Model PN-MF2a
Machine Code: M049

Model PN-MF2b
Machine Code: M048

Field Service Manual

7 April, 2009

Safety Notice

Important Safety Notices

Prevention of Physical Injury

1. Be sure that the power cord is unplugged before disassembling or assembling parts of the copier or peripherals.
2. The wall outlet should be near the copier and easily accessible.
3. Note that electrical voltage is supplied to some components of the copier and the paper tray unit even while the main power switch is off.
4. If you start a job before the copier completes the warm-up or initializing period, keep hands away from the mechanical and electrical components until job execution has started. The copier will start making copies as soon as warm-up or initialization is finished.
5. The inside and the metal parts of the fusing unit become extremely hot while the copier is operating. Be careful to avoid touching those components with your bare hands.

Health Safety Conditions

Toner and developer are nontoxic, but getting either of these into your eyes may cause temporary eye discomfort. Try to remove with eye drops or flush with water. If material remains in eye or if discomfort continues, get medical attention.

Note

- Keep the machine away from flammable liquids, gases, and aerosols. A fire or an explosion might occur if this precaution is not observed.

Safe and Ecological Disposal

1. Do not incinerate toner bottles or used toner. Toner dust may ignite suddenly if exposed to an open flame.
2. Dispose of used toner, developer, and organic photoconductors in accordance with local regulations. (These are nontoxic supplies.)
3. Dispose of replaced parts in accordance with local regulations.

Laser Safety

The Center for Devices and Radiological Health (CDRH) prohibits the repair of laser-based optical units in the field. The optical housing unit can only be repaired in a factory or at a location with the requisite equipment. The laser subsystem is replaceable in the field by a qualified Customer Engineer. The laser chassis is not repairable in the field. Customer engineers are therefore directed to return all chassis and laser subsystems to the factory or service depot when replacement of the optical subsystem is required.

⚠WARNING

- Use of controls not specified in this manual, or performance of adjustments or procedures not specified in this manual, may result in hazardous radiation exposure.

⚠ WARNING FOR LASER UNIT

⚠WARNING

- Turn off the main switch before attempting any of the procedures in the Laser Unit section. Laser beams can seriously damage your eyes.

CAUTION MARKING:

laser3b

Symbols, Abbreviations and Trademarks

This manual uses several symbols and abbreviations. The meaning of those symbols and abbreviations are as follows:

	See or Refer to
	Clip ring
	Screw
	Connector
	Clamp
	E-ring
SEF	Short Edge Feed
LEF	Long Edge Feed

Cautions, Notes, etc.

The following headings provide special information:

⚠WARNING

- FAILURE TO OBEY WARNING INFORMATION COULD RESULT IN SERIOUS INJURY OR DEATH.

⚠CAUTION

- Obey these guidelines to ensure safe operation and prevent minor injuries.

Note

- This information provides tips and advice about how to best service the machine.

Trademarks

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PostScript® is a registered trademark of Adobe Systems, Incorporated.

PCL® is a registered trademark of Hewlett-Packard Company.

Ethernet® is a registered trademark of Xerox Corporation.

PowerPC® is a registered trademark of International Business Machines Corporation.

Other product names used herein are for identification purposes only and may be trademarks of their respective companies. We disclaim any and all rights involved with those marks.

TABLE OF CONTENTS

5. System Maintenance Reference

6. Troubleshooting

1. Product Information

Specifications

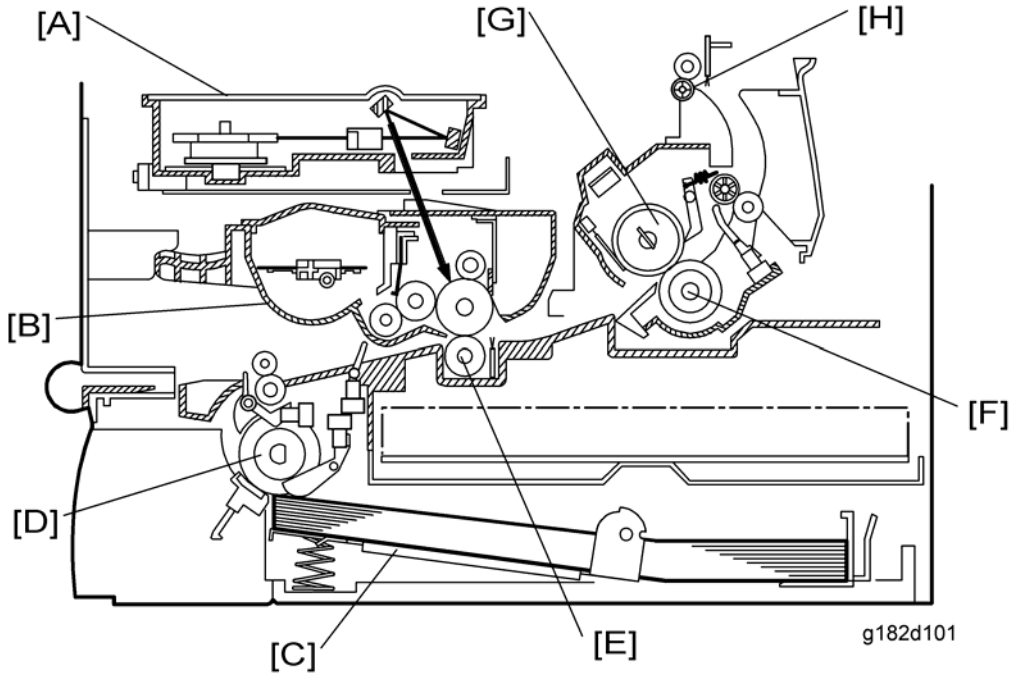
See “Appendices” for the following information:

- General Feature
- Supported Paper

Component Layout

1

Mechanical Components



No.	Name	Description
A	Laser Unit	Consists of the laser diode unit, cylindrical lens, F-theta lens, polygon mirror motor, and other laser optical components.
B	Toner Cassette	Consists of the OPC drum, toner, toner application roller, development roller, charge brush roller, cleaning blade, and other development components.
C	Upper Tray Bottom Plate	Presses paper stacked in the upper paper tray against the paper feed roller.
D	Paper Feed Roller	Picks up the top sheet of paper from the stack in the upper paper tray and feeds it into the transfer area.
E	Transfer Roller	Applies a charge to the paper to pull the toner off the drum and onto the copy paper.

No.	Name	Description
F	Pressure Roller	Applies pressure to the paper during fusing.
G	Hot Roller	Fuses the toner to the copy paper.
H	Paper Exit Roller	Feeds the paper out of the printer.

Block Diagram

See “Appendices” for “Block Diagram”.

P-to-P

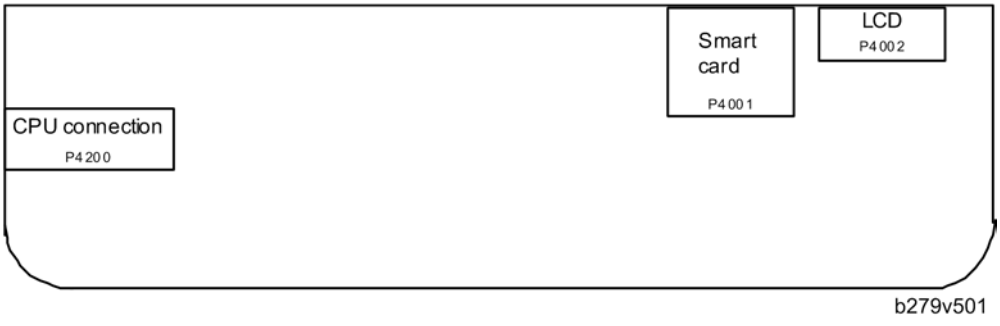
See “Appendices” for “P-to-P”.

Operation Panel Card

The operation panel card interfaces with the keyboard keys and the LCD display.

The LCD has its own driver in COB (Chip On Board).

The card also has an external connector to the smart card which is managed by the CPU.



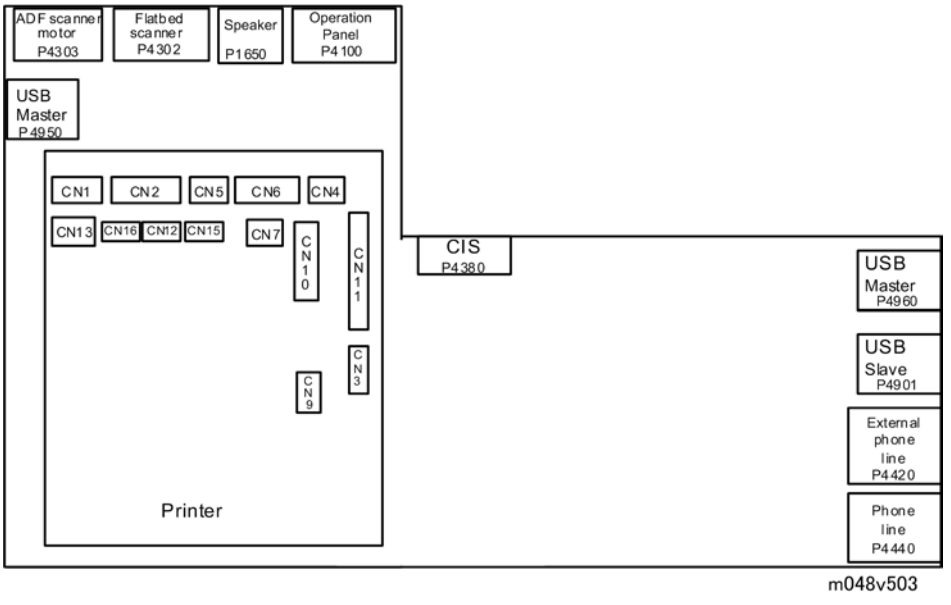
CPU Card

The CPU card is based on the Digicolor2 circuit, which ensures the processor functions.

All the executable code is stored in the flash Z466.

This flash is divided into two zones: one zone is reserved for storing code and the other is reserved for storing documents.

The code is loaded in SDRAM from this flash and the processor executes its instructions from the SDRAM. The SDRAM also serves as the operating memory for Digicolor2.


ADF scanner motor P4303
Flatbed scanner P4302
Speaker P1650
Operation Panel P4100
USB Master P4950
CN1
CN2
CN5
CN6
CN4
CN13
CN16
CN12
CN15
CN7
CN10
CN11
CN3
CN9
Printer
CIS P4380
USB Master P4960
USB Slave P4901
External phone line P4420
Phone line P4440
m048v503

Guidance for Those Who are Familiar with Predecessor Products

The PN-MF2a/MF2b range of machines is the successor model to the PN-C1L/C1 range of machines. If you have experience with the predecessor line, the following information may be of help when you read this manual.

Differences from Predecessor Products

	PN-C1L/C1	PN-MF2a/MF2b
Print Speed	16ppm (A4)	20ppm (A4)
Duplex	No	Yes (Manual duplex printing)
Copy Speed	16cpm (A4)	20cpm (A4)
ID Card Copy	No	Yes
Scanning Capabilities	• Twain scanning • Scan to USB memory	• Twain scanning • Scan to USB memory • WIA scanning
Quenching Lamp	No	Yes

1

2. Installation

Installation Procedure

Refer to the "Operation Instructions for Installation Procedure".

3. Preventive Maintenance

PM Tables

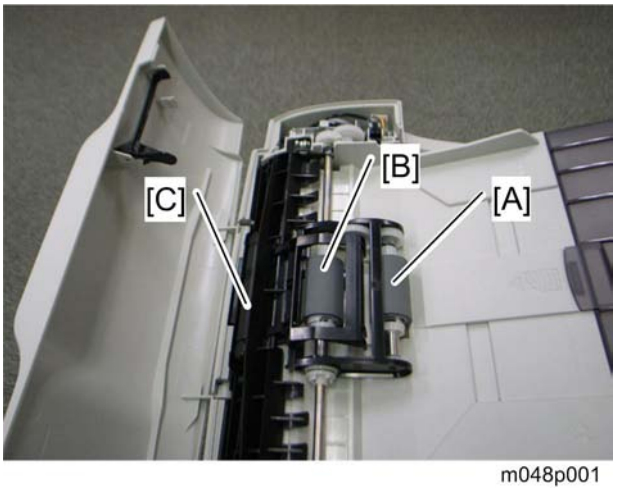
There are no PM parts for this machine.

Cleaning

To keep the machine in good working condition, the following operations should be carried out regularly:

- Cleaning the paper transport rollers of the ADF scanner
- Cleaning the paper separator
- Cleaning the CIS window of the flatbed scanner
- Cleaning the front panel keys and the printer covers
- Printer maintenance
- Cleaning the printer with a soft cloth, never use abrasives or detergents.

Paper Transport Rollers



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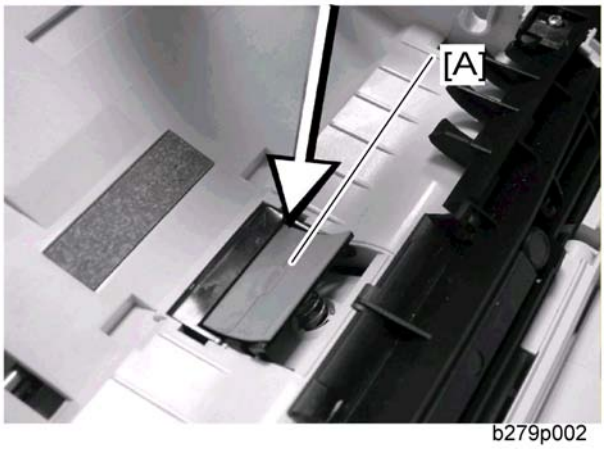
1. Set the On/Off switch to Off (position 0).
2. Open the ADF scanner cover.
3. Clean the paper feed roller (pick-up) [A], paper feed roller (feed) [B], feed shafts, and also the two analysis rollers [C] located on the mobile part of the scanner, with a lint-free cloth moistened in isopropyl alcohol.

   To clean them, rotate them in the same direction as during paper transport.

Recommended interval: from 2 to 6 months, depending on utilization.

Paper Separator Module



1. Set the On/Off switch to Off (position 0).
2. Open the ADF scanner cover.
3. Disassemble the ADF feeder (☛ "Inside Paper Path Assembly" in the chapter "Replacement and Adjustment").
4. Wipe the elements of the paper separation pad [A] with a lint-free cloth soaked with isopropyl alcohol.

Recommended interval: from 2 to 6 months, depending on utilization.

CIS and Flatbed Window

1. Set the On/Off switch to Off (position 0).
2. Open the flatbed scanner cover.
3. Clean the CIS window with a lint-free cloth moistened with isopropyl alcohol or use antistatic paper used for cleaning optic glass.

Recommended interval: depending on utilization; it is advisable to make a local copy to check if the window is clean.

Front Panel Keys and Covers

Cleaning the front panel keys

1. Set the On/off switch to Off (position O).
2. Clean the top of the front panel and the keys with a lint-free cloth moistened with isopropyl alcohol or a spray-on cleaning product.

3. Leave the product on for a few seconds before wiping it off.

Recommended interval: to be defined depending on utilization.

Cleaning the covers

It is advisable to clean all the covers during a maintenance visit.

1. Set the On/Off switch to Off (position O).
2. Clean the external areas of the covers with a lint-free cloth moistened with isopropyl alcohol or a spray-on cleaning product.
3. Leave the product on for a few seconds before wiping it off.

4. Replacement and Adjustment

General Precautions on Disassembly

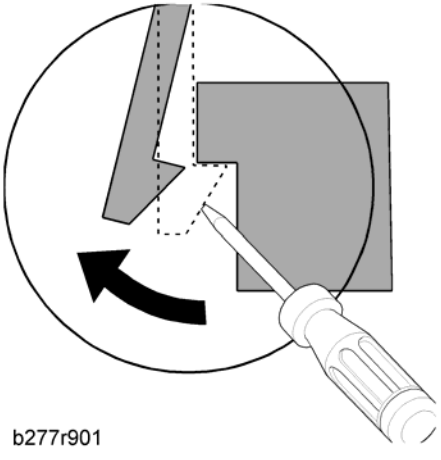
General Precautions

- Use high caution when you disassemble and reassemble components.
- Make sure all cables are correctly routed. Check the correct cable routing before you service the machine. Return all cables to their original position after you service the machine.

Servicing the Machine

1. Make sure there are not documents stored in memory before you service the machine.
2. Remove the toner cartridge before you disassemble parts.
3. Unplug the power cord before you service the machine.
4. Use a flat clean surface to service the machine.
5. Use only approved replacement parts. Machine function cannot be guaranteed of you use unauthorized replacement parts.
6. Do not force plastic components.
7. Make sure all components are in their correct positions.

Releasing Plastic Latches



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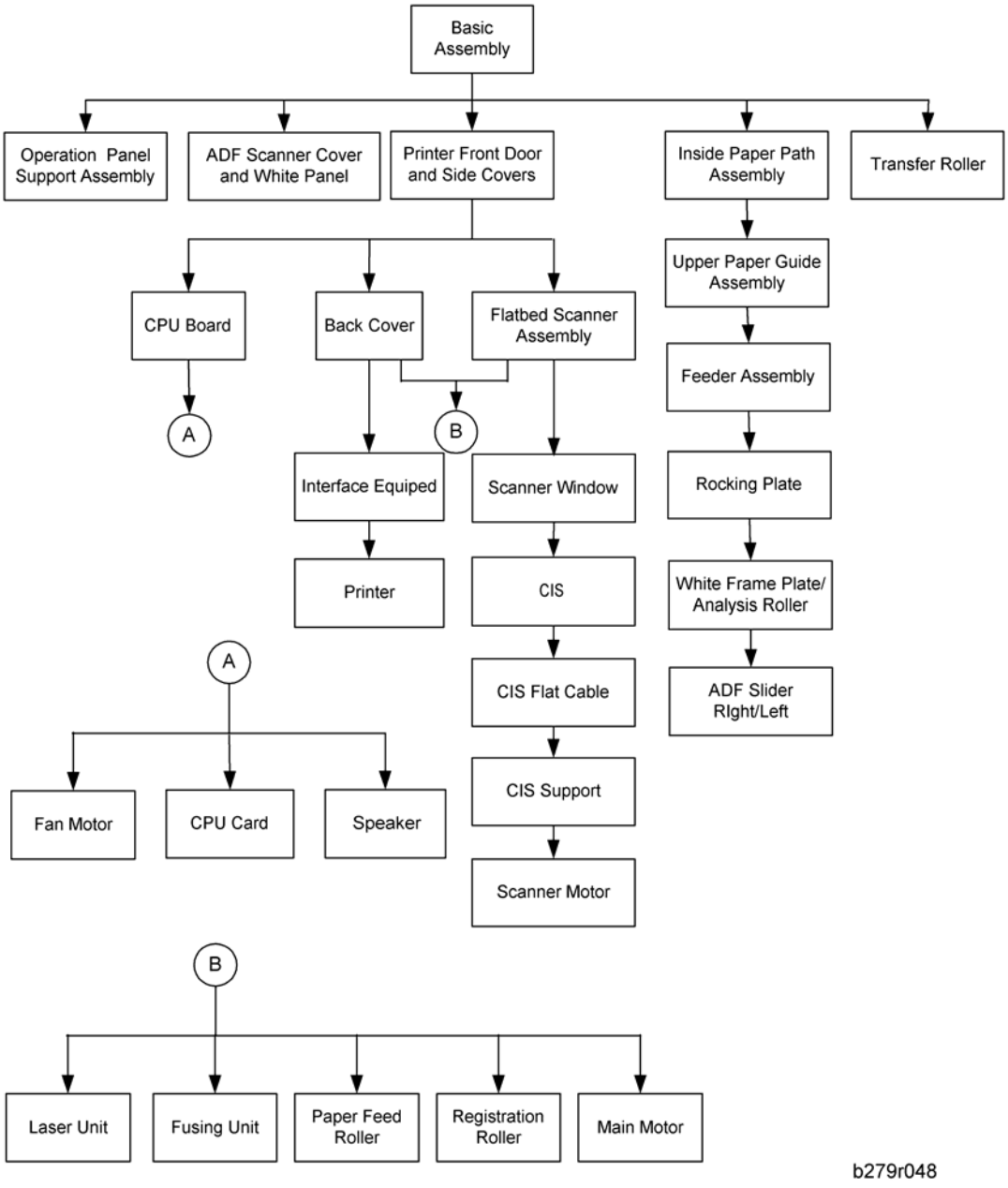
Many of the parts are held in place with plastic latches. The latches break easily. Release them carefully. To remove such parts, press the hook end of the latch away from the part to which it is latched.

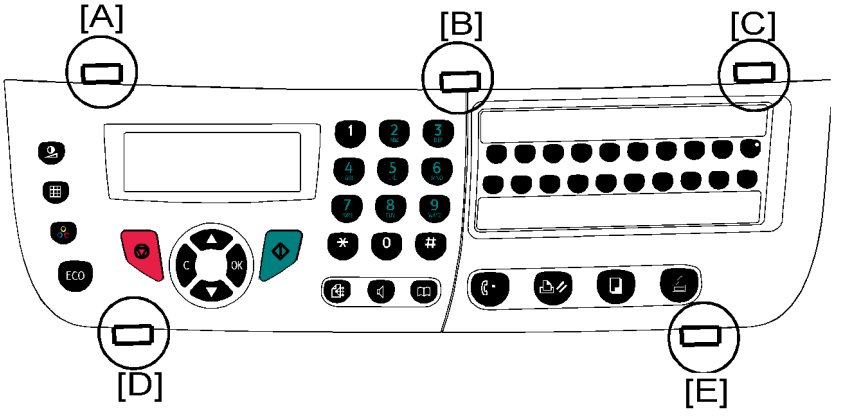
Replacement Worksheet Chart

When you replace a unit, refer to the flowchart as shown below to confirm the steps.

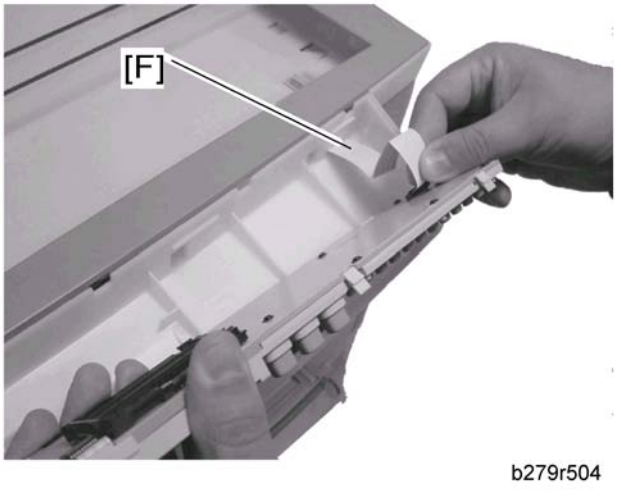


Operation Panel

1. Stand in front of the machine.



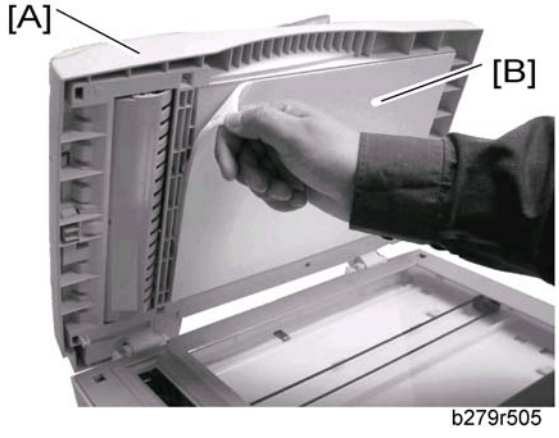
2. Unlock the three clips of the operation panel ([A], [B] and [C]).
3. Pull the panel towards yourself to release it from the two bottom slots ([D] and [E]).



4. Disconnect the flat panel cable [F] from the panel card connector.
5. Disassemble the operation panel.

ADF Scanner Cover and White Panel

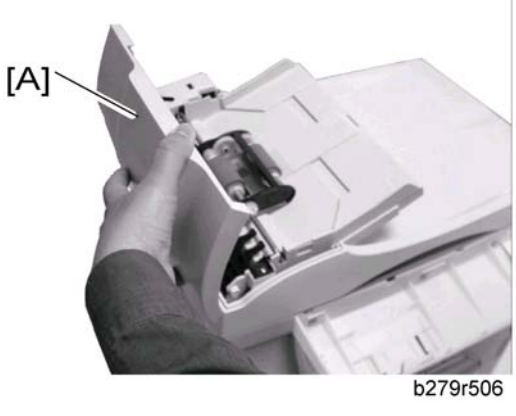
White Panel



1. Stand in front of the machine and open the ADF scanner cover [A].
2. Pull out the white panel [B] located inside the ADF scanner cover.

ADF Scanner Cover

<M048 only>



1. Open the ADF cover [A].

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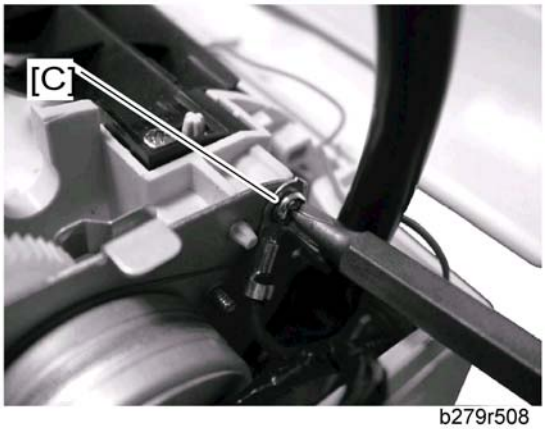
2. Remove the ADF motor cover [B] from its two slots using a flat screwdriver then disassemble the ADF motor cover.



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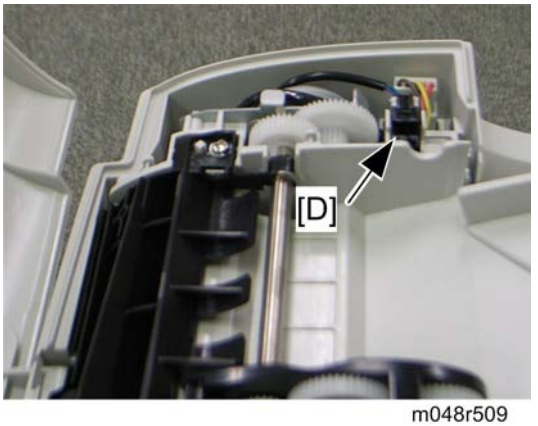
3. Unscrew the mounting screw [C] of the ground cable.



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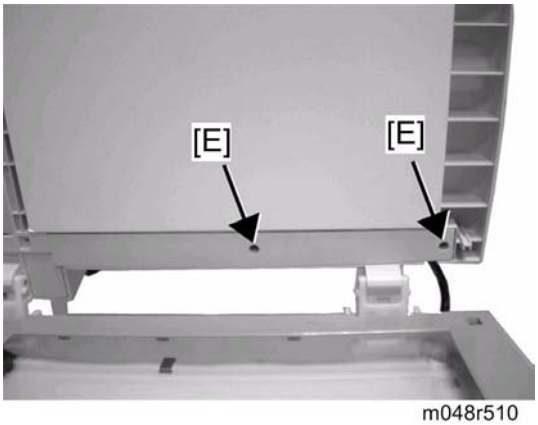
4. Disconnect the ADF scanner cover sensor connector [D].



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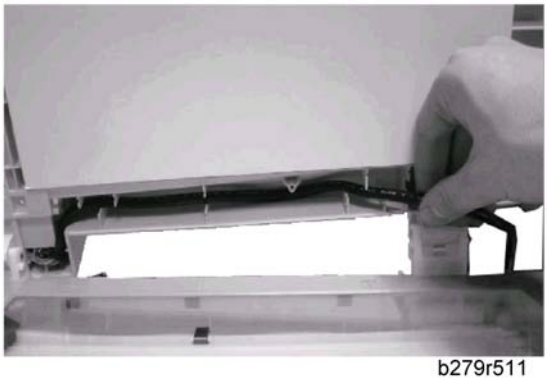
5. Open the ADF scanner cover, unscrew the two mounting screws [E] of the cable cover and remove the cable cover.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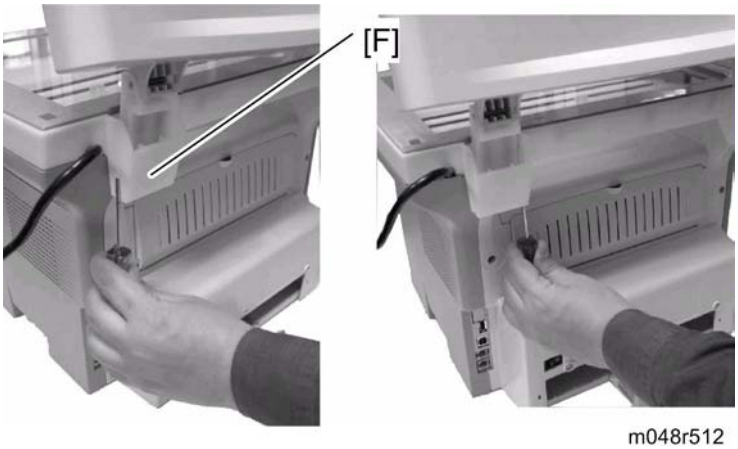
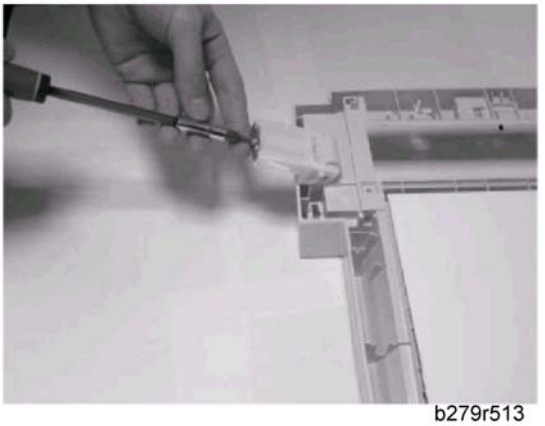
6. Remove the ground cable, the ADF cover sensor connector and the paper sensor connector from their cable guide then slide them out of the ADF scanner cover.



m048r512

7. Insert a flat screwdriver in each slot of the two ADF scanner cover hinges [F].



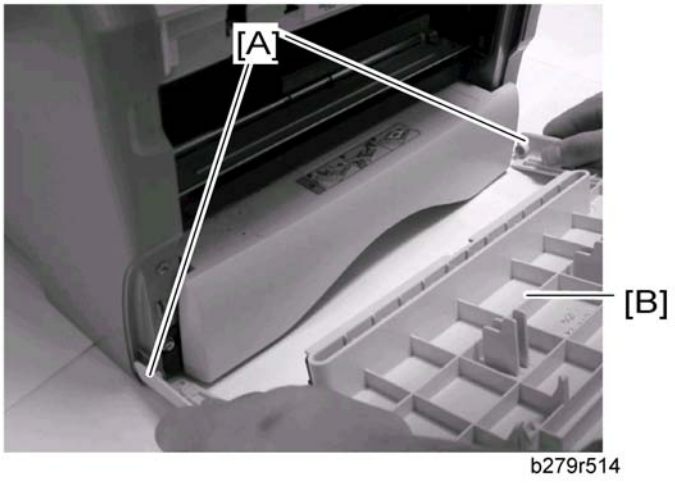
b279r513

8. Lift and remove the ADF scanner cover, do not forget the mounting screws of the hinges.

Front Door and Side Covers

Front Door

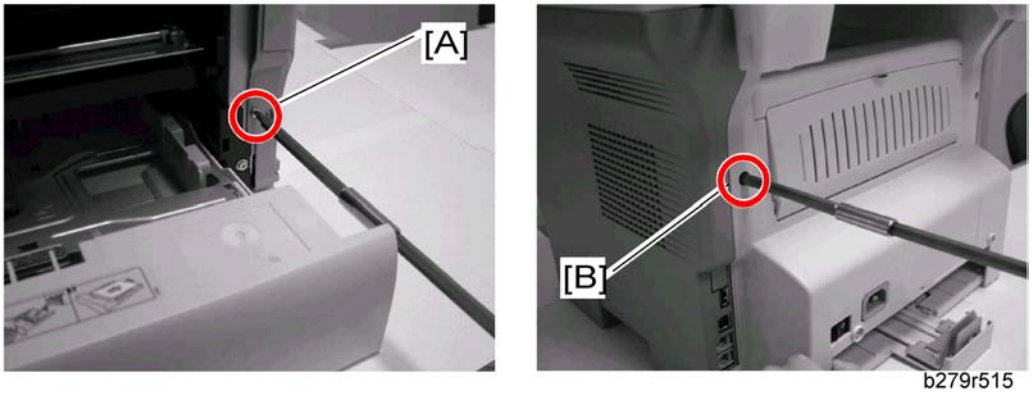
1. Stand in front of the machine.



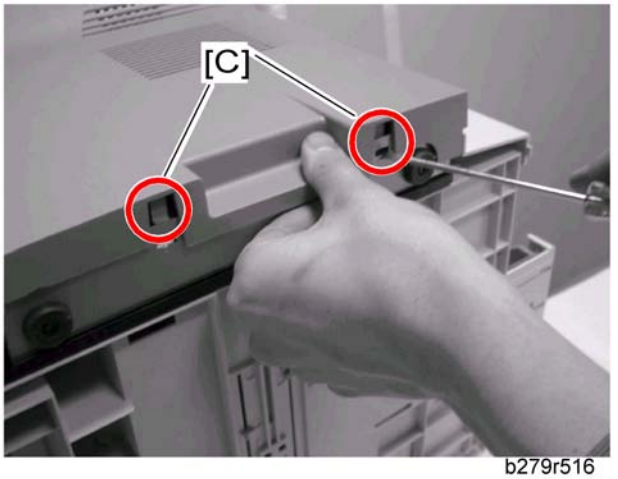
2. Push the left and right sides [A] of the front door and simultaneously pull it towards yourself.
3. Move the arms away from each other and remove the front door [B].

Side Covers

1. Open the printer's paper tray.



2. Unscrew the two mounting screws on the front [A] and back [B] of the side covers (right and left).



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3. Using a flat screwdriver, unscrew the side covers from their slots [C] located at the bottom of the machine.

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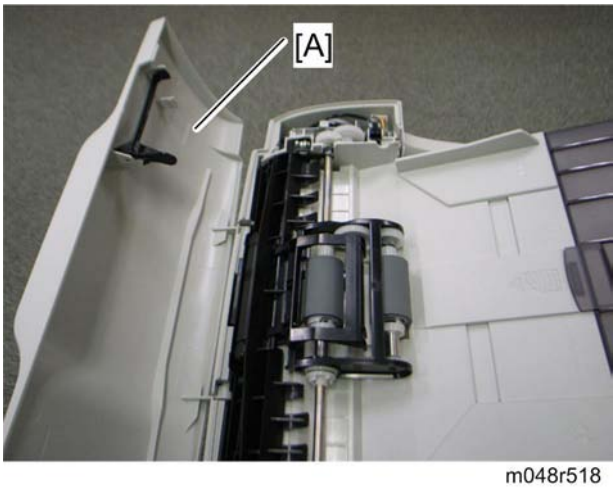
4. Unclip the side covers [D] from the top slots located at the back of the machine and pivot them towards yourself to remove them.
5. Remove the side covers.

ADF Assembly

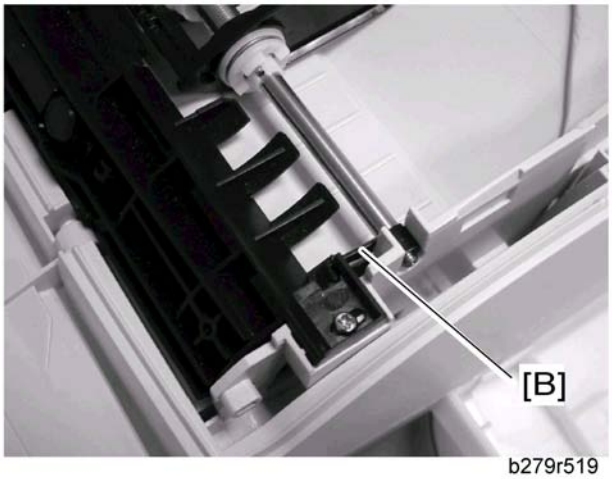
Feeder Assembly

<M048 only>



m048r518

1. Open the ADF cover [A].



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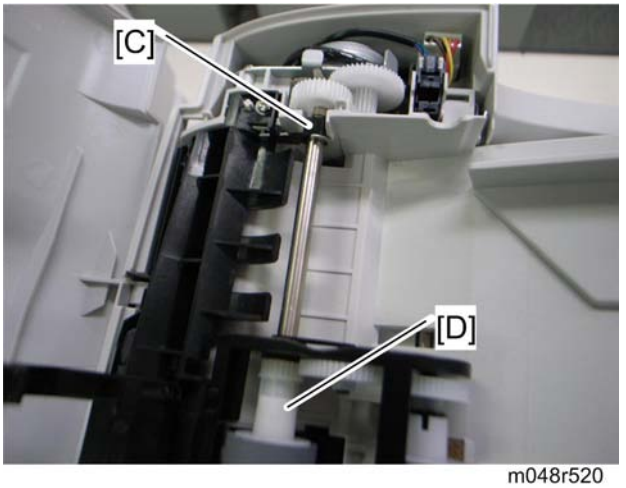
2. Lift the roller bearing [B].



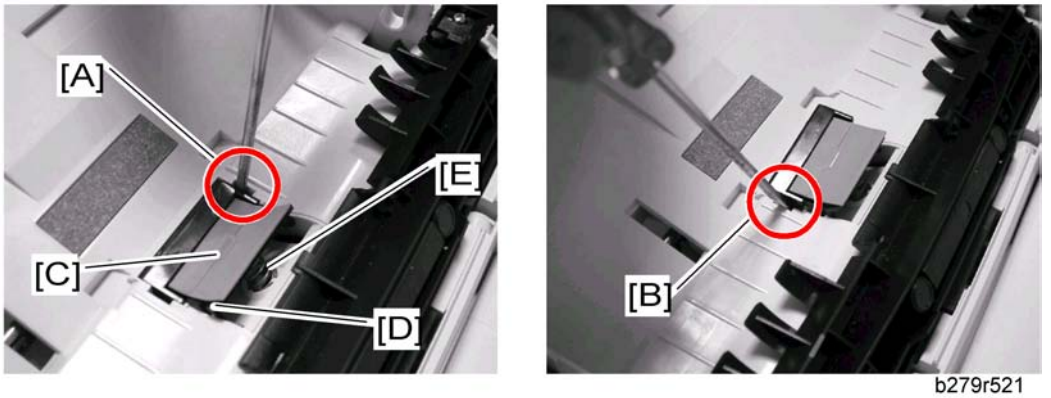
m048r520

3. Lift the roller bearing [C] from the other end of the feeder.
4. Lift the feeder assembly [D] and remove the feeder.

Friction Pad and Cork Pad

Friction Pad

<M048 only>



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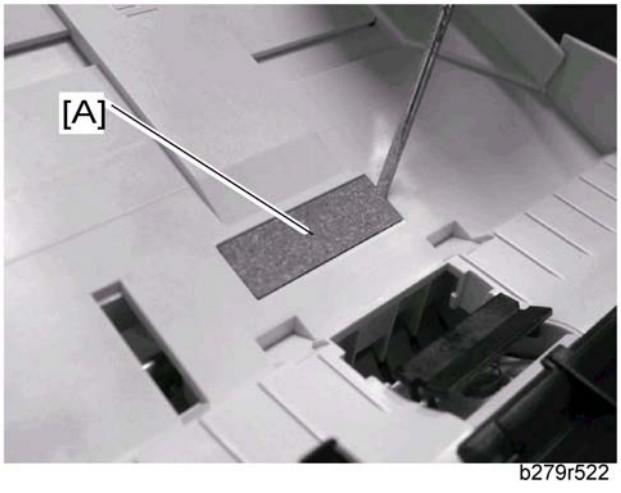
1. Feeder assembly ("Feeder assembly")
2. Insert a screwdriver in the right slot [A] as shown above and make a pivoting movement downwards without strain to remove the friction pad.
3. Repeat the previous step for the left slot [B] of the friction pad.
4. Remove the friction pad [C], the feeder shoe [D] and the friction pad spring [E].

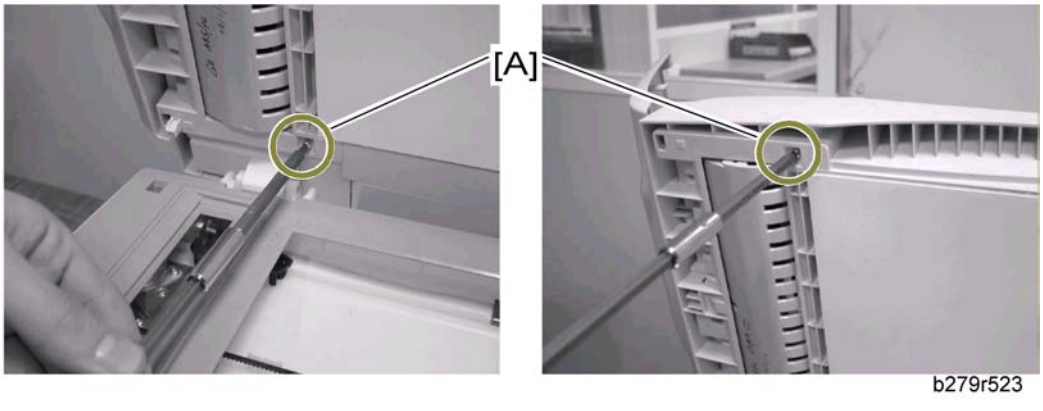
Cork Pad



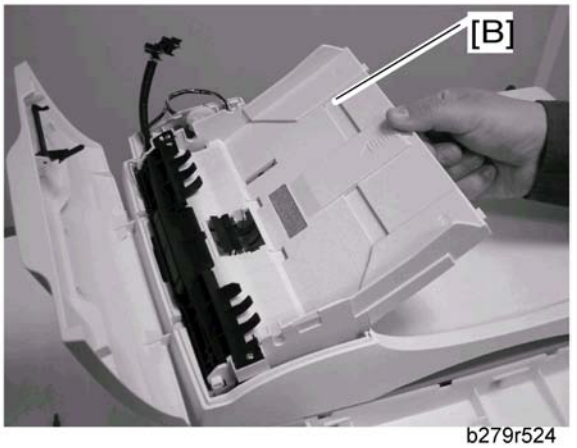
1. Feeder assembly ("Feeder assembly")
2. Insert a screwdriver in the right slot on the upper part of the ADF scanner as shown above and make a pivoting movement downwards without strain to remove the cork pad [A].
3. Remove the cork pad [A].

Inside Paper Path Assembly

<M048 only>



1. Lift the ADF cover and unscrew the two mounting screws [A] of the inside paper path assembly.



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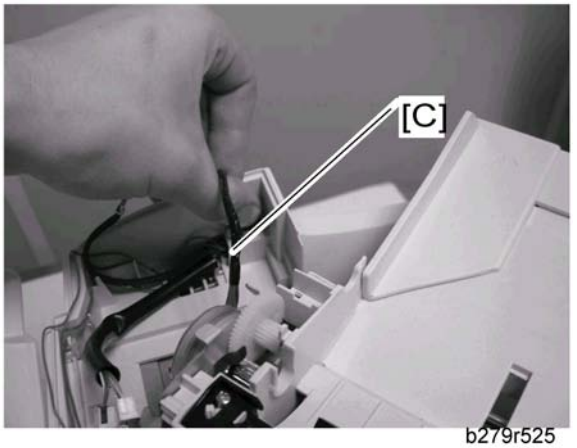
2. Lift the inside paper path assembly [B] and remove it from its slot without disassembling it.



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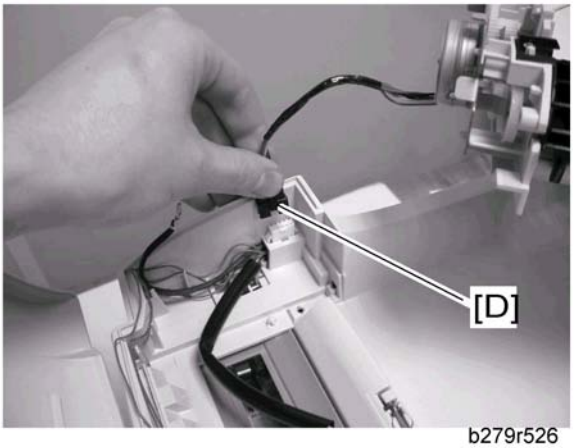
3. Remove the motor frame cable [C] from its cable guide.



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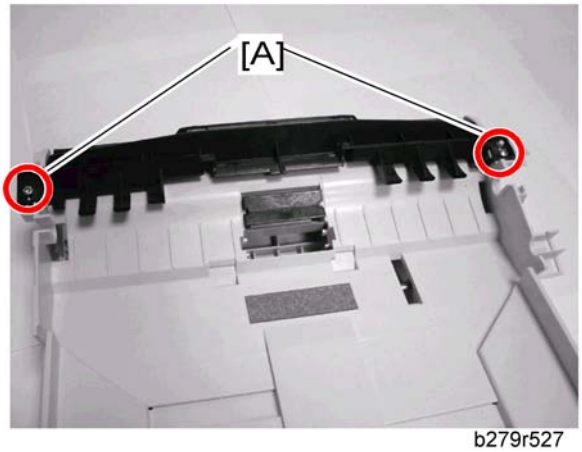
4. Disconnect the connector [D] reaching the ADF cover and remove the inside paper path assembly.

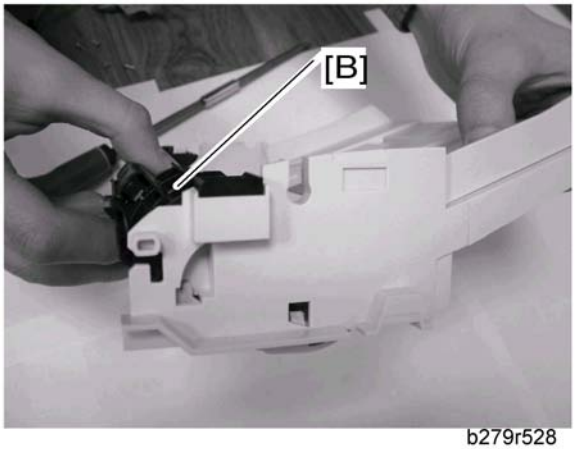
Upper Paper Guide Assembly

<M048 only>



b279r527

1. Feeder assembly (☛ "Feeder assembly")
2. Open the ADF cover.
3. Unscrew the two mounting screws [A] of the paper guide assembly.



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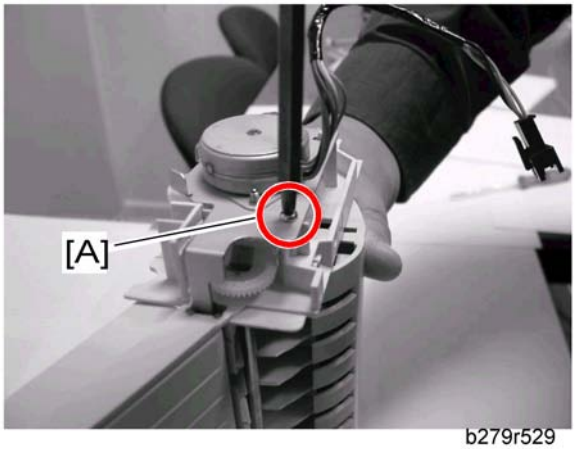
4. Make a forward movement and remove the paper guide assembly [B].

Motor Frame

< M048 only>



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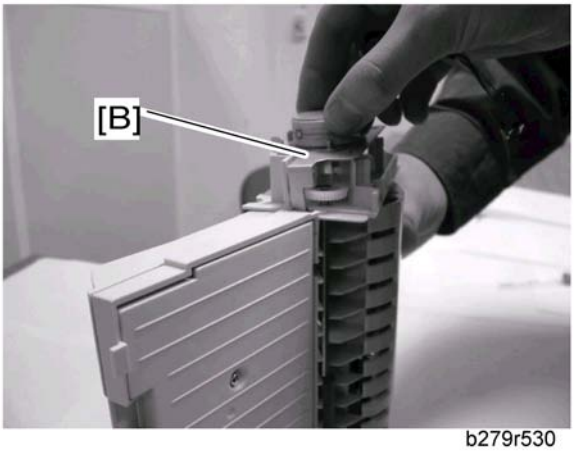
1. Inside paper path assembly (☞ "Inside Paper Path Assembly")
2. Unscrew the mounting screw [A] of the motor frame.



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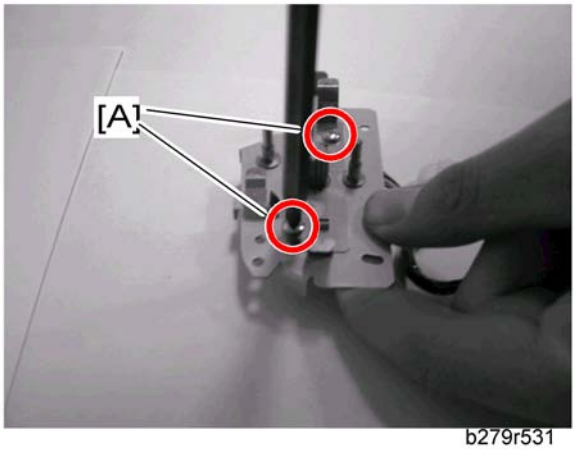
3. Lift and remove the motor frame [B]. Locate the gears and remove them.

Motor

< M048 only>



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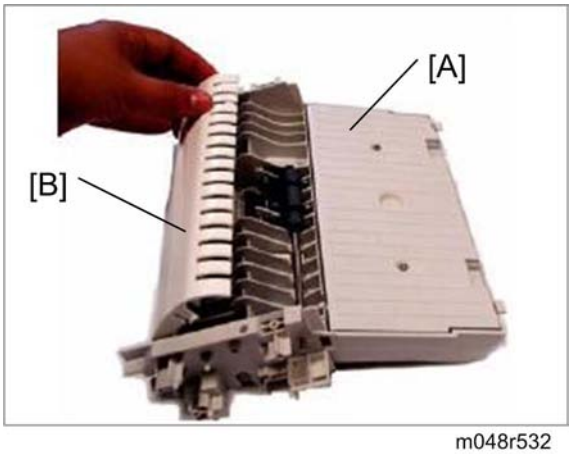
1. Motor Frame (☛ "Motor Frame)
2. Unscrew the two mounting screws [A] of the motor and remove the motor.

Scan Path Guide/ Analysis Roller/ Antistatic Brush/ ADF Sliders

Scan path guide

< M048 only>



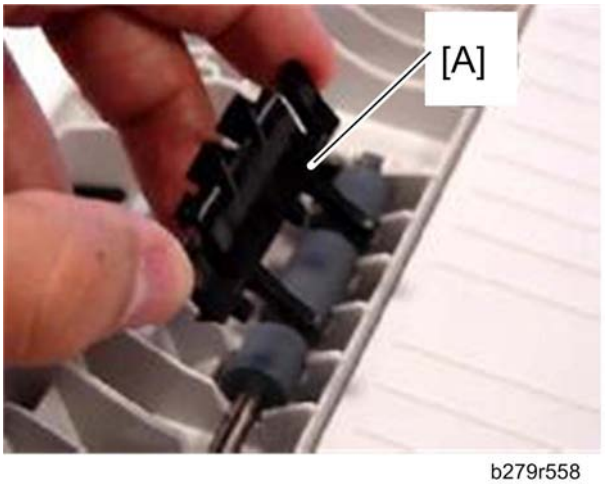
m048r532

1. Inside paper path assembly (☛ "Inside Paper Path Assembly")
1. Motor frame for analysis rollers (☛ "Motor Frame")

2. Turn the inside paper path assembly [A] upside down.
3. Lift the scan path guide [B] to disassemble it from the inside paper path assembly and remove it.

Paper Deflect Guide

1. Inside paper path assembly ("Inside Paper Path Assembly")
2. Motor frame for analysis rollers ("Motor Frame")
3. Turn the inside paper path assembly upside down.

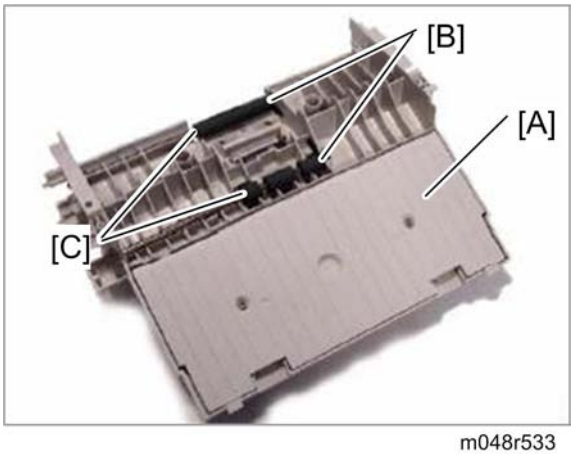


b279r558

4. Unclip the paper deflector [A] and remove it.

Analysis Roller

1. Inside paper path assembly ("Inside Paper Path Assembly")
2. Motor frame for analysis rollers ("Motor Frame")

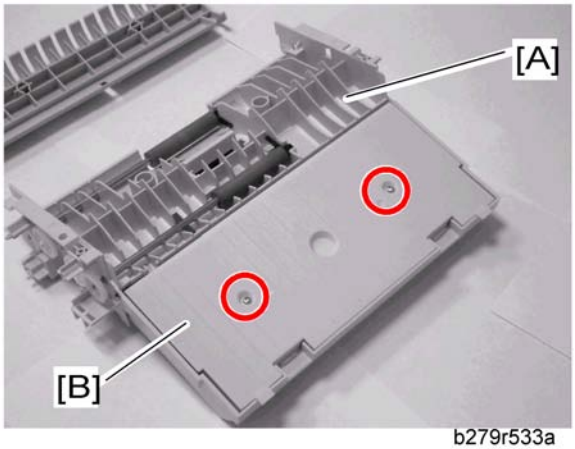


m048r533

3. Turn the inside paper path assembly [A] upside down.
4. Lift the roller bearing [B] turning of each one of the analysis rollers.
5. Remove the roller bearing turnings of the analysis rollers and remove the analysis rollers [C].

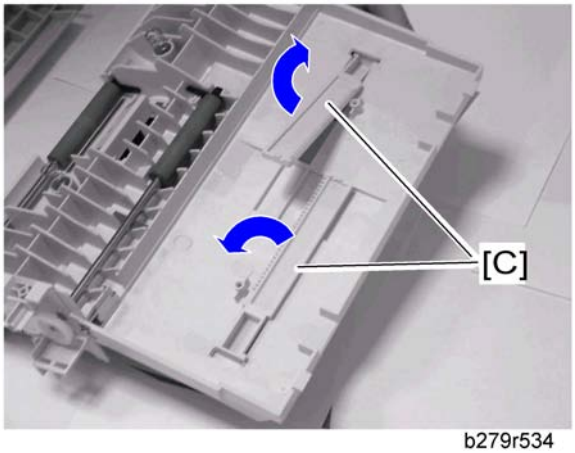
ADF Sliders and Antistatic Brush

1. Inside paper path assembly (☛ "Inside Paper Path Assembly")
2. Motor frame for analysis rollers (☛ "Motor Frame")



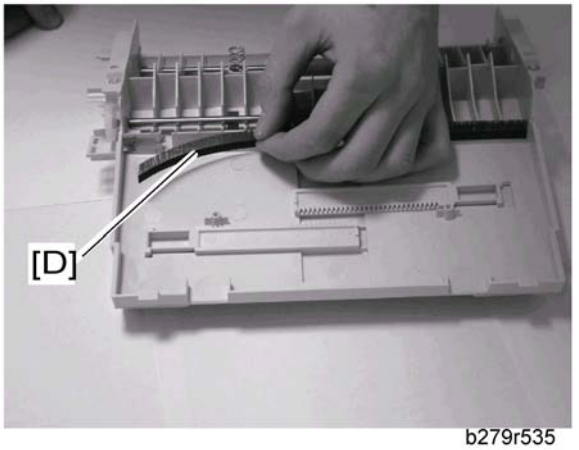
b279r533a

3. Turn the inside paper path assembly [A] upside down.
4. Unscrew the two mounting screws of the ADF wheelbox [B] and remove it.



b279r534

5. Vertically lift the ADF sliders [C] and remove them from the inside paper path assembly.



6. Remove gently the antistatic brush [D].

CPU Board

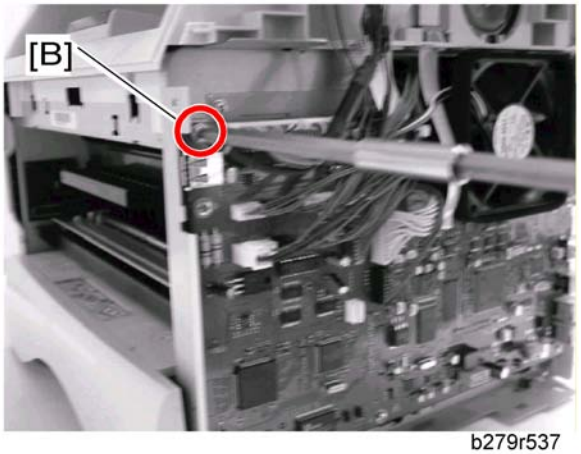
Important

- **Before replacing the CPU board, do the "Replacing the CPU Board" (☞ p.90 "Replacing the CPU Board") in the section "Administrator Functions" at the chapter "System Maintenance Reference".**

1. Front door and the right side cover (☞ "Front Door and Side Covers")

b279r536

2. Unscrew the three mounting screws of the CPU board plate [A].
3. Pull the CPU board plate [A] towards yourself and remove it.

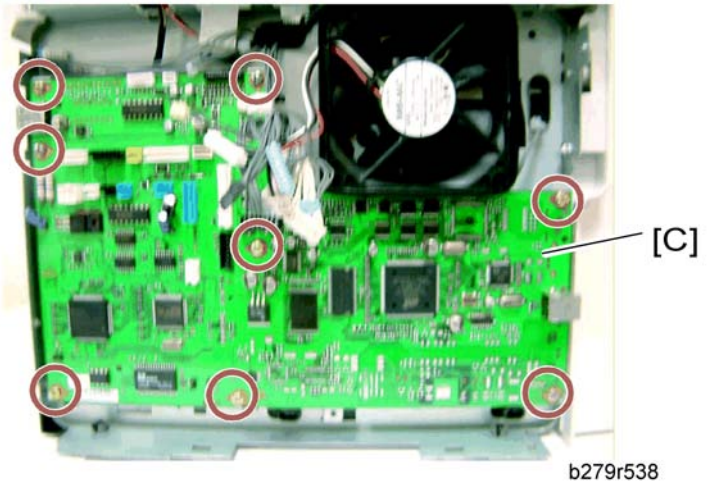


b279r537

4. Unscrew the mounting screw [B] of the CPU board connector and disconnect it.
5. Disconnect all incoming cords and leads from the CPU board connectors.

Important

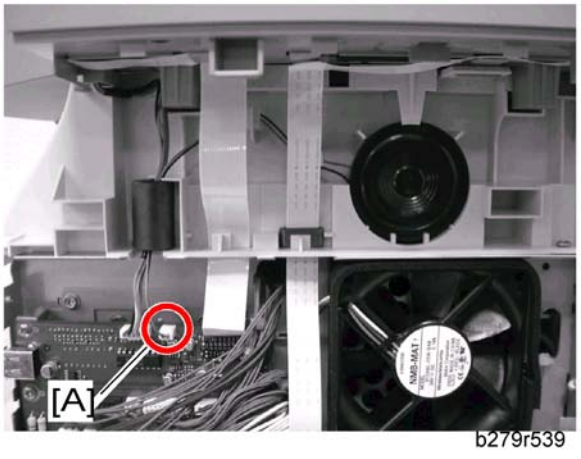
- MEMORIZE ALL CONNECTIONS FOR REASSEMBLY.



6. Unscrew the eight mounting screws and remove the CPU board [C].

Speaker

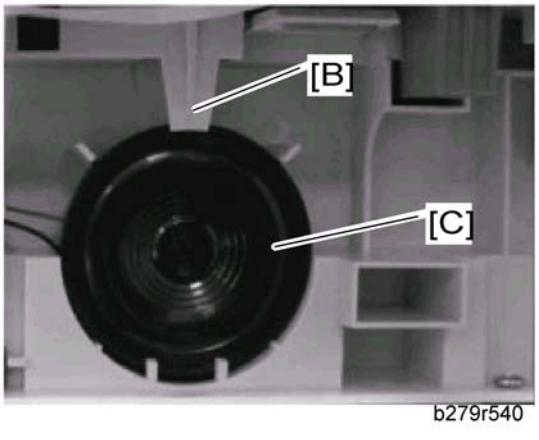
1. Front door and the right-hand side cover ("Front Door and Side Covers")
2. CPU board plate ("CPU Board")



3. Disconnect the speaker connector [A] from the CPU board.
4. Remove the speaker connector from its ferrite tube and cable guide.

Important

- MEMORIZE THE CABLE GUIDE FOR REASSEMBLY.



5. Press the top clip [B] inwards until it unclips and pull the speaker [C] towards yourself.
6. Remove the speaker.

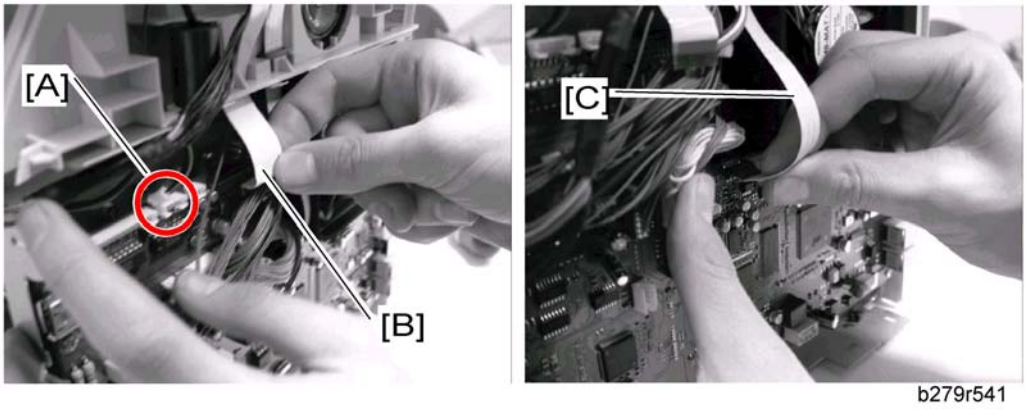
Scanner Assembly

Flatbed Scanner

Important

- **Before replacing the flatbed scanner, do the "Replacing the scanner" (☛p.90 "Replacing the Scanner") in the section "Administrator Functions" at the chapter "System Maintenance Reference".**

1. Flatbed scanner cover (☛ "ADF Scanner Cover and White Panel")
2. Front door and the side covers (☛ "Front Door and Side Covers")
3. CPU board plate (☛ "CPU Board")



4. Disconnect the scanner connector [A] from the CPU board and remove it from its ferrite tube and cable guide.
5. Disconnect the operation panel flat cable [B] and the CIS flat cable [C] from the CPU board.

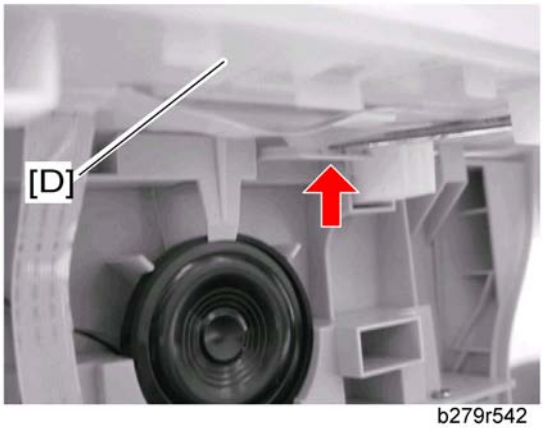
   Important

   - MEMORIZE THE CONNECTIONS FOR REASSEMBLY.

6. Remove the operation panel and CIS flat cables from their cable guides.

   Important

   - MEMORIZE THE CONNECTIONS FOR REASSEMBLY.



b279r542

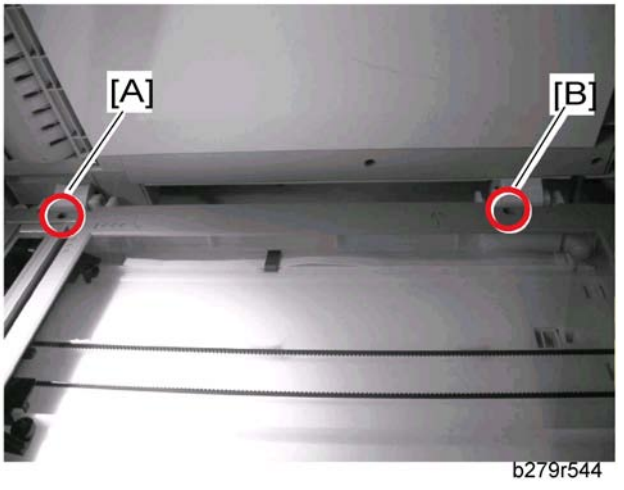
7. Unlock the assembled flatbed scanner [D] with a flat screwdriver and pull it towards yourself.

b279r543

8. Lift the assembled flatbed scanner and remove it.

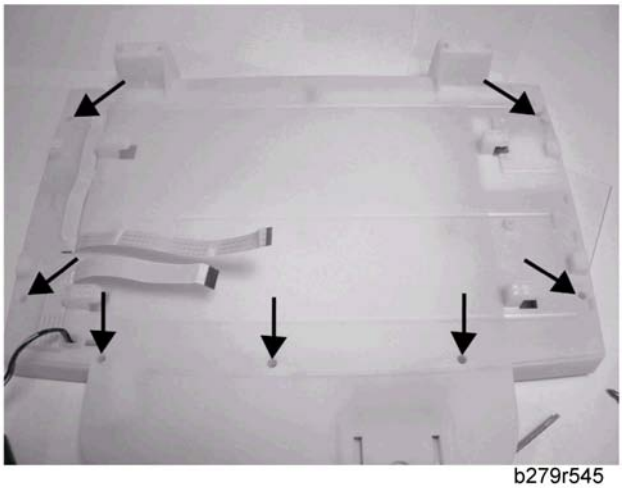
Scanner Frame

1. ADF scanner cover ("ADF Scanner Cover and White Panel").
2. Front door and the side covers ("Front Door and Side Covers").
3. CPU board plate ("CPU Board").
4. Flatbed scanner ("Flatbed Scanner")

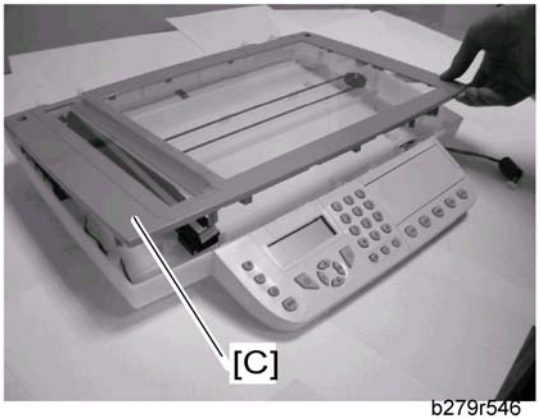


b279r544

5. Unscrew the two mounting screws [A] [B] on the scanner, and turn the scanner upside down.


b279r545

6. Unscrew the seven mounting screws at the back of the equipped scanner and turn it upside down.

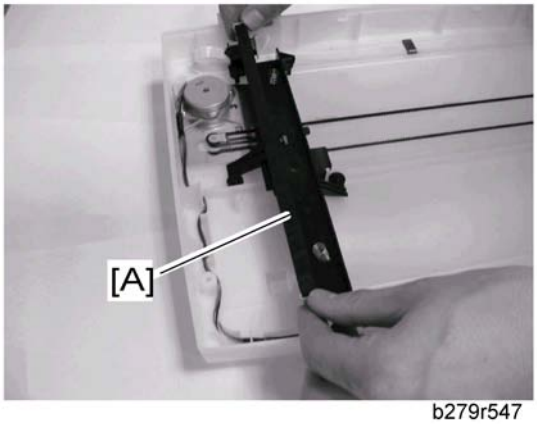


b279r546

7. Lift the front part of the scanner frame [C] and remove it.

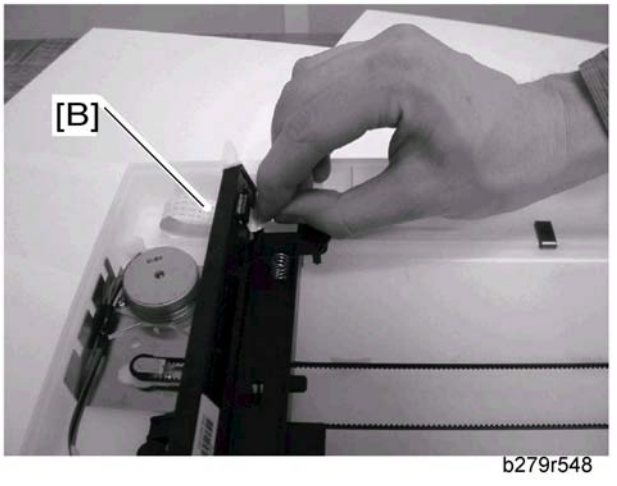
CIS

1. ADF scanner cover ("ADF Scanner Cover and White Panel").
2. Front door and the side covers ("Front Door and Side Covers").
3. CPU board plate ("CPU Board").
4. Flatbed scanner ("Flatbed Scanner")



b279r547

5. Lift the CIS [A] backwards.



6. Disconnect the CIS flat cable [B] and release the CIS from its two side slots.

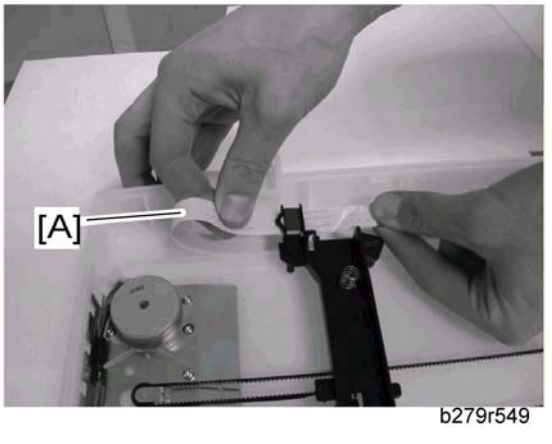
Important

- KEEP THE CIS SUPPORT SPRINGS AND CIS SLIDES.

7. Remove the CIS.

CIS Flat Cable

1. ADF scanner cover ("ADF Scanner Cover and White Panel").
2. Front door and the side covers ("Front Door and Side Covers").
3. CPU board plate ("CPU Board").
4. Flatbed scanner ("Flatbed Scanner")



5. Release the end of the CIS flat cable [A] and remove it from its slot.

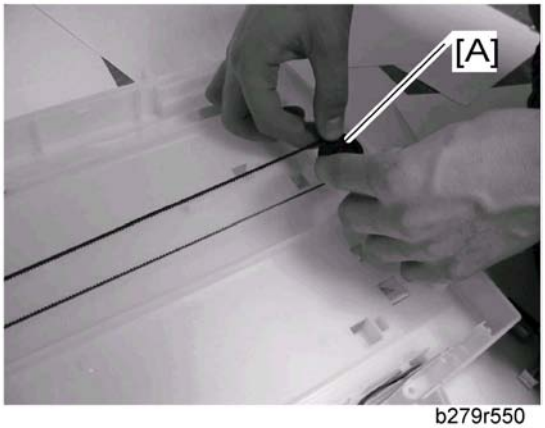
6. Slide the CIS flat cable out of its ferrite tube which is fixed to the CIS panel and remove it from the scanner.
7. Remove the CIS flat cable from its cable guides located above and below the scanner bottom then slide it to extract it from the scanner bottom.

   Important

   - MEMORIZE THE CABLE GUIDE FOR REASSEMBLY.
8. Remove the CIS flat cable.

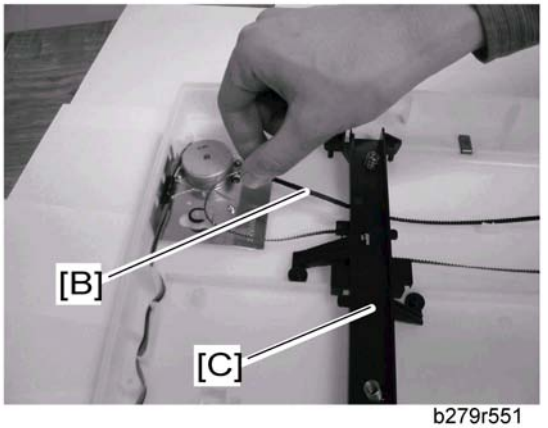
CIS Slide

1. ADF scanner cover (☛ "ADF Scanner Cover and White Panel").
2. Front door and the side covers (☛ "Front Door and Side Covers").
3. CPU board plate (☛ "CPU Board").
4. Flatbed scanner (☛ "Flatbed Scanner")



b279r550

5. Lift the CIS drive pulley [A] and the drive belt to extract the CIS drive pulley from its slot.

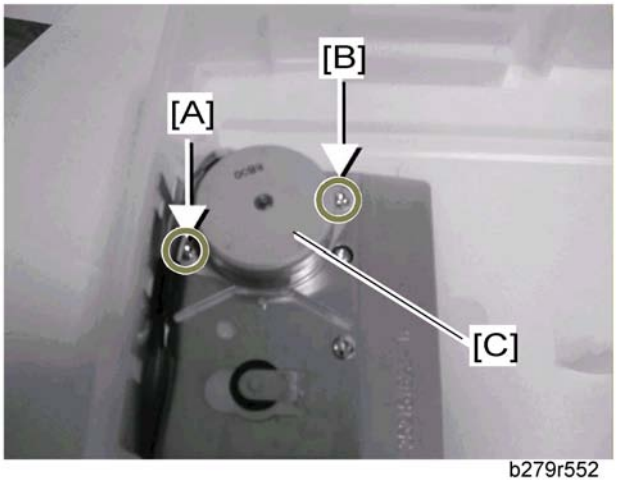


b279r551

6. Remove the drive belt [B] from the drive pulley.
7. Lift then disassemble the CIS slide [C].

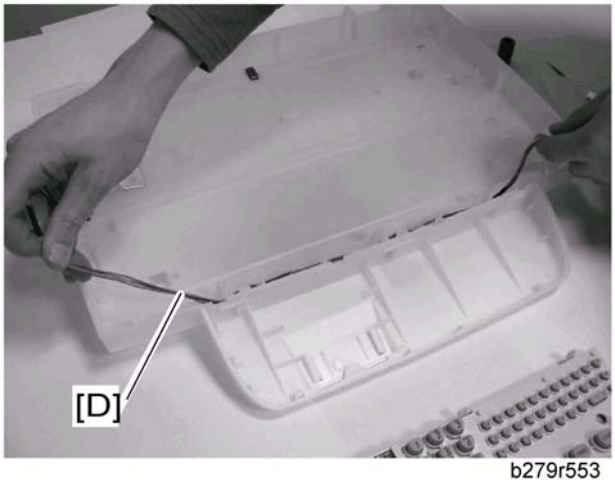
Scanner Motor

1. ADF scanner cover ("ADF Scanner Cover and White Panel").
2. Front door and the side covers ("Front Door and Side Covers").
3. CPU board plate ("CPU Board").
4. Flatbed scanner ("Flatbed Scanner")



b279r552

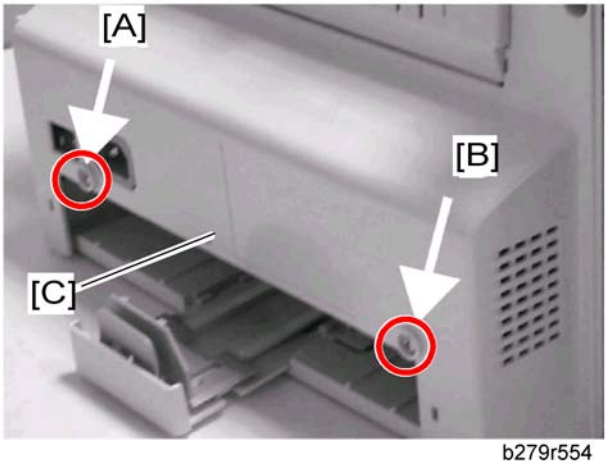
5. Unscrew the two mounting screws [A] [B] of the scanner motor [C].



6. Remove the end of the scanner motor connector [D] from its ferrite tube.
7. Remove the CIS motor connector from its cable guide.
8. Remove the scanner motor [C].

Back Cover

1. ADF scanner cover ("ADF Scanner Cover and White Panel").
2. Front door and the side covers ("Front Door and Side Covers").
3. CPU board plate ("CPU Board").
4. Flatbed scanner ("Flatbed Scanner")



b279r554

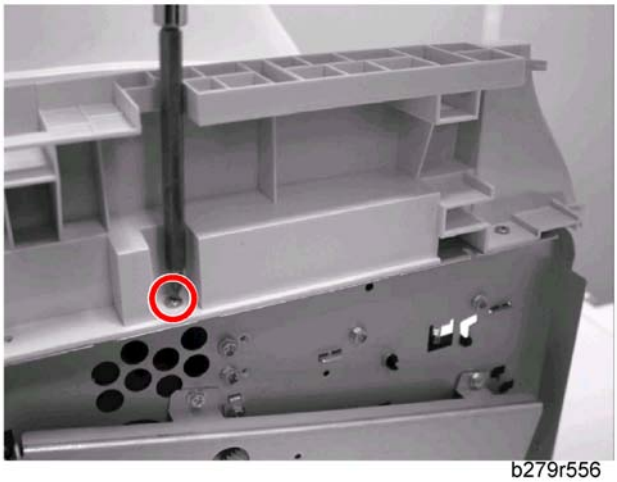
5. Stand behind the machine.
6. Unscrew the two back mounting screws [A] [B] on the back cover [C].

b279r555

7. Unscrew the two top mounting screws [D] [E] on the back cover.
8. Pull the back cover [C] towards yourself and remove it.

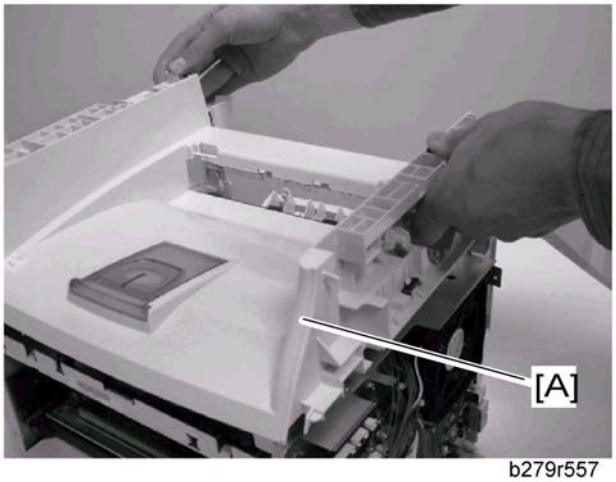
Middle Frame

1. ADF scanner cover ("ADF Scanner Cover and White Panel").
2. Front door and the side covers ("Front Door and Side Covers").
3. CPU board plate ("CPU Board").
4. Speaker ("Speaker")
5. Flatbed scanner ("Flatbed Scanner")
6. Back cover ("Back Cover")



b279r556

7. Unscrew the two mounting screws on the left and right side on the middle frame.



b279r557

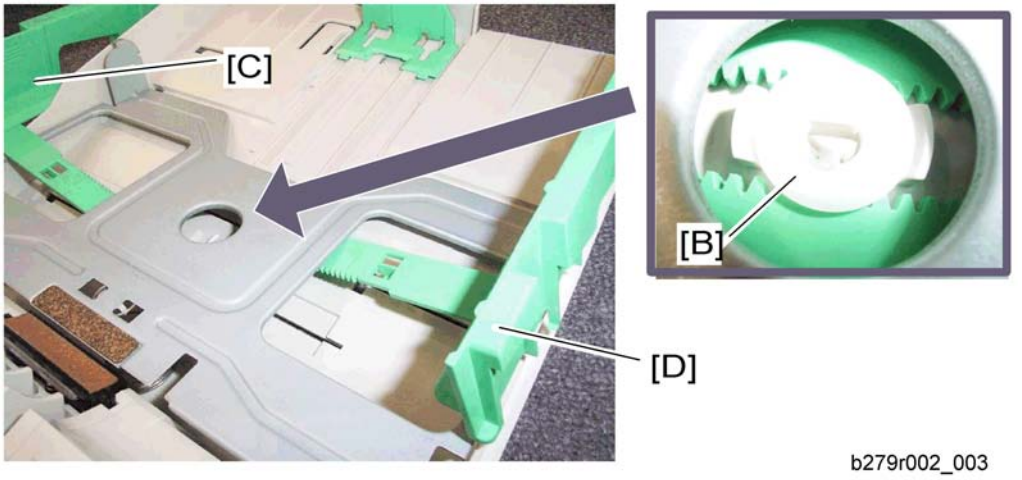
8. Lift and remove the middle frame [A].

Paper Cassette

Paper Cassette, Side Fence, Bottom Plate and Friction Pad

b279r001

1. Pull out the paper cassette [A]

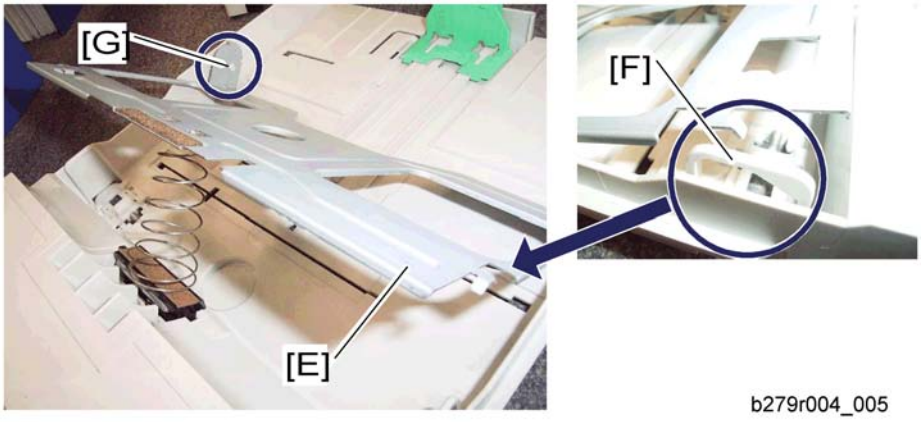


b279r002_003

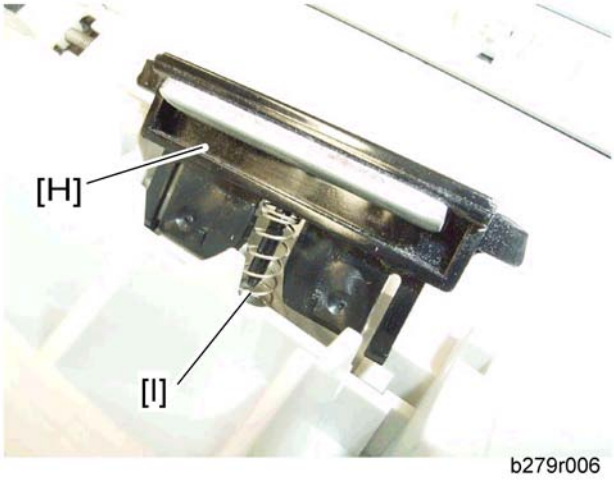
2. Side fence gear [B]
3. Side fence – Left [C] (hook)
4. Side fence – Right [D] (hook)

Note

- Lift the bottom plate before removing the side fences.



5. Bottom plate [E]
6. Unhook the hook [F] at both sides of the cassette.
7. Detach from the pin [G] at both sides.



8. Friction pad [H] (two hooks)

Note

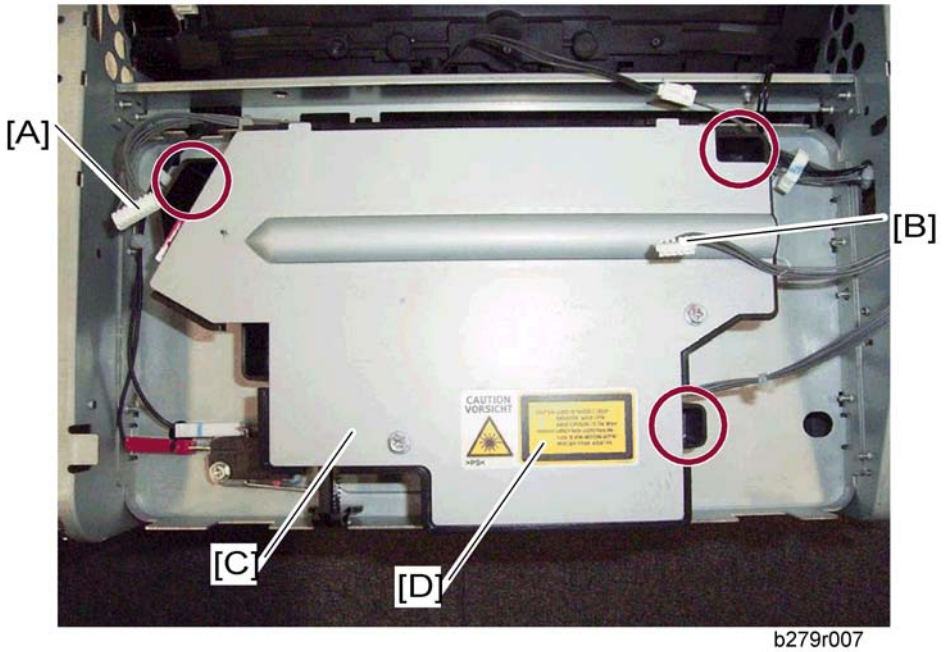
- Be careful not to lose the spring [I].

Laser Unit

⚠WARNING

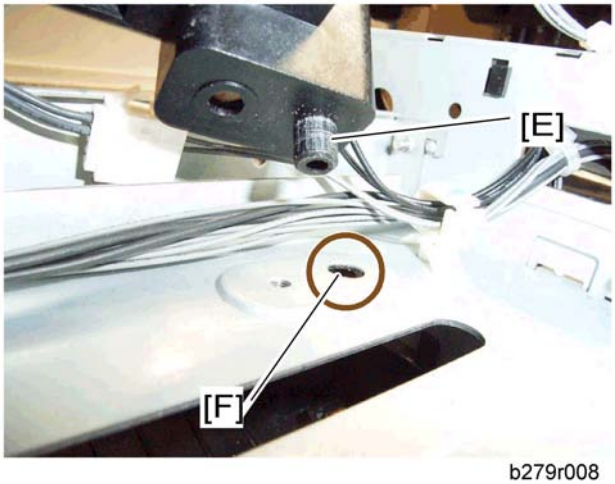
- This machine contains a laser beam generator. Laser beams can cause permanent eye damage. Do not open the laser unit or look along the laser beam path while the main power is on.

1. Front door and side covers (☛ "Front Door and Side Covers")
2. Back cover (☛ "Back Cover")
3. Flatbed scanner assembly (☛ "Flatbed Scanner Assembly")
4. Upper unit. (☛ "Upper Unit")



5. Laser diode unit harness [A]
6. Polygon mirror motor harness [B]
7. Laser unit [C] (🔩 x 3)

Caution Decal: [D]



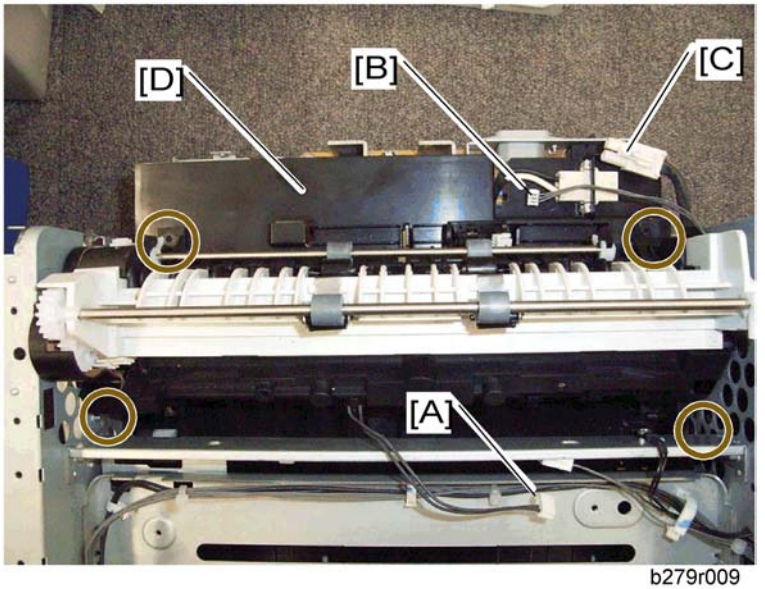
Note

- When re-assembling, make sure to set the positioning pin [E] in the hole [F].

Fusing Area

Fusing Unit

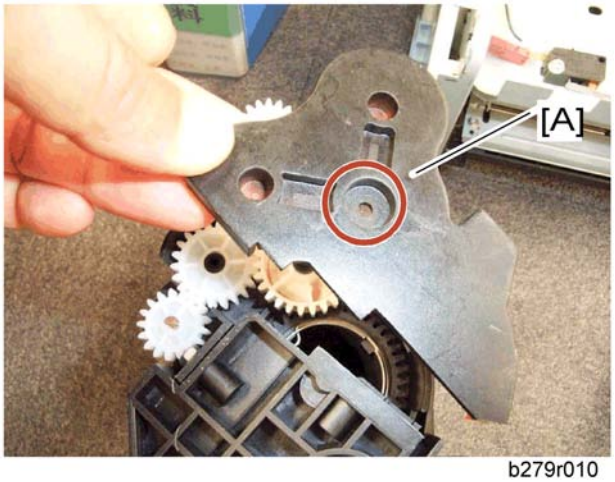
1. Front door and side covers ("Front Door and Side Covers")
2. Back cover ("Back Cover")
3. Flatbed scanner assembly ("Flatbed Scanner Assembly")
4. Upper unit ("Upper Unit")



b279r009

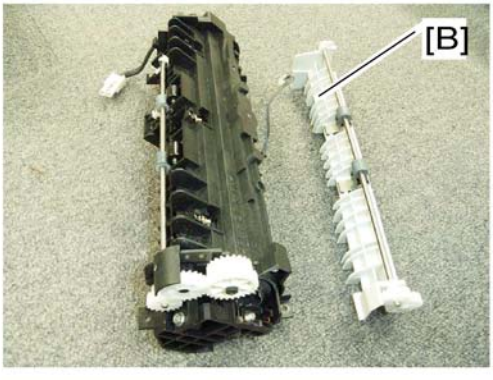
5. Thermistor harness [A]
6. Paper exit sensor harness [B]
7. Fusing lamp harness [C]
8. Fusing unit [D] (x 4)

Paper Exit Assembly



b279r010

1. Fusing cover [A] (x 1)



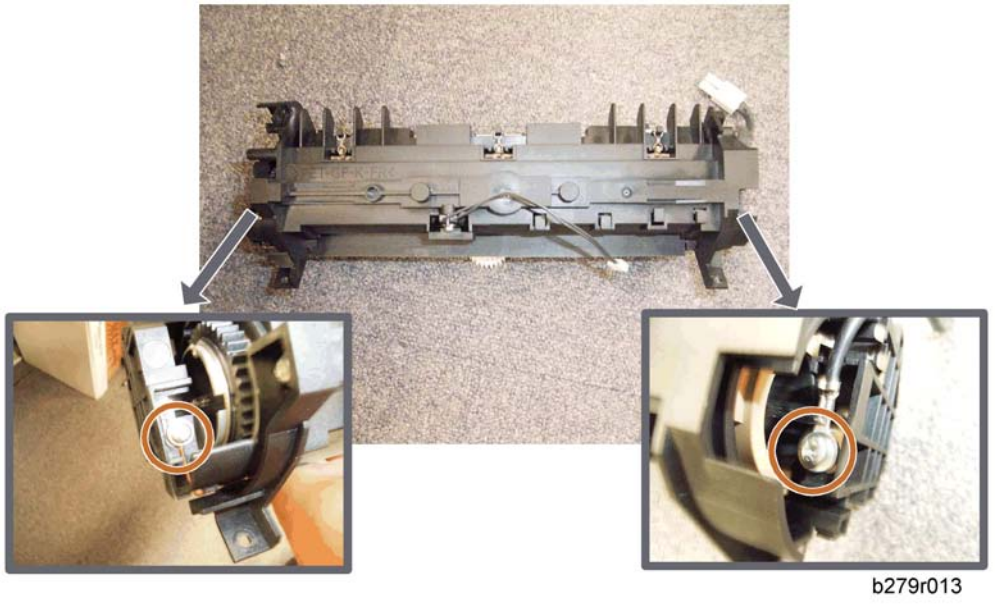
b279r011_012

2. Paper exit assembly [B] (x 2)

Fusing Lamp and Hot Roller

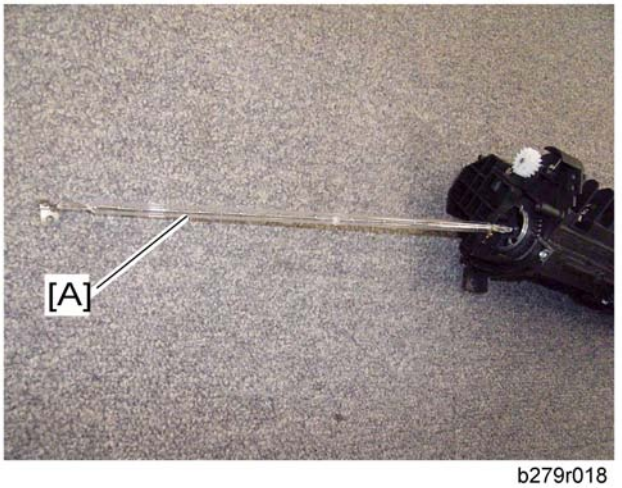
Fusing Lamp

1. Paper exit assembly ("Paper Exit Assembly").



b279r013

2. Remove two screws (x 2)



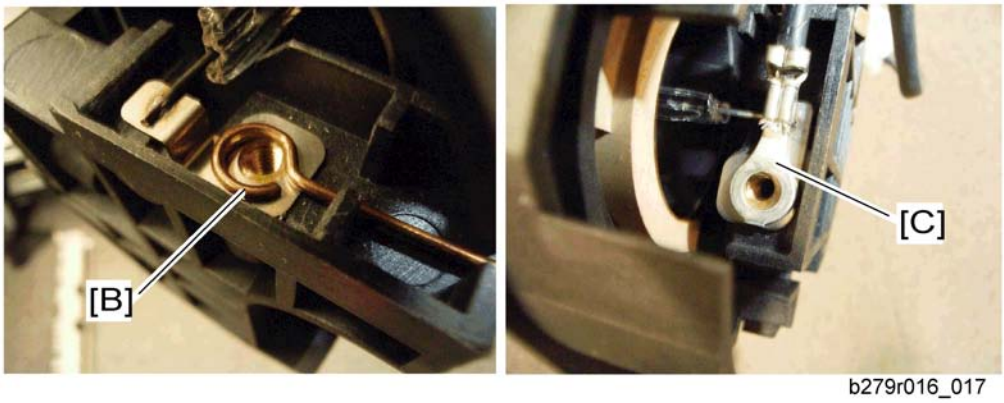
b279r018

3. Fusing lamp [A]

Note

- Do not touch the surface of the fusing lamp with bare hands.

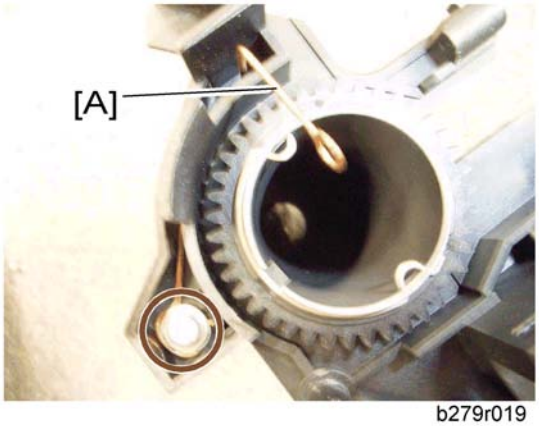
Reassembly



b279r016_017

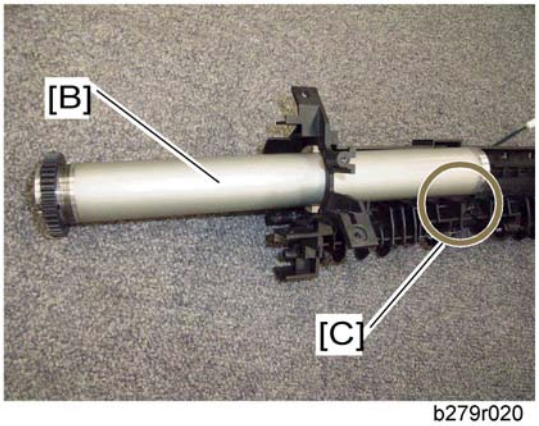
When reassembling, be careful to set the fusing lamp on the frame first, then set the terminals [B] and [C].

Hot Roller



b279r019

1. Electrode [A] (x 1)



b279r020

2. Hot roller [B] (pull it out)

Note

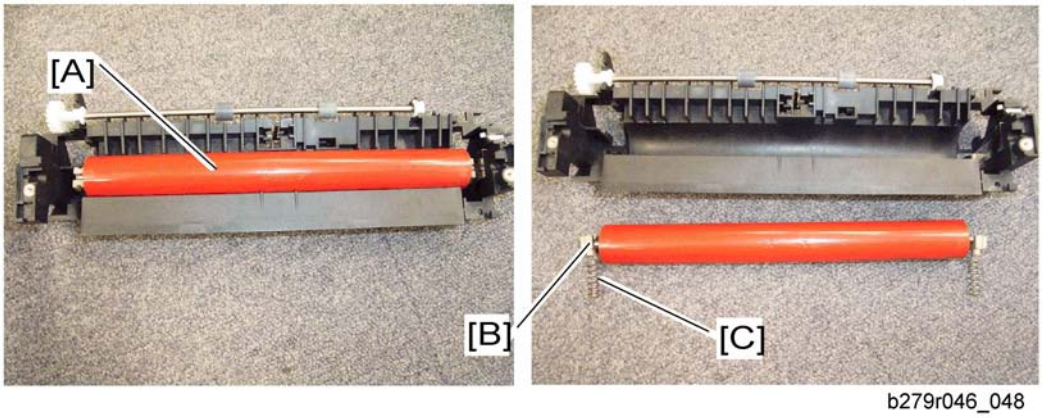
- Do not touch the surface of the hot roller with bare hands.

Note

- When reassembling, be careful not to damage the hot roller strippers [C].

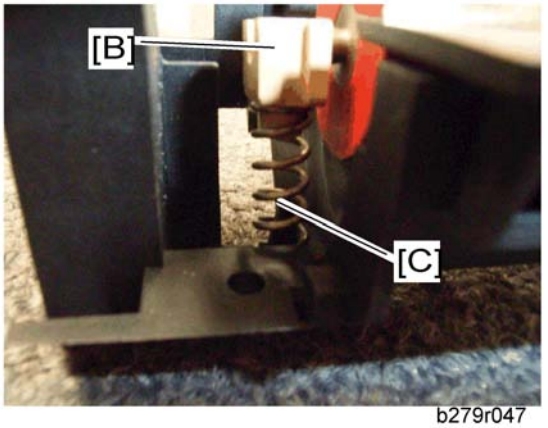
Pressure Roller

1. Paper exit assembly (☛ "Paper Exit Assembly)
2. Fusing lamp and hot roller (☛ "Fusing Lamp and Hot Roller)



b279r046_048

3. Pressure roller [A] (1 bushing [B] and 1 spring [C] at each side)

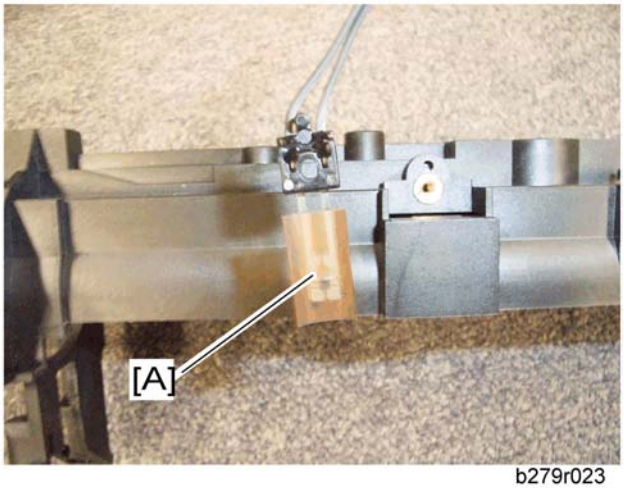


b279r047

Note

- When re-assembling, be careful to set the bushing [B] and spring [C] in the correct position.

Thermistor



b279r023

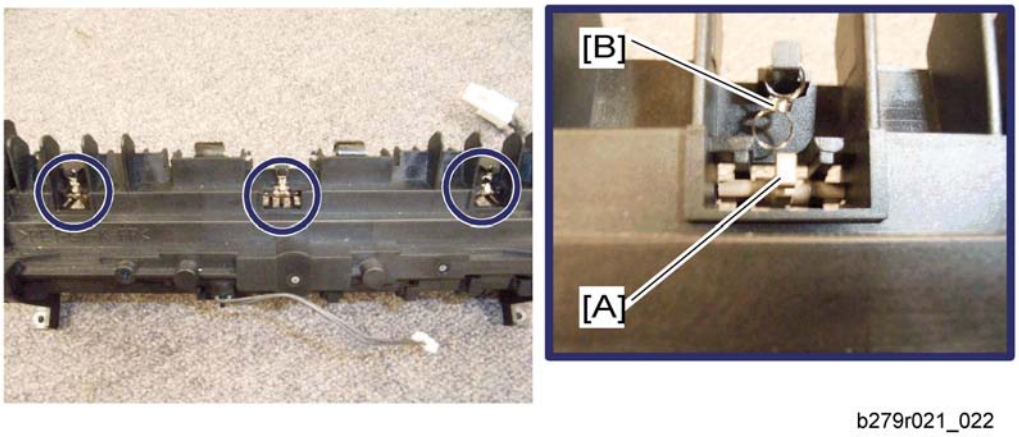
1. Paper exit assembly (☛ "Paper Exit Assembly)
2. Thermistor [A] (🔩 x 1)

Note

- When reassembling, do not damage the thermistor, and check that the element touches the hot roller.

Hot Roller Strippers

1. Paper exit assembly (☛ "Paper Exit Assembly)
2. Fusing lamp and hot roller (☛ "Fusing Lamp and Hot Roller")



b279r021_022

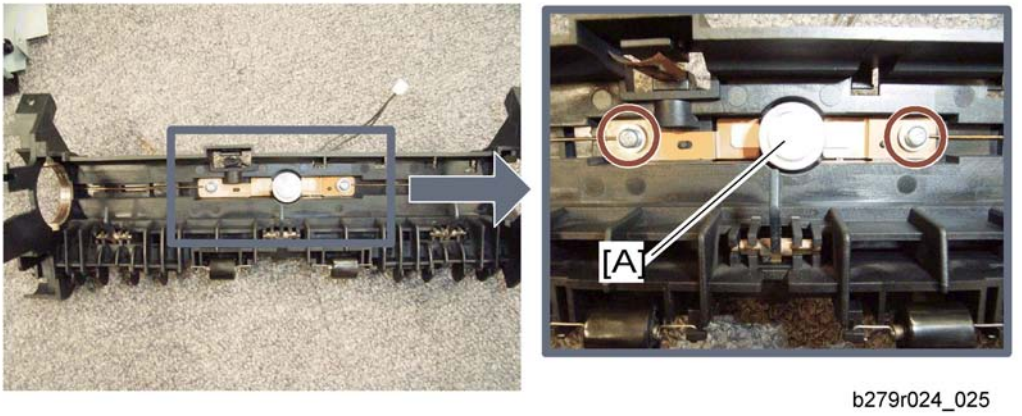
3. Hot roller stripper [A] (1 spring [B] each)

Note

- When reassembling, be careful not to lose the spring [B].

Thermostat

1. Paper exit assembly (☛ "Paper Exit Assembly")
2. Fusing lamp and hot roller (☛ "Fusing Lamp and Hot Roller")



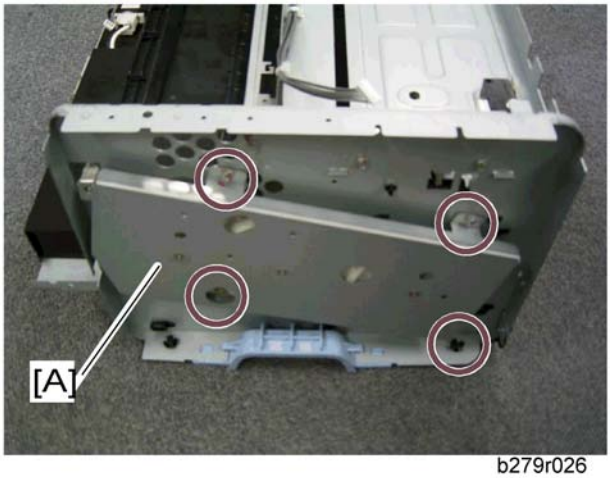
b279r024_025

3. Thermostat [A] (🔩 x 2)

Paper Feed

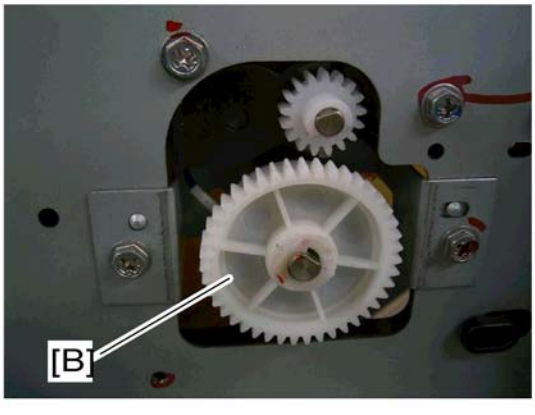
Paper Feed Roller

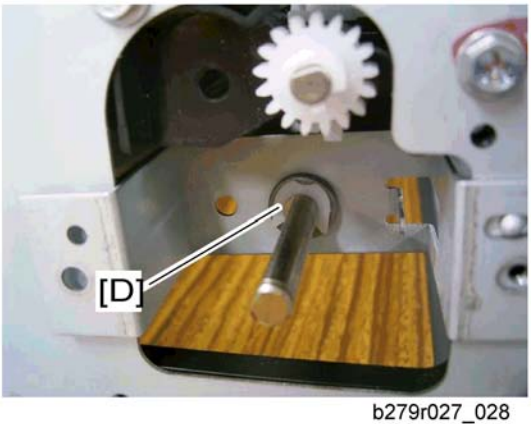
1. Upper unit ("Upper Unit")



b279r026

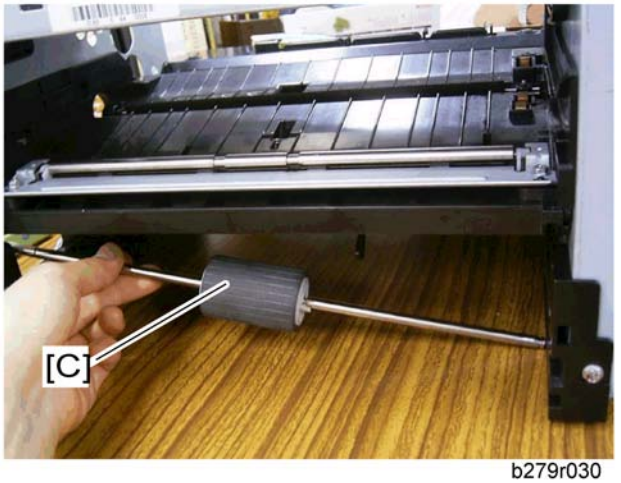
2. Drive assembly [A] (x 4)





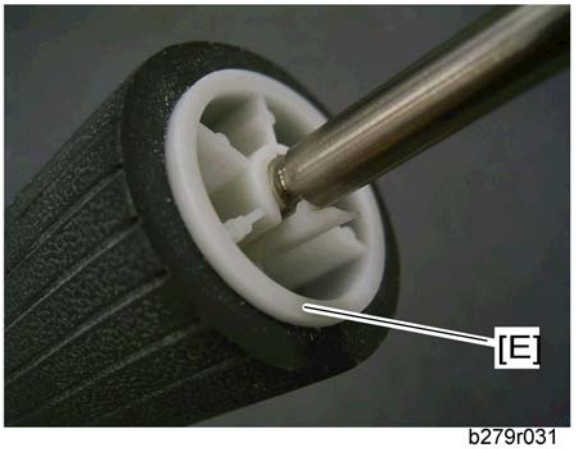
b279r027_028

3. Electromagnetic clutch assembly [B] (x 1)



b279r030

4. Paper feed roller shaft [C] (x 2, one [D] at the left side, and one at the right side)



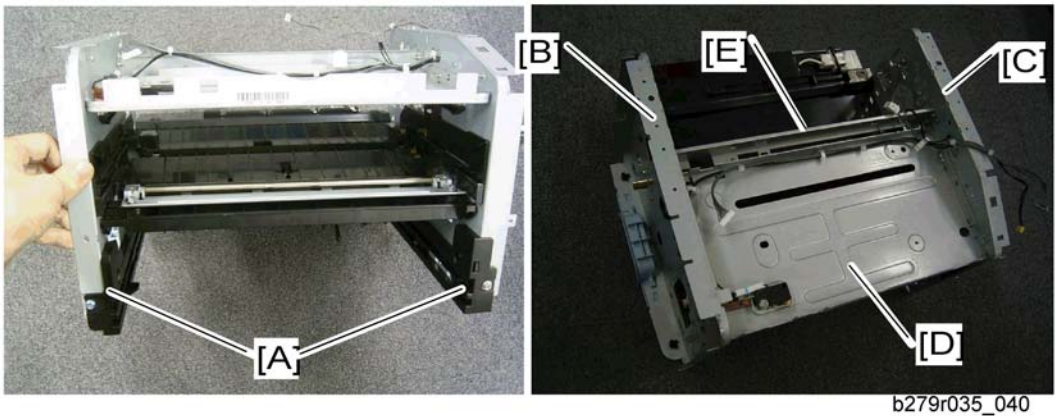
b279r031

5. Paper feed roller [E] from the shaft.

Registration Roller

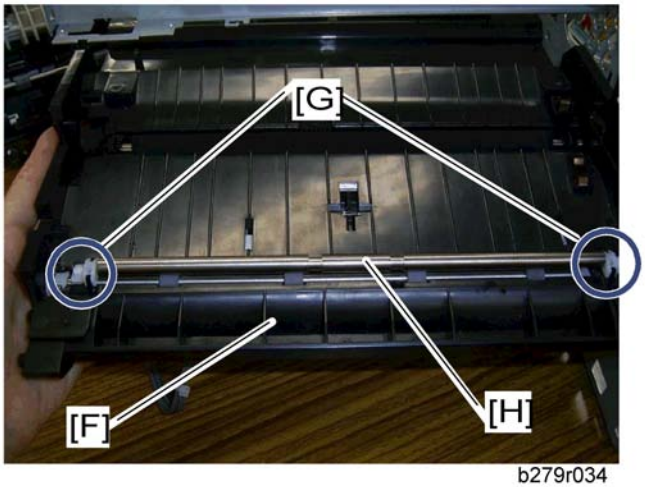
(Also known as 'Roller Driven' in the parts catalog)

1. Upper unit ("Upper Unit")
2. Pull out the paper tray.
3. Remove the toner cartridge.



b279r035_040

4. Paper tray guides [A] (x 2)
5. Left shield [B] (x 13, x 2 at the bottom)
6. Right shield [C] (x 9)
7. Laser shield [D] (x 4)
8. Guide shield [E] (x 4)



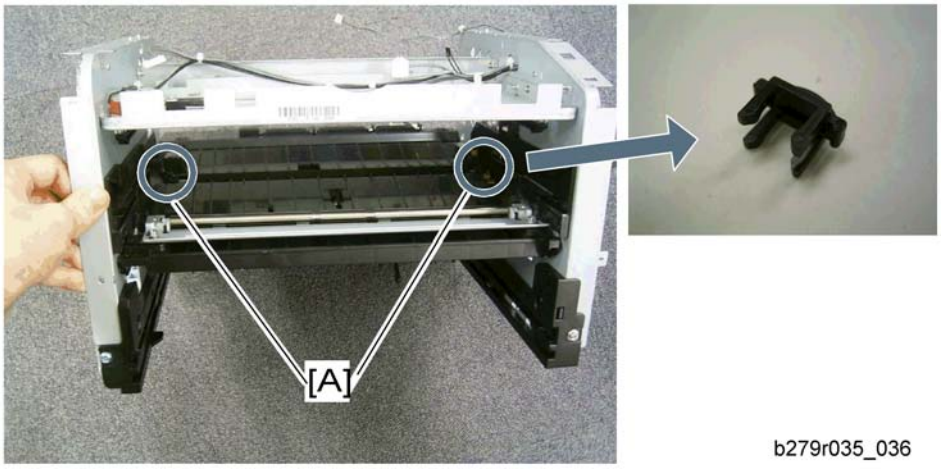
b279r034

9. Plate [F] (x 2)
10. White bushings [G]
11. Registration roller [H] (lift it out)

Others

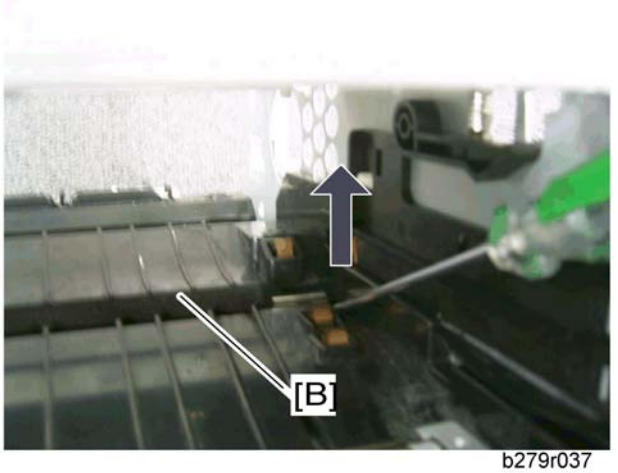
Transfer Roller

1. Open the front door (☛ "Upper Unit")
2. Remove the toner cartridge.



b279r035_036

3. Black bushings [A]

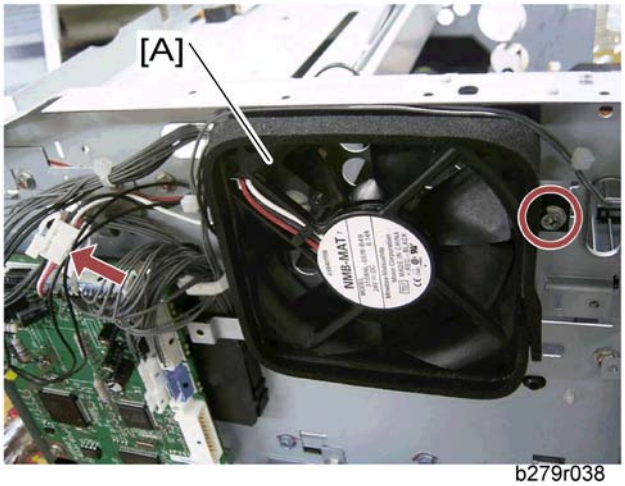


b279r037

4. Remove the transfer roller [B] with a flat-head (-) screwdriver.

Fan Motor

1. Upper unit (☛ "Upper Unit")

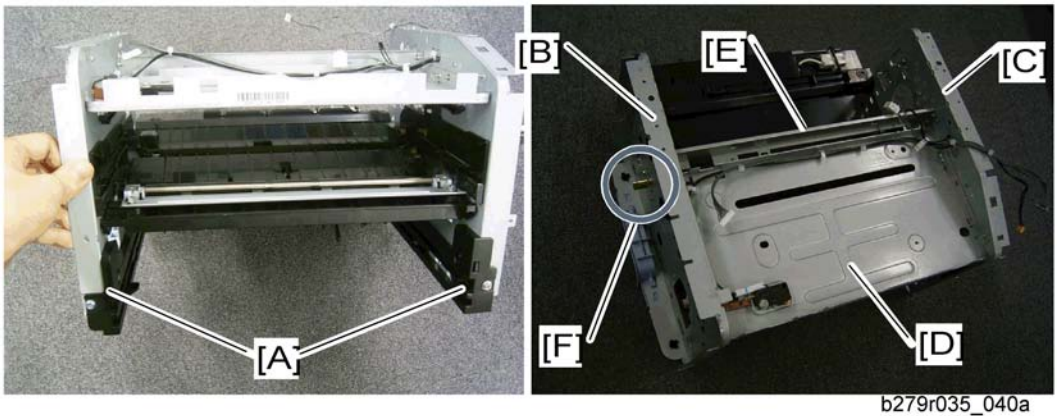


b279r038

2. Fan motor [A] (x 1, x 1)

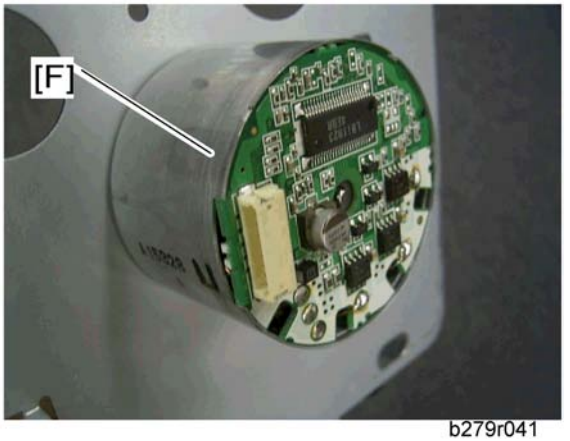
Main Motor

1. Upper unit ("Upper Unit")
2. Remove the paper tray.
3. Remove the toner cartridge.
4. Laser unit ("Laser Unit")



b279r035_040a

5. Paper tray guides [A] (x 2)
6. Left shield [B] (x 13, x 2 at the bottom)
7. Right shield [C] (x 9)
8. Laser shield [D] (x 4)
9. Guide shield [E] (x 4)

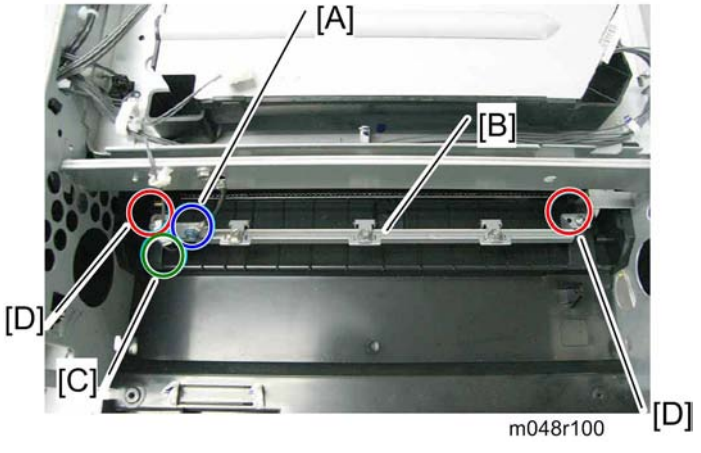


b279r041

10. Main motor [F] (x 3, x 1)

Quenching Lamp Assembly

1. Fusing unit (Fusing Unit)



m048r100

2. Ground wire-bracket [A] (x 1)
3. Quenching lamp assembly [B] (x 1 [C], x 2 [D])

PSU (Power Supply Unit)

1. Upper unit ("Upper Unit")
2. Remove the paper tray.
3. Remove the toner cartridge.
4. Right and left shield ("Main Motor")

5. PSU [A] (x 9, x 4)

5. System Maintenance Reference

User Mode

Refer to the Operating Instructions.

Tech Mode

How to go into Tech Mode

Each one of the administrator functions described here can be accessed via a specific succession of keys.

The alphabetic keys are available via the navigation keys ▲ and ▼ via the keyboard.

For example, to enter a sequence ▼ > "✱" > "A" (launching scanner tuning):

1. Press the following key ▼.
2. Press the following key ✱.
3. Press ▼ to display all the options available until you reach "A".

Confirm your choice with "OK".

Installation Parameters

The installation parameters are used for adapting the machine to the specific requirements of users in countries where it is to be installed.

Each machine is programmed with the factory test configurations. The installer can obtain a printed copy of these parameters (sequence of keys ▼ > "5" > "6").

Remark(s): It is recommended to conserve a paper copy of the list of parameters provided at delivery.

Access to these parameters is only authorized for the maintenance and/or installation service technicians.

The machine comes with software blocks called SOS (Soft Switches) No. 1 to 60. Each block is made up of 8 bits called bit 1 to 8. Each bit has a value of 0 or 1. Reading the block (from bit 1 to bit 8) on the display panel is done from right to left. The blinking cursor is always located on the bit 8 (on the extreme left) when selecting the configuration.

Access to the configuration bytes is available via the initialization screen, via a succession of keys: ▼ > "✱" > "#"

The significance of the principal configuration parameters for the machine is provided as following section "List of Configurations". They can be modified just like any other parameter.

List of Configurations (SOS)

Remark(s): The undocumented Soft Switches in this section are reserved.

Soft-Switch 1: Tuning the Ringing Tone and Automatic Printing

Bit	Value	Description
1	1	Reserved
2	0	Reserved
3	0	SOS-DURPAUSE: Long/short pause while dialing **M048 only** Values: # 0 (Short 2s) or 1 (Long 6s)
4	0	Reserved
5	0	Reserved
6	1	SOS-IMPAUTO: Automatic log print **M048 only** Values: 0 (Without) or 1 (With)
7	0	SOS-IMPT30: Automatic printing of T30 trace after comm error Values: # 0 (Without)1 (With) **M048 only**
8	0	SOS-IMPTRA: Trace printing/PC download enable Values: # 0 (Without)1 (With)

Soft-Switch 2: Scanner/Printer Configuration

Bit	Value	Description
1	0	Reserved
2	0	Reserved
3	0	Emitting a beep tone when pressing a front panel key Values: # 0 (with beep tone)1 (without beep tone)
4	1	Reserved
5	0	Reserved
6	0	Reserved
7	0	SOS-COPLOC: Local copy Values: # 0 (Enabled)1 (Disabled)
8	0	Reserved

Soft-Switch 3: Line Configuration **M048 only**

Bit	Value	Description
1	1	SOS-NIVEMI: Transmission level Values: 00 = 0 dBm 01 = -1 dBm ... # 06 = -6 dBm ... 0F = -15 dBm
2	0	
3	0	
4	1	
5	0	Reserved
6	0	SOS-SEUILREC: Reception threshold 1 Values: # 0 (-43 dB) 1 (-47 dB)
7	0	SOS - EPTV29: Use Echo Protect Tone with V29 Values: #0 (Without) 1 (With)
8	0	SOS - ECHO: Echo canceling Values: #0 (Without) 1 (With)

Soft-Switch 4: Fax Protocol Configuration

Bit	Value	Description
1	1	SOS-MODPRIV: Communication in private mode **M048 only** Values: 0 (Without)# 1 (With)
2	0	SOS-DIS-COURT: Restricted DIS size **M048 only** Values: # 0 (long DIS (complete)) 1 (Short DIS)
3	0	SOS-TCF: TCF accept criterion **M048 only** Values: # 0 (Normal): refused if there has not been 1 continuous second. 1 (Special): 1 discontinuous second in the TCF, then accepted systematically at 2 400 b/s.

Bit	Value	Description
4	0	SOS-RTN: Page accept criterion **M048 only** Values: # 0 (10 percent) 1 (15 percent) 2 (20 percent) 3 (no check)
5	0	
6	1	SOS-DISINF: Unlimited DIS length **M048 only** Values: 0 (Without)# 1 (With)
7	0	SOS-LGINF: Maximum length of scan, printing, communication Values: # 0 (1 meter) 1 (3 meters)
8	1	SOS-ECM: Restricted ECM **M048 only** Values: 0 (Without) # 1 (With)

Soft-Switch 5: Voice/Loudspeaker Configuration **M048 only**

Bit	Value	Description
1	1	Reserved
2	0	Reserved
3	0	Reserved
4	0	Reserved
5	0	Reserved
6	1	SOS-HP: Line monitoring during fax comm. Values: # 0 (Without) 1 (With)
7	1	Reserved
8	0	Reserved

Soft-Switch 6: Line Adjustment **M048 only**

Bit	Value	Description
1	0	Reserved
2	0	Reserved
3	0	Reserved
4	0	Reserved
5	0	Reserved
6	0	Reserved
7	0	Reserved
8	0	SOS-TSTDCOM: Driver test functions Values: # 0 (Without)1 (With)

Soft-Switch 9: Approval + Communication Applications **M048 only**

Bit	Value	Description
1	0	Reserved
2	0	Reserved
3	0	Reserved
4	1	SOS-REPERR: Redialing from page fault Values: 0 (Without) # 1 (With)
5	1	SOS-NOTREMIS: Printing of first page on transmission rapport Values: 0 (Without) # 1 (With)
6	0	SOS-GRILLAGE: Burn phone numbers Values: #0 (Without) 1 (With)
7	1	SOS-LIGNE5S: Lines of 5 seconds during reception Values: 0 (Length of lines not limited to 5 sec./line) # 1 (Maximum length of a line: 5 seconds)
8	1	Reserved

Soft-Switch 10: Communications: Locks/Miscellaneous **M048 only**

Bit	Value	Description
1	0	SOS-AFFVIT: Communication rate display Values: # 0 (Without) the page number is displayed. 1 (With) the comm. rate is displayed.
2	1	SOS-BTYPNUM: Access to impulse/DTMF parameter Values: 0 (With) Reserved # 1 (Without)
3	0	Reserved
4	1	Reserved
5	1	SOS-TLRFAX: Remote readout by fax (ATTENTION!!!) Values: # 0 (Remote readout to Quadrige in transparent mode) 1 (Remote readout by fax)
6	0	Reserved
7	0	SOS-SONREA: Access to redialing parameters (screen /printer) Values: # 0 (No access)1 (With access)
8	0	Reserved

Soft-Switch 18: Coding/ UART Rate **M048 only**

Bit	Value	Description
1	1	SOS-CODMEM: Stored document encoding type Values: 00 (RL Coding) 01 (MH Coding) 10 (MR Coding) #11 (MMR Coding)
2	1	
3	1	SOS-CODCOM: COM negotiated encoding type Values: 01 (MH Coding) 10 (MR Coding) #11 (MMR Coding)
4	1	

Bit	Value	Description
5	0	Reserved
6	0	Reserved
7	0	SOS-AFF_VIT_REELLE : Show/hide real communication rates Values: # 0 (show reduced rates) 1 (show real rates)
8	0	Reserved

Soft-Switch 19: Miscellaneous Software Functions **M048 only**

Bit	Value	Description
1	0	Reserved
2	1	Reserved
3	0	SOS-GROUPE: Restriction on groups (or distribution list) Values: # 0 (No groups) 1 (Groups accepted)
4	0	SOS-REGULREC: T30 reception control inhibited Values: # 0 (Without) 1 (With)
5	0	Reserved
6	1	SOS-MENUCLAVIER: Hide keyboard menus and force QWERTY keyboard Values: 0 (Show) # 1 (Hide)
7	0	SOS-ONETOUCH: Enable "One touch" functions Values: # 0 (Without) 1 (With)
8	0	SOS-TLC: Accept software download via STN Values: # 0 (Without) 1 (With)

Soft-Switch 21: T4 Decoder/ Debug

Bit	Value	Description
1	1	SOS-TRAITLIGERR: T4 decoding line copying mode **M048 only** Values: 0 (For each line with an error) # 1 (Only once, then destroy)
2	0	Reserved
3	0	Reserved
4	0	Reserved
5	1	Reserved
6	0	Reserved
7	0	SOS-DETECT OCCUP: Inhibition of engaged tone detect **M048 only** Values: # 0 (Without)1 (With)
8	0	Reserved

Soft-Switch 22: Miscellaneous **M048 only**

Bit	Value	Description
1	1	SOS-DUREE-2100: Transmission time of the 2100 modified for V34 reception Values: 00 (5 seconds) 01 (4.5 seconds) 10 (4 seconds) # 11 (3.5 seconds)
2	1	
3	0	Reserved
4	0	Reserved
5	0	Reserved
6	0	Reserved
7	0	Reserved

Bit	Value	Description
8	0	Reserved

Soft-Switch 23: Miscellaneous

Bit	Value	Description
1	1	SOS-JBIG: SUPER 3 capability to execute communication with JBIG encoding. **M048 only** Values: 0 (No SUPER G3) 1 (Negotiated SUPER G3)
2	1	Reserved
3	0	Reserved
4	1	SOS-COMPACTE-RL: Compacting of run length (for fax server ELLIPSE) **M048 only** Values: 0 (No compacting) # 1 (Compacting run length of no length)
5	0	SOS-DEBRIDAGE-JAUGE: Acceptation of EEPROM cards at any moment. Values: # 0 (No) 1 (Yes) Return to 0 after removing the card.
6	0	Reserved
7	0	Reserved
8	1	Reserved

Soft-Switch 26: Miscellaneous **M048 only**

Bit	Value	Description
1	0	Reserved
2	0	Reserved
3	0	Reserved
4	0	Restriction on USB function Values: # 0 (Without)1 (With)

Bit	Value	Description
5	0	With or without duplication of on page passage threshold. Values: #0 : No duplication: NBI_SUP_B (1cm) 1 : Duplication: NBI_SUP_B * 2 (2 cm)
6	0	RR/RNR regulation limitation to 4 in T30. Values: #0 : No limitation 1 : With limitation
7	1	Double alternation optocoupler use Values : 0: Optocoupleur mono alternation #1 : Optocoupleur double alternation
8	0	Reserved

Soft-Switch 27: Miscellaneous **M048 only**

Bit	Value	Description
1	0	Reserved
2	0	
3	0	
4	1	
5	0	Waiting time before validation of unexpected modulation in comparison with expected modulation. (~/driver/m_lucent/sms_m_dp2v/src/dpmain.c) # 00 = 60 + 0*30 ms= 60 ms 01 = 60 + 1*30 ms = 90 ms 02 = 60 + 2*30 ms = 120 ms 03 = 60 + 3*30 ms = 150 ms 04 = 60 + 4*30 ms = 180 ms 05 = 60 + 5*30 ms = 210 ms 06 = 60 + 6*30 ms = 240 ms ..... 0F = 60 + 15*30 ms = 510 ms
6	0	
7	0	
8	0	

Soft-Switch 29: Miscellaneous **M048 only**

Bit	Value	Description
1	0	Reserved
2	0	Reserved
3	0	Reserved
4	0	Force the V29 modulation for 9600 and 7200 rates #0 : Enabled 1: Disabled
5	0	Reserved
6	0	Reserved
7	0	Reserved
8	0	Reserved

Soft-Switch 31: Miscellaneous **M048 only**

Bit	Value	Description
1	0	Reserved
2	0	Reserved
3	0	Reserved
4	0	Displaying the TRASH CAN consumable (in the 86 menu) Values: # 0 (Without) 1 (With)
5	0	Using the DHCP queries in ad-hoc WLAN mode Values: # 0 (With) 1 (Without DHCP-directly APIPA)
6	0	Reserved
7	0	Reserved
8	0	Reserved

Soft-Switch 32: Miscellaneous

Bit	Value	Description
1	0	Reserved
2	0	Reserved
3	0	Reserved
4	0	Reserved
5	1	Using One Touch Management for Ricoh values: 0 (without) #1 (with) **M048 only**
6	0	Reserved
7	1	Reserved
8	1	Reserved

Soft-Switch 33: Miscellaneous **M048 only**

Bit	Value	Description
1	0	Reserved
2	0	Reserved
3	0	Reserved
4	0	Reserved
5	1	Question to the user about a good fax printing values : 0 (with) #1 (without question to user)
6	0	Reserved
7	0	Reserved
8	0	Reserved

Administrator Functions

Initializing and erasing memory

Before you start, set the "Soft-Switch 1" bit 8 parameter value to1.

Note

- UNDOCUMENTED FUNCTIONS ARE RESERVED.
- DO NOT TRY AND USE FUNCTIONS THAT ARE NOT DOCUMENTED IN THIS SECTION, THIS MAY LEAD TO THE PERMANENT LOSS OF DATA.
- USE OF THESE LISTED FUNCTIONS WILL LEAD TO THE PERMANENT LOSS OF DOCUMENTS AND PARAMETERS ON THE MACHINE.

Reset all parameters (user, installer or technical) to the default configuration (factory configuration):	▼> "#" > "0"
Erase the directory: **M048 only**	▼ > "#" > "1"
Erase the logs : **M048 only**	▼ > "#" > "2"
Erase the printer counters:	▼ > "#" > "3"
Reinitialize the flash data (erases all):	Open the front door then: ▼ > "#" > "5"
Reset to default configuration (combination of functions 0 and 8):	▼ > "#" > "7"
Erase all documents stored in memory:	▼ > "#" > "8"
Erase the first element of the printer queue :	▼ > "#" > "I"
Erase Printer Error:	▼ > "#" > "T"

Switch ON/OFF the machine after changing settings.

Other Functions

Before you start, set the "Soft-Switch 1" bit 8 parameter value to1.

Note

- UNDOCUMENTED FUNCTIONS ARE RESERVED.
- DO NOT TRY AND USE FUNCTIONS THAT ARE NOT DOCUMENTED IN THIS SECTION, THIS MAY LEAD TO THE PERMANENT LOSS OF DATA.

Description	Input Keys
Printing all parameters (including installation and technical parameters):	▼ > "✱" > "1"
Switching to forced standby mode regardless of the clock:	▼ > "✱ " > "2"
Switching to software download via a computer link:	▼ > "✱" > "4"
Save the directory and parameters on I2C card: **M048 only** **Note** • ALL DATA PRESENT ON THE I2C CARD PRIOR TO THE OPERATION WILL BE LOST AFTER OPERATION AND REPLACED BY DIRECTORY AND PARAMETERS FROM THE MACHINE.	▼ > "✱" > "5"
Restore the directory and parameters from I2C card: **M048 only** **Note** • ALL DIRECTORY CONTACTS AND PARAMETERS STORED IN THE MACHINE PRIOR TO THE OPERATION WILL BE LOST AFTER OPERATION AND REPLACED BY THOSE FROM THE I2C CARD.	▼ > "✱" > "9"
Launching scanner tuning:	▼ > "✱" > "A"
Displaying miniboot version:	▼ > "✱" > "B"
Displaying the state of the applications, traffic and drivers:	▼ > "✱" > "E"
Display PCL/SG Script fonts checksum:	▼ > "✱" > "F"
Display modem software version: **M048 only**	▼ > "✱" > "M"
Entering the serial number (with the SOS 1 bit 8 at 1):	▼ > "✱" > "N"
Displaying the internal counters:	▼ > "✱" > "O"
Displaying the GDI throughput: **M048 only**	▼ > "✱" > "P"
Rebooting the machine manually (with the SOS 1 bit 8 at 1):	▼ > "✱" > "R"
Displaying main software version, checksum:	▼ > "✱" > "V"

Description	Input Keys
Displaying the printer firmware version and the 120V/220V configuration: PRINTER FIRMWARE Vx.x 120V or PRINTER FIRMWARE Vx.x 220V m048s100	▼ > "✱" > "W"
Printing internal counters:	▼ > "✱" > "Y"
Tuning the level of PDL symbols:	▼ > "✱" > "Z"

Replacing the CPU Board

To replace the machine's CPU board, follow this procedure:

1. Print the machine's parameters (user, administrator and technical) and the activity counter values in order to keep a record (▼ > "5" > "6").

   You can also store user parameters and directory entries on a smart card (▼ > "6") and restore them (▼ > "9") after the machine is serviced.
2. Replace the CPU board ("CPU Board" in the Chapter "Replacement and Adjustment").
3. Tune the scanner (▼ > "8" > "0").

Replacing the Scanner

To replace the scanner, follow this procedure:

1. Print the machine's parameters (user, administrator and technical) and the activity counter values in order to keep a record (▼ > "5" > "6").

   You can also store user parameters and directory entries on a smart card (▼ > "6") and restore them (▼ > "9") after the machine is serviced.
2. Replace the scanner ("Flatbed Scanner Assembly" in the Chapter "Replacement and Adjustment").
3. Tune the scanner (▼ > "8" > "0") only if the quality of the copy is unsatisfactory.

New Cartridge

Three toner cartridge replacement procedures can be used depending on the TONER MANAGEMENT setting.

- TONER MANAGEMENT setting set to WITH [0-10%]: the replacement of the cartridge can be performed only when the message Toner near end is displayed. At the end of replacement, validation with the smart card is required.

- TONER MANAGEMENT setting set to WITH [0-100%]: the replacement of the cartridge can be performed at any time. At the end of replacement, validation with the smart card is required.
- TONER MANAGEMENT setting set to WITHOUT: the replacement of the cartridge can be performed at any time and no validation with the smart card is necessary. When set to WITHOUT, the screen displays TONER ? %.

To set the TONER MANAGEMENT setting, select ▼ 2979 - SETUP / TECHNICALS / TONER MANAGEMENT and choose the setting.

Replacement Procedure

- This procedure applies when the setting TONER MANAGEMENT is set to WITH [0-10%].
- When set to With [0-100%], follow the procedure from step 2.
- When set to WITHOUT, follow the procedure from step 2 to step 7.

Your machine comes with a current consumable management system. It tells you if your toner cartridge is close to its end of cycle. The message "TONER NEAR END" will appear on your machine screen.

To quit this screen, press "OK" key.

To replace the toner cartridge, proceed as shown below.

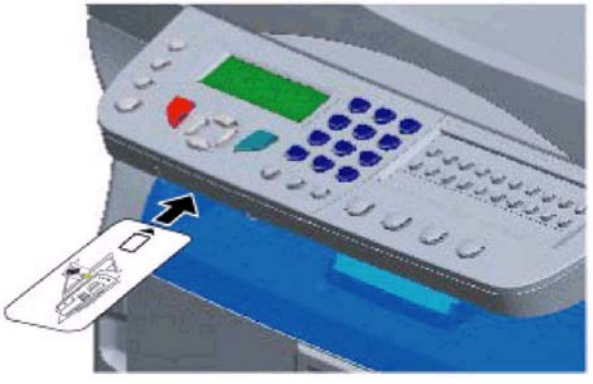
1. When the message "TONER EMPTY REPLACE <OK>" is displayed on the screen, press "OK" key.
2. The message "OPEN FRONT COVER REPLACE TONER" is displayed on the screen.
3. Stand in front of the device.
4. Push on the left and right sides of the cover and pull it towards you.
5. Raise and remove the toner cartridge from the machine.
6. Unpack the new cartridge and insert it into the slot as indicated in the diagram below.

b279s502

7. Close the cover.

The following message appears:

8. Press "OK" key.
9. When the message "HAVE YOU CHANGED THE TONER? <OK>" appears, insert the toner card provided with the new toner cartridge as shown on the picture below.



b279s501

10. The message "PLEASE WAIT" appears.
11. The message "NEW TONER REMOVE CARD" appears after the smart card has been read.
12. Remove the smart card from the reader, the machine is ready to print again.

⚠CAUTION

- To continue the printing of your documents when the message "TONER NEAR END" is displayed, set the TONER MANAGEMENT setting to WITHOUT.
- However, this procedure is not recommended as disabling toner
- management (parameter set to WITHOUT) can lead to fax loss and
- toner being spilled in your print mechanism.

Issues with smart cards

If you use a smart card that has already been used, the machine will display "PLEASE WAIT", then "REMOVE CARD ALREADY USED".

If you use a defective smart card, the machine will display "PLEASE WAIT", then "UNKNOWN CARD REMOVE CARD".

If the C button is pressed while the smart card is being read, the machine displays "ACTION CANCELLED REMOVE CARD"

Firmware Download

Updating the machine's software is principally carried out via a PC connection (USB only).

The principal software which controls the card core and the miniboot software may be downloaded separately.

Note

- After downloading the principal software, the scanner may require tuning.
- Enter ▼ > "8" > "0" and confirm by pressing "OK". Wait until the screen refreshes and reverts to the default screen mode. Make a local copy to check its quality.

Via PC Connection

Via the executable TELUSB2

This procedure requires a standard PC running under Windows and equipped with the TELUSB2.exe (version 2.2.0.0) executable and a USB cable.

Before you start, position the bit No. 8 to 1 on the Soft-switch 1.

1. Connect the machine to a PC with the USB cable.
2. Set the machine to download via PC mode (▼ > "✱" > "4").
3. Launch the executable **TELUSB2.EXE** and select the file to be downloaded (extensions .bin or .fwf).

   After about ten seconds, a window will appear to indicate that the download was successful. The machine should not be restarted immediately.

   If the machine restarts immediately, the file is corrupted (checksum false) or the software is not compatible with the machine. The machine then restarts with the initially installed software. In this case, check the file and repeat **step 1**.
4. After about 40 seconds, the machine switches off then restarts. The message "WAIT" is displayed.
5. Check the version of the principal software and checksum by typing in ▼ > "✱" > "V" or check the software version and the miniboot's checksum by typing in ▼ > "✱" > "B".

Via the UDPATEDEVICE function of COMPANION SUITE

This procedure requires a standard PC running under Windows equipped with the Companion Suite software and a USB cable.

Before you start, check that the machine is connected to the PC via the USB cable.

1. On the PC, click "START" > "ALL PROGRAMS" > "COMPANION SUITE" > "PHASER 3100 MFP" >"UPDATE".

2. In the Update window, click on the "BROWSE" icon and select the update file to be downloaded on the machine.
3. After selecting the update file, click on "OPEN".
4. Click on "UPDATE".

Downloading with the Miniboot

Via the executable TELUSB2

This procedure requires a standard PC running under Windows and equipped with the TELUSB2.exe (version 2.2.0.0) executable and a USB cable.

Before you start, position the bit No. 8 to 1 on the Soft-switch 1.

1. Set the machine's On/Off switch to Off (position 0).
2. Connect the machine to the PC via the USB cable.
3. Press the "4", "6" and "0" keys simultaneously and set the On/Off switch to On (position I).

   The machine is switched on. The message "USB DETECTED WAITING FOR DOWNLOAD" is displayed and an alert sound is emitted. If the message WAITING FOR A USB LINK is displayed, check that the machine is properly connected to the PC via the USB cable.
4. Release the "4", "6" and "0" keys.
5. Continue downloading from **step 3** of "Via the executable TELUSB2" in the section "Via PC Connection".

Via the UDPATEDEVICE function of the COMPANION SUITE

This procedure requires a standard PC running under Windows and equipped with the Companion Suite software and a USB cable.

Before you start, position the bit No. 8 to 1 on the Soft-switch 1.

1. Set the machine's On/Off switch to Off (position 0).
2. Connect the machine to the PC via the USB cable.
3. Press the "4", "6" and "2" keys simultaneously and set the On/Off switch to On (position I).
4. The machine is switched on. The message "RECEIVING FILE" is displayed and an alert sound is emitted.
5. Release the "4", "6" and "2" keys.
6. Continue downloading from **step 1** of the "Via the UDPATEDEVICE function of COMPANION SUITE" in the section "Via PC Connection".

Reminders

- Every fax is equipped with a copy counter, implemented in EEPROM memory on the CPU board. This counter is used in particular by the Remote Readout function. It can be consulted by the user. This counter cannot be modified. It is stored indefinitely.
- Before any corrective intervention on the machine that risks modifying the installation parameters or the value of the counter (replacement of the CPU board or installation of new software), a manual Remote Readout transmission should be performed, if the state of the machine allows it. If this transmission is not possible for any reason, print out the Remote Readout parameters or display the copy counter and note these values on the intervention report.

Storing User Parameters

The condition of the printer consumable (toner cartridge) is stored in EEPROM memory (on the CPU card) and can be read via the command ▼ > "8" > "6".

This evaluation, provided in percentage format, indicates the remaining quantity of toner in relation to the consumable's initial values.

The printer activity counters are also stored in flash (on the CPU card), they can be read via the command ▼ > "8" > "2" and can be printed via ▼ > "5" > "6" (printing of parameters).

These absolute counters reflect the machine's overall utilization regardless of the consumable:

- Number of pages sent ;
- Number of pages received ;
- Number of pages printed ;
- Number of pages scanned.

⚠CAUTION

- ANY MAJOR OPERATION ON THE MACHINE (REPLACEMENT OF THE CPU CARD, MAJOR UPGRADE OF THE MACHINE'S SOFTWARE) MAY LEAD TO THE PERMANENT LOSS OF THE USER PARAMETERS AND THE ACTIVITY COUNTER VALUES.
- IF SUCH OPERATIONS ARE NECESSARY, PRINT THE PARAMETERS AND COUNTERS (▼ > "5" > "6") TO RETAIN A COPY.
- YOU CAN ALSO STORE USER PARAMETERS AND DIRECTORY ENTRIES ON A SMART CARD (▼ > "6") AND RESTORE THEM (▼ > "9") AFTER THE MACHINE IS SERVICED.

6. Troubleshooting

Paper Jam

Paper Jam 1

Non-feed

Possible Cause:

1. Use of a non-recommended paper type.
2. The paper cassette end fence is set incorrectly.
3. The paper lift mechanism is not working properly.
4. Malfunction in the paper feed clutch.
5. The paper feed roller is set incorrectly.
6. The paper feed motor is defective.
7. The registration sensor is defective.

Action:

1. Check whether a correct paper type is being used.
2. Check that the paper cassette end fence is set correctly and check the paper lift mechanism.
3. Check the paper lift is working properly.
4. Check that the feed clutch for the cassette is working properly.
5. Check that the paper feed roller is installed properly. Clean or replace if necessary.
6. Check the registration sensor and mechanism. Clean or replace if necessary.
7. Check that the registration sensor is working correctly.

Paper Jam - Inside Printer

Possible Cause:

1. Using a non-recommended type of paper.
2. The paper end fence and/or the paper guides in the cassette are set incorrectly.
3. The registration sensor and is defective.
4. Obstruction in the paper path.
5. The main motor is defective.

Action:

1. Check whether a correct paper type is being used, and whether the paper end fence and guides are set correctly.
2. Check for obstructions in the paper path.
3. Check that the registration sensor is working properly.
4. Check the obstruction in the paper path.
5. Replace the main motor if necessary.
6. If the problem remains, do the following:
7. Check the connections between board and the main motor.
8. Check the fusing unit drive mechanism. Check to see that the gears are installed correctly.

Jam - Fusing Exit

Possible Cause:

1. Use of a non-recommended type of paper.
2. Obstruction in the paper path.
3. The registration sensor is defective.
4. Malfunction in the fusing drive mechanism.
5. Malfunction in the hot roller stripper(s) mechanism.
6. Malfunction in the pressure mechanism in the fusing unit.

Action:

1. Check whether a correct type of paper is being used.
2. Check for obstructions in the paper path.
3. Check that the registration sensor is working correctly.
4. Check all the gears in the fusing drive mechanism.
5. Check that the fusing exit sensor is working correctly.
6. Check the hot roller strippers and the pressure mechanism in the fusing unit.

Skew

Possible Cause:

1. Use of a non-recommended type of paper.
2. Incorrect positioning of the paper guides in the paper cassette.
3. The friction pad is out of position.
4. The paper feed roller is worn out or damaged.
5. Obstruction in the paper path.

6. Malfunction in the registration mechanism.

Action:

1. Check whether a correct type of paper is being used.
2. Check that the paper guides and the end fence are set correctly.
3. Check that the friction pad is set correctly.
4. Check if the paper feed roller is installed correctly and clean. Replace if necessary.
5. Check for obstructions in the paper path.
6. Check the registration mechanism and clean or replace the rollers if necessary.

Multi-feed

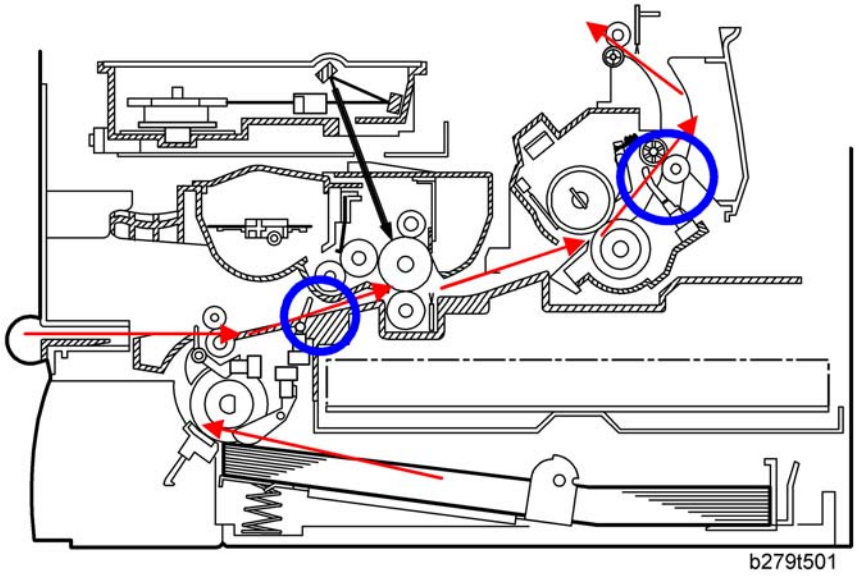
Possible Cause:

1. Use of a non-recommended type of paper.
2. Incorrect positioning of the paper guides and/or end fence in the paper cassette.
3. The friction pad is out of position.

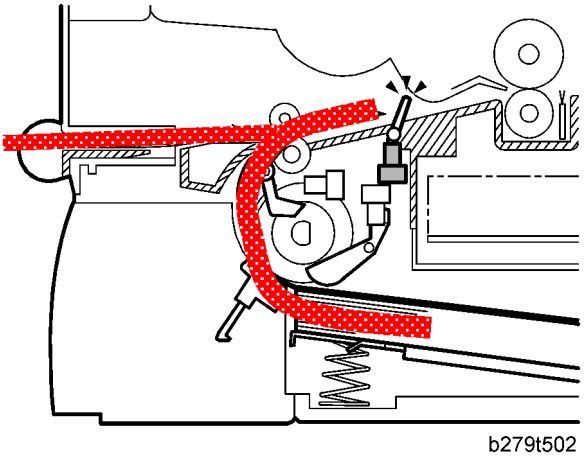
Action:

1. Check whether a correct type of paper is being used.
2. Check that the paper guides and the end fence are set correctly.
3. Check that the friction pad is set correctly.
4. Fan the edges of the paper stack to separate the pages. Then tap the stack on a flat surface to even up.

Paper Jam 2



Jam 1. Paper jam at the paper cassette



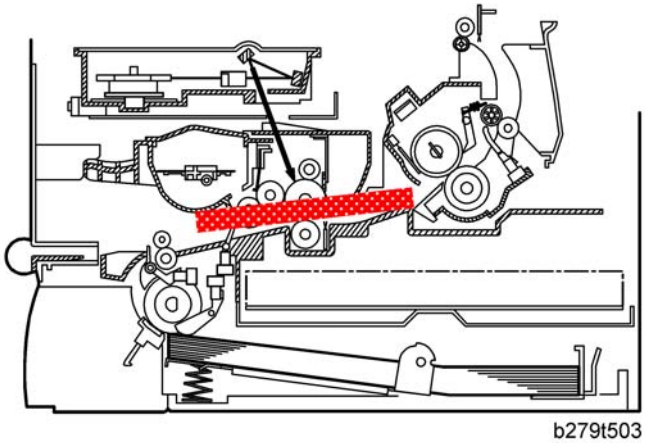
When the registration sensor does not turn on within 2.65 seconds after the paper pick-up clutch for the paper cassette turns on.

Action

1. Slide out the paper tray unit.
2. Grab the visible edge of the paper and gently pull it out of the paper tray as shown above. Then make sure the remaining paper on the paper tray unit is correctly aligned.

3. Slide the tray back into the machine. Then open and close the front cover. Printing starts again.

Jam 2. Paper did not pass the registration sensor



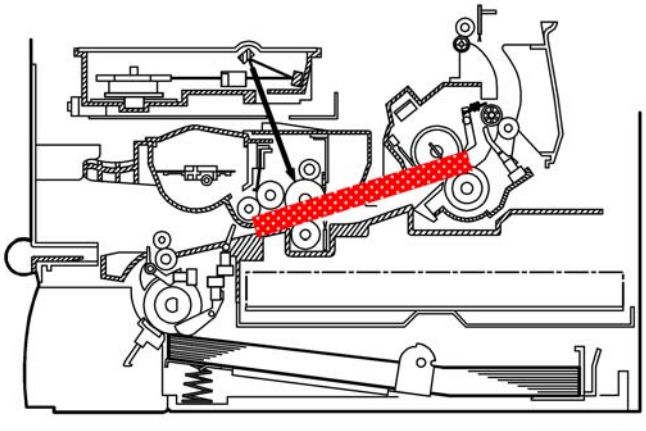
b279t503

When the registration sensor does not turn off within the specified time for passing a paper after the registration sensor turns on.

Action

1. Open the front cover and remove the AIO.
2. Gently pull the paper toward you as shown above.
3. Make sure there is no more paper in the machine.
4. Re-install the AIO and close the cover. Printing starts again.

Jam 3. Paper did not reach the fusing unit



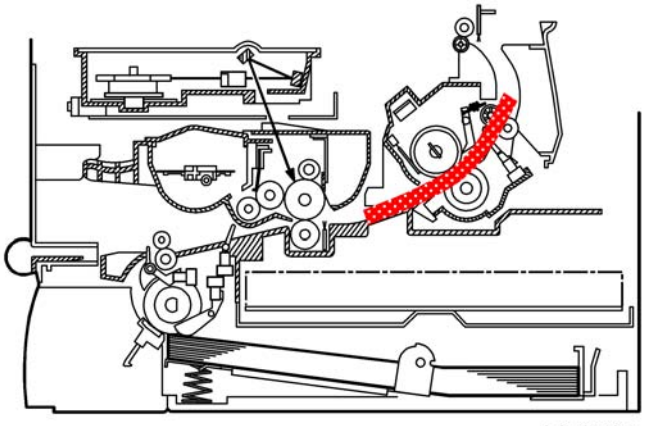
b279t504

When the paper exit sensor does not turn on within 2.1 seconds after the registration sensor turns on.

Action

1. Open the front cover and remove the AIO.
2. Gently pull the paper toward you as shown above.
3. Make sure there is no more paper in the machine.
4. Re-install the AIO and close the cover. Printing starts again.

Jam 4. Paper jam in the fusing exit area



The paper exit sensor does not turn off within 3.0 seconds after the registration sensor turns off.

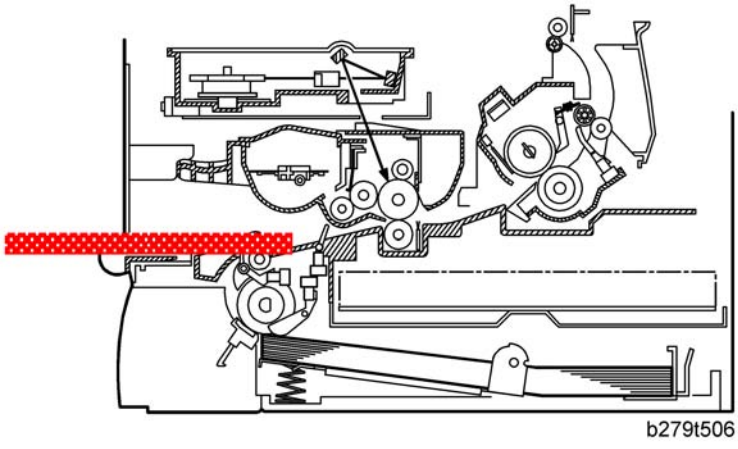
Action

1. Pull the paper straight out if paper gets jammed when it exits to the output tray. Do not continue to pull the paper if there is resistance and the paper does not move. In this condition, go to the next step.
2. Open the rear output tray.
3. Loosen the paper if it is caught in the feed rollers. Then gently pull the paper out.
4. Close the rear output tray. Then open and close the front cover. Printing starts again.

Note

- Paper jam in this area is very close to the fusing unit. The fusing unit can get very hot. Use high caution when you remove paper in this area.

Jam 5. Paper no feed jam in the bypass tray



When the registration sensor does not turn on within 1.6 seconds after the main motor starts.

Action

Pull the paper straight out if paper gets jammed when it exits rear cover area.

Print Quality

Blank Copies

Possible Cause

- Poor drum sensitivity.
- Laser optic components are out of position.
- The proper bias voltages are not applied to the toner application roller and/or the development roller.
- The proper current is not applied to the transfer roller.

Action

1. Print a test pattern, and open the cover in the middle of printing.
2. Check to see if there is toner adhered to the drum surface.

   If there is, do the following. If not, go to step 3.

   - Check to see if the cartridge is correctly installed.
   - Check to see if the transfer roller is correctly positioned.
3. Check to see if the cartridge is empty. If it is, replace the cartridge.

Black Copies

Possible Cause

- The charge is incorrectly applied.

Action

1. Check the connections between the power supply unit, the charge voltage terminals, and the cartridge.
   - If they are OK, go to step 2.
   - If not, fix the connections.
2. Replace the power supply unit.

Dirty Back Ground

h535t502

h535t503

6

Possible Cause

- Poor drum sensitivity.
- The charge is incorrectly applied.
- The hot roller is dirty.

Action

1. Try replacing the cartridge.
2. Check to see if the hot roller surface is dirty.
    - If it is, clean the roller.
    - If not, go to step 3.
3. Check whether all connections between the charge bias terminals and the cartridge are correct.
    - If they are, check or replace power supply unit.
    - If they are not, fix the connections.

Uneven Image Density

h535t504

h535t503

6

Possible Cause

- Poor drum sensitivity.
- Dirty laser optic components.
- A deformed toner metering blade.
- Uneven toner supply in the toner hopper.

Action

1. Print a solid black test pattern, and open the cover in the middle of printing.
2. If the image is lighter in the center of the image, the toner may be low. Replace the cartridge. If it is not, go to step 3.
3. Check to see if the toner is evenly distributed on the drum.
    - If it is not, check the cartridge and the laser optic components.
    - If it is, check if there is any dirt on the transfer roller surface.

Vertical Black Lines

h535t505

h535t503

Possible Cause

- Damaged cleaning blade.
- Dirty hot roller stripper(s).

Action

1. Replace the cartridge.
2. Clean the hot roller strippers.

Horizontal Black Lines

h535t506

h535t507

6

Possible Cause

The drum surface is scratched or damaged.

Action

1. Check to see if the surface of the drum is damaged.
    - Replace the cartridge if damaged.

Vertical White Lines

h535t508

h535t503

6

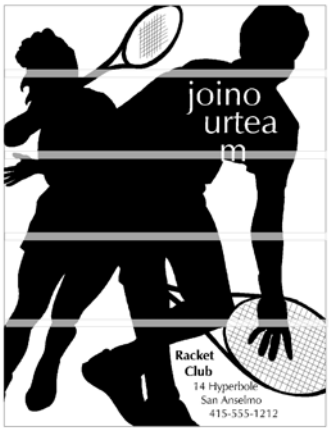
Possible Cause

- The laser optic components are dirty.
- The hot roller stripper scrapes off toner from the print paper.
- Damaged cleaning blade.

Action

- Clean the laser optic components.
- Check the hot roller stripper mechanism. Clean the strippers and replace them if damaged.
- Replace the cartridge.

Horizontal White Lines



h535t509

h535t507

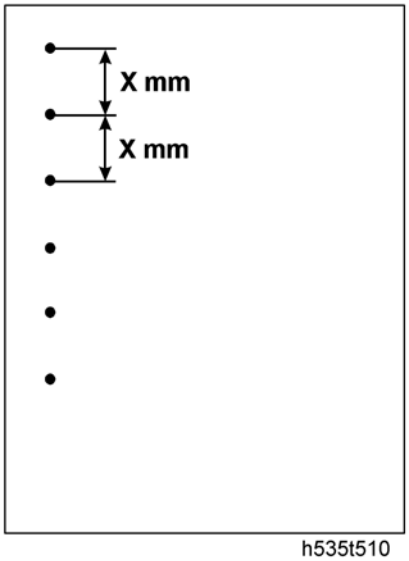
Possible Cause

- A damaged or deformed development roller surface.
- The development bias is unstable.
- The transfer current is unstable.

Action

1. Print a test pattern, and open the cover in the middle of printing.
2. Check to see if horizontal white lines (where toner is not adhered) appear on the drum surface or not.
    - If not, check the transfer roller surface and the transfer bias terminal connections. If they are OK, check or replace the power supply unit.
    - Replace the cartridge.

Black Dots/Spots



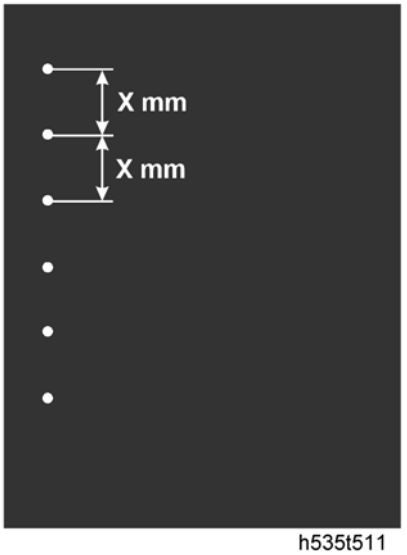
Possible Cause

- The drum surface is damaged (this is likely if the dots appear at 75.3 mm intervals).

Action

- Replace the cartridge.

White Spots in Black Image Areas



h535t511

Possible Cause

- The drum surface is damaged (this is likely if the dots appear at 75.3 mm intervals).
- The development roller surface is damaged (this is likely if the dots appear at 36.4 mm intervals).
- The toner application roller surface is damaged (this is likely if the dots appear at about 29.1 mm intervals).
- The transfer roller surface is damaged (this is likely if the dots appear at about 43.9 mm intervals).
- The exposure roller surface is damaged (this is likely if the dots appear at about 37.7 mm intervals).

Action

- Replace the cartridge.

Faint Copies

h535t512

h535t503

6

Possible Causes

- Poor drum sensitivity.
- Dirty laser optic components.
- Incorrect development/ transfer bias
- Low toner
- Low fusing temperature

Action

1. Print a test pattern, and open the cover in the middle of printing.
2. Check to see if the toner on the paper at the entrance of the fusing unit appears faint.
    - If it does, check or replace the fusing lamp, thermistor, and power supply unit.
    - If it does not, go to step 3.
3. Check to see if the toner on the drum looks faint.
    - If it does, go to step 4.
    - If it does not, check the contacts between the transfer bias terminals and power supply unit.
4. Check all the contacts between the development and toner application rollers' bias terminals.
    - If it does not, try replacing the cartridge.

Vertical Black Band

h535t505

h535t503

Possible Cause

- A deformed, damaged, or incorrectly positioned toner metering blade.

Action

- Replace the cartridge.

Unfused Copies

Possible Cause

- The thermistor is defective.
- The spring mechanism for the fusing pressure roller is defective.
- Incorrect toner type.
- Non-recommended paper type.

Action

1. Check that the correct type of paper and toner are in use.

- If it is, go to step 2.
- If not, use recommended types of paper and cartridge.

2. Try replacing the fusing lamp and the hot and/or pressure roller.

Ghost Image

Possible Cause

- Poor drum sensitivity.
- The cleaning blade is deformed or incorrectly positioned.
- Dirty hot roller

Action

1. Replace the cartridge.
2. Clean the hot roller surface and/or replace the cleaning pad.

Toner on the Back of the Printer Paper

Possible Cause

- Dirty transfer roller
- Dirty fusing pressure roller

Action

1. Check to see if the transfer roller is dirty with toner.
    - If it is, clean the roller surface by copying a sheet of white paper three times or more. (For better results, copy one sheet at a time)
    - If not, go to step 2.
2. Check to see if the fusing pressure roller is dirty with toner.
    - If it is, clean the fusing pressure roller.
    - If not, check for any other dirty rollers and clean them.

Incorrectly Aligned Output

Possible Cause

- Laser optics are aligned incorrectly.
- Incorrect print margin setting (main scan direction).

Action

- Adjust the main scan print margin.
- Check that the laser optics are aligned correctly.
- Replace the Laser unit.
- Replace the main board.

INCORRECTLY ALIGNED OUTPUT/REDUCED IMAGE

Possible Cause

- Incorrect print margin (sub-scan direction).

Action

- Replace the Laser unit.
- Replace the main board.

Error Code

Communication Error Codes

The communication error codes appear in the logs (printed using key sequence ▼ > "5" > "4") and in the transmission reports.

General Codes

Code	Error	Cause	Actions
01	**Engaged or no fax tone**	This code appears after 6 failed attempts.	Restart the transmission at a later time.
03	**Stopped by operator**	Communication stopped by the operator by pressing the ▼ key.	
04	**Programmed number invalid**	Invalid programmed single-key or quick-dial number (Example: a delayed transmission has been programmed with a single key and this key has been deleted).	Check the validity of the programmed number and/or the single-key associated to the programmed number.
05	**Scanning fault**	An incident has occurred at the location of the document to be transmitted (Example: the sheet is jammed).	Check the ADF module.
06	**Printer not available**	An incident has occurred on the printer (Example: out of paper, paper jam or cover open). In the case of a reception, this incident code only appears if the "RECEPTION WITHOUT PAPER" parameter is set to "WITHOUT PAPER".	Check the printer.
07	**Disconnect**	The communication has been cut (bad connection).	Check the called number.

Code	Error	Cause	Actions
08	**Quality**	The document that you have transmitted has not been received correctly.	Contact your correspondent to check whether it is necessary to retransmit the document: the interference may have occurred in an unimportant area of the document.
0A	**No document to recover**	You have attempted to recover a document from a correspondent, but the latter has not prepared (stored) the document or the password that was entered is wrong.	Contact your correspondent to check whether the document to recover has been prepared or to check the validity of the password.
0B	**Wrong number of pages**	There is a difference between the number of pages indicated when the document was prepared for transmission and the number of pages actually transmitted.	Check the number of pages of the document.
0C	**Received document faulty**	The document is too long to be received in its entirety.	Ask the correspondent to check/ reduce the length of his document.
0D	**Document transmission fault**	Document reception error.	Ask the correspondent to retransmit his document.
13	**Memory full**	The terminal memory is full (there are too many documents that have been received but not yet printed, or waiting to be transmitted).	Print the received documents. Delete or transmit in immediate mode the documents waiting to be transmitted.
14	**Memory full**	Received document memory saturated.	Print the received documents.
16	**List number x not retransmitted**	Failure to retransmit a document via a remote fax (the requested list of recipients is not programmed on the remote fax).	Check that the list of recipients is programmed on the remote fax.

Code	Error	Cause	Actions
19	**Stopped by correspondent**	Communication stopped by your correspondent (Example: a fax attempts to recover a document from your fax, while there is no document waiting for this correspondent).	
1A	**Disconnect**	Transmission has not started (the phone line is too noisy).	Check the quality of the phone line or restart the transmission at a later time.
1B	**Document transmission fault**	Document transmission error.	Transmission: restart the transmission. Reception: ask your correspondent to retransmit the document.

Model PN-MF2a
Machine Code: M049

Model PN-MF2b
Machine Code: M048

APPENDICES

7 April, 2009

TABLE OF CONTENTS

1. Appendix: Specifications

General Features

Copier

		M049	M048
Dimension (W x D x H) (mm)		447 x 386 x 344	447 x 386 x 412 (Without ADF tray)
Weight (basic machine)		11.6 kg	13 kg
Power Supply		220 - 240V 50/60 Hz - 4.5 A	
Electric Consumption	Operating	340 W (Max. 900W)	
	Stand-by	13 W	16 W
	Power Save	10 W	12 W
Noise Emission	Operating	51 dB (A) or less	
	Stand-by	29 dB (A) or less	
Scan to mail (drag and drop via Paper Port)		TIFF-F, JPEG, PDF	
Resolution of Scanner		600 x 600	
Copier Speed		20 cpm	
First Copy- Time	From ADF (B&W)	-	13 sec. or less
	From FB Scanner (B&W)	13 sec. or less	13 sec. or less
Zoom		25% - 400%	
Paper Size Management		A5, Legal, Letter, A4	

Multi-copy		1 - 99	
Paper Capacity: Standard tray		250 (64g) / 200 (80g)	
Copy-Tray Capacity		50	
Paper Weight		Standard tray: 60 - 105 g/m^2 By-pass: 52 - 162 g/m^2	
Energy saver mode		Without / 5 / 15 / 30min / Standby period	
USB host feature	No./Position	1 / Front	2 / Front and back
	Key to print	Yes (JPEG,TIFF,TXT)	
	Scan to key	Yes (TIFF)	
Smart card feature Directory & Parameter save card		No	Yes

Printer

	M049 / M048
Technology	Laser B/W
Printing Speed	20ppm
First Print Time	13 sec.
Printing Resolution	600 x 600 dpi
Printer Language	GDI
Host Interface	USB 2.0
Memory for printer	16 MB

Scanner

	M049 / M048
Type	CIS Color Scanner

Color Depth	36 bits
Resolution	Optical: 600 dpi Interpolated: 2400 dpi
B&W speed for A4 (excluding processing time)	
300 X 300 dpi 600 X 600 dpi	3.9 seconds 10.5 seconds
Color speed for A4 (excluding processing time)	
200 X 200 dpi 600 X 600 dpi	7.9 seconds 31.6 seconds
Gray Scale Level	256
Software Compatibility	TWAIN, WIA
Maximum Paper Size	A4, Letter

Fax (M048 only)

Type	PSTN-Super G3
Coding scheme	MH, MR, MMR, JBIG
Max speed	33600bps (V34Fax)
V34Fax capabilities	33600 to 2400 bps
V34Fax increments	2400 bps
V17 capabilities	14400, 12000, 9600, 7200 bps
V29 capabilities	9600, 7200 bps
V27ter capabilities	4800, 2400 bps
Automatic fall back	Yes
Directory capacities	250

Transmission speed / ITU	2.5 seconds

ADF (M048 only)

Max. paper width and length	216 mm (W)/ 1000 mm (L)
Min. paper width and length	145 mm (W)/ 120 mm (L)
Paper weight	60 to 90 g/m^2
Tray capacity	50 sheets
B&W speed (A4 excluding processing time)	
300 (200 for FAXa) x 100 dpi	2.6 seconds
300 (200 for FAXa) x 200 dpi	3.5 seconds
600 (200 for FAXa) x 200 dpi	3.5 seconds
Color speed (for RP)	
300 X 300 dpi	7.9 seconds
600 X 300 dpi	15.8 seconds

Supported Paper

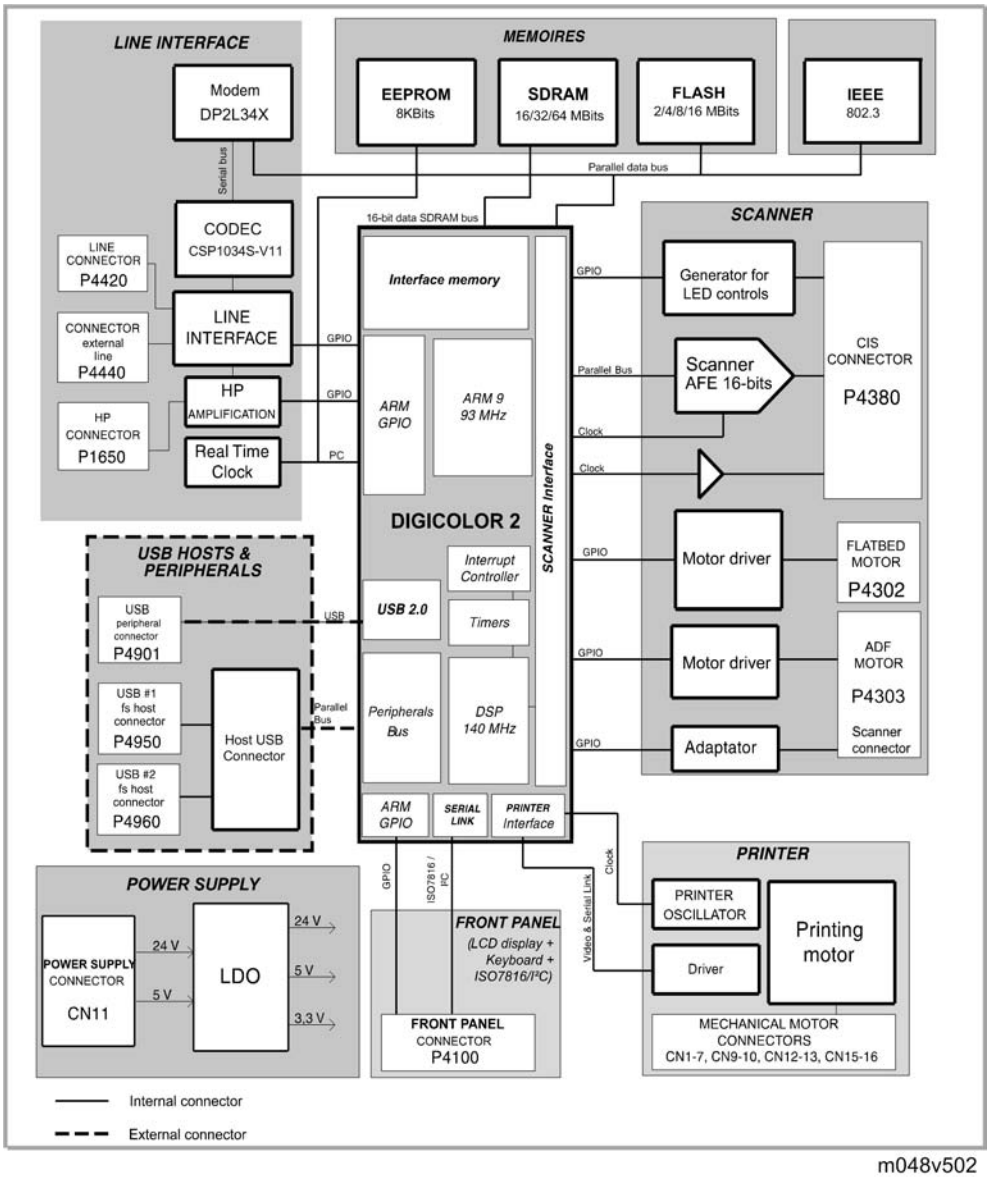
Supports		Paper trays		ADF (M048 only)
Paper sizes	Dimensions (mm)	Main	Manual	Feeder
Legal	215.9 x 355.6	yes	yes	yes
A4	210 x 297	yes	yes	yes
Letter	215.9 x 279.4	yes	yes	yes
A5	148 x 210	yes	yes	yes
B5 (JIS)	182 x 257	no	yes	no
Executive	184.2 x 266.7	no	yes	no
A6	176 x 250	no	yes	no
Capacities		250	1	50

1

2. Appendix: Block Diagram

Block Diagram

Overview

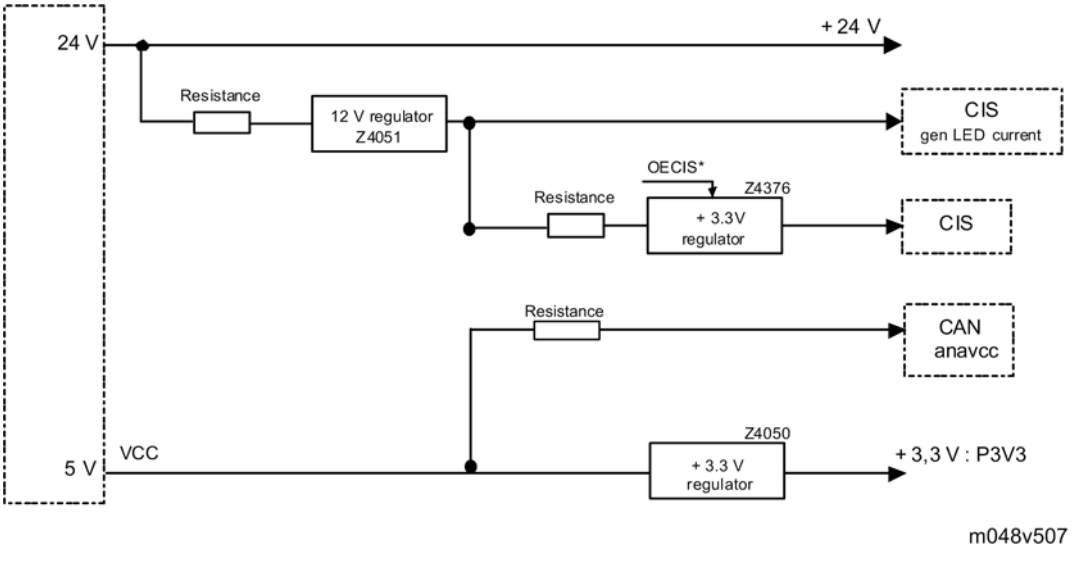


m048v502

Power Supply

The 24V and 5V power supply are provided by the printer.

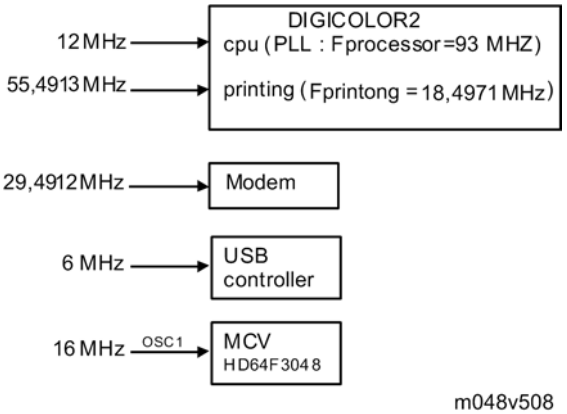
Diagram of printer power supply connections:



m048v507

Quartz

Diagram of CPU card clocks:



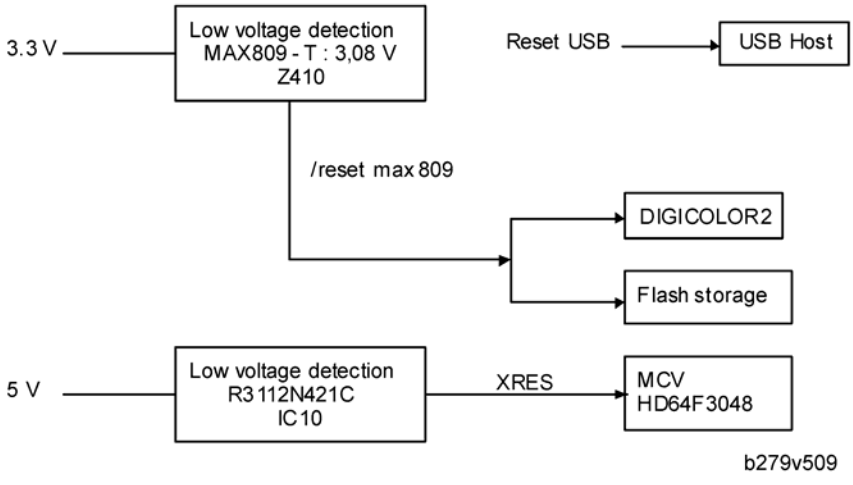
m048v508

Reset

The reset is generated from 3.3V as all logical parts (DIGICOLOR2, memory, ...) are supplied in 3.3V.

The reset is active during at least 100ms.

Printer's reset diagram:



3. Appendix: P-to-P

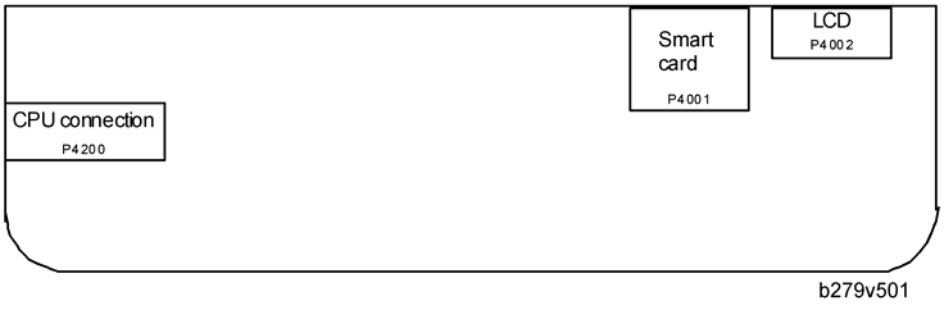
P-to-P

Operation Panel Card

The operation panel card interfaces with the keyboard keys and the LCD display.

The LCD has its own driver in COB (Chip On Board).

The card also has an external connector to the smart card which is managed by the CPU.



List of connectors

Connector	Topography	Number of points	Sex	Position
CPU Connection	P4200	16	Female	Elbow top contact
LCD	P4002	10	Female	Elbow, top contact
Smart card	P4001	10	Female	-

CPU - P4200: CPU connection

Pin	Signal	Input/Output	Utilization
1-7-8-10-15	GND	-	Ground
2	FERCAP	I	Detection of smart card

Pin	Signal	Input/Output	Utilization
3	CVCC	I/O	Smart card power supply (3.3V) (controlled by I/O CVCC)
4	CLKPUCE	O	Smart card clock
5	RSTPUCE	I	Smart card reset
6	IOPUCE	I/O	Smart card data
9	SCLKPUP	O	Serial clock link for differential registers
11	RXPUP	I	Sending data from the operation panel
12	TXPUP	O	Sending data from the CPU
13	STROB1	-	Out-of-register strobe to control the keyboard
14	STROB2	-	Out-of-register strobe to control the display
16	P5V	-	5V power supply

LCD - P4002: LCD interface

Pin	Signal	Input/Output	Utilization
1	GND	-	Ground
2	V0	O	LCD Contrast
3	RS	O	Selection of registers
4	R/W	O	Read or Write (driver configured to write in OV)
5	LCD_E	O	Enable Signal (active at 1)
6	VCCLCD	-	Vcc: 4.5V to 5.5V
7	DB4	O	Data (Bit 4)
8	DB5	O	Data (Bit 5)
9	DB6	OI	Data (Bit 6)

Pin	Signal	Input/Output	Utilization
10	DB7	O	Data (Bit 7)

Smart card - P4001: connection with the smart card

Pin	Signal	Input/Output	Utilization
1	CVCC	O	Smart card power supply (3.3V)
2	RSTPUCE	O	Smart card reset
3	CLKPUCE	O	Smart card clock
4	-	-	Not connected
5	GND	-	Ground
6	-	-	Not connected
7	IOPUCE	I/O	Smart card data (input/output)
8	-	-	Not connected
S1	GND	-	Ground
S2	FERCAP	I	Smart card detection

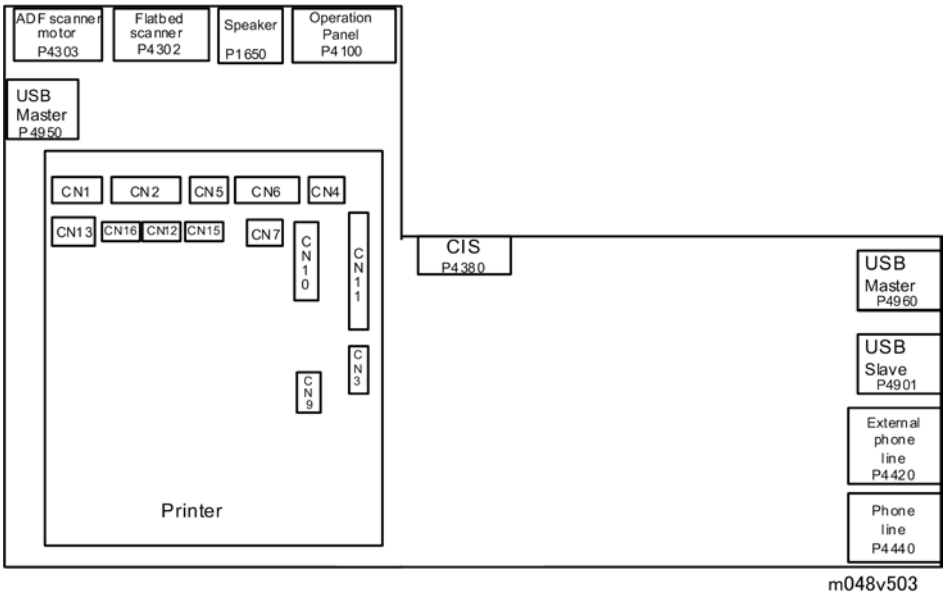
CPU Card

The CPU card is based on the Digicolor2 circuit, which ensures the processor functions.

All the executable code is stored in the flash Z466.

This flash is divided into two zones: one zone is reserved for storing code and the other is reserved for storing documents.

The code is loaded in SDRAM from this flash and the processor executes its instructions from the SDRAM. The SDRAM also serves as the operating memory for Digicolor2.



List of connectors

Connector	Topography	Number of points	Sex	Position
Printer	CNx	-	-	-
Speaker	P1650	2	-	-
Operation panel	P4100	16	Female	Straight, top contact
ADF scanner motor	P4303	11	Female	Straight
Flatbed scanner motor	P4302	5	Female	Straight
CIS	P4380	12	Female	Straight, top contact
Phone line	P4420	4	Female	-
External phone line	P4440	4	Female	-
USB Slave	P4901	4	External, type USB type B	-
USB Master	P4950	4	External, type USB type A	-

Connector	Topography	Number of points	Sex	Position
USB Master	P4960	4	External, type USB type A	-

CNx: printer connectors

Topography	Connector	Pin	Signal	Input/ Output	Utilization
CN1	Polygon motor	1	+24VS	-	24V power supply
		2	GND	-	Ground
		3	XPMENA	S	Starting the polygon motor
		4	XSCRDY	E	Locking the polygon motor
		5	PMCLK	-	Polygon motor clock
CN2	Diode laser	1	+5VLD	-	
		2	XLDENA	O	Activating the laser
		3	APCSH	O	Sampling
		4	XDETP	I	Ray beam detector
		5	GND	-	Ground
		6	XVD	O	Diode laser video
		7	NC	-	Not connected

Topography	Connector	Pin	Signal	Input/ Output	Utilization
CN3	Printer motor	1	P24VS	-	24V power supply
		2	GND	-	Ground
		3	P5V	-	-
		4	XMMENA	-	-
		5	MMCLK	-	-
		6	MMCW	-	-
		7	XMMLOCK	-	-
		8	MMGAIN	-	-
CN4	Fan	1	FANEMA	O	Fan in operation motor signal
		2	GND	-	Ground
		3	FANLOCK	-	
CN5	Paper output clutch	1	+24VS	-	24V power supply
		2	XFPCL	O	Electric paper clutch signal
CN6	Paper detection captors	1/4/7	GND	-	Ground
		2	XFEED	I	Paper feed signal captor
		3/6/9	+5V	-	5V power supply
		5	XREGIST	I	Register of signal captors
		8	XMANUAL	I	Manual paper feed signal
CN7	Paper output captor	1	GND	-	Ground
		2	XEXIT	I	Four paper output signal captors
		3	+5V	-	5V power supply

Topography	Connector	Pin	Signal	Input/ Output	Utilization
CN9	Debug	1	+5V	-	5V power supply
		2	DBGRXD	I	Debug receipt
		3	DBGTXD	O	Debug command
		4	GND	-	Ground
CN10	High voltage	1	TRAPWM0	O	PWM signal for transfer of charger (+)
		2	RAPWM1	O	PWM signal for transfer of charger (-)
		3	BIASPWM	O	PWM development signal
		4	CHEPWM	O	PWM signal charger
		5	XTRACTL	O	Charger signal
		6	XBIASCTL	O	Development signal
		7	GND	-	Ground
		8	+24VS	-	24V power supply
CN11	Power supply	1	HTON	O	Phase Fuser control
		2	ZEROC	I	Control signal
		3	HTEN	O	Fuser relay (Activated to H)
		4	GND	-	Ground
		5/12 /13	+24V	-	24V power supply
		6/7/ 10/ 11	GND	-	Ground
		8/9	+5V	-	5V power supply

Topography	Connector	Pin	Signal	Input/ Output	Utilization
CN12	Temperature captor	1	FTEMP	I	Fuser temperature detector
		2	GND	-	Ground
CN13	Opening of printer cover captor	1	P24V	I	24V power supply
		2	P24VS	O	24V power supply
CN15	IAO captor (presence of toner)	1	XAIO	I	Detection of cartridge
		2	GND	-	Ground
CN16	Motor temperature captor	1	TEMP	I	Detection of printer motor temperature
		2	GND	-	Ground
CN17	Printer LED bar power supply	1	XLED	O	Printer LED bar command
		2	P24VS	O	24V power supply

Speaker - P1650: connection with the speaker

Pin	Signal	Input/Output	Utilization
1	HPP	O	Differentiated BF signal to HP
2	HPN	O	Differentiated BF signal to HP

Operation panel - P4100: connection with the operation panel card

Pin	Signal	Input/Output	Utilization
1	P5V	-	5V power supply
2/7/9/10/16	GND	-	Ground
3	STROB2	-	Out-of-register strobe to control the display

Pin	Signal	Input/Output	Utilization
4	STROB1	-	Out-of-register strobe to control the keyboard
5	TXPUP	O	Data emitted by the CPU
6	RXPUP	I	Data emitted by the operation panel
8	SCLKPUP	O	Serial link clock for differentiated registers
11	IOPUCE	I/O	Smart card data (3.3V)
12	RSTPUCE	O	Smart card reset
13	CLKPUCE	O	Smart card clock
14	CVCC	O	Smart card power supply (3.3V) (controlled byr I/0 CVCC)
15	FERCAP	I	Detection of smart card

ADF scanner motor - P4303: connection with the ADF scanner motor

Pin	Signal	Input/Output	Utilization
1	P24V	-	24V power supply
2	ADF_BN	O	Scanner motor coil BN
3	ADF_B	O	Scanner motor coil B
4	ADF_AN	O	Scanner motor coil AN
5	ADF_A	O	Scanner motor coil A
6	GND	-	Ground
7	PSF	I	Sheet sensor
8	ALIMPSF	-	PSF sensor power supply
9	GND	-	Ground
10	STSC	I	Document ready sensor
11	ALIMOUVCAP	I	STSC sensor power supply

Flatbed scanner motor - P4302: connection with the flatbed scanner motor

Pin	Signal	Input/Output	Utilization
1	P24V	-	24V power supply
2	FTB_BN	O	Scanner motor coil BN
3	FTB_B	O	Scanner motor coil B
4	FTB_AN	O	Scanner motor coil AN
5	FTB_A	O	Scanner motor coil A

Phone line - P4420

Pin	Signal	Input/Output	Utilization
1	R1	-	Loopback
2	L1	-	Phone line
3	L2	-	Phone line
4	R2	-	Loopback

External phone line - P4440

Pin	Signal	Input/Output	Utilization
1	NC	-	-
2	L1	-	Phone line
3	L2	-	Phone line
4	NC	-	-

CIS - P4380: connection with the CIS

Pin	Signal	Input/Output	Utilization
1	VIDCIS	I	CIS video

Pin	Signal	Input/Output	Utilization
2	CMD RESOL	O	300/600dpi resolution command
3	VREFCIS	O	CIS voltage reference
4	VIDEOGND	-	Mass
5	CLKCIS	O	CIS (synchro point) pixel clock
6	ALIMCIS	-	3.3V power supply
7	SPCIS	O	Start Pulse CIS (line synchro)
8	ALIMLED	O	LEDs power supply (in voltage)
9	GNDLEDB	O	Blue LED cathode
10	GNDLEDV	O	Green LED cathode
11	GNDLEDR	O	Red LED cathode
12	GND	-	Ground

USB - P4901: USB slave interface

Pin	Signal	Input/Output	Utilization
1	VBUS_USB	I	Power supply provided by the master
2	USBN	I/O	Differential pair
3	USBP	I/O	Differential pair
4	GND	I/O	Ground

USB - P4950: USB master interface

Pin	Signal	Input/Output	Utilization
1	VBUS_USB_HOST	O	Power supply provided to the slave
2	USBN	I/O	Differential pair
3	USBP	I/O	Differential pair

Pin	Signal	Input/Output	Utilization
4	GND	I/O	Ground

USB - P4960: USB master interface

Pin	Signal	Input/Output	Utilization
1	VBUS_USB_HOST_2	O	Power supply provided to the slave
2	USBN	I/O	Differential pair
3	USBP	I/O	Differential pair
4	GND	I/O	Ground