



This course explains how to service the Lef-C1 black-and-white copiers. To learn about these models, please study the user's guide and the field service manual in addition to this TTP.



Product Overview

■ How Many Models in the Series?

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- Lef-C1 SP: MP 305+ SP
 - With scanner and printer built in
 - Fax is an option
- Lef-C1 SPF: MP 305+ SPF
 - With scanner, printer, and fax built in

The '+' in the model name refers to the fact that this is an A4 machine with A3 capability.

■ Main Points about this Model

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Lef-C1

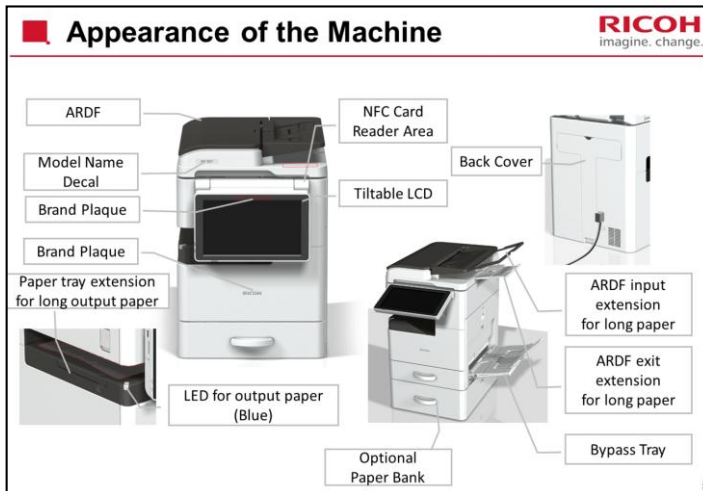
- A4 black-and-white MFP, with A3 capability (if scanned from the ARDF, and printed from the bypass tray)
 - Smaller footprint than any other A3 model (width: 350 mm).
- Smart Operation Panel, HDD, VM, and PS3 are standard
- Quietest MFP ever (less than 55 dB when silent mode is used), and lower exhaust air and heat

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Smart Operation Panel version is Cheetah-G2.

The machine is quite compact, and some parts are a bit difficult to access.

Silent mode is a new feature. It will be explained in more detail later.



No additional notes

Basic Specs Compared With Other Models **RICOH**
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	Lef-C1	S-C5	Gim-MF1dM	K-C4c
CPM	30	30	40	25
Max. Paper Size	A3	A4	A4	A3
Warm-up Time	30 s (Quick)	23 s	26 s	20 s
Print Resolution	600 x 600	600 x 600	1200 x 1200	600 x 600
Dimensions (W x D x H mm)	350 x 493 x 505	476 x 450 x 451	417 x 457 x 484	587 x 568 x 683
Weight	31 kg	26 kg	23 kg	52 kg
Paper Capacity	760 sheets	1350 sheets	1250 sheets	2300 sheets
Panel	10.1" smart operation panel	4.3" color touch panel	4.3" color touch panel	4.3" color touch panel

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A more detailed comparison follows later.

Compact **RICOH**
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The diagram illustrates the compact paper path of a Ricoh printer. It shows two configurations: Step 1 (Only 1 sheet) and Step 2 (10 sheets). The diagram includes a schematic of the paper path with labels 'Lef-C1' and 'k-C4', a side view of the printer showing a 12 cm gap to a wall, and a top view of the paper path with a stack of sheets.

- The paper path is much more compact than other A3 models.
- If the customer puts only 1 sheet in the bypass tray, the required space can be greatly reduced.
 - Max capacity: 10 sheets

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Step 1 is for saving space.

In both cases, the paper type is limited. The customer can use only plain paper, because the angle of feeding is sharp

Quiet

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Improved motor gears

This model uses a unique Ricoh technology to prevent noise from the motors.



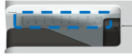
Patented new grease

Ricoh has developed a new grease (G-1077) which can reduce and maintain the durability of the gears.



Helmholtz Silencer

This new technology can reduce high frequency sound. There are small holes in the output tray.



Labyrinth structure

Almost 20-40% of mechanical noise leaks from tiny gaps between parts. This new labyrinth structure can cover these gaps.



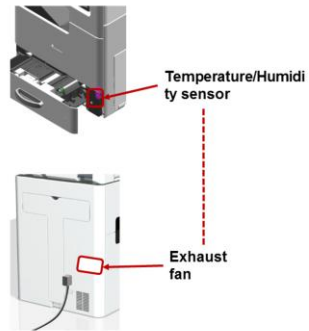
- In addition, if the customer selects 'silent mode', scanning and printing are a lot quieter. However, productivity is cut from 30 ppm to 15 ppm.

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Silent mode is a new function. It will be explained later.

■ Exhaust Fan Control

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- The machine monitors the external temperature, and controls the exhaust fan based on what this sensor detects.
- This also reduces noise from the machine.

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Fan Control will be explained later.

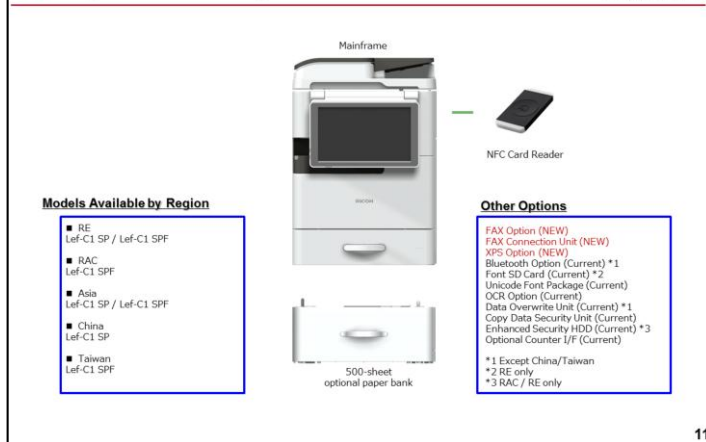
■ Similar Design to K-C4 Series

- The OPC, developer, and toner are the same as the S-C and K-C series.
 - The toner cartridge installation procedure is simpler, using the same 5-step procedure as the Met-C1.

No additional notes

System Configuration

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No additional notes





Options

- Paper Feed Unit PB1090 (D794): New
- XPS Direct Print Option Type M15 (D3B4): New
- Fax Option Type M15 (D3B3): New
- Fax Connection Unit Type M15 (D3B4): New
- NFC Card Reader Type M15 (D3AC): New
- OCR Unit Type M13 (D3AC): Used with GR-C2
- Bluetooth Interface Unit Type D (D566)
- Data Overwrite Security Unit Type I (D362)
- Copy Data Security Unit Type G (D640)

There is no platen cover option.

Comparison with Other Models

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		Ricoh	Ricoh	Ricoh	Ricoh
		 LeF-C1	 S-C5	 Gm-MF1dM	 K-C4c
Release		Dec 2015	May 2012	Jan 2015	May 2013
Productivity	Multi-copy (A4/L)	30cpm / 30cpm	30cpm / 31cpm	40cpm / 42cpm	25cpm / 25cpm
	Recovery from sleep mode	17.6sec (Fast recovery mode 3sec)	10 sec	10 sec	10 sec
	First Copy Time(FCOT)	5sec	6 sec	6 sec	6 sec
	Recovery from sleep mode + FCOT	22.6sec	16 sec	16 sec	16 sec
	Doc Feeder Speed(Bk/FC)	30/30ipm (200dpi)	30/30ipm (200dpi)	30/30ipm (200dpi)	45/25ipm (200dpi)
Environment	TEC Value	1.7kWh	1.6kWh	1.6kWh	1.2kWh
Scan	Resolution	600dpi	600dpi	1,200dpi	600dpi
Paper Handling	Paper Weights	Std: 52-90 g/m ² Bypass: 52-162 g/m ²	Std: 52-90 g/m ² Bypass: 60-157g/m ²	Std: 52-163g/m ² Bypass: 52-163 g/m ²	Std: 60-105 g/m ² Bypass: 60-162 g/m ²
	Paper capacity	Std: 250 / Max: 750	Std: 250 / Max: 1250	Std: 250 / Max: 1250	
	Max output size	A3	A4	A4	A3
	Max Original Size	A3	A4	A4	A3
	Max Original Size from platen	A4/LT	A4/Legal	A4/LT	A3/DLT
Dimensions (W*D*H)	350*493*505 mm	476*450*451 mm	417*457*484 mm	587*568*431 mm	
Operation Panel	10.1inch (SOP)	4.3inch	4.3inch	4.3inch	
Noise Level	59dB	65dB	68dB	63dB	

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Noise level: 59 dB in normal mode, 55 dB in silent mode

Special Tools and Lubricants

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No.	Part Number	Description	Q'ty	Unique/Common
1	B6455020	SD Card	1	Common
2	TBD	Grease – G-1077	1	Unique
4	A2929500	Test Chart – S5S (10pcs/set)	1	Common
5	B6455030	SD-CARD:SERVICE PARTS:2GB:ASSY	1	Common
6	52039502	Silicon Grease G-501	1	Common

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See parts catalog for the part number of Grease G-1077.

■ Reliability

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- PM cycle: 60k
- MPBF Target (Mainframe): 58.8k
- Call Ratio Target (Mainframe): 0.067
- Machine Life: 450k or 5 years, whichever comes first
- Average Print Volume (APV): 2k per month
- Maximum Print Volume (MPV): 7.5k per month

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Condition:

A4 (LT) long-edge feed

5% image coverage ratio

2P/J

APV is 2k/Month

- PCDU: 60k

No additional notes

Yield Parts

- All the following are yield parts (120k)
 - In the Fusing Unit
 - Hot roller
 - Pressure roller
 - Stripper Paws
 - Bearings x 4
 - Paper Feed
 - Paper Feed Roller
 - Friction Pad
 - Transfer Unit
 - Transfer Roller Ass'y
 - ARDF
 - Feed Roller, Pick-up Roller, Reverse Roller
 - Optional Tray
 - Pick-up and Feed Rollers

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APV = 2 K/month, and the machine has a 5 year life time.

So printing for 5 years with an APV of 2K/month, the machine will make in total 120K (2Kx60) prints during these 5 years.

These are called yield parts because you will not have to replace them within the machine's life, if the APV is normal (2k per month).

You only have to replace the yield parts before the end of machine life if the APV is higher than expected.

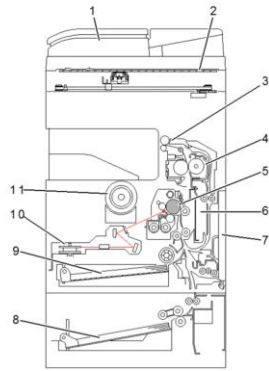


Overview of the Machine

No additional notes

■ Component Layout

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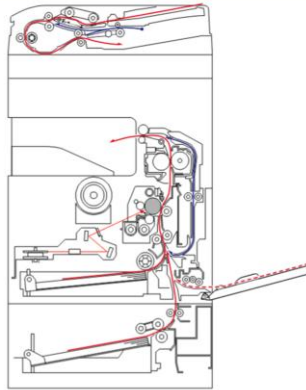
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No additional notes

Paper Path

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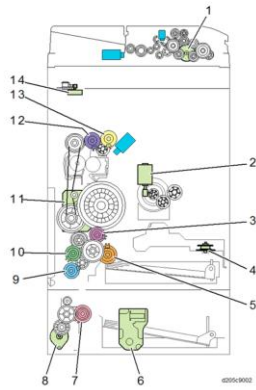


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The blue lines indicate duplex feed.

Drive Layout

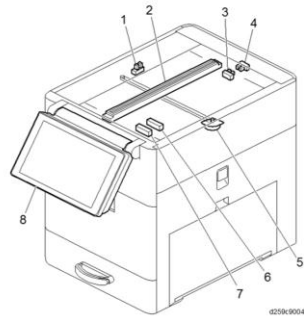


1. ARDF Drive Motor
2. Toner Supply Motor
3. Registration Clutch
4. Polygon Motor
5. Paper Feed Clutch (Main Tray)
6. Tray Lift Motor (Optional Tray)
7. Paper Feed Clutch (Optional Tray)
8. Paper Feed Motor (Optional Tray)
9. Bypass Clutch
10. Duplex Clutch
11. Main Motor
12. Reverse Exit Clutch
13. Paper Exit Clutch
14. Scanner Motor

No additional notes

Parts Layout
Scanner Unit

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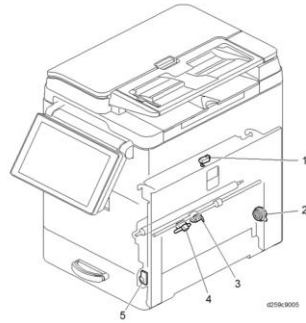
1. Scanner HP Sensor
2. CIS
3. ARDF Position Sensor
4. Platen Cover Sensor
5. Scanner Motor
6. APS Sensor (Not installed on NA model)
7. APS Sensor
8. Operation Panel

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No additional notes

Parts Layout
Duplex/Bypass Unit

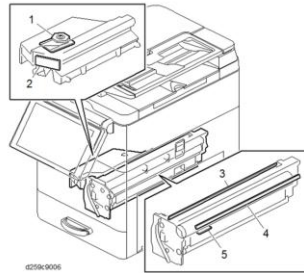
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1. Duplex Entrance Sensor
2. Duplex Clutch
3. Duplex Exit Sensor
4. ID Sensor
5. Temperature/Humidity Sensor

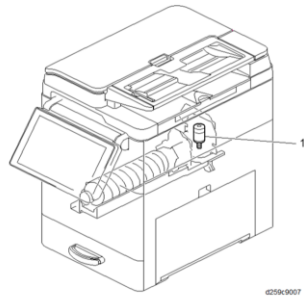
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No additional notes



1. Polygon Motor
2. LDB
3. Quenching Lamp
4. Pre-cleaning Lamp (PCL)
5. TD Sensor

No additional notes

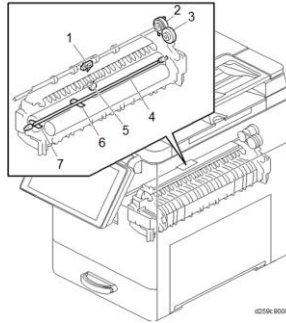


1. Toner Supply Motor

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No additional notes

Parts Layout
Fusing Unit, Paper Exit



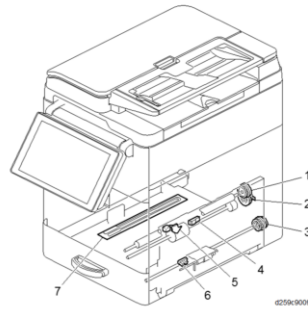
1. Paper Exit Sensor
2. Paper Exit Clutch
3. Reverse Exit Clutch
4. Fusing Lamp
5. Thermostat
6. Thermistor (Center)
7. Thermistor (End)

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No additional notes

Parts Layout
Paper Feed Unit

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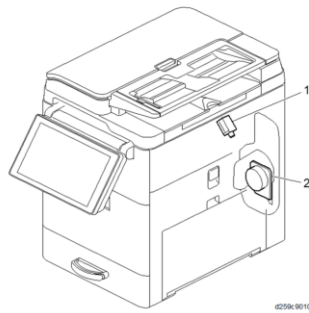


1. Registration Clutch
2. Paper Feed Clutch
3. Bypass Clutch
4. Registration Sensor
5. Paper End Sensor
6. Bypass Paper End Sensor
7. Main Tray Dehumidification Heater

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No additional notes

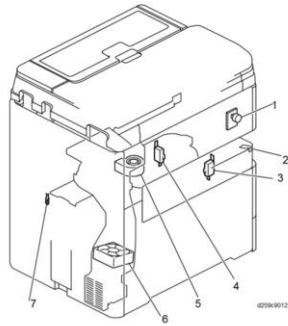


1. Fusing Solenoid
2. Main Motor

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No additional notes

Parts Layout
Electrical Components 1



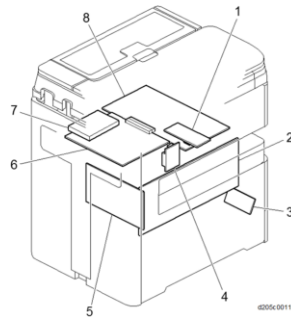
1. Main Power Switch
2. Paper Exit Indicator
3. Front Cover Switch
4. Right Cover
Open/Close Switch
5. Intake Fan
6. Exhaust Fan
7. Internal Temperature
Sensor

The internal temperature sensor controls the rotation of the intake and exhaust fans.



Parts Layout
Electrical Components 2

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1. Copy Data Security Unit (Option)
2. PSU
3. DHB
4. MKB (Option)
5. HVP
6. Controller Board
7. HDD
8. BiCU

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PSU: Power Supply Unit

DHB: Dehumidification Heater Board

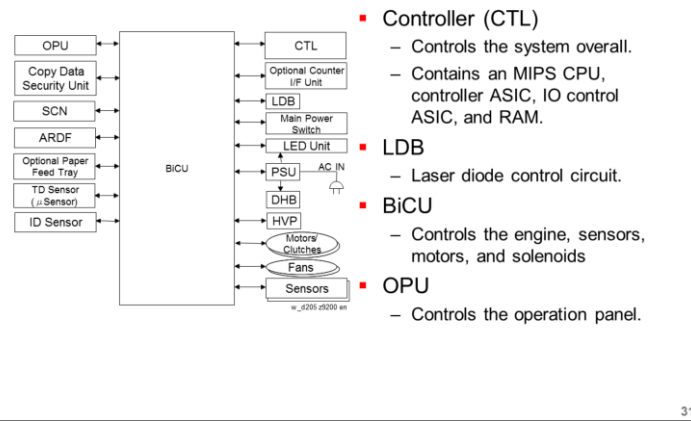
MKB: Meter Click Board (for installing the meter click device)

HVP: High Voltage Power supply

HDD: Hard Disk Drive

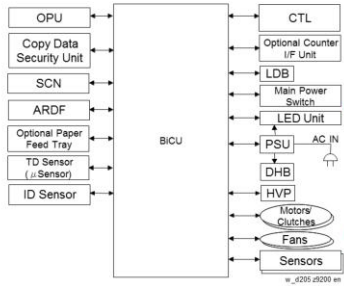
BiCU: Base and Imaging Control Unit

Block Diagram - 1



OPU: Operation Panel Unit
SCN: Scanner Unit

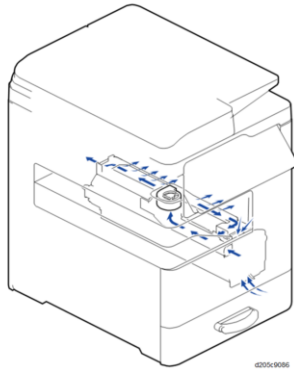
Block Diagram - 2



- **Power Packs (HVP)**
 - Generates high-voltage power required for process control.
 - There are two units: T1T2 for transfer and CB for charge/development.
- **PSU**
 - Generates DC power from the mains AC power supply, and supplies it to each component.
 - Contains an AC drive circuit for controlling the fusing lamp.
- **DHB**
 - Controls the dehumidification heaters.

■ Ventilation - Intake

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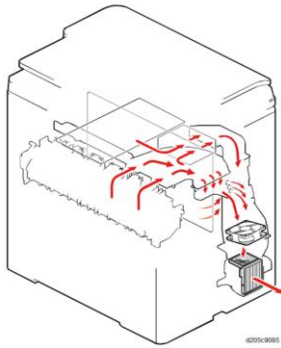
- Air enters through the intake in front of the PCDU, through gaps in the handle of the front cover, or the gaps in the tray's cover.
- The air goes through the duct, and is collected by the intake fan.
- The intake fan cools the PCDU by ventilating the top of the PCDU directly.
- To prevent a temperature rise caused by heat leaked from the fusing unit, there is an insulating layer between the fusing unit and the PCDU.

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No additional Notes

■ Ventilation - Exhaust

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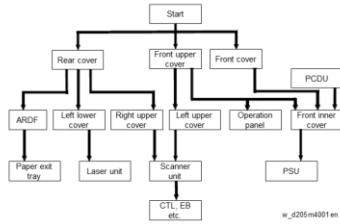
- Heat in the controller box and the PSU come to the main duct at the rear of the machine.
- Heat in the fusing unit comes to the main duct through the fusing duct.
- The exhaust fan ventilates the heat collected in the main duct.
- The rear cover has an exhaust louver.

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No additional Notes

Removing Covers and Major Units

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- This diagram shows the correct order to remove covers and major units.
- When removing covers, take care not to damage the tabs and bosses on the covers.
 - See the cover removal procedures in the manual for details.

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No additional notes

■ Front Cover

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- To remove the front cover, you have to disengage the pin at the left side, as shown above.
- Before you disengage the pin, do not lower the front cover by more than 35 degrees, or you might break the pin.

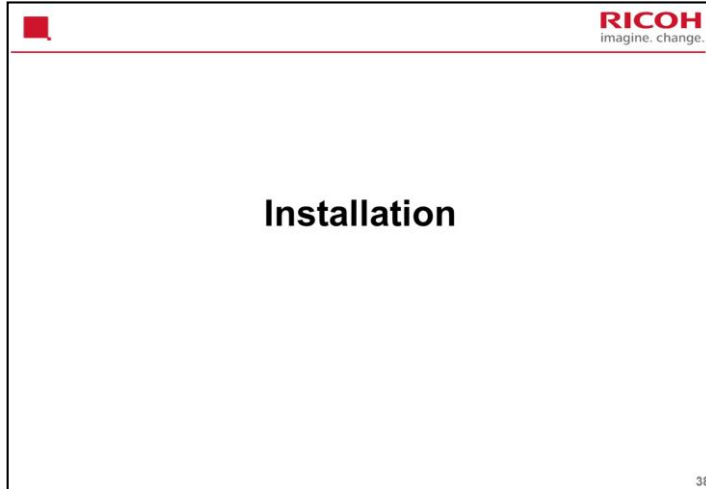
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No additional notes

Lubrication Procedures

- When replacing some motors, the new G-1077 grease must be applied.
- Details on the lubrication points and the amount of lubricant are included in the relevant procedures in the service manual.

No additional notes



This section covers the main points of the installation procedure. For the complete procedure, see the service manual.

■ Handling the PCDU



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- Hold the PCDU as shown here when taking it out of the machine before removing the seal.
 - Do not hold the right-hand side, to prevent oil from your fingers from getting on the drum or components in the paper feed path, which can cause image quality problems.
- Do not touch the grease applied to the gears on the PCDU.

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No additional notes

■ Installing the Toner Bottle

- Make sure that the PCDU is installed securely before you install the toner bottle. Otherwise, there will be toner scattering.
- Also, remove the toner bottle only while the PCDU is in the machine.

No additional notes

■ Lifting the Machine

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- Two people should lift the machine, in the manner shown above.
- If you have to move the machine to another room, or transport it a longer distance, see the instructions in the service manual.
 - Installation > Main Machine Installation > Moving the Machine, Transporting the Machine

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No additional notes

■ Installing the Optional Paper Tray Unit - 1

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- This securing bracket [A] is used as a tool to tighten the screws that secure the machine to the optional paper tray unit.
 - See the next slide for how this is used.
- The diagram shows the storage location for this bracket. Put it back here after you finished the installation.

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No additional notes

■ Installing the Optional Paper Tray Unit - 2

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- The securing bracket is needed to fix the 2 screws on the front of the machine.

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No additional notes

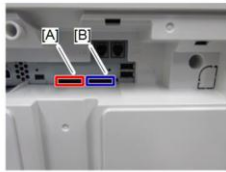
■ Dehumidification Heaters

- These can be installed in the main machine and in the optional paper tray unit.
- After you install a heater, we recommend that you set SP 5805-001 to 1.
 - The default setting is 0. With this setting, the heaters will be on only when the machine is in sleep mode.
 - If the SP is set to 1, the heaters are always on.

No additional notes

SD and USB Slots

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SD Card Slots d205d2128



USB Slot d205c2129

- These slots are behind the T-shaped cover at the rear of the machine.
 - SD card slot 1 (Left) is used for optional applications (XPS Direct Print Option, Data Overwrite Security Unit, OCR Unit).
 - SD card slot 2 (Right) is used for service only (for example, updating the firmware).
 - The USB ports (lower and upper) are used for the Bluetooth Interface Unit, or the NFC Card Reader.

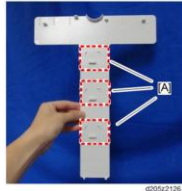
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The operation panel also has a USB slot.

The mini USB slot to the left of the SD card slots is only for models on sale in Japan.

SD Card Storage Location

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- Pull off the T-shaped cover at the rear of the machine.
- There are three spaces to store SD cards on the inner surface of this cover.

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No additional notes



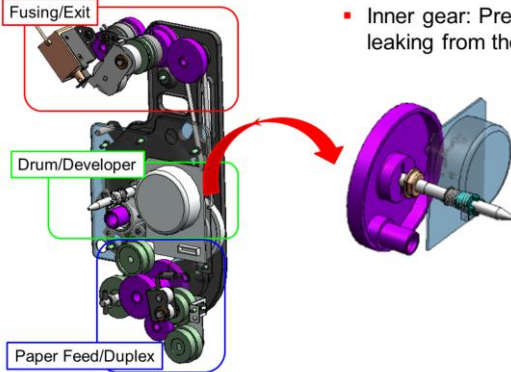
Detailed Section Descriptions

Silent Mechanism

No additional Notes

Only One Motor, Improved Motor Gears **RICOH**
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- One main motor makes less noise than using several motors.
- Inner gear: Prevents noise leaking from the motor



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As you can see in the diagram, all modules for paper feed are driven by one motor. This reduces the noise compared to using a number of motors.

The inner gear prevents noise leaking from the motor.

■ Patented New Grease

- **New lubricant to reduce noise when driving the main unit**
 - Grease with a strong silencing effect (G-1077) is applied to the drive components. When replacing one of these components, apply this grease as stated in the replacement procedures.
- **Features of G-1077**
 - Low coefficient of friction
 - Very stable, thanks to low oil separation

No additional notes

■ Lubrication Procedures

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- When replacing some motors, the new G-1077 grease must be applied.
- Details on the lubrication points and the amount of lubricant are included in the relevant procedures in the service manual.

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If you forget to apply the grease, noise will occur.

The position which applies the grease will be explained later.

■ Labyrinth Structure

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- To prevent noise from leaking, the cover has a complex structure.



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Red lines show the parts that use the labyrinth structure.
These locations are where noise is likely to leak.

■ Helmholtz Silencers

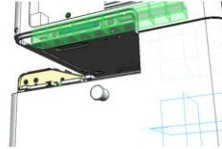
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- The silencer removes noise by making the noise resonate within the small holes in it.
- You cannot replace the silencer, because it is a part of the frame structure.

Laser Unit



Paper Exit



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The silencer has many small holes, the noise resonates in the holes, and then disappears as a result.

A silencer is attached to the laser unit, the paper exit and other areas where noise may occur.

■ Silent Mode

- Silent mode decreases the noise level by increasing the interval between sheets; slower printing. This prevents the internal temperature from increasing, allowing a lower fan operation level.
- It can be selected with User Tools.

	Process Speed	CPM	Fusing Temperature (Plain paper)	Noise Level
Normal mode	136 mm/s	30 CPM	145 degrees C	59 dB
Silent mode	100 mm/s	15 CPM	140 degrees C	Less than 55 dB

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Changes in paper feed speed are not shown in the above table.

Fan Control

	Sleep mode or Engine/CTL off (Operation Panel Off)	Waiting (Operation Panel On)	Printing
Exhaust fan	OFF	ON - Temperature/Humidity sensor controls(*1)	ON - Internal temperature sensor (*2)
Intake fan	OFF	ON - always low speed	ON - Internal temperature sensor (*3)

(*1) The sensor detects 27 - 43 degrees C: 30 ~80%

If 27 degrees C is detected, the fan rotates at 30% of full speed.

If 43 degrees C is detected, the fan rotates at 80% of full speed.

(*2) The sensor measures 36.5 - 39 degrees C: 40 ~ 100%

If 36.5 degrees C is detected, the fan rotates at 40% of full speed.

If 39 degrees C is detected, the fan rotates at 100% of full speed.

(*3) Less than 39 degrees C: Low speed

More than 39 degrees C: High speed

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To reduce the noise, the intake fan and exhaust fan are controlled with temperature sensors.

The detected temperature affects the speed of fan rotation as shown above.



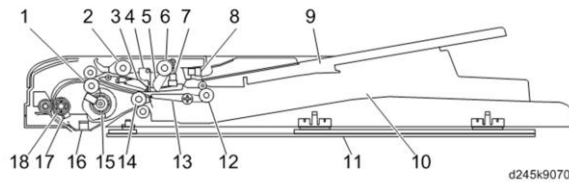
Detailed Section Descriptions

ARDF

No additional notes

Components - 1

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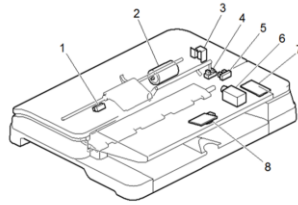
- | | |
|--------------------------|------------------------------|
| 1. ARDF entrance roller | 10. ARDF exit tray |
| 2. Original feed roller | 11. Platen cover |
| 3. Friction pad | 12. Reverse roller |
| 4. Original stopper | 13. Junction gate |
| 5. Original set actuator | 14. Original exit roller |
| 6. Pick up roller | 15. ARDF drive motor |
| 7. Original set sensor | 16. White plate guide |
| 8. ARDF cover sensor | 17. ARDF registration sensor |
| 9. Original tray | 18. Pre-scanning roller |

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No additional notes

Components - 2

RICOH
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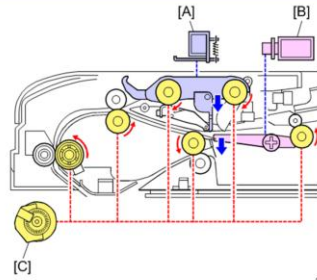


- | | |
|-----------------------------|---------------------------|
| 1. ARDF registration sensor | 5. ARDF cover sensor |
| 2. ARDF drive motor | 6. ARDF inverter solenoid |
| 3. ARDF pick-up solenoid | 7. ARDF main board |
| 4. Original set sensor | 8. Width sensor |

57

The original size can be detected with the registration sensor and the width sensor.

Length can be detected by how much time it takes for the original to arrive at the registration sensor from the initial position.



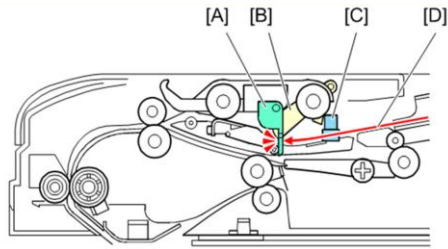
d245k9072

- The ARDF drive motor [C] drives each roller through gears.
- The ARDF pick-up solenoid [A] controls original pick-up.
- The ARDF inverter solenoid [B] operates the reverse junction gate.

No additional notes

■ Feed-in Mechanism (1)

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imagine. change.



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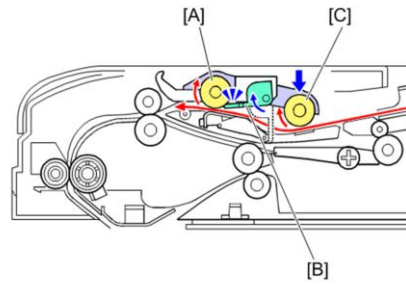
- The stopper [A] prevents the user from placing originals too far into the feeder.
- When the original set sensor [B] detects originals, original transport starts.

59

No additional notes

■ Feed-in Mechanism (2)

RICOH
imagine. change.



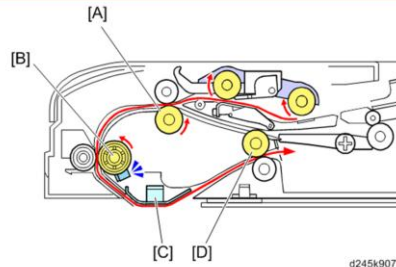
- The ARDF pick-up solenoid lowers the pick-up roller [C].
 - The original can reach the original feed roller [A] because the original stopper [B] does not stop the original if the pick-up roller [C] is lowered.

60

No additional notes

■ Single-sided Scanning

RICOH
imagine. change.



d245k9075

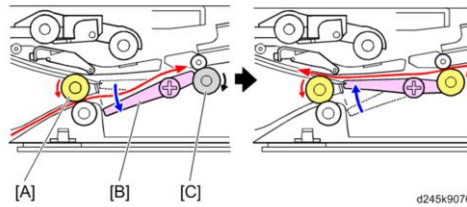
- The original is fed from the ARDF entrance roller [A] to the pre-scanning roller [B], and then it passes under the white plate guide [C].
- The original exit roller [D] feeds the original out of the ARDF.

61

No additional notes

■ Duplex Scanning (1)

RICOH
imagine. change.



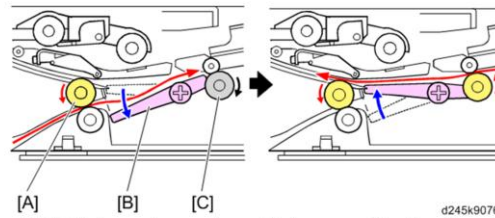
- The ARDF inverter solenoid lowers the junction gate [B], and the original is fed to the reverse roller [C].
- Then, the reverse roller [C] feeds the original out of the ARDF by rotating in reverse.

62

No additional notes

■ Duplex Scanning (2)

RICOH
imagine. change.



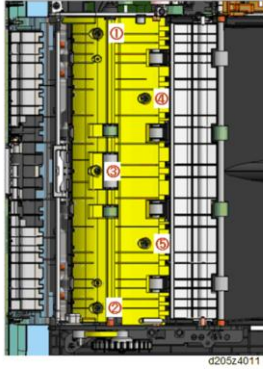
- The ARDF inverter solenoid turns off after the trailing edge of the original passes the original exit roller [A], and the reverse roller starts normal rotation. The original comes back into the ARDF.
- After the second side is scanned, the ARDF reverses the original again and feeds it out face down.

63

No additional notes

Replacing the ARDF Lower Guide Plate

RICOH
imagine. change.



- If you ever remove the ARDF lower guide plate, note the following when putting it back:
 - Tighten the screws from 1 to 5 in the order shown here.
 - Do not use an electric screwdriver.
 - Do not fasten the screws too tightly or tighten them in the wrong order, or the ARDF lower guide plate will be installed at an angle, and this will cause skew.

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64

No additional notes



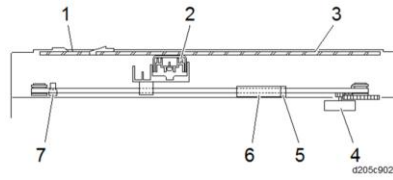
Detailed Section Descriptions

Scanner

No additional notes

■ Components

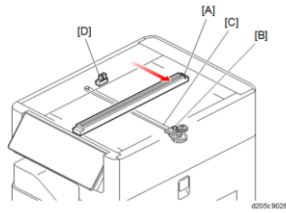
RICOH
imagine. change.



1. DF Exposure Glass
2. CIS Unit (Color) with Carriage
3. Exposure Glass
4. Scanner Motor
5. APS Sensor (Not installed on NA model)
6. APS Sensor
7. Scanner HP Sensor

66

No additional notes



- The scanner motor [B] moves the scanner carriage [A] in the main scan direction through the timing belt [C].
- While the carriage is moving along the guide rail, the CIS unit on the carriage scans the original. The scanner HP sensor [D] initializes the position of the carriage.

No additional notes

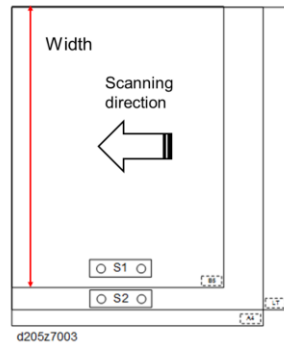
■ Two Scan Modes

- Platen Scan Mode:
 - To scan an original on the exposure glass, the scanner motor moves the carriage from the home position (left) to the right.
- ARDF Scan Mode:
 - The original set on the ARDF is fed over the DF exposure glass.
 - The carriage stays at its home position just below the DF exposure glass, and the CIS unit scans the originals passing the DF exposure glass.
 - The image density scanned by using the DF may be low compared to using the platen. The image density value of DF scanning can be adjusted with SP4-688-001 (DF Density Adjustment ARDF).

No additional notes

Original Width Detection - 1

RICOH
imagine. change.



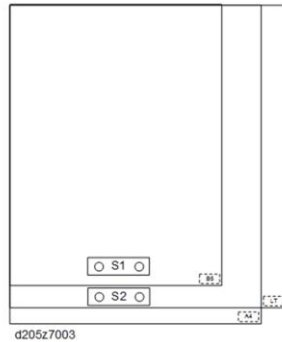
- Two APS sensors detect the original width.
 - When the platen cover sensor is OFF, the scanner carriage moves to the right.
 - When the platen cover sensor is ON, the scanner carriage moves back to its home position to scan the original width.
- The NA model has only one APS sensor (S2).

69

When the platen cover detects the change from OFF from ON, the APS sensors detect the original size.

Original Width Detection - 2

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- If S1 (or S2 for the NA model) cannot detect paper, then the machine's behavior depends on SP 4303-001:
 - 0 (default): 'Cannot detect' is displayed
 - 1: The machine assumes the paper is A5/HLT **LEF**
 - 2: The machine assumes the paper is A5/HLT **SEF**
- If the paper is smaller than B5, paper size needs to be specified manually on the operation panel.

70

Legal size is not supported, because the width of the contact glass is smaller than the width of Legal.

■ ARDF Position Sensor

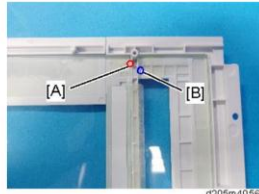
- This sensor detects if the ARDF is opened or closed.

ARDF Position Sensor detects	Scan priority
Opened	Exposure glass
Closed	ARDF

No additional notes

■ Installing the Exposure Glasses - 1

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imagine. change.



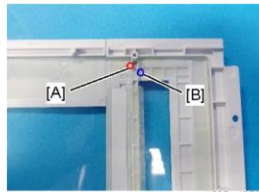
- To remove the exposure glass, hold the glass by its left front and right back, and not by the scale.
- The ARDF exposure glass and the exposure glass have markings that show the correct orientation.
 - [A]: Red point on the exposure glass
 - [B]: Blue point on the ARDF exposure glass

72

The exposure glass and the scale are just connected by the seal, so it may fall off when you lift it.

■ Installing the Exposure Glasses - 2

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imagine. change.



d205m4056

- Set the 2 points [A] and [B] to face each other as shown. After that, attach new sticky tape as shown in the manual.
- If you change the ARDF exposure glass, you must change the sticky tape.

73

No additional notes

■ Replacing the CIS

- Be sure to do the SP adjustments after replacing the CIS as listed in the manual.
 - Replacement and Adjustment > Scanner > CIS

No additional notes



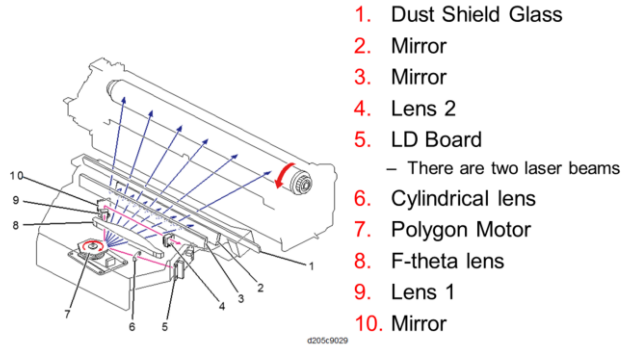
Detailed Section Descriptions

Laser Unit

No additional notes

Components

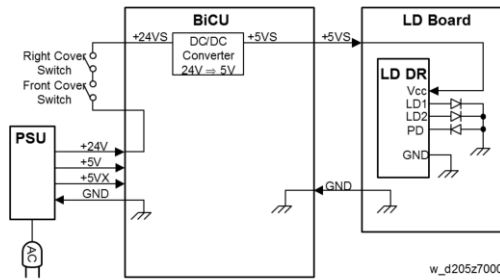
RICOH
imagine. change.



76

No additional notes

LD Safety Switches



- When the front cover or the right cover is opened, the power supply to the laser diode is interrupted.

No additional notes

■ Cautions for Working on the Laser Unit

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imagine. change.

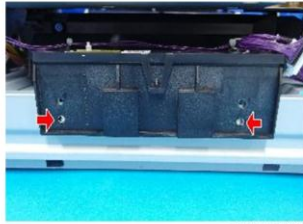
- Laser beams can seriously damage your eyes and cause permanent blindness.
- Do not turn the power on with the cover of the laser unit opened; there is a possibility that laser beams will be emitted.
- After assembling, check that the covers are closed completely.

78

No additional notes

■ Installing the Laser Unit

RICOH
imagine. change.



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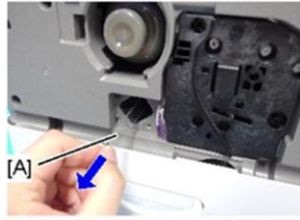
- First, fit the positioning holes in the laser unit securely over the pegs inside the machine.
- Then tighten the screws to secure the laser unit.

79

There are no SP adjustments to make after installing the new unit.

■ Installing the Dust Shield Glass

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- To check whether the glass is installed correctly, see the following:

Correct:

You can feel the dust shield glass stop at a certain point while inserting it. You cannot push it in any more.

To insert the glass correctly, insert it along the left side.

Incorrect:

You cannot feel the dust shield glass stop. You can insert the dust shield glass so far that it becomes completely hidden in the hole.

To take the glass out, you must remove the PCDU. Then you can remove the glass from the right side.

80

Correct: Insert it along the left side

If you do this incorrectly and then it becomes completely hidden, you cannot pull it out easily. You have to remove the PCDU, and then you can pull it out from the right side.



Detailed Section Descriptions

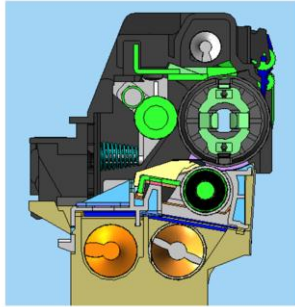
PCDU

No additional notes

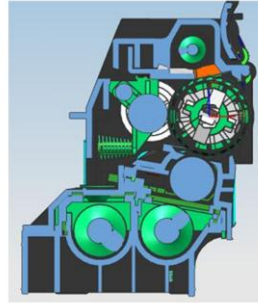
■ Introduction: Similar with K-C4

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imagine. change.

■ Lef-C1



■ K-C4



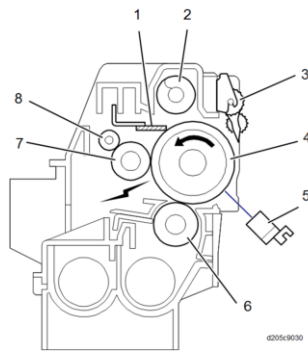
- Constitution is common with usual A3 B&W MFP.
- Almost same as K-C4.

82

First of all, the structure of the PCDU for this product is the same as usual for an A3 B&W MFP. It is almost the same as the K-C4.

Overview

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1. Cleaning Blade
2. Toner Collection Coil
3. Pick-off Pawl
4. OPC Drum
5. ID Sensor
6. Development Roller
7. Charge Roller
8. Charge Roller
Cleaning Roller

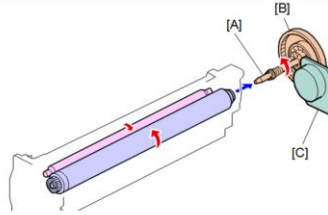
4205e9030

83

No additional notes

■ Drum Drive

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imagine. change.



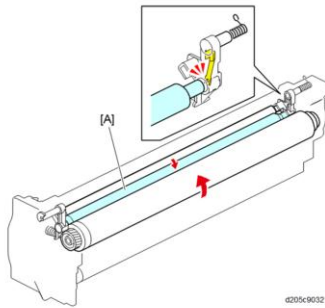
- The drum motor [C] drives the OPC drum through gears [B] and the drum drive shaft [A].
- As a safety measure, if the motor speed exceeds the regulation speed, the motor stops.

84

The motor speed will normally not exceed the regulation speed.

■ Drum Charge

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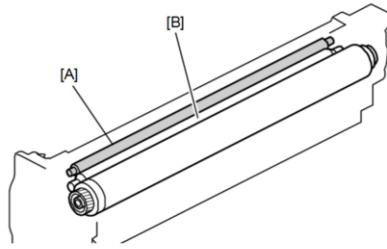
- The charge roller [A] charges the drum.
- A power pack supplies the charge roller via a receptacle and an electrode terminal.
- The charge roller is always pushed against the surface of the drum by a spring.

85

No additional notes

■ Cleaning the Charge Roller

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imagine. change.



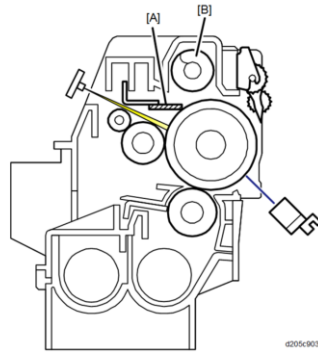
- The charge roller cleaning roller (a brush roller) [A] is always in contact with the charge roller [B].

86

No additional notes

■ Drum Cleaning

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imagine. change.



- The cleaning blade [A] removes toner remaining on the drum after the image is transferred to the paper.
- When toner builds up in the cleaning unit, toner at the top of the pile is removed by the toner collection coil [B].
- To remove toner and other particles that are accumulated at the edge of the cleaning blade, the drum reverses about 6 mm at the end of every job.

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87

This model uses a counter blade system.

Pre Cleaning Lamp **RICOH**
imagine. change.

The diagram illustrates the layout of a laser cleaning system. It features a central PCDU (Pre-Cleaning Discharge Unit) and a Transfer Unit. A Quenching Lamp (Same as Cor-C1) is located on the left side, and a Pre Cleaning Lamp (Unique) is located on the right side. Red dashed lines indicate the laser beam paths from the lamps to the PCDU and Transfer Unit. A blue box highlights the Pre Cleaning Lamp (Unique) and its associated beam path.

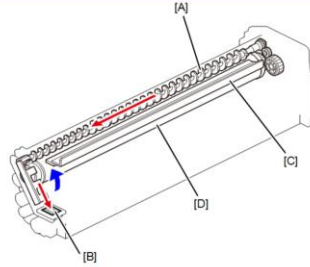
- The PCL (Pre Cleaning Lamp) is added and increases the precision of discharge.
- Reason: To ensure that black streaks don't occur.

88

The PCL is located in the transfer unit.

■ Toner Recycling

RICOH
imagine. change.



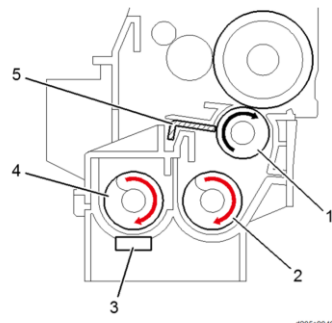
- The cleaning blade [C] removes unused toner from the drum [D].
- This toner is picked up by the toner collection coil [A] and moved to the opening [B] in the side of the PCDU.
- Then, this toner falls into the development unit with new toner coming from the toner bottle.

89

No additional notes

Development Unit

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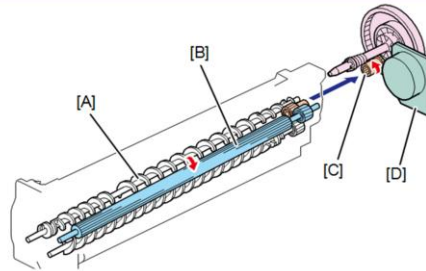
1. Development roller
2. Mixing auger 1
3. TD sensor
4. Mixing auger 2
5. Doctor blade

90

The TD sensor is a μ (mu) sensor.

Development Unit Drive

RICOH
imagine. change.



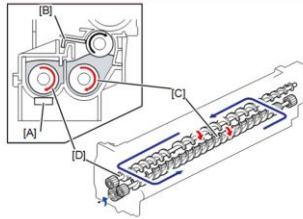
- The main motor [D] drives the development roller [B] and mixing augers [A] through a train of gears [C] and the development drive shaft.

91

No additional notes

Developer Mixing

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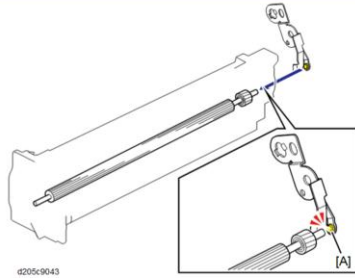
- The two mixing augers, [C, D] keep the developer evenly mixed.
 - Mixing auger 1 [D] transports excess developer, scraped off the development roller by the doctor blade [B], towards the front of the machine.
 - Mixing auger 2 [C] returns the excess developer, along with new toner, to the rear of the mixing assembly. Here the developer is reapplied to the development roller.
- The TD sensor [A] detects the density of the mixture inside the development unit.

92

No additional notes

Development Bias

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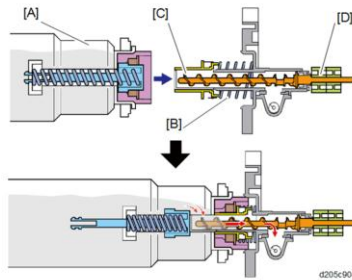
- The bias is applied to the development roller shaft through a carbon terminal [A] and a dielectric sheet.

93

No additional notes

■ Toner Supply - 1

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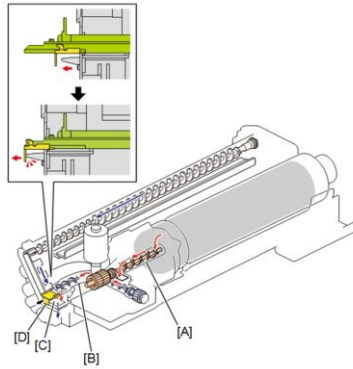


- When a toner bottle [A] is set, the nozzle [B] is inserted into the bottle.
- The toner supply motor drives the mixing auger [C] through gear [D], pulling toner out from the toner bottle.

94

No additional notes

Toner Supply - 2



- New toner [A] (red arrows) passes through the shutter [D] and falls down into the PCDU through the supply port [C].
- Recycled toner (blue arrows) passes down the chute in the PCDU and is resupplied into the development unit.

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95

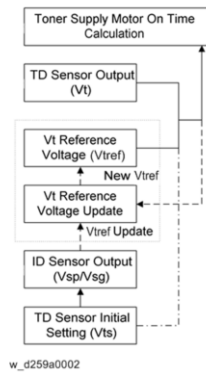
No additional notes

■ Toner Density Control - 1

- Toner density is controlled using readings from the TD and ID sensors.
- There are 4 density control modes, selected with SP 2921. However, do not change the setting from 0 (sensor control 1).
 - The others are for designer's tests only.

No additional notes

Toner Density Control - 2



- Toner is supplied to the development unit when V_t measured by the TD sensor is higher than the reference voltage (V_{tref}).
- V_{tref} is determined initially from the TD initial setting, modified by ID sensor readings (V_{sp} , V_{sg}).
- This V_{tref} is modified at intervals with more readings from the ID sensor.
 - See the next slide for ID sensor check timing).

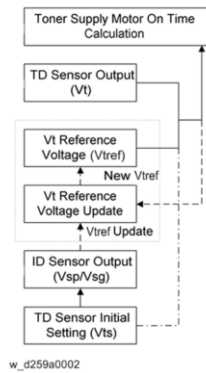
No additional notes

■ Toner Density Control - 3

- The ID sensor is checked only at the following times:
 - When the machine is warming-up at startup.
 - When recovering from sleep mode or energy saving mode, and the machine internal temperature is below 30 degrees C.
- The ID sensor is not checked each page or each job.

No additional notes

Toner Density Control - 4



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99

- The duration of time that the toner supply motor turns on is calculated from V_t and V_{tref} .
- Based on the calculations, there are 7 levels for the toner supply motor on time.
- Levels 6 and 7 are used for detecting toner near-end and toner end.

No additional notes

■ Toner Near-end Detection - 1

- Toner end and near-end are detected by the TD sensor.
- Near-end Detection
 - If toner supply motor on time is at level 6 or higher ten times consecutively, the machine enters the toner near end condition and the toner end indicator starts blinking.
 - The machine then supplies toner for a short while (SP2923-001), to try to recover from near-end (this is called the 'toner recovery cycle').

No additional notes

■ Toner Near-end Detection - 2

- Recovery from near-end
 - If toner supply motor on time recovers to level 5 or lower twice consecutively in any of the following situations.
 - While in the toner recovery cycle after the machine has detected a toner near end condition.
 - During copying in the toner near-end condition.
 - If the front cover is opened and closed for more than 5 seconds.

No additional notes

■ Toner End Detection - 1

- There are two ways to enter the toner end condition.
 - When toner supply motor on time is level 7 three times consecutively while in the toner near-end condition.
 - When 50 copies have been made since entering the toner near-end condition.
 - The number of copies between toner near-end and toner end can be changed using SP 2213.

No additional notes

■ Toner End Detection - 2

- When toner end is detected, the following is done.
 - During paper feed: The machine enters the toner end condition as soon as the current sheet has been printed.
 - When driving the toner supply motor to try to recover from toner end or near-end: The machine enters toner end condition as soon as the toner supply motor stops.

No additional notes

■ Toner End Detection - 3

- Recovery from toner end
 - If the front cover is opened for 5 seconds or more while the main power is on, the machine assumes that the toner bottle has been replaced, and clears the Toner End condition. That is, do not attempt to replace the toner bottle and close the front cover within 5 seconds.

No additional notes

- To avoid toner clumping caused by excessive temperature, the machine stops between pages if the internal temperature sensor detects that the temperature of the development roller bearing is too high.
- The following banner appears when the machine has detected a high temperature and is printing with duty control activated.
 - "For cooling inside, printing speed is limited."

No additional notes

High Productivity Mode - 1

- The following SP can be executed to maintain productivity and avoid entering the Duty Control (see previous slide). Standard Mode (SP1-960-001) is the default.

	Standard Mode SP1-960-001	High Productivity Mode A SP1-960-002	High Productivity Mode B SP1-960-003	High Productivity Mode C SP1-960-004
Fan operation / machine internal temp	100% at 44 C	100% at 44 C	100% at 44 C	100% at 42 C
Fusing temp reduction in standby / machine internal temp	145 C → 110 C 42 C	145 C → 110 C 40 C	145 C → 75 C 37 C	145 C → 75 C 37 C
FCOT (first copy output time)	+ 3 sec at 42 C (5 sec → 8 sec)	+ 3 sec at 40 C (5 sec → 8 sec)	+ 7 sec at 37 C (5 sec → 12 sec)	+ 7 sec at 37 C (5 sec → 12 sec)

106

Each thresholds can be automatically changed by executed the following SP.

High Productivity Mode - 2

Temperature		~23	23~25	25~27	27~29	29~31	31~33
Standard / High Productivity Mode A, B	Exhaust fan	30%	30%	30%	35%	40%	45%
	Noise level	38.3dB	38.3dB	38.3dB	39dB	40dB	41dB
High Productivity Mode C	Exhaust fan	30%	35%	40%	45%	50%	60%
	Noise level	38.3dB	39dB	40dB	41dB	42.9dB	45.7dB

Temperature		33~35	35~37	37~39	39~41	41~43	43~
Standard / High Productivity Mode A, B	Exhaust fan	50%	60%	70%	80%	80%	80%
	Noise level	42.9dB	45.7dB	50.3dB	53.3dB	53.3dB	53.3dB
High Productivity Mode C	Exhaust fan	70%	80%	80%	80%	80%	80%
	Noise level	50.3dB	53.3dB	53.3dB	53.3dB	53.3dB	53.3dB

- The table describes the differences in the exhaust fan and level depending on the operation mode; Standard or High Productivity Mode A/B or High Productivity Mode C. Note that High Productivity Mode C increases the fan operation level at a quicker timing in line with the increase of machine internal temperature.

No additional notes

■ Replacing the PCDU - 1

RICOH
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- Remove the developer cap [A] from the packaging of the new PCDU, and put it on the toner supply port of the old PCDU.

108

No additional notes

■ Replacing the PCDU - 2

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- Hold the old PCDU as shown here when taking it out of the machine.
- Similarly, when installing the new PCDU, do not hold the right-hand side of the PCDU. This is to prevent oil from your fingers from getting on the drum or components in the paper feed path.
- Do not touch the grease applied to the gears on the PCDU.
- The PCDU has new unit detection, so it is not necessary to make any settings after installing a new unit.
 - A flag in a chip in the TD sensor is overwritten when power is turned ON.

109

No SP settings are needed after installing a new PCDU.

- Make sure that the PCDU is installed securely before you remove or install the toner bottle. Otherwise, there will be toner scattering.

No additional notes

■ After Replacing the PCDU

- Do the procedure in the following section of the manual
 - Replacement and Adjustment > PCDU > Test after Replacement or Adjustment

No additional notes



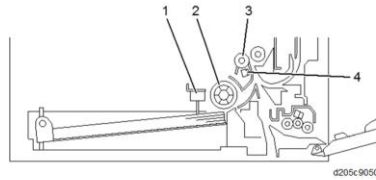
Detailed Section Descriptions

Paper Feed

No additional notes

Overview

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imagine. change.



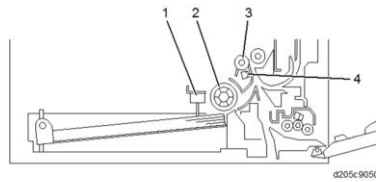
- There is one paper tray in the main frame. It can hold 250 sheets.
- The paper tray feed stations use a friction pad system.
- To prevent paper from getting caught inside the machine when the tray is pulled out, the paper feed roller and shaft do not separate from the tray when it is pulled out.

113

No additional notes

■ Components

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imagine. change.



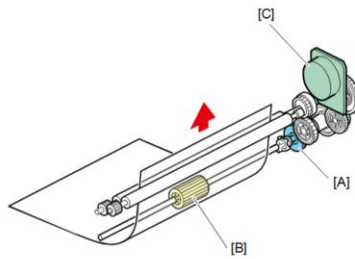
1. Paper end sensor
2. Paper feed roller
3. Registration roller
4. Registration sensor

114

No additional notes

■ Paper Feed Drive

RICOH
imagine. change.



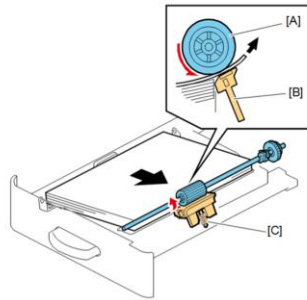
- The main motor [C] drives the pick-up and feed mechanism.
- The paper feed clutch [A] transfers drive from this motor to the paper feed roller [B].
- The paper feed clutch stays on until shortly after the registration sensor has been activated.

115

No additional notes

■ Paper Feed and Separation

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imagine. change.



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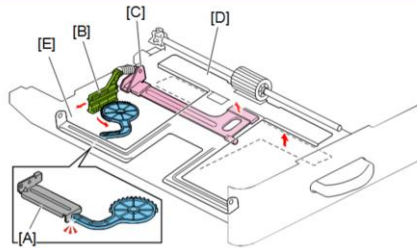
- The paper feed roller [A] feeds the top sheet of paper.
- The friction pad [B] allows only one sheet to feed at a time.
- The friction pad applies pressure to the feed roller with a spring [C].
 - The friction pad pressure cannot be adjusted.

116

No additional notes

Paper Lift

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imagine. change.



d205c9053

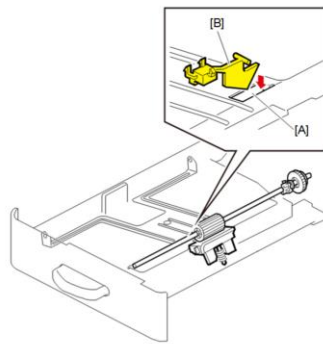
- When the tray is inserted into the machine, the arm attached to the pinion comes into contact with a component [A] in the mainframe and the pinion rotates.
- Then, the rack [B] pulls the spring [C], and this lifts the bottom plate [D].

117

The spring is always pulled the same amount when the tray is inserted, regardless of the amount of paper in the tray. So, there is pressure between the top of the stack and the feed roller.

■ Paper End Detection

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imagine. change.



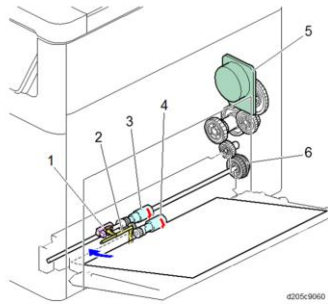
- When the paper tray runs out of paper, the paper end feeler [B] drops into the cutout [A] in the tray bottom plate and the paper end sensor turns on.
- When the tray is being put in the machine, the sensor returns a 'paper present' signal.
 - This is because the feeler is up, even if the tray is empty (because it is raised by the bottom plate).
 - So, if the sensor state changes to 'detects paper', the machine waits 3 seconds before reporting that paper is present.

118

When the paper tray is drawn out with no paper in the tray, the paper end feeler is not caught in the paper tray due to its shape.

■ Bypass Tray

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imagine. change.



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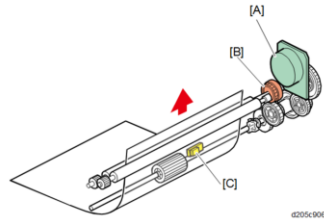
- To feed paper, the by-pass paper feed clutch (6) turns on, and the drive from the main motor (5) is transferred to the by-pass paper pick-up roller (4).
- Then, the by-pass paper pick-up roller is lowered and the paper is sent to the by-pass paper feed roller (3).
- The by-pass tray uses a friction pad system to separate the sheets of paper.
- Paper on the by-pass tray pushes up the feeler (2) for the by-pass paper end sensor (1).

119

The pick-up roller is lowered by roller rotation. There is no solenoid.

Registration

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imagine. change.



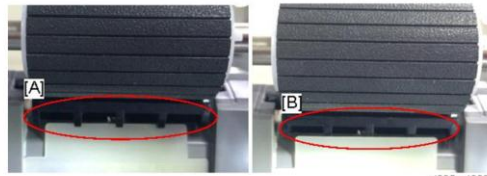
- The main motor [A] drives the registration roller through the registration clutch [B].
- The registration sensor [C] is used for correcting paper skew and for detecting paper misfeeds.
- A cleaning sheet is in contact with the registration roller. It removes dust from the registration roller to prevent it from entering the development unit.

120

No additional notes

■ Reinstalling the Friction Pad

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- Make sure that the sheet does not go under the friction pad.
 - [A] Incorrect
 - [B] Correct
- Do not touch the friction pad with your bare hands when replacing it. If you do, clean the friction pad with a damp cloth or alcohol.

121

No additional notes

■ Reinstalling the Paper Dust Collector **RICOH** imagine. change.

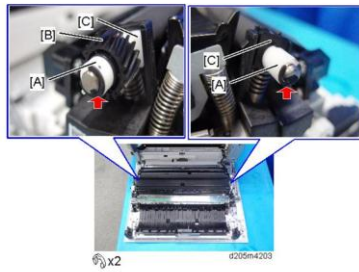


d205m4181

- Make sure that the bosses on the paper dust collection unit fit correctly into the rear frame of the machine.

122

You may have to remove this unit to clean the registration sensor.

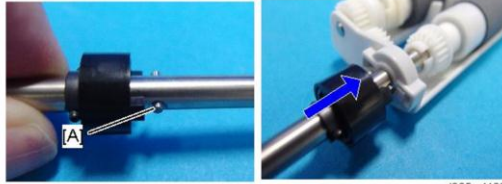


- When reinstalling the two holders [C], the white holder must be at the front end, and the black one must be at the rear end.

No additional notes

Reassembling the Bypass Feed Roller Unit

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imagine. change.



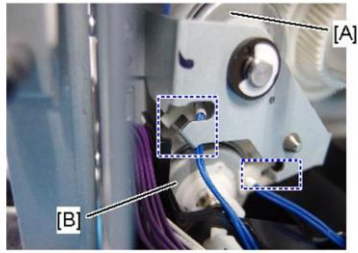
d205m4129

- Make sure that the pin [A] fits into the assembly properly.

124

No additional notes

Duplex Clutch and Bypass Feed Clutch



- The duplex clutch [A] and the bypass paper feed clutch [B] are held by a bracket. Position the clutches as shown here.

No additional notes



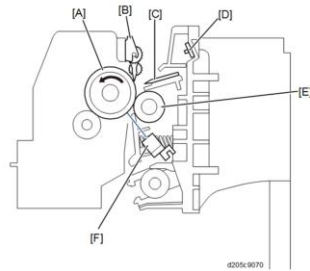
Detailed Section Descriptions

Transfer

No additional notes

Components

RICOH
imagine. change.



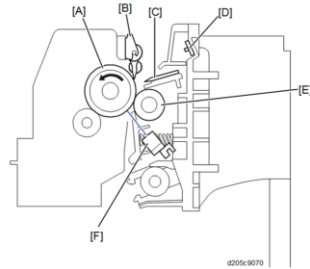
- A) OPC Drum
- B) Pick-Off Pawl
- C) Discharge Plate
- D) PCL (Pre Cleaning Lamp)
- E) Transfer Roller
- F) ID Sensor

127

No additional notes

Overview

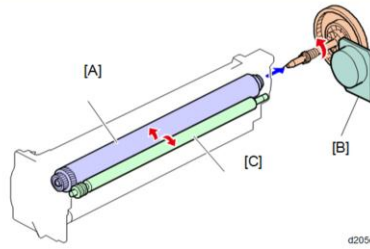
RICOH
imagine. change.



- The transfer roller [E] touches the surface of the drum [A].
- The high voltage supply board supplies a positive current to the transfer roller, which attracts the toner from the drum onto the paper.
- The PCL (Pre Cleaning Lamp) [D] increases the precision of discharge and reduces black streaks on prints.

128

No additional notes



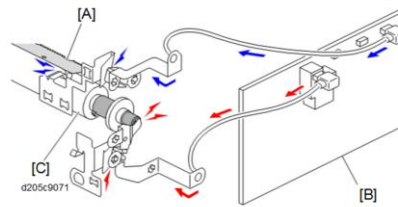
d205c9072

- The main motor [B] drives the OPC drum [A], which turns the transfer roller [C].

No additional notes

■ Circuit

RICOH
imagine. change.

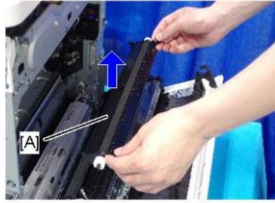


- The high voltage supply board [B] supplies a positive charge to the transfer roller [C], which attracts the toner from the drum onto the paper.
- The discharge plate [A] removes remaining charge on the paper. The discharge plate is grounded.

130

No additional notes

■ Replacing the Transfer Roller Unit - 1 **RICOH** imagine. change.



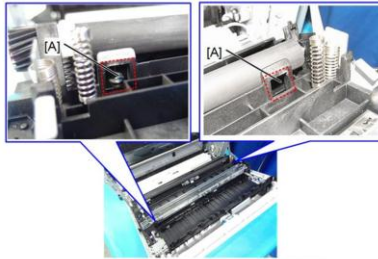
d205m4151

- The transfer roller unit consists of the transfer roller and the discharge plate.
- It is impossible to replace the transfer roller alone.
- Do not touch the transfer roller surface with bare hands.

131

No additional notes

■ Replacing the Transfer Roller Unit - 2 **RICOH**
imagine. change.

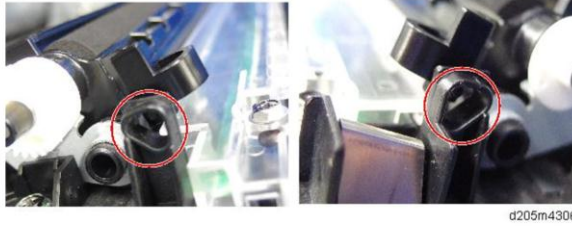


02004305

- Make sure that the tabs [A] are inserted in the cutouts.

132

No additional notes



- Check that the pins on both sides of the transfer roller unit are engaged correctly.

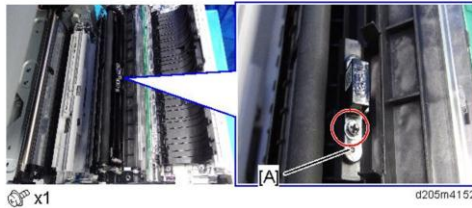
No additional notes

- After replacing, do SP7-622-115 to clear the counter.

SP7-622-115 is the only SP to clear the counter for yield parts (120K).

■ Cleaning the ID Sensor

RICOH
imagine. change.



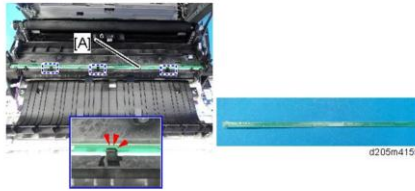
- Wipe the sensor with a damp cloth.
- Do not wipe it with a dry cloth. Otherwise, the sensor will attract dirt because of static electricity.

135

No additional notes

■ Pre-cleaning Lamp (PCL)

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imagine. change.



- Be careful not to break the three hooks when you remove the PCL [A], because they are stiff.
- The PCL will twist or bend temporarily when you take it out. It is flexible, so it will not break unless you twist or bend it excessively.
- When cleaning the plastic cover of the PCL, wipe it with a damp cloth.
- Do not wipe it with a dry cloth, or it may attract dirt because of static electricity.

136

No additional notes



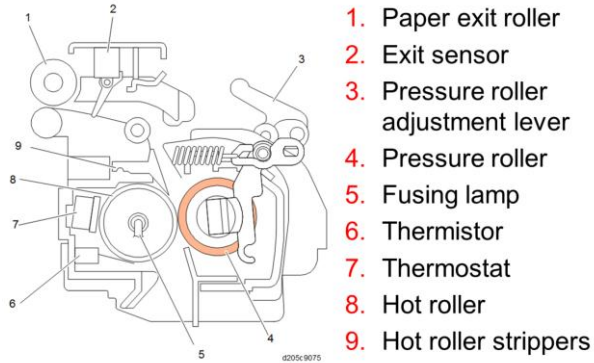
Detailed Section Descriptions

Fusing

No additional notes

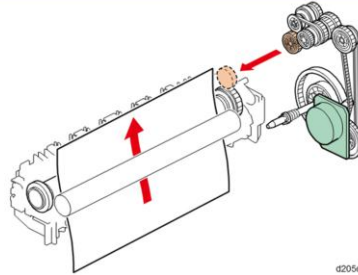
Components

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138

The exit roller and exit sensor are included in the fusing unit.



d205c9083

- The main motor drives the fusing unit through a gear train, and drives the paper exit rollers through a timing belt.

No additional notes

■ Warming Up

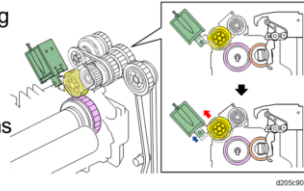
- The fusing unit rollers do not rotate during warming up if the machine internal temperature (at the start) is 17 degrees C or higher.
- The hot roller takes less time to warm up if it is not turning during warming up. But the temperature of the hot roller surface may become uneven.
- So, you can disable this control (set SP1103 1 to 1) if the uneven roller temperature causes a problem.
 - For example, some areas of the roller will not be hot enough, so there may be offset of insufficient fusing in these areas.
- The warm-up time becomes longer if SP1103 1 is set to 1. However, it will usually not take longer than 17.6 seconds.

The next slide explains how this mechanism is controlled with a solenoid.

■ Fusing Solenoid

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imagine. change.

- When the right door is closed, the drive gear engages with the fusing unit drive gear.
- When the solenoid is on, it pulls the top end of the gear holder to the right, and the gear holder turns clockwise. As a result, the drive gear is released from the fusing unit drive gear, and the fusing unit rollers do not rotate.
- The solenoid turns on if the fusing unit temperature is 17 degrees C or higher when you turn on the main switch.
 - This can be disabled with SP 1103 1 as mentioned on the previous slide. In that case, the solenoid will not turn on.

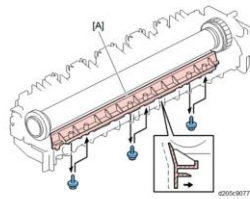


141

The solenoid turns off when the center thermistor reaches 80 degrees C.

■ Fusing Entrance Guide Adjustment

RICOH
imagine. change.



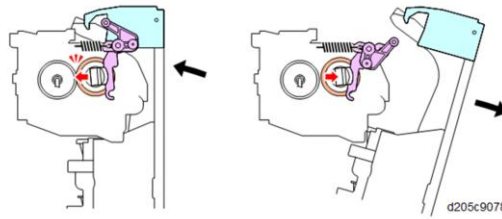
- The entrance guide [A] is adjustable for paper thickness to prevent creasing.
- If creasing occurs frequently in the fusing unit, change the position of the entrance guide.

142

No additional notes

■ Pressure Roller

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imagine. change.

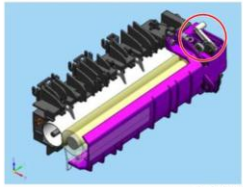


- The pressure springs always apply pressure between the hot roller and the pressure roller.
- The pressure is released when the right cover is opened.

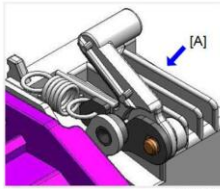
143

No additional notes

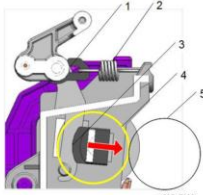
Close-up of the Pressure Mechanism **RICOH**
imagine. change.



d205k7001



d205k7002



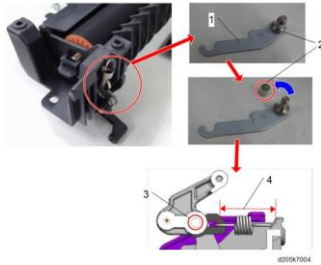
Viewed from [A]

1. Lever
2. Pressure spring
3. The extended spring pushes the pressure roller against the hot roller via the lever.
4. Pressure roller
5. Hot roller

No additional notes

■ Reducing the Fusing Pressure

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imagine. change.



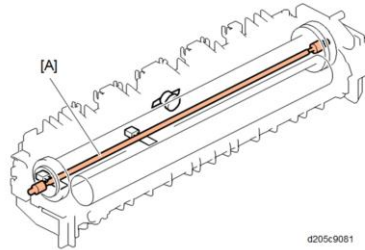
- If paper is curled after fusing, remove the bushing [2].
 - Do this at the front and the rear.
- Reducing the pressure can cause insufficient fusing, so check with the customer.

145

If you remove the bushing, the spring length is reduced by the length of the bushing. The pressure is reduced by 10%.

■ Fusing Lamp

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imagine. change.



- This machine uses a 860 W halogen heater [A].
- There is only one lamp.

146

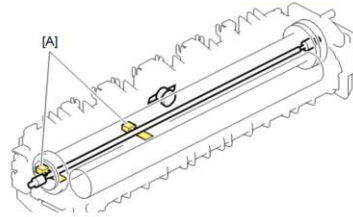
If fluorescent lights flicker

Turning the fusing lamp on and off may cause the fluorescent lights to flicker. This problem can be lightened by changing the setting of SP1-135-002 from 0 to 1.

If you do this, fusing capability may decrease because the power supply to the fusing unit is reduced when the fusing lamp is on.

■ Thermistors

RICOH
imagine. change.



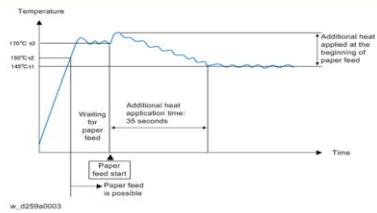
- The CPU checks the output from the thermistors once every second.
- The CPU decides how long the lamps must be switched on during the next second by comparing the thermistor temperature and the target temperature.
- The fusing lamp maintains a target fusing temperature of 145 degrees C (when plain paper is used) during copying.

147

The center thermistor is for the fusing lamp (860 W). The end thermistor is for various other control mechanisms.

Fusing Temperature Control Between Main Power On and Paper Feed

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imagine. change.



- After you turn the main switch on, the fusing temperature rises from the room temperature to a specified temperature (t3). Copying and printing are possible at temperature (t2).
 - The machine keeps t3 until paper feed starts.
- Immediately after paper feeding starts, additional temperature, which varies depending on thickness of paper, is added to temperature (t1).
- The temperature gradually decreases while printing, but is controlled not to become lower than t1.

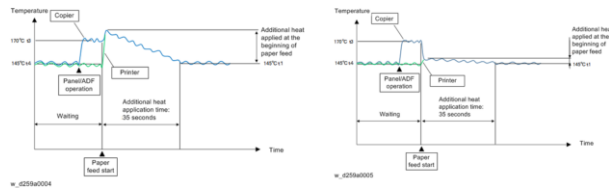
148

No Additional notes



Fusing Temperature Control Between Standby and Paper Feed

RICOH
imagine. change.



- In standby mode, the fusing temperature is kept at t4 (SP1105-012).
- If the operation panel or ARDF is operated during standby, the fusing temperature is kept at t3.
- Immediately after paper feeding starts, additional temperature, which varies depending on thickness of paper, is added to t1.
- The temperature gradually decreases while printing, but is controlled not to become lower than t1.

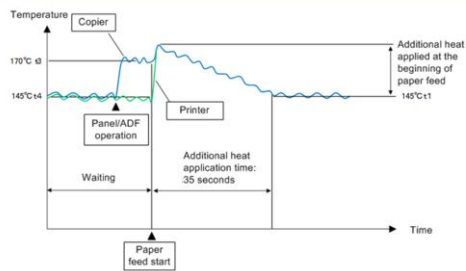
149

No additional notes



Fusing Temperature Control Between Standby and Paper Feed

RICOH
imagine. change.



w_d259a0004

- If the difference in the temperatures of the center thermistor and end thermistor detected at the beginning of paper feed is 25 C or more, 35 C is added.

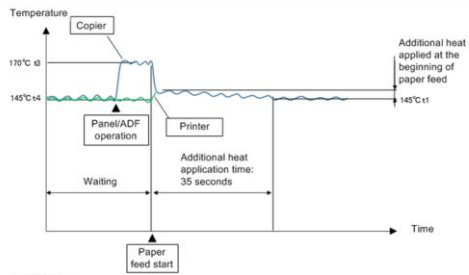
150

No additional notes



Fusing Temperature Control Between Standby and Paper Feed

RICOH
imagine. change.



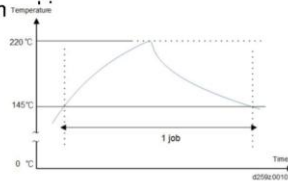
w_d259a0005

- If the difference in the temperatures of the center thermistor and end thermistor detected at the beginning of paper feed is less than 25 C, 5 C is added.

151

No additional notes

- To prevent abnormal increase of the fusing temperature, CPM is reduced to 30% (30 CPM → 9 CPM) when the fusing end thermistor detects 220 degrees C or higher.
The fusing end thermistor may detect 220 degrees C or higher, for example, when continuously printing on small size paper, causing both ends of the hot roller to maintain high temperature.
- If the thermistor detects a temperature below 220 degrees C at the beginning of the next job, the machine recovers from the CPM Reduction mode. The n does not recover from the CPM Reduction Mode during the job.



No additional notes

Fusing Temperature Control				RICOH imagine. change.
Fusing Temperature & Process Speed for Each Paper Type				
	Paper Thickness	Fusing Temperature	SP No.	Process Speed
Normal mode	Thin Paper 52-59 gsm	135 degrees C	SP1-105-009	Normal: 136 mm/s
	Plain Paper 60-81 gsm	145 degrees C	SP1-105-001 (Plain Paper 1) SP1-105-003 (Plain Paper 2)	
	Middle Thick 82-105	145 degrees C	SP1-105-005	Low speed: 100 mm/s
	Thick Paper 1 106-135	155 degrees C	SP1-105-007	
	Thick Paper 2 136-162	160 degrees C	SP1-105-048	
Silent mode	Thin Paper 52-59 gsm	130 degrees C	SP1-105-065	
	Plain Paper 60-81 gsm	140 degrees C	SP1-105-063 (Plain Paper 1) SP1-105-064 (Plain Paper 2)	
		Fusing Temperature	SP No.	
	Standby mode	145 degrees C	SP1-105-012	
	Energy saver mode	130 degrees C	SP1-105-062	

153

The fusing temperature differs according to paper type.

When printing on Middle Thick or Thick Paper and when printing in silent mode, the process speed is lower.

Thin: 52 – 59gsm

Plain 1: 60 – 74

Plain 2: 75 - 81

Middle thick: 82 – 105

Thick 1: 106- 135

Thick 2: 136 - 162

■ Low Voltage Mode (200V Models)

- If the machine detects that the mains voltage is 187 V or less, the machine uses low-voltage mode.

	Low-Voltage Mode	Standard-Voltage Mode
Process speed	100 mm/s	Silent mode: 100 mm/s Standard mode: 136 mm/s
Productivity (CPM)	4.6 (30% of silent mode)	Silent mode: 15 Standard mode: 30
Action before printing	The hot roller rotates for 2 to 5 seconds until the roller temperature reaches the specified value.	No pre-rotation

No additional notes

■ Low Voltage Mode (200V Models)

RICOH
imagine. change.

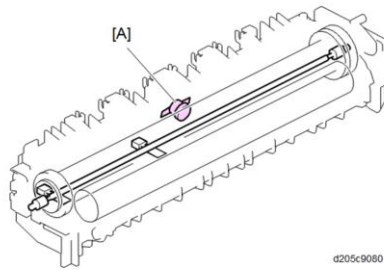
- If low voltage is detected at power-up:
 - If SC542 is detected, the machine checks the mains voltage.
 - If low voltage (187 V or lower) is detected, the machine retries (the lamp is turned off then on again).
 - If the machine does not start after 3 retries, SC542-04 is logged internally (no display).
 - The user is prompted by a message that appears on the operation panel to power off and then on to restart.
 - For safety purposes, the lamp is not turned on if the temperature detected at the terminal thermistor is higher than 200° C

155

No additional notes

Thermostat

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imagine. change.



a205c9080

- The thermostat cuts the power supply to the fusing lamp at 200 ° C.

156

The thermostat used in this model has a higher thermal responsiveness than those used in previous models. Therefore, the temperature of the hot roller will be kept lower.

■ After Installing a New Fusing Unit

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- After replacing, do SP7-622-115 to clear the counter.

157

SP7-622-115 is the only SP to clear the counter for yield parts (120K).

■ Lubricating the Hot Roller - 1

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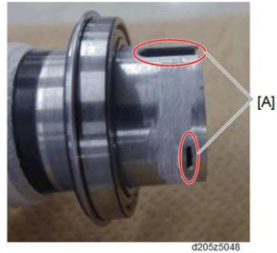
- First, lubricate the places where the bearings are attached.
- Fit the bearings on the ends of the hot roller, and apply the grease all around the roller.
 - Do not fix the bearings at this time.
- To apply the grease evenly, slide the bearings right and left from 5 to 10 times within the area shown by the blue arrows.

158

No additional notes

■ Lubricating the Hot Roller - 2

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imagine. change.



d205z5048

- Then, lubricate the end of the roller where the gear will be attached.
- Do not apply the grease within 1 mm of the areas [A].

159

No additional notes



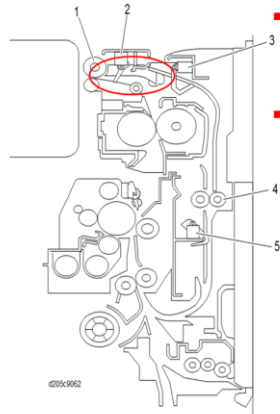
Detailed Section Descriptions

Duplex

No additional notes

Overview

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imagine. change.



- The printed sheet of paper from the fusing unit goes to the exit tray.
- However, if the user selects the duplex mode:
 - The paper exit/reverse roller (1) rotates in reverse.
 - The duplex clutch turns on and the duplex transport roller (4) rotates.
 - The junction gate switches and the printed sheet of paper goes to the duplex unit.

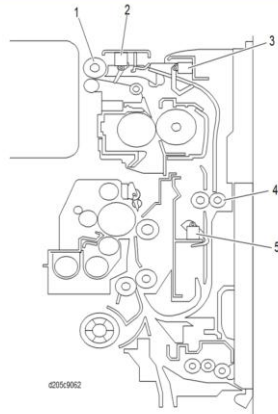
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161

No additional notes

■ Components

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imagine. change.



1. Paper exit/reverse roller
2. Paper exit sensor
3. Duplex entrance sensor
4. Duplex transport roller
5. Duplex exit sensor

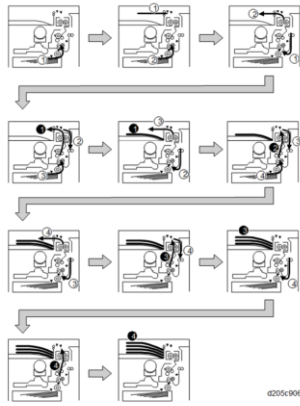
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No additional notes

Interleaving

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- Depending on the paper size, up to 3 sheets can feed through the machine at the same time.

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No additional notes



Replacement and Adjustment

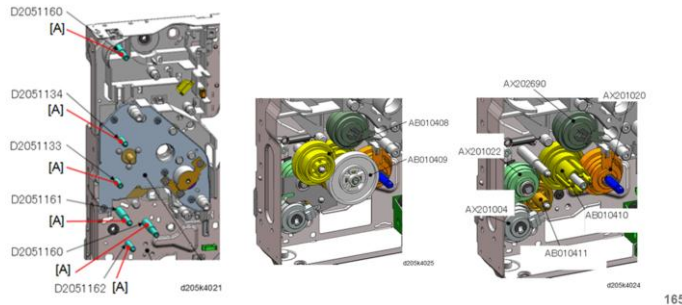
Drive

No additional notes

■ Applying the new grease

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- Apply the new grease(G-1077) to the gears, the clutches, and axes when replacing the main motor or the clutches.



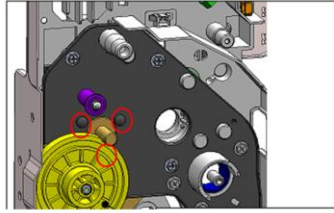
165

If you forgot to apply the grease, it may occur the noise, and so on, like the case of other greases.

How to apply the grease in each parts, please refer to the service manual.

■ Replacing the Main Motor

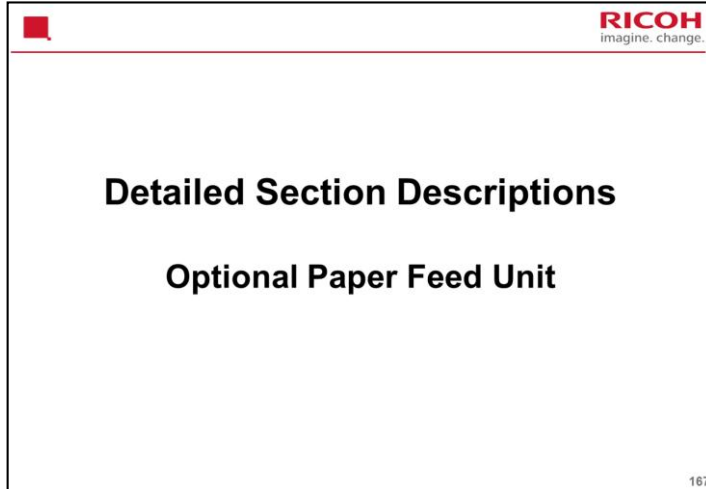
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- As the motor is attached to the motor bracket using a bonded screw (in the red frame), do not try to disconnect it from the bracket when you replace it.
 - One of the screws is behind the gear.

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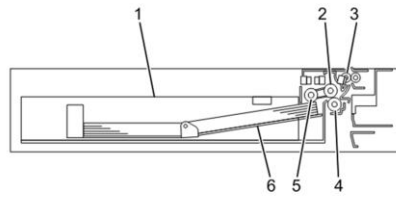
No additional notes



Regarding to detailed section descriptions, this optional bank is similar to the PB2020, used with Bc-C1.

Overview

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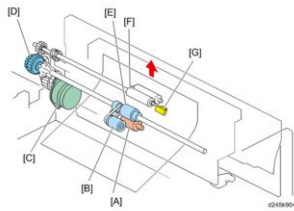
- | | |
|------------------------------|----------------------|
| 1. Paper feed tray | 4. Friction roller |
| 2. Paper feed roller | 5. Pick-up roller |
| 3. Vertical transport roller | 6. Tray bottom plate |

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No additional notes

■ Feed and Separation

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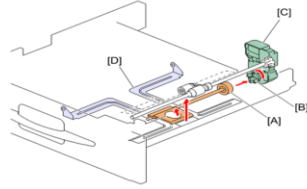


- RF (Roller Friction method)
- Double feed is prevented by a friction roller [A] with a torque limiter.
- When the tray is set in the machine, the bottom plate is lifted, and the pick-up roller [B] contacts the top of the stack of paper.
- When the transport motor [C] is switched on, the roller rotates.

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No additional notes

Tray Lift - 1



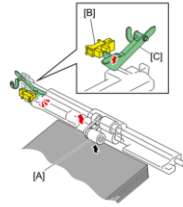
- When the tray is set in the machine, the set switch at the rear of the tray switches on.
- The coupling [B] between the shaft [A] at the rear of the tray and the lift motor [C] then engages, the motor rotates, and the tray bottom plate [D] is lifted.
- When the tray is removed, the coupling is released, and the tray bottom plate moves down, The lift motor then rotates until the coupling returns to the home position.

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No additional notes

Tray Lift - 2

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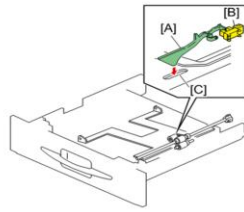


- The tray bottom plate lifts until the paper pushes up the pick-up roller [A]. This moves the tray lift feeler [C] up and the tray lift sensor [B] switches off.
- Then the machine enters the paper feed standby mode.

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No additional notes

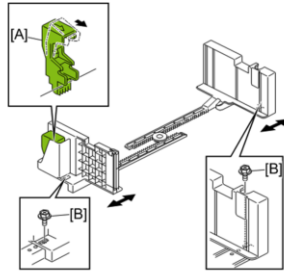
■ Paper End Detection



- If there is paper in the paper tray, the paper stack raises the feeler [A] and the paper end sensor [B] is deactivated.
- When the paper tray runs out of paper, the feeler [B] drops into the cutout [C] in the bottom plate and the paper end sensor is activated.
- When the tray is pulled out with no paper in the tray, the feeler is not caught, because of its shape.

No additional notes

Side Fences



- If the tray is full of paper and it is pushed in strongly, the fences may bend. This may cause the paper to skew or the side-to-side registration to be incorrect.
- To correct this, each side fence has a stopper [A] attached to it.
- Each side fence can be secured with a screw [B], for customers who do not want to change the paper size.

No additional notes



The End