RICOH

# D027 SERIES TRAINING

Version 1.1

Slide 1

- This course assumes that you know the AP-C1 (B222 series) colour copiers. If you do not know this machine, you should either:
  - Take a full course on the AP-C1 before you do this course
  - Do a full course on the AP-C2.

| Date of change | Version History | Description |
|---|---|---|
| 29-08-2008 | | Slide 18 modified (information added about the paper feed rollers)<br>Slide 37 modified - Pictbridge can be used with the optional SD/USB slot<br>Slide 38 new slide inserted (optional USB/SD slot)<br>Slide 116 corrected (callout was in wrong place)<br>Slide 125 inserted (Glossy Vertical Bands) |
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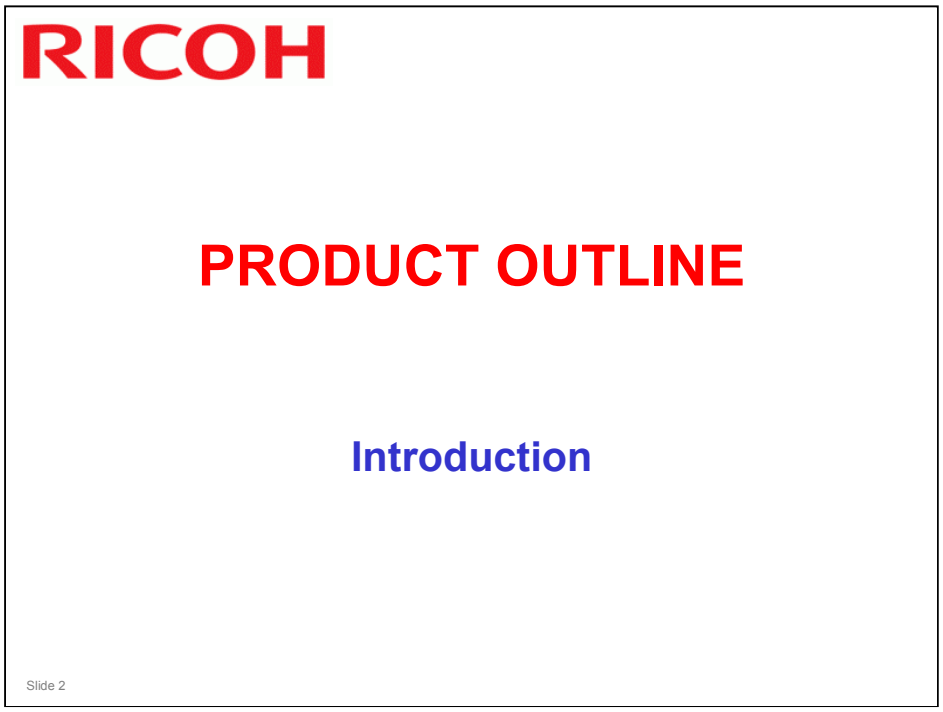
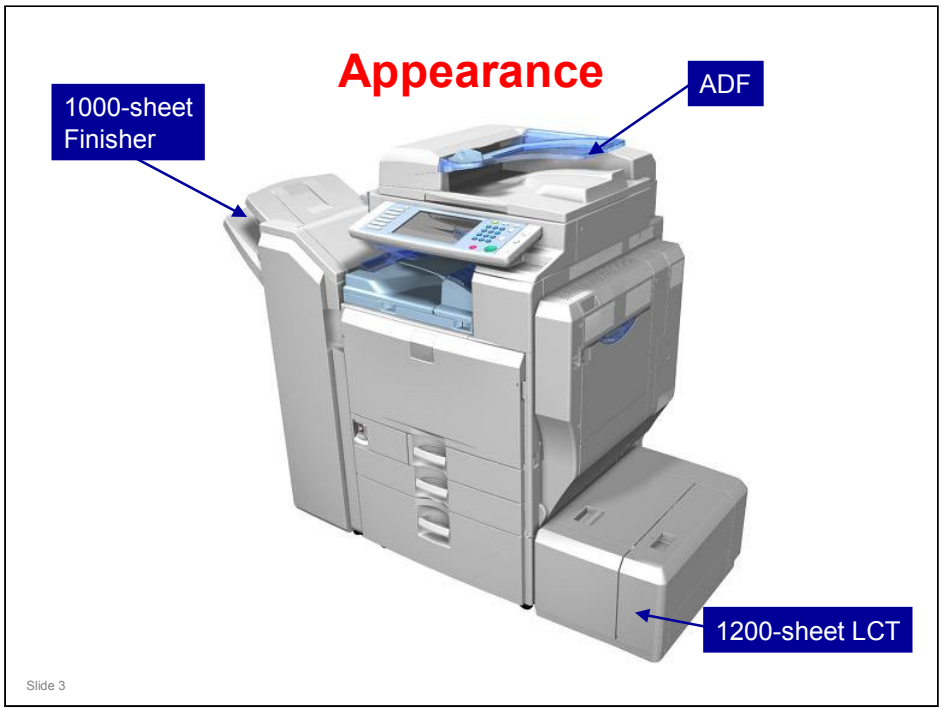



**No additional notes**




- Here is a view of the machine with three optional peripherals installed.
- There are other options, as we will see later.

## How many models?

- **Two models:**
  - AP-C2c (D027): 40 cpm (color and black-and-white)
  - AP-C2d (D029): 50 cpm (color and black-and-white)
- **The speed is the only difference between the two models.**
- **Both models contain a printer/scanner kit as standard equipment.**

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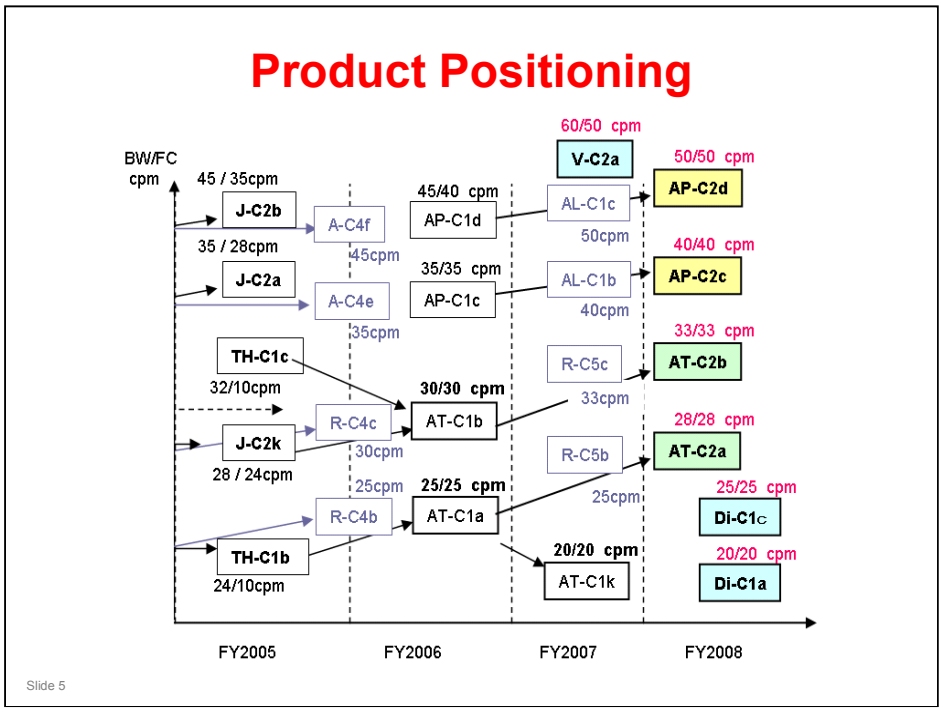
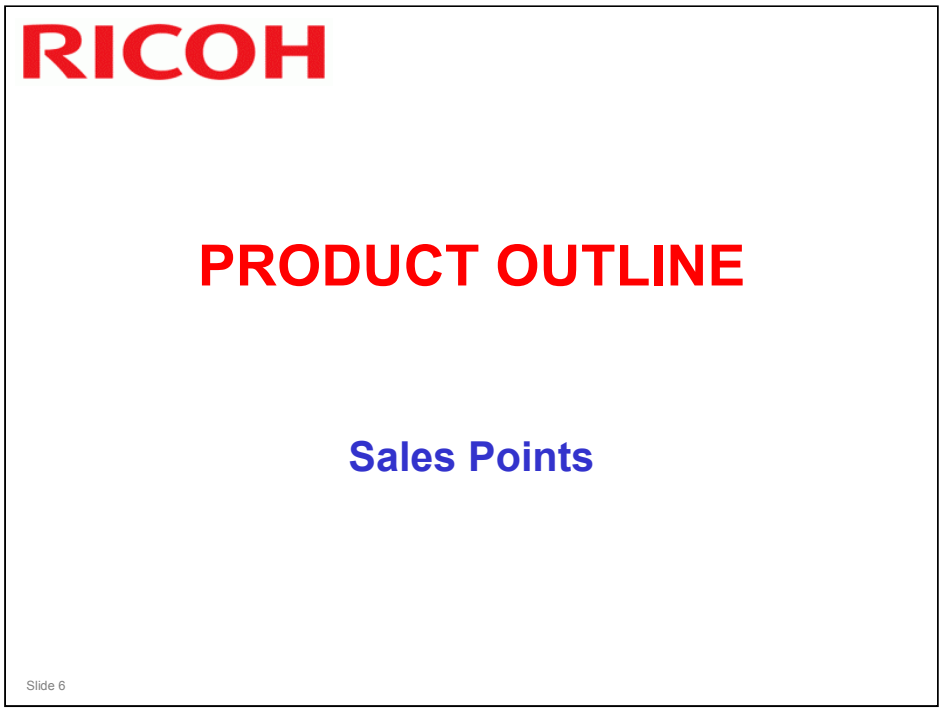
- AP-C1: Laser optics unit (the AP-C1d has two laser beams per colour, but the AP-C1c has only one)
- AP-C2 series: Both models have two laser beams per colour




- This chart shows which machines the AP-C2c/d could be used as alternatives or as replacements for.
- Some black-and-white copiers are shown for comparison (shaded in pale gray).




**No additional notes**

# Sales Points - 1

- **High Performance (close to black-and-white copiers)**
  - Shorter Warm Up time than AP-C1
    - » AP-C1c: 45 seconds
    - » AP-C1d: 60 seconds
    - » AP-C2c: 34 seconds
    - » AP-C2d: 51 seconds
  - Shorter First Copy Output Time
    - » C1c
      - – FC: 8 s or less, BW: 4.9 s or less (A4/LT LEF)
    - » C1d
      - – FC: 7 s or less, BW: 4.5 s or less (A4/LT LEF)
    - » C2c
      - – FC: 6.5 s or less, BW: 3.9 s or less (A4/LT LEF)
    - » C2d
      - – FC: 5.9 s or less, BW: 3.5 s or less (A4/LT LEF)
- **High Productivity**
  - High speed color output (AP-C2c: 40cpm, AP-C2d: 50cpm)
  - Larger paper capacity: Max 4,400 sheets
  - Up to 256g/m$^2$ paper feed from front tray

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- For more comparisons with the AP-C1, see the 'Productivity Comparison with AP-C1' slides later in this presentation.

# Sales Points - 2

- **Outstanding Usability/Accessibility (For Section 508)**
  - Operation panel with full color LCD
  - Easy paper jam clearance
  - Animated user guidance on LCD
  - Easy handling paper tray
  - Simplified display
  - Easy to use for people in wheel chairs
- **Latest Document Solutions features**
  - Scan to USB/SD
  - High Compression PDF
  - Thumbnail/Preview viewing
  - Preview before transmission
  - Preview when receiving fax

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**No additional notes**

## Sales Points - 3

- **High Technology for higher image quality**
  - SPR-CE2 toner (PXP Toner)
    - » AP-C1 uses SPR-C toner
  - 1200 dpi printing
- **Improved Reliability**
  - Longer PM cycle: 120K prints
- **Environmentally Friendly**
  - Shorter warm-up time
    - » AP-C2c: 34 seconds
    - » AP-C2d: 51 seconds
  - Complies with the RoHS Directive

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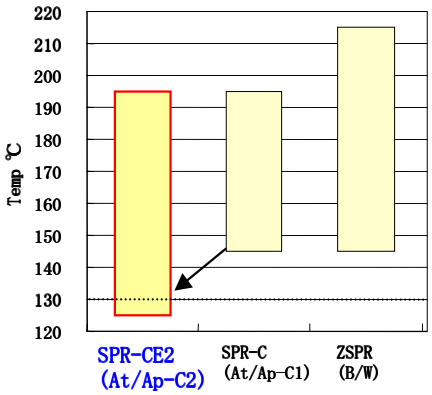
- The diameter of the toner particles has been reduced.
- The chemical composition of the toner is also different, and this has helped to reduce the warm-up time.
  - ➢ See the next slide.
- Print speed is halved when 1200 x 1200 dpi is selected.

# Lower Toner Melting Point




- The new type of toner melts at a lower temperature.
- This reduces the warm-up time and saves energy.

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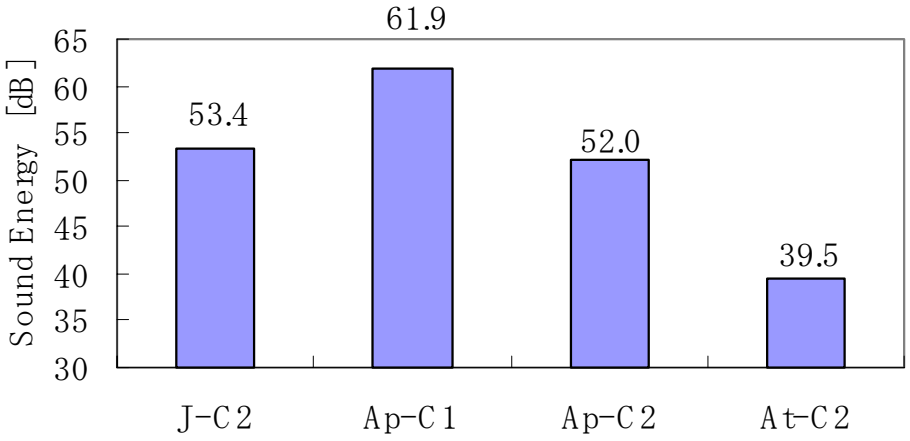
# Noise Reduction
## During Sleep Mode

- The fans in the At/Ap-C1 are more noisy than in the J-C2.
- The At/Ap-C2 use quieter fans and the air flow is optimized.

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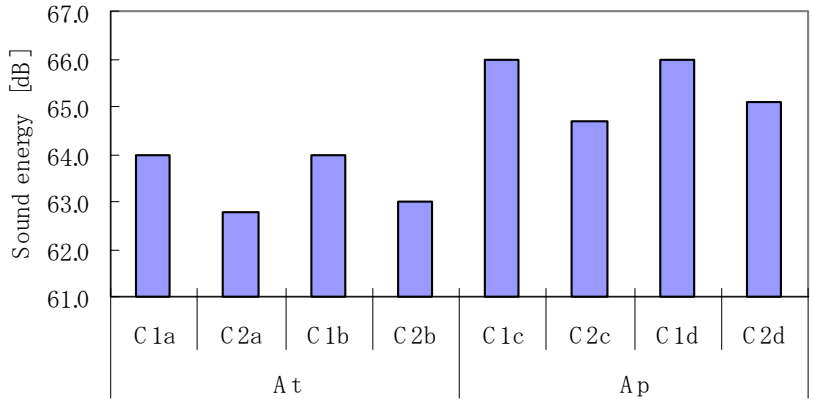
# Noise Reduction
## During Machine Operation

- In the At/Ap-C1, paper feed is noisy.
- The paper feed path of the At/Ap-C2 is optimized, and paper feed is quieter as well as faster.

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# ADF Handle Type A

- This handle makes it easy to lift up the ARDF for the elderly, and for people in wheel chairs.
- This option is also used in the AI-C1 and R-C5 black-and-white copiers.

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- This is a new feature for the AP-Cx series.


**No additional notes**

## Mainframe, with No Options

- **The machine has this equipment built in.**
  - Duplex
  - Bypass tray
  - 2x550-sheet trays
  - 500-sheet output tray
  - 8.5-inch W-VGA touch panel
  - Printer/Scanner, with USB and Ethernet
  - 1024MB Memory
  - 160GB HDD
  - PCL5c/6, RPCS
  - 10/100 BaseTX
  - USB Host Interface

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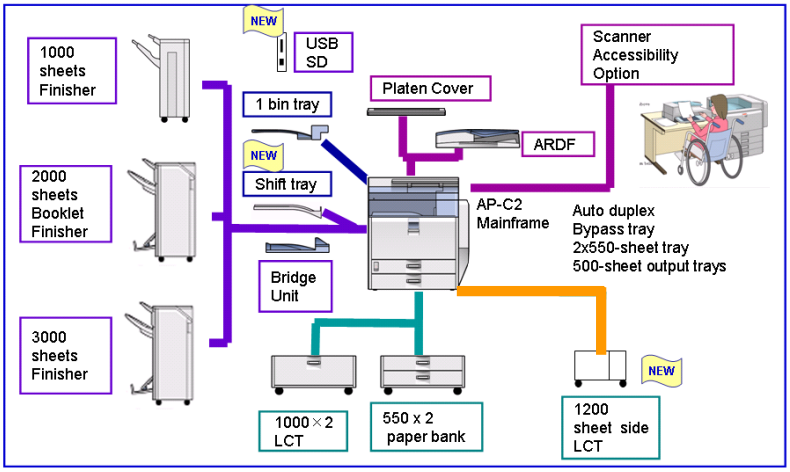
- This slide shows what you get with the base machine.
- Note that the printer/scanner is standard equipment for this model.
- USB Host interface was not a standard part of the AP-C1.
- The hard disk size has increased from 80 to 160 GB, but the user can only use 80 GB. The other 80 GB is to speed up storage during scanning.

## Paper Handling Options




Slide 16

- In the drawing, 'NEW' means that the option is new for this series. It is not a new option.
  - The only totally new device is the USB/SD card slot.
- You can install the following:
  - The platen cover or the ARDF
  - Shift tray or one of the three finishers (a finisher requires the bridge unit )

    *The finishers also require the 2000-sheet LCT or two-tray paper tray unit.*
  - One-bin tray
  - The two-tray paper feed unit (also called a 'paper bank') or the 2000-sheet LCT
  - 1200-sheet LCT at the side

    *If this is installed, you can install the 2000-sheet LCT and two-tray paper feed unit.*
- The punch unit can only be installed in the booklet finisher. The other two finishers do not have punch units.

# Original Feed Options

- Platen Cover Type 3800C: Also used with J-C2, AT/AP-C1, AT-C2
- ARDF DF3010: Also used with AL-C1
  - Same as AP-C1
- ADF handle type A: Also used with R-C5, AL-C1, AT-C2
- Scanner Accessibility Option Type C5000: New Item

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**No additional notes**

# Paper Feed Options

- **2-tray Paper Tray Unit PB3040: New unit, also used with AT-C2**
  - Similar to the AP-C1, AL-C1
- **LCT (2,000 sheets) PB3050: New unit, also used with AT-C2**
  - Similar to the AP-C1, AL-C1
- **LCT (1,200 sheets) RT3000: New unit, also used with AT-C2**
  - Similar to the AL-C1
- **Note**
  - For the above three units, the only difference from the Al-C1 is the paper feed roller, which is modified to prevent glossy vertical bands on the image.
  - The model name is the same but the EDP code is different. Make sure that you install the model for the AT-C2, and not the one for the Al-C1.

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**No additional notes**

# Finishing Options

- **1-Bin Tray BN 3070: New item**
  - Similar to the AP-C1, AL-C1
- **Shift Tray SH3040: New item**
  - Similar to the AT-C1
- **1,000-sheet Finisher SR790: Also used with AL-C1, AT-C1, AT-C2, AP-C1 (and a lot of other models)**
- **2000-sheet Booklet Finisher SR3020: Also used with AL-C1, AP-C1**
- **3000-sheet Finisher SR3030: Also used with AL-C1,AP-C1**
- **Punch for SR3020 and SR3030 (Punch Unit Type 3260: Also used with AL-C1, AP-C1)**
- **Bridge Unit BU3030: Also used with AL-C1, AT-C2**
  - Similar to the AP-C1

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**No additional notes**

# Notes for Finishing Options

- **The shift tray and a finisher cannot be installed in the same machine.**
  - To install a finisher, the bridge unit must be installed, and this goes in the same place as a shift tray.
- **If the 1000-sheet or booklet finisher is installed, you must also install the 2000-sheet LCT or paper feed unit.**
  - If not, the paper exit from the copier will not be at the correct height to go into the finisher.
- **If the 1200-sheet LCT is installed, you must also install the 2000-sheet LCT or two-tray paper feed unit.**
  - The 1200-sheet LCT feeds paper through the 2000-sheet LCT or two-tray paper feed unit. If one of these two units is not installed, there is no way through from the 1200-sheet LCT to the machine.

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**No additional notes**

# Fax Options

- **Fax Option: New Item**
  - The same unit is used with the At-C2.
- **Optional G3 unit: New Item**
- **SAF memory (32MB): Also used with AT-C1 and AP-C1**
- **Handset: Also used with AT-C1 and AP-C1**
- **Fax Stamp Ink: Also used with AL-C1, AT-C1 and AP-C1**

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**No additional notes**

## Printer/Scanner Options (1)

- **Printer/scanner is a standard part of the machine, not an option.**
  - USB and Ethernet are built in.
- **Wireless LAN**
  - IEEE 802.11a/g: Also used with V-C2/AL-C1/R-C5/AT-C2
  - IEEE 802.11g: Also used with V-C2/AL-C1/R-C5/AT-C2
- **Gigabit Ethernet: Also used with V-C2/AT-C2**
- **IEEE 1284: Same as AT-C1**
- **Bluetooth: Same as AT-C1**
- **IEEE 1394: Not used in this model**

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- IEEE 802.11g: For Taiwan, China, Bulgaria, Croatia, Romania, and Jordan
- Out of the following units, only one can be installed: IEEE802.11, IEEE1284, Bluetooth

## Printer/Scanner Options (2)

- **PostScript3 option: New Item**
  - Required to use the PDF Direct Print Function
- **PictBridge: New (enables direct printing from a digital camera)**
- **File format converter: Same as R-C5/AI-C1/V-C2/At-C2**

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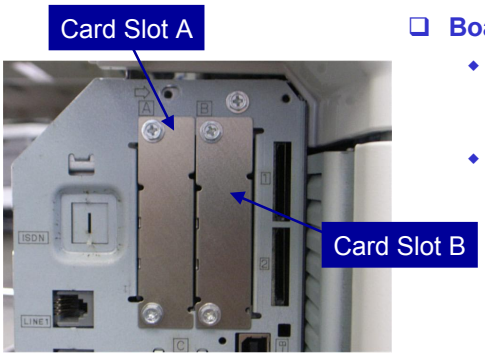
- No video link board
- USB host is a standard part of the machine.

## Printer/Scanner Options (3)




- **Board Slots**
  - Slot A: IEEE1284, IEEE802.11, or Bluetooth
  - Slot B: File Format Converter

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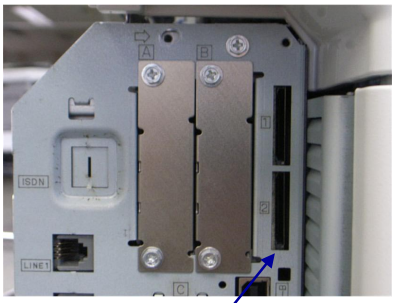
- Only one of the printer interface options can be installed in this model.

# Printer/Scanner Options (4)




- **SD Card Slots**
  - Slot 1 (upper): PostScript 3, Data Overwrite Security Unit, PictBridge
    - » If more than one option is required, combine onto one card.
    - » If the PostScript option is installed, copy other options to the PostScript card
  - Slot 2 (lower): VM Kit, Service (installing the Browser Unit, installing the HDD Encryption Unit, updating the firmware).
    - » The VM card stays in slot 2. The Browser Unit and HDD Encryption Unit cards are removed after installation.
    - » Do not copy the VM card application to another card.

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❒ The VM card and the PostScript card are protected by copyright.

## Security Options

- Data Overwrite Security Unit: Also used with V-C2, AT-C2
  - Type H is used
- Copy Data Security Unit: Also used with V-C2, AT-C2
- HDD Encryption Unit: Also used with V-C2, AT-C2

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**No additional notes**

## Other Options

- VM Card: New Item
- Browser Unit: New Item
- Optional counter Interface: Also used with AT-C1 and AP-C1
  - This is a 20-pin interface. It is required when you attach a key counter.
- Key Counter Bracket: Also used with AT-C1 and AP-C1
- USB 2.0/SD card slot: New item

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**No additional notes**

## HDD Encryption Unit
### Installation - 1

- The HDD Encryption unit encodes user data and machine settings. Then, if the disk is stolen, the data cannot be read.
- The unit is installed by a technician, and enabled with SP mode.
- Then, a customer with administrator status activates the feature with a user tool.

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- Details of procedures for customers are in the Security Reference Operation Manual, in the following section.
  - 3. Ensuring Information Security, Encrypting Data on the Hard Disk

# HDD Encryption Unit
## Installation - 2

- **The machine then creates an encryption key automatically. It stores this encryption key in three locations.**
  - A memory chip on the controller board (this is where the original of the encryption key is held)
  - The NVRAM on the controller board (this is a copy)
  - The hard disk, if installed (this is also a copy)
- **If the encryption key in these three locations is not the same, the encryption unit will not work.**
- **The user also prints out this encryption key, in accordance with the procedures in the operation manual.**
  - The user keeps this printout in a safe place, and does not show it to the technician.
  - This encryption key will be needed if the controller board is replaced.

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- The memory chip on the controller board is sometimes called the “USB Flash memory”.

# HDD Encryption Unit
## Installation - 3

- **If there is data already on the hard disk at the time that the HDD encryption unit is being installed, what happens to this data?**
- **It depends on the setting that is chosen by the user after installation, when the user enables the HDD encryption unit.**
- **There are three settings:**
  - File System Data Only: User authentication data, stored document data, and temporary data on the hard disk are all deleted. Machine settings, user tool settings, network settings, security log data and address book data already on the disk are encrypted
  - Format All Data: All data is deleted except for machine settings and network settings, and these are encrypted.
  - All Data: All existing data on the disk is encrypted. Nothing is deleted
- **After enabling the HDD encryption unit, all data is encrypted.**

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**No additional notes**

# HDD Encryption Unit

## What is encrypted during operation?

- **The following data is encrypted:**
  - Network interface setting data
  - Machine settings
  - User mode settings
  - Address book data
  - Security log data
  - User authentication data
  - Stored document data
  - Temporary data on the hard disk

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**No additional notes**

# HDD Encryption Unit

## After Replacing the Controller - 1

- **After the controller is replaced, one of the following must be done:**
  - The existing encryption key must be restored to the memory chip on the new controller board: This is done by the technician, with help from the customer
  - A new encryption key must be stored: This is done by the customer
- **The encryption key cannot be copied back from the two copies (NVRAM, HDD).**

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**No additional notes**

# HDD Encryption Unit
## After Replacing the Controller - 2

- **Restoring the existing encryption key:**
  - You must first store this encryption key in a text file on a blank SD card.
  - The customer must input the encryption key that was printed after installation.
- **How to store the encryption key on the SD card, and restore it to the new controller board: Service manual, Installation, HDD Encryption Unit, Recovery from a Device Problem**
- **If the user has forgotten the encryption key, the NVRAM must be cleared in addition to this: Service manual, same location as above**

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*Service manual, Installation, HDD Encryption Unit, Recovery from a Device Problem*

- The service manual contains two procedures for restoring the encryption key.
  - The first one assumes that the original encryption key has not been lost.
  - The second one is for use when the user has forgotten the encryption key and lost the printout that was made by the machine.
- The operation manual does not refer to these procedures. Instead, the user is instructed to 'update the encryption key', which actually means 'make a new one'.

# HDD Encryption Unit
## After Replacing the Controller - 3

- **Storing a new encryption key:**
  - This procedure is in the operating instructions.
    - » Security Reference, 3. Ensuring Information Security, Encrypting Data on the Hard Disk, Updating the Encryption Key

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**No additional notes**

## HDD Encryption Unit
### After Replacing the HDD or NVRAM

- **If the HDD (hard disk drive) must be replaced, a new encryption key must be stored.**
  - This procedure is for the user to do. It is not in the service manual. We studies this on the previous slide.
  - It is theoretically possible to copy the existing encryption key from the controller board, but there is no information about how to do this.
- **If the NVRAM is defective, then the HDD encryption unit cannot be recovered, even if the controller is OK.**
  - The user must obtain a new HDD encryption unit.

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- The operation manual explains how to make a new encryption key, as explained on the previous slide.

## Copy Data Security Unit

- **In the AP-C1, there are two limitations.**
  - If you install this option, you cannot use scanner or fax functions.
  - When you store originals to the document server after installing this option, you can not select the 50% or less reduction mode on the LCD panel.
- **AP-C2 does not have these limitations**

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**No additional notes**

## Optional USB 2.0/SD card slot

- **This optional unit allows use of the new Scan to USB and Scan to SD features.**
- **This allows users to scan documents and save them in electronic format on an SD card and/or USB memory device.**
  - If the USB device or SD card is then connected to a computer, the scanned files can then be viewed, printed, or processed.
- **You cannot print or send files from this SD/USB slot with the operation panel. You must connect the USB device/SD card to a computer.**
- **This USB slot cannot be used as a printer interface, except for PictBridge.**

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- Files saved on a removable memory device will not appear in the list of stored files.
- Files saved on a removable memory device cannot be printed or sent using the machine's operation panel. To perform operations on files saved on a removable memory device, you must use an application on a client computer.
- You cannot specify where the data is saved. Files are saved in the root directory of the removable memory device.
- Up to 2 GB of data can be saved. However, depending on the number of files already stored on the removable memory device, new files might not be saved, even if there appears to be sufficient free space.
- If the removable memory device is partitioned, files are saved on the first partition.

# Optional USB 2.0/SD card slot

- **Up to 2 GB of data can be saved.**
  - However, depending on the number of files already stored on the removable memory device, new files might not be saved, even if there appears to be sufficient free space.
- **This machine supports FAT16 format USB memory devices and SD cards. Other forms of removable memory device are not compatible.**
- **Saving might fail if the USB memory device has password protection or other security features.**
- **To save files on a removable memory device, you must attach the optional USB 2.0/SD card slot to the machine.**
- **File formats that can be used:**
  - Single page TIFF/JPEG/PDF (including high compression PDF)
  - Multipage TIFF/PDF (including high compression PDF)

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**No additional notes**


**No additional notes**

# Card Save (1)

- **This new feature allows you to send print data files to an SD card in the service slot (slot 2 in this machine).**
  - The data is not printed.
- **Card Save mode must be turned on with printer bit switch 1, bit 4.**
  - Card Save will remain enabled until the SD card becomes full, or until all file names have been used.
- **Files are stored on the SD card in the folder /prt/cardsave.**
  - File names are assigned sequentially from PRT00000.prn to PRT99999.prn.
  - An additional file PRT.CTL will be created. This file contains a list of all files created on the card by the card save function.
- **Card Save cannot be used with PJL Status Readback commands.**

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**No additional notes**

## Card Save (2)

- **Previously stored files on the SD card can be overwritten or left intact.**
- **After you enable this function with the printer bit switch, the following two user tools are added to the List/Test Print tab of the Printer Features user tools menu.**
  - Card Save (Add):
    - » Appends files to the SD Card.
    - » Does not overwrite existing files.
    - » If the card becomes full or if all file names are used, an error will be displayed on the operation panel. Subsequent jobs will not be stored.
  - Card Save (New)
    - » Overwrite files in the card's /prt/cardsave directory.

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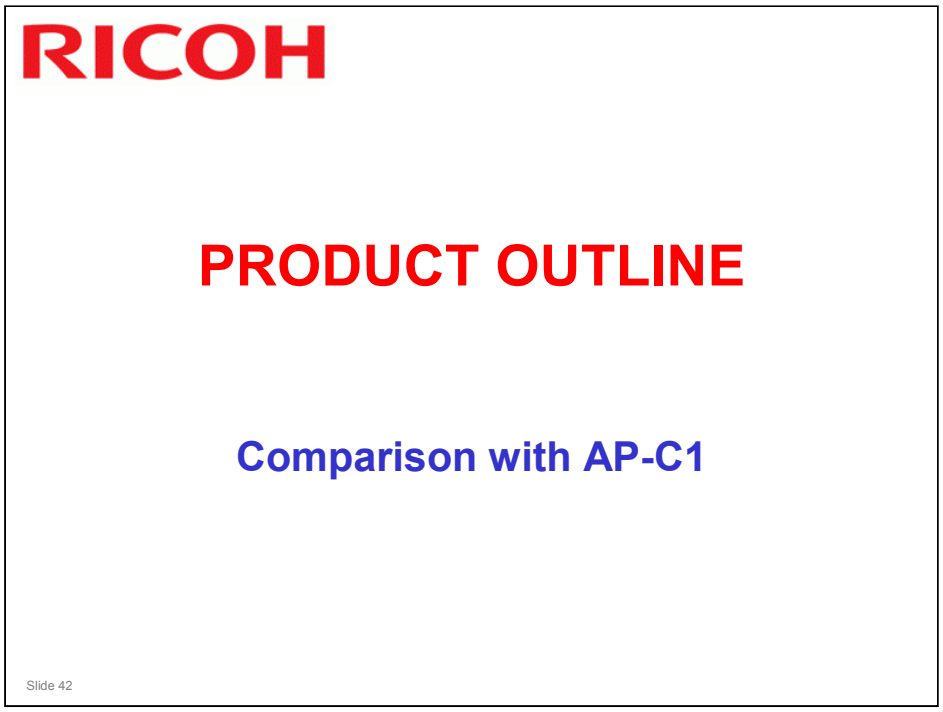
- Study the procedure in the service manual.

*Service Manual - System Maintenance Reference - Card Save Function*

- Note that there is no message on the screen to indicate that a file was copied to the SD card successfully. But there are some error messages that appear if things go wrong.
- If an error occurs, press “OK”. The device will discard the job and return to the ready state.




**No additional notes**

# Productivity Comparison with AP-C1

| | AP-C1c/d | AP-C2c/d |
|---|---|---|
| Copy speed: | **Plain 1/2**<br>C1c: 35 cpm (FC/BW)<br>C1d: 45 cpm (BW) or 40 cpm (FC)<br>**Thick 1**<br>25 cpm (FC/ BW)<br>**Thick 2**<br>17.5 cpm (FC/BW)<br>**Thick 3**<br>15 cpm (FC/BW) | **Plain 1/2**<br>C2c: 40 cpm (FC/BW)<br>C2d: 50 cpm (FC/BW)<br>**Thick 1**<br>25 cpm (FC/BW)<br>**Thick 2/3/OHP/Glossy (1200 dpi)**<br>17.5 cpm (FC/BW) |
| | ADF 1 to 1, LT/A4 LEF<br>Thick 1 (169 g/m$^2$ or less)<br>Thick 2 (220 g/m$^2$ or less)<br>Thick 3 (256 g/m$^2$ or less) | |
| Warm-up time | **C1c:** 45 seconds<br>**C1d**: 60 seconds | **C2c:** 34 seconds<br>**C2d**: 51 seconds |
| Resolution | Scan: 600 dpi<br>Copy: 600 dpi<br>Print: 600 dpi | Scan: 600 dpi<br>Copy: 600 dpi<br>Print: 1200 dpi |
| First Copy (Normal mode) | **C1c**<br>FC: 8 seconds or less<br>BW: 4.9 seconds or less<br>**C1d**<br>FC: 7 seconds or less<br>BW: 4.5 seconds or less | **C2c**<br>FC: 6.5 seconds or less<br>BW: 3.9 seconds or less<br>**C2d**<br>FC: 5.9 seconds or less<br>BW: 3.5 seconds or less |
| | First copy times stated above are for A4/LT LEF | |

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❒ Improvements are shown in blue.

# Productivity Comparison with AP-C1

| | AP-C1c/d | AP-C2c/d |
|---|---|---|
| Max. Paper Capacity | 3200 sheets: Mainframe (550 x 2) + By-pass (100 sheets) + 2000-sheet LCT (Option) | 4400 sheets: Mainframe (550 x 2) + By-pass (100 sheets) + 2000-sheet LCT (Option) + 1200-sheet LCT (Option) |
| Printing Paper Weight: | **Standard tray:** 60 to 216 g/m$^2$ (16 to 57 lb.) **Optional paper tray:** 60 to 216 g/m$^2$ (16 to 57 lb.) **By-pass tray:** 52 to 253 g/m$^2$ (14 to 67 lb.) **Duplex unit:** 60 to 169 g/m$^2$ (16 to 45 lb.) | **Standard tray:** 60 to 256 g/m2 (16 to 68 lb.) **Optional paper tray:** 60 to 256 g/m$^2$ (16 to 68 lb.) **By-pass tray:** 60 to 256 g/m$^2$ (16 to 68 lb.) **Duplex unit:** 60 to 169 g/m$^2$ (16 to 45 lb.) |
| Output Paper Capacity: | Shift Tray not available | Shift Tray: 250 sheets (80 g/m2) |

Slide 44

- Improvements are shown in blue.

# Printer Controller Specs

| | AP-C1c/d | AP-C2c/d |
|---|---|---|
| Controller Board Type | Embedded | Embedded |
| Printing module | Built in standard | Built in standard |
| Controller CPU | RM7935-835MHz | **Intel Celeron-M 1.0GHz** |
| Print speed (A4/LT LEF) | C1c: FC 35ppm/ BW 35ppm<br>C1d: FC 40ppm/ BW 45ppm | **C2c: FC 40ppm/ BW 40ppm**<br>**C2d: FC 50ppm/ BW 50ppm** |
| Memory capacity | 1024MB (Standard and Max) | 1024MB (Standard and Max) |
| HDD | Standard : 80GB | **Standard : 160GB** |
| Supported Printer language | Standard : RPCS, PCL5c, PCL6<br>Option : Adobe PostScript3 | Standard : RPCS, PCL5c, PCL6<br>Option : Adobe PostScript3 |
| PCL resident fonts | PCL: 45 fonts (Truetype: 10 fonts, Intelli: 35 fonts) + Bitmapped: 6 fonts + International fonts: 13 Intellifonts | PCL: 45 fonts (Truetype: 10 fonts, Intelli: 35 fonts) + Bitmapped: 6 fonts + International fonts: 13 Intellifonts |
| Standard I/F | Ethernet (100 base-TX/10 base-T)<br>USB2.0 Device | Ethernet (100 base-TX/10 base-T)<br>**USB2.0 Host**, USB2.0 Device |
| Optional I/F | USB Host I/F (PictBridge)<br>IEEE1284/ECP<br>IEEE1394<br>Wireless LAN (IEEE802.11b, WPA support)<br>Bluetooth | IEEE1284/ECP<br>Wireless LAN (**IEEE802.11a/g**, WPA support)<br>Bluetooth<br>**Ethernet 1000 base-T** |
| Network Protocol | TCP/IP(IPv4, IPv6) , IPX/SPX, AppleTalk | TCP/IP(IPv4, IPv6), IPX/SPX, AppleTalk |
| Print Resolution | 600 x 600 dpi / 1bit<br>600 x 600 dpi / 2bit<br>600 x 600 dpi / 4bit | 600 x 600 dpi / 1bit<br>600 x 600 dpi / 2bit<br>600 x 600 dpi / 4bit<br>**1200 x 1200 dpi / 1bit** |

Slide 45

- Improvements are shown in blue.
- IEEE802.11g is compatible with IEEE802.11b.
- Print speed is one-half of the above specification when 1200 x 1200 dpi is selected.
- The hard disk is bigger, but the user can only use 80 GB of this. The other 80 GB is to speed up storage during scanning.


**No additional notes**

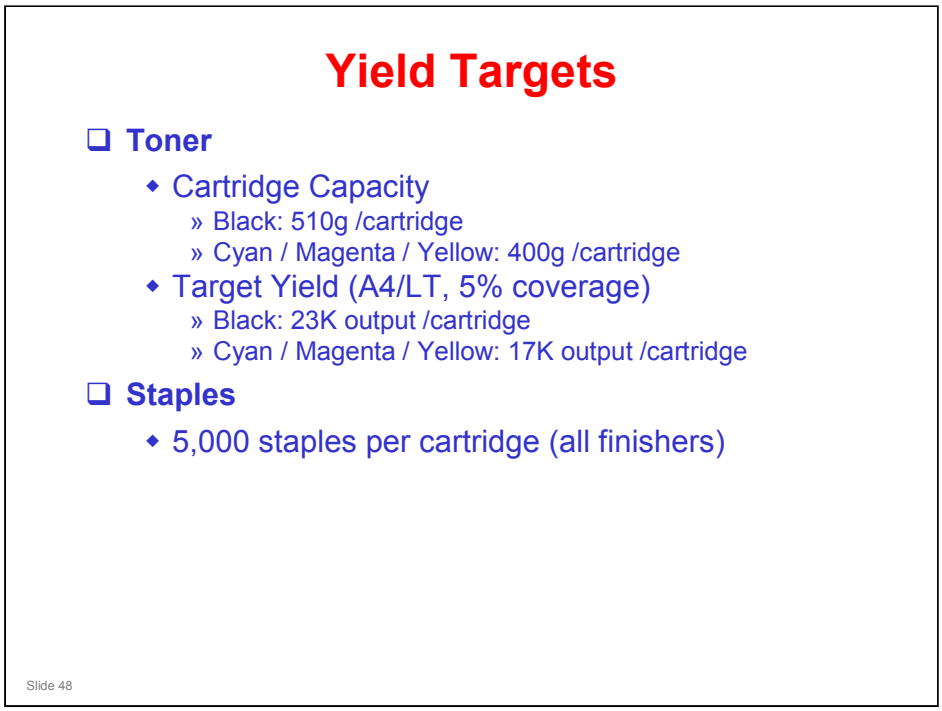
# Reliability Targets

| | AP-C1c (35/35cpm) | AP-C1d (45/40cpm) | **AP-C2c (40/40cpm)** | **AP-C2d (50/50cpm)** |
|---|---|---|---|---|
| ACV | 10K/month | 15K/month | **10K/month** | **15K/month** |
| Max CV (5years) | 50K/month | 50K/month | **50K/month** | **50K/month** |
| PM cycle | 80K | 80K | **120K** | **120K** |
| MCBC | 44.4K | 47.2K | **54.0K** | **53.0K** |
| Life | 5 years, or 3000K output | 5 years, or 3000K output | **5 years, or 3,000K output** | **5 years, or 3,000K output** |

- **The PM cycle is longer, and the engine is more reliable (MCBC is longer)**

Slide 47

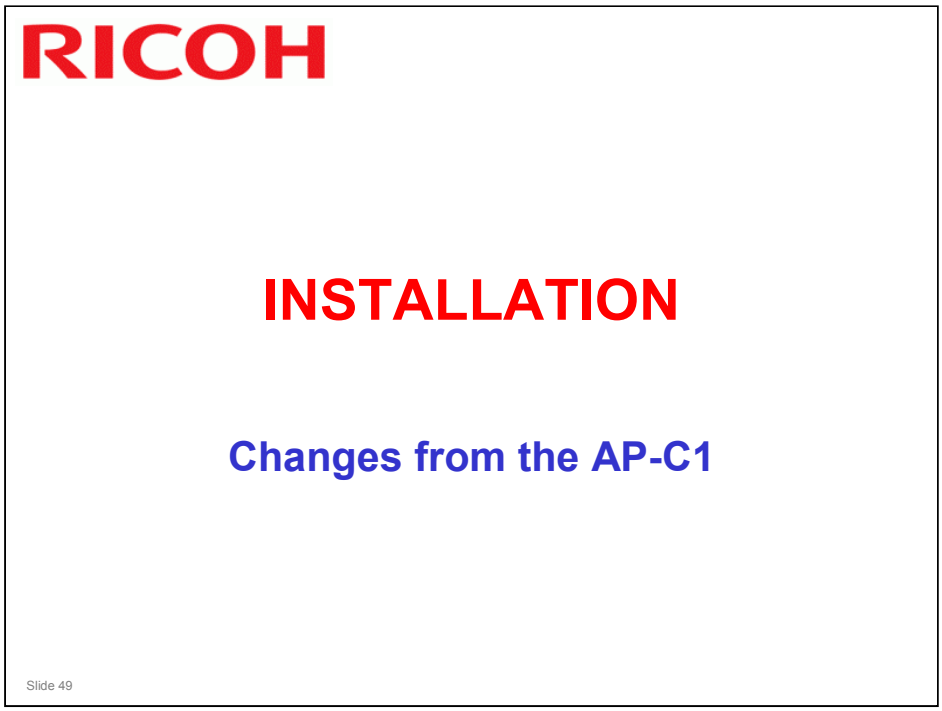
- MCBC: Mean copies between calls




- The toner capacity is the same as for AP-C1, but the yield is increased.
  - Figures for AP-C1:

    *Black: 20K outputs /cartridge*

    *Cyan / Magenta / Yellow: 15K outputs /cartridge*
- The toner bottles are not compatible with other products.
  - The toner is a new type, as mentioned earlier.
- The staple refill cartridges are compatible with those used in the AP-C1.
- The set staple cartridges are also compatible for the above models, except for the booklet finisher. The cartridge for that finisher is not compatible.



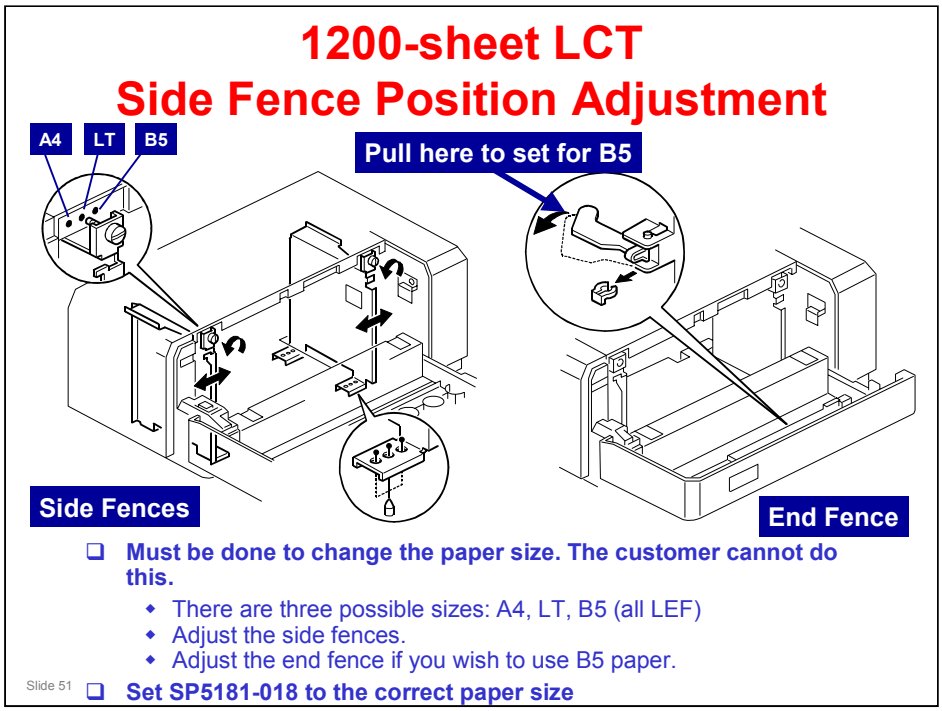

**No additional notes**

# List of Changes

- **New procedures**
  - 1200-sheet LCT: Same as the AL-C1
  - USB/SD Slot: This is a new device. Read this procedure
  - Controller Options:
    - » IEEE802.11: Different from AT-C1
    - » HDD encryption unit: Same as the AL-C1
    - » VM card: Same as V-C2
- **Small changes to existing procedures:**
  - Shift tray
  - Bridge unit
  - Punch unit
  - Copy data security unit
  - Controller options: Slot numbers are different
  - Firmware update: Use slot 2
  - LCT, paper tray units

Slide 50

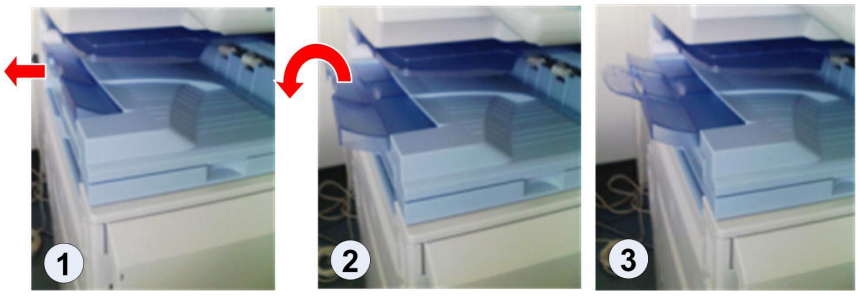
❒ Small changes: These are very small changes.




## Side Fence Position Adjustment

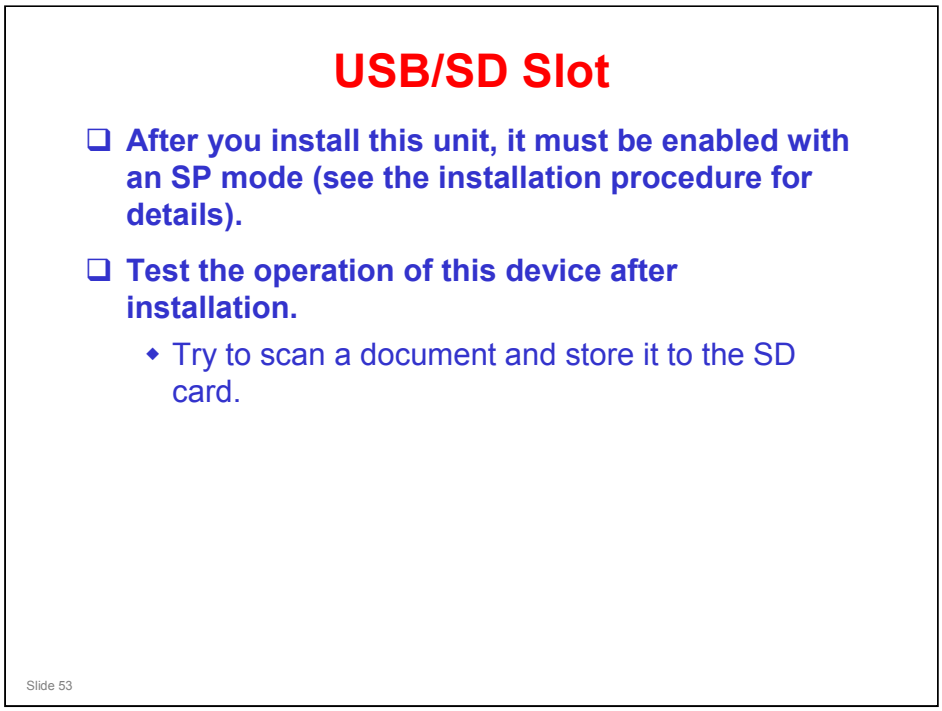
❒ This is needed if the user wishes to change the paper size from A4 to Letter or the other way around.

# Bridge Unit




- Pull the extension tray out if the 1000-sheet finisher (B408) will be installed.

Slide 52




**Procedure for storing a file on an SD card/USB device**

- 1.Insert an SD card or USB memory device in the slot.
  - You can connect only one removable memory device at a time.
- 2.Close the media slot cover.
  - If you leave the cover open, static electricity conducted through an inserted SD card could cause the machine to malfunction.
- 3.Make sure that no previous settings remain.
  - If a previous setting remains, press the [Clear Modes] key.
- 4.Place originals.
- 5.Press [Store File].
- 6.Press [Store to Memory Device].
- 7.Press [OK].
- 8.Press the [Start] key.
  - When writing is complete,a confirmation message appears.
- 9.Press [Exit].
- 10.Remove the memory device from the media slot.
  - Do not remove the memory device while writing is in process.

# Data Overwrite Security Unit

- **Must be type H**
  - Make sure that you have a type H unit.
- **Before you can install this unit, the customer must store some names and passwords related to authentication.**
- **Check the envelope to make sure that the VOID marks are not visible on the packing tape.**
- **Enable the unit with SP 5878 001.**
  - If you have installed the wrong type by mistake, you will see 'Failed' on the display when you do this SP. Do the installation procedure again with the correct type of DOS unit.
  - It is not necessary to replace the NVRAM if you install the wrong version.
- **Follow the procedure in the service manual carefully, or the installation will fail.**

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**No additional notes**

## HDD Encryption Unit

- Before you can install this unit, the customer must store some names and passwords related to authentication.
- Check the envelope to make sure that the VOID marks are not visible on the packing tape.
- Enable the unit with SP 5878 002.
- Remove the SD card from slot 2 after installation.

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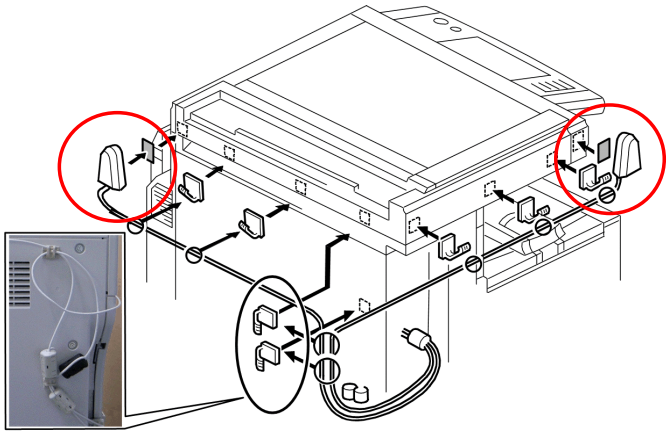
**No additional notes**

# IEEE802.11a/g, g Interface (1)



- Make sure to install the antennas correctly, as described in the manual.

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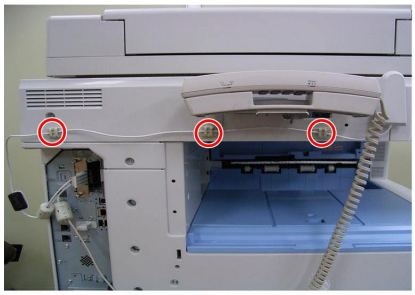
**No additional notes**

# IEEE802.11a/g, g Interface (2)



Handset only

Handset and USB/SD slot

- Refer to the above picture when installing the handset and the USB2.0/SD slot.

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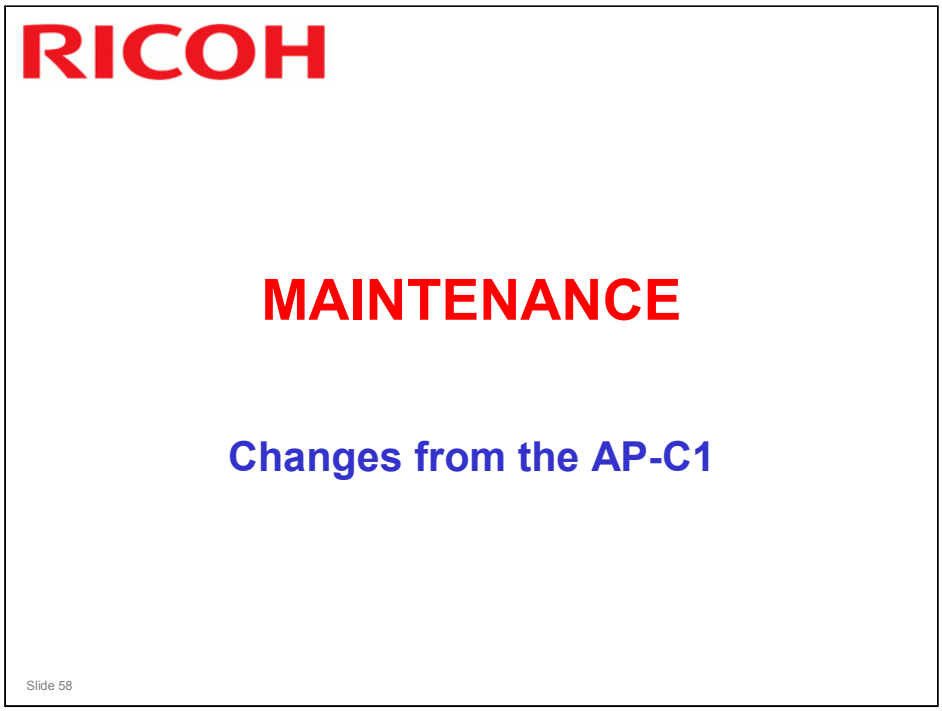
**No additional notes**




**No additional notes**

## Changes from the AP-C1

- **Basic PM interval: 120 k (AP-C1 was 80k)**
  - All PM intervals are changed as a result of this.
  - For example, change K developer every 240k (AP-C1 was 160 k)
- **The fusing unit is modified, so the PM items are different; see the PM table for details.**
- **ID sensor cleaning: Clean every visit, with a blower brush (AP-C1 was 320K)**
  - How to clean: Service manual, Replacement and Adjustment, Paper Transfer, ID Sensor Board
- **New options: Clean the EM parts listed in the PM table every time you work on the machine**

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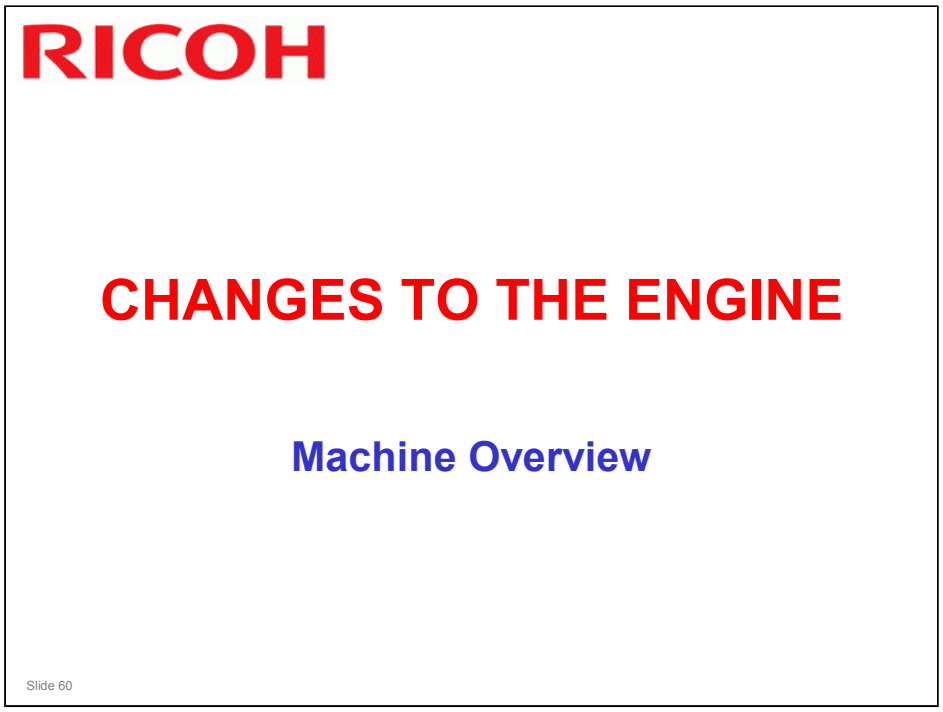
**For full details of the PM schedule for this model, see the PM table in the service manual.**




**No additional notes**

# Process Speeds

| Mode | Resolution (dpi) | Process speed (mm/s) | Copy speed (cpm) |
|---|---|---|---|
| Plain, Middle Thick (B/W, FC) | All except 1200x1200 | C2c: 205<br>C2d: 230 | C2c: 40<br>C2d: 50 |
| | 1200 x 1200 | 77 | C2c: 17.5<br>C2d: 17.5 |
| Thick 1 (B/W, FC) | All | 154 | 25 |
| Thick 2/3 (B/W, FC) | All | 77 | 17.5 |

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- The process speed is the feed speed from registration roller to the fusing unit.
- The process speed affects various machine parameters, as can be seen if you take a quick look through the SP tables.
- What is ‘middle thick paper’? See the next slide.

## Paper Weights

- Thin paper: 60 g/m² (16 lb)
- Normal plain paper: 60 – 90 g/m² (16 – 24 lb.)
- Middle Thick: 90 – 105 g/m² (24 – 28 lb.)
- Thick 1: 105 – 169 g/m² (28 – 45 lb.)
- Thick 2: 169 – 220 g/m² (45 – 58 lb.)
- Thick 3: 220 – 256 g/m² (58 – 67 lb.)

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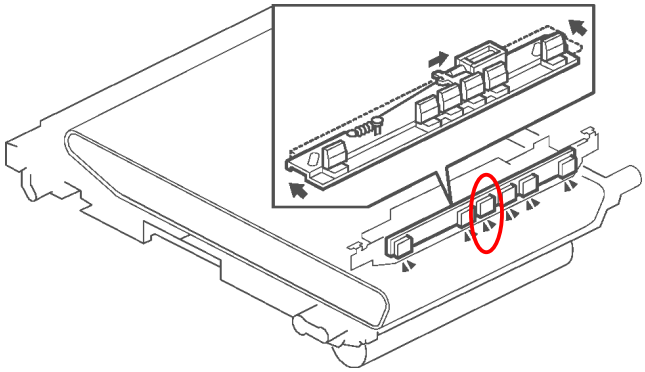
- This machine does not support thin paper.
- 'Thin paper' is an additional paper weight setting that the user can select at the operation panel if the 'plain paper' setting causes problems.
- The maximum paper weight has changed to 256 g/m2.

## ID Sensors



- **Six ID sensors, on the ID sensor board:**
  - Three are used for line position adjustment: Left end, middle (red circle), right end
  - Four are used for process control: One for each color
  - The sensor indicated by the red circle does two jobs: process control for black and line position adjustment for the center.

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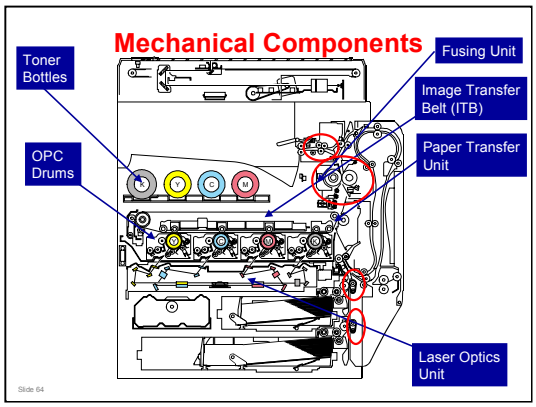
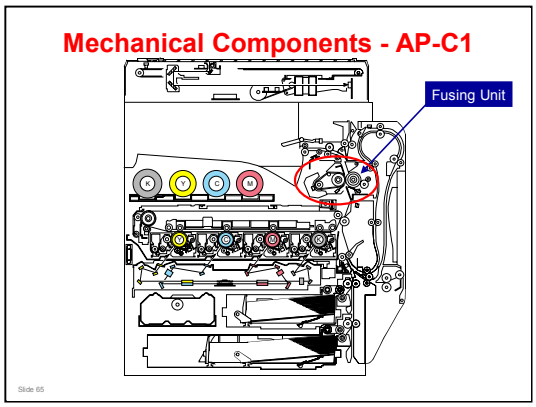
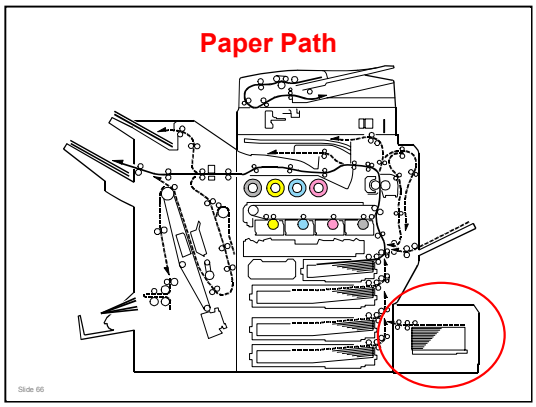
- The AP-C1 series had a total of seven sensors. In the AP-C2, the sensor in the red circle does two jobs, so one sensor was eliminated from the design.
- When the sensors are not used, the solenoid moves the shutter to cover the sensors. This prevents dust on the sensors.



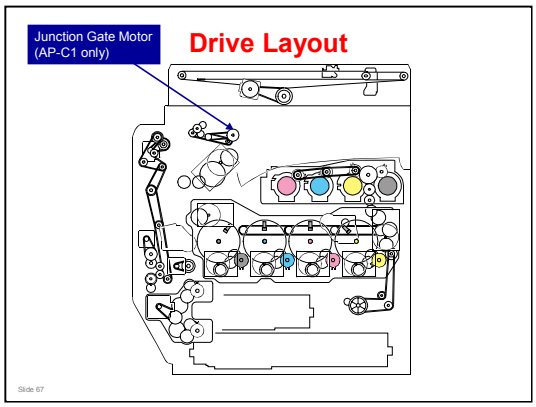

- This is a view of the internal structure of the machine.
- Major differences from the AP-C1 are indicated with a red circle.
  - Belts are added to the vertical transport rollers, to help feed thick paper.
  - The fusing unit does not contain a fusing belt. The IH inverter heats the roller directly.
  - Decurler rollers are added to the paper exit.




❒ Differences are indicated with a red circle.




- The only difference from the AP-C1 is the new 1200-sheet LCT, which feeds into the optional two-tray feed unit or the optional 2000-sheet LCT.
  - One of these optional units must be installed, or the 1200-LCT cannot be installed. It cannot feed directly into the machine.




❒ The only difference is that the junction gate motor has been removed. A solenoid is used in the AP-C2.

## Comparing the AP-C2 and the AT-C2

- **In both models, the following mechanisms are the same, and based on the Ap-C1/C2 series:**
  - Mainframe
  - Drive
  - Bypass
  - Duplex
  - Junction gate/paper exit
  - Development/toner supply
  - Drum
  - Transfer

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**No additional notes**

## Comparing the AP-C2 and the AT-C2

- **The following mechanisms are different:**
  - Scanner mechanism:
    - » AP-C2: AP-type, AT-C2: AT-type
  - Laser diodes
    - » AP-C2: AP-type, 2 beams
    - » AT-C2: AT-type, 1 beam
  - Paper feed
    - » AP-C2: AP-type
    - » AT-C2: AT-type, with no paper feed sensor
  - Fusing unit
    - » AP-C2: AP-type, IH inverter, no fusing belt
    - » AT-C2: AT-type, with fusing belt

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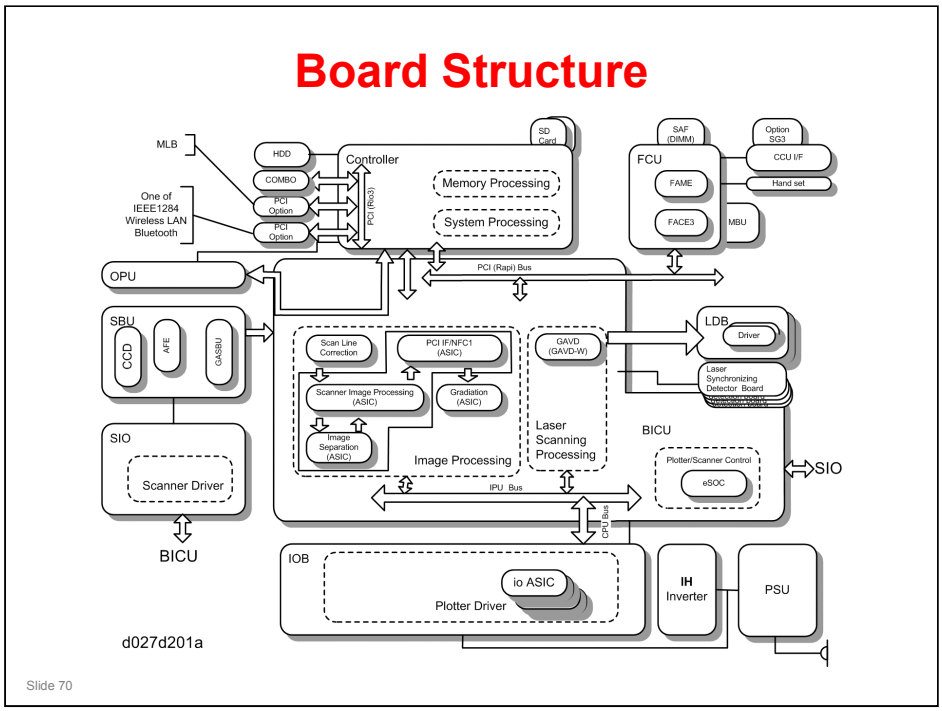
- The AP-C2 feeds paper at a higher speed than the AT-C2, and there is a very short gap between sheets. Design tests have shown that to improve paper feed under these severe timing conditions, the pick-up solenoid and paper feed sensor are necessary.

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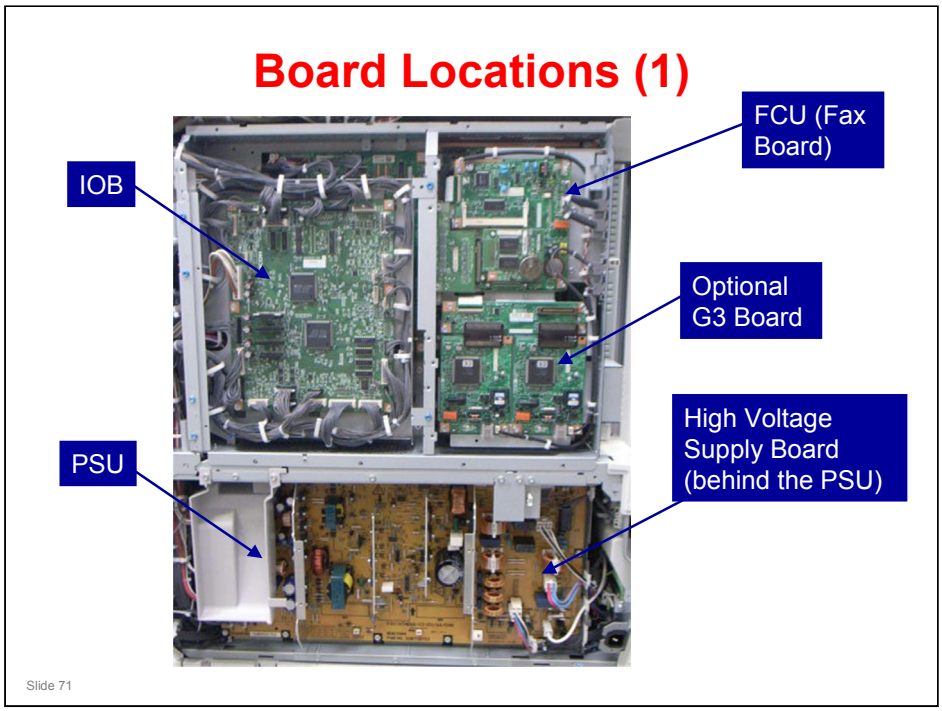
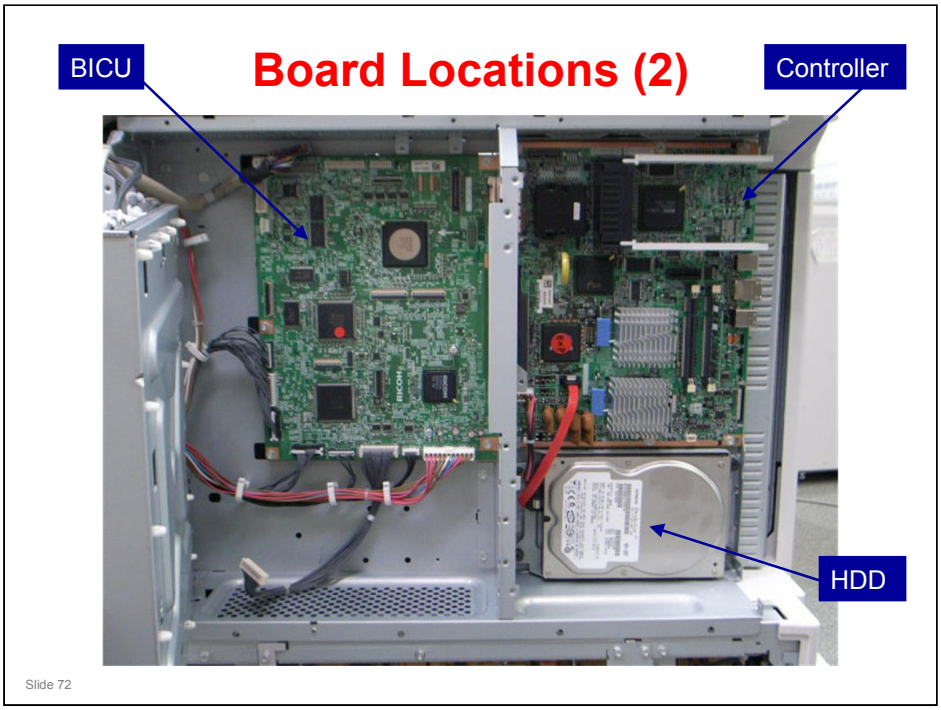
❒ The AP-C1 series contained a BCU and an IPU. In this new model, these two boards are combined into the BICU.




❒ This is what you see when the controller box is closed.

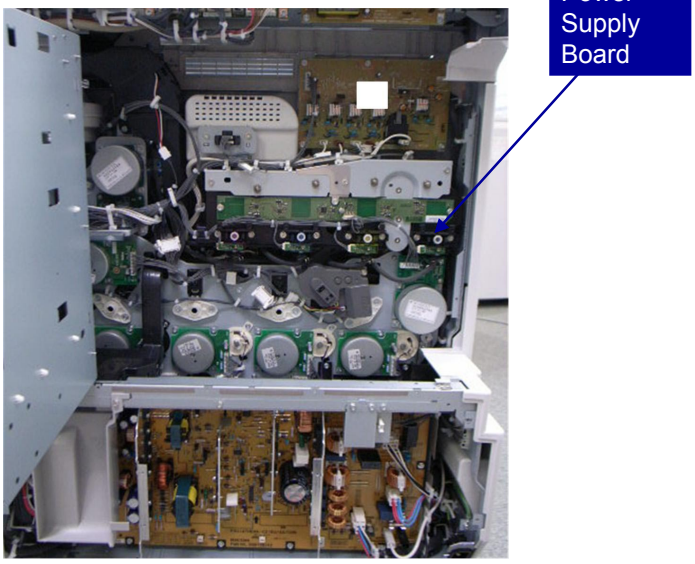



- This is a view of what is behind the IOB, FCU and G3 interface unit

**BICU**

- In the AP-C1, the IPU processes the image.
- In the AP-C2, the BCU and IPU are combined into one board, the BICU.

## Board Locations (3)

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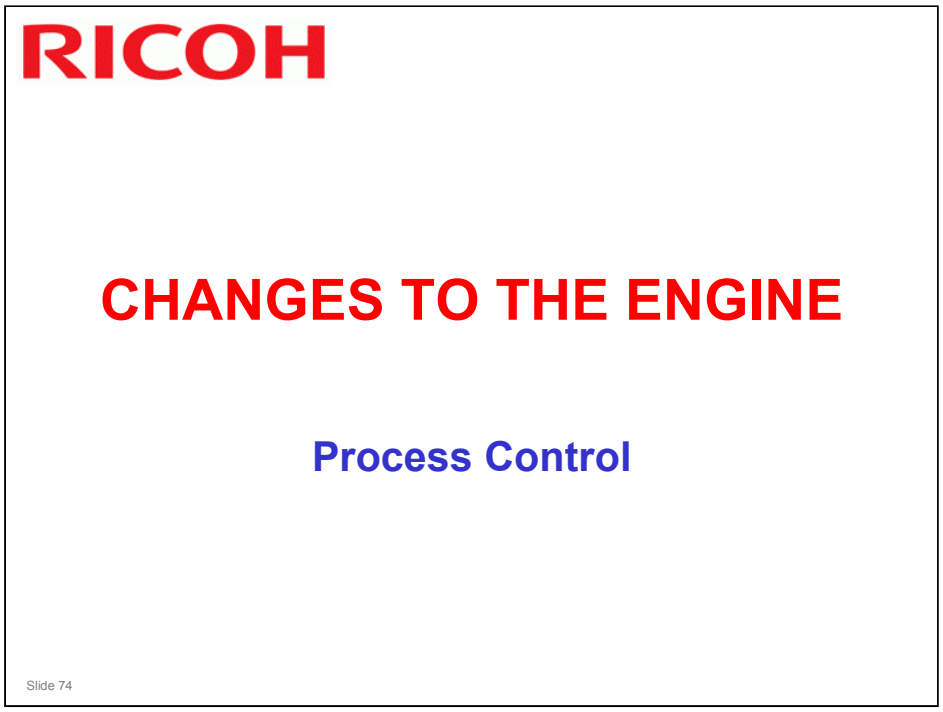
❒ This is what you see when the controller box is open




**No additional notes**

## VSG Adjustment

- VSG adjustment is done when process control or MUSIC is done at power-on, recovery from the energy saver mode or cover open-close.
- And it is only done if the VSG adjustment counter (SP3-510-007) is more than the value set with SP3-511-007 (default: 0) during a job or at job end.

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**AP-C1**

- VSG adjustment is always done during initial process control.
- But, at other times, it is only done if the VSG adjustment counter (SP3-510-007) is more than the value set with SP3-511-007 (default: 0) during a job or at job end.


**No additional notes**

## Two Laser Beams per Colour

- **AP-C1 series: Laser optics unit**
  - The AP-C1d has two laser beams per colour, but the AP-C1c has only one
- **AP-C2 series: Both models have two laser beams per colour**

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**No additional notes**

## MUSIC Adjustment Conditions

- **Initial:**
  - Immediately after the power is turned on, or when the machine recovers from the energy saver mode.
  - Done either once or twice (or not done), depending on:
    - » Time since the previous job
    - » Temperature change since the previous job
  - The machine checks the above conditions at power on/recovery. Then, line position adjustment is done if one of the conditions occurs.

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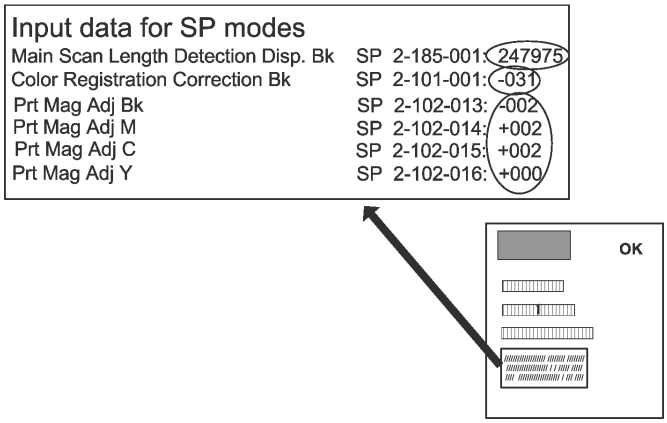
❒ The text in red shows the changes since the previous model.

# Laser Optics Housing Unit Replacement




- The decal has changed – there are more SP numbers to input.
- Full details are in the service manual.

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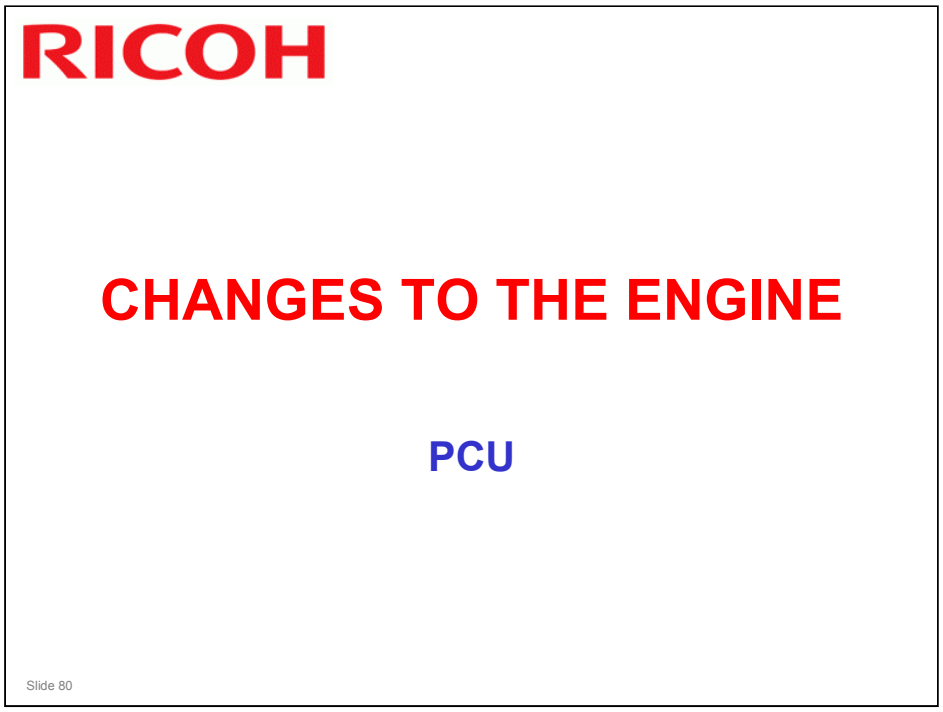
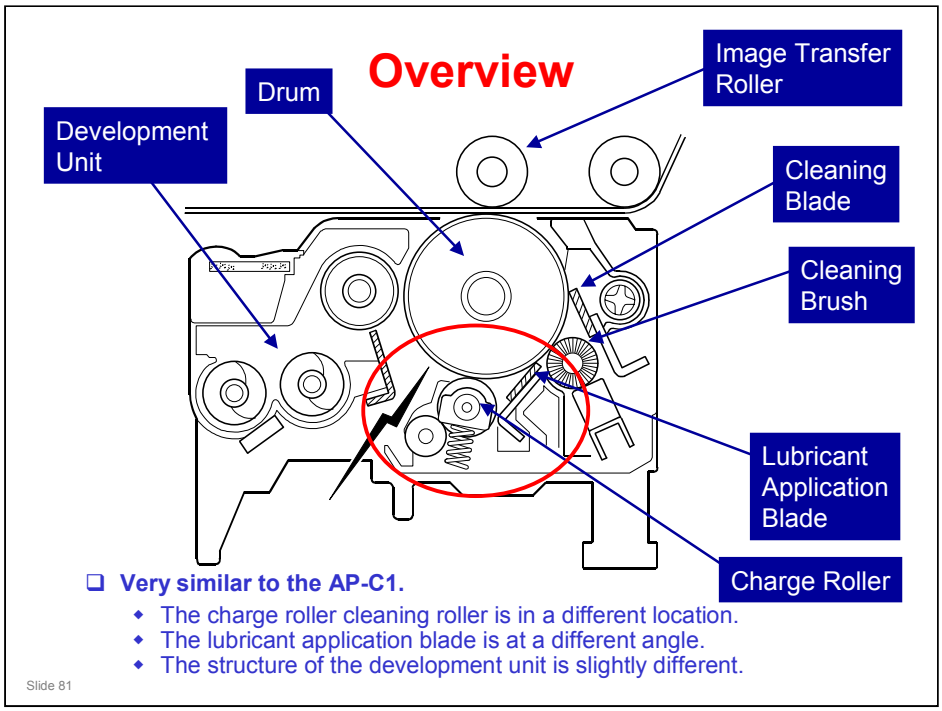
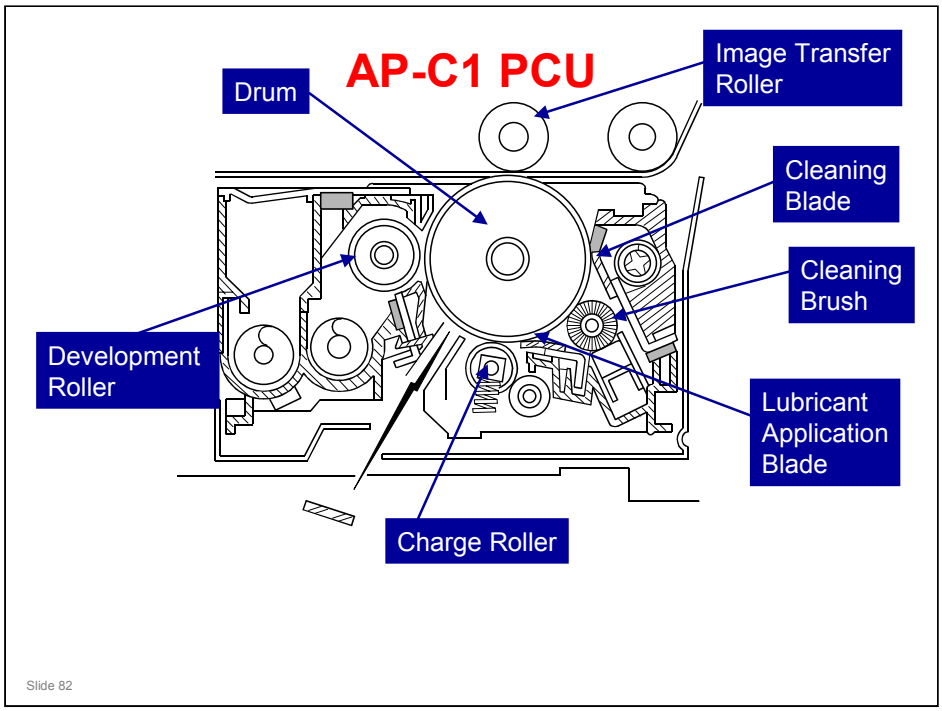
**No additional notes**



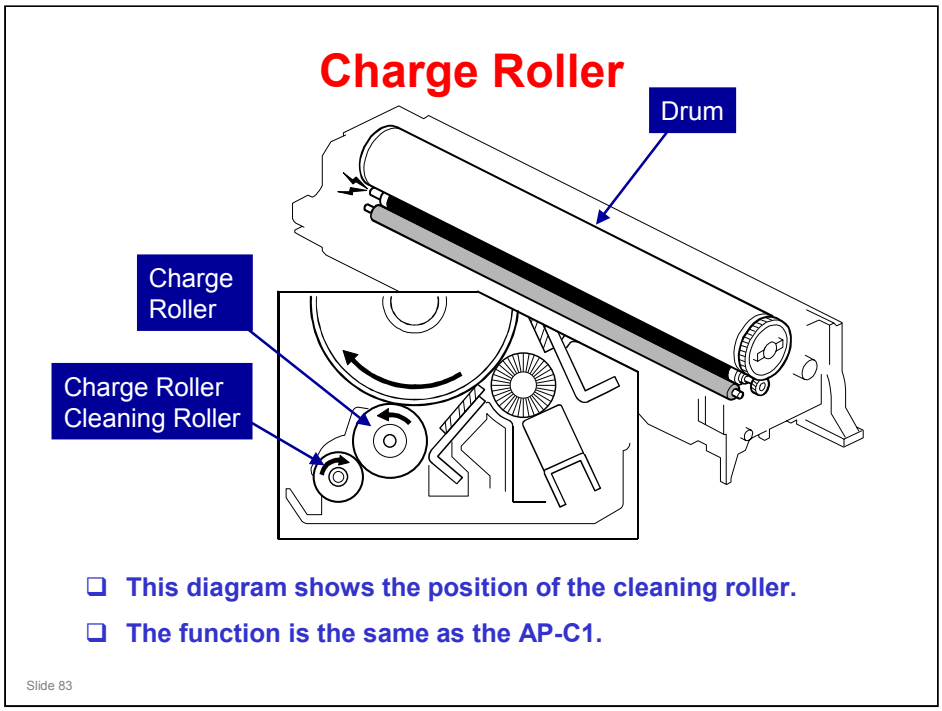

**No additional notes**



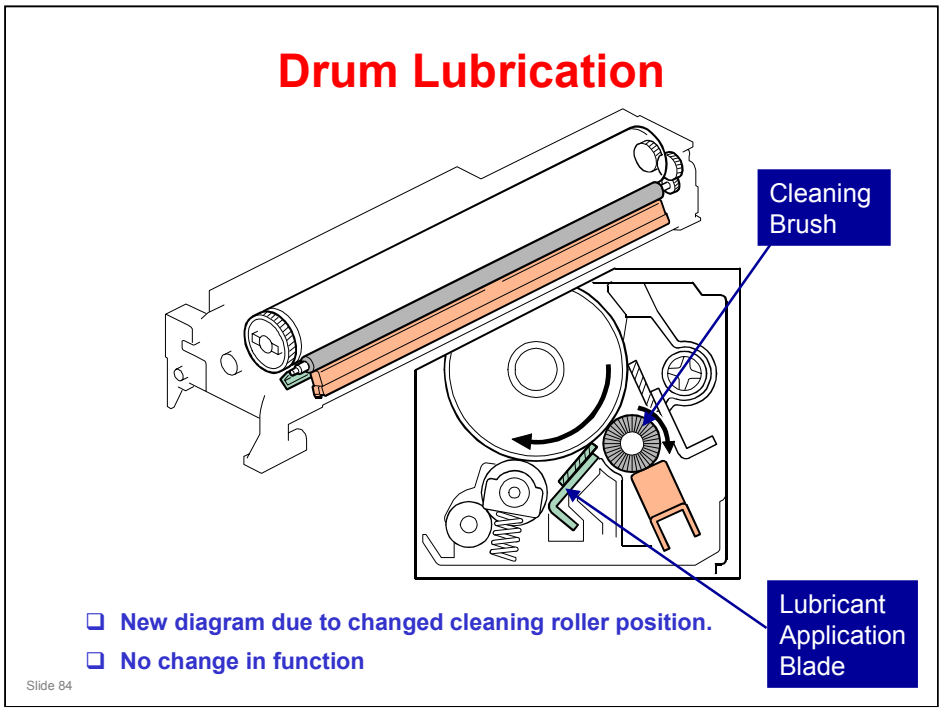

- The red circle shows the significant changes in PCU structure.
- In the AP-C1, the cleaning roller is to the lower right of the charge roller, and the development unit is deeper.
- Lubricant application blade: The new position allows the blade to apply the lubricant coat more evenly. This reduces the occurrence of dirty stripes (in the AT-C1, this was caused by temporary insufficient cleaning ability after a large amount of prints, which is a product limitation of At/Ap-C1.)



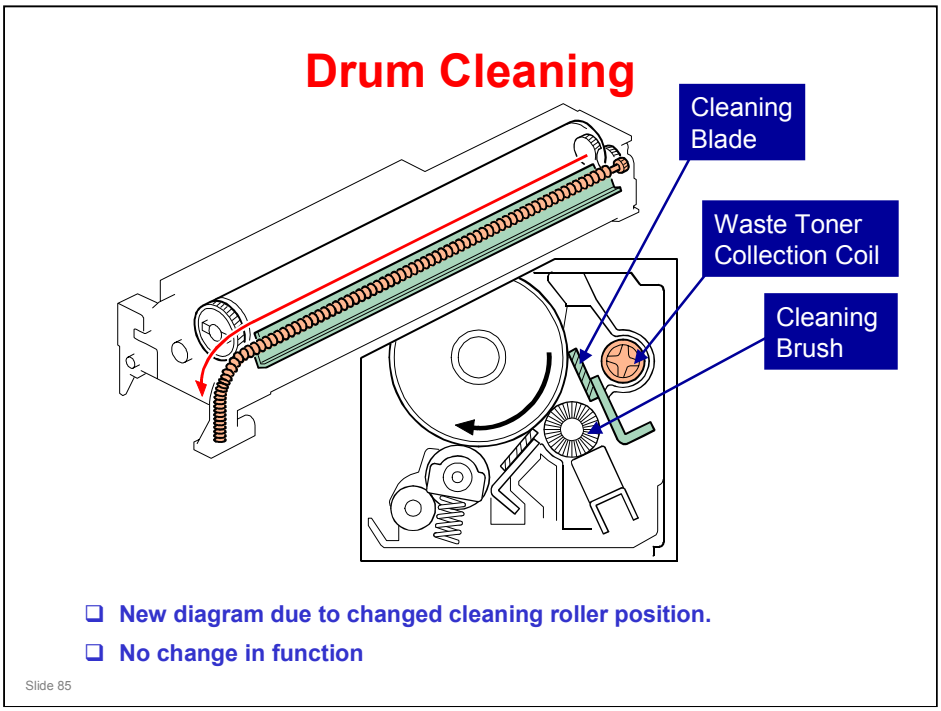

❒ This slide allows you to compare the two PCUs.




**No additional notes**




**No additional notes**




**No additional notes**

## When are the Drum Gear Positions Checked?

- **The machine automatically checks the drum gear position during the automatic line position adjustment.**
- **Can also be done manually with SP 1902.**
  - Must be done after you take out and put back the drive unit.

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❒ The timing of this procedure has changed since the AP-C1 series.

## Reverse Rotation

- **The drum rotates for 30 ms at 0.5 seconds after the end of the job.**
  - In the AP-C1, this was done for 40 ms

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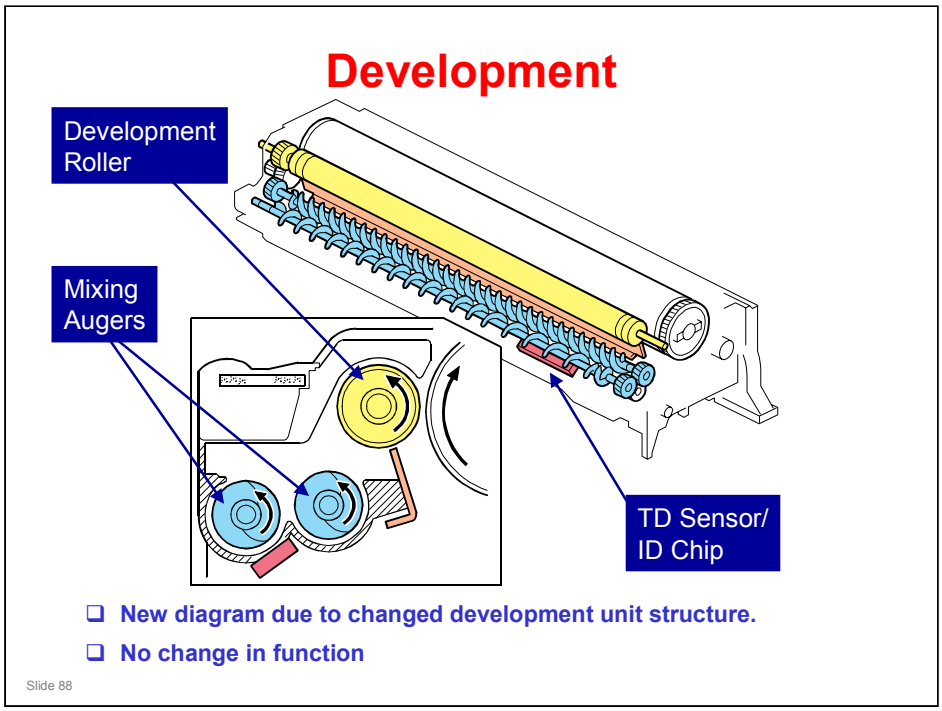
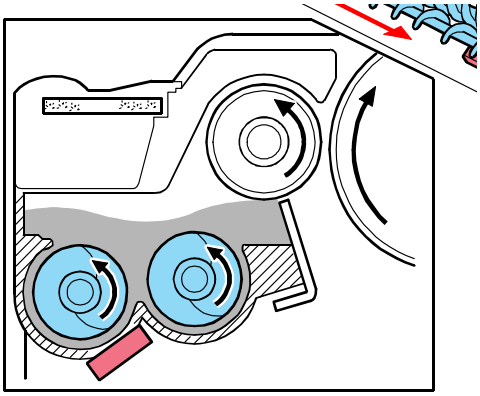
**No additional notes**




❒ The structure of the development unit is slightly different from the AP-C1, so a new diagram is needed.

# Developer Shipping



- **AP-C1: Developer is above the heat seal during shipping.**
- **AP-C2: Developer is below the heat seal during shipping (as shown above), in the same compartment as the augers.**
  - This method makes it less likely for developer to form blocks during shipping.

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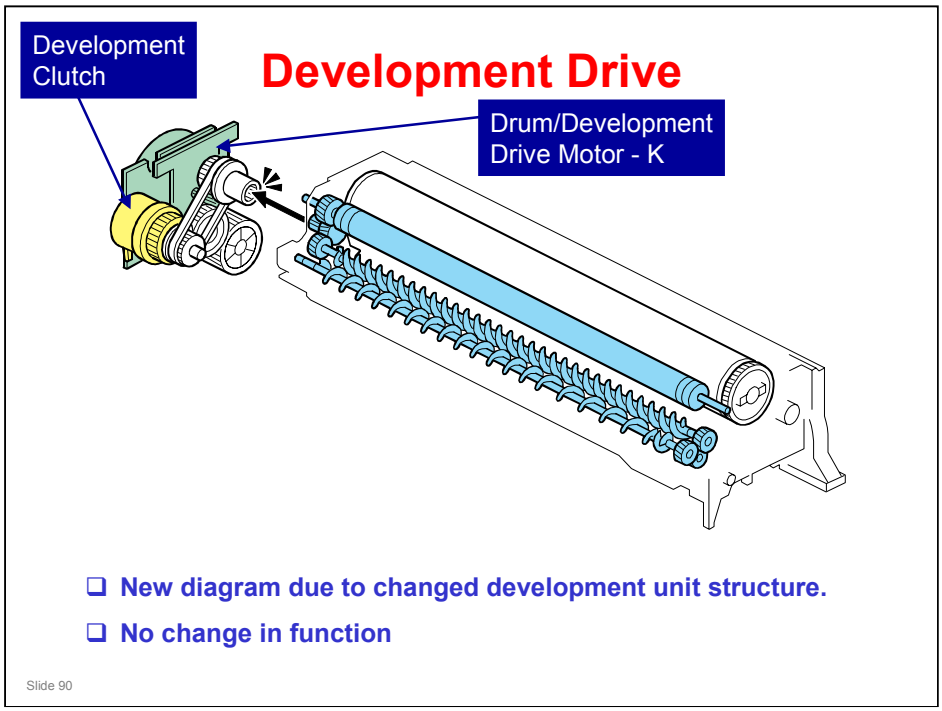
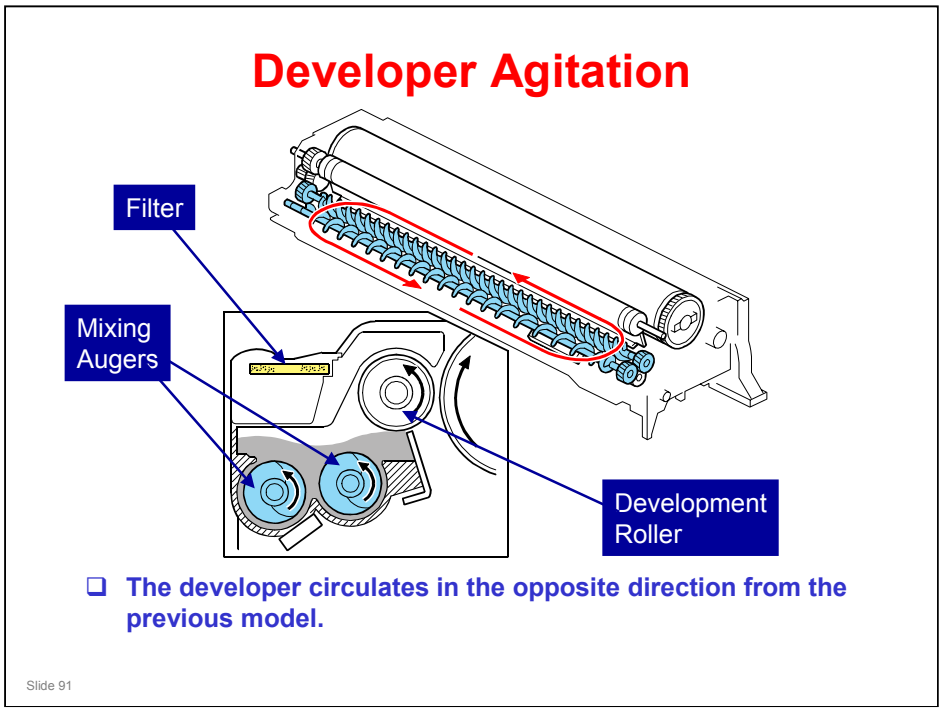
**No additional notes**

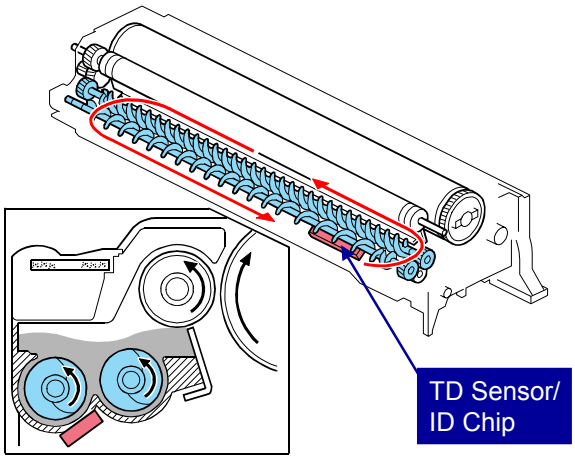



❒ The mechanism for black is shown as an example.




- This diagram shows how the augers move the toner around inside the development unit.
- The developer circulates as shown by the red arrow, which is in the opposite direction from the previous model.
  - The diagram in the documentation for the previous model was incorrect.
- With this method, the TD sensor works better.
  - There is less turbulence in the area immediately above the sensor, which means there is less air, and a more accurate reading of toner density.

# New Unit Detection




- New diagram due to changed development unit structure.
- No change in function

Slide 92

**No additional notes**

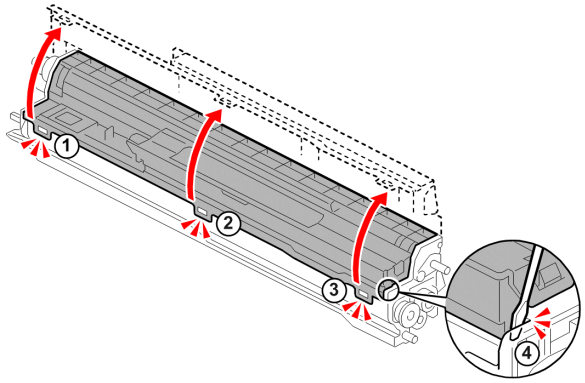
# Drum Unit Replacement

- **New steps were added to the replacement procedure for the drum unit.**
  - After you separate the drum unit from the development unit, turn the development roller five or six times in a counterclockwise direction.
    - » This step removes developer that has stuck to the development roller, which would cause color unevenness.
  - After you install the new drum, do SP 1902-001 two times.
    - » This rotates the drum for 2 minutes.

Slide 93

**No additional notes**

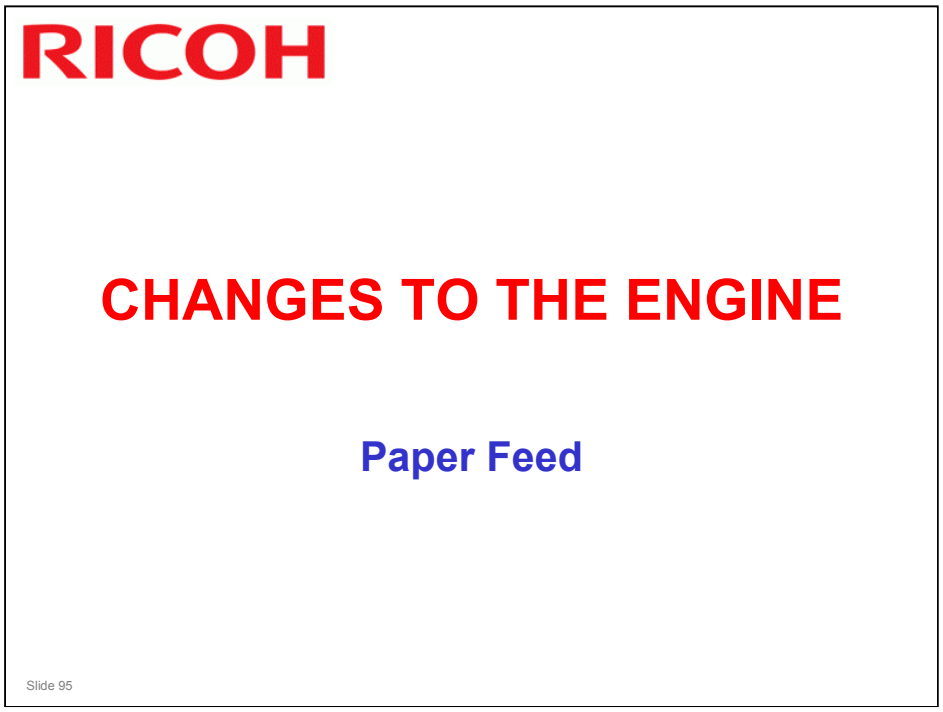
## Hopper Cover Removal



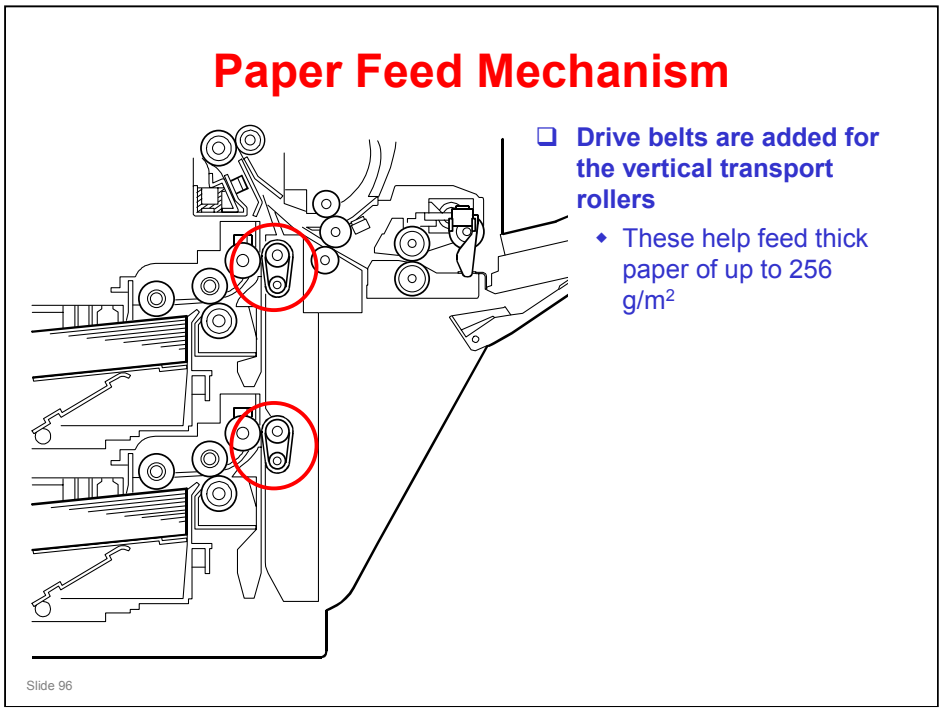

- **Release the three hooks first in the correct order (from 1 to 3).**
- **Put the head of a screwdriver in the gap as shown, and then release the hook (4).**
  - Be careful, because this hook breaks easily.

Slide 94

- This shows the correct way to remove the hopper cover when you add fresh developer.

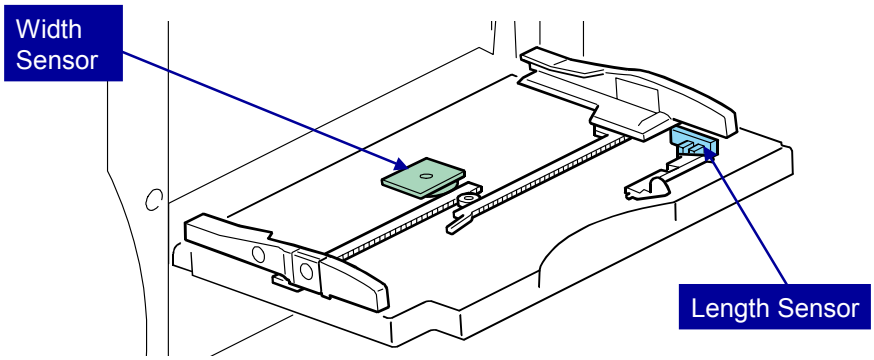



**No additional notes**




❒ Modified areas are circled in red.

## By-Pass Paper Size Detection

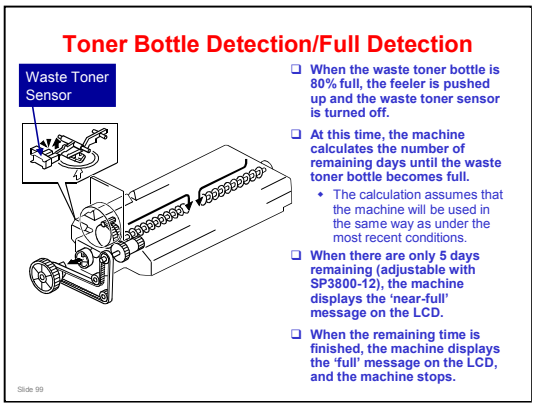



- **A length sensor is added.**
- **This helps the machine to distinguish between these pairs of paper sizes, which have the same width**
  - A4 SEF and A5 LEF
  - A3 SEF and A4 LEF
- **The sensor cannot distinguish between LT and LG SEF.**
  - This must be pre-set with SP 1007-1

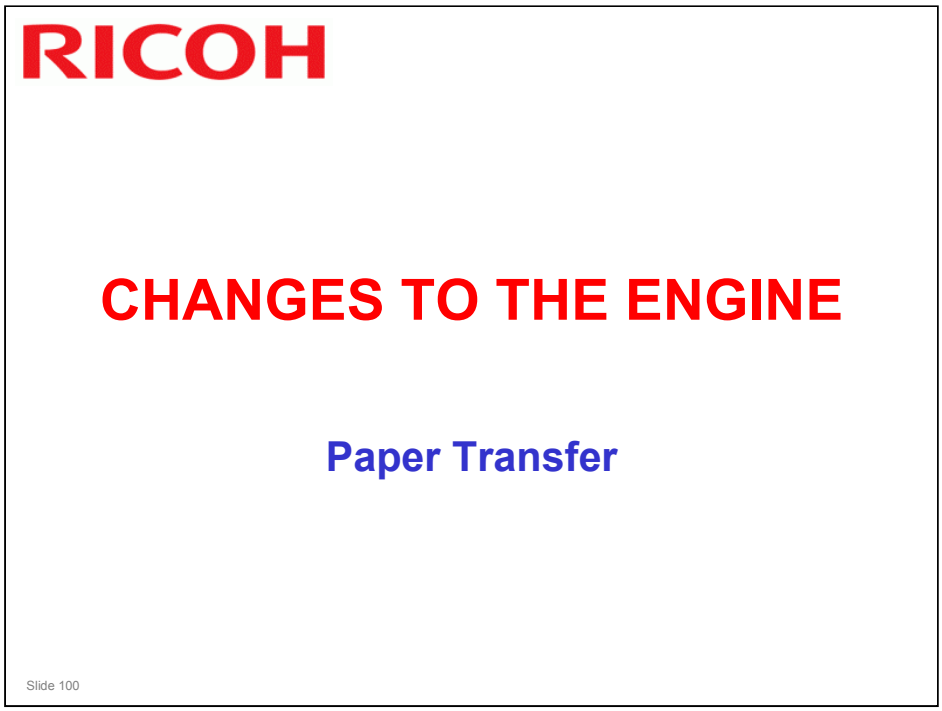
Slide 97

**No additional notes**


**No additional notes**

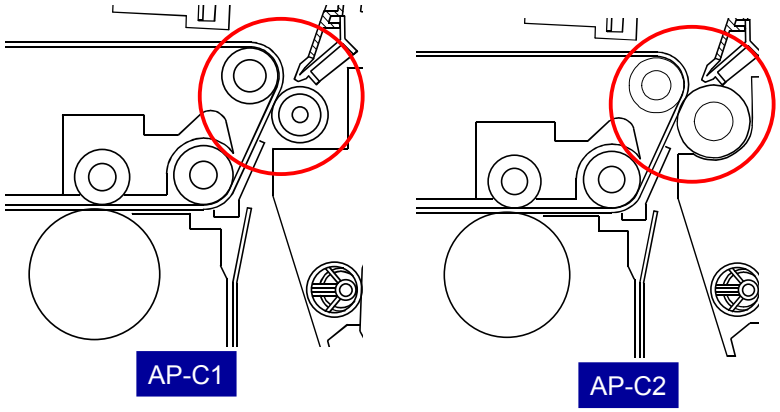



❒ AT-C1: When the waste toner sensor detects the actuator, the 'near-full' condition occurs. At this time, the machine can make 500 more copies. Then the 'full' condition occurs and the machine stops.




**No additional notes**

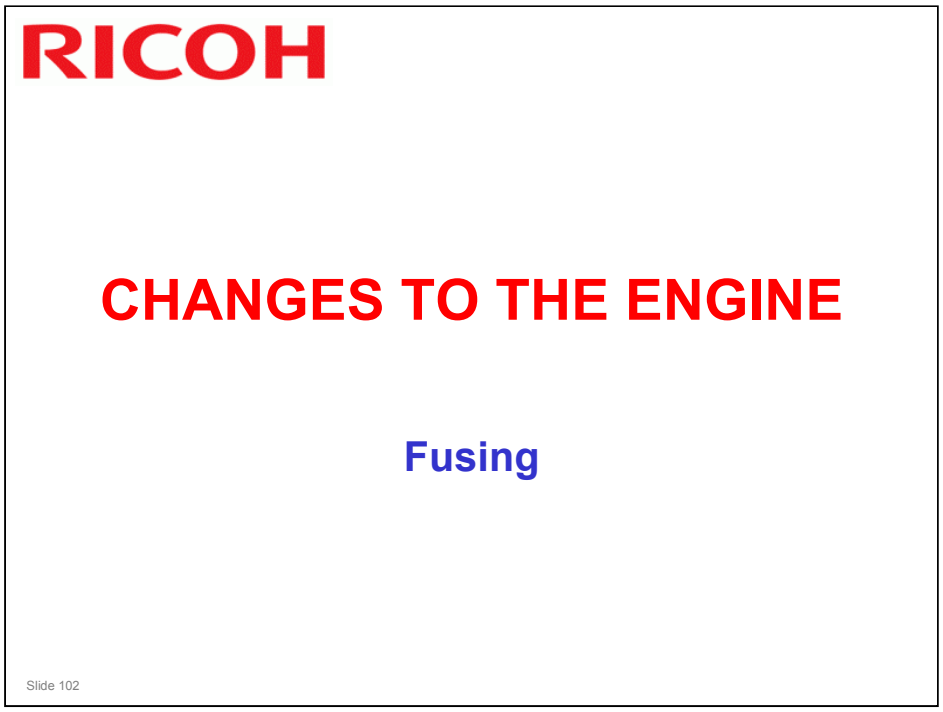
## Changes to the Paper Transfer Roller



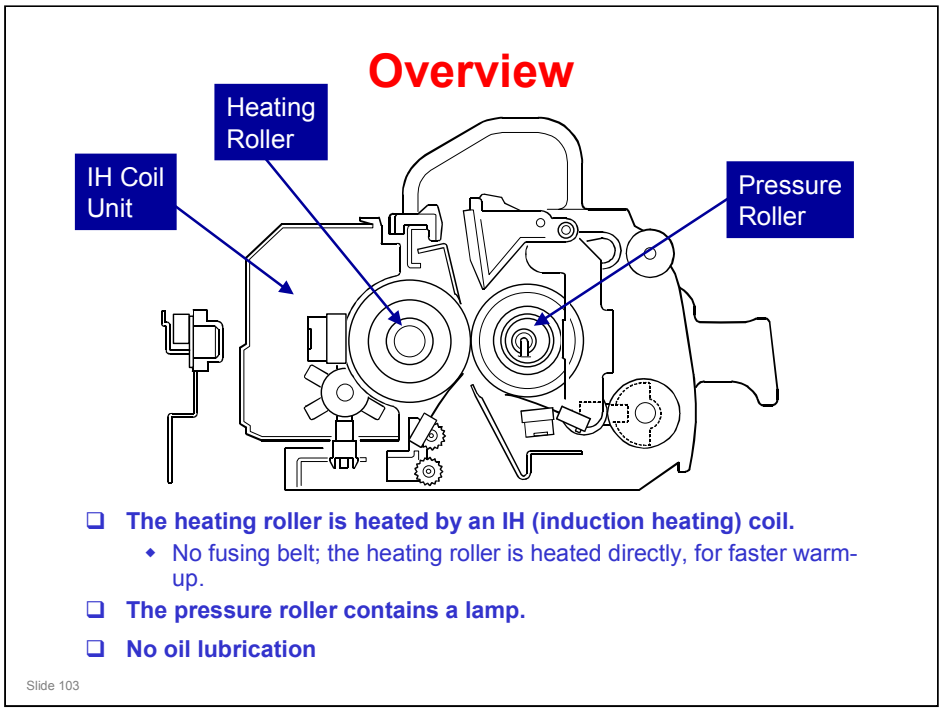

- There is a wider contact between the paper transfer roller and ITB. This improves paper handling.

Slide 101

**No additional notes**




**No additional notes**




**Warm-up times**

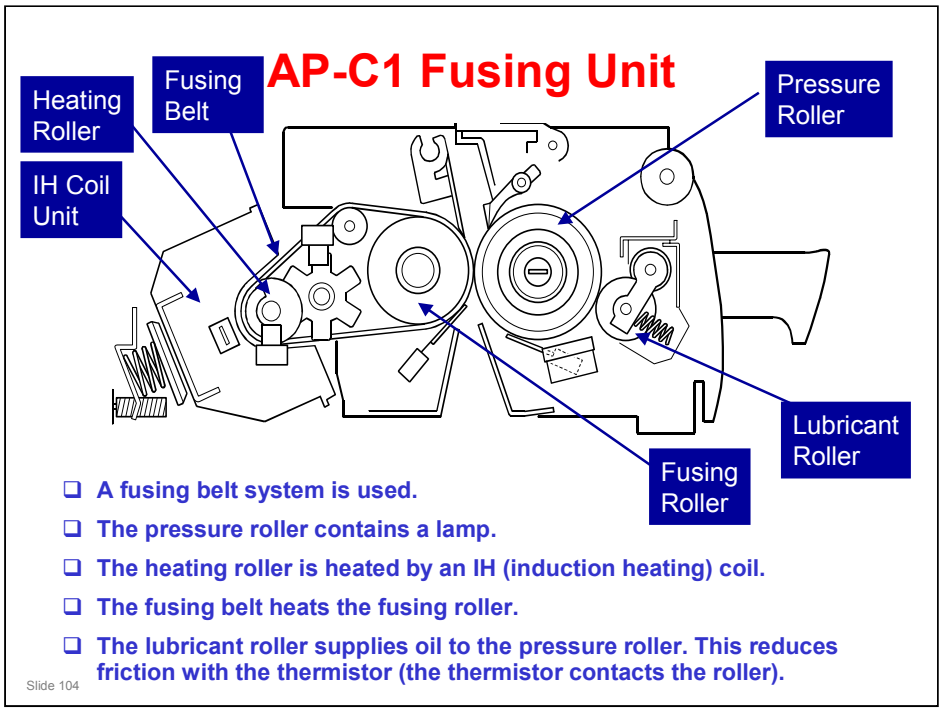
- AP-C1c (35cpm) - 25 s, AP-C1d (40cpm) - 29 s
- AP-C2c (40cpm) - 17 s. AP-C2d (50cpm) - 27 s

**There is a big change for the slower machine (AP-C2c), but a small change for the 50cpm machine (AP-C2d). Why is this?**

- The difference in cpm is more for the higher speed model (10 cpm, against 5 cpm for the slower model). This means that the fusing temperature has to be a lot higher. So, warm-up time is longer.

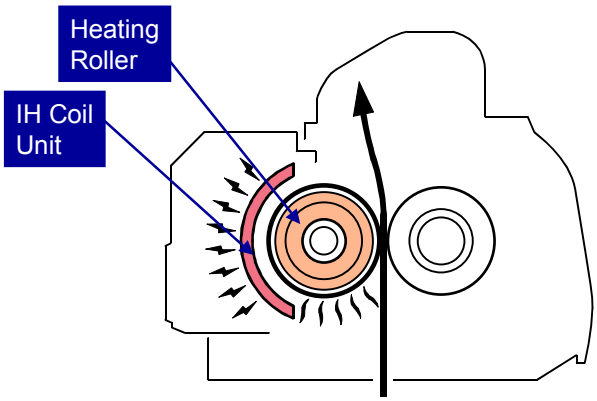
**Why is there no lubrication in the fusing unit?**

- The toner has been changed. This new type of toner is easily removed from the heating roller. So an oil lubrication system is not necessary.




❒ This slide lets you compare the new fusing unit with the old one.

## Induction Heating System – This Machine

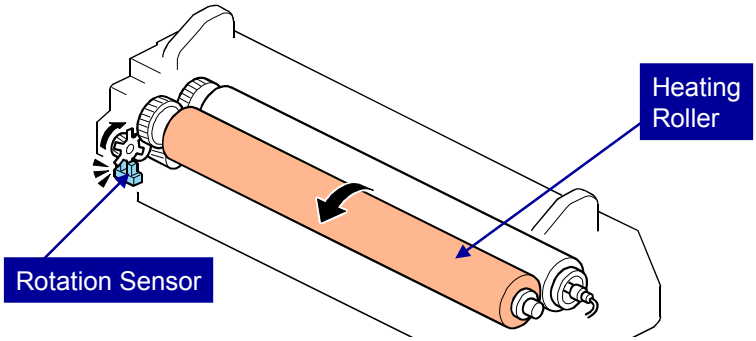



- The IH coil unit heats the heating roller directly.
- The inner surface of the heating roller sleeve contains a metal sheet.

Slide 105

**No additional notes**

## Heating Roller Rotation Sensor

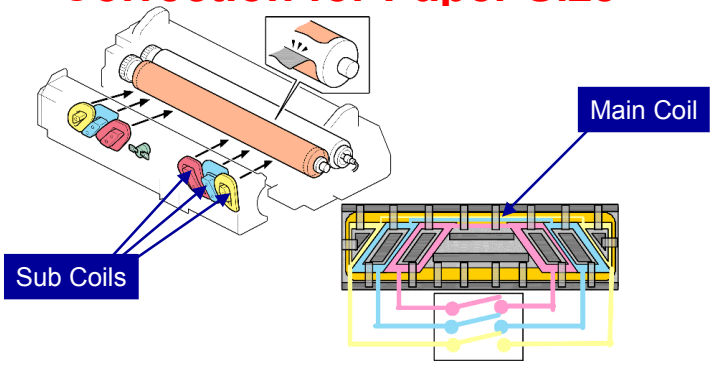



- The heating roller rotation sensor monitors the rotation of the heating roller.
- If this sensor does not detect the edge of the actuator for 500 ms, the machine issues SC548 and stops the machine
- If the heating roller does not rotate, the same place of the heating roller sleeve is continuously heated, and this can cause overheating.

Slide 106

❒ The AP-C1 does not have this.

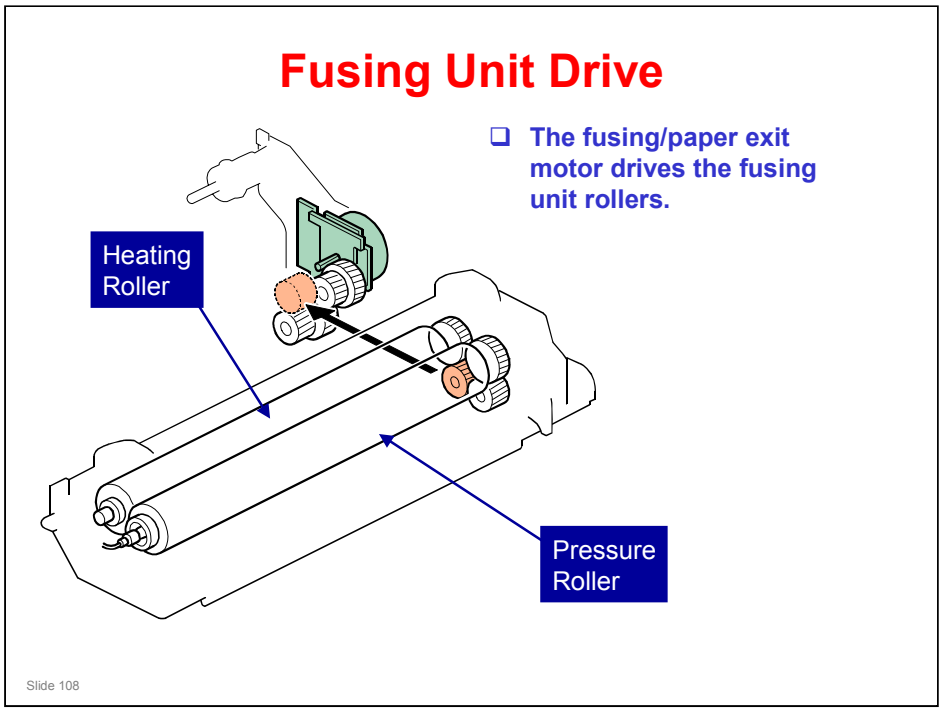
## Correction for Paper Size




- The IH coil unit has a main coil and three sub coils.
- The machine changes the combination of sub coils depending on the selected paper size for a job.
- When the selected sub coil is turned on, the selected area on the main coil generates eddy currents and heats the metal sheet inside the heating roller sleeve.

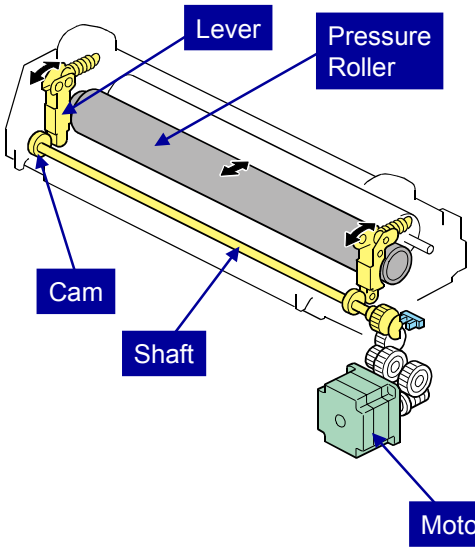
Slide 107

- This is a different system from the AP-C1.




**No additional notes**

## Pressure Release (1)

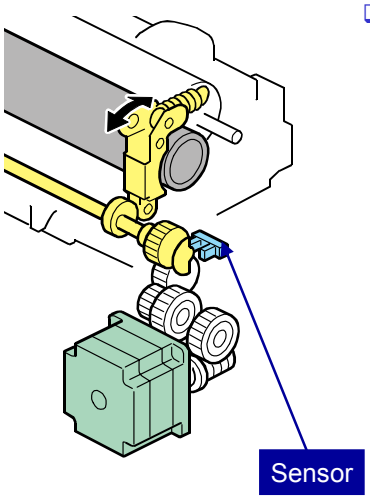



- The pressure roller contact motor controls the pressure roller contact shaft.
- When the shaft turns, cams on both ends push and release the pressure levers.
- The pressure levers apply the correct pressure to the nip between the pressure roller and the heating roller.
- At the following times, the levers are released and the pressure roller moves away from the heating roller.
  - End of job
  - Jam in the fusing unit

Slide 109

- The AP-C1 does not have a motor.
- This mechanism makes it easy to remove jams in the fusing unit.

# Pressure Release (2)

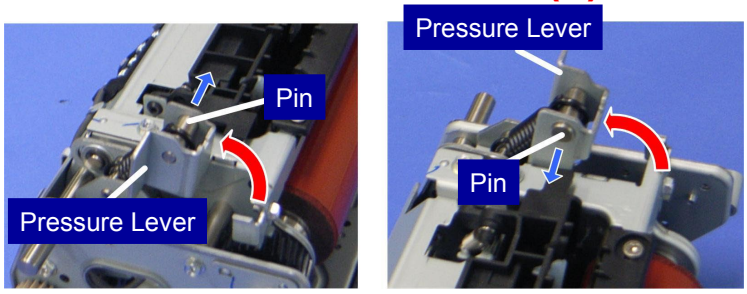



- If the pressure roller contact sensor cannot detect the actuator three times consecutively when initializing the pressure roller position or at job end, SC569 is issued.

Slide 110

**No additional notes**

## Pressure Release (3)



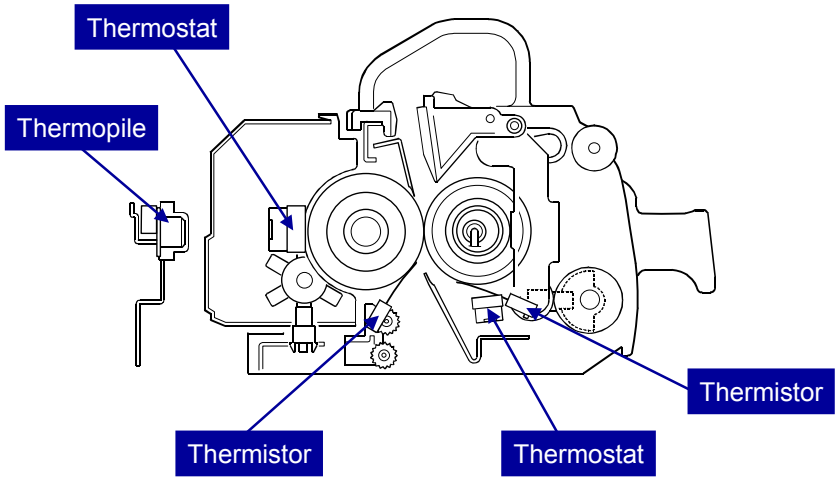

- **When you disassemble the fusing unit, it is important to release the pressure after you remove the covers.**
  - Turn both pressure levers, and pull out both pins.
- **If you do not do this, the frames may become bent.**
- **See the service manual for details.**

Slide 111

*Service Manual, Replacement and Adjustment, Fusing, Heating Roller and Heating Roller Bushing*

❒ Step 5 shows how to release the pressure.

## Temperature Control Components

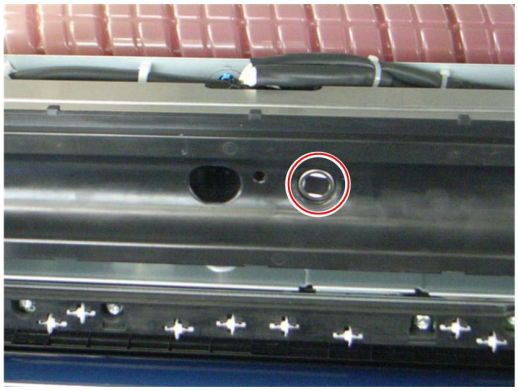



- The thermostats open if the temperature is over 220°C.
- Fusing temperature control is similar to the AP-C1, but some of the temperature points are different.

Slide 112

❒ Other overheat prevention limits are the same as the AP-C1.

# Cleaning the Thermopile (1)

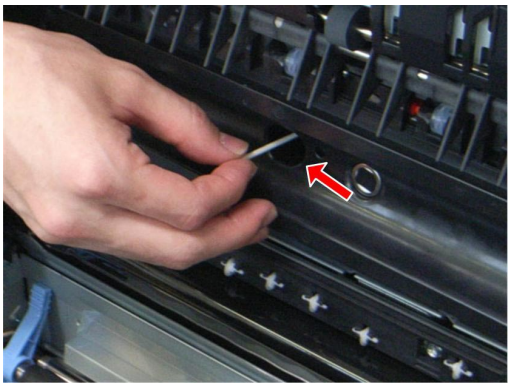


- Do not push the thermostats on the IH coil unit. If you do, the thermostats will be opened. In that case, the IH coil unit must be replaced.

Slide 113

**No additional notes**

# Cleaning the Thermopile (2)

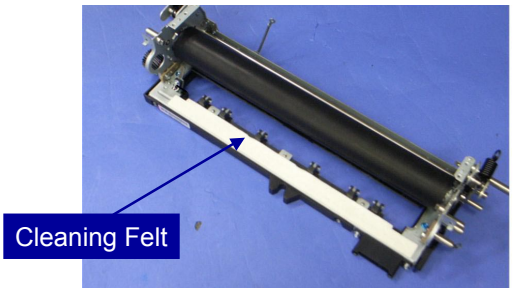


- Clean with a cotton-swab dipped in alcohol. Do this cleaning procedure after the fusing unit has completely cooled down. Otherwise, you may get a serious burn.
- Clean the thermopile every 240k.

Slide 114

**No additional notes**

# Cleaning Felt - 1




- **The fusing cleaning felt is on the left edge of the fusing bottom cover.**
- **The toner used by this machine contains wax, to make it easier to remove toner from the heating roller.**
  - Because of this, excess wax remains on the inside of the IH coil unit, and then moves back to the heating roller and finally to the paper.

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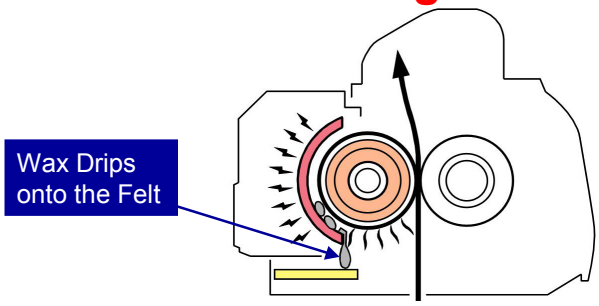
**No additional notes**

## Cleaning Felt - 2




- **To remove the excess wax, there is a fusing cleaning mode.**
  - In this mode, the fusing rollers rotate with the IH coil "ON".
  - As a result, wax adhered to the inside of the IH coil unit melts, and drips onto the fusing cleaning felt.
  - The fusing cleaning felt absorbs the wax and prevents it from moving back to the paper.
- **The fusing cleaning mode is executed for 160 seconds every 500 sheets (185° C).**

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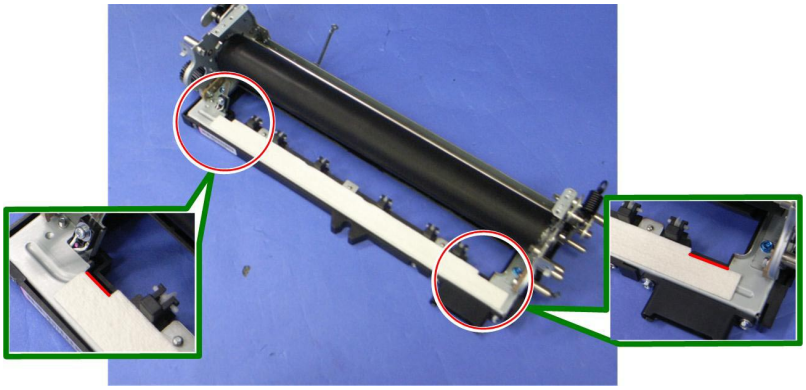
**Fusing cleaning mode can be adjusted with the following SPs.**

- Fusing cleaning mode ON/OFF with SP1123-001 (default: OFF)
- Forced fusing cleaning mode execution with SP1123-002
- Heating roller temperature during cleaning mode with SP1123-003 (default: 185°C)
- Execution time with SP1123-004 (default: 160 seconds)
- Execution interval with SP1123-005 (default: 500 sheets)

## Attaching a New Fusing Cleaning Felt



- When you attach the fusing cleaning felt, align both edges of the fusing cleaning felt with the red lines on the bottom cover.
- Make sure that the fusing cleaning felt is correctly attached to the frame. Otherwise, dust from the IH coil unit may fall on the paper in the fusing unit and the output becomes dirty.

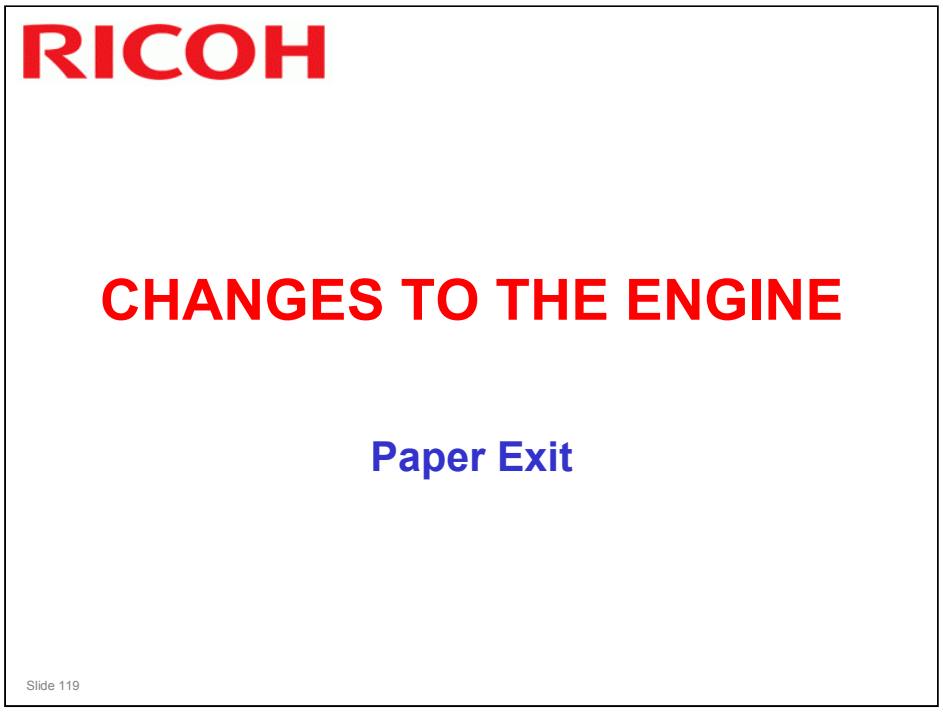
Slide 117

**No additional notes**

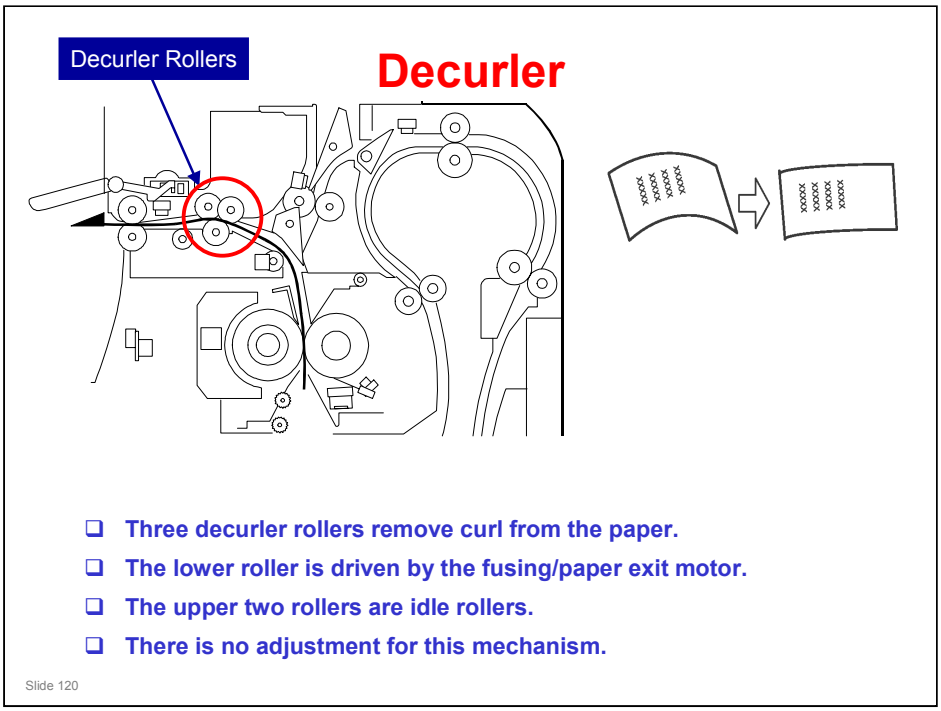
# SP1123-002

- **If a stain appears on the output, do the following procedure.**
  - Execute the fusing cleaning mode with SP1123-002.
    - » It takes 160 seconds to complete the fusing cleaning mode.
  - Make a sample copy, and then check if a stain appears on the output.

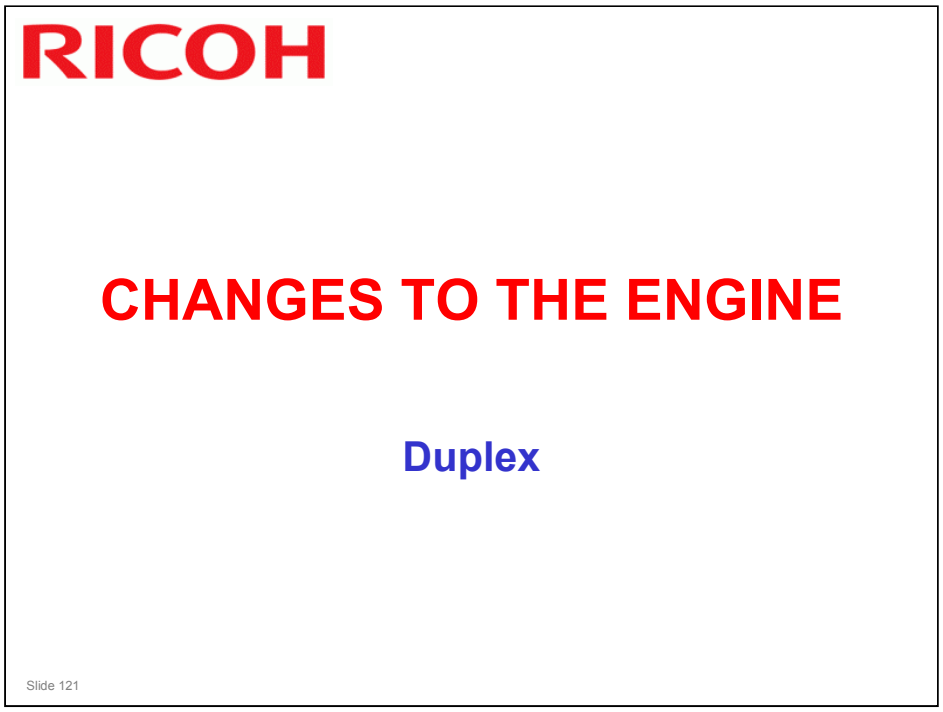
Slide 118



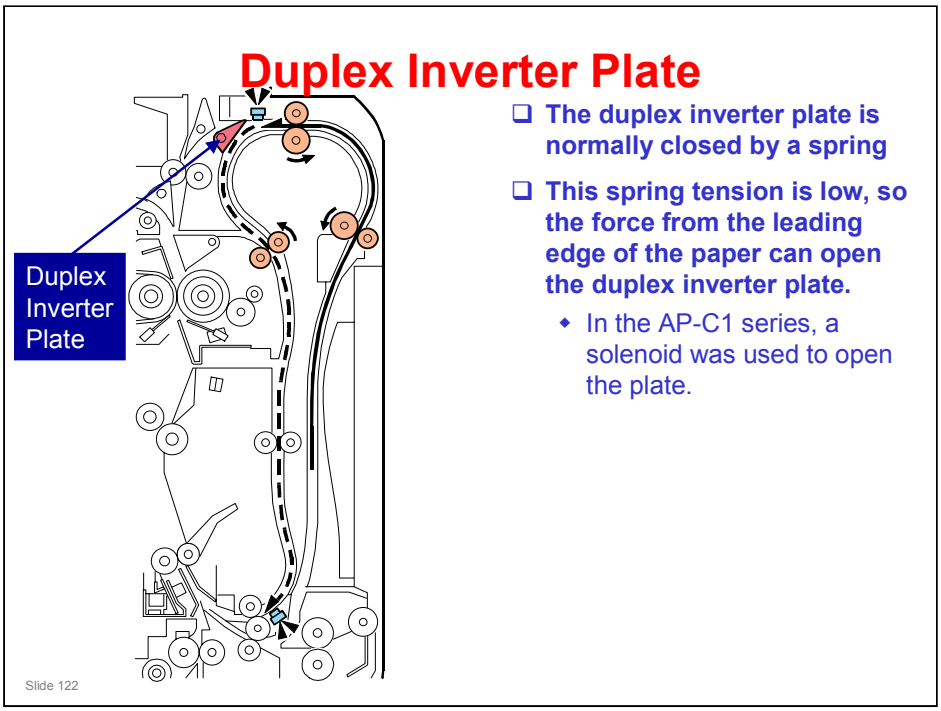

**No additional notes**



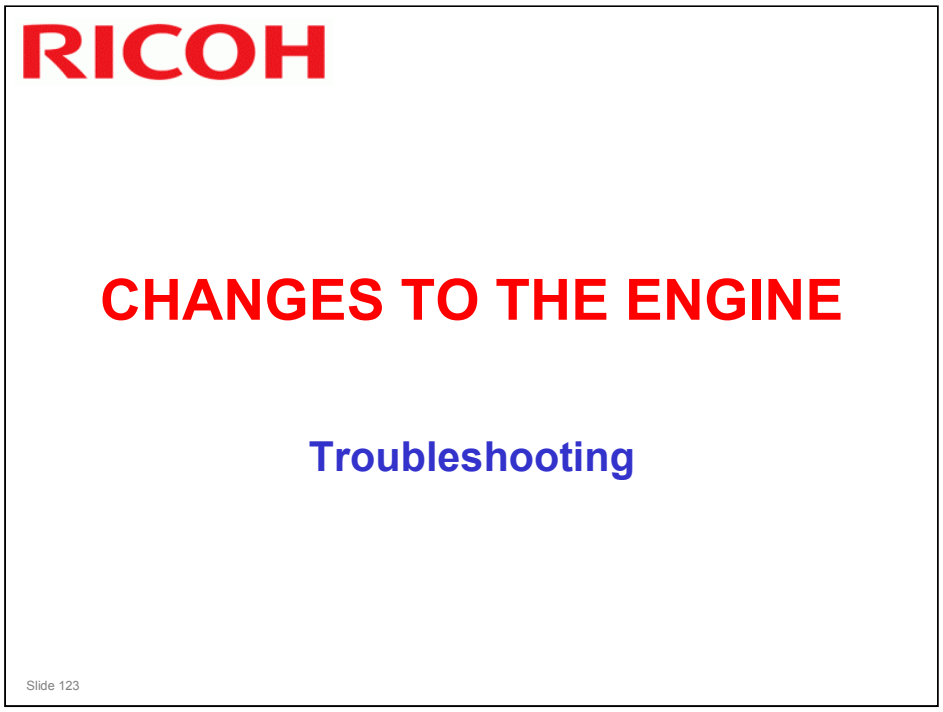

**No additional notes**




**No additional notes**




**No additional notes**




**No additional notes**

## SP Mode Changes

- SBU test changed from SP 4907 to SP 4807
- Bypass size sensor test changed from SP 5803-071 to SP 5803 011
  - This must be tested if you replace the sensor.

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**No additional notes**

## Glossy Vertical Bands

- **When a new fusing roller is used, if you see glossy vertical bands (23mm width) at the center of the image, this means that the wrong type of paper feed unit or LCT was installed.**
- **Make sure that you install the unit for the AP-C2, and not the unit for the AL-C1.**
  - The rollers in the units for the AL-C1 use blue rubber, and the rollers in the units for the AP-C2 use orange rubber.

AP-C2 Rollers

AL-C1 Rollers

Slide 125

- This symptom disappears after 1500 pages.
- Paper dust attaches itself to the paper feed roller (this roller has a width of 23mm). This abrades the new fusing roller, causing a damaged area 23 mm in width.
- The area on the image that corresponds to the abraded area appears glossy when compared with other parts of the image.
- However after printing 1500 sheets, the fusing roller is evenly worn, and the difference in glossiness disappears.


❒ This is the same as the one that is used in the D009 series copiers

# Overview


- This is a small LCT attached to the side of the machine.

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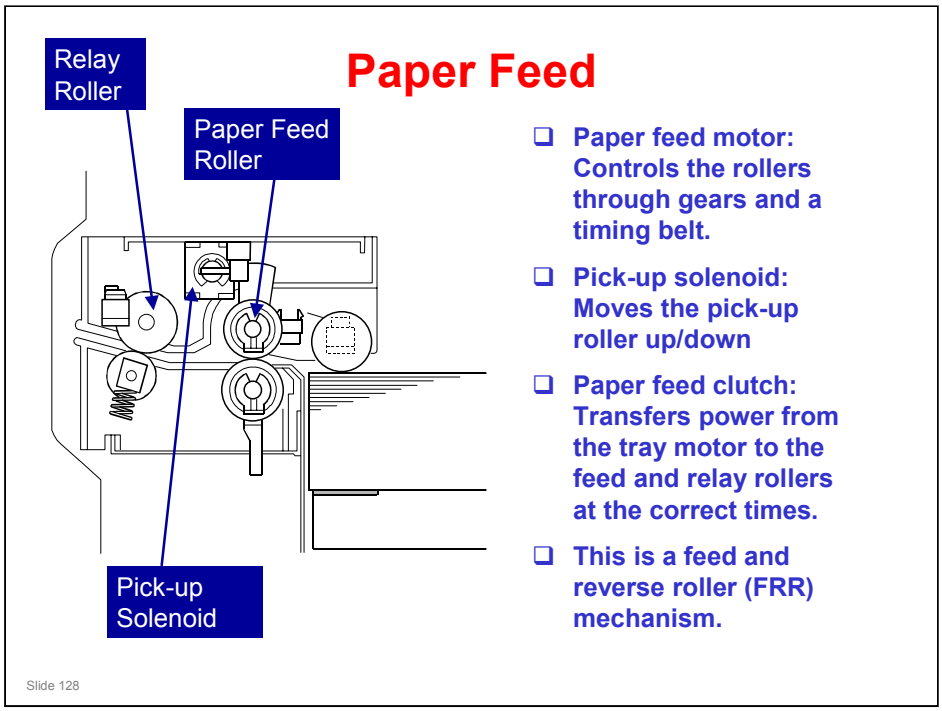
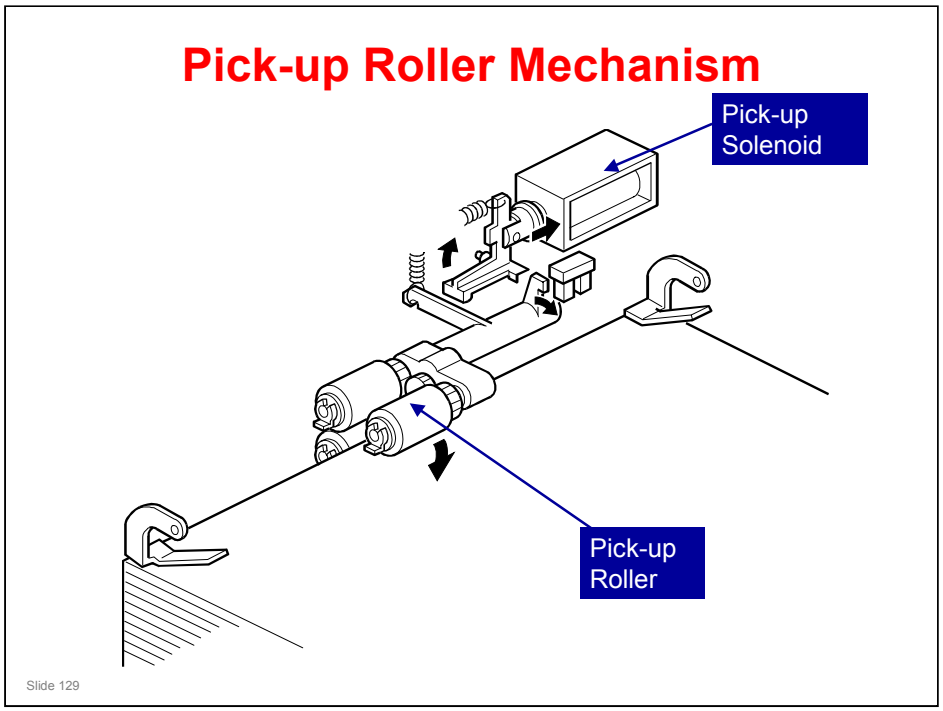
**No additional notes**

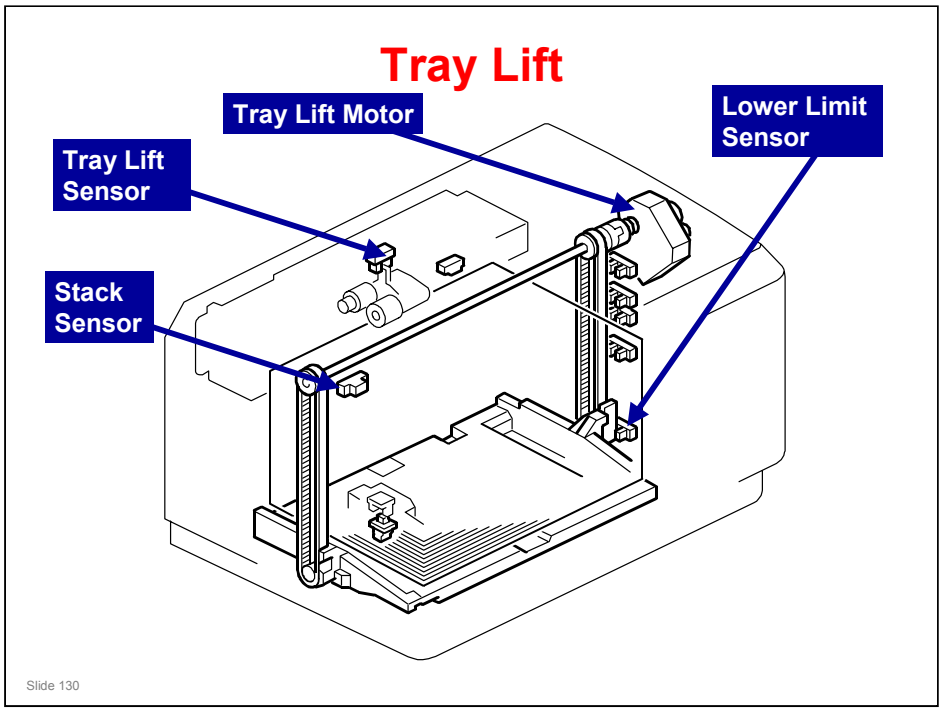



*D353 Service Manual, Detailed Section Descriptions, Paper Feed Mechanism*

**No additional notes**

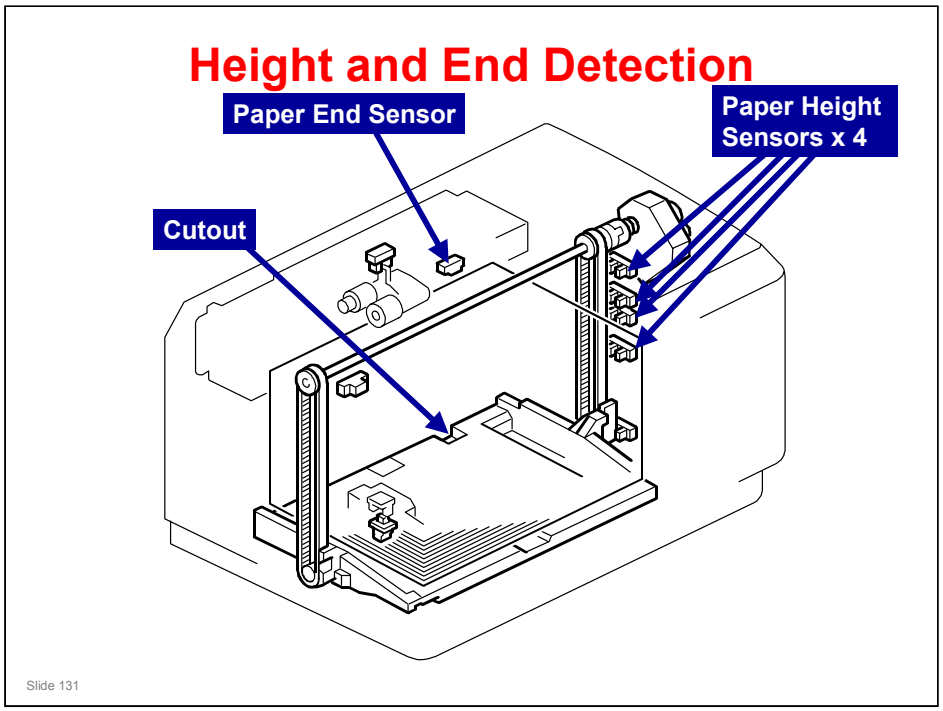



❒ This is a drawing of a similar model. Some details may be different.




*D353 Service Manual, Detailed Section Descriptions, Tray Lift Mechanism*

- ❒ Study the tray lift mechanism.
- ❒ The sensors shown above control tray lifting and lowering.




*D353 Service Manual, Detailed Section Descriptions, Height and End Detection*

- The height sensors detect the amount of paper in the tray, and control the indicator on the operation panel.
- The paper end sensor detects when the final sheet of paper is used, because light is no longer reflected back to the sensor.

## Removal and Adjustment

- **Read the replacement procedures:**
  - D353 service manual, Replacement and Adjustment
- **Do any of the procedures that you think that you need to practice.**
- **Pay attention to all notes, cautions, and warnings in the manual.**

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**No additional notes**

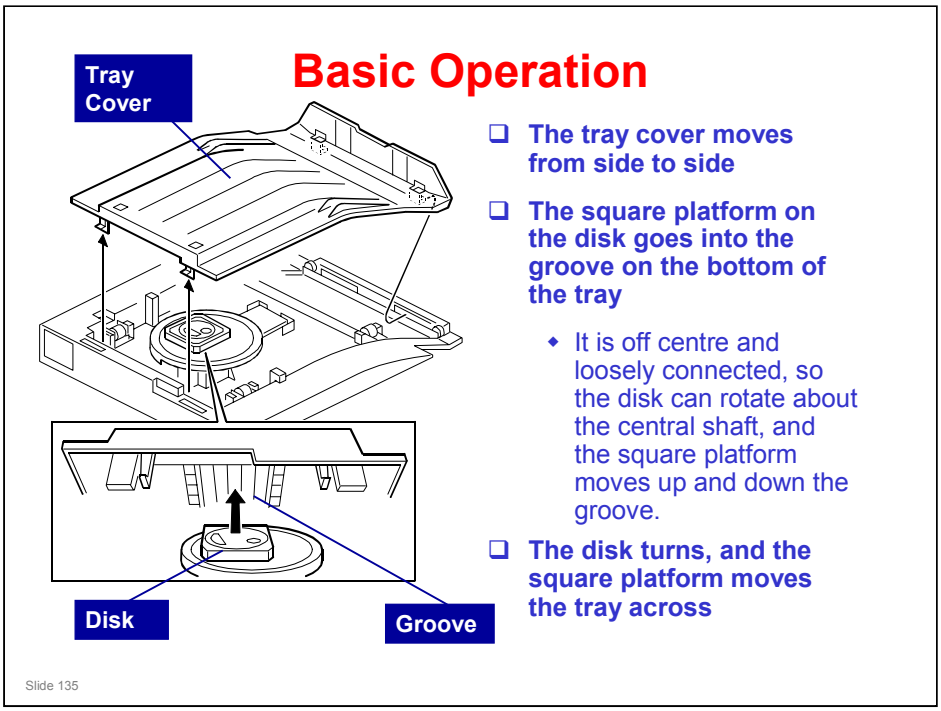

❒ This is the same as the one that is used in the B230 series copiers

# Overview

- **The shift tray is similar to an output tray, but it sorts outputs into different stacks**
- **To do this, it moves the tray from side to side. This is called 'shift sorting' and it is faster than rotation sorting.**
  - For rotation sorting, the image must be rotated in memory, and this is slow.
  - For shift sorting, the shift tray moves from side to side, to sort the sets of copies into different stacks.

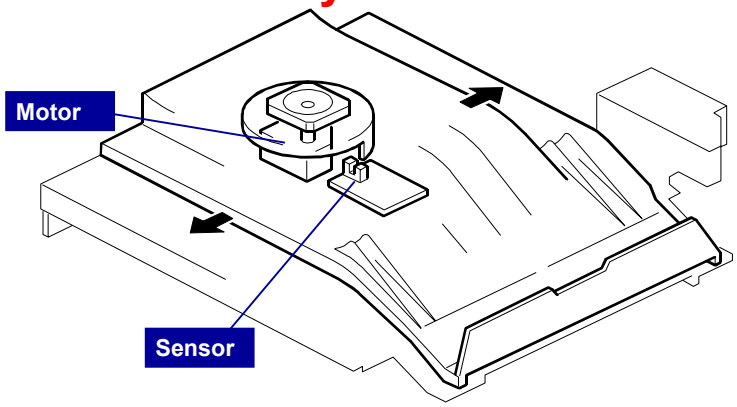
Slide 134

**No additional notes**




**No additional notes**

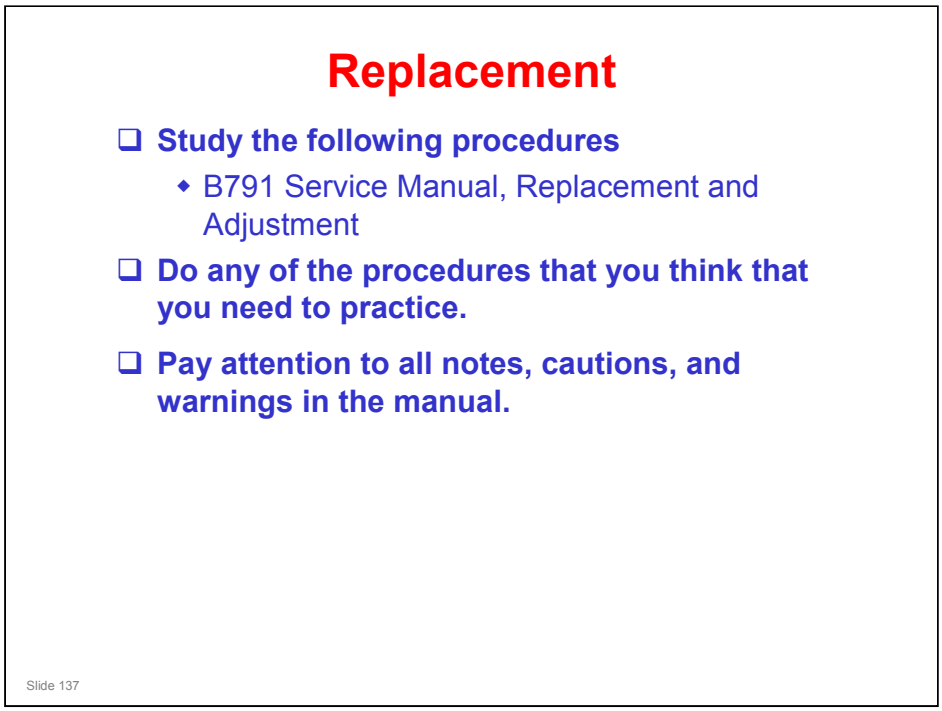
## Tray Shift




- **The tray shift motor turns the central disk**
  - The shaft is at the centre of the disk
- **The sensor on the control board detects when the tray is moved fully to the left or right**

Slide 136

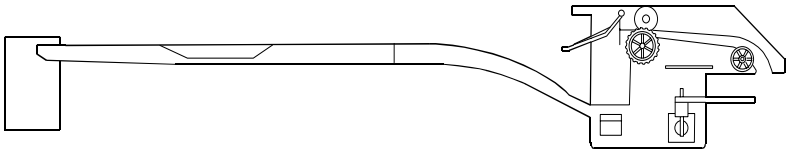
- The tray motor moves the tray from side to side.
- The half turn sensor detects when the tray was fully moved to the left or to the right.




- Study the procedures in this section of the manual.
- When you work on the machine, be sure to follow all notes and cautions in the manual.


❒ This is the same as the one that is used in the AP-C1 series copiers

## Overview



- This unit adds an output tray. It does not replace the tray that is supplied with the machine.
- It is not a sorter, because the tray and/or the rollers do not move from side to side.
- With more than one output tray, the user can (for example) send copy-mode outputs to the standard output tray, and fax-mode outputs to the 1-bin tray.

Slide 139

- To send output to a different output tray for each mode, the user adjusts this user tool: User Tools - System Settings - General Features - Output: Copier, Output: Facsimile, etc
  - The one-bin tray is called 'Internal Tray 2'.
  - Internal tray 1 is the standard output tray, or if the bridge unit is installed, it is the tray on top of the bridge unit.

## Components

- The main motor in the copier operates the tray. There is no motor in the tray.
- The junction gate solenoid in the one-bin tray unit operates a junction gate in the main copier to send paper to the one-bin tray.
- The paper sensor in the one-bin tray checks if there is paper in the tray. Then, if there is paper, the LED on the side of the tray lights

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**No additional notes**

# LED on the One-bin Tray


- **This LED lights when an output arrives on the one-bin tray.**
  - The one-bin tray is an optional device.
- **If the one-bin tray is set up to receive fax messages, then the LED tells the customer when a fax message has been printed.**

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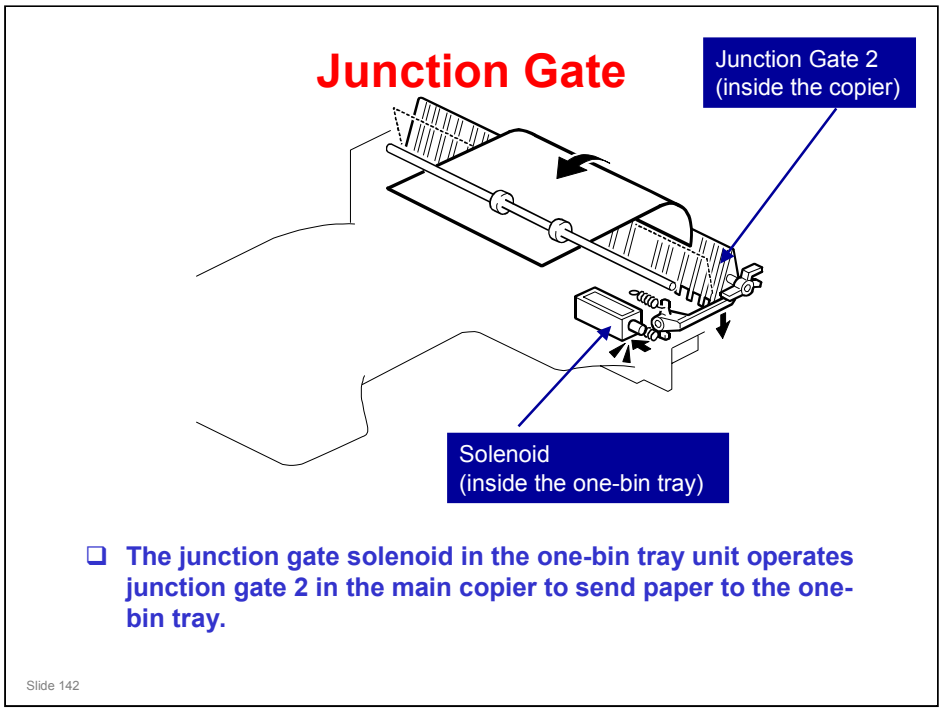
**No additional notes**




**No additional notes**

## Replacement

- **Study the following procedures**
  - B803 Service Manual, Replacement and Adjustment
- **Do any of the procedures that you think that you need to practice.**
- **Pay attention to all notes, cautions, and warnings in the manual.**

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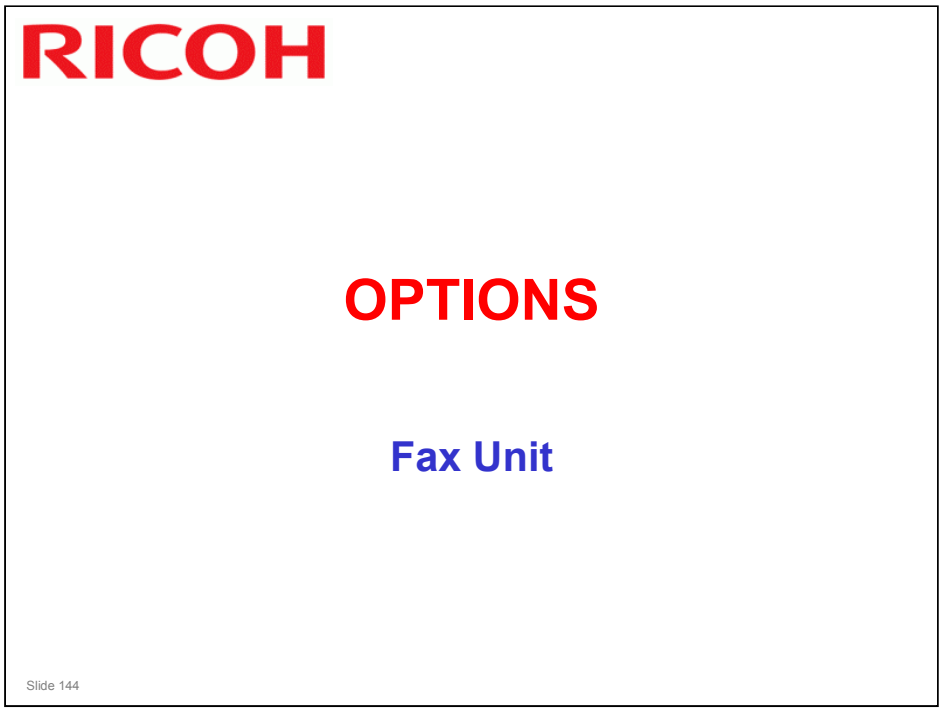
- Study the procedures in this section of the manual.
- When you work on the machine, be sure to follow all notes and cautions in the manual.




**No additional notes**

# Installation

- In this machine, the mother board is not part of the installation procedure. It is not part of the fax unit.
- The fax unit is installed in the controller box.
  - In the previous model, it is installed at the rear of the machine.

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**No additional notes**