

# Western Maintenance Conference 2003

## REGISTRATION ROUNDTABLE

Goss: There are many factors that can go wrong with registration. We'll go over what should be done for a full inspection and assessment of print quality and causes of registration errors.

To assess current print quality a Print Grid Test Form should be performed (similar to SNAP test, but using Goss' grid). The Print Grid Test page from Goss has a grid pattern on most of the page and image only on 30% of the page. All circumferential and side lays must be set to zero first (both electronically and mechanically). Ink and water balance must be accurate. Do not take sample from press and starting looking at it. Layout the paper "true to print" or gutter to gutter. This is paramount for checking circumferential. Stay away from Auto Flood. A sheet that is too wet will give you excess stretch or fan out you might not normally have.

The following checks should be done before a Print Grid Test is performed:

- Pre-press/Plates
- Blankets
- Impression Settings
- Cylinder Timing (towers)
- Reel performance
- Tension (before and after impressions)
- Pin Settings

Pre-press – Verify plates are consistent image to bend at the lead end. A quick way to check is to get a machine square, scribe a line between the bend and the top of an image (more than one to go all the way across the plate). Measure the distance between the scribe line and the image. They should match. Any differences more than .002 to .003 need to be fixed in pre-press. Even if all plates are off the same amount in the same place, it should be fixed. If four separations can be off all the same, they can be fixed all the same.

*San Jose Mercury:* Will Computer to Plate (CTP) take care of this?

Goss: No it hasn't yet. When making these changes, it's important to get all departments involved so toes and egos aren't stepped on and everyone is on the same page.

Blankets – Verify they are to spec (height). Verify they are torqued to spec. Check the overall condition of the blankets. There should be no delaminating, hardening or swelling. We don't recommend one blanket vender over another. We just give our specifications.

*Seattle Times:* Do automatic blanket washers hurt blankets?

Goss: They can, but vendors need to make sure this doesn't happen if they want to see their units so we don't see too many problems like that.

*San Jose Mercury:* Can you see any print characteristics that would indicate a blanket has gotten too hard?

Goss: Yes, solids could be very different (modeling). This would indicate a blanket was compressing at different rates.

*Seattle Times:* When should impressions be set? Here, the machine shop feels all new blankets should be installed before checking impressions. Is that true?

Goss: It's a good idea, but not absolutely necessary. As long as the existing blankets are all checked and found to be the same height, you can proceed. If they all aren't at least .0815 they should be changed. There is also a service bulletin about checking impressions. Also, you should only have one set of gauges that are used and the unit being tested should be cool (not run for 12 hours).

Cylinder Timing – All gutters should be set to hit at the same time all the way up the tower. This provides only two release points versus four. But watch for water breaks, as water tends to gather in the gutters on fractional rolls. This can give you anywhere from .006 to .008 in circumferential.

*Seattle Times:* Is there any impact on bearers by doing this?

Goss: No. The high plate lead ledge needs to be the same all the way up the tower without fail. This generates less circumferential errors. Remember, this only applies to towers.

Goss: Reel Performance – Verify all conditions. Rollers all need to be square from the reel room (electronically and mechanically). Verify web is smooth through all the rollers with no wrinkles, bagging or creasing. Check Arco roller. Also check the cocking roller. Any of these that are out could cause circumferential problems.

*San Jose Mercury:* Where can we get the Print Grid Test page?

Goss: If you provide me with an e-mail address, I can send it to you. It's a PDF file.

Goss: Tension on web (before and after impressions) – There should be no bagging or overfeeding. A Dover roller (transducer metering roller) works well for evaluating this.

Goss: Tension web chart – Measure and monitor tension from the RTP. It should be 1 to 1.5 lbs of pressure per linear inch of web. For example, a 60" web should have between 60 lbs. and 90 lbs. of tension. Tension up and down should be no more than 20 lbs. different.

Goss: Pin Settings – Verify gutters are clean. Check for damaged pins and lockups. Check setting tools for damage. Set to factory fan out numbers as a starting point. Perform print test with Grid Form and collect samples at 25k, 50k and 65k. Verify pin settings by analyzing sample copies. Rerun the test after adjustments are made. Continue the process until desired results are achieved repeatedly. Remember, consistency breeds repeatability.

*Rocky Mt:* How many sheets should be running in order to perform this test?

Goss: Three is the minimum. Also, there is no easy way to check pins on presses that are running variable web widths. Bussell wheels were tried to help things out, but had little success.

Inspection of print quality;

1. Test run units to verify print quality before run.
2. Goss recommends setting all unit sidelay and circumferential settings to zero at start of run.
3. They recommend using "grid print test form" for checking registration.
4. Layout test copy on table being sure to align true to print (gutter)

5. Goss recommends keeping web wet for stretching almost to the scum line.

Causes of registration errors:

1. Prepress plates have been shown to be 95% of registration errors. The plates are not always square. Verify image is consistent from image to bend at the leading edge. To verify image on plate is square, try using a square and razor knife. Scribe a line on the plate and measure the distance from line to print. Could be as much as .005 off square.
2. Blankets - Verify blanket thickness is within specification. Verify blankets are torqued to correct specification and torqued correctly per Goss specifications. Check blankets for delaminating, hardening and swelling on the edges.
3. Impression settings must be set when unit is cooled down at least 12 hours and set to Goss specifications. The iron must be right and Goss recommends using one set of same thickness of blankets.
4. There is a good service bulletin on Goss Net on setting blanket impression.
5. Make sure the cylinder timing gutter to gutter is correct on the tower units.
6. Reel performance also plays an important part and the electrical and mechanical must be set to Goss specifications.
7. Verify that web isn't wrinkling, bagging or creasing when pulling through units or leaving reel to first impression cylinder.
8. Remember to manipulate the web with the cocking roller to remove the bagging, wrinkling or creasing.
9. Check the tension of the web before and after impression. Verify the web behavior is stable before and after impression. Verify there is no bagging, overfeeding, or excessive tension put on the web.
10. Some sites are now monitoring web tension with load cells. Ideally you want 10 to 20 linear inch pounds of web tension.

Cylinder timing (gutter timing) has been researched and Goss is finding that if the gutters are timed to come together more control can be had over the sheet. Circumferential seems to stay in register longer when the gutter to gutter timing method is used. This modification may cause water problems due to the gutters running together.

RTF wear should not exceed .004" to .006", web gain will be effected if wear is greater.

There is a new service bulletin on impression setting. Impressions should (can) be also checked in the center of the cylinder using a blanket with an area cut out for the placement of the gauge.

The 1" grid color test form is more accurate than the current snap test form used according to Goss.

Watch for hardening of blanket material. Some blankets will harden due to age before they reach their minimum height where they are typically replaced.

When setting impressions it is always recommended that you set them with a cool unit, and it is recommended that you always record the unit temperature for reference.

Web stretch roll in the RTP should be cleaned with detergent and blown out with an air hose.

The web fan out is just a starting point. All presses will need some minor tweaking.

Tension% (read out on the panel) = Pounds of tension.

12	15
13	30
50	60
75	90
100	120

All paper manufacturers have different running characteristics and will change registration.

Need to inspect units with a grid print test. This is a grid plate with 1" grid on the entire plate and 30% of print area solid bands in two equally spaced bars and run press at 25K, 50K and 65K. Correct ink and water is critical during test.

Check pins, repeatability on registration from run to run.

Causes of registration problems:

1. prepress plates.
2. impressions.
3. cylinder timing
4. reel performance
5. pin settings
6. tension

Measure from bend to image - is it the same from side to side, plate to plate?

Blankets after run in will be about .081 to .0815 with torque at 45 to 50 inch pounds. Check for blanket problems.

1. delaminating
2. hardening
3. swelling on the edge
4. damage

RTP adjustments

1. dancer not searching
2. is there wrinkles
3. is there bagging
4. is there creasing
5. tension to high? 1 lbs to 1.5 lbs per linear inch of web. ie 60" web 60-90lbs recommended.

Tension %	LBS on web
12	15
25	30
50	60
75	90
100	120