RICOH UNIVERSITY
Learning ◆ Knowledge ◆ Performance

M095/M096/M099/M100
SERVICE MANUAL

LANIER RICOH savin

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Ricoh Americas Corporation

LEGEND

PRODUCT CODE	COMPANY		
	LANIER	RICOH	SAVIN
M095	SPC240DN	Aficio SPC240DN	SPC240DN
M096	SPC242DN	Aficio SPC242DN	SPC242DN
M099	SPC240SF	Aficio SPC240SF	SPC240SF
M100	SPC242SF	Aficio SPC242SF	SPC242SF

DOCUMENTATION HISTORY

REV. NO.	DATE	COMMENTS
*	11/2011	Original Printing

M095/M096/M099/M100

TABLE OF CONTENTS

M095/M096/M099/M100 SERVICE MANUAL APPENDICES

SEE M095/M096/M099/M100 SERVICE MANUAL APPENDICES SECTION FOR DETAILED TABLE OF CONTENTS

PAPER FEED UNIT TYPE TK1010 (G849)

SEE SECTION G849 FOR DETAILED TABLE OF CONTENTS

READ THIS FIRST

Safety Notices

Important Safety Notices

Prevention of Physical Injury

1. Before disassembling or assembling parts of the machine and peripherals, make sure that the machine power cord is unplugged.
2. The wall outlet should be near the machine and easily accessible.
3. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
4. The machine drives some of its components when it completes the warm-up period. Be careful to keep hands away from the mechanical and electrical components as the machine starts operation.
5. The inside and the metal parts of the fusing unit become extremely hot while the machine is operating. Be careful to avoid touching those components with your bare hands.

Health Safety Conditions

Toner is non-toxic, but if you get either of them in your eyes by accident, it may cause temporary eye discomfort. Try to remove with eye drops or flush with water as first aid. If unsuccessful, get medical attention.

Observance of Electrical Safety Standards

The machine and its peripherals must be serviced by a customer service representative who has completed the training course on those models.

Safety and Ecological Notes for Disposal

1. Do not incinerate toner bottles or used toner. Toner dust may ignite suddenly when exposed to an open flame.
2. Dispose of used toner, the maintenance unit which includes developer or the organic photoconductor in accordance with local regulations. (These are non-toxic supplies.)
3. Dispose of replaced parts in accordance with local regulations.

⚠WARNING

- To prevent a fire or explosion, keep the machine away from flammable liquids, gases, and aerosols. A fire or an explosion might occur.

⚠CAUTION

- The Controller board on the MF model contains a lithium battery. The danger of explosion exists if a battery of this type is incorrectly replaced. Replace only with the same or an equivalent type recommended by the manufacturer. Discard batteries in accordance with the manufacturer's instructions and 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

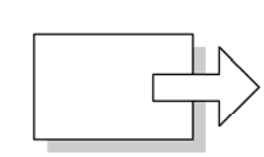
- Use of controls, or adjustment, or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

⚠WARNING
WARNING: Turn off the main switch before attempting any of the procedures in the Laser Optics Housing Unit section. Laser beams can seriously damage your eyes. **CAUTION MARKING:**    3b_decals 

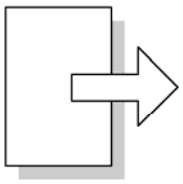
Symbols, Abbreviations and Trademarks

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



Short Edge Feed (SEF)



Long Edge Feed (LEF)

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PRODUCT INFORMATION

REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
		None

1. PRODUCT INFORMATION

1.1 GENERAL SPECIFICATIONS

See Appendices:

- Appendices: Basic Specifications
- Appendices: Controller Specifications

1.2 SUPPORTED PAPER SIZES

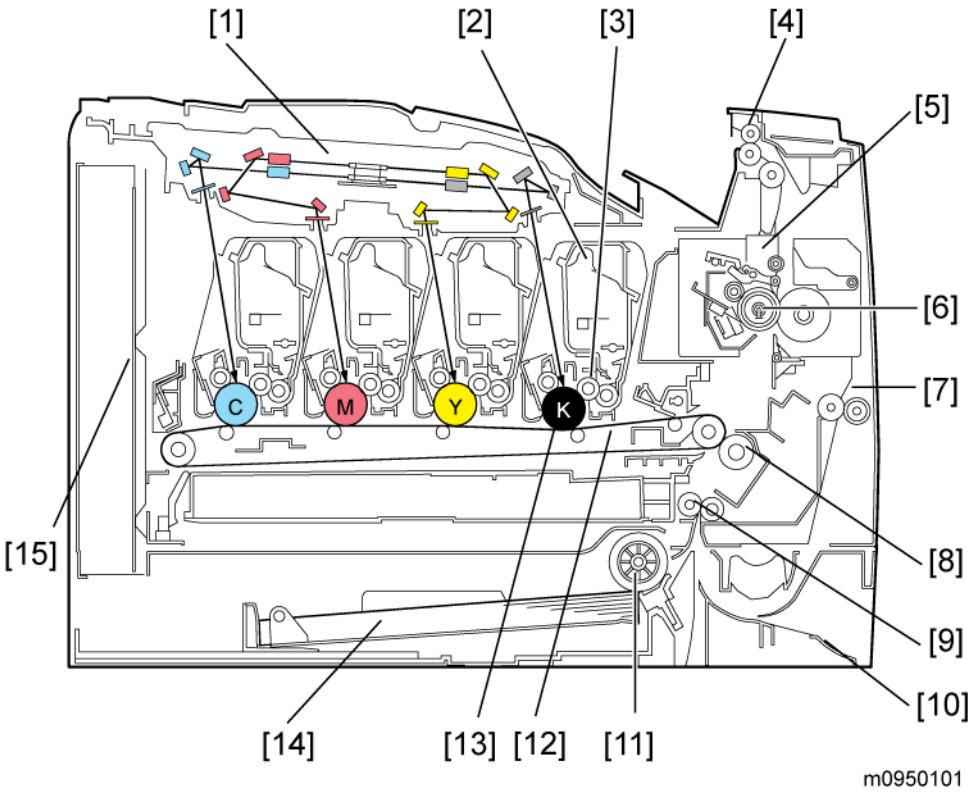
See Appendices:

- Appendices: Supported Paper Sizes

1.3 MACHINE OVERVIEW

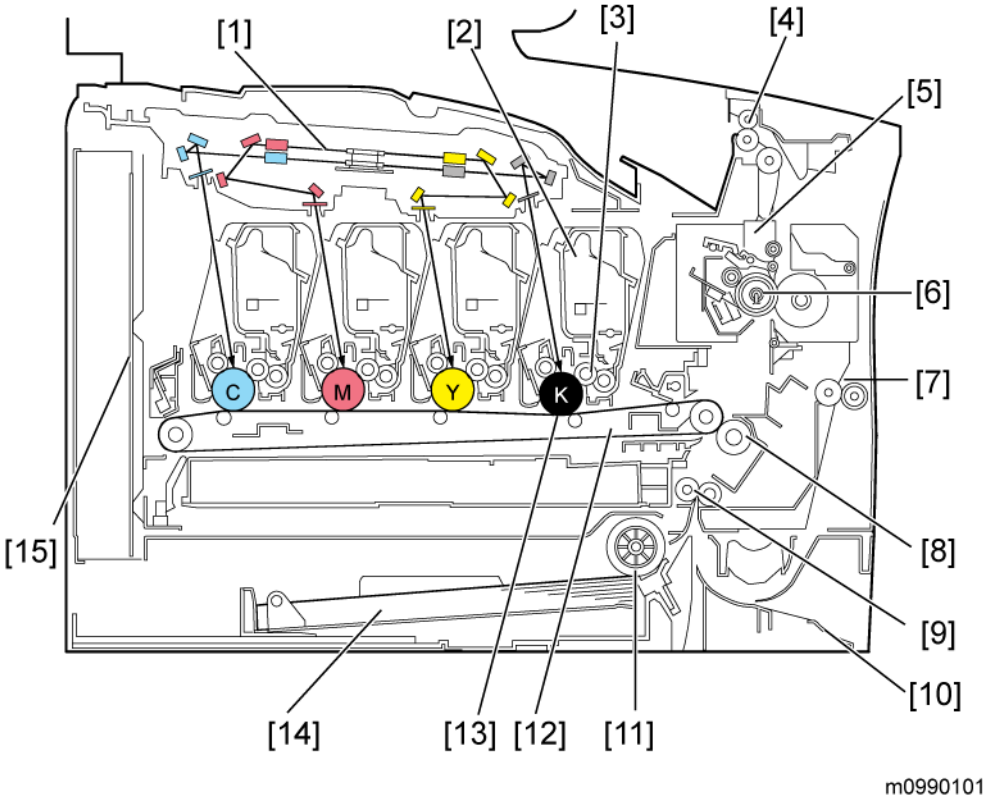
1.3.1 COMPONENT LAYOUT

Engine (M095/M096)



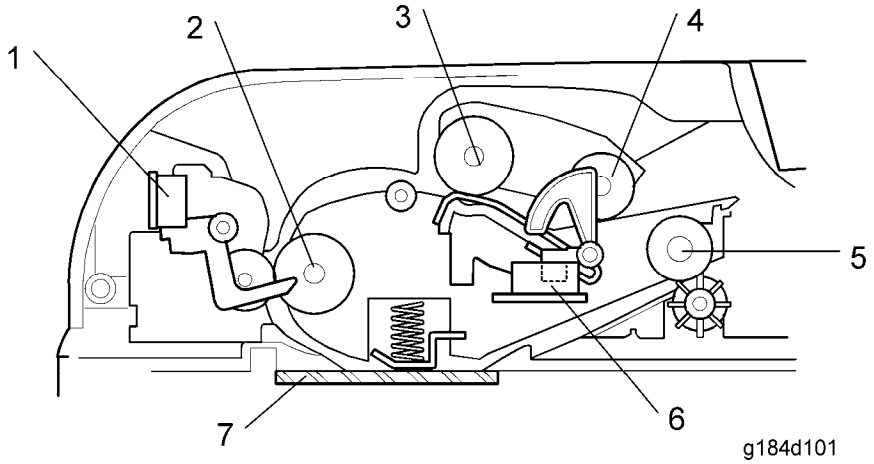
1. Laser Optics Housing Unit 2. Print Cartridge (AIO) 3. Development Roller (AIO) 4. Paper Exit 5. Fusing Unit 6. Fusing Lamp 7. Duplex Path 8. Transfer Roller	9. Registration Roller 10. By-pass 11. Paper Feed Roller 12. ITB (Image Transfer Belt) Unit 13. OPC (AIO) 14. Tray 1 15 EGB/Controller

Engine (M099/M100)



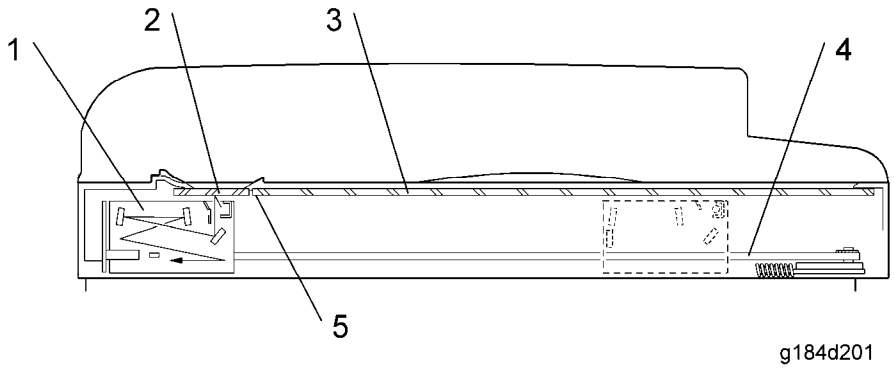
1. Laser Optics Housing Unit 2. Print Cartridge (AIO) 3. Development Roller (AIO) 4. Paper Exit 5. Fusing Unit 6. Fusing Lamp 7. Duplex Path 8. Transfer Roller	9. Registration Roller 10. By-pass 11. Paper Feed Roller 12. ITB (Image Transfer Belt) Unit 13. OPC (AIO) 14. Tray 1 15 EGB/Controller

ADF (only for M099/M100)



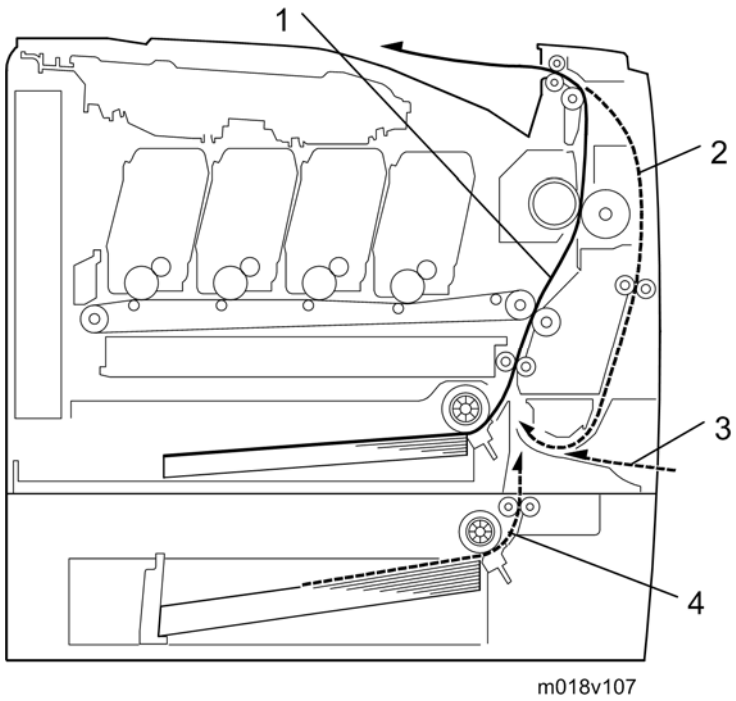
1. Feed Sensor 2. Feed Roller 3. Separation Roller 4. Pick-up Roller	5. Exit Roller 6. Original Set Sensor 7. DF Exposure Glass

Scanner (only for M099/M100)



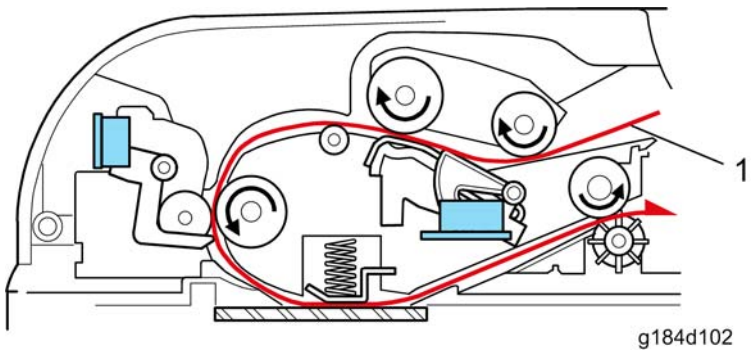
1. Scanner Carriage Unit 2. DF Exposure Glass 3. Exposure Glass	4. Carriage Drive Bar 5. White Plate

1.3.2 PAPER PATH



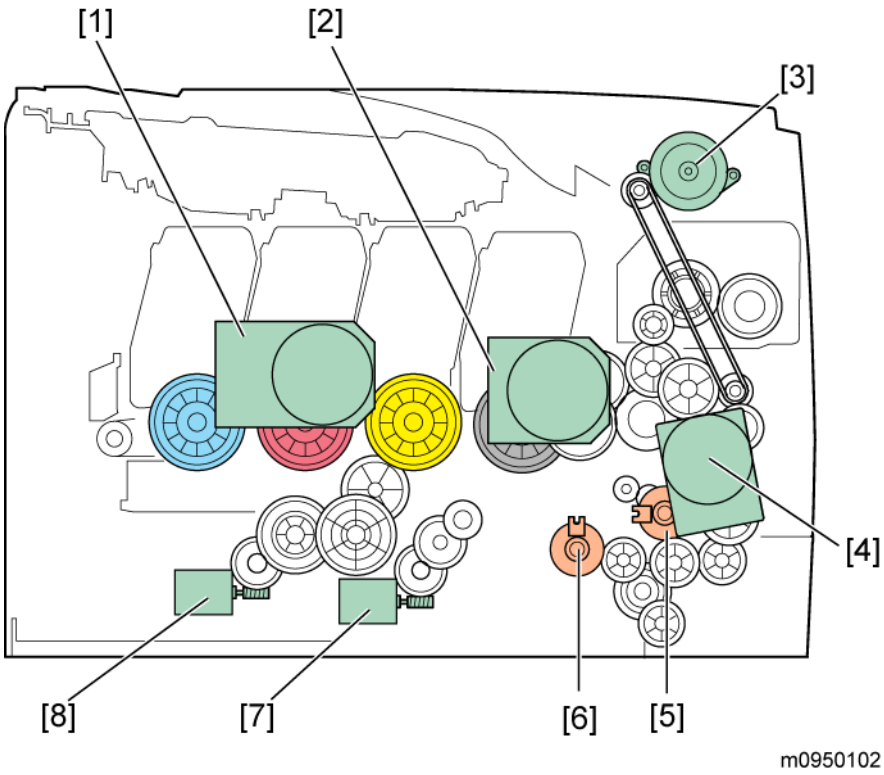
1. Paper path from tray 1
2. Duplex path
3. By-pass tray
4. Paper path from tray 2 (optional)

ADF (only for M099/M100)



1. Original path

1.3.3 DRIVE LAYOUT



1. Color AIO Motor	5. Registration Clutch
2. Black AIO Motor	6. Paper Feed Clutch
3. Duplex Motor	7. Agitator Motor
4. Transport/Fusing Motor	8. ITB (Image Transfer Belt) Contact Motor

- **Color AIO Motor:**
  This drives the color AIOs (Cyan, Magenta and Yellow)
- **Black AIO Motor:**
  This drives the black AIO and the ITB (Image Transfer Belt).
- **Duplex Motor :**
  This drives the paper exit roller and the duplex roller.
- **Transport/Fusing Motor:**
  This drives the fusing unit, paper feed roller, registration roller and paper exit roller via the paper feed clutch, registration clutch and gears.
- **Registration Clutch:**
  This transfers drive from the transport/ fusing motor to the registration roller.
- **Paper Feed Clutch:**
  This transfers drive from the transport/ fusing motor to the paper feed roller.

- **Agitator Motor:**
  This moves the agitators in the waste toner bottle.
- **ITB Contact Motor:**
  This moves the ITB into contact with and away from the color OPCs.

1.4 MACHINE CONFIGURATION

1.4.1 PRINTER MODEL (M095/M096)

Models	Duplex Unit	Optional Memory	Optional Tray (G849)	DDST (GDI)	PCL PS
PE-P2a (M095)	Auto	N	500 x 1	Y	N
PE-P2c (M096)	Auto	N	500 x 1	N	Y

1.4.2 MF MODEL (M099/M100)

Models	Duplex Unit	Optional Memory	Optional Tray (G849)	DDST (GDI)	PCL PS	Fax
PE-MF3a (M099)	Auto	N	500 x 1	Y	N	Y
PE-MF3c (M100)	Auto	N	500 x 1	N	Y	Y

1.5 GUIDANCE FOR THOSE WHO ARE FAMILIAR WITH PREDECESSOR PRODUCTS

The M095/M096 series models are similar to the M035/M036 series, and the M099/M100 series models are similar to the M018/M019 series. If you have experience with those products, the following information will be of help when you read this manual.

Different Points from Previous Products

Printer models:

	M095/M096	M035/M036
New Fusing Unit that improves maintenance efficiency	Yes	No
Operation Panel	2-line LCD and 3 high visibility LED indicators	2-line LCD and standard LED indicators
Pictbridge	Supported	Not supported
Smart Organizing Monitor (SOM)	Not required	Required
Warm-up Time	30 seconds	48 seconds

MF models:

	M099/M100	M018/M019
Front USB Connector	Yes	No
New Fusing Unit that improves maintenance efficiency	Yes	No
Operation Panel	4-line LCD	2-line LCD
Pictbridge	Supported	Not supported
Warm-up Time	30 seconds	48 seconds

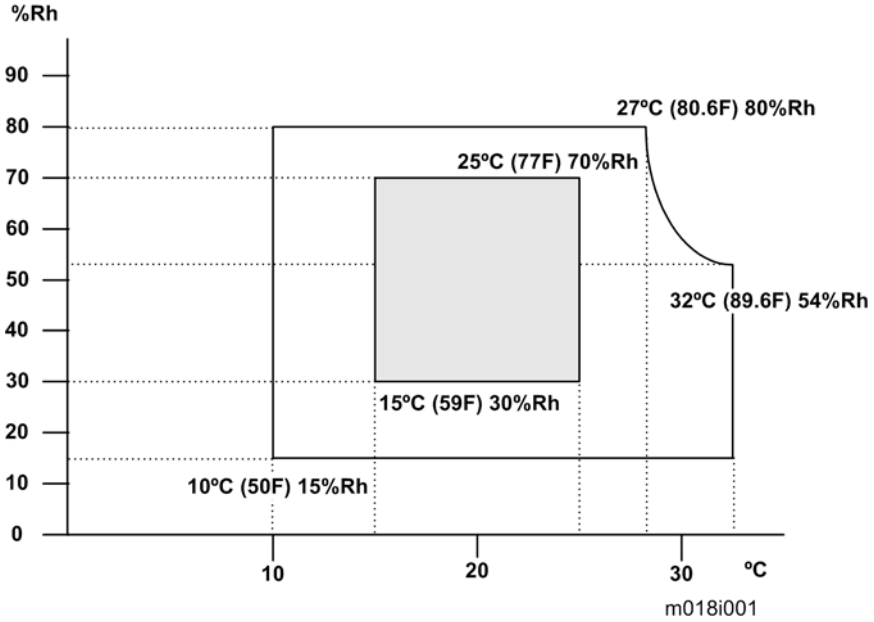
INSTALLATION

REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
		None

2. INSTALLATION

2.1 INSTALLATION REQUIREMENTS

2.1.1 ENVIRONMENT



1. Temperature Range: 10°C to 32°C (50°F to 89.6°F)
2. Humidity Range: 15% to 80% RH
3. Ambient Illumination: Less than 2,000 lux (do not expose to direct sunlight)
4. Ventilation: 3 times/hr/person
5. Do not put the machine in areas that get sudden temperature changes. This includes:
   - Areas directly exposed to cool air from an air conditioner
   - Areas directly exposed to heat from a heater.
6. Do not put the machine in areas that get exposed to corrosive gas.
7. Do not install the machine at locations over 2,000 m (6,560 ft.) above sea level.
8. Put the machine on a strong, level base. (Inclination on any side must be no more than 5 mm.)
9. Do not put the machine in areas with strong vibrations.

2.1.2 MACHINE LEVEL

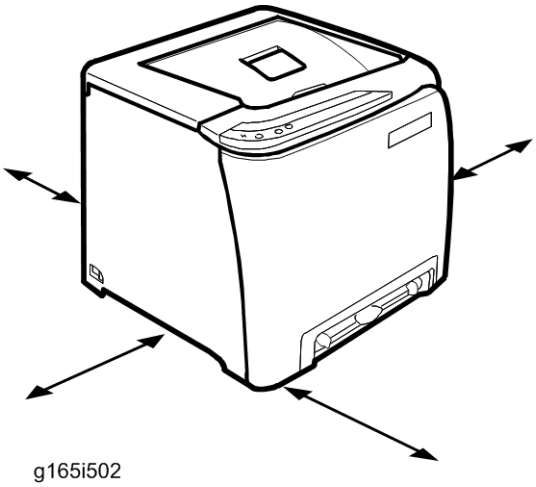
Front to back: Within 5 mm (0.2") of level

Right to left: Within 5 mm (0.2") of level

2.1.3 MACHINE SPACE REQUIREMENT

Put the machine near the power source with these clearances:

Printer Model



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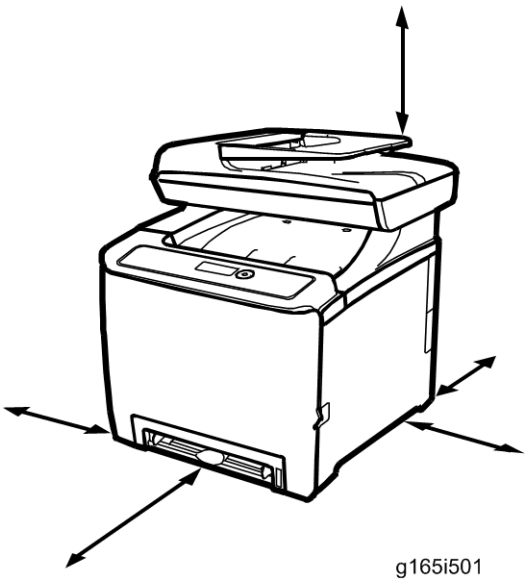
Left side: Over 20 cm (7.9")

Rear: Over 10 cm (4")

Right side: Over 10 cm (4")

Front: Over 70 cm (27.5")

MF Model



g165i501

Left side: Over 20 cm (7.9")

Rear: Over 20 cm (7.9")

Right side: Over 10 cm (4")

Front: Over 70 cm (27.5")

Top: Over 24 cm (9.5")

2.1.4 POWER REQUIREMENTS

⚠CAUTION

- Make sure that the plug is tightly in the outlet.
- Avoid multi-wiring.
- Make sure that you ground the machine.

Input voltage level	120 V, 60 Hz: More than 11 A (for North America) 220 V to 240 V, 50 Hz/60 Hz: More than 6 A (for Europe/ Asia) 110 V, 60 Hz: More than 12 A (for Taiwan)
Permitted voltage fluctuation: 10%	
Do not set anything on the power cord.	

2.1.5 INSTALLATION PROCEDURE

Refer to the Quick Installation Guide for details about installing the machine.

PREVENTIVE MAINTENANCE

REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
		None

3. PREVENTIVE MAINTENANCE

3.1 PREVENTIVE MAINTENANCE

See "Appendices" for the "User Replaceable Items".

REPLACEMENT AND ADJUSTMENT

REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
		None

4. REPLACEMENT AND ADJUSTMENT

4.1 BEFORE YOU START

4.1.1 GENERAL PRECAUTIONS

⚠CAUTION

- If there are printer jobs in the machine, print out all jobs in the printer buffer.
- Turn off the main power switch and unplug the machine before you do the procedures in this section.

Use extreme caution when removing and replacing components. The cables in the machine are located very close to moving parts; proper routing is a must.

After components have been removed, any cables that have been displaced during the procedure must be restored as close as possible to their original positions. Before removing any component from the machine, note any cable routings that may be affected.

Before servicing the machine:

1. Verify that documents are not stored in memory.
2. Remove the print cartridge before you remove parts.
3. Unplug the power cord.
4. Work on a flat and clean surface.
5. Replace with authorized components only.
6. Do not force plastic material components.

Make sure all components are returned to their original positions.

AIO

The AIO consists of the OPC drum, charge roller, development unit, cleaning components and toner tank. Observe the following precautions when handling the AIO.

1. Never touch the drum surface with bare hands. If the drum surface is dirty or if you have accidentally touched it, wipe it with a dry cloth, or clean it with wet cotton and then wipe it dry with a cloth.
2. Never use alcohol to clean the drum. Alcohol will dissolve the drum surface.
3. Store the AIO in a cool dry place.
4. Do not expose the drum to corrosive gases (ammonia, etc.).
5. Do not shake a used AIO, as this may cause toner to spill out.
6. Dispose of used AIO components in accordance with local regulations.

Laser Unit

1. Do not loosen or adjust the screws securing the LD drive board on the LD unit. Doing so will throw the LD unit out of adjustment.
2. Do not adjust the variable resistors on the LD unit, as these are permanently adjusted at the factory. If replacement of the LD drive board is necessary, replace the entire LD unit.
3. Keep the polygon mirror and toroidal lens free of dust. Laser performance is very sensitive to dust on these components.
4. Do not touch the shield glass or the surface of the polygon mirror with bare hands.
5. Do not adjust the Laser Synchronization detector on the LD unit, as these are permanently adjusted at the factory.

Transfer Roller

1. Never touch the surface of the transfer roller with bare hands.
2. Be careful not to scratch the transfer roller, as the surface is easily damaged.

Fusing

1. After installing the fusing thermistor, make sure that it is in contact with the hot roller and that the roller can rotate freely.
2. Be careful to avoid damage to the hot roller stripper pawls and their tension springs.
3. Do not touch the fusing lamp and rollers with bare hands.
4. Make sure that the fusing lamp is positioned correctly and that it does not touch the inner surface of the hot roller.

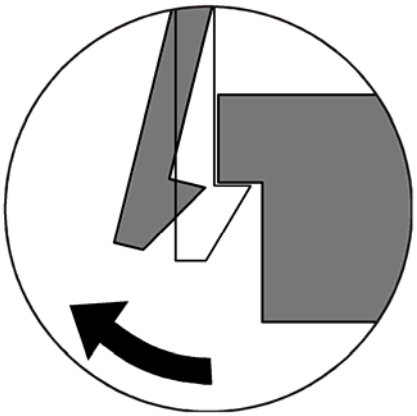
Paper Feed

1. Do not touch the surface of paper feed rollers.
2. To avoid misfeeds, the side and end fences in each paper tray must be positioned correctly so as to align with loaded paper size.

Scanner Unit (for M099/M100)

1. Use alcohol or glass cleaner to clean the exposure and scanning glass. This will reduce the static charge on the glass.
2. Use a blower brush or a water-moistened cotton pad to clean the mirrors and lenses.
3. Make sure to not bend or crease the exposure lamp’s ribbon cable.
4. Do not disassemble the lens unit. This will cause the lens and copy image to get out of focus.
5. Do not turn any of the LED positioning screws. This will put the LED out of position.

4.1.2 RELEASING PLASTIC LATCHES



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

4.1.3 AFTER SERVICING THE MACHINE

1. Make sure all parts that require grounding are properly grounded.
2. Make sure the interlock switch is functioning.
3. Do not leave unused solder or parts inside the machine.
4. Do not leave any tools inside the machine.
5. Make sure all wires are properly connected and routed.
6. Make sure wires are not jammed between parts of the machine.

4.1.4 LITHIUM BATTERIES (MF MODELS)

⚠CAUTION

- Incorrect replacement of lithium battery(s) on the controller or on the fax unit poses risk of explosion. Replace only with the same type or with an equivalent type recommended by the manufacturer. Discard used batteries in accordance with the manufacturer's instructions.

4.2 SPECIAL TOOLS

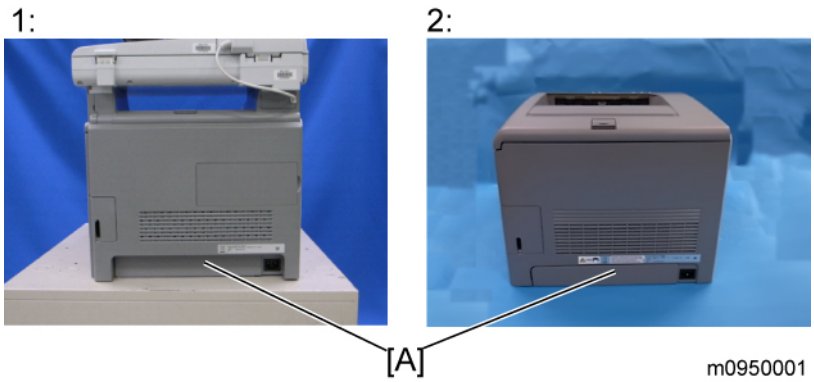
- PC: Windows 2000/XP/Vista/7 or Windows Server 2003/2003 R2.
- USB cable or Crossover cable

4.3 EXTERIOR COVERS

⚠CAUTION

- Turn off the main power switch and unplug the printer before you do the procedures in this section.

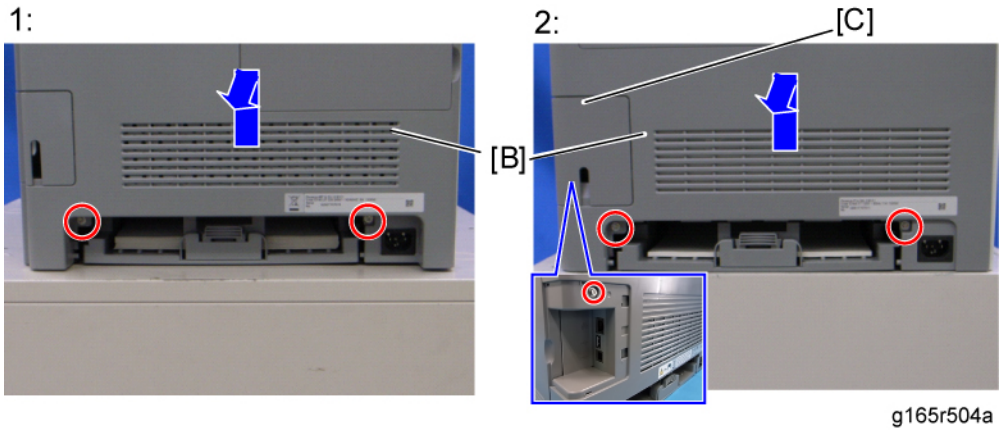
4.3.1 REAR COVER



1: MF models

2: Printer models

1. Rear tray cover [A]



1: MF Models

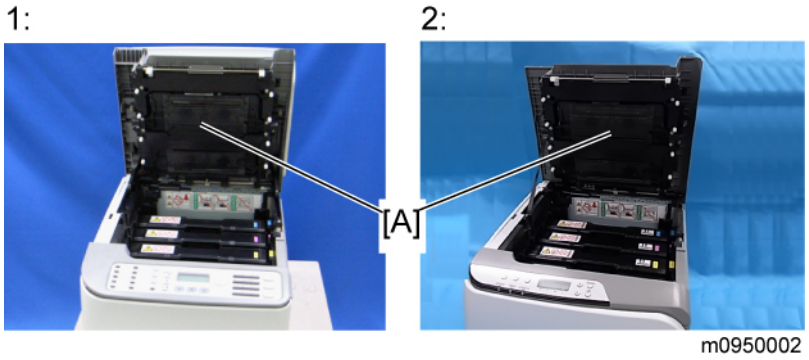
2: Printer Models

2. **Only for Printers:** Interface cover [C] (hook x 1)
3. Rear cover [B] (MF: x 2 Printer: x 3)

Note

- The screw in the Interface cover: M3 x 8, others: M4 x 10

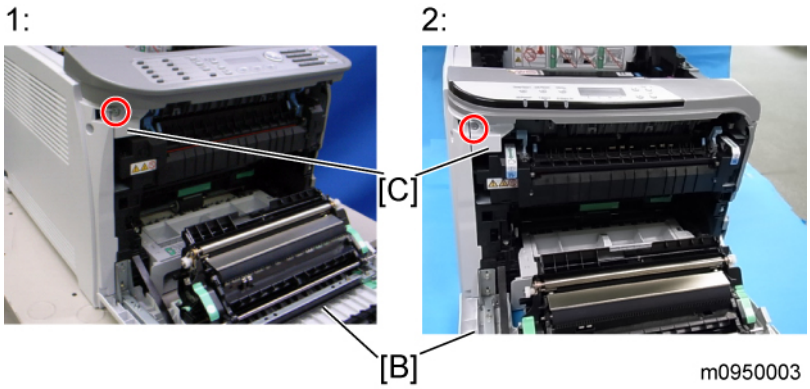
4.3.2 OPERATION PANEL



1: MF Models

2: Printer Models

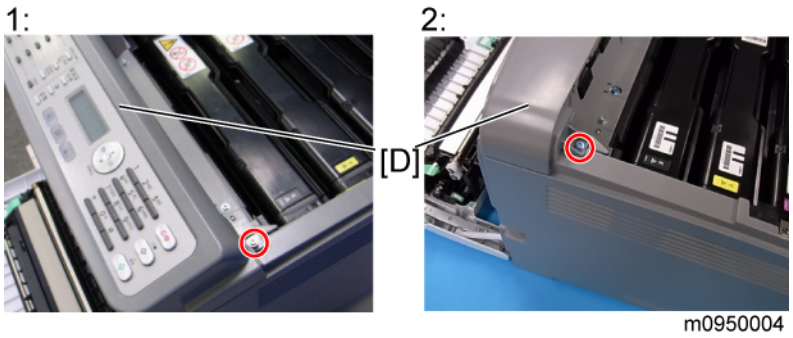
1. Open the top cover [A].



1: MF Models

2: Printer Models

2. Open the front cover [B].
3. Front harness cover [C] (x 1)



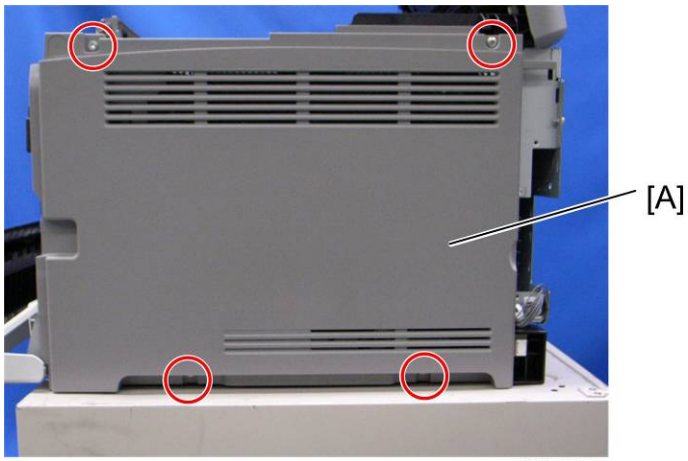
1: MF Models

2: Printer Models

4. Operation panel [D] (x 1, x 1)

4.3.3 RIGHT COVER

1. Rear cover (☛ p.4-5)
2. Operation panel (☛ p.4-6)



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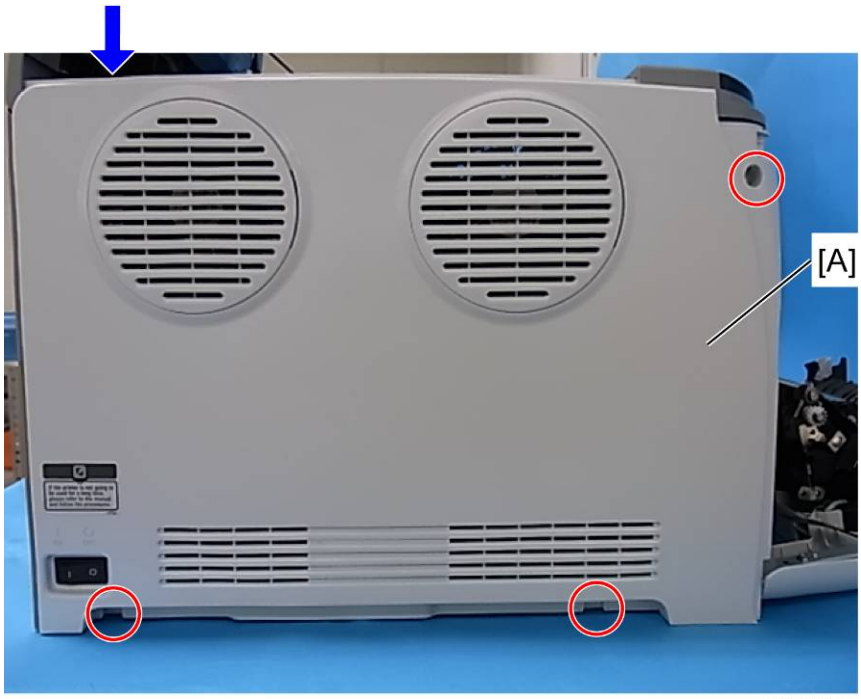
3. Right cover [A] (x 4)

Note

- Top front screw: M3 x 8, others: M4 x 10

4.3.4 LEFT COVER

1. Open the front cover.
2. Open the top cover.



m0950022

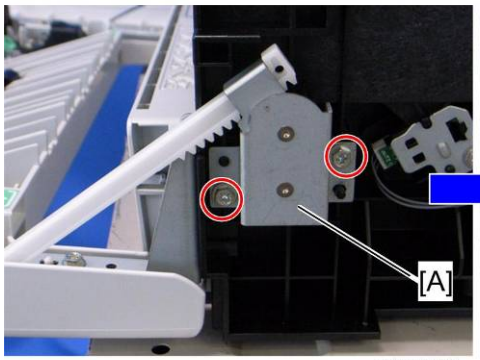
3. Left cover [A] (x 3, hook at the arrow mark above)

Note

- Top front screw: M3 x 8, others: M4 x 10
- Remove the rear panel and the operation panel in advance when you meet difficulties in removing the left cover.

4.3.5 FRONT COVER UNIT

1. Rear cover (☛ p.4-5)
2. Operation panel (☛ p.4-6)
3. Transfer unit (☛ p.4-33)
4. Right cover (☛ p.4-7)



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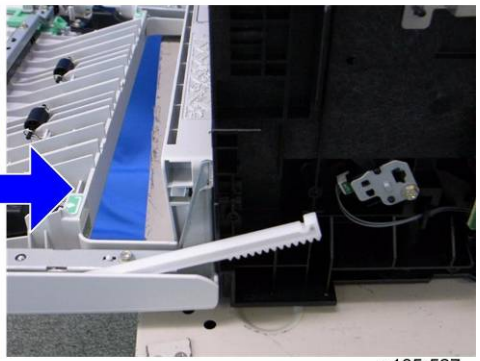
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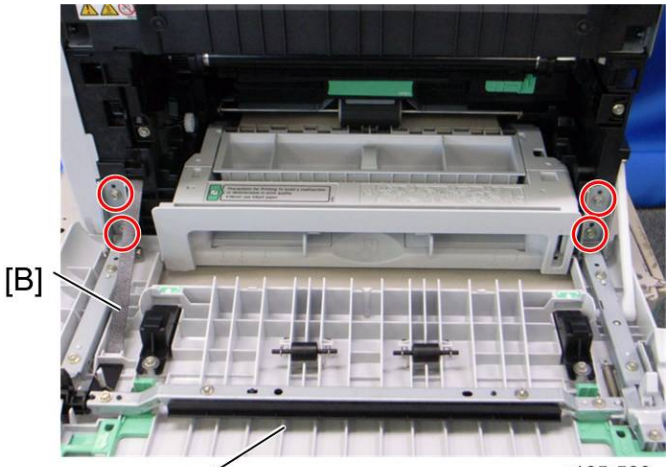
5. Cover link gear unit [A] (x 2)



g165r528

6. Release the belt [B]
7. Front cover unit [C] (x 4)

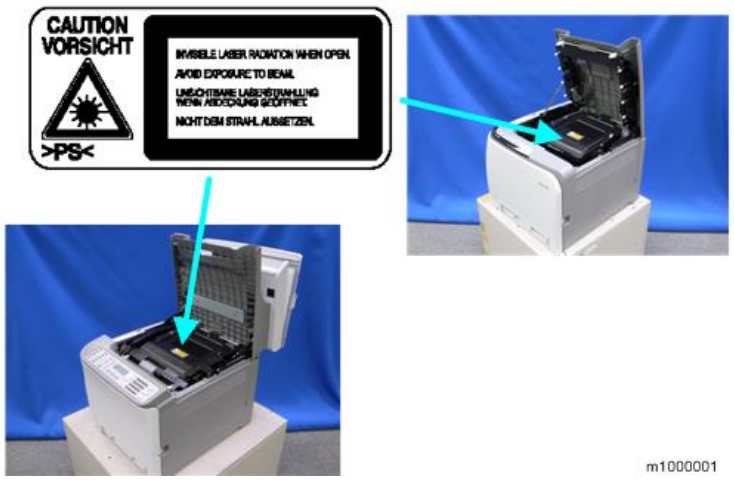
4.4 LASER OPTICS

⚠WARNING

- Turn off the main power switch and unplug the printer before beginning any of the procedures in this section. Laser beams can cause serious eye injury.

4.4.1 CAUTION DECAL LOCATIONS

Caution decals are attached as shown below.



⚠WARNING

- Be sure to turn off the main power switch and disconnect the power plug from the power outlet before beginning any disassembly or adjustment of the laser unit. This printer uses a class IIIb laser beam with a wavelength of 655 nm and an output of 7 mW. The laser can cause serious eye injury.

4.4.2 LASER OPTICS HOUSING UNIT

1. Rear cover (☛ p.4-5)
2. Controller box cover (☛ p.4-54)
3. MF model only: Remove the controller bracket (☛ p.4-58)

MF model

g165r510

Printer model

g165r511

4. Disconnect the three harnesses from CN301, 302 and 303 on the EGB (x 3).

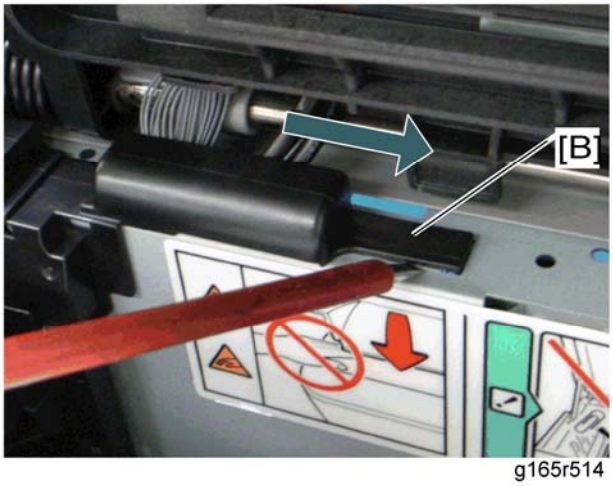
MF model

g165r512

Printer model

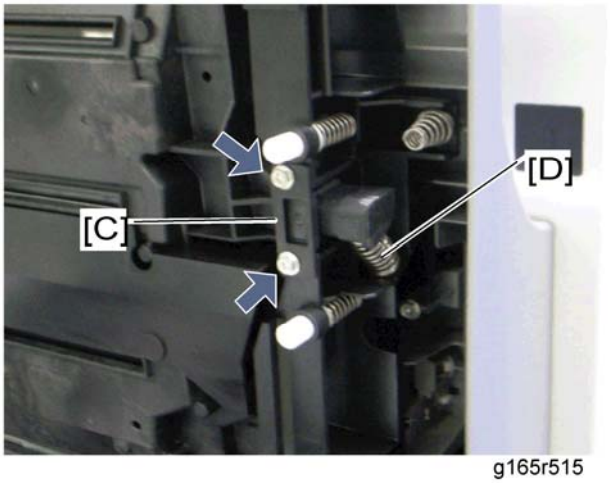
g165r513

5. Open the top cover [A].



g165r514

6. Lift up the hook [B] of the harness guide at the rear-left frame and slide the harness guide to the right.



g165r515

7. Stoppers [C] (x 2 each; left side and right side)
8. Remove the springs [D] (left side and right side).

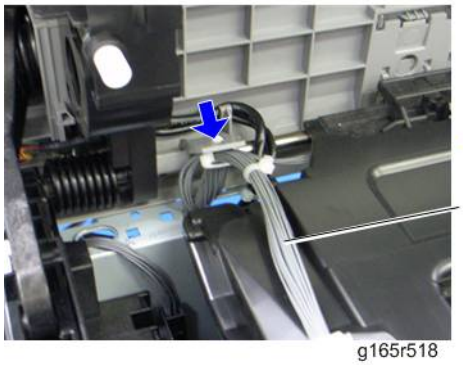

g165r516

g165r517

9. Remove the laser optics housing unit [E] from the top cover and place it on the main body.

Note

- Always use two hands when carrying the laser optics housing unit. Be sure not to drop the laser optics housing unit.



g165r518

g165r517

10. Take out the harnesses [F] (x 1).

g165r519

11. Remove the laser optics housing unit.

After replacing the laser optics housing unit

1. Open the front cover and turn on the machine.

   Important

   - Do the following 2 steps with the front cover of the machine open.
   - On the LCD, access “LSU Adjustment” inside the “Engine Maintenance” menu.
   - Manually input the corresponding LSU data from your supervisor into the space provided on the LCD.
2. Close the front cover.
3. Perform “Color Registration” in the “Engine Maintenance” menu.
4. Turn the power off and on.

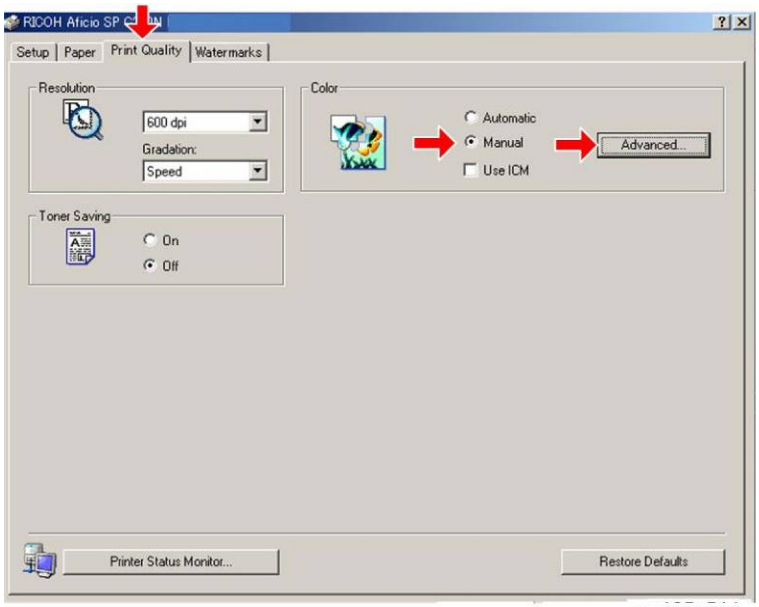
   Note

   - MUSIC will be performed automatically.
5. Print out the test chart (☛ Test Chart), and make sure that MUSIC was performed successfully (see ‘Printing out the Test Chart” and ‘Checking that MUSIC was Performed Correctly’ below).
6. If necessary, adjust the registration settings for each tray and for the front and rear sides of the paper with the "Engine Maintenance" menu.

   Note

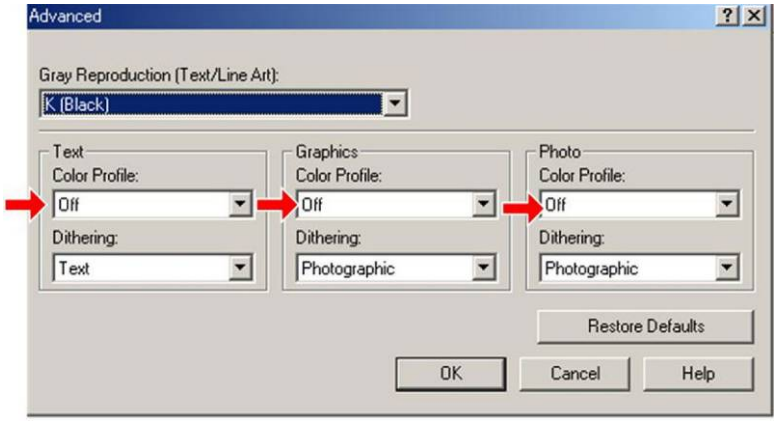
   - When the MUSIC error persists, contact your supervisor, and get a set of LD parameters for the unit. After that, enter them with “LSU Adjustment” in the Maintenance Mode Menu (☛ “If MUSIC has not been performed successfully” below).

Printing out the test chart to make sure MUSIC was performed correctly



m0950042

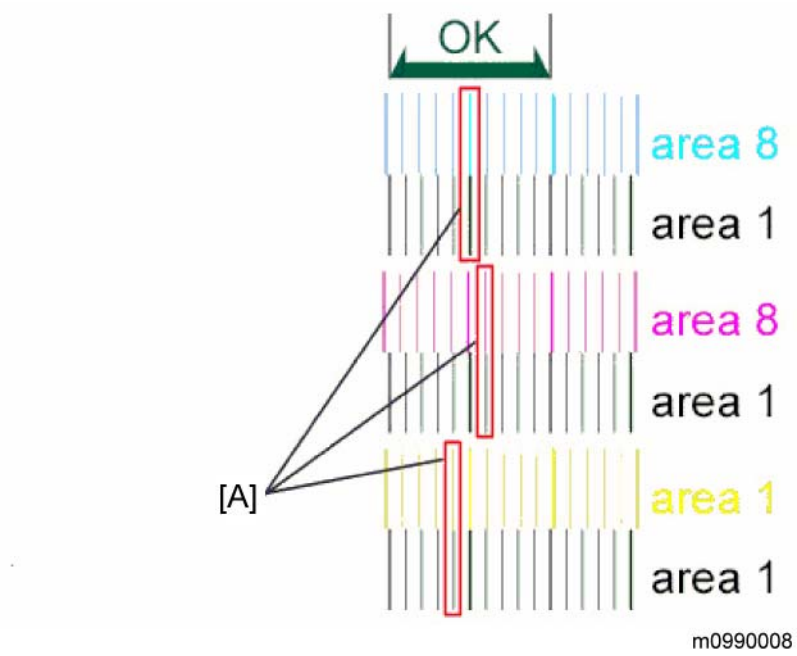
1. Click the “Properties” tab inside the printer driver.
2. Click the “Print Quality” tab.
3. Select the “Manual” radio button.
4. Click [Advanced…].



m0950043

5. Select “Off” for the three Color Profile pull-down menus shown (i.e. for Text, Graphics, and Photo modes).
6. Click [OK] twice to print out the test chart.
7. Make sure that MUSIC was performed successfully.

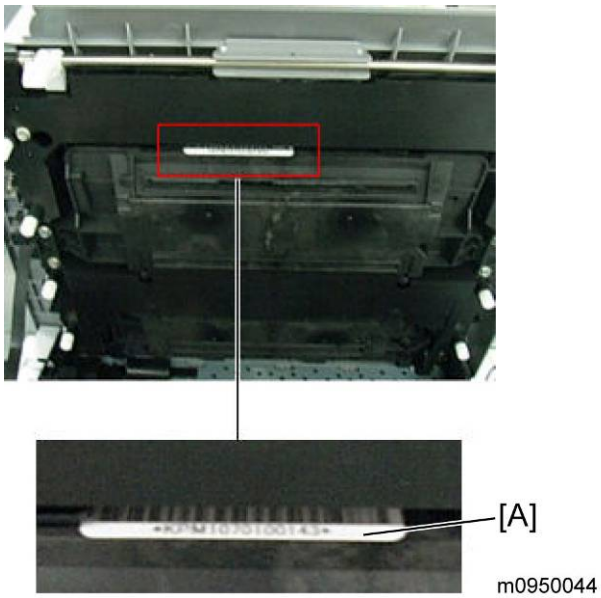
Checking that MUSIC was Performed Correctly



Four sets of vertical lines appear on the test chart (C and k, M and k, Y and k…). In each set, look for vertical lines that are aligned within the region defined by “OK”.

If all sets have at least one set of vertical lines that are aligned MUSIC was successful.

If MUSIC has not been performed successfully



1. Open the upper cover and check the lot number of the laser optics housing unit.
2. Contact your supervisor, and get the LD parameters for this lot number [A].
3. Open the front cover and turn on the machine.
4. Program the settings for the laser optics housing unit.
   - On the LCD, access “LSU Adjustment” inside the “Engine Maintenance” menu.
   - Manually input the corresponding LSU data from your supervisor into the space provided on the LCD.
5. Close the front cover.
6. Execute “Color Registration”, which is inside the “Engine Maintenance” menu.
7. Turn the main power Off and On.

   Note

   - MUSIC will be performed automatically.
8. If necessary, adjust the registration settings for each tray and for the front and rear sides of the paper with the "Engine Maintenance" menu.

4.5 AIO CARTRIDGE

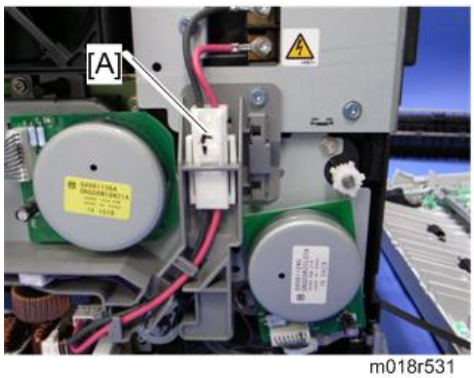
4.5.1 AIO CARTRIDGE (ALL IN ONE CARTRIDGE)

1. Open the top cover.

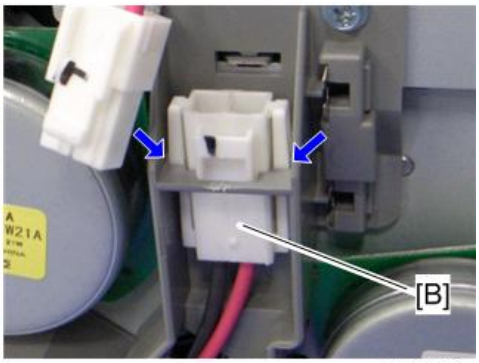
2. AIO cartridge [A]

4.5.2 BLACK AIO MOTOR

1. Left cover (☛ p.4-8)

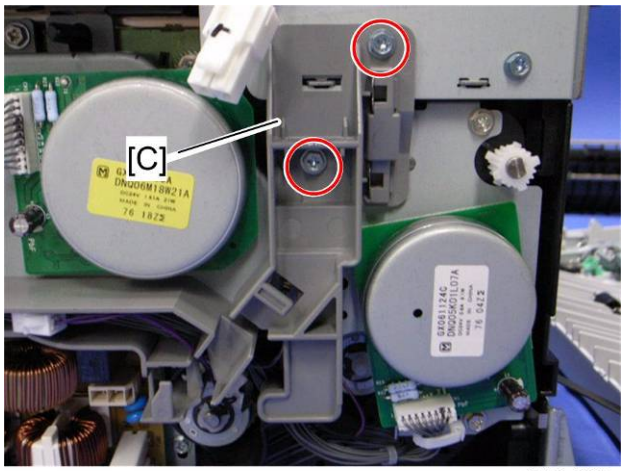


m018r531



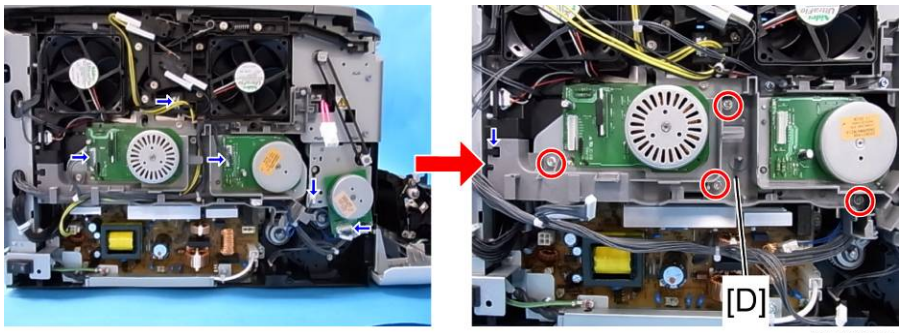
m018r532

2. Disconnect the fusing connector [A] and remove the fusing relay harness [B] (hooks x 2).



m018r533

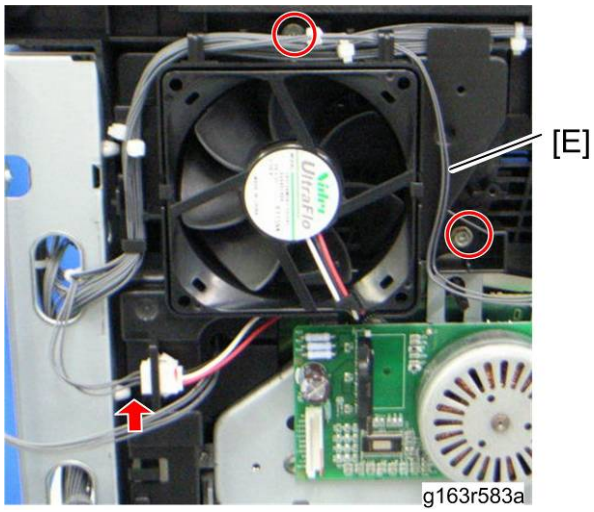
3. Fusing harness guide [C] (x 2)
4. Fusing thermistor harness guide (☛ p.4-74)



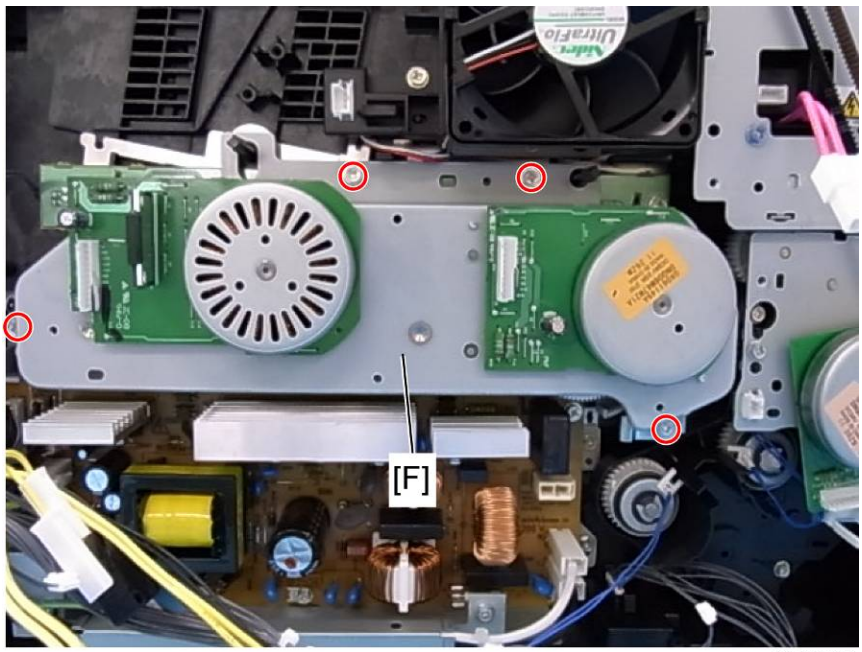
m0950037

5. Disconnect the connectors shown by arrows in the above picture and release all harnesses on the harness guide [D].
6. Harness guide [D] (x 4, hook x 1)

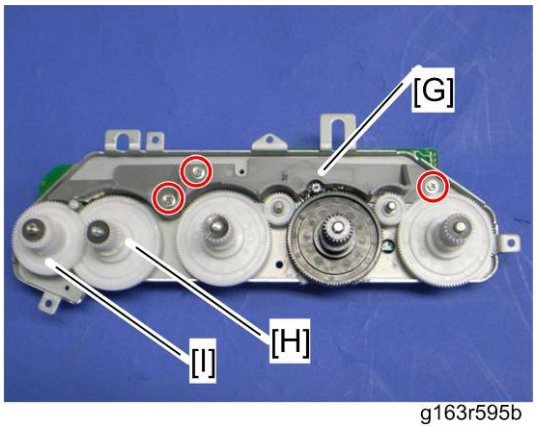
7. Interlock switch base (☛ p.4-63)
8. FCU and Speaker bracket (☛ p.4-54)
9. Disconnect the connector (CN305) on the EGB.



10. LSU fan motor base [E] (x 2, x 1)



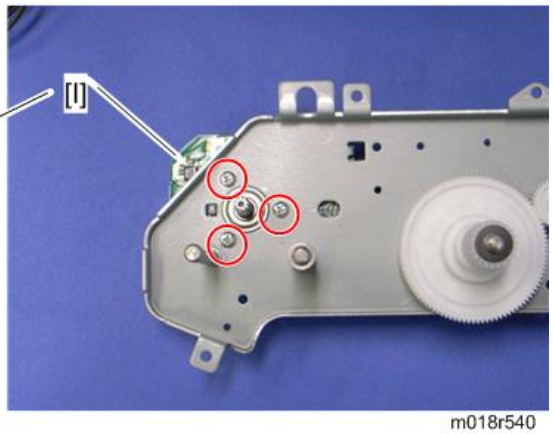
11. Drive unit [F] (x 4)



g163r595b

12. Drive unit guide [G] (x 3)
13. Black AIO gear [H] (snap ring x 1)
14. ITB gear [I] (snap ring x 1)

m018r541

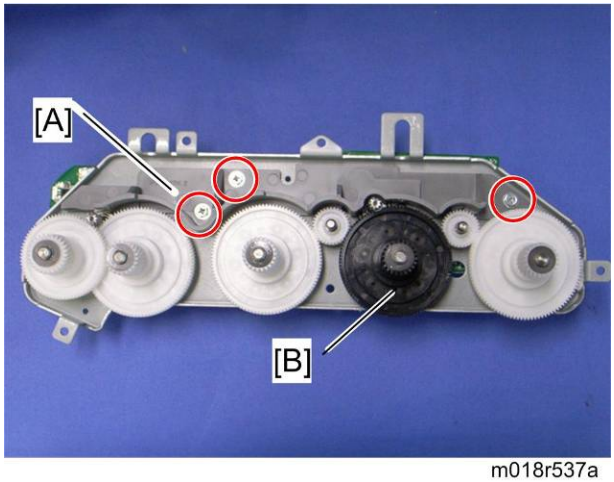


m018r540

15. Black AIO motor [J] (x 3)

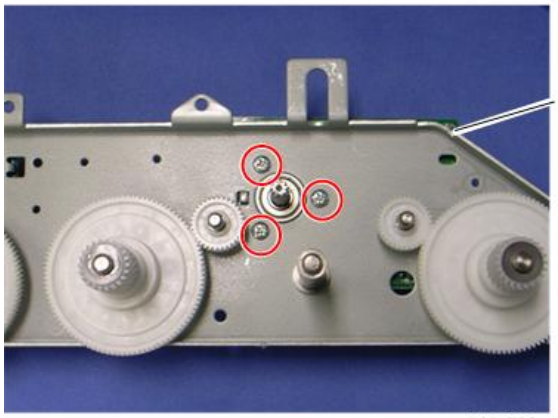
4.5.3 COLOR AIO MOTOR

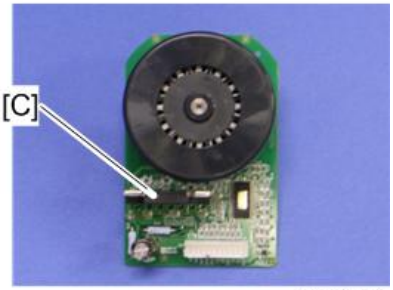
1. Drive unit (☛ p.4-19)



m018r537a

2. Drive unit guide [A] (x 3)
3. Color AIO gears [B] (ring stopper x 1)


m018r538



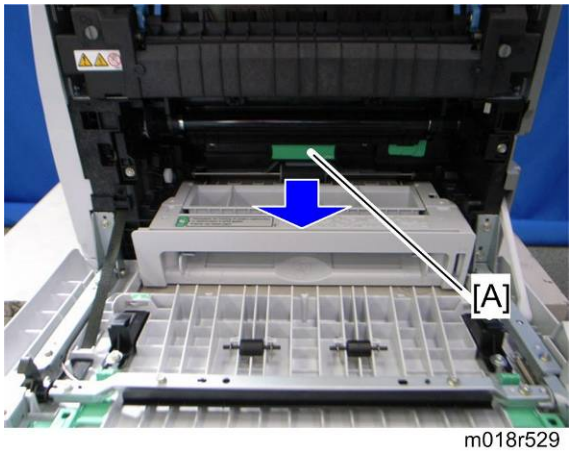
m018r539

4. Color AIO motor [C] (x 3)

4.6 IMAGE TRANSFER

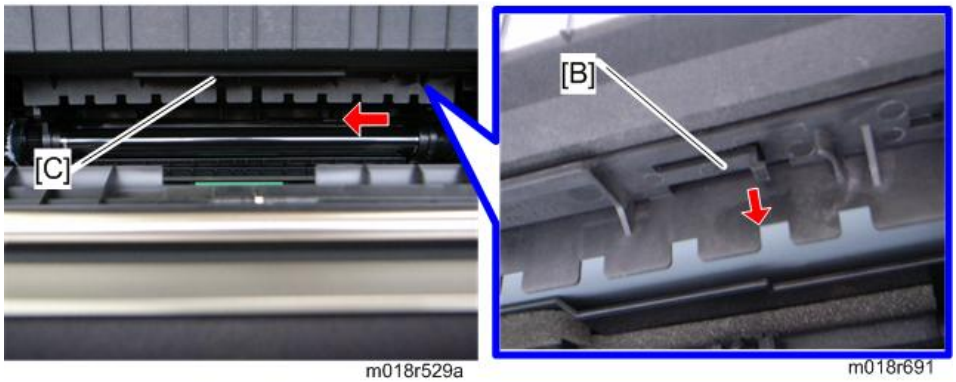
4.6.1 IMAGE TRANSFER BELT UNIT

1. Remove all the AIO cartridges (☛ p.4-18).
2. Transfer unit (☛ p.4-33)



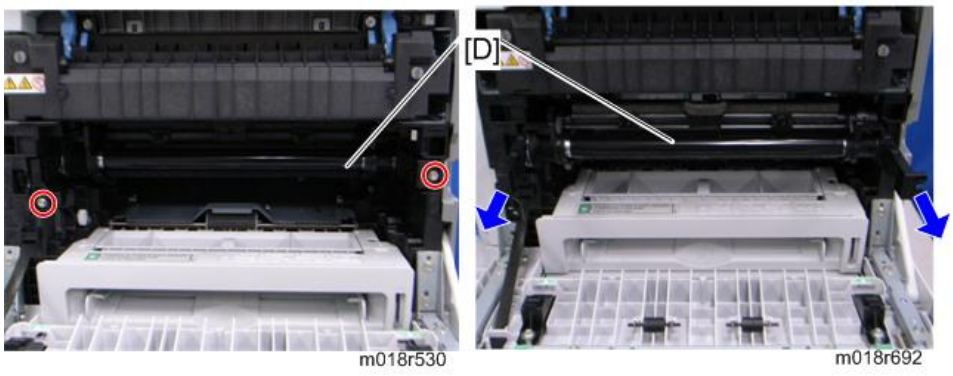
m018r529

3. Pull out the waste toner bottle [A].



m018r529a m018r691

4. Release the hook [B] under the guide plate.
5. Move the guide plate [C] underneath the fusing unit to the left, and then remove it



6. Pull out the image transfer belt unit [D] (x 2).

After replacing the image transfer belt unit

Important

- Do the following step 2 with the front cover of the machine open.

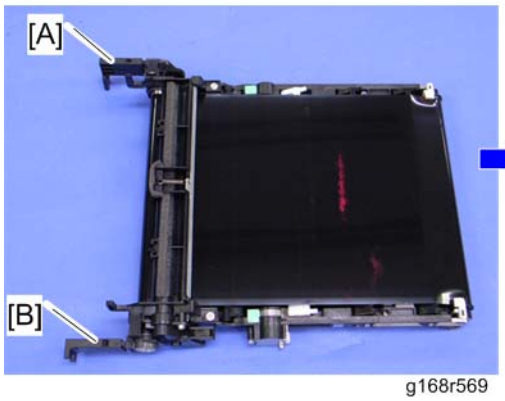
1. Open the front cover and turn on the machine.
2. Execute "Reset Transfer Unit" with the "Engine Maintenance" menu.
3. Close the front cover.
4. Execute "Trans. Belt Adjust" with the "Engine Maintenance" menu.
5. Adjust the registration settings for each tray and for the front and rear sides of the paper with the "Engine Maintenance" menu if necessary.

4.6.2 ITB (IMAGE TRANSFER BELT) CLEANING UNIT

Note

- The ITB cleaning unit contains waste toner. When removing the ITB cleaning unit, put it on a sheet of paper.

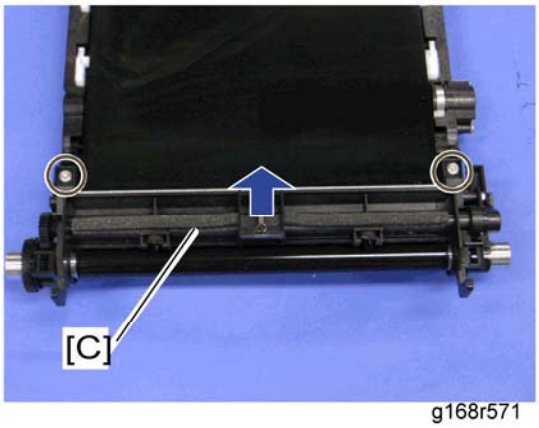
1. Image transfer belt unit (☛ p.4-23)



g168r569


g168r570

2. Left handle [A] (hook, bushing x 1)
3. Right handle [B] (hook, bushing x 1)



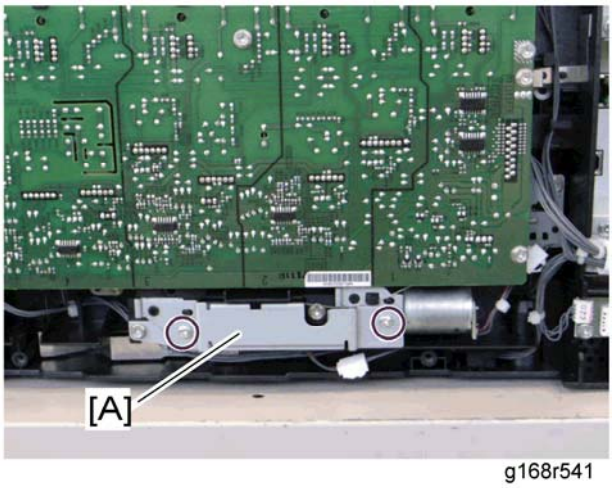
g168r571


g168r572

4. ITB cleaning unit [C] (x 2)

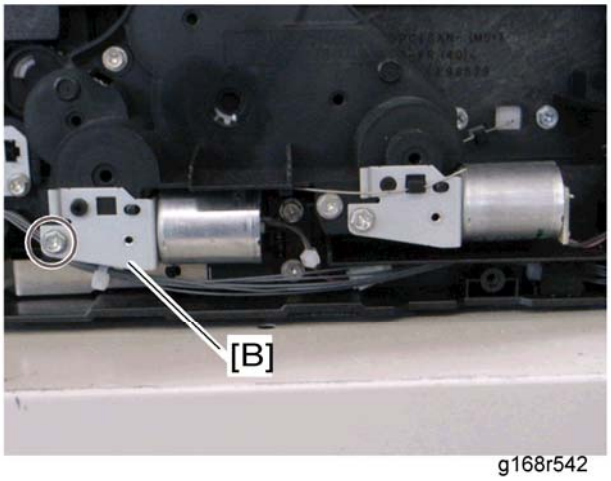
4.6.3 AGITATOR MOTOR

1. Right cover (☛ p.4-7)



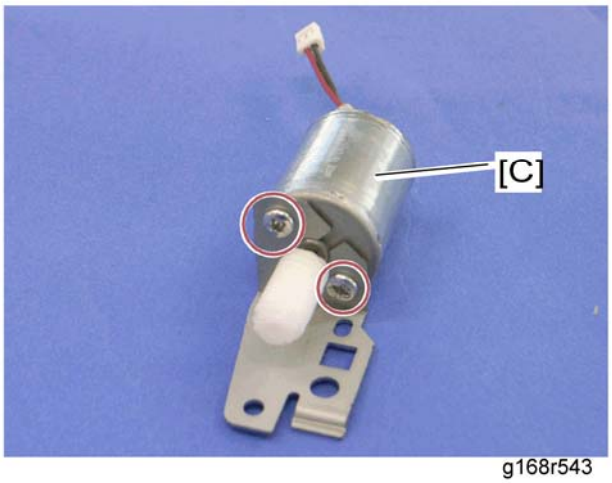
g168r541

2. Motor bracket [A] (x 2)



g168r542

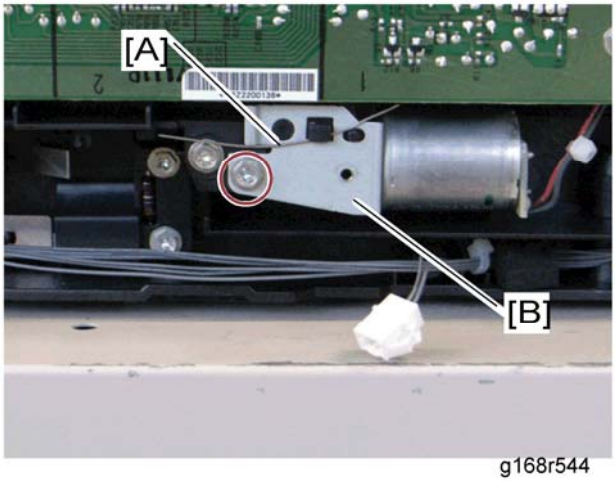
3. Agitator motor assembly [B] (x 1, x 1)



4. Agitator motor [C] (x 2)

4.6.4 ITB (IMAGE TRANSFER BELT) CONTACT MOTOR

1. Agitator motor (☛ p.4-26)



g168r544

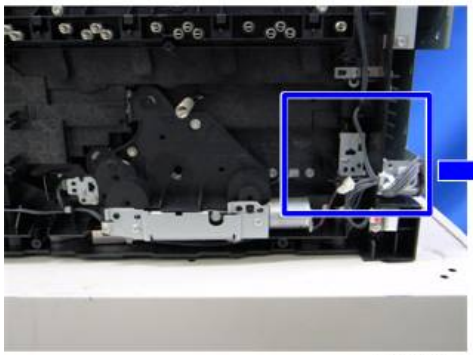
2. Release the wire [A].
3. ITB contact motor assembly [B] (x 1, x 1)

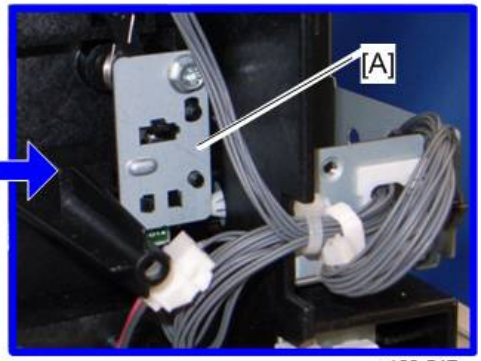
g168r545

4. ITB contact motor [C] (x 2)

4.6.5 ITB (IMAGE TRANSFER BELT) CONTACT SENSOR

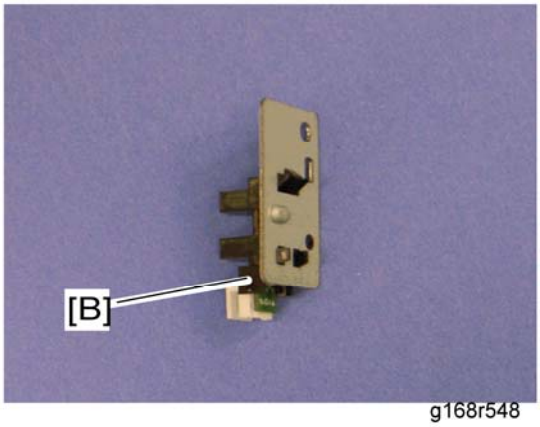
1. Right cover (☛ p.4-7)
2. High voltage power supply board (☛ p.4-73)


g168r546



g168r547

3. ITB contact sensor assembly [A] (x 1, x 1)



g168r548

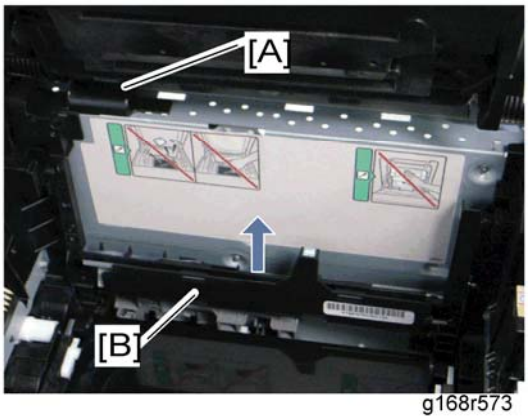
4. ITB contact sensor [B] (hooks x 3)

4.6.6 TM (TONER MARK) SENSOR BASE

1. Open the top cover.
2. Remove all AIO cartridges (☛ p.4-18).
3. Slide the ITB unit to the front side or remove it.
4. Rear cover (☛ p.4-5)
5. Controller box cover (☛ p.4-54)
6. MF models only: FCU and Speaker bracket (☛ p.4-58)

g165r689

7. Disconnect CN306 on the EGB (x 1).

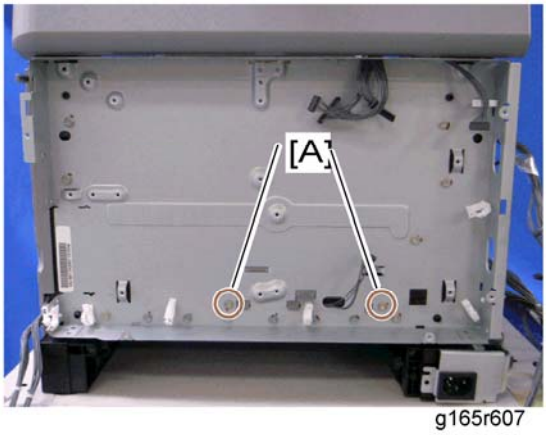


g168r573

8. Harness cover [A] (hook)
9. TM sensor base [B]

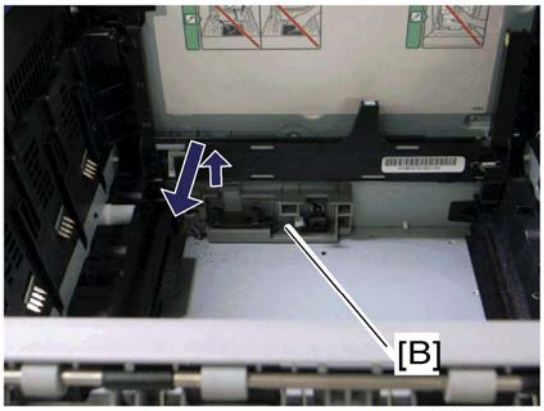
4.6.7 WASTE TONER BOTTLE SET SENSOR

1. Remove all AIO cartridges. (☛ p.4-18)
2. Image transfer belt unit (☛ p.4-23)
3. EGB (☛ p.4-58)



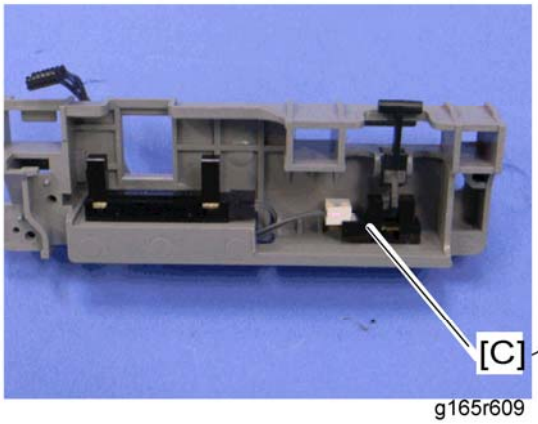
g165r607

4. Remove two screws [A] for the waste toner sensor base.

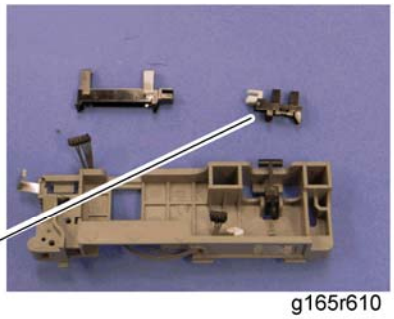


g165r608

5. Waste toner sensor base [B]



g165r609


g165r610

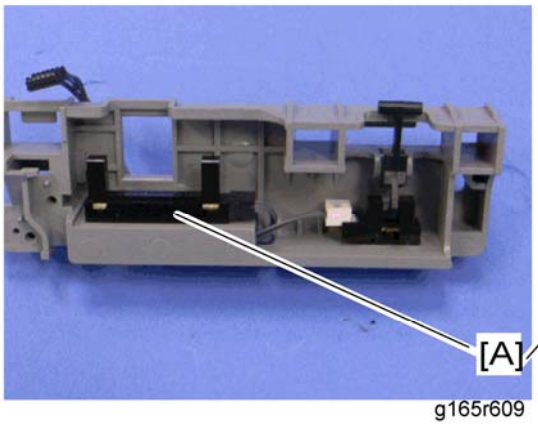
6. Waste toner bottle set sensor [C] (hooks x 3, x 1)

Note

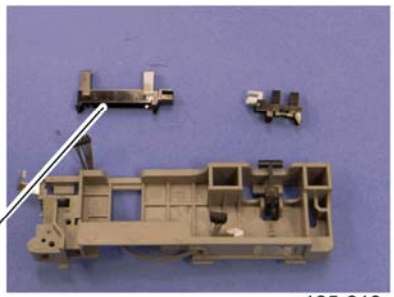
- When reinstalling the waste toner bottle set sensor, connect it to the white connector of the harness.

4.6.8 WASTE TONER OVERFLOW SENSOR

1. Remove all AIO cartridges. (☞ p.4-18)
2. Image transfer belt unit (☞ p.4-23)
3. EGB (☞ p.4-58)
4. Waste toner sensor base (☞ p.4-31)



g165r609


g165r610

5. Waste toner overflow sensor [A] (hooks x 3, x 1)

Note

- When reinstalling the waste toner overflow sensor, connect it to the black connector of the harness.

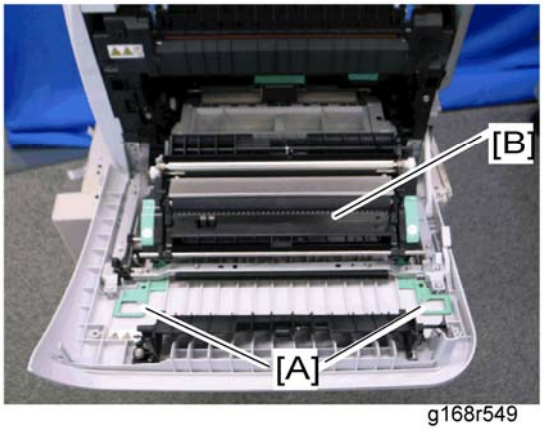
4.7 PAPER TRANSFER

4.7.1 TRANSFER UNIT

Important

- If you install a complete new unit, execute "Reset 2nd Transfer Unit" with the "Engine Maintenance" menu, otherwise a paper transfer error may occur.

1. Open the front cover.



g168r549

2. Release the locks [A].
3. Transfer unit [B]
4. If you install a complete new unit, execute "Reset 2nd Transfer Unit" with the "Engine Maintenance" menu (☛ p.5-22).

4.7.2 TRANSFER ROLLER

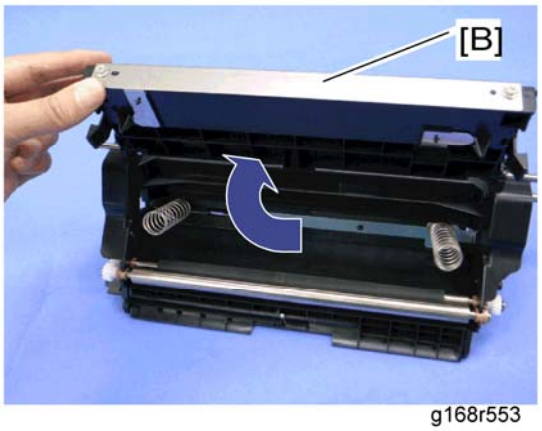
Important

- If you install a new roller, execute "Reset 2nd Transfer Unit" with the "Engine Maintenance" menu, otherwise a paper transfer error may occur.

1. Transfer Unit (☛ p.4-33)

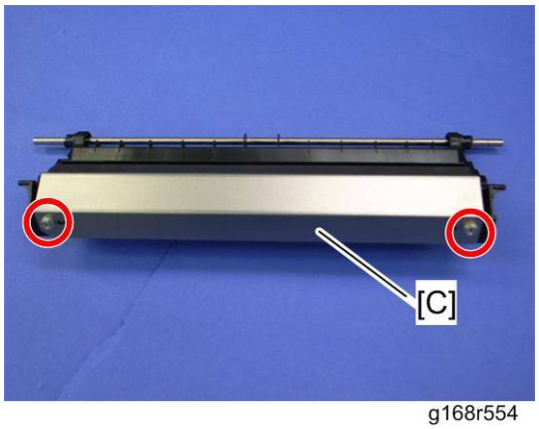
g168r551 g168r550 g168r552

2. Release the two hooks [A] at both sides of the transfer unit.



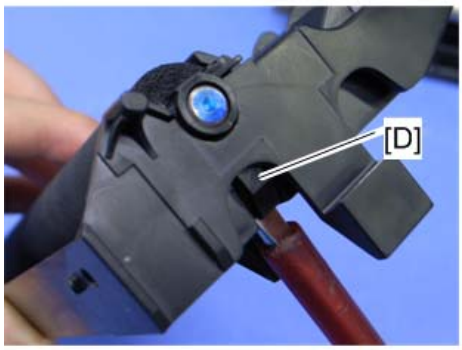
g168r553

3. Open the transfer roller unit [B] and remove it.

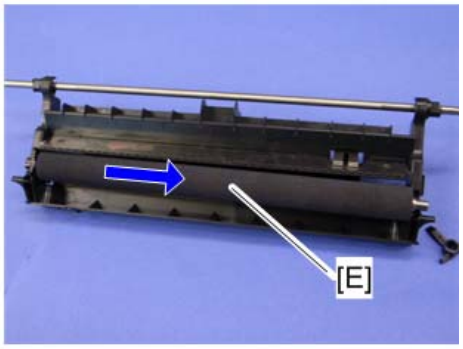


g168r554

4. Transfer roller assembly [C] (x 2)



g168r555

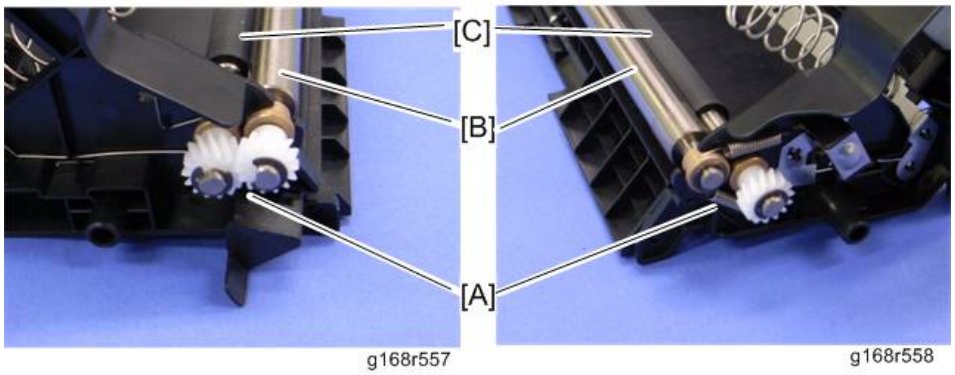


g168r556

5. Release the holder [D] at the left side of the transfer roller unit (hook).
6. Transfer roller [E]
7. Execute "Reset 2nd Transfer Unit" with the "Engine Maintenance" menu (☛p.5-22).

4.7.3 REGISTRATION ROLLER

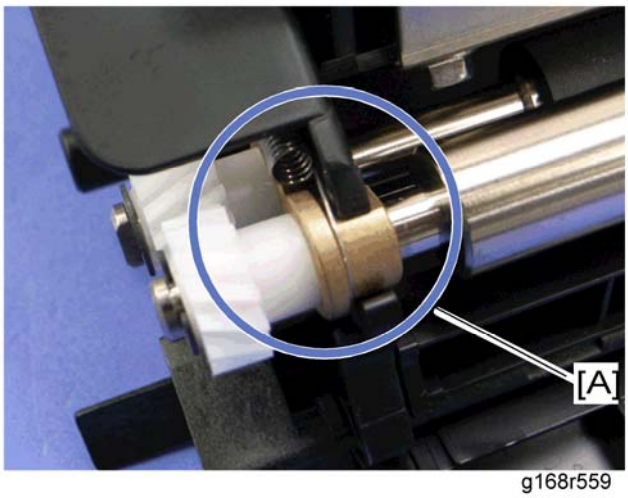
1. Transfer unit (☛ p.4-33)
2. Transfer roller unit (☛ p.4-34)



g168r557 g168r558

3. Tension springs [A] (both sides)
4. Registration idle roller [B] (ℂ x 2, gear x 1, bushing x 2)
5. Registration roller [C] (ℂ x 2, gear x 2, bushing x 2)

Reassembling the registration roller unit

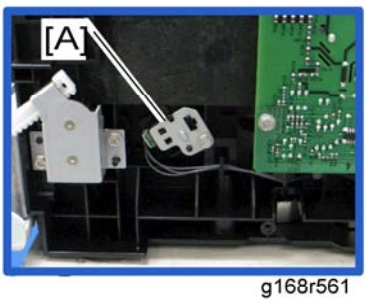


g168r559

When installing the tension spring, make sure that the tension spring correctly hooks onto the bushing of the registration idle roller as shown above [A].

4.7.4 REGISTRATION SENSOR

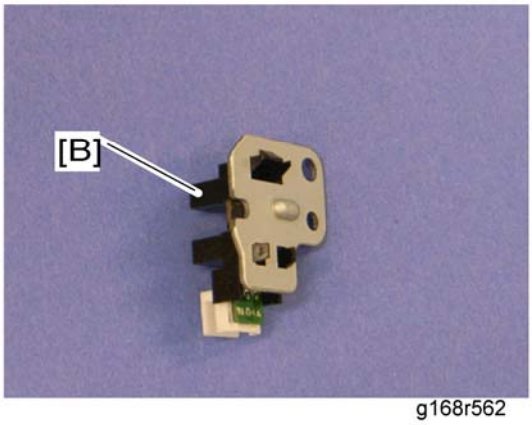
1. Right Cover (☛ p.4-7)



g168r561


g168r560

2. Registration sensor assembly [A] (x 1, x 1)

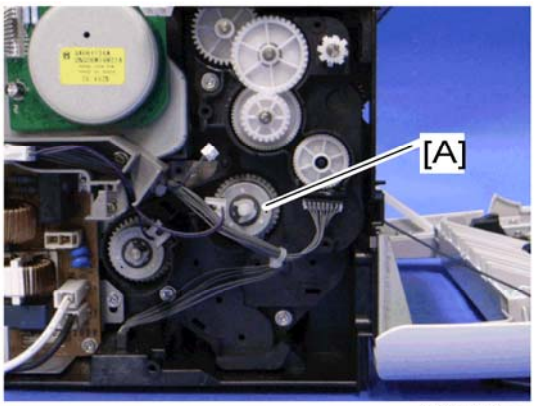


g168r562

3. Registration sensor [B] (hooks)

4.7.5 REGISTRATION CLUTCH

1. Rear cover (☛ p.4-5)
2. Left cover (☛ p.4-8)
3. Transport/Fusing motor (☛ p.4-45)



g165d592

4. Registration clutch [A] (x 1)

4.8 IMAGE FUSING

⚠CAUTION

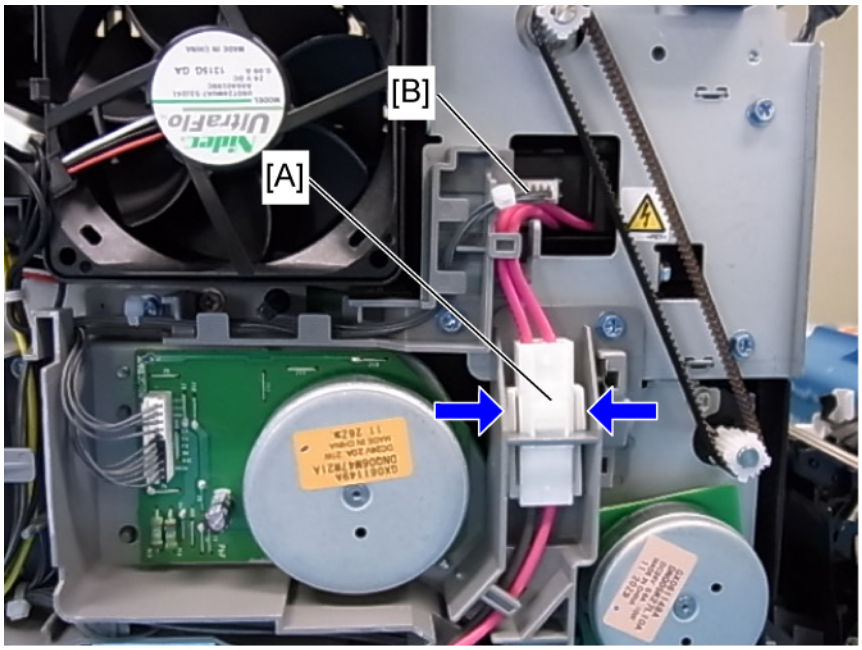
- Make sure that the fusing unit is cool before you touch it. The fusing unit can be very hot.
- Make sure to restore the insulators, shields, etc after you service the fusing unit.

4.8.1 FUSING UNIT

Important

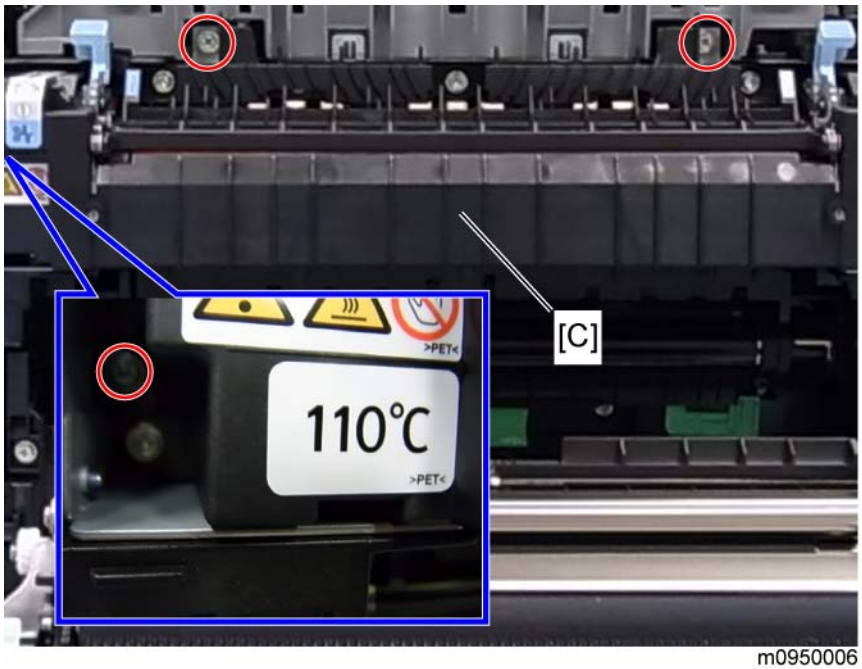
- Execute "Reset Fuser Unit" with the "Engine Maintenance" menu if you replace the fusing unit, otherwise a fusing error may occur.

1. Open the front cover.
2. Left cover (☛ p.4-8)

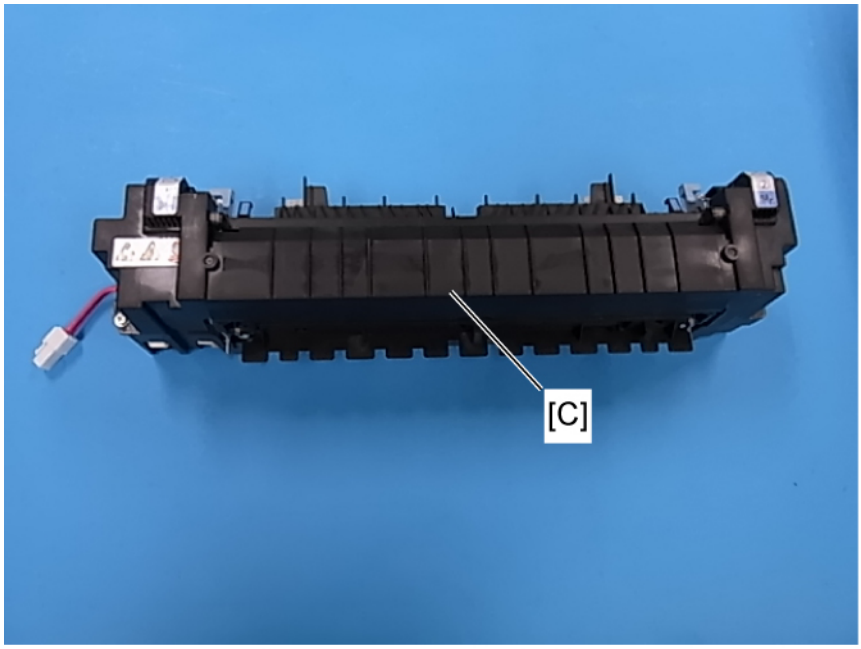


m0950005

3. Disconnect the connectors [A], [B].



m0950006



m0950007

4. Fusing unit [C] (x 3)

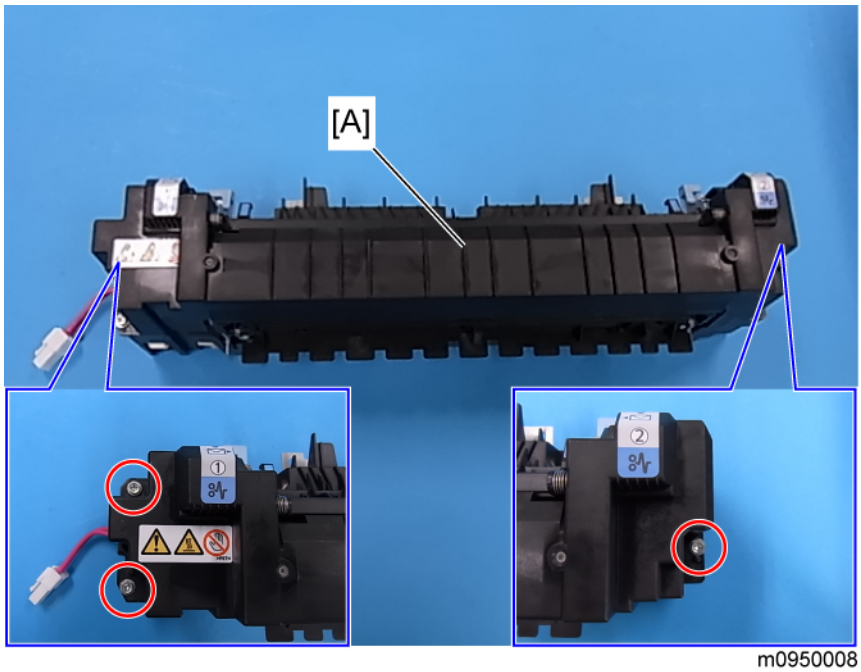
Note

- It is likely to remove a fusing unit cover screw instead of the lower left fixing screw by mistake. Make sure which screw should be removed before you do this step.

5. Execute "Reset Fuser Unit" with the "Engine Maintenance" menu (☛p.5-22) if the fusing unit is replaced.

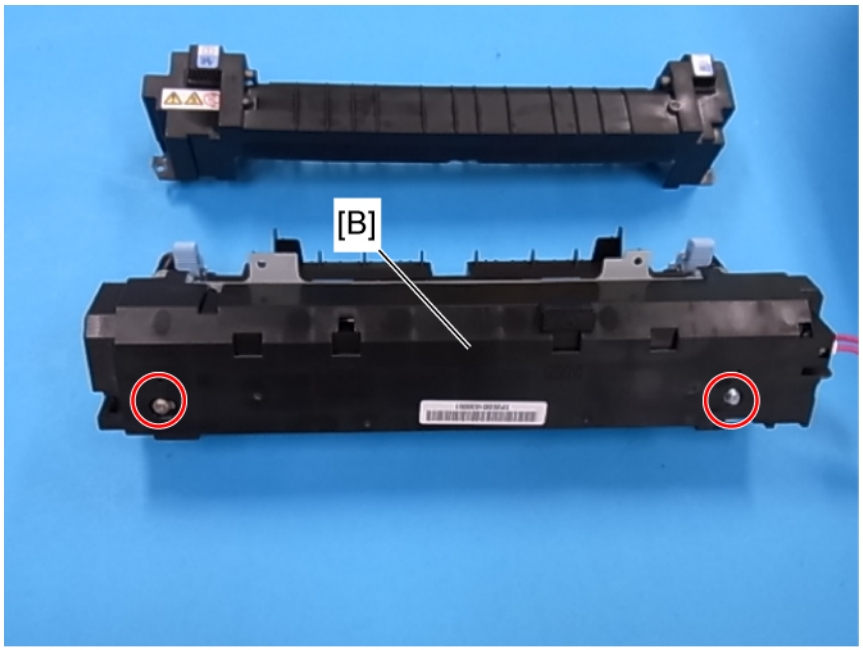
4.8.2 FUSING LAMP

1. Fusing unit (☛ p.4-39)



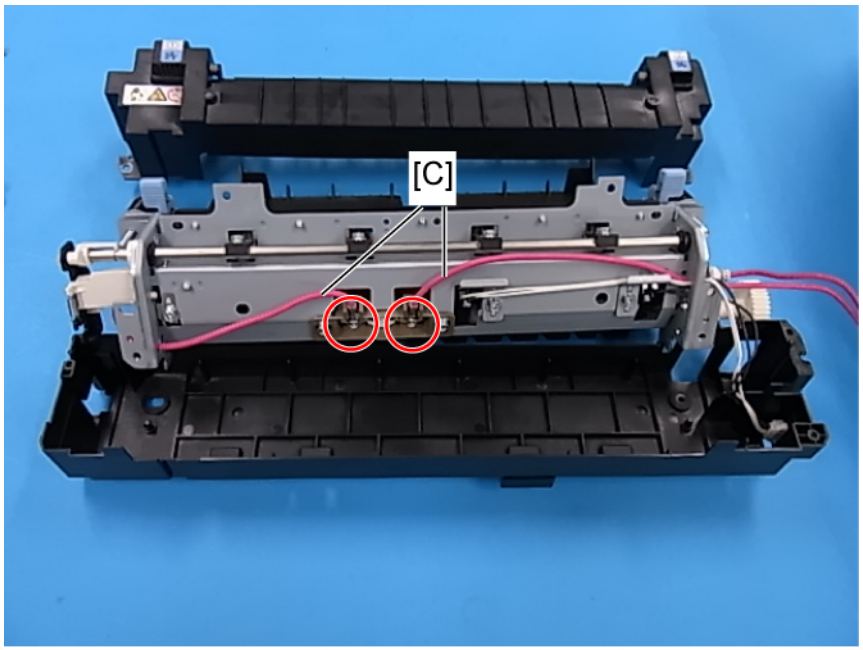
m0950008

2. Fusing front cover [A] (x 3)



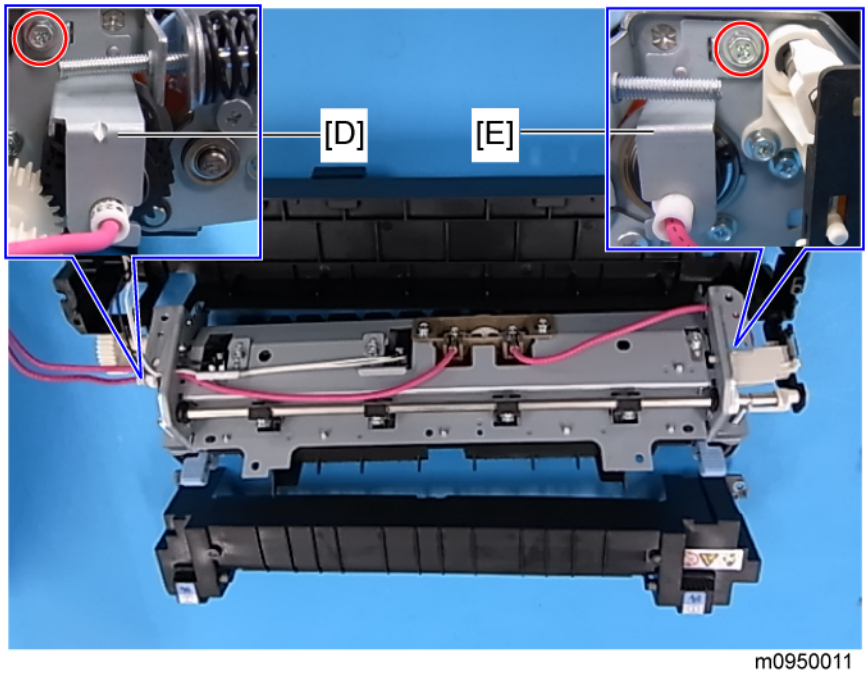
m0950009

3. Fusing back cover [B] (x 2)



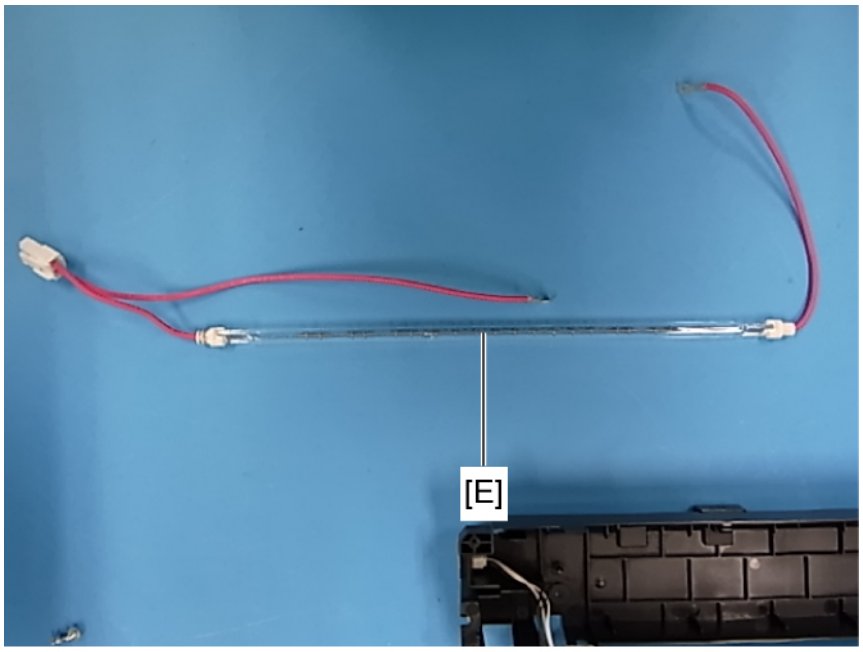
m0950010

4. Fusing lamp cable [C] (x 2)



m0950011

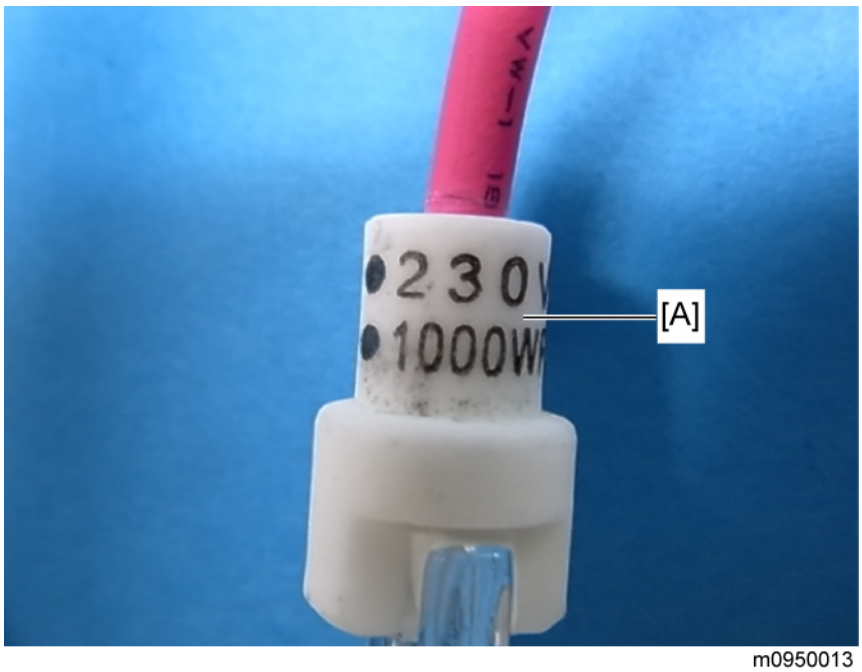
5. Lamp right stay [E] (x 1)
6. Lamp left stay [D] (x 1)



m0950012

7. Fusing lamp [E]

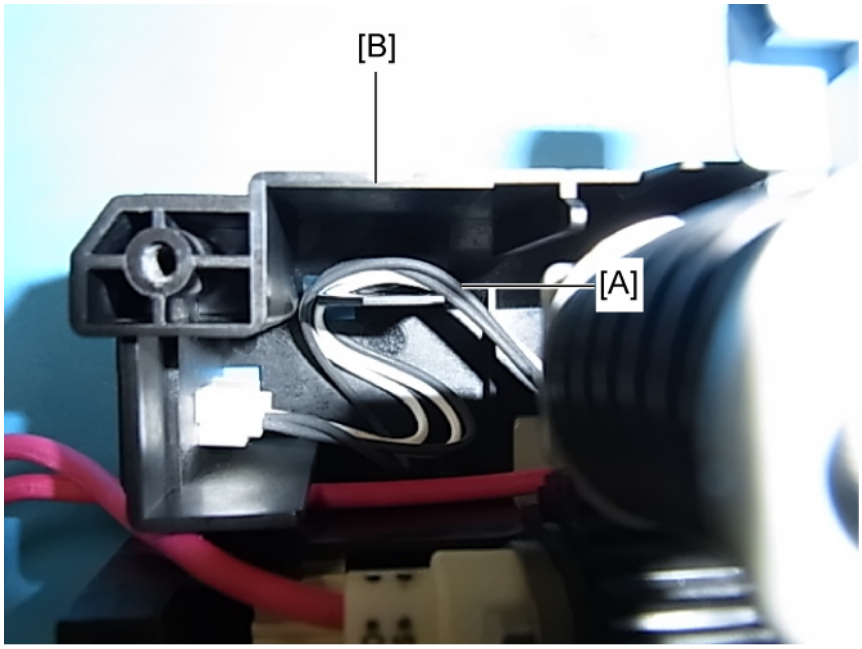
When Reinstalling the Fusing Lamp



m0950013

The end of the fusing lamp [A], which shows the voltage and power ratings, must be placed at the left side of the fusing unit (fusing cable side).

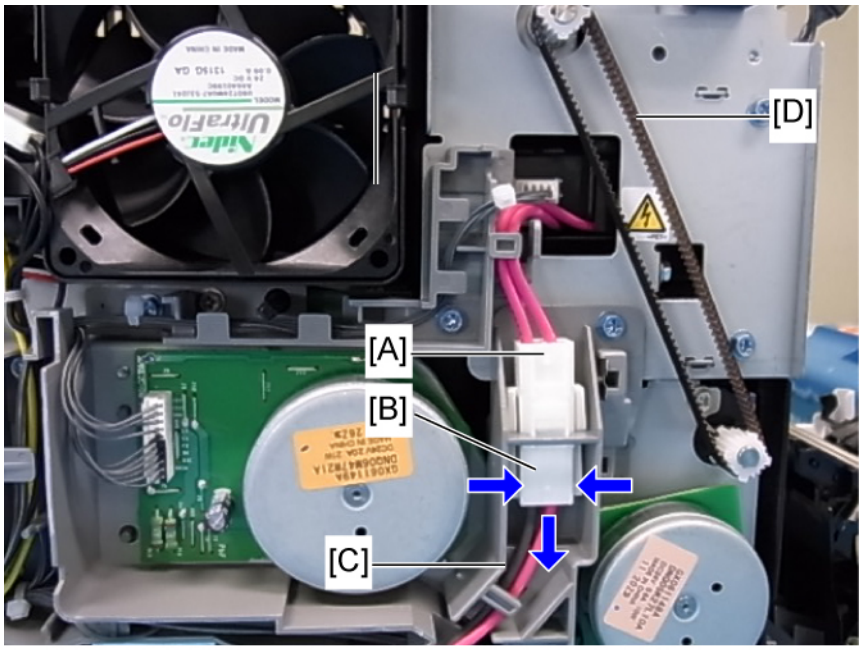
When Reassembling the Fusing Unit



Route the harness [A] as shown above when reinstalling the back cover [B].

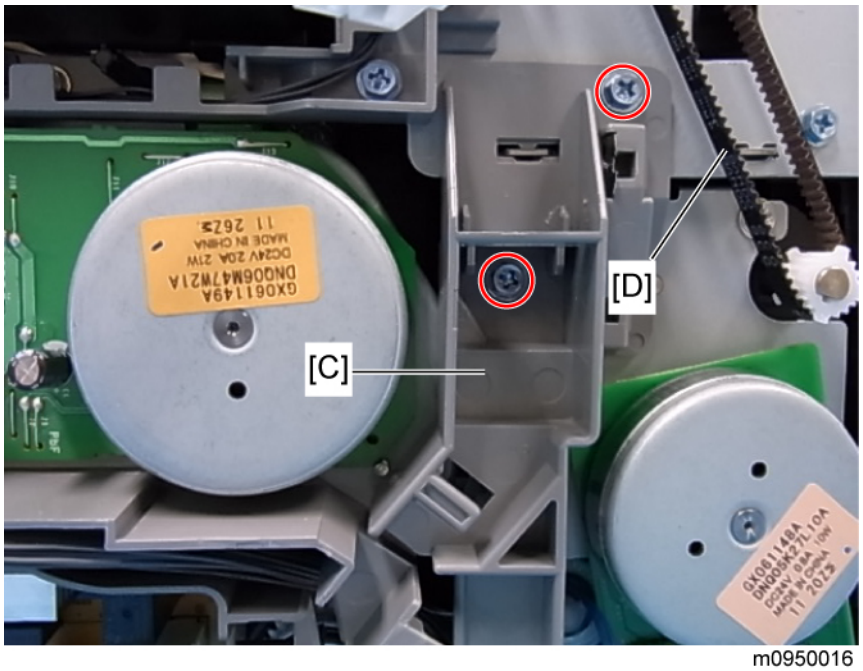
4.8.3 TRANSPORT/FUSING MOTOR

1. Rear cover (☛ p.4-5)
2. Left cover (☛ p.4-8)



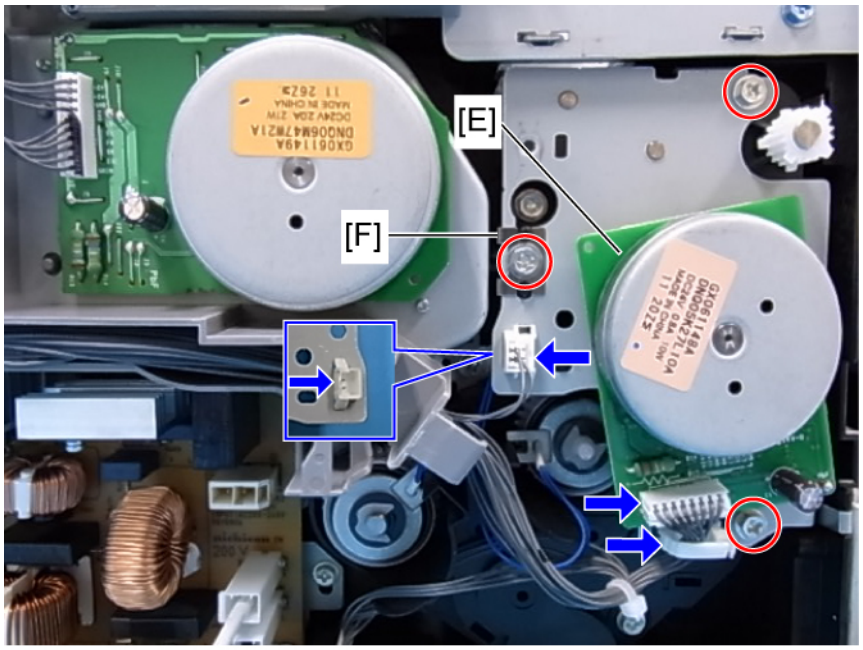
m0950015

3. Disconnect the fusing connector [A] (☛ p.4-39, hooks x 2).
4. Pull out the connector [B] downward and remove it.



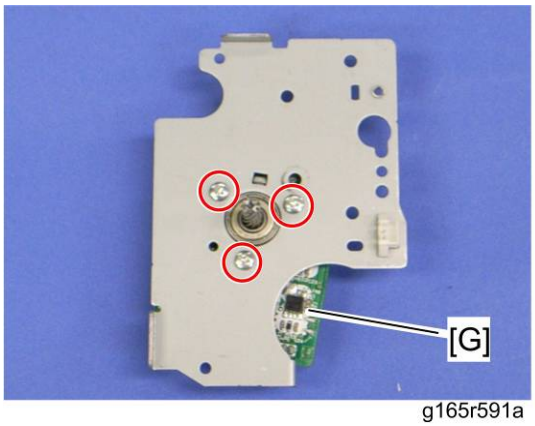
m0950016

5. Fusing harness guide [C] (x 2)
6. Duplex timing belt [D]



m0950016

7. Transport/Fusing motor assembly [E] (x 3, x 3, x 1, grounding plate [F] x 1)



g165r591a

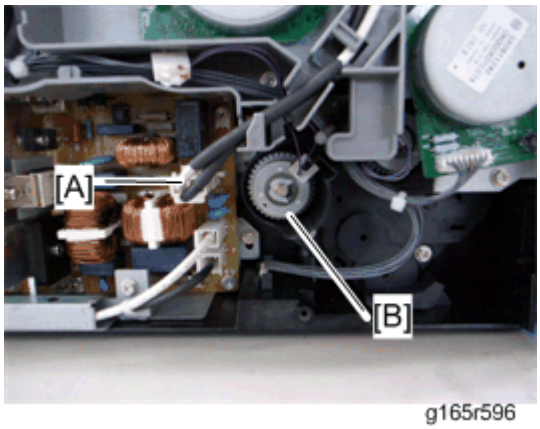
g165r592

8. Transport/Fusing motor [G] (x 3)

4.9 PAPER FEED

4.9.1 PAPER FEED CLUTCH

1. Rear cover (☛ p.4-5)
2. Left cover (☛ p.4-8)



g165r596

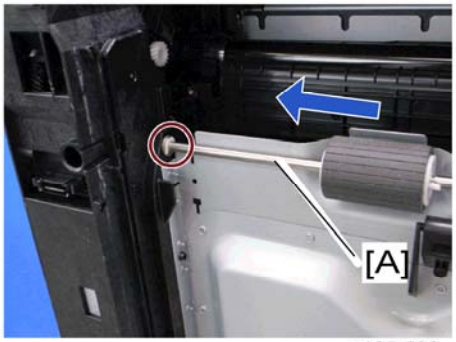
3. Disconnect the fusing relay harness [A] (hook).
4. Paper feed clutch [B] (x 1, x 1)

4.9.2 PAPER FEED ROLLER

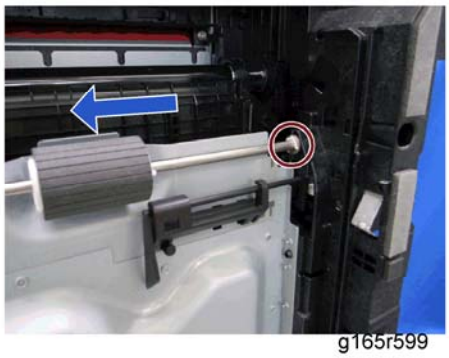
1. Remove all the AIO cartridges.
2. Remove the waste toner bottle.
3. Rear cover (☛ p.4-5)
4. Left cover (☛ p.4-8)
5. Paper feed clutch (☛ p.4-47)
6. Close the top cover and front cover.
7. Pull out the tray.

g165r597

8. Stand the machine with the rear side facing the table.

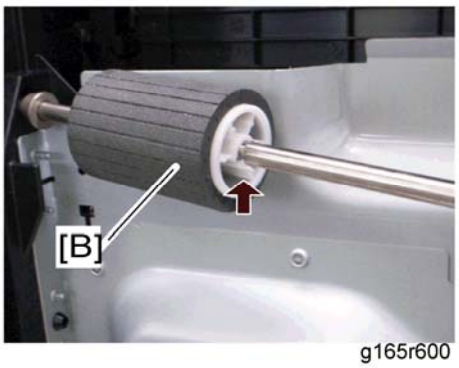


g165r598



g165r599

9. Slide the paper feed shaft [A] to the left side (x 2).



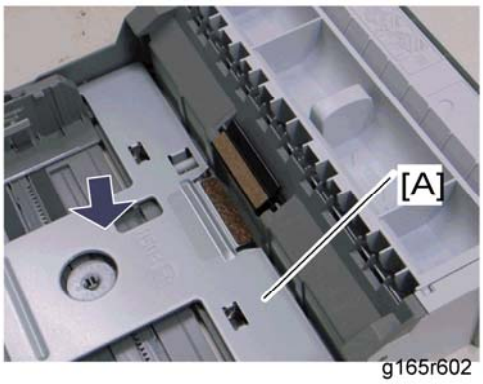
g165r600

g165r601

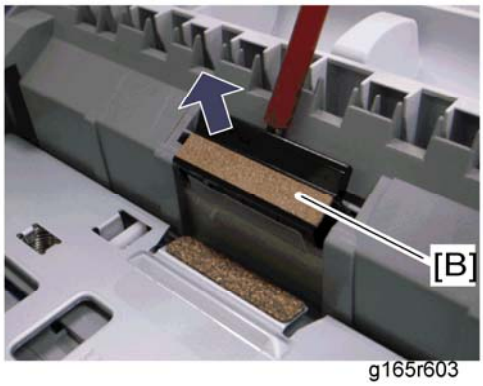
10. Paper feed roller [B] (hook)

4.9.3 SEPARATION PAD

1. Pull out the tray.

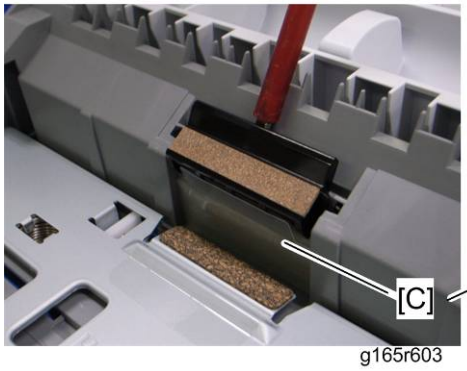


g165r602



g165r603

2. Push down the bottom plate [A].
3. Separation pad [B] (hooks x 2, spring x 1)



g165r603

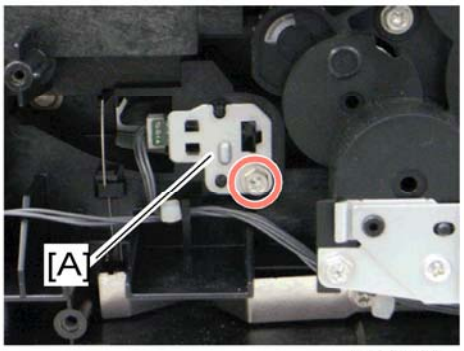

g165r604

Note

- When reinstalling the separation pad, make sure that the Mylar [C] is not placed under the separation pad. The right side image above shows incorrect installation.

4.9.4 PAPER END SENSOR

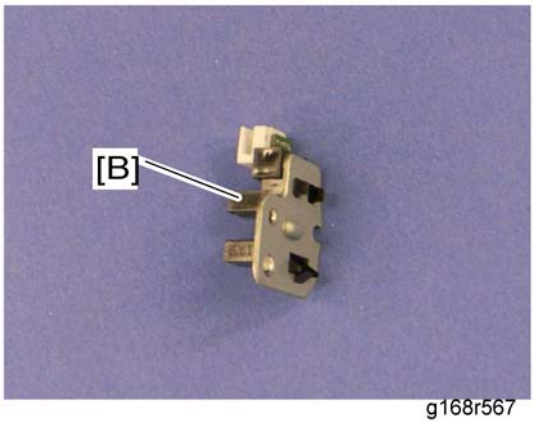
1. Rear cover (☛ p.4-5)
2. Right cover (☛ p.4-7)
3. High voltage power supply board (☛ p.4-73)



g168r566


g168r546

4. Paper end sensor assembly [A] (☛ x 1)



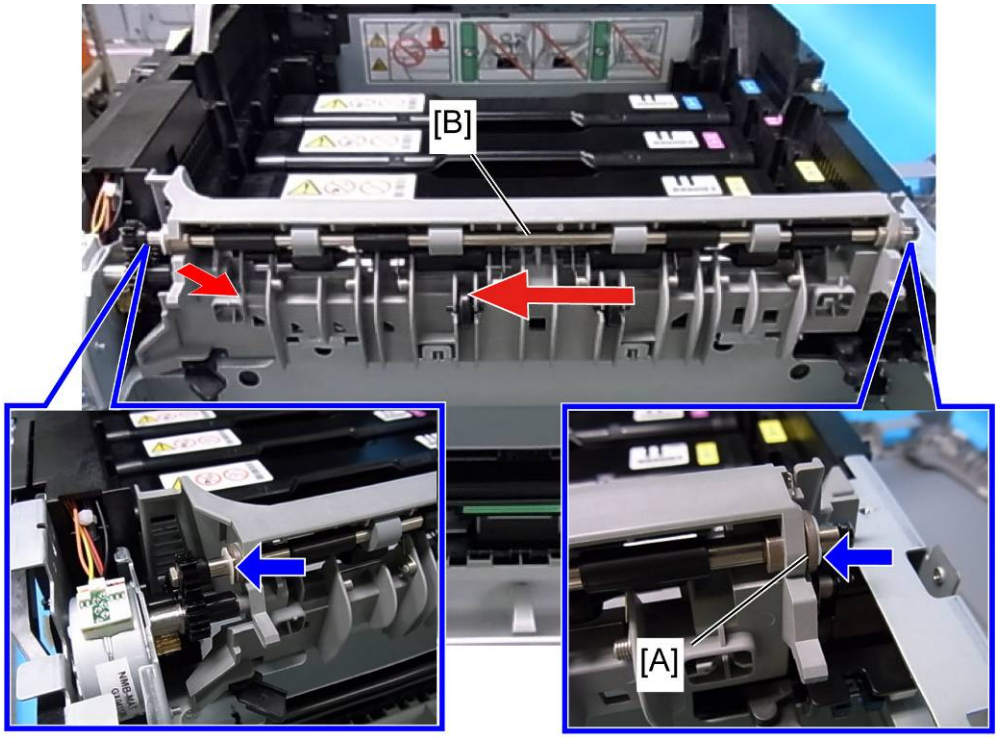
g168r567

5. Paper end sensor [B] (hooks x 3)

4.10 PAPER EXIT

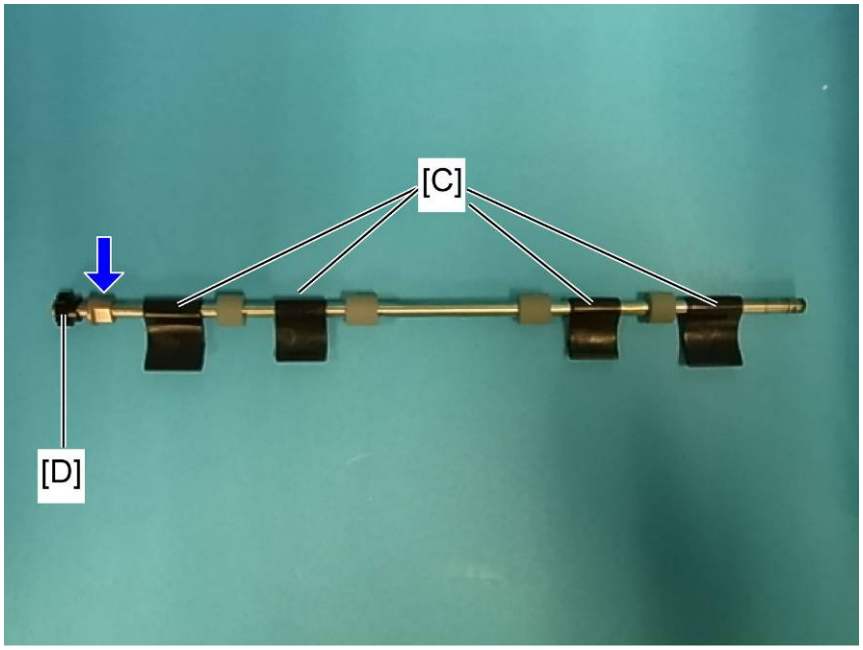
4.10.1 PAPER EXIT ROLLER

1. Operation panel (☛ p.4-6)



m0950040

2. Remove the bushing [A] (⟲ x 1)
3. Pull out the paper exit roller [B] from the right stay, and move its left side towards the front slightly, and then remove it from the mainframe. (⟲ x 1)

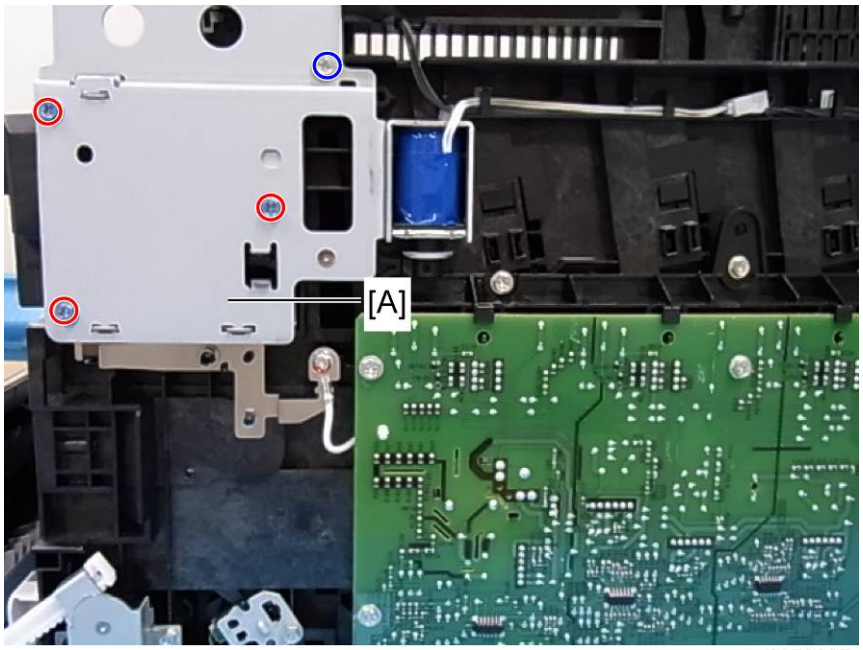


m0950041

4. Remove the four exit guides [C] and gear [D] (bushing x 1).

4.10.2 PAPER EXIT SENSOR

1. Rear cover (☛ p.4-5)
2. Right cover (☛ p.4-7)

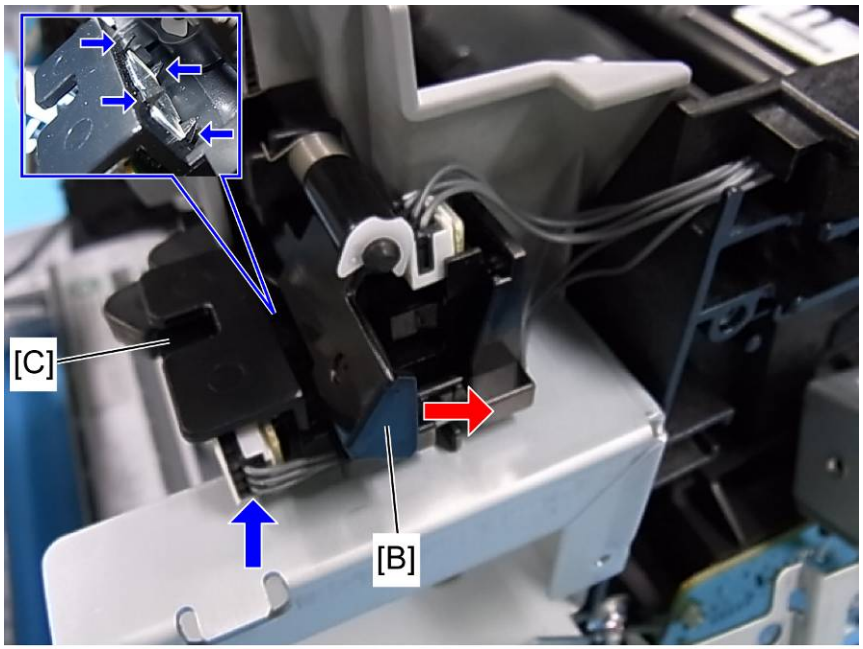


m0950035

3. Fusing pawl solenoid assembly [A] (x 4)

Note

- The upper right screw in the above photo is different from other 3 screws.



m0950036

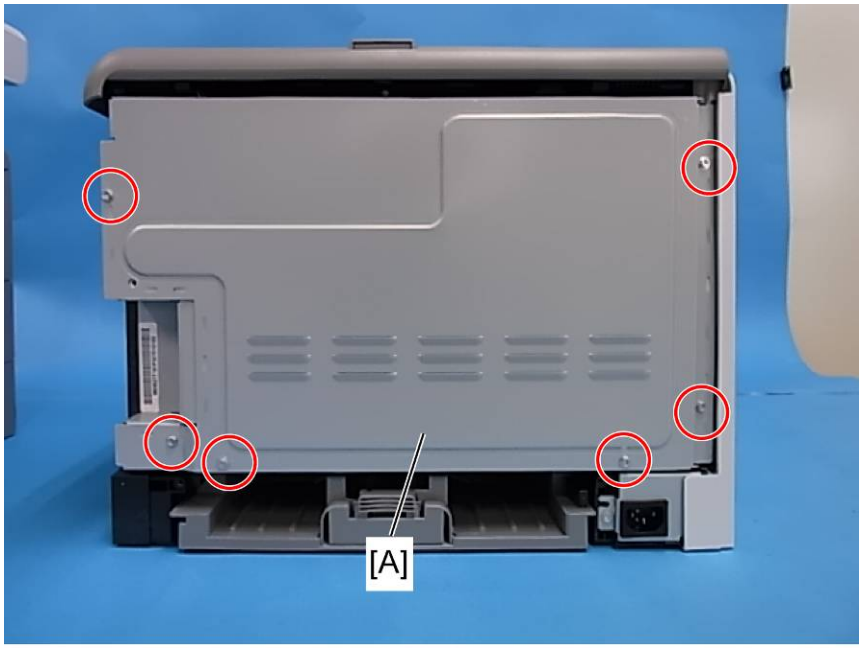
4. Remove the paper exit sensor [C] while lightly pressing the feeler [B] in the direction shown by the arrow (hooks x 4, x 1).

4.11 ELECTRICAL COMPONENTS

4.11.1 CONTROLLER BOARD

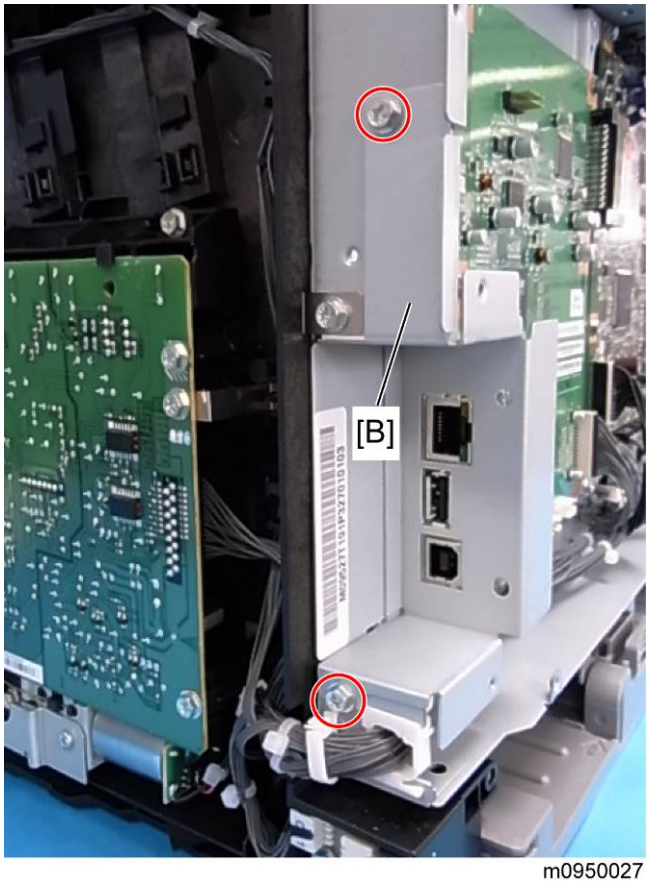
GDI/ PCL Controller Board (Printer Models)

1. Rear cover (☛ p.4-5)



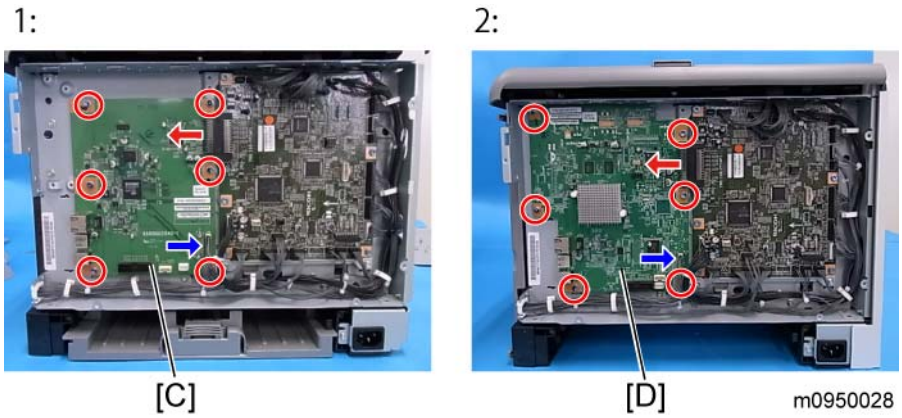
m0950026

2. Controller box cover [A] (x 6)



m0950027

3. Interface bracket [B] (x 2)



m0950028

1: GDI

2: PCL

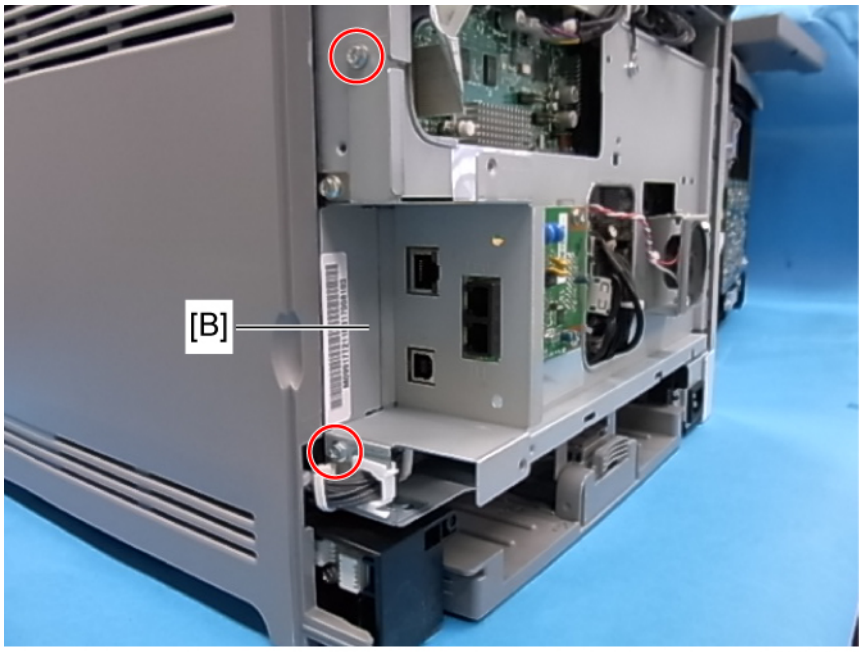
4. GDI controller board [C] or PCL controller board [D] (x 6, x 1)

Controller Board (MF Models)

1. Rear cover (☛ p.4-5)

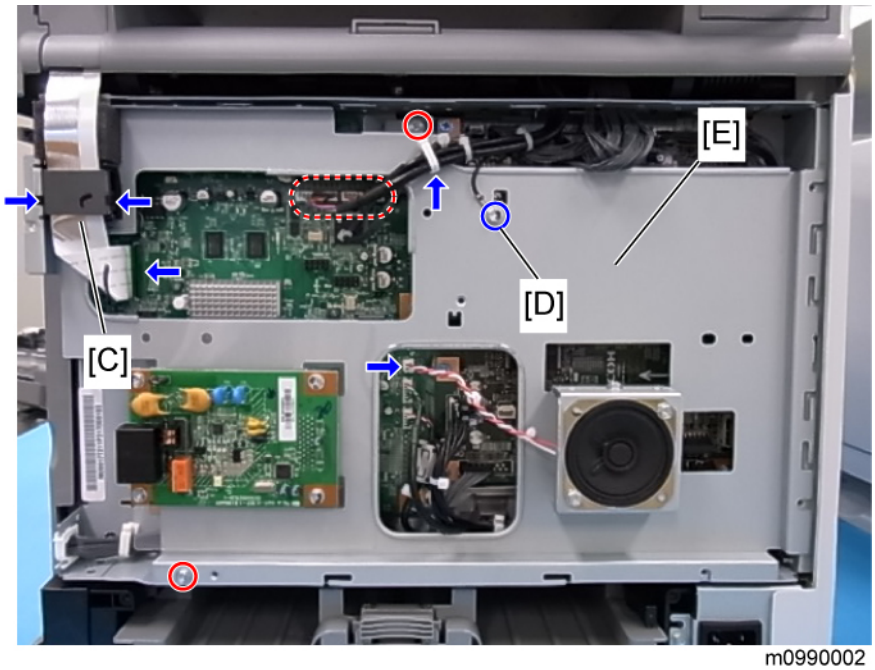
g165r505a

2. Controller box cover [A] (x 7)



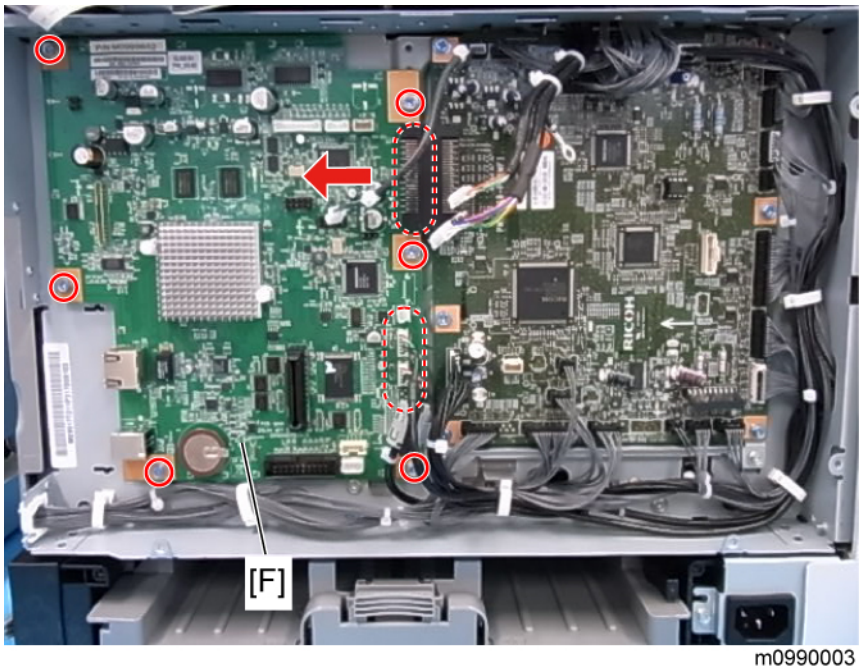
m0990001

3. Interface bracket [B] (x 2)



m0990002

4. Disconnect the flat cable with the Ferrite core [C] and remove it (x 1, hooks x 2).
5. Grounding screw [D] (x 1)
6. FCU and Speaker bracket [E] (x 5, x 1, x 2)



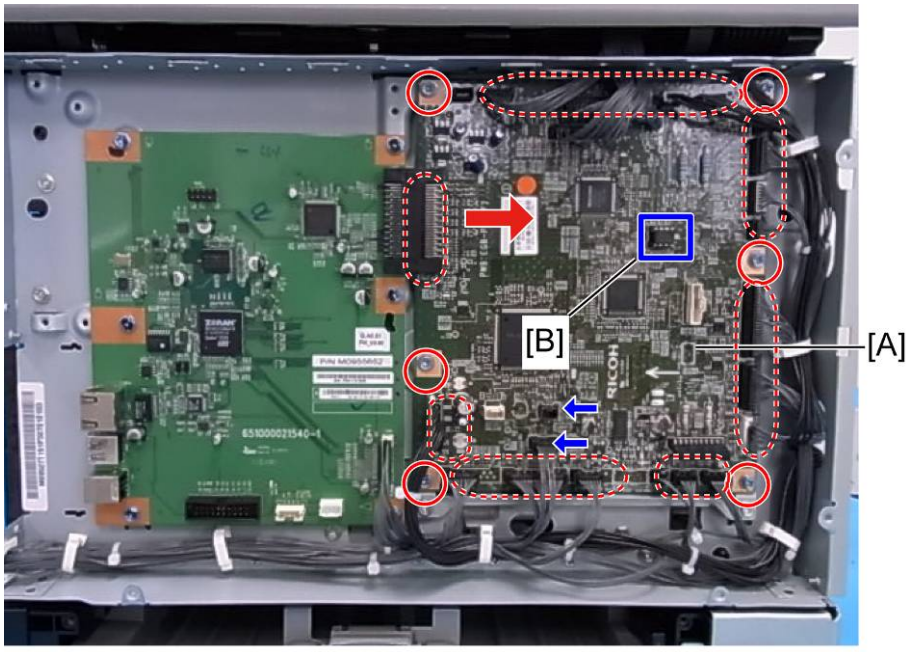
m0990003

7. Controller board [F] (all s, x 6)

4.11.2 EGB (ENGINE BOARD)

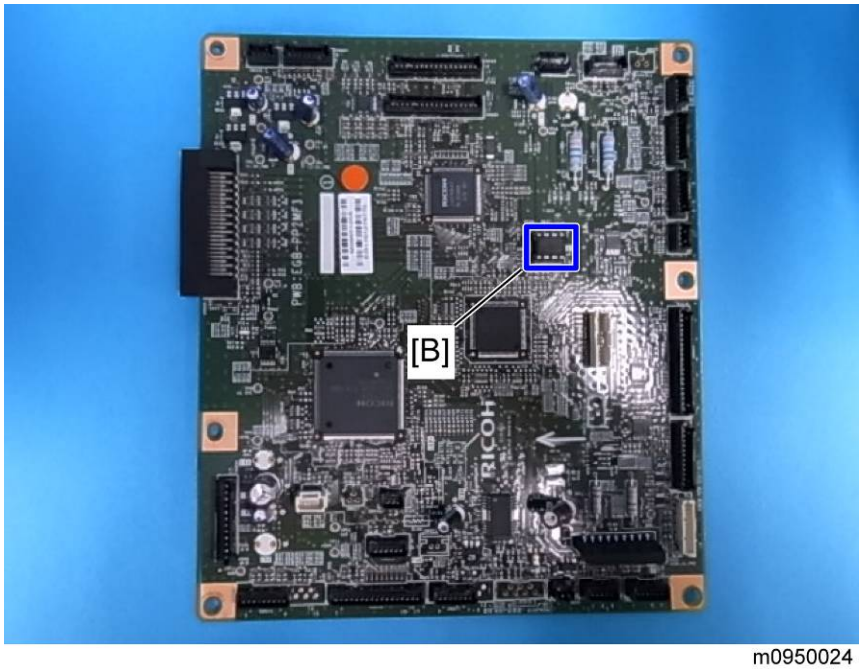
Printer Models

1. Rear cover (☛ p.4-5)



m0950023

2. EGB [A] (x 6, all s)

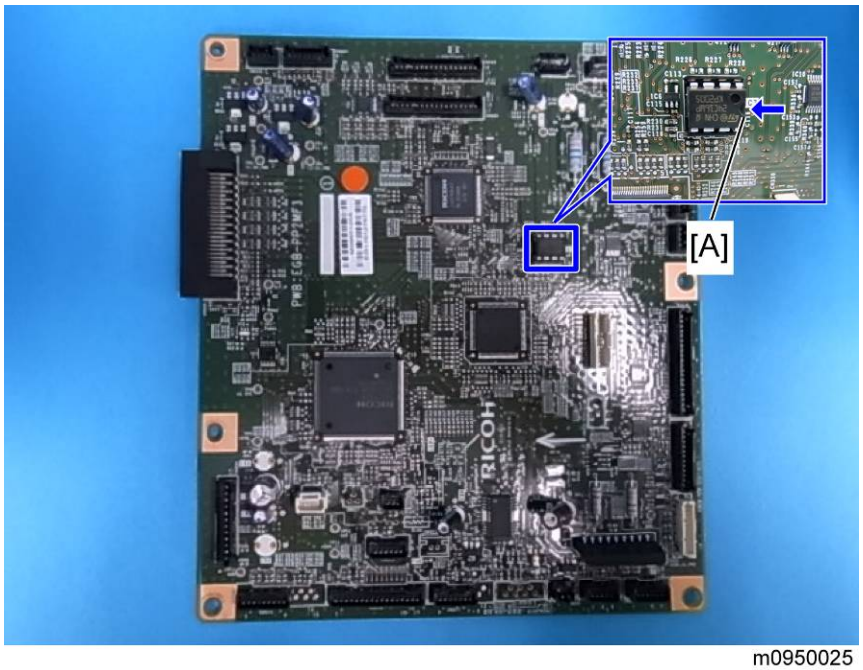


m0950024

3. EEPROM [B]

When installing the new EGB

1. Remove the EEPROM from the old EGB.



m0950025

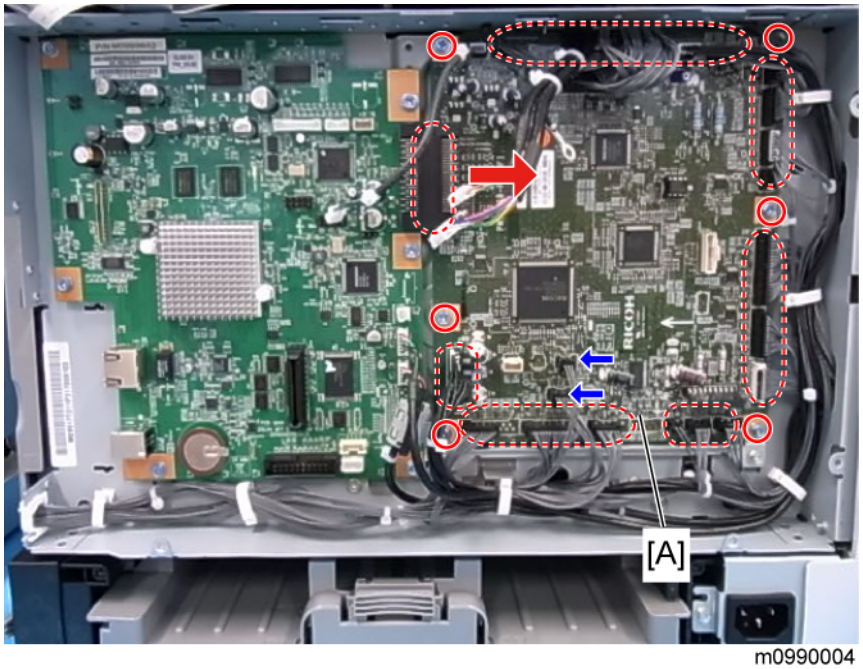
2. Install it on the new EGB with the mark [A] pointing to the right side of the board after you replace the EGB.
3. Replace the EEPROM if the EEPROM on the old EGB is defective.

CAUTION

- Keep the EEPROM away from objects that can cause static electricity. Static electricity can damage EEPROM data.
- Make sure that the EEPROM is correctly installed on the EGB.

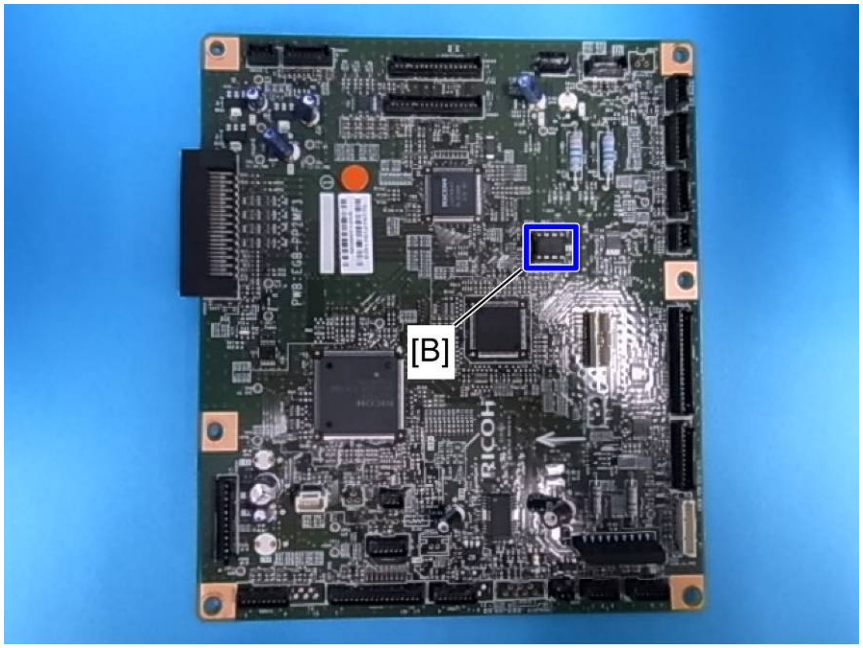
MF Models

1. Rear cover (☛ p.4-5)
2. Controller box cover (☛ p.4-54)
3. FCU and Speaker bracket (☛ p.4-54)



m0990004

4. EGB [A] (all s, x 6)

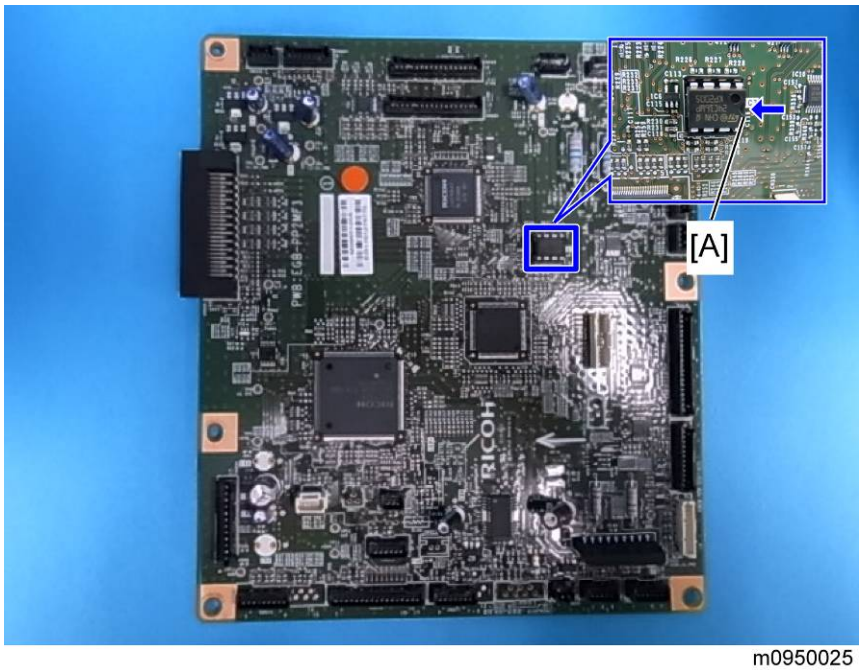


m0950024

5. EEPROM [B]

When installing the new EGB

1. Remove the EEPROM from the old EGB.



m0950025

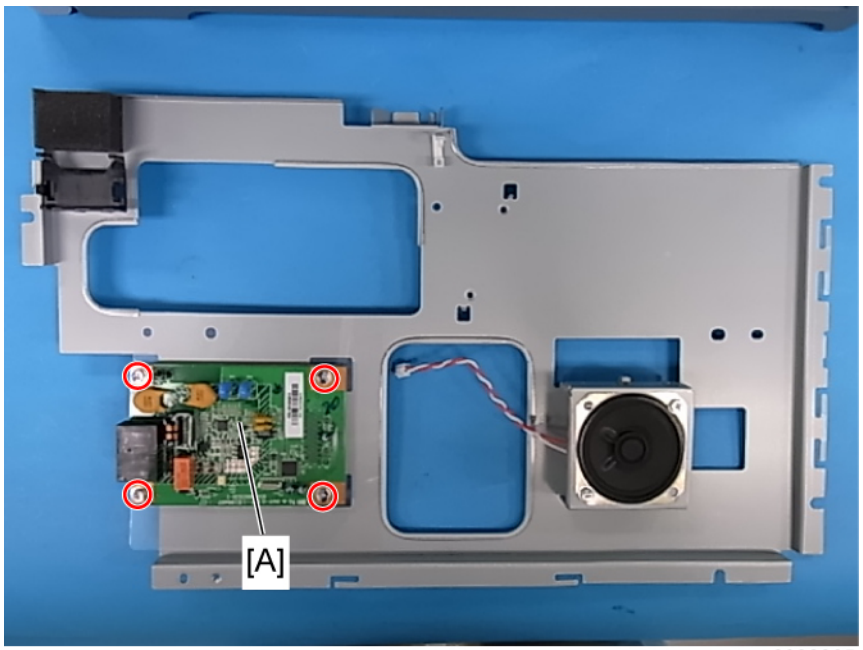
2. Install it on the new EGB with the mark [A] pointing to the right side of the board after you replace the EGB.
3. Replace the EEPROM if the EEPROM on the old EGB is defective.

CAUTION

- Keep the EEPROM away from any objects that can cause static electricity. Static electricity can damage EEPROM data.
- Make sure that the EEPROM is correctly installed on the EGB.

4.11.3 FCU (ONLY FOR MF MODELS)

1. Rear cover (☛ p.4-5)
2. Controller box cover (☛ p.4-54)
3. FCU and Speaker bracket (☛ p.4-54)

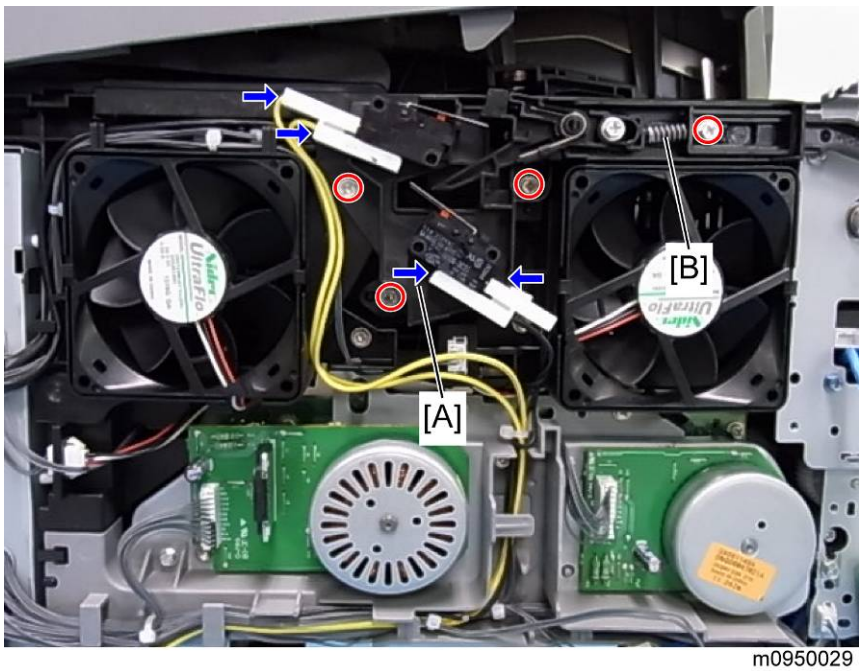


m0990005

4. FCU [A] (x 4)

4.11.4 INTERLOCK SWITCHES

1. Operation panel (☛ p.4-6)
2. Rear cover (☛ p.4-5)
3. Left cover (☛ p.4-8)

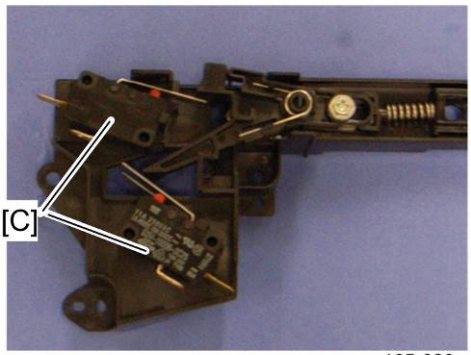


m0950029

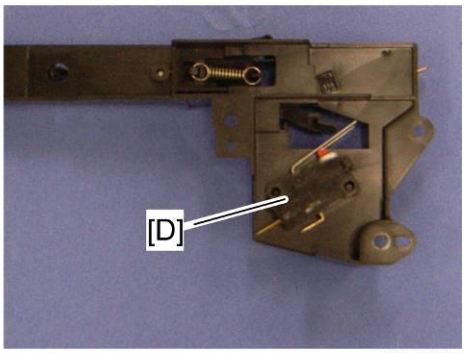
4. Interlock switch base [A] (x 4, x 4)

Note

- Removing the spring [B] first makes this procedure easier.
- Remove all the connectors after the interlock switch base has been removed.



g165r620

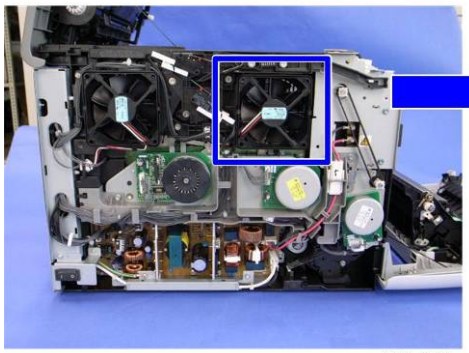


g165r621

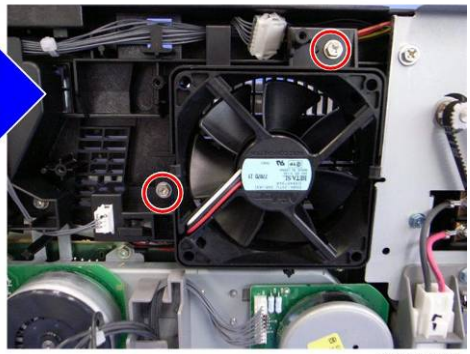
5. Two interlock switches [C] at the outside of the base and one interlock switch [D] at the inside of the base (hooks x 2)

4.11.5 FUSING FAN MOTOR

1. Operation panel (☛ p.4-6)
2. Rear cover (☛ p.4-5)
3. Left cover (☛ p.4-8)
4. Interlock switch base (☛ p.4-63)

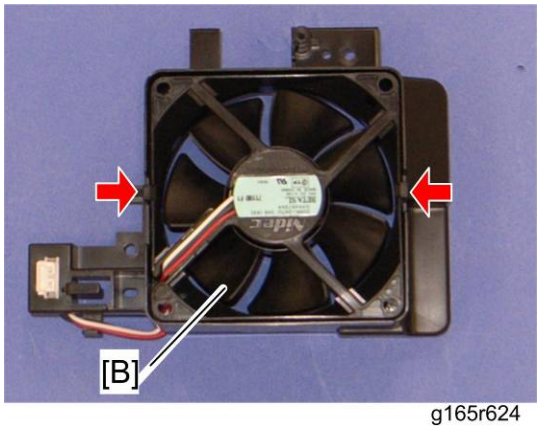


g165r622



g165r623

5. Fusing fan base [A] (x 2, x 1)



g165r624

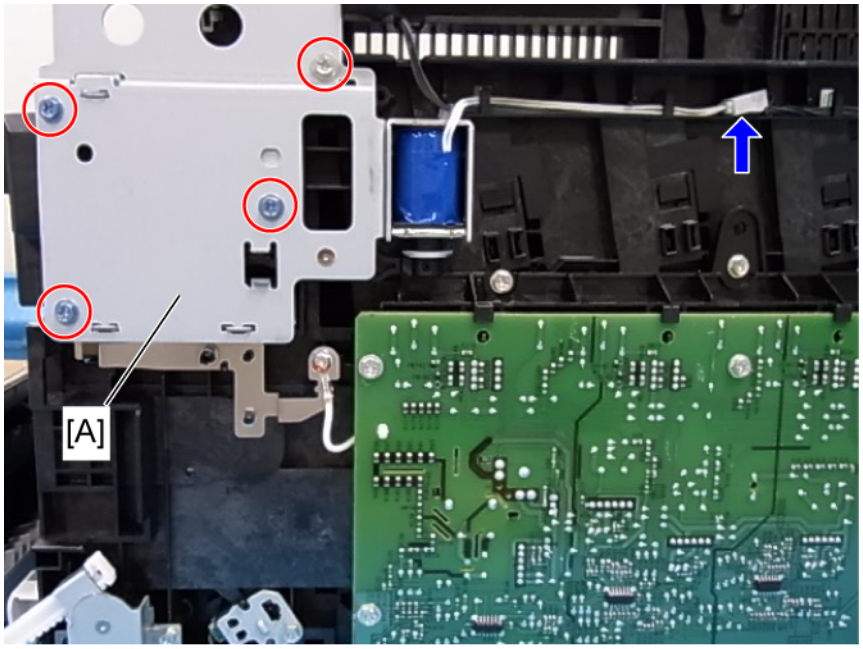
6. Fusing fan motor [B] (hooks x 2, x 1)

CAUTION

- Install the fusing fan motor with its decal facing the outside of the machine.

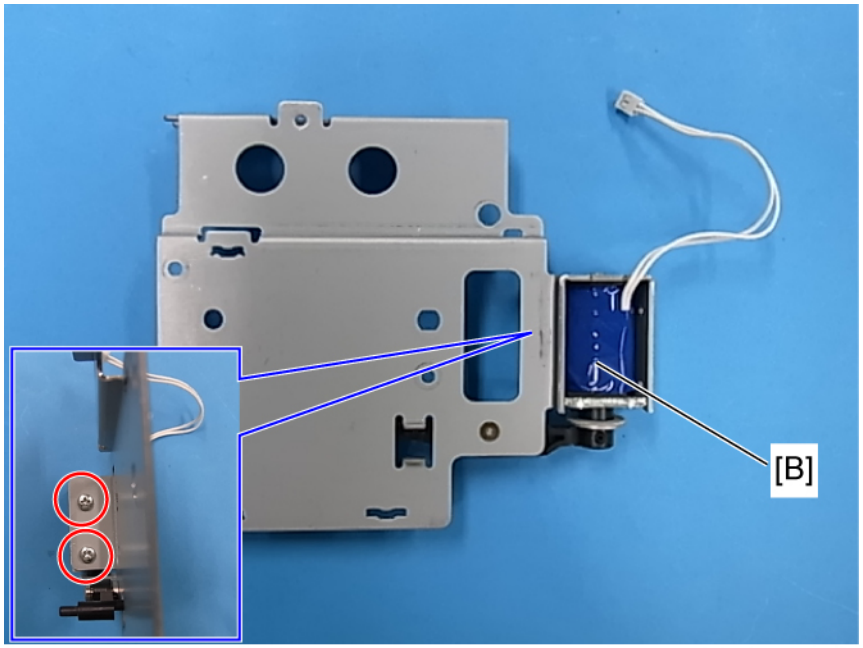
4.11.6 FUSING STRIPPER PAWL SOLENOID

1. Open the front cover.
2. Open the top cover.
3. Rear cover (☛ p.4-5)
4. Right cover (☛ p.4-7)

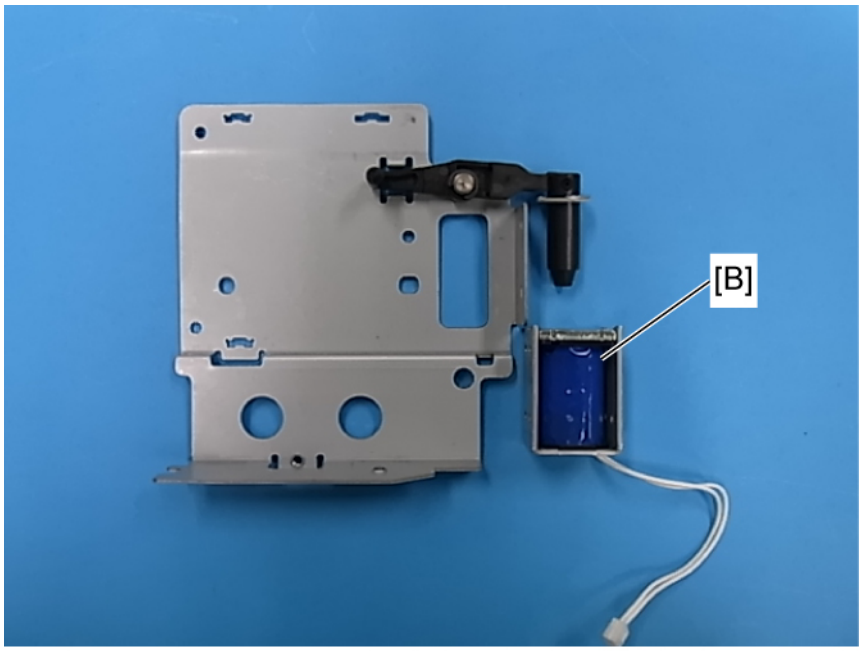


m0950018

5. Fusing stripper pawl solenoid assembly [A] (x 4, x 1)



m0950019

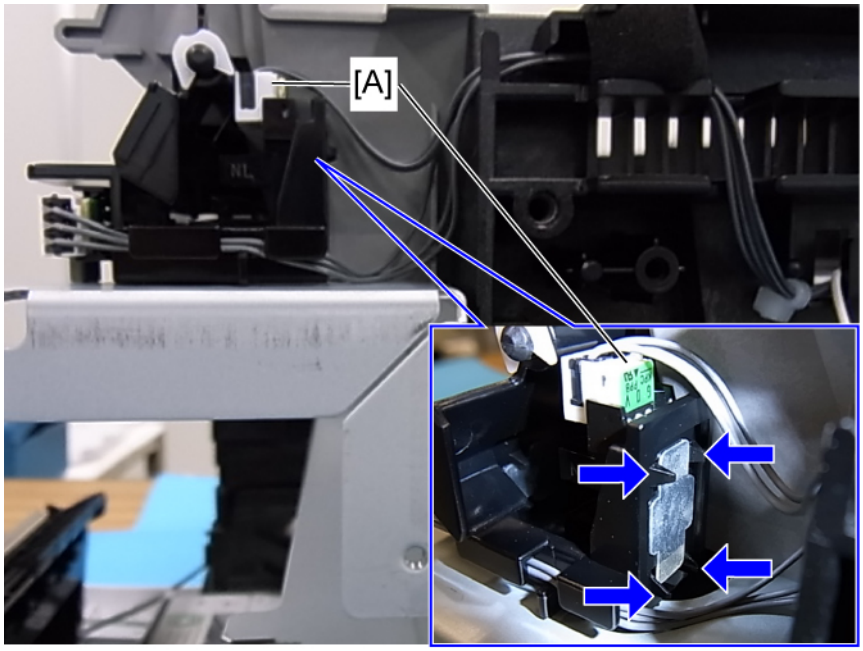


m0950020

6. Fusing stripper pawl solenoid [B] (x 2)

4.11.7 FUSING PRESSURE RELEASE SENSOR

1. Fusing stripper pawl solenoid assembly (☛ p.4-65)

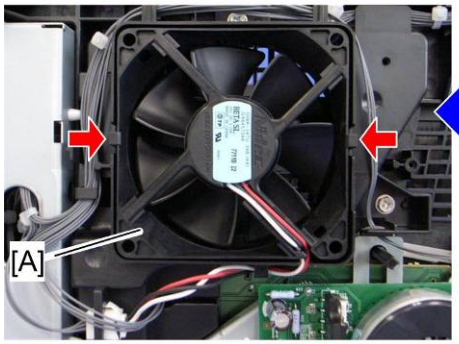


m0950021

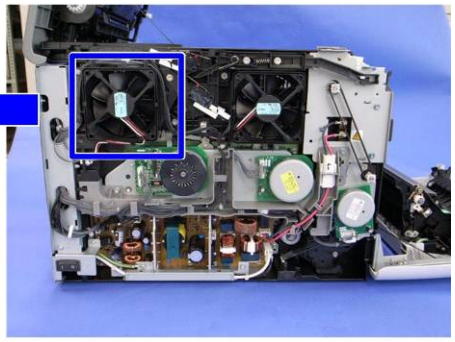
2. Fusing pressure release sensor [B] ([A] x 1, hooks x 4)

4.11.8 LSU FAN MOTOR

1. Operation panel (☛ p.4-6)
2. Rear cover (☛ p.4-5)
3. Left cover (☛ p.4-8)



g165r625



g165r622

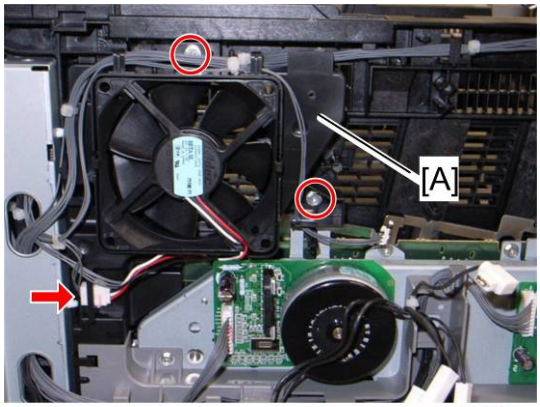
4. LSU fan motor [A] (hooks x 2, 🔩 x 1)

⚠CAUTION

- Install the LSU fan motor with its decal facing the outside of the machine.

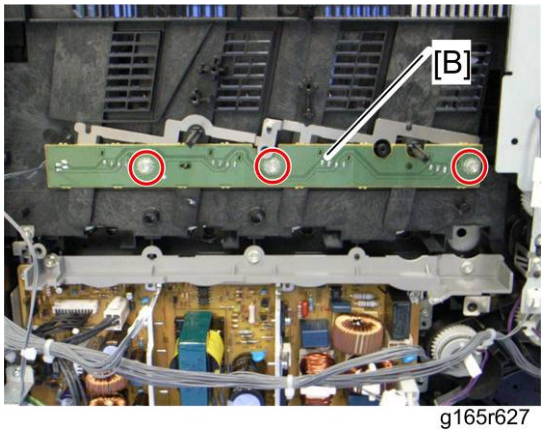
4.11.9 ID CHIP BOARD

1. Operation panel (☛ p.4-6)
2. Rear cover (☛ p.4-5)
3. Left cover (☛ p.4-8)
4. Controller box cover (printer model: ☛ p.4-54) or FCU and Speaker bracket (MF model: ☛ p.4-54)
5. Disconnect the connector (CN305) on the EGB.
6. Interlock switch base (☛ p.4-63)
7. Fusing fan base (☛ p.4-64)
8. Drive unit (☛ p.4-19)



g165r626

9. Take the harnesses aside around the LSU fan base [A].
10. LSU fan base [A] (x 2, x 1)

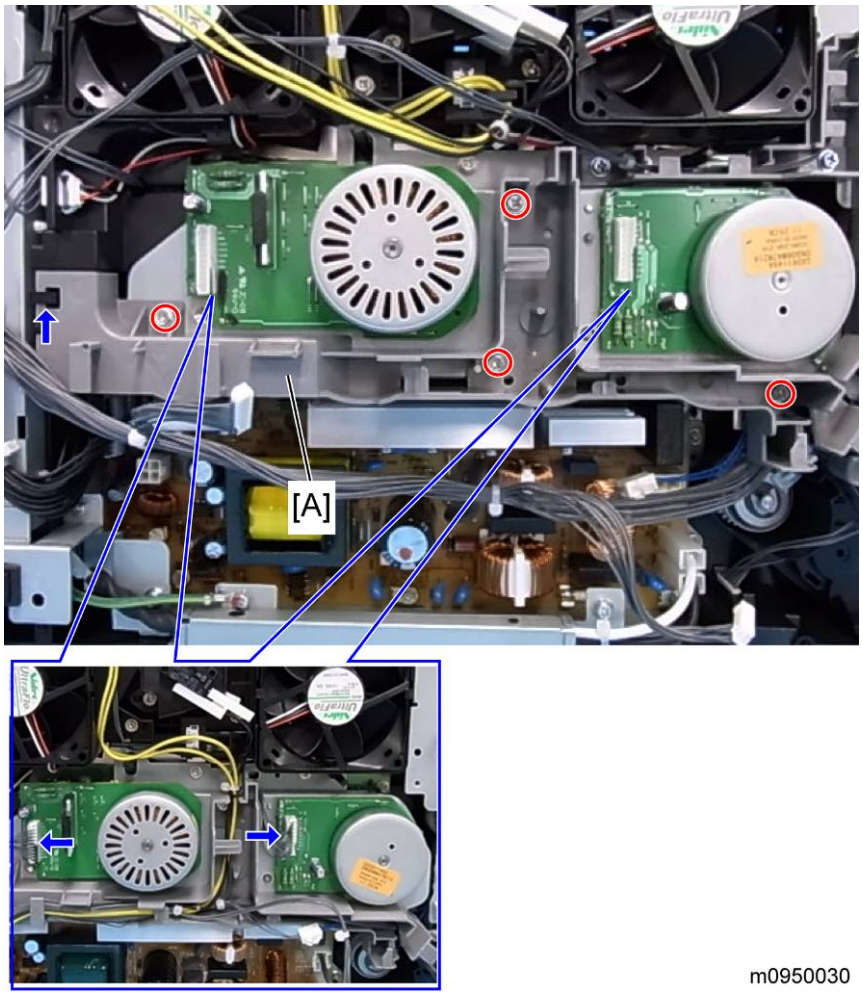


g165r627

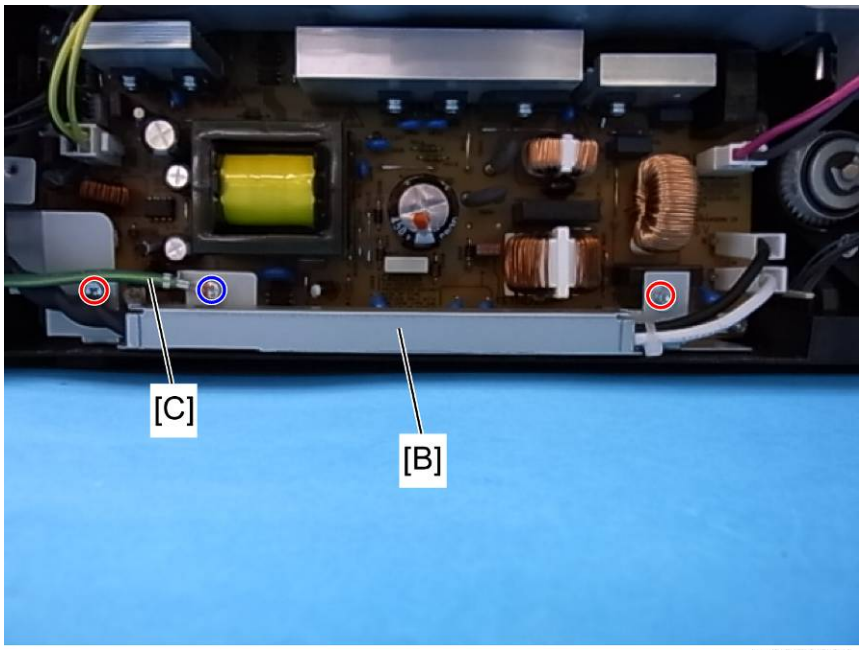
11. ID Chip Board [B] (x 3)

4.11.10 PSU

1. Left cover (☛ p.4-8)

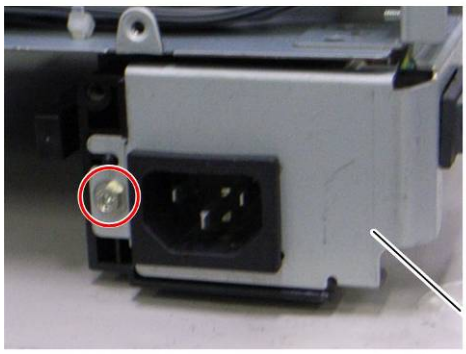


2. Disconnect 2 connectors on the AIO motors, and remove all harnesses from the harness guide [A].
3. Harness guide [A] (x 4, x 2)

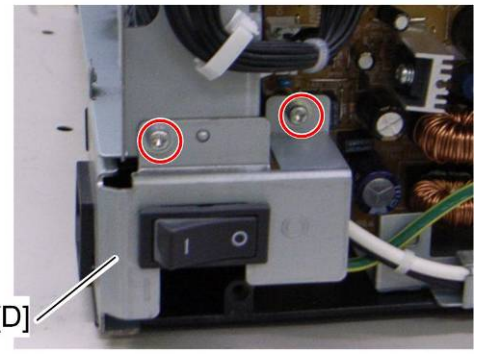


m0950031

4. Power cord bracket [B] (x 2)
5. Ground cable [C] (x 1)

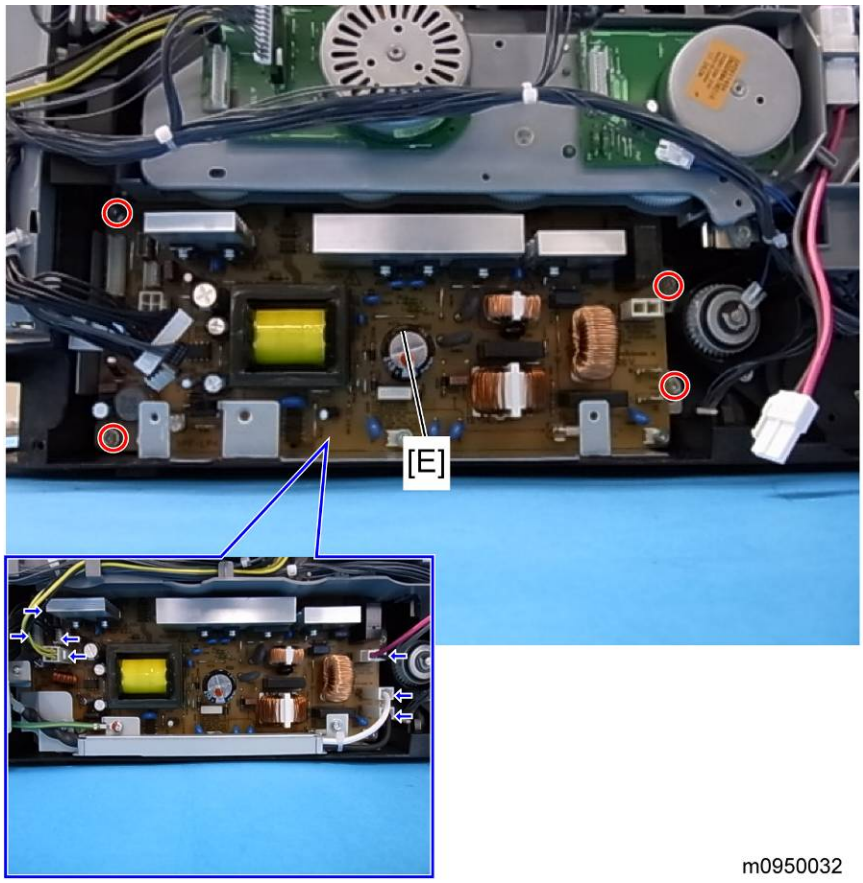


g165r629



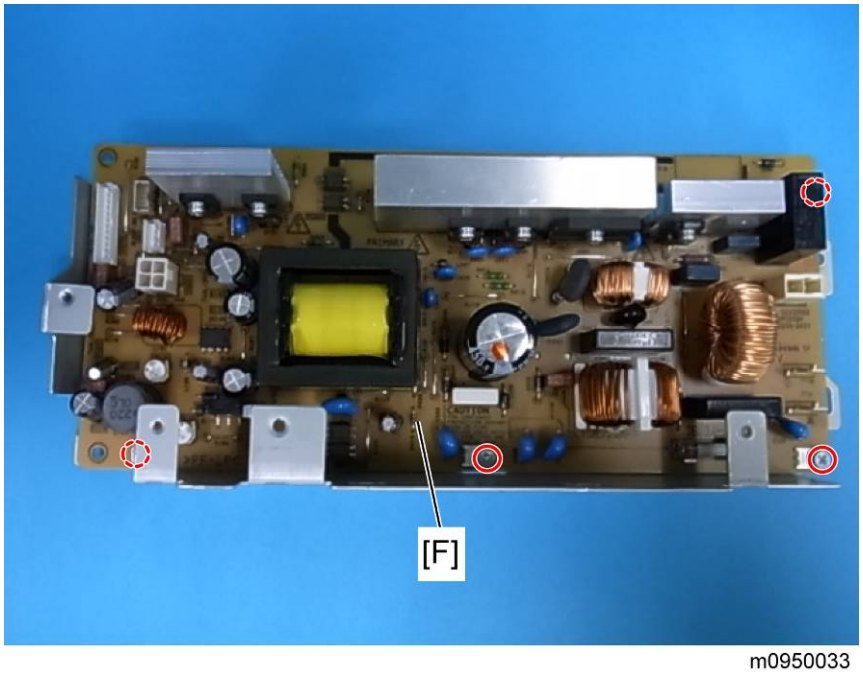
g165r630

6. Power switch assembly [D] (x 3, x 2)



m0950032

7. PSU assembly [E] (x 4, x 7)



m0950033

8. PSU [F] (x 4)

Fuse

There is a removable fuse on the PSU.

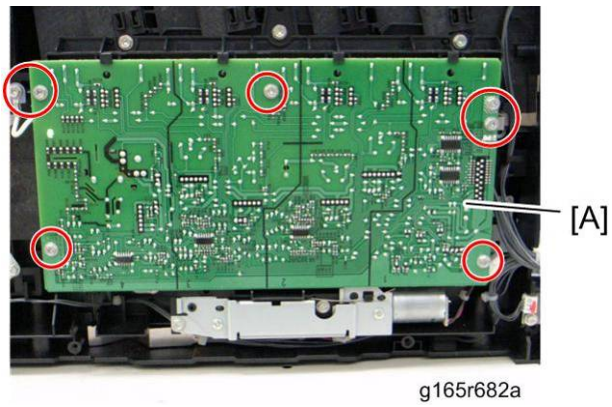
Fuse No.	Rating
FU101: NA, Taiwan	15 A, 125V
FU101: EU, ASIA	6.3A, 250V

⚠CAUTION

- Use a correct rating fuse for the fuse replacement. Never use a wrong rating fuse. If do so, the machine may be damaged.
- Never try direct connection of PSU circuit without a fuse.

4.11.11 HIGH VOLTAGE POWER SUPPLY BOARD

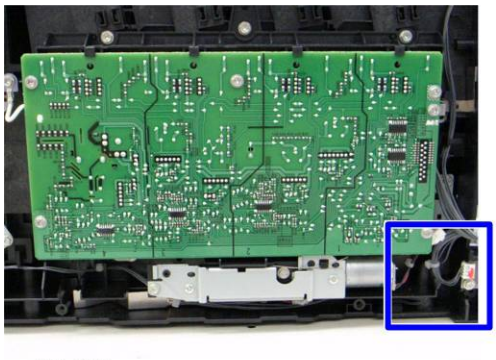
1. Remove all AIO cartridges.
2. Operation panel (☛ p.4-6)
3. Rear cover (☛ p.4-5)
4. Right cover (☛ p.4-7)



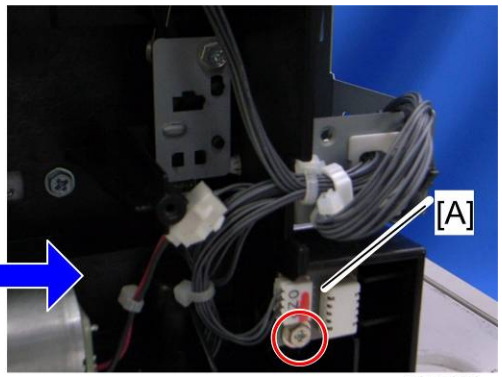
5. High Voltage Power Supply Board [A] (x 5, grounding cable x 1, x 1)

4.11.12 TEMPERATURE/HUMIDITY SENSOR

1. Operation panel (☛ p.4-6)
2. Rear cover (☛ p.4-5)
3. Right cover (☛ p.4-7)



g165r682

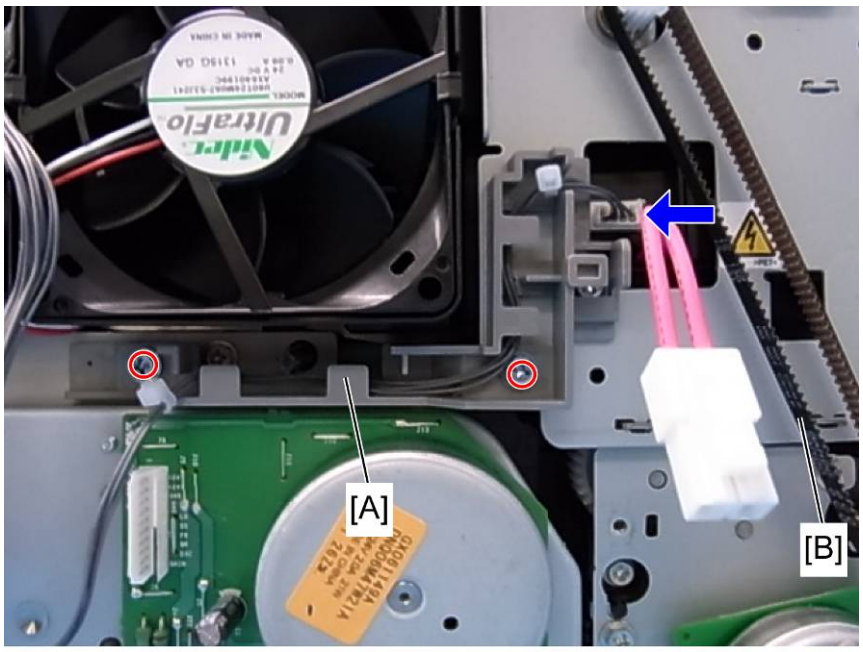


g165r683

4. Temperature/Humidity sensor [A] (x 1, x 1)

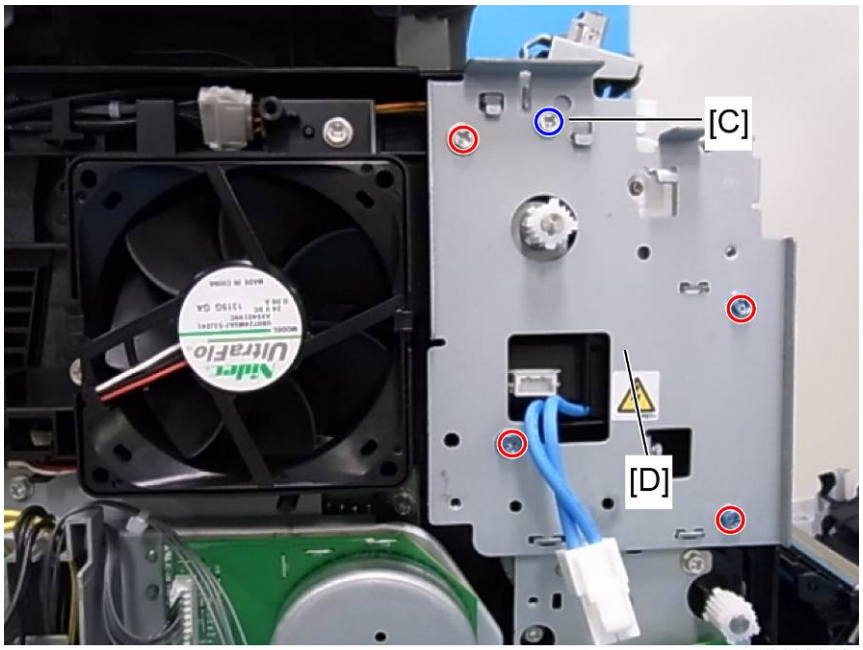
4.11.13 DUPLEX MOTOR

1. Operation panel (☛ p.4-6)
2. Left cover (☛ p.4-8)
3. Interlock switch base (☛ p.4-63)
4. Fusing harness guide (☛ p.4-45)



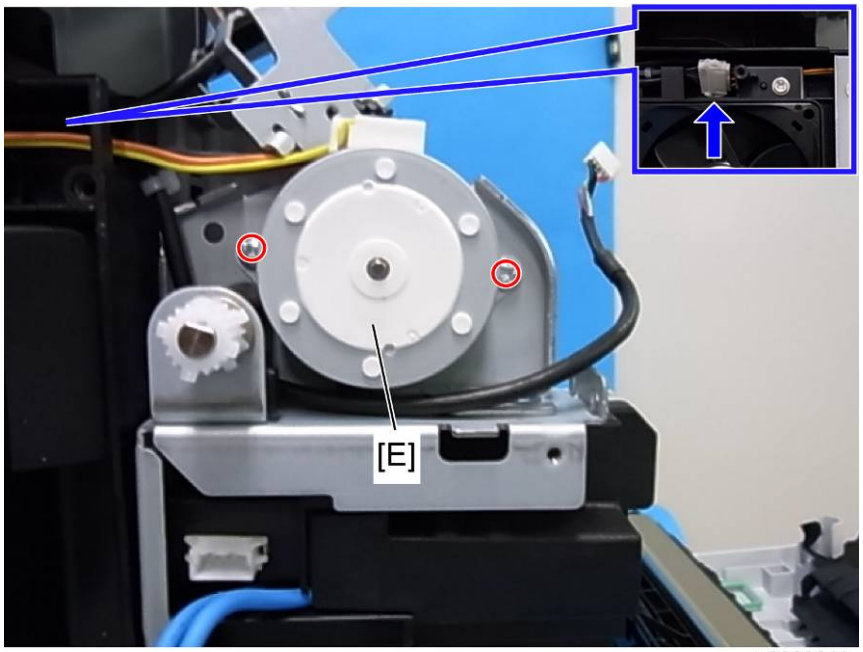
m0950034

5. Fusing thermistor harness guide [A] (x 2, x 1)
6. Duplex timing belt [B]



m0990010

7. Left bracket [D] (Printer models: x 4, MF Models: x 5 including [C])

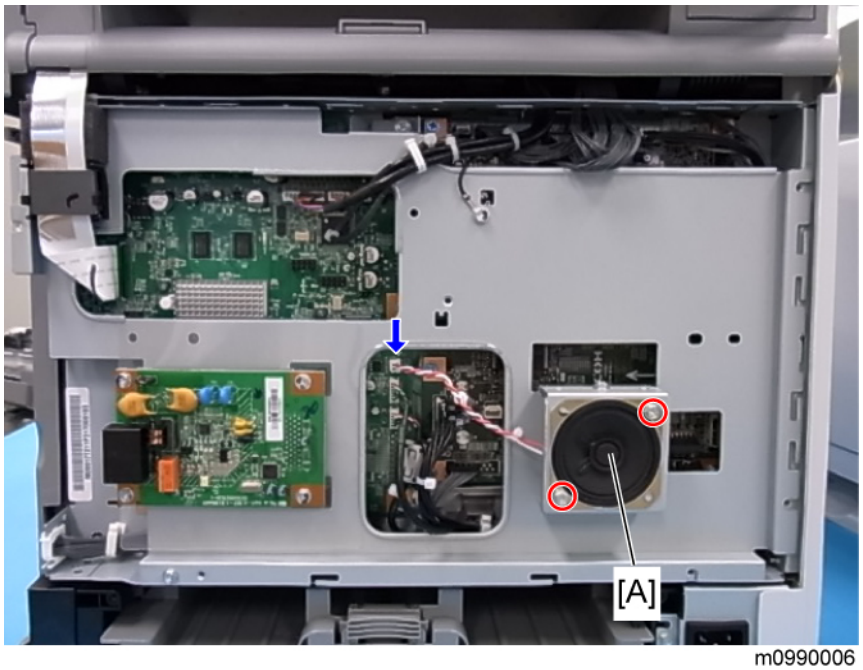


m0990011

8. Duplex motor [E] (x 2, x 1)

4.11.14 SPEAKER (ONLY FOR MF MODELS)

1. Rear cover (☛ p.4-5)
2. Controller box cover (☛ p.4-54)



m0990006

3. Speaker [A] (x 2, x 1)

4.11.15 EEPROM

Note

- Replacement and Reinstallation procedures for the EEPROM are included in the "EGB (Engine Board)" replacement procedure. Refer to "EGB (Engine Board)" for details.

When replacing an old EEPROM with a new EEPROM, EEPROM setting is required. Follow the EEPROM setting procedure described below.

Important

- Do the following steps 1 to 9 with the front cover of the machine open. After completing these steps, turn off the machine.

1. Open the front cover and turn on the machine.

   Note

   - The machine may issue an error code (because the cover is open), but continue this procedure.
2. Enter "Engine Maintenance" in the "Maintenance Mode Menu".
3. Select "Init Engine EEPROM" item and execute it to initialize the EEPROM.
4. Press the "Clear/Stop" key to exit the "Engine Maintenance" menu.
5. Select the "Serial No." item, and then input a serial number.

   Note

   - Ask your supervisor about how to access the serial number input display.
6. Exit the serial number input display, and then enter "Engine Maintenance" again.
7. Select "Destination", and then select a destination.
8. Select "Model", and then select a model.
9. Select "PnP Name", and then select a plug and play name.
10. Select "LSU Adjustment", and then input the LSU (laser optics housing unit) setting values if they are available.
11. Turn off the machine.
12. Turn on the machine with the front cover open.
13. Enter "Engine Maintenance" in the "Maintenance Mode Menu" again.
14. Close the front cover.
15. Select "Trans. Belt Adjust", and then execute "Trans. Belt Adjust" to adjust the ITB (Image Transfer Belt) unit.
16. Select "Fuser SC Detect", and then select "ON" or "OFF" for the consecutive fusing jam detection.

    Note

    - The default setting is "OFF". Select "ON" only if the customer wants to use this feature.
17. Select "Registration", and then adjust the registration for each direction (vertical and

horizontal direction) and tray if necessary.

18. Select "2nd Transfer Fuser Temp", and then adjust the transfer roller bias and the temperature reduction of the fusing unit for each paper type and for the front and back sides. The default settings for normal operation are all '0'.
19. Perform “Color Registration” in the “Engine Maintenance” menu.
20. Turn the power off and on.

Note

- MUSIC will be performed automatically.

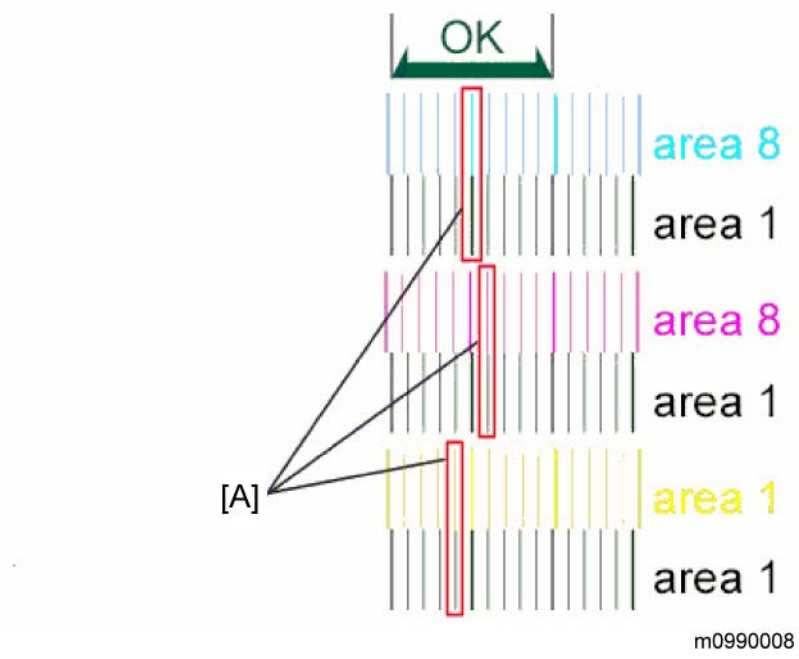
21. Print out the test chart (☛ p.4-11), and make sure that MUSIC was performed successfully.

Note

- If MUSIC is not performed successfully, see “If MUSIC has not been performed successfully” (☛ p.4-11).

22. If necessary, adjust the registration settings for the front and rear sides of each paper tray in the “Engine Maintenance” menu.
23. Exit "Engine Maintenance".

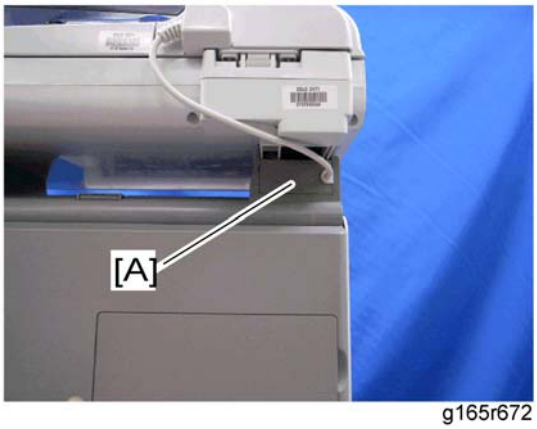
Checking that MUSIC was Performed Correctly



Four sets of vertical lines appear on the test chart (C and k, M and k, Y and k…). In each set, look for vertical lines that are aligned within the region defined by “OK”.
If all sets have at least one set of vertical lines that are aligned [A], MUSIC was successful.

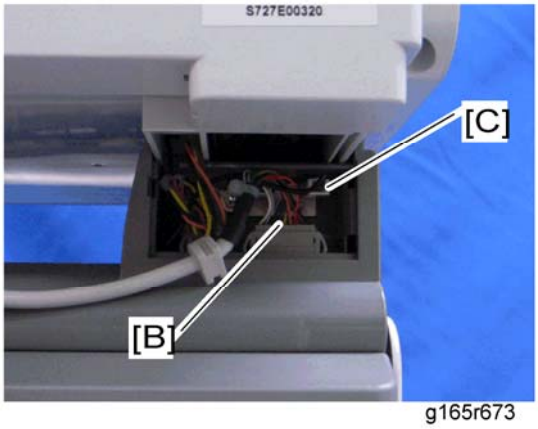
4.12 ADF (ONLY FOR MF MODELS)

4.12.1 ADF UNIT



g165r672

1. Stand left cover [A]

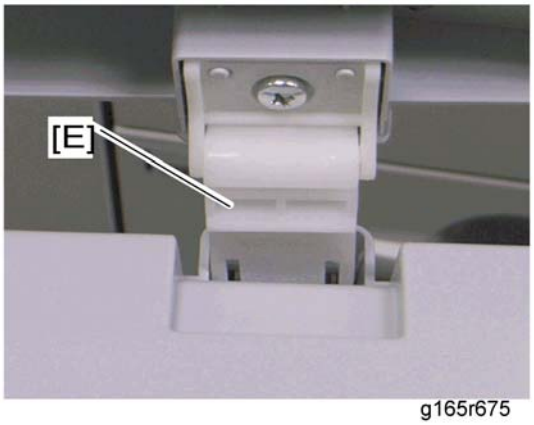


g165r673

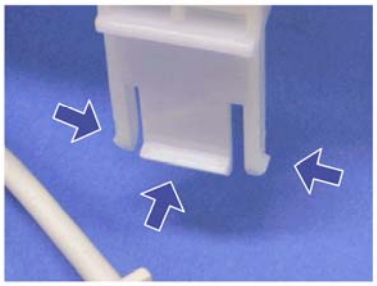
2. Disconnect the ADF harness [B] and power cord [C].

g165r674

3. Open the ADF unit [D]



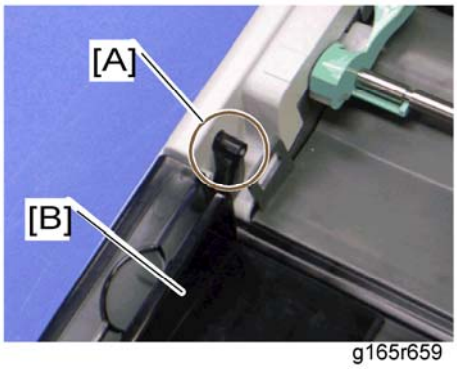
g165r675


g165r676

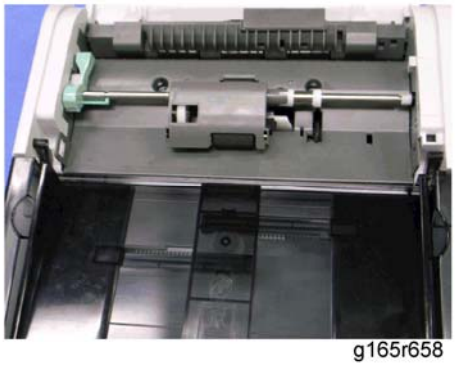
4. Release the three hooks of the right hinge [E]
5. Lift the ADF unit.

4.12.2 ORIGINAL TRAY

1. Open the ADF cover.



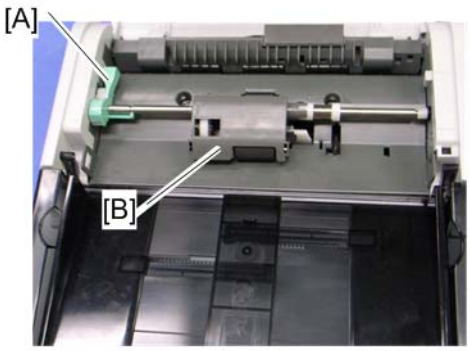
g165r659


g165r658

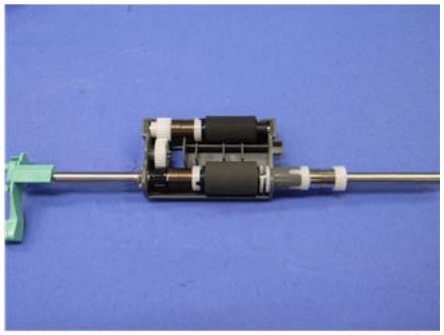
2. Release the front tab [A].
3. Original tray [B]

4.12.3 ADF FEED UNIT

1. Open the ADF cover.



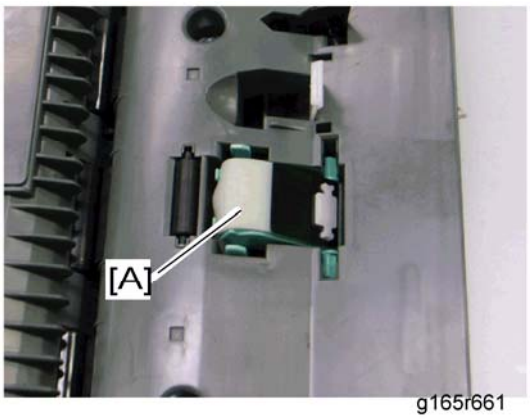
g165r658a


g165r660

2. Release the lock lever [A]
3. ADF feed unit [B]

4.12.4 ADF SEPARATION PAD

1. Open the ADF cover.
2. ADF feed unit (☛ p.4-81)

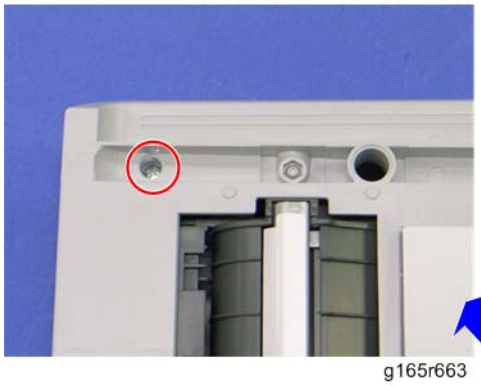


g165r661

3. ADF separation pad [A] (hooks x 2, spring x 1)

4.12.5 ADF FRONT COVER

1. ADF unit (☛ p.4-79)
2. Original Tray (☛ p.4-80)
3. ADF feed unit (☛ p.4-81)



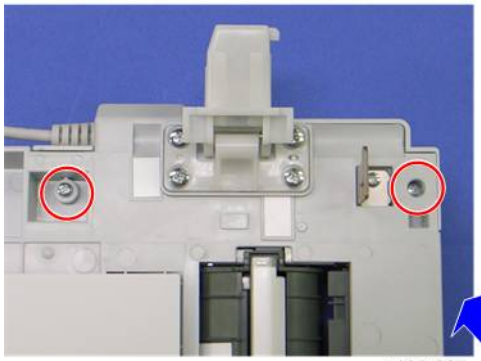
g165r663

g165r662

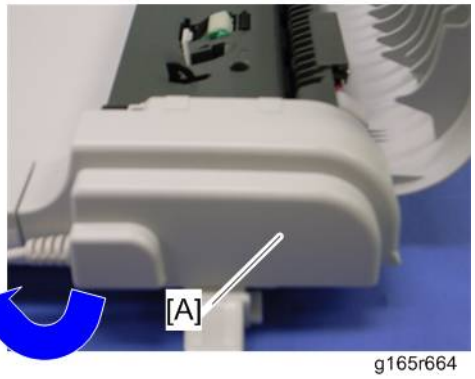
4. ADF front cover [A] (x 1)

4.12.6 ADF REAR COVER

1. ADF unit (☛ p.4-79)
2. Original Tray (☛ p.4-80)
3. ADF feed unit (☛ p.4-81)



g165r665

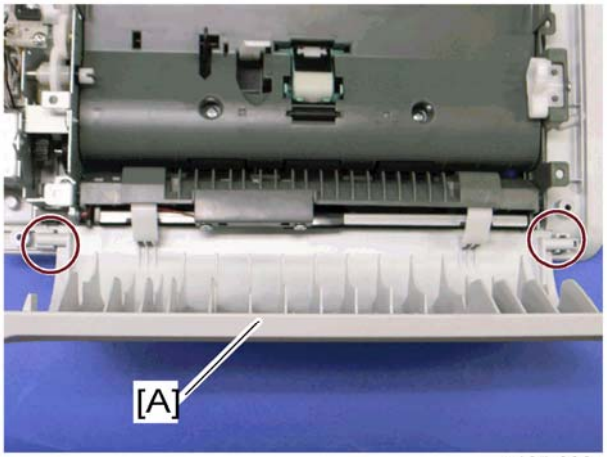


g165r664

4. ADF rear cover [A] (x 2)

4.12.7 ADF COVER

1. ADF unit (☛ p.4-79)
2. ADF front cover (☛ p.4-82)
3. ADF rear cover (☛ p.4-82)

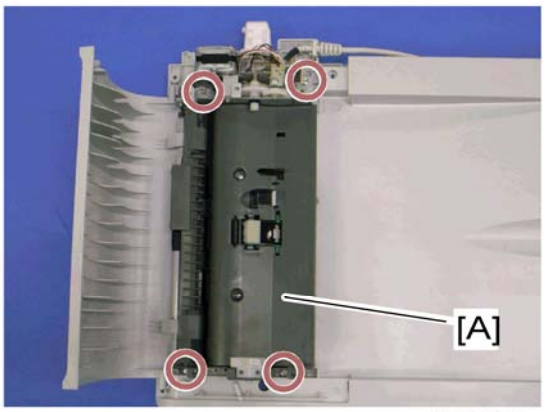


g165r666

4. ADF top cover [A] (tabs x 2)

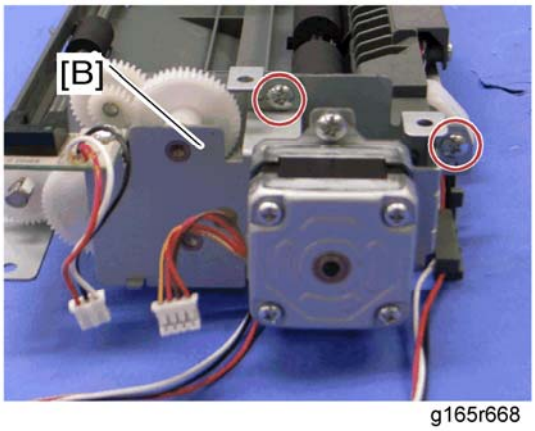
4.12.8 ADF MOTOR

1. ADF unit (☛ p.4-79)
2. Original Tray (☛ p.4-80)
3. ADF feed unit (☛ p.4-81)
4. ADF front cover (☛ p.4-82)
5. ADF rear cover (☛ p.4-82)



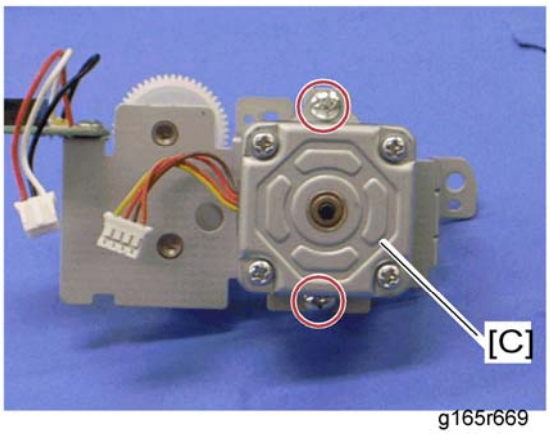
g165r667

6. ADF drive unit [A] (x 4, all s)



g165r668

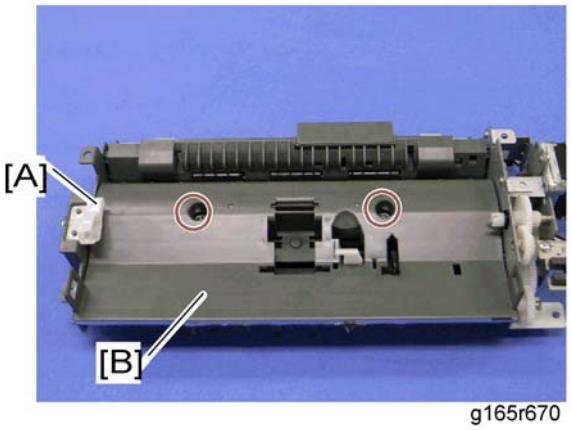
7. ADF motor assembly [B] (x 2)



8. ADF motor [C] (x 2)

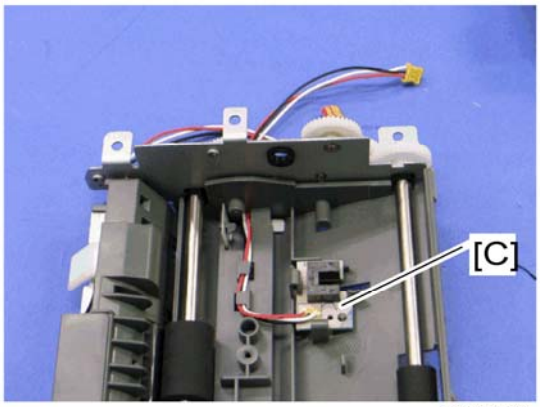
4.12.9 ORIGINAL SET SENSOR

1. ADF unit (☛ p.4-79)
2. ADF feed unit (☛ p.4-81)
3. ADF motor assembly (☛ p.4-84)



g165r670

4. Feed roller holder [A] (x 1)
5. Upper guide [B] (x 2)

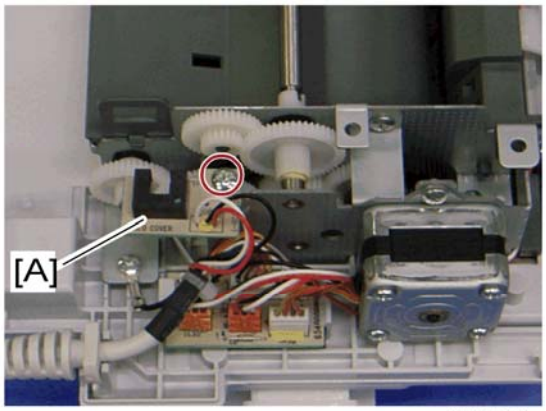


g165r671

6. Original set sensor [C] (hooks x 3)

4.12.10 ADF COVER OPEN SENSOR

1. Original tray (☛ p.4-80)
2. ADF rear cover (☛ p.4-82)

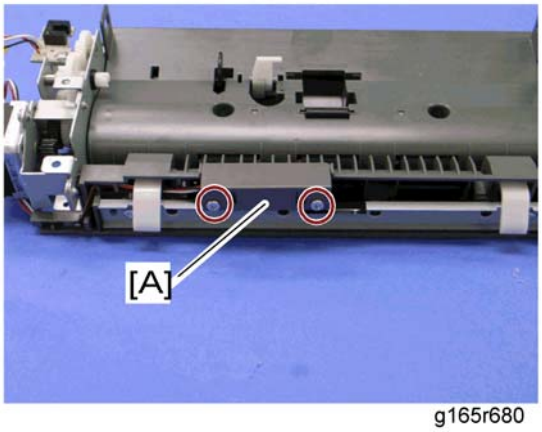


g165r679

3. ADF cover open sensor (x 1, x 1)

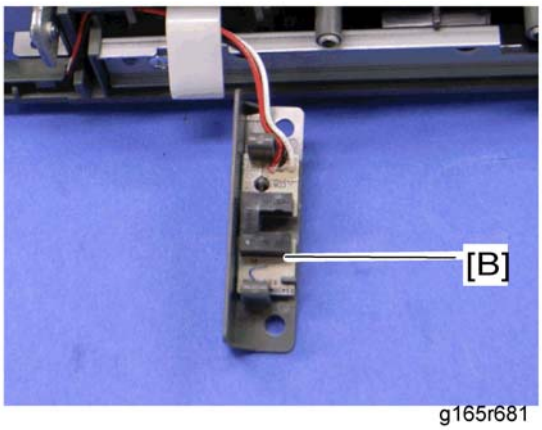
4.12.11 ADF FEED SENSOR

1. ADF unit (☛ p.4-79)
2. ADF feed unit (☛ p.4-81)



g165r680

3. Sensor cover [A] (x 2)

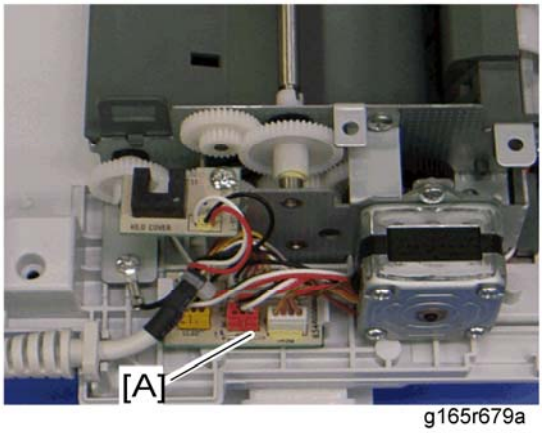


g165r681

4. ADF feed sensor [B] (hooks x 2)

4.12.12 ADF DRIVE BOARD

1. Original tray (☛ p.4-80)
2. ADF rear cover (☛ p.4-82)



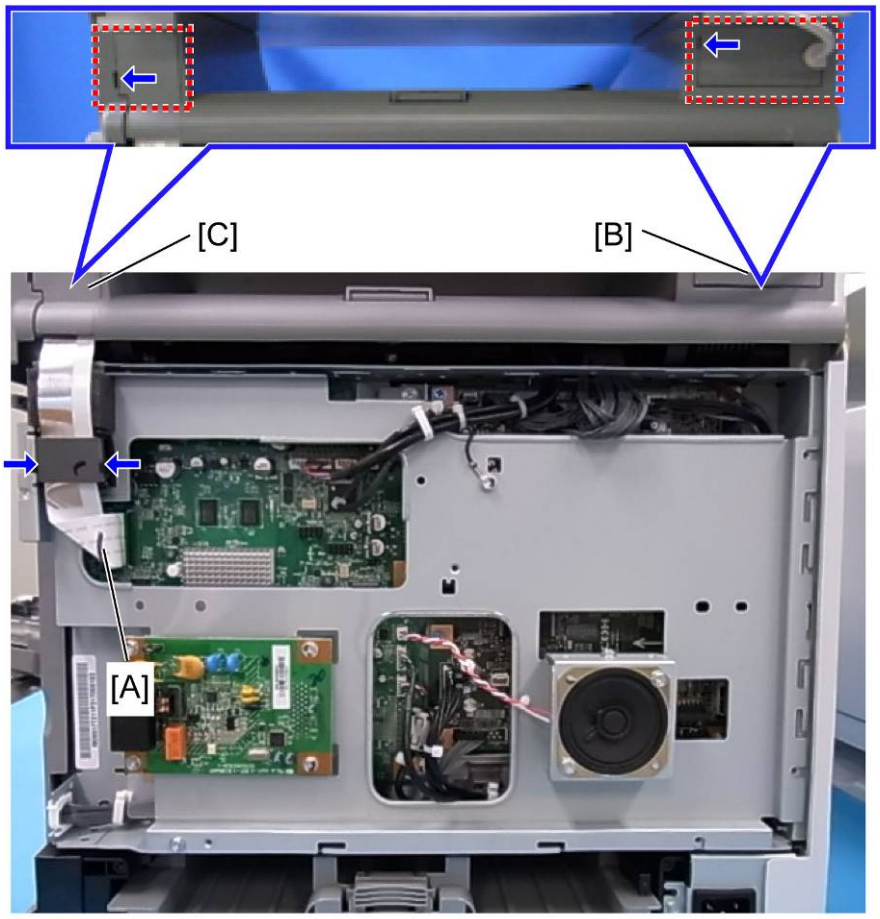
g165r679a

3. ADF drive board [A] (all s, hooks x 2)

4.13 SCANNER (ONLY FOR MF MODELS)

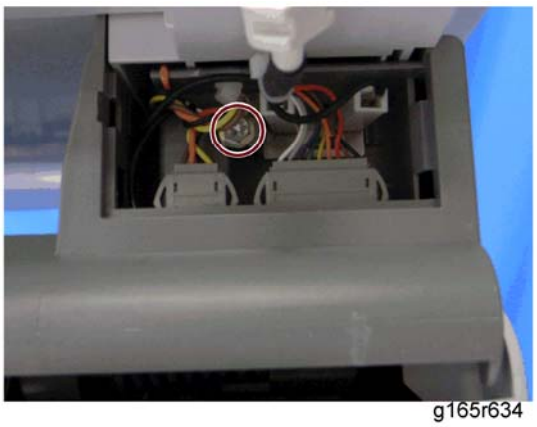
4.13.1 SCANNER UNIT

1. Controller box cover (☛ p.4-54)



m0990012

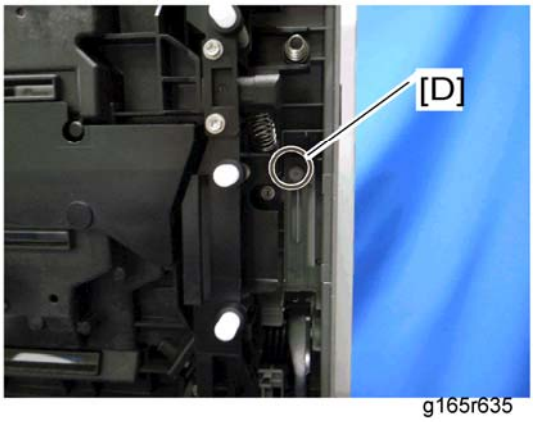
2. Disconnect the flat cable with the ferrite core [A] (x 1, hooks x 2).
3. Stand left cover [B] and right cover [C] (hook x 1 each)



g165r634

4. Disconnect the scanner harness, power cord and ground cable (and the ADF harness and power cord if the ADF is installed in the scanner unit) (x 1).

5. Open the top cover of the machine.



g165r635

6. Remove the stepped screw [D].

g165r636

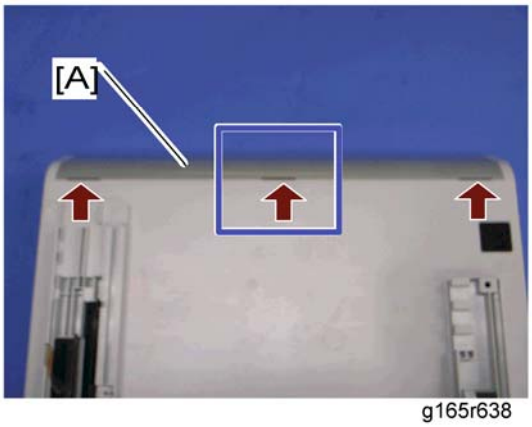
7. Push the lock button [E] and slide the scanner unit to the rear side.
8. ADF unit (☛ p.4-79)


g165r637

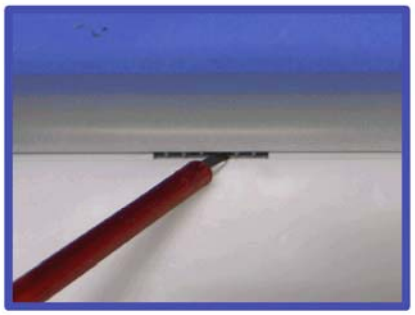
9. Scanner unit

4.13.2 SCANNER TOP COVER

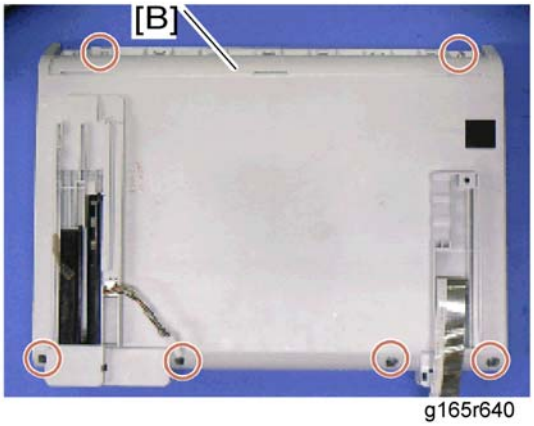
1. Scanner unit (☛ p.4-90)



g165r638

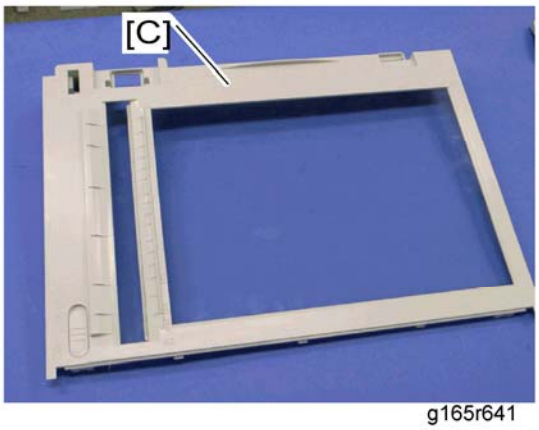

g165r639

2. Turn over the scanner unit.
3. Scanner front cover [A] (tabs x 3)



g165r640

4. Remove the six screws at the bottom of the scanner base [B].

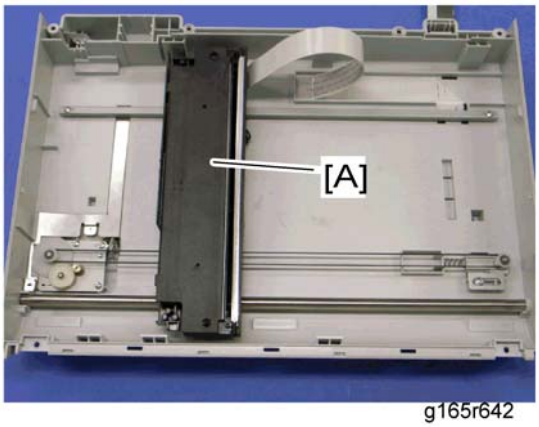


g165r641

5. Scanner top cover [C]

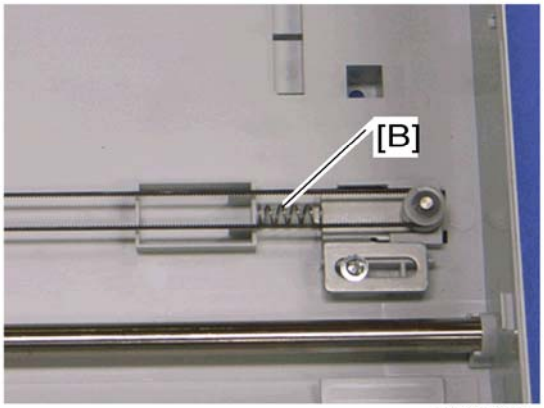
4.13.3 SCANNER CARRIAGE UNIT

1. Scanner unit (☛ p.4-90)
2. Scanner top cover (☛ p.4-92)



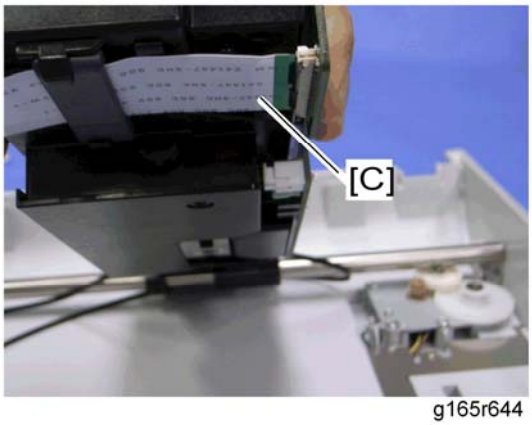
g165r642

3. Slide the scanner carriage unit [A] to the right side.



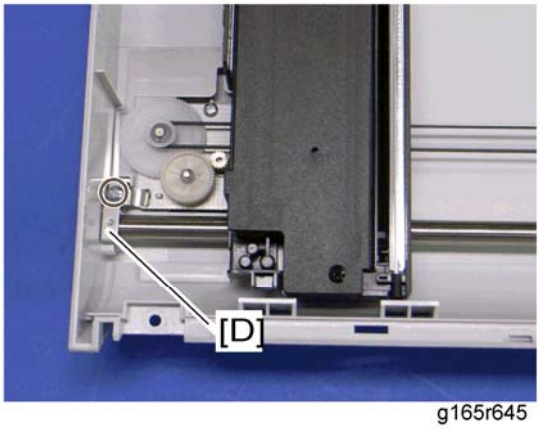
g165r643

4. Remove the timing belt tension spring [B]



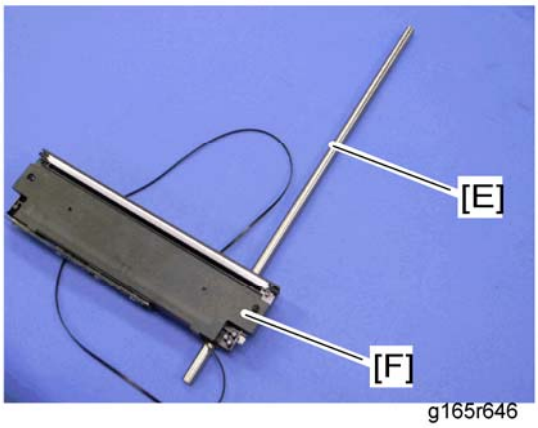
g165r644

5. Remove the flat cable [C] from the scanner carriage unit.



g165r645

6. Bar holder [D] (x 1)

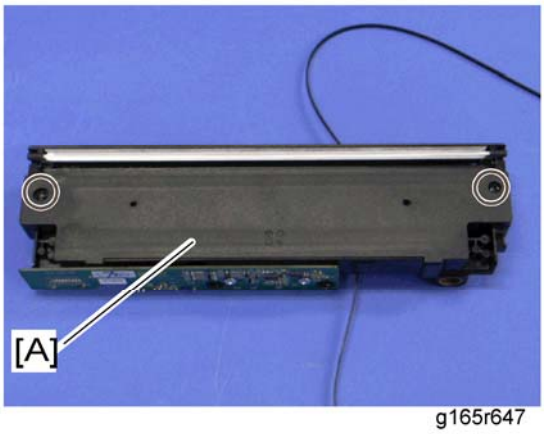


g165r646

7. Carriage bar [E] and scanner carriage unit [F]

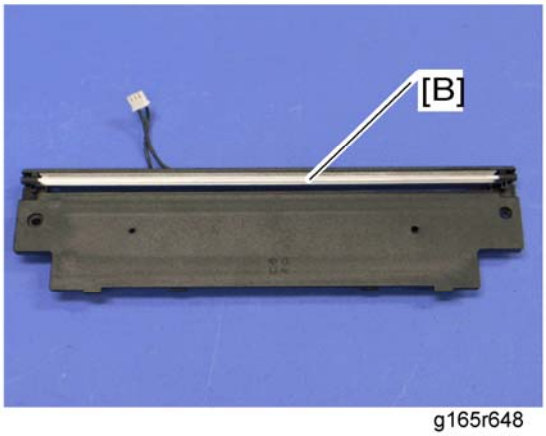
4.13.4 EXPOSURE LAMP

1. Scanner carriage unit (☛ p.4-93)



g165r647

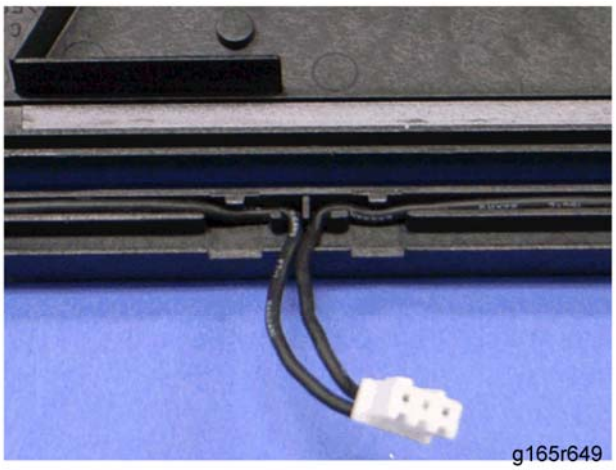
2. Carriage top cover [A] (x 2, x 1)



g165r648

3. Exposure lamp [B] (hooks x 2)

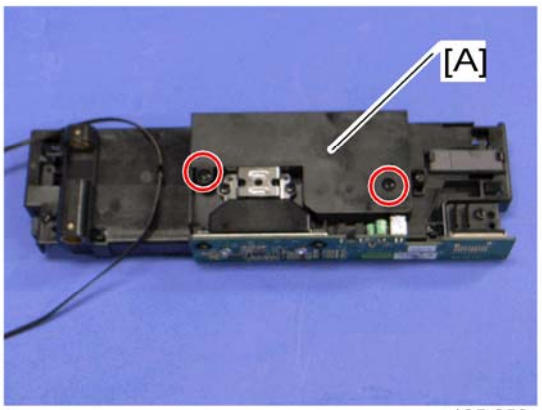
When reinstalling the exposure lamp



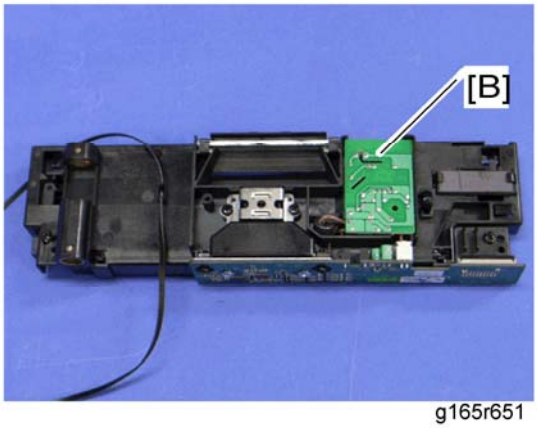
Wire the lamp cords as shown above. Otherwise, the top cover pinches the lamp cords and damages them when reinstalling the top cover on the scanner carriage unit.

4.13.5 LAMP STABILIZER BOARD

1. Scanner carriage unit (☛ p.4-93)



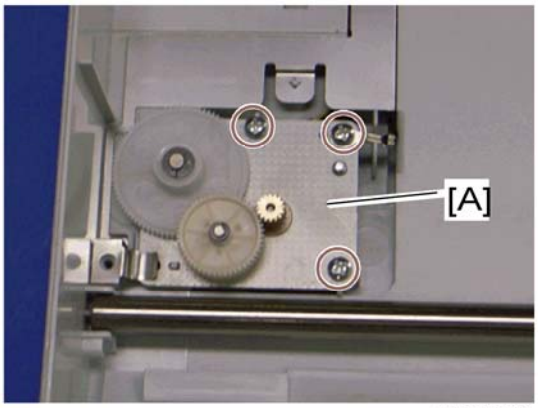
2. Carriage bottom cover [A] (x 2)



3. Lamp stabilizer [B] (x 1)

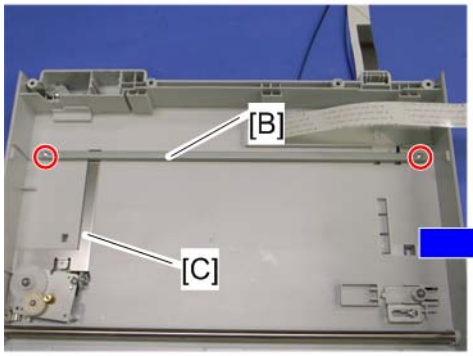
4.13.6 SCANNER MOTOR

1. Scanner carriage unit (☛ p.4-93)

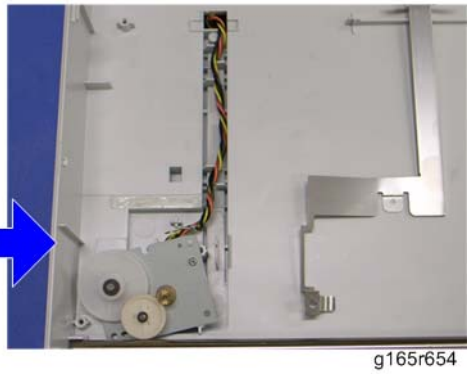


g165r652

2. Scanner motor [A] (x 3)



g165r653


g165r654

3. Carriage rail [B] (x 2)
4. Ground plate [C] (double-sided tape)
5. Scanner motor

SYSTEM MAINTENANCE REFERENCE

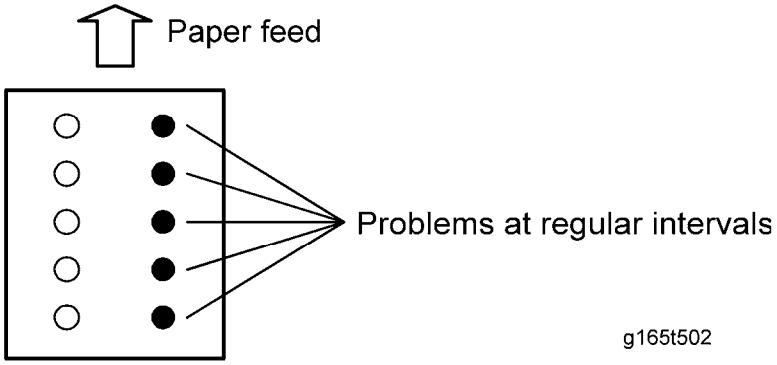
REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
		None

5. SYSTEM MAINTENANCE REFERENCE

5.1 IMAGE PROBLEMS

5.1.1 OVERVIEW

Image problems may appear at regular intervals that depend on the circumference of certain components. The following diagram shows the possible symptoms (black or white dots at regular intervals).



- Abnormal image at 23.5 mm intervals: Paper feed roller.
- Abnormal image at 59 mm intervals: Paper transfer roller
- Abnormal image at 25 mm intervals: Image transfer belt unit (Transfer roller)
- Abnormal image at 30 mm intervals: Charge roller.
- Abnormal image at 38 mm intervals: Registration roller
- Colored spots at 27 mm intervals: AIO cartridge (Development roller)
- Abnormal image at 61 mm intervals: Image transfer belt unit (Drive roller)
- Colored spots at 76 mm intervals: AIO cartridge (OPC drum)
- Abnormal image at 95 mm intervals: Fusing unit (Pressure roller)
- Abnormal image at 76 mm intervals: Fusing unit (Heat roller)

5.1.2 IMAGE PROBLEM

Print out a “maintenance page” (all K, C, M, or Y), which will clarify if the cause is a problem with one of the AIOs, Image transfer belt, image transfer roller, or the fusing unit (☛ p.5-37).

- Occurs with 1-3 colors: AIO unit(s) failure
- Occurs with all four colors: Image transfer belt, transfer roller or fusing unit failure

5.2 ERROR CODES

5.2.1 OVERVIEW

The error codes will be displayed on the LCD if the machine has a problem. These can be recovered by a customer.

5.2.2 ERROR CODES LIST

000	Cover Open
	The front or top cover is open.
	1. Close the front or top cover. 2. Replace the interlock switches or actuator mechanism.

010	AIO Set Error (Black)
011	AIO Set Error (Magenta)
012	AIO Set Error (Cyan)
013	AIO Set Error (Yellow)
	▪ Black AIO not set ▪ Defective connection of the ID chip terminal on the black AIO
	1. Install the AIO (black, magenta, cyan or yellow). 2. Reinstall or replace the AIO (black, magenta, cyan or yellow).

014	Waste Toner Bottle Set Error
	▪ Waste toner bottle not set ▪ Disconnected or defective harness of the waste toner bottle set sensor ▪ Defective waste toner bottle set sensor
	1. Install the waste toner bottle. 2. Check or replace the harness of the waste toner bottle set sensor. 3. Replace the waste toner bottle set sensor.

030	Tray/Paper Selection Error
	▪ No paper in the tray or tray not set in the machine ▪ Paper size requested by the job does not match the paper in the tray
	1. Install the tray or put the correct size paper in the tray. 2. Check the paper setting in the user menu mode.

031	Paper Selection Error: Feed and Exit
	▪ Paper size requested by the job does not match the paper in the tray ▪ Selection error for the paper feed and paper exit location in duplex mode
	Check the paper feed and exit location in the user menu mode.

050	Jam Error: No Feed from Tray 1
	▪ Paper slipped
	Remove the paper jam at tray 1.

052	Jam Error: No Feed from Optional Tray
	▪ Paper slipped
	Remove the paper jam at the optional tray (Tray 2).

055	Inner Jam Error: Registration/ Paper Exit
	A sheet of paper stays at the registration sensor or paper exit sensor. ▪ Paper slipped ▪ Paper double feed
	Remove the paper jam at the registration sensor or paper exit sensor.

056	Paper Exit Jam Error: Paper Exit/ Fusing Unit
	A sheet of paper stays at the paper exit sensor or winds around the rollers in the fusing unit. ▪ Paper slipped ▪ A sheet of paper is wound around the rollers in the fusing unit
	Remove the paper jam at the paper exit sensor or in the fusing unit.

070	Printing Error: No Paper
	▪ No paper in the tray
	Put paper in the tray.

080	Toner Near End: Black AIO
081	Toner End: Black AIO
	▪ Black toner near-end or end
	Replace the black AIO.

082	Toner Near End: Magenta AIO
083	Toner End: Magenta AIO
	▪ Magenta toner near-end or end
	Replace the magenta AIO.

084	Toner Near End: Cyan AIO
085	Toner End: Cyan AIO
	▪ Cyan toner near-end or end
	Replace the Cyan AIO.

086	Toner Near End: Yellow AIO
087	Toner End: Yellow AIO
	▪ Yellow toner near-end or end
	Replace the yellow AIO.

088	Waste Toner Bottle: Near Full
089	Waste Toner Bottle: Full
	▪ Waste toner bottle near-full or full
	Replace the waste toner bottle.

999	Color Registration (MUSIC) Error
	▪ Color registration (MUSIC) failure
	This error is not displayed even if this error occurs. It is just logged. This error is automatically recovered after the color registration (MUSIC) has been done successfully.

5.3 SERVICE CALL CONDITIONS

5.3.1 SUMMARY

This machine issues an SC (Service Call) code if an error occurs on the machine. The error code can be seen on the operation panel.

Make sure that you understand the following points;

1. All SCs are logged.
2. At first, always turn the main switch off and on if an SC code is issued.
3. First, disconnect then reconnect the connectors before you replace the PCBs, if the problem concerns electrical circuit boards.
4. First, check the mechanical load before you replace motors or sensors, if the problem concerns a motor lock.
5. Fusing related SCs: To prevent damage to the machine, the main machine cannot be operated until the fusing related SC has been reset by a service representative.
   - Enter the engine maintenance mode.
   - Press "O.K" in "Fuser SC Reset" with engine maintenance mode, and then turn the main power switch off and on.

5.3.2 ENGINE SC

SC 1xx (Other Error)

195	Serial Number Error
	The serial number stored in the memory (EGB) is not correct.
	▪ EEPROM defective ▪ EGB replaced without original EEPROM 1. Check the serial number. 2. If the stored serial number is incorrect, contact your supervisor.

SC 2xx (Laser Optics Error)

202	Polygon motor error 1: ON timeout
	The polygon mirror motor does not reach the targeted operating speed within 5 sec. after turning on or changing speed.
203	Polygon motor error 2: OFF timeout
	The polygon mirror motor does not leave the READY status within 3 sec. after the polygon motor switched off.
204	Polygon motor error 3: XSCRDY signal error
	The SCRDY_N signal remains HIGH for 200 ms while the LD unit is firing.
	▪ Polygon motor/driver board harness loose or disconnected ▪ Polygon motor/driver board defective ▪ Laser optics unit defective ▪ IPU (EGB) defective 1. Replace the interface harness of the laser optics unit. 2. Replace the laser optics unit. 3. Replace the EGB (Engine Board).

220	Laser Synchronizing Detection Error: [K]/[Y]
	The laser synchronizing detection signal for LDB [K]/[Y] is not output after the LDB unit has turned on while the polygon motor is rotating normally.
222	Laser Synchronizing Detection Error: [M]/[C]
	The laser synchronizing detection signal for LDB [M]/[C] is not output after the LDB unit has turned on while the polygon motor is rotating normally.
	▪ Disconnected cable from the laser synchronizing detection unit or defective connection ▪ Defective laser synchronizing detector ▪ Defective LDB ▪ Defective EGB 1. Check the connectors. 2. Replace the laser optics unit. 3. Replace the EGB.

240	LD error
	The IPU (EGB) detects a problem at the LD unit.
	▪ Worn-out LD ▪ Disconnected or broken harness of the LD. 1. Replace the laser optics unit.

SC 3xx (Charge Error)

300	High voltage power output error
	The measured voltage is not correct when the EGB measures each charge output (charge, development, image transfer belt unit, and transfer unit).
	▪ Disconnected or defective high voltage harness ▪ Defective high voltage power supply ▪ Defective EGB 1. Check or replace the harnesses. 2. Replace the high voltage power supply board 3. Replace the EGB.

396	Black drum motor error
	The LOCK signal error is detected when the EGB monitors the black drum motor state. (This monitoring is done immediately after power-on, when the motor starts rotating, and immediately after the motor stops.)
	▪ Disconnected or defective motor harness. ▪ Motor slips due to excessive load 1. Check the harness from the black drum motor. Replace it if necessary.
397	Color drum motor error
	The LOCK signal error is detected when the EGB monitors the color drum motor state. (This monitoring is done immediately after power-on, when the motor starts rotating, and immediately after the motor stops.)
	▪ Disconnected or defective motor harness. ▪ Motor slips due to excessive load 1. Check the harness from the color drum motor. Replace it if necessary.

SC 4xx (Image Transfer and Transfer Error)

400	TM sensor error
	The CPU detected a low voltage of the positive reflection output under the threshold in the TM sensor.
	▪ TM sensors are dirty. ▪ A solid print out due to an electrostatic charging error ▪ The TM sensor is defective. 1. Clean the TM sensors. 2. Replace the TM sensors. 3. Check the image transfer unit. 4. Turn the power Off and On.
445	ITB (Image Transfer Belt) Unit: Home Position Error
	The ITB contact sensor does not detect the home position of the ITB for 5 seconds after the ITB unit initialization has been done.
	ITB (Image Transfer Belt) Unit: Contact Position Error
	The ITB contact sensor does not detect the contact position of the ITB for 5 seconds after the ITB unit has moved to the contact position.
	ITB (Image Transfer Belt) Unit: No-contact Position Error
	The ITB contact sensor does not detect the home position of the ITB for 5 seconds after the ITB unit has moved to no-contact position.
	▪ Defective ITB contact motor ▪ Defective ITB contact sensor ▪ Defective ITB unit 1. Replace the ITB contact motor. 2. Replace the ITB contact sensor. 3. Replace the ITB unit.

480	Agitator Motor Error
	The agitator motor error is detected twice for 10 msec during the initialization at power-on or after the cover is closed.
	▪ Disconnected or defective harness ▪ Defective agitator motor 1. Check or replace the harness. 2. Replace the agitator motor.

490	ITB (Image Transfer Belt) Unit Set Error
	The TM sensor does not detect the reflection from the ITB.
	▪ No ITB unit in the machine ▪ Dirty TM sensor 1. Check the installation of the ITB unit. 2. Clean the TM sensor.

SC 5xx (Motor and Fusing Error)

500	Transport/Fusing Motor Error
	The LOCK signal error is detected when the EGB monitors the transport/fusing motor state. (This monitoring is done immediately after power-on, when the motor starts rotating, and immediately after the motor stops.)
	▪ Disconnected or defective motor harness. ▪ Motor slips due to excessive load 1. Check the harness from the transport/fusing motor. Replace it if necessary.

530	LSU Fan Motor Error
	A LOCK signal is not detected for more than ten seconds while the motor START signal is on and if this error occurs twice consecutively, this SC is issued.
	▪ Disconnected or defective motor harness. ▪ Defective LSU fan motor 1. Check or replace the motor harness. 2. Replace the LSU fan motor.

531	Fusing Fan Motor Error
	A LOCK signal is not detected for more than ten seconds while the motor START signal is on and if this error occurs twice consecutively, this SC is issued.
	▪ Disconnected or defective motor harness. ▪ Defective LSU fan motor 1. Check or replace the motor harness. 2. Replace the fusing fan motor.

541	Thermistor Error
	The thermistor output is less than 0°C for 7 seconds.
	▪ Disconnected thermistor ▪ Defective harness connection 1. Check the harness connection of the thermistor. 2. Replace the fusing unit. Important ▪ Execute "Engine Maintenance Menu" to recover the machine after completing the recovery procedure. Otherwise, the machine continues to issue this SC code and cannot be operated.

542	Print Ready Temperature Error
	▪ The heating roller temperature increase during a set time is not correct. ▪ The fusing temperature does not reach the print ready temperature within a set time after the fusing lamp has turned on.
	▪ Defective thermistor ▪ Incorrect power supply input at the main power socket ▪ Defective fusing lamp 1. Check the voltage of the wall outlet. 2. Replace the fusing unit 3. Replace the fusing lamp. Important ▪ Execute "Engine Maintenance Menu" to recover the machine after completing the recovery procedure. Otherwise, the machine continues to issue this SC code and cannot be operated.

543	High Temperature Detection Error
	This SC is issued if one of following conditions occurs: ▪ The thermistor (center) detects 255°C or thermistor (end) detects 245°C. ▪ The thermistor (center) detects a 3°C increment or more for five seconds at 220°C or more or the thermistor (end) detects a 4°C increment or more for five seconds at 210°C or more.
	▪ Defective I/O control (EGB) ▪ Defective EGB 1. Replace the EGB Important ▪ Execute "Engine Maintenance Menu" to recover the machine after completing the recovery procedure. Otherwise, the machine continues to issue this SC code and cannot be operated.

545	Heating Lamp Full-Power Error
	The fusing lamp is fully-powered for a certain time while the fusing unit stays in the stand-by mode and is not rotating.
	▪ Deformed thermistor ▪ Thermistor not in the correct position ▪ Defective fusing lamp 1. Replace the fusing unit. 2. Replace the fusing lamp. Important ▪ Execute "Engine Maintenance Menu" to recover the machine after completing the recovery procedure. Otherwise, the machine continues to issue this SC code and cannot be operated.

547	Zero Cross Error
	The zero cross signal is not detected for three seconds even though the fusing lamp relay is on after turning on the main power or closing the front door.
	▪ Defective fusing lamp relay 1. Turn the main power switch off and on. Important ▪ Execute "Engine Maintenance Menu" to recover the machine after completing the recovery procedure. Otherwise, the machine continues to issue this SC code and cannot be operated. The power should be turned off and on after the recovery procedure.

548	Low Temperature Error
	The center thermistor detects 100°C or less for 4 seconds.
	▪ Defective fusing lamp ▪ Defective thermistor 1. Replace the fusing unit. 2. Replace the fusing lamp. Important ▪ Execute "Engine Maintenance Menu" to recover the machine after completing the recovery procedure. Otherwise, the machine continues to issue this SC code and cannot be operated.

557	Zero Cross Frequency Error
	The detection error occurs ten times consecutively in ten zero cross signal detections. This error is defined when the detected zero cross signal is 17 or less/27 or more for 0.2 seconds.
	▪ Defective fusing lamp relay ▪ Unstable input power source 1. Check the power supply source. 2. Replace the fusing unit. 3. Turn the main power switch off and on. Important ▪ Execute "Engine Maintenance Menu" to recover the machine after completing the recovery procedure. Otherwise, the machine continues to issue this SC code and cannot be operated. The power should be turned off and on after the recovery procedure.

559	Consecutive Fusing Jam
	The paper jam counter for the fusing unit reaches 3. The paper jam counter is cleared if the paper is fed correctly. This SC is activated only when this function is enabled with "Engine Maintenance" (default "OFF").
	▪ Defective fusing unit ▪ Defective fusing control 1. Clear this SC to send a command after a jam removal. 2. Turn off this function after a jam removal. Important ▪ Execute "Engine Maintenance Menu" to recover the machine after completing the recovery procedure. Otherwise, the machine continues to issue this SC code and cannot be operated.

SC 6xx (Communication and Other Error)

669	EEPROM Error
	An unexpected value exists in the initialization flag of the EEPROM
	▪ EEPROM not initialized ▪ Defective EEPROM 1. Initialize the EEPROM. 2. Replace the EEPROM. 3. Replace the EGB.

690	GAVD Communication Error
	The ID of the GAVD is not identified during initialization.
	The chip ID of the GAVD cannot be detected by the machine at power-on.
	▪ Defective EGB 1. Replace the EGB.

5.3.3 CONTROLLER SC

SC8xx

819	Service Cycle Power
	▪ Incorrect combination of EGB and controller board. ▪ An unexpected error occurs in the EEPROM on the controller board.
	▪ Controller board defective 1. Install the correct EGB and controller boards for this machine. 2. Replace the controller board

823	USB/ Network Device Error
	An interface error in the USB connection or NIB connection occurs.
	▪ Controller board detective 1. Replace the controller board.

824	EEPROM Error
	An EEPROM check error at power-on occurs.
	▪ Controller board detective 1. Replace the controller board.

827	On-Board Memory Check Error
	An on-board memory check error at power-on occurs.
	▪ Controller board detective 1. Replace the controller board.

828	ROM Checksum Error
	A ROM checksum error at power-on occurs.
	1. Replace the controller board.

5.4 SERVICE MENU

5.4.1 OVERVIEW

These models have several service menus. Each service menu has several adjustment items. This section explains how to enter each service menu and what you can do in each service menu.

Each menu is classified into two "Modes" depending on how you enter the service menus.

- "Menu Mode" can be executed by pushing a sequence of keys.
- "Special Mode" can be executed if you press certain keys at the same time as you turn the power on.

Note

- This service manual is a combined manual for the MF Model and the Printer Model. Therefore, the order of some service menus is different from the actual one in the Printer model.

Each menu is classified as follows:

Menu Mode	
Maintenance Mode Menu	This is a menu for maintenance and service.
Special Mode	
Factory Default Settings Menu	This is a menu for initializing all information stored in the controller, except for some counters. ▪ These counters are initialized: Print/Scan/Copy/Fax functional Counter, Jam Counter ▪ These counters are not initialized: Printer/Scanner Engine Counter, which are printed in the "Configuration Page". After initializing with this menu, when the user powers on the machine, the Initial Setup Menu appears. The user must select Language in Country in this menu.
Fax Service Test Menu (only for MF models)	This is a menu for checking the fax mode.

5.4.2 MAINTENANCE MODE MENU

Menu List

Display Info		
Model Name		Displays the Model Name, Depends on Engine Firmware Settings
FW Version	CTL FW Version	Displays the Firmware Version
	FAX FW Version	Displays the Facsimile Firmware Version. (M099 doesn't support this)
	Engine FW Version	Displays the Engine Firmware Version
	PDL FW Version	Displays the PDL Firmware Version. (only for M096/M100)
Counter	Printer Counter	Displays the following counters of the printer engine. Total Page/ Color Image/ Black Image
	Scanner Counter	Displays the sum total of scanner counters for each mode. Total Page/ Black Page/ Color Page / ADF Used
	Jam Counter	Displays the number of paper jams at each location. Total/ ADF/ Printer Output Bin/ Internal/ Tray1 / Tray2
	Coverage	Displays the number of paper misfeeds with tray 1 or tray 2. Coverage1 (Tray 1)/ Coverage2 (Tray2)

Print Reports	
G3 Protocol dump list	G3 protocol dump of the latest communication is printed. (M099 doesn't support this) Off (Default)/ Error/ On

Engine Maintenance		
Toner Limit	Text	Determines the maximum amount of ink/toner you can use in any area of your text. This is where you are controlling exactly how much ink will be used during printing. [200 to 400 / 250 (Default)/ 10/step] Setting 0: Off
	Graphic	Determines the maximum amount of ink/toner you can use in any area of your graphic. This is where you are controlling exactly how much ink will be used during printing. [200 to 400 / 250 (Default)/ 10/step] Setting 0: Off
	Image	Determines the maximum amount of ink/toner you can use in any area of your image. This is where you are controlling exactly how much ink will be used during printing. [200 to 400 / 250 (Default)/ 10/step] Setting 0: Off
P_NP Name	NA Model: RICOH/ 'nul' EU Model: RICOH/ NRG/ LANIER ASIA Model: RICOH/ LANIER China Model: RICOH	

Destination	Sets the destination and updates the engine setting. DOM/ NA (Default)/ EU/ CHIN/ TAIWAN/ ASIA	
2nd Transfer Fuser Temp.	Media Type	Sets the Media type. Thin Paper / Thick Paper / Plain Paper1 / Plain Paper2 / Recycled / Color / Letterhead / Preprinted / Prepunched / Label Paper / Bond Paper / Cardstock / Envelope / Thick Post / Thinner Paper
	2nd Transfer Front	Adjusts the transfer roller current, based on the default value. [-15 to 15 / 0 (Default) / 1μA/step]
	2nd Transfer Back	Adjusts the transfer roller current, based on the default value. [-15 to 15 / 0 (Default) / 1μA/step]
	Fuser Temperature	Adjusts the temperature of the fusing unit, based on the default value. [-30 to 0 / 0 (Default) / 2°C/step]
Registration	Horiz. Tray1	Adjusts the horizontal registration for tray 1. If the machine settings are reset to the factory defaults, this value does not change. [-15 to 15 / 0 (Default) / 1 mm/step]
	Vert.Tray1	Adjusts the vertical registration for tray 1. If the machine settings are reset to the factory defaults, this value does not change. [-15 to 15 / 0 (Default) / 1 mm/step]
	Horiz.Tray2	Adjusts the horizontal registration for tray 2. If the machine settings are reset to the factory defaults, this value does not change. [-15 to 15 / 0 (Default) / 1 mm/step]
	Vert.Tray2	Adjusts the vertical registration for tray 2. If the machine settings are reset to the factory defaults, this value does not change. [-15 to 15 / 0 (Default) / 1 mm/step]

	Horiz Bypass Tray	Adjusts the horizontal registration for the bypass tray. If the machine settings are reset to the factory defaults, this value does not change. [-15 to 15 / 0 (Default) / 1 mm/step]
	Vert Bypass Tray	Adjusts the vertical registration for the bypass tray. If the machine settings are reset to the factory defaults, this value does not change. [-15 to 15 / 0 (Default) / 1 mm/step]
	Horiz.Dup Back	Adjusts the horizontal registration for the back side in duplex mode. If the machine settings are reset to the factory defaults, this value does not change. [-15 to 15 / 0 (Default) / 1 mm/step]
	Vert.Dup Back	Adjusts the vertical registration for the back side in duplex mode. If the machine settings are reset to the factory defaults, this value does not change. [-15 to 15 / 0 (Default) / 1 mm/step]
Init Engine EEPROM	This clears all counters except "Full Color" and "Black and White" in the total counter. When you execute "Init Engine EEPROM", the engine EEPROM is initialized. Turn the machine power off/on after you change this setting.	
Model	Displays only PE-P2a / MF3a PE-P2c / MF3c Displays the current model in a dropdown list. Do not change this setting (Designed for Factory Use).	
Brand ID	00* – 7F Displays the current brand ID number. Do not change this setting (Designed for Factory Use).	
Maintenance ID	00* – 7F Displays the current maintenance ID number. Do not change this setting (Designed for Factory Use).	

LSU Adjustment	Input 160 bytes setting.	Character: alphanumeric "0-9", "a-f", "A-F", only valid data can be input. Input length: 160 bytes
Trans. Belt Adjust	When you execute "Trans. Belt Adjust", the transfer belt adjustment is done. This calibrates the motor speed to match the length of the new transfer belt.	
Fuser SC Detect	On/Off*	If On, the engine detects SC559. If Off, the engine does not detect "Fusing SC Reset".
Color Registration	The engine will do color registration and density tuning automatically. The printer will warm up automatically after this setting is changed.	
Reset Transfer Unit	Resets the transfer unit life counter.	
Reset Fuser Unit	Resets the fusing unit life counter.	
Fuser SC Reset	Resets the Fusing related SC.	
Reset 2nd Transfer unit	Resets the 2nd transfer unit (transfer roller) life counter.	
Special Mode	**DFU**	
Reset Count (only for Printer Models)	Resets counters to factory defaults.	
Clear log (only for Printer Models)	Clears the error and the jam counter logs.	

Economy Color Print	Tentative Density	Sets the tentative density of each mode. Text: 100 / 50 / 30 (Default: 100) Image: 100 / 50 / 30 (Default: 50) Graphic:100 / 50 / 30 (Default: 30)
	Conversion Mode	Sets the conversion mode for the economy color print. No: No conversion is executed. Color Up Mode: Converts into economy color. The image density is decreased. B&W Up Mode: Converts into Economy Black and white.
PM Parts Rep Notice	Sets whether to display the PM parts replacement notice and whether to stop the engine.	
	0	At near end: No Notice / Not Stopped
		At life end: Notice “Replace Now” / Not Stopped
	1	At near end: No Notice / Not Stopped
		At life end: No Notice / Not Stopped
	2 (default)	At near end: Notice / Not Stopped
		At life end: Notice “Replace Now” / Not Stopped
	3	At near end: Notice “Replace Soon” / Not Stopped
		At life end: Notice “Replace Now” / Stopped

Scan Maintenance (only for MF models)		
Mono Compression Setting	Sets the monochrome compression type for scanning. MH (Default)/ MR/ MMR	
Registration Adjust	ADF Main Reg.	Adjusts the ADF Scan main-scan registration. [-2.0 to 2.0 / 0 (Default)/ 0.1 %/step]
	ADF Sub Reg.	Adjusts the ADF Scan sub-scan registration. [-2.0 to 2.0 / 0 (Default)/ 0.1 %/step]
	Flatbed Main Reg.	Adjusts the Flatbed Scan main-scan registration. [-2.0 to 2.0 / 0 (Default)/ 0.1 %/step]
	Flatbed Sub Reg.	Adjusts the Flatbed Scan sub-scan registration. [-2.0 to 2.0 / 0 (Default)/ 0.1 %/step]
Size Adjust	ADF Main Reg.	Adjusts the ADF Scan main-scan magnification. [-0.9 to 0.9 / 0 (Default)/ 0.1 %/step]
	ADF Sub Reg.	Adjusts the ADF Scan sub-scan magnification. [-0.9 to 0.9 / 0 (Default)/ 0.1 %/step]
	Flatbed Main Reg.	Adjusts the Flatbed Scan main-scan magnification. [-0.9 to 0.9 / 0 (Default)/ 0.1 %/step]
	Flatbed Sub Reg.	Adjusts the Flatbed Scan sub-scan magnification. [-0.9 to 0.9 / 0 (Default)/ 0.1 %/step]

Fax Maintenance (only for MF models)		
Modem Settings	RX Level	Sets the reception level. [-43 dBm (Default)/ -33 dBm/ -26 dBm / -16 dBm]
	TX Level	Sets the transmission level. [0 dBm/ -1 dBm/ -2 dBm/ -3 dBm/ -4 dBm / -5 dBm/ -6 dBm/ -7 dBm/ -8 dBm/ -9 dBm / -10 dBm/ -11 dBm/ -12 dBm/ -13 dBm / -14 dBm/ -15 dBm]
	Cable Equalizer	These selectors are used to improve the pass-band characteristics of analogue signals on the telephone line. [0Km (Default)/ 1.8Km/ 3.6Km/ 7.2Km]
Protocol Definition	Training Retries	This sets the number of training retries to be repeated before automatic fallback. [1 Time/ 2 Times (Default)/ 3 Times/ 4 Times]
	Encoding	Sets the compression method for Tx/Rx. [MMR+MR+MH (Default)/ MR+MH/ MH]
Protocol Definition Timer	T0 Timer	Timeout for response from the called station in automatic sending mode [35 Sec/ 45 Sec/ 55 Sec (Default)/ 60 Sec/ 90 Sec/ 140 Sec]
	T1 Timer	Set the time length for the T1 timer. [40 Sec (Default)/ 50 Sec]
	T4 Timer	Set the time length for the T4 timer. [3 Sec (Default/ 4.5 Sec]

RX Settings	Silence Detection Time	Silence (No tone) detection time (Rx mode : FAX/ TAD Only) After the line is connected via the external telephone, the machine can detect silence (no tone) for the time length specified by this setting. [30 sec (Default)]
	CNG Tone Detection Time	CNG tone detection time (RX mode : FAX / TEL, FAX / TAD Only) After the line is connected via the external telephone, the machine can detect a CNG signal for the time length specified by this setting. [5 Sec (Default)/ 10 Sec]
	CNG Cycles	Number of CNG cycles to be detected This setting is only effective for FAX/TAD mode. [1.5 Cycle (Default)/ 2.0 Cycle]
	Tone Sound Monitoring	Determines the period when tones from the line are monitored. [No Monitoring/ Up To Phase B (Default)/ All TX Phases]
	Stop/Clear key	Pressing the Stop/Clear key can stop the current receiving operation. Received data is lost. [Not Functional (Default)/ Functional]
	Off-Hook Level	Sets the off-hook detection threshold. [10V (Default)/ 15V/ 20V/ 25V]
	Off-Hook Detection Period	Sets the Off-Hook detection period. 200 ms (default) 800 ms

TX Settings	Redial Interval	Sets the redial interval when Tx fails. [5 Min/ 6 Min]
	Redialings	Sets the number of redials when Tx fails. [2 times/ 3 Times/ 4 Times/ 5 Times]
Overseas Comm Mode Settings	Overseas Comm Mode	This sets the machine to ignore a DIS signal sent from the called station once in a sending operation. [Off (Default)/ Ignore DIS Once]
	Minimum Time Length	If this setting is set to "On", the machine detects the CNG signal after the line is connected. If it is set to "Off", the machine detects the CNG signal as long as the line is connected. [100 Ms/ 200 Ms/ 300 Ms/ 400 Ms (Default)]
Dial Pulse Setting	Dial Pulse Type	This sets the number of pulses that are generated during dialing. ▪ N: Dialing '0' generates 10 pulses --- Dialing '9' generates 9 pulses. ▪ N+1: Dialing '0' generates 1 pulses --- Dialing '9' generates 10 pulses. ▪ 10-N: Dialing '0' generates 10 pulses --- Dialing '9' generates 1 pulse.
Tone Signal Settings	Tone Signal Transmission Time Length	Sets the tone signal transmission time length [100 ms (Default)]
	Minimum Pause in Tone Dialing	Sets the minimum pause during tone dialing [100 ms (Default)/ 150 ms/ 200 ms]
	Attenuator For Pseudo RingBack tone To the Line	Sets the attenuator for pseudo ringback tone to the line [0 to 15 / 10 (Default)/ 1 dB/step]
	DTMF Level	Sets the transmission level of DTMF tones. [-12 dBu / -11 dBu/ -10 dBu/ -8 dBu/ -6 dBu]

	DTMF Delta	Sets the level difference between high band frequency signals and low band frequency signals when sending DTMF tones. [2 dBu/ 3 dBu]
1Dial Tone Detection	Wait Time	The machine starts dialing after the specified interval without detection of a dial tone when Dial tone detection is set to "No detection". [3.5 Sec (Default)/ 7.0 Sec/ 10.5 Sec / 14.0 Sec]
	Timeout Length	This setting sets the time-out length for the 1st dial tone detection. The machine waits for a dial tone for the specified time and disconnects itself from the line when no dial tone is input. [10 Sec (Default)/ 15 Sec/ 20 Sec/ 30 Sec]
BT (Busy Tone) Detection	BT Setting	**DFU** [Off/ On] BT: Busy tone
	BT Frequency	**DFU** [300-550 Hz/ 300-650 Hz/ 325-525 Hz/ 340-550 Hz/ 350-500 Hz/ 350-550 Hz/ 375-475 Hz/ 380-520 Hz]
	BT Level	**DFU** [-35 dB/ -36 dB/ -37 dB/ -38 dB/ -39 dB]
	BT Cadence	**DFU** [0.10/ 0.15/ 0.20/ 0.25/ 0.30/ 0.35/ 0.40/ 0.45/ 0.50/ 0.75]

Comm Settings	RTN Rate	The machine checks the actual data reconstruction errors and then transmits an RTN depending on the decoding error rate that is set by this setting (Number of lines containing an error per page / Total number of lines per page). [10%/ 15%]
	V34 Modem	**DFU** [Permitted (Default)/ Prohibited]
	V17 Modem	**DFU** [Permitted (Default)/ Prohibited]
V34 Settings	Equalizer	These selectors set the equalizer's training level to be applied if training fails due to poor line connection. [Automatic (Default)/ 4 Points/ 16 Points]
	Redialing	Resend when a communication error occurs. [Disabled (Default)/ Not Disabled]
	First TX Speed	Sets the first transmission speed choice, before fallback. [2400 Bps/ 4800 Bps/ 7200 Bps/ 9600 Bps / 12000 Bps/ 14400 Bps/ 16800 Bps/ 19200 Bps/ 21600 Bps/ 24000 Bps/ 26400 Bps/ 28800 Bps/ 31200 Bps/ 33600 Bps (Default)]
	Symbol Rate	This setting limits the transmission speed range in V.34 mode by masking the desired symbol rate(s). [Not Used (Default)/ 3429 Sym/Sec / 3200 Sym/Sec/ 3000 Sym/Sec / 2800 Sym/Sec/ 2400 Sym/Sec]

Internet Fax Function (only for Pe-MF3c:M100)	Disable/Enable	Decides whether the Internet Fax function is used or not. Default: Enabled
	Reply-To Setting	Sets “Reply-To” in the SMTP authentication. Yes: Sets the e-mail address that is usually set in the “From” field in the “Reply-To” field, and sets the “Administrator e-mail Address” in the “From” field. No: Not set. Default: No
	Prt Rec Txt Mail Header	Selects whether or not to print the header part of E-mail. Default: No

Factory Default	
Not Execute	Does not reset anything. Returns to the upper level.
Execute	Resets all the settings to the factory defaults except the following. ▪ Counter for Machine Life After executing, the initial setup menu starts after the next power-on.

Note

- The "Reseller Default" menu can be entered directly at power-on. If you want to enter this mode directly, try the following procedure.
  - Turn on the machine while pressing the "Copy" key.

5.4.3 FAX SERVICE TEST MENU (ONLY FOR MF MODELS)

Entering the Fax Service Test Menu

Turn on the machine while pressing the "Facsimile" key.

Selecting an Item

To select the item, press the "Up" or "Down" key.

Going into the Next Level/ Returning to the Previous Level

- To go into the next level of an item, select an item then press the "OK" key.
- To return to the previous level of an item, press the "Return" key.

Exiting the Maintenance Mode Menu

To exit the maintenance mode menu, press the "Clear/Stop" or "Return" key until the "Ready" display appears.

Menu List

Fax Test (only for MF models)		
Off-Hook Test	On Hook	Executes the on hook test.
	Off Hook	Executes the off hook test
CED Test		Executes the CED test.
CNG Test	1100 Hz	Executes the CNG test
ANSam		Executes the ANSam test.
Ring Tone Test		Executes the ring tone test.
DTMF Test	Tone [0] to [9]	Executes the DTMF tone 0 to 9 test.
	Tone [*]	Executes the DTMF tone * test.
	Tone [#]	Executes the DTMF tone # test.
	Tone Stop	Executes the Stop DTMF tone test.

Modem Test	[V34] 33600 bps	Generates the [V34] 33600 bps signal.
	[V34] 28800 bps	Generates the [V34] 28800 bps signal.
	[V17] 14400 bps	Generates the [V17] 14400 bps signal.
	[V17] 12000 bps	Generates the [V17] 12000 bps signal.
	[V17] 9600 bps	Generates the [V17] 9600 bps signal.
	[V17] 7200 bps	Generates the [V17] 7200 bps signal.
	[V29] 9600 bps	Generates the [V29] 9600 bps signal.
	[V29] 7200 bps	Generates the [V29] 7200 bps signal.
	[V27] 4800 bps	Generates the [V27] 4800 bps signal.
	[V27] 2400 bps	Generates the [V27] 2400 bps signal.
	[V21] 300 bps	Generates the [V21] 300 bps signal.
	Signal Stop	Generates the Stop signal.

5.5 CONFIGURATION, MAINTENANCE AND TEST PAGE INFORMATION

5.5.1 OVERVIEW

The configuration page, maintenance page and test page for these models have information about the machine's status. Print this sheet as shown below. Check the configuration page, maintenance page or test page when doing machine maintenance.

To Print the Configuration Page from the Machine (Printer models)

Before turning on the machine

1. Hold down the "Stop/Start" key, and then turn on the main switch of the printer with holding down the "Stop/Start" key.
2. Keep holding down the "Stop/Start" key until the "Alert LED" is blinking.

When the machine is power-on

1. Press "Menu" key.
2. Press the "▲" or "▼" key to select "List/Test Print", and then press the "#Enter" key.
3. Press the "#Enter" key at the "Config. Page".

To Print the Test Page from the Machine (only for Printer Models)

Before turning on the machine

1. Hold down the "Job Reset" key, and then turn on the main switch of the printer with holding down the "Job Reset" key.
2. Keep holding down the "Job Reset" key until the "Alert LED" is blinking.

When the machine is power-on

1. Press the "Menu" key.
2. Press the "▲" or "▼" key to select "List/Test Print", and then press the "#Enter" key.
3. Press the "#Enter" key at the "Test Page".

To Print the Maintenance Page (Printer models)

1. Turn on the machine
2. Press the “Menu” key.
3. Press the "▲" or "▼" key to select “List/Test Print”, and press the “OK” key.
4. Press the "▲" or "▼" key to select "Maintenance Pg.", and then press the "OK" key.
5. The maintenance page is printed.

Note

- Press “Escape” to return to the previous menu.

System Maintenance Reference

To Print the Configuration Page/ Maintenance Page (MF models)

1. Turn on the machine.
2. Press the "User Tools" key.
3. Press the "▲" or "▼" key to select "Reports Print", and then press the "OK" key.
4. Press the "▲" or "▼" key to select "Configuration Page" or "Maintenance Page", and then press the "OK" key.
5. The configuration page or maintenance page is printed.

Note

- Press “Escape” to return to the previous menu.

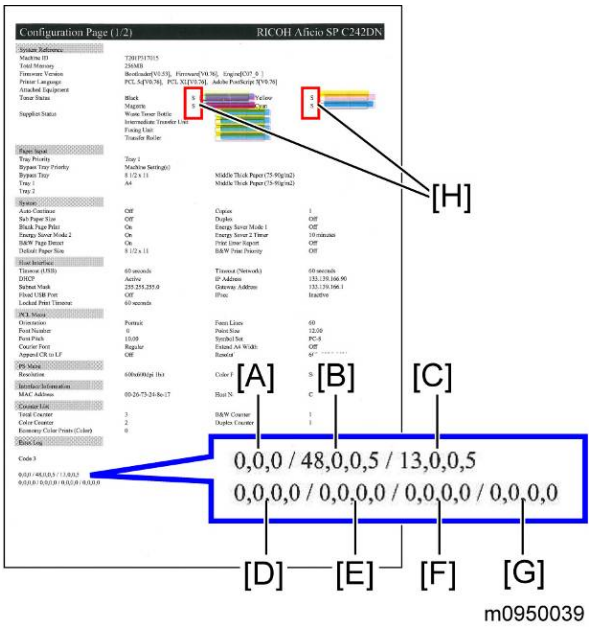
5.5.2 ERROR LOG

The Error Log on the configuration page has the error logs (SC codes) and the following information. However, the following error codes cannot be stored after turning off the machine.

Error Code	Description
Code 3	▪ Paper misfeed ▪ Paper is not detected in the tray. ▪ The loaded paper size does not match the setting. ▪ Some unit(s) is not correctly installed.
Code 4	Print/Data Error
Code 5	A consumable supply has run out
Code 6	Warning; Toner near end, Waste toner bottle near full, TM sensor cleaning, Fusing belt near end or Transfer belt near end
Code 7	Alert; Diagnostic Error

5.5.3 COUNTER AND COVERAGE (ONLY FOR PRINTER MODELS)

Configuration Page



The configuration page for the printer models has the paper jam, coverage and consumed AIO counters in the bottom line, but these counter names are not printed on the configuration page. These counters give the following information;

Three counters [A]:	Feed jam counter, inner jam counter, duplex jam counter
Four counters [B]:	Recent coverage of K, C, M, Y
Four counters [C]:	Accumulated Coverage of K, C, M, Y
Four counters [D]:	Consumed High Yield AIO counter of K, C, M, Y
Four counters [E]:	Consumed Short Yield AIO counter of K, C, M, Y
Four counters [F]:	High yield AIO Replacement counter of K, C, M, Y
Four counters [G]:	Short yield AIO Replacement counter of K, C, M, Y

The symbols [H] printed beside the remaining toner counter indicate the type of the AIO.

- S: Short Yield AIO
- H: High Yield AIO

5.6 FIRMWARE UPDATING

⚠CAUTION

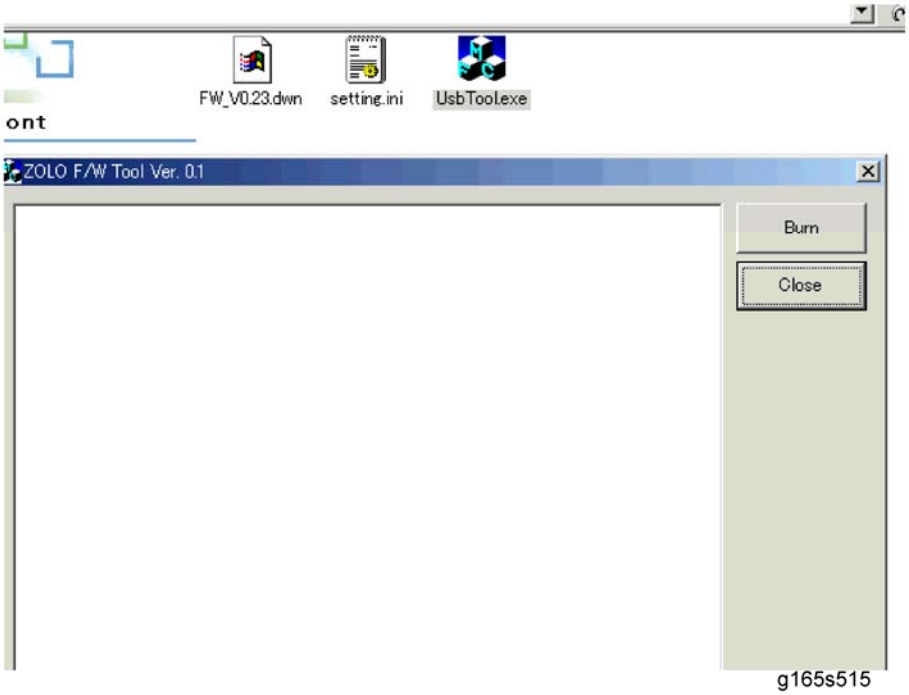
- Do not turn off the main power of the machine during the firmware updating. If doing so, the engine board or controller board may be damaged.

5.6.1 CHECKING THE MACHINE FIRMWARE VERSION

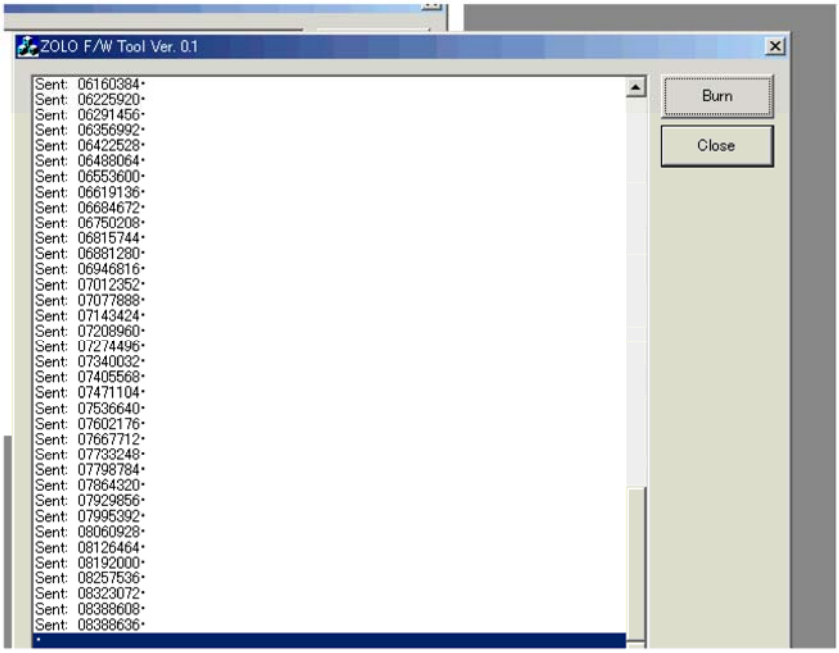
1. Turn the machine on.
2. If the printer driver is not installed on your PC, install the printer driver now.
3. Press "Menu" and select "Report Print" with the "Up" or "Down" key.
4. Press "OK" and select "Maintenance Page" with the "Up" or "Down" key.
5. Press "OK" to display the "Firmware version (Controller)" and "Engine FW version"

5.6.2 UPDATING THE CONTROLLER FIRMWARE

1. Make a folder in your computer.
2. Save the files (".dwn", "/ini" and ".exe") in the folder.
3. Click the exe file to execute the updating program.



4. Click "Burn" to send the controller firmware from the PC to the machine.



g165s516

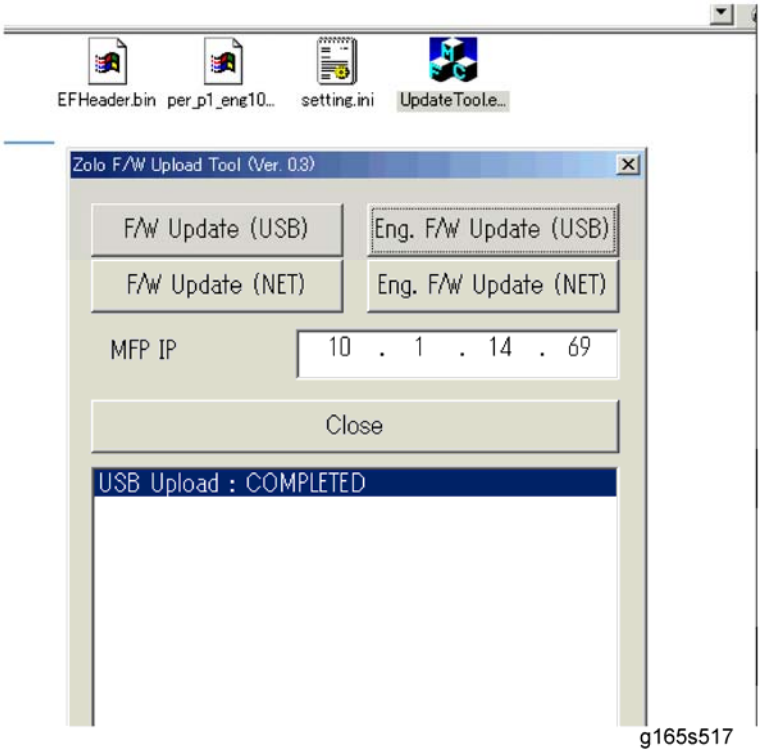
5. The machine makes a beep sound when starting the firmware update.
6. The image above is displayed on the PC and "Firmware update" and "Updating" are displayed on the operation panel.
7. Then, you can close this window at your PC.

⚠CAUTION

- Do not turn off the machine until "Done Please reboot" is displayed in the operation panel. Otherwise, the controller board will be damaged.
- If “Done Please reboot“ does not appear, the download failed. Try again. You can also switch from an Ethernet connection to a USB connection and see if that works. If you still cannot download the firmware, it may be necessary to change the EGB and/or the controller board.
- If power failed during the download, try again. If you still cannot download the firmware, it may be necessary to change the EGB and/or the controller board.

5.6.3 UPDATING THE ENGINE FIRMWARE

1. Make a folder in your computer.
2. Save the files (".bin", ".fwu", ".ini" and ".exe") in the folder.



3. Click the exe file to execute the updating program.
4. Click "Eng. F/W Update (USB or NET)" to send the engine firmware from PC to MF printer.
   - The "F/W Update (USB or NET)" buttons are for designer use only. Do not use these buttons.
5. The machine makes a beep sound when starting the firmware update.
6. The image above is displayed at the PC and "Firmware update" and "Updating" are displayed on the operation panel.
7. Then, you can close this window at your PC.

⚠CAUTION

- Do not turn off the machine until "Done Please reboot" is displayed in the operation panel. Otherwise, the controller board will be damaged.
- If “Done Please reboot“ does not appear, the download failed. Try again. You can also switch from an Ethernet connection to a USB connection and see if that works. If you still cannot download the firmware, it may be necessary to change the EGB and/or the controller board.
- If power failed during the download, try again. If you still cannot download the firmware, it may be necessary to change the EGB and/or the controller board.

5.6.4 BOOT LOADER FIRMWARE

This is also listed on the configuration page, but this firmware is not updated in the field.

ENVIRONMENTAL CONSERVATION

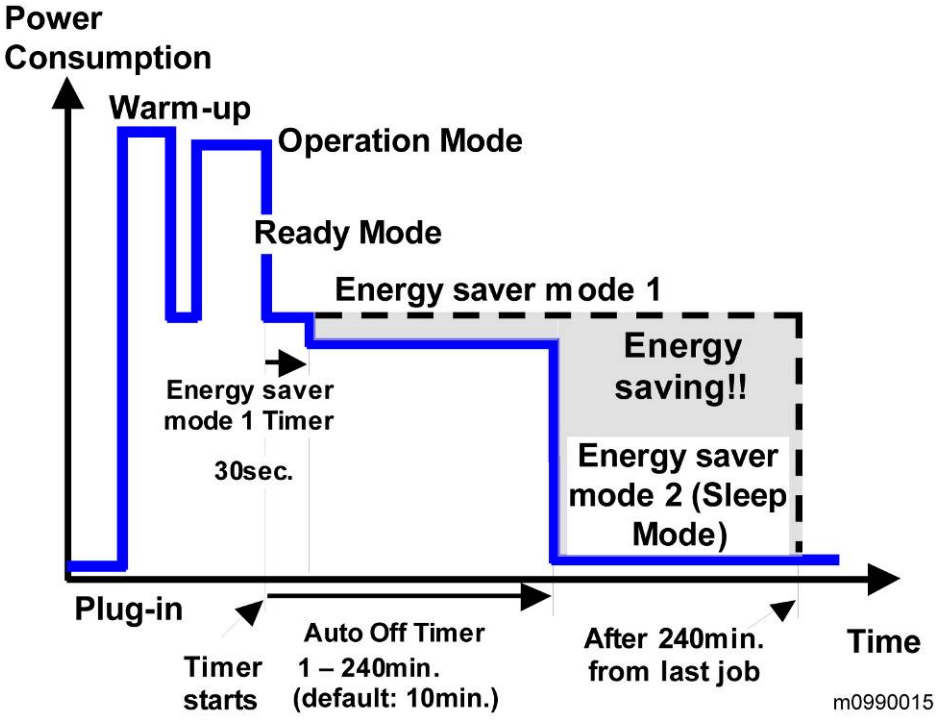
REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
		None

6. ENVIRONMENTAL CONSERVATION

6.1 ENERGY SAVING

6.1.1 ENERGY SAVER MODES

Customers should use energy saver modes properly, to save energy and protect the environment.



Energy Saver Modes	Description
Energy Saver Mode 1	Lower the fusing temperature.
Energy Saver Mode 2 (Sleep Mode)	No power is supplied to the printing engine, and almost none to the controller.

When the machine is not being used, the machine enters energy saver mode to reduce the power consumption by lowering the fusing temperature.

The area shaded gray in this diagram represents the amount of energy that is saved when the timers are at the default settings (10 minutes). If the timers are changed, then the energy saved will be different. For example, if the timers are all set to 240 minutes, the gray area will disappear, and no energy is saved before 240 minutes expires.

Timer Settings (Printer Models)

- The user can set this timer with the menu mode.

1. Press [Menu].
2. Press [▼] or [▲] to scroll through the menu listing and press [OK] to select.
3. [System] → [Energy Saver 2] → [On/Off] > [On]
4. [System] → [Energy Saver 2] → [E.Saver2 Timer] → [1] to [240] min (Select the time with [▼] / [▲] keys.)
5. Press [Escape] to return to the previous menu.

- The default setting of Sleep mode is 10 minutes.

Timer Settings (MF Models)

- The user can set this timer with the User Tools mode.

1. Press [User Tools].
2. Press [▼] or [▲] to scroll through the menu listing and press [OK] to select.
3. [Admin. Tools] → [Energy Saver Mode] → [EnergySaverMode 2] → [On/Off] → [On]
4. [Admin. Tools → [Energy Saver Mode] → [EnergySaverMode 2] → [1] to [240] min (Input the time with the 10-key)
5. Press [Escape] to return to the previous menu.

- The default setting of Sleep mode is 10 minutes.

Return to Stand-by Mode

Energy Saver Mode 2 (Sleep Mode)

Recovery time

- 30 seconds or less

Energy Saver Mode 1

Recovery time

- 10 seconds or less

Recommendation

We recommend that the default settings should be kept.

- If the customer requests that these settings should be changed, please explain that their energy costs could increase, and that they should consider the effects on the environment of extra energy use.
- If it is necessary to change the settings, please try to make sure that the Auto Off timer is not too long. Try with a shorter setting first, such as 12 minutes, then go to a longer one (such as 15 minutes) if the customer is not satisfied.
- If the timers are all set to the maximum value, the machine will not begin saving energy until 240 minutes has expired after the last job. This means that after the customer has finished using the machine for the day, energy will be consumed that could otherwise be saved.

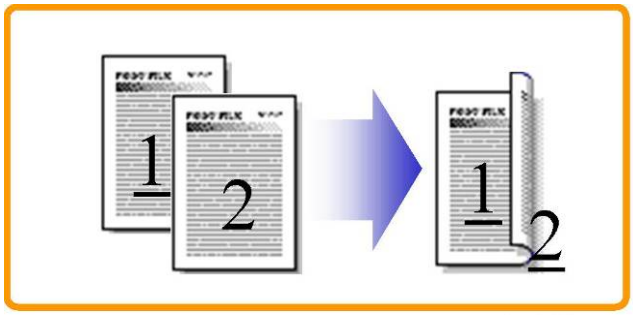
6.2 PAPER SAVE

6.2.1 EFFECTIVENESS OF DUPLEX/COMBINE FUNCTION

Duplexing and the combine functions reduce the amount of paper used. This means that less energy overall is used for paper production, which improves the environment.

1. Duplex

Reduce paper volume in half!



d062d102

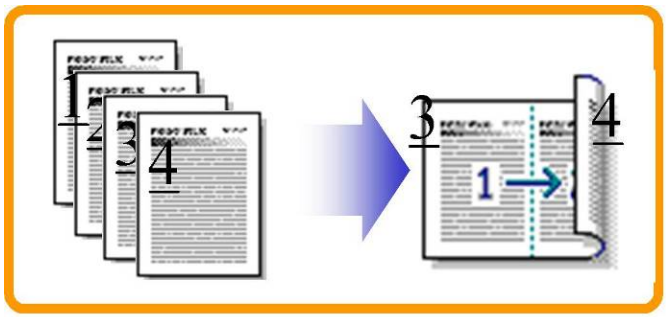
2. Combine mode

Reduce paper volume in half!

d062d100

3. Duplex + Combine

Using both features together can further reduce paper volume by 3/4!



d062d101

To check the paper consumption, look at the total counter and the duplex counter.

The total counter counts all pages printed.

- For one duplex page, the total counter goes up by 2.
- For a duplex job of a three-page original, the total counter goes up by 3.

The duplex counter counts pages that have images on both sides.

- For one duplex page, the duplex counter goes up by 1.
- For a duplex job of a three-page original, the duplex counter will only increase by 1, even though two sheets are used.

M095/M096/M099/M100
SERVICE MANUAL APPENDICES

M095/M096/M099/M100

APPENDICES

TABLE OF CONTENTS

APPENDIX:

SPECIFICATIONS

REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
		None

1. APPENDICES

1.1 GENERAL SPECIFICATIONS

1.1.1 PRINTER MODEL

PE-P2a: M095, PE-P2c: M096

Type			Desktop
Technology			Laser beam scanning and electro-photographic printing
			Mono-component toner development
			4-drum tandem method
Resolution (dpi, bit/pixel)			600 × 600 dpi Speed (1bit) 600 × 600 dpi Standard (2bits) 600 × 600 dpi Fine (4bits)
Printing Speed	General Paper	A4/LT	BW/FC: PE-P2a:16ppm (LT:16.5ppm) BW/FC: PE-P2c:20ppm (LT:21ppm)
First Print Speed	Mono		14.0 sec or less
(A4/LT, SEF, Std. Tray)	F/C		14.0 sec or less
Duplex Printing	A4, LT, B5, LG, Exe		Auto
Dimensions (W x D x H)			400 x 450 x 320 mm (15.8" × 17.8" ×12.8")
Weight			23.8 kg (52.5 lb.) *Includes consumables.

Input capacity	Standard	Std Tray	250 sheets
		Bypass tray	1 sheet
	Op. Paper Tray	Paper Feed Unit	500 sheets (80 g/m^2) x 1
	Max		Up to 751 sheets
Output capacity	Standard Tray	Face down	Up to 150 sheets (A4/LT or 80g/m^2,20lb)
Input Paper Size	Standard Tray		A4,B5,A5,B6,A6,Legal,Letter,HLT,Exective, Foolscap, Folio Custom size: Min. 90mm x 148mm (3.6" x 5.92"), Max. 216mm x 356mm (8.64" x 14.24")
	Bypass Tray		A4,B5,A5,B6,A6,Legal,Letter,HLT,Exective, Foolscap, Folio Custom size: Min. 90mm x 148mm (3.6" x 5.92"), Max. 216mm x 356mm (8.64" x 14.24")
	Op. Paper Tray		A4, Letter
Media Type		Std.Tray	Plain Paper, Recycled Paper, Application Paper, Envelope, Glossy, Thick Paper, Label
		Bypass Tray	Plain Paper, Recycled Paper, Application Paper, Envelope, Glossy, Thick Paper, Label
		Op.Paper Feed Unit	Plain Paper, Recycled Paper
Paper Weight	Standard Tray		60-160g/m^2 (16-40lb)
	Bypass tray		60-160g/m^2 (16-40lb)
	Automatic duplex		60-90g/m^2 (16-24lb)
	Op. Paper Tray	Paper Feed Unit	60-105g/m^2 (16-28lb)

Rating Power Spec.	NA version		120V, 60Hz
	Taiwan version		110V, 60Hz
	EU version		220 to 240 V, 50/60Hz
Power Consumption	NA version	Max.	1300W or less
		Energy Saver	10W or less (PE-P2c)
	Taiwan version	Max.	1300W or less
		Energy Saver	5W or less (PE-P2a)
	EU version	Max.	1300W or less
		Energy Saver	10W or less (PE-P2c) 5W or less (PE-P2a)
Warm-up Time			30 sec or less (from power on) (At room temperature 23°C, humidity 50% and supplying the rated power)
Energy Save Mode	Sleep Mode		30 sec (Uses approx 5W(PE-P2a)/10W(PE-P2c))
	Low Power Mode		10 sec (Uses approx 80W)

1.1.2 MF MODEL

Engine

PE-MF3a: M099, PE- MF3c: M100

Type			Desktop
Technology			Flatbed with CCD array image-sensor
			Laser beam scanning and electro-photographic printing
			Mono-component toner development
			4-drum tandem method
Resolution (dpi, bit/pixel)			600 × 600 dpi Speed (1bit) 600 × 600 dpi Standard (2bits) 600 × 600 dpi Fine (4bits)
Printing Speed	General Paper	A4/LT	BW/FC:PE-MF3c: 20ppm (LT:21ppm) BW/FC:PE-MF3a: 16ppm(LT:16.5ppm)
First Print Speed (A4/LT, SEF, Std. Tray)	Mono		14.0 sec or less
	F/C		14.0 sec or less
Duplex Printing/Copying	A4, LT, B5, LG, Exe		Auto
Dimensions (W x D x H)	PE-MF3a/c		420 x 493 x 476mm (16.5" × 19.4” × 18.7")
Weight	PE-MF3a/c		30.0 kg (66.2lb.) *Includes consumables.

Input capacity	Standard	Std Tray	250 sheets (80 g/m^2)
		Bypass tray	1 sheet
	Op. Paper Tray	Paper Feed Unit	500 sheets (80 g/m^2) x 1
	Max		Up to 751 sheets
Output capacity	Standard Tray	Face down	up to 150 sheets (A4/LT or 80g/m^2, 20lb)
Input Paper Size	Standard Tray		A4, B5, A5, B6, A6, Legal, Letter, HLT, Executive, Foolscap, Folio Custom size: Min. 90mm x 148mm (3.6" x 5.92"), Max. 216mm x 356mm (8.64" x 14.24")
	Bypass Tray		A4, B5, A5, B6, A6, Legal, Letter, HLT, Executive, Foolscap, Folio Custom size: Min. 90mm x 148mm (3.6" x 5.92"), Max. 216mm x 356mm (8.64" x 14.24")
	Op. Paper Tray		A4, Letter
Media Type		Std.Tray	Plain Paper, Recycle Paper, Application Paper, Envelope, Glossy, Thick Paper, Label
		Bypass Tray	Plain Paper, Recycle Paper, Application Paper, Envelope, Glossy, Thick Paper, Label
		Op.Paper Feed Unit	Plain Paper, Recycle Paper

Paper Weight	Standard tray		60-160g/m^2 (16-40lb)
	Bypass tray		60-160g/m^2 (16-40lb)
	Automatic duplex		60-90g/m^2 (16-24lb)
	Op. Paper Tray	Paper Feed Unit	60-105g/m^2 (16-28lb)
ADF	Capacity		35 sheets (80g/m^2, 20lb)
	Original size		Letter/A4: Width 139.7-215.9 mm (5.5" - 8.5"), Length: 139.7-355.6 mm (5.5" - 14")
	Original weight		52 - 105 g/m^2 (14 - 28lb.)
Rating Power Spec.	NA version		120V, 60Hz
	Taiwan version		110V, 60Hz
	EU version		220 to 240V, 50/60Hz
Power Consumption	NA version	Max.	1300W or less
		Energy Saver	10W or less
	Taiwan version	Max.	1300W or less
		Energy Saver	10W or less
	EU version	Max.	1300W or less
		Energy Saver	10W or less
Warm-up Time			30 sec or less (from power on) (At room temperature 23°C, humidity 50% and supplying the rated power)
Energy Save Mode	Sleep Mode		30 sec (Uses approx 10W)
	Low Power Mode		10 sec (Uses approx 80W)

Copier

1st copy speed		Platen/ADF	B&W: Less than 30 sec. FC: Less than 30 sec.
Maximum original size		Platen	A4 (210 x 297mm) / Letter (215.9 x 279.4mm)
		ADF	A4 (210 x 297mm) / Letter (215.9 x 279.4mm)/ Legal (215.9 x 355.6mm)
Copy Speed	Single Document Multiple Copy	Platen	PE-MF3a/c: B/W: 20 cpm (A4), 21 cpm (LT) FC: 20 cpm (A4), 21 cpm (LT)
		ADF	PE-MF3a/c: B/W: 20 cpm, FC: 20 cpm (A4), B/W: 21 cpm, FC: 21 cpm (LT)
	Multiple Document Single Copy	ADF	PE-MF3a/c: B/W: 15 cpm, FC: 10 cpm
Multiple copy			Up to 99
Resolution (H x V)		Scanning	600 x 600 dpi (Flatbed), 600 x 300 dpi (ADF)
		Printing	600 x 600 dpi
Grayscale			256 levels
Reduction / Enlargement		Fix	NA: 50, 65, 78, 93, 129, 155, 200, 400% EU: 50, 71, 82, 93, 122, 141, 200, 400%
		Custom	25 – 400% in 1% steps
Image density adjustment			Yes, Manual only: 5 levels
Copy mode			Text/Photo/Mixed

Memory copy	Yes
Auto-duplex copy	No
Interrupt copy	No
Combine copy	Single: 2 in 1, 4 in 1 (Only ADF) Duplex: 4 in 1 (Only ADF) Duplex:: 2 in 1
APS/AMS	No/No
Auto Tray Switch	No
Directional Magnification	No
Directional Size Magnification	No
Photo Mode	Yes
Auto Start	No
User Program	No
Electronic Sorting	Standard (collation, ADF only)
Image Rotation	No
Series Copy	No

Scanner

Scanning Device		CCD array image-sensor
Resolution		Scanner: 1200 x 1200 dpi
		Driver: Max. 19200 x 19200 dpi (interpolated)
Gray scale		256 levels
Scan modes/ speed (A4, 300dpi, USB2.0)		▪ ADF: B/W: less than 5 sec. / Gray Scale: less than 5 sec. / Color: less than 10 sec ▪ Platen B/W: less than 5 sec. / Gray Scale: less than 5 sec. / Color: less than 10 sec
Maximum original size	Platen	Width max: Up to 216mm, Length max: Up to 297mm
	ADF	Width max: Up to 216mm, Length max: Up to 356mm
Scan Depth		48bit color processing (input), 24bit color processing (output)
PC Interface		USB2.0, 10/100Base-TX
TWAIN Compliment		TWAIN, WIA
Scanner utilities and Drivers		TWAIN Driver, Scanner utility (PageManager)

Fax

Circuit	PSTN/ PABX
Compatibility:	ITU-T Group 3
Coding system:	MH/MR/MMR/JBIG
Modem speed:	Automatic Fallback: 33600 bps
Document size:	Platen: A4/ LT/ LG Width max: 216 mm (8.5"), Length max: 297 mm (11.7") ADF: A4/ LT/ DLT Width: 139.7-215.9mm (5.5” - 8.5”) Length: 139.7-355.6 mm (5.5” - 14”)
Scanning width:	Max. 210 mm (8.3")
Printing width:	Max. 208 mm (8.2")
Gray scale:	256 levels
Polling type:	Standard, Sequential
Contrast control:	Normal/Light/Dark (manual setting)
Resolution:	8 x 3.85/ 8 x 7.7 lines/mm 200 x 100/ 200 x 200 dpi
Scanning Speed	Less than 5 sec. (A4 SEF, 200 dpi)
Modem Speed	Automatic Fallback: 33600, 31200, 28800, 26400, 24000, 21600, 19200, 16800, 14400, 12000, 9600, 7200, 4800, 2400bps
Transmission Speed	Approx. 3 sec *ITU No.1 chart, Compression: MMR, Resolution: Standard, Speed: 33.6kbps
SAF Memory	100 pages (ITU No.1 chart, Compression: MMR, Resolution: Standard)
Memory Backup	1 hour
One-touch dial:	20 (10 x 2)

Broadcasting:	100 stations
Communication source:	Public switched telephone network
PC Fax utility:	Not available
Automatic re-dial	5/4/3/2 times after 5 minutes (Default 5 times)
Auto Answer	1-99 rings (Default 2 rings)

1.1.3 OPTION

Paper Feed Unit

Paper Tray (500x1)	Paper Size	A4,Letter
	Paper Weight	60-105g/m^2 (16-28lb)
	Paper capacity	500 sheets x 1 tray
	Dimensions (W x D x H)	400 x 450 x 127mm/16 x 18 x 5.08 inch
	Weight	6 kg/13.2 lb

1.2 CONTROLLER SPECIFICATIONS

1.2.1 OVERVIEW

The printer/MF models have two types of controllers: GDI and PCL.

Controller: Printer model

CPU			220MHz (PE-P2a) 400MHz (PE-P2c)
RAM	Std.		PE-P2a: 64MB (Not extendable) PE-P2c: 256MB (Not extendable)
Hard Disk Drive	-		-
PDL			PE-P2a: DDST (GDI) PE-P2c: PCL5c/6, PostScript 3 emulation
Fonts	Std.		PCL: 41 Symbolset, 35 Intellifonts, 10 TrueType fonts, 1 bitmap font. PS3: 80 fonts (only for PE-P2c)
Connectivity	Host Interface	Std.	USB2.0, 100BASE-TX/10BASE-T Ethernet, Pict Bridge
		Option	Non
	Network Protocol		TCP/IP (PE-P2a) TCP/IP, IPP, Bonjour (PE-P2c)
	MIB support	Private MIB	-

		Standard MIB (SMNP Printer MIB)	MIB-II (RFC1213), HostResource (RFC1514), PrinterMib (RFC1759)
	Operating Systems/Network		Windows 2000/XP/Vista/7, Server 2003/2008 Server (32bit/64bit) or later version of these.
			Mac OS X 10.3 or later

Print Resolution		
Engine		600 x 600 dpi, 1200 x 600 dpi, 2400 x 600 dpi
Controller	PCL5c	600 x 600 dpi, 1200 x 600 dpi, 2400 x 600 dpi
	PCL6	600 x 600 dpi, 1200 x 600 dpi, 2400 x 600 dpi
	PS3	600 x 600 dpi, 1200 x 600 dpi, 2400 x 600 dpi
Drivers	PCL5c	600 x 600 dpi, 1200 x 600 dpi, 2400 x 600 dpi
	PCL6	600 x 600 dpi, 1200 x 600 dpi, 2400 x 600 dpi
	PS3	600 x 600 dpi, 1200 x 600 dpi, 2400 x 600 dpi

Language		
Operation Panel (LCD)		1.English, 2.German, 3.French, 4.Italian, 5.Spanish, 6.Dutch, 7.Swedish, 8.Norwegian, 9.Danish, 10.Finnish, 11.Portuguese
Drivers	PCL5c/PCL6	1.English, 2.German, 3.French, 4.Italian, 5.Spanish, 6.Dutch, 7.Swedish, 8.Norwegian, 9.Danish, 10.Czech, 11.Hungarian, 12.Finnish, 13.Polish, 14.Portuguese, 15.Russian, 16.Simplified Chinese (only for China models)
	PS3	1.English, 2.German, 3.French, 4.Italian, 5.Spanish, 6.Dutch, 7.Swedish, 8.Norwegian, 9.Danish, 10.Czech, 11.Hungarian, 12.Finnish, 13.Polish, 14.Portuguese, 15.Russian, 16.Simplified Chinese (only for China models)
	GDI	1.English, 2.German, 3.French, 4.Italian, 5.Spanish, 6.Dutch, 7.Swedish, 8.Norwegian, 9.Danish, 10.Czech, 11.Hungarian, 12.Finnish, 13.Polish, 14.Portuguese, 15.Russian, 16.Simplified Chinese (only for China models), 17. Traditional Chinese (only for Taiwan)
Test Page Print	Config. Map	1.English, 2.German, 3.French, 4.Italian, 5.Spanish, 6.Dutch, 7.Swedish, 8.Norwegian, 9.Danish, 10.Finnish, 11.Portuguese
	The others	English

Controller: MF model

CPU			ARM11 400MHz
RAM	Std.		PE-MF3a: 256MB (Not extendable) PE-MF3a: 256MB (Not extendable)
Hard Disk Drive	-		-
PDL			PE-MF3a: DDST (GDI) PE-MF3c: PCL5c/6, PostScript 3 emulation
Fonts	Std.		PCL: 41 Symbolset, 35 Intellifonts, 10 TrueType fonts, 1 bitmap font. PS3: 80 fonts (only for PE-MF3c)
Connectivity	Host Interface	Std.	USB2.0, 100BASE-TX/10BASE-T Ethernet
		Option	None
	Network Protocol		TCP/IP, IPP, Bonjour
	MIB support	Private MIB	Original
		Standard MIB (SMNP Printer MIB)	MIB-II (RFC1213), HostResource (RFC1514), PrinterMib (RFC1759)
	Operating Systems/Network		Windows 2000/XP/Vista/7, Server 2003/2008 Server (32bit/64bit) or later version of these.
			Mac OS X 10.3 or later

Print Resolution		
Engine		600 x 600 dpi, 1200 x 600 dpi equivalent, 2400 x 600 dpi equivalent
Controller	PCL5c	600 x 600 dpi, 1200 x 600 dpi equivalent, 2400 x 600 dpi equivalent
	PCL6	600 x 600 dpi, 1200 x 600 dpi equivalent, 2400 x 600 dpi equivalent
	PS3	600 x 600 dpi, 1200 x 600 dpi equivalent, 2400 x 600 dpi equivalent
Drivers	PCL5c	600 x 600 dpi, 1200 x 600 dpi equivalent, 2400 x 600 dpi equivalent
	PCL6	600 x 600 dpi, 1200 x 600 dpi equivalent, 2400 x 600 dpi equivalent
	PS3	600 x 600 dpi, 1200 x 600 dpi equivalent, 2400 x 600 dpi equivalent

Language		
Operation Panel (LCD)		1.English, 2.German, 3.French, 4.Italian, 5.Spanish, 6.Dutch, 7.Swedish, 8.Norwegian, 9.Danish, 10.Czech, 11.Hungarian, 12.Finnish,13.Polish, 14.Portuguese, 15.Russian
Drivers	PCL5c/PCL6	1.English, 2.German, 3.French, 4.Italian, 5.Spanish, 6.Dutch, 7.Swedish, 8.Norwegian, 9.Danish, 10.Czech, 11.Hungarian, 12.Finnish, 13.Polish, 14.Portuguese, 15.Russian, 16.Simplified Chinese (only for China models), 17. Traditional Chinese (only for Taiwan models)
	PS3	1.English, 2.German, 3.French, 4.Italian, 5.Spanish, 6.Dutch, 7.Swedish, 8.Norwegian, 9.Danish, 10.Czech, 11.Hungarian, 12.Finnish, 13.Polish, 14.Portuguese, 15.Russian, 16.Simplified Chinese (only for China models), 17. Traditional Chinese (only for Taiwan models)
	GDI	1.English, 2.German, 3.French, 4.Italian, 5.Spanish, 6.Dutch, 7.Swedish, 8.Norwegian, 9.Danish, 10.Czech, 11.Hungarian, 12.Finnish, 13.Polish, 14.Portuguese, 15.Russian
Config. Page		1.English, 2.German, 3.French, 4.Italian, 5.Spanish, 6.Dutch, 7.Swedish, 8.Norwegian, 9.Danish, 10.Czech, 11.Hungarian, 12.Finnish,13.Polish, 14.Portuguese, 15.Russian

1.3 SUPPORTED PAPER SIZES

A	Supported and the size is molded in the tray. Need to select paper size by operation panel/driver.
B	Supported but size is not molded in the tray. Need to select paper size by operation panel/driver.
C	Need to input paper size by operation panel and driver.
N	Not supported.

Type		SEF/ LEF	Size	Input Tray			Auto. Dup.
				Standard Tray	Option PFU	Bypass Tray	
Plain Paper	A4	SEF	210x297	A	A	B	Y
		LEF	297x210	N	N	N	N
	B5	SEF	182x257	A	N	B	Y
		LEF	257x182	N	N	N	N
	A5	SEF	148x210	A	N	B	N
		LEF	210x148	N	N	N	N
	B6	SEF	128x182	B	N	B	N
		LEF	182x128	N	N	N	N
	A6	SEF	105x148	B	N	B	N
		LEF	148x105	N	N	N	N
Plain Paper	DLT	SEF	11" x 17"	N	N	N	N
	Legal	SEF	8 1/2”x14”	A	N	B	Y
	Letter	SEF	8 1/2”x11”	A	A	B	Y
		LEF	11”x 8 1/2”	N	N	N	N

Type		SEF/ LEF	Size	Input Tray			Auto. Dup.
				Standard Tray	Option PFU	Bypass Tray	
	Half Letter	SEF	5 1/2” x 8 1/2”	C	N	C	N
	Executive	SEF	7 1/4”x10 1/2”	A	N	B	Y
		LEF	10 1/2”x7 1/4”	N	N	N	N
	F	SEF	8” x 13”	B	N	B	N
	Foolscap	SEF	8 1/2” x 13”	B	N	B	N
	Folio	SEF	8 1/4” x 13”	B	N	B	N
Plain Paper	8 Kai	SEF	267 x 390	N	N	N	N
	16 Kai	SEF	195 x 267	C	N	C	N
		LEF	267 x 195	N	N	N	N
Envelope	Com10	SEF	4 1/8” x 9 1/2”	C	N	C	N
	Monarch	SEF	3 7/8” x 7 1/2”	C	N	C	N
	C6	SEF	114 x 162	C	N	C	N
	C5	SEF	162 x 229	C	N	C	N
	DL Env	SEF	110 x 220	C	N	C	N
Custom		Width	90-216mm (3.6”x 8.5”)	C	N	C	N
		Length	148 – 356mm (5.8”x 14.24”)	C	N	C	N

1.4 PREVENTIVE MAINTENANCE

1.4.1 USER REPLACEABLE ITEMS

Item	Yield	
Print Cartridge (AIO) (for M095/M099)	Approx. 2.3 k prints/cartridge *1	
Print Cartridge (AIO) (for M096/M100)	Short Yield	CYMK: Approx. 2.5 k prints/cartridge *1
	Long Yield	Black: Approx. 6.5 k prints/cartridge *1 CMY: Approx. 6.0 k prints/cartridge *1
Waste Toner Bottle	Approx. 25 k prints/ bottle (See condition 4)	

Condition:

1. The condition is standard temperature and humidity.
2. These yield values may change depending on the circumstances and printing conditions.
3. The Waste Toner Bottle's yield is measured when the printer is used 50% for color and 50% for black-and-white
4. Waste Toner Bottle yield was measured for 3P/J when the printer is used 50% for color and 50% for black-and-white.

*1 measured by ISO19798

1.4.2 YIELD ITEMS AND SERVICE MAINTENANCE

The machine default setting will show the messages “Replace Soon” at the near end condition and “Replace Now” at the end condition for yield parts. However, you can select the preferred machine action at near end and end for yield parts using SP mode “PM Parts Rep Notice” as shown in the following table.

There are 4 settings (0 to 3):

PM Parts Rep Notice	Sets whether to display the PM parts replacement notice and whether to stop the engine.	
	0	At near end: No Notice / Not Stopped
		At life end: Notice “Replace Now” / Not Stopped
	1	At near end: No Notice / Not Stopped
		At life end: No Notice / Not Stopped
	2 (default)	At near end: Notice / Not Stopped
		At life end: Notice “Replace Now” / Not Stopped
	3	At near end: Notice “Replace Soon” / Not Stopped
		At life end: Notice “Replace Now” / Stopped

Item	Yield
Image Transfer Unit	90 K
Fusing Unit	90 K
Transfer Roller	90 K

1.5 EXCHANGE AND REPLACE PROCEDURE

If the machine exchange and replacement is required, arrange to send a machine without the four print cartridges (AIO) to the customer site.

1.5.1 INSTRUCTION

Instruct the customer to do the following procedure.

Before the substitute machine gets to the customer site

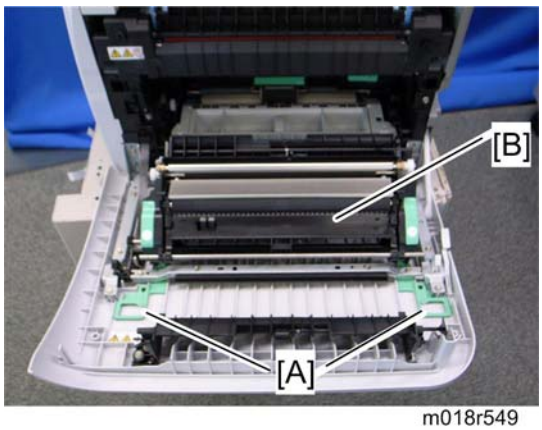
- Save the customer settings by using a web browser. For details, refer to the “User Guide”.
- Clear customer settings in the problem machine.

When the substitute machine gets to the customer site

1. Remove the four print cartridges (AIO) from the problem machine.
2. Install the four print cartridges (AIO) into the substitute machine.
3. Restore the customer settings which are printed on the configuration page by using a web browser.
4. Send back the problem machine to the repair center.

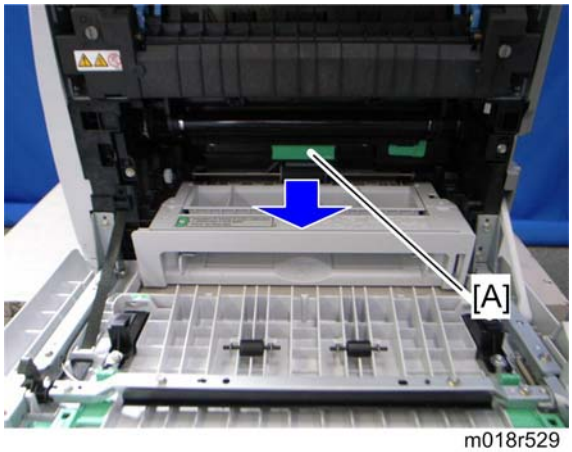
1.5.2 CLEANING POINTS AFTER MACHINE ARRIVAL AT DEPOT

1. Open the front cover.



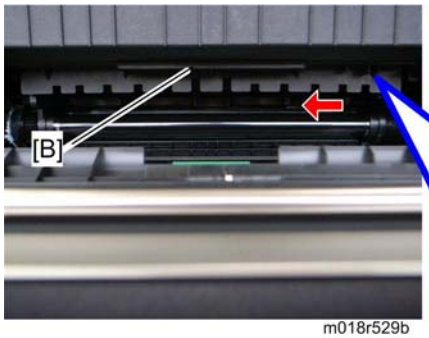
m018r549

2. Release the locks [A].
3. Transfer unit [B]

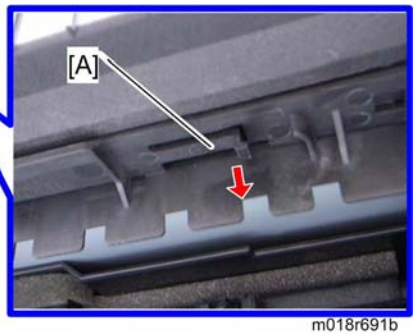


m018r529

4. Pull out the waste toner bottle [A].



m018r529b



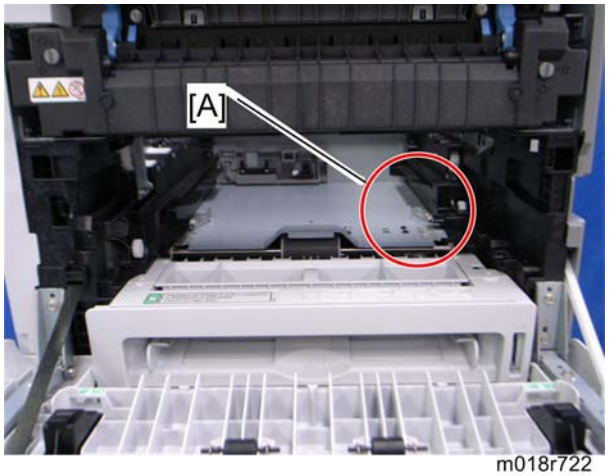
m018r691b

5. Release the hook [A] under the guide plate.
6. Move the guide plate [B] underneath the fusing unit to the left, and then remove it.


m018r530a

m018r692a

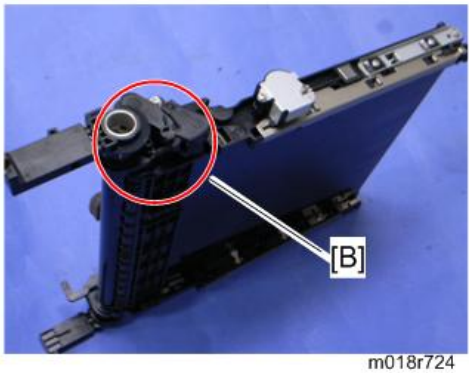
7. Pull out the image transfer belt unit [A] (x 2).



m018r722

8. Clean inside the printer, especially around the circled area [A].

m018r723

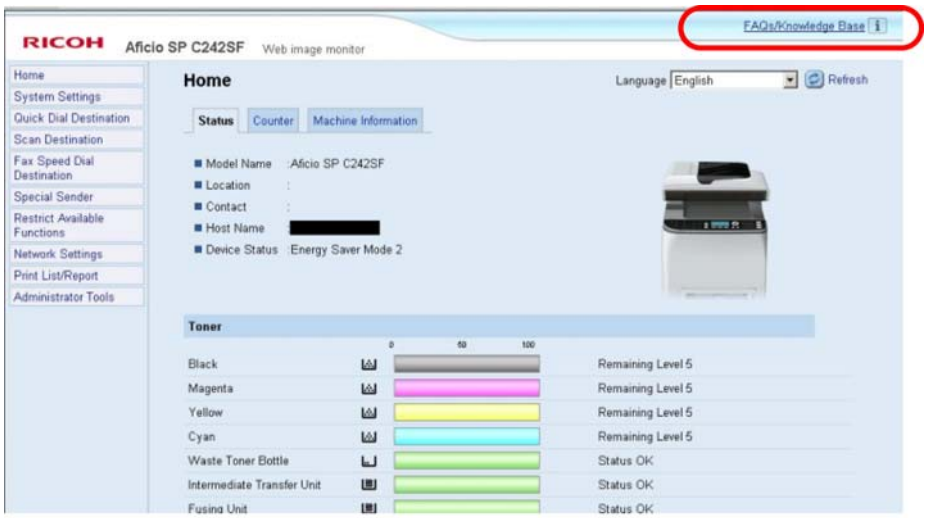


m018r724

9. Clean the circled area at the waste toner bottle [A] and circled area [B] at image transfer belt unit.
10. Reassemble the printer.

1.6 FAQS/KNOWLEDGE BASE

You can access the FAQs and knowledge base for this model through Web Image Monitor.



m0990014

1. http://machine's_IP_address
2. Click 'FAQ/Knowledge Base' at the top right of the screen.

PAPER FEED UNIT TK1010
(G849)

PAPER FEED UNIT TK1010 (G849) REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
		None

PAPER FEED UNIT TK1010 (G849)

TABLE OF CONTENTS

Read This First

Safety and Symbols

Replacement Procedure Safety

⚠CAUTION

- Turn off the main power switch and unplug the machine before beginning any of the replacement procedures in this manual.

Symbols Used in this Manual

This manual uses the following symbols.

☛: See or Refer to

: Screws

: Connector

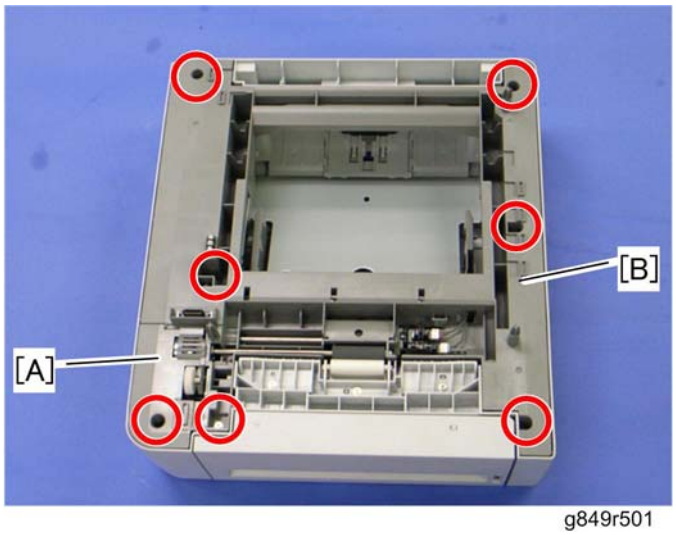
: Clip ring

: E-ring

1. REPLACEMENT AND ADJUSTMENT

1.1 PAPER FEED UNIT

1.1.1 TOP COVER

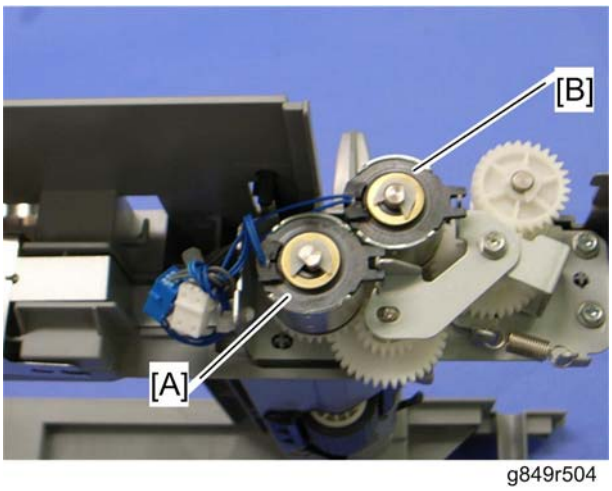


g849r501

1. Top left cover [A] (☞ x 1)
2. Top cover [B] (☞ x 6)

1.1.2 PAPER FEED AND RELAY CLUTCH

1. Top cover (☛ Top Cover)

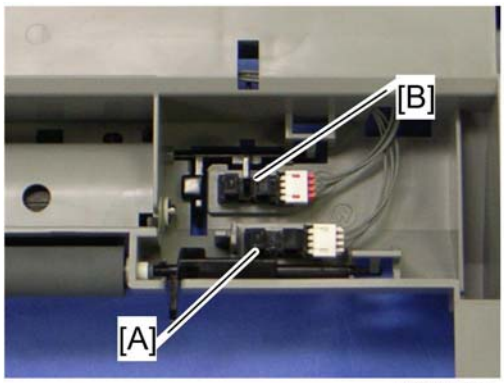


g849r504

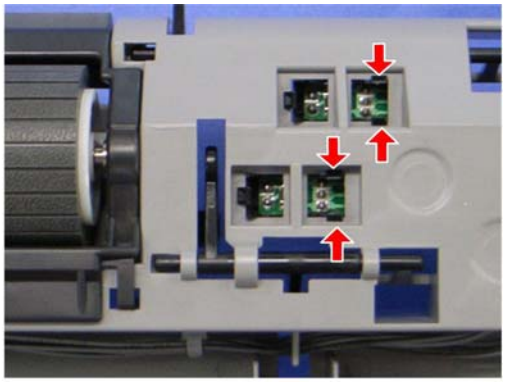
2. Paper feed clutch [A] (☞ x 1, ☞ x 1)
3. Relay clutch [B] (☞ x 1, ☞ x 1)

1.1.3 PAPER END AND RELAY SENSOR

1. Top cover (☛ Top Cover)



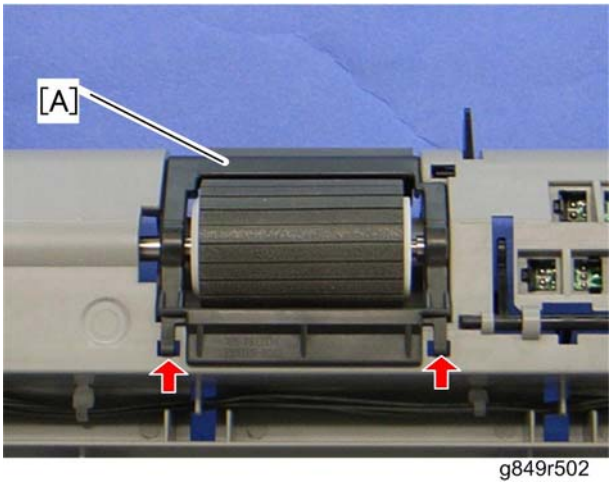
g849r505


g849r506

2. Paper end sensor [A] (hooks, ✍ x 1)
3. Relay sensor [B] (hooks, ✍ x 1)

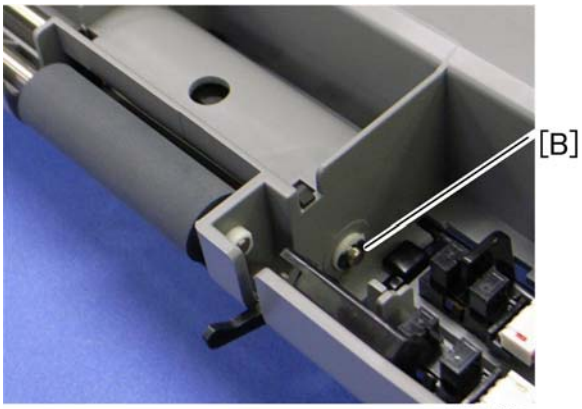
1.1.4 PAPER FEED ROLLER

1. Top cover (☛ Top Cover)
2. Paper feed clutch (☛ Top Cover)



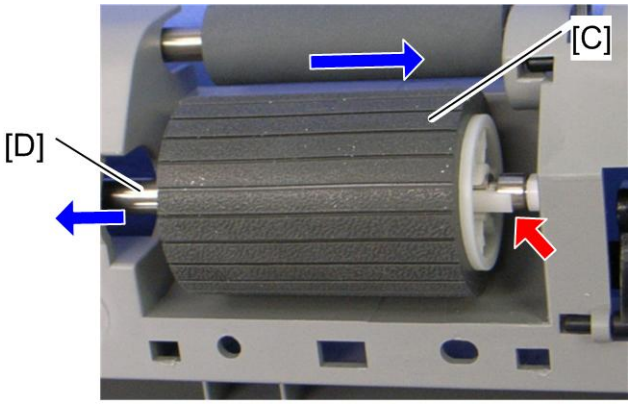
g849r502

3. Paper guide [A] (hooks)



g849r503

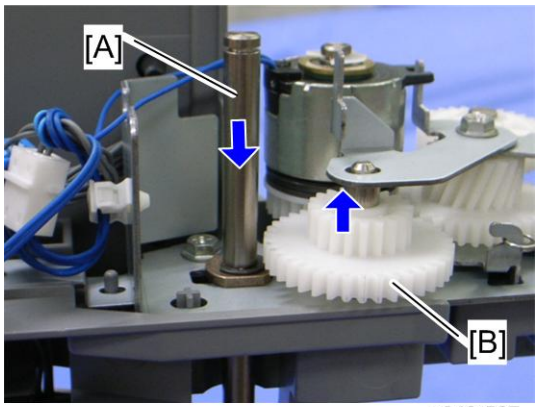
4. Remove the e-ring [B] at the right edge of the feed roller shaft.



g849r506

5. Slide the paper feed roller [C] to the right side (hook).
6. Pull out the feed roller shaft [D] to the left side (bushing x 1).

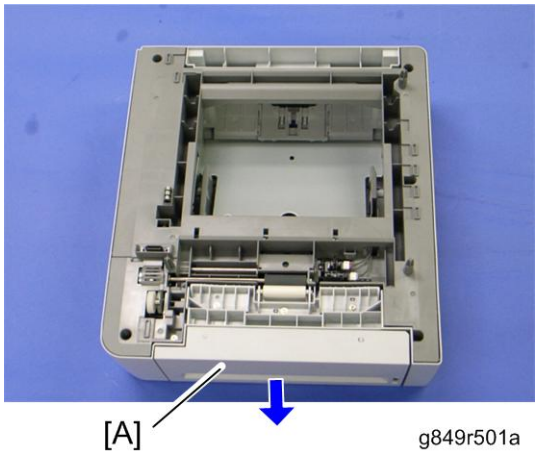
When reassembling



g849r507

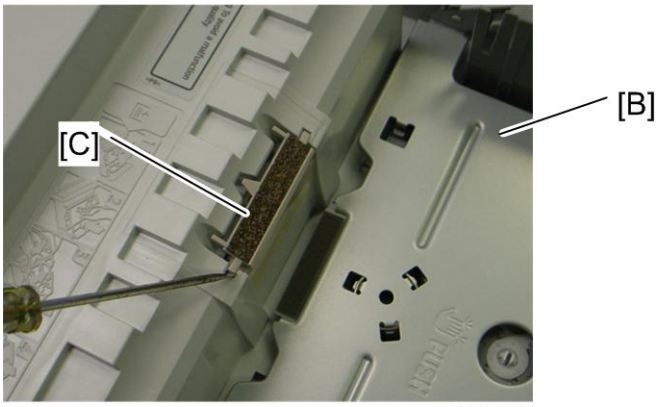
If the feed roller shaft [A] cannot be inserted easily, pull the gear [B], and then insert the feed roller shaft.

1.1.5 FRICTION PAD



g849r501a

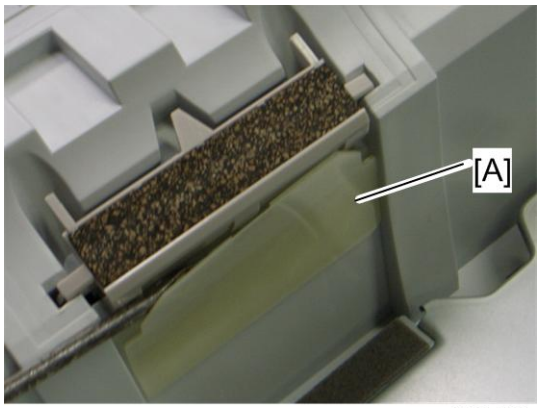
1. Pull out the tray [A]



g849r508

2. Press down the bottom plate [B]
3. Friction pad [C] (hooks, spring x 1)

When reassembling



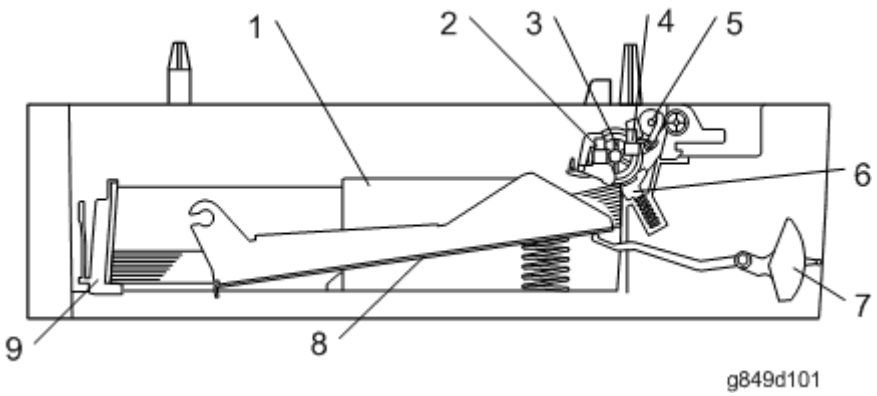
g849r509

When re-installing the friction pad, make sure that the mylar [A] does not go under the friction pad.

2. DETAILED SECTION DESCRIPTIONS

2.1 OVERVIEW

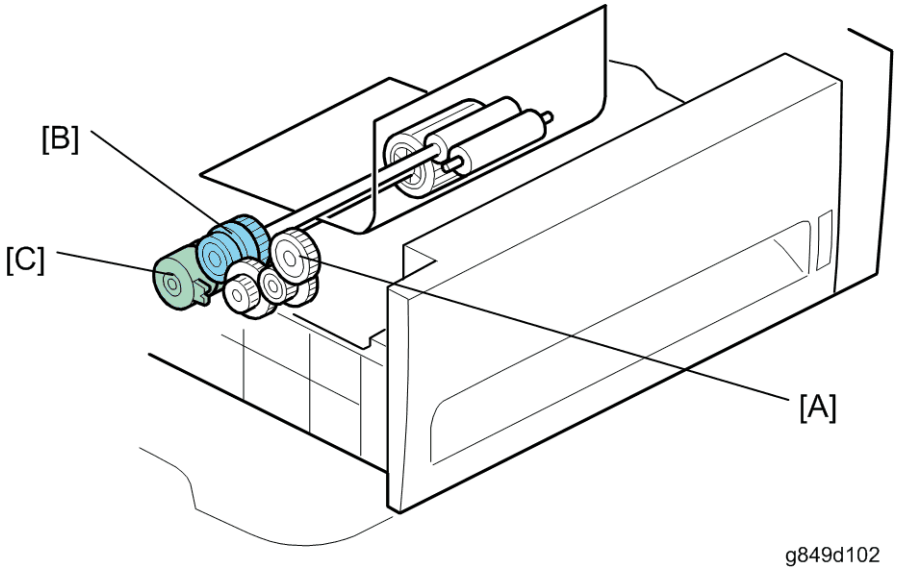
2.1.1 COMPONENT LAYOUT



1. Side Fence 2. Paper End Sensor 3. Paper Feed Roller 4. Relay Sensor 5. Relay Roller	6. Friction Pad 7. Paper Height Lever 8. Bottom Plate 9. Rear Fence

2.2 BASIC OPERATION

2.2.1 PAPER SEPARATION AND FEED



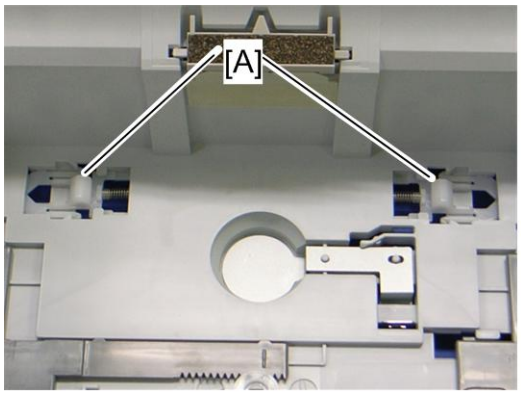
The paper tray holds 500 sheets of paper.

The paper feed unit uses a friction pad system.

The gear [A] is driven by the transport/fusing motor in the mainframe.

The relay clutch [B] and paper feed clutch [C] control drive from the mainframe. When the optional tray is selected as the feed tray, the relay clutch and paper feed clutch transmit drive power to the relay roller and paper feed roller.

2.2.2 PAPER LIFT



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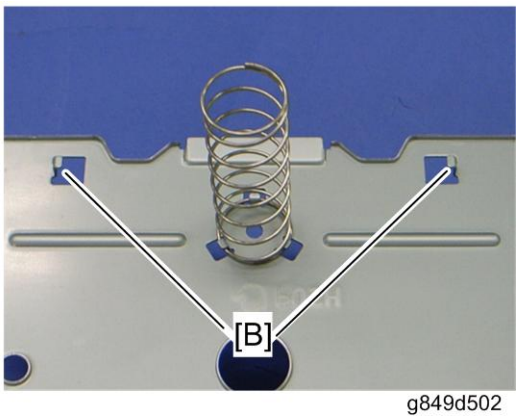
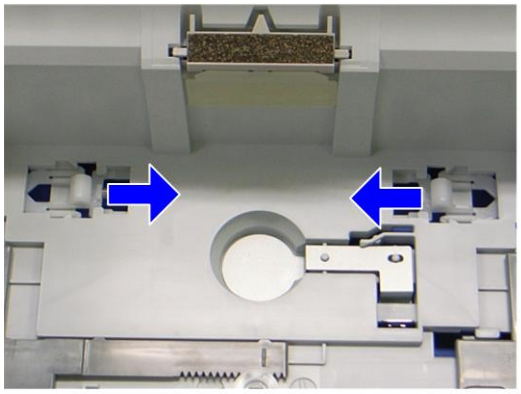


g849d502

The bottom plate is always pressed up by the spring in the tray. Therefore, you must press down the bottom plate when you insert the tray in the machine.

The bottom tray lock levers [A] hold the tabs [B] under the bottom plate after the bottom plate is pressed down.



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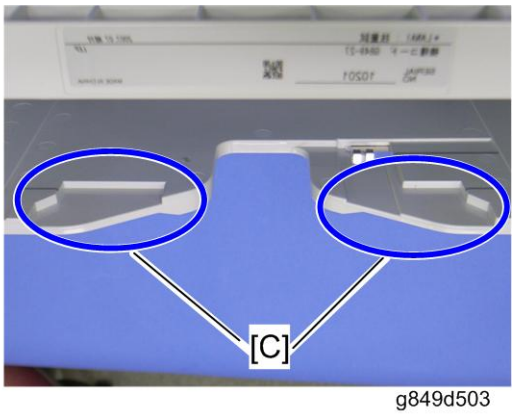
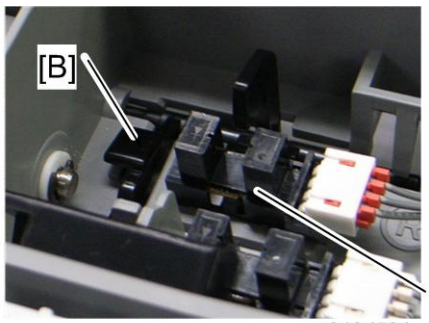


g849d503

When the tray is inserted in the machine, the lock lever guides [C] in the paper feed unit push the bottom plate lock levers, and then the lock levers release the tabs under the bottom plate. As a result, the bottom plate is lifted by the spring.

2.2.3 PAPER END DETECTION



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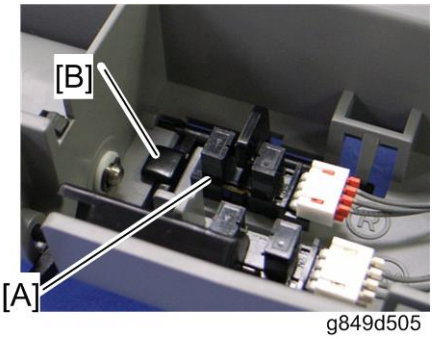

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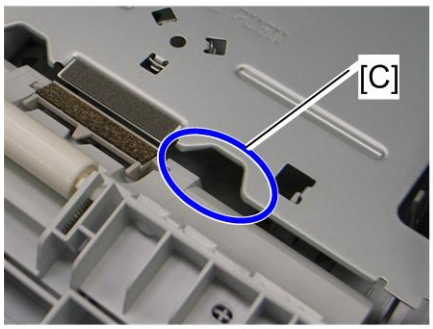

g849d506

There is a paper end sensor [A] in the tray. The feeler [B] drops into the cutout [C] in the bottom plate and the actuator interrupts the paper end sensor. This sensor also detects whether the tray is set.