RICOH

D143/D144
Service Training

AP-C3

Slide 1

Version 1.01

This training course provides service technician training for the AP-C3 series. It only explains the differences from the AP-C2.5, so knowledge of that model is required.

Version 1.01:

- Slide 11 (Copy Data Security Unit)
- Slide 63 (Other Modifications to the Counters) – This is a new slide, inserted after slide 62
- Slide 76 (Toner Scatterproof Filter) – This is a new slide, inserted after slide 75.
- Slide 125: A new section (Limitations) has been inserted here, at the end of the presentation.

This section provides an overview of the machine, and the options that can be installed.

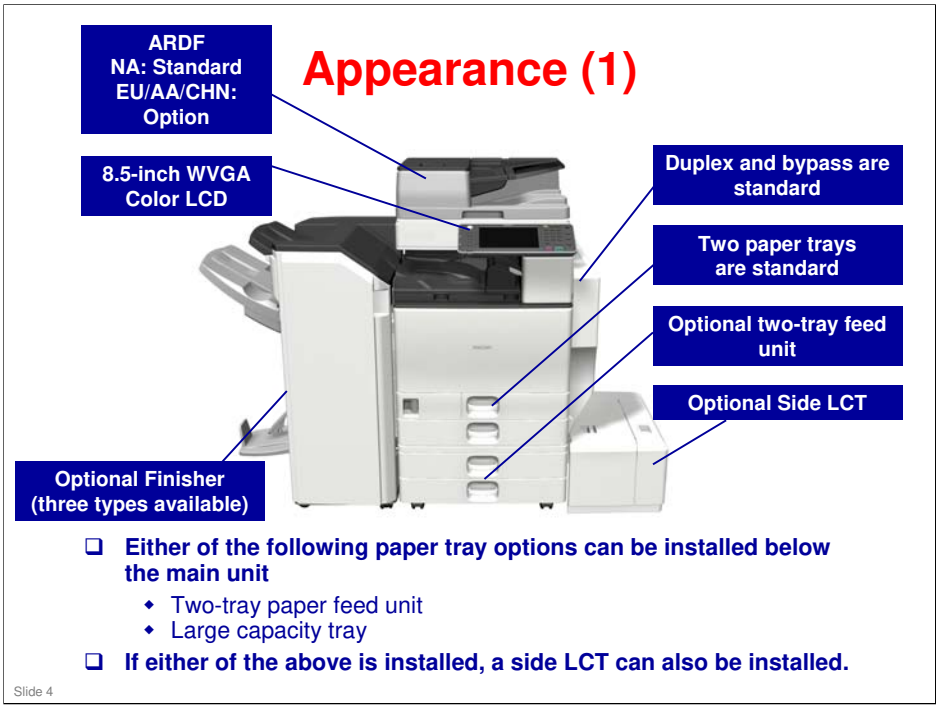
What Models are there in the Series?

- **AP-C3c (D143)**
  - 45 cpm
- **AP-C3d (D144)**
  - 55 cpm

- **For each of these two machines, there are two models: normal DF model, and single-pass DF model**
  - Europe/China: The two models available are no ADF (with a normal ADF available as an option), and single-pass DF model.
  - North America: All models have a built-in ARDF (normal or single-pass).
- **All models contain scanner and printer kits as standard equipment**
- **All models contain a duplex unit, and a bypass tray as standard equipment.**

Slide 3

No additional notes



- For Europe and China, the ARDF or a platen cover is available as options.

Appearance (2)

1000-sheet Finisher

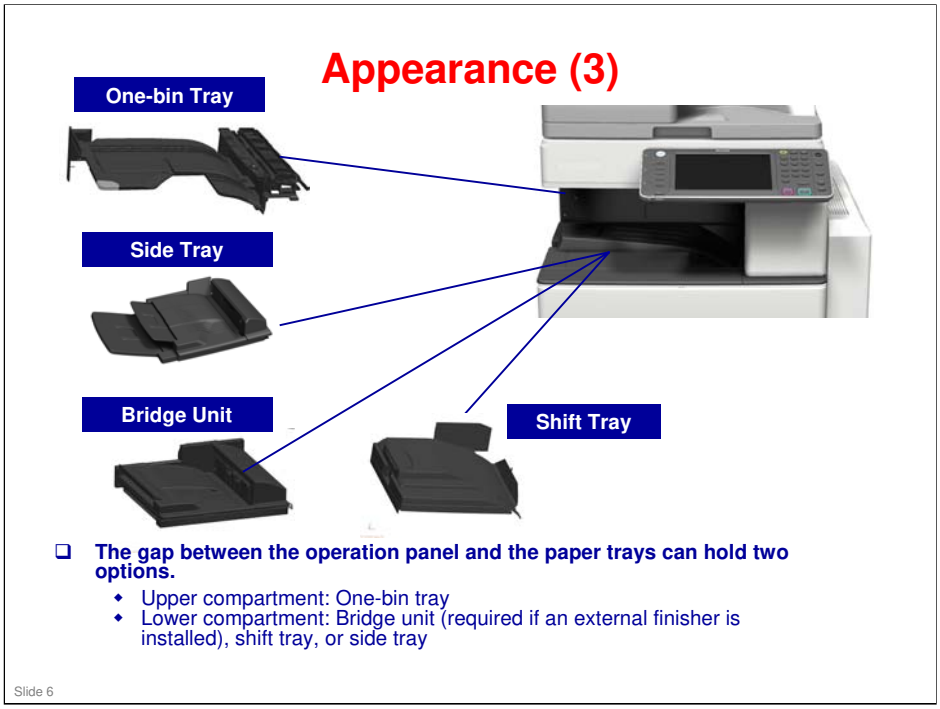
2000-sheet Booklet Finisher

3000-sheet Finisher

- **Three possible types of finisher**
  - 1000-sheet Finisher
  - 2000-sheet Booklet Finisher
  - 3000-sheet Finisher
- **Each finisher requires an optional bridge unit and either an optional tandem LCT or two-tray paper feed unit.**

Slide 5

No additional notes



No additional notes

Options: Original Feed

		Also used with these new models:	Similar to:	Note
ARDF (D630): DF3070	New	AL-C2	AL-C1, AP-C2.5	Cover color changed
Platen cover (D593): Platen Cover Type 3352	New	OR-C1, AL-C2, AT-C3	AL-C1	Cover color changed
Scanner Accessibility Option (D647): Scanner Accessibility Option Type C5502	New			Cover color changed

Slide 7

No additional notes

Options: Paper Feed and Finishing

		Also used with these new models:	Similar to:	Note
Two-tray paper feed unit (D580): PB3130	New	OR-C1, AL-C2, AT-C3	AL-C1, AP-C2.5	Cover color changed
Tandem LCT (D581): PB3140	New	OR-C1, AL-C2, AT-C3	AL-C1, AP-C2.5	Cover color changed
Side LCT (D631): RT3020	New	AL-C2, AT-C3	AL-C1, AP-C2.5	Cover color changed
Envelope Feeder (D638): EF3020	New	AT-C3		
One-bin tray (D632): BN3100	New	AL-C2, AT-C3	AL-C1, AP-C2.5	Cover color changed, LED position changed
Shift tray (D633): SH3060	New	AL-C2	AP-C2.5	Cover color changed
Bridge unit (D634): BU3060	New	AL-C2	AL-C1, AP-C2.5	Cover color changed
Side tray (D635): Side Tray Type C5502	New	AL-C2, AT-C3	AP-C2.5	
1000-sheet finisher (D588): SR3090	New	OR-C1, AL-C2, AT-C3	AL-C1	
2000-sheet booklet finisher (D637): SR3110	New	AL-C2	AL-C1, AP-C2.5	
3000-sheet finisher (D636): SR3120	New	AL-C2	AL-C1, AP-C2.5	
Punch unit (D570): Punch Unit PU3030	New	AP-C3	AP-C2.5	

Slide 8

No additional notes

Options: Printer, Scanner, & Fax Units

		Also used with these new models:	Similar to:	Note
D645: PostScript3 Unit Type C5502	New	AT-C3		
D645: IPDS Unit Type C5502	New	AT-C3		
D643: Fax Option Type C5502	New	AT-C3		
D643: G3 Interface Unit Type C5502	New	AT-C3		
D645: Handset Type C5502		AL-C2, AT-C3		Color is different
D645: Fax Connection Unit Type B	New	AT-C3		For the Remote Fax feature (new function)
G578: Memory Unit Type B 32MB		OR-C1, AL-C2, AT-C3		For fax

Slide 9

No additional notes

Options: Controller

		Also used with these new models:	Similar to:	Note
D566: Bluetooth Interface Unit Type D	New	OR-C1, AL-C2, AT-C3	N/A	New type, uses USB
B679: IEEE 1284 Interface Board Type A		OR-C1, AL-C2, AT-C3		
D377: IEEE 802.11a/g Interface Unit Type J		OR-C1, AL-C2, AT-C3		
D377: IEEE 802.11g Interface Unit Type K		OR-C1, AL-C2, AT-C3		
D377: Gigabit Ethernet Board Type B		AT-C3		
D645: Browser Unit Type F		AT-C3		
D645: Camera Direct Print Card Type J		AT-C3		
D645: SD card for NetWare printing Type H		AT-C3		
D651: Color Controller E-5300	New			

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No additional notes

Options: Other

		Also used with these new models:	Similar to:	Note
A674: Key Counter Bracket Type H		OR-C1, AL-C2, AT-C3		
D593: Card Reader Bracket Type 3352		OR-C1, AL-C2, AT-C3		
B870: Optional Counter Interface Unit Type A		OR-C1, AL-C2, AT-C3		
D640: Copy Data Security Unit Type G		AL-C2, AP-C3		

Slide 11

No additional notes

Controller Options
Memory Upgrade Options

- There are no memory upgrades.

Slide 12

No additional notes

Controller Options
Fax Unit

- **In this fax unit, the FCU and MBU boards have been combined. Because of this, the data backup procedure has been changed.**
- **The optional memory module is the same as previous models.**
- **The FCU contains the ROM, SRAM and NCU circuits.**
- **Fax Options:**
  - Handset (for the USA): This is a new model.
  - Extra G3 Interface option: This provides one more analog line interface. This allows full dual access. Two extra G3 interface options can be installed.
  - Memory Expansion: This expands the SAF memory and the page memory (used for image rotation); without this expansion, the page memory is not big enough for image rotation at 400 dpi, so transmission at 400 dpi is not possible.

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No additional notes

Controller Options

SD Cards

- **Data Overwrite Security, HDD Encryption: Standard (no SD card; included in the controller ROM)**
- **Postscript 3: New**
  - Goes in SD card slot 2.
- **IPDS unit: New**
  - Goes in SD card slot 2.
- **Browser unit: Type E - same as At-C2.5/Ap-C2.5**
  - Goes in SD card slot 2.
  - Remove after installation.
- **Slot 1 is the upper slot and slot 2 is the lower slot.**

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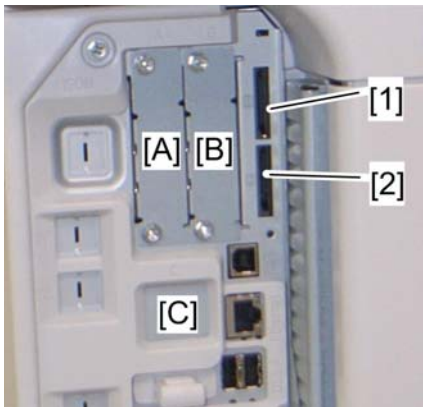
No additional notes

Slots



- **Slot A is used for one of the following: IEEE1284, IEEE802.11a/g g (Wireless LAN), Bluetooth or Remote Communication Gate.**
- **Slot B is used for the File Format Converter or Remote Communication Gate.**
- **Slot C is used for Gigabit Ethernet.**

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- The SD Card slots are discussed in more detail on the next few slides.

SD Card Slots (1)

- **Slot 1 (upper slot) can be used for the following:**
  - The machine has an SD card with the following applications in slot 1 when shipped: PDF Direct/VM/App2Me.
    - » App2Me and VM must be enabled by the user with user tools

Slide 16

No additional notes

SD Card Slots (2)

- **Slot 2 (lower slot)**
  - Empty when shipped
  - Use this slot for service procedures, such as firmware update and NVRAM backup.
  - Use when installing the following options
    - » PostScript
    - » PictBridge
    - » IPDS
    - » Browser unit
    - » SD card for Netware printing
  - If the number of options that you wish to install is more than the number of available SD card slots, move them onto one SD card.

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- Note that PostScript 3 and PDF Direct can now be moved to another SD card. In previous models, this is not possible because of licensing restrictions.

SD Card Slots (3)

- **Operation panel SD card slot**
  - Use this for SMC data export (SP5992). The service slot does not support this function.
  - PDF direct print from SD card

Slide 18

No additional notes

Data Overwrite Security, HDD Encryption

- **These features are built into the controller board for all models.**
  - There is no Security SD Card.
- **At installation, these features must be enabled with SP mode.**
  - Service Manual > Installation > Copier Installation > Installation Procedure > Data Overwrite Security
  - Service Manual > Installation > Copier Installation > Installation Procedure > HDD Encryption
- **Then the user must switch them on with a User Tool.**

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No additional notes

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Service Training

Improved Features and Specifications

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This section provides an overview of the main specifications and explains improvements over the models in the R-C5.5 and Pr-C1 series.

Changes to Specifications

- **First copy time (A4/LT LEF)**
  - C3c:
    - » Color: 5.7 seconds or less
    - » Black & white: 3.6 seconds or less
    - » Previous model was 6.3s (color), 3.9s (b/w)
  - C3d:
    - » Color: 4.8 seconds or less
    - » Black & white: 3.1 seconds or less
    - » Previous model was 5.3s (color), 3.3s (b/w)
- **Warm-up time**
  - C3c: 20.0 seconds or less (23° C)
  - C3d: 30.0 seconds or less (23° C)
  - Previous models: 26.1s or less (C2.5c), 40.1s or less (C2.5d) (20° C)

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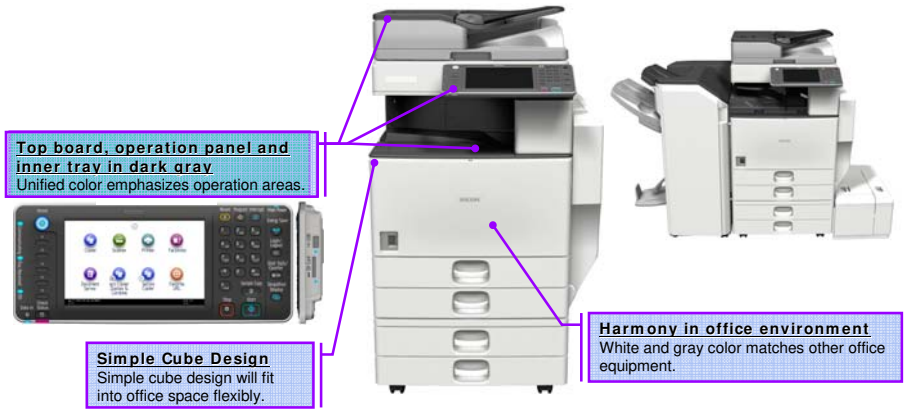
No additional notes

New Feature for this Series

New PDI Concept (Product Design Identity Concept)



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No additional notes

New Feature for this Series
Operation Panel

- The angle of the operation panel can be changed.
- A home button is added. You can return to the home screen from anywhere.
- Five function keys are available, to which you can assign your own designated functions.
- An SD/USB slot is built-into the right side of the panel as standard equipment (not an optional unit).

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- In the previous model, the SD card/USB slot was an option.
- SP5074 can be used to customize the application that appears when the Home button is pressed.

New Feature for this Series
Operation Panel

- The angle of the operation panel can be changed.

Slide 24

No additional notes

New Feature for this Series

GW+ Controller

- **An enhanced GW controller is used in this series.**

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List of features provided by this new controller.

- Workflow Improvement
  - Customizable Home Screen
  - MFP Full Browser
  - External USB Keyboard Support
  - Auto Job Promotion
  - Enhanced Media Print
  - Scheduled Print
  - Layout + Booklet Print
  - Banner Page Print
  - JBIG2 Compression Support
  - Reduce/Enlarge Scan
  - Enhanced Batch Scan
  - Split Scan from Book Type original
  - Import/Export of Preference Settings
  - Expanded the number of User Code
  - Scheduling of Quota Management
  - Homefolder over LDAP
  - Setting Bypass Tray as Priority Tray
  - QWERTZ Layout Keyboard support
  - Newly Supported languages: Brazilian Portuguese/ Greek
- TCO Reduction
  - Remote Fax
  - Separate A3/DLT counter
- Environment
  - Information Screen (Eco-Friendly Indicator)
- Security
  - Unauthorized Copy Control (PCL6/PS)
  - Enhanced Print Functions using HDD
  - Mandatory Security Information Print
  - Output Mode Switch Timer for Received FAX
  - Enhanced Encryption Level (AES256bit, SHA-2)
- Compliance
  - Bates Numbering
  - Scan to PDF-A/digitally signed PDF
  - Introduction of accessibility features

New Feature for this Series
Print from USB/SD

- **The following enhancements have been made to this feature since the AP/AT-C2.5.**
  - Print preview: There is a Preview button on the display panel. Press this to see a preview of the file that you want to print.
  - Booklet printing: PDF only
  - Sort/stack/staple for JPEG files
  - Print multiple PDF or TIFF files: In addition to JPEG files, multiple selection of PDF or TIFF files in same folder becomes available from this model (max: 999).
    - » Selecting multiple different format files or files stored in different folders is not possible.
- **Some PDF files whose file size is big can't be printed directly from USB/SD.**
- **Only the first page is displayed in the preview screen for files with multiple pages.**

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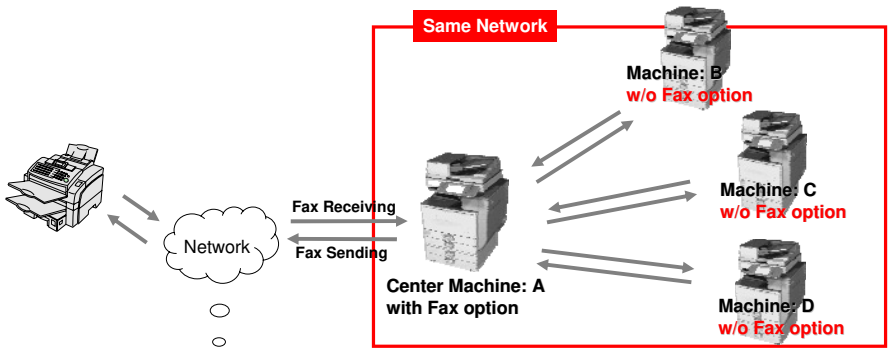
No additional notes

New Feature for this Series

Remote Fax - 1



- With this feature, GW+ machines can send or receive faxes through a central GW+ machine with a fax option.
- Users can share the fax function with the central machine if it is on the same network. They don't have to buy multiple fax options and can reduce the number of fax lines.
- Note: HDD and printer option are required for both centre machine and sub machines.

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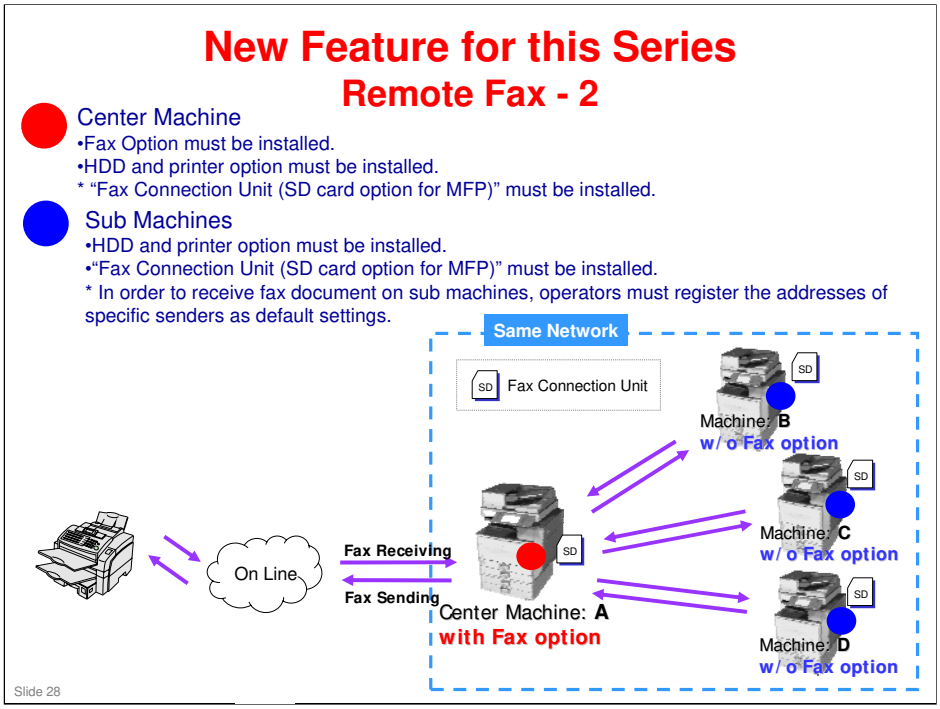
No additional notes



- Sub machines can select and register multiple center machines beforehand, but can only transmit to one center machine at a time.
- Sub machines must have their own address books. Sub machines cannot use the center machine's address book.

New Feature for this Series
Customizable Home Screen - 1

Home key
Press to display the Home Screen.

Customizable image area
Users can display an image here, such as a corporate logo.

Hard function keys
In the Factory default, no functions are registered. Users can register often used functions including SDK, programmed shortcuts and Web pages.

Status key
Press to check the machine's system status, operational status of each function, current jobs and the job history.

Programmed shortcut icons
Users can add shortcuts to programs or Web pages to the Home screen. The program number appears on the bottom of the shortcut icon.
*No shortcut icons are registered in the Factory default.

Key for switching Home screen layout
Press to switch the layout of Home screen to 4 icons x 3 lines.
*Simplified layout (4 icons x 2 lines) to be displayed as the default setting.

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- Up to 72 icons can be registered on the home screen.

New Feature for this Series
Customizable Home Screen - 2

- The displayed function icons and their order are customizable, and a bitmap such as a customer's corporate logo can be inserted at the upper right corner of the screen.
- In combination with user authentication, each user can have their own personal home screen that only displays those icons that he/she uses.
  - Personal home screens require a hard disk.
- Also a program short cut can be set on the home screen. Users can program a frequently used job operation on the home screen so that they can execute it with just one step.

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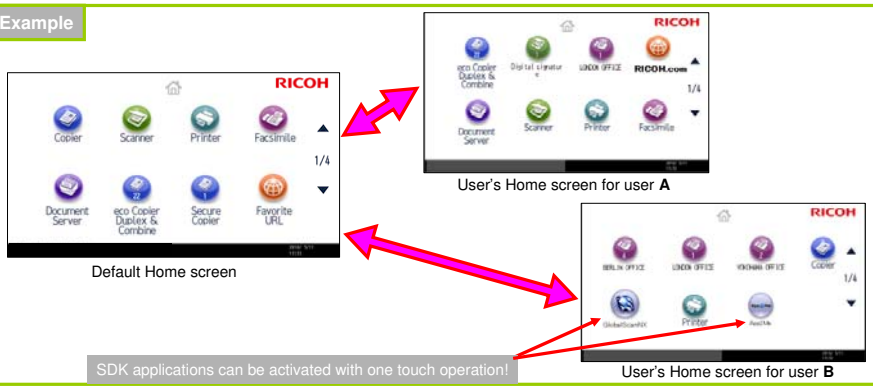
No additional notes

New Feature for this Series
Customizable Home Screen - 3

Types of Home screen

There is two types of Home screen, "Default Home screen" and "User's Home screen". "Default Home screen" is displayed when the authentication function is not active or when the authentication function is active and you are logged in as an administrator. The machine administrator can customize displayed icons and the layout on the "Default Home screen" from the operation panel or Web Image Monitor.
On the other hand, "User's Home screen" is available when user authentication is enabled, and it can be customized by each log-in user to make it more accessible!

Example



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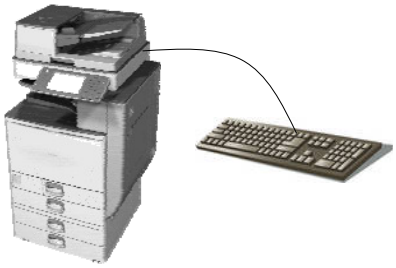
No additional notes

New Feature for this Series

External USB Keyboard



- **This lets you use a Windows-compatible external USB Keyboard for typing when the software keyboard is displayed in GW applications.**
- **Before you can use an external USB keyboard for GW applications, it must be enabled with SP mode 5075. (Default setting: for SDK applications)**
  - You cannot type in both SDK applications and GW applications from one keyboard. If the USB keyboard is used for GW applications, it can't be used for SDK applications.
- **The external USB keyboard can be connected to the USB port on the operation panel or the USB port on the back of the controller board.**
- **Keyboards and tables are not provided as options.**

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No additional notes

New Feature for this Series
MFP Full Browser - 1

- **This function lets users browse external web sites and print the displayed page directly from the machine's operation panel.**
- **Web page addresses can be registered as bookmark icons on the home screen.**
- **Example of use: If Ricoh's support web pages are bookmarked, users can check the machine's manuals at the operation panel.**
- **Requires the optional browser unit.**

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- Paper size for HTML direct printing is fixed to A4/Letter.
- The 10 key pad on the operation panel can't be used for entering numbers in the url. Use the displayed character entry screen or the USB keyboard.

New Feature for this Series
MFP Full Browser - 2

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- Bookmarks for each user is not supported.
- Simultaneous usage with an external billing system such as a coin lock is not supported.
- Preview screen before printing web pages is not available.
- Page numbers and URL address of web pages are not printed.

New Feature for this Series
Auto Job Promotion - 1

- **The machine can skip specific defective jobs and start printing the subsequent jobs.**
- **Before using this function, turn on 'Store and Skip Error Jobs' (in the 'System' menu of 'Printer Features'.**
- **When the following errors occur, the job will be skipped and the next job will be printed.**
  - Specified paper size is not available.
  - Specified paper type is not available.
  - No paper on the specified paper tray
  - No staples (*This is not covered by pre-detection of errors.)
  - Hole punch receptacle is full (*This is not covered by pre-detection of errors.)

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- Jobs that are skipped will be stored as 'Hold Print' jobs (max: 200 jobs).
- Skipped print jobs can be reprinted from the operation panel or Web Image Monitor after the cause of the error is resolved.
- If the number of pages for pre-detection of errors is increased, a longer time will be required until the first page of the job is printed.
- Print jobs that use IPDS can't be skipped.
- When a Fiery controller or optional Counter Interface Unit is installed, this function is not available.

New Feature for this Series
Auto Job Promotion - 2

- **Although specific error jobs can be skipped, when an error occurs during printing a job, the job cannot be skipped and the machine will stop with an error message.**
- **To reduce the occurrence of such situations, administrators can set the number of pages for pre-detection of errors.**
- **Example: If 4 sheets of paper are left and a 10-page simplex print job is sent to the machine:**
  - i) when the number of pages for pre-detection of errors is 2
    - » It is confirmed that more than 2 sheets of paper are left, and the machine judges that no error will occur and starts printing. But paper end occurs and the machine will stop.
  - ii) when the number of pages for pre-detection of errors is 5
    - » The machine predicts that paper end will occur, so the job will be skipped and handled as 'Hold Print'.

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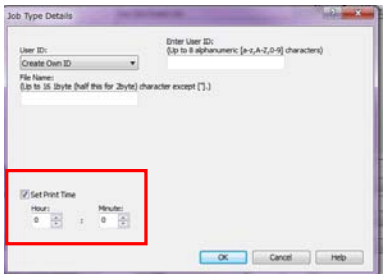
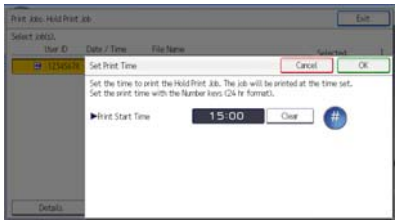
No additional notes

New Feature for this Series
Scheduled Print

- **This lets users delay printing to a specified time.**
- **The time can be input with the printer driver, as shown below left.**
- **The time can be changed at the operation panel or with Web Image Monitor, as shown below right.**





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- Use this to print large jobs after office hours, so that others will not be prevented from using the machine.
- When the main power of the machine is turned off if the specified time has arrived, the Scheduled Print jobs are stored as Hold Print jobs.

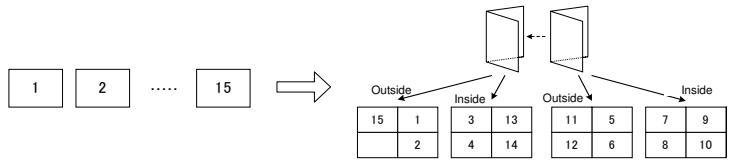
New Feature for this Series

Booklet Printing with Layout

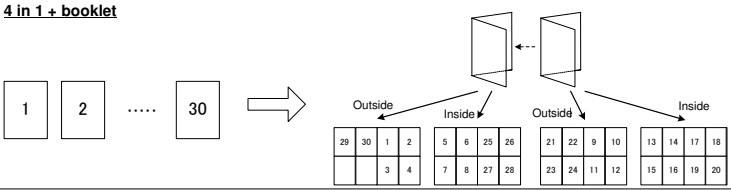
- **This allows printing of booklets that have more than one image on each page.**

Examples of output

2 in 1 + booklet



4 in 1 + booklet



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- This function is not available with PCL5 or XPS driver.
- It is available for the Mac OS (booklet printing was not available on the Mac before).
- First print output time will be slightly delayed when booklet printing with the PS3 driver.
- Specifying input tray and feeding paper from bypass tray are not possible for booklet printing with the PS3 driver.
- When printing files including PASSTHROUGH objects from Mac OS, this function will not work correctly.

New Feature for this Series

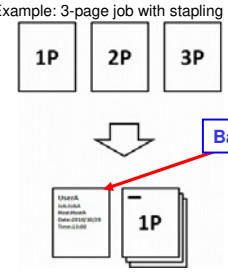
Banner Page

- **A banner page is a page that is printed before the job, and contains information about the job.**

Users can activate this function on the property screen of printer drivers (PCL5, 6 & PS). This function is also available from Mac OS X 10.2or later.

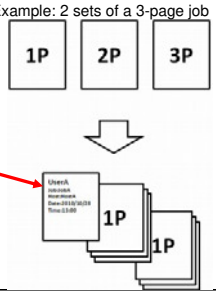
The following items are printed on a banner page.
- Log-in User Name, User ID or Windows/Mac account name
- The Date and Time the document was printed
- The originating computer hostname (server hostname will be printed when “Point & Print” is used).
- The Job name

Example: 3-page job with stapling



Banner Page

Example: 2 sets of a 3-page job



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- A banner page is used in network printing in order to separate documents (or "print jobs") from each other and to identify the originator of the print by user name.
  - In some cases, print jobs are sent to a central processing area where messengers take the printouts back to the owner, but the usual practice in modern office environments is for the user to retrieve his or her own documents. The banner page makes it clear who printed each job.
- Printed banner pages are counted as B&W jobs.
- The banner page is not available for “Sample print”, “Locked print”, “Stored print”, “Hold print” and “Send to Document Server”. Although exclusive control on printer driver UI is available on Windows OS, it doesn’t work on Mac OS. This means that if both banner page and “Locked print” are selected at the same time on Mac OS, but the banner page setting is ignored.
- Landscape can’t be selected as the orientation of banner pages.
- The NetBIOS name will be used as the Host name on banner pages. If users set a computer name which is longer than 15 bytes on a Windows OS, only the first 15 bytes of the computer name will be printed as Host name because of Windows OS specifications.
- If languages which are not supported by MFPs are included in the account name, computer host name or job name, the characters will be garbled.
- When users print multiple copies, just one sheet of banner page will be printed before the first copy. But please note that there are some applications which handle multiple copies as multiple jobs. In this case, banner pages will be printed before each copy.

New Feature for this Series
Scheduling of Quota Management

- **This function enables administrators to reset the print volume counters of each individual user or groups automatically after a set interval.**
- **Administrators can set the timing for auto-reset as follows:**
  - At a designated date and time
  - Every xx days from the designated date and time (xx can be 1 day - 180 days)
  - At a designated time on the designated date of every month
- **The time that the last auto-reset was done and the last print volume counter can be checked at the operation panel or Web Image Monitor.**
- **If the machine is turned off or in sleep mode at the designated time, auto-reset will be done when the machine is in ready mode.**
- **A hard disk is required.**

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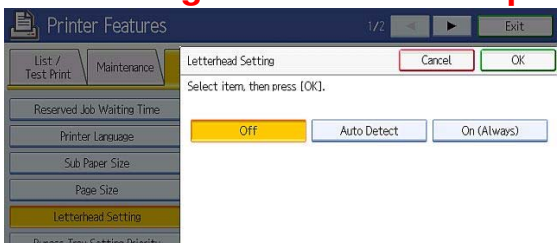
No additional notes

New Feature for this Series
Printing on Letterhead Paper



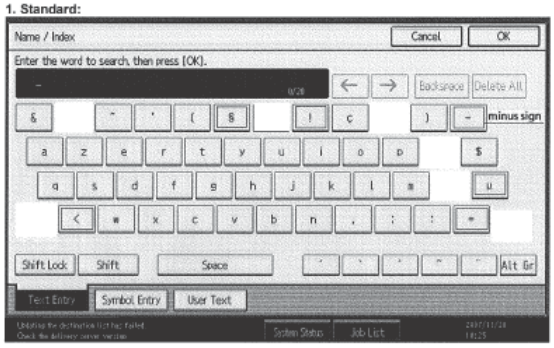
- **This setting changes the paper path.**
  - Off: Simplex pages go through the simplex path and duplex pages go through the duplex path.
  - Auto Detect: The paper path for simplex jobs with a paper type of "Letterhead", "Pre-printed" or "Pre-punched“ is changed to the duplex path.
  - On (Always): The paper path for all simplex jobs with all types of paper is changed to the duplex path.
- **Simplex pages will still be counted as simplex jobs by the internal counter even if this setting is enabled.**

Slide 41

- This is enabled with a printer bit switch.
- The purpose of the synchronizing the simplex and duplex paths is so that a single tray of preprinted paper can be used for both simplex and duplex pages.
- With the default setting, at least 2 separate trays are required for preprinted paper (one for simplex printing and the other for duplex printing). The paper is loaded face-up in one tray and face-down in the other. This can be a annoyance for customers.
  - The default setting is Off is to reduce wear on the duplex unit. The duplex unit may wear out early when this setting is always enabled. The degree of extra wear depends on print volume.
  - Note: If the preprinted paper is the same on both sides, then a single tray can be used and this setting will probably not need to be changed.
- If this feature is enabled, only a single tray of preprinted paper is needed for both simplex and duplex pages.

New Feature for this Series
AZERTY Keyboard

1. Standard:

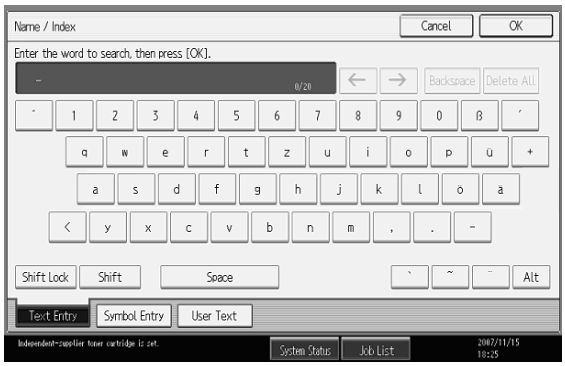


- **If the language is changed to French, the keyboard changes as shown above.**

Slide 42

- It is possible to switch to a QWERTY keyboard.
- This feature is for Europe only. The North American model will use the QWERTY keyboard, which is widely used in Quebec.

New Feature for this Series
QWERTZ Keyboard



- **If the language is changed to German, the keyboard changes as shown above.**

Slide 43

- It is not possible to switch to a QWERTY keyboard.

New Feature for this Series
Fax Line Assignment

- **When optional G3 lines are equipped, you can route faxes that come in on each line to a different receiver.**
- **You need to register a SUB code for each line before using this function.**
- **Example:**
  - Users can specify that incoming faxes through Line 1 are printed on paper, the ones through Line 2 are forwarded to designated users by email, the ones through Line 3 are forwarded to a designated user's shared folder.
- **One or more optional G3 Fax lines must be installed.**
- **Documents received through Internet Fax and IP-Fax cannot be routed.**

Slide 44

No additional notes

New Feature for this Series
JBIG2 Compression

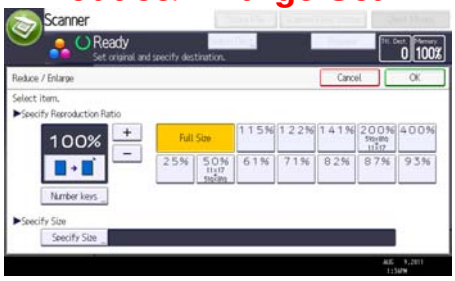
- JBIG2 typically generates files one third to one fifth the size of conventional compression methods.
- Before using this function, select “JBIG2” for ”Compression Method (Black & White)” in “Send Settings” of “Scanner Features”.
- JBIG2 compression works in the following scanning conditions.
  - Scan settings: Black and White
  - Scan File Type: PDF/ PDF-A (single page/ multi page)
  - Scan method: Scan to Folder/ email/ USB/ SD
- Tiff file format doesn’t support JBIG2 compression. MH compression will be applied when scanning to Tiff.
- When a scanned document is stored in the Document Server, the applied compression method will be MH.
- JBIG2 compression can’t be used in TWAIN scanning and WSD scanning.
- When JBIG2 compression is selected, the preview function is not available.
- Acrobat Reader version 5 or later is required to open files which were compressed with JBIG2.

Slide 45

No additional notes

New Feature for this Series

Reduce/Enlarge Scan



- **With this function, users can reduce or enlarge a standard paper size to another standard paper size, for example, scanning A5 originals and changing to A4 sized data. Also, scanning can be done with an arbitrary reduction or enlargement ratio.**
- **When using 'Specify Size', if the originals are all different sizes, the image sizes will all be the same.**

Slide 46

- This function is not available for TWAIN scanning or WSD scanning.
- When using this function, "High Compression PDF" can't be selected as the file type.
- It is not possible to specify different reduction/enlargement ratios for height and width.

New Feature for this Series

Enhanced Batch Scan

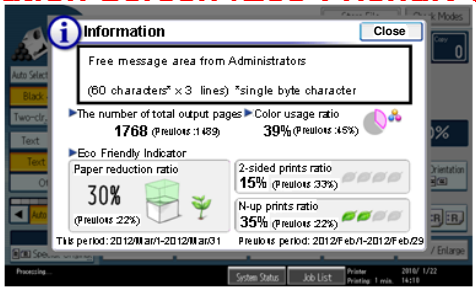
- **When one sided originals and two sided originals are mixed, users can switch the scanning to one side or both sides in a single batch scan job.**
  - Separate one sided originals from two sided originals within your stack of originals
  - Select “Batch” mode for and specify “Original Settings”
  - Set the correct portion of the batch of originals on the ADF and start scanning
  - When scanning of the first portion is finished, change “Original Settings” and set the other portion.
- **If this is done correctly, blank sides of one-sided originals in the batch will not be scanned.**
- **An ARDF is required for this function.**

Slide 47

No additional notes

New Feature for this Series

Information Screen (Eco-Friendly Indicator)

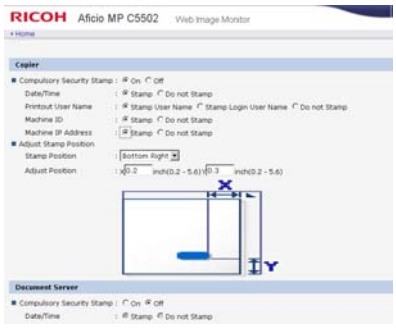


- **When the user logs on, information about machine usage will appear. There is also a space for an administrator's message to appear.**
- **This may be used to improve the awareness of users to how heavily they are using the machine.**

Slide 48

- Displayed data depends on whether user authentication is disabled or enabled.
  - If user authentication is enabled => Eco counter for each user is displayed.
  - If user authentication is disabled => Eco counter for system (all users of the machine) is displayed.
- The Eco-Friendly Indicator is shown at these times
  - After log-in
  - After recovering from energy save mode (when user authentication is disabled)
  - After system auto reset (when user authentication is disabled)

New Feature for this Series
Mandatory Security Information Print

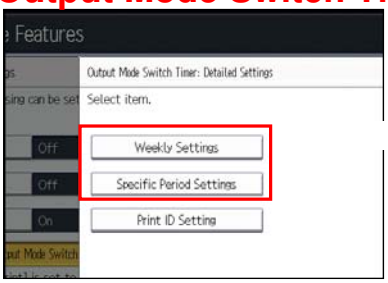


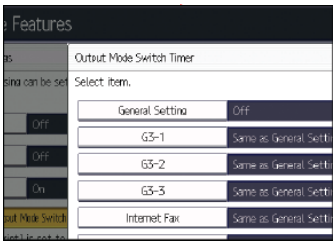
- **If this feature is turned on, security information will be printed on the output.**
- **Before using this function, an administrator must activate this function at the operation panel or Web Image Monitor.**
- **Administrators can select which security information will be included.**
  - Date and Time when the job was printed
  - Name or Log-in User ID of the user who printed the job
  - IP address of the device which printed the job
  - Serial number of the device which printed the job
- **Also, the print position can be changed to upper left, upper right or lower left. (Default setting: lower right)**

Slide 49

- When printing on small sized paper such as A6 or envelopes, a part of the security information may not be printed.
- If print fonts which are not supported by the device such as Chinese, Arabic, Korean or Thai are included, the security information can't be printed correctly.
- The directions of image and security information may not match when printing from a PS driver or IPDS.

New Feature for this Series
Output Mode Switch Timer for Received Faxes



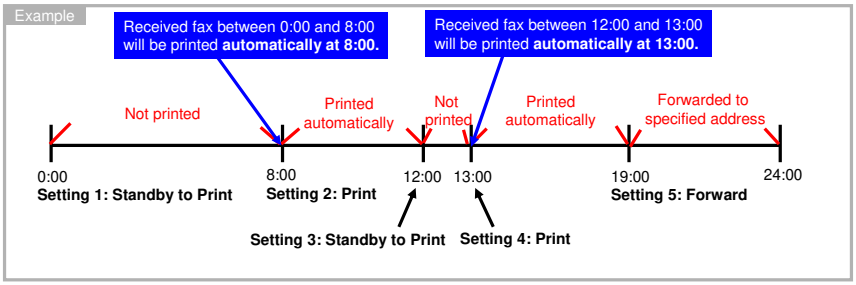


- **Users can specify whether faxes received in a specific period are to be printed, to stand by to print, to be forwarded to a registered receiver, or to be saved on the HDD.**
- **Also, prohibiting automatic printing of received faxes can be set manually on the operation panel when this timer function is disabled.**

- By utilizing this function, received faxes are not printed when users are not in their office, so they can reduce the risk of information leak from uncontrolled outputs.
- And also, it will be possible to forward faxes received when the office is closed to another working office.
- Printing from the LAN-FAX driver is always possible regardless of output mode switch timer setting.
- The machine must have a HDD.

- To use this function, specify the period of time to switch the output mode in "Timer: Detailed Settings", and then specify the output mode in "Output Mode" when the Output Mode Switch Timer function is enabled.
- Jobs affected by this timer
  - Received fax/ Internet fax/ IP fax documents
  - Mail to Print
  - Auto Report related fax application
- Available Timer settings
  - Weekly settings (set output mode switch timer for each day of the week)
  - Specific Period Settings (This timer is used when the office is closed for a long time.)
- Available Output Mode
  - Not Set (Default)
  - Print
  - Standby to Print (Printing received fax documents will be suspended.)
  - ID Required Print (an ID will be required to print suspended fax jobs.)
  - Forwarding (Received fax documents will be forwarded to a specified email address.)
  - Store (Received fax documents will be stored in Document Server.)
- These timer settings and output modes can be assigned for each fax line and type.

New Feature for this Series
Output Mode Switch Timer for Received Faxes



- Up to 5 timers can be set per day.

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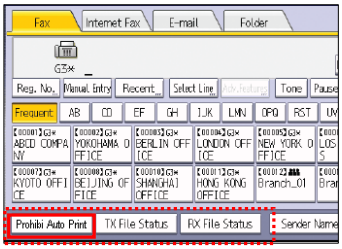
No additional notes

New Feature for this Series
Output Mode Switch Timer for Received Faxes



- **When this feature is disabled:**
  - Users can specify whether or not to print the received faxes immediately with the “Prohibit Auto Print” setting.
  - Also, this setting can be registered as a Quick Operation Key, so users can easily switch the output mode of received faxes.

Slide 52

No additional notes

New Feature for this Series
Enhanced Encryption

- **This function lets users select safer encryption algorithms, AES256bit and SHA-2.**

Slide 53

AES256bit

- The Advanced Encryption Standard (AES) is a symmetric-key encryption standard adopted by the U.S. government. AES is also adopted by NESSIE in EU and CRYPTREC in Japan.
- There are 3 types of AES, and each of these ciphers has a 128-bit block size, with key sizes of 128, 192 and 256 bits, respectively. DES, the previous encryption standard, has a 56-bit key size, so AES with a 256-bit key size is much safer than DES.

SHA-2

- Secure Hash Algorithm-2 (SHA-2) is a set of cryptographic hash functions designed by the National Security Agency (NSA).
- SHA-2 has 224, 256, 384, and 512 bit hashes. Since SHA-2's hashes are longer than SHA-1 (160 bits), SHA-2 is safer than SHA-1. Ricoh basically adopts the 256-bit hash.

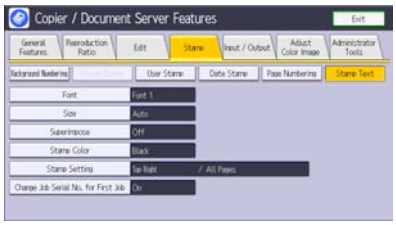
New Feature for this Series
Bates Numbering

- **Bates numbering is used in the legal, medical, and business fields to place identifying numbers on documents as they are scanned or processed.**
- **Bates stamping can be used to mark and identify images with copyrights by putting a company name on them.**

Slide 54

- "Auto Start", "Interrupt Copy" and "Printing from Document Server" cannot be used with Bates numbering.
- Zero suppression for auto-increment numbering is available on SP mode.
- If the arbitrary text is long and its size is big, latter subset of numbering may not be printed.
- When this function is enabled, collated output is not available in copying multiple sets of multiple page document.

New Feature for this Series
Bates Numbering



- **Bates numbering is provided as a stamp function of the Copier application.**
- **By setting arbitrary text such as a company name, a nine-digit start number for auto-increment numbering, and stamp position, users can add Bates numbering on each page of copy output.**
  - The total number of digits of arbitrary text and auto-increment numbering must be less than 64 bytes.
- **To use this function, change the default setting of "Stamp Text" in "Copier / Document Server Features".**

Slide 55

No additional notes

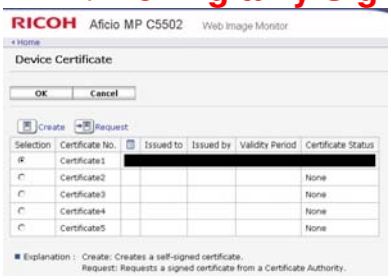
New Feature for this Series
Scan to PDF/A & Digitally Signed PDF

- **This function enables users to scan paper documents to PDF/A format. Also, users can make digitally signed PDF files.**
- **Scan to PDF/A or Scan to Digitally Signed PDF is available for the following jobs.**
  - Scan to mail
  - Scan to Folder (SMB/FTP/NCP)
  - Scan to USB/SD
  - Universal send to mail address destination / Folder destination from fax function
- **Although Scan to PDF/A is available, adding a digital signature to PDF is not available for the following jobs.**
  - Scan to Document Server
  - Forwarding incoming fax to mail address

Slide 56

- PDF/A is a file format and an ISO Standard for the long-term archiving of electronic documents. Users can utilize this function when scanning paper documents related to quality management, or when submitting electronic documents with PDF/A format is required by governments.
- Also, users can avoid manipulation by utilizing the digitally signed PDF function when scanning receipts or contracts for which keeping the original content is needed.
- Some PDF viewer applications cannot open PDF/A files. (example: Acrobat 4.0 or earlier)
- Locked PDF/A function is not available on some SDK applications.

New Feature for this Series
Scan to PDF/A & Digitally Signed PDF

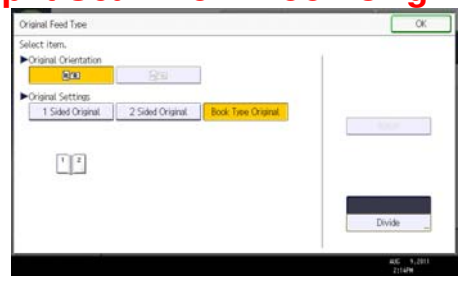


- Registering a "Device Certificate" is required for making digitally signed PDF.
- Please add a certificate with Web Image Monitor. If the certificate is expired or the mail address of the certificate is wrong, users can't generate a digitally signed PDF.
- Also, if the certificate is about to expire, users can select either continuing the job or canceling the job.

Slide 57

No additional notes

Improved Feature
Split Scan from Book Original



- This function scans the left page and right page of a double-page spread original separately. Users will receive the left and right pages as separate images.
- 1. Set a book type original on the glass.
- 2. Select “Book Type Original” at “Original Settings” in “Original Feed Type”.
- 3. Press “Start”

Slide 58

No additional notes

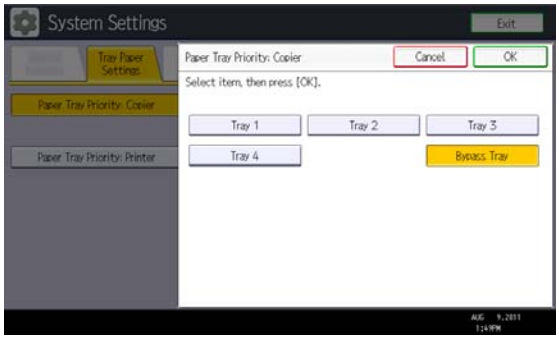
Improved Feature
Scan to Web Mail (SSL over SMTP)

- **SSL encryption is supported when using scan to E-mail via SMTP server.**
  - Setting SSL for SMTP connection can be specified by the network administrator.
- **When SMTP over SSL is enabled, Internet Fax to Ricoh GW models is not available because GW models do not comply with SSL reception at this time.**

Slide 59

No additional notes

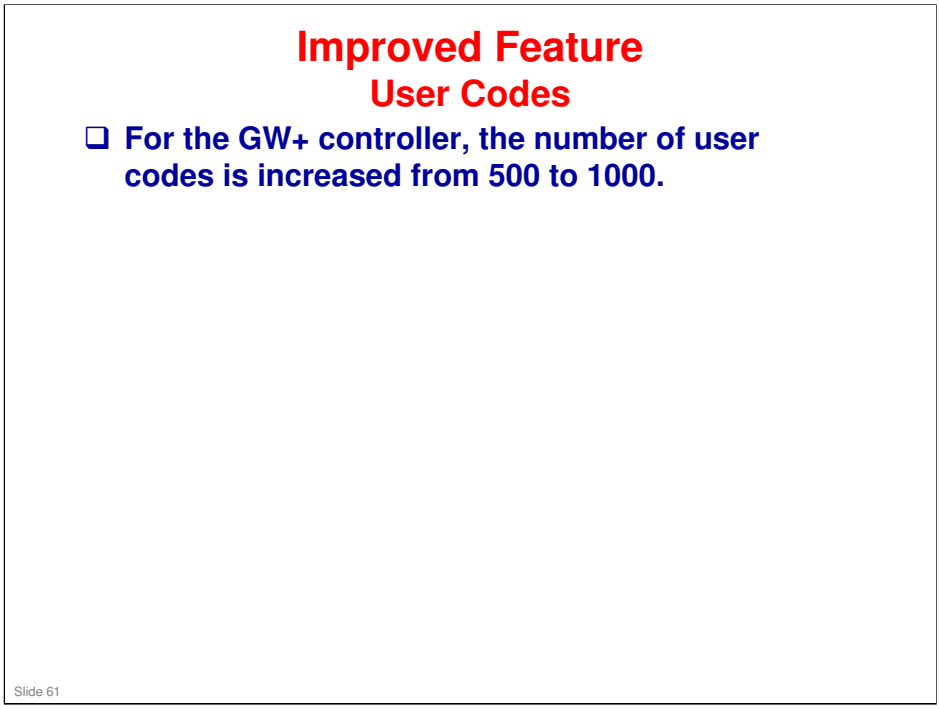
Improved Feature
Paper Tray Priority



- From this model, the bypass tray can be set as the priority tray.

Slide 60

No additional notes



No additional notes

Improved Feature

Page Counters

- **An A3/DLT billing counter has been added.**
- **This counter counts up by 1 for every A3 or DLT sheet.**
  - The copy and total counters also count up by 2.

Slide 62

Old system

- Total count = A4/LT sheets + (A3/DLT sheets x 2)

New system

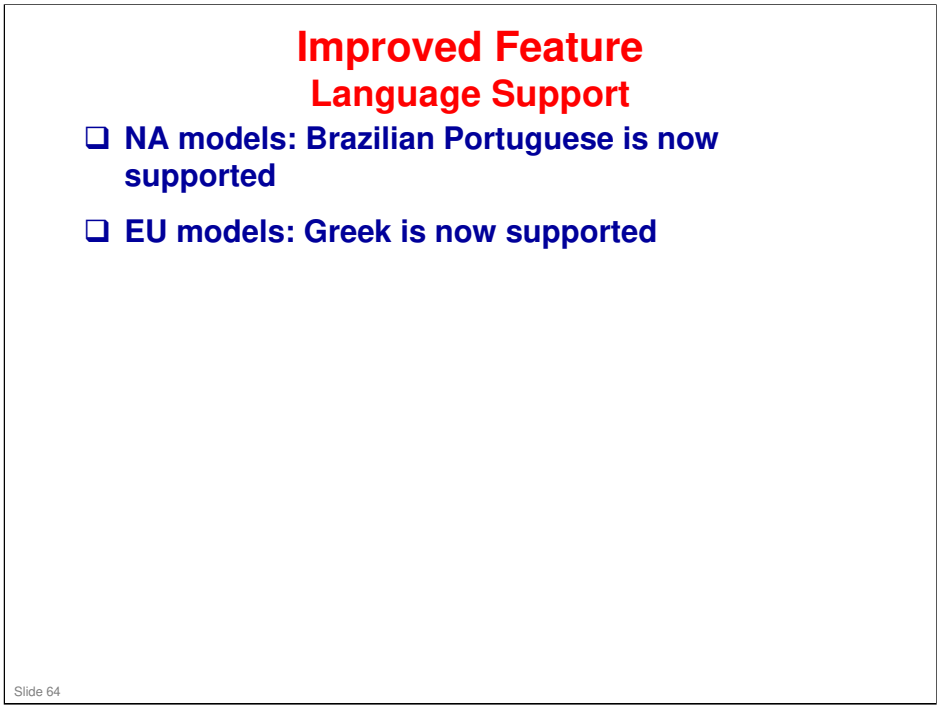
- Total count = A4/LT sheets + (A3/DLT sheets x 2)
- A3/DLT counter = A3/DLT sheets x 1

Other Modifications to the Counters

- **Counting Method (SP5-045-001)**
  - Default setting: Pages
  - For the previous model, the default was 'Developments'.
- **A3/11"x17" Counting (SP5-104-001)**
  - Default setting: Double Count
  - For the previous model, the default was 'Single Count'.

Slide 63

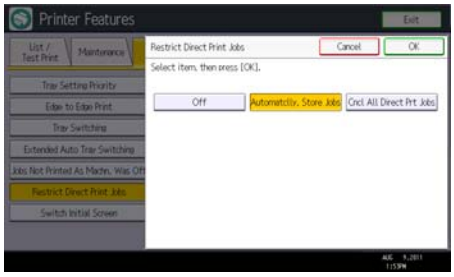
No additional notes



No additional notes

Improved Feature
Enhanced Print Functions using HDD

- **Mandatory Hold Print mode**
  - Select “Automatically. Store Jobs” to enable Mandatory Hold Print mode.
  - If “Cncl All Direct Prt Jobs” is selected, print jobs which are not stored in the HDD will be cancelled.
  - When printing hold print jobs, users must select single or multiple print jobs from the job list on the operation panel and press “Print”. Users can also delete them from operation panel when the jobs are no longer necessary or users find some wrong print settings.



Slide 65

No additional notes

Improved Feature
Enhanced Print Functions using HDD

- **Changing Print Settings on the operation panel**
  - When “Sample Print”, “Locked Print”, “Hold Print” or “Stored Print” is selected in printer drivers, users can change the print settings such as number of copies, color/monochrome, duplex, staples and so on at the operation panel before printing.
  - Please note that users can’t use the operation panel to change the print settings of jobs that are stored in Mandatory Hold Print mode.
  - Color print jobs can be printed in B&W by changing the print setting on the operation panel, but the reverse is not available.

Slide 66

- Print settings cannot be changed when print jobs are sent via Centronics interface, USB or Bluetooth.

RICOH

- This section explains important changes to the installation procedure since R-C5.5.
- Installation for the copier is very similar to the R-C5.5. However, the procedures for the options have some changes. Make sure that you use the correct procedures for the machine you are working on.

Overview

- Installation for the main machine and peripherals is basically the same as for the AP-C2.5.
- This section of the course shows the main changes.
- Some details are different, and some of the SP modes to use after installing peripherals such as paper trays have been changed.
- Always refer to the AP-C3 service manual when installing the machine and peripherals.

Slide 68

No additional notes

Copier Installation

- All development units have tape, which must be removed during installation.

Slide 69

No additional notes

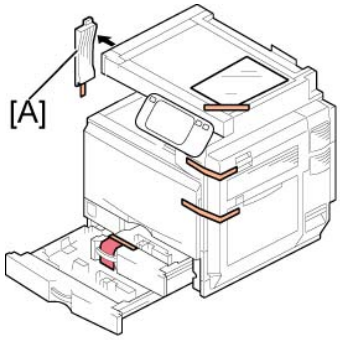
External USB Keyboard

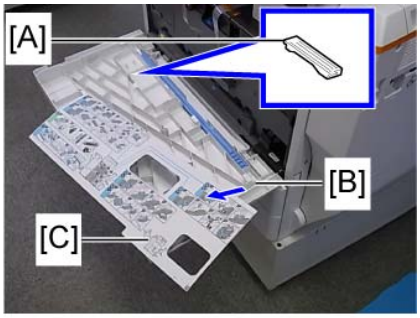
- **Customers can use an external USB keyboard when the software keyboard is shown on the operation panel, if an external USB keyboard is connected to the USB port at the side of the operation panel or the controller box USB port.**
- **Do the following steps to enable this feature.**
  1. Connect the external keyboard to the USB port at the right side of the operation panel or the controller box USB port.
  2. Enter the SP mode and set SP5-075-001 to 1 (ON)
  3. Exit SP mode and turn the main power on and off.
  4. Select a language type for the external USB keyboard with [User Tools] > [System Settings] > [General Features] > [External Keyboard].
  5. Turn the main power on and off.

Slide 70

No additional notes

Transporting the Machine





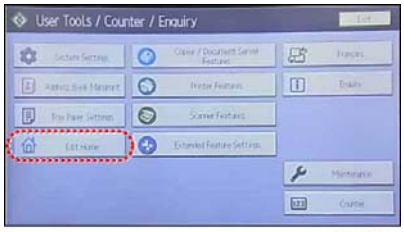
d1440036a

- The scanner unit stay [A] is removed during installation, and stored inside the front door [B].
- Put it back in the machine before you move the machine to a new location.

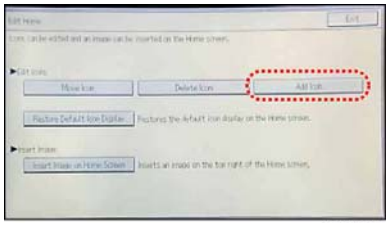
Slide 71

No additional notes

Adding the Fax Icon to the Home Screen



1. Press 'User Tools' then [Edit Home]



2. Press [Add Icon]

3. Press [Fax]

4. Touch a blank space where you want to put the Fax icon

Slide 72

Fax Service Manual > Installation > Fax Unit (D643) > Fax Icon Addition

Fax Connection Unit

- This option is required for the new Remote Fax feature (described earlier in the presentation).
- The feature is on an SD card. There is no need to set up any bit switches or SPs.

Slide 73

No additional notes

No additional notes

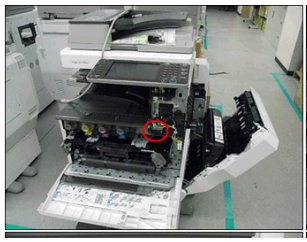
Changes to the PM Table

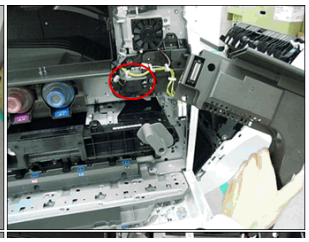
- **These values have been changed since the previous model.**
  - Drum unit (K): Replace at 300k
  - Drum unit (CMY): Replace at 150k
  - ITB cleaning unit: Replace at 300k
  - Ozone Filter/Exhaust Filter: Change at 300k.
- **New EM part:**
  - Toner supply units: 2,000k (K), 1,500k (CMY)
- **Fusing Unit**
  - There is a new type of fusing unit. The PM interval is 300k. See the PM table for details.
  - Counters to set to 1 before removing old parts (not necessary for complete fusing units): There is a new item
    - » Heating sleeve belt unit: SP3902-018
    - » Pressure roller: SP3902-019 (this is the same as the previous model)

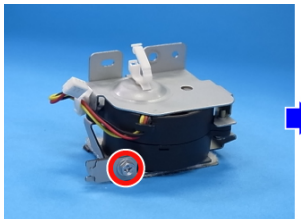
Slide 75

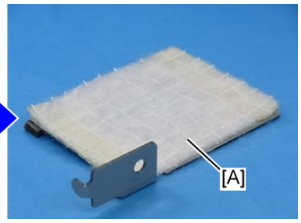
- Ozone Filter/Exhaust Filter: The life was changed from 200k to 300k, this is because this model uses the new SPR-F toner, which reduces the amount of powder dust inside the machine.

New PM Part
Toner Scatterproof Filter









- This filter prevents stray toner particles from being blown out of the rear of the machine at the right hand side.
- This filter must be changed every 300k.
- The replacement procedure is in the service manual, after the PM tables.

Slide 76

No additional notes

New Yield Parts

- **The toner supply unit (includes pump and toner supply tube) is a new yield part.**
  - K: 2000 k (5% coverage)
  - Y, M, C: 1500 k (5% coverage)
- **The machine uses the page counter and the part's operation time counter to determine when the part must be replaced.**
  - This is the same system as for other yield parts.
- **When either of the counters reaches the maximum limit, the machine indicates that the part must be replaced.**

Slide 77

No additional parts

Fusing Unit

- **If the fusing unit is not replaced at 330k, the machine will stop, to prevent the sleeve belt in the fusing sleeve belt unit from breaking.**
  - At 315k, a near-end message appears on the operation panel.
  - At 330k, an end message appears on the operation panel and the machine stops.
  - This is the same as the process for the pressure roller in the previous model.

Slide 78

No additional notes

SMC List Card Save Function

- **This function saves the SMC lists as CSV files to an SD card inserted into the operation panel card slot.**
  - This data cannot be copied to SD card slots 1 or 2.
- **There are several SP modes, to store all SMC data, or just a part of the SMC data.**
- **It takes 2 to 3 minutes to store the data on the card.**
- **The file name is automatically generated from the following:**
  - Machine serial number
  - Date and time
  - Type of SMC list
- **The file is stored in a folder on the SD card. The name of the folder is based on the machine's serial number.**
- **If an error occurs, press "Exit" to discard the job and return to the ready state.**

Slide 79

- For the procedure, see SMC List Card Save Function in the service manual.

RICOH

No additional notes

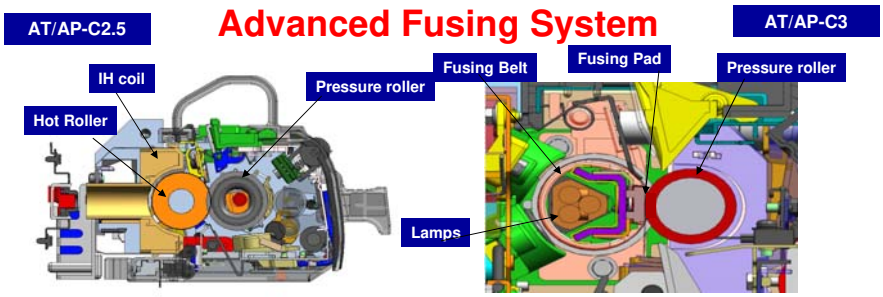
New Feature for this Series
SPR-F Toner

- This new type of color toner improves the range of color (the color space) that can be produced by the print engine.
- Also, evenness of high density areas has been dramatically improved.
- This toner also has a lower melting point, so energy consumption is reduced.

Slide 81

No additional notes

New Feature for this Series
Advanced Fusing System

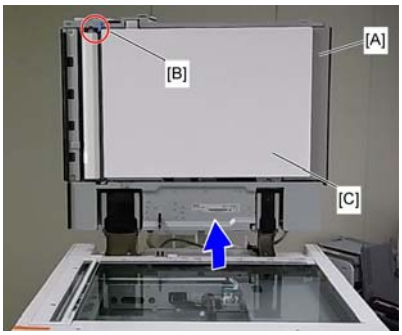


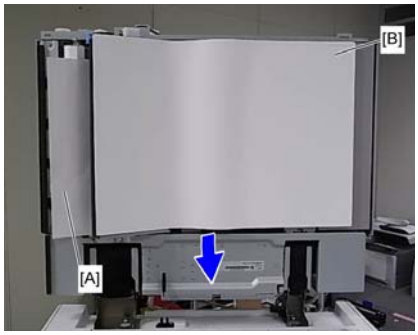
- This machine uses a Quick Start Up Direct Heating (QSU-DH) fusing system which saves energy and improves print quality.
- The new fusing unit does not have a fusing roller. Instead, there is a thin fusing belt around the lamps.
- The fusing belt is much thinner than the roller, so less electricity is used to heat the belt.
- By using a flat fusing pad, fusing is done on a flat surface without uneven pressure from the pressure roller. This means that there is less damage/wrinkling to the paper. This is especially helpful for envelope printing.

Slide 82

No additional notes

Single-pass ARDF
CIS Unit Removal





- **The following new steps should be executed before pulling out the CIS unit. Otherwise, the white roller may be damaged.**
  1. Diagram on the left: Open the ADF [A]. Release the lever [B] and open the white board [C].
  2. Diagram on the right: Insert a sheet of paper [A] between the exposure glass surface and the white roller, to protect the white roller. Then close the ADF [B].

Slide 83

No additional notes

Scanner

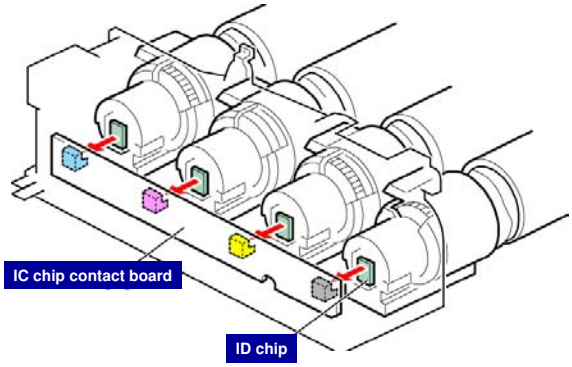
Exposure Lamp Replacement

- This machine does not use the LED array that is used in the AT-C3 series.
- It is not necessary to adjust SP modes after changing the lamp.

Slide 84

No additional notes

Toner Bottle Detection

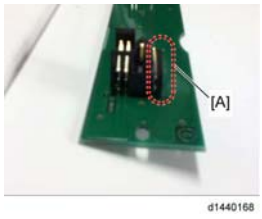


- **The toner bottles are unique for this model. They are not compatible with bottles for the previous model.**
- **A new type of ID is used for the toner bottles in this model.**
  - Previous model: RFID detection
  - This model: Direct touch detection

Slide 85

No additional notes

Removing the Toner Bottle Detection Board

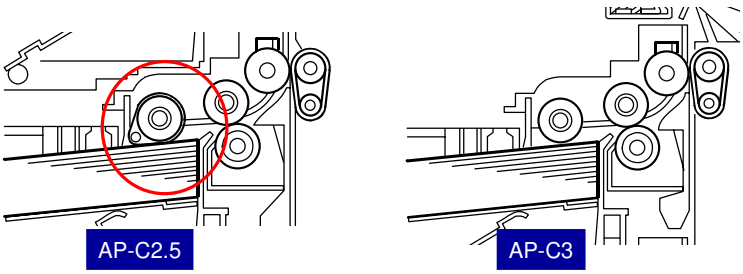


- **The board is [B] in the diagram on the left.**
- **The toner bottle detection board should be pulled out horizontally.**
  - If you ignore this, the toner bottle detection terminals [A in the diagram on the right] may be damaged.

Slide 86

No additional notes

Paper Feed

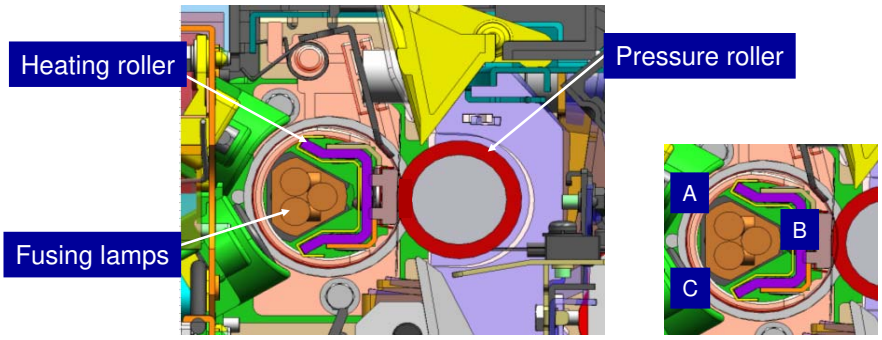


- The feed method has changed from a feed belt to FRR.

Slide 87

No additional notes

Fusing
Overview



- **A free-belt fusing system is used.**
  - Similar to Di-C1.5. (Details on next slide)
- **The heating roller contains three lamps.**
  - The lamps are in one assembly, and are removed together. The 1st lamp heats the center and the 2nd lamp heats the ends. The 3rd lamp heats when A4/Letter LEF or a postcard is used.

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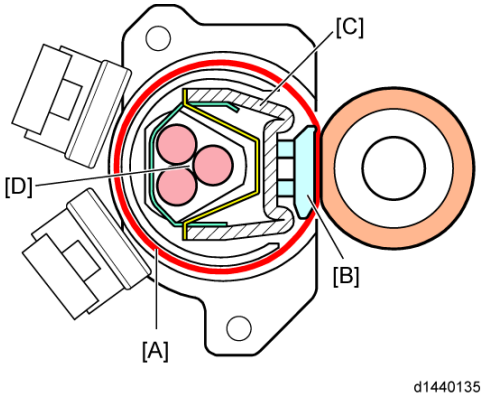
- The on/off lighting pattern of the fusing lamps depend on the machine destination and the printing paper size. The light-on patterns are shown below.
  - Lamp [A]: Letter LEF (NA), A4 LEF (Others)
  - Lamp [B]: Letter SEF (NA), A4 SEF (Others)
  - Lamp [C]: Post card (100 mm)

RTB 39
Corrected

- The pressure roller is not heated internally.
  - There is no lamp in the pressure roller. (More simple design.)
- There is no decurler after the fusing exit.

Fusing
Free-Belt Fusing System



- **Designed for quick start up (QSU).**
- **Uses a free turning fusing belt.**

(More details below in the Notes section.)

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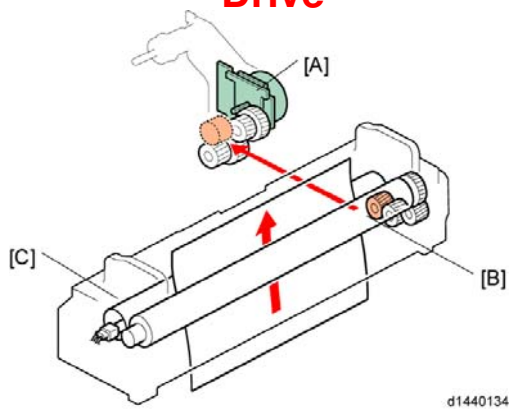
- The heating sleeve [A] rotates freely. It is driven by the pressure roller.
- The nip pad [B] has a low friction cover, and this allows the fusing belt to turn easily.
- The pressure roller presses against the nip pad [B] to form the nip zone, where the image is fused to the paper by heat and pressure.
- The stay [C] holds the nip pad [B] in place.
- The stay has a mirrored surface facing the fusing lamps [D] to concentrate the energy from the lamps directly on the inner surface of the heating sleeve [A].

Fusing
Drive



- The fusing/paper exit motor [A] drives the pressure roller [B].
- The fusing belt [C] around the fusing lamp is driven by the pressure roller.

Slide 90

No additional notes

Fusing

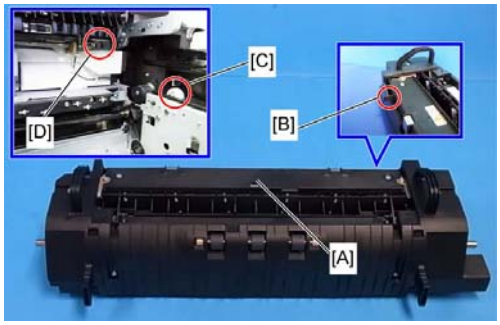
Cleaning the Heating Sleeve Belt

- The surface of the heating sleeve belt is delicate. Never touch the surface, and do not wipe the surface with anything.
- If the surface of the heating sleeve belt must be cleaned because of offset image for example, feed some sheets of white paper through the fusing unit instead.

Slide 91

No additional notes

Fusing
Shutter Open/Close Mechanism



- **The fusing unit has a shutter plate [A] to improve energy efficiency.**
- **The fusing unit shutter plate drive motor rotates the shaft inside the fusing unit through the gear [C].**
- **The fusing unit shutter home position sensor [D] detects whether the shutter is opened or closed.**
  - The home position sensor is a photo detector. The actuator [B] on the shutter plate blocks this photo detector when the shutter is opened.

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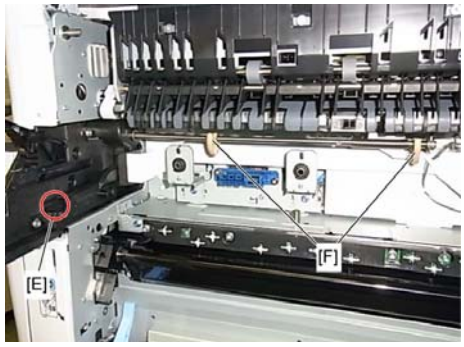
- The fusing shutter improves conservation of heat inside the fusing unit. It allows a faster first copy time and a smaller TEC value.
- The shutter operates in conjunction with fusing pressure release, so the timing of opening/closing is as follows.
  - Fusing pressure release: shutter opens
  - Fusing pressure ON: shutter closes

Fusing
Shutter Open/Close Mechanism



- The shaft driven by the motor (see the previous slide) also has a gear at the opposite end of the shaft.
- This gear rotates another shaft with cams [F] through the gear [E] and the belt.
- The cams move the shutter.

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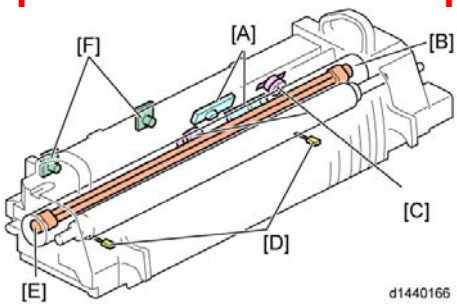
No additional notes

Fusing
Temperature Control Components

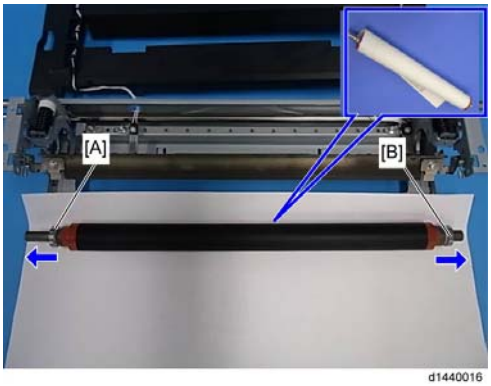


- A: NCU sensors x 2 (Upper/Lower)
- B: Heating sleeve belt
- C: Thermostat x 2 (Center/End)
- D: Pressure roller thermistor x 2 (Both ends)
- E: Fusing Lamp
- F: Thermopiles x 2 (Center/End)

Slide 94

- When the main switch turns on, the CPU turns on the heating roller fusing lamp [E]. The fusing lamp stays on until the pressure roller thermistors [D], NC sensors [A] and thermopile [F] detect the standby temperature. Then the CPU raises the temperature to the printing temperature.
- The fusing temperature for each mode is as follows. These are set by SP 1105.
- The thermostats [C] for the heating sleeve belt are used for overheat prevention. These thermostats are opened if the heating sleeve belt temperature is over 250° C.
- The PID control (the phase control) method and On/Off method are adopted as fusing temperature control methods.
- The heating temperature is detected with the thermopile [F] and the NCU sensors [A]. The pressure temperature is detected with the thermistors [D]. The thermostats act as safety switches at the heating sleeve belt unit side.

Fusing
Pressure Roller

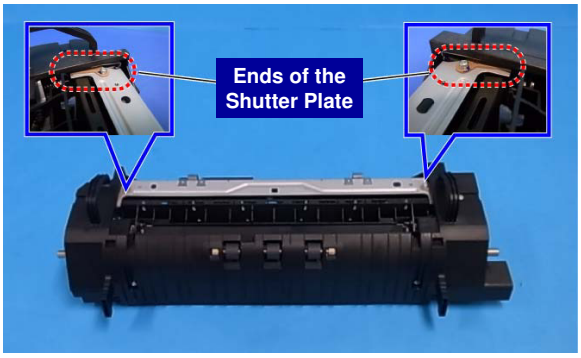


- **The procedure has changed. In particular, lubrication of bearings after replacement is not required.**
- **The surface of the pressure roller is fragile, so the pressure roller must be covered with a sheet of paper when it is placed on a table or floor.**

Slide 95

- [A] and [B] are bearings – you can ignore these for the purpose of this slide.

Fusing
Shutter Plate

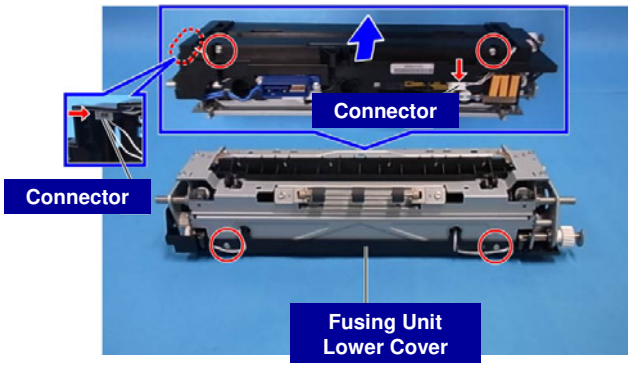


- When you reinstalled the fusing unit upper cover, do not use excessive force .
- Otherwise, the ends of the shutter plate may be damaged and this will result in a problem when opening and closing the shutter.

Slide 96

No additional notes

Fusing
Fusing Unit Lower Cover



- The fusing lower cover cannot be removed from the fusing main body completely before removing the thermistors.
- Therefore, pay extra attention to handling the fusing lower cover when disassembling the fusing unit.

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No additional notes

Drive Unit

- To save energy, the motors will be changed from stepper motors to dc motors.

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No additional notes

Fax Unit

- **The MBU and FCU are combined into one board.**
- **After you replace the FCU, you must transfer the SRAM data from the old FCU to the new one.**
- **This is done by connecting the old FCU to the new one with a flat cable.**
  - A flat cable is provided with the new FCU service part.
- **The following data will be transferred: TTI, RTI, CSI, bit switch settings, RAM address settings, NCU parameter settings**

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- See the fax unit's service manual for the procedure.

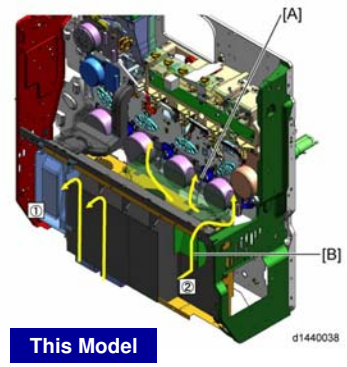
Boards

- **The BICU has been divided into two boards: BCU, and IPU.**
  - The same BCU board is used for the following three models: AL-C2, AP-C3, AT-C3

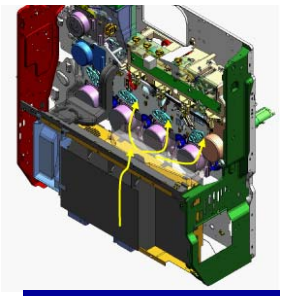
Slide 100

No additional notes

Improved Air Flow - 1



This Model



Previous Model

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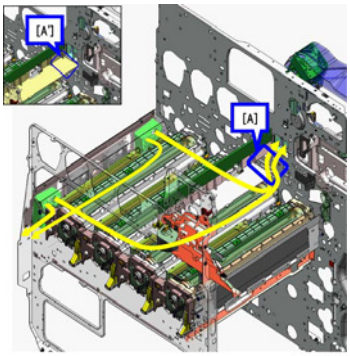
PSU Ventilation

- To prevent rising temperature in the toner supply route [A] due to heat from the PSU, the hot air in the power supply unit will be exhausted to the outside directly (1).
- To do this, a louver ([C] in the overview) is added and the PSU fan is moved.

Toner Supply Section Ventilation

- The previous machine creates the airflow [A] with the PSU fan. In the new model, the louver ([B] in the overview) and the duct [2] are added at the rear of the machine to get the external air in. And, the 1st duct fan is newly added to create the airflow [B] because the PSU fan is used to exhaust only.

Improved Air Flow - 2



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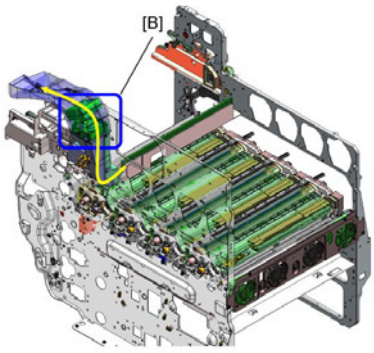


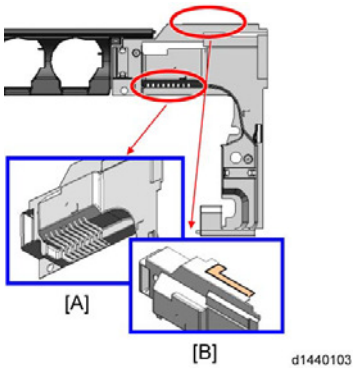
d1440101

- A cutout [A] is created on the supply guide plate and the 2nd duct fan [B] is doubled in order to exhaust the air from the main fans effectively.
- In the previous model, this was at [A'].

Slide 102

No additional notes

Improved Air Flow - 3

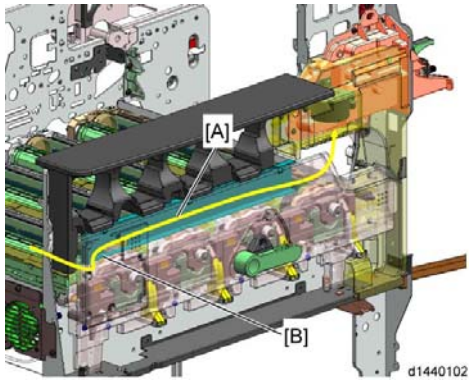


- **A duct is added at the rear of the PCDU face plate. This forms an airflow route, and prevents toner from diffusing around the faceplate and the toner bottles.**
- **Also, the shape of the inner cover is changed**
  - [A] Larger outlet
  - [B] To prevent air leaks

Slide 103

No additional notes

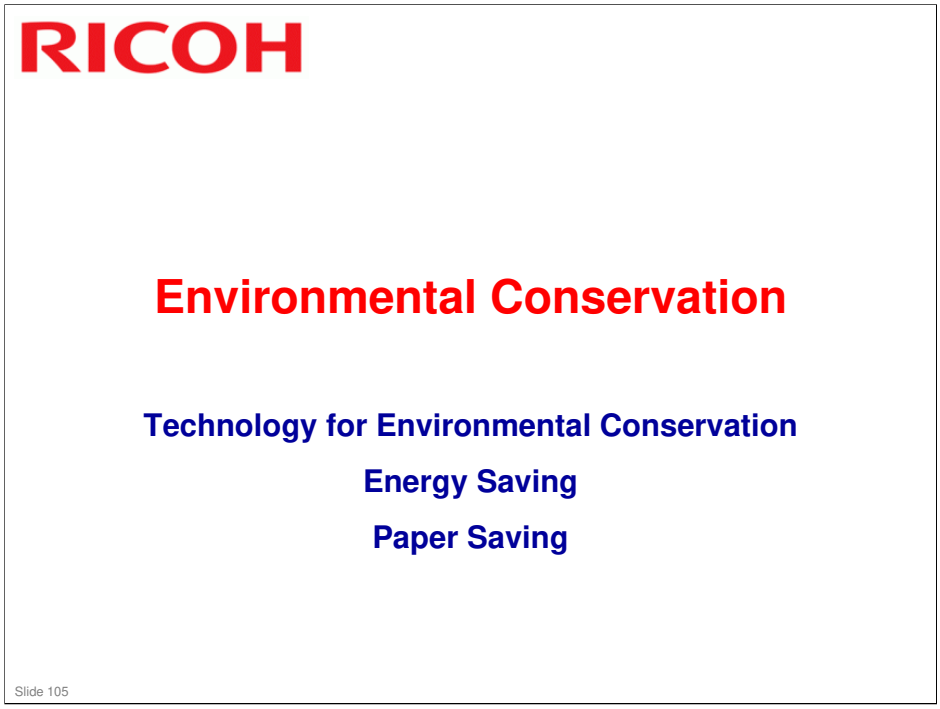
Improved Air Flow - 4



- The new duct [A] and the shape change of the inner cover can guide the airflow from the main fan smoothly to the QSU fan.

Slide 104

No additional notes



- This section explains the technology used in this machine for environmental conservation, and the default settings of related functions.

Technology for Environmental Conservation

**: New or modified function
*: Has this function
Blank: Does not have this function

Environmental Technology/Feature	Description	New model AP-C3	Old model AP-C2.5
1. QSU	- Reduction of warm-up time (Energy saving) - Reduction of CO_2 emissions	**	*
2. Hybrid QSU		*	*
3. IH QSU			*
4. Paper-saving features	- Allows documentation to be managed digitally, cutting down on paper consumption. - Improves machine productivity when printing out duplex (double-sided) images.	*	*
5. High-speed duplex output	- Improves machine productivity when printing out duplex (double-sided) images	*	*
6. Ozone reduction design	- Low ozone emissions	*	*
7. PxP (polymerized) toner	-Energy saving - Conservation of materials/resources (reduced toner consumption)	*	*
8. Noise reduction design	- Low noise	*	*
9. Minimization of harmful substances	- Minimization of harmful substances	*	*
10. Environmentally-friendly toner bottle	- Conservation of materials/resources	*	*
11. Toner recycling		*	*
12. Recycle-friendly design		*	*

Slide 106

- This slide explains what technologies are used for conserving the environment in this product.

Brief Descriptions of the Technologies

- **1. QSU (Quick Start-up)**
  - This technology reduces both the amount of energy consumed while in Standby mode (the Ready condition) is reduced, as well as the time it takes for the machine to warm up to the Ready condition.
  - This is made possible through the utilization of dual fusing lamp heating, low fusing point toner, a pressure roller with a "sponge" surface layer, and a thin surface layer hot roller.
- **2. Hybrid QSU**
  - This technology adds an additional circuit to conventional QSU Technology, which allows the benefits of reduced energy consumption and reduced warm-up time described above to be extended to high-speed machines.

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No additional notes

Brief Descriptions of the Technologies

- **3. IH QSU**
  - This technology incorporates IH (Inductance Heating) technology into conventional QSU technology, which allows the benefits of reduced energy consumption and reduced warm-up time to be extended to color machines.
- **4. Paper-saving features**
  - 1) The duplex (double-sided) and Combine features reduce paper consumption.
    2) The Document Server and other electronic document management features reduce paper consumption by offering an electronic method for storing and managing important documents.

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No additional notes

Brief Descriptions of the Technologies

- **5. High-speed duplex output**
  - 1) Enables high-speed duplex printing through the utilization of the Duplex Interleaf and high-speed Inverter Transport features.
  - 2) Enables quick printing of duplex jobs through the use of Duplex Scanning.
- **6. Ozone reduction design**
  - Greatly reduces the machine's ozone emissions to near-zero levels by utilizing:
    1) A charge roller/belt instead of a corona wire
    2) An image transfer roller/belt instead of a corona wire-based transfer system

Slide 109

No additional notes

Brief Descriptions of the Technologies

- **7. PxP (polymerized) toner**
  - "PxP toner" is a fine-particle, polyester resin based toner, manufactured using a Ricoh-original polymerization method instead of the conventional pulverization method.
  - This allows the toner to fuse at a lower temperature, which reduces the impact on the environment and contributes to achieving even higher image quality than before.
  - PxP toner also has other benefits, including a reduction in the amount of toner needed to develop the image, as well as an approximate 35% reduction in CO_2 emissions during the toner manufacturing process.

Slide 110

No additional notes

Brief Descriptions of the Technologies

- **8. Noise reduction design**
  - 1) The machine and its components are designed to minimize the overall noise generated by the machine. As a result, all noise levels conform to the local laws and regulations as well as user requirements in each market in which the products are sold.
  - 2) Reduces the noise generated by the polygon mirror motor.
- **9. Minimization of harmful substances**
  - 1) Products sold in the EU conform to the RoHS Directive.
  - 2) Products sold in China conform to China's version of the RoHS Directive.
  - 3) In addition, Ricoh imposes strict internal standards for limiting the presence of harmful substances.

Slide 111

No additional notes

Brief Descriptions of the Technologies

- **10. Environmentally-friendly toner bottle**
  - A changeover from PS/PP/HDP to PET plastics allows approximately 40 percent by weight of the toner bottle to be recycled, and also reduces CO_2 emissions that occur during the toner bottle manufacturing process.
- **11. Toner recycling**
  - Enables effective use of resources by recycling (reusing) the toner left over on the drum surface after image transfer.
- **12. Recycle-friendly design**
  - To maximize the recycling ratio of machine and component materials, as well as the ease of performing the recycling in the field, machine sections and components are designed so that the recyclable parts can be separated out easily.
  - In addition, components are designed so that they can be reused for as long as possible after the machine has reached its operational lifetime.

Slide 112

No additional notes

Quick Start-up

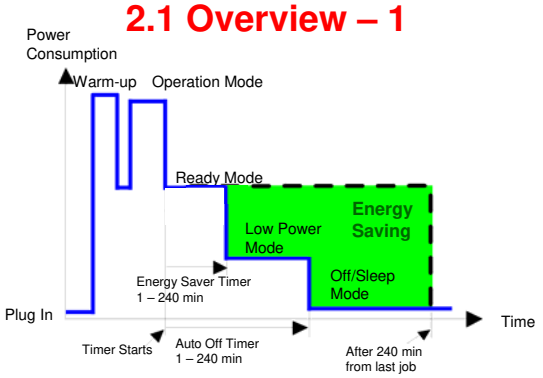
- **QSU reduces the operating temperature, because of these improvements in fusing unit technology**
  - Use of the heating sleeve belt
  - Low melting-point toner
- **This also means that the warm-up time and recovery time from energy saver modes are also reduced.**
  - Warm-up time (20 ° C)
    - » C2.5c: 26.1 seconds or less -> 20 seconds or less
    - » C2.5d: 40.1 seconds or less -> 30 seconds or less
  - Recovery time
    - » C3c: 20 seconds or less
    - » C3d: 30 seconds or less

Slide 113

- Through major reductions in warm-up time and recovery time from energy saver modes (Low power, Off/Sleep), QSU (Quick Start Up) Technology has eliminated the traditional trade-off between energy saving and convenience of speed.
- The IH (induction heating) method used in the Apollon series is also a part of this technology.

2. Energy Saving

2.1 Overview – 1



Energy Saver Modes	Description
Low Power Mode	The fusing temperature is lowered to the prescribed temperature (below ready temperature).
Auto Off/Sleep Mode	No power is supplied to the printing engine, and almost none to the controller.

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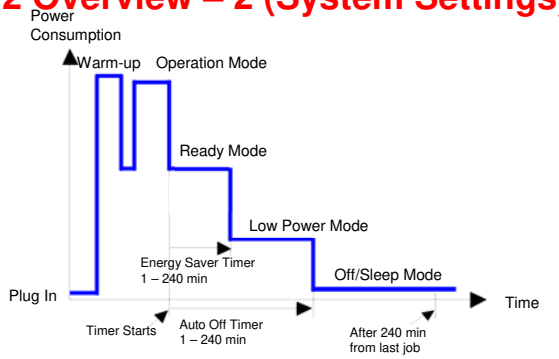
- When the machine is not being used, the machine enters energy saver mode to reduce the power consumption by turning off the LCD of the operation panel and lowering the fusing temperature.
- The area shaded green in this diagram represents the amount of energy that is saved when the timers are at the default settings. If the timers are changed, then the energy saved will be different. For example, if the timers are all set to 240 minutes, the green area will disappear, and no energy is saved before 240 minutes expires.
- Power consumption during warm-up may be much higher than shown in this diagram.

2. Energy Saving
2.2 Overview – 2 (System Settings)



Timer settings and recovery time (System settings => Timer setting)

Mode	Timer	Default	Setting range	Recovery time
Low Power Mode	Energy Saver Timer	1 min. (NA and EU) 10 min. (Others)	1 to 240 min.	C3c: 15 sec. C3d: 20 sec.
Off/Sleep Mode	Auto Off Timer	1 min. (NA and EU) 16 min. (Others)	1 to 240 min.	C3c: 20 sec. C3d: 30 sec.

Specified values for timers	Low Power Mode	Auto Off Mode
If Energy Saver > Auto Off	This mode cannot start	This mode can start
If Energy Saver = Auto Off	This mode cannot start	This mode can start
If Energy Saver < Auto Off	This mode cannot start	This mode can start

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- The user can set these timers with User Tools
  MFP/ Priport: User Tools > System settings > Timer Setting
  Printer : User Tools > System settings > Energy Saver Timer
- Normally, Energy Saver timer < Auto Off timer.
- But, for example, if Auto Off timer < or = Energy Saver timer, the machine goes immediately to Off mode when the Auto Off timer expires. It skips the Energy Saver mode.
- We recommend that the default settings should be kept.
  - If the customer requests that these settings should be changed, please explain that their energy costs could increase, and that they should consider the effects on the environment of extra energy use.
  - If it is necessary to change the settings, please try to make sure that the Auto Off timer is not too long. Try with a shorter setting first, such as 30 minutes, then go to a longer one (such as 60 minutes) if the customer is not satisfied.
  - If the timers are all set to the maximum value, the machine will not begin saving energy until 240 minutes has expired after the last job. This means that after the customer has finished using the machine for the day, energy will be consumed that could otherwise be saved.
  - If you change the settings, the energy consumed can be measured using SP8941, as explained later in this presentation.
- Power consumption during warm-up may be much higher than shown in this diagram.

2. Energy Saving
2.2 Energy Saver Mode: Condition of LEDs

❑ Condition of LEDs on the operation panel

Mode	Operation Switch LED	Energy Saver LED	Main Power LED
Low Power Mode	On	Off	On
Off/Sleep Mode	Off	Blinking	On

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No additional notes

2. Energy Saving
2.3 Energy Saver Mode: Low Power Mode

- **The machine enters low power mode when the energy saver timer runs out after the last job.**
- **When the machine enters low power mode, the fusing temperature is lowered to the prescribed temperature (below the machine ready temperature).**
- **The machine recovers to the ready condition if one of the following occurs:**
  - The Energy Saver key is pressed
  - An original is placed in the ADF
  - The ADF is lifted
  - The user touches the operation panel
  - The front door is opened or closed
- **The recovery time depends on the model and the region.**
  - C3c: 15 seconds or less
  - C3d: 20 seconds or less

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No additional notes

2. Energy Saving

2.4 Energy Saver Mode: Auto Off Mode – 1

- **The machine enters auto off mode when one of the following is done.**
  - The auto off timer runs out after the last job.
  - The operation switch is pressed to turn the power off.
- **When the machine enters auto off mode, no power is supplied to the printing engine, and almost none to the controller.**
- **Recovery time**
  - C3c: 20 seconds or less
  - C3d: 30 seconds or less

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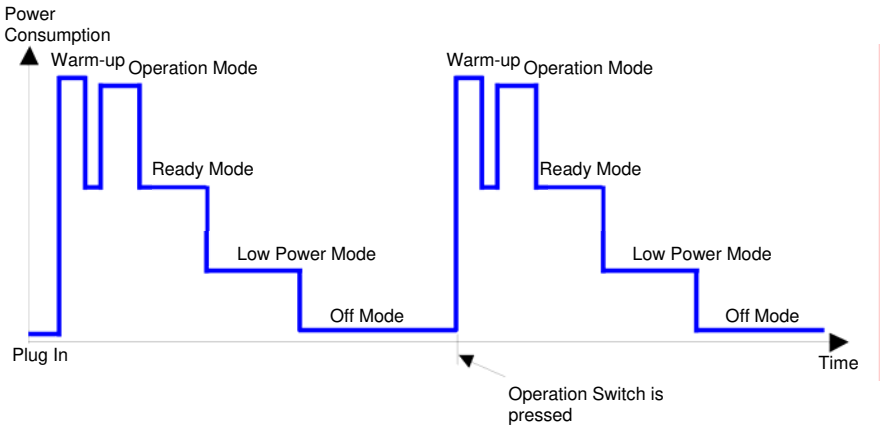
No additional notes

2. Energy Saving

2.4 Energy Saver Mode: Auto Off Mode – 2

- **The machine recovers to the ready condition if the operation switch is pressed.**



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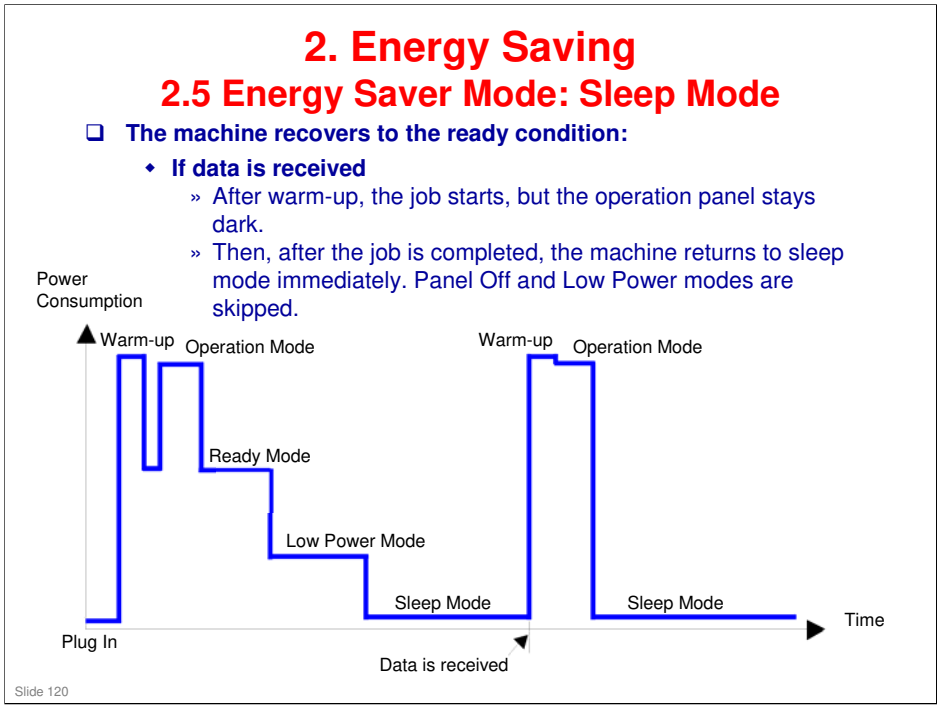
- This timing chart shows what happens if the operation switch is pressed while the machine is in auto off mode.
- Power consumption during warm-up may be much higher than shown in this diagram.



- This timing chart shows what happens if data is received while the machine is in sleep mode.
- Power consumption during warm-up may be much higher than shown in this diagram.

2. Energy Saving
2.6 Energy Save Effectiveness

- **With the data from SP 8941:Machine Status, and the power consumption values from the specifications, we can estimate the amount of energy that is used by the machine.**
  - 8941-001: Operating mode time
  - 8941-002: Standby mode time
  - 8941-004: Low power mode time
  - 8941-005: Off/sleep mode time
- **This should only be used as a reference value, because the power consumption specifications are measured in a controlled environment with a constant power supply.**
- **To get an exact measurement at the customers site, a watt meter must be used to measure the actual energy consumed.**

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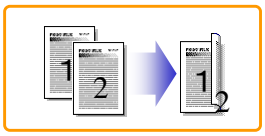
No additional notes

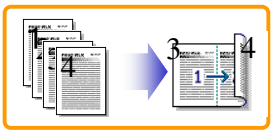
3. Paper Saving
3.1 Measuring the Paper Consumed – 1

1. Duplex: Reduce paper volume in half!



2. Combine: Reduce paper volume in half!

3. Duplex + Combine: Using both features together can further reduce paper volume by 3/4!



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No additional notes

3. Paper Saving
3.1 Measuring the Paper Consumed – 2

- **To check the paper consumption, look at the total counter and the duplex counter.**
  - Total counter : SP 8581 001
  - Single-sided with duplex mode : SP 8421 001
  - Double-sided with duplex mode : SP 8421 002
  - Book with with duplex mode : SP 8421 003
  - Single-sided with combine mode : SP 8421 004
  - Duplex with combine mode : SP 8421 005
- **The total counter counts all pages printed.**
- **The duplex and combine counter counts all pages printed with duplex and combine mode.**

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No additional notes

3. Paper Saving
3.1 Measuring the Paper Consumed – 3

- **How to calculate the paper reduction ratio, when compared with Single-sided copying, with no 2-in-1 combine mode**
- **Paper reduction ratio (%) = Number of sheets reduced: A/Number of printed original images: B x 100**
  - Number of sheets reduced: A
    = Output pages in duplex mode/2＋ Number of pages in Single-sided with combine mode + Number of pages in Duplex with combine mode x 3/2
    A = (②+③+④)/2 + ⑤+⑥ x 3/2
  - Number of printed original images: B
    = Total counter＋ Number of pages in Single-sided with combine mode ＋ Number of pages in Duplex with combine mode
    B = ①+⑤+⑥

① **Total counter**	**: SP 8581 001 (pages)**
② **Single-sided with duplex mode**	**: SP 8421 001 (pages)**
③ **Double-sided with duplex mode**	**: SP 8421 002 (pages)**
④ **Book with with duplex mode**	**: SP 8421 003 (pages)**
⑤ **Single-sided with combine mode**	**: SP 8421 004 (pages)**
⑥ **Duplex with combine mode**	**: SP 8421 005 (pages)**

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In the above formula:

- Sheet: A sheet of paper
- Page: A side of a sheet of paper. In duplex mode, one sheet is two pages
  - Output page: One side of a sheet of output paper
- Original Image: An image of one original page (or, an image of one side of a two-sided original)
  - For one sheet of output paper in two-in-one copying, four original pages are copied onto two output pages.

RICOH

RICOH

D143/D144
Service Training

Limitations

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This section explains some important product limitations.

Yield of Toner Supply Unit

- **The life of a toner supply unit is the following:**
  - A4, 5% coverage: Bk 2000k, FC 1500k
- **However, yield is shortened under high coverage conditions.**
  - Yield of the toner supply unit is shortened in high coverage conditions because the yield depends on the amount of supplied toner.
- **Change the toner supply unit by estimating the most suitable exchange time. To do this, refer to the PM counter of the toner supply unit.**

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Variations in target yield (pages) due to image coverage ratio

- Target yield figures are set for each PM unit shown in the table below, both in terms of number of pages and usage time (whichever is reached first). The percent of yield currently (% of unit usage) reached can be displayed in SP7803-109 to -113 for pages, and in SP7803-080 to -084 for usage time.
- The timing at which a given PM part will reach its yield depends on the average image coverage ratio conditions under which the customer uses the machine. For example, if the average coverage ratio is over 5%, the usage time counter will reach the target yield before the page counter does. This is because with the high coverage ratio, the toner supplying time will increase (i.e. the usage time is greater).
- Table 1: Target yield when calculated by pages (page counter value, % yield reached)
  - Note: Percent of yield reached (pages) = PM counter value (pages) / Target yield (pages)

	< 5%	5%	10%	20%	30%	40%	50%
Toner Supply Unit - K	> 2000k (> 100%)	2000k (100%)	1000k (50%)	500k (25%)	333k (16%)	250k (12%)	200k (10%)
Toner Supply Unit - YCM	> 1500k (>100%)	1500k (100%)	750k (50%)	375k (25%)	250k (16%)	187k (12%)	150k (10%)

- Table 2: Target yield when calculated by usage time (% yield reached)
  - Note: Percent of yield reached (usage time) = PM counter value (usage time) / Target yield (usage time)

	< 5%	5% to 50%
Toner Supply Unit - K	(Less than 100%)	(100%)
Toner Supply Unit - YCM	(Less than 100%)	(100%)

Kink in the Fusing Sleeve Belt

- If a power shutdown occurred during continuous printing of more than 500 P/J, a kink occurs in the center of the fusing sleeve belt, and poor fusing occurs in the center of the page.
- Normally, the machine reduces the heat of the fusing sleeve belt uniformly. This cannot be done when there is a power shutdown, so a difference in temperature between the center of the sleeve belt and other parts occurs, and this causes a kink in the sleeve belt.
- If this happens, change the fusing sleeve belt.

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No additional notes

Output Check for the Fusing Exit Motor

- **If a set procedure is not followed when doing the output check for the fusing exit motor, SC554 (high temperature detection) or a kink in the fusing sleeve belt will occur.**
  - During an output check, a fusing lamp may turn on.
  - Also, if you exit from the screen for the fusing exit motor output check, the fusing exit motor will stop.
- **The output check SP for the fusing exit motor has been moved to Super SP Mode, to prevent technicians from doing this output check in the same way as other output check SPs.**

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Please do the following set procedure when you do the output check for the fusing exit motor.

1. Do one of the following.

- Open the right cover of a paper bank
- Take out one of the toner bottles
- Take out the waste toner bottle half way

2. Go into Super SP Mode.

3. Do the Output Check.

- SP5-804-031: Output check (high speed)
- SP5-804-032: Output check (middle speed)
- SP5-804-033: Output check (low speed)
- SP5-804-035: Output check (slower than low speed)

4. Power switch OFF/ON

5. Restore the machine to the standby condition (reverse what you did in step 1).

CPM Decrease

- When printing on small-width paper from the bypass tray or Envelope Feeder, the CPM decreases automatically.
- This CPM decrease occurs in order to prevent the hot offset image which occurs because of the rise in temperature at the ends of the fusing belt when doing continuous printing with a small paper width.
- If possible, change the paper orientation from SEF to LEF.

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This does not occur with the AT-C3 series.

Here are some examples of the CPM reductions that occur:

- [A]: Within 1 minute of the start of printing
- [B]: After 1 minute from the start of printing

- A5 SEF
  - AP-C3c (NA/EU): BK [A] 5% down [B] 30% down, FC [A] 10% down [B] 35% down
  - AP-C3d (NA/EU): BK [A] 20% down [B] 40% down, FC [A] 25% down [B] 45% down
- HLT SEF
  - AP-C3c (NA/EU): BK [A] 5% down [B] 30% down, FC [A] 10% down [B] 35% down
  - AP-C3d (NA/EU): BK [A] 20% down [B] 40% down, FC [A] 25% down [B] 45% down
- A6 SEF
  - AP-C3c (NA/EU): BK [A] 5% down [B] 20% down, FC [A] 10% down [B] 25% down
  - AP-C3d (NA/EU): BK [A] 20% down [B] 40% down, FC [A] 25% down [B] 45% down

Waiting Time After Feeding Small-width Paper

- After printing some sheets of small-width paper, if you then print on wider paper, waiting time occurs.
- Offset image may occur since the temperature at the ends of the fusing belt rises during printing a number of sheets of small-width paper.
- In order to prevent this, it is necessary to lower the fusing lamp temperature, and waiting time occurs when you need the higher temperature for the wider paper.
- If possible, change the paper orientation from SEF to LEF.

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EU model

- A4 SEF (Middle Thick): 100 sheets or more: 10 seconds
- A5 SEF: 20 sheets or more: (BK) 10 seconds, (FC) 28 seconds

NA model

- LT SEF (Middle Thick): 100 sheets or more: 10 seconds
- LG (Middle Thick): 100 sheets or more: 10 seconds
- A4 SEF: 100 sheets or more: 10 seconds
- A4 SEF (Middle Thick): 40 sheets or more: 10 seconds
- A5 SEF: 20 sheets or more: 30 seconds
- COM10: 40 sheets or more: 15 seconds

No additional notes