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THE EMBROIDERY COACH

"How To Create Small Lettering That sews Out Great Using Your Embroidery Fonts?"

Welcome to this presentation on How To Create crisp, clean, **Small Lettering** that sews out great using your embroidery fonts. My goal in this presentation is to give you a much better understanding of how to work with **Small Lettering**. In this presentation, we are going to concentrate on using your embroidery fonts and adjusting them so that they will run more efficiently. Many times, with a lower stitch count.

In this Small Lettering presentation, we are going to talk about:

- Common Issues with Small Lettering
- The Basic Rules for Small Lettering
- Underlay Stitching and Pull Compensation Basics
- Adjusting the Styles or Recipes
- How to Add a Background Fill Under Small Lettering for Fleece and Mesh
- My Favorite Recipes for Backing or Stabilizer for Left Chest Logos

This is a program that will help you create basic lettering using the fonts in your software. I am not going to show you any digitizing techniques. I always teach my students, that you must learn how to become an editing expert before you can even think about digitizing. There are a lot of basics that must be learned and fully understood before you can learn how to digitize. Learning the basics of creating lettering in your software is the very first skill that you need to master.

Working with small text lettering can have its challenges, but once you learn how to cope with many of the issues, it will be easier. Making small lettering work to your satisfaction often means making adjustments to allow for your fabric type and the size and style of the lettering that the customer is requesting.

Your fabric is a key element in this equation of balance. We have many fabric styles and types in both knits and wovens.

The more stable the fabric is, the easier it is for the small lettering to sew. Knits such as piques are tough and create many problems with small lettering. With these knits the stitches want to sink into the fabric. You have to control this with underlay and yet not create too many stitches.

Sometimes, it is by trial and error. I have found that some small lettering needs only 1 line or pass of underlay under it. This one line of center run or perpendicular underlay will help the top stitching of the letter to sit higher on top of the fabric and not get lost in the fibers of the fabric.

Part 1 We Are Covering:

- Common Issues with Small Lettering
- The Basic Rules for Small Lettering
- Underlay Stitching and Pull Compensation Basics

I want to go over all of the basics first before we actually go into how to create small lettering using your embroidery fonts. In this presentation, that is exactly what we are going to do.

Common Issues With Small Lettering

- Unreasonable Customer Demands
- Holes Created in Fabric
- Selecting Fonts Not Suitable for Small Lettering
- Giving Customers Too Many Choices

Unreasonable Customer Demands

Many times, the customer will request a style or a size of letter that is not acceptable for embroidery. They are used to seeing their logos in type set, usually in ink or screen-printing ink, and this does not always work with needles and thread. It is not uncommon for a customer to request an unreasonable number of letters all to be placed on one line.

You have to let them know what will work. When they want too many letters, you will need to make a change in order for their design to be attractive. What looks good on paper does not always look good on a garment. You need to be able to read the design when you are a few feet away from them. It all needs to be clear and legible.

The number of letters for one line will depend on what font style they want and the size of the lettering. There really is no way to say it can only be x number of letters unless you personally determine that with your software and set ups.

You do not want your line of lettering for a left or right chest to be more than 4 inches. It is best to keep it at 3 to 3.5 inches if at all possible. You want it to fit inside of your 15 cm hoop for those of you that have commercial machines. If you have to use a hoop larger than that, reduce the size of your design.

If you take the time to explain to your customer exactly what you have to do, they will appreciate it and understand, most of the time. You will always have some that will not care, but this is not the general rule.

Holes Created In Fabric

There are many factors that can create holes in your fabrics.

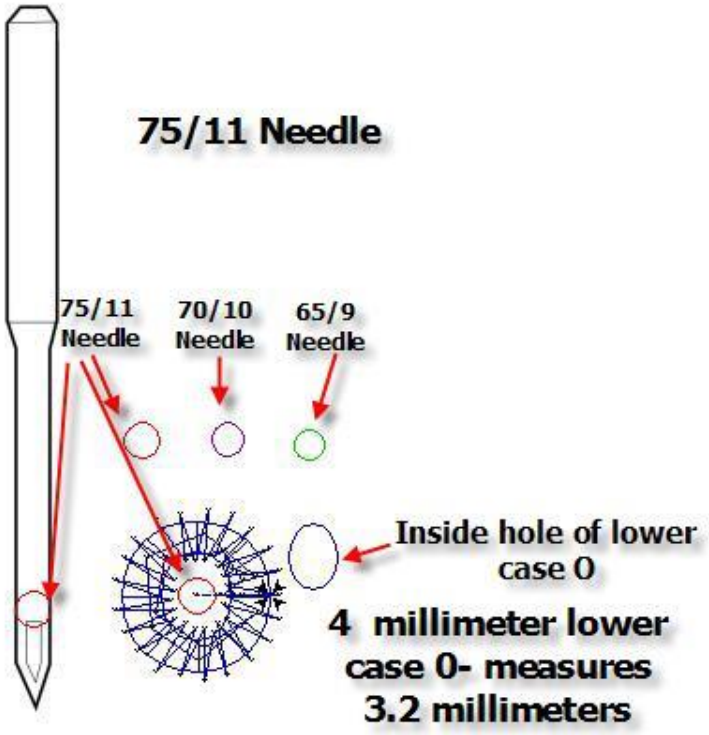
- The wrong type of needle
- The wrong sized needle
- Lettering too small
- A burr on the needle
- Too many stitches in your design
- Too many stitches in one area in your design
- The wrong type of backing

With **Small Lettering** you have to create a balance between the fabric, needles, thread and the size and style of your lettering. You cannot have letters so small that you are creating stitches that will be stitching on top of each other. This causes holes in the fabric and thread breaks. Your stitch length or column width must be a minimum of 1 millimeter in order for it to sew and not create holes.

Wrong Sized Needle & Wrong Type of Needle

When a machine arrives, it is equipped with 75/11 sharp needles. It does not matter which brand of machine. The average embroiderer continues to use these needles because they think that these are the correct ones to use. I tell

my students to change all of their needles to 70/10 needles for smaller stitch penetration points.



The diameter of a 75/11 needle is .75 millimeters. If you are creating a stitch length of 1 millimeter your stitch penetration points are only .25 millimeters apart. This is not much fabric left between the stitches. Technically letters smaller than 6 millimeters should not be sewn with any needle larger than a 70/10 needle and 4 millimeters letters or smaller should be sewn with a 65/9 needle. If it is a knit fabric, you should use a ball point needle. If it is a woven fabric, you will use a sharp needle.

Lettering Too Small

It is best to keep your small letters at 6 millimeters if at all possible. This is one fourth of an inch. On numerous corporate logo's requested today, it is necessary to go below a quarter of an inch, many times down as low as 4 millimeters. The lower-case letters of a font run at 4 millimeters measure is about 3 millimeters, depending on the font. That is just over one eight of an inch. This is extremely small.

The center opening of the lower-case letters such as an **e**,**o**,**g** or an **a** or **b** must be a minimum of 1 millimeter across. If it is not, you will cut a hole into the fabric as it is sewing. This is why it is so important to use a smaller needle.

The smaller your needle is the clearer and cleaner your lettering will look, so remember that if the lettering is 4 millimeters or smaller, you must use a 65/9 needle and then you change your thread to a 60-weight thread instead of the 40 weight. Madeira also offers a 75-weight thread that you would use for lettering that is 2 mm. For that thread your needle would be a 65/8 size.

That is for lettering that you might see inside of a circle on a patch or a State or Federal logo. I have only used it one time.

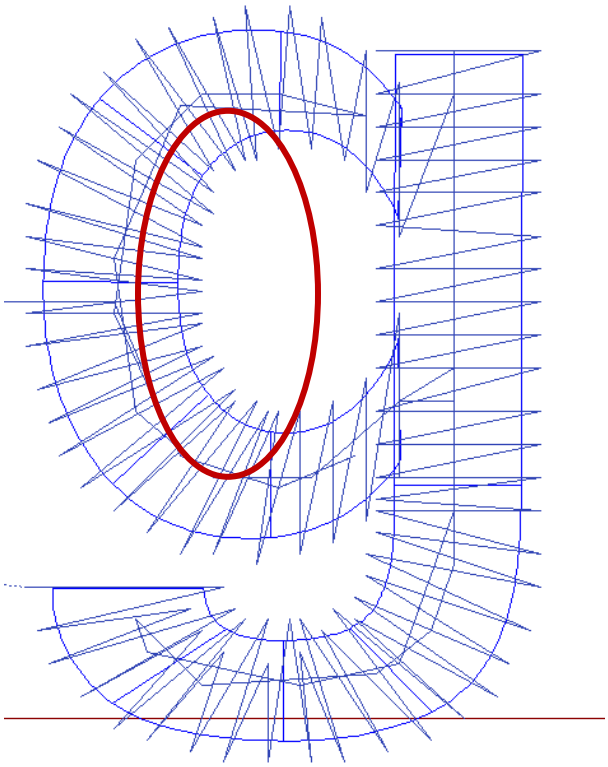
A Burr On The Needle

Make sure you change your needles periodically, at least once per month. Keep this on your maintenance schedule. Your needles get dull. If you touch the tip of the needle with the hoop or any other tool, you will damage the tip of your needle.

You also want to check the end of your needle. It may have a burr on it. If this is the case, change it immediately and do not forget to keep a record of the change on your Needle Replacement Sheet.

Too Many Stitches In Your Design or In One Area Of Your Design

If you are having your designs digitized by an outside service, make sure that you get them digitized with a medium density. If not, they will pack in the stitches.



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Many times you will see holes in the centers of small letters when there are too many stitches in one area such as going around a curve. If you decrease your density this will usually help. If it does not cover enough, increase your underlay stitching, not your density. We will talk more about underlay stitching a little later.

Holes in garments can be totally avoided. I have a checklist that you can use as you are sewing out each your designs before applying them to the finished garments. This checklist going to help you with many of your production issues! It is located inside of the Small Lettering program

in the website.

Wrong Type of Backing or Stabilizer

There is a saying out there that totally annoys me and is very wrong. **"If you wear it, don't tear it!"** *This is a saying that was started by a home embroiderer, and I have heard it on the home embroidery forums. Please do not pay any attention to it because you will not have acceptable professional results with it.*

You do not use Cutaway backing on woven garments of any type. The backing shrinks and most woven garments do not shrink. As a result you will have puckering in your logo after it is laundered. Use 2 layers of crisp 1.5 oz. tearaway backing on woven garments and if it wants to pull up a bit, take another layer of the same backing, fold it in half and slide it under the hoop before it starts sewing. This is especially important on the woven fabrics that have Lycra or Spandex in them.

On the knit fabrics, including performance wear, use 2 layers of mesh or no-show backing and 1 layer of the 1.5 oz tearaway backing. The tearaway will help keep the small lettering flat and crisp on the knit fabric. Do not forget to add a topping to your knits.

Selecting Fonts Not Suitable for Small Lettering

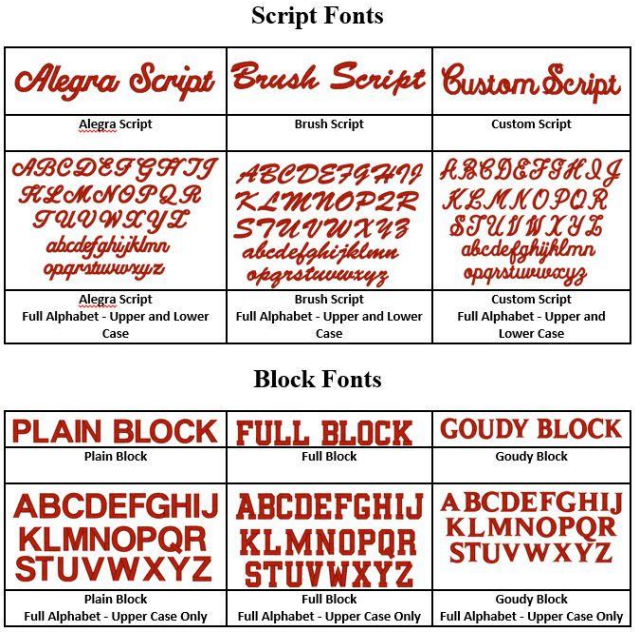
Our present-day fonts are digitized very well as a general rule, and we have many fonts to choose from. I know within the Pulse and Wilcom systems there are over 100 basic fonts with many more available. Many of the systems today have built in Recipes or Styles, some are called Presets. In the Wilcom software, your Recipes or Styles are called Auto Fabric Assistant.

Some fonts are not digitized to be run smaller than one half to three quarters of an inch, especially 2 color fonts. You must be very careful in your selection of your fonts that you want to offer at the smaller size. Make sure that you examine each font, create lettering with it and sew it out on your embroidery machine before you make your final selection of which ones to offer.

Giving Customers Too Many Choices

In each of the embroidery software packages today you have many lettering styles to choose from, and it is very tempting to want to show our customers all of the lettering styles that we have available.

Many new embroiderers make the mistake of offering all of these styles to their customers and let them chose which one they want to use. In order to do this, you must sew out every embroidery font that you have available and know what the capability and size restrictions are for each one. This takes a lot of time and is totally unnecessary.



Our customers get confused when they are faced with so many choices. I have found that the best way to handle this is to offer 2 or 3 Block lettering styles and 2 or 3 Script lettering styles. This is enough for them to choose from and will prevent the customer from being overwhelmed with your vast selection.

When you are working with only a few lettering styles on a continuous basis it saves you time in both the ordering process and in your design set up process. You can combine these fonts with your Design Layout Templates so that the customer will be able to select the exact look and font that will work for him.

If the customer is not happy with the font choice, you can show him other styles, but the price needs to be higher because you do not have the time saving templates made for these.

Basic Rules for Small Lettering

- **Use all caps if at all possible.** Many times we just need to educate our customers. Let them know that the total finished look of their design will be cleaner if they use all caps for their small lettering, instead of going with upper and lower case, especially if they are looking at lettering that is 4 millimeters. If you are creating your lettering in an

arc, all caps definitely do look better and more balanced. When you have a drop on your lower-case letters, such as a Y at the end of the line, it looks like it is off center or even crooked.

- **Lower the density for all of your small lettering or columns 15 to 25%** depending on the underlay that you are using, the style of the letter, and the type of fabric. Too heavy a density can create holes in the fabric and cause bird-nesting.

- **If you are using a Metallic thread you will decrease your density by the full 25%.** Metallic thread is usually slightly heavier than the regular 40 weight thread. This is not always the case, you must experiment to see which works the best. Speaking of metallic thread, you will also want to use a needle that was made specifically for metallic thread. It has a larger, longer eye in it to allow for the thread to flow thru easier with less friction.

- **Letters with serifs should be avoided,** but if the customer insists on serifs the serif should run the same direction as the letter. If this is not acceptable then the serif must run the opposite direction with the minimum stitch width one millimeter. This stitch width includes the Pull Compensation added. You can go as low as .6 millimeters if you are using a pull comp of .2 millimeters. This will finish at the total width of 1 millimeter.

- **All small letters should be connected with no locks or trims.** Locks and trims on small lettering can leave a fuzzy end and is very difficult to remove. This can also cause the thread to pull out of the needle as the machine starts up again when you have only sewn a few stitches each time. Of course you need a lock and a trim at the end of the line of lettering and a lock at the beginning of the first letter.

- **Check to see if you have a lump at the end of your small lettering**. If this is the case, do not place lock knots at the very end of your letters. This will make the stem of your letter push out and create unsightly lumps. You also do not want each one of your letters starting and stopping at the very top or bottom of the letters or even in the center of the letters. Make them connect at the closest point to the next letter and move the start and stop points around a bit so that the eye is not drawn to one spot. If the closest point is at the bottom or top, move

your start and stop points up or down just a bit so that they are not so visible. This does not leave a good appearance.

- **All columns must be a minimum of 1 millimeter to sew.** Narrow columns less than 1 millimeter can be created on a slight angle to make the stitch a little longer and yet it does not appear to be on an angle when it is sewing. You can go down to .60 millimeters if you add enough pull comp to compensate, but I have found that it is best to stay at the one-millimeter rule to achieve the best results. 1.5 millimeters is even better but this is not always possible for small lettering.

- **Some fonts will not work when they are decreased in size to less than one quarter of an inch.** They are too thin, and the centers are so small that you cannot open them up. You must be very selective when you are choosing a font and showing your samples to your customers. Make sure that the font will work at a quarter of an inch or below before you tell your customer that you can do it.

- **When you are working with small lower-case l's, bring down the lower portion of the l and move up the dot slightly.** The difference in the space will not be noticed and this will separate the dot from the l and they will not run together. To do this you must convert your text to segments and then break up the l into two pieces. In some programs you will ungroup your text. You will then need to place a lock stitch after the dot and a trim.

  You can also move your dot to sew last after you have finished with your line of lettering. This will allow you to continue with your line of lettering with no interruption from stops and starts and will save a few seconds. Many times, your lower case l looks like a lower-case L if you do not break them apart.

- **The Center of lower-case letters will need to be opened up.** Letters such as a, b, d, e, o, p, q are so small that the thread will totally close up the centers. This can contribute to holes being created in the fabric in the center of a letter. Sometimes, the ends of letters, such as an e or a c, will close in. They will need to be reshaped or shortened. It will often work if you place your angle lines on an angle rather than have them straight up and down.

- **Small lettering has a tendency to push and pull more than the large lettering.** This is why it is very important to make sure that the pull

sections of your letter are on a lower line than the push portion of your letters. It is extremely important to understand why you need the Pull Comp and Underlay stitching

- **I have found that I have better control over standard embroidery fonts that have not been digitized specifically for a certain size.** These fonts such as a basic block font have many possibilities. With some editing, you can totally reshape a basic font into a shape that will exactly match a customer's logo without actually digitizing it if you have this capability within your software. All you need is a good editing package and you can reshape almost any font.

Underlay Stitching & Pull Compensation Basics

If you are new to embroidery or new to creating embroidery designs, learning the basic fundamentals of **Underlay Stitching** and **Pull Compensation** is not easy, but they are extremely important to the quality of your design.

Many embroiderers do not use **Underlay stitching or Pull Compensation** because they have no idea how to use it or what type of Underlay to use for their particular design, stitch type or fabric style. Instead, they use a heavy density thinking that this will work but this can cause a multitude of problems.

Like anything else that is built, you need a good foundation, and Underlay Stitching is the foundation of your embroidery design.

Embroidery Underlay Stitching has 6 basic functions.

- It attaches the garment to the backing creating a stable surface and smooth platform for the topstitching.
- It helps to reduce the amount of give in the fabric.
- It hides the color of the fabric that will be covered with stitching.
- It helps to reduce the density of the topstitching.
- It stops the fabric from puckering.
- It keeps the stitches from sinking into the fabric.

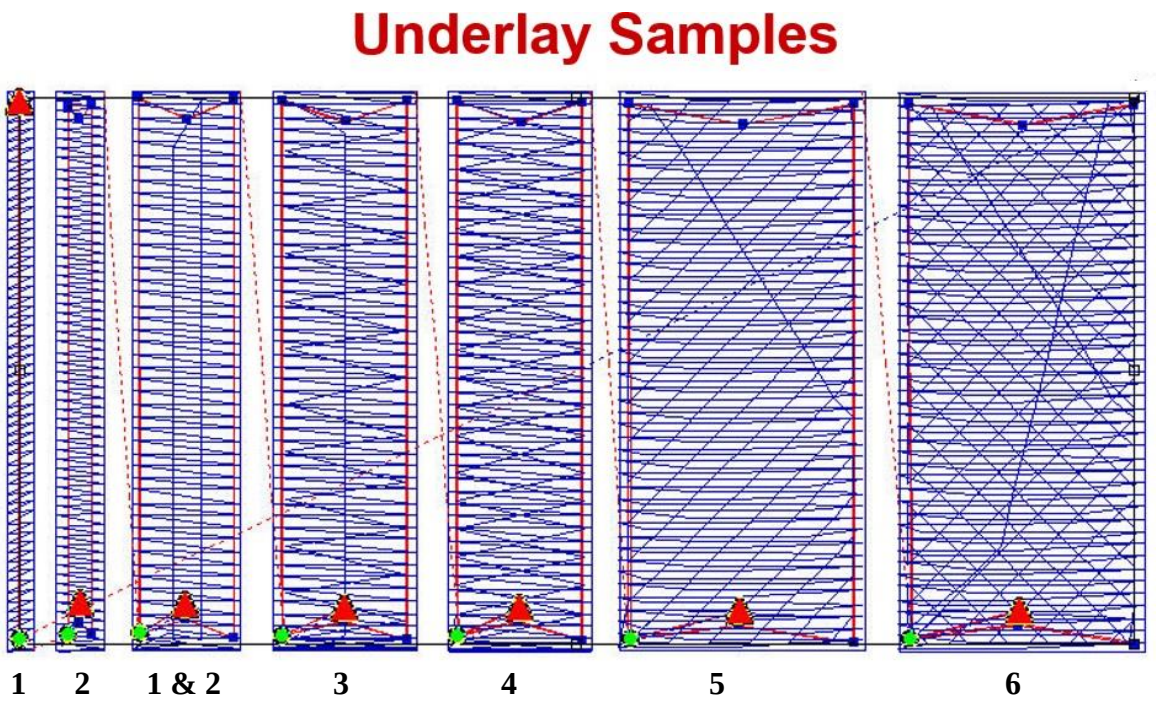
What are the different types of Embroidery Underlay Stitching?

There are 3 different stitch types that are used in creating underlay in your embroidery design.

- Run stitches
- Zig Zag stitches
- Fill or Tatami Stitches

These 3 different stitch types make up the 5 basic types of Underlay Stitches. These can be applied manually if you are digitizing your own design, or they can be applied automatically if you have this capability within your software. Sometimes, you cannot get the same effect using the auto functions in your software, so you need to know how to apply the different types by hand so that you get the exact effect that you are looking for.

The Basic Embroidery Underlay Stitching Types Are As Follows:



1. **Perpendicular or Center Walk**– This underlay runs down through the center of the column. It is also called **Center Run** underlay. This underlay is used when you have a very narrow letter or column that is less than 1.5 m wide. For that, you will only use 1 line or pass of underlay down thru the center. This underlay is good to use in combination with contour or edge walk when you have a wider column and need a little extra for lift in the center of your column.

2. **Contour or Edge walk** – This creates a running stitch along the edge of the letter or the segment that you are creating. It is also known as an Edge walk stitch. This type of underlay is used to create a rollover edge for your lettering or object.

3. **Parallel**– This underlay is created using Zig Zag stitches or run stitches. It travels only once down through a column. In some software programs, it is called the Zig Zag underlay. This can be used on a lightweight terry cloth or fleece.

4. **Zig Zag** – This type of underlay is the same as the **Parallel** except it has twice the number of stitches. It runs down the column and then up the column creating twice the amount of stitches as the Parallel. In some programs, this is known as a **Double Zig Zag**. This is a better choice for terry cloth and pique. You may want to increase the density of your **Zig Zag** underlay to give your topstitching a puff or rounded appearance.

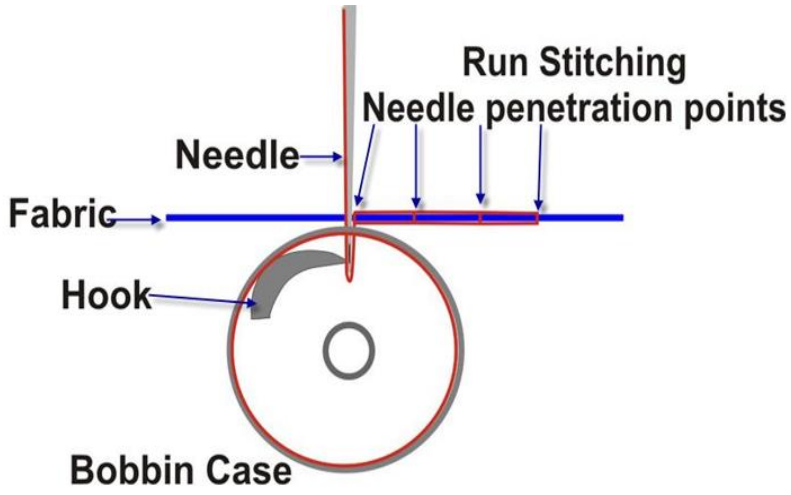
5. **Lattice** or **Tatami**– This underlay is a low-density fill stitch used underneath Complex Fill stitches or Tatami stitches, depending on which embroidery design program you are working in. **Lattice** is usually used in combination with the **Contour or Edge walk** underlay. It runs at a 45 or 90-degree angle to the topstitching in a lattice form. It helps to reduce the pulling up of the fabric as it is stitching and to keep your stitches in good registration especially if you are going to add a border. It will help to keep the border in the proper place.

6. **Full Lattice or Double Tatami** Stitches forming a full lattice effect going in both directions. This is a good choice if you are using a heavy contrast thread or fabric color such as a white thread on top of a black garment. This will hide the color of the fabric.

Very few designs or letters, even small ones, are acceptable without underlay. Of course, there are always circumstances that change this rule. If you are working on a very lightweight fabric such as a wedding gown and you are using tone on tone, you may not want any underlay in certain areas, especially if you are going to be seeing through the stitches.

For this type of embroidery, you would not use any underlay at all, but you would have to be careful that your stitch length was not too long because it would pull up and your garment would pucker.

What is Embroidery Push and Pull Compensation?



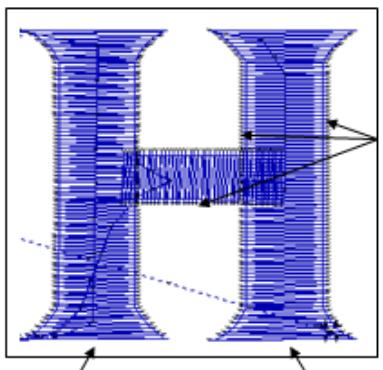
When the needle goes down and penetrates into the fabric this is called the penetration point of your stitch. As the top thread in the needle penetrates the fabric it connects with the bobbin thread. As the two threads connect it creates a pulling effect.

This pulling effect is magnified if you have a long stitch or a stretchy fabric. The longer the stitch is, the more it will pull in. This is also true if your fabric is soft and stretchy.

When this happens, you need to compensate by making your stitch even longer. This is called **Embroidery Pull Compensation**. When you create a design to sew out on a denim shirt and on a knit golf shirt, you want the finished design to look the same. It will not unless you add stitch length to compensate for the amount of give or stretchiness in the fabric.

You will find this very evident when you are working with shapes; such as a circle or a square.

Most fabrics require that **Pull compensation** be added in order to compensate for the push and pull effect brought about when you stitch a design into the fabric. All types of stitches create the push-pull effect, but it is most prominent when you are using Satin path or Complex fill stitches and also when sewing a large area. The larger the area, the more push and pull you will have. Knit fabrics are known for pulling in. The softer the fabric the more you will have this push-pull effect.



The **Push or Expansion** area is the open end of the segment or column (ie. Top or bottom of the letter I.) This is on the opposite side of the penetration points. You must bring those areas in, cutting

them shorter. This is called **Push Compensation**. It does not matter if you are working with a letter or a shape. It also holds true with the angles of your shape. The amount of stitch length or pull comp that you add depends on how stretchy the fabric is, what type of underlay or how much underlay you are using or how wide the column of your segment is.

If you find that you have a design that you are currently using that does not stay in registration, you might want to try adding to the stitch length on the pull in areas and this is done by increasing the number in your Pull Compensation setting.

The push or expansion portion of the area or segment would need to be brought in using approximately the same measurement as you have added for the Pull compensation.

Always save your outlined designs in your native software file, to ensure that you can adjust the push and pull for various fabrics. In Pulse, that native file is .PXF. In Wilcom it is .EMB. Check your software to find out what your native file is. This is very important. You want the finished embroidery to look the same on a denim shirt, as it does on a polo. They will not unless you have added the right amount of pull comp and underlay to accomplish this job.

Once you have a good understanding of Underlay Stitching and Pull Compensation, you will be able to edit any of your designs to work the way that you want them to. You must have a very good understanding of both before you can create high-quality designs.

In Small Lettering Part 2 I am going to be going into the specific settings in the software and how to adjust the settings for the different types of fabrics. I am also going to be showing you how to add a background to the small lettering when you have to place it on a fleece or mesh fabric.

I am going to be talking about my Favorite Backing or Stabilizer Recipes for the left chest designs for woven fabrics, knits and Terry cloth.

Action Steps

Watch this recording over again, a couple of times at least so that you can get a good understanding of the issues with small lettering, and the basic rules of small lettering.

If you have access to the Underlay Stitching and the Pull Compensation modules, go into them and study them in depth. This is going to make it much easier to work with your small lettering and make it easier to adjust it for the different types of fabrics.