

TECHNICAL SERVICE BULLETIN

LANIER RICOH SAVIN

BULLETIN NUMBER: D194/D195/D203/D204 - 052

03/11/2016

APPLICABLE MODEL:

LANIER – Pro C7100S/Pro C7110S/Pro C7100SX/Pro C7110SX

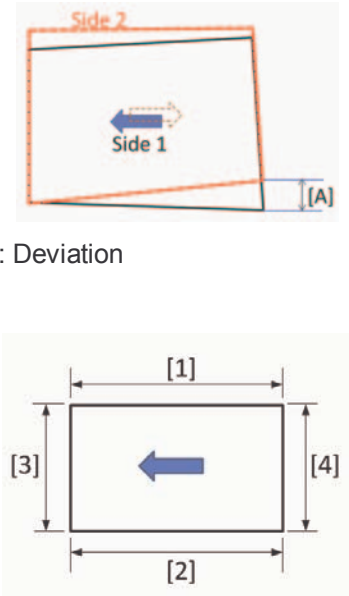
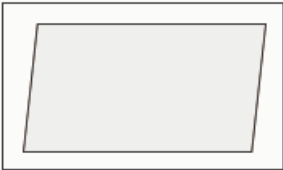
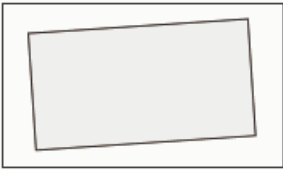
RICOH – Pro C7100S/Pro C7110S/Pro C7100SX/Pro C7110SX

SAVIN – Pro C7100S/Pro C7110S/Pro C7100SX/Pro C7110SX

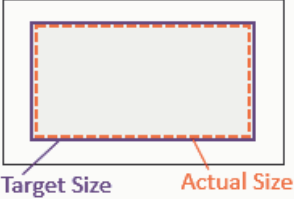

SUBJECT: REGISTRATION ALIGNMENT PROCEDURE

GENERAL:

This bulletin announces the adjustment procedures for each of the following registration problems. To adjust front-and-back (sides 1 and 2) registration, do all of the procedures in order from 1 through 5. It is recommended to use the Custom Media settings.

Registration Problems	Illustration	Adjustment Procedure / Note
<p>1. Paper Squareness / Length of the four sides</p>	 <p>[A]: Deviation</p> <p>Sides [1] and [2], and [3] and [4] should be equal respectively.</p>	<p>See Section 1 of this bulletin on how to measure the squareness and length of the four sides.</p>
<p>2. Image Skew</p>		<p>Skilled Operators Menu #0107</p>
<p>3. Paper Skew</p>		<p>Mechanically adjust the registration gate.</p> <p>See TSB D777 - 003 BANNER SHEET SKEW for paper skews that occur with banner sheet printing.</p>

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<p>4. Image Magnification</p>	 <p>The diagram shows a rectangular area with a dashed red border labeled 'Target Size' and a solid black border labeled 'Actual Size'. The 'Actual Size' is smaller than the 'Target Size'.</p>	<p>Custom Media Advanced Settings; No. 5-8.</p>
<p>5. Image Position</p>	 <p>The diagram shows a smaller rectangular area centered within a larger rectangular frame, representing image position.</p>	<p>Custom Media Advanced Settings; No. 1-4. * Adjustable also in job properties.</p>

WHAT YOU WILL NEED:

- Fresh pack of A3 or DLT paper
- Precision Scaled Eye Magnifier capable of 0.1mm measurement



Example of a magnifier: Peak 1983 Scale Loupe 10x

Magnification: 10x

Minimum Scale Division: 0.1 mm

Link to web site:

http://www.peakoptics.com/index.php?main_page=product_info&cPath=24&products_id=12

1. PAPER SQUARENESS / LENGTH OF THE FOUR SIDES:

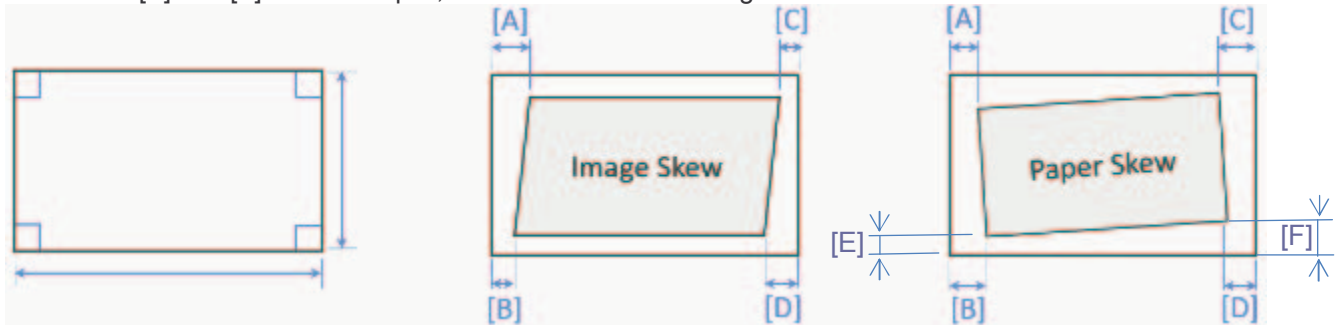
Before doing any registration adjustments, confirm that the squareness of the paper and the length of the four sides of the paper are within target by doing "Measuring the Squareness of Paper-1" and "Measuring the Squareness of Paper-2" described on the following pages.

Note

- Poor cut, expansion and shrinkage of the paper are possible factors that may affect the squareness of paper.
- Confirm that all the lengths [A] through [F] are correct. This will avoid mixing up image skew with paper skew.

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If both image skew and paper skew are occurring ($[A]=[B]$ and $[C]=[D]$ and $[E] \neq [F]$), correct the paper skew first so that $[E]$ and $[F]$ become equal, and then correct the image skew.

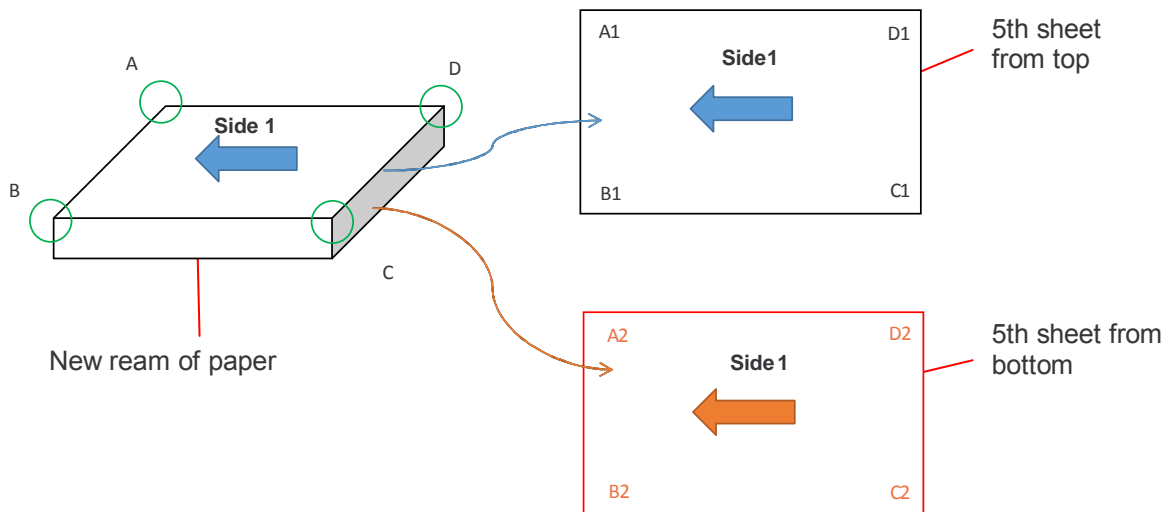


Procedure: Measuring the Squareness of Paper – 1

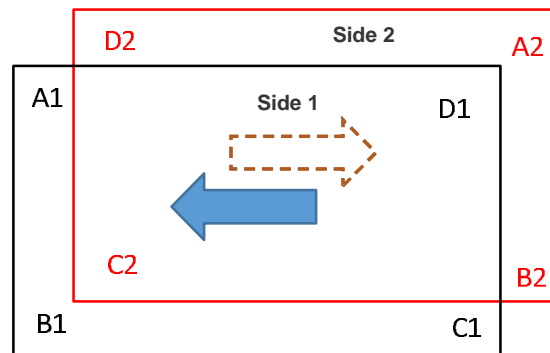
1. Pull out the 5th sheet from the top of the ream and the 5th sheet from the bottom of ream.

Note

- Use a fresh pack of A3 or DLT paper.
- The 5th sheets are used to ensure there are no dog-ear folds on the paper.

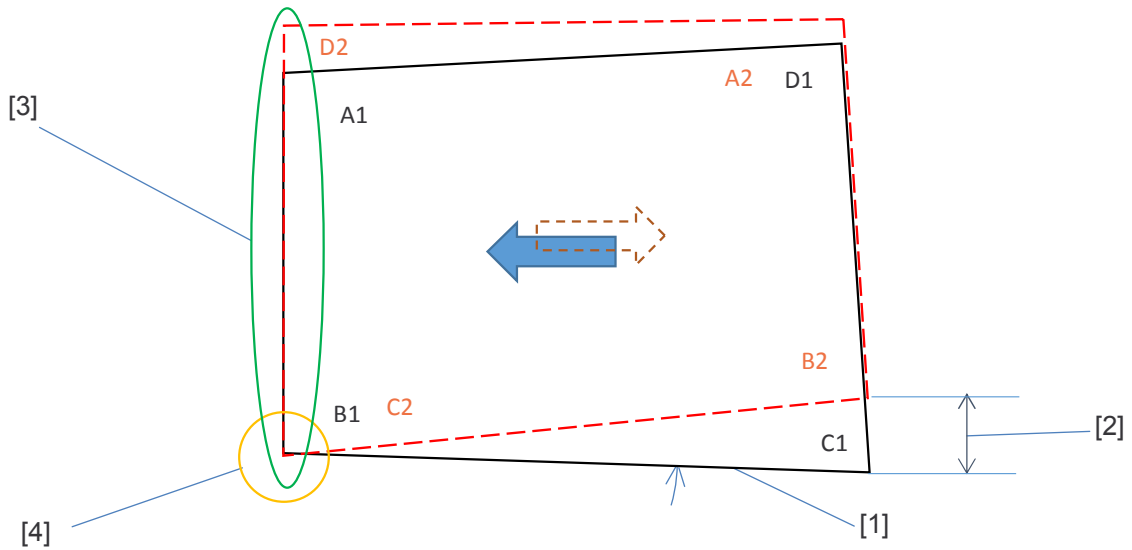


2. Flip the sheet (5th from the bottom) so that its Side 2 faces up and place it on top of the other sheet (5th sheet from the top).

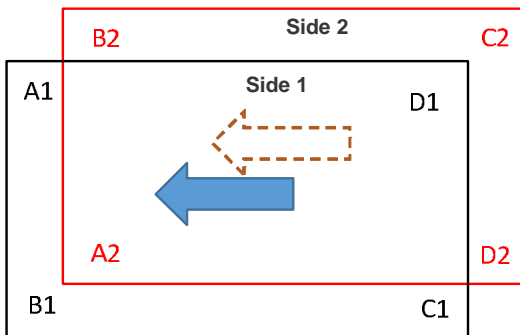


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3. Align the sides A1-B1 and C2-D2 [3], and corners B1 and C2.
4. Measure the distance [2] with the precision scaled eye magnifier. If less than 0.3mm, angle [1] is +/- 0.04 degrees and is within tolerance.

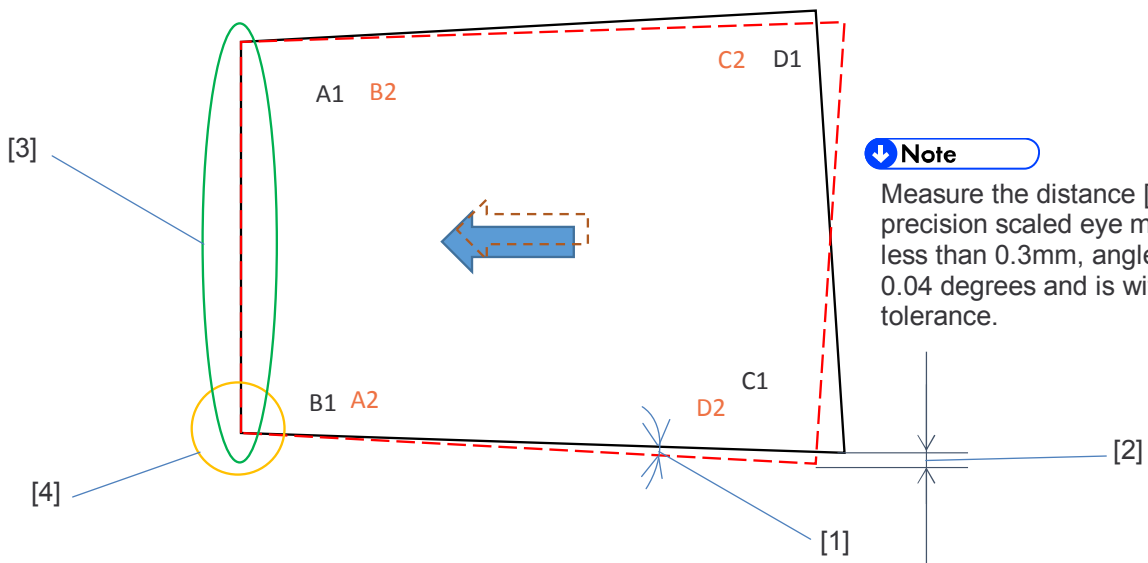


5. To do the same on the other side, rotate the sheet with Side 2 facing up 180 degrees. Align the sides A1-B1 and B2-A2 [3], and corners B1 and A2 [4], and measure the distance [2] to find out the angle [1].



Note

- The tolerance of registration misalignment between sides 1 and 2 when all four corners are within 90 +/- 0.08 degrees is 0.6 mm at maximum with A3/DLT size paper.



Note

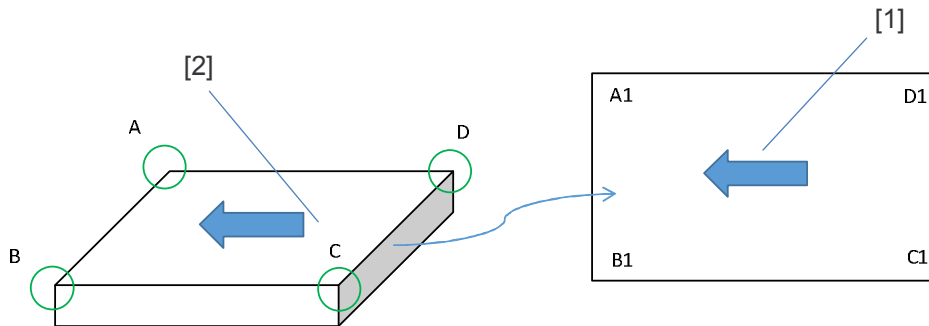
Measure the distance [2] with a precision scaled eye magnifier. If less than 0.3mm, angle [1] is +/- 0.04 degrees and is within tolerance.

If the angles are within tolerance in both Steps 4 and 5, all four corners are within 90 +/- 0.08 degrees. If otherwise, **DO NOT USE** the paper.

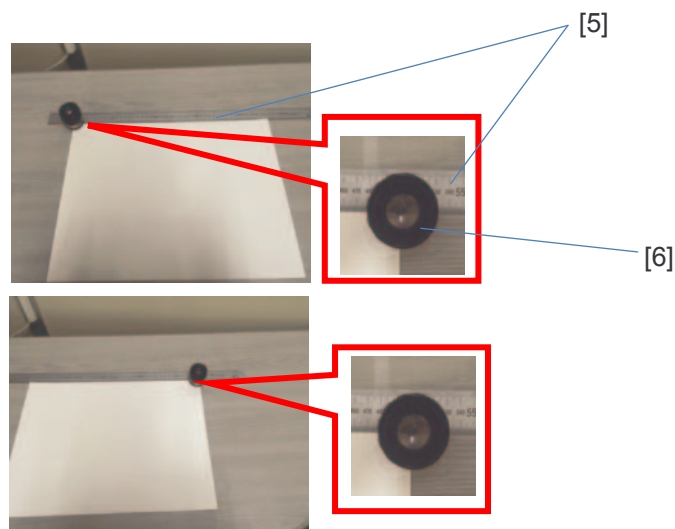
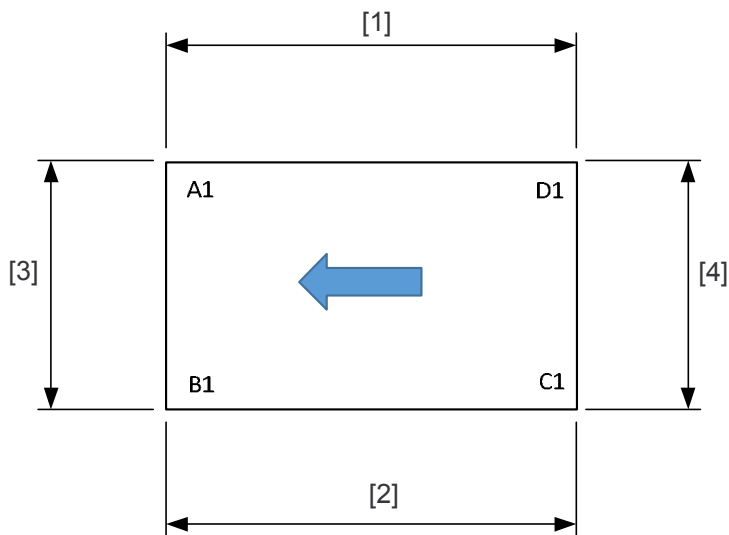
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Procedure: Measuring the Squareness of Paper – 2:

1. Randomly pull out a sheet of paper [1] from a fresh pack of paper [2].



2. Measure the length of all four sides [1] ~ [4] using a metal scale [5] and precision scaled eye magnifier [6].



3. Check if the lengths are +/- 0.1mm against the target size.

For A3 (420 X 297 mm)

Sides [1] and [2] should **both** be 420 +/- 0.1mm.

Sides [3] and [4] should **both** be 297 +/- 0.1mm.

For DLT (11" X 17")

Sides [1] and [2] should **both** be 431.8 +/- 0.1mm.

Sides [3] and [4] should **both** be 279.4 +/- 0.1mm.

4. Pick three more sheets randomly from the same ream and repeat the above steps.

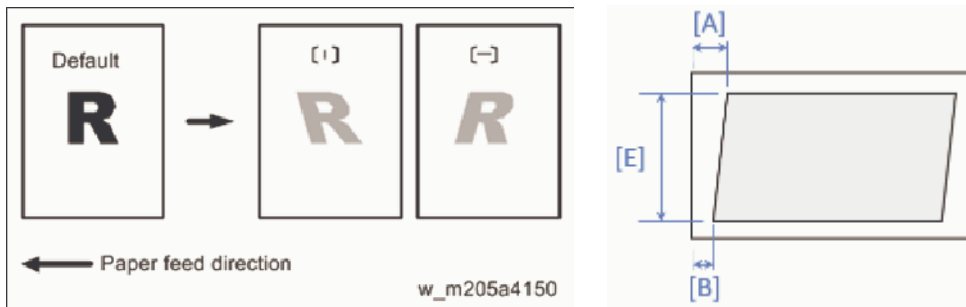
★ Important

- Measurements made for all four sheets must be +/- 0.1mm against the target. Otherwise, DO NOT use the paper for Front-and-Back Registration.

2. IMAGE SKEW:

1. Go to Skilled Op Menu #0107 [Perpendicularity Adjustment].
2. Adjust the value. Increase the value to rotate the image counterclockwise, decrease to rotate clockwise.
3. Measure [A], [B] and [E] and do the calculation below to verify if the skew is within the tolerance.

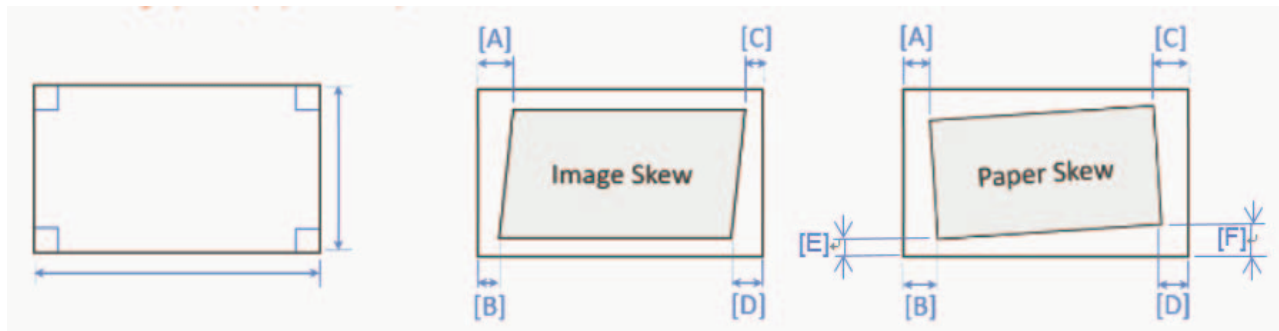
$$[A] - [B] / ([E] / 200) = +/- 0.2mm$$
4. Do color registration from [User Tools] → [Maintenance] → [Color Registration].



3. PAPER SKEW:

Before Making The Adjustment

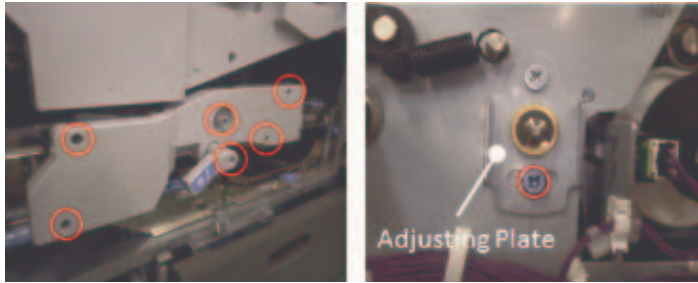
Make sure the squareness of the paper is within the tolerance and measure [A] ~ [F], to avoid mixing up paper skew with image skew.



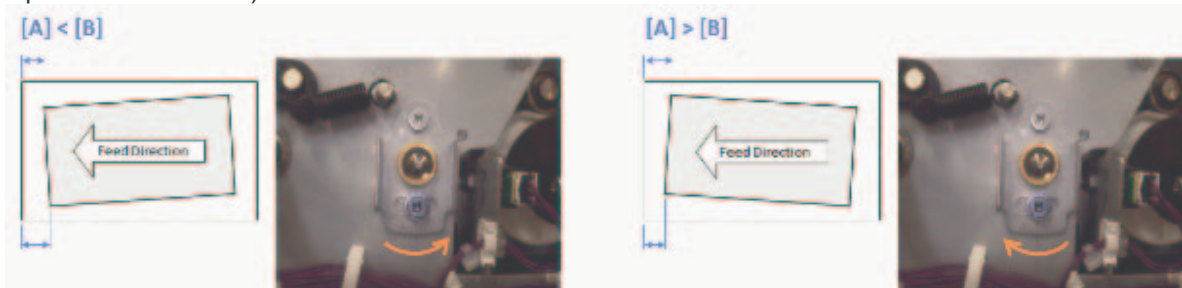
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Paper Skew Procedure:

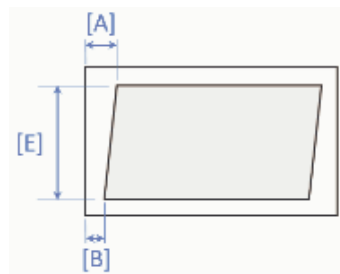
1. Remove the handle, cover of the Right Drawer Unit, and loosen the bottom screw on the Adjusting Plate.



2. Move the Adjusting Plate according to the skew direction. (1 notch on the Adjusting Plate Scale is equivalent to 0.2mm.)

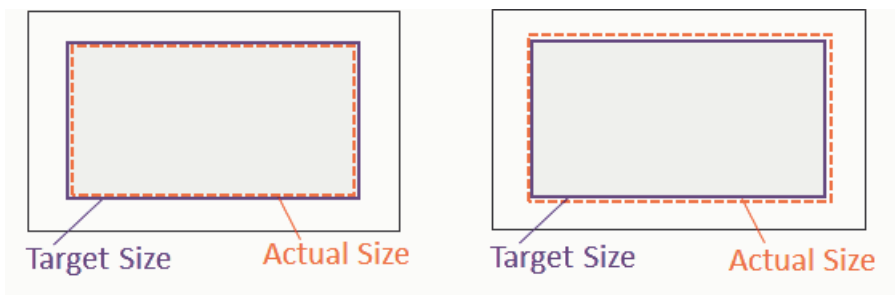


3. Measure [A], [B] and [E] and do the following calculation to verify if the skew is within the tolerance: $[A] - [B] / ([E] / 200) = +/- 0.2\text{mm}$



4. IMAGE MAGNIFICATION:

Do this procedure when the actual size of the image is slightly smaller or larger than the expected size. The adjustment can be made in the Custom Media settings.



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Image Magnification Procedure:

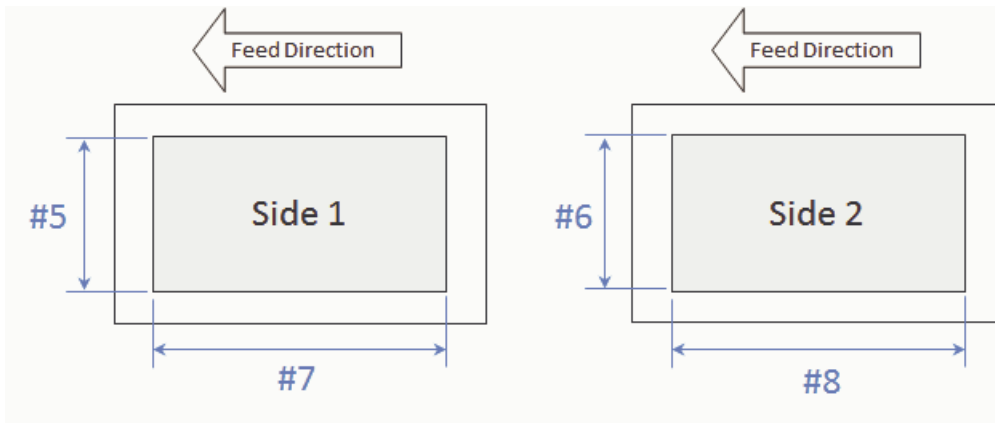
1. Measure the difference between the actual size and target size.
2. Calculate the magnification rate.

Example:

Target length: 420.0 mm, Actual length: 419.5 mm
 $420 / 419.5 = 100.12\%$
 +0.12% needed.

3. Input the calculation result in Custom Media Advanced Setting #5 or #6 or #7 or #8 depending on where the adjustment is needed. The value can be increased/decreased by 0.025%.

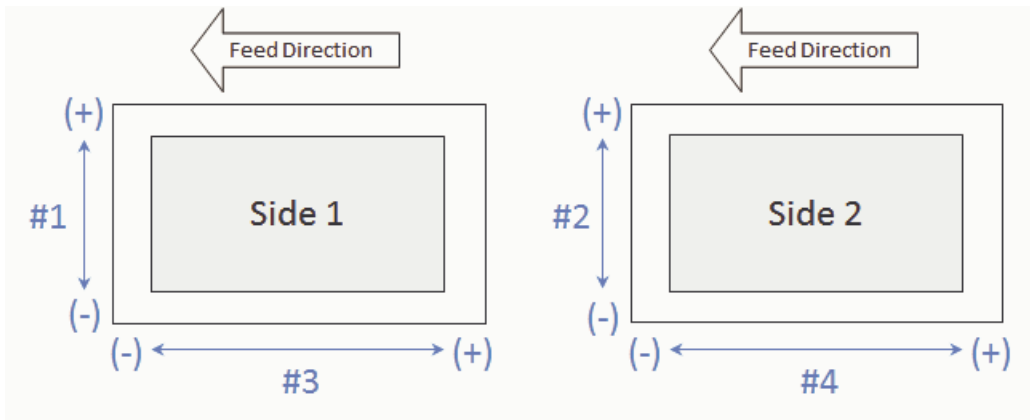
- #5: Side 1, Magnification in main scan direction
- #6: Side 2, Magnification in main scan direction
- #7: Side 1, Magnification in sub scan direction
- #8: Side 2, Magnification in sub scan direction



5. IMAGE POSITION:

In Custom Media Advanced Setting, input the adjustment value for the side and direction that requires the image position adjustment.

- #1: Side 1, Image Position in main scan direction
- #2: Side 2, Image Position in main scan direction
- #3: Side 1, Image Position in sub scan direction
- #4: Side 2, Image Position in sub scan direction



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APPENDIX-1:

Please refer to the procedure in the FSM under *Image Adjustment* on “Using the Template to Align the Image Positions on Sides 1 and 2”. This will automatically apply the optimum values in Advanced Setting #1 through #8.

