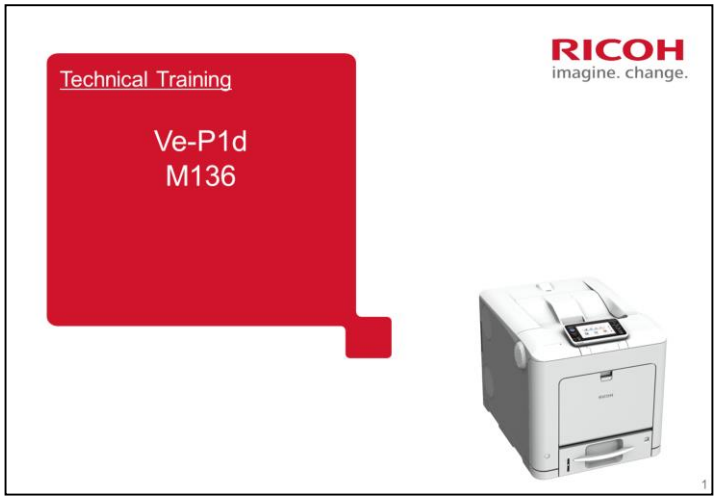
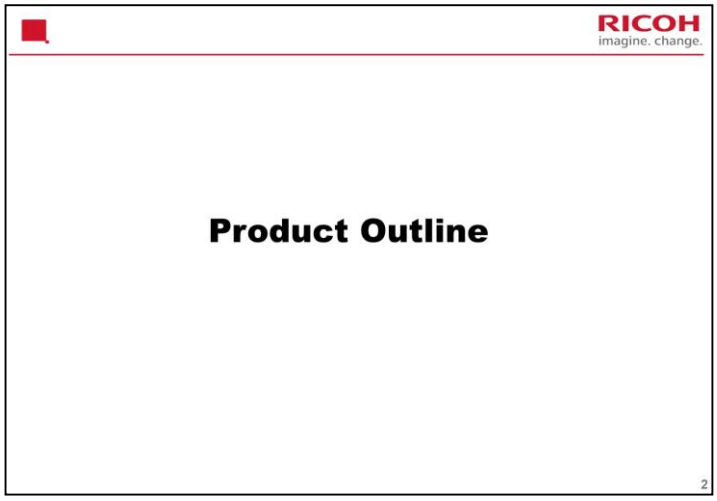
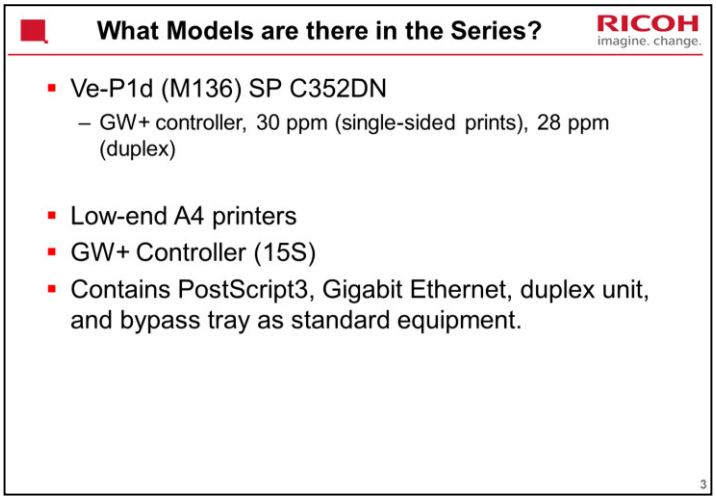


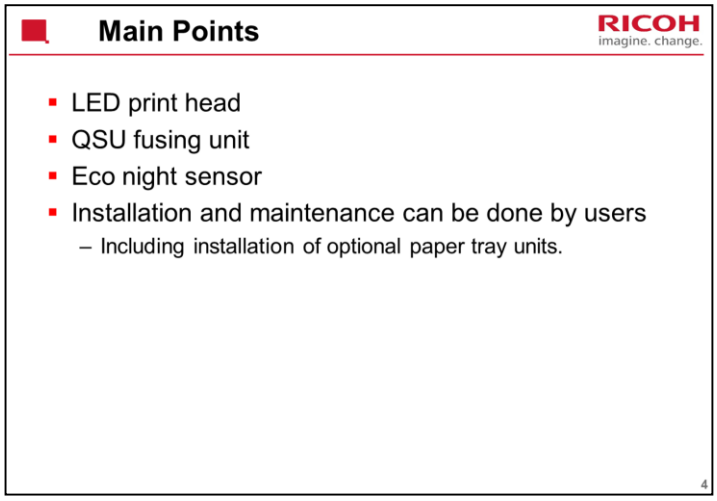
This course explains the low-end color A4 printer Ve-P1.



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



No additional notes



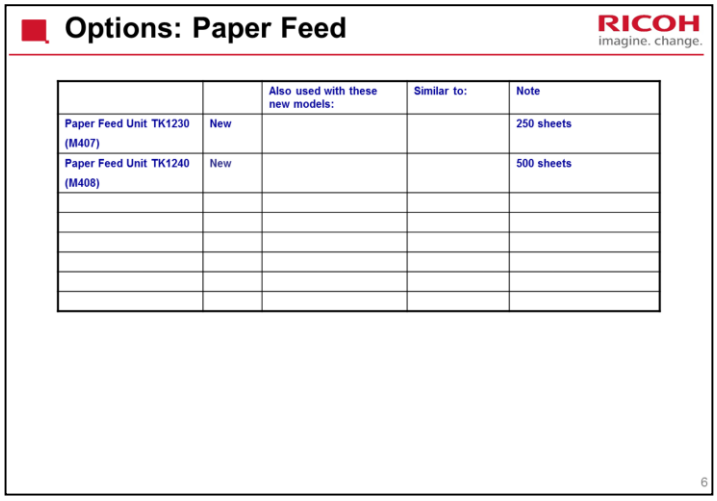
No additional notes

Appearance

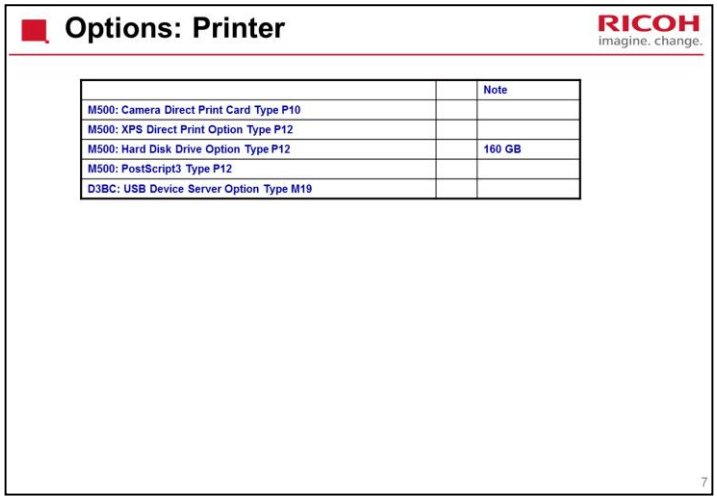
- Up to three one-tray feed units can be installed (not shown here).
- Duplex and bypass are standard.
- There are no finishers.
- There is an external USB/SD card slot by the operation panel.
  - The cover below the operation panel (in the red circle) slides up to reveal these slots.

5

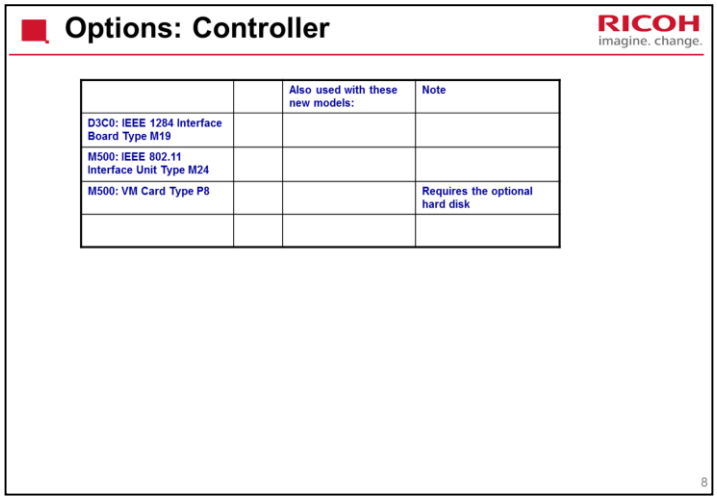
No additional notes



There are no finishers.

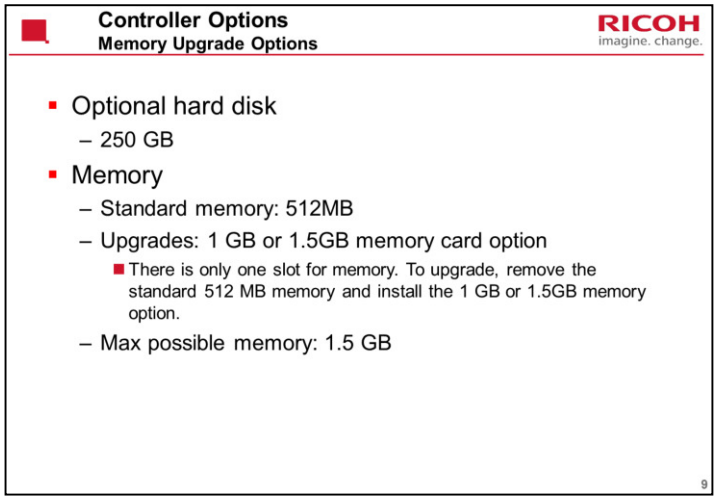


There is no RPCS driver.

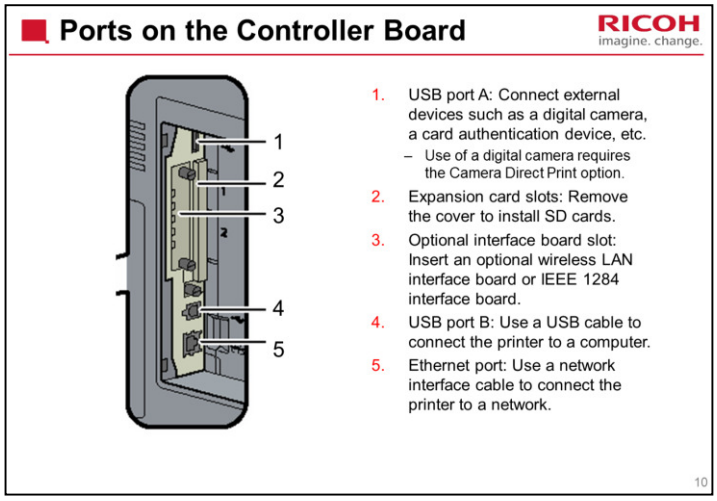


No Bluetooth option

VM card: requires optional HDD



No additional notes



Board Slot: One of the following can be installed.

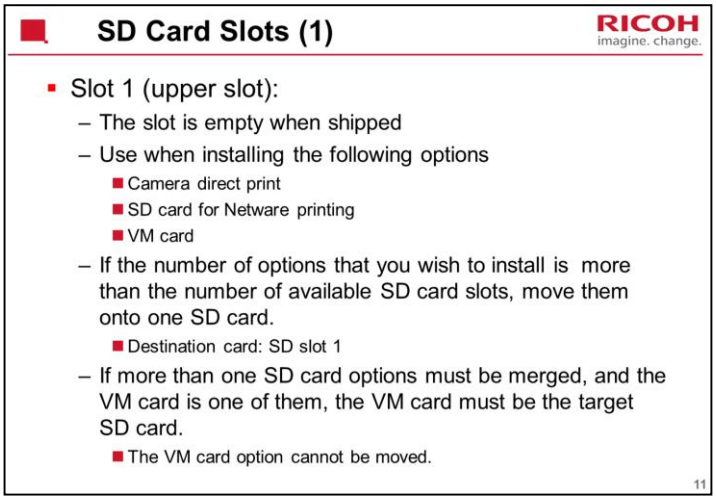
IEEE 802.11a/g Interface Unit Type J or IEEE 802.11g Interface Unit Type K

IEEE 1284 Interface Board Type A

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

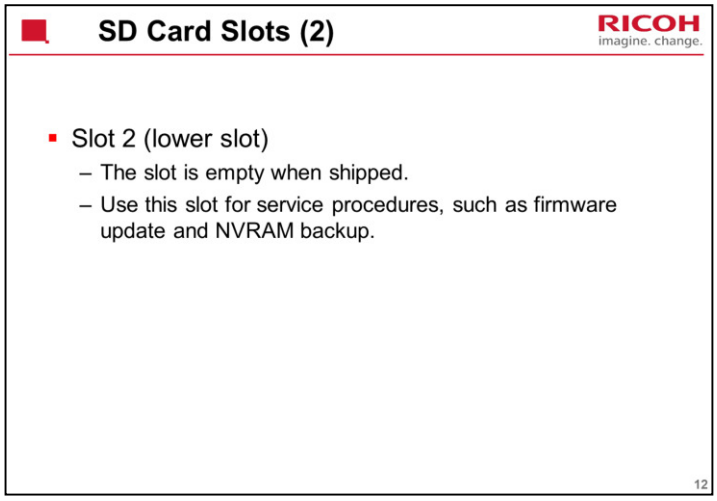
Use of a digital camera requires the Camera Direct Print SD card option.

There is a mini USB slot behind the screw above item 4 in the diagram. This is for designer purposes only.

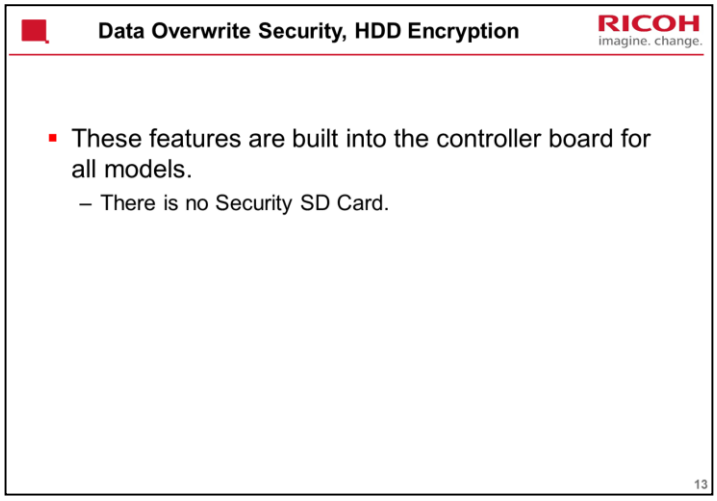


See Installation > Controller Options

PDF Direct/PCL/PostScript 3 are pre-installed in the Controller Firmware.



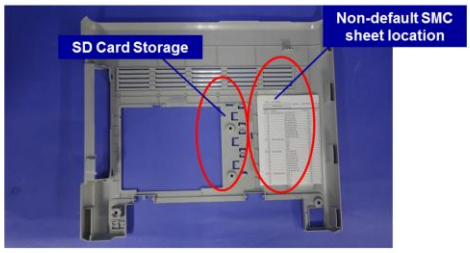
No additional notes



No additional notes

SD Card Storage Location

RICOH
imagine. change.

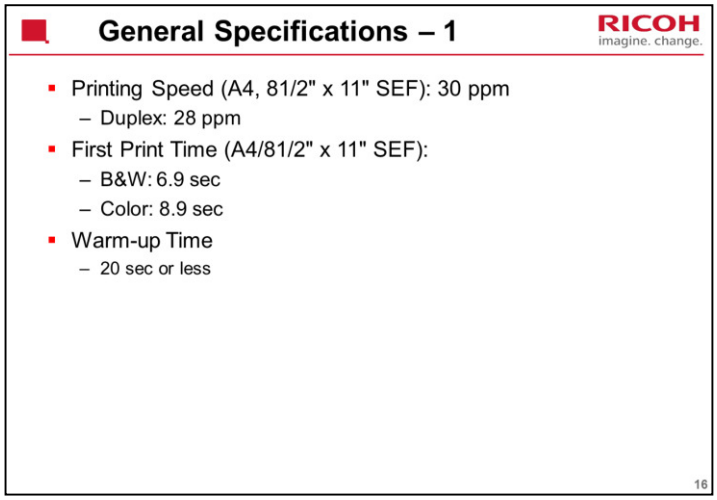


- Store the original SD cards here (back side of the rear cover) after you move the application to another card.
- The non-default page is attached to the back side of the rear cover.

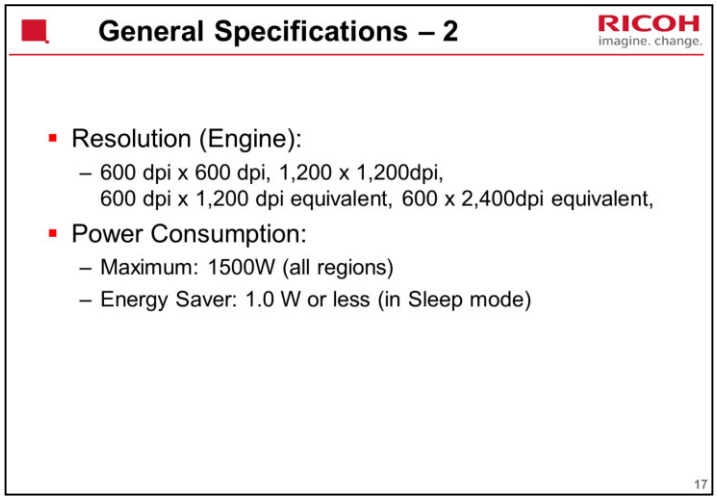
14

The rear cover must be removed to access these storage locations.

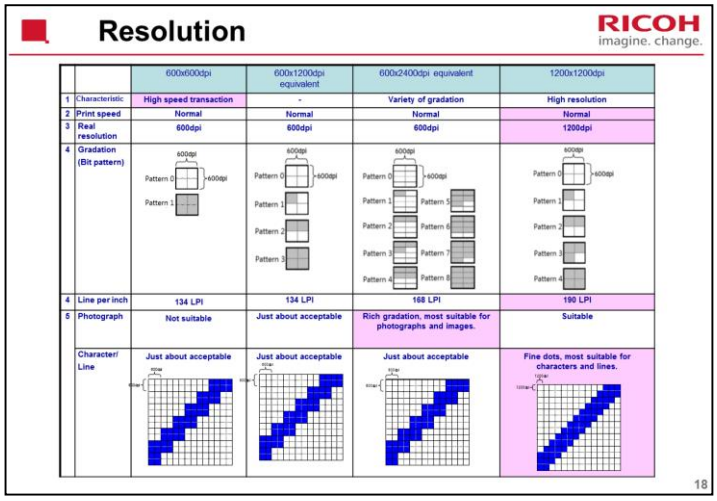
This section provides an overview of the main specifications.



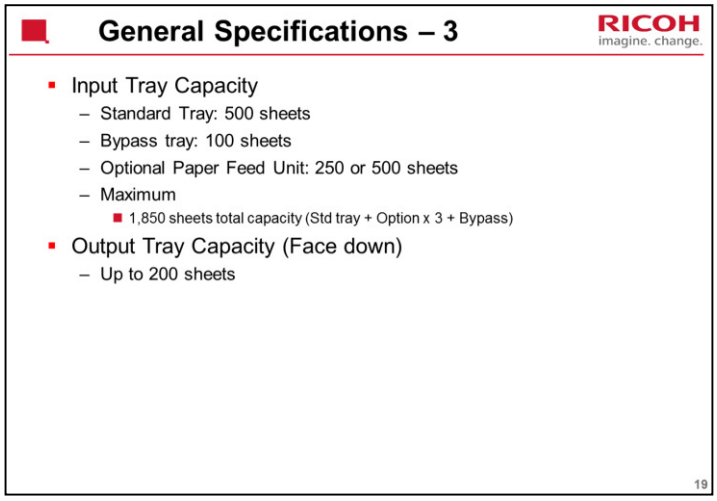
No additional notes



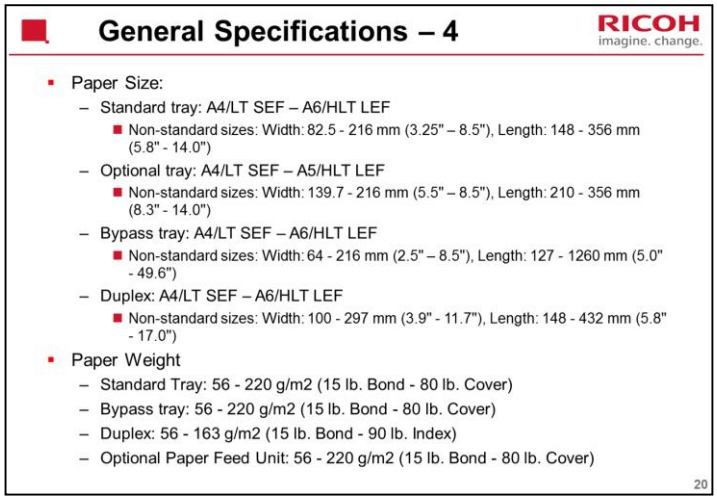
No additional notes



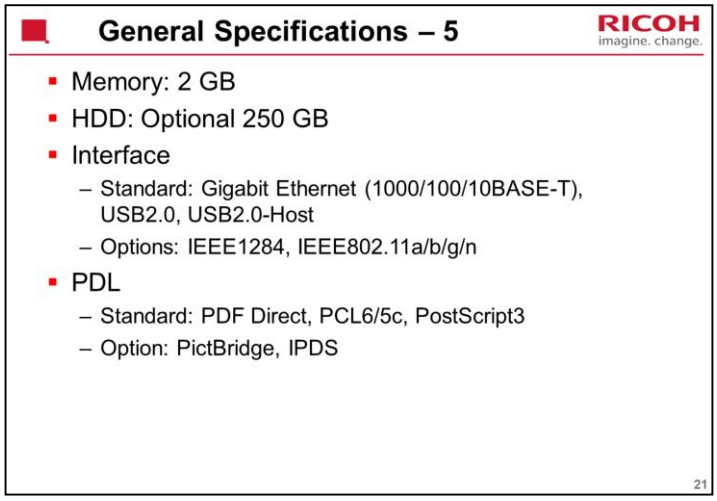
No additional notes



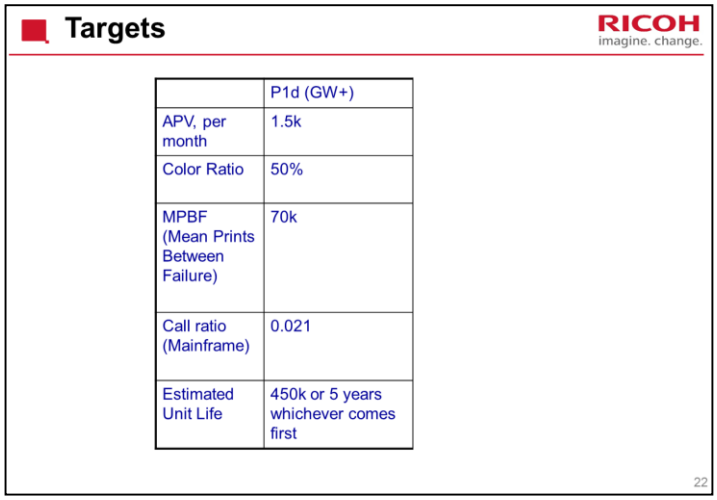
No additional notes



No additional notes



No additional notes



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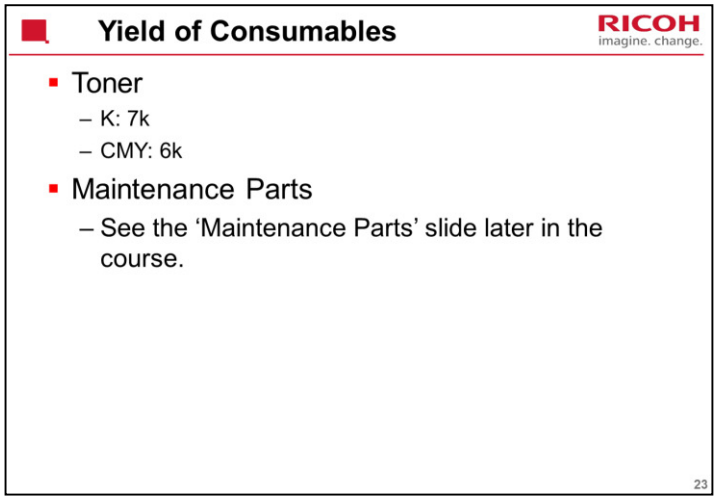
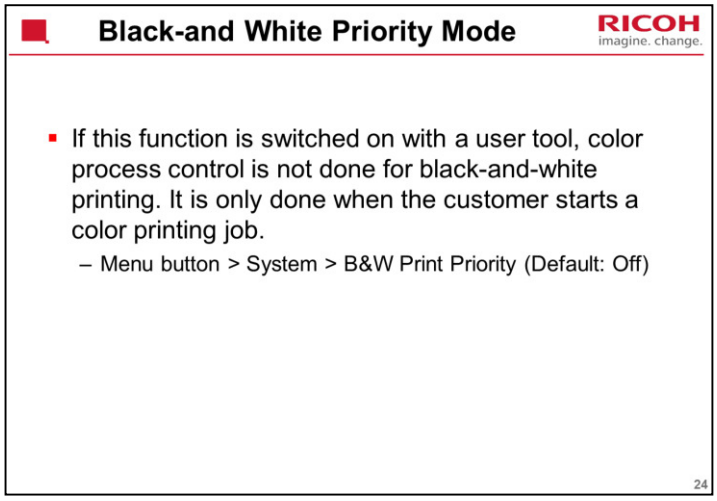
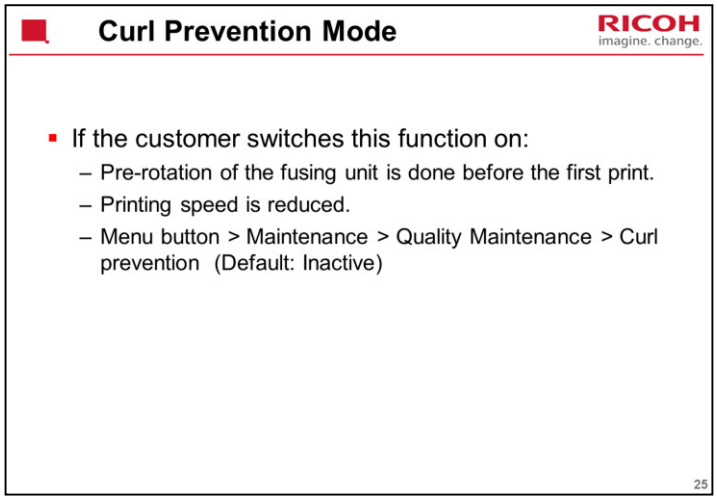


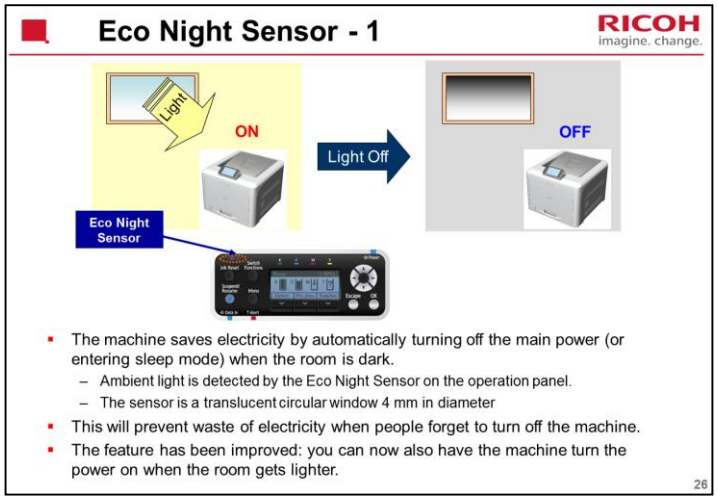
Yields measured with these conditions: 5% coverage, 3p/j



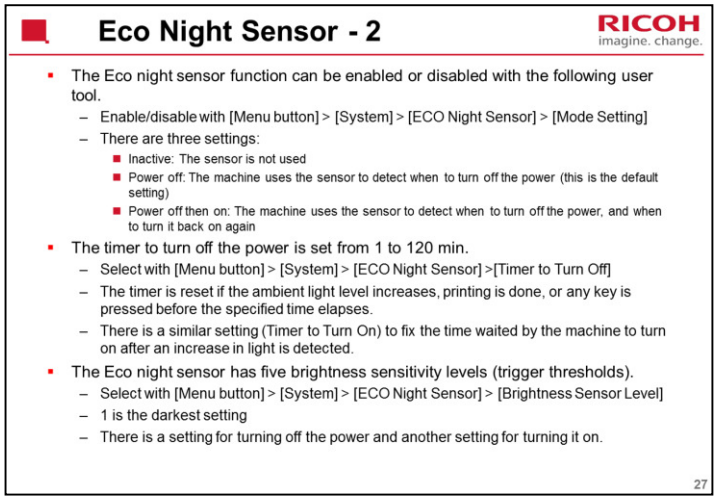
This function is the same as the Pe and Md series.



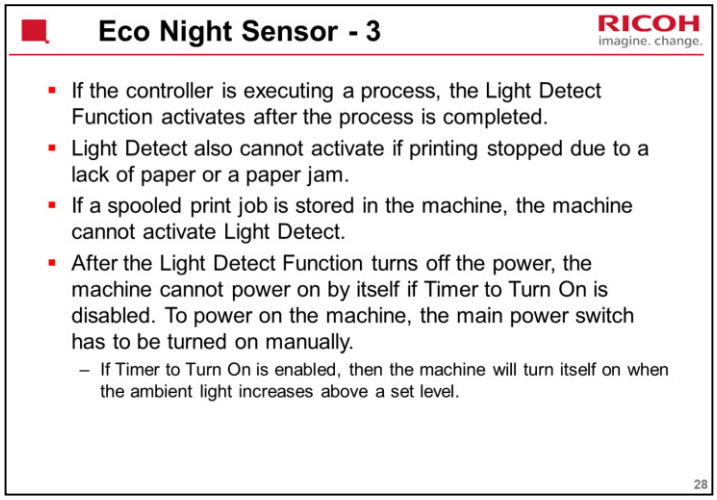
No additional notes



No additional notes



No additional notes



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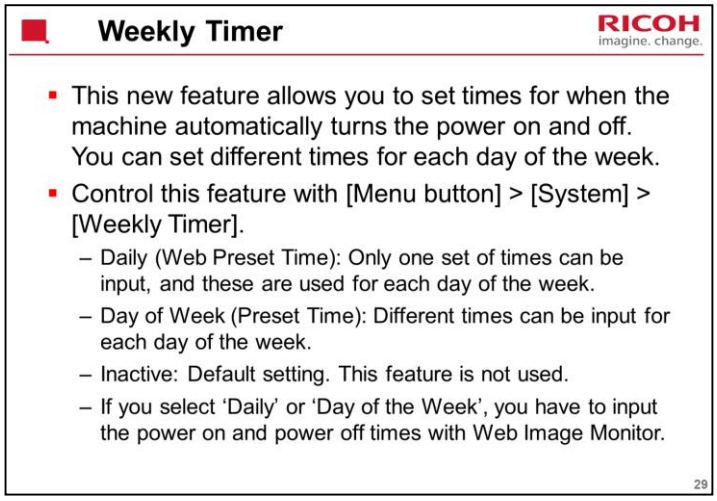

No additional notes

Safe Shutdown

RICOH
imagine. change.

m112m0143

- This is the only power switch [A] on the machine.
- When you use this to turn the power off, 'Please Wait' is displayed, while the machine checks the following:
  - File system in HDD, memory, SD card, USB memory are safe.
  - Paper is not left in the machine's paper path (except if a jam occurred immediately before the power off).
  - All print jobs and access logs are saved.
- Then the power turns off.

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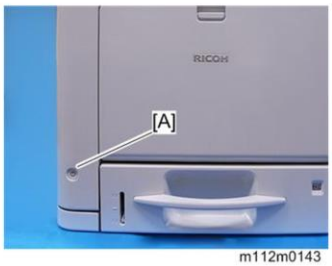
No additional notes

Forced Shutdown

RICOH
imagine. change.



m112m0143

- If the machine freezes, hold this switch [A] down for 6 seconds.
- However, this method can damage the hard disk or controller board, or cause data loss.
- Forced shutdown should only be carried out when in contact with a call center operator, or by a technician, after explaining the risk of the operation to the customer.
- If the normal shutdown process will not function correctly, an ASIC on the CTL board might be broken. In this case, a technician visit is necessary.

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No additional notes

No additional notes

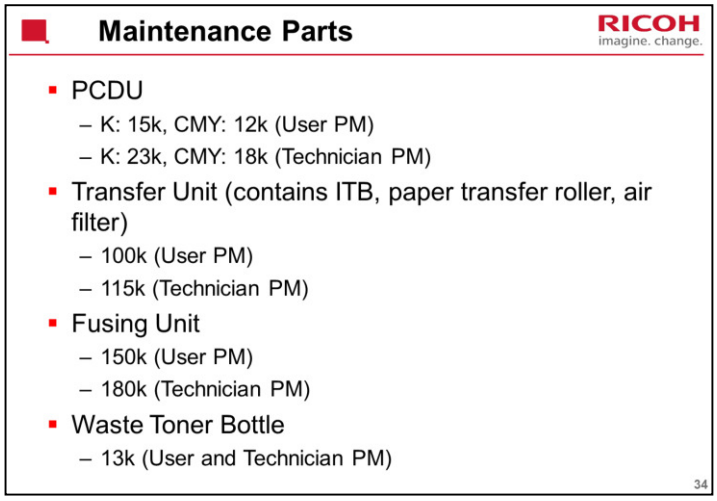
PM by User or Technician

RICOH
imagine. change.

- User PM: This product has been designed for user maintenance. The maintenance parts on the next slide have been prepared as supplies. User maintenance is basically done by replacing these supplies.
- Technician PM: If the printer is used at its target APV (2.0k prints), parts with a life of 120k or more will not need to be replaced within the normal life of the machine. For high PV users, however, technicians should replace the parts when the counters reach their targets.

33

No additional notes



Toner yields: 5% coverage, 3p/j

Other service parts with PM intervals

Paper Feed Roller: (Mainframe & Option): 150K

Friction Pad (Mainframe & Option): 150K

Paper Feed Roller (Bypass): 100K

Friction Pad (Bypass): 100K

User PM: This product has been designed for user maintenance. The maintenance parts in the slide above have been prepared as supplies. User maintenance is basically done by replacing these supplies

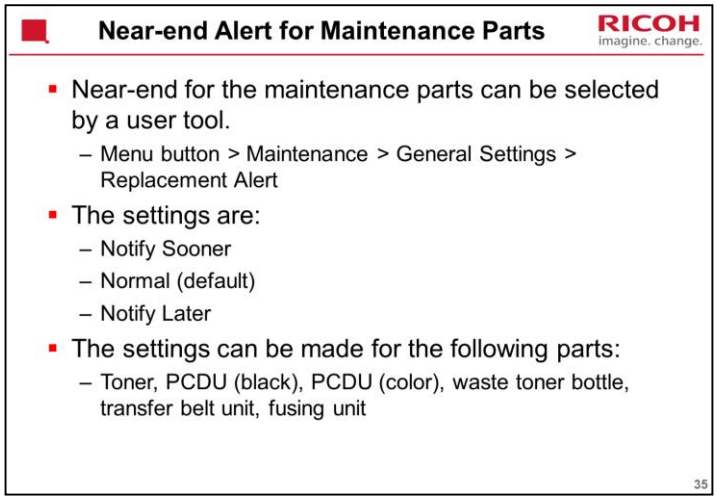
Technician PM: If the printer is used at its target APV (2.0k prints), technicians do not need to replace any PM parts. For high PV users, however, technicians should replace the above maintenance parts when the counters reach their targets.

Near-end for the maintenance parts can be selected by a user tool. The settings are:

0: Notify Sooner: 665 pages before the end

1 (default): Normal: 475 pages before the end

2: Notify Later: 285 pages before the end



Approximate number of prints that can be made with each setting:

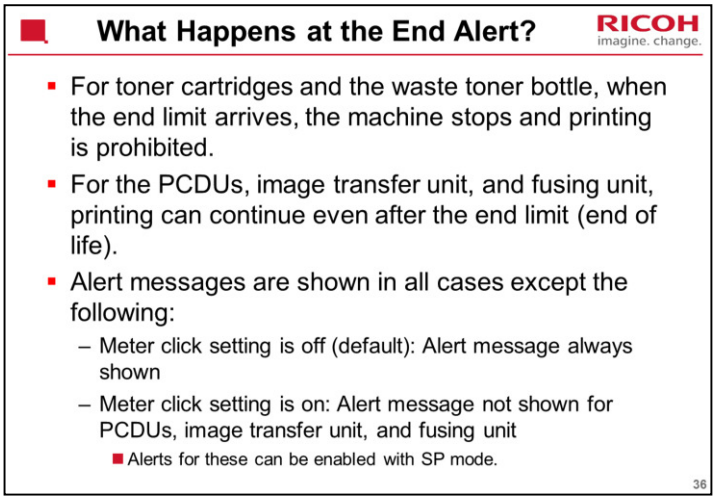
0: Notify Sooner: 665 pages before the end

1 (default): Normal: 475 pages before the end

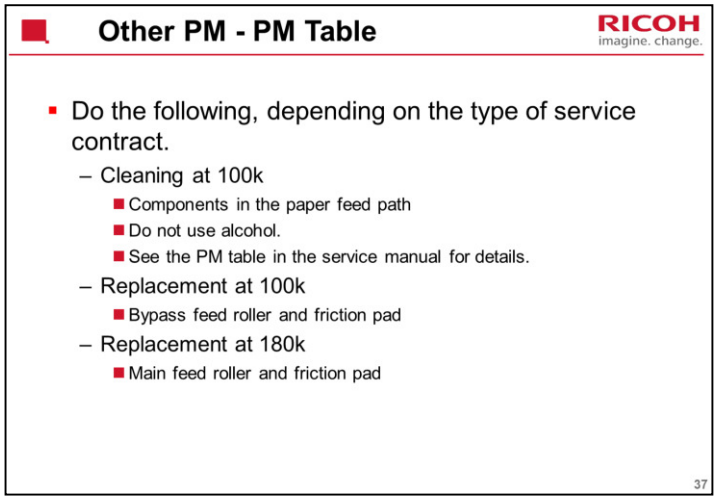
2: Notify Later: 285 pages before the end

The number of prints is a reference value based on the following conditions: A4, SEF, Color ratio 50%, 3 prints/job, Each color 5% on the original, Serial printing. The actual amount (replacement cycle) fluctuates due to conditions such as: paper size, paper type, page orientation, contents of original, number of pages per job in serial printing, and the number of times that process control and MUSIC are done. The numbers are based on drum rotation.

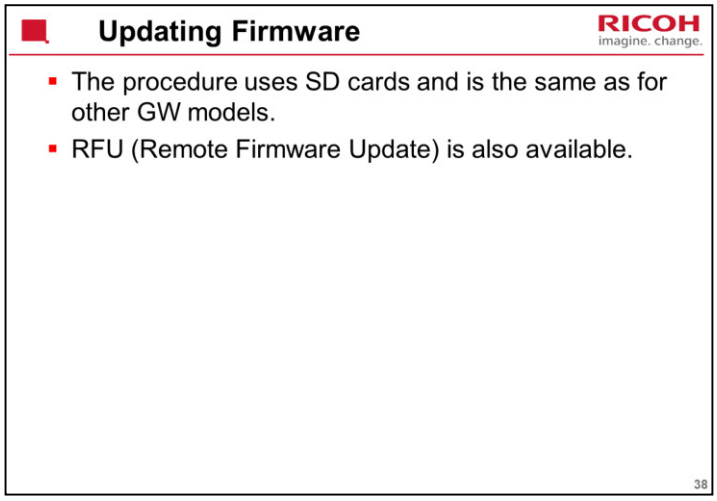
For example, if there are fewer prints per job, the part will need to be replaced earlier.



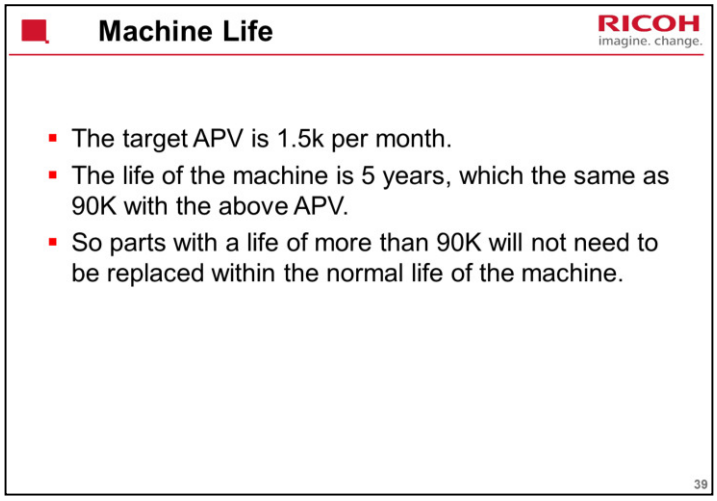
No additional notes



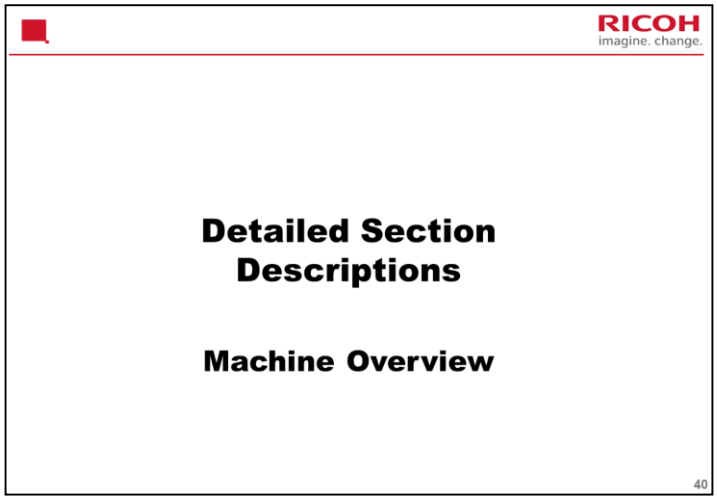
No additional notes



No additional notes



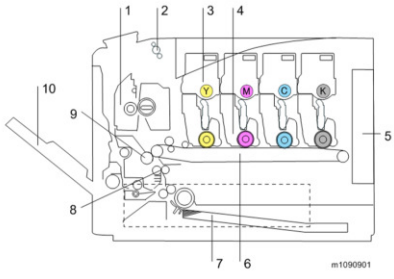
No additional notes



Now we have a look inside the machine. This first section has a quick look at where the main components are located.

Component Layout

RICOH
imagine. change.



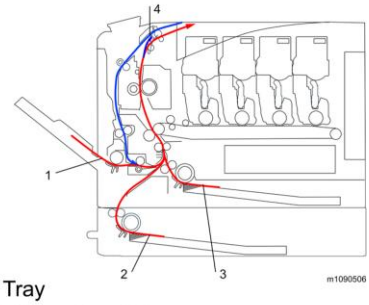
1. Fusing Unit
2. Paper Exit/Reverse Roller
3. Toner Cartridge
4. PCDU
5. Engine Board and Controller Board
6. Image Transfer Belt Unit
7. Paper Feed Tray
8. Registration Roller
9. Paper Transfer Roller
10. Bypass Tray Unit

41

No additional notes

Paper Path

RICOH
imagine. change.



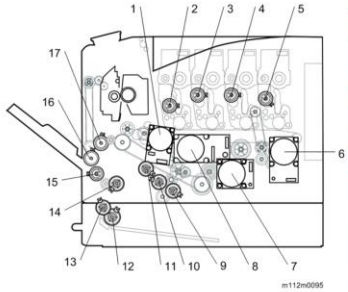
1. Bypass Tray
2. Optional Paper Feed Tray
3. Standard Paper Feed Tray
4. Duplex Feed Path

42

No additional notes

Drive Components

RICOH
imagine. change.



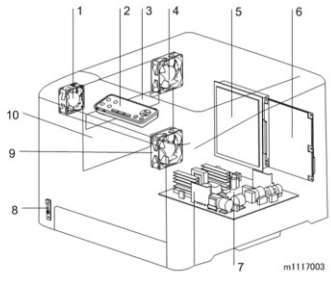
1. Transfer/Transport Motor
2. Toner Supply Clutch (Y)
3. Toner Supply Clutch (M)
4. Toner Supply Clutch (C)
5. Toner Supply Clutch (K)
6. Drum Motor: K
7. Fusing Motor
8. Drum Motor: CMY
9. ITB (Image Transfer Belt) Contact Clutch
10. Paper Feed Clutch
11. Registration Clutch
12. Optional Paper Feed Clutch
13. Grip Roller Clutch
14. Duplex Paper Exit Clutch
15. Bypass Feed Clutch
16. Bypass Bottom Plate Clutch
17. Duplex Intermediate Clutch

43

No additional notes

Major Electrical Components

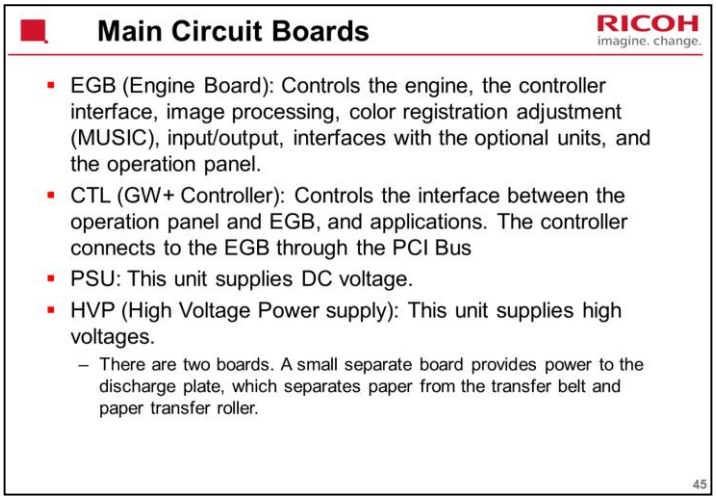
RICOH
imagine. change.



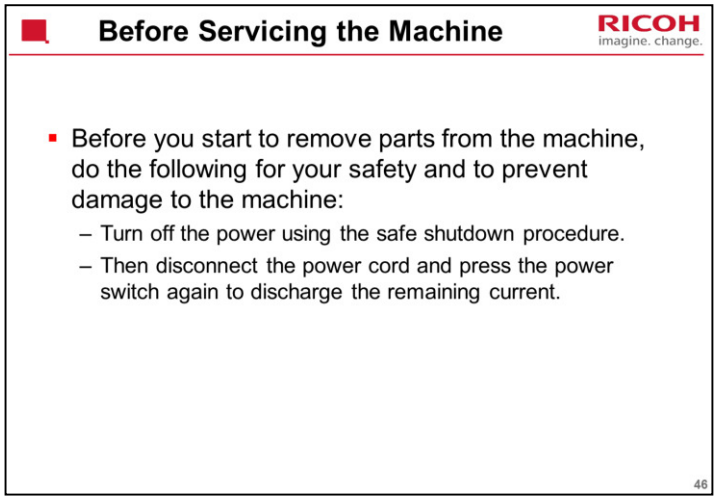
1. Fusing Fan
2. Operation Panel
3. New PCDU Detection Board
4. Cooling Fan
5. Controller Board (CTL)
6. Engine Board (EGB)
7. PSU
8. Main Power Switch
9. PSU Fan
10. High Voltage Supply Board (HVP)

44

No additional notes



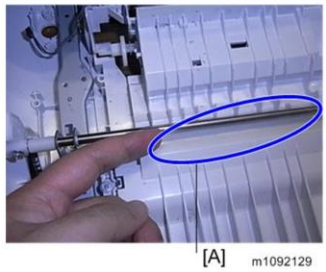
No additional notes



If you are in a training class, or have access to the machine while doing this course, look through these next few slides before you do the procedures, to make sure you are familiar with these important points.

Removing the Front Cover Unit

RICOH
imagine. change.



- This is a long procedure. It is only needed if the front cover must be replaced. But we include it in the service manual just in case.
- The main point is to make sure that you don't break the mylar [A].

47

The mylar is available as a service part.

Removing the Left Cover

RICOH
imagine. change.

m1092014

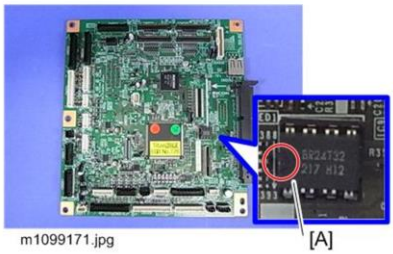
- Remove the waste toner bottle before you remove the left cover. Otherwise the waste toner bottle could fall over and toner may be spilled.

48

No additional notes

Replacing the EGB

RICOH
imagine. change.



m1099171.jpg

- Remove the EEPROM from the old EGB and install it on the new EGB.
- The mark [A] must point to the left side of the board.

49

No additional notes

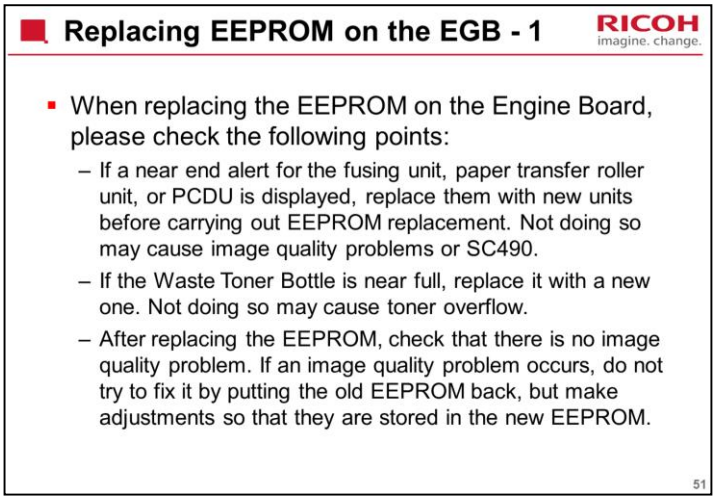
Don't Touch These Screws

RICOH
imagine. change.

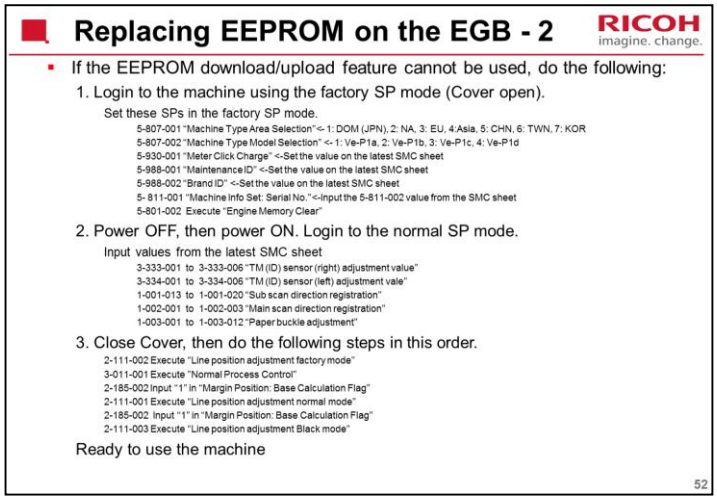
- This photo shows some screws painted in white.
- You can see these after the fusing unit is removed from the printer.
- The wire is connected to the front cover. The tension is determined by the screws. They should not be loosened.

50

No additional notes



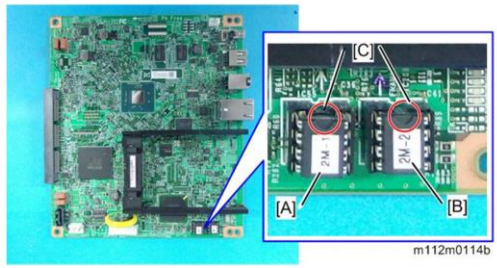
No additional notes



After doing this, the machine will work. However, the counters for the supply parts will be wrong. So, to get the counters to match the machine condition, all supply parts (PCDU, toner, ITB, PTR, fusing unit) should be replaced and the counters reset.

Replacing the Controller Board

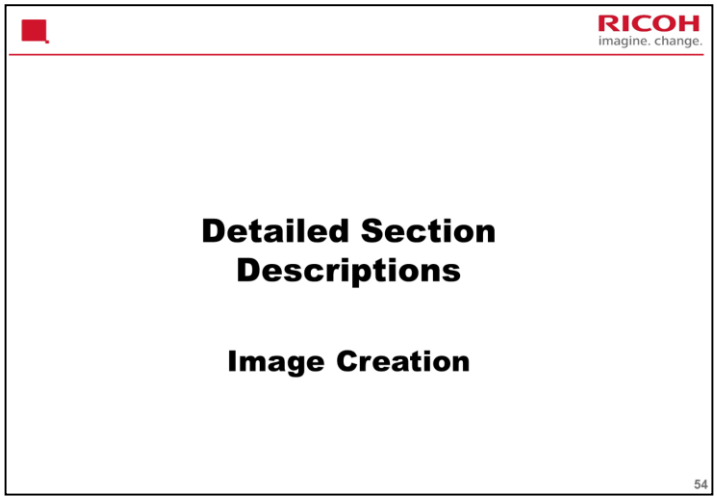
RICOH
imagine. change.



- Remove the NVRAMs from the old board and install them on the new one. Make sure they go in the correct slots.
- The mark [C] must point up.
- Do not change any of the DIP switch settings.

53

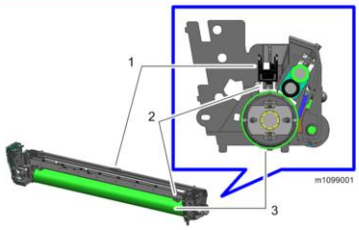
No additional notes



This section explains how a latent image is written on the drum.

Overview

RICOH
imagine. change.



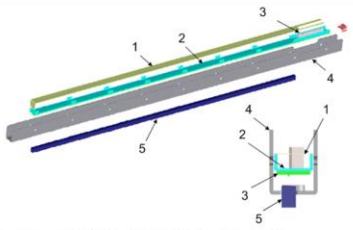
- An LED array [1] writes the latent image on the OPC [3].
- Each OPC (K, C, M, Y) has its own LED array.
  - These arrays are identical.
- A spacer [2] on the drum keeps the LED array at the correct distance from the OPC for correct focus.
- The LED writing method contributes to machine downsizing, and is superior to the LD writing method in image quality, noise reduction, and energy saving.

55

No additional notes

Components of the LED Array

RICOH
imagine. change.



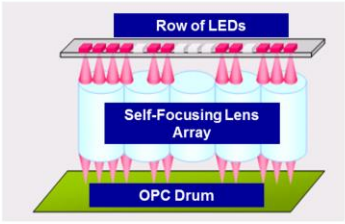
- The LED array consists of the following parts.
  1. Sheet
  2. Base
  3. LED board
  4. Frame
  5. SLA (Self-focusing Lens Array)
- The LED array is replaced as one complete unit. The individual components shown above cannot be replaced in the field.

56

No additional notes

Detailed Structure of the LED Array

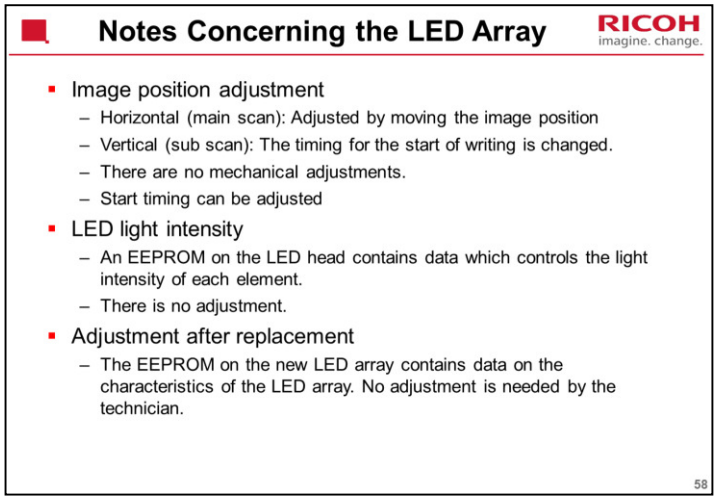
RICOH
imagine. change.



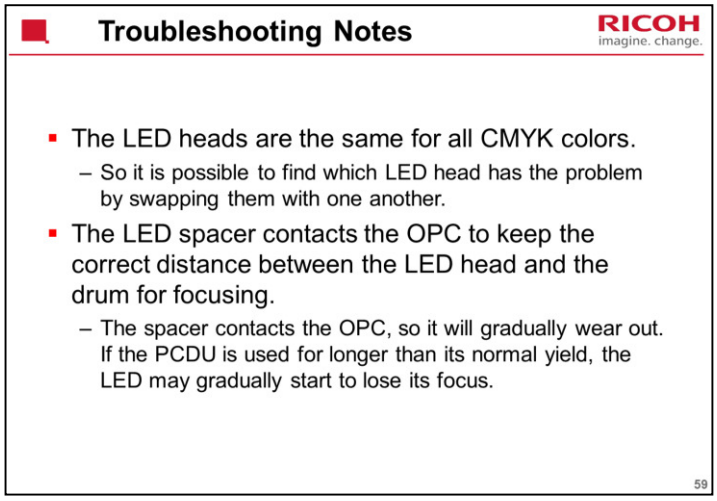
- Tiny LEDs capable of creating images at 1200 dpi are arranged in a line. Light beams emitted by the LEDs are focused using the Self-focusing Lens Array (SLA), creating an image on the OPC drum.
- Each LED head has 26 LED chips on board, and each chip has a line of LEDs 8mm in length.
- If a vertical line 8mm in width appears on the image parallel to the direction of paper feed, it may be caused by a broken LED chip. Exchange the LED head with one of the other colors to troubleshoot the symptom.

57

No additional notes



No additional notes



No additional notes

Removing an LED Head

m1092191

- After you open the upper inner cover, cover the PCDUs with a sheet of paper, to prevent foreign objects from falling into the PCDUs.

60

If you are in a training class, or have access to the machine while doing this course, look through these next few slides before you do the procedures, to make sure you are familiar with these important points.

Connecting the LED Arrays

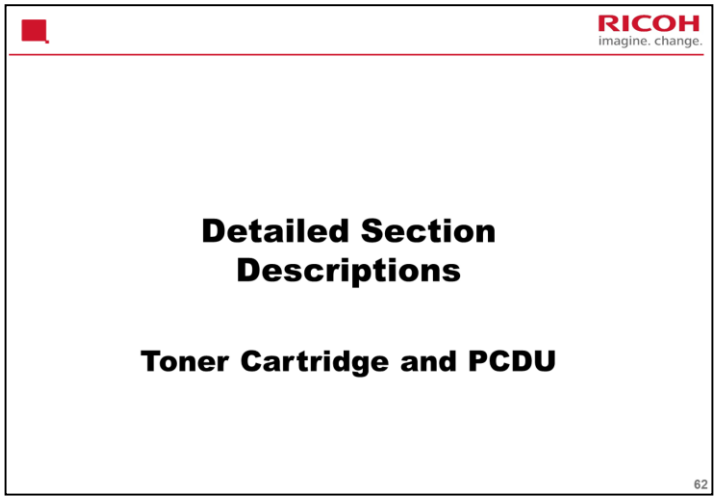
RICOH
imagine. change.

m1092141

- When you connect up the flat cables from the EGB to the LED arrays, make sure that you arrange them correctly.

61

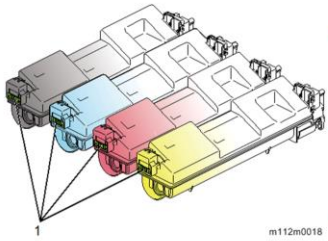
No additional notes



This section explains the components of the toner cartridge and the PCDU.

Toner Cartridges

RICOH
imagine. change.



- Each toner cartridge contains the toner bottle and toner supply mechanisms.
- Projections on the right side of the toner cartridge ensure each cartridge is always inserted into the correct position.
- The toner cartridges are arranged in the order of Y, M, C, and K as viewed from the front of the machine.
- Each toner cartridge has an ID chip [1] that contains information such as product information and the number of prints. This ID chip also informs the machine when the cartridge is a new one.

63

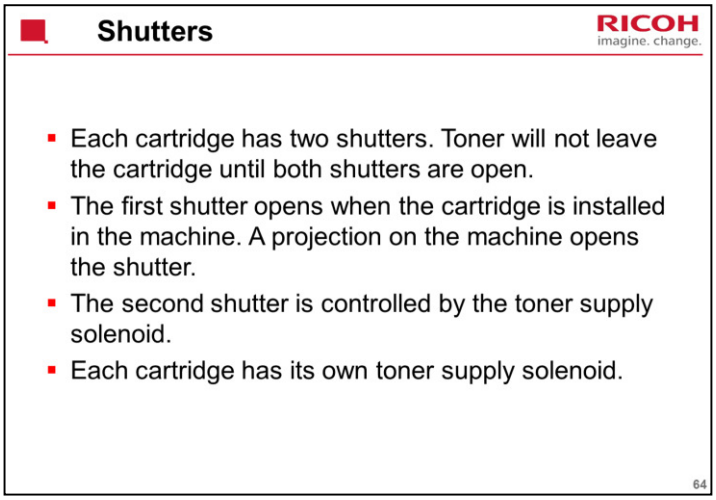
ID chip information can be checked in SP mode.

SP7-931: Toner Bottle Bk

SP7-932: Toner Bottle C

SP7-933: Toner Bottle M

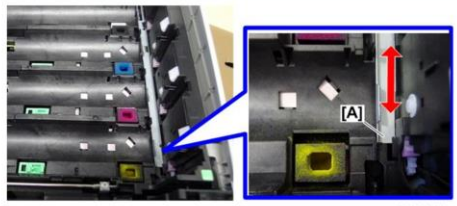
SP7-934: Toner Bottle Y



No additional notes

Toner Supply Solenoid & Shutter

RICOH
imagine. change.



m111d4411

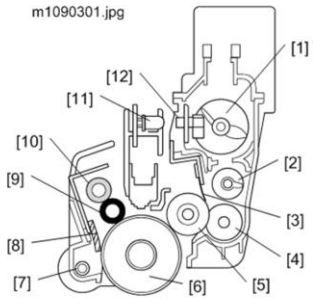
- If you have to remove the solenoid and/or shutter [A], check how the shutter is installed and how it connects to the solenoid before you disassemble. This will make it easier to put it back correctly.

65

No additional notes

PCDU Layout

RICOH
imagine. change.



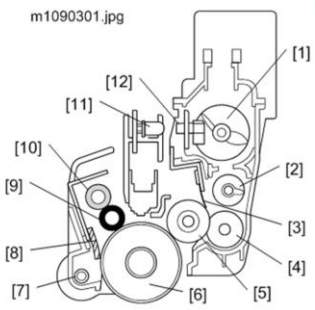
- The PCDU contains the charge roller, photoconductor, development mechanism, and cleaning unit.
  1. Upper Mixing Coil
  2. Lower Mixing Coil
  3. Development Blade
  4. Toner Supply Roller
  5. Development Roller
  6. OPC Drum
  7. Waste Toner Collection Coil
  8. OPC Cleaning Blade
  9. Charge Roller
  10. Charge Roller Cleaner
  11. Toner End Sensor (mounted on the LED array)
  12. Toner End Detection Window

66

No additional notes

Toner Supply Mechanism

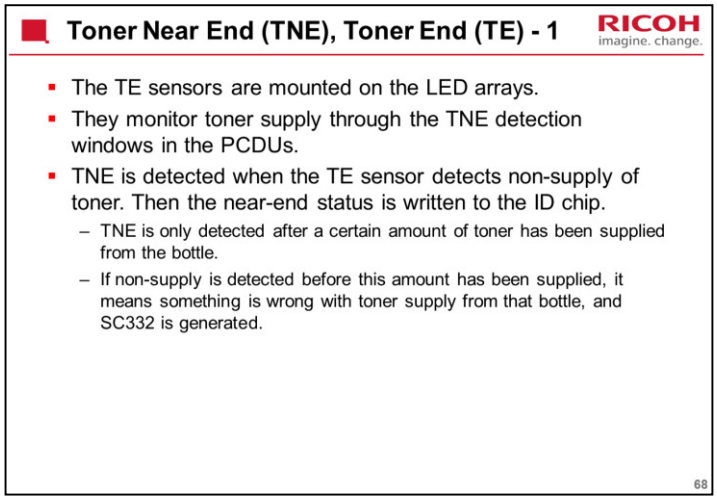
RICOH
imagine. change.



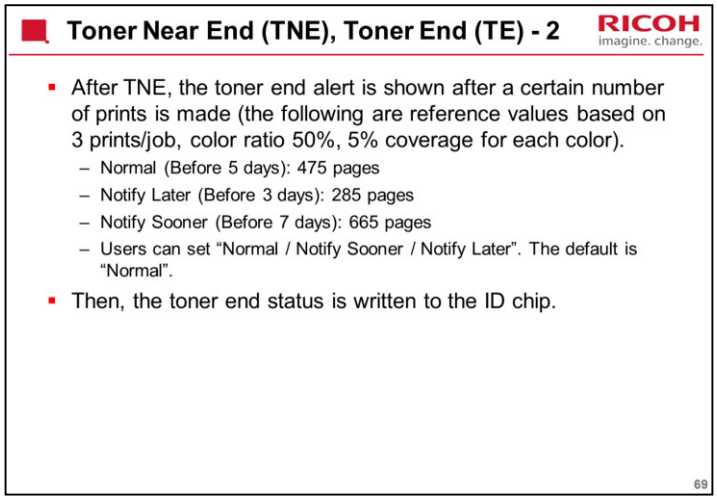
- When the toner supply clutch turns on, a coil in the toner cartridge rotates to transfer toner to the bottle exit and then the PCDU. Toner which falls into the PCDU is transferred to the development section by the upper mixing coil [1].

67

No additional notes



No additional notes



Approximate number of prints that can be made with each setting:

0: 665 pages before the end

1 (default): 475 pages before the end

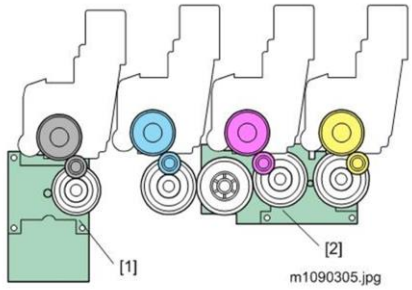
2: 285 pages before the end

The number of prints is a reference value based on the following conditions: A4, SEF, Color ratio 50%, Each color 5% on the original, Serial printing. The actual amount (replacement cycle) fluctuates due to conditions such as: paper size, paper type, page orientation, contents of original, number of pages per job in serial printing, and the number of times that process control and MUSIC are done. The numbers are based on drum rotation.

For example, if there are fewer prints per job, the toner will need to be replaced earlier.

PCDU Drive

RICOH
imagine. change.



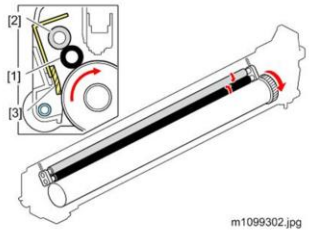
- The PCDUs are driven by the drum motor (K) [1], and the drum motor (CMY) [2].

70

No additional notes

Drum Charge and Cleaning

RICOH
imagine. change.



m1099302.jpg

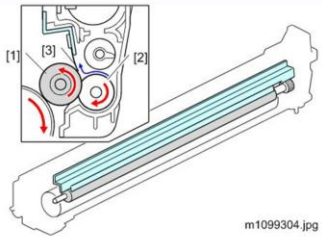
- This machine uses a charge roller [1]. The charge roller gives the drum surface a negative charge.
- The machine automatically controls the charge roller voltage when process control is executed.
- The charge roller cleaner [2] which always touches the charge roller, cleans the charge roller.
- The OPC cleaning blade [3] removes the waste toner on the OPC.

71

The high voltage supply board, which is at the left side of the machine, applies dc and ac voltage (at a constant current) to the roller. The ac voltage helps to make sure that the charge given to the drum is as constant as possible.

Development

RICOH
imagine. change.



m1099304.jpg

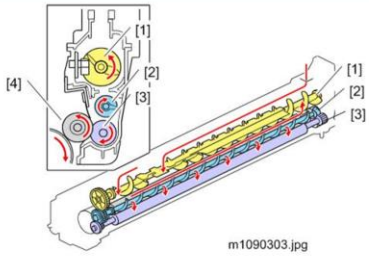
- The development mechanism contains the development roller [1], the toner supply roller [2], and the development blade.
- The toner supply roller [2] provides the development roller [1] with toner.
- The development blade [3] keeps the toner attached to the development roller [1] flat.

72

An idle gear between the drive gears of the development roller and toner supply roller ensures that they rotate in the same direction.

Mixing

RICOH
imagine. change.



m1090303.jpg

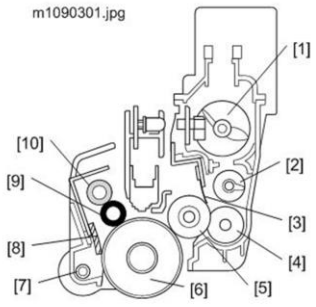
- The toner moves as shown in the above drawing.
- The upper mixing coil [1] moves the toner to the left side.
- The lower mixing coil [2] moves toner to the right side.
- Finally, the toner supply roller [3] supplies toner to the development roller [4].

73

No additional notes

Waste Toner Collection

RICOH
imagine. change.



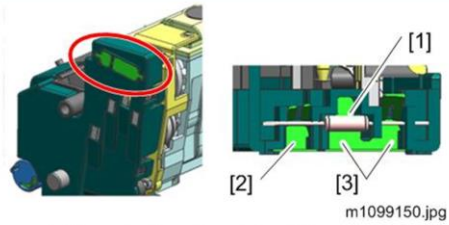
- Toner waste within each PCDU is collected by the waste toner collection coil [7] and sent down to the waste toner bottle.

74

The waste toner collection mechanism will be explained in more detail later.

New PCDU Detection

RICOH
imagine. change.

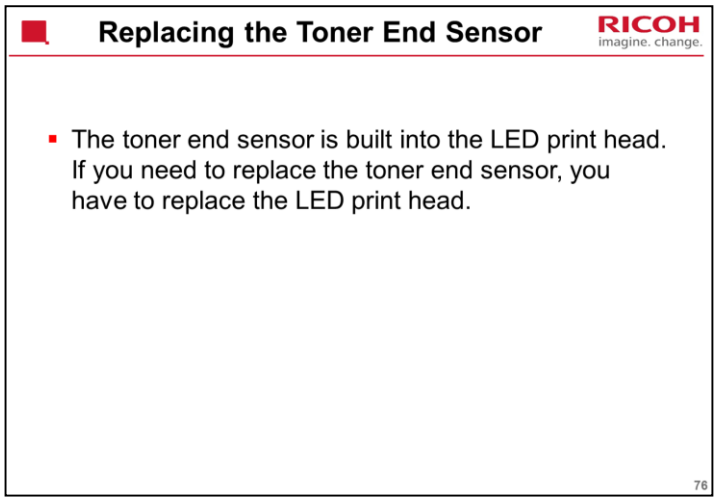


m1099150.jpg

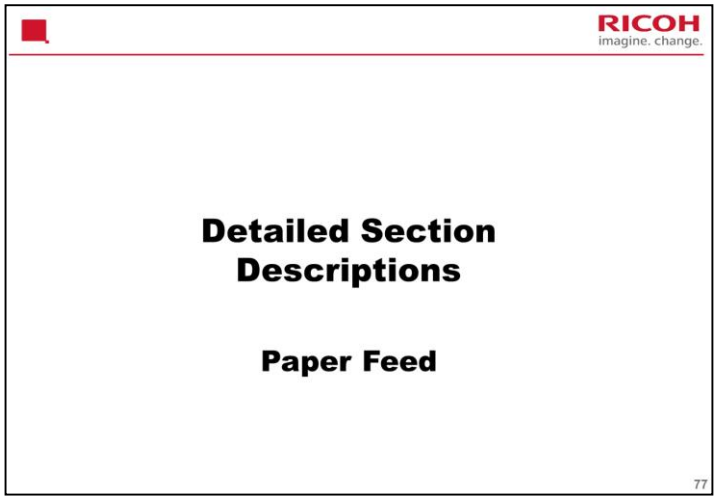
- A three-point terminal on the side of the cover detects when a new PCDU is inserted.
- If a new PCDU comes into contact with the terminal, a fuse resistor is opened, and the machine detects the new PCDU.
- When either the user or technician installs a new PCDU, the counter resets automatically. There is no need to reset any counters.

75

1. Fuse Resistor
2. New PCDU Detection
3. Set Detection and New PCDU Detection



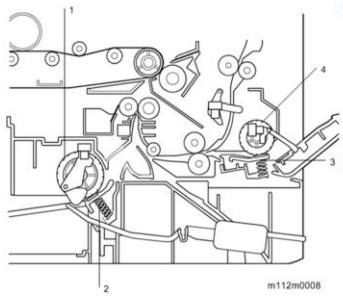
No additional notes



This section explains how paper is fed through the machine.

Overview

RICOH
imagine. change.



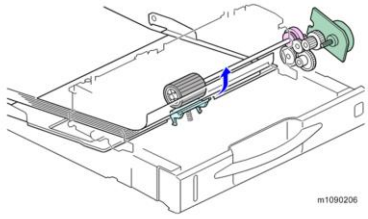
- The machine has a paper tray and a bypass tray.
  1. Paper Feed Roller
  2. Friction Pad
  3. Bypass Feed Roller
  4. Bypass Friction Pad
- The rollers are replaced by technicians only. They are not part of the user PM procedure. There are no counters to reset.

78

No additional notes

Drive

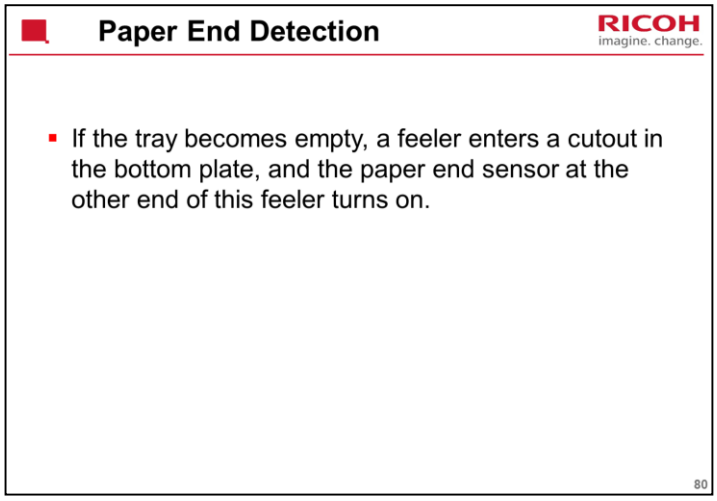
RICOH
imagine. change.



- To start paper feed, the machine turns on the paper feed clutch, and the paper feed roller rotates (driven by the transfer/transport motor).
- The friction pad ensures that only the top sheet is fed.
- When the paper activates the registration sensor, the paper feed clutch turns off.
- When the toner image on the transfer belt is at the correct position, the registration clutch turns on to feed the paper to the image transfer unit.

79

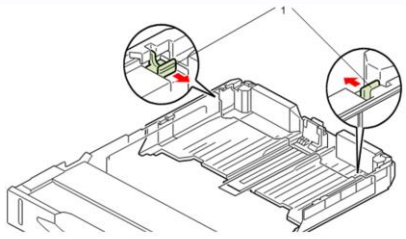
The motor in this diagram is at the wrong angle. For the correct orientation of this motor, please see the diagram on slide 93 (Image Transfer Belt Unit).



No additional notes

Tray Extension

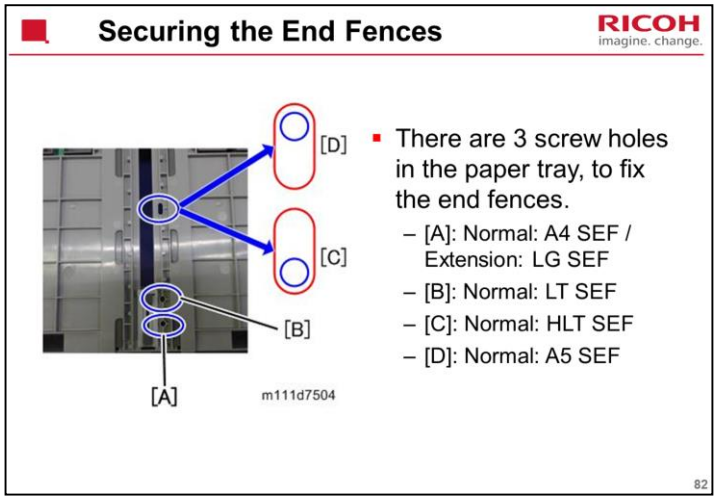
RICOH
imagine. change.



- When shipped from the factory, sizes up to A4 SEF can be loaded in the cassette.
- To support paper sizes larger than A4 SEF and up to LG size, unlock the tray extension lock ([1]) to extend the tray.

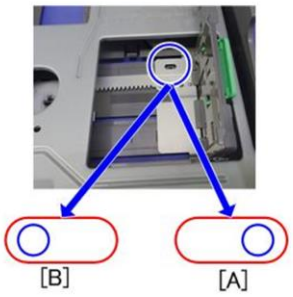
81

No additional notes



No additional notes

Securing the Side Fences



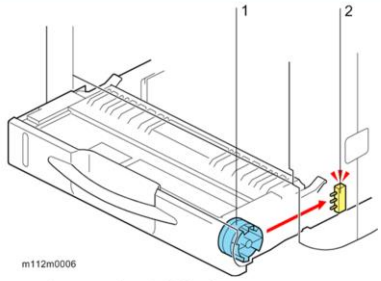
- There are 2 screw holes in the paper tray, to fix the side fences.
  - [A]: A4 SEF
  - [B]: LG SEF/LT SEF

83

No additional notes

Paper Size Detection

RICOH
imagine. change.



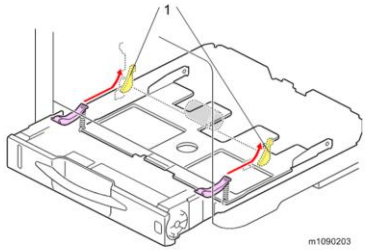
- The paper size switch [2] detects actuators attached to the paper size dial [1].
- The customer must select the correct paper size with this dial.

84

No additional notes

Bottom Plate Lift

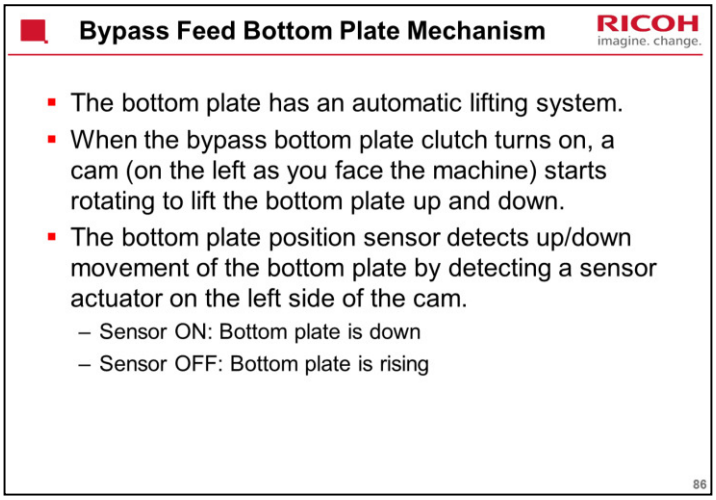
RICOH
imagine. change.



- When you slide the paper feed tray into the unit, the bottom plate arm [1] slides along the sloping guide of the main frame, and then the bottom plate is pushed upward by the spring.
- As a result, the lifted bottom plate presses the sheet on the top of the stack up against the paper feed roller.

85

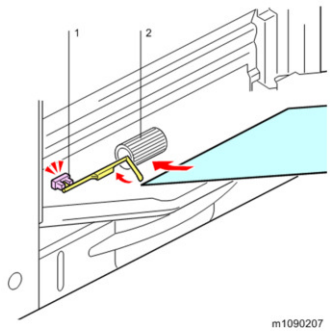
No additional notes



No additional notes

Bypass Feed

RICOH
imagine. change.



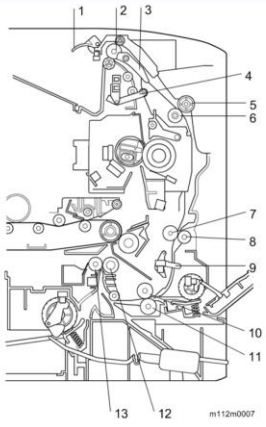
- Bypass feed uses a feed roller and friction pad mechanism.
  1. Bypass Paper End Sensor
  2. Bypass Feed Roller
- When paper is loaded into the tray, the end sensor turns on (the light beam passes through).
- When the sensor is on, the bottom plate goes down. When it is off, the bottom plate goes up.

87

No additional notes

Vertical Feed Path

RICOH
imagine. change.



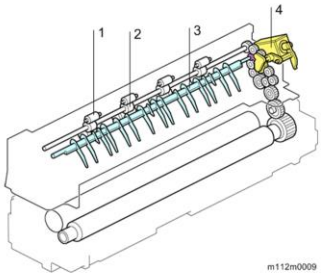
1. Paper Exit Full Sensor Feeler
2. Paper Exit/Reverse Roller
3. Junction Gate
4. Paper Exit Sensor Feeler
5. Duplex Entrance Roller (Drive)
6. Duplex Entrance Roller (Driven)
7. Duplex Intermediate Roller (Driven)
8. Duplex Intermediate Roller (Drive)
9. Duplex Feed Sensor Feeler
10. Duplex Exit Roller (Driven)
11. Duplex Exit Roller (Drive)
12. Registration Roller (Drive)
13. Registration Roller (Driven)

88

No additional notes

Duplex and Exit

RICOH
imagine. change.



1. Driven Roller (Relay)
2. Paper Exit/Reverse Roller
3. Duplex Junction Gate
4. Duplex Inverter Solenoid

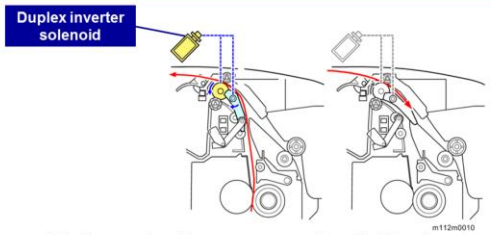
- The fusing motor drives the fusing and paper exit rollers.
- The paper feed/transport motor drives the duplex entrance, intermediate, exit rollers.
- The paper exit/reverse roller has no clutch, and is driven by the fusing motor.
- The solenoid controls movement of the junction gate and rotation of the paper exit/reverse roller.
- The same roller does exit and reverse, so route switching for the next sheet cannot begin before the current sheet has been fed out. Because of this, productivity for A4 and LT size duplex printing drops to 90%.

89

1.Driven Roller (Relay)
2.Paper Exit/Reverse Roller
3.Duplex Junction Gate
4.Duplex Inverter Solenoid

Solenoid

RICOH
imagine. change.



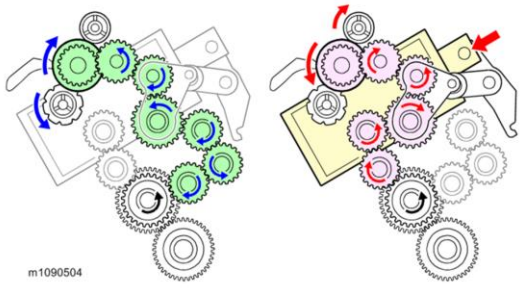
- Before starting reverse feed: Duplex inverter solenoid is on
- Feed back into the machine for duplex printing: Solenoid is off

90

No additional notes

Solenoid

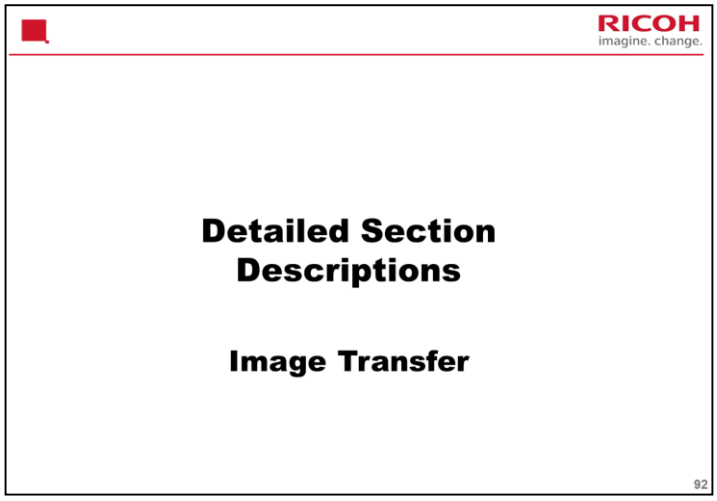
RICOH
imagine. change.



- This diagram shows how the direction of the drive gears changes whether the solenoid is on or off.

91

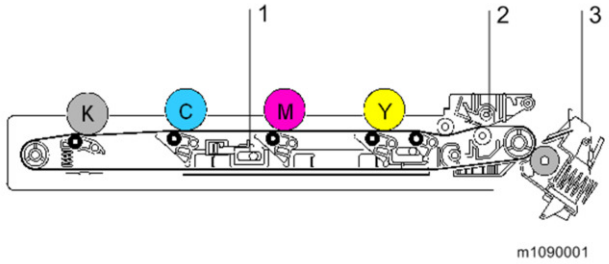
No additional notes



This section explains how the developed image is transferred from the drum to the paper.

Overview

RICOH
imagine. change.



m1090001

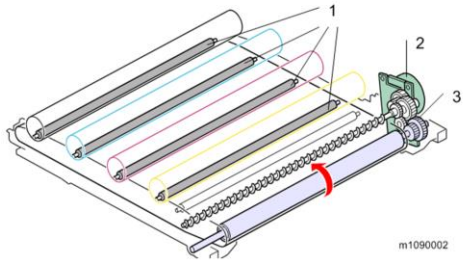
- The transfer section consists of three units: the Image Transfer Unit [1], the Image Transfer Belt Cleaning Unit [2], and the Transport Unit [3].

93

No additional notes

Image Transfer Belt Unit

RICOH
imagine. change.



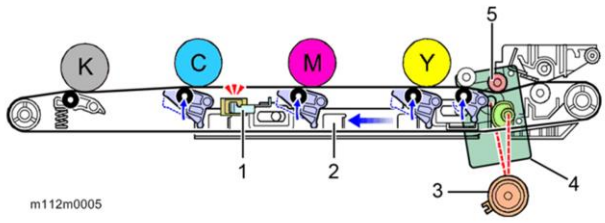
- The transfer/transport motor [2] drives the ITB drive roller [3] via a gear to drive the image transfer belt.
- The image transfer belt rollers [1] apply transfer bias to pull toner from the photoconductor to the paper.

94

No additional notes

Transfer Belt Contact Mechanism

RICOH
imagine. change.



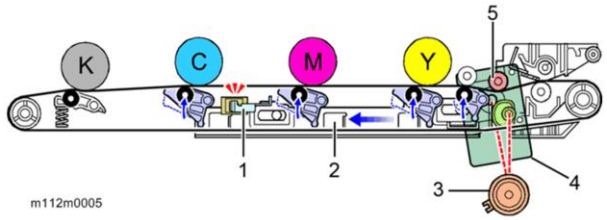
- For monochrome printing, the image transfer belt is disengaged from the color drums.
- The transfer belt contact sensor [1] detects the status of the image transfer belt.
- The transfer belt contact clutch [3] transfers the drive from the ITB/transport motor [4], and drives the mechanism through a cam [2], to move the transfer belt into contact or away from the color drums.

95

No additional notes

Belt Guide Roller

RICOH
imagine. change.



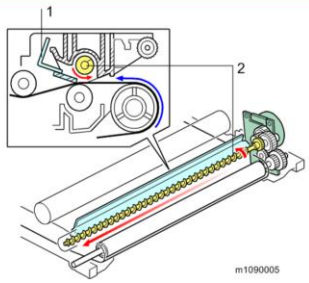
- In previous models, this roller [5] was inside the ITB unit. However, for this machine, there is no room inside the unit, so it is added at the location shown above.
- This roller keeps the belt under tension, and prevents the belt from moving to the left or right on the axis of the drive roller.

96

Lab tests have shown that this roller does not require cleaning at PM.

Transfer Belt Cleaning

RICOH
imagine. change.



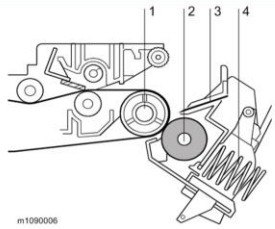
- The transfer cleaning blade [1] removes remaining toner from the belt surface.
- The waste toner transport coil [2] carries this toner to the left side of the ITB unit.

97

No additional notes

Paper Transfer Roller Unit

RICOH
imagine. change.



- The bias applied to the paper transfer roller [2] pulls the toner off the ITB and onto the paper.
- The paper transfer roller is always pressed into contact with the ITB by a spring [4].
- When a sheet of paper goes between the transfer roller and the transfer belt, the transfer roller turns with the paper.
- The discharge plate [3] removes static charge from the paper that was applied during transfer.

98

No additional notes

Transfer Roller Cleaning

RICOH
imagine. change.

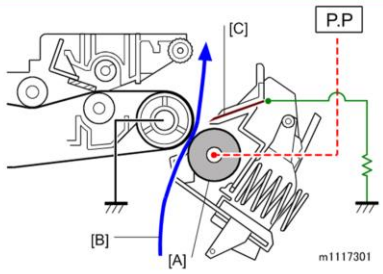
- Toner may transfer to the roller surface following a paper jam or if the paper is smaller than the image. Periodic cleaning of the roller is required to prevent this toner from migrating back to the rear of new printouts.
- The machine cleans the roller at the following times:
  - After initial power on.
  - After clearing of a copy jam
- The machine first supplies a negative cleaning current (about -4 mA) to the transfer roller, causing negatively charged toner on the roller to move back to the transfer belt. It then applies a positive cleaning current (+5 mA) to the roller, causing any positively charged toner to migrate back to the transfer belt.

99

No additional notes

Paper Separation

RICOH
imagine. change.



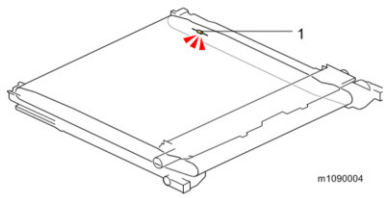
- During paper transfer, the transfer roller [A] applies a static charge to the paper [B].
- The discharge plate [C] grounds any remaining static charge after passing the transfer roller unit.

100

P.P.: Power pack

New ITB Unit Detection

RICOH
imagine. change.



- The following new unit detection mechanism is not present in the service part. It is only in the supplied part that is installed by the user. If a technician replaces this part, the PM counter for this part must also be reset (see a later slide for more information).
  - If the machine detects an unbroken fuse [1] immediately after the ITB unit is installed, the machine blows the fuse, and resets the life counter for the ITB.
  - Immediately after this, the machine detects a blown fuse, and the life counter starts.
  - The paper transfer roller is also replaced at the same time, if the user PM kit is used.
  - However, if the only one of the parts is changed, counters must be reset as explained later in this part of the course.

101

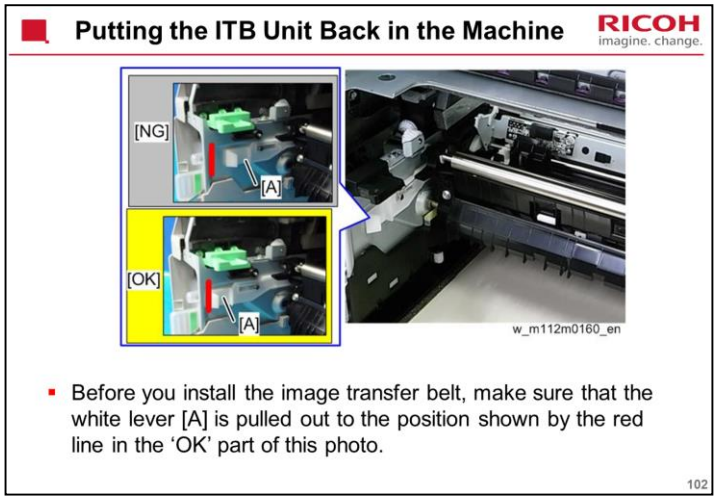
The machine checks for replacement detection at the following three times:

Turning on the Main power

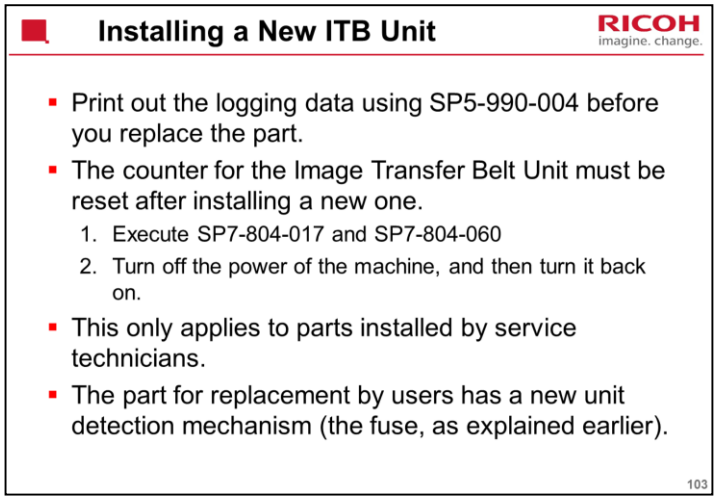
Returning from sleep mode

Closing the Front Cover or Upper Cover

The fuse is not present in the service part. It is only in the supplied part that is installed by the user.



If you are in a training class, or have access to the machine while doing this course, look through these next few slides before you do the procedures, to make sure you are familiar with these important points.

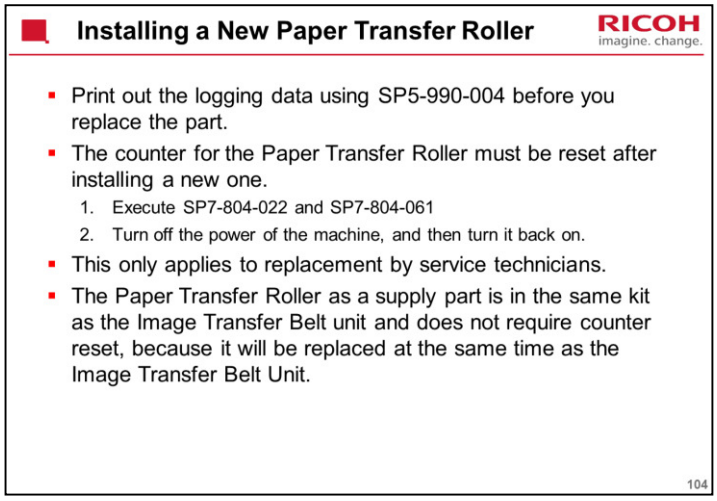


If you are replacing the image transfer belt unit

SP7-804-017 (PM Counter Clear ITB Unit)

SP7-804-060 (PM Counter Clear Life: ITB Unit)

If you are replacing the image transfer belt unit, you should execute SP7-804-017, for correct control depending on the rotation distance. But, if you execute only SP7-804-017, the counter for displaying the unit life is not cleared. So you must also clear the counter by executing SP7-804-060 (PM Counter Clear Life: ITB Unit).



If you are replacing the paper transfer roller

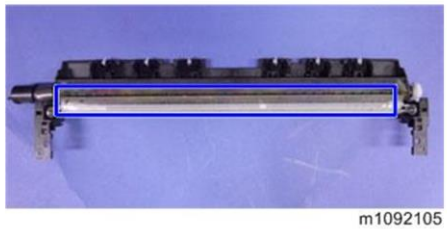
SP7-804-022 (PM Counter Clear PTR Unit)

SP7-804-061 (PM Counter Clear Life: PTR Unit)

If you are replacing the paper transfer roller, you should execute SP7-804-022, for correct control depending on the rotation distance. But, if you execute only SP7-804-022, the counter for displaying the unit life is not cleared. So you must also clear the counter by executing SP7-804-061 (PM Counter Clear Life: PTR Unit).

Installing a New Transfer Belt Cleaning Unit

RICOH imagine. change.



m1092105

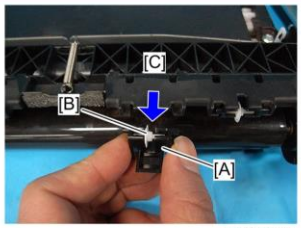
- When you change the transfer belt cleaning unit, dust the new one with toner as a lubricant.

105

No additional notes

Installing a New Transfer Belt Cleaning Unit

RICOH imagine. change.

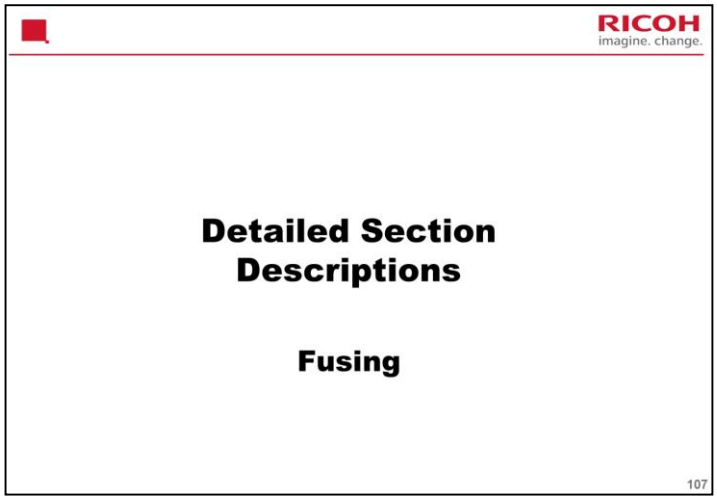


m112m0149

- When you remove the transfer belt cleaning unit back in the machine, remove the paper guide holders [A] and spurs [B] first.
- Also, do not reinstall the holders and spurs until after you reinstall the cleaning unit. Otherwise, the ITB might be damaged.

106

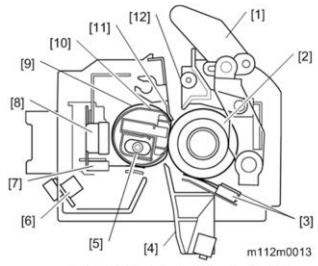
No additional notes



This section explains how the image is fused to the paper.

Overview

RICOH
imagine. change.



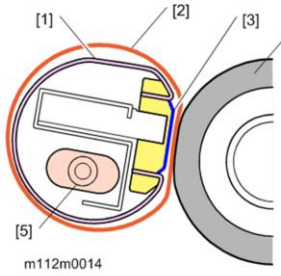
- This machine uses a QSU (Quick Start Up) type of fusing unit.
  - One fusing lamp [5] inside a pipe [10] heats a fusing belt [9].
- This type of fusing saves energy and allows the use of a wider range of paper types than a traditional fusing unit.
- Also, the larger nip reduces image blurring.

108

1.Pressure Release Lever
2.Pressure Roller
3.Pressure Roller Thermistors (Center/End)
4.Fusing Entrance Guide
5.Fusing Lamp
6.Thermopile
7.Thermistor (End of the fusing belt)
8.Thermostat
9.Fusing Belt
10.Heating Pipe
11.Stripper Plate
12.Fusing Exit Guide

Quick Start-up (QSU) System

RICOH
imagine. change.



m112m0014

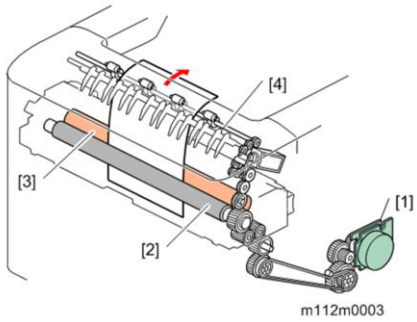
- 1. Heating Pipe
  - Conducts heat from the fusing lamps to the fusing belt.
- 2. Fusing Belt
  - Rotates by friction with the pressure roller. The space between the heating pipe and the fusing belt is lubricated to reduce friction, so that the belt will rotate smoothly.
- 3. Nip Band Shaping Parts
  - Located beneath the fusing belt to shape the nip band where the fusing belt contacts the pressure roller.
- 4. Pressure Roller
  - The pressure roller is driven by the fusing exit motor. At the contact with the fusing belt, the pressure roller fuses the image to the paper and feeds the paper out of the fusing unit.
- 5. Fusing Lamp
  - This consists of one halogen heater to heat the center and both ends.

109

No additional notes

Fusing Unit Drive

RICOH
imagine. change.



m112m0003

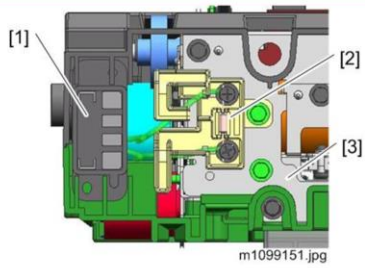
- The fusing motor [1] drives the pressure roller [2], fusing belt [3], and the exit roller [4].

110

No additional notes

New Unit Detection

RICOH
imagine. change.

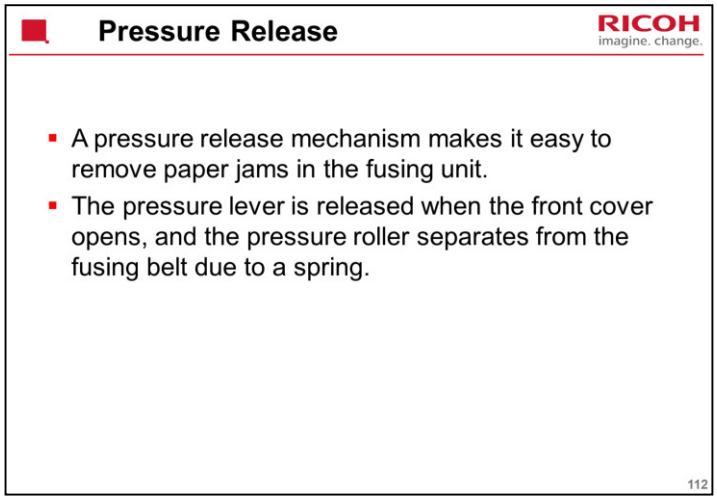


m1099151.jpg

- This is done using a fuse [2] on the rear frame [3] of the fusing unit. [1] is the fusing unit drawer.
- There is no service part; the technician uses the same part as the user PM kit to replace the fusing unit. So there is no counter to reset.

111

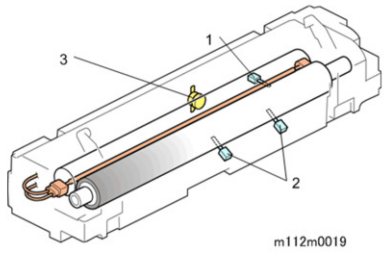
[1] is the fusing unit drawer.



No additional notes

Fusing Temperature Control

RICOH
imagine. change.



- A thermostat [3] and a non-contact thermistor [1] monitor the fusing belt temperature.
- Two contact thermistors [2] monitor the pressure roller temperature.
- The thermostat is a safety switch.

113

No additional notes

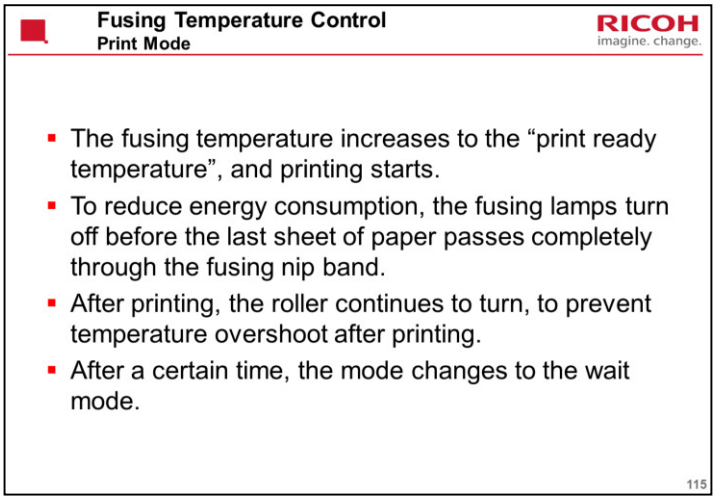
Fusing Temperature Control
Warming-up Mode

RICOH
imagine. change.

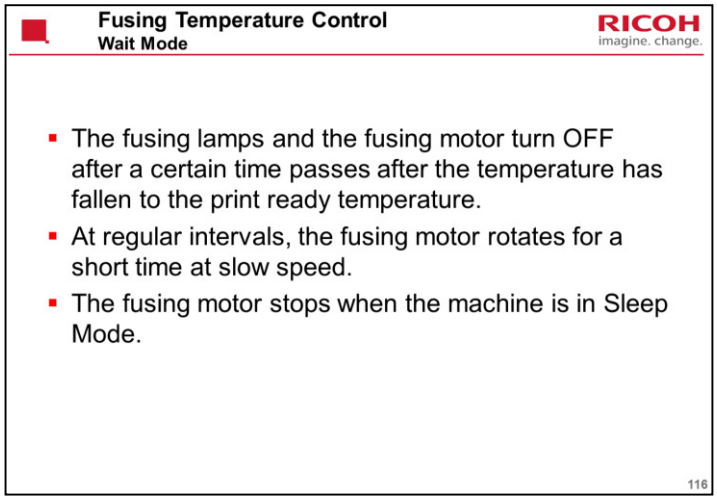
- Fusing warm-up begins after the machine power is switched on.
- The fusing lamps heat without roller rotation until the temperature reaches the “pre-rotation start temp.”
  - There is no roller rotation, in order to heat the lubricant between the heating pipe and the fusing belt so that the pressure roller rotation will move the belt.
- Then, the fusing motor turns on, until the fusing temperature reaches the “start-up temperature” (also called the “reload temperature”).

114

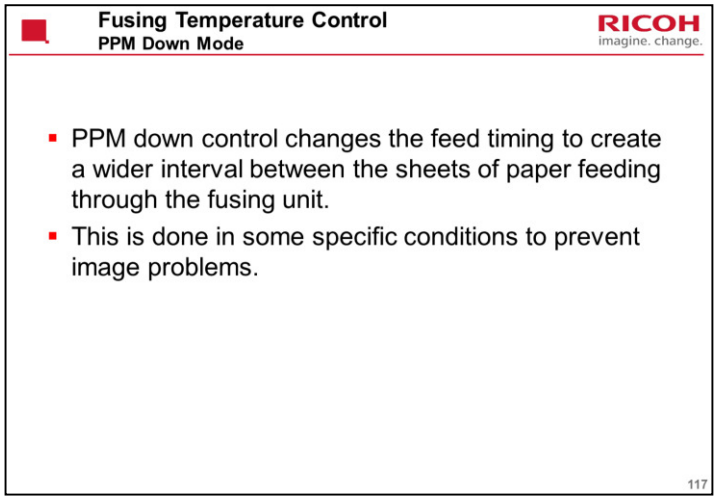
No additional notes



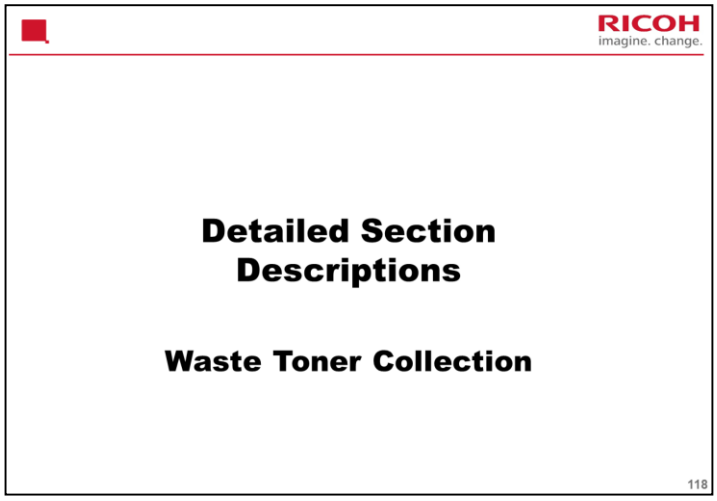
No additional notes



No additional notes



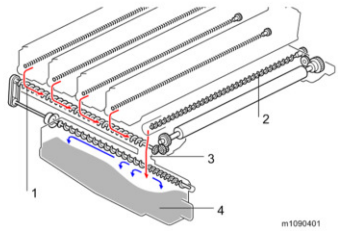
No additional notes



This section explains how the unused toner is collected from the drum and the master belt.

Overview

RICOH
imagine. change.



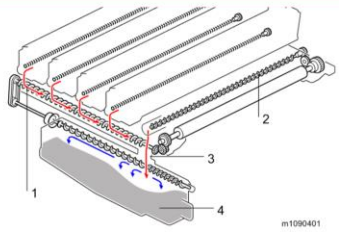
- Toner waste from the PCDUs is carried to the waste toner duct [1], and then to the front of the unit by a coil, and from there, it is moved down to the waste toner bottle.
- Toner waste from the ITB Unit is carried to the left side of the unit by the ITB waste toner collection coil [2] and then down to the waste toner bottle [4] via the same opening [3] as used for toner waste from the PCDUs.

119

No additional notes

Drive

RICOH
imagine. change.



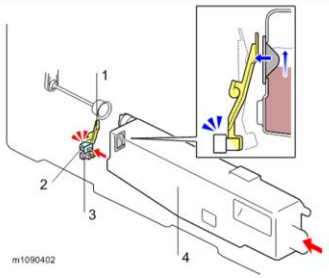
- The ITB waste toner collection coil [2] is driven via the drive roller in the image transfer unit.
- The coil in the waste toner duct [1] is driven via the gear on the left of the image transfer unit.
- The coil inside the waste toner bottle distributes the toner evenly inside the bottle.

120

No additional notes

Waste Toner Bottle Set Sensor

RICOH
imagine. change.

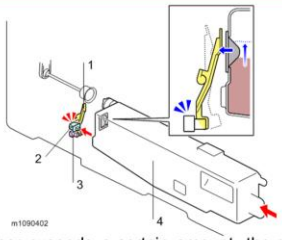


- The waste toner bottle set sensor [2] detects the presence of the waste toner bottle [4].
- There is no bottle replacement detection feature. If the bottle full sensor is off and the bottle set sensor is on, the machine indicates that the waste toner bottle is usable.

121

For details on items 1 and 3 in the diagram, see the next slide.

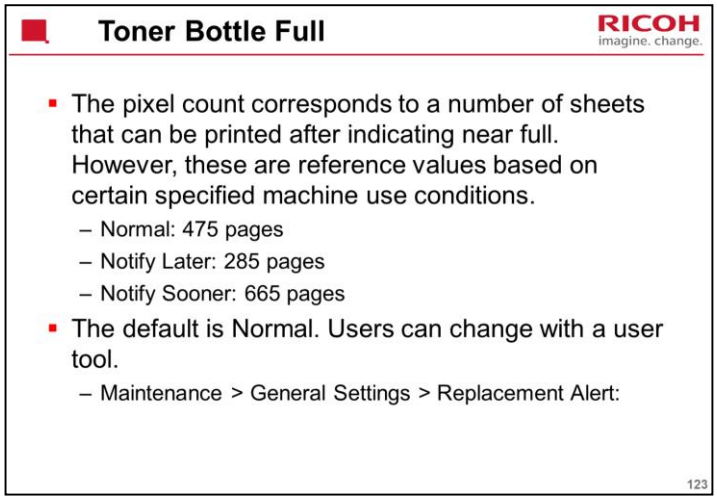
Waste Toner Bottle Full Sensor



- When waste toner exceeds a certain amount, the rubber portion on the inner part of the waste toner bottle swells. This exerts pressure on the feeler [1], and the waste toner bottle full sensor [3] is turned on. At this time, the machine detects that the bottle is nearly full.
- After the bottle is detected to be nearly full, the machine uses a pixel count to detect when the waste toner bottle is full.
- The required pixel count between near-full and full can be adjusted with an SP3-800-017 or a User Tool.

122

No additional notes

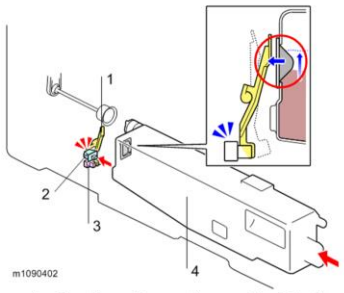


The number of sheets that can be printed is a reference value when performing continuous printing of A4-size SEF originals at a coverage of 5% for each color and at a color ratio of 50%.

The actual replacement frequency depends on usage, and is influenced by factors including paper size, paper type, paper feed direction, content, the number of sheets continuously printed per job and adjustments to maintain the quality of printing.

Lubricant

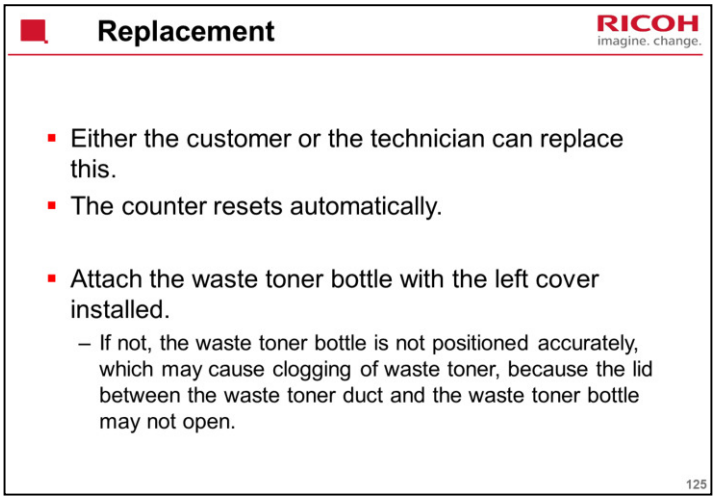
RICOH
imagine. change.



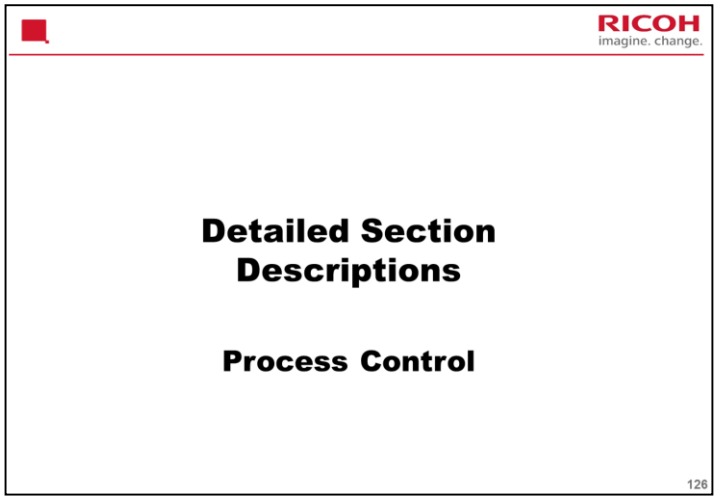
- A small amount of yellow toner is applied to the rubber component shown above with a red circle.
- Do not touch this rubber, or you may remove the lubricant. If you do wipe it off, apply some yellow toner.

124

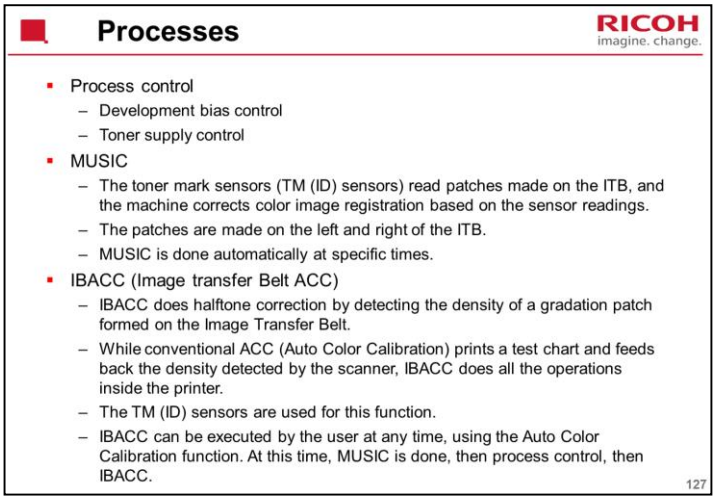
No additional notes



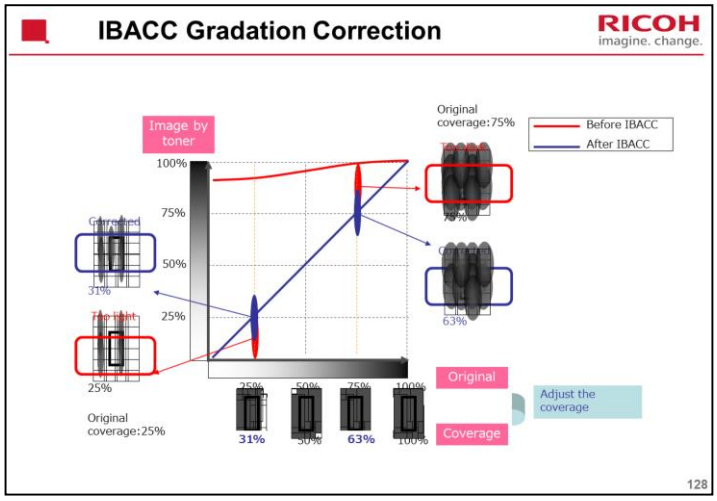
No additional notes



This section briefly explains Auto Color Calibration (ACC) and MUSIC.



No additional notes



Before IBACC, the machine's response is shown by the red curve. IBACC changes the response so that it is more linear, as shown by the blue line. However, the machine's response may drift away from linear with time. At this time, IBACC should be done again.

TM (ID) Sensors

RICOH
imagine. change.

m112m0100

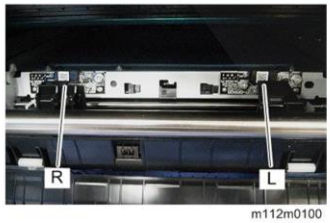
- Below the image transfer belt, there are two TM (ID) (Toner Mark) sensors.
- These are used for MUSIC. They also act as ID sensors for use during process control and IBACC.

129

No additional notes

TM (ID) Sensors

RICOH
imagine. change.



m112m0100

- Note that the sensor seen on the left [L] (as viewed from the front of the machine) is called the right TM (ID) sensor (TM sensor: R), and the one on the right [R] is called the left TM (ID) sensor (TM sensor: L).
  - This will be important when we replace the TM (ID) sensors.
- Sensors can be replaced individually (the service part consists of one sensor).

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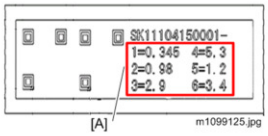
No additional notes

Replacing the TM (ID) Sensors - 1

RICOH imagine. change.



- Before replacement:
  - Each sensor has a label with some numbers on it [A].
  - These numbers must be input into SP mode before you turn off the power and replace the old TM (ID) sensor.
  - As you look from the front of the machine:
    - The sensor on the left is TM (ID) sensor: R. These values must be input into SP 3-333.
    - The sensor on the right is TM (ID) sensor: L. These values must be input into SP 3-334.
  - After this, there are some other SP settings to initialize before replacement. See the procedure in the service manual for details.

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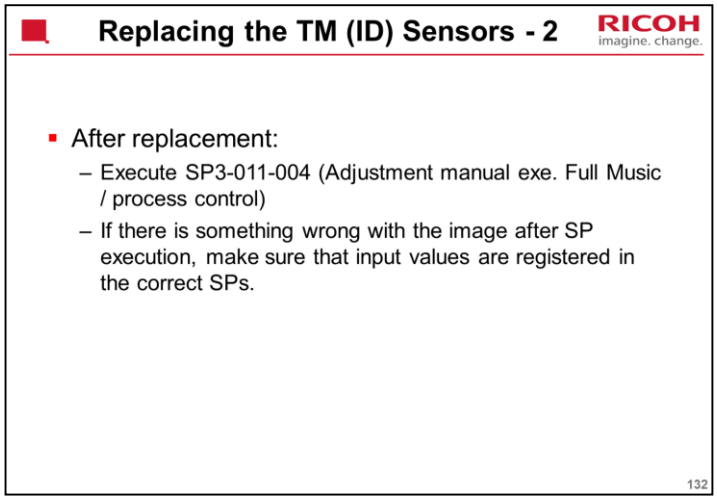
No additional notes



No additional notes

The End