

 <p data-bbox="569 170 816 312">Dedicated to the Sport Balloon Home-Builder</p>	<h1 data-bbox="967 139 1391 529">THE BALLOON BUILDERS' JOURNAL</h1> <p data-bbox="1083 544 1273 575">May-Oct 1998</p>
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In This Issue

Page 2: The Sewing Machine: Part II

In our last issue we discussed locating and purchasing a sewing machine. Now that you have it, what do you do with it?

This issue discusses setting up the sewing room, and the myriad of details which might be considered to enhance the enjoyment of the balloon building experience.

Page 9: Letters to the Editor and Other Bits.

FAA Revision to Congested Airspace Flying. The FAA recently modified their policies to permit local offices to change operating limitations to allow amateur-built aircraft flying over congested areas.

Ron Cassidy imports fabric. Ron is importing high grade fabric from South Africa. We have included a number of communications about a recent shipment. I saw this product at the 1997 Vermont Experimental meet and was impressed with its quality.

An Important Note to Readers

My apologies for the delay in this issue. A family emergency took away from the time I have been devoting to BBJ.

While the emergency has been resolved, the experience has forced me to re-evaluate my time commitments. My plans are to publish two more issues of BBJ, then move on to some other interests. I will maintain past inventory and will continue to provide all issues to new builders. If interest is present, I may even publish the bulk of past issues as a volume for builders.

In part, this decision is driven by a review of my past issues. BBJ was always intended to convey basic design and construction data for builders. Over the past five years we have been successful in meeting this goal. Innovative topics for publication are getting harder to find. My idea bank is starting to run empty. While readership shows there is a market for this newsletter, its time to let someone else take the reins.

Feature articles in the next two issues have been tentatively planned. One issue will finish up the series on sewing machines by discussing adjustment and service. The other article will stress the elegant balloon, building in details which set the homebuilt a league apart.

All subscribers will be provided value for their unused credit, in the form of issues, or refund. All current subscribers will continue to receive the upcoming issues. Please do not send in renewal checks.

A Warning to Readers: This newsletter is dedicated to an open and free exchange of ideas. Neither editor nor contributors make any claims or warranties as to the appropriate application of these ideas to actual balloon construction. Some ideas contained here may be unproven and highly experimental. The reader must assume all responsibility and liability for the use of ideas contained in this newsletter. Any individual contemplating the construction of a human carrying balloon or other aircraft is strongly encouraged to seek expert assistance. As with all aircraft the operations of balloons involve risk. This risk may be significant involving the potential for serious injury or even death. In the United States balloons are aircraft, subject to the rules and regulations of the Federal Aviation Administration. Readers are reminded that the building and operation of aircraft generally require specific registrations and certifications. Federal rules prohibit the commercial use of amateur-built aircraft.

The Balloon Builder's Sewing Machine: Part II

by Bob LeDoux, editor

2895 Brandi Lane, Jefferson, OR 97352

The one essential tool for the envelope builder is a sewing machine. Here, in detail, we cover the considerations for its setup

Introduction

This is the second in a series of articles on acquiring and using a sewing machine for balloon construction. In our last issue we discussed selection and purchase of a machine. In this article we will talk about setting up the machine in your sewing area.

Notes About Safety

Sewing needles, powered by a big electric motor, will not stop for muscle or bone. In industrial settings, there are occasional accidents when fingers get too close to moving needles. If you are concerned about the possibility of running a needle through flesh you might want to purchase a simple finger guard. These typically screw on using the presser foot attachment screw. I have not felt the need for this device. Your initial experiences will tell you whether you would feel better using this accessory.

The sewing machine isn't the only potentially hazardous tool in balloon building. Sharp scissors are an essential tool. Scissors are simply two knife edges connected at a common joint. Many of us also use razor blade knives and other utility knives for cutting textiles. These tools require respect and caution both to protect ourselves from injury and to protect their sharp edges.

If you have children in your household, think about childproofing all of your balloon building activities. Small children view the world from below the height of the sewing machine table. They may not realize that a sewing machine drive belt can pinch small fingers. Lubricating oil might be something interesting to eat. Young minds tend to be curious with an unmatched facility to investigate dangerous tools. So be cautious.

By the way, sewing machine oil is traditionally white mineral oil. While it is not poisonous, it is noted for its use as a laxative. So keep it away from children.

Building a balloon results in two types of waste. There are the textile wastes consisting of fabric, thread and tape scraps. Then there

are the sharp wastes, the used needles and utility knife blades. Don't mix these two waste products together. Put the textiles in one container and the sharp metal products in another. A small container with a secure lid is a good place to store the metal waste.

Many older sewing machines are lacking in belt guards. Most clutch motors have a shroud over the motor pulley, intended to keep fabric from wrapping up in the drive belt. In factory settings, OSHA requires belt guards. The home user is not subject to these regulations. My personal sewing machine does not have a belt guard. You may desire to add a topside guard. Belt guards are available at low cost in both plastic and metal versions. They cover the belt while still allowing for bobbin winder operation.

If you are concerned about unauthorized operation of the sewing machine, you might want to incorporate some type of key lock into the machine. There are simple boxes into which you lock the power plug. Sears sells locking outlets in their power tool section.

Make a cover for your machine. A fabric cover can reduce the interest of curious and undesired bystanders especially children. It also keeps dust and dirt off the precision machinery.

Deciding on a Sewing Room

Beginners tend to overestimate the space required to sew a balloon. I have built an AX-7 envelope in a 10 foot square bedroom with no shortage of space. I built my first balloon in a room converted from an attic over a single car garage. The room was so low, that I could only stand upright in the center. But there was no shortage of space. An unused bedroom, cleared of most furniture, will generally be adequate as a sewing room.

A sturdy floor is an advantage. A sewing machine weighs a couple of hundred pounds. There are many moving parts. When operating at speed, there may be some vibration. This vibration becomes quite evident unless the sewing machine is resting

on a substantial floor. This is not a safety issue, but noise could cause aggravation to other household members. An upstairs bedroom, immediately over the room where the family watches television, might not be the best sewing location.

As you consider the sewing room layout, look at your electrical outlets. Avoid an extension cord if at all possible. If you must use an extension cord don't get by using a lamp cord. Instead, get a quality *grounded* cord, in the shortest reasonable length, of at least size 16 and preferably size 14 wire.

A typical sewing machine motor pulls only about 300 watts of power while running under load. But the clutch and brake assembly have considerable weight (mass). In order to bring the motor up to speed, considerable current is required for the second or two of motor startup time. Too low a rating on the extension cord will limit the starting current and could result in motor burnout.

Because of the high startup current, don't be surprised if your light circuit dims for a moment when you first turn on your machine.

Sewing is a precision activity, so good light is important. Many sewing machine tables include a work light to cover the needle/bobbin area of the sewing machine. I also keep the sewing room well lit. If there is a shortage of light, I temporarily hang up a \$10, four foot long, fluorescent work light assembly which comes with its own built in cord and plug. Buy one or two at your local hardware store.

A commercial sewing machine is intended for heavy factory production. Thus the machine has a lubrication system designed for heavy, everyday use and maintenance. If your machine is properly lubricated, drops of oil on fabric and floor are probable. Because sewing machine oil is mineral oil it should not damage balloon fabric.

A carpeted room can be used as a sewing room. Floor protection such as a plastic chair mat placed under the sewing machine, will keep oil stains off the carpet. Loose thread ends play havoc on a vacuum cleaner. Its also easy to lose needles and pins in carpet so a bit more care is required when sewing on carpet. Be careful with pins and needles. You may end up finding these items, perhaps painfully so, long after the project is completed.

First Experiences with your new Machine

The new sewing machine has been brought home. Where do we start? If you are typical, you will be anxious to try out the machine, and get a sense of seam construction.

Take a quick look at your user's or owner's manual. You should have received one when you purchased the machine. If not, call around to your dealer or other dealers for a copy. (BBJ can supply copies of the Singer 112 manual at a cost of \$2, postage paid.) Start by learning how to thread and lubricate your machine, wind bobbins, and replace needles.

The spool stand should be set up and tightened so two threads make an unimpeded run down to the sewing machine. The threads typically unwind upward off the cones, over a guide arm, above the cones, and then down to a post on the top of the sewing machine.

Bobbin MisWinders

A third cone should be fed to the bobbin winder. Most bobbin winders have a wheel which rubs against the sewing machine drive belt. A bobbin is slid on the winder wheel and the wheel is snapped up against the motor drive belt. As you sew, the bobbin is wound. When the bobbin is full, the wheel snaps into a locked position, which prevents further winding. You end up with a full, and evenly wound bobbin. *In your dreams!*

Bobbin winders are the product of the idiot who designed Christmas tree stands. These contraptions include a number of adjustments intended to create that perfect bobbin. But invariably, each winder has its own devious mind. There is some magic in getting these things to work right. To make matters worse they make the sewing machine operator forgetful. If you don't remember to replace the wound bobbin about half way through your seam, you end up with only one wound bobbin at bobbin changing time.

I have my own unique backup plan. I manually wind all my bobbins. My electric drill has a 2 inch diameter rubber drum mounted in the chuck. The drum is intended for use as a sanding drum. I adjust my bobbin winder so it never touches the drive belt. When I need filled bobbins, I just run the drill up against the bobbin winder wheel. I always get perfect bobbins.

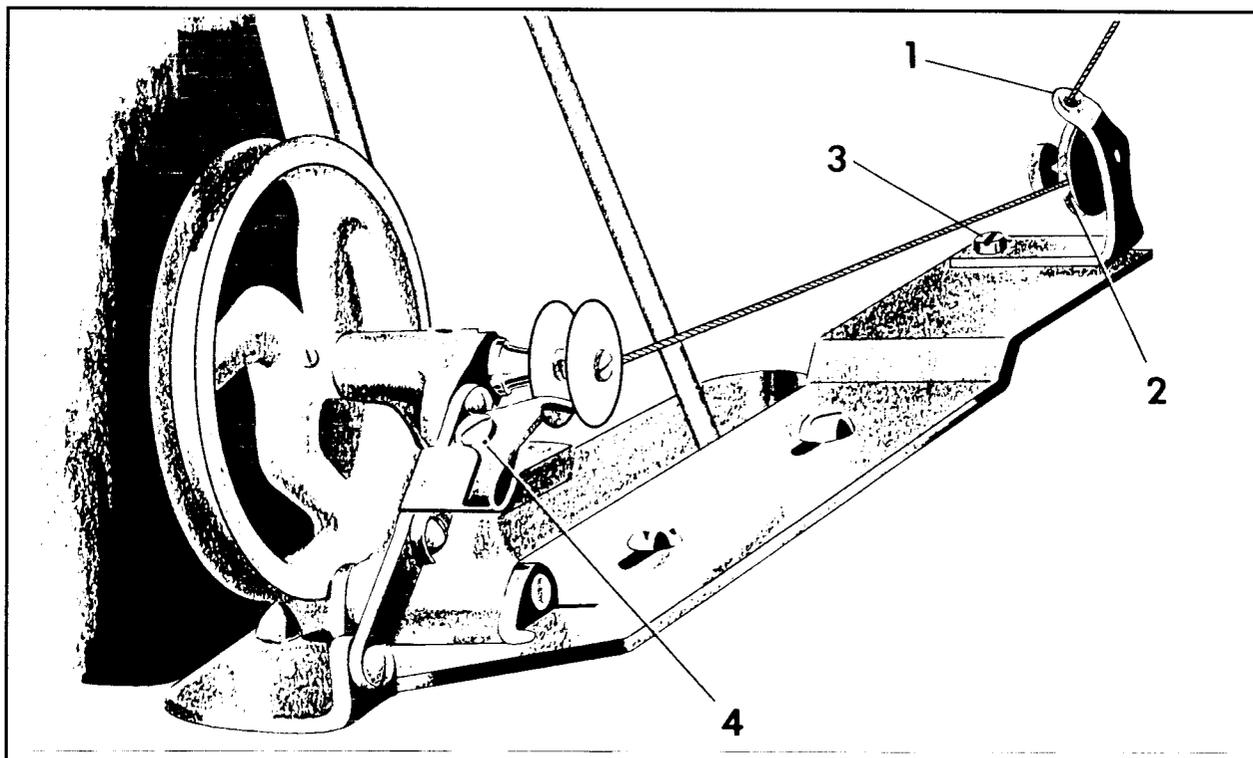


Figure 1: The typical bobbin winder is mounted under the balance wheel. The thread path should be clear from this drawing. The two mounting screws should be adjusted so the drive wheel rubs against the sewing machine drive belt when the wheel is engaged, and breaks free when the release operates. Screw #3 is used to center the winding on the bobbin. By loosening this screw, the thread can be moved sideways to provide a more even wind. The fullness of bobbin winding can be adjusted with screw #4. Turning this screw clockwise results in a fuller bobbin. Turning counterclockwise results in a less full bobbin before the winder snaps off. Play with adjustments #2 and #3 to generate the most even bobbin winding.

Continuing with our New Machine

Spend a bit of time learning the thread path for your sewing machine. The thread path from the cones, through the tensions, the check spring, through the take-up arm and down to the needles may seem complex to the first time user. That there are two threads doesn't simplify the issue. The old Singer manuals fail to provide the detail needed to thread the thing right. If your machine is already threaded, study the thread path.

Installing bobbins is a bit more simple. Typically, each bobbin unwinds in the opposite direction from the hook rotation. On the Singer 112 the hooks rotate clockwise and the bobbins rotate counterclockwise as the thread is reeled off. Don't forget that the thread must be fed into the slot which feeds it into the lower tension assembly.

Needle changing can be confusing. Unlike home machines, commercial sewing machine needles don't have a 'flat' to ensure the needle has been inserted properly into the

needle bar. Check your manual for specific instructions. The basic rule is, the long vertical slots in the needles face each other. The scarf, the flat cutout in the needle above the thread hole, should face toward the bobbin. The top threads typically go through the needle eye, from between the needles, out.

Important Oil Points

Oiling on an older model like a Singer 112W140 can seem overwhelming. There are many oil points. But we don't use our machines in a factory environment. Not all of the oil points are really important. For example, the points in the presser foot mechanism don't need to be oiled daily.

There are a number of oiling points where you add oil to a tube which contains a felt. The hook assemblies have felts. The upper casting of the sewing machine has holes with felts. Don't forget to oil the ball bearing race next to the balance wheel.

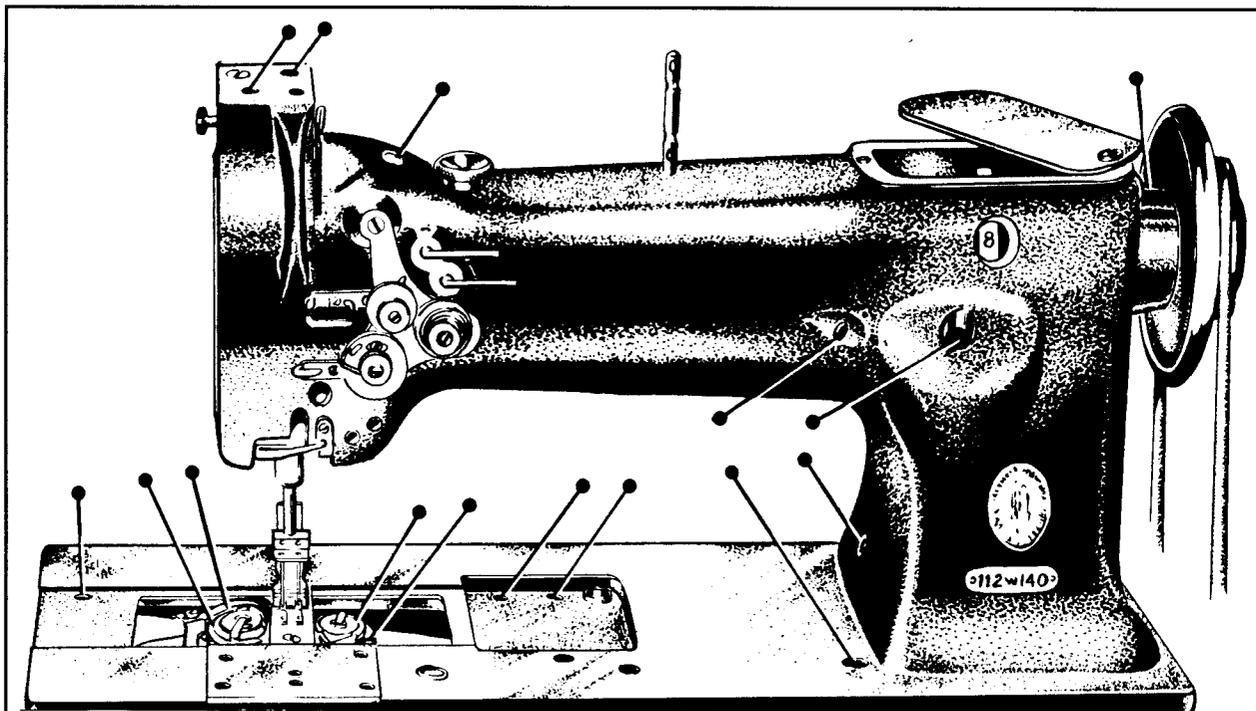


Figure 2. The number of oiling points on the Singer model 112 can seem overwhelming. This drawing shows the oil points on the front of the machine. Not shown is an oil point under the accessory plate in front of the needles. These points should be oiled about once every 8 hours of operation. Keep oil standing in the little cutout up above the tension assembly.

There are a number of oil points in the bed. Some of these have little ball bearings which you push down with the tip of the oiler. There are a number of holes in the bed into which you should put a bit of oil. These should be oiled every 8 hours of operation.

The Singer 112 has a little oil well right behind the take-up arm. This should have oil standing in it. There is also a screw cap in which there is a felt to feed oil to the upper mechanism. Add a bit of oil to this daily.

The metal plate in front of the needles, the accessory plate, should be pulled out. There is an oil point under the plate. Finally, put a drop of oil on the lip of the bobbin case, or its felt, after every bobbin change. Your bobbin case assemblies will last a lot longer, if you do.

So you've learned a thing or two about your machine and you are beginning to feel comfortable about its operation. Go ahead and practice. Take some scrap balloon fabric, roll it over so you have four layers, and try sewing. Once you feel some comfort in making the stitch reasonably straight, try folding and sewing a folded fell seam. Don't get too particular. As long as both cut edges

are captured in the seam, you are making progress.

Supplies

You need supplies, particularly needles and thread.

There are, or have been, three different thread systems commonly used in balloon construction. The Balloon Works sews using a use a size 30 thread. Some builders using lightweight parachute type fabric also use this thread size. This can be commonly sewn with a size 16 needle.

Some of the old time builders would sew up their envelopes with size 16 thread. This is a heavy thread, commonly found in the upholstery industry. It typically requires a size 20 needle. Some factory products, like Aerostar balloons, still use this thread for special high strength constructions. Aerostar, for example, uses size 16 thread for the cable attachments in the mouth of the envelope. Size 16 is also known as size 'F' under military specifications.

The most common size for construction is probably size 24 thread, which is also known as size 'E' under the military specification.

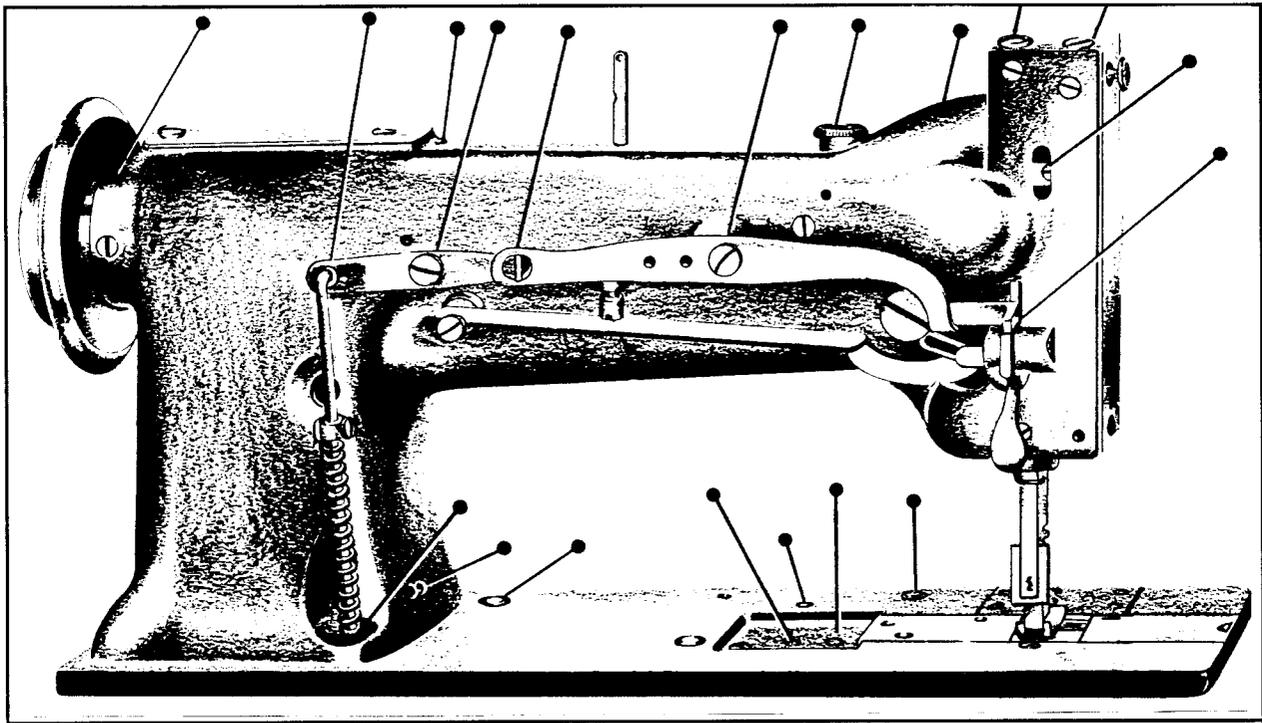


Figure 3. This drawing shows the oil points seen from the back of the machine. The oil points for the presser foot assembly linkage are less critical than other oiling points.

Typically, a size 18 needle is used to sew this size thread.

The needle sizes noted above are suggested starting points. If you have difficulty getting the top loops of your seams to pull tight, try going to one size larger needle. For example, I typically use a size 18 needle to sew my folded fell seams with size 24 thread. When I add tape to the seam construction I generally have to go to a size 19 needle to obtain good stitch construction.

Choosing a thread can be confusing. Stick with a proven seam system and make use of its components. My thread preference is DB69 which is bonded polyester in size 24. Balloon thread should be multifilament, no monofilament (like single strand fishing line) thread. It can be of either nylon or polyester fiber. I have always used polyester but nylon is common and is widely used in the parachute industry.

Thread can be bonded or soft. Bonded thread has a substance added which helps it hold together. This reduces the tendency to fray while sewing. It may make the knots in the construction appear to be a bit fatter.

Thread can be purchased in right hand or left hand, commonly called 'Z' twist. Right hand twist is fine for bobbins, but it will

unwind and ravel if used as top threads. The best thing to do is buy the left hand twist for all your threads.

One decision concerns whether you wind bobbins or buy prewound paper bobbins. Prewound bobbins are more expensive, but they do save time. They also seem to hold more thread than most of us can manage to wind on a metal bobbin. That may be beneficial when sewing long seams, like the vertical construction in an envelope. Prewound bobbins come in a box of a gross (144 bobbins).

Once you've decided on thread, the needles follow. Select a needle size to fit your thread. You will eventually buy your needles in bulk of 100 at a time. But start off with a small number for testing. Sewing machines are notorious for being finicky for a particular brand or design of needle. Don't get stuck with 98 needles that your machine doesn't like.

Because we are sewing synthetic fibers, we use a ball end needle. These needles tend to separate rather than cut the fibers in balloon fabric. But there are a variety of ball end styles. Your supplier should be able to offer suggestions for needles.

Once I find needles my machine likes, I purchase 100 of them for about \$30. I change my needles every three to ten bobbin fillings or every 200 to 500 feet of sewing. In a typical envelope, I'll go through about 50 needles.

Sometimes you run into fabric with a heavier coating. This stuff can gum up needles quite rapidly. Your options are to replace needles more often, or clean them. I find a damp cloth with lacquer thinner or nail polish remover, will take the junk off needles. Sewing at a slower rate may also reduce the gumup problem.

I prefer to buy my needles and thread, by mail, from a regional commercial sewing machine supply house. My supplier is 200 miles away. These folks know what works in commercial machines, and can offer suggestions for a most suitable product.

There are a number of different stitch length standards for balloon construction. A good all around stitch length is about 8 stitches per inch or a setting of 3 (millimeters) on the European models. This one setting is generally acceptable for both fabric sewing, and tape sewing.

Let's discuss a number of other factors which may influence your sewing satisfaction.

Pedal Placement

Sewing folded fell seams is different from some other types of sewing. For most sewing, the operator wants to sit fairly close to the sewing machine. But for folded fells, the seam is actually folded between the operator and the needles, and then fed through the machine. If you manually fold your seams you want to sit back from the sewing machine.

You may need to move the foot pedal closer to the front of the machine in order to provide more distance between you and the needles. A bit of practice will help you make this decision. Most power tables are designed to allow the clutch pedal to be moved, generally through removal of two to four bolts.

This adjustment may also require shifting the position of the knee lever which actuates the presser foot lift. Again, adjustments are built into the control linkage for this purpose. Typically, two or three set screws can be adjusted to move the knee pad out so it can

be operated while sitting some distance from the sewing table.

Sewing Speed

The Singer 112W140 is rated for a maximum stitching speed of 3500 stitches per minute. That's about 58 stitches per second, or more than 7 inches of stitching per second (at 8 stitches per inch). Carrying this logic to the absurd, if you could feed your seam in one continuous fold, at this speed, a 60 foot long vertical envelope seam could be completed in about 100 seconds. Pretty fast stitching in any body's parlance!

I don't recommend that a 50 year old sewing machine, like the Singer 112, be subjected to that level of excitement. There are some fast moving parts in a machine. For example, the sewing hooks rotate two times for every stitch, so the hook assemblies are spinning at 7000 revolutions per minute, almost 120 times per second, at that high stitching rate.

At such high rates of speed its not uncommon for needles to reach temperatures of as high as 600°F. According to the Schmetz Needle Institute of Germany, at these temperatures, the needles actually melt the fabric rather than separating it, which results in poor quality stitching, especially in structural construction, like balloon envelopes. Needles also lose their temper, dull quickly and create poor holes in fabric.

Unless you are an experienced sewer, a speed of 1400 to 2100 stitches per minute is a more reasonable rate. Your machine may be set up for this speed already.

Clutch Action

As I mentioned in the last article, the experienced sewer does not throttle the sewing machine. In other words, with experience, the sewer learns to let the machine run at full speed and judge when to bring it to a stop. The experienced sewer makes a sound like a machine gun—a 'burp' followed by silence.

That may be fine for the experienced operator, but not for the beginner. Until the beginner develops comfort in handling the machine, there is value in being able to make the machine run at a low speed.

As mentioned in a previous article, one way to get a lower speed is to replace the clutch motor pulley with a smaller pulley. But another way is to adjust the foot pedal tension. Most motors have a bolt or nut

adjustment which sets the amount of pressure required to operate the pedal. The experienced operator will typically have this set so that a wide range of toe pressures brings the machine to full stitching speed. Then releasing this pressure brings the machine to an instant stop.

But by making the spring pressure lighter, the machine can be throttled. In other words, foot pressure can be varied to vary the stitching speed. Recognize that this means the sewer is slipping the clutch. But the clutch on these machines is quite sturdy. It has to be to deal with the rapid stopping and starting that occurs under an expert operators' use.

There is another adjustment on most modern motors. The clutch is operated by a metal bar, to which is attached the foot pedal. This clutch arm is on the motor, and typically is about 12 inches long and has a number of holes in it. By moving the pedal rod between the holes, the amount of foot pedal movement, and foot pedal force can be adjusted. By moving to the hole at the end of the rod, for example, the pedal movement becomes quite large, but with light pressure.

You may want to experiment with these adjustments to obtain just the right pedal action.

There may be a disadvantage to setting the spring pressure lower. On many clutch motors, this reduces the braking action. With the heavier clutch operating pressure there is a 'panic button.' If anything goes wrong, just lift the foot and the machine will come to an instant stop. But if the spring pressure is set low enough, it may take intentional heel pressure to stop the machine. In other words, if something goes wrong, lifting the foot will only result in the machine coasting to a stop as it runs hinter and yon across the fabric.

Some basic Tips

I like to wash out my machine every couple of years. Don't do this with water. My technique is to set the machine in a big pan, with the covers removed. I spray the innards with a wash of kerosene from a sprayer attached to my air compressor or airless paint sprayer. I go over the whole thing, underneath, around the hooks and up in the needle bar area. I follow this up with dry air to remove the extra oil. This technique removes dirt and puts a basic coat of lubrication on the machine parts. I then dry

excess oil from the timing belt. The whole wash uses about a quart of oil.

The paint on these old machines tends to oxidize. I find a waxing with car wax does a good job of removing oxidation and leaving a bright clean surface. This polish isn't just for esthetics. It reduces the friction on the fabric, which can be considerable when 40 feet of fabric is rolled up under the sewing machine neck. It also helps keep the fabric clean. Besides, my sewing machine is my baby, and I like to take care of it.

If you oil your machine on a regular basis, oil will run down through the machine and collect on the plate at the bottom of the head. Occasionally, lean back the sewing head and wipe out the oil, using a paper towel. If you fail to do this, the accumulation will reach a level where it starts dripping onto the floor.

As I look at old double needle sewing machines I notice that many of them have bowed tables because of the weight of the sewing head. To avoid this problem, consider removing the sewing head between projects.

If you remove the sewing machine head, put the thread take-up arm in the down position. If the machine falls over, and you break one of these things, you are looking at an expensive repair bill—like \$250.

Comments from the Last Issue

I received a fair amount of e-mail from readers about sewing machines. The most controversial issue concerned my opinion about seam folders. I encourage the new builder to learn to hand fold fell seams before purchasing a folder.

Not everyone shares that opinion. A number of readers are quite adamant about the benefits of folders. Those who have learned to use folders believe they provide more consistent construction at a much speedier rate.

Gary Meddock says he was able to purchase a needle gauge set for under \$50. His supplier was T J Elias Company. The salesman, Ken, can be reached at 800-527-3413.

Up and Coming

One more article is planned in this series on sewing machines. That article will discuss the theory of operation, maintenance, adjustment, and troubleshooting of a sewing machine. Look forward to that article in the near future.

Letters to the Editor and Other Bits of Information

Homebuilt Balloons and Urban Areas

If the operating limitations on your amateur-built balloon keep you out of urban rallies, read the following.

Flight operations of amateur-built aircraft over densely populated areas is specifically prohibited under FAR 91.319 (c) unless otherwise approved by special flight limitations for the aircraft.

The pertinent sections of FAR 319 say, "Unless otherwise authorized by the Administrator in special operating limitations, no person may operate an aircraft that has an experimental certificate over a densely populated area or in a congested airway. The administrator may issue special operating limitations for particular aircraft to permit takeoffs and landings to be conducted over a densely populated area or in a congested airway in accordance with terms and conditions specified in the authorization in the interest of safety in air commerce."

There have been broad variations within local FAA jurisdictions as to the interpretation of this regulation. Some local FAA offices have turned a blind eye to this matter and make no issue of aircraft operating over congested areas. Many amateur built aircraft are equipped for and maintained for instrument flight conditions and operations in congested airways.

Most amateur-built aircraft have an operating limitation which states, "Except for takeoffs and landings this aircraft may not be operated over densely populated areas or in congested airways."

A few FAA jurisdictions have taken an even tighter interpretation, prohibiting all operations over congested areas or in congested airspace.

The lack of consistent interpretation recently came to a head because of an FAA interpretation concerning the Orange County John Wayne airport in the Los Angeles basin. Local FAA officials took a strict interpretation of the regulation and informed local experimental operators at that airport that they might be in violation. Operators were told that because the airport was surrounded by populated areas, flight operations from the airport would be in violation of taking place over congested airspace.

The EAA (Experimental Aircraft Association) was contacted by local members and began working on this issue both at a local and national level. The intent was to generate a national policy which avoided the patchwork of interpretations currently being applied. As a result of these discussions a clarification has been distributed to all local FAA offices.

As the EAA notes:

FAA headquarters has released an internal bulletin to local FAA offices which clarifies the issue of experimental amateur-built flight over congested areas. The bulletin states that, once flight testing is completed and the aircraft meets the requirement of FAR part 91.319(b), a special operating limitation may be issued to experimental aircraft to permit them to operate over densely populated areas, both enroute and during takeoffs and landings, and to operate within congested airways of the National Airspace System.

Further, the guidance specifies that "aircraft that have successfully completed Phase I flight testing to meet the requirements of Section 91.319(B), and were issued special operations limitations authorizing takeoffs and landings over densely populated areas prior to the date of this bulletin, may continue to operate over densely populated areas under the authority of the original authorization. Those operators need not reapply to the FSDO, MIDO or MISO for additional authorizations."

The FAA Headquarters' bulletin reiterates the agency's policy statement on this issue, established more than 25 years ago. That policy allows overflights by amateur-built aircraft once certain "flight testing" is completed. Since 1972, that guideline has helped establish a high standard of safety for amateur-built aircraft, which no make up more than 20% of the nation's single-engine general aviation fleet.

As a result of this clarification, homebuilt balloon operators who have operating limitations prohibiting flights over congested areas may be able to get these limitations revised.

Note that the language of the transmittal does not require the local FAA office to grant this more relaxed operating limitation. But it makes it clear that the local office is free to do so.

New Sources of Fabric

Ron Cassidy came to the 1997 Experimental Balloon Meet in Vermont, showing off samples of fabric from South Africa. I was impressed with the quality that I saw. He was talking then about placing an order. He needed a reasonable quantity to justify the fixed costs, like the customs charges. Since then Ron have made at least two orders.

The following exchange of e-mail discusses some of the details of his purchases. Ron is willing to make another buy. Because of the fixed costs, the actual cost per yard or meter decreases as the quantity goes up. If you have an interest in purchasing fabric contact Ron.

Pardon my choice of words: don't screw it up for all of us by trying to set up your own deal with South African suppliers. Unless you are experienced in large quantity textile purchases such an effort will shut off this supply line.

BBJ readers have a poor track record when it comes to working with fabric brokers. Each time we have published a supplier's name, a small number of builders have tried to treat the broker like a retail store, asking for guarantees and split rolls. The broker soon tires of these time consuming small orders and tells us all to go elsewhere.

If you want fabric, go through Ron-Editor.

Date: Fri, 06 Mar 1998

Subject: Hot Air Balloon Fabric

Greetings Bob, [LeDoux]

How's it going? I wanted to respond to your questions regarding the South African fabric. I've just received an updated list of colors and quantities. The price is \$1.80/linear meter plus shipping, duty, and customs charges. You need to purchase in "roll" size quantities (roughly 100 meters/roll). The rolls are at least 150 cm wide (58 inches). I purchased 1100 meters and paid roughly \$3.00/meter. The material is silcoat and is 1st quality stuff. For the same price they have additional colors of a new fabric using a newer coating. The newer stuff is 2nds.

They've got roughly 4000 meters of the old coated fabric (1st quality) and 8000 meters of the newer stuff (lots of colors). Again, I bought the older fabric. The newer stuff is formulated "more slippery". I think the older stuff will be easier to sew. I'm interested in

purchasing more fabric. However, since the customs charges are fixed it wouldn't pay to order a few hundred meters just for myself. We should put together an order for at least 1000 meters. If you know of anyone interested, send them my way. I will charge them exactly what I pay, I don't plan to make any money for myself. These guys aren't a retail operation. Since I've established the contact with them I'd like to stay the go-between. Just so I can guarantee they won't get abused.

Let me know what you think.

Later,

Ron Cassidy

What follows is a response from South Africa to some of Ron's questions. --Editor

Hi Ron,

Sorry about the delay in getting back to you, but I have been out of the office for the last two days. Below please find the lists of our fabric on offer at US \$2.00 per linear metre. The general reason for fabric being downgraded to seconds is due to an excessive number of weaving faults, as well as the occasional dyeing fault, e.g. dye-stains, off-shade, etc., and not due to performance problems, i.e. there are no problems with porosity, tear or tensile strength values. In fact in my time spent at this textiles plant only one batch of fabric has been downgraded due to performance failure (it did not meet the minimum tear strength requirement).

The first grade fabric price for our calendered fabric (our equivalent of the F1-11 fabric) is: US \$ 3.10 FOB per linear metre.

Unfortunately we do not offer an aluminized fabric. We had a product like it on offer some years ago, but it turned out that the process used to manufacture the actual coating chemical was environmentally unfriendly and as a result our supplier discontinued the product. We have received previous enquiries for such a fabric, but we have not been able to source an alternative supplier of the aluminum coating.

I do not recall if I have mentioned this before, but you should be able to quite safely utilize the old OL CS finish simultaneously with the new OL WF C17, i.e. in the same balloon envelope.

Wed, 27 May 1998

From: Ron Cassidy <ron@cassidy.mv.com>

Subject: fabric enquiry

It looks like we have enough interest in the SA fabric to place an order. I'm planning to purchase 2 - 110 meter rolls of BL320, 1 - 200 meter roll of GN033 and a 99 meter roll of BK003. Everything else is up for grabs. I'll take the orders on a first come first serve basis. Some colors have limited quantities so who ever grabs it first gets the order. They do not split rolls, so pick a roll nearest to the quantity you need. Make your decision by June 6th please.

You need to prepay before we can order. Basically I'm required to wire the fabric and shipping costs directly to them before they will process the order. This made me a little nervous the first time but it worked out fine and every other supplier requires prepayment. The last order cost me ~\$2.70/yard delivered. Note, don't forget to convert from yards to meters when calculating the cost per roll. This order may cost slightly less since the customs brokers fee is fixed. I'll share copies of all the invoices/costs when we've completed the order.

I'll get an updated inventory next week and share it with anyone the replies to this email. The quantities may have changed.

Later,

Ron Cassidy

Date: Mon, 01 Jun 1998

Subject: fabric enquiry

Greetings Balloon Builders,

I called SA today to get an update on fabric availability. The list I'd sent out last week with "old" (A grade) and "new" (B grade) parachute fabric hasn't changed much. Use that list as a guide. The cost is \$1.80/meter FOB SA. In addition, they have some B grade calendared fabric available for \$1.80/meter. Gray - 200 meters, Light Blue - 144 meters, Lime Green - 330 meters, White (Natural) - 500 meters, and Medium Blue - 80 meters. The cost for new, A grade calendared fabric is \$3.10/meter, most colors are available. The price for A grade "new" parachute fabric is \$3.96/meter, most colors

are available. The cost for new hot air balloon fabric is \$4.25/meter. Sorry no B grade fabric available in hot air balloon fabric. Usually the A grade fabric is available in 100 meter rolls, 150 cm wide. Occasionally smaller rolls are available. You must buy a whole roll, they won't cut from a roll. Please finalize your order by the end of this week. If you have any questions, give me a call or send me some email.

Later,

Ron Cassidy

Date: Thu, 09 Jul 1998

From: Ron Cassidy <ron@cassidy.mv.com>

Subject: Fabric from South Africa

Greetings builders,

We just received our latest order of parachute fabric from South Africa. Everything went well, the company is a pleasure to do business with. Once they got our money it took less than a week to get the fabric to Boston.

A quick summary: We purchased a combination of the old and new parachute fabric. We purchased both A and B grades of the new fabric. The old fabric and the B grade new fabric cost us \$2.43/meter. The A grade new fabric cost us \$4.94/meter. The costs include the price for fabric plus shipping, duty, etc. We purchased a total of 2866 meters of fabric. A total of 11 different colors.

The only "down" side was that it took longer to get everyone together to place the order than I expected. In the mean time, some of the fabric I wanted was sold. I got a good quantity of 2 colors and some small rolls of 2 other colors. I'd like to get more fabric for the design I have in mind.

I'm thinking about doing another order. The supplier tells me they'll have more of the B grade stuff available soon. Plus they still have some of the old fabric available, with limited colors. If you're interested or know of someone else interested, let me know.

Later,

Ron Cassidy

ron@cassidy.mv.com

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