

Saddle Stitcher Productivity – Clever Operator Tips

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**by the staff of Tech-ni-fold
Global Leaders in
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Saddle Stitcher Mis-Register - an Insurance Policy



Several recent blog articles, found at <http://www.BinderySuccessBlog.com>, have highlighted popular troubleshooting and setup techniques aimed at **keeping signatures perfectly registered to the head** as they travel the length of the saddle stitching machine. The tactic we're covering today is part of our series on the battle for register and it's a simple one. In some ways it's really more of an insurance policy against mis-register. You won't always need it but it's a lifesaver when you have it to draw on!

When you are stitching 4 or 8pp signatures along with 16pp signatures a problem can arise due to the perf at the head of the 16 pager. In theory this shouldn't happen, but it can if you have the right (or perhaps I should say wrong!) combination of paper stock, perf wheel and internal crossovers in the 16pp section. Everything will line up perfectly in the 16pp yet the 4pp, though trimmed exactly on the marks, simply doesn't line up. The reason for this is the perf which can, for instance, add 1/64" or more to the head on the 16, throwing crossover register out of whack. It doesn't sound like much but it's clearly visible if you have a thin line crossing over.

The **first suggestion** is to start folding the 16's before you cut and fold the 4's and the cover. Most of us probably do it in this order anyway. **The insurance policy is this—when laying out the job for printing, simply allow for extra head trim on all your 4's if space is available.** If you normally lay the signatures out with 1/8" head trim, then add another 1/16 or 1/8" to the 4's. You may rarely need it but if one day you need an extra 1/32" at the head it's there to be had. You have to cut them all anyway. Be sure to do the same for your covers.

Placement of the 4pp sigs can also make a difference in register. Once you learn your particular machine you may find that the 4's and 8's run better when in the middle of the stitched book, sandwiched between the 16's on the outside and inside. For instance a 36pp self cover might run best as a 16-4-16 rather than a 4-16-16. Or your stitcher could be the exact opposite.

In theory none of this *should* matter and with time we can usually get any configuration to run the way we want it to. But in the real world of deadlines if a simple layout change can save us 30 minutes of setup every time we do that particular job, and it's a simple matter of putting the 4 (or 6pp or 8pp) in a specific spot, we're going with it!

You can also **experiment with various perfs at the head** and you may find one that eliminates the problem on that stock. Remember however that your perf needs to be large enough to release all the air in subsequent folds, but not so large that the signature will fall apart at the perf or start to "roll" around the perf. Don't assume that a finer perf is going to do the job either; test it. Too fine and you'll start getting wrinkles at the head. Perf performance will change with paper densities and grain direction.

There is always a learning curve dependent on the type of stitched books you are producing on your bindery equipment. If you keep track of the problems early on, and adjust your print layouts and folding techniques accordingly, you'll always have an extra layer of protection against the inevitable bindery gremlins.

Saddle Stitcher Tips – More on Registration

In previous posts, found at <http://www.BinderySuccessBlog.com>, we discussed several tips **to fix signature registration problems in saddle stitched books**, most of which are helpful for both signature pockets as well as cover feeders. Once the book passes the cover feeder (or the first pocket if you don't have a cover feeder) it passes into something of a no man's land prior to the stitching unit. Today we'll look at two more tips to help in this area.

Even though this 'no man's land' is a short stretch considering how far the signatures have traveled, there is still plenty of room for bindery gremlins to do their work. Covers pop out of position and caliper squeeze or chain vibrations can create mis-register. Of course the overall objective is to keep all the signatures aligned to the head until the moment they're stitched. In a perfect world this would happen with a normal make-ready, using only manufacturer supplied components. The reality is that there are weaknesses in even the best-designed machines and normal wear and tear can gradually give rise to such problems.

Many of you wrote to suggest the use of various brushes in this area, strategically placed so as to prevent or correct any mis-register happening here. The photo at right illustrates a clever home-made setup which allows for movement of the brush and adjustment of pressure to suit the job. (Thanks to John Johnson, Bindery Manager of Davis CGS for submitting the photo!)



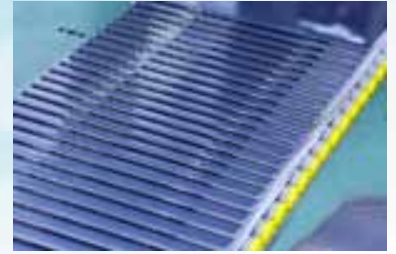
Another handy spot to attach joggers is the cover feeder itself, and shown in the photo to the left. Card stock, steel banding, rubber hose, spring steel or other flexible material can be attached to keep the cover in position. You can also cut a v-shaped notch in the card as a way to adjust pressure on the book. Many stitchers come equipped with spring steel joggers with a pre-cut notch.

Use both techniques for added insurance and carefully look at any location where the book is 'free' from any positive control. That could be the spot where a mis-register occurs. Although the quick fixes mentioned here are aimed at keeping the cover lined up, if there aren't too many signatures in the book, a well placed brush or other jogger can help line up **all** the signatures if they aren't too far out of register. And it sure beats having a person sit there jogging them up by hand!

One common sense item bears repeating—be sure the basics are checked first. Pocket timing, sword height, air adjustments and any features particular to your saddle stitcher should always be correctly set. No amount of bindery tricks will fix a sloppy setup or a hasty shortcut.

Saddle Stitcher Calipers - Can They Hurt Book Registration?

Saddle stitcher calipers are a key component in any stitching system. When set correctly they'll detect missing or double signatures in the book, then stop the stitching mechanism and reject the book so signatures can be re-used.



They can also be a source of paper jams and mis-registered books, especially as the machine ages. Construction of the calipers varies substantially with the make and model of stitcher but the concept is usually the same—the book is guided between two wheels that are set to the exact thickness of the correctly assembled book. Missing or extra sheets trigger the sensitive mechanism which in turns activates the stop-stitch and reject tray.

If the book isn't guided in to the caliper properly it can jam and over time these jams can knock the caliper out of alignment and even bend and damage parts. Once out of alignment the caliper can then literally squeeze the books out of register since the force isn't being applied equally and accurately in the proper direction.

You can imagine that **this scenario has a cascading effect**; the mis-aligned caliper is now harder (or even impossible) to set correctly so the operator chases the correct setting, often causing even more problems. We know that a mis-registered book can have numerous possible causes (see **Saddle Stitcher Signature Registration - 5 Tips on the next page of this guide** or view **[Using the Reject Tray by Clicking Here!](#)**) Since the caliper is usually low on the list of suspects and may not even enter his mind, this gremlin can sneak up on the operator gradually.

However, once the caliper is flagged as the culprit for the mis-register problem, it's a must-fix item. Mis-register at the caliper is nearly impossible to completely fix with brushes or other remedies. The fix could be as simple as re-aligning the caliper components or it may require the services of a stitcher technician.

Details will vary. The calipers on old McCain saddle-stitchers are built like tank parts but I've personally seen components with no visible damage, which when replaced, solved all the caliper problems. The damage, though nearly invisible was in fact a big enough problem to warrant replacement of some pretty hefty parts. You wouldn't think some little pieces of paper could bend a shaft a couple inches thick!

According to Bill Klansko of Ace Grinding and former saddle stitcher product manager for Muller-Martini, Muller calipers must be adjusted perfectly horizontally and vertically, **with centerlines of upper and lower wheels in perfect alignment in both axes.** He's encountered this simple but not so obvious defect numerous times. Re-alignment easily fixed the mis-register.

Calipers are very precise mechanisms and as with all things mechanical will wear with age and abuse. Unless you turn the caliper off (a risky and wasteful proposition) you'll have to find a way to set the caliper to function correctly. When parts wear, this becomes increasingly difficult and thus can be a contributing factor in a signature mis-register problem.

The bottom line: don't forget this important component when mysterious register problems appear. A careful examination at the caliper as you jog a book through and as it's running will usually be enough to determine if it's the culprit. When the usual adjustments don't fix the problem, it's worth a phone call to your technician.

Saddle Stitcher Signature Registration - 5 Tips

Saddle stitching machines that use a chain upon which folded signatures are dropped can present the operator with signature registration problems for many reasons. Different sized signatures, mechanical issues, a stretched chain or improperly set feeder pockets can prevent the signatures from jogging to the head consistently. Some problems can also cause signatures to 'de-jog,' if you will. If there is crossover registration in the stitched book, these mis-registered signatures can ruin the finished product.

Saddle stitchers are so complex that there are too many scenarios to address in one short article, so we'll break it down into a series of tips over the coming weeks. **One piece of advice for operators of any type of bindery equipment: always check the basic setup items.** If, for instance, the pocket timing isn't set correctly, you will struggle with register and machine jams no matter what sort of tricks you use. Sure, sometimes you have to break the setup "rules" for a stitcher. An operator can't however, make any troubleshooting progress if he hasn't at least tried it first according to the manufacturer's recommendations.

Most registration fixes center around the action taking place at the sword.

Here the signature is opened and dropped, to wait being swept along by a pin that protrudes from the chain running just underneath the sword. In order to remain in register, the signature must stay firmly planted against the pin until the book is stitched. Here are 5 tips to help make that happen when the basics fall short.

1 Use jogger springs or brushes with every pocket. Machines usually come equipped with one or the other or both. Often these get thrown in the parts drawer when they fail to work on a particular job. Some newer machines don't even have them but they can be added with simple homemade rigging.

Generally the jogger springs work better than brushes, but both should be tried. The springs usually have a V-shape slot that rides over the signature and can scratch a coated sheet if not carefully set. That's one occasion when they get removed. In those cases, you can tape up the spring to eliminate the scratching. Alternatively, use one or more pieces of chipboard in place of the springs. Change grain direction for more or less tension, and add extra pieces of chipboard to increase tension further. This also works well just after cover feeders. (shown in photo at right.)



Too much drag with the springs will cause the signature to pop forward. The good news is you can bend and shape the spring as needed. Need more pressure? Double up on the spring or add a piece of steel strapping or similar material.

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2 **String.** This is by far the most popular outside-the-box technique judging by reader feedback. Attach a piece of tying string or yarn to the bracket that holds the sword. Cut it long enough so it just reaches the next sword (or just past the start of it.) Some operators tape it to the sword itself. The drag from the string will keep the signature pushed against the pin as it falls from the sword and travels on the chain. Feel free to experiment with attach points and with the type of string.



3 **Add friction to the sword itself.** This simple technique is nearly as popular as the string tip. Apply masking tape or grip tape (such as used on tennis rackets or golf clubs) directly to the sword itself. Experiment with placement and size of tape for best results. Or apply cut strips of press blanket, green belting or similar material to the sword using a double sided tape. Really any slightly rough material can be cut up and applied to give you that extra bit of drag needed to hold the signature firm against the pin.

Another variation: use tape plus string. This ensures the extra drag is applied non-stop until the next signature drops.

4 **Use air from underneath the signature** to blow it back against the pin. It's a little trickier than tape and string and not all machines have air available. A side note on air—be sure that a rogue air blast isn't causing your signatures to mis-register.

5 **Check for static.** If the register problem increases during the dry winter season, check that static isn't one of the gremlins. A few readers mentioned that grounding the machine frame can help as does static prevention with proper humidity levels.

Remember, machines, paper stocks and the materials we mentioned vary quite a bit so a little experimentation will probably be necessary.

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(photos courtesy Larry Holona, Bindery Supervisor for Graphics West.)

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