

# EFI Fiery System 9 Release 2 RIP

*Product Analysis*

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## EXECUTIVE SUMMARY

Printing in full colour and the capability to print books and booklets are traditionally only done by an operator who is an experienced printer and colour management expert. The reason for this is simple: full colour printing used to be an art as much as it is a science.

The rise of digital printing and the associated technologies promised to significantly lower the threshold for printing like a professional printer. Using Postscript as printing 'language' and a Raster Image Processor (RIP) as the 'translator' between Postscript and the printer's native 'tongue', users would be able to print like pros.

In those early days of RIPping, the technology proved to be more complicated than anticipated, and so digital printing remained an expert's job. EFI has always been at the forefront of RIP technology and has relentlessly pushed the boundaries of what has been possible with digital printing. In close cooperation with hardware developing partners, EFI has constantly improved upon its Fiery RIP, the best and best known RIP in the market.

The current version of the Fiery RIP — System 9 Release 2 — can be found in some of the world's most capable high-volume printers, or optionally purchased in order to control those printer. In some cases, buying the Fiery RIP implies an extra expenditure for the buyer of the printer.

The question than becomes: has an EFI Fiery RIP functionality that justify its extra cost? Does it earn back the investment, and can it perhaps make or save money where others fail?

Based on our tests and experiences with the Fiery System 9 Release 2 RIP, we should like to answer those questions positively. The EFI Fiery RIP has evolved into a true RIPping powerhouse. It has been so optimised by the EFI engineers that it can process files that other RIPs choke on. The Fiery System 9 Release 2 RIP is capable of processing files in minutes whereas others take at least half an hour.

Most importantly, the Fiery RIP does not require an operator who has a degree in colour management or ink savings methodologies to print even complex designs for the lowest cost or at the highest possible quality — although an expert will be able to get the most out of the Fiery RIP in terms of its professional-print capabilities.

The next pages describe the Fiery RIP, its capabilities, and our experiences with it.

## WHAT IS A RIP?

A RIP —Raster Image Processor for short— is software that takes your image and text and tells a large volume or wide format printer where and how to place each squirt of ink or toner on the paper.

RIP software bypasses the printer's driver and takes control of the printer directly. RIPs usually do a better job of colour management and printing. They also often come with additional features, such as batch printing and layout control. In desktop publishing, a RIP turns vector data such as a PostScript file into a high-resolution raster image. The RIP takes the digital information about fonts and graphics that describes the appearance of a file and translates it into an image composed of individual dots that the imaging device (such as your desktop printer or an image setter) can output.

The RIP can therefore also be regarded as a translator between the digital document and the printer. If the document sent to the RIP is too complicated, the file doesn't rip.

RIPs come in firmware, hardware, or software versions. Firmware RIPs are built-in to the device, such as the PostScript RIP built-in to many desktop printers. The hardware RIP is a dedicated piece of hardware configured to process digital files. It often comes with specific types of devices, such as a Xerox Color 800/1000 Press, a Konica-Minolta, Canon, or Ricoh large volume printer.

EFI is one of the major market leaders in software, firmware and hardware RIPs. The EFI Fiery hardware RIP is legendary. Its latest incarnation is System 9 Release 2, which is fast, efficient, and has an abundance of features that set it apart as a complete printing solution.

The EFI Fiery RIP we tested is based on Fiery System 9 Release 2. Fiery System 9 Release 2 can be used in environments such as:

- Commercial printing
- Digital printing
- Quick printing
- Print-for-Pay
- In-plant commercial reprographics departments.

Target applications for the Fiery System 9 Release 2 RIP are:

- Brochures, catalogues, stationary, direct mail, and cards

- Photo books, postcards, calendars
- Newsletters, presentations, proposals
- Books, manuals, annual reports
- Boxes, envelopes, proofs
- Variable Data Printing output, such as catalogues, direct mail, etc.

The EFI Fiery System 9 Release 2 hardware RIP runs on two quad-core 2.8GHz Intel X5560 Xeon processors. This system has a 250GB system hard drive, and 1TB of RAID storage for RIP data. By optimising the hardware components of the system and the way they behave and communicate with each other, the EFI engineers have made one of the fastest RIPs currently available on the market.

The software that comes with it and which allows users to manage the RIP and its printing jobs allows for a very powerful printing solution that can tackle most any job that will choke other RIPs.

## THE BENEFITS OF RIPPING

When printing any sort of colour document that will be made available to an audience beyond the close circle of cooperators and friends, there are a number of parameters that become important:

- Colour accuracy and brilliance
- Optimal finishing of the document in view of its purpose — an annual report must be presented as a booklet, a photo portfolio is best finished as a true book, etc...
- Image and illustration quality
- Paper quality and colour
- Print speed and control over output for long documents or larger print runs.

The first and the last item in the list by themselves already make a case for using a Fiery RIP, because EFI's product is one of the few that combines raw speed with colour accuracy and the control which is needed to output to any type of medium.

RIPping speed and colour management functionality, however, are not enough to justify the investment in a hardware RIP. Users also expect the flexibility and features that enable them to deliver a print service — regardless of the environment in which the printing engine (a Xerox, Ricoh, Canon, or other supported brand of large volume printer) is used. The EFI Fiery RIP therefore was conceived as a system that can control departmental

printers just as easily as print shop systems. To this effect, its Command WorkStation console allows users to control every aspect of the digital printing process.

## **THE FIERY QX 100 HARDWARE RIP**

For this report, we got to test the EFI Fiery QX 100 RIP. This is the Fiery System 9 Release 2 RIP applied to a Xerox Colour 1000 Press with Clear Dry Ink. It is a hardware RIP that incorporates a console, a monitor and the optimised processors and storage technology to allow for very fast RIPping. We had the opportunity to extensively test this RIP.

The user controls the Fiery QX 100 using Command WorkStation, an advanced control panel that gives access to all EFI software modules installed as part of Fiery System 9 Release 2. Command WorkStation has an intuitive interface with three panels, a toolbar, and three lists in the main window (containing print jobs, process jobs, and finished jobs).

Calibration of the hardware can be done through Command WorkStation, using either EFI's own ES-1000 measurement device, or any one of a list of X-Rite devices. Calibration is the first step in the impressive colour management functionality the Fiery QX 100 RIP offers.

The Fiery System 9 Release 2 RIP has a number of performance technologies that work in the background, such as RIP-While-Print, RIP-1-While-Receive-2, queueing multiple RIPped jobs for printing, and Continuous Print.

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### **PERFORMANCE TEST RESULTS**

We processed a 1.97 GB full colour InDesign brochure with 50 records of personal data (Variable Data Printing) through the Fiery QX 100 and we waited less than 5 minutes to have the result processed and ready for printing.

This file caused problems with a RIP from a competing vendor. We also tested a RIPping job using six files and dropping them all at once onto the queue. These files were all processed within two minutes. The processor monitoring tool on the hardware console meanwhile showed that the RIP didn't even saturate fully its processors — not during any job that we ran on it, for that matter.

We also processed a 35MB TIFF file by dragging it from the desktop into the Command WorkStation workflow window. The RIP took less than 30 seconds to RIP this image. Afterwards we tested this again but now changed the image output with the Fiery

system's built-in image enhancement module. We set the image smoothing setting to "On", simulated a halftone for newsprint and changed the resolution from 1200 ppi to 600 ppi.

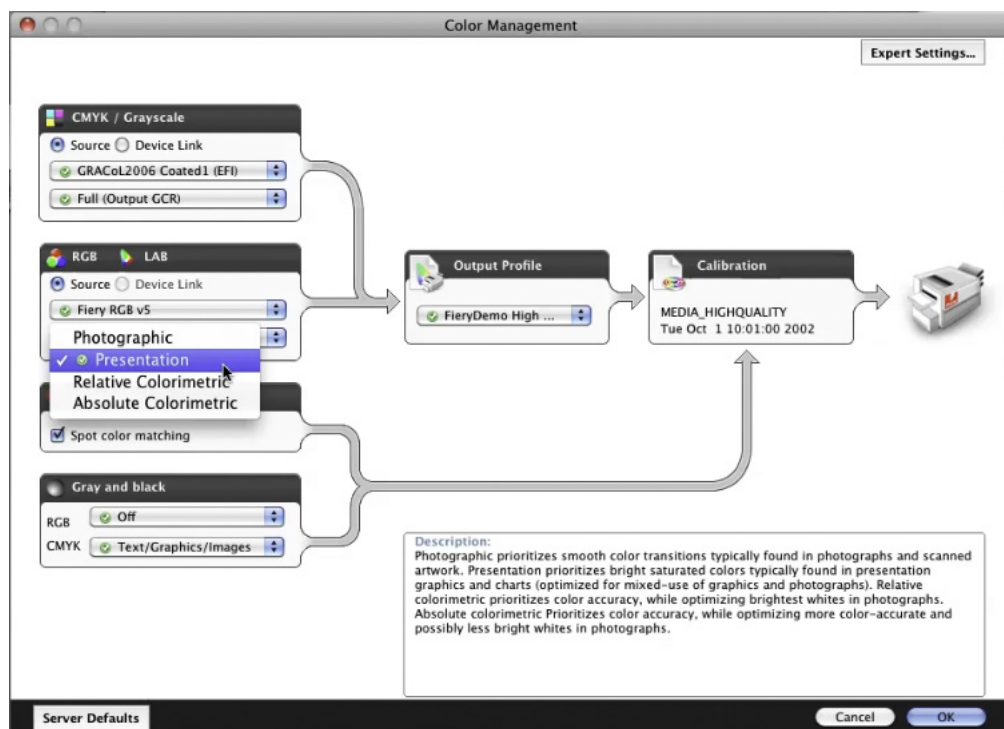
The processing took the same time. We then checked the results with the Image Preview functionality that allows users to view results before actually printing the file. The Preview showed the settings, including a simulated view of the halftone setting.

We found the Preview feature to be an essential part in the overall speed with which the workflow could be completed. For example, it gives users access to a full suite of correction controls, including the option to set a different black point, different CMY ink coverage, and curves, and see all colour values of the processed result in CMYK.

In our tests, it took less than two minutes to correct the image and have it processed ready for output.

## COLOUR MANAGEMENT

Command WorkStation gives access to basic and advanced colour management features in several locations across the interface, e.g. in the Job Properties panel, the paper catalogue and the calibration tool.

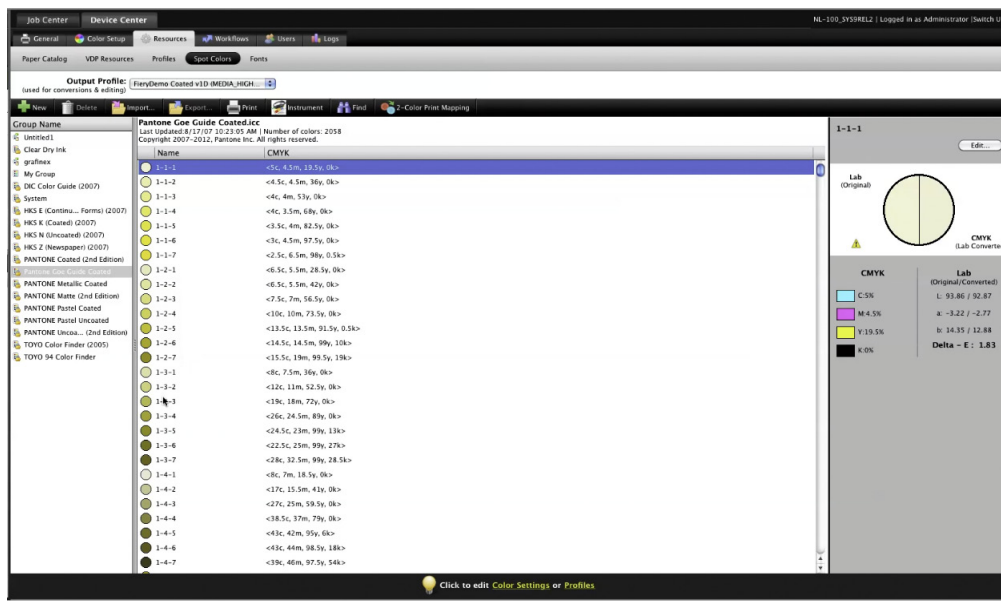


Through its colour management features, the Fiery System 9 Release 2 RIP can save money by 'playing' with the toner/ink coverage levels, black replacement, etc. It also automates spot colour accuracy regardless of the difficulty of the job in terms of mixed media types, etc.

We were particularly interested to see how colour management on a job level would work with the Fiery QX 100 System 9 Release 2 RIP. In the Job Properties panel, a user has access to a Color tab displaying a Basic colour management workflow in an easy to understand graphical format. This Basic Setting is truly error-proof. An Advanced Settings dialogue is available too. This dialogue accesses more advanced colour settings.

Here a user can set the Fiery to print black text and graphics with black toner only — this saves money as black toner costs much less than colour toner, but also makes the document look better as a combination of Cyan, Magenta and Yellow (CMY) to output black will never result in true deep blacks at all. The best one can obtain — even on a Heidelberg press — by mixing these inks is a very dark brown tint.

In the Color dialogue, users can also turn on "Spot color matching". This is a truly unique feature which ensures the accurate and correct output of spot colours, regardless of which tint or structure the print media may have.

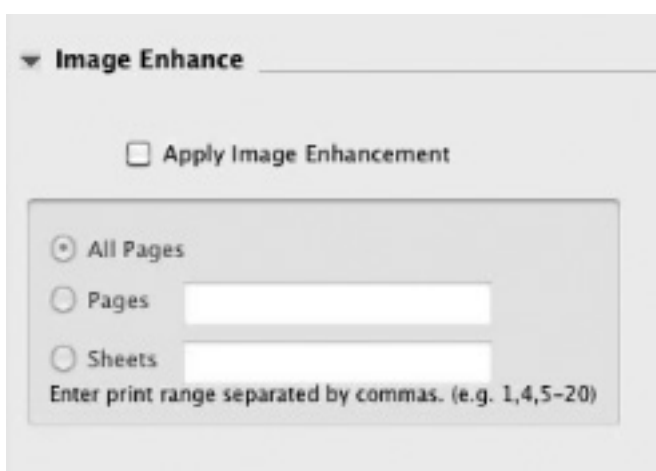


Spot colour matching enables users to print one document on mixed media — e.g. a brochure with a bright white glossy front and yellowish, matte back — while maintaining an identical colour across these different media types. It allows a spot colour logo to be printed across different media types without colour shifts.

The Fiery RIP manages to accomplish this by mixing the CMYK inks into which a spot colour converts differently for each paper type. It also makes this process visible in the Command WorkStation Resources window when a user selects different paper profiles.

## IMAGE ENHANCEMENT

The Fiery System 9 Release 2 RIP Command WorkStation offers the operator an easy way to improve on image quality. Because the RIP will often not be installed in environments where professional photographers deliver images to layout designers early in the workflow, the EFI engineers have made it possible to accommodate for less than optimised images.



The Image Enhancement feature automatically improves exposure, colour cast, shadows and highlights, sharpness, and red-eye reduction. There are no parameters to set. In many cases, Image Enhancement is all a document or image needs to output a decent looking result.

Needless to say, this feature saves huge amounts of time, as an under-optimised image doesn't need to be sent to the

originator before RIPping anymore.

Another image enhancement feature supported by the Fiery System 9 Release 2 RIP is the capability to use a printer engine's maximum density in order to increase the available colour gamut to the maximum the engine can achieve. As with the Image Enhancement feature, this is an option in the Job Properties window.

## OUTPUT OPTIONS

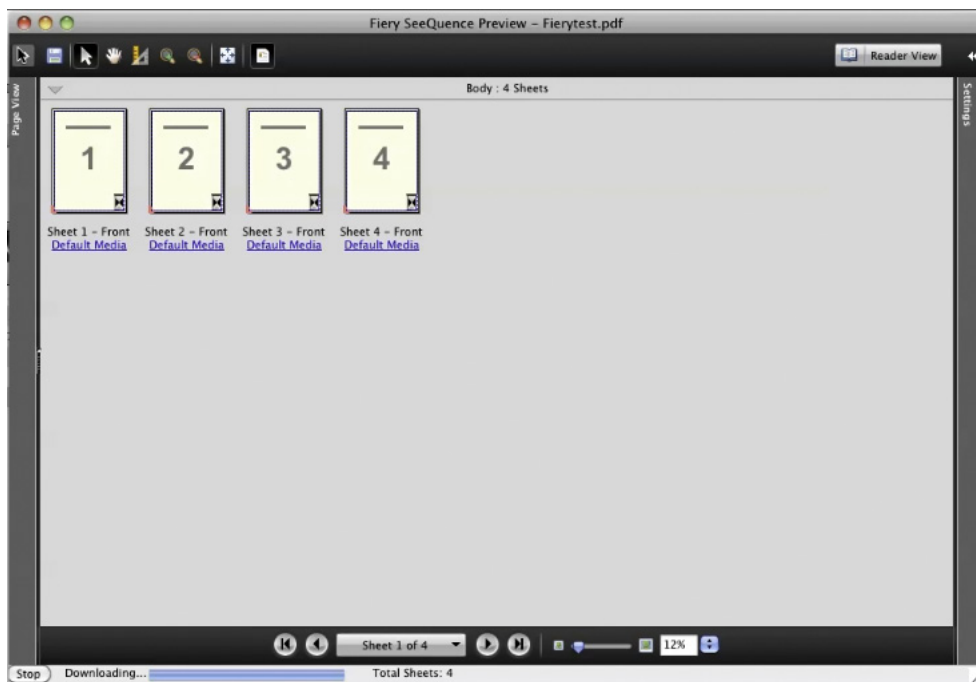
Fiery System 9 Release 2 has an impressive set of output options and customisation capabilities. The system comes with its own paper catalogue, font libraries (Postscript and PCL fonts), and impositioning system (SeeQuence).

The paper catalogue contains a dozen or so preset media types that are relevant to the printing system being used. However, users can add their own paper types, complete with the ability to select paper texture, create colour profiles, and even accommodate for the presence of punch holes.

The font libraries include a long list of Postscript fonts and PCL fonts. Fonts can be added from font collections users buy. By having them on the Fiery system disk, access to fonts is fast and guaranteed — across the network, which means users are not necessarily forced to embed fonts in their design, making for smaller files that save on transmission times.

The system that we tested also incorporated SeeSequence, EFI's impositioning application that comes free with Fiery System 9 Release 2. SeeSequence takes the pain out of impositioning by offering all capabilities in an easy to use and largely graphical environment. Users can do most impositioning tasks by dragging and dropping, as well as by selecting options from drop-down lists and menus.

When printing a PDF, users can even re-locate pages within spreads by just dragging them to another place in the visual representation of the document file. Equally important is the capability to see the printer's printing boundaries within which all page elements must be positioned. The Fiery system shows these, complete with the exact measurements.



The impositioning system allows for the creation of booklets (or books), and gangups. It can handle mixed media, is integrated with the paper catalogue and the colour management system and has all the features one would expect from an impositioning program, such as cut, stack, stitch, etc.

By seamlessly integrating SeeSequence with its other components, EFI has managed to deliver more than just a RIP with Fiery System 9 Release 2. It delivers a complete

printing solution that successfully takes the effort out of printing anything from business documents to professionally bound books.

## EXAMPLE OF AN OUTPUT JOB

A brochure was designed with a spread that runs over 3 standard pages, to be printed on a paper type with the front having a high-white glossy finish and the back having a slightly creamy matte finish. The brochure will be folded and the logo of the company runs across the whole brochure's width on both sides. The logo obviously is designed in a Pantone spot colour.



Problems:

- The brochure must be personalised
- The front page (glossy white) must be printed to a screen of 152 lpi, while the internal pages will have a screen of 72 lpi
- The designer used a mixture of RGB and CMYK images, some of which have their own profiles embedded

The Fiery system can easily cope with these problems, without the layout file having to be returned to the designer for correction or adjustment.

Its impositioning system makes it easy to order the pages correctly for printing. The spot colour system which automatically adjusts for differences of media will adjust the CMYK inks in such a way that the spot colour looks identical across all pages. The large file that results from personalising the brochure will be RIPped and ready for printing within a couple of minutes. On certain printing systems, the RIP will even rasterise the images differently according to the operator's instructions (and in this example, depending on the screen settings to be used).

The mixture of RGB and CMYK images is not a problem at all — all it takes is an option to be turned on. Finally, the embedded profiles can be honoured, if the operator thinks this is relevant.

We could have added a varnish cover on the whole brochure or only parts of it as well, provided the printer engine supports this feature.

## **ADOBE PDF PRINTING ENGINE**

One of the most important output characteristics the Fiery RIP allows for, is to either use the Postscript capabilities of the connected printer, or the APPE (Adobe PDF Printing Engine) engine. APPE enables a native end-to-end PDF workflow with collaborative review, approval, soft proofing and hard proofing, and archiving. With its support for the Adobe PDF Print Engine, EFI is capable of reducing unwanted surprises and disruptive, last-minute prepress fix-ups.

Print solutions powered by the Adobe PDF Print Engine allow PDF files to be rendered natively, using the same technology as Adobe Acrobat and Creative Suite software, helping to ensure that complex designs and effects, even variable print elements with transparency, are efficiently and reliably reproduced.

With or without APPE, Fiery System 9 Release 2 also provides JDF control. Device-dependent processes such as colour management, trapping, and imposition can be driven by JDF instructions and deferred until jobs are ready to be rendered. This architecture, which unlinks content from process, allows operators to quickly accommodate last-minute changes and easily configure printing jobs for various types of devices and presses.

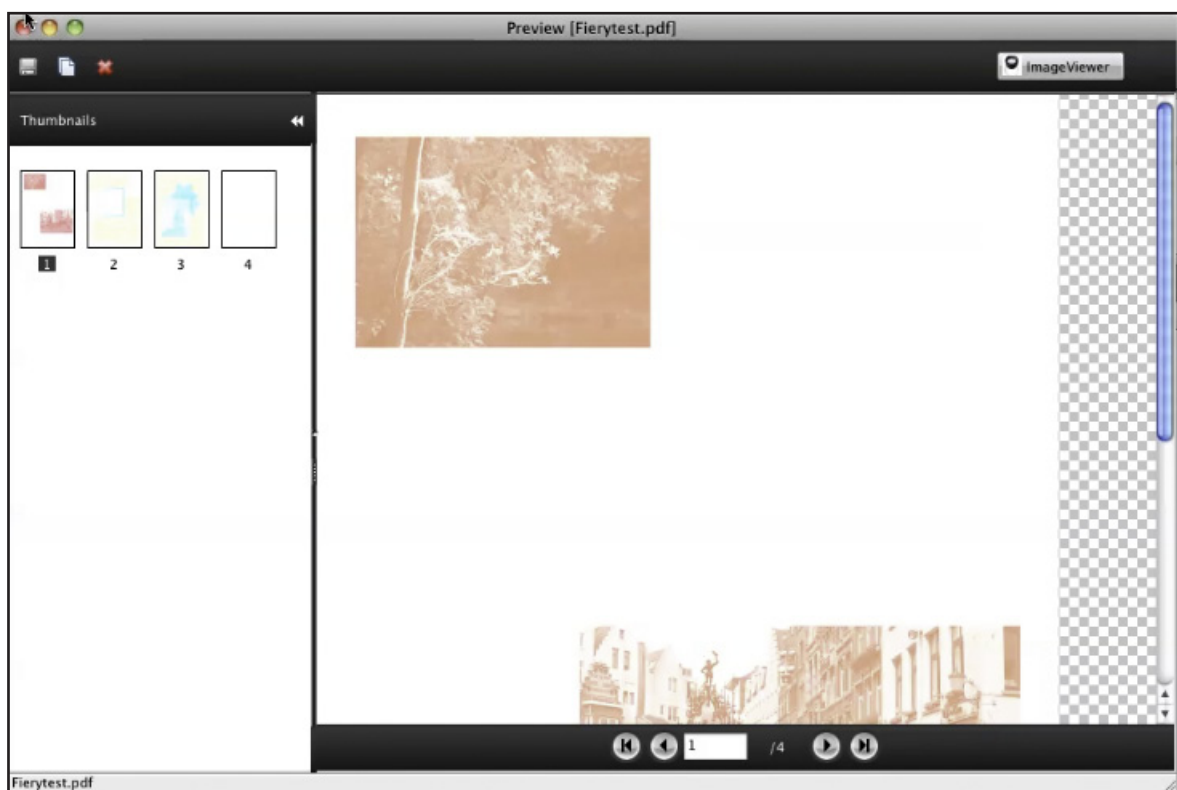
By supporting APPE and JDF in tandem, the Fiery RIP allows users to set up a PDF workflow for Variable Data Publishing (VDP), in which speed and simplicity are critical.

PDF is reliable enough because it can maintain content at the highest level of abstraction, passing through every stage from designer to final printing with minimal conversion. The portability of PDF enables marketers and business users to participate in upstream workflows.

## **PREFLIGHT & POSTFLIGHT**

The Fiery System 9 Release 2 RIP user can perform both a preflight and postflight action. The preflight is rather simple and checks for the most common and typical problems, such as trapping mistakes, transparency errors, etc. It is not a replacement for a heavyweight system like PitStop Pro or Server, but it will catch and alert for the most common errors.

The postflight feature is perhaps more powerful as it gives users an instant view of how



the output job looks in terms of separations — plates in analogue printers' jargon — text flow, and more.

## CONCLUSION

The Fiery System 9 Release 2 RIP clearly demonstrates why EFI is the market leader. The Fiery System 9 Release 2 RIP is fast, can handle jobs others can't or take forever to finish. It helps print shops and Print-on-Demand publishing companies to create new streams of revenue because it enables them to deliver printing capabilities that previously were only possible with traditional analogue printing systems.

To that effect, the Fiery System 9 Release 2 RIP has all the bells and whistles an expert printer expects from any printing solution. Yet, even with these high-end functionalities, the Fiery System 9 Release 2 RIP is not complicated or hard to use — even users who only occasionally print full colour documents will be able to output high-quality print jobs, as the most expert-like capabilities also come in a basic version.