

# Konica R-series Digital Minilab S&S Launch Package

## Using Kodak consumables



**July 2006**

## **Konica Digital Minilab S&S Launch Package**

The contents of this package will give all the guidance, tools and information required to enable conversions to Kodak consumables ( paper and chemistry) for customers owning Konica R-series Digital minilabs.

This is applicable for customers operating in all retail environments.

## **Konica minilab models supported in this package**

Konica R-1 Series (Super 1000, Super 1400)

Konica R-2 Series (Super 700, Super 700 Compact, Super 1000, Super 1000 Compact)

Konica R-3 Series (Super 1000, Super 1000 Compact)

Data will be provided on use of Kodak consumables in all 8xx-series models and QD-21 as an additional document when all information is available.

## **S&S and consumables options available**

We currently have no general agreements to offer Service to this equipment due to lack of access to spare parts.

For conversions of Konica equipment to use Kodak consumables, the following options will be available with conversion and setup details included in this document:

1. Converting the R-1, R-2 and R-3 models to use Kodak Ektacolor Edge and Kodak Royal Digital papers
2. Converting minilabs with short process cycle CPK2-22 chemistry to Kodak alternatives

A significant number of Konica machines have been installed with the ECOJET chemical system. This uses tablets of powder chemistry which are delivered into the replenisher system and mixed with water. There is no Kodak tablet chemistry and no viable conversion procedure to change a system to liquid chemistry.

Users of ECOJET tablets can still be converted to the use of Kodak papers using the procedures included in this document.

## **Sales sheet availability**

There are currently no plans for an specific sales sheet for customers to support the effort to convert Konica equipment to Kodak consumables. The development of literature for Photokina will highlight the availability of procedures and conversion advice for Kodak consumables in all equipment types including Konica.

## **Technical Specialists**

Andy Grimsey, FPG Regional technical Support, +44 208 424 3060  
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## **Konica Digital Minilab equipment descriptions and availability of documentation, manuals and parts lists**

The following are available on a CD from Technical Specialists, contact details above.  
All are in English only.

R-1 Super Instruction Manual  
R-1 Super User Setup Manual

These give full descriptions of how to use the Konica R-1 equipment including the setup and management of paper and chemistry. The main details of procedures are covered in the later sections of this package, following the list of set-up conditions  
The descriptions in these manuals also apply to the R-2 and R-3 equipment.

The CD will also contain the following manuals which give more details of the installation, setup and repair of the Konica R-series equipment.

R-1 Super Installation Manual  
R-1 Super Repair Manual  
R-2 Super Installation Manual

All customers of Konica equipment would have been provided with the appropriate user guides at the time of installation.

Copies of these manuals have been made available on the CI EAMER S&S Database on Lotus Notes for those that have access.

## Comparing the Konica Digital minilab series

### Configurations

All Konica R-series equipment is available with liquid chemistry or tablet chemistry option. Short process liquid chemistry cycle is described as CPK2-22, identified in the paper processor model number as PP-xxx0.

Tablet chemistry units have a paper processor model number as PP-xxx1.

R-2 and R-3 are available as standard or as compact models. The “compact system” models have a smaller footprint by mounting of the film scanner unit, flat bed scanner, computer and monitor on top of the main printing cabinet. The “separated system” models have the printer/processor unit as a separate module for more flexible layout in store.

R-2 units are single paper magazine unit, option for double, with max width 10” (254mm), maximum print length of 15” (381mm).

R-3 units are standard double paper magazine unit, with max width 12” (305mm) and maximum print length of 18.3” (465mm).



**R2 Compact**



**R2 Separate**

### Exposure systems

R1 has three exposures, red, green and blue LED which are brought together to make one exposure light beam to ensure no issues with registration of the three colour records. This is described in literature as a Beam Convergence Head (BCH)

R2 and R3 are both use an SEAD (Solid state Electro-optic shutter Array Device) using LED's as light source as the exposure device (very similar technology to the MLVA as was used in the Noritsu 27 and 29 series minilabs where light source was a halogen bulb)

## Recommended setup conditions for use of Kodak chemicals in Konica minilabs

There are no engineering conversions required to allow the use of Kodak chemicals in Konica machines configured for the use of liquid chemistry.

It is strongly recommended that as part of conversion, the existing chemicals are drained, and the tanks are thoroughly cleaned before a fresh mix of the Kodak chemicals is prepared in the processor.

The series of tables below outlines the process characteristics, temperature and replenishment rates that should be used with the various options, suggested catalogue numbers are included.

### **Rapid Paper Process cycle CPK2-22 (standard cycle on R-series digital systems using liquid chemicals)**

<b>Konica Paper Process CPK-2-22 LR (SQA)</b>	<b>Time</b>	<b>Rep Rate</b>	<b>Cat No</b>	<b>Temperature</b>	<b>Notes</b>
	Min:S	ml/m <sup>2</sup>			
Developer replenisher 22P-1 LR	00:20- 00:27	125 (80)		39.8° C	
Bleach-Fix & replenisher 22P-2 LR	00:20- 00:27	200 (100)		37.0° C	
Super Stabilizer & replenisher 22P-3 LR	01:06- 01:21	248 (200)		38.0° C	

<b>Kodak SPEED process for CPK-2-22 LR</b>	<b>Time</b>	<b>Rep Rate</b>	<b>Cat No</b>	<b>Temperature</b>	<b>Notes</b>
	Min:S	ml/m <sup>2</sup>			
SPEED Developer Replenisher LORR	00:20- 00:27	125	5265665	42.0 - 40.0° C	Less time More °C !
SPEED Bleach-Fix Replenisher LORR	00:20- 00:27	80	5265673	35-40° C	
SPEED Stabilizer & Replenisher LORR	01:06- 01:21	248 496 *	5267299	34-40° C	

<b>Kodak PRIME SP option for CPK-2-22 LR</b>	<b>Time</b>	<b>Rep Rate</b>	<b>Cat No</b>	<b>Temperature</b>	<b>Notes</b>
See also CIS-267E	Min:S	ml/m <sup>2</sup>			
PRIME SP Developer Replenisher LORR	00:20- 00:27	120	5270996 6801278 <sup>+</sup>	42.0 - 40.0° C	Less time More °C !
PRIME SP Bleach-Fix Replenisher LORR	00:20- 00:27	75	5288105 6801286 <sup>+</sup>	35-40° C	
PRIME Stabilizer & Replenisher LORR	01:06- 01:21	194 388 *	5270863 6801294 <sup>+</sup>	34-40° C	

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\* Lower starting rep rate for 4 tank stabilizer, higher rep rate for 3 tank stabilizer

+ Cat Nos for Russia only

All Cat nos current at July 2006.

More information about the Kodak Prime SP option for CPK-2-22 LR is included in the Technical publication CIS-267E, available from at:

<http://www.kodak.com/global/en/service/chemicals/cis.shtml>

## ECOJET Paper Process cycle

A significant number of Konica machines have been installed with the ECOJET chemical system. This uses tablets of powder chemistry which are delivered into the replenisher system and mixed with water. There is no Kodak tablet chemistry and no viable conversion procedure to change a system to liquid chemistry.

Users of ECOJET tablets can still be converted to the use of Kodak papers using the procedures included in this document.

## Fresh chemical Start-up for Paper Process

Process and Product in use →		Rapid CPK2-22 LR Kodak SPEED	Rapid CPK2-22 LR Kodak PRIME SP
	Cat No	Volume ml/litre	Volume ml/litre
PRIME SP Dev Replenisher	Made from 5270996 6801278	N/A	670
SPEED Dev Replenisher	Made from 5265665	700	N/A
Water		290	306
RA Developer Starter	5278957	10	24
<b>TOTAL DEV</b>		<b>1000</b>	<b>1000</b>
PRIME SP LORR Bleach-Fix Replenisher	Made from 5288105 6801286	N/A	950
SPEED Bleach-Fix Replenisher	Made from 5265673	500	
Water		500	N/A
SP Bleach Fix Starter	5288139	N/A	50
<b>TOTAL B/F</b>		<b>1000</b>	<b>1000</b>

## Conversion Procedure for Kodak chemicals in Konica R-1 and R-2

- Ensure machine is running correctly with no maintenance issues.
- Empty machine of process tank and remaining replenisher chemistry
- Clean and prepare machine overnight with citric acid.
- Mix new replenishment solutions of Kodak chemicals using standard instructions on product packaging.
- Mix new process tank solutions using recommended values in tables above
- Check software version.
- Change temperatures to recommended values in tables above.
  - From main screen, select “Mode”
  - Select “1. Setup”
  - Select “6. Set parameters”
  - Select “C. Set/show process temperatures”
  - Input required values from tables above
  - Select “Rgstr” to retain changes
- Change replenishment rates to recommended values in tables above.
  - From main screen, select “Mode”
  - Select “2. Maintain”
  - Select “5. Processor”
  - Select “1. Constant Setting”
  - At “set basic replenishment”, input required values from tables above (use recommended settings for a four tank stabilizer system)
  - Select “Rgstr” to retain changes
  - If system is a three tank stabilizer, continue this procedure, if not, ignore this step
    - From main screen, select “Mode”
    - Select “1. Setup”
    - Select “6. Set parameters”
    - Select “D. Set replenishment”
    - Change P3 setting to 200%
    - Select “Rgstr” to retain changes
- Check replenishment pump delivery rate. Adjust as required.
- Process control strip to verify good performance.

## **Paper Process Control Strip correction factors**

It is good practice to monitor a process with the same paper as that which is being used for customer print work in order to recognize performance and trends which may affect output quality. This is true for Kodak papers running in Kodak chemicals or OM chemicals.

To calculate control-strip aim values for process monitoring, you will need to apply process adjustment factors. Use the adjustment factors in addition to the correction factors that are supplied with the control strips.

### **Correction Factors for Kodak Control strips used to monitor:**

Kodak PRIME SP option for CPK-2-22 LR

Kodak SPEED option for CPK-2-22 LR

Konica ECOJET process using OM chemicals

Measurement	R	G	B
Black (BP)	+0.07	+0.01	-0.05
High (HD)	+0.01	+0.07	-0.06
Low (LD)	-0.04	+0.05	-0.07
D-min	+0.01	+0.01	+0.01

These factors have been determined from a limited series of data. The factors will ensure plotting closer to aim than if no factors are used, and will allow a representative chart to be plotted to determine changes and trends in processing performance.

## **Recommended setup conditions for use of Kodak consumer papers in Konica minilabs**

There are no special conversion processes required to allow the use of Kodak Edge Plus, Royal Digital and Profoto papers in Konica machines.

## **Use of Kodak Professional papers in Konica minilabs – NOT Recommended**

It is not recommended to use Kodak Professional papers in Konica rapid cycle chemistry.

Endura papers have a higher level of silver and sensitizing dyes.

Short development times may lead to lower levels of D-Max than expected for this paper.

Short bleach-fix times may lead to poor bleach-fixing performance. Retained silver may compromise the quality of saturated colors, particularly noticeable in yellow, while retained sensitizing dye is a significant source of increased D-min.

## Conversion Procedures for Kodak Paper in Konica R-1 and R-2

(detailed setup procedures included in pdf documents on the CI EAMER S&S database).

These procedures show input through main user interface. Many menus can also be accessed through the printer screen by selecting “Mode”. There are two modes, “setup”, option 1 on the printer and “maintenance” option 2 on the printer.

### 1. Setting the correct paper lookup tables

Experience in some countries has suggested that setting “6500” gives best performance on Kodak papers, the default often set for Kodak paper may be “1000”

- Ensure machine is running correctly with no maintenance issues.
- Check software version.
- Verify use of Paper LUT. EM No. = 6500.
  - Select “Setup”
  - Select “16. Set parameters”
  - Select “16A Paper Parameter Setting”
  - Click “Initialize”
  - Enter “6500” in the Input box for each selected P. No.
  - Select “Registration” to retain changes

### 2. Setting the correct paper master balance values

- Ensure machine is loaded with main paper type in use.
- Use the same type of paper for all adjustments, test LUT and registration
- Change Master YMC values
  - Select “Maintenance”
  - Select “23. ”
  - Select “238. ”
  - Enter values, DSN 140,140,140 DSU 105,105,105 DSO 70,70,70
  - Select “Registration” to retain changes

Example of screen

P- 5	Y	M	C
EST :	-30	-1	-7
DSN :	120	120	120
DSU :	105	105	105
DSO :	90	90	90
DRN :	78	75	74
DRU :	53	49	47
DRO :	122	119	118
SENS :	-290	-290	-290
OL CNT :	100	100	100

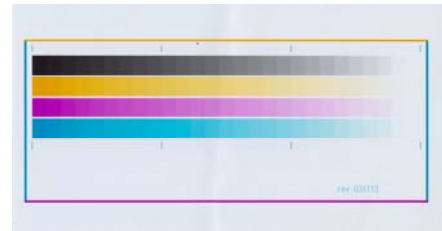
Buttons: Itn<< Itn>> Rgstr Back

### 3. Registering the master channel

- Ensure machine is loaded with main paper type in use.
- If you have a **reference print** follow this procedure

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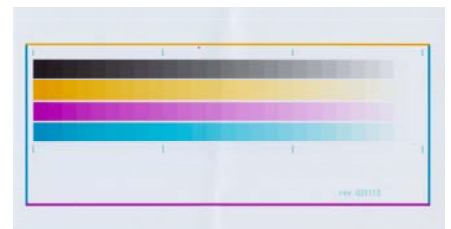
- Select “Setup”
- Select “12. Individual set-up”
- Select “125. Correct master channel color”
- Select option 5. “Master Registration”
- Select “Registration”
- Select “4. Reference registration
- Select “Yes”, set reference print on scanner
- Select “correction start”
- Select “Yes “ and “Update”



If you have **no reference print**, follow the procedure in section 4, performing master channel setup to produce a starting reference print but do not read the strip on the flat bed scanner.

It is assumed here that any colour bias shown on a test print is also visible on prints made from digital files on the printer. The new reference print produced will become the standard that all printer channels will attempt to match.

- Check values of the neutral step next to the small magenta square using a calibrated densitometer
- Aim value for this step should be about 0.8, 0.8, 0.8 (YMC)
- If value is not close to aim, adjust DRN, DRU, DRO values using procedure in stage 2 above
  - Select “Maintenance”
  - Select “23. ”
  - Select “238. ”
- For example, if densitometer Y value is too high, reduce DRN, DRO and DRU for the yellow channel by a similar value for each.
- Reprint test print and continue to adjust values until a “good” test print is achieved
- Use this test print as the Reference print and Register the Master Channel
  - Select “Setup”
  - Select “12. Individual set-up”
  - Select “125. Correct master channel color”
  - Select option 5. “Master Registration”
  - Select “Registration”
  - Select “4. Reference registration
  - Select “Yes”, set reference print on scanner
  - Select “correction start”
  - Select “Yes “ and “Update”
- Go to next step, perform Master Channel Setup



NOTE: This step may take some time if the initial digital output and test print are not good. It is expected that some reference prints should be made available from Kodak Technical Specialists at the contact numbers earlier in this document.

## 4. Performing master channel setup

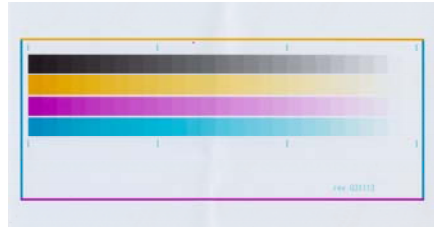
This procedure is part of daily setup but can be performed at any time to ensure correct balance. Should be performed after registration of the master channel.

- Ensure machine is loaded with master paper in use.

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- Select “Setup”
- Select “11. Daily set-up”
- Step 4 of this process will generate the test print automatically
- Set test print on flat bed scanner
- Select “Correction Start”

This procedure may modify the numbers in the paper channel Screen , DRN, DRU and DRO



Paper channel				2/2
P- 5	Y	M	C	
EST :	-30	-1	-7	
DSN :	120	120	120	
DSU :	105	105	105	
DSO :	90	90	90	
DRN :	78	75	74	
DRU :	53	49	47	
DRO :	122	119	118	
SENS :	-290	-290	-290	
OL CNT:	100	100	100	

Itm<< Itm>> Rgstr Back

## 5. Adjusting length of paper feed (optional but recommended to ensure accurate print size)

- Ensure machine is loaded with main paper type in use, maximum width available. If a double magazine is in use, set the wide sheet on to the A lane.
  - Select “2. Test Prints”
  - Select “4. Printer. ”
  - Select “2. Produce test prints”
  - Select “1\_Gray.bmp”
  - Press P>> to enter page 2/4
  - Set print width to paper size in use
  - Set print length to maximum for machine (=381mm for R-2)
  - Set quantity of prints to 3.
  - Press P>> to enter page 3/4
  - Check that “set image” = “Fit to paper”
  - Press “print” to make three copies of this test print
  - Measure the feeding length of the test prints
  - Press P>> to enter page 4/4
  - Enter the measured value in the box called “Survey”
  - Repeat this procedure as necessary until the print length is measured as +/- 0.5mm of value



Test printing			4/4
[Error mask]	PP	MC	HDC
		Survey	Standard
Feed correct	0.59	% =	/ 381.0mm
Backprint	Yes	Srt	
HDC	Yes	CMS	No
MC	Yes		

P<< P>> Preset Load Print Back

## **Software Issues**

For R-series software versions before v1.03, all the procedures outlined in this document can be followed perfectly to optimize the setups for use of Kodak paper (and chemicals).

In the later versions of software (v1.20 – v1.30 for example), the possibility of changing the LUT for Kodak paper may be limited. This is assumed to be a restriction that allows optimized printing to be performed only on the Konica setups. As a result, with this later software version, it may not be possible to completely optimize the output quality.

In Russia, when it was not possible to optimize the output, a choice was made to convert the software back to a previous version so that optimization was possible. In most countries, this would require the involvement of an engineer responsible for service of the equipment.

## **Known issues of performance of Kodak Chemicals in Konica equipment**

Experience in Russia suggests all Kodak chemical options produce better whites, more intense colours and better contrast than Konica equivalent.

In Russia, better results have been obtained with use of Speed chemistry option in CPK2-22 cycle than with use of Prime SP chemistry option.

Experience suggests that Dmax, contrast and speed are slightly higher with the Speed option. Performance of Kodak papers with Prime SP LORR option in Konica machines is very similar to that of Prime SP LORR in standard cycles when printer setup is complete.

In some countries, the recommendation has been to use Speed chemistry as this product can be shown as a dedicated product line for the Konica minilab series, this may be a clearer marketing message to customers.

For operational reasons, there should be some consideration of the value of carrying the Speed product line when Prime SP products are already widely available as Speed is NOT currently available in all markets.

## **Known issues of performance of Kodak Papers, Edge (Plus) and Royal Digital in Konica equipment**

There are no known issues with the performance of Kodak consumer papers in the Konica R-series minilab.

There is an issue however with the QD-21 minilab which is currently being investigated. Output from some printers has shown green marks on the prints in the direction of paper transport. This is caused by a build-up of static on the exposure head of the printer which will then discharge across the paper. Work is ongoing to understand the issue in this printer and determine recommendations that will minimise the issue.

There have been historical problems of static discharge in this printer with Konica papers, and we are aware that a number of hardware modifications have been tried in order to attempt to eliminate it, but none of these has been entirely successful.

If there are any issues recognized on Kodak paper in Konica equipment, please share the issue and provide samples as available with the Technical Specialists listed in this document.

## **Questions**

Any further questions about this document and its contents, please contact:

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