Pressman's Toolbox: Getting your press in register

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By Frank Bourlon

The art of print register is to perfectly align four separate color images (halftones) so that the four images appear as one.

The only directions each image can be moved on the press is either up and down (a plate cylinder circumferential adjustment) or right to left (a plate cylinder sidelay adjustment).

But there always seems to be an exception.

Here's one: Some commercial presses have the ability to skew the plate on the cylinder, which would be done if the images were not square with the plate. Plates can also be shimmed to make the image square with the rest of the images, compensating for poor prepress.

Prepress has a profound effect on the quality of print images. Sometimes, problems can be attributed to prepress staff being careless or not understanding the process or equipment being used. Sometimes, it's the equipment itself that's at fault.

Where errors live

Let's assume the prepress staff is very meticulous and that each member is doing everything she can to supply a quality, imaged plate to the press.

If that's the case, errors can be traced to the image setter, the plate bender, plate punch (if you punch your own plates) or the plate bender. If you're a computer-to-plate shop, errors can occur in the unit or in the bender.

Troubleshooting prepress problems can be very challenging. Some papers don't want to believe their new equipment isn't working properly. But sometimes it's because they don't have the proper tool to test for inaccuracies.

That tool is a plate verification table.

The table can be purchased or manufactured. It includes an anvil with the proper plate bend angle to accept the leading edge of the plate. The verification table will also have at lest two adjustable loupes with cross hairs in the lenses and mounted at the extreme edges of the image area of the plate. (I prefer a minimum of three loupes.)

In the press area the plates can be skewed by a dirty lead edge on the plate cylinder. If your press is a Goss Community the plate clips can be bent, in the process causing the image to be skewed.

On Goss Urbanites, the plate lockup might be improperly shimmed. Most of the other presses have leading edges on the plate cylinder that are fixed, which means that the skewing will normally be a result of a dirty lead edge, assuming the plate was made properly.

Other culprits

If the image appears to be skewed consistently in one area of the page then you may find that the plate cylinder journal is bent.

In extreme cases, I have found that the plate eccentrics are worn, or, in extremely rare cases, that the plate cylinder itself is at fault.

Once I even found a printing unit with improperly bored side frames.

Improperly adjusted plate and blanket impression or improperly packed blankets and plates can contribute to sloppy print registration, which would be reflected by either "fan-out" or loss of good print register. Improperly adjusted lead-in rollers will cause registration errors as well.

Thankfully, adjusting print register during the press run is normally straightforward.

The sidelay register (left to right movement) is usually navigated by adjusting three of the images to the fourth image (the fourth image is the target image and usually the black image) by using the sidelay controls.

I have noticed, however, that some press operators adjust circumferential print register through the use of compensators (up and down image).

First, they adjust the first printed image to the second printed image. Then, they match this image to the third one, and so on until all four images are in register.

This method wastes a significant amount of newsprint because there is a time lapse while making all of these adjustments in a specific order.

Circumferential target image

To adjust the circumferential image (in up and down direction and in relation to one another), an operator should pick the image most out of register and adjust its specific target image.

The color sequence that you print establishes your specific target images and also whether or not you are using a direct print cylinder. Assuming you run a CMYK sequence and are using compensators to control circumferential movement using four units for the process, try this approach: For magenta, the target image is yellow; the target for yellow is black and for cyan the target image is magenta.

If you understand this principle in advance, a press operator can bring images into register quickly, usually in one or two attempts.

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