will be used the majority of the time for basic sewing. The bottom surface has a *small chamfer* along the back edge of the needle opening. Without becoming too technical, this chamfer is very important to the formation of a good stitch on the majority of the fabrics we use today. Check carefully when you begin to sew to be certain the General Purpose Foot is being used.

Satin Stitch Foot

This speciality foot is used for sewing stitches that "build up" on the surface of the fabric. (ie. Decorative satin stitch diamonds, scallops, arrowheads etc., or satin zig-zag applique stitching. The bottom surface has a *groove* (recessed area) from the needle opening to the heel of the foot. The grooved area allows the thread buildup on the fabric, when sewing satin stitches, to flow through, under the foot, without raising it off the fabric.

Using this foot for basic seam sewing on light and medium weight fabric would increase the sewing machine's tendency to pucker and skip stitches. The groove on the bottom prevents the foot from clamping the fabric, securely, close to the needle. This allows the fabric to push down into the needle plate opening and generates a ripple effect on the fabric or skipped stitches.

The negative effects of this foot are noticed mostly on thin stretch or non-stretch fabrics.

Use the Satin Stitch Foot *only* when necessary to allow stitches that are built up on the surface of the fabric to pass through freely.

Lingerie Foot

This speciality foot is used on very thin *stretch* fabrics. The bottom surface is totally flat, with no chamfer or groove. The fabric is clamped all the way around the needle opening. This prevents the stretchy material from pushing down into the needle plate opening as the needle and thread penetrate.

The lack of a chamfer on the bottom of this foot is beneficial in handling stretchy fabrics. However, *avoid* using the Lingerie Foot on non-stretch fabrics. The chamfer on the General Purpose Foot is essential to the formation of a good stitch on non-stretch fabrics.

Use the proper presser foot for all of your sewing projects and you'll find that your sewing machine works... ***Sew Well!***

PRESSER FOOT PRESSURE

Proper Presser Foot Pressure Will Mean Smoother Seams.

The pressure on the presser foot serves two purposes:

1. It helps to hold the fabric securely against the feed teeth during the feeding operation.
2. It helps to strip the fabric off the needle as the needle moves upward.

Controlling The Clamping Force

The downward force on your sewing machine's presser foot plays an important part in the feeding of fabric. This pressure is often referred to as "clamping force". Many sewing machines have a control such as a plunger, a thumb screw, or a calibrated dial that can be used to vary the clamping force. Refer to your machine's operating manual to determine which method of presser foot pressure regulation it uses.

Adjusting The Pressure For Better Performance

The following six tips will help you evaluate each sewing application and determine if presser foot pressure should be adjusted to improve your sewing machine's performance.

1. The normal setting

The normal setting for presser foot pressure, as specified in your operating manual, will be used on most *non-stretch* fabrics. This setting provides an adequate force to hold the fabric firmly against the feed teeth when the machine is moving the cloth. It also clamps the fabric tightly against the needle plate as the needle penetrates.

The clamp force should be great enough to allow the feed to move the fabric through the machine uniformly without slippage. Remember, however, to provide a loose dome of fabric in front of the presser foot... sew it out... and bring up another dome. *Don't* make the machine "drag" the cloth into the feed system.

2. Sewing tacky materials

Presser foot pressure should be increased when you sew tacky materials such as leather, Naugahyde, vinyl etc. The *increase* in clamping force may be required to strip the material off the needle during its upward movement. The presser foot and material should not be allowed to move upward at all during the needle's upward movement. If the material were allowed to move upward, a "loop" in the thread at the needle eye, required for the shuttle point to pass through, would not be formed and a skipped stitch might result. (See the section entitled "Skipped Stitches".)

3. Sewing large heavy sheets

Presser foot pressure should be *increased* when very large sheets of heavy fabric are being sewn. The increased clamping force would help to protect the needle from outside influence during the shifting of the fabric. This increase is normally required when sewing heavy drapery, upholstery, canvas, winter coats etc.

4. Sewing stretchy or spongy materials

The need to *lighten* the clamping pressure becomes very important when sewing stretchy or spongy fabrics. (ie. knits, quilted fabric, fleece, or any material with a nap, etc.)

Squeeze two layers of the fabric you are going to sew between your thumb and index finger. If you notice that the fabric compresses, and upon release rebounds to original thickness, a lighter presser foot pressure will play a very important part in forming a smooth seam.

Visualize what is happening when a heavy clamping force is applied to this type of material. First the fabric is compressed between the presser foot and needle plate to a very thin layer in relation to its free state. It is then stitched in this compressed condition. As the stitched fabric comes out the back of the presser foot, it attempts to expand to its original thickness, causing the stitching to draw and the fabric to ripple.

By reducing the pressure on the presser foot to a level that minimizes the compression of the fabric, and still gives uniform feeding, the rippling effect on the seam will be greatly reduced. The tendency to push a bubble of fabric ahead of the toes on the presser foot will also be greatly reduced if the pressure is lightened on this type of material. *Don't*, however, reduce the pressure to the point where the feed is unable to pull the material through.

5. Sewing satin stitches

Reducing the presser foot pressure when doing satin stitching or bulky decorative stitches will often improve the appearance of the pattern and allow more uniform feeding. Don't, however, reduce it to the extent that you loose the ability to guide the fabric accurately.

6. Using little or no clamp force

On all machines with pressure regulation there is a setting that gives very little, or no, clamp force. This setting is used for machine embroidery, darning etc. I am mentioning this setting because it is very often the cause of the following complaints:

"The machine was working fine, but now it won't pull the cloth through."

OR

"My machine won't sew a straight line. It wanders on the cloth."

Check your presser foot pressure regulator before you head for the repair shop.

[*As a side note:* The first of the two statements is also common when the machine's ***feed dog*** has been dropped to the darning or embroidery position. Check the drop feed control on your machine to see that it is in the proper position for sewing.]

The adjustment of presser foot pressure is often overlooked when troubleshooting machine problems. Take the time to understand the value of this adjustment and use it to smooth out those “trouble spots” in your project. It will help your machine to work... ***Sew Well!***

PREVENTING SKIPPED STITCHES

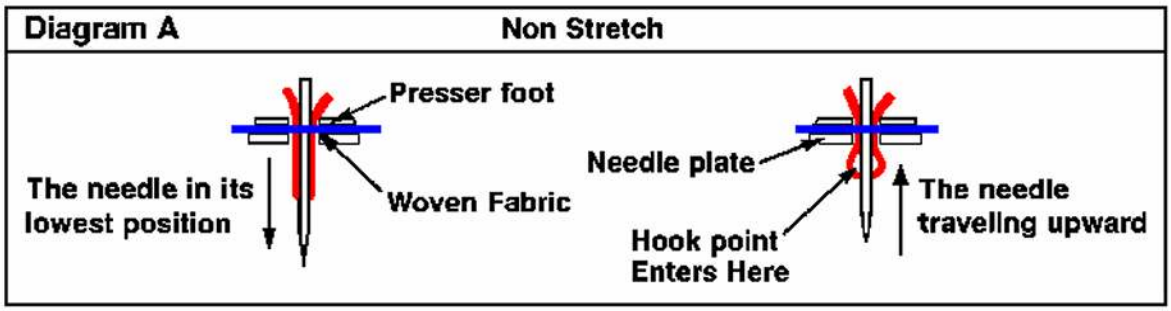
One of the more frequent complaints about sewing machine performance is skipped stitches. Often the cause of a skipped stitch can be traced to improper sewing machine usage, as opposed to a mechanical malfunction of your machine. By understanding the formation of a stitch in your machine, you will be better equipped to remedy the problem and avoid... "*the service center*". If, however, the following suggestions do not cure the skipping problem, your machine will probably require professional help.

The Way Your Machine Forms A Stitch

To understand and evaluate the causes of a skipped stitch, we'll take a very simplified look at the way the stitch is formed in your sewing machine. Since the fabric type plays an important part in the formation of a stitch, I have illustrated both **non-stretch** and **stretch** applications in the following diagrams A and B. These two classifications are more common today than the **woven** and **knitted** classifications of the past. Use the following definitions to help you to determine the type of fabric you are working with.

Non-Stretch Fabric
A fabric with no elasticity when pulled *either* with the grain *or* at right angles to it.

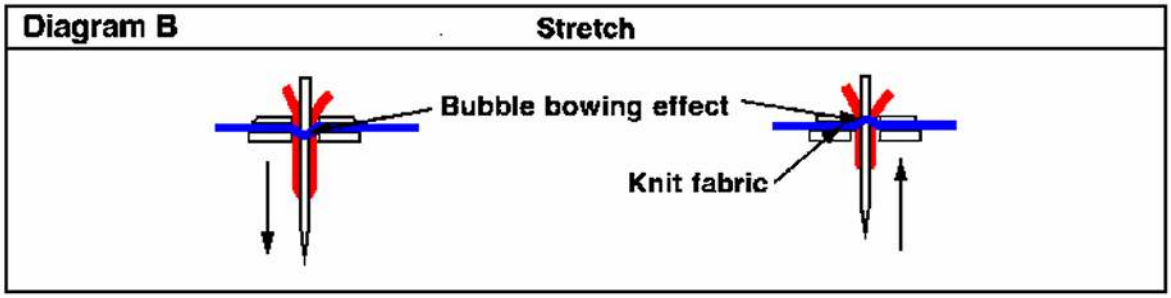
Stretch Fabric
A fabric with elasticity when pulled *either* with the grain or at right angles to it *or* in both directions.



Non-stretch Fabric--Diagram A

The needle, on its downward stroke, penetrates the cloth which is clamped between the presser foot and the needle plate. It then travels to the lowest point in its cycle, carrying the upper thread. When it reaches this point, the needle begins its upward movement, forming a "loop" in the thread (as shown in the second half of the diagram). At a preset position in the needle's cycle, the Shuttle (Hook) point travels inside the "loop", between the needle and the thread. The Hook catches the upper thread and continues through its cycle, wrapping the upper thread around the bobbin thread, forming a stitch.

A skipped stitch occurs when the Hook point *does not* enter the "loop", but instead passes outside the "loop", *missing* the upper thread during the cycle.



Stretch Fabric--Diagram B

The sequence described above also takes place with stretch fabric. However, as the diagram illustrates, the "loop" *does not* form. The fabric's elastic characteristics cause it to bow down into the opening in the needle plate as the needle penetrates. This forms a bubble of cloth which clamps the thread tightly against the needle. During the upward motion of the needle, the bubble continues to clamp the thread, preventing the "loop" from forming. This condition greatly increases the chances of a skipped stitch. The small amount of space between the needle and the thread makes it difficult for the Hook point to pass between.

How To Prevent Skipped Stitches

The following suggestions are all based on helping the thread "loop" to stay as *large* as possible and *centered* directly in the path of the Hook point. This will allow the Hook point to pass between the needle and the thread. You will notice that the importance of these suggestions is much greater on stretch fabric, due to the very small "loop" that is formed.

1. A needle that is bent *away* from the shuttle will increase the chances of the Hook point missing the "loop". Try changing the needle. (Be certain the needle is installed correctly. If the scarf is on the wrong side there will be little, or no, gap for the Hook point to pass through.)

2. Use as fine a needle as possible (size 10 to 12) to reduce the bowing effect caused as the needle penetrates the fabric. This is especially true on stretch fabrics. Remember, the "fatter" the needle, the more the bowing effect will occur before the needle can penetrate the fabric. Visualize, as a comparison, pushing a fine, sharp, needle verses a fat nail through a delicate piece of cloth. You can readily see how much greater the bowing effect would be with a needle that is too heavy.

3. Use a fine, smooth thread to reduce the dragging action as the needle and thread travel through the cloth. A heavy or rough thread will increase the bowing effect in the fabric and consequently magnify the skipping problem.

4. Be certain the opening in your **needle plate** has not been enlarged significantly by hitting its edge with needles. The larger the opening, the greater the possibility of the bowing effect. Replace the needle plate if

the opening is enlarged.

5. When sewing on thin *stretch* fabrics, use a presser foot with *no* scarf on the bottom. This type of presser foot is usually referred to as a lingerie foot and has a perfectly flat bottom surface.

6. Never use the decorative stitch presser foot to sew seam lines. The shallow groove on the bottom of this foot prevents the fabric from being clamped securely around the needle plate opening. This allows the fabric to bow more readily in the opening.

7. As a temporary solution to skipped stitches on very thin or stretchy fabrics, a piece of tissue paper may be placed under the fabric to add stability as the needle penetrates. The tissue paper is rigid and will prevent the fabric from bowing into the needle plate opening. The perforating action of the needle will allow you to remove the paper easily. Sewing through paper will dull your needle rapidly; change it when you have finished the project. Understanding the importance of the thread loop formation under the fabric, for the Hook point to catch, is critical in evaluating the causes of skipped stitches. The following can all be involved in the proper formation of the loop. Think in terms of how each would cause the fabric to bow down into the Needle Plate opening causing the problem shown in diagram B.

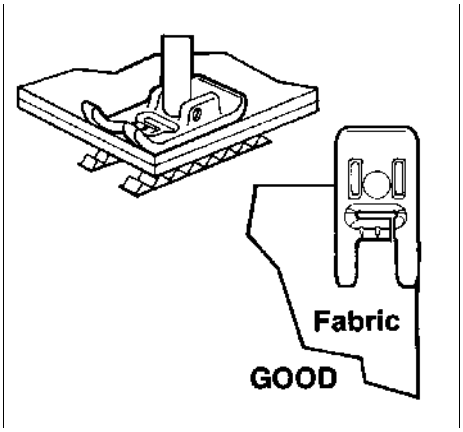
▸**Needle Size**	▸**Presser Foot**	▸**Needle Plate Opening**
▸**Needle Weight**	▸**Presser Foot Pressure**	▸**Thread Quality**

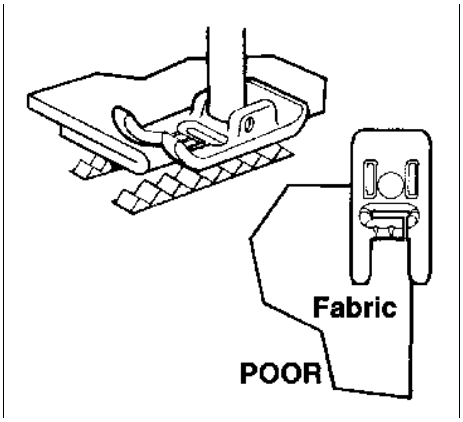
Understand the theory... make adjustments... and your machine will sew...***Sew Well!***

TOP STITCHING

Your Fabric Should Always Cover the Full Width of the Feed Teeth

The combination of **presser foot** and **feed teeth** is very important in achieving smooth stitching, especially when top-stitching. If you find yourself shifting the fabric to the left, to top-stitch closer to the edge, you're sacrificing a great deal of control in handling the material. The following diagrams indicate the proper way to position fabric and the poor method with the fabric moved to the left.





There are two very important reasons to have the fabric cover the full width of the feed dog as shown in the “Good” diagram above.

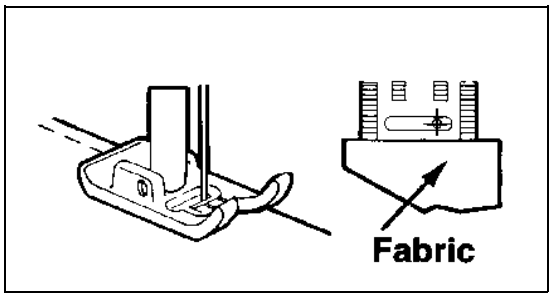
1. The feed teeth and presser foot clamp the cloth securely and hold it tightly *across* the opening in the needle plate, until the needle is ready to enter. Moving the fabric to the left to get closer to the edge reduces this clamping action and causes the fabric to bow down into the slot in the needle plate as the needle attempts to pierce. This situation produces a "rippled" seam line, especially when working on thin fabrics or using heavy top stitching thread.

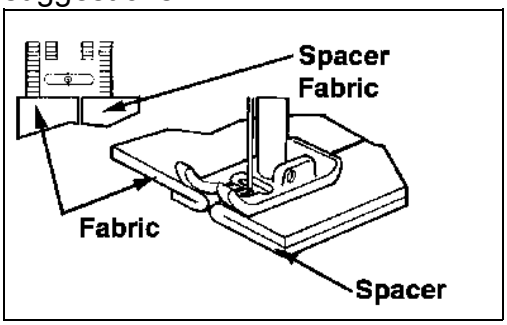
2. When the presser foot comes down on a piece of cloth covering the left row of feed teeth, and not the right row, as in the “Poor “ diagram above, a tipping action is imparted to the foot causing a "circular" sewing tendency. Difficulty in guiding a straight top stitch is often the result. The fabric will also have a greater tendency to “squirt” to the left making it difficult to control. Unsightly top-stitching is often the result.

Methods for Top-Stitching Close To the Edge

Depending on the needle position features on your sewing machine, one of the following methods should improve your top-stitching ability.

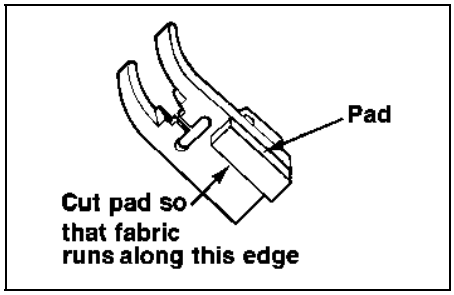
1. If your sewing machine has the option, shift the needle to the *right hand* straight stitch position to get as close to the edge as possible. If your fabric is covering the right hand set of feed teeth and the distance in to the needle is suitable for your application, you are ready to sew. If you want to be closer to the edge with the needle, review one of the following suggestions.

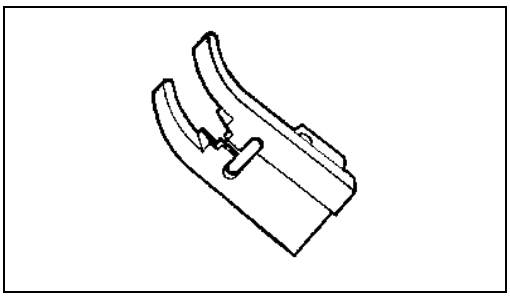




2. If you must shift the fabric to the left, place a thickness of cloth, equivalent to the thickness beneath the left side, under the presser foot covering the right row of feed teeth. This will act as a leveling device. This method will improve guidance; however, it will not stop the rippling effect on thin fabric caused by improper clamping. Depending on the application and the distance you are sewing, you may wan to tape the piece of leveling fabric to the project. The tape can be removed after stitching, even if you sew through it.

3. Another approach to compensate for the fabric not covering the right hand feed teeth is to place a pad of thin stick-on Teflon on the bottom side of your general sewing presser foot as shown in this diagram. This will compensate for the thickness variation caused by the fabric not covering the full width of the feed teeth. If this is done properly, the pad will also provide guidance while top-stitching.





4. If your sewing machine has a *blindhem guide foot* with two different surfaces on the bottom, (to compensate for the uneven number of thicknesses required during blindhemming), use the foot to guide the fabric the same as in method #3. If your machine has *variable* straight stitch needle positions, this is an excellent way to do precision top stitching very close to the edge. Be aware, however, all blind hem feet do not have the uneven bottom surface to compensate for the material thickness. Although you could use the foot for better positioning and guidance, it would not compensate for the fabric

not being over the right hand set of feed teeth. You will have to use approach #3 and add a pad to the bottom of the foot.

There are numerous other remedies. The important point is that you understand the problems that may arise if you do not completely cover the feed teeth, and that you can find an acceptable solution for your particular machine and application. The effort will be rewarded with much more attractive top-stitching and less frustrating machine performance. Once again your machine will sew...***Sew Well!***

BUTTONHOLES

Put the Accent in the Right Place and Your Garment Will Look Great.

Buttonholes produced by mechanisms built into the sewing machine are very common today. Not only is the procedure for making the buttonhole much easier than the old attachment method, but the time required is far less. The built-in buttonhole system also has the advantage of working on a far wider range of fabrics than the attachment system allowed.

A Good Buttonhole

A good buttonhole blends smoothly into the garment, doesn't distort appearance, and is virtually unnoticed; yet, it serves a functional purpose.

"That doesn't sound like my buttonholes!"... you say. Maybe it's because you're putting too much emphasis on the components of the buttonhole, namely, the sidewalls and bartacks. Perhaps a more appropriate description of most buttonholes is this:

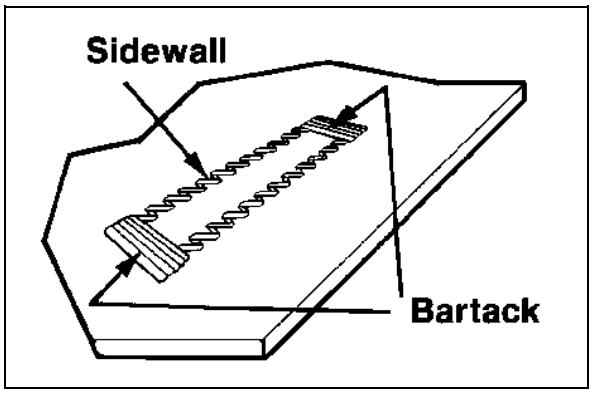
A shiny "embossed" rectangle, highlighting the appearance of the garment only to be covered by the glamorous buttons that took hours to select.

Of course it's important that the buttonholes "look good" on the garment. However, in most cases, looking good should emphasize a blending effect, not an accent. Adhering to this idea will greatly enhance the appearance of your garment.

The Parts Of The Buttonhole

Before we start discussing techniques to improve your success in making buttonholes, let's take a close look at the make-up of a basic buttonhole.

It's very important to understand the primary components of the buttonhole. The *sidewalls* are intended to provide a ravel free edge after the buttonhole is slit. The *bartacks* strengthen the fabric at the stress points at each end of the slit.



Steps To Good Buttonholes

These tips should greatly improve your success in making good buttonholes.

1. Start out right

The following suggestions are all covered in previous sections of this manual and are very important in producing good buttonholes.

a. Use a fine, smooth, quality thread.
b. Use a fine needle. (size 10 or 12)
c. If the fabric is "stretchy" or "spongy", reduce the pressure on your presser foot.

Each of the above suggestions will allow the stitches to lie more smoothly on the fabric.

2. Set the upper tension

The upper tension should be *reduced* by one to three numbers from normal. A buttonhole is a satin stitch and requires this tension reduction to lessen the "ridging effect" between the points of the zig-zag stitch in the sidewall. This also allows the small knots in the stitch to tend to the back side of the fabric leaving the surface that shows... smooth. (Don't reduce the tension enough to form "loops" on the wrong side.)

3. Check your thread supply

Be certain you have ample thread on your spool *and* bobbin to finish your buttonholes. Chances are the buttonholes are one of the final steps in making your garment. The majority of the thread has probably been used on the previous stages of the garment.

4. Stabilize thin materials

Use an interfacing to stabilize thin fabrics in the area of the buttonholes. This is most important on light and medium weight materials. Remember, buttonholes are simply a series of zig-zag stitches. On thin materials a zig-zag stitch will draw the fabric between the left and right points of the zig-zag causing a "ridging effect" and distorting the fabric. Inadequate interfacing (or too tight an upper tension) will cause "crow's feet" puckers at each end of the buttonhole.

5. Make sample buttonholes

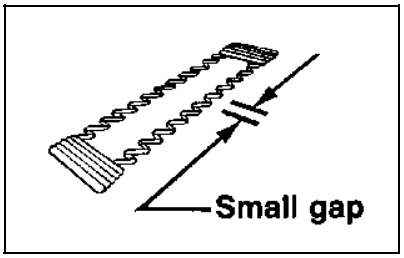
Always make sample buttonholes on scraps of the fabric you are using in your garment:

a. Make the sample buttonhole in the same grain direction as on the garment.

b. Make the sample buttonhole using the same number of thicknesses (including interfacing) as your finished buttonhole.

Make your adjustments on the sample before going to the finished product.

6. Set the stitch length control



Select a stitch length that leaves a very small gap between the zig-zag stitches in the sidewall of the buttonhole. There should be just enough gap to distinguish the points of the zig-zag as shown in the diagram to the right. This allows the fabric color to show through the stitching, creating a blending effect. The button-holes will also be less likely to distort the fabric with the stitch length set in this manner.

When setting the *control for stitch length* for making buttonholes, a common mistake is assuming that it has to be placed in the center of the factory recommended buttonhole position. There is no single proper setting on the *length control* for all fabrics. This setting will vary with the fabric thickness and stretch. To get the desired effect start by setting the stitch length too long and then reduce it (toward zero), as you make your sample.

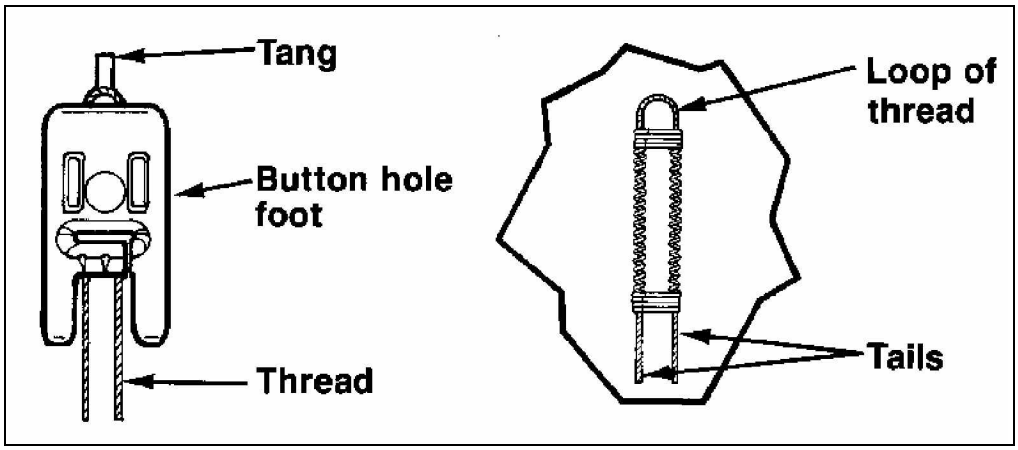
Setting the stitch length too short will give your buttonhole a "pasted on" appearance. It will also ripple the fabric and often causes the machine feeding to stall out when working on the finished garment.

7. Stabilizing the buttonhole in stretch fabrics

A buttonhole, being a series of zig-zag stitches, will be as elastic as the fabric it is sewn on. In order to eliminate the elasticity in the buttonhole on stretch fabric, and the distortion it can create, a method of stabilizing must be used. The most common approach is to place a cord or thread *inside* the buttonhole as it is being sewn. Most buttonhole presser feet offer the necessary provisions for doing this.

There are a wide variety of buttonhole feet provided with sewing machines and the method of attaching the thread to each will differ. However, the following techniques will remain the same.

The following diagram shows one of the more basic types of buttonhole presser feet.



A tang on the foot provides a means of attaching the loop of thread or cord, to be sewn into the buttonhole, under the foot. As the buttonhole is sewn, the zig-zag stitches in the sidewall cover (encase) the thread. The result is a buttonhole with a loop of thread inside as shown in the diagram. (It is very important, if you are using a buttonhole foot like the one shown above, that you hold the two tails *gently* out the front during sewing and allow the thread to slide through your fingers as the machine sews.)

When the fabric is removed from the machine the two tails of thread can be pulled simultaneously, embedding the loop into the bartack. A half a knot can then be tied with the tails and drawn up until it is firm against the bartack and the buttonhole is *slightly* buckled. Tie another half a knot, to lock the first, and trim the two tails closely. If you buckle the buttonhole slightly when, tying the knot, pressing the buttonhole flat will draw the knot firmly under the bartack.

The result is a solid ring of thread inside the buttonhole that restricts its elasticity. The thread will also add some strength to the sidewall of the buttonhole. On garments, such as coats, a heavier thread or cord can be used to add durability to the buttonhole.

8. The bartack

The bartack is often a source of problems in making buttonholes. Because the feeding system *stands still* during bartacking, it is very easy to build up an accumulation of thread under the fabric that "locks" the material to the opening in the needle plate. When the next step in the buttonhole cycle is attempted, the fabric will not feed and more thread is built up on the back side.

To prevent this problem, a maximum of 4 to 5 stitches should be used in a bartack. Also, be certain that your upper tension is not set too light. An upper tension that has been lightened too much will cause the build up on the back side of the fabric to be much more pronounced.

9. Evaluate the placement of your buttonholes

Be certain that the sewing machine can cycle the complete buttonhole without restriction. Three precautions must be taken to assure uniform feeding throughout the complete cycle of the buttonhole.

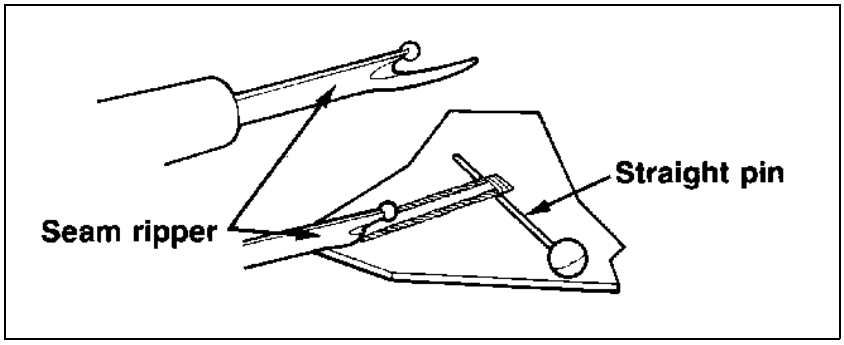
a. Be careful in selecting the way you place your fabric in the sewing machine when making buttonholes. Avoid feeding up over seam allowances during the cycle of the button-hole. Remember, when the sewing machine is feeding in reverse, the back of the presser foot is a considerable distance behind the needle. If the heel of the foot hits the ridge formed by the additional thickness of the seam allowance, it may stall the movement of the fabric.

b. Buttonholes must always be made on a uniform thickness of fabric. Grading seam allowances in the area of the buttonhole is very important!

c. Always assure the free movement of the fabric in *both* forward and reverse directions during the construction of a buttonhole. Never let the machine "drag" the cloth into the feed system. This is especially important when working on heavy garments. Remember, the stitch length is very short when making buttonholes and a relatively light resistance on the fabric could stall the feeding.

10. Cutting the buttonhole opening

A seam ripper (buttonhole knife) is often used to slit the opening in the buttonhole. The procedure can be less risky if you follow a few simple rules.



a. Be certain your knife is sharp.

b. Place a straight pin across the end of the buttonhole, *in front* of the bartack you are cutting toward, to prevent the knife from slicing through the bartack.

c. *NEVER* "push" the seam ripper to cut the slit in the buttonhole. Place the seam ripper through the fabric in the buttonhole as shown in the diagram. Rest your hand, holding the seam ripper, on the table. With the thumb and index finger on your other hand, ***pull*** the fabric, in short movements, toward the cutting edge of the ripper until you reach the pin at the opposite end of the buttonhole. You will find that you have much greater control using this approach.

A more professional buttonhole cutting device, similar to a wood chisel, is available at most fabric stores. This tool is available in various widths for the more common buttonhole sizes. The buttonhole is placed on a block of wood and the cutter is positioned in the buttonhole slit. A blow to the end of the tool cuts a very clean slit through all layers of fabric. This device is more efficient than the seam ripper on very thick or tough fabrics.

Following these tips will make your garment look professional and at the same time help your sewing machine to do its job....***Sew Well!***

LUBRICATION

Many of the newer machines today are built with oil-less bearings. This has reduced the frustrations of getting black oily residue on a new garment; not to mention the value of not having to worry about when, where, and how to lubricate the machine. Refer to your sewing machine manual and determine if there are places to oil on your machine. DO NOT attempt to oil machines that don't require lubrication. If your machine does have oil points, the following guidelines will prove to be helpful.

When was the last time you oiled your sewing machine? Do I sense a hint of embarrassment? You're not alone. Fabric, oil, and seamstresses will never be a winning combination. For those of you who have sewing machines that require oiling, understand that it is a very important part of maintaining top performance.

Refer to your sewing machine owner's manual for the proper places to lubricate. (I*f your machine has a drop-in bobbin and no bobbin case, this paragraph will not be of value to you.*) Pay particular attention to the cleaning and lubrication, if necessary, of the *shuttle area*. The *bobbin case* requires cleaning, but ***never oil it.*** However, using a soft cotton cloth with a small amount of oil on it, to act as a cleaning agent, over the end of a fine screwdriver, is an excellent way to clean the hole thru the center of the bobbin case. Simply push the cloth, over the screw driver, into the hole in the case and spin the case on the oily cloth. Work in from each end of the hole to clean all the way thru the case. You can also use the oily spot on the rag to clean the shaft in the shuttle, that the bobbin case goes on to, by rubbing it thoroughly. A black gummy residue builds up in these two areas from polyester dust. The build up often causes noise and chatter in the bobbin area of your machine. These two components play a very important role in the performance of your sewing machine. Clean them regularly.

When To Lubricate

Unlike your automobile engine, your sewing machine does not have an internal method of replenishing oil to critical moving parts. The device for doing this is you... the user. The proper frequency for oiling is dependant upon the machine usage.

As you use your sewing machine, the oil that has been placed on the bearings etc., is spread back onto the critical friction points. Letting your machine sit idle for an extended period will allow the oil to drain to the bottom of the machine where it is of no value. Sewing machine oil is a highly refined lubricant that evaporates in a relatively short time.

Taking the preceding points into account, you should oil your sewing machine in small amounts, frequently.

2 DROPS AT EACH OIL POINT EVERY 3 MONTHS.

The following examples will give you guidance:

If you sew daily... increase the frequency to monthly.
If you sew weekly... use the basic recommendation.
If you sew once-a-month... use the basic recommendation.
If you oiled your sewing machine the last time you used it, and it's been over a year... oil it again. You might also think about taking a few classes and getting back into sewing ☺.

Remember, the secret is to adhere to the procedure... *small amounts at frequent intervals*. An excessive quantity of oil will not extend the time between oiling and often leads to damaged fabrics and sewing machine repair.

Your machines top performance depends on proper cleaning and lubrication. Do it right and at reasonable intervals and the machine will perform....***Sew Well!***

Serger First Aid

Serger frustration... what's that? We've all been there. Here are a few of the **most common** ways to prevent serger stress. Each could be covered in depth, but I'm going to be as brief as possible... to help you focus on the potential problem areas. Be sure to refer to your specific serger instruction manual for an explanation of each of the following.

1. NEEDLES ALL THE WAY UP ... Correct Rotation and Tight.

This is one of the most important serger tips. Loosen the needle clamp screw until the needle can slide easily. Be certain to push a new needle up until you feel it hit solid against a stop... drop it down a bit and push it up firmly again... *hold it there* and tighten the screw snugly. Give the screw a little extra turn to lock it securely.

If your needles have a FLAT on the shank (the part that goes up into the needle bar)... the flat goes to the BACK. If the shank is ROUND (no flat)... the *needle eye* and the *long needle groove* face you.

2. BENT NEEDLES cause the majority of serger performance problems.

No, the bend does not have to be obvious. A minor bend often cause the most frustration. As a general rule... if your serger has been working well and starts to act up, check threading first (see the following tips). If all looks fine, change the needles.

3. USE QUALITY SERGER THREADS

Use a good brand of Serger Looper Thread in the Loopers. This thread is finer than regular sewing thread. (70 weight). It is sold on Cones as opposed to spools.

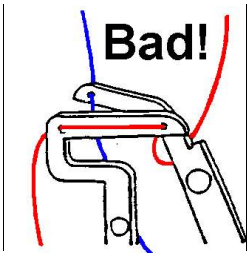
The thread used in the needles can be either Looper Thread or Standard Sewing Machine thread. Using Standard (50 weight) Sewing Machine thread adds strength to the seam line as compared to the more fragile Looper Thread. You also have the advantage that the thread is the same one used in your sewing machine for other construction on the garment. Using this thread on the Serger Needle that forms the seam line will assure the best appearance. The color was picked to closely match your fabric. Its sometimes difficult to find a good color match in Looper Threads.

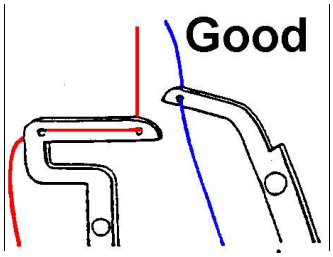
4. CHECK THE THREADING

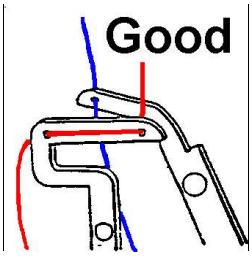
Yes... I know you did that 3 times. We're amazed at how often these pesky little devils manage to thread themselves improperly between the house and our service counter. Look specifically for these things:

Thread wrapped around a Thread Guide... *start looking at the spool!*
Missed a Thread Guide.
Thread not down in the Tension Disks... *"floss" it in, to be certain*.
Thread wrapped around the needle at the eye.

5. PROPER THREADING SEQUENCE







First thread the UPPER LOOPER... bring the tail out the back about 3 inches.
Second thread the LOWER LOOPER and *be certain* that as the thread comes out of the back of the looper eye... the *tail lays OVER THE TOP of the Upper Looper* and bring the tail out the back about 3 inches.
Third thread the Right Needle... don't let the thread wrap around the needle and bring it under the Presser Foot and out the back about 3 inches.
Fourth thread the Left Needle with the same precautions as the right needle.

6. STARTING TO SEW on a freshly threaded Serger.

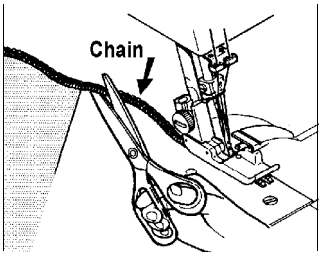
After threading the serger, as described in the previous step, lower the Presser Foot down on the fabric. ALWAYS start sewing with the first stroke of the Needles coming down *on fabric...* (use a scrap). Yes, I know all of the reasons this is an inconvenience... however... it is the best and the safest way to start your serger *chaining* properly.

A second approach... and this is a distant second.... is to "very gently pull" all of the threads out the back...under the Presser Foot...be certain it is lowered... as you start to sew. The key here is "very gently".

Once you have formed a "chain", these steps are no longer required until the next time you have to re-thread your serger. However, "gently sliding" the chain out the back of the Presser Foot before you start to sew can prevent a pile up of thread under the Presser Foot.

7. DON'T PULL on the fabric when "chaining off" as you finish a seam.

Simply, keep the "slack" out of the chain as you sew out a few inches to cut the thread. Pulling too hard on the fabric at this point is the number one cause of damaged or broken Loopers AND bent Needles.

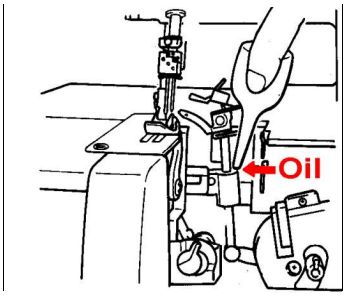


8. ALWAYS turn the Hand Wheel the *proper direction.*

Never turn the Hand Wheel "backwards"... (the opposite of the normal direction when sewing forward). The Hand Wheel turns *toward the front* (counter-clockwise) on most new sergers. However, many older models turned toward the back (clockwise). Know which is correct for your serger and **never** turn it the opposite way, when the serger is threaded.

9. Keep the UPPER LOOPER SHAFT LUBRICATED.

Turn the Hand Wheel and watch the Upper Looper Shaft move up and down in the Bearing Block on the front of the machine. Where this Shaft slides in the Bearing, put 2 or 3 drops of oil every 8 running hours. This Bearing gets a lot of the lint from the cutting mechanism and lubricating it regularly will help to flush the residue through, preventing a bind in the mechanism.



IN CONCLUSION

Do you know what comment is heard most frequently by a sewing machine serviceman, as he informs the seamstress that he will have to keep her machine for repair?

"But, I'm right in the middle of.....!"

Take the time to *understand* and *practice* these tips to keep your sewing machine performing well and out of the repair shop. Like the human body, your machine needs a periodic "physical" and "tune-up". Do *plan* ahead!

Practice these tips and you will find that you and your sewing machine will get along...

Sew Well!