



Newsday **Press Register**

Registration Correction for Web Presses

Product Description

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Background

Mis-registration on a web press is mainly a result of mechanical wear and tear, paper stretch and press calibration. By in large, the amount of registration error observed depends mainly on the paper type and many other issues related to the press. The paper stretch, known as “Fan Out” or “Web Growth”, is a common issue on any web press and in some cases appears on a sheet-fed press too. Several factors cause the paper expansion; type of paper, the amount of water/ink applied, speed of printing, cylinder tension, ambient temperature and the others are press related issues.

The factors influencing the mis-registration that are caused by the press are difficult to characterize. On some web presses the parallelism of the main cylinder with the paper contributes significantly to mis-registration of the image printed.

The most common solutions to the mis-registration problem on a web are tedious and lengthy calibrations and the Bustle wheel (or air pressure from nozzles). Most solutions affect the image registration on the paper in a way that minimizes the mis-registration. However, those solutions are very time consuming, not accurate and not stable during the print run.

Product Description

The Newsway Press Register solves all the mis-registration issues on each plate by adjusting each one of the individual separations by scaling and rotating and shifting the image precisely so they will perfectly align during the final print, thus aiming to improve registration of all the separation on all the towers of the press.

The Newsway Press Register is design to be a stand-alone unit which can operate at any print site and can integrate into any workflow or specifically to the Prolmage Newsway Production system. The Press Register provides the following solutions:

1. **Resize** the individual separation to align it with all others
2. **Rotate** the separation by any measure to compensate for cylinder cocking
3. **Mirror** the individual separation for direct print, and
4. **Shift** any separation (in W and H directions) to align plate when web grip wears

The Newsway Press Register scales, mirrors, rotates and shifts the 1 bit TIF image of each individual separation (C, M, Y or K) to the appropriate size, to compensate for the overall mis-registration of the press and exposing it on the plate with the corresponding size and angle required to be on the paper. This greatly improves the final print registration accuracy which might have been damaged by many factors influencing the web performance.

The main functions of the Press register are:

- Process 1 bit TIFF data after RIP on each color separation
- Scaling of the image on the plate (enlarged/reduce the width and height)
- Mirror for each individual separation

- Angular correction of rotation errors
- Image alignment to center, left and right justification
- Preserve punch and bender registration marks (horizontal and vertical)
- Supports up to eight individual separations

Set-up Screen

For the use of horizontal exposure devices (image-setters and plate-setters) the set-up screen used is as followed:

Press Register Configuration

Channel: Input1

	Width	Height
Image Size	1180	865
Strip Settings		
Top Strip		15
Bottom Strip		15

Separation	Scale W	Scale H	Angular Deviation	Shift W	Shift H	Mirror
Cyan	0.84	-0.28	0.87	2.40	-1.34	<input type="checkbox"/>
Magenta	-0.64	0.38	0	-1.2	-0.85	<input type="checkbox"/>
Yellow	1.26	0	-0.84	-1.4	2.65	<input type="checkbox"/>
Black	0	0	0	0	0	<input type="checkbox"/>

Alignment: Left Top

Orientation: Horizontal

Rotation Pivot: Center

Inch
 mm

Apply

For the use of vertical exposure devices (image-setters and plate-setters) the set-up screen is as followed:

Press Register Configuration

Channel: Input1

	Width	Height
Image Size	865	1180
Strip Settings		
Left Strip	15	
Right Strip	15	

Separation	Scale W	Scale H	Angular Deviation	Shift W	Shift H	Mirror
Cyan	0.84	-0.28	0.87	2.40	-1.34	<input type="checkbox"/>
Magenta	-0.64	0.38	0	-1.2	-0.85	<input type="checkbox"/>
Yellow	1.26	0	-0.84	-1.4	2.65	<input type="checkbox"/>
Black	0	0	0	0	0	<input type="checkbox"/>

Alignment: Left Bottom

Orientation: Vertical

Rotation Pivot: Center

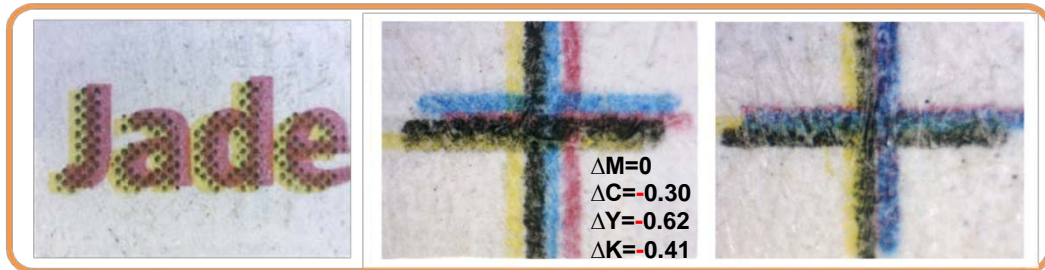
Inch
 mm

Apply

Print Test Results

The print test was conducted on a Manograph Cityline, seven years old coldest web press. The right side registration mark was used as a pivot and the deviation measurements were taken on the left side marks, then the corrections were applied. The results shown below were observed throughout the print run with no changes during the entire print run (of approximately 150,000 copies).

Original Print Results

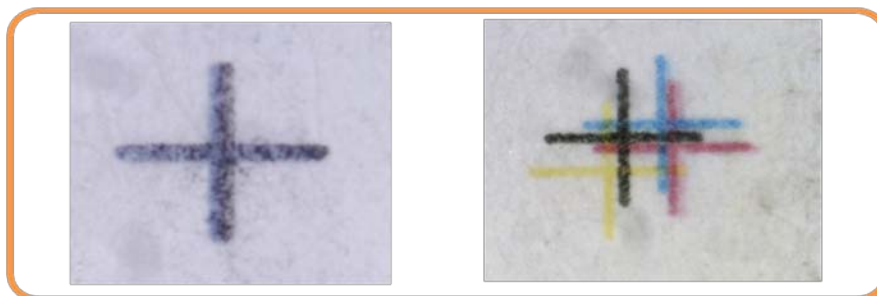


FanOut Print Result



Another test was conducted in which angle deviation was used to correct the registration. The results are shown below:

Original Print Results



Press Register Print Result



The procedure used for the above test is as follows:

- All registration corrections on the web were removed (Bustle Wheels, Air Pressure and Auto registration)
- During printing the left registration mark was aligned perfectly
- The deviation error on the right side of the paper was measured with a digital microscope (accurate to 0.1 mm) using the Black separation as a reference.
- A new set of plates were produced via the Newsway Press Register and mounted on the press
- Again, no registration correction were activated to produce the results shown above

System Configuration Requirements

- **Hardware Configuration**

The recommended minimum hardware configuration for using the Press Register should be: Intel Pentium 4 Dual Processor, 3.2 GHz, 4GB DRAM, 500GB HDD and DVD player.

- **Software Requirements**

Operating System – MS Windows 2003 Server (**32 bits version only**).

- **System Performance**

Using the recommended hardware above and for a plate set comprises of standard four separations 1 bit TIF format at 1200 dpi, 30MB/Sep (CCITT G4 compression), the processing time should be approximately 25 seconds.

- **Workflow**

Fully automatic hot folder input/output system. The workflow uses input hot folder, programmable output result destination folder and error folder with log file.

- **Input/Output File Format**

Input file format is a 1 bit TIF (LZW or CCITT G4 compressed) with up to 64K pixels per line width. The default output file format is CCITT G4 and it can be also set to G3, LZW, DFC30, DFC34, Scitex LW and NWC.

- **Controls**

The Press Register can control the scaling of each individual color separation in the width and height relative to image center, left or right justification. It rotates each color separation and can shifts each color separation to left, right, up and down as needed. Any color separation can also be mirrored along the width access.

- **Product License**

HASP dongle and password license activated.

The basic system layout configuration is shown in the diagram below:

