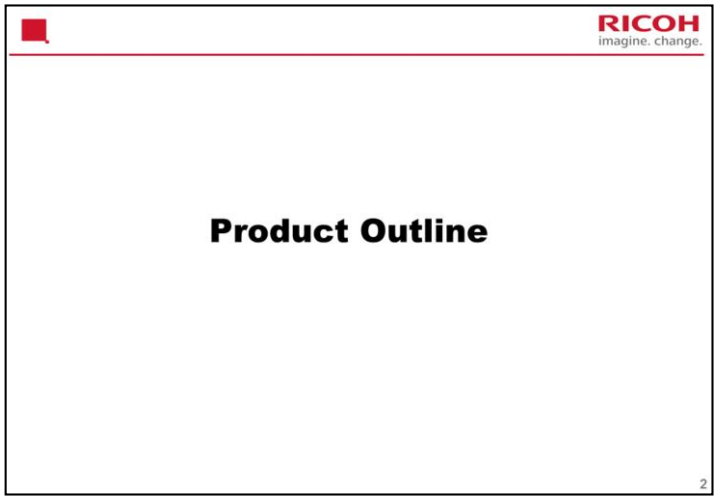
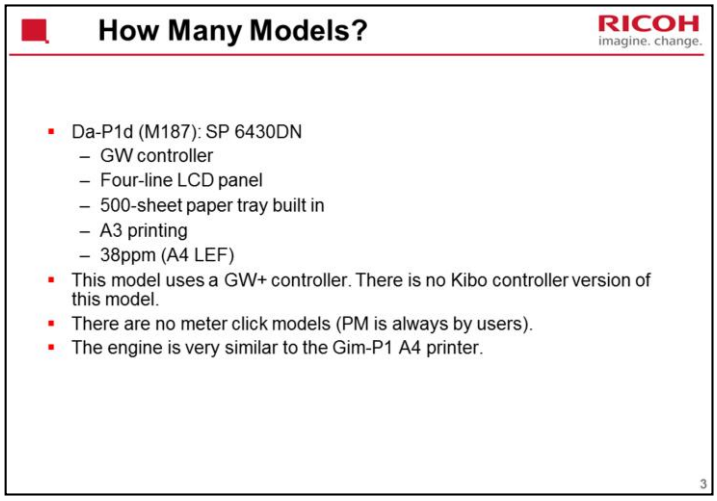
This course teaches about how to service this new of black-and-white printer.

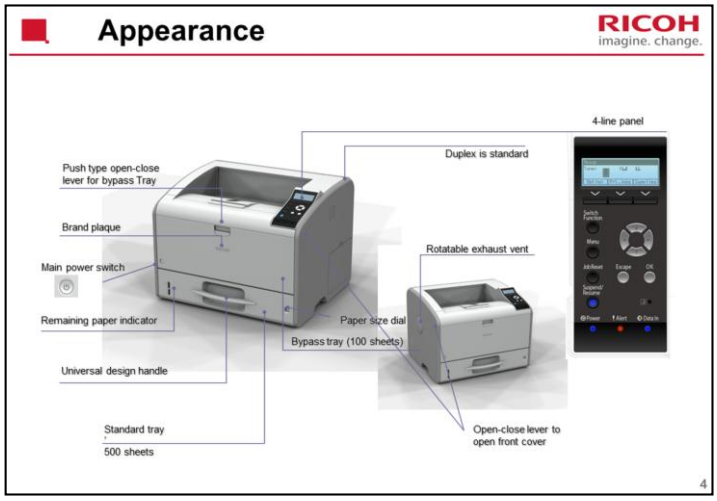
It is very similar to the GW version of the Gim-MF1/P1 series, except that the Da-P1 is an A3 printer, whereas the Gim series is A4 only.



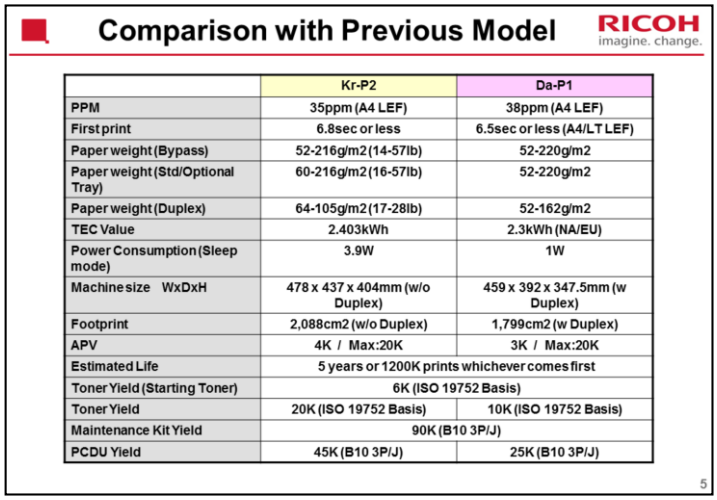
No additional notes



No additional notes

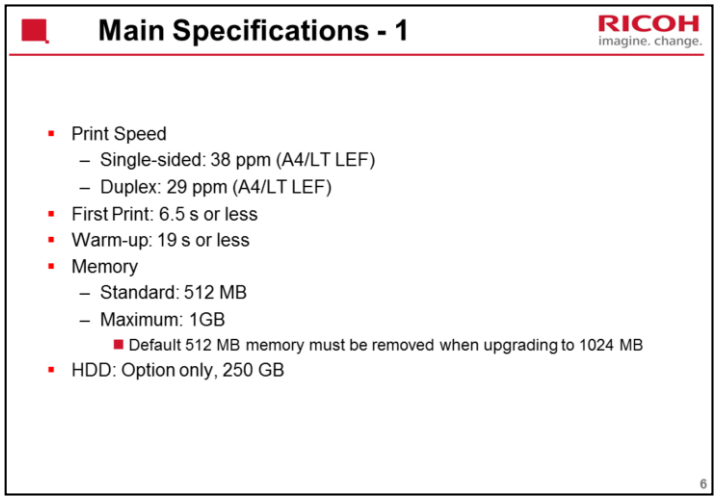


No additional notes

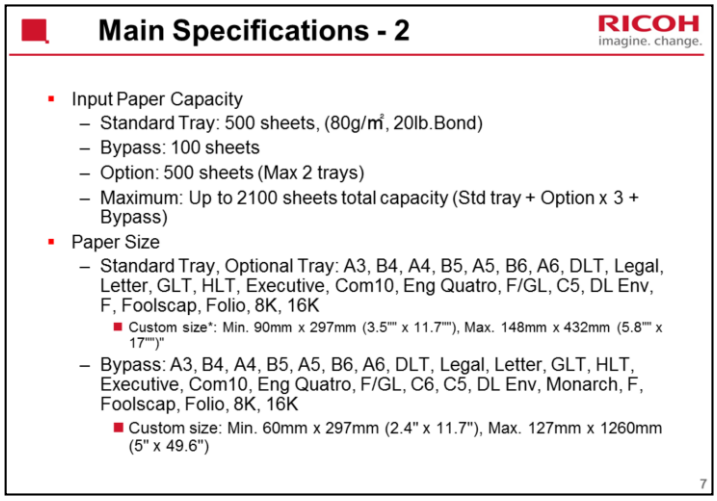


	Kr-P2	Da-P1
PPM	35ppm (A4 LEF)	38ppm (A4 LEF)
First print	6.8sec or less	6.5sec or less (A4/LT LEF)
Paper weight (Bypass)	52-216g/m2 (14-57lb)	52-220g/m2
Paper weight (Std/Optional Tray)	60-216g/m2 (16-57lb)	52-220g/m2
Paper weight (Duplex)	64-105g/m2 (17-28lb)	52-162g/m2
TEC Value	2.403kWh	2.3kWh (NA/EU)
Power Consumption (Sleep mode)	3.9W	1W
Machine size WxDxH	478 x 437 x 404mm (w/o Duplex)	459 x 392 x 347.5mm (w Duplex)
Footprint	2,088cm2 (w/o Duplex)	1,799cm2 (w Duplex)
APV	4K / Max:20K	3K / Max:20K
Estimated Life	5 years or 1200K prints whichever comes first	
Toner Yield (Starting Toner)	6K (ISO 19752 Basis)	
Toner Yield	20K (ISO 19752 Basis)	10K (ISO 19752 Basis)
Maintenance Kit Yield	90K (B10 3P/J)	
PCDU Yield	45K (B10 3P/J)	25K (B10 3P/J)

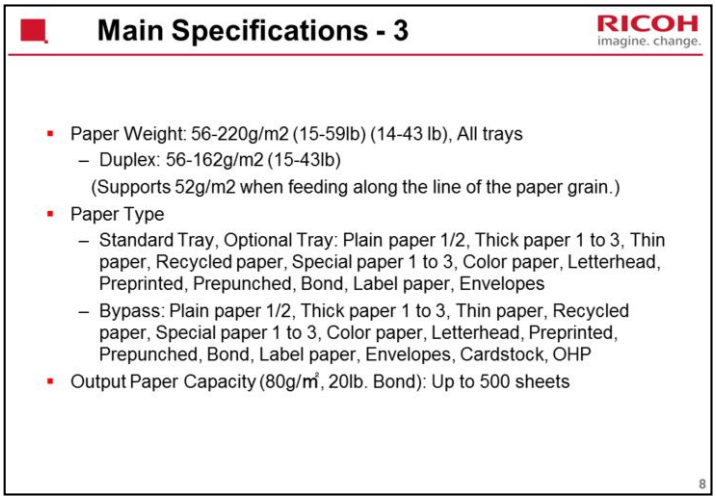
No additional notes



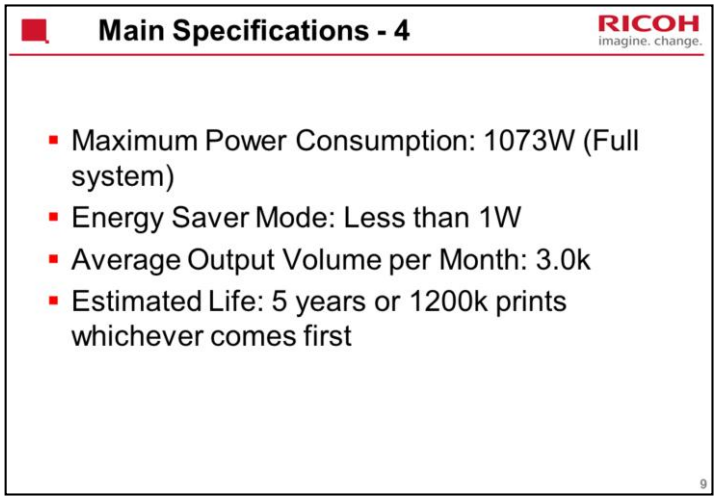
No additional notes



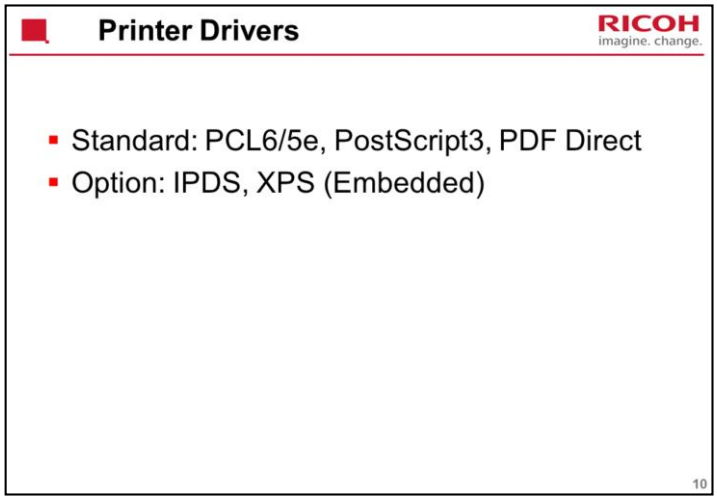
Maximum printable area is 296.7 x 420 mm. Guaranteed image area is 292.8 x 415.8 mm



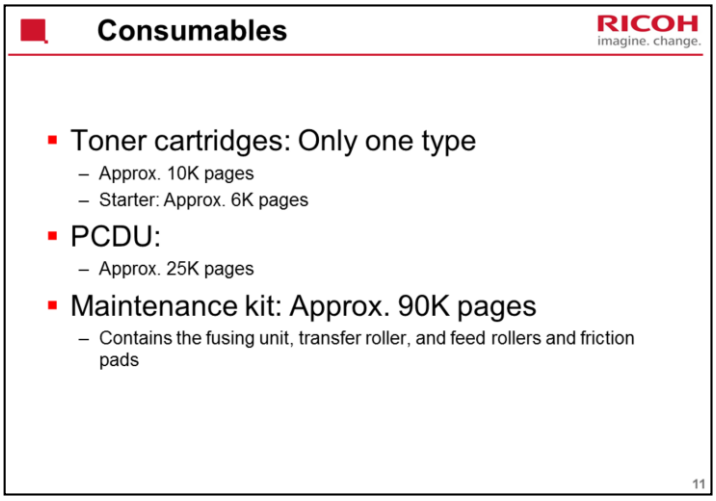
No additional notes



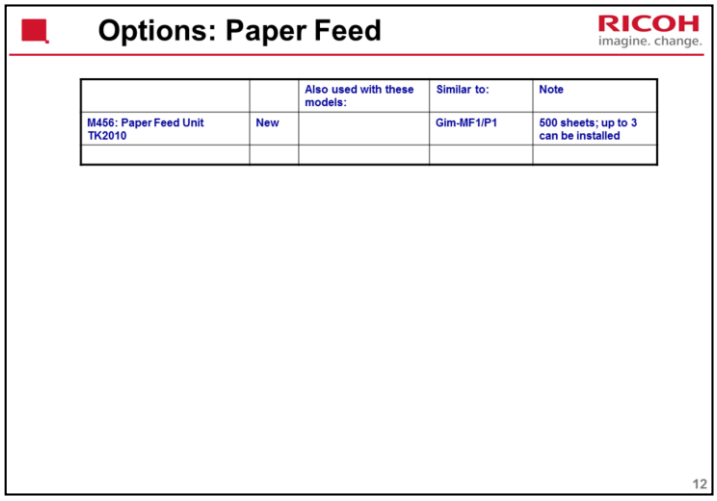
No additional notes



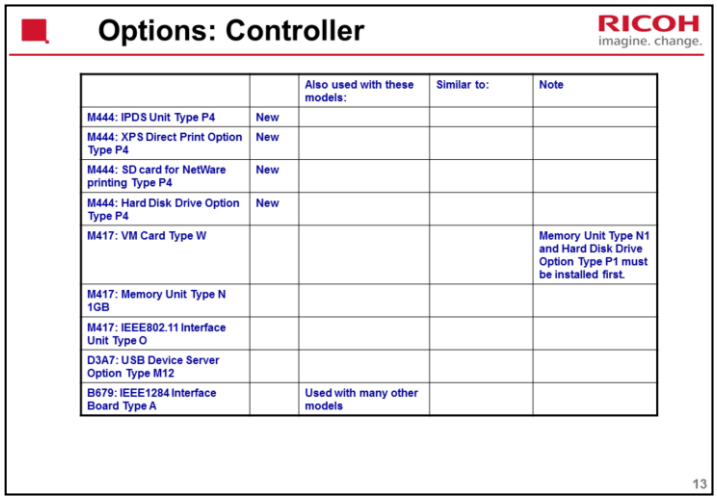
No additional notes



Toner yield is measured at standard temperature and humidity. The yield may change depending on the circumstances and printing conditions.



There is no 250-sheet paper feed unit for the overseas market, and no caster table.



Options: Controller

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imagine. change.

		Also used with these models:	Similar to:	Note
M444: IPDS Unit Type P4	New			
M444: XPS Direct Print Option Type P4	New			
M444: SD card for NetWare printing Type P4	New			
M444: Hard Disk Drive Option Type P4	New			
M417: VM Card Type W				Memory Unit Type N1 and Hard Disk Drive Option Type P1 must be installed first.
M417: Memory Unit Type N 1GB				
M417: IEEE802.11 Interface Unit Type O				
D3A7: USB Device Server Option Type M12				
B679: IEEE1284 Interface Board Type A		Used with many other models		

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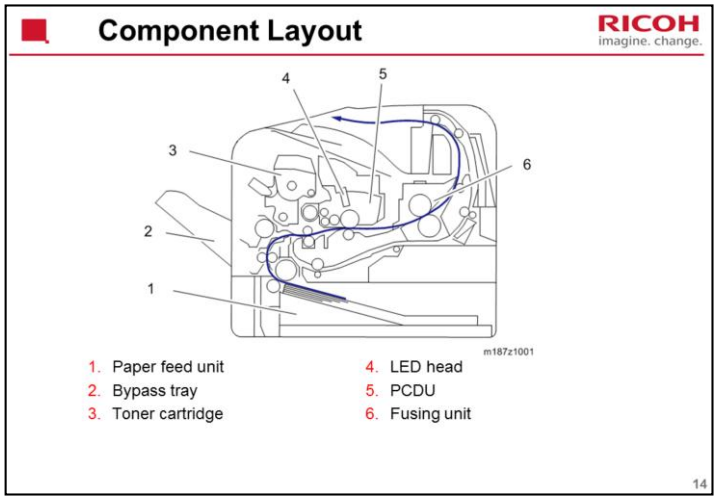
No additional notes



This slide shows the major components. Details will be covered later.
The layout is similar to the Gim-P1 series.

Drive Layout

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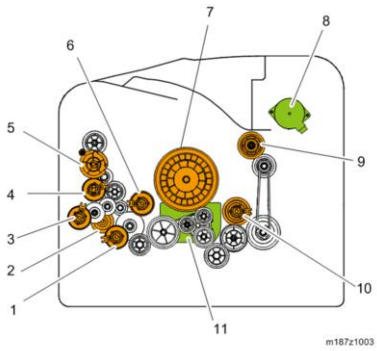
imagine. change.



1. Paper feed clutch
2. Relay clutch
3. By-pass bottom plate clutch
4. By-pass feed clutch
5. Toner supply clutch
6. Registration clutch
7. Drum gear
8. Exit/reverse motor
9. Fusing drive gear
10. Duplex clutch
11. Main motor

15

No additional notes

Paper Path

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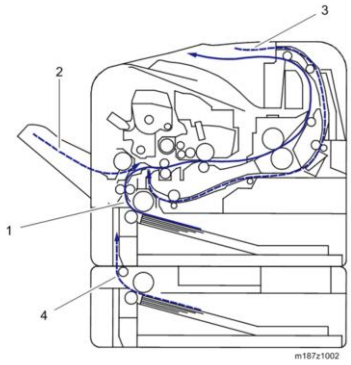
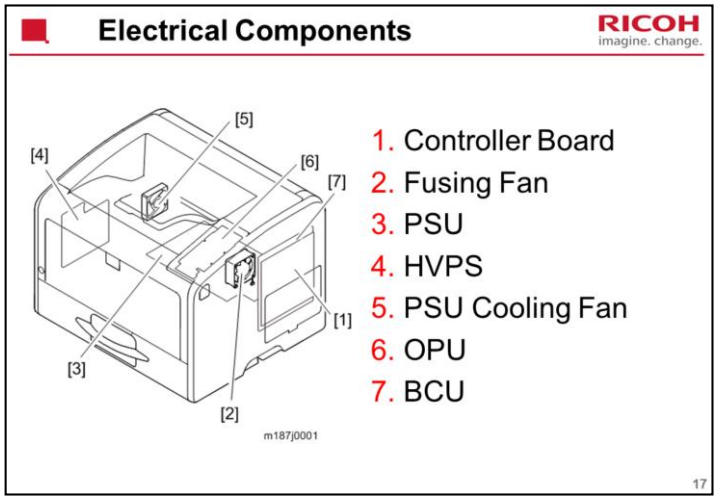
imagine. change.



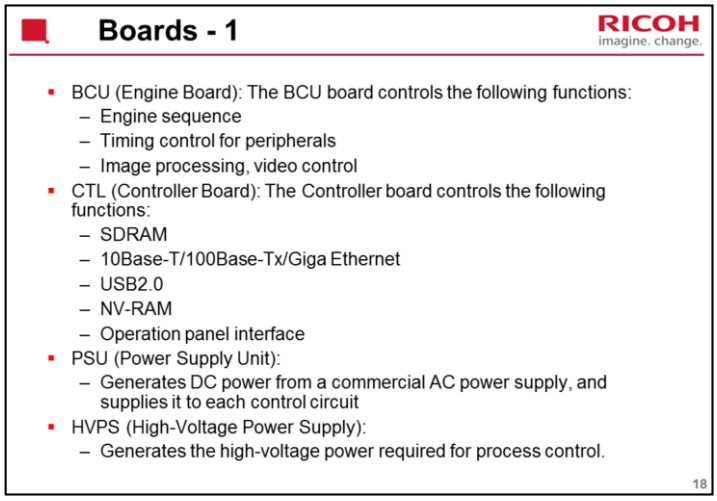
1. Main paper feed path
2. By-pass paper feed path
3. Duplex paper feed path
4. Optional tray paper feed path

16

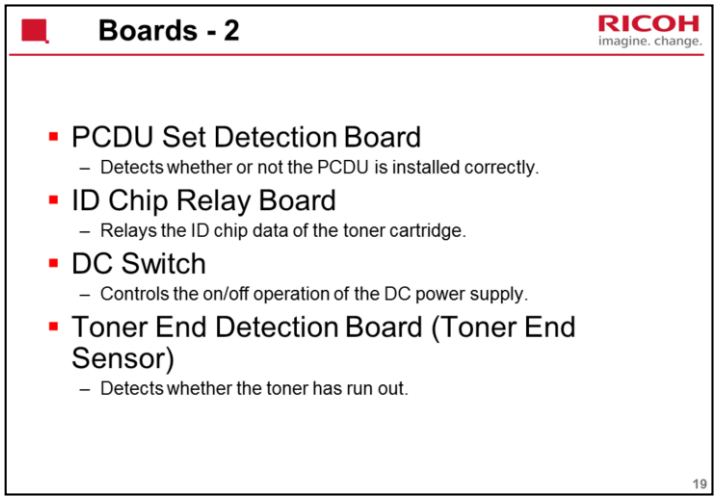
No additional notes



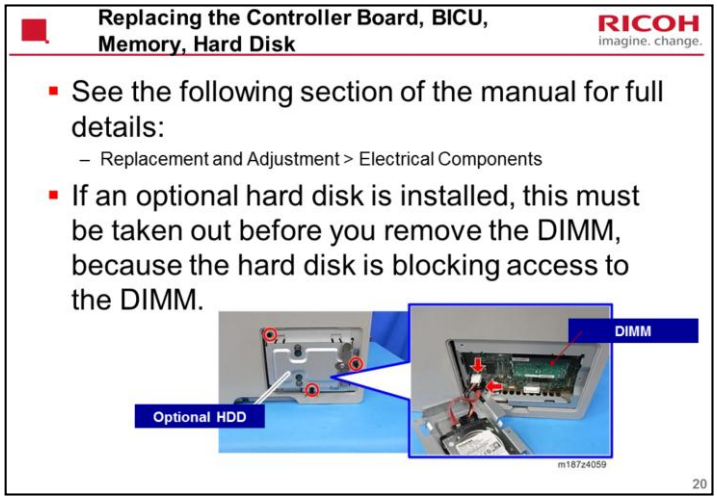
No additional notes



No additional notes



No additional notes



No additional notes

Replacing the NVRAM on the Controller Board

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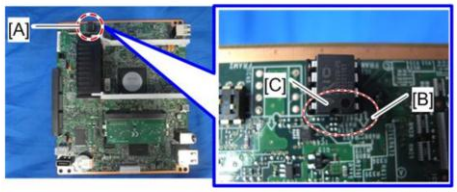


d1824054

- See the following section of the manual for full details:
  - Replacement and Adjustment > Electrical Components > NVRAM on the Controller Board
- When replacing the controller board, remove the NVRAM from the old controller board. Then install it at the same position on the new controller board.
- The indentation [C] on NVRAM [A] must face the direction of the arrow [B] that is printed on the controller board.

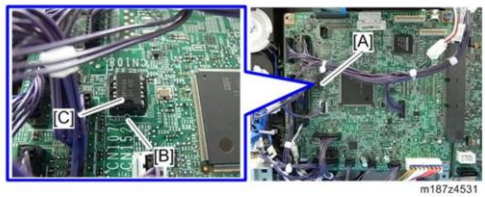
21

No additional notes

Replacing the BCU

RICOH
imagine. change.

- Remove the EEPROM [A] from the old board and install it on the new board.
  - Install so that the indentation [B] on EEPROM is facing the direction of the dent [C] that is printed on the BCU board.
- After you install the new board, enter the machine's serial number into the new board.
  - If the machine's serial number is not entered correctly into the new BCU board, SC995-01 (serial number entry error) appears.



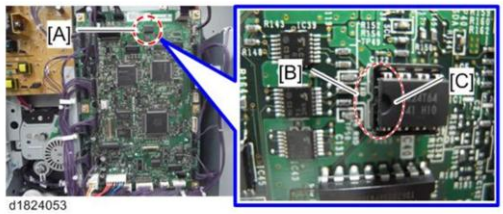
m187z4531

22

No additional notes

Replacing the EEPROM on the BCU Board

RICOH
imagine. change.



d1824053

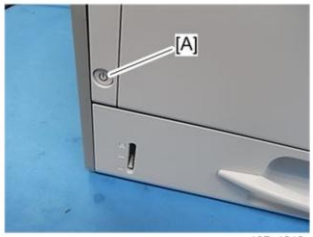
- See the following section of the manual for full details:
  - Replacement and Adjustment > PCBs and Other Items > EEPROM on the BCU
- Install the EEPROM [A] the correct way around.
  - The indentation [C] must point in the direction of the indentation [B] that is printed on the board.

23

No additional notes

Caution Before Removing Components

RICOH
imagine. change.



m187z4212

- Even if you turn the power switch off, +5V is still supplied. So do the following before you start work.
  1. Push the power switch [A] on the machine.
  2. Wait 3 minutes to shut down.
  3. Take out the power cord.
  4. Do either of the following:
     - Wait several minutes
     - Push the power switch [A] again to remove the residual charge.

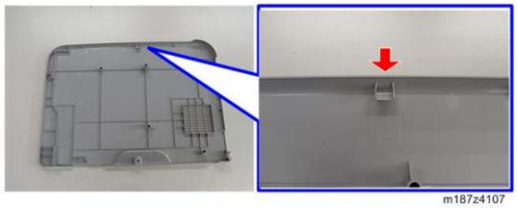
24

No additional notes

Covers

RICOH
imagine. change.

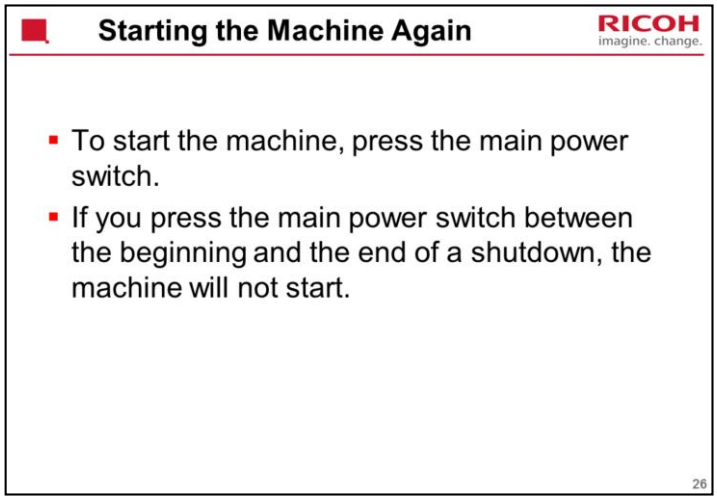
- To improve the appearance of the machine, screw holes are mostly not visible. This means that the covers are held in place by a lot of tabs.
- The locations of these tabs are explained in the removal procedures. Pay attention to these diagrams, so that you do not damage the tabs.
  - Example: Left cover



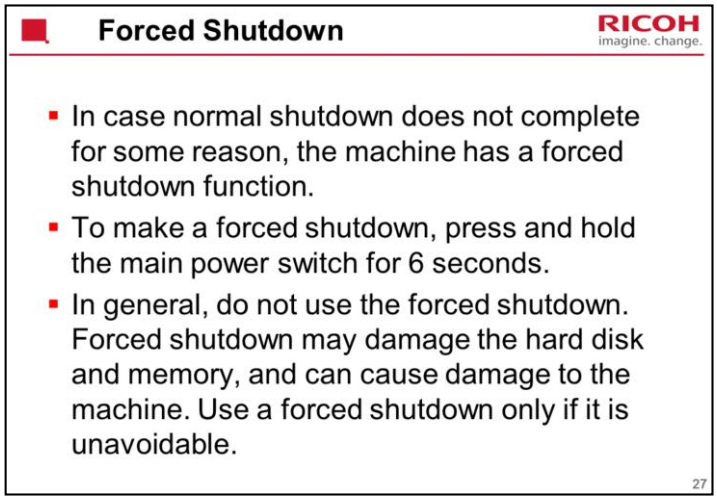
m187z4107

25

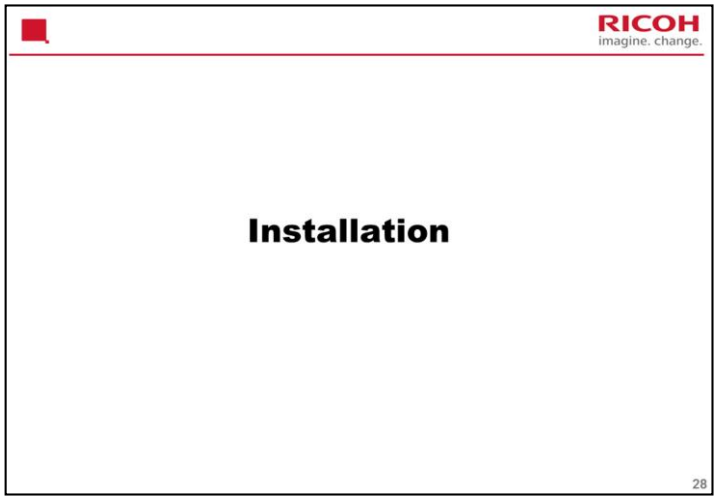
No additional notes



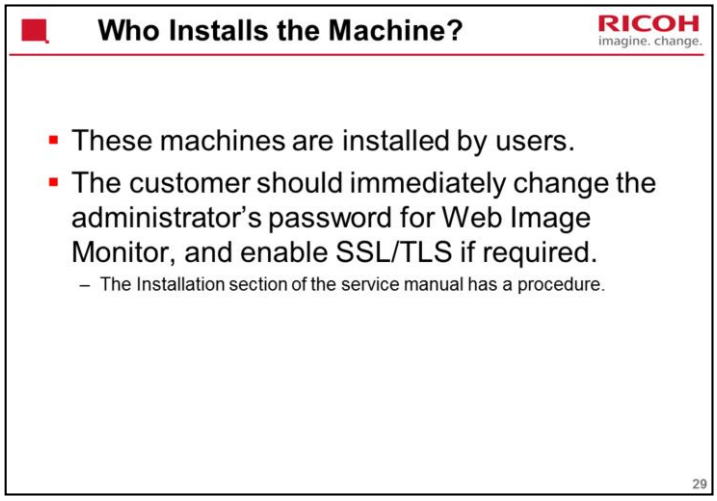
No additional notes



No additional notes



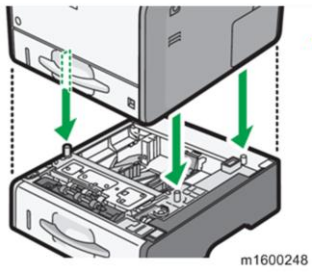
No additional notes



No additional notes

Optional Paper Tray Units

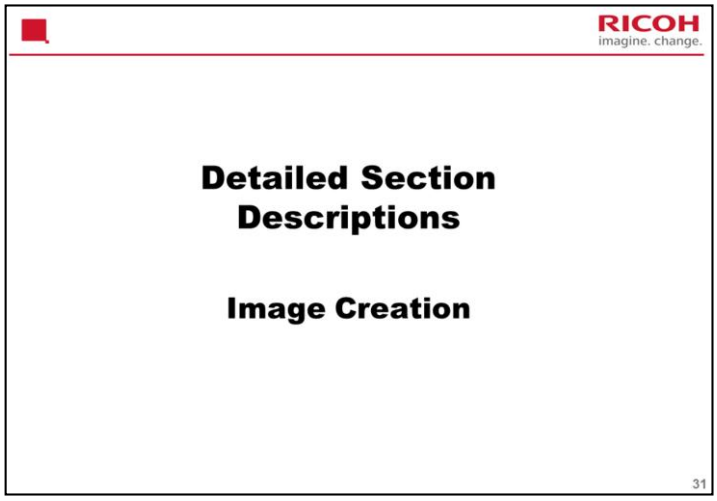
RICOH
imagine. change.



- To attach two one-tray units at the same time, first stack them one on top of the other, and then attach them as a single unit to the machine.

30

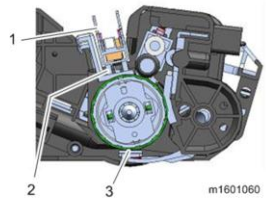
No additional notes

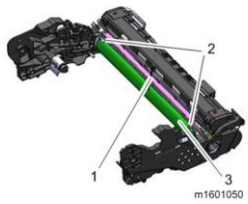


This section explains how a latent image is written on the drum.
The method is the same as the Gim-MF1/P1 series.

Overview

RICOH
imagine. change.





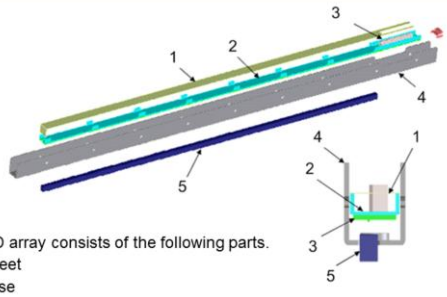
- An LED array [1] writes the latent image on the OPC [3].
- A spacer [2] on the drum keeps the LED array at the correct distance from the OPC for correct focus.
- The LED writing method contributes to machine downsizing, and is superior to the LD writing method in image quality, noise reduction, and energy saving.

32

No additional notes

Components of the LED Array

RICOH
imagine. change.



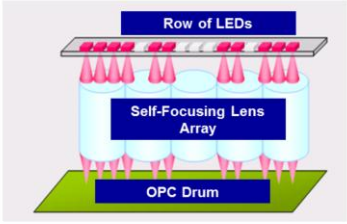
- The LED array consists of the following parts.
  1. Sheet
  2. Base
  3. LED board
  4. Frame
  5. SLA (Self-focusing Lens Array)
- The LED array is replaced as one complete unit. The individual components shown above cannot be replaced in the field.

33

No additional notes

Detailed Structure of the LED Array

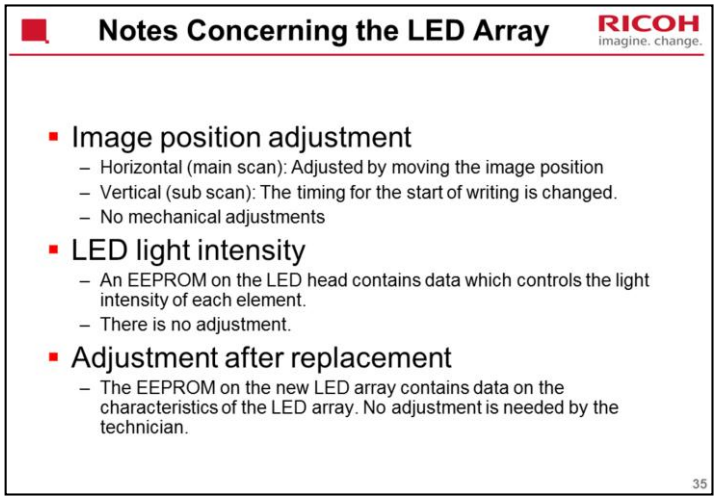
RICOH
imagine. change.



- 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 37 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.

34

No additional notes



No additional notes

Moving the Image Position

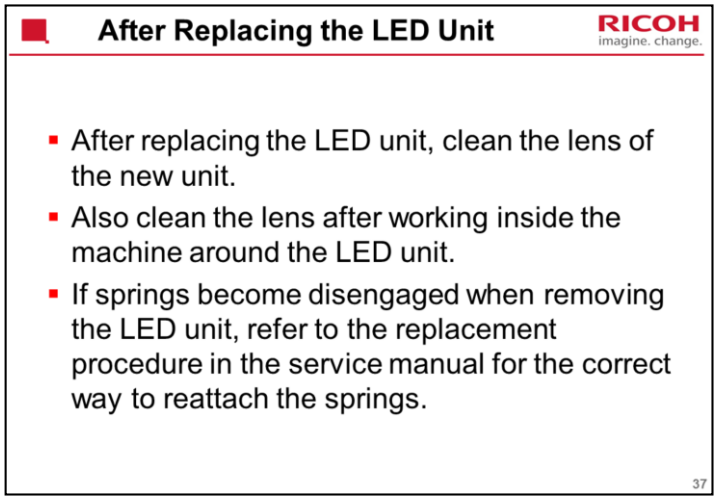
RICOH
imagine. change.

m1601059

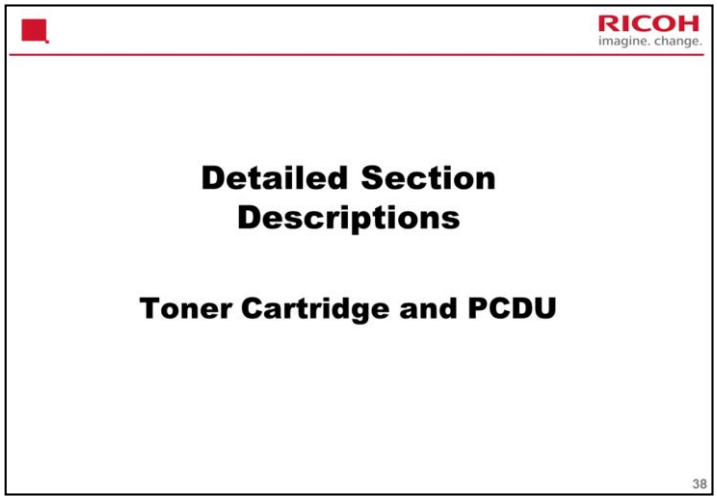
- Loosen the screws on the bottom of the tray, and then move the holder to the right or the left (maximum adjustment: 2mm).
- When at the default (±0) position, the holder is at the location marked by a triangle [1].

36

No additional notes



No additional notes

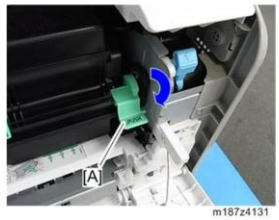


This section explains the components of the toner cartridge and the PCDU. The method is the same as the Gim-MF1/P1 series.

Removing the Toner Cartridge and PCDU

RICOH
imagine. change.

m187z4130



m187z4131

- Open the front cover.
- To take out both PCDU and toner cartridge, pull the green handle.
- To take out only the toner cartridge, push down the green lever on the right and pull the green handle.

39

No additional notes

Toner Cartridges

RICOH
imagine. change.

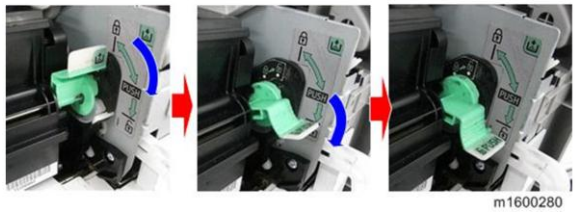
- The toner cartridge contains the toner bottle, toner supply mechanisms, and the used toner collection box.
- The toner cartridge can separate from the PCDU (see the next slide) and can be replaced.
- The toner supply port on the toner cartridge has a shutter that opens when the toner cartridge is installed in the PCDU.

40

No additional notes

Toner Cartridge Release Lever

RICOH
imagine. change.



m1600280

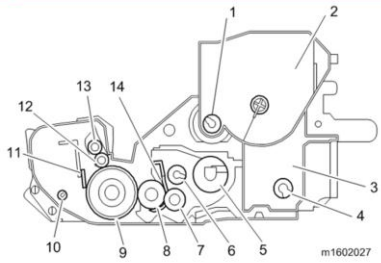
- This lever releases the toner cartridge from the PCDU.
- The lever works in two steps. First, push the lever down to the horizontal position. Then stop there, then push the lever down to release the cartridge.

41

No additional notes

Toner Cartridge/PCDU Assembly Components

RICOH
imagine. change.



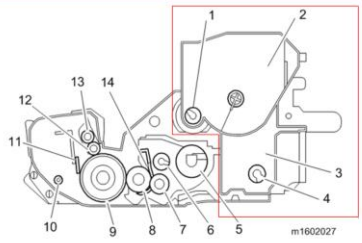
1. Toner Supply Coil
2. Toner Box
3. Used Toner Collection Box
4. Used Toner Transport Coil
5. 1st Mixing Coil
6. 2nd Mixing Coil
7. Toner Supply Roller
8. Development Roller
9. OPC
10. Waste Toner Collection Coil
11. OPC Cleaning Blade
12. Charge Roller
13. Charge Cleaning Roller
14. Development Blade

42

No additional notes

Toner Cartridge

RICOH
imagine. change.



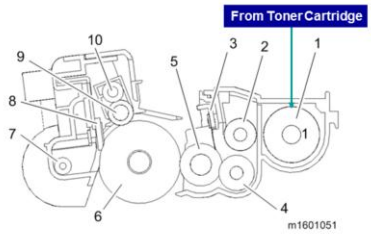
- The toner cartridge contains the toner box [2], toner supply coil [1], and the used toner collection box [3].
- The toner supply port shutter in the cartridge opens when the toner cartridge is installed in the PCDU.

43

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 cartridge exit and then the PCDU. Toner which falls into the PCDU is transferred to the development section by the 1st mixing coil [1].

44

No additional notes

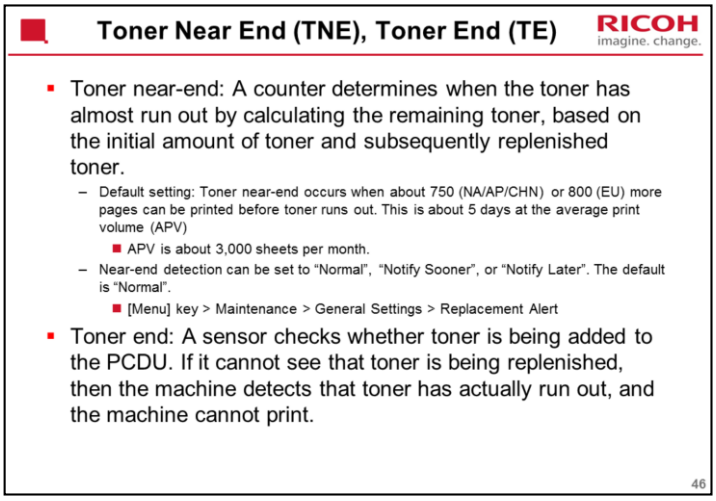
ID Chip

RICOH
imagine. change.

- Each toner cartridge has an ID chip 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.

45

No additional notes



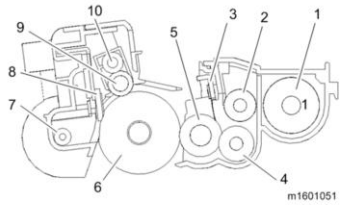
Approximate number of prints that can be made with each setting:

In accordance with ISO/IEC19752 and A4 paper and with the print density set to the initial factory setting

PCDU Layout

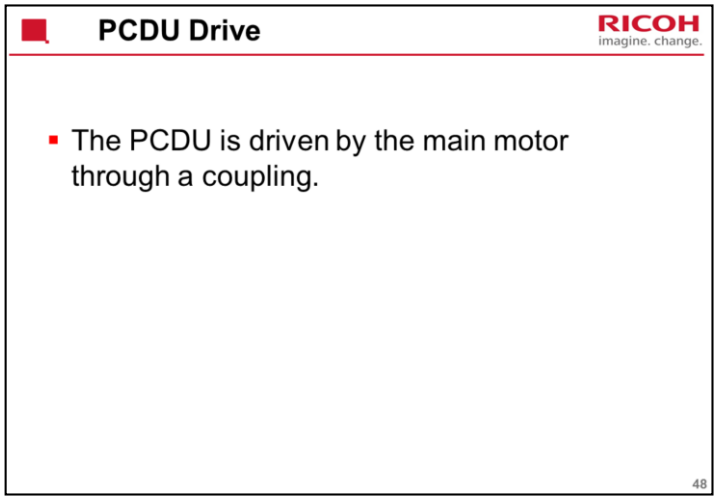
RICOH
imagine. change.

- The PCDU contains the charge roller, photoconductor, development mechanism, and cleaning unit.
  1. 1st Mixing Coil
  2. 2nd Mixing Coil
  3. Development Blade
  4. Toner Supply Roller
  5. Development Roller
  6. OPC
  7. Waste Toner Collection Coil
  8. OPC Cleaning Blade
  9. Charge Roller
  10. Charge Roller Cleaning Roller



47

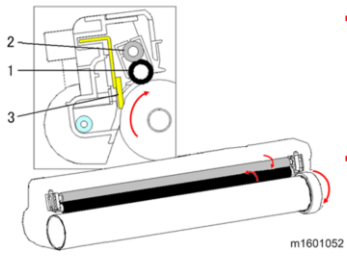
No additional notes



No additional notes

Drum Charge and Cleaning

RICOH
imagine. change.



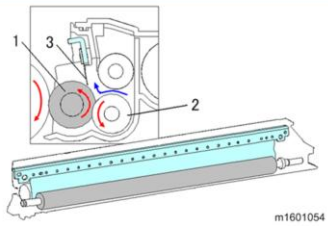
- The charge roller [1] gives the drum surface a uniform negative charge.
  - The charge roller [1] rotates in the same direction as the OPC drum.
- If the charge roller [1] is dirty, the applied electric charge becomes uneven. Therefore, the charge roller is always in contact with the cleaning roller [2].
- The OPC cleaning blade [3] removes waste toner from the OPC.

49

No additional notes

Development

RICOH
imagine. change.



m1601054

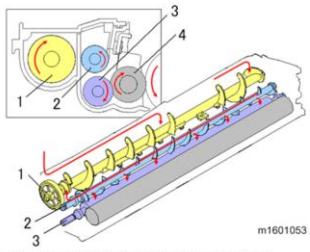
- The development mechanism contains the development roller [1], the toner supply roller [2], and the development blade [3].
- The toner supply roller [2] provides the development roller [1] with toner.
- The development blade [3] keeps the toner attached to the development roller [1] at an even thickness.

50

No additional notes

Mixing

RICOH
imagine. change.



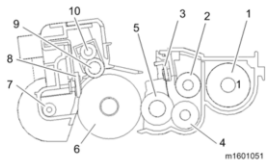
- The toner moves as shown in the above drawing.
- The 1st mixing coil [1] moves the toner to the left side.
- The 2nd mixing coil [2] moves toner to the right side.
- Finally, the toner supply roller [3] supplies toner to the development roller [4].

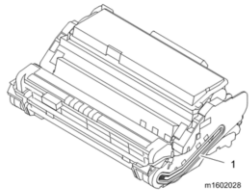
51

No additional notes

Waste Toner Collection

RICOH
imagine. change.





- Toner waste is collected by the waste toner collection coil [7 in the diagram on the left] and sent down to the waste toner bottle.
- The waste toner goes down the path shown by [1] in the diagram on the right

52

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

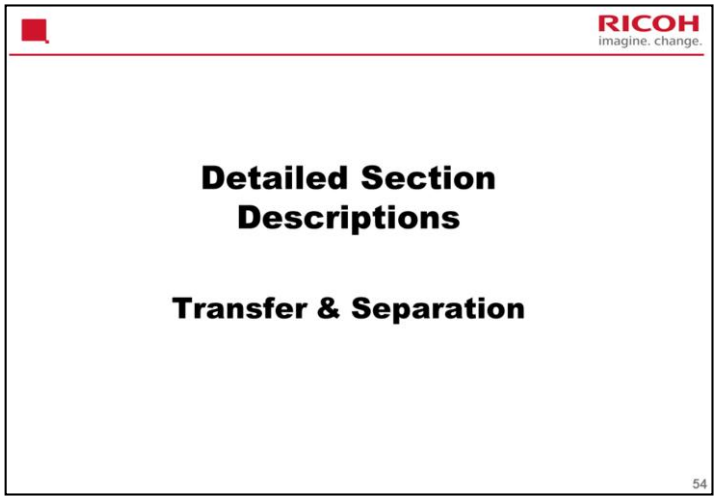
New PCDU Detection

RICOH
imagine. change.

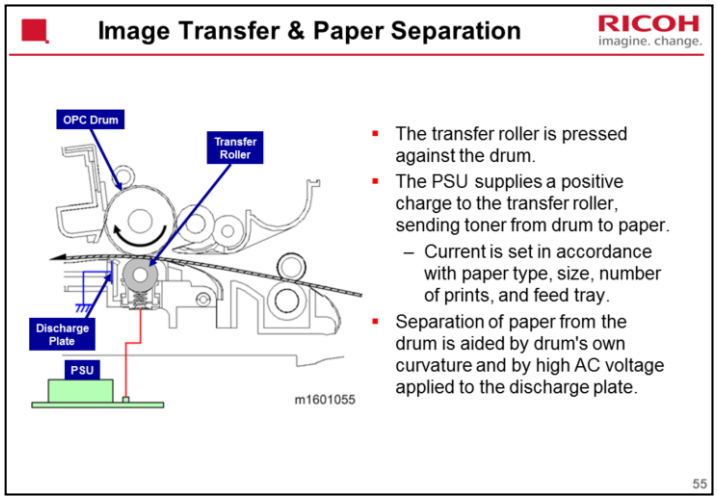
- When a PCDU is placed in the machine, the ID chip [A] is read.
  In this way, the machine detects when a new PCDU is inserted.

53

No additional notes



This is similar to the Gim-MF1/P1 series.



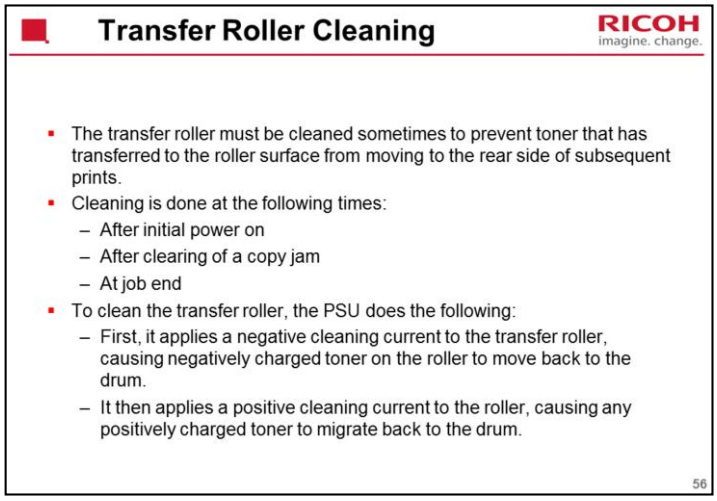
OPC – Organic Photo-Conductor (drum)

PSU – Power Supply Unit

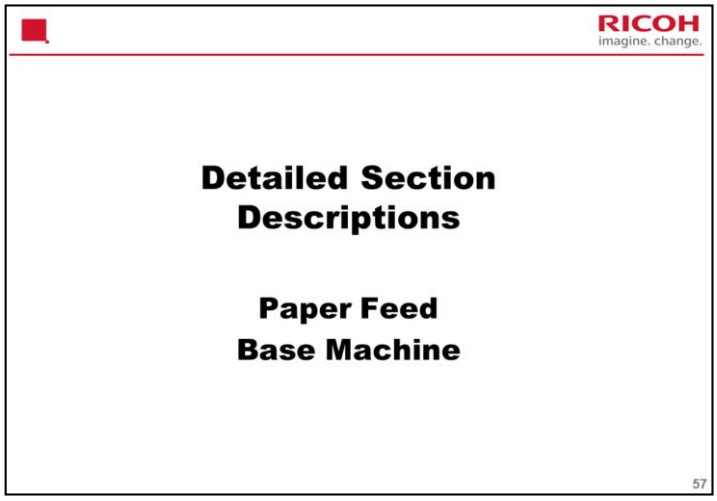
You can adjust the transfer current applied for various situations (SP2-301 T bias control).

Increasing a transfer current level may produce ghost images–some part of image near the leading edge reappears in other part of the page.

Increasing a transfer current level might damage the OPC drum.



No additional notes

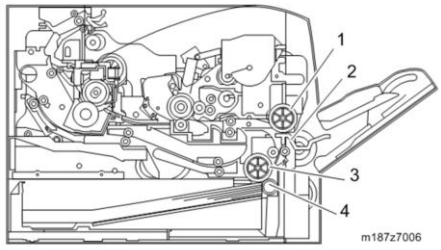


This section explains how paper is fed through the machine.

The method is the similar to the Gim-P1 GW models, except that a friction roller is used instead of a pad.

Overview

RICOH
imagine. change.



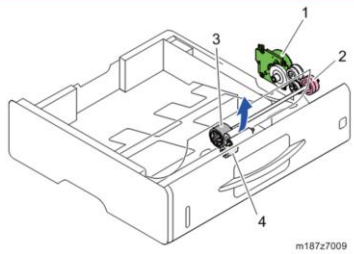
- The machine has a paper tray (tray 1) and a bypass tray.
  1. Bypass Feed Roller
  2. Bypass Friction Pad
  3. Tray 1 Paper Feed Roller
  4. Tray 1 Friction Roller

58

No additional notes

Drive

RICOH
imagine. change.

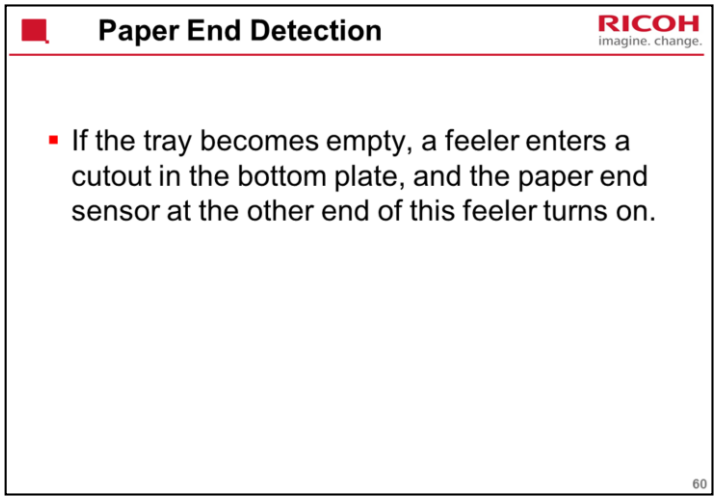


m187z7009

- To start paper feed, the machine turns on the paper feed clutch [2], and the paper feed roller [3] rotates.
- The friction roller [4] 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.

59

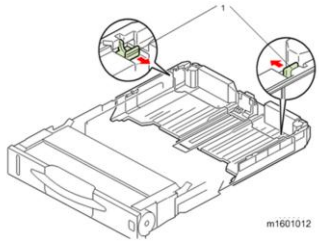
No additional notes



No additional notes

Adjustable Cassette

RICOH
imagine. change.



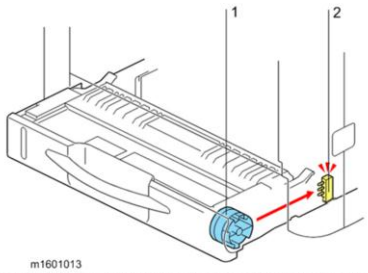
- When shipped from the factory, sizes up to A4 LEF can be loaded in the cassette.
- To support paper sizes longer than A4 LEF, unlock the tray extension lock ([1] in the diagram) to extend the tray.

61

No additional notes

Paper Size Detection

RICOH
imagine. change.



m1601013

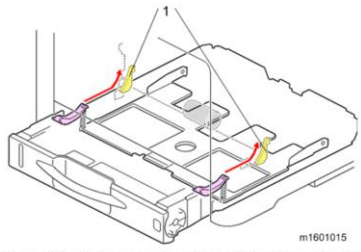
- The paper size switch [2] detects actuators attached to the paper size dial [1].
- The customer must select the correct paper size with this dial.
- If the customer moves the dial to the '*' position, the size must then be input at the operation panel.

62

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.

63

No additional notes

Bypass Feed Bottom Plate Mechanism

RICOH
imagine. change.

- The bottom plate has an automatic lifting system.
  - When paper is loaded into the tray, the end sensor turns on. When the sensor is on, the bottom plate goes down.
    - When it is off, the bottom plate goes up.
  - To start paper feed, the bottom plate moves up (see the next slide).
- When the main motor rotates in reverse, a one-way clutch transfers the drive to the bottom plate lifting system of the bypass tray.
- Then, a cam (on the left as you face the machine) starts rotating to lift the bottom plate up and down.
- The bottom plate position sensor detects up/down movement of the bottom plate by detecting a sensor actuator on the left side of the cam.
  - Sensor ON: Bottom plate is down
  - Sensor OFF: Bottom plate is rising

64

No additional notes

Bypass Feed

RICOH
imagine. change.

- Bypass feed uses a feed roller and friction pad mechanism.
- To start feed, the bottom plate goes up, then the bypass feed clutch starts.
- When the leading edge of the paper is out of the tray, the duplex exit clutch turns on to feed the paper into the machine along the same path as paper from the standard tray.
- The bypass feed clutch turns off when the paper activates the registration sensor.

65

No additional notes

Side-to-side Registration Adjustment
Built-in Paper Tray

RICOH
imagine. change.

m1601059

- To adjust side-to-side registration, loosen the two screws on the underside of the tray and move the rack and pinion mechanism of the side guides from side to side.

66

No additional notes

Side-to-side Registration Adjustment
Bypass Tray

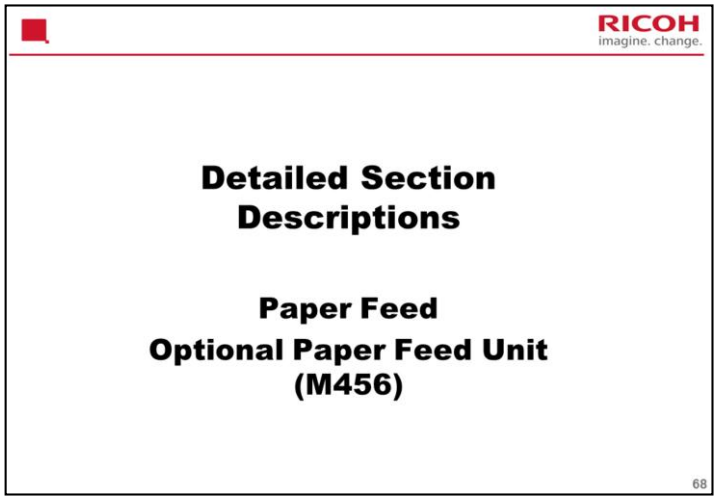
RICOH
imagine. change.

m187z7004

- To adjust side-to-side registration, loosen the screw at the right side of the tray and move the bypass bottom plate and side guides from side to side.

67

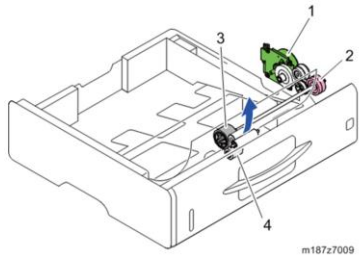
No additional notes



This is very similar to the optional unit for the Gim-MF1/P1 series, except that a friction roller is used instead of a friction pad.

Feed Mechanism

RICOH
imagine. change.



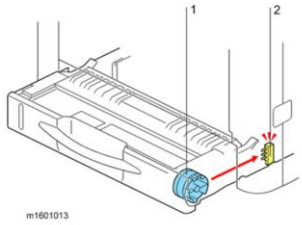
- Feed roller and friction roller
  1. Paper feed motor
  2. Paper feed clutch
  3. Paper feed roller
  4. Friction roller

69

No additional notes

Paper Size Detection

RICOH
imagine. change.



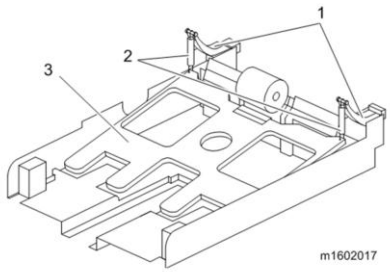
- Paper size is detected by a combination of three detection switches [2].
- The switches are operated by the dial [1] on the right side of the paper feed tray.

70

No additional notes

Lift

RICOH
imagine. change.



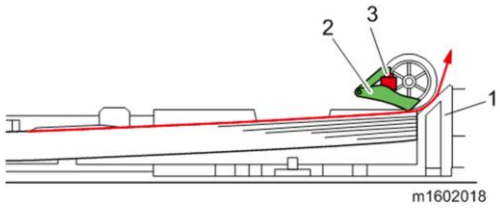
- When you push in the paper cassette, the tray arms (1) rise along the groove in the tilted guide and lift the bottom plate (3) using springs (2).

71

No additional notes

Paper End Detection

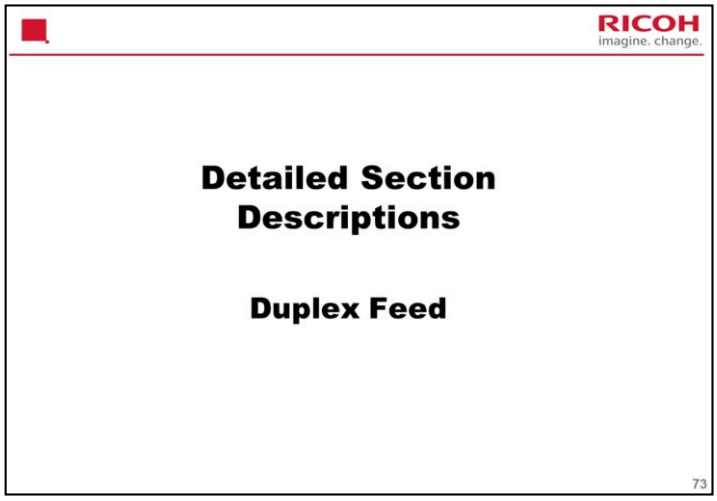
RICOH
imagine. change.



- When paper is all finished, the feeler (2) falls through an opening in the bottom plate and the paper end sensor (3) detects paper end.

72

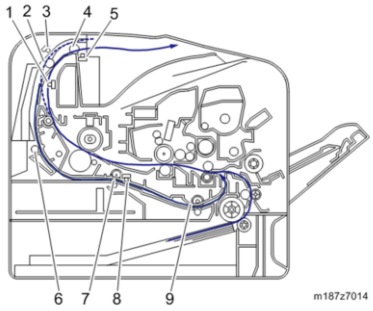
No additional notes



This is similar to the GW version of the Gim-MF1/P1 series.

Components

RICOH
imagine. change.



1. Paper Exit Sensor
2. Duplex Reverse Roller
3. Duplex Reverse Sensor
4. Paper Exit Roller
5. Paper Overflow Sensor
6. Duplex Entrance Roller
7. Duplex Relay Roller
8. Duplex Entrance Sensor
9. Duplex Exit Roller

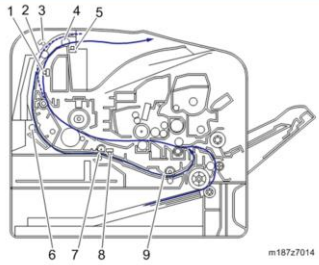
- Dotted line: Switchback into the duplex feed path

74

No additional notes

Operation

RICOH
imagine. change.



- For duplex printing, the machine turns the paper over by rotating the duplex reverse roller in reverse.
- After the paper's trailing edge passes the duplex reverse sensor [3], the junction gate returns to its original position before the paper is delivered completely, and the duplex reverse roller [3] rotates forward to feed the paper into the paper path for duplex printing.
- After printing on Side 2, the paper exit roller [4] delivers the paper to the output tray.

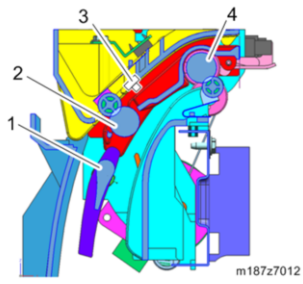
75

The paper exit guide plate holds down the trailing edge of each sheet of paper after it exits, in order to prevent it from obstructing the following sheets of paper as they exit.

The exit/reverse motor drives both the paper exit roller and duplex reverse roller.

The exit/reverse motor switches the paper path for Duplex and Paper Exit by changing the direction of rotation.

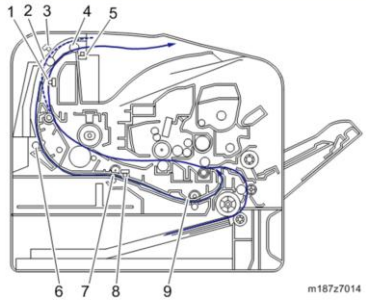
Junction Gate



1. Junction Gate
2. Duplex Reverse Roller
3. Duplex Reverse Sensor
4. Paper Exit Roller

Paper Overflow Sensor

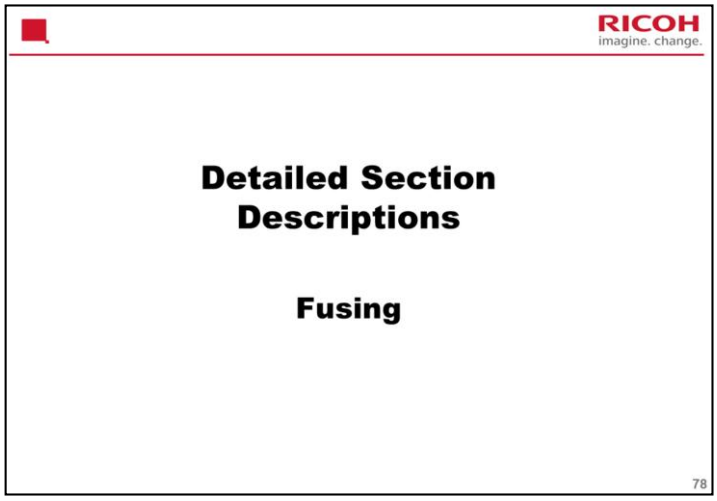
RICOH
imagine. change.



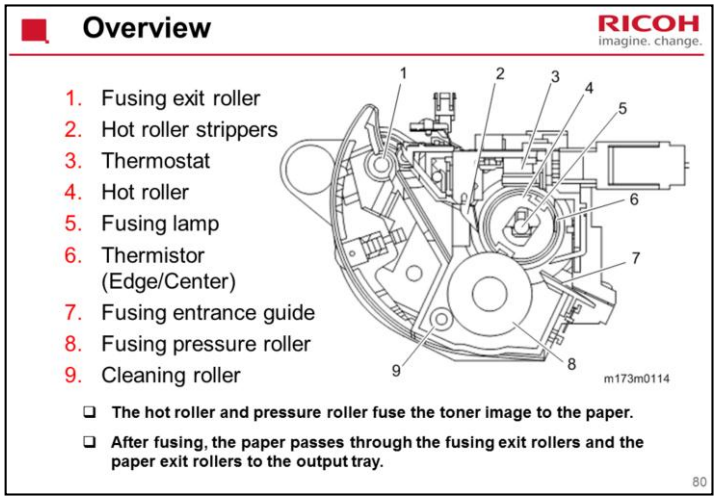
- If the height of the paper stacked on the output tray exceeds a certain limit, the paper overflow sensor [5] detects it based on the position of the paper overflow sensor feeler, and then the machine stops printing.

77

No additional notes

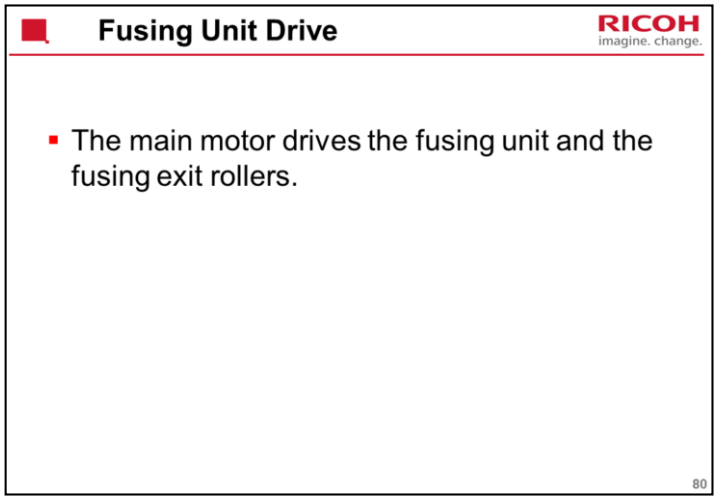


The mechanism is the same as the Gim-MF1/P1 series.



The thermistor detects the temperature of the hot roller to control lamp on/off timing. (See the "Fusing Temperature control" slide.)

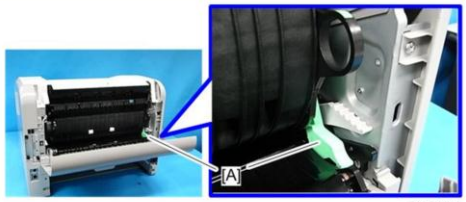
The thermostat provides backup overheat protection.



No additional notes

Envelope Lever

RICOH
imagine. change.



m187z7005

- The envelope lever [A] is on the right of the fusing unit.
- Lowering the lever decreases the fusing pressure (to approximately 20% of normal) to reduce wrinkles on envelopes.
- When shipped from the factory, the envelope lever is down, to prevent deformation of the hot roller.
- Keep the envelope lever lowered when not using the machine for a long period (2 weeks or more).

81

No additional notes

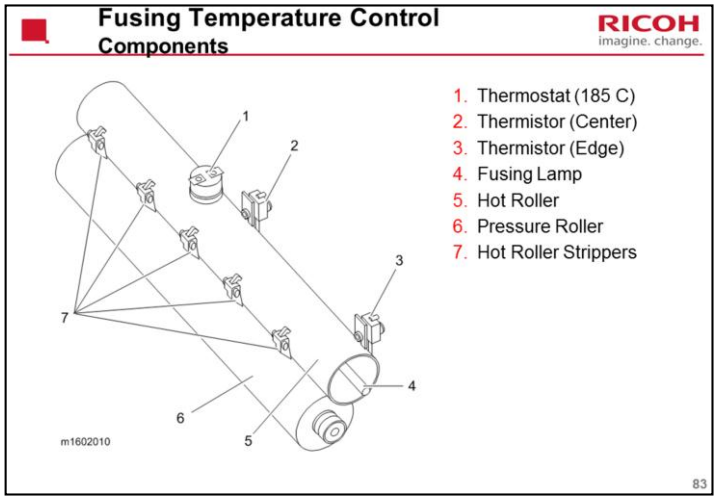
Envelope Lever Position Sensor

RICOH
imagine. change.

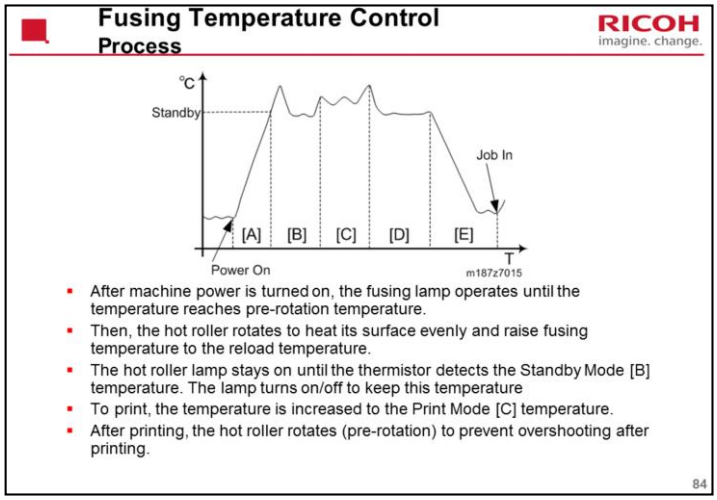
- This switch detects the position of the envelope lever.
- When the switch detects that the envelope lever is down, the machine changes the fusing temperature to a specified temperature that is set in SP1-105-013, and displays “Envelope lever is lowered” on the operation panel.
- While the envelope lever is down, if there is a print job for which envelope is not selected as the paper type, the machine prints the job with the fusing temperature for envelope printing.

82

No additional notes



No additional notes



[A]: Warming Up Mode

[B]: Standby Mode

[C]: Print Mode

[D]: Standby Mode

[E]: Energy Saver Mode

The fusing temperature (Celsius) in each mode is as follows:

Standby Mode: 155 (Atmospheric temp.: 16° C and above), 165 (Atmospheric temp.: 15° C and below)

Energy Saver Mode: Ambient temperature

Print Mode

Plain paper 1: 160

Plain paper 2: 167

Middle Thick: 167

Thick Paper 1, 2: 172

Thick Paper 3: 176

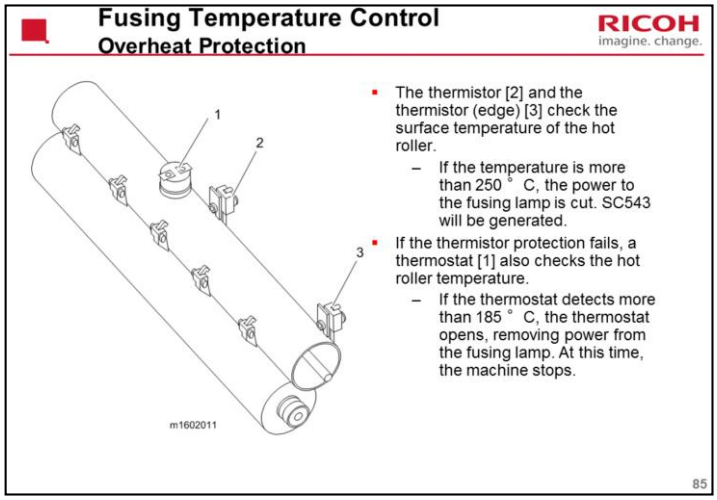
Thin Paper: 150

Envelopes: 179

Post Cards: 175

Coated Paper: 185

The fusing temperature, except for Energy Saver mode, can be adjusted in SP mode.



No additional notes

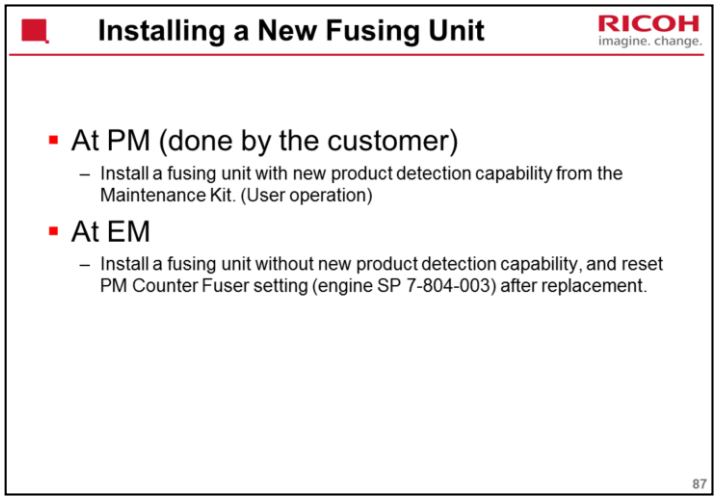
New Unit Detection

RICOH
imagine. change.

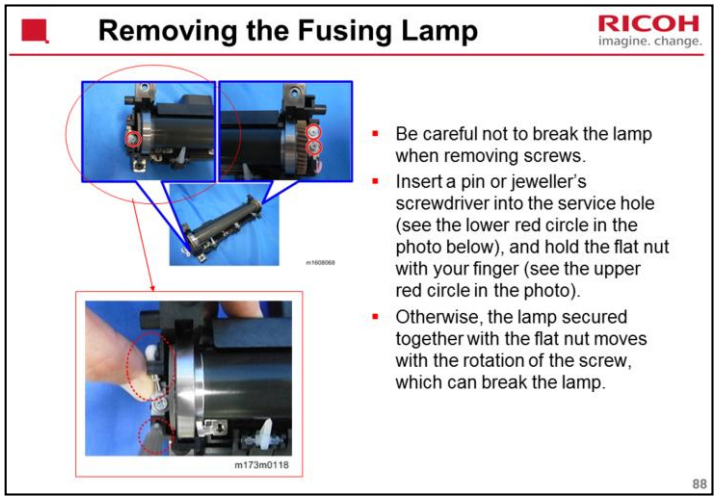
- There are two types of fusing unit: one for emergency maintenance (EM) and another for periodical replacement.
- The fusing unit for periodical replacement has a new unit detection mechanism.
- When the machine is switched on after replacing the fusing unit, the engine board detects the fuse [A] under the drawer connector of the new fusing unit, and then blows the fuse.

86

No additional notes



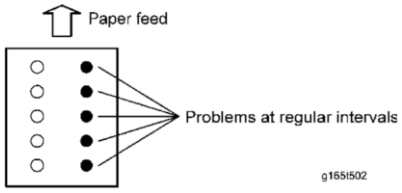
No additional notes



No additional notes

No additional notes

Problems at Regular Intervals



- 29.9 mm: Charge roller
- 50.0 mm: Registration roller
- 25.1 mm: Image transfer roller
- 106.8 mm: Fusing pressure roller
- 108.9 mm: Fusing roller
- 113.0 mm: Paper feed roller
- 50.2 mm: Development roller
- 94.4 mm: Drum

No additional notes

Output is Severely Curled

RICOH imagine. change.

- If the delivered paper is curled, it cannot be stacked properly. In such a case, raise the paper stop on the output tray and remove the delivered paper frequently.
- You can also adjust [Curl Prevention] in the UP mode (Maintenance).
  - If you set [Curl Prevention] to [Active], the machine idles for 20 seconds before it starts printing.
    - By adding the idle time before printing, it takes longer to print, but paper curling can be reduced.
  - To stop the 20-second idling, set [Curl Prevention] to [Inactive].

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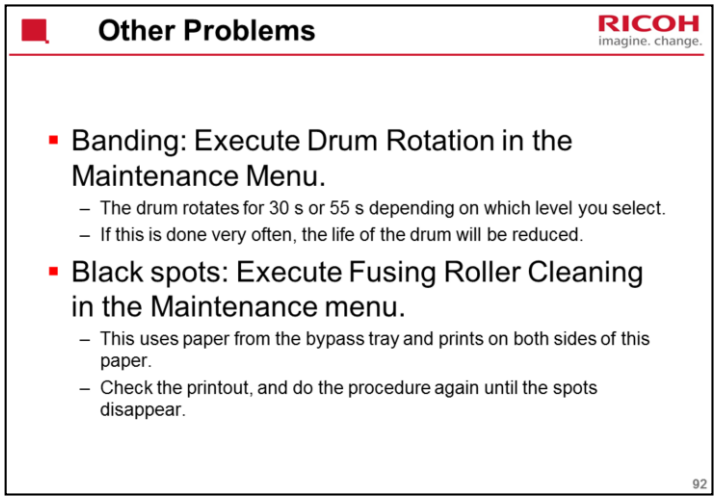
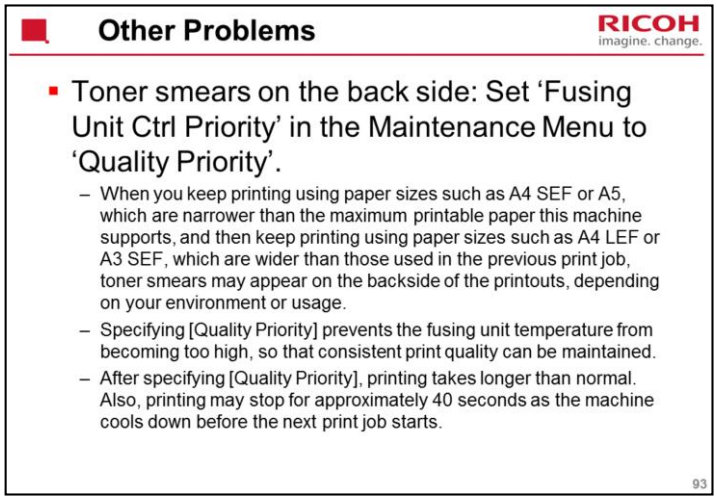
No additional notes



Troubleshooting > When Vertical Banding is Generated, When Black Spots are Generated



Menu > Maintenance > Quality Maintenance > Fusing Unit Ctrl Priority

The End