RICOH

RICOH

M126/M127/M128
Service Training

LI-MF1

Slide 1

Version 1.0

This training course provides service technician training for the LI-MF1.

RICOH

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

This is an OEM product from Lexmark.

Purpose of This Machine

- This machine is released to bridge a gap in the range of digital black-and-white copiers between SH-MF1 and RN-MF1.

Slide 3

No additional notes

What Models are there in the Series?

LI-MF1a (M126)	LI-MFb (M127)	LI-MF1c (M128)
Aficio SP 4400S, SP 4400S	Aficio SP 4410SF, SP 4410SF	Aficio SP 4420SF, SP 4420SF
Duplex printing, copying, and scanning	Same as LI-MF1a, plus fax	Same as LI-MF1a, plus fax, extra RAM (256 MB total), and 80GB HDD
LI-MF1a cannot be upgraded with a fax board. LI-MF1-a and LI-MF1b can be upgraded with memory or a hard disk (one of these but not both).		
Continuous print speed: 38 ppm (A4), 40 ppm (LT) Duplex print speed: 17 ppm (A4), 18 ppm (LT)		
First print: 6.5 seconds (from standby mode), 7 s (from energy saver mode)		
128MB RAM Standard 640MB RAM Maximum	128MB RAM Standard 640MB RAM Maximum	256MB RAM Standard 640MB RAM Maximum
50-sheet ADF, 250-sheet paper feed tray, 50-sheet bypass feeder 150-sheet output tray		
Large display		
18k print toner cartridge (starter AIO is 7k prints)		
Embedded web server		
@Remote & GlobalScan compatible		

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- Embedded web server: Similar to Web Image Monitor

Basic Specifications

- **Print speed:**
  - Continuous: 38 ppm (A4), 40 ppm (LT)
  - Duplex: 17 ppm (A4), 18 ppm (LT)
- **First print time: Up to 6.5 s (from standby mode), up to 7 s (from Power Saver mode)**
- **First copy time: See the notes page**
- **Warm-up time: Less than 2 min 35 s**
- **Scan/copy resolution: 600 x 600 dpi**
- **Print resolution: 1200 Image Quality, 1200 x 1200 dpi, 2400 Image Quality, 600 x 600 dpi**
- **Paper weights:**
  - Printer engine and duplex path: 60–90 g/m² (16–24 lb), optional paper trays
  - Multipurpose feeder (bypass): 60–163 g/m² (16–43 lb)
- **Document feeder capacity: 50 sheets**
- **Paper feed capacity:**
  - Standard paper tray: 250 sheets, 150 sheets of A6 paper, 50 paper labels, 50 transparencies
  - Optional paper tray: 250 sheets or 550 sheets (depending on which type of tray is installed), 50 paper labels
    Bypass: 50 sheets, 15 paper labels, 10 transparencies, 10 sheets of card stock, 7 envelopes
- **Recommended monthly print volume: 2k to 10k**
- **Maximum monthly duty: 80k**
- **Fax modem speed: 33.6 kbps (3 s per page)**

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Print speed specifications in more detail

- Simplex
  - Letter: 40 ppm
  - A4: 38 ppm
  - Legal: 33 ppm
- Duplex:
  - Letter: 18 spm (sheets per minute)
  - A4: 18 spm
  - Legal: 17 spm
- Note: Speed is reduced by half when printing at 1200 x 1200 dpi
- All tests were made from Tray 1 to the standard output tray.

Detailed first copy out times:

- ADF, Text or Text/Photo, Letter, StandBy/Ready, 10.3 s
- ADF, Text or Text/Photo, A4, StandBy/Ready, 10.8 s
- Flatbed, Text or Text/Photo, Letter, StandBy/Ready, 10 s
- Flatbed, Text or Text/Photo, A4, StandBy/Ready, 11 s
- ADF, Photo or Printed Image, Letter, StandBy/Ready, 10.8 s
- ADF, Photo or Printed Image, A4, StandBy/Ready, 11.6 s
- Flatbed, Photo or Printed Image, Letter, StandBy/Ready, 10.3 s
- Flatbed, Photo or Printed Image, A4, StandBy/Ready, 10.7 s
- ADF, Text/Mixed, Letter, PowerSaver, 19 s
- ADF, Text/Mixed, A4, PowerSaver, 21.2 s
- Flatbed, Text/Mixed, Letter, PowerSaver, 15.2 s
- Flatbed, Text/Mixed, A4, PowerSaver, 17.8 s

Options

- **For all models**
  - IEEE802.11b/g/n Interface Unit Type 4400 (M412)
  - One of the following can be installed:
    - » 550-sheet Paper Feed Unit TK1180 (M410)
    - » 250-sheet Paper Feed Unit TK1170 (M411)
- **For LI-MF1a and LI-MF1b only**
  - One of the following can be installed, but not both:
    - » Hard Disk Drive Option Type 4400 (M412)
    - » Memory Unit Type 4400 (128 MB) (M412)
      - – A 256 or 512 MB memory module can also be installed, but these are not provided as options.

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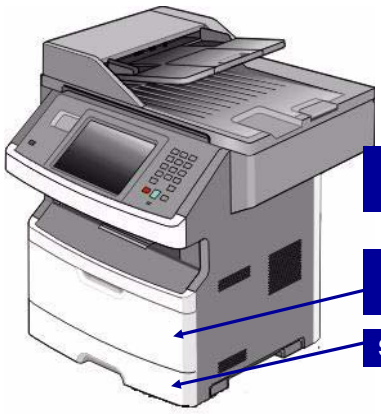
No additional notes

Appearance



- **Either of the following paper tray options can be installed**
  - Two-tray paper feed unit
  - One-tray paper feed unit

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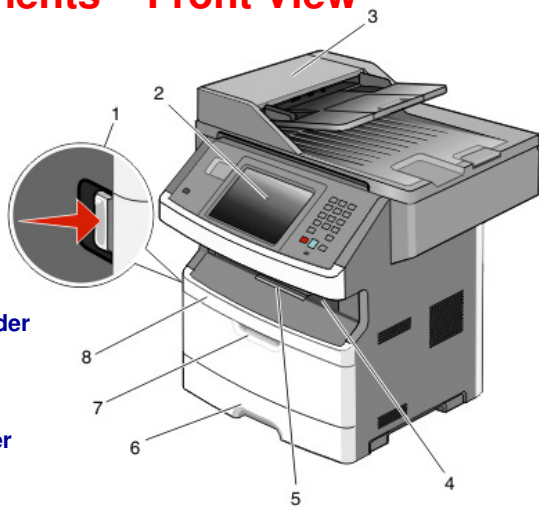
- The bypass tray is also known as the multipurpose feeder, or MPF.

Components – Front View



1. Front door release button
2. Operation panel
3. Automatic Document Feeder (ADF)
4. Standard exit tray with overhead light
5. Exit tray extension/stopper
6. Standard 250-sheet tray
7. Bypass feeder door
8. Front door

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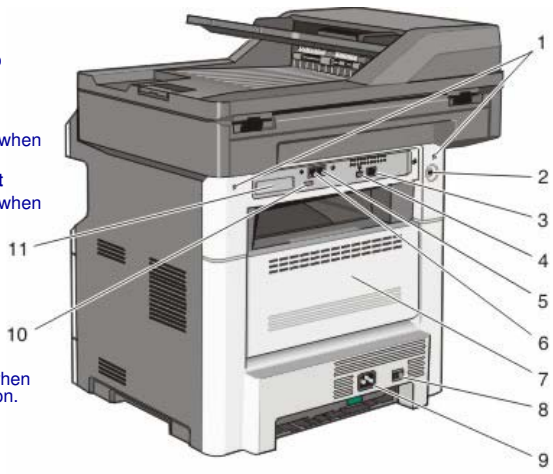
No additional notes

Components – Rear View

1. **Controller board locks**
2. **Locking device**
3. **Ethernet port**
4. **USB port**
   - Note: Use this USB port to connect the printer to the computer.
5. **Fax wall connection port**
   - Note: This is present only when a fax card is installed.
6. **Fax telephone connection port**
   - Note: This is present only when a fax card is installed.
7. **Rear door**
8. **Power switch**
9. **Printer power cord socket**
10. **USB peripheral port**
11. **Removable plate**
    - Note: Remove this plate when you install an internal option.



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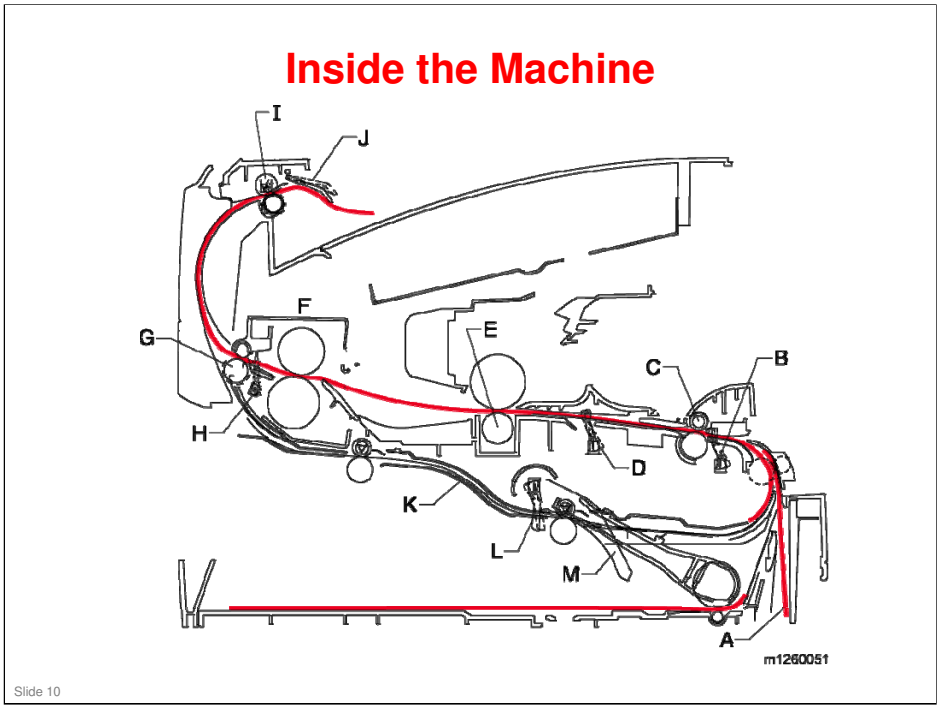
No additional notes



Components

- A: Paper path
- B: Manual feed sensor
- C: Upper end feed rolls
- D: Input sensor
- E: Transfer roll
- F: Fuser
- G: Fuser exit rolls
- H: Fuser exit sensor
- I: Exit rolls
- J: Exit sensor/narrow media sensor
- K: Duplex unit
- L: Duplex sensor
- M: Auto compensator

The distances between the components are shown in the service manual:

- See the Print Engine Paper Path section

Terminology

- **The terms used by the original manufacturer are used. Here are some of the important ones.**
  - POR – Power-on Reset
  - POST – Power-on Self Test
  - FRUs – Field Replaceable Units
  - CRUs – Customer Replaceable Units
  - ISP – Internal Solutions Port. The wireless LAN card is installed here.
  - Imaging – Scanning
  - Roll – Roller
  - Fuser – Fusing unit
  - Printhead – Laser optics unit
  - Cave – Output tray cavity
  - Media tray, media feed clutch – Paper tray, paper feed clutch
  - Pick tire – Pick-up roller
  - Transfer roll – Transfer roller
  - MPF – Multipurpose Feeder (bypass tray)
  - Manual feed – Also refers to the MPF, mainly for single page jobs using special types of paper
  - Reversing Solenoid – Inverter Solenoid
  - Toner Level Sensor – Toner Overflow Sensor
  - Controller board – Sometimes called the System Card or System Board

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MPF (Multi-purpose feeder)

- A user tool (Configure MPF) determines how the MPF is used
  - Cassette (default): The MPF is an automatic paper source.
  - Manual: The MPF can be used only for manual feed print jobs (when Manual Feed is selected at the operation panel).
  - First: If paper is loaded in the MPF and First is selected, then paper always feeds from the MPF first.

Scanner Capabilities

- **24-bit color CCD scanner for better color recognition**
- **Up to 35 (letter), 32 (A4) sides per minute mono duplex**
- **Supported scan destinations**
  - E-mail (SMTP)
  - FTP
  - Network-connected PC
  - USB connected PC
  - USB flash drive

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No additional notes

Supported Print Media

Source	Sizes	Types	Weight	Input Capacity
Input tray 1 (250-sheet tray)	A4, A5, A6,JIS[1]-B5, letter, legal, executive, oficio (Mexico)[2], folio[2], statement	Plain paper, recycled, labels, bond, bond, letterhead, colored paper, preprinted, light paper, heavy paper, rough/cotton, custom type [x]	60-90 g/m² (16-24 lb)	• 250 paper • 50 labels**
2nd Drawer option (250/550-sheet drawer)	A4, A5, JIS[1]-B5, letter, legal, executive, oficio (Mexico)[2], folio[2], statement	Plain paper, recycled, labels, bond, letterhead, preprinted, colored paper, light paper, heavy paper, rough/cotton, custom type [x]	60-90 g/m² (16-24 lb)	• 250 paper • 550 paper • 50 labels**
Multipurpose feeder	A4, A5, A6,JIS[1]-B5, letter, legal, executive, oficio (Mexico)[2], folio[2], statement	Plain paper, transparency, recycled, labels, bond, letterhead, preprinted, colored paper, light paper, heavy paper, rough/cotton, custom type [x]	60-163 g/m² (16-43 lb)	• 50 paper • 15 lables** • 10 transparencies
		Card stock**	• 120-163 g/m² (16-43 lb) Index Bristol • 75-163 g/m² (46-100 lb) Tag	20
	7 ¾, 9, 10, DL, C5, B5,	Envelopes, Rough envelopes	75 g/m² (20 lb)	7
Duplex	A4, letter, legal, oficio (Mexico)[2], folio[2]	Plain paper, recycled, bond, letterhead, preprinted, colored paper, light paper, heavy paper, custom type [x]	60-90 g/m² (16-24 lb)	

* Capacity for 20 lb print media, unless otherwise noted.

** Use for occasional printing only.

[1] Japanese Industry Standard

[2] If a source supports size sensing and is activated, then neither the "oficio" value nor the "folio" value appears in that source's list of supported media sizes. These values only appear in a source's list of supported media sizes either when the source is non-size sensing or when the source's size sensing hardware is deactivated and then the device is power cycled.

Note: Ensure trays are properly loaded. Never mix media types within a tray.
Note: There is a 100 pixel (approximately 4mm) no-print border on all paper sizes.

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No additional notes

About the Bypass Feeder
Paper Types

- **Use this tray to print on different sizes and types of papers or special media, such as card stock, transparencies, and envelopes.**
- **Also use this tray for single-page print jobs on letterhead or on other special media that you do not keep in a tray.**
  - Load letterhead with the logo face-up and the top edge entering the printer first.
  - Load envelopes with the flap side down and the stamp at the trailing edge.

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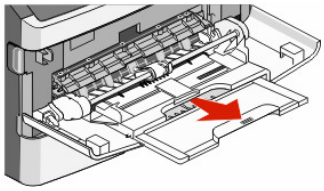
- The bypass tray is also known as the multipurpose feeder, or MPF.

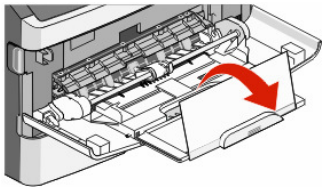
About the Bypass Feeder

Opening the Feeder

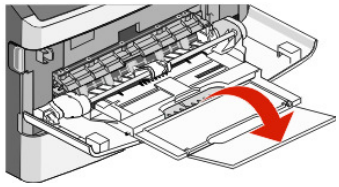
1. Pull the multipurpose feeder door down



2. Pull the extension forward



3. Pull the extension so it flips forward



4. The feeder is now extended fully

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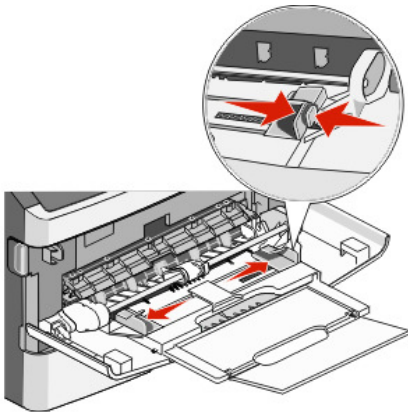
No additional notes

About the Bypass Feeder
Moving the Guides



- Squeeze the tab located on the right guide, and move the guides.

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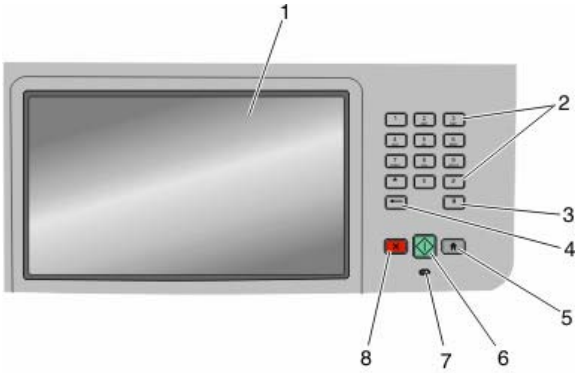
No additional notes

Operation Panel



1. **Color display**
2. **Keypad**
3. **Dial Pause button**
   - Only used when dialling fax numbers.
4. **Back (Backspace) button**
5. **Home button**
   - Press this to go back to the home screen.
6. **Start button**
7. **Indicator lamp**
8. **Stop button**

Features
- 7" color
- Adjustable viewing angle
- Expanded language support

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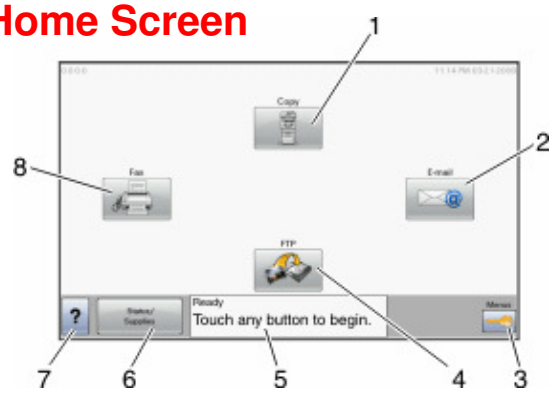
- What is the 'home screen'? See the next slide
- Indicator lamp: Indicates the printer status:
  - Off—The power is off.
  - Blinking green—The printer is warming up, processing data, or printing.
  - Solid green—The printer is on, but idle.
  - Blinking red—Operator intervention is needed.

Home Screen



1. Opens the Copy menus
2. Opens the E-mail menus
3. Opens the user tool menus. These menus are available only when the printer is in the Ready state.
4. Opens the File Transfer Protocol (FTP) menus
5. Status message bar
6. Status/Supplies: Appears on the display when the printer status includes a message requiring intervention.
   - Touch it to access the messages screen for more information on the message, including how to clear it.
7. Tips: All menus have a Tips button. Tips is a context-sensitive help feature.
8. Opens the Fax menus

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Sometimes, other buttons may appear on the home screen.

Release Held Faxes: If this button is shown, then there are held faxes with a scheduled hold time previously set. To access the list of held faxes, touch this button.

Search Held Jobs: Searches for any of the following items and returns search results:

- User names for held or confidential print jobs
- Job names for held jobs, excluding confidential print jobs
- Profile names
- Bookmark container or job names
- USB container or job names for supported extensions only

Held Jobs: Opens a screen containing all the held jobs

Lock Device: This button appears on the screen when the printer is unlocked and Device Lockout Personal Identification Number (PIN) has been set.

- Touching this button opens a PIN entry screen. Entering the correct PIN locks the operation panel.

Unlock Device: This button appears on the screen when the printer is locked. The operation panel buttons and shortcuts cannot be used while it appears.

- Touching this button opens a PIN entry screen. Entering the correct PIN unlocks the operation panel (touch screen and hard buttons).

Cancel Jobs: Opens the Cancel Jobs screen. This screen shows three headings: Print, Fax, & Network.

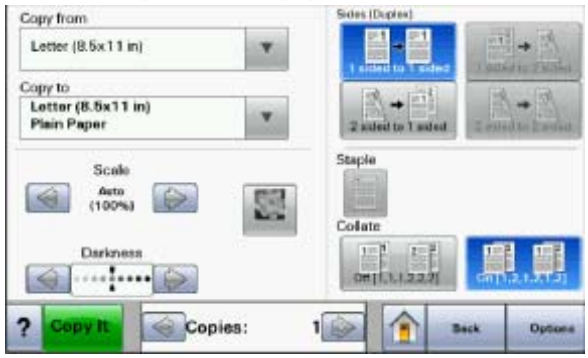
- Each heading has a list of jobs shown in a column under it which can show only three jobs per screen. Each job appears as a button which you can touch to access information about the job. If more than three jobs exist in a column, then an arrow appears enabling you to scroll through the jobs.

Status message bar

- Shows the current printer status such as Ready or Busy.
- Shows printer conditions such as Toner Low.
- Gives instructions on what to do so the printer can continue processing, such as 'Close door'.

For details of the contents of each menu, see the user guide.

Example: Copy Mode Screen



Use left and right arrow buttons to adjust settings.

- See scale, darkness, and number of copies above

Touch this to go back to the home screen.

Back

Touch this to go back to the previous screen.

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No additional notes

Other Commonly-used Buttons

- **Save this as the new value for this setting.**
- **Opens the Cancel Jobs screen.**
- **Touch this button to accept a selection or to clear a message, and then proceed with the job.**
- **Cancels an action or a selection, or cancels out of a screen and returns to the previous screen**
- **Opens the next related menu or menu item**

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- The Cancel Jobs screen has three headings: Print, Fax, Network.
- The following items are available under these headings:
  - Print job
  - Copy job
  - Fax
  - FTP
  - E-mail send
- Each job appears as a button which you can touch to access information about the job.

Other Points About the Display

- **Menu Trail**
  - There is a menu trail at the top of each menu screen. This shows the path taken to arrive at the current menu. It gives the exact location within the menus.
  - Touch any of the underlined words to return to that menu level.
    - » Example: Menus → Settings → Copy Settings → Number of Copies
- **Attendance message alert**
  - If something occurs which affects a function, such as copy or fax, then a solid red exclamation mark appears over the function button on the home screen, and the red indicator light blinks.

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No additional notes

Consumable Supplies

- **Toner cartridges:**
  - 18k (two types: returnable, and non-returnable)
  - 9k (one type: returnable)
  - Starter cartridge: 7k
- **Photoconductor unit (PCU): 30k**
- **The toner cartridge contains the development unit.**
- **The photoconductor unit contains the drum and charge roller.**

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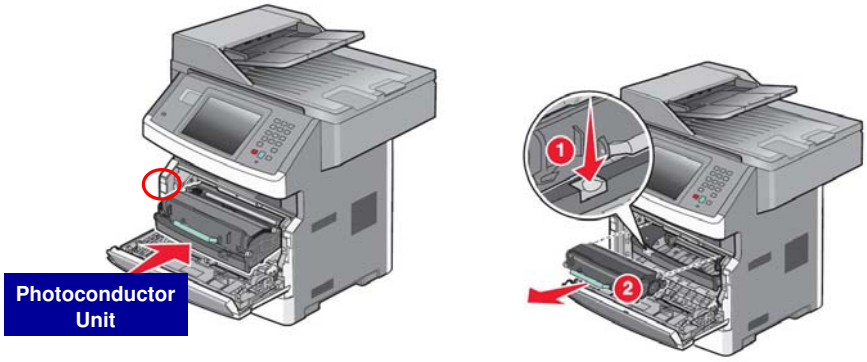
- PCU life of 30k is based on average 3 page jobs and approximately 5% coverage per page.

Photoconductor Unit and Toner Cartridge



- To access the photoconductor unit, press the door release button (to the left of the front door), and lower the front door.
- To take out the toner cartridge, press the button on the photoconductor unit. Pull the toner cartridge up and out using the handle.

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No additional notes

Data Overwrite Security

- **This feature is built into the controller board for all models.**
  - There is no Security SD Card.
- **The following settings control Data Overwrite on the hard disk**
  - User: Security Menu – Disk Wiping
    - » Automatic Wiping, Manual Wiping, Scheduled Wiping: These all wipe areas that are occupied by completed print jobs. Automatic Wiping takes place after the job is finished.
  - Technician: Configuration Menu – Wipe Disk
    - » This erases the disk completely.

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No additional notes

HDD Encryption

- **This feature is built into the controller board for all models.**
  - There is no Security SD Card.
- **The following settings control encryption on the hard disk**
  - Technician: Configuration Menu – Disk Encryption
    - » This must be set up before or while installing the machine.
    - » The customer installs the machine, so this feature must be set up at the warehouse before shipping to the customer.
    - » If the value is changed from Enable to Disable or from Disable to Enable, then the machine completely formats the hard disk. All information on the disk will be unrecoverable.
    - » If you remove an encrypted disk from a device and then try to install another disk, 'Disk Corrupted. Reformat?' appears on the LCD. You can format the newly installed disk or remove it from the device.
  - There is no user setting.

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No additional notes

- The customer installs this machine.
- This section explains some important points about installation.

Overview

- Installation for the main body and the options is done by the customer.
- The user manuals explain how to install the machine.

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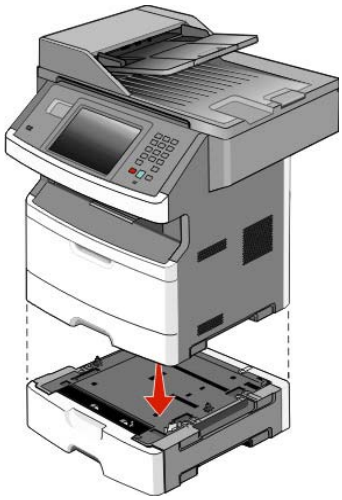
No additional notes

Installing an Optional Paper Tray Unit



- It is necessary to lift the machine and place it on top of the optional tray.
- Two people are needed for this job, to avoid injuries.

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No additional notes

Installing the Wireless LAN Card

- **This card goes in the ISP (Internal Solutions Port) slot inside the machine.**
  - See Replacements and Adjustments - Option Board Installation and Removal - Installing an Internal Solutions Port (ISP) in the service manual.

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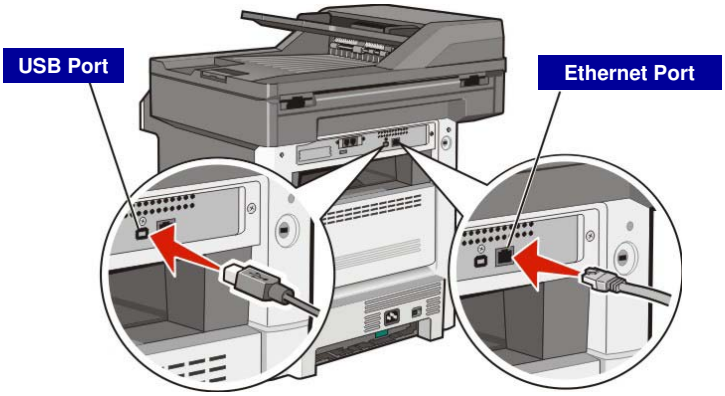
No additional notes

Connecting the Machine



- Connect either to a network with the Ethernet port, or directly to a computer with the USB port.

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No additional notes

Verifying Correct Setup

- **There are two reports to print.**
  - Menu settings page
    - » Use this page to verify that all printer options are installed correctly.
    - » A list of installed options appears toward the bottom of the page.
      - – If an option you installed is not listed, then it is not installed correctly. Remove the option and install it again.
  - Network setup page
    - » If your printer is attached to a network, print a network setup page to verify the network connection.
    - » This page also provides important information that aids network printing configuration.
  - How to print the reports
    - » Menu button (at bottom right of home screen) – Reports menu

 Menu button

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No additional notes

- This section explains some important points about operating the machine. The interface is not the same as the ones in other Ricoh products, so we need to take a quick look at this.

Menus

- **The following user tool menus become available when you push the Menu button (at the bottom right of the home screen)**
  - Paper Menu
  - Reports
  - Network/Ports
  - Security
  - Settings
  - Help

Menu button: 

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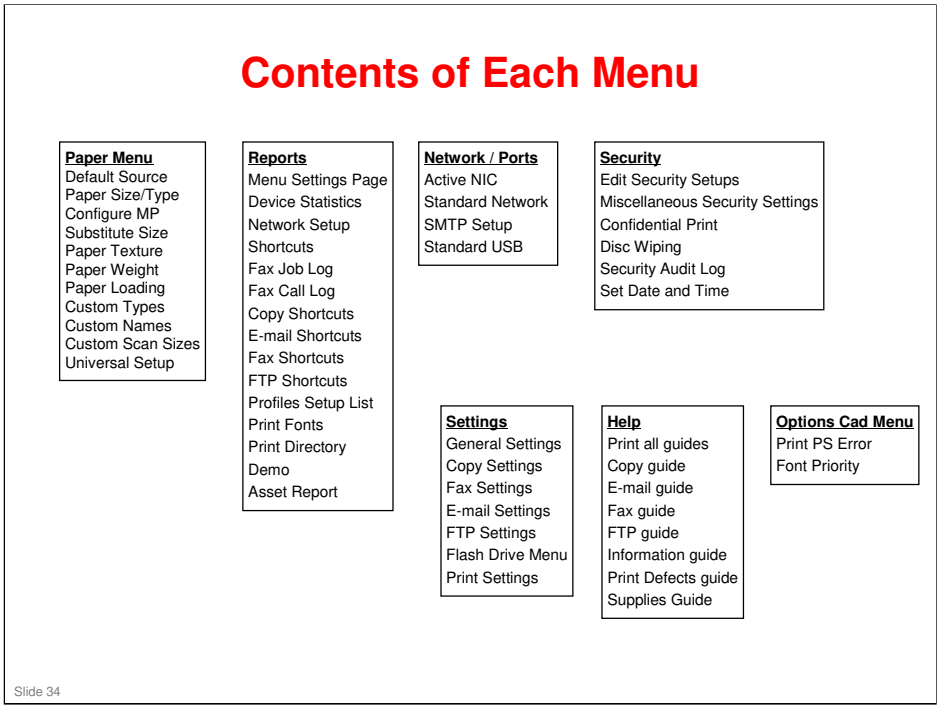
- See the user guide for details on the contents of these menus.



No additional notes

Saving Energy

Power Saver Timer

- **Menu > Settings > General Settings > Timeouts**
  - To save energy, you can decrease the number of minutes before the printer enters Power Saver mode.
  - Available settings range from 1–240 minutes.
  - The factory default setting is 30 minutes.

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No additional notes

Saving Energy
Eco Mode

- **Menu > Settings > General Settings > Eco-Mode**
  - Energy
    - » Reduces energy use, especially when the printer is idle.
    - » Printer engine motors do not start until a job is ready to print. You may notice a short delay before the first page is printed.
    - » The printer enters Power Saver mode after one minute of inactivity.
    - » When the printer enters Power Saver mode, the operation panel display and the standard exit bin lights are turned off.
    - » The scanner lamps are activated only when a scan job is started.
  - Paper
    - » Enables the automatic duplex feature
    - » Turns off print log features.
  - Energy/Paper
    - » Use all the settings associated with Energy mode and Paper mode.
  - Off
    - » Use factory default settings for all settings associated with Eco-Mode.
    - » This setting supports the performance specifications for your printer.

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No additional notes

Saving Energy
Others

- **Display brightness**
  - Menu > Settings > General Settings > Screen Brightness
    - » Available settings range from 20–100.
    - » The factory default setting is 100.
- **Standard exit tray light**
  - Menu > Settings > General Settings > Output Lighting
    - » Available settings are Off, Dim, and Bright.
    - » The factory default setting for Normal/Standby Mode is Bright.
    - » The factory default setting for Power Saver is Dim.

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No additional notes

Quiet Mode

- **Menu > Settings > General Settings > Quiet Mode**
  - On: Reduces printer noise.
    - » Doubles the amount of time needed for printing.
    - » Printer engine motors do not start until a job is ready to print. There may be a short delay before the first page is printed.
    - » Fans run at a reduced speed or are turned off.
    - » If your printer has faxing capability, fax sounds are reduced or disabled, including those made by the fax speaker and ringer.
  - Off: Uses factory default settings.
    - » This setting supports the performance specifications for your printer

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No additional notes

Paper Size and Type

- **Paper size is not detected automatically. It must be selected with the Paper menu.**
- **Do not assign a Paper Type that does not accurately describe the type of paper loaded in the tray.**
  - The fusing temperature depends on the specified paper type.
  - Fusing may not be done properly if an incorrect paper type is selected.

Slide 39

No additional notes

Printing from a USB Drive

- There is a USB port on the operation panel. Connect the USB memory here.
- Supported file types include: .pdf, .gif, .jpeg, .jpg, .bmp, .png, .tiff, .tif, .pcx, .dcx, .xps.
- USB devices must support the FAT system. Flash drives formatted with NTFS or any other file system are not supported.
- Some USB drives and USB hubs are not supported.
- Wait until the machine is in standby mode before you connect the USB memory drive.

Slide 40

No additional notes

Scanning to a USB Drive

- **Put the original in the ADF or on the exposure glass.**
- **Then insert the USB drive into the USB port on the front of the printer.**
- **You can also:**
  - Scan documents and send to your computer, an e-mail address, a flash drive, or an FTP destination.
  - Scan documents and send to another printer (PDF via FTP).

Slide 41

No additional notes

RICOH

No additional notes

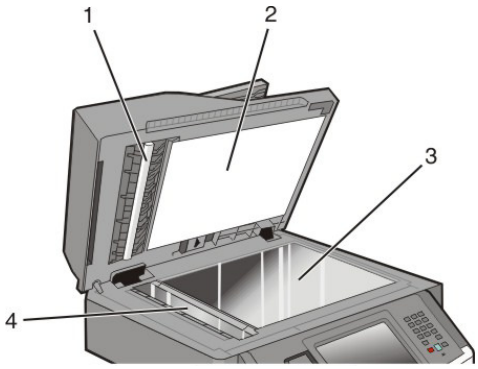
Who Does PM?

- The customer can do some basic cleaning and adjustments.
- However, the technician should replace the PM kits.

Slide 43

No additional notes

Maintenance Done by the User
Cleaning the Scanner



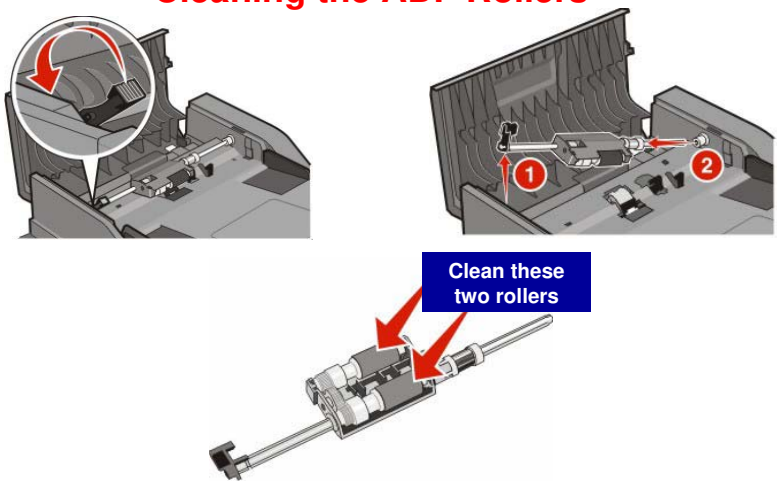
- If you encounter image quality problems, such as streaks on copied or scanned images, clean these areas with a damp cloth.

Slide 44

No additional notes

Maintenance Done by the User

Cleaning the ADF Rollers



- Clean every 50k scans with a damp cloth

Slide 45

No additional notes

Maintenance Done by the User
Adjusting the Scanner Registration

- **To manually align the scan area with the paper location, the user does the following:**
  - Print a registration test page.
  - Scan the test page using the exposure glass.
  - Adjust the Left Margin and Top Margin settings.
  - Repeat the previous two steps, but using the ADF (there are adjustments for both sides).

Slide 46

No additional notes

Checking the Status of Supplies

- **The user can do this.**
- **On the home screen, touch Status/Supplies.**
- **Touch View Supplies.**
  - The View Supplies screen appears, showing a summary of supply levels.
  - Note: The Black Cartridge gauge is only an estimate of how much toner is left.

Slide 47

- You can also do this by printing a Menu Settings Page.

Maintenance Kits

- **ADF Maintenance kit: Contains the following**
  - ADF separator roll
  - ADF separator pad
- **Low voltage (110 V) maintenance kit, or High voltage (220 V) maintenance kit: These contain:**
  - Fuser
  - Transfer roll
  - Charge roller
  - Pickup rollers
- **These kits are replaced every 120k.**
- **The technician replaces these kits.**

Slide 48

No additional notes

Resetting the PM Counter

- **After replacing the maintenance kits, reset the following counter.**
  - Configuration Menu - Reset Maintenance Counter

Slide 49

- The configuration menu is one of the two service menus. Service mode will be explained later in the course.

Resetting the PCU Maintenance Counter

- **After replacing the photoconductor unit, reset the following counter:**
  - Configuration Menu - Reset Photoconductor Maintenance Counter (Reset PC Cnt)
- **This setting resets the photoconductor kit page counter and clears any warnings or "photoconductor life end" messages.**
- **This operation should be done only after a new photoconductor unit has been installed.**

Slide 50

No additional notes

No additional notes

Service Menus

- **Configuration Menu**
  - Turn off the machine.
  - Press and hold 2 and 6.
  - Turn on the machine.
  - Release the buttons after 10 seconds.
- **Diagnostics Mode Menu**
  - Turn off the machine.
  - Press and hold 3 and 6.
  - Turn on the machine.
  - Release the buttons after 10 seconds.

Slide 52

- The functions of each item in the menus are explained in the appendixes to the service manual. Read and become familiar with these sections, because the organization of the service menus is different from the usual Ricoh MFP.
- Some of the important ones are explained on the next few slides.

Configuration Menu

- **Scanner Manual Registration**
  - This item is used to manually register the flatbed and ADF on the scanner unit.
  - Registration should be done whenever the ADF unit, flatbed unit, or controller card are replaced.

Slide 53

No additional notes

Configuration Menu

- The Reports menu contains two selections: Menu Settings Page and Event Log.
- The event log provides a history of printer errors.
- An event log printed from this menu will not contain debug information or secondary codes for 900 service errors.
  - To see this information, print the event log in the Diagnostics Mode menu.

Slide 54

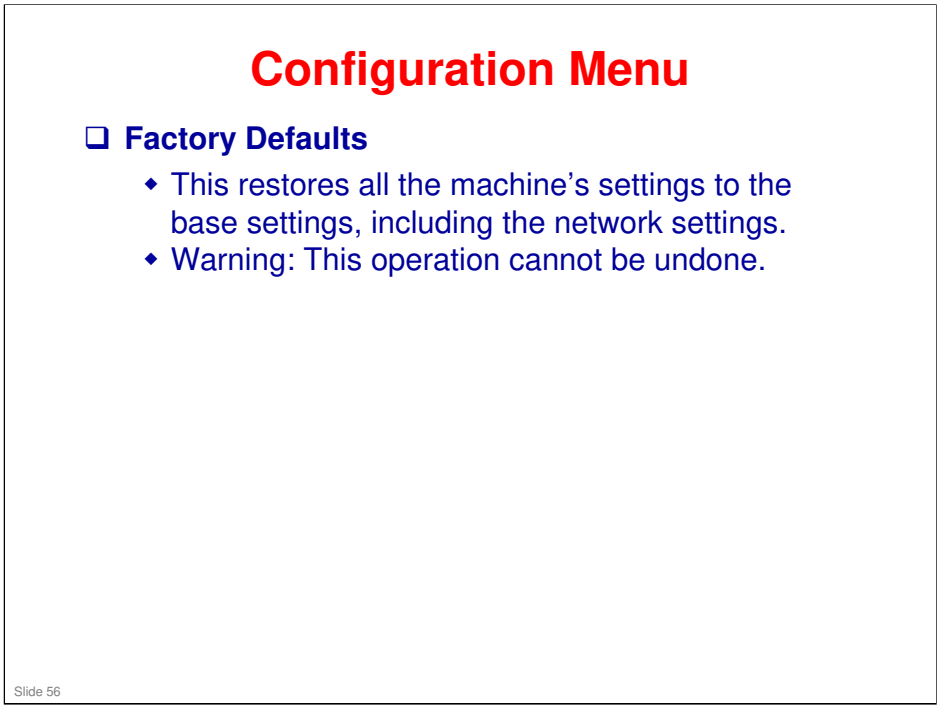
No additional notes

Configuration Menu

- **Panel Menus**
  - These let you enable or disable the operator panel menus.

Slide 55

No additional notes



No additional notes

Configuration Menu

- **Energy Conserve**
  - This menu controls what values appear on the Power Saver menu.
  - If Off is selected, then Disabled appears in the Power Saver menu, and Power Saver can be turned off.
  - If On is selected, the Power Saver feature cannot be disabled.

Slide 57

No additional notes

Configuration Menu

- **Disk Encryption**
  - This setting determines if the printer encrypts the information that it writes to the hard disk. The values are Disable and Enable.
  - Warning: If the value is changed from Enable to Disable or from Disable to Enable, then the printer completely formats the hard disk. All information on the disk will be unrecoverable.
  - If you remove an encrypted disk from a device and then try to install another disk, 'Disk Corrupted. Reformat?' appears on the LCD. You can format the newly installed disk or remove it from the device.
  - The entire process is complete when the progress bar appears completely shaded and the percentage indicator shows 100%.

Slide 58

No additional notes

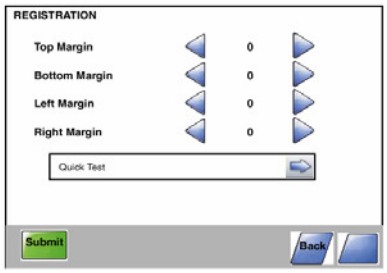
Configuration Menu

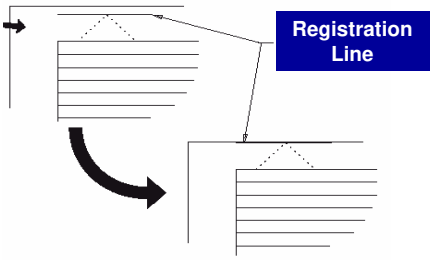
- **Wipe Disk**
  - This setting erases the contents of a disk.
  - Warning: Wipe Disk removes a disk's data in such a way that it cannot be recovered.

Slide 59

No additional notes

Diagnostics Mode Menu





- **Registration (printer)**
  - Print registration makes sure that the output is properly aligned on the page.
  - Quick Test prints a quick test page, which contains marks that you can use to check and adjust the registration.

Slide 60

The Quick Test page contains the following information:

- Device information
- Printer margin settings
- Scanner margin settings
- Alignment diamonds at the top, bottom, and each side.
- Horizontal lines for skew adjustment
- General printer information, including current page count, installed memory, processor speed, serial number, Engine ID, and controller board ID.

Diagnostics Mode Menu

- **Print Tests – Input Sources**
  - This test checks whether the printer can print on media from each paper tray and tests the printer's current print quality.
  - The contents of the Print Test Page depends on the media installed in the selected input source.

Slide 61

No additional notes

Diagnostics Mode Menu

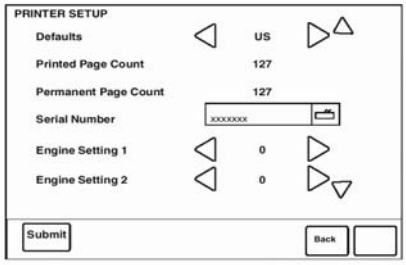
- **Print Tests – Print Quality Pages (Prt Quality Pgs)**
  - This test allows printing of the print quality test pages with the toner cartridge lockout function disabled.
  - The print quality pages consist of four pages.
    - » Page one contains a mixture of graphics and text.
    - » Page two is gray with two one-inch black squares located on the bottom right.
    - » Page three is a solid black page, and page four is blank.
  - If duplex is turned on, the pages are duplexed.
  - The Print Quality Test pages are printed in English and must always be printed on letter, legal, or A4 paper.
- **The print quality test pages can also be printed from the Configuration menu.**
  - However, toner cartridge lockout is not disabled, so a cartridge must be installed with a machine class ID matching the machine class ID stored in NVRAM.

Slide 62

- Additional diagnostic information may be printed on the pages when printing from the Diagnostics Mode Menu
  - Values from EP SETUP in the Diagnostics Mode menu, including:

    Fuser temperature, warm-up time, transfer, print contrast, charge roll settings and gap adjust.
  - Contents of the Event Log from the Diagnostics Mode menu.
  - Configuration information, including printer serial number, controller code level, engine code level, operator panel code level, font versions, and cartridge information.
  - Default values for the Quality Menu settings used to print the pages.

Diagnostics Mode Menu



- **Printer Setup**
  - Defaults: Resets printer settings to the defaults.
  - Serial Number: Do not try to change without advice from a supervisor.
  - Engine Setting 1 – 4: Do not try to change without advice from a supervisor.
  - Edge to Edge: Full bleed printing

Slide 63

No additional notes

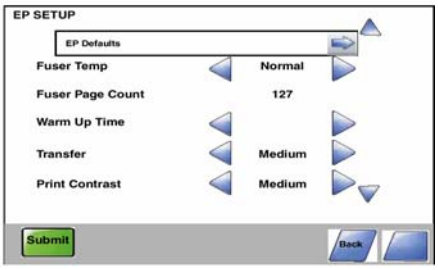
Diagnostics Mode Menu

- **Printer Setup**
  - Configuration ID
    - » The two configuration IDs are used to communicate information about certain areas of the machine that cannot be determined using hardware sensors.
    - » The configuration IDs are set at the factory when the machine is manufactured. But, you may need to reset Configuration ID 1 or Configuration ID 2 when you replace the controller board.
    - » The IDs consist of eight hexadecimal characters.
    - » Note: When the machine detects a Configuration ID that is not defined or invalid, the following occurs:
      - – The default standard model Configuration ID is used instead.
      - – Configuration ID will be the only function available in the Diagnostics Mode menu.
      - – When not in the Diagnostics Mode menu, ‘Check Config ID’ is displayed.

Slide 64

No additional notes

Diagnostics Mode Menu



- **EP Setup**
  - EP Defaults
    - » This setting is used to restore each printer setting listed in EP SETUP to its factory default value. Sometimes this is used to help correct print quality problems.
  - Fuser Temperature (Fuser Temp)
    - » This adjustment can be used to help solve some problems with paper curl when using low-grade paper types and problems with letterheads on some types of media.
    - » The fuser temperature can be adjusted to: Normal, Lower, Lowest. The default is Normal.

Slide 65

No additional notes

Diagnostics Mode Menu

- **EP Setup**
  - Warm Up Time
    - » You can change the amount of time the printer warms up before allowing pages to print by changing this setting from 0 to 5.
    - » The factory sets the warm up at 0 or no warm up time. This time period lets the backup roll heat up and helps reduce curl in some environments.
  - Transfer
    - » The transfer can be adjusted to Low, Medium, or High. The default setting is Medium.
  - Print Contrast
    - » The print contrast setting controls the developer voltage offset.
    - » The print contrast can be adjusted to Low, Medium, or High. The default setting is Medium.
  - Charge Roll
    - » The charge roll can be adjusted to Low, Medium, or High. The default setting is Medium.

Slide 66

No additional notes

Diagnostics Mode Menu

- **EP Setup**
  - Gap Adjust
    - » The setting adjusts the minimum gap between sheets.
    - » Increasing this value may reduce curl of some printed media and eliminate some output bin stacking problems.
    - » However, increasing this value also results in slower overall performance.

Slide 67

No additional notes

Diagnostics Mode Menu

- **Reports**
  - Menu Settings Page
    - » The report prints the settings in the Diagnostics Mode Menu.
      - – Includes Registration, Print Tests, Hardware Tests, Duplex Tests, Input Tray Tests, Output Bin Tests, Device Tests, Printer Setup, EP Setup, Reports, Event Log, Development Menu, and Scanner Tests.
  - Event Log
    - » The event log provides a history of printer errors. It contains the 12 most recent errors.
    - » The most recent error displays in position 1, and the oldest error displays in position 12.
    - » If an error occurs after the log is full, the oldest error is discarded.
    - » Identical errors in consecutive positions in the log are entered, so there may be repetitions.
    - » All 2xx and 9xx error messages are stored in the event log.
    - » Note: An event log printed from the Configuration Menu will not contain debug information or secondary codes for 900 service errors. However, the event log printed from the Diagnostics Mode Menu does include this information.
    - » You have options to display the log (up to three codes display at a time), print the log, and clear the log (removes all entries; the display and printout will be blank until new events occur).

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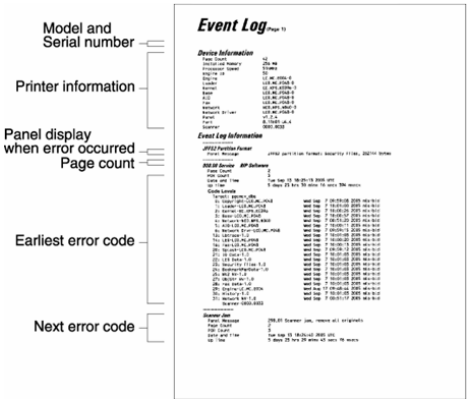
No additional notes

Diagnostics Mode Menu



- **Additional diagnostic information is available when you print the event log from Diagnostics Mode Menu instead of the Configuration Menu.**
- **The Event Log printed from the Diagnostics Mode Menu includes:**
  - Detailed printer information, including code versions
  - Time and date stamps
  - Page counts for most errors
  - Additional debug information in some cases

Slide 69

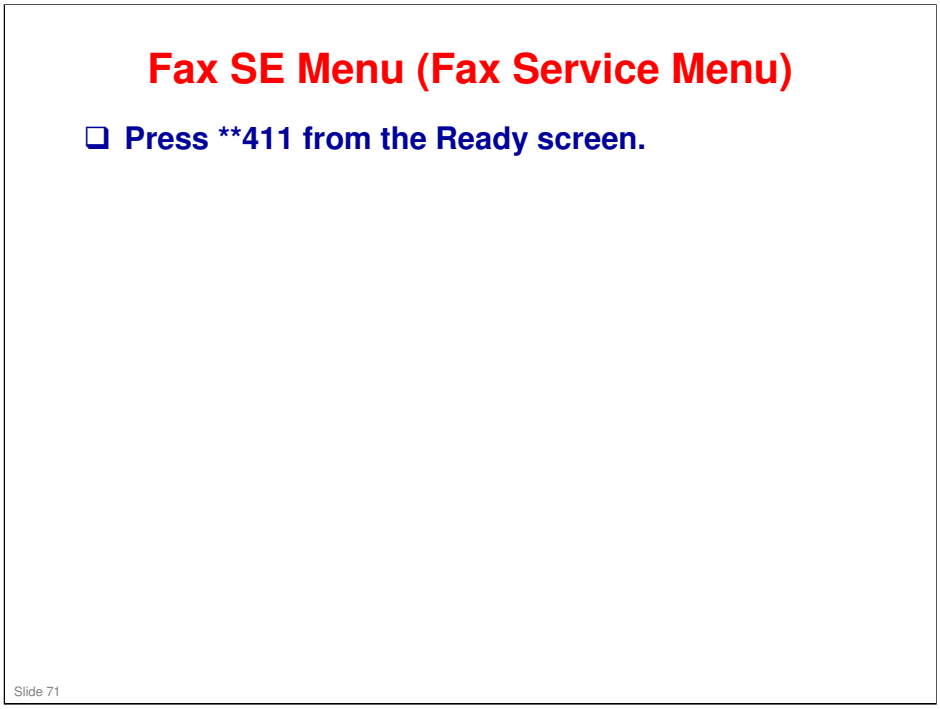
No additional notes

Print Quality Test Pages

- **To help isolate print quality problems, such as light prints or toner streaking, print the print quality test pages.**
- **There are two ways to access this feature.**
  - Configuration Menu – Print Quality Pages
  - Diagnostics Mode Menu – Print Tests – Print Quality Pages
- **The Configuration Menu printout is simpler.**
  - Four pages print to help evaluate print quality. The first page has various fonts and a graphic, the second page is gray with graphics, the third page is black, and the last page is blank.

Slide 70

No additional notes

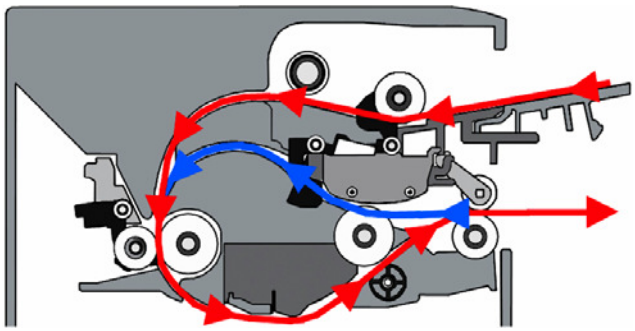


No additional notes

RICOH

No additional notes

Original Feed Path



Simplex Paper Path
Duplex Paper Path

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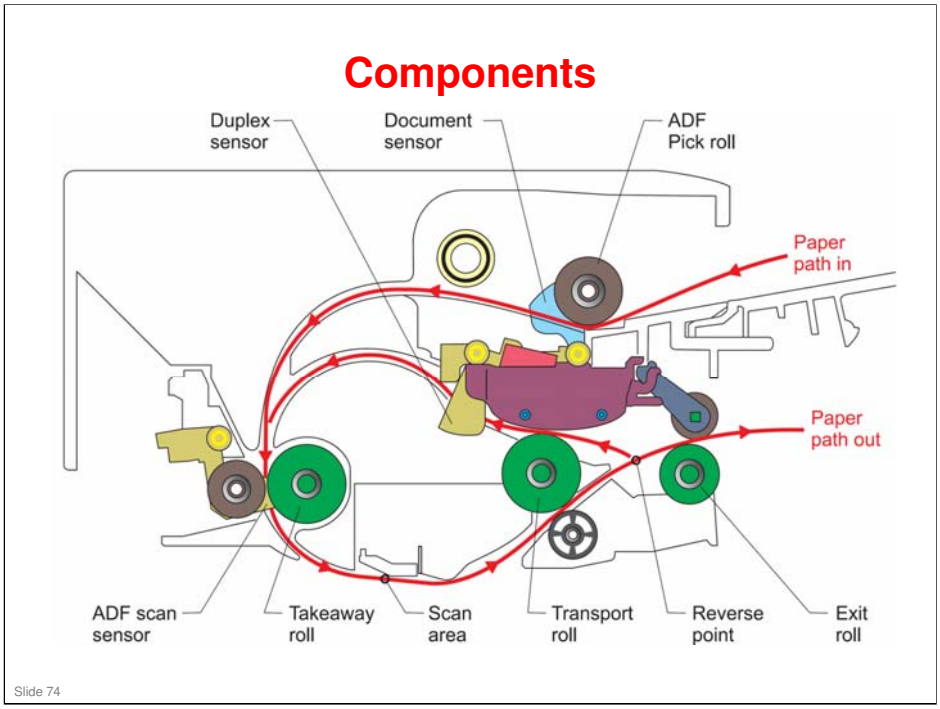
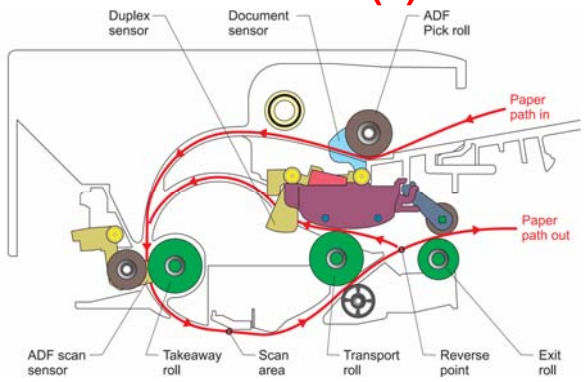
No additional notes



No additional notes

Process (1)

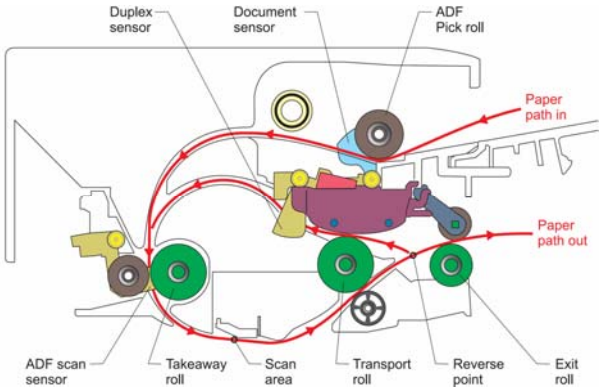


- **At the start of scanning, if the paper present sensor does not detect paper in the ADF input tray, flatbed scanning is done.**
- **At the start of an ADF scan, the roller on the pick arm assembly drops and feeds the paper into the ADF. This actuates the document sensor.**

Slide 75

- The ADF motor is a stepper motor.
- The document sensor only detects the original when the first side is scanned. For the second side, the paper does not go past the document sensor.

Process (2)

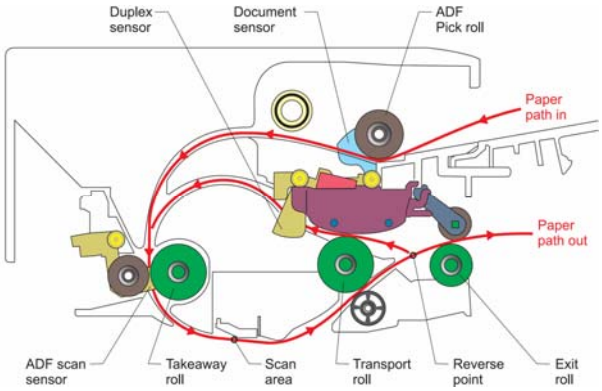


- When the document sensor is actuated, the machine moves the CCD imaging unit to the ADF scan area. Then, the CCD is calibrated.
- The original is fed to the ADF scan sensor. If the original does not reach this sensor within the correct time, a jam will be detected.
- From this point, the ADF motor counts the pulses that it makes to feed the paper. This ensures the correct feed speed.

Slide 76

- The feed speed depends on the scan resolution selected by the user.

Process (3)

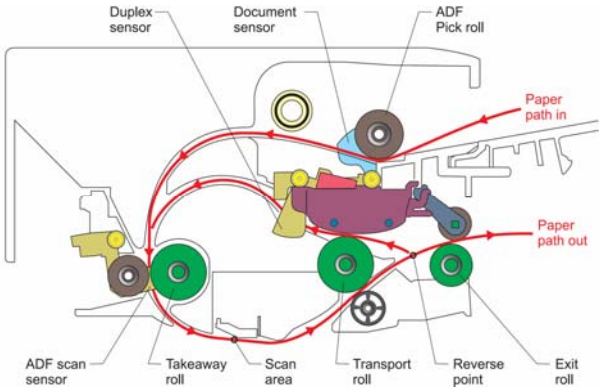


- **The original is scanned until a set time after the trailing edge of the original goes past the ADF scan sensor.**
- **After scanning, the machine continues to feed until the trailing edge reaches the reverse point.**
  - For a simplex job, the paper goes to the exit roller and out of the scanner.

Slide 77

No additional notes

Process (4)



- For a duplex job, a solenoid in the ADF turns on when the trailing edge of the original reaches the reverse point. This solenoid moves a gate to the down position and engages the reversing gear on the exit roll.
- The exit roll turns in reverse, and pulls the original back into the ADF.

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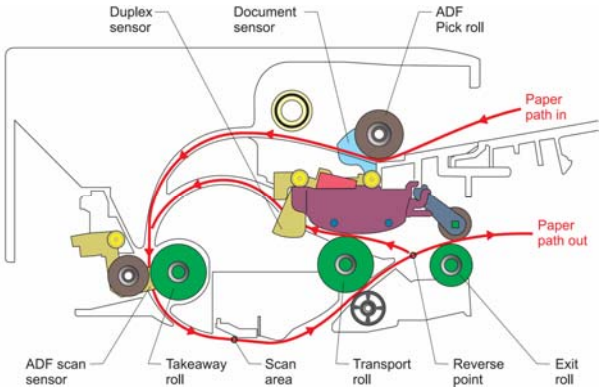
No additional notes

Process (5)

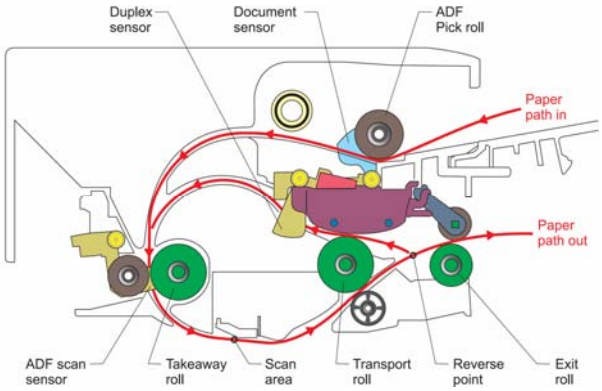


- **The transport roll moves the original to the duplex sensor.**
- **When the duplex sensor is actuated, the exit roll stops, and the transport roll moves the paper to the take away roll and the ADF scan sensor, and the second side is scanned.**

Slide 79

- When the machine detects an original at the duplex sensor, it determines that the second side will be scanned.

Process (6)

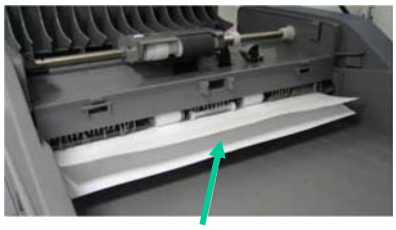


- When the trailing edge of the original reaches the reverse point the second time, the solenoid again moves the diverter gate to the down position and reverses the exit roll. The paper goes back into the ADF unit for a third time.
- The paper passes through the paper path, but no imaging occurs. The purpose of this pass is to turn the paper over to the original side up.
- On this third pass over the reverse point, the solenoid is not actuated and the paper passes out of the ADF.

Slide 80

No additional notes

Clearing Original Jams



- Pull the ADF input tray out of the ADF.
- Remove the original from the ADF by pulling the lower of the two sheets from the ADF exit.

Slide 81

No additional notes

Scanner Tests

- In the Diagnostics Mode menu, there are some scanner tests.
- See the Diagnostics Mode section of the appendixes to the service manual for details on how to run these tests.

Slide 82

No additional notes

RICOH

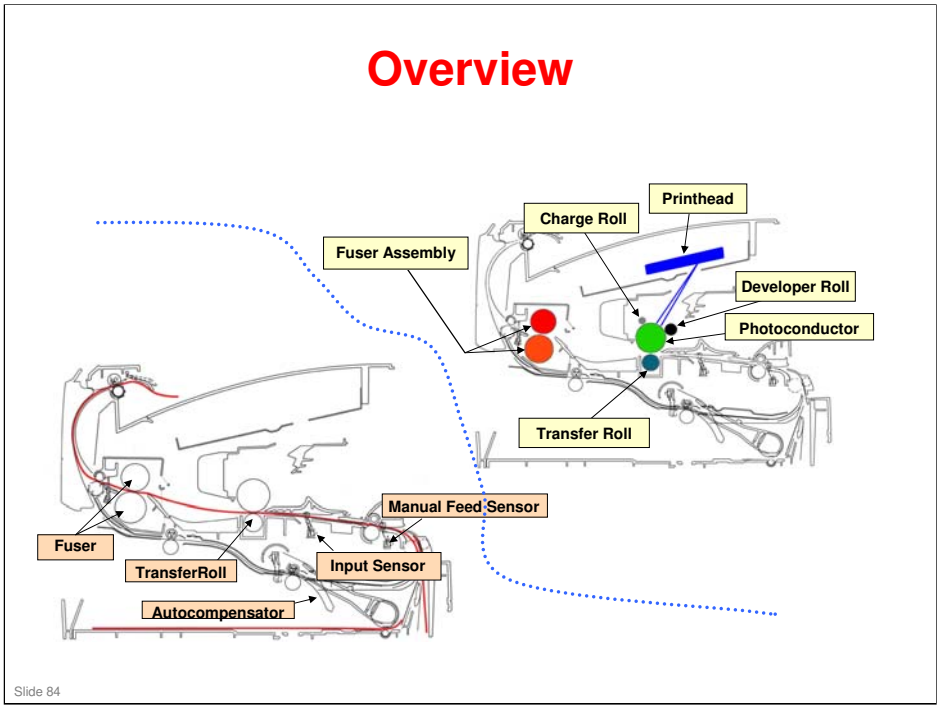
RICOH

Service Training
M126/M127/M128

Engine Details: Print Engine Basics

Slide 83

No additional notes



- The paper path is shown in the lower diagram in red.

Printhead

- Instead of using a rotating polygon mirror, this printhead uses an oscillating wafer, eliminating the need for a motor.
- This type of printhead uses only a small electrical current, prints bi-directionally and is 40% smaller.

Polygon Mirror

Oscillating Printhead

Slide 85

No additional notes

RICOH

No additional notes

Mirrored NVRAM (1)

- **These two components will copy critical settings to one another to prevent data loss if one of the components is replaced:**
  - Controller Board
  - Engine Board
- **When either of these cards is new, it obtains its settings from the other card.**
- **As a result, these components should *never be replaced at the same time, or settings will be lost!***
  - If you have to replace both of these boards, do a power-on reset (POR) after replacing the first of the boards, so that the data will be copied from the old board to the new board. Then replace the other old board.

Slide 87

No additional notes

Mirrored NVRAM (2)

- **The same applies to these two components:**
  - Controller Board
  - Operation Panel
- **If you need to replace both cards, do a power-on-reset between the two replacement procedures.**
  - If you forget to do this, error code 950.xx will appear.

Slide 88

No additional notes

RICOH

RICOH

Service Training
M126/M127/M128

Replacement and Adjustment

Slide 89

No additional notes

Safety Checks Before you Start

- **Check the following items:**
  - Damaged, missing, or altered parts, especially in the area of the On/Off switch and the power supply
  - Damaged, missing, or altered covers, especially in the area of the top cover and the power supply cover
  - Possible safety exposure from any devices attached to the machine

Slide 90

No additional notes

Important Points Before You Start

- Remove the toner cartridge, photoconductor unit, and media tray before removing other printer parts.
- The toner cartridge and photoconductor unit should be protected from light while out of the printer.
- Follow all procedures in the service manual carefully. Obey all warnings and cautions.

Slide 91

No additional notes

Starting the Machine after Finishing Repairs

- **If you install a controller board, engine board, or operator panel as part of a troubleshooting procedure, start the machine into diagnostic mode to test the repair.**
  - This allows you to test the machine and then remove the part if it did not fix the problem.

Slide 92

No additional notes

Lubrication

- FRUs are typically lubricated as needed from the factory.
- If not, then lubricate only when parts are replaced or as needed, not on a scheduled basis.
- Use of lubricants other than those specified can cause premature failure. Some unauthorized lubricants may chemically attack parts.
- Lubricate gears that were lubricated in the original part.

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- FRU: Field replaceable unit

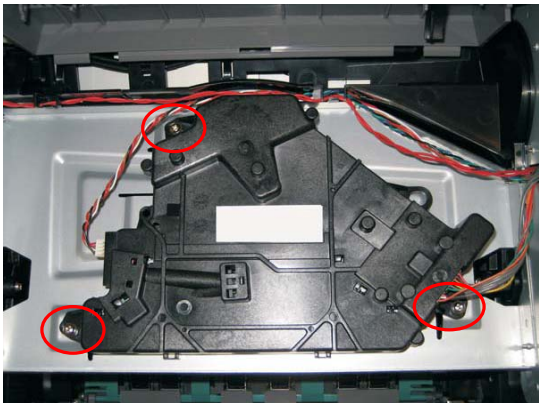
Replacing the Printhead (1)

- **This is the laser optics unit.**
- **Adjustments are needed after replacing this component. Study these procedures in the service manual.**
  - Do the 'Printhead assembly mechanical adjustment' first.
    - » This procedure prints a test pattern. If the lines on the pattern are not aligned, there is skew. You correct this by turning the printhead clockwise or counterclockwise.
  - Then do the 'Printhead assembly electronic adjustment'.
    - » In this procedure, you print a test page and adjust the margin settings.
- **Follow the procedures in the service manual.**

Slide 94

- Detailed procedures:
  - Service manual > Diagnostic Aids > Printhead assembly mechanical adjustment, Printhead assembly electronic adjustment

Replacing the Printhead (2)

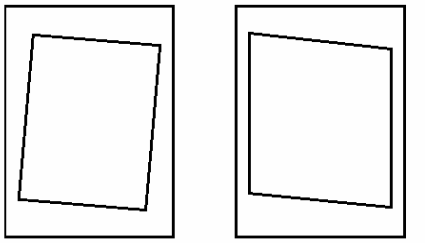


- Before removing the old printhead, use a pencil to mark the screw locations of the old printhead on the metal frame.

Slide 95

No additional notes

Paper Skew or Printhead Skew



Paper Feed Skew

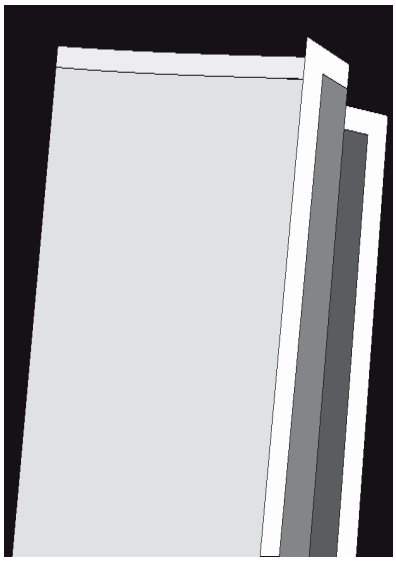
Printhead Misalignment

- **The above diagram shows how to determine the source of skew.**
- **There are no adjustments for paper feed skew.**
  - Check the rollers for wear, the paper path for obstructions, the fusing unit for correct installation, and the tray paper guides for fit to the media.

Slide 96

No additional notes

Printhead Mechanical Adjustment (1)



- **Diagnostics Mode Menu – Print Tests.**
- **Select Tray 1 and Single.**
- **Fold the printout as shown opposite.**
  - The top edges must be aligned, as shown on the next slide.

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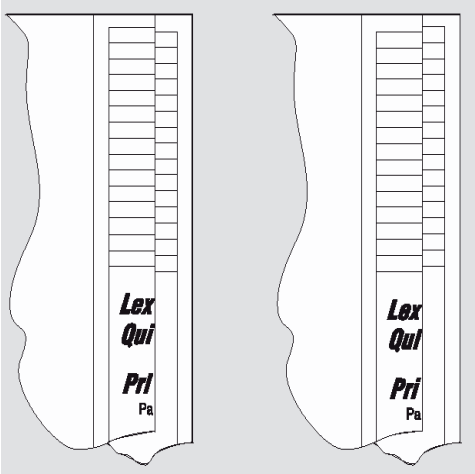
No additional notes

Printhead Mechanical Adjustment (2)

Adjust Printhead Clockwise

Adjust Printhead Counterclockwise



- If the lines are not aligned, there is skew. Adjust as shown opposite.
- When there is no skew, tighten all three screws and do the electrical adjustment.

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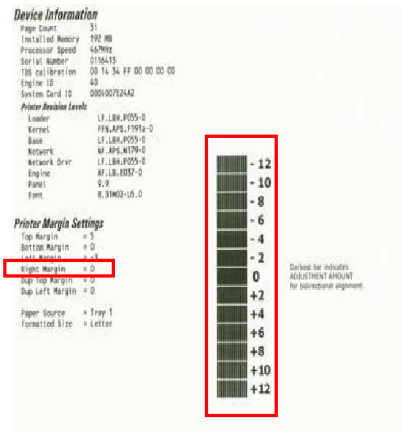
No additional notes

Printhead Electrical Adjustment (1)



- Diagnostics Mode Menu – Registration – Quick Test
- On the test page, look for the darkest of the grey/black bars in the middle of the page.
- Make a note of the number to the right of this darkest bar.
- Add this number to the current 'Right margin' setting that is printed to the left of the bars.
  - Diagnostics Mode Menu – Registration – Right Margin
- This is the new margin setting.
- After setting the margin to this new value, print the test page again.
- If the darkest bar has '0' next to it, then the adjustment is finished.
  - If not, repeat the adjustment.

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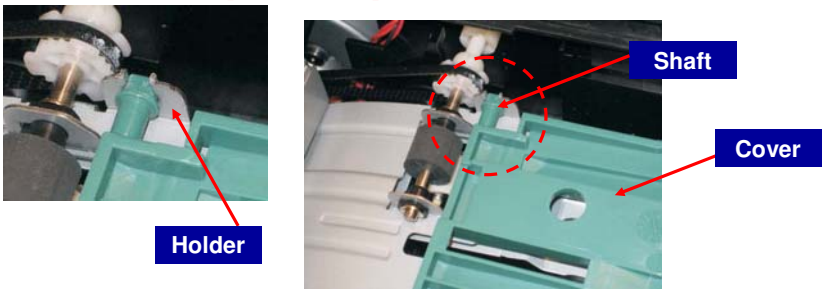
No additional notes

Duplex Paper Jam Cover



- **If you move this part, check to make sure it is in its proper position before you complete reassembling the machine.**
  - The cover must be closed (in the 'down' position), and the ends of the shaft must be in the holders.
- **If it is not, then the paper tray will become damaged and the printer will need to be replaced.**

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- The shaft comes out of the holder very easily when the cover is opened. Always make sure that it is closed properly and that the end of the shaft is in the holder.

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Service Training
M126/M127/M128

Troubleshooting

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- This section provides a quick guide to the troubleshooting information in the service manual.

Troubleshooting Basics - 1

- **Categories of error messages**
  - User status and attendance messages
    - » Provide the user a primary identification message and information such as: Close door, load paper requirements, memory full, Flash problems, etc.
  - Cartridge error messages
    - » Provide assistance identifying toner supply item problems.
  - Paper jam error codes
    - » This is the 200 series of errors, providing the location and probable cause for paper problems.
  - Service Error Codes:
    - » Service error codes are indicated by a three-digit error code followed by a period and additional numbers in the format XXX.YY.
    - » 8xx.xx are scanner service errors
    - » 9xx.xx are printer service errors

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No additional notes

Troubleshooting Basics - 2

- **If your machine completes the "Power–On Self Test (POST) sequence" without an error but you have a symptom, then go to "Symptom Tables".**
  - The POST symptom table lists the basic printer malfunctions during POST and the appropriate sections of the manual to find solutions to each problem.
  - The POST sequence is explained in the "Power–On Self Test (POST) sequence" section of the service manual.
  - The printer should complete POST in approximately 45 seconds.
- **Locate your symptom, and take the appropriate action.**
- **NOTE: Investigate any displayed codes before dealing with these symptoms.**
  - For example, a missing toner cartridge will prevent POST from completing.

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- These sections are all in the 'Diagnostics Information' section of the service manual.

Troubleshooting Basics - 3

- **There are other symptom tables in the same section of the manual as the POST symptom tables.**
  - Printer: Describes the basic printer malfunctions and directs you to the appropriate sections of the manual to find solutions to each problem.
  - Scan/Fax/Copy: Describes the basic scanner malfunctions and directs you to the appropriate sections of the manual to find solutions to each problem.

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No additional notes

Troubleshooting Basics - 4

- **Service error codes (8xx.xx, 9xx.xx)**
  - If a service error code appears while you are working on the machine, go to “Service error codes” in the Messages and Error Codes section of the service manual appendixes, and take the indicated action for that error.
  - Service error codes are indicated by a three-digit error code followed by a period and additional numbers in the format XXX.YY.
  - Service error codes are generally non-recoverable except in an intermittent condition when the printer can be power-on reset (POR) to temporarily recover from the error condition.

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No additional notes

Troubleshooting Basics - 5

- **Software Service Errors start with 900.**
- **These usually require a technician.**
- **ALWAYS ask a customer to try the following first.**
  - Turn the machine off, disconnect all cables except for power (disconnect USB, Parallel, network connectors etc.).
  - Make sure that the machine is powered from a wall outlet not a surge protector, power back-up etc.
  - Then ask the customer to pause at least six seconds and turn the machine back on to see if the 900 software service error clears before initiating service.

Slide 106

No additional notes

Troubleshooting Basics - 6

- **User status messages**
  - User status messages provide the user with information on the current status of the printer.
  - If a user status message is displayed, go to “Service error codes” in the Messages and Error Codes section of the service manual appendixes.

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No additional notes

Troubleshooting Basics - 7

- **User attendance messages**
  - User attendance messages are indicated by a two- or three-digit error code that provides the user with information that explains a problem with a print cartridge, paper jam, option, port, and so on.
  - Go to “User attendance messages” and “Paper jam error codes (200-series)” in the Messages and Error Codes section of the service manual appendixes.
- **The Event Log lists paper jam errors that have occurred.**
  - Diagnostics Mode Menu – Event Log

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- See “EVENT LOG” in the Diagnostics Mode Menu section of the service manual appendixes.

Service Checks

- The Service Checks section of the service manual contains a set of tables which provide check procedures for various aspects of the machine.
- Service checks which require you to measure voltages on the LVPS/HVPS (low voltage power supply/ high voltage power supply board) should be done with the machine positioned on its back side.
- When making voltage readings, always use frame ground unless another ground is specified.
- The controller board is located beneath the flatbed. To access the controller board, see “ADF unit removal” in the Replacement and Adjustment section of the service manual.

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No additional notes

Heavy Background

- Poor development or poorly charged toner particles cause excessive background. This is more noticeable as the toner cartridge nears end-of-life.

Slide 110

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	LI-MF1
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		*

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- 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

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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.

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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.

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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.

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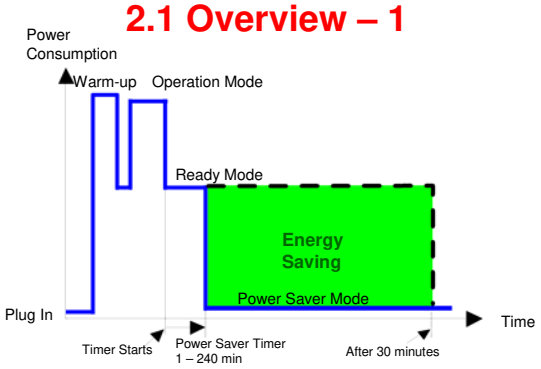
No additional notes

2. Energy Saving

2.1 Overview – 1



Energy Saver Modes	Description
Power Saver Mode	Reduces power consumption.

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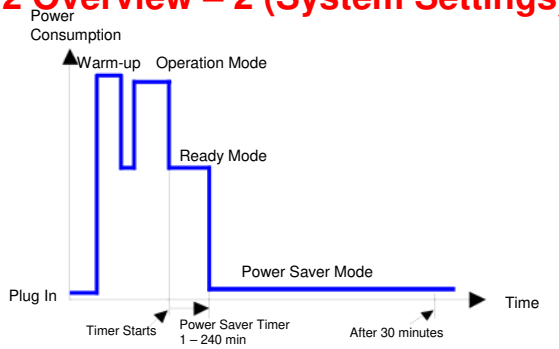
- When the machine is not being used, the machine enters energy saver mode to reduce the power consumption by turning off the LCD of the operation panel and lowering the fusing temperature.
- The area shaded green in this diagram represents the amount of energy that is saved when the timers are at the default settings. If the timers are changed, then the energy saved will be different.
- Power consumption during warm-up may be much higher than shown in this diagram.

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



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

Mode	Timer	Default	Setting range	Recovery time
Power Saver Mode	Power Saver Timer	30 min.	1 to 240 min	7 s

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- The user can set the timer with the Menu function.
  - Menu > Settings > General Settings > Timeouts
  - Refer to the Users Guide for procedure details.
- 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 timer is not too long. Try with a shorter setting first, such as 20 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.
- Power consumption during warm-up may be much higher than shown in this diagram.

No additional notes