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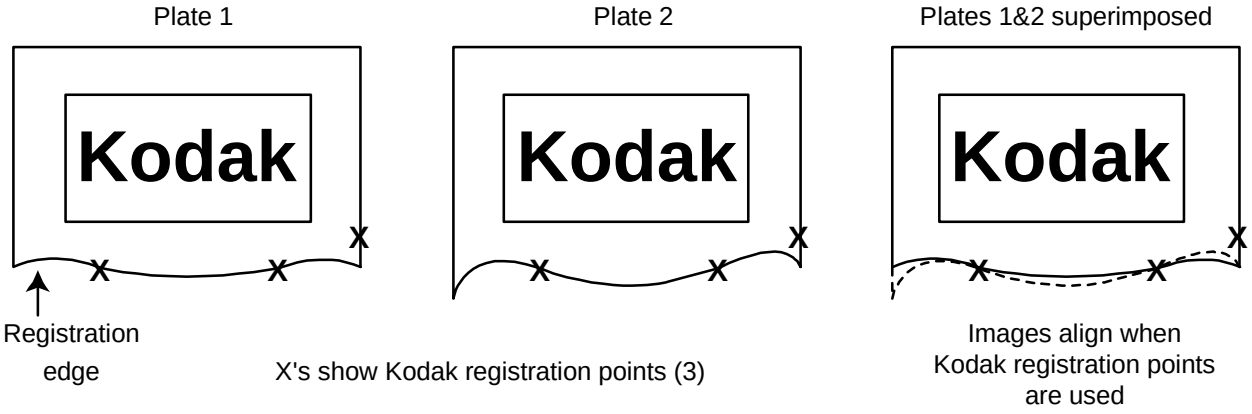
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White Paper

Plate Registration on Kodak Devices

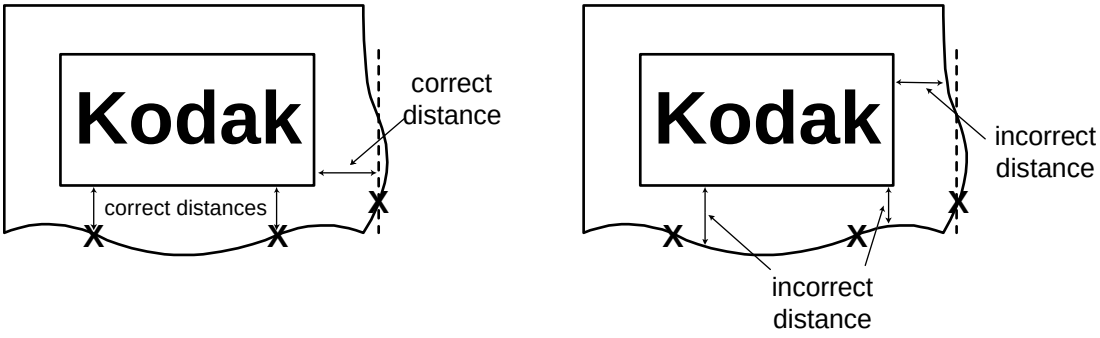
How Registration Works

When aligning two plates with different shaped registration edges, use the Kodak registration points to ensure that the images on plate 1 and plate 2 align.



Verifying Registration

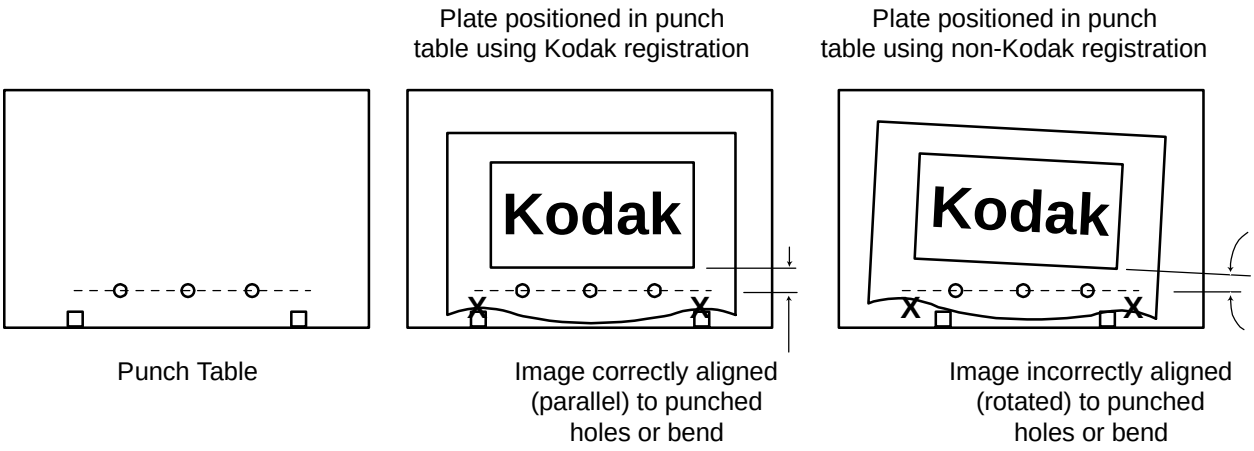
To verify registration accuracy, you must use the same registration points for measuring as those used for imaging. If different points are used, particularly on plates with wavy edges, then the results will be inaccurate.



Using non-Kodak Registration Points for Punching or Bending

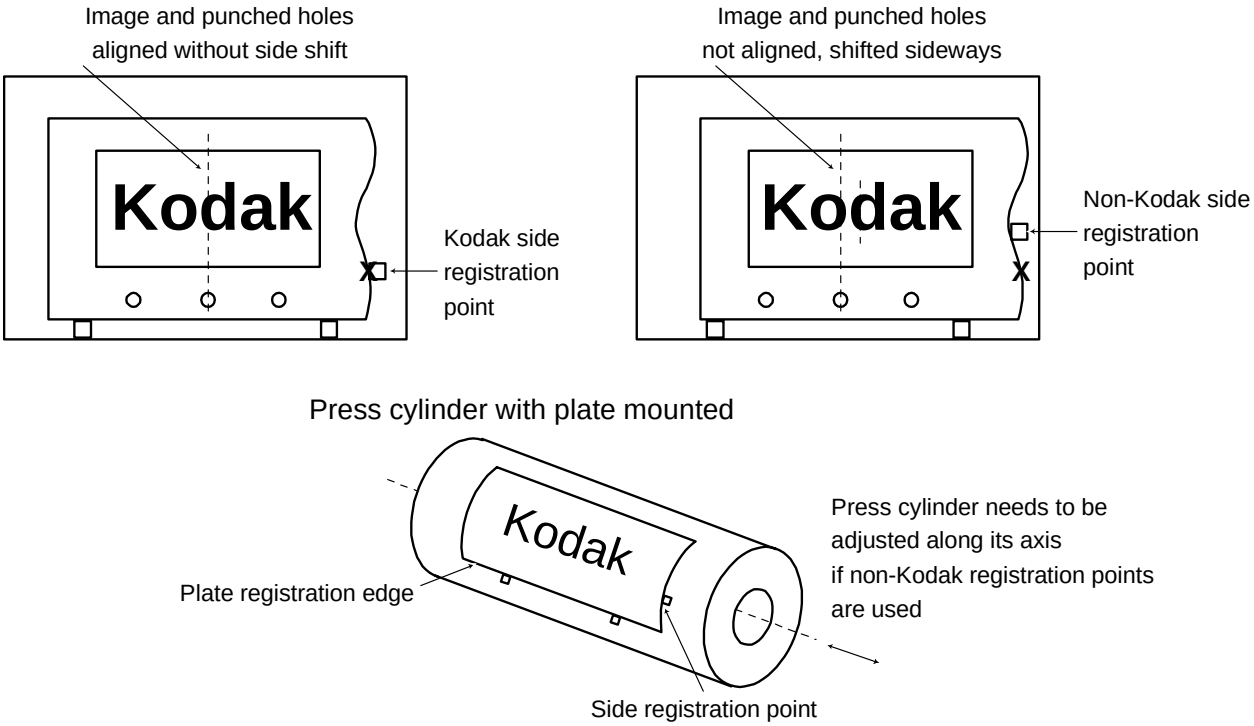
Registration Edge

Using non-Kodak registration points can result in the image being skewed on the plate as shown below.



Side Registration

Using non-Kodak side registration points can result in the image being shifted on press. This error is usually easily corrected on press.



Magnus VLF Plate Registration

The Magnus® VLF device is designed to handle single or dual plates in leading edge or side edge registration modes. This paper explains some common plate registration terms, and describes how to ensure that the customer's punching system will allow plates imaged on the Magnus VLF device to be punched on a table that is also used for Trendsetter® VLF devices.

Plate Registration Terms

What is the registration edge of a plate?

This is the along-press-cylinder plate dimension. See Figure 1.

The registration edge is the edge that the image will be aligned to, normally using two points called 'registration points'. The Magnus VLF uses a third registration point to align the side of the plate and image.

What is meant by 4-pin and 6-pin registration systems?

The Magnus VLF detects correct registration of the printing plate by its alignment to registration pins on the imaging drum. The device is supplied with either 4 pins on the drum (a 4-pin registration system) or 6 pins on the drum (a 6-pin registration system).

When is a 6-pin registration system needed?

The Magnus VLF is supplied with a 4-pin registration system for customers who are running single plates. For customers who want higher throughput, Creo recommends that they run dual plates on a 6-pin registration system.

What is dual plate loading?

Two plates can be loaded on the Magnus VLF device at one time, either manually or by an automated loading system. This two-plate loading capability is referred to as a 'dual plate' system. The customer's punch table may need to be set up somewhat differently depending on whether single or dual plates will be loaded.

What is universal narrow?

A new, more flexible, six pin registration system that has the ability to register dual plates on the same pin spacing.

What is universal wide?

A new, more flexible, registration system that not only has the ability to register dual plates on the same pin spacing, but also has a wide pin spacing of 1420 mm for XXL plates and a spacing of 1060 mm for XL plates.

What is a leading edge registered plate?

When the along-edge-cylinder plate dimension is mounted along the Magnus VLF drum, this is called a leading edge registered plate.

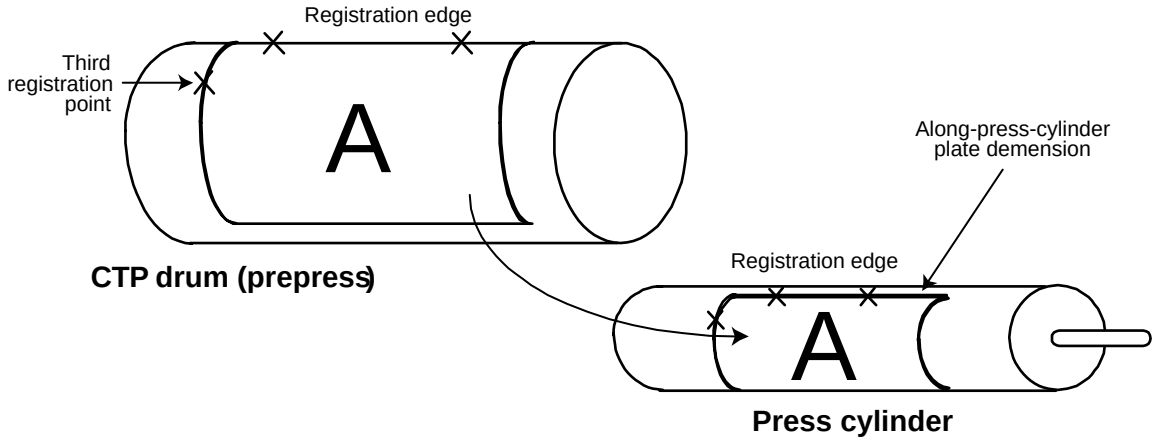


Figure 1: Leading edge registration

What is a side edge registered plate?

When the along-press-cylinder plate dimension is mounted around the Magnus VLF drum, this is called a side edge registered plate.

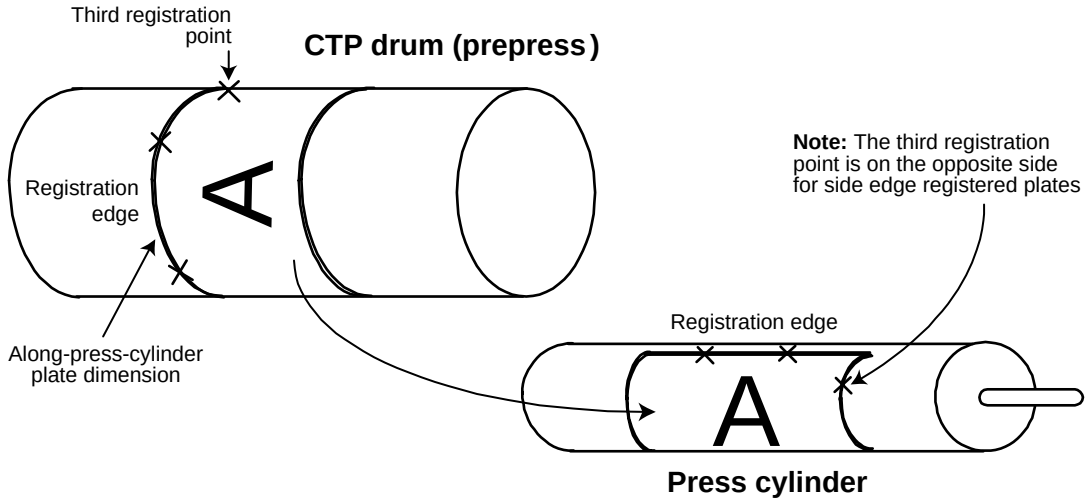


Figure 2: Side edge registration

Edge Detect Camera Registration

Instead of using the thermal head laser to find the third registration point on leading edge registered plates (see Figure 1), or to find the 2 registration points on a side edge registered plate (see figure 2), a CCD camera is used to find the plate edge. The CCD camera has the advantage that it can perform its edge detection while the drum is spinning—thus increasing plate throughput on the device.

Registering leading edge registered plates

Can a single leading edge registered plate imaged on the Magnus VLF be punched on the same punch table used for the Trendsetter VLF?

In most cases, yes. A punch table used for Trendsetter VLF plates will be set up with one or more of the three pin spacings shown in the diagram below.

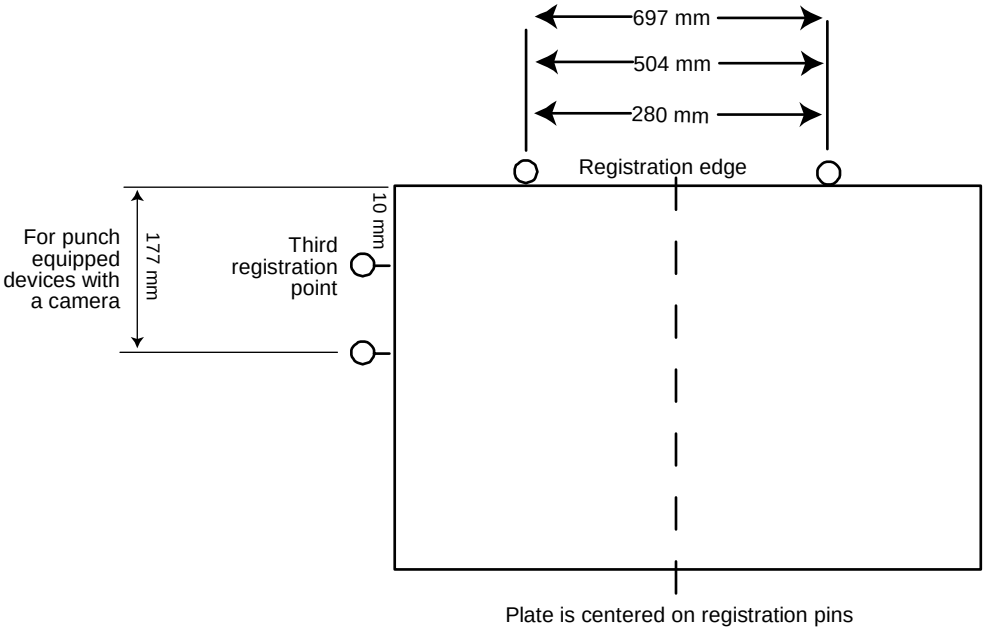


Figure 3:

Table 1: Punch table setups used for Magnus VLF plates

Pin Spacing	Used for Trendsetter VLF Plates	Can Be Used for Magnus VLF Plates (4-pin machines)	Can Be Used for Magnus VLF Plates (6-pin machines)
280 mm	394–726 mm wide	up to 610 mm wide	up to 610 mm wide
504 mm	727–888 mm wide	611–830 mm wide	611–907 mm wide
697 mm	889–2032 mm wide	831–2083 mm wide	908–2083 mm wide[1]

Exception: If the customer plans to image Magnus VLF plates that are from 611 mm to 726 mm wide, a pin spacing of 504 mm must be used even if the customer has been punching Trendsetter VLF plates using 208 mm pin spacing. If the punch table does not also have 504 mm spacing, the pins must be added. Consult with the punch vendor.

Can dual leading edge registered plates imaged on the Magnus VLF be punched on the same punch table used for the Trendsetter VLF?

In most cases, yes. The second plate uses the same pin spacing as the first.

Exception: Two leading edge registered plates that are wider than 907 mm cannot be centered on the pins, and so their registration points will not match the Trendsetter VLF. Extra pin locations must be added to the punch table for both right and left plates in order to properly register them. Otherwise, the image may be skewed on press.

To image two plates that are 889 mm to 907 mm wide, you must use a pin spacing of 504 mm. A single plate can be imaged with a pin spacing of 697 mm, which matches Trendsetter VLF plates.

Table 2: Universal narrow/widepin spacing

Pin Spacing	Universal Narrow	Universal Wide
280 mm	up to 610 mm	up to 610 mm
360 mm (dual)	487–1032 mm (dual plate)	487–1032 mm (dual plate)
500 mm	611–830 mm	611–830 mm
700 mm	831–2083 mm	831–1351 mm
1060 mm	-	1352–1541 mm
1420 mm	-	1542–2083 mm

*All plates are centered on the pins

[1] May also be used for single Magnus VLF plates from 831 mm to 907 mm wide (but not for dual plates).

Registering Side Edge Registered Plates

Warning: Positive plates imaged in side edge registered plates on the Magnus VLF will have areas at the sides of the plates that will pick up ink on the press. Inform the customer, and if this is a problem, image the plate in leading edge registration.

Can a side edge registered plate imaged on the Magnus VLF be punched on the same punch table used for the Trendsetter VLF?

Yes, but extra pin locations must be added to the punch table to match the fixed locations of the edge detect strips (10 mm and 864 mm). The plate is not centered on the edge detect locations; instead, the distance is constant from one end of the plate.

Warning: The punch table must be adjusted or the image may be skewed on press.

Side edge registered plates use a third registration point that is on the opposite side from a landscape plate. This third point must be added to the punch table in order to match the Trendsetter VLF registration points. However, if it is not added to the punch table it is usually easy to adjust most presses to accommodate the different third registration point.

Side edge registered plates will still use a third registration point that is on the opposite side of the plate from a landscape plate, as shown.

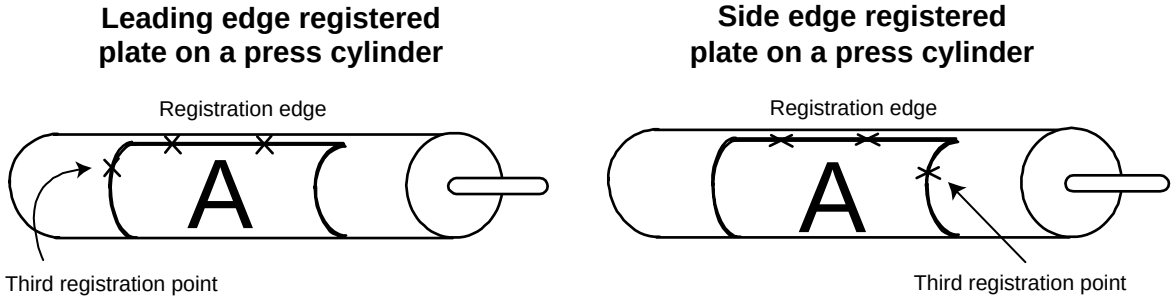


Figure 4:

When making adjustments to a punch table, consult the punch vendor and see the *Magnus VLF Registration System Design Specifications* (Kodak part number 707–00180A) and the Universal Pin Registration Specifications (Kodak part number 707-00608A). These drawings are available on TechPlanet: http://techplanet.creo.com/output/computer_to_plate/magnus_vlf/nav/reg.htm .

About Kodak Graphic Communications Group (GCG)

The leading provider of graphic communications solutions worldwide, Kodak's Graphic Communications Group (GCG) offers image capture systems; professional color, copydot, and high-speed document scanning systems; inkjet printing and proofing systems; workflow and color management software; thermal imaging devices for film, plates, and proofs; high-quality proofing media, printing plates, and recording film; on-demand color and black-and-white printing systems; data storage products; and professional services. With corporate headquarters located in Rochester, N.Y., Kodak (NYSE: EK) has the largest global sales force and is committed to a digitally oriented growth strategy. For more information, visit www.graphics.kodak.com.