

**Model ME-P1/MF1_ww
Machine Code:
M101/M102/M103
Field Service Manual**





26 December, 2011

Safety, Symbols, Trademarks

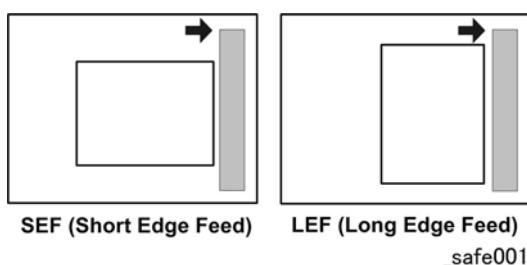
Conventions

Commonly Used Icons for Replacements and Adjustments

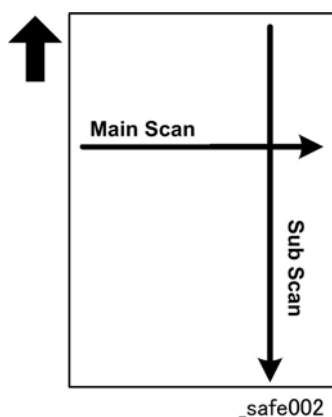
Symbol	What it means
	Binding screw (shoulder hexagonal head)
	Binding screw (round flathead)
	Black screw (heavy, fusing unit, TCRU)
	Bushing
	C-ring
	Connector
	E-ring
	FFC (Flat Film Connector)
	FFC (Flat Film Connector)
	Gear
	Harness clamp
	Harness clamp (metal: fusing unit)
	Hook (or tab release)
	Knob screw (black)
	Knob screw (sliver)
	Pivot screw
	Screw (common screw)
	Shoulder screw
	Spring

Symbol	What it means
	Standoff
	Stud screw
	Tapping screw (wide threads for plastic)
	Timing belt

Paper Feed: SEF/LEF



The notations "SEF" and "LEF" describe the direction of paper feed. The arrows indicate the direction of paper feed.



In this manual "Main Scan" means "Horizontal" and "Sub Scan" means "Vertical", both relative to the direction of paper feed.

Smart Organizing Monitor

In this service manual "Smart Organizing Monitor" is often abbreviated as "SOM".

★ Important

- The detailed procedure for entering the service mode of the Smart Organizing Monitor is provided in the training materials for these machines. The procedure for entering the service mode is not described in the service manuals.
- Service technicians must know how to enter the service mode before servicing these machines. Please refer to the training materials.

Machine Names

Name	Abbrev.	Production Name	Model No.
Aficio SP 100	P	ME-P1	M101
Aficio SP 100SU	TiO	ME-MF1a	M102
Aficio SP 100SF	FiO	ME-MF1b	M103

The abbreviated notations in the second column above (not used in these service manuals) are used in the operating instructions to distinguish the machine models:

- P: Printer only
- TiO: Three-in-1 (printer, copier, scanner)
- FiO: Four-in-1 (printer, copier, scanner, FAX)

★ Important

- Throughout this manual the machines are referenced by the model numbers only: M101, M102, M103.

AIO (All In One) Cartridge

The AIO (print cartridge) in the center of the machine is permanently sealed around these main elements of the printing mechanisms: 1) OPC drum, 2) charge unit, 3) development unit, 4) drum cleaning unit, and 5) toner supply unit.

- This print cartridge is called the "AIO" (All-In-One) throughout this service manual.
- When toner runs out, the AIO can be refilled by the service technician or the AIO can be replaced by the operator. Refilling requires removal of two caps: the square cap to dump the toner and the round cap for refilling. These two parts are the only service parts for the AIO. There are no other service parts for the AIO.
- The AIO can be easily removed and replaced by the user. For more details, please refer to the operating instructions.

Key Presses

Symbol	What It Means
[Key]	The names of machine operation panel keys and PC keyboard keys are enclosed in square brackets.
Select	This means to press one of the arrow keys to move the menu selector up/down (▼▲) or left/right (◀▶) to the menu selection you want and then press [OK] on the machine operation panel.
>	A right angle bracket means to select a menu item (enclosed in quotation marks) by pressing the right or left arrow key and then pressing [OK]. For example, [User Tools] > Select "System Settings" > "Tray Paper Settings" means, Press the [User Tools], press the right arrow to highlight "System Settings" and press [OK], and then press [OK] to select "Tray Paper Settings".

RoHS Compliance

These machines are fully compliant with Chinese RoHS and contain no restricted materials such as lead, mercury, cadmium, hexavalent chrome, polybrominated biphenyl, or polybrominated diphenyl ether.

Warnings, Cautions, Notes

In this manual, the following important symbols and notations are used.

WARNING

- A Warning indicates a potentially hazardous situation. Failure to obey a Warning could result in death or serious injury.

CAUTION

- A Caution indicates a potentially hazardous situation. Failure to obey a Caution could result in minor or moderate injury or damage to the machine or other property.

Important

- Obey these guidelines to avoid problems such as misfeeds, damage to originals, loss of valuable data and to prevent damage to the machine

Note

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

General Safety Instructions

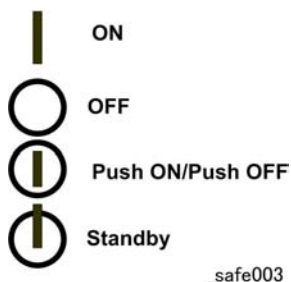
For your safety, please read this manual carefully before you use this product. Keep this manual handy for future reference.

Safety Information

Always obey the following safety precautions when using this product.

Safety During Operation

In this manual, the following important symbols and notations are used.



Switches and Symbols

Where symbols are used on or near switches on machines for Europe and other areas, the meaning of each symbol conforms with IEC60417.

Responsibilities of the Customer Engineer

Customer Engineer

Maintenance shall be done only by trained customer engineers who have completed service training for the machine and all optional devices designed for use with the machine.

Reference Material for Maintenance

- Maintenance shall be done using the special tools and procedures prescribed for maintenance of the machine described in the reference materials (service manuals, technical bulletins, operating instructions, and safety guidelines for customer engineers).
- Use only consumable supplies and replacement parts designed for use with the machine.

Before Installation, Maintenance

Shipping and Moving the Machine

CAUTION

- Work carefully when lifting or moving the machine. If the machine is heavy, two or more customer engineers may be required to prevent injuries (muscle strains, spinal injuries, etc.) or damage to the machine if it is dropped or tipped over.
- Personnel moving or working around the machine should always wear proper clothing and footwear. Never wear loose fitting clothing or accessories (neckties, loose sweaters, bracelets, etc.) or casual footwear (slippers, sandals, etc.) when lifting or moving the machine.
- Always unplug the power cord from the power source before you move the machine. Before you move the product, arrange the power cord so it will not fall under the machine.

Power

WARNING

- Always disconnect the power plug before doing any maintenance procedure. After switching off the machine, power is still supplied to the main machine and other devices. To prevent electrical shock, switch the machine off, wait for a few seconds, then unplug the machine from the power source.
- Before you do any checks or adjustments after turning the machine off, work carefully to avoid injury. After removing covers or opening the machine to do checks or adjustments, never touch electrical components or moving parts (gears, timing belts, etc.).
- After turning the machine on with any cover removed, keep your hands away from electrical components and moving parts. Never touch the cover of the fusing unit, gears, timing belts, etc.

Installation, Disassembly, and Adjustments

CAUTION

- After installation, maintenance, or adjustment, always check the operation of the machine to make sure that it is operating normally. This ensures that all shipping materials, protective materials, wires and tags, metal brackets, etc., removed for installation, have been removed and that no tools remain inside the machine. This also ensures that all release interlock switches have been restored to normal operation.
- Never use your fingers to check moving parts causing spurious noise. Never use your fingers to lubricate moving parts while the machine is operating.

Special Tools

CAUTION

- Use only standard tools approved for machine maintenance.
- For special adjustments, use only the special tools and lubricants described in the service manual. Using tools incorrectly, or using tools that could damage parts, could damage the machine or cause injuries.

During Maintenance

General

CAUTION

- Before you begin a maintenance procedure: 1) Switch the machine off, 2) Disconnect the power plug from the power source, 3) Allow the machine to cool for at least 10 minutes.
- Avoid touching the components inside the machine that are labeled as hot surfaces.

Safety Devices

WARNING

- Never remove any safety device unless it requires replacement. Always replace safety devices immediately.
- Never do any procedure that defeats the function of any safety device. Modification or removal of a safety device (fuse, switch, etc.) could lead to a fire and personal injury. Always test the operation of the machine to ensure that it is operating normally and safely after removal and replacement of any safety device.
- For replacements use only the correct fuses or circuit breakers rated for use with the machine. Using replacement devices not designed for use with the machine could lead to a fire and personal injuries.

Organic Cleaners

CAUTION

- During preventive maintenance, never use any organic cleaners (alcohol, etc.) other than those described in the service manual.
- Make sure the room is well ventilated before using any organic cleaner. Use organic solvents in small amounts to avoid breathing the fumes and becoming nauseous.

-
- Switch the machine off, unplug it, and allow it to cool before doing preventive maintenance. To avoid fire or explosion, never use an organic cleaner near any part that generates heat.
 - Wash your hands thoroughly after cleaning parts with an organic cleaner to prevent contamination of food, drinks, etc. which could cause illness.
 - Clean the floor completely after accidental spillage to prevent slippery surfaces that could cause accidents leading to hand or leg injuries. Use dry rags to soak up spills.

Power Plug and Power Cord

WARNING

- Before servicing the machine (especially when responding to a service call), always make sure that the power plug has been inserted completely into the power source. A partially inserted plug could lead to heat generation (due to a power surge caused by high resistance) and cause a fire or other problems.
- Always check the power plug and make sure that it is free of dust and lint. Clean it if necessary. A dirty plug can generate heat which could cause a fire.
- Inspect the length of the power cord for cuts or other damage. Replace the power cord if necessary. A frayed or otherwise damaged power cord can cause a short circuit which could lead to a fire or personal injury from electrical shock.
- Check the length of the power cord between the machine and power supply. Make sure the power cord is not coiled or wrapped around any object such as a table leg. Coiling the power cord can cause excessive heat to build up and could cause a fire.
- Make sure that the area around the power source is free of obstacles so the power cord can be removed quickly in case of an emergency.
- Make sure that the power cord is grounded (earthed) at the power source with the ground wire on the plug.
- Connect the power cord directly into the power source. Never use an extension cord.
- When you disconnect the power plug from the power source, always pull on the plug, not the cable.

After Installation, Servicing

Disposal of Used Items

WARNING

- Never incinerate used toner, toner cartridges, or AIO units.

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- Toner thrown into a fire can ignite or explode and cause serious injury. At the work site always carefully wrap used toner and toner cartridges with plastic bags to avoid spillage before disposal or removal.

CAUTION

- Always dispose of used items (developer, toner, toner cartridges, OPC drums, AIO units, etc.) in accordance with the local laws and regulations regarding the disposal of such items.
- To protect the environment, never dispose of this product or any kind of waste from consumables at a household waste collection point. Dispose of these items at one of our dealers or at an authorized collection site.
- Return used drums to the service center for handling in accordance with company policy regarding the recycling or disposal of such items.

Points to Confirm with Operators

At the end of installation or a service call, instruct the user about use of the machine. Emphasize the following points.

- Show operators how to remove jammed paper and troubleshoot other minor problems by following the procedures described in the operating instructions.
- Point out the parts inside the machine that they should never touch or attempt to remove.
- Confirm that operators know how to store and dispose of consumables.
- Make sure that all operators have access to an operating instruction manual for the machine.
- Confirm that operators have read and understand all the safety instructions described in the operating instructions.
- Demonstrate how to turn off the power and disconnect the power plug (by pulling the plug, not the cord) if any of the following events occur: 1) something has spilled into the product, 2) service or repair of the product is necessary, 3) the product cover has been damaged.
- Caution operators about removing paper fasteners around the machine. They should never allow paper clips, staples, or any other small metallic objects to fall into the machine.

Special Safety Instructions for Toner

Accidental Physical Exposure

CAUTION

- Work carefully when removing paper jams or replacing toner bottles or cartridges to avoid spilling toner on clothing or the hands.

-
- If toner is inhaled, immediately gargle with large amounts of cold water and move to a well ventilated location. If there are signs of irritation or other problems, seek medical attention.
 - If toner gets on the skin, wash immediately with soap and cold running water.
 - If toner gets into the eyes, flush the eyes with cold running water or eye wash. If there are signs of irritation or other problems, seek medical attention.
 - If toner is swallowed, drink a large amount of cold water to dilute the ingested toner. If there are signs of any problem, seek medical attention.
 - If toner spills on clothing, wash the affected area immediately with soap and cold water. Never use hot water! Hot water can cause toner to set and permanently stain fabric.

Handling and Storing Toner

WARNING

- Toner, used toner, and developer are extremely flammable.
- Never store toner, developer, toner cartridges, or toner bottles (including empty toner bottles or cartridges), or AIO units in a location where they will be exposed to high temperature or an open flame.

CAUTION

- Always store toner and developer supplies such as toner and developer packages, cartridges, bottles (including used toner and empty bottles and cartridges) and AIO units out of the reach of children.
- Always store fresh toner supplies or empty bottles or cartridges in a cool, dry location that is not exposed to direct sunlight.

Toner Disposal

WARNING

- Never attempt to incinerate toner, used toner, or empty toner containers (bottles or cartridges). Burning toner can explode and scatter, causing serious burns.
- Always wrap used toner and empty toner bottles and cartridges in plastic bags to avoid spillage. Follow the local laws and regulations regarding the disposal of such items.
- Dispose of used toner and toner cartridges at one of our dealers or at an authorized collection site. Always dispose of used toner cartridges and toner bottles in accordance with the local laws and regulations regarding the disposal of such items.

Safety Instructions for the Machine

Prevention of Physical Injury

1. Before disassembling or assembling parts of the machine and peripherals, make sure that the machine and peripheral power cords are unplugged.
2. The plug should be near the machine and easily accessible.
3. Note that some components of the machine and the paper tray unit are supplied with electrical voltage even if the main power switch is turned off.
4. 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.
5. If the [Start] key is pressed before the machine completes the warm-up period (the [Start] key starts blinking red and green), keep hands away from the mechanical and the electrical components, because the machine starts making copies as soon as the warm-up period is completed.
6. 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.
7. To prevent a fire or explosion, keep the machine away from flammable liquids, gases, and aerosols.

Health Safety Conditions

1. If the machine has ozone filters, never operate the machine without the ozone filters installed. Always replace the ozone filters with the specified types at the proper intervals.
2. To avoid possible accumulation of ozone in the work area, locate the machine in a large well ventilated room that has an air turnover rate of more than $30\text{m}^3/\text{hr}/\text{person}$.
3. Toner and developer are 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

1. The machine and its peripherals must be installed and maintained by a customer service representative who has completed the training course on those models.
2. The NVRAM on the system control board has a lithium battery which can explode if replaced incorrectly. Replace the NVRAM only with an identical one. The manufacturer recommends replacing the entire NVRAM. Do not recharge or burn this battery. Used NVRAM must be handled in accordance with local regulations.

Safety and Ecological Notes for Disposal

1. Never incinerate toner bottles or used toner. Toner dust may ignite suddenly when exposed to an open flame.
2. Dispose of used toner, developer, and organic photoconductors in accordance with local regulations. (These are non-toxic supplies.)
3. Dispose of replaced parts in accordance with local regulations.
4. When keeping used lithium batteries in order to dispose of them later, do not put more than 100 batteries per sealed box. Storing larger numbers or not sealing them apart may lead to chemical reactions and heat build-up.

CAUTION

- 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 used batteries in accordance with the manufacturer's instructions.

Laser Safety



1. The Center for Devices and Radiological Health (CDRH) prohibits the repair of laser-based optical units in the field.
2. The optical housing unit can only be repaired in a factory or at a location with the requisite equipment.
3. The laser subsystem is replaceable in the field by a qualified Customer Engineer.
4. The laser chassis is not repairable in the field.
5. 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.
- Turn off the main switch before attempting any of the procedures in the Laser Unit section. Laser beams can seriously damage your eyes.

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1. Product Information

Specifications

1

See "Appendices" for the following information:

- Before You Read These Specifications
- General Specifications
- Printer Specifications (M101, M102, M103)
- Copier Specifications (M102, M103)
- Scanner Specifications (M102, M103)
- Fax Specifications (M103 Only)
- Reports
- Software Specifications

New Product Information

1

Series Machines Compared

General Differences

This service manual applies to three machines in the same series.

Name	Abbrev.	Model No.
Aficio SP 100	P	M101
Aficio SP 100SU	TiO	M102
Aficio SP 100SF	FiO	M103

The abbreviated notations in the second column above are used in the operating instructions to distinguish the machine models:

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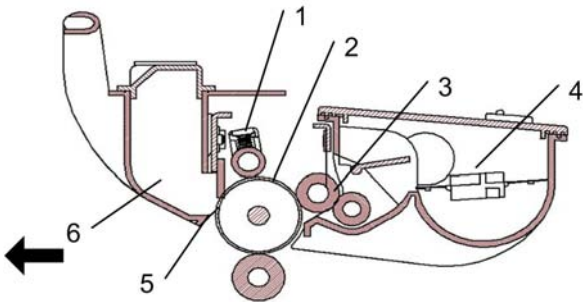
- Throughout this manual the machines are referenced by the model numbers only: M101, M102, M103.



The three machines easily identified by their external appearances.

- The M101 has a very small operation panel (1) on the right with only two buttons and no display. The top of the machine is covered by a thin maintenance cover (2).
- The M102 has a larger operation panel (3) on the left with more buttons and a 2-digit display. The top of the machine is covered by a platen cover (4) and flatbed scanner unit (5).
- The M103 has an operation panel (6) in front with an full array of buttons, a 10-key panel, and a 7-digit display. The top of the machine is covered by a ADF (7) that can hold and feed 15 originals, and a flatbed scanner unit (8).

Common AIO



m101f012

The AIO (All In One) cartridge (or print cartridge) in the center of the machine is permanently sealed around the main elements of the printing mechanisms: (1) drum charge unit, (2) drum, (3) development unit, (4) tone supply unit, (5) cleaning blade, and (6) waste toner collection tank.

- Throughout the service manual this unit is called the "AIO" (All-In-One).
- The AIO is common to all three machines of this series.
- There are no serviceable parts inside the AIO. (Disassembly of an AIO is never required.)
- An AIO can be refilled up to three times (this is the approximate service life of the drum).
- The AIO can be easily removed and replaced by the user.

Feature Summary

General Features

Unlike other machines in their class, these machines are not inkjet or Gejjet printers—they are laser printers. The three machines of this series have these common features:

- Thin printers have a small footprint and require little space.
- They are extremely light and easy to carry M101 (6.2 kg or 13.6 lb.), M102 (8 kg or 17.6 lb.), M103 (9 kg or 19.8 lb.).
- Their AIO units are identical and allow up to three refills with non-toxic developer/toner.

Here is a quick feature comparison.

Standard Features	M101	M102	M103
ADF Unit	No	No	Yes
Fax Unit	No	No	Yes
Operation Panel	LEDs only	2-Digit	7-Line

Standard Features	M101	M102	M103
Output Tray (10 sheets)	Yes	Yes	Yes
Paper Tray (50 sheets)	Yes	Yes	Yes
Platen (book mode scanning)	No	Yes	Yes

The following features are not supported by these machines:

- Bulk paper feed unit (only one small tray is available)
- USB2 Print, Scan2 USB
- Handset for fax with M103
- Wireless LAN option
- NRS support (no UZ, Basil, or Cumin options available)
- Memory expansion
- HDD expansion
- G3 expansion (no G3 option available for M103)
- PictBridge

Duplex Printing

These machines have no mechanism for automatic duplexing.

- However, the operator can run a print job and print on the first side of the pages, remove the printed sheets from the output tray, turn the stack over so the blank side is facing up, load the stack in the paper feed tray, and then run another job to print on the second sides of the pages.
- Both portrait and landscape printing are possible. Duplex printing must be set up with the print application. For more details, refer to the operating instructions.

Important Points to Remember

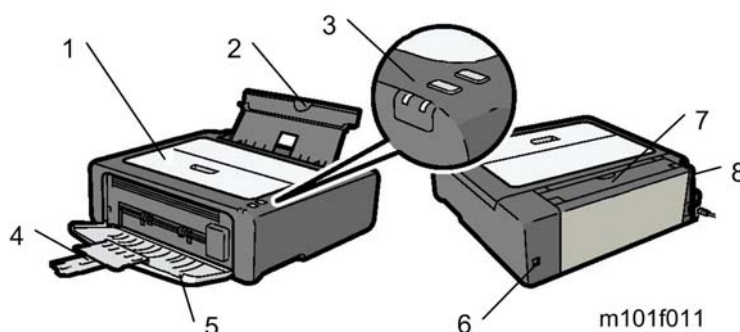
These are very important points to keep in mind while using the service manual:

- **Functionality.** Only the M103 has both the ADF and flatbed unit. The M102 has the flatbed unit but not the ADF. The M101 has neither ADF nor flatbed.
- **Smart Organizing Monitor.** This utility (installed with the printer driver at installation) is used to configure the system and handle errors of all three machines of this series.
- **Message and error displays.** Only the M103 has a 7-digit display that can show errors (SC codes) and messages. The M102 display is limited to two digits, and the M101 has no display. The Service Mode of Smart Organizing Monitor can be used to view error messages for all three machines.

- **User Tool.** Only the M103 has a [User Tool] button which opens the User Tool menu settings used to configure the machine. The Service Mode of the Smart Organizing Monitor is used to configure all three machines. (The User Tool menus on the M103 are duplicated in the Service Mode, so either feature can be used to configure the M103.)
- **Scanning.** The M102, M103 both support applications that use the TWAIN and WIA drivers for scanning. The originals can be scanned and saved directly onto a computer disk.

General Configuration

M101 Configuration



1 Maintenance Cover

Raise to install AIO or to clear paper jams.

2 Paper Tray

Holds 50 sheets of paper for continuous feed.

3 Operation Panel

Consists of the Power and Alert LEDs, and two keys (the Force Feed key and Reset key).

4 Output Tray Extension

Pull out and extend to hold paper as it exits the machine.

5 Output Tray

Holds paper as it exits the printer. Folds up against the machine when it is not being used.

6 USB Port

Connection point for connection to a computer with a USB cable.

7 Paper Tray Cover

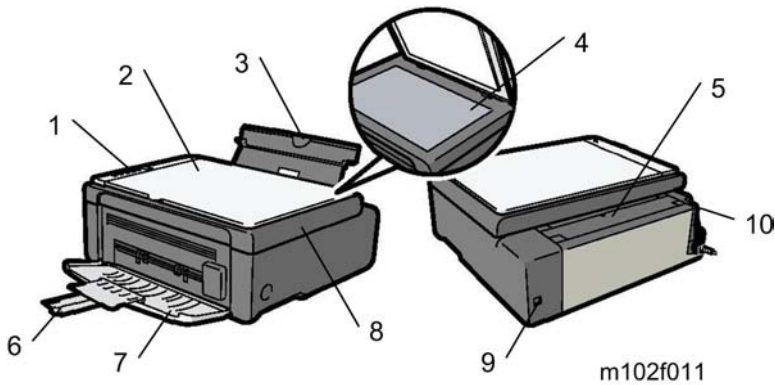
Raise to extend the paper tray, and lower after pushing the paper tray down into the machine.

8 Power Switch

Cycles the machine power on/off.

M102 Configuration

1



1 Operation Panel

Holds the keys and 2-digit display for printer operation.

2 Platen

Covers the exposure glass.

3 Paper Tray

Holds 50 sheets of paper for continuous feed.

4 Exposure Glass

Place sheets here, one by one for copying.

5 Paper Tray Cover

Raise to extend the paper tray, and lower after pushing the paper tray down into the machine.

6 Output Tray Extension

Pull out and extend to hold paper as it exits the machine.

7 Output Tray

Holds paper as it exits the printer. Folds up against the machine when it is not being used..

8 Flatbed Scanner

Scans the original on the exposure glass. Also raises and lowers for installation of the AIO and paper jam removal.

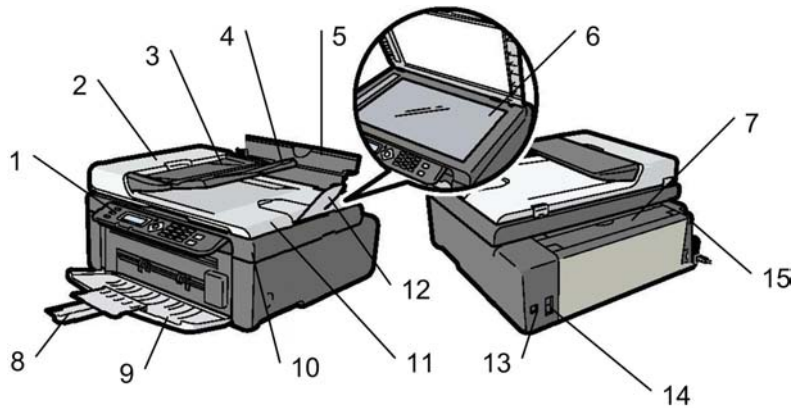
9 USB Port

Connection point for connection to a computer with a USB cable.

10 Power Switch

Cycles the machine power on/off.

M103 Configuration



1 Operation Panel

Holds the keys and 2-digit display for printer operation.

2 ADF Cover

Opens for removal of originals that jam during scanning.

3 Original Tray

Holds originals for scanning.

4 Original Tray Extension

Extends for scanning long originals.

5 Paper Tray

Holds 50 sheets of paper for continuous feed.

6 Exposure Glass

Place sheets here, one by one for copying.

7 Paper Tray Cover

Raise to extend the paper tray, and lower after pushing the paper tray down into the machine.

8 Output Tray Extension

Pull out and extend to hold paper as it exits the machine.

9 Output Tray

Holds paper as it exits the printer. Folds up against the machine when it is not being used.

10 Flatbed Scanner

Scans the original on the exposure glass. Also raises and lowers with the ADF for installation of the AIO and paper jam removal.

11 ADF (Auto Document Feeder)

Holds up to 15 originals for continuous scanning. Raises and lowers with the flatbed scanner below for installation of the AIO, removing paper jams, and placing an original on the exposure glass for book-mode scanning.

12 Original Output Tray

Holds up to 15 originals after they have been scanned.

13 USB Port

Connection point for connection to a computer with a USB cable.

14 Line and TEL Connector

The upper connector is the connection point for an external telephone. The lower connector is the connection point the G3 line interface (a telephone line).

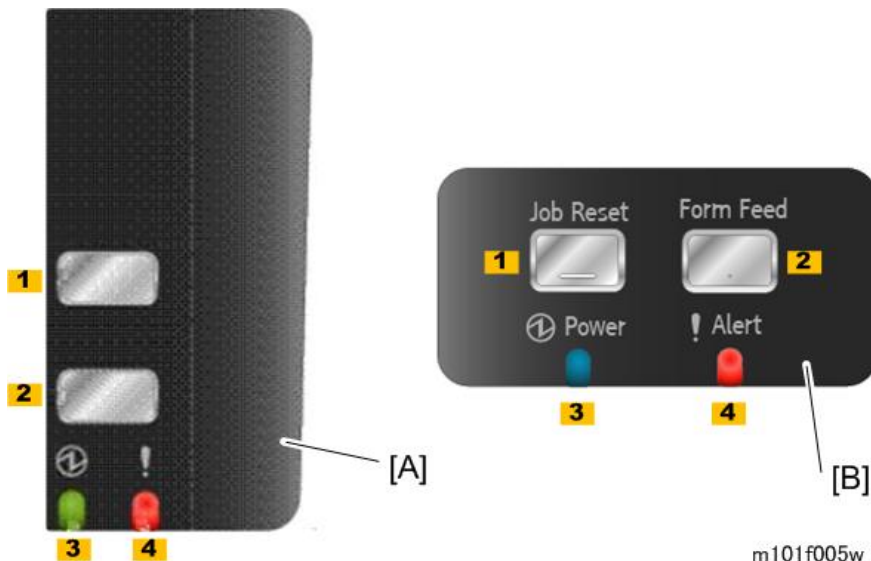
15 Power Switch

Cycles the machine power on/off.

Operation Panels

The operation panel for each machine of this series is different.

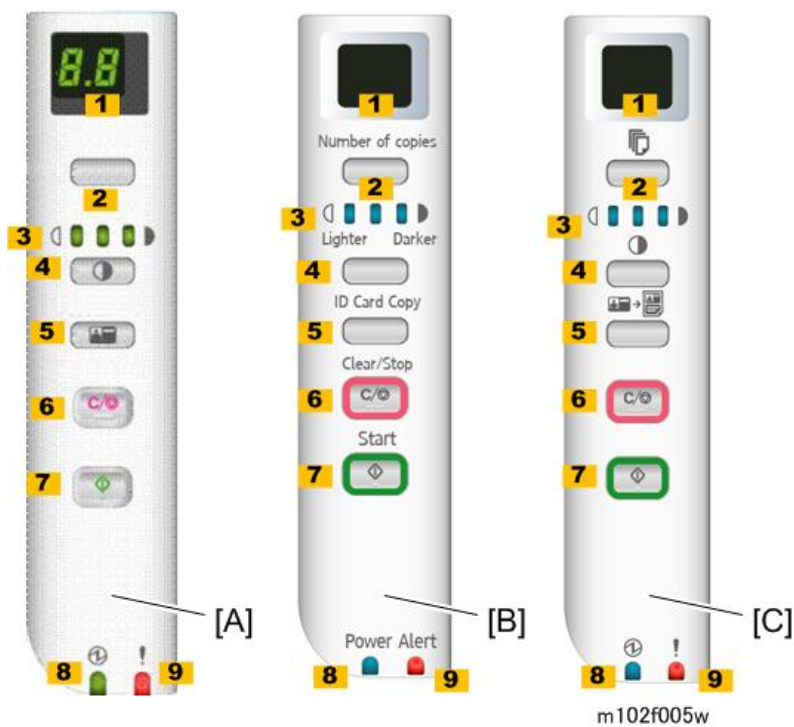
M101 Operation Panel



[A]: CHN, [B]: NA/EU

No.	Name
1	Reset Key
2	Force Feed Key
3	Power Indicator
4	Alert Indicator

M102 Operation Panel

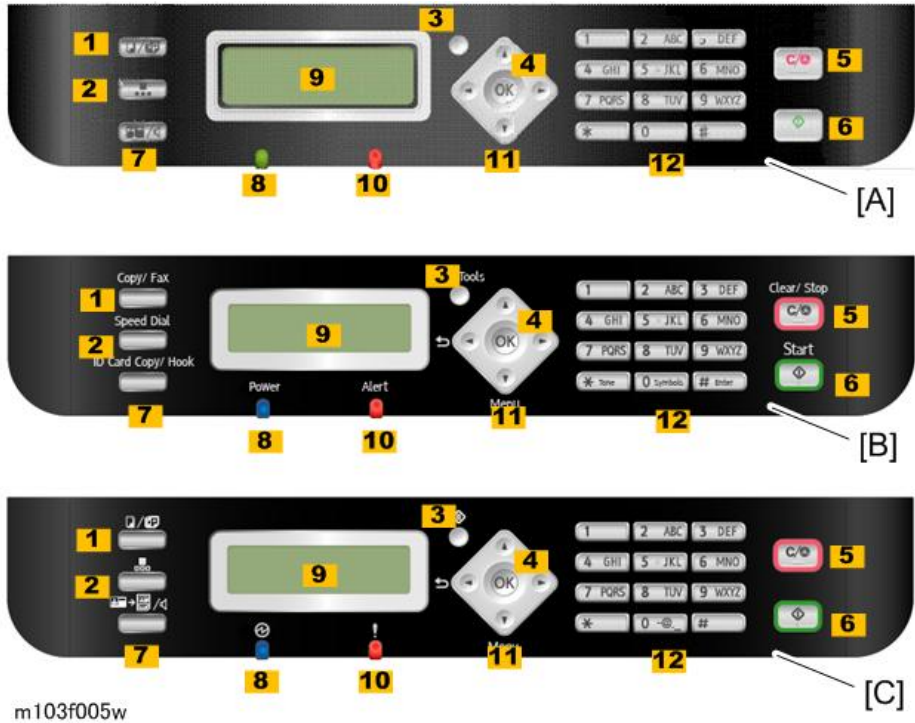


[A]: CHN, [B]: NA, [C]: EU

No.	Name	No.	Name
1	Display (LCD)	6	Cancel/Stop Key
2	Copy Number Key	7	Start Key
3	Density Indicator	8	Power Indicator
4	Density Key	9	Alert Indicator

No.	Name	No.	Name
5	ID Copy Key		

M103 Operation Panel



[A]: CHN, [B]: NA, [C]: EU

No.	Name	No.	Key Name
1	Copy/Fax Key	7	ID Copy/On Hook Key
2	Speed Dial Key	8	Power Indicator
3	User Tools Key	9	Display Screen (LCD)
4	OK key	10	Alert Indicator
5	Cancel/Stop Key	11	Scroll Keys
6	Start Key	12	Number Keys

Alert LEDs

Power LED

The Power LED remains OFF while the machine is turned off. The Power LED lights and remains ON:

- After the machine is turned on and enters the Ready mode
- While the machine is in energy save mode

The Power LED FLASHES at 1 sec. intervals when

- The PC is communicating with the machine
- After picking up handset to talk (M103)
- During copying (M102, M103)
- During printing
- During scanning (M102, M103)
- During firmware update

Alert LED

The alert LED remains OFF while the printer is functioning normally or goes OFF after a problem with the machine has been resolved.

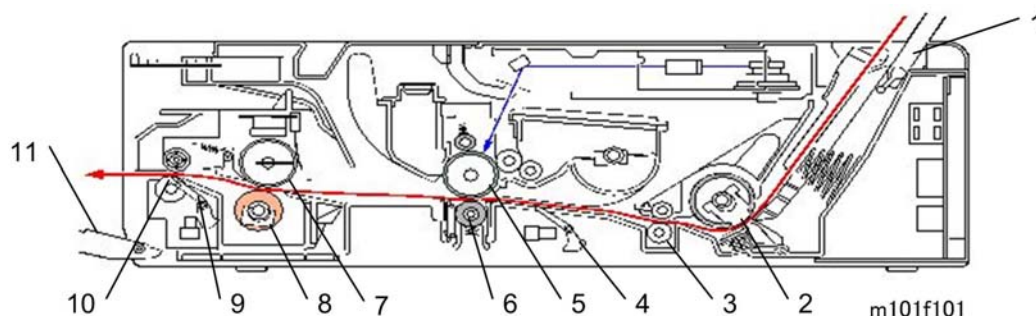
The alert LED lights and remains ON:

- When the machine malfunctions
- Service Call errors (SC codes will display on the M102, M103)
- At toner end
- If the top cover or maintenance cover is open
- When a paper or original jam occurs
- When the paper tray runs out of paper

Overview

1

Paper Path



1	Paper Tray	7	Hot Roller
2	Pickup Roller	8	Pressure Roller
3	Feed Rollers	9	Exit Sensor
4	Registration Sensor	10	Exit Rollers
5	Drum	11	Output Tray
6	Transfer Roller		

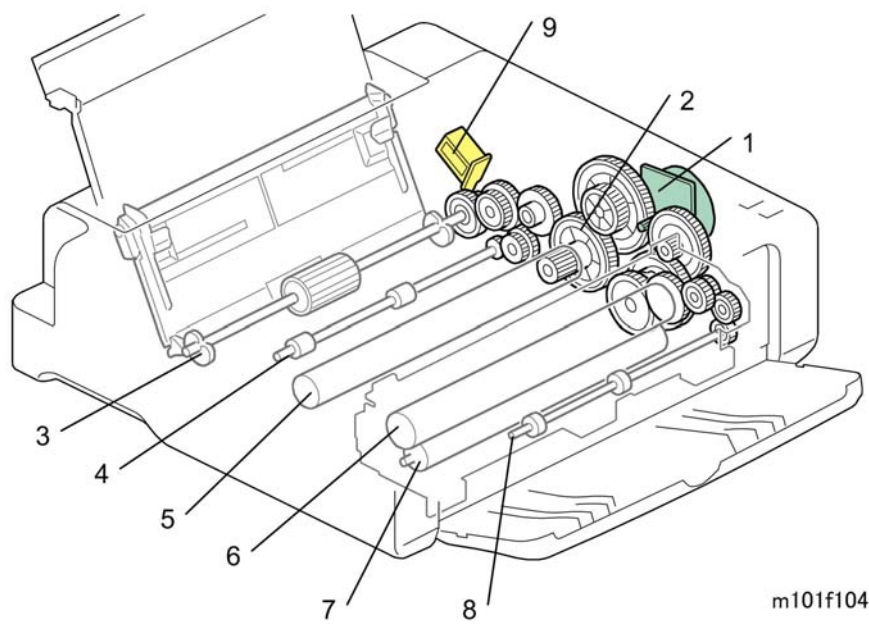
When paper passes through the machine:

- Paper (up to 50 sheets) is loaded in the paper tray (1). The pickup roller (2), driven by the main motor and engaged by the bypass solenoid, starts to rotate while a cam on the feed roller (3) (also driven by the main motor) raises the bottom plate of the tray against the pickup roller above. This pressure and the rotation of the pickup roller, feeds the sheet of paper from the tray.
- The paper feeds between the nip of the feed rollers.
- The registration sensor (4) detects the leading edge of the paper. This triggers the laser unit above which writes the image onto the drum. The registration sensor will trigger an error if the leading and trailing edge of the paper does not pass within the prescribed time. (The timing is different, depending on the lengths of different paper sizes.)
- The paper passes through the nip of the drum (5) and transfer roller (6). The transfer roller pulls the toner image from the drum onto the paper.
- The toner image is fused onto the paper when it passes through the nip of the hot roller (7) and pressure roller (8).

- The exit sensor (9) detects the leading edge and trailing edge of the paper. The sensor will trigger a jam alert if the leading and trailing edge do not pass within the time prescribed for the length of the paper (determined by the selected paper size).
- Finally, the paper passes through the nip of the exit rollers (10) and is stacked face-up on the output tray (11).

1

Drive Layout

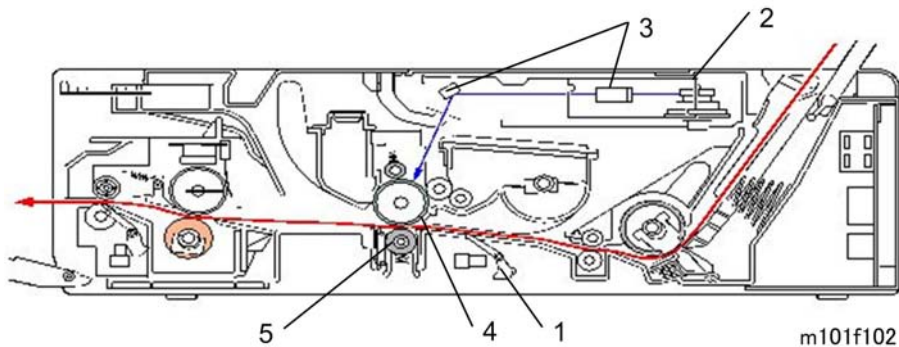


1	Main Motor	6	Hot Roller
2	Gear Train	7	Pressure Roller
3	Pickup Roller	8	Exit Rollers
4	Feed Rollers	9	Pickup Roller Solenoid
5	Drum (inside AIO)		

One main motor (1) and a gear train (2) drive (3) pickup roller, (4) feed rollers, (5) drum, (6) hot roller, (7) pressure roller, and (8) exit rollers. The pickup roller solenoid (9) engages and disengages the rotation of the pickup roller during paper feed.

Image Writing

1



1	Registration Sensor
2	Polygon Mirror
3	Lenses, Mirrors
4	Drum
5	Transfer Roller

The registration sensor (1) detects the leading edge of the paper fed from the feed rollers and triggers the laser unit to fire the laser. The polygon mirror (2) shoots the laser through lenses and mirrors (3) and onto the surface of the drum (4). Toner from the AIO forms the image on the drum. The toner image is pulled from the surface on the drum onto the paper by the transfer roller (5).

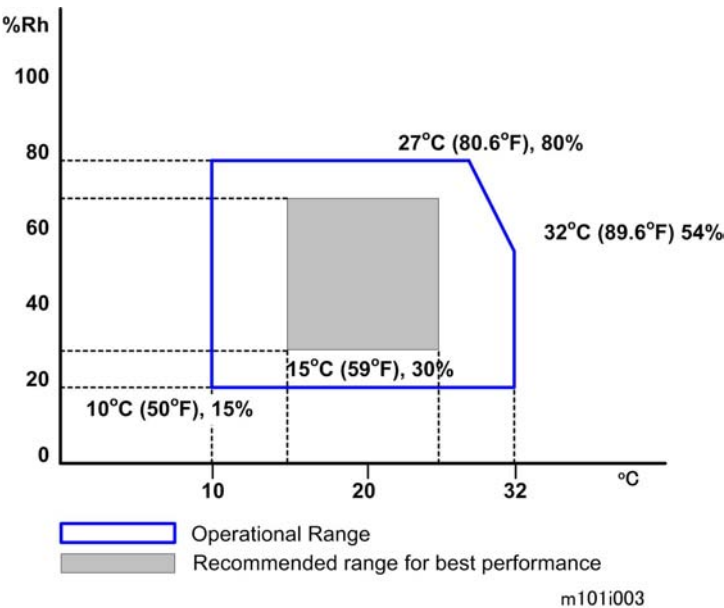
2. Installation

Installation Requirements

Installation Procedure

For instructions on unpacking the machine, installing the print cartridge, connection and software installation, please refer to the operating instructions Quick Installation Guide.

Environment



Temperature	15°C to 25°C (59°F to 77°F)
Humidity	30% to 70% rH

1. The machine can be used slightly out of the recommended ranges for temperature and humidity ("Operational Range"), but for best performance use the temperature within the recommended ranges.
2. Ambient Illumination: Less than 2,000 lux (do not expose the AIO to strong light, especially direct sunlight)
3. Ventilation: 3 times/hr/person

4. Do not put the machine in areas with sudden temperature changes. This includes:
 - Areas directly exposed to cool air from air conditioning
 - Areas directly exposed to heat from a heating system.
5. Do not put the machine in areas exposed to corrosive gas.
6. Do not install the machine at locations over 2,000 m (6,562 ft.) above sea level.
7. Put the machine on a strong, level base. (Tilting towards any side must be no more than 3 mm.)
8. Do not put the machine in areas with strong vibrations.

Power Requirement

Power Source:

220 to 240V 50/60 Hz 4A or less (Asia/ EU)

120V 60 Hz 6A or less (NA)

Check the machine installation and confirm the following important points:

- Power plug fits tightly in the outlet.
- Power plug is clean and free of dust.
- The machine power plug is not connected to a shared source.
- The machine should be properly grounded.
- The power cord should be free and not wrapped around the leg of a chair or table, or bundled.

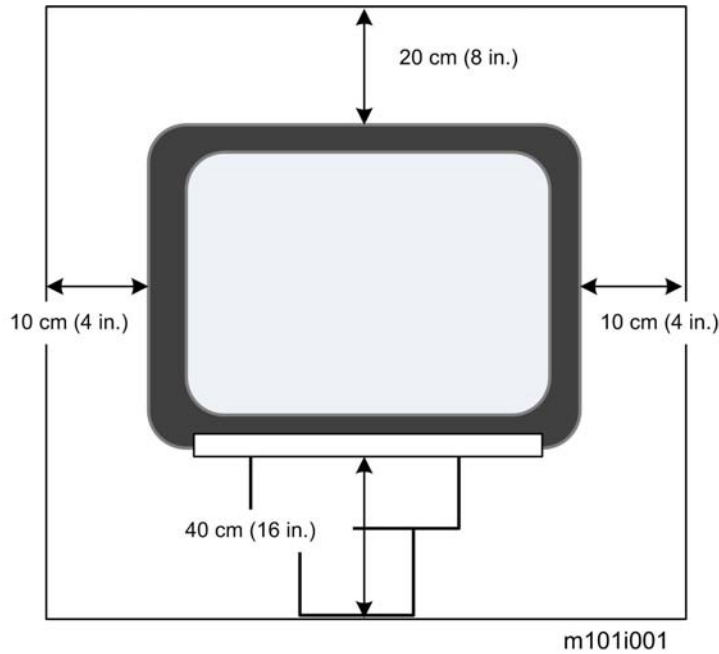
Machine Level

Make sure that the machine is located on a flat surface.

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

Space Requirements

The machine should be used in a location that meets these minimum space requirements.



There should be enough space at the front so the output tray can be opened and closed.

Moving the Machine

The machine is light, but be careful when you move it:

- Always lift the printer by the inset handles on the left and right sides.
- Leave the AIO in the machine while moving it.
- Hold the machine horizontal while carrying it to prevent possible toner scatter inside the machine.
- Before transporting the printer to a remote location, re-pack it in its original box and packing material.

Smart Organizing Monitor

Smart Organizing Monitor is the utility that allows the operator to view and change the machine settings for:

- Paper size and type
- System Settings:
- Printer settings
- Copy settings (for M102, M103)
- Fax settings (for the M103)

- Printing reports and test pages

The Smart Organizing Monitor is provided with the machine on a CD-ROM and must be installed together with the printer driver.

Important Features

2

Here are some important features you should remember:

- The AIO units for these machines have no ID chips attached to the AIO units.
- The toner supply is monitored using a dot count for the M103 only.
- The AIO units of these machines can be refilled by a trained service technician up to three times, depending on usage. This extends the service life of the AIO unit.
- Before loading paper, the paper size and paper type must be selected on the initial screen (System Settings) of the smart Organizing Monitor. The same paper size and paper type must also be selected with the printer driver at the start of a job. A mismatch error will occur if the paper size/type settings in the Smart Organizing Monitor and the printer driver are not the same.
- The accessory AIO (capacity: 500 prints) provided with the machine should be installed in the machine at installation. After the accessory AIO runs out of toner, it can be replaced with a new AIO (capacity: 2000 prints). This is especially important for the M103.

3. Preventive Maintenance

Cleaning the Machine

There are no PM parts for this machine. This section describes how the machine should be cleaned.

Before Cleaning

CAUTION

- Always switch the machine off and unplug it before cleaning.
- At least once a year, disconnect the power cable and clean the plug. Accumulated dust causes a fire hazard.

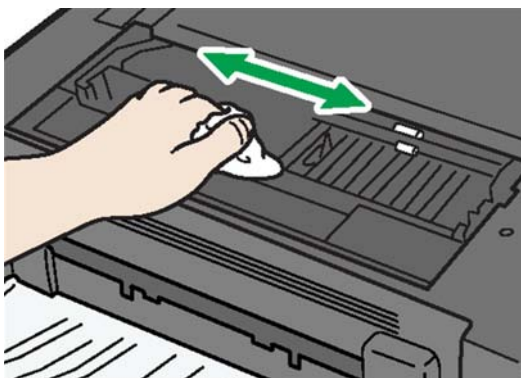
Important

- **Never use an organic solvent like benzene, thinner, acetone, etc. to clean the machine. These materials can damage the plastic covers and other parts of the printer.**

Make sure that the operators know how to clean the machine.

- The machine should be cleaned periodically with a dry cloth.
- If dry wiping is not sufficient, used a soft damp cloth with a neutral detergent and then dry wipe.
- Inspect the plug and clean away any dust or grime before reconnecting. Accumulated dust can cause a fire hazard.

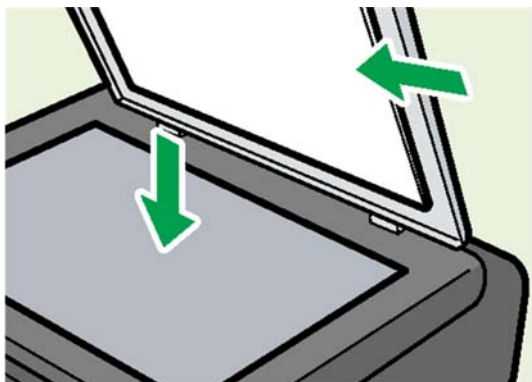
Routine Cleaning



m101p001

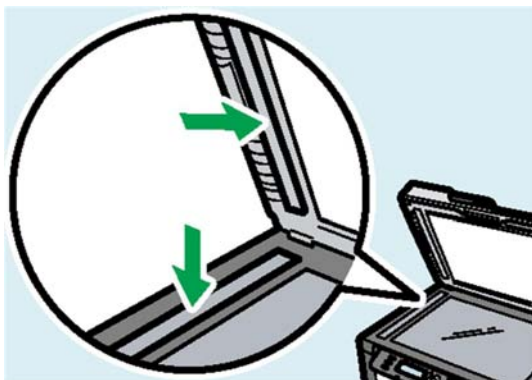
1. Remove the AIO and clean the inside surfaces of the printer with a dry cloth.

3



m101p002

2. Clean the exposure glass and white plate above the exposure glass of the M102/M103 with a soft damp cloth, and then wipe it with a dry cloth.



m101p003

3. Clean the scanning glass of the M103 with a soft damp cloth, and then wipe it with a dry cloth.

Note

- For more details about cleaning, please refer to the machine operating instructions.

4. Replacement and Adjustments

Before You Begin

Precautions

CAUTION

- To prevent electrical shock, always switch the machine off and unplug it from its power source.
- Allow the machine to cool for at least 10 minutes. This allows the fusing unit to cool and also allows time for the polygon mirror inside the laser unit to stop rotating.

4

Special Tools

There are no special tools required for disassembling the machine. However, you should have these items:

- Standard length hex screwdriver
- Stubby hex screwdriver
- Thin radio pliers

Printing the Test Page and Reports

The table below is a quick reference to help you find how to print a report. Detailed descriptions of these reports are provided in another section of this manual. (p.159 "Utilities")

Keep these points in mind when you use this table:

- The User Tools menu is available for the M103. (Only the M103 has the User Tools key.)
- The Fax Maintenance menus are available for the M103 only because only this machine has the fax feature.
- The Smart Organizing Monitor is available for all three machines for printing the Configuration Page and Test Page.

No.	Report	Procedure
1	Configuration Page	[User Tools] > "Report Print Set" > "Configuration Page"
2	Configuration Page	Start SOM > User Tools > select "Configuration Page" from the List/Test list > click [Print]

No.	Report	Procedure
3	Error Log History List	[Stop/Reset] > [1] [0] [7] > [Start] > "Fax Maintenance" > "Report" > "Error Log History List"
4	Fax Journal	[User Tools] > "Fax Features" > "Report Print Set" > "Fax Journal"
5	Fax Journal	[User Tools] > "Report Print Set" > "Fax Journal"
6	Fax Journal	Start SOM > User Tools > select "Fax Journal" from the List/Test list > click [Print]
78	Fax Speed Dial List	[User Tools] > "Report Print Set" > "Fax Speed Dial List"
9	Fax Speed Dial List	Start SOM > User Tools > select "Fax Speed Dial List" from the List/Test list > click [Print]
10	Fax Transmission Standby List	Start SOM > User Tools > select "Fax Transmission Standby List" from the List/Test list > click [Print]
11	Service Data List Sample	[Stop/Reset] > [1] [0] [7] > [Start] > "Fax Maintenance" > "Report" > "Service Data List Sample"
12	T.30 Protocol List Report	[Stop/Reset] > [1] [0] [7] > [Start] > "Fax Maintenance" > "Report" > "T.30 Protocol List Report"
13	TX Standby File List	[User Tools] > "Report Print Set" > "TX Standby File List"
14	TX Status Report	[User Tools] > "Fax Features" > "Report Print Set" > "TX Status Report"
15	TX Status Report	[User Tools] > "Report Print Set" > "TX Status Report"
16	Test Page	[User Tools] > "Report Print Set" > "Test Page"
17	Test Page (M103)	Start SOM > User Tools > select "Test Page" from the List/Test list > click [Print]
18	Test Page (All)	Start SOM > Enter service mode > Service Mode > [Print Test Sheet]

★ Important

- The detailed procedure for entering the service mode is provided in the training materials for these machines.

Basic Procedures

Before You Begin

This section describes the procedures that the service technician should know before servicing the machine. Most of the parts of the machines in this series are identical and interchangeable. However, please note that the main boards of these machines are not the same.

- **M101.** Main board has no connectors for the flatbed scanner or ADF.
- **M102.** Main board has flat connectors for the flatbed scanner only (not ADF).
- **M103.** Main board has flat connectors for both the flatbed scanner and ADF.

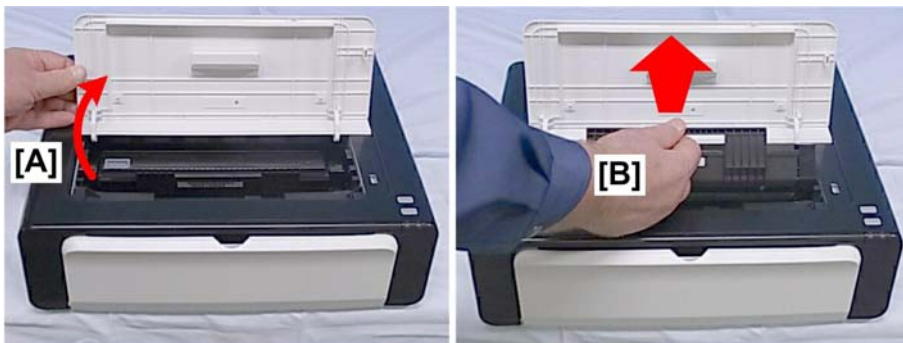
★ Important

- Before you service the machine, make sure that you know how to open the Service Mode screen of the Smart Organizing Monitor. This procedure is not described in this service manual.
- For more details about how to open the Service Mode screen of the Smart Organizing Monitor, refer to the service training material.

4

M101 Covers

M101 AIO



m101r001

1. Raise the top cover [A].
2. Grip the AIO [B] by its handle and pull it out of the machine.

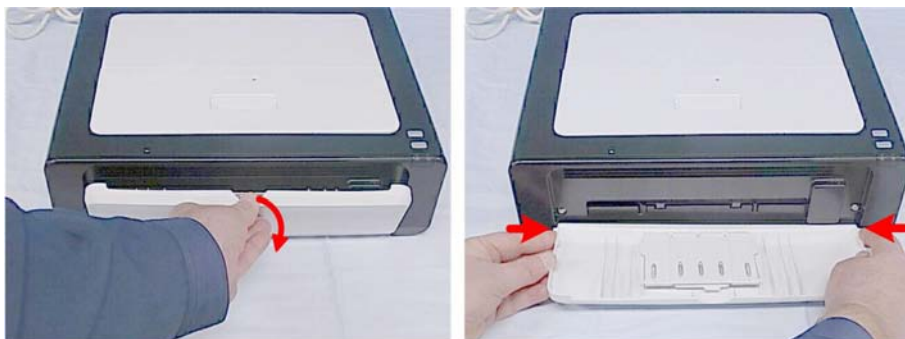


m102r002

3. Place the AIO on a flat clean surface as shown above so the drum is not exposed to light.

4

Output Tray



m101r003

1. Lower the output tray.
2. Press in on both ends to release the pegs on the left and right from their holes and remove the tray.


↓ Note

- You do not need to remove the output tray in order to remove the front cover.
- Avoid removal of the output tray unless you are replacing it.
- Repeatedly removing and attaching the output tray can weaken it and make it loose.

Front Cover



m101r004

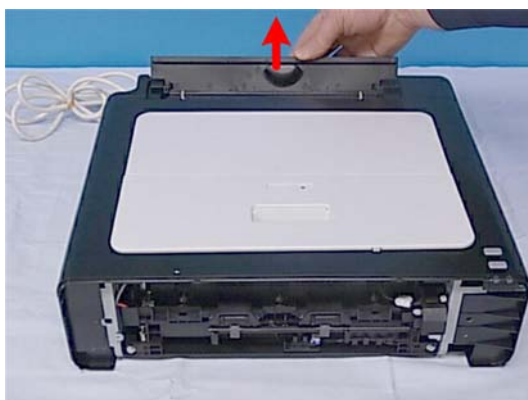
1. Lower the output tray and remove the front cover ( x2).

4

Top Cover

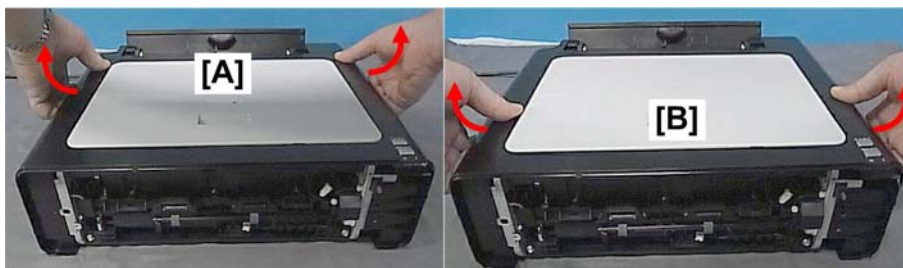
Preparation

- Remove front cover (See above)



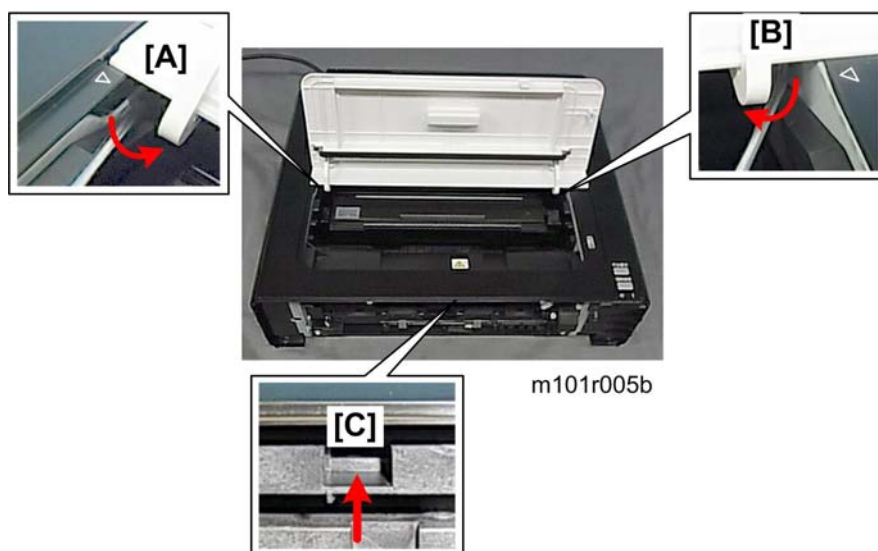
m101r005

1. Open the paper tray cover.



m101r005a

2. Release the rear tabs [A] on the left and right.
3. Release the front tabs [B] on the left and right.



4. Use the tip of a small screw driver to release the tabs at [A], [B], [C] (▼ x3)



5. Open the top cover [A] to the right.
6. Disconnect the operation panel [B] , and then remove the cover (▼ x1).

Maintenance Cover

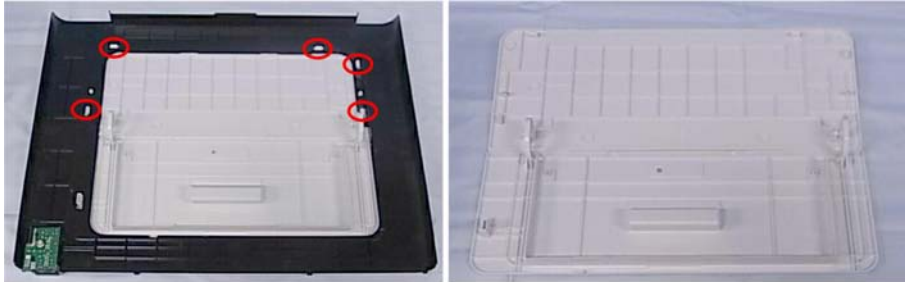
Preparation

Remove:

- Front cover
- Top cover

★ Important

- The top cover can be removed easily with the maintenance cover attached.
- Do not remove the maintenance cover unless it needs to be replaced. Repeatedly removing and attaching the maintenance cover can weaken or break the fragile tabs.



m101r007

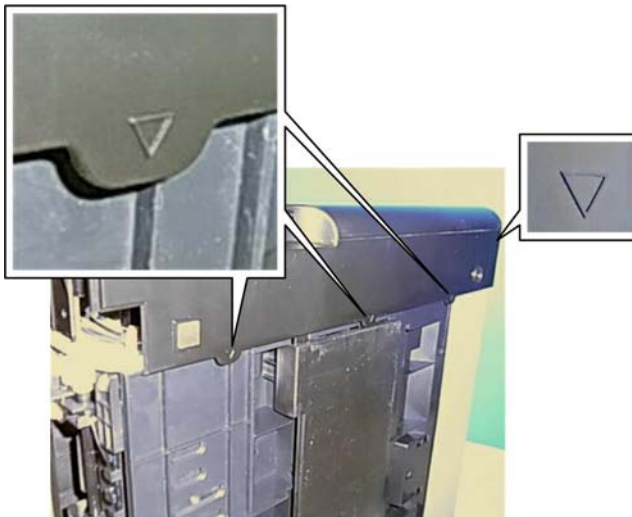
1. Lay the top cover on a flat surface.
2. Release the tabs and remove the maintenance cover (▼ x5).

Right Cover

Preparation

Remove:

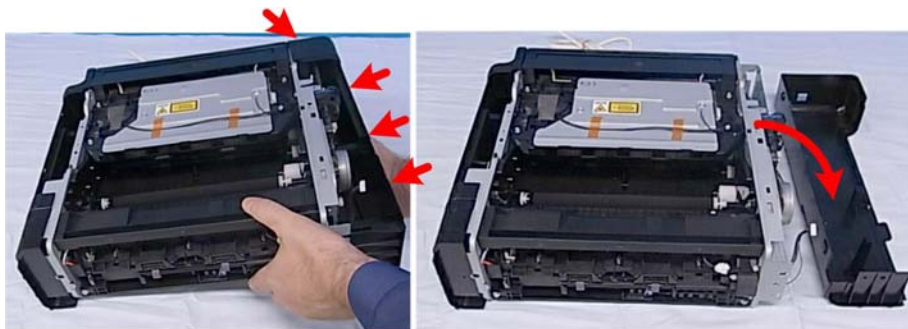
- Front cover
- Top cover



m101r008

1. Locate the triangle marks that show you where the tab releases are located.

- There are three tabs on the bottom.
- There is one tab on the back.



m101r009

4

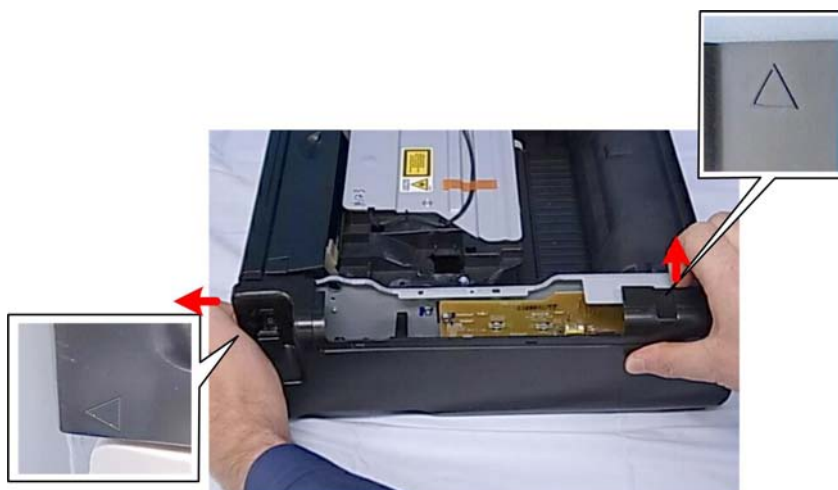
2. Lift the machine slightly.
3. Release the tab on the back (▼ x1).
4. Release the tabs on the bottom (▼ x3).
5. Separate the cover from the right side of the machine.

Left Cover

Preparation

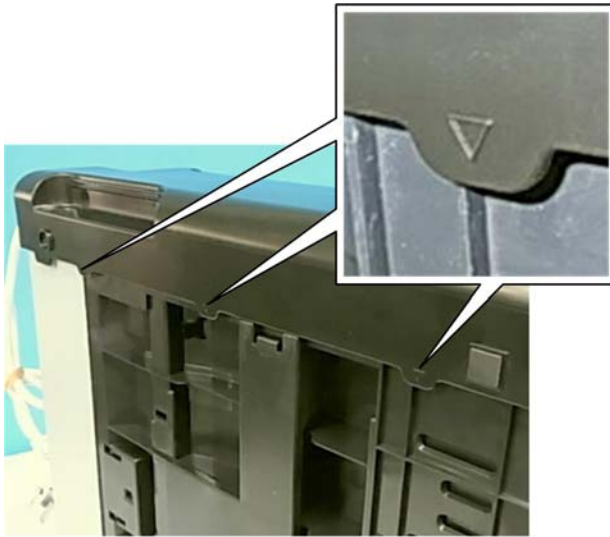
Remove:

- Front cover
- Top cover



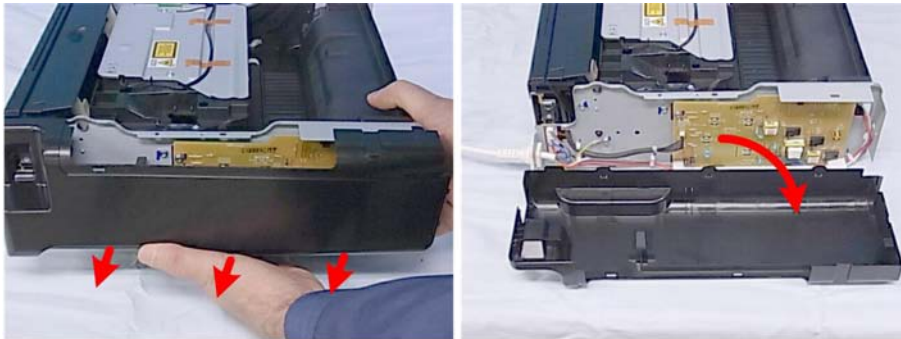
m101r010

1. Separate the tabs at the rear and front (▼ x2).



m101r011

2. Locate the triangle marks that show you where the tab releases are located on the bottom.



m101r012

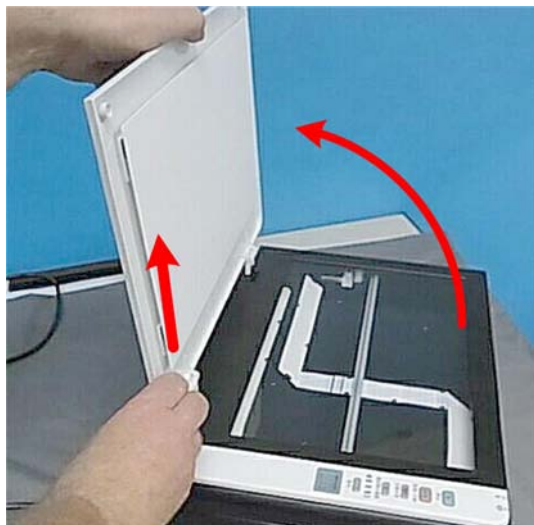
3. Release the tabs on the bottom (▼ x3).
4. Separate the cover from the left side of the machine.

Rear Cover

The rear cover does not require removal unless the PSU requires replacement (p. 134 "PSU")

M102 Covers, Platen Cover, Flatbed Unit

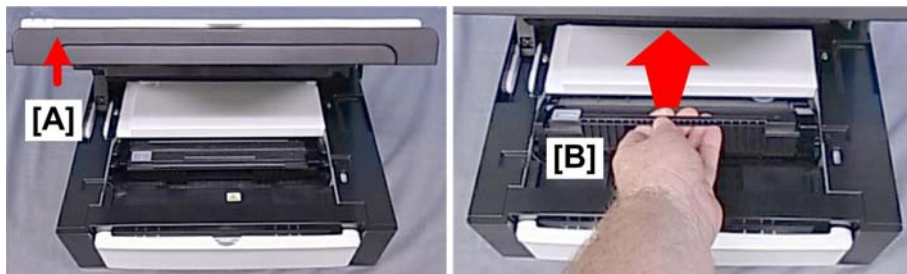
Platen



m102r031

1. Raise the platen and then lift it straight up to remove it.

AIO



m102r001

1. Raise the flatbed unit [A].
2. Grip the AIO [B] by its handle and pull it out of the machine.

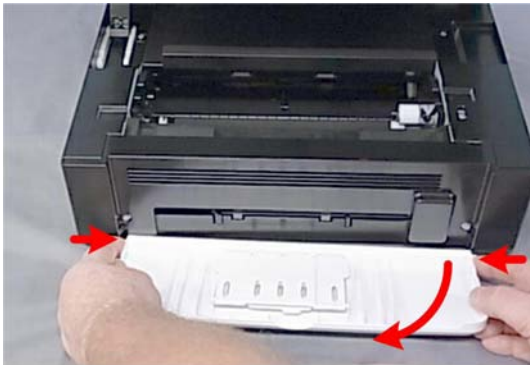


m102r002

3. Place the AIO on a flat clean surface as shown above so the drum is not exposed to light.

Output Tray

4

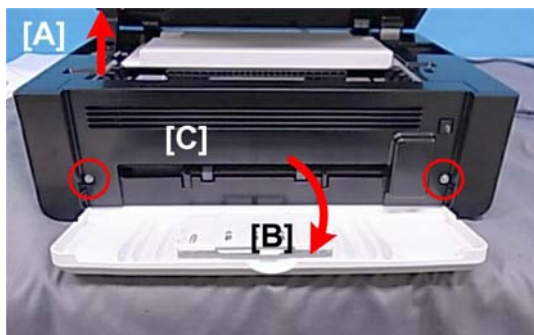


m103r003

Note

- You do not need to remove the output tray in order to remove the front cover.
 - Avoid removal of the output tray unless you are replacing it. Repeatedly removing and attaching the output tray can weaken it and make it loose.
1. Lower the output tray.
 2. Press in on both ends to release the pegs on the left and right from their holes and remove the tray.

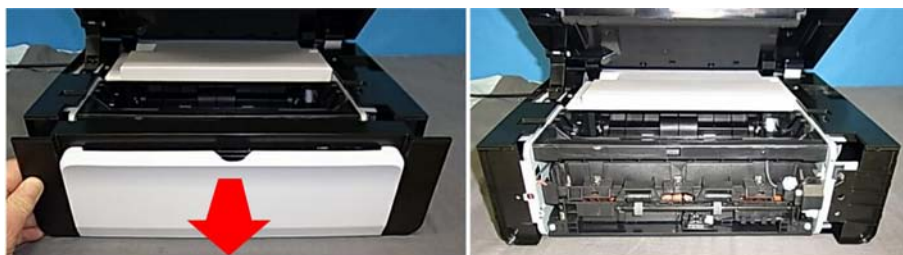
Front Cover



m102r003

4

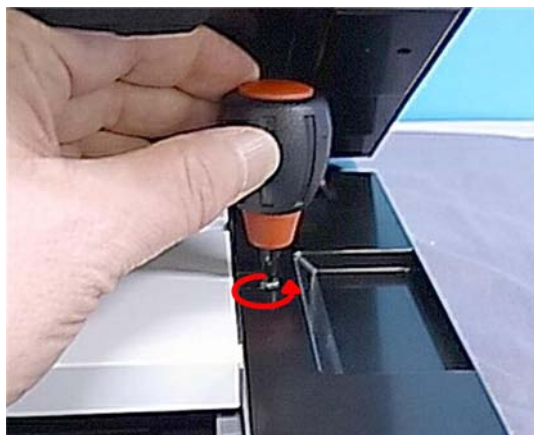
1. Raise the flatbed unit [A].
2. Lower the output tray [B].
3. Disconnect the front cover [C] (⚙️ x2).



m102r003a

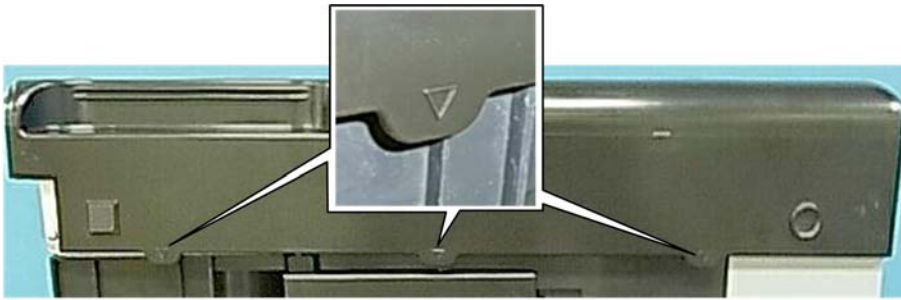
4. Remove the front cover.

Right Cover



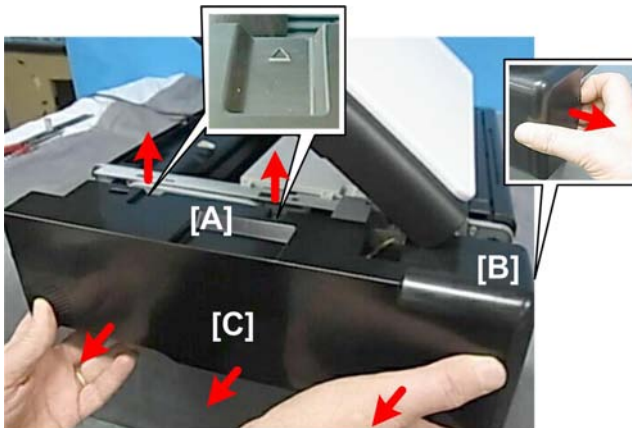
m102r004

1. Remove the screw on top of the right cover ( x1).





m103r007

2. Locate the triangle marks that show you where the tab releases are located on the bottom.



m103r008

3. Release the tabs on the top [A] and rear [B] ( x3).
4. Release the tabs on the bottom [C] and remove the cover ( x3).



m103r008a

Left Cover

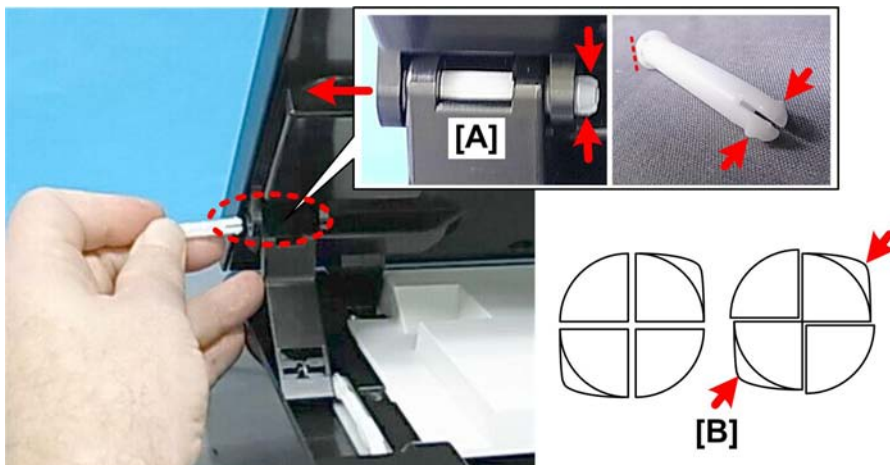
Preparation

- Raise the flatbed unit
- Remove the AIO
- Remove the front cover



m102r005

1. Remove the screw on top of the left cover ( x1).



m103r006a

2. At the top of the hinge, look at the head of the cotter pin [A]. The flat side of the head shows you where the two split ends of the pin are located.
3. With your fingers or the tips of a pair of radio pliers compress the split ends [B] of the pin, push it to the left, and then remove it.

★ Important

- The pin is split into four sections but only two sides protrude to lock and release the pin.



4. At the triangle markers, release the tabs:

[A] Front (▼ x1)

[B] Rear (▼ x1)

[C] Bottom (▼ x3)



Rear Cover

The rear cover does not require removal unless the PSU requires replacement (p.134 "PSU")

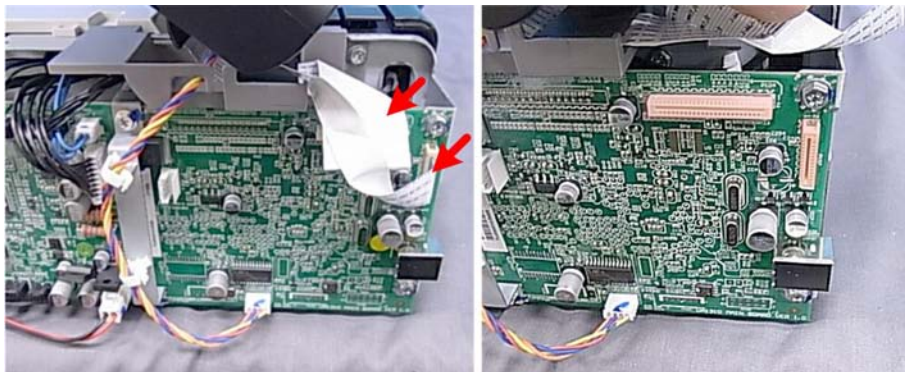
Platen Cover, Flatbed Scanner Unit

Preparation

Remove:

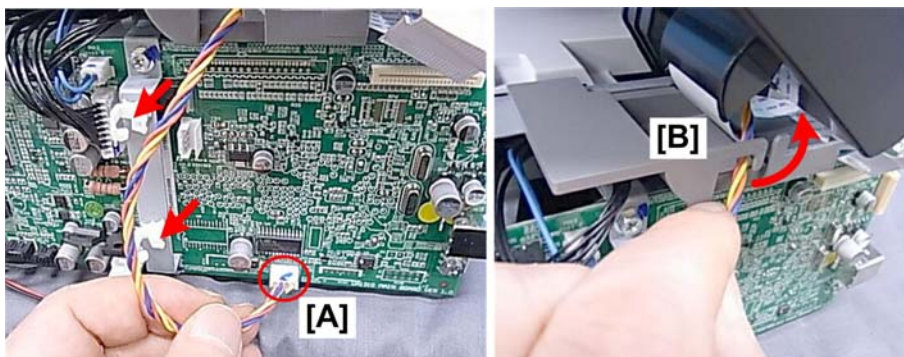
- AIO
- Front Cover
- Right Cover
- Left Cover

4





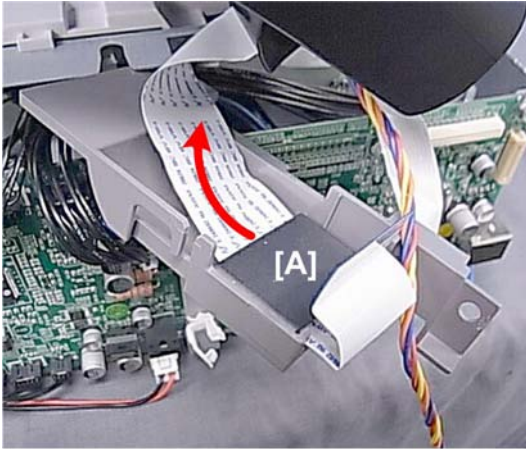
m102r006

1. Disconnect the flat cables ( x2)



m102r007

2. Disconnect harness [A] ( x2,  x1).
3. Pull the harness out of harness guide [B].



m102r008

4. Pull the flat cable out of the ferrite plate [A], and then remove the harness guide.



m102r009

5. Remove the right hinge pin ( x1).



m102r010

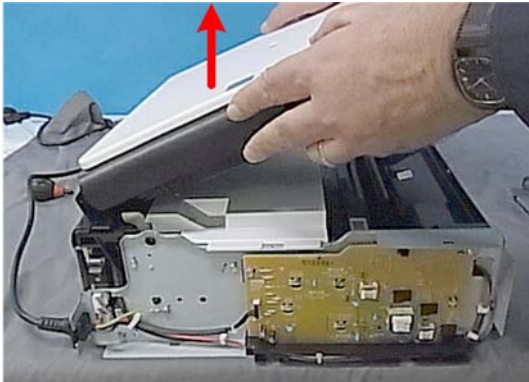
6. Remove the left hinge pin ( x1).



m103r017

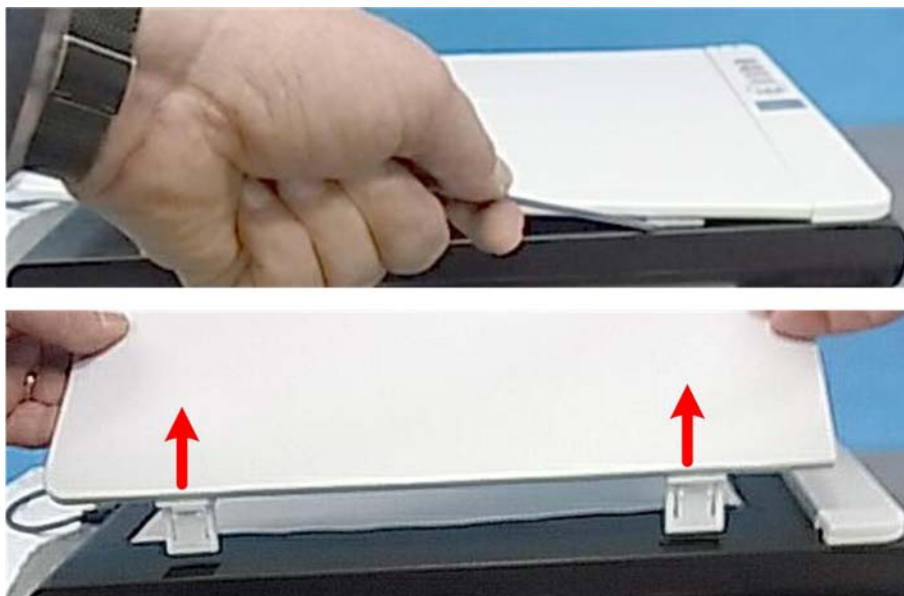
4

7. The hinge pins are identical. Either pin can be re-installed on either side.



m102r011

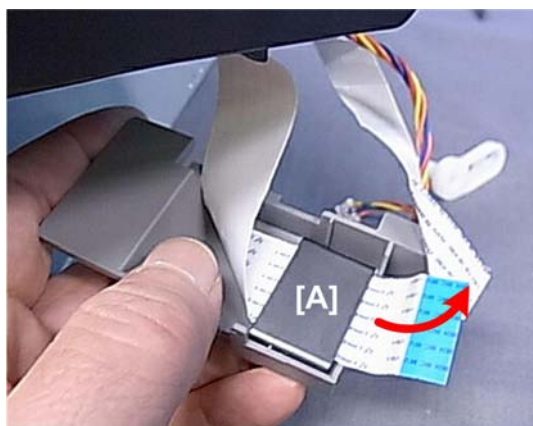
8. Lift the flatbed unit off the top of the machine.



m102r012

9. Use the tip of a small screwdriver to disconnect the platen cover tabs and then remove the cover.

Re-installation



m102r013

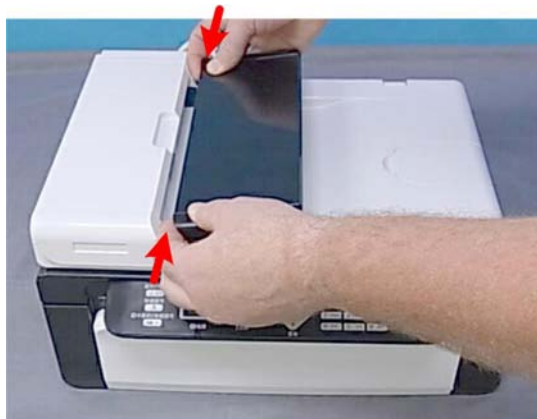
1. Before you re-install the flatbed unit on top of the machine, insert the wide flat cable through the ferrite plate.

★ Important

- It is very difficult to thread this flat cable through the plate after setting the flatbed unit on top of the machine.

M103 Covers, Flatbed Unit, ADF

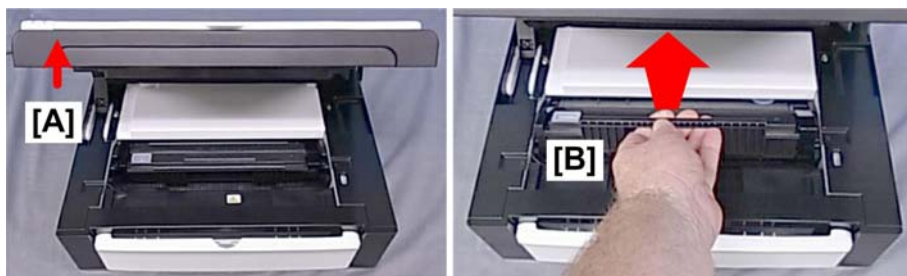
Original Feed Tray



m103r001

1. Press in and release the pegs on each end of the tray.
2. Remove the tray.

AIO



m102r001

1. Raise the top of the machine [A] (the ADF and flatbed unit together).
2. Grip the AIO [B] by its handle and pull it out of the machine.

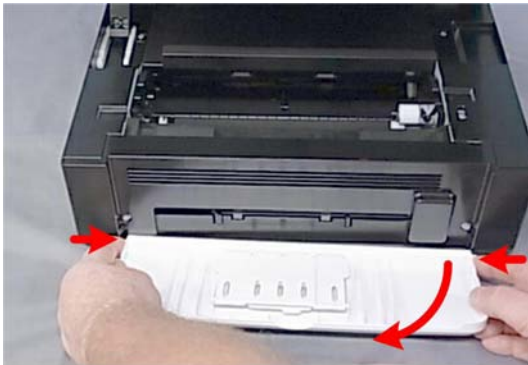


m102r002

3. Place the AIO on a flat clean surface as shown above so the drum is not exposed to light.

Output Tray

4

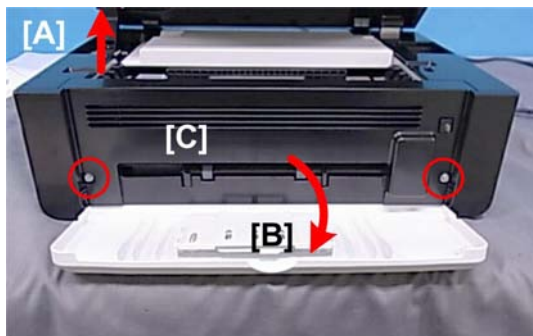


m103r003

↓ Note

- You do not need to remove the output tray in order to remove the front cover.
 - Avoid removal of the output tray unless you are replacing it. Repeatedly removing and attaching the output tray can weaken it and make it loose.
1. Lower the output tray.
 2. Press in on both ends to release the pegs on the left and right from their holes and remove the tray.

Front Cover



m102r003

4

1. Raise the ADF and flatbed unit [A] together.
2. Lower the output tray [B].
3. Disconnect the front cover [C] (⚙️ x2).



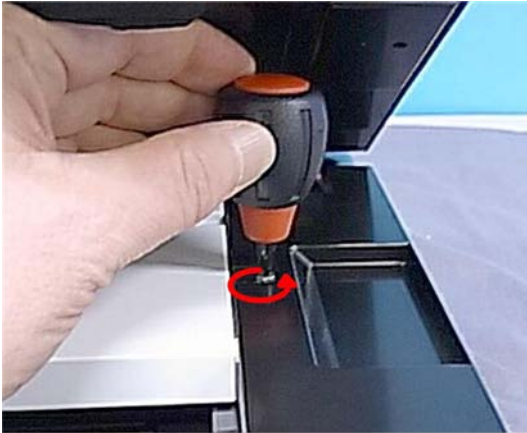
m102r003a

4. Remove the front cover.

Right Cover

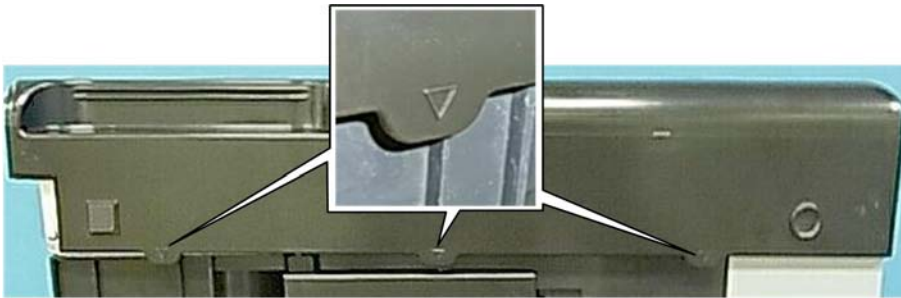
Preparation

- Raise the flatbed unit and ADF together
- Remove the AIO
- Remove the front cover



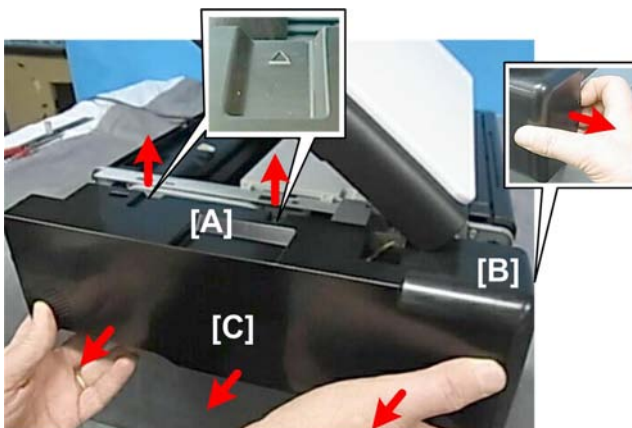
m102r004

1. Remove the screw on top of the right cover ( x1).





m103r007

2. Locate the triangle marks that show you where the tab releases are located on the bottom.



m103r008

3. Release the tabs at the back [A] and front [B] ( x2).
4. Release the tabs on the bottom [C] and remove the cover ( x3).



m103r008a

4

Left Cover

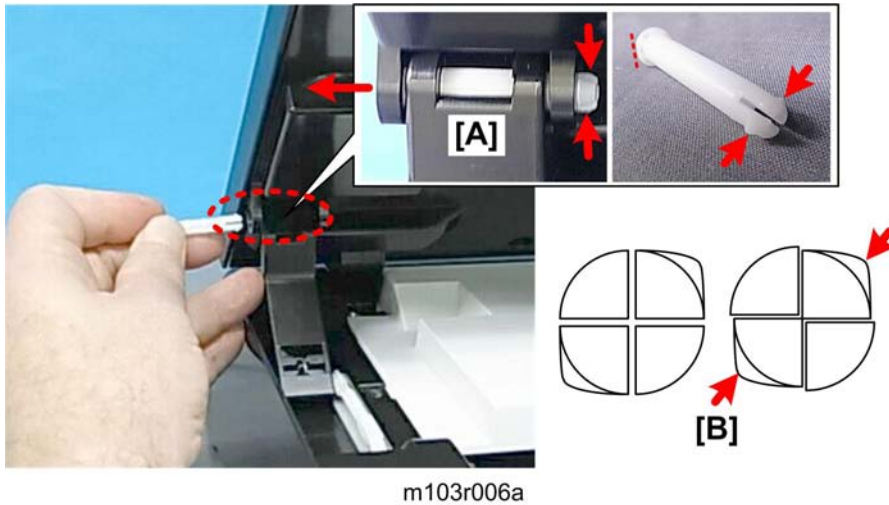
Preparation

- Raise the flatbed unit and ADF together
- Remove the AIO
- Remove the front cover



m102r005

1. Remove the screw on top of the left cover ( x1).



2. At the top of the hinge, look at the head of the cotter pin [A]. The flat side of the head shows you where the two split ends of the pin are located.
3. With your fingers or the tips of a pair of radio pliers compress the split ends [B] of the pin, push it to the left, and then remove it.

★ Important

- The pin is split into four sections but only two sides protrude to lock and release the pin.



4. At the triangle markers, release the tabs:

[A] Front (▼ x1)

[B] Rear (▼ x1)

[C] Bottom (▼ x3)

Left Hinge

The right hinge does not require removal unless it must be replaced.

Preparation

- Remove the right cover



m103r010

1. Use a pair of radio pliers to remove the spring [A] (🔧 x1).
2. Use the tip of a small screwdriver to release the guides [B] (🔧 x2).

Rear Cover

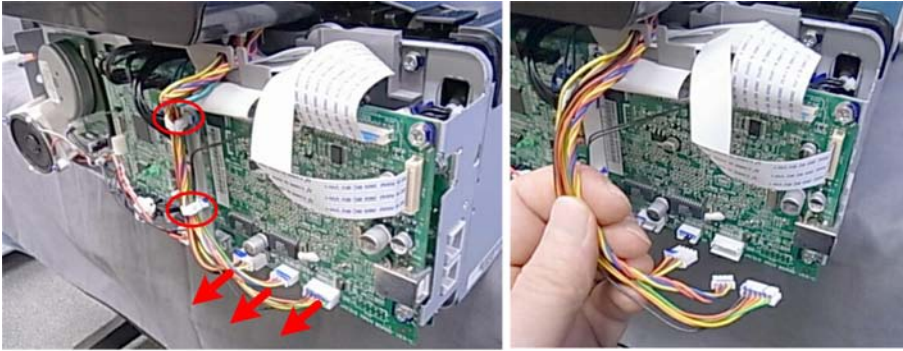
The rear cover does not require removal unless the PSU requires replacement (🔧 p.134 "PSU")

ADF/Flatbed Unit

Preparation

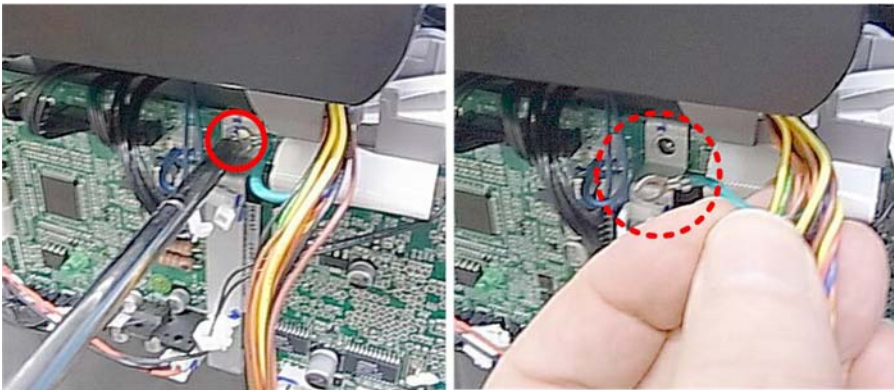
Remove:

- Original feed tray
- AIO
- Front Cover
- Right Cover
- Left Cover



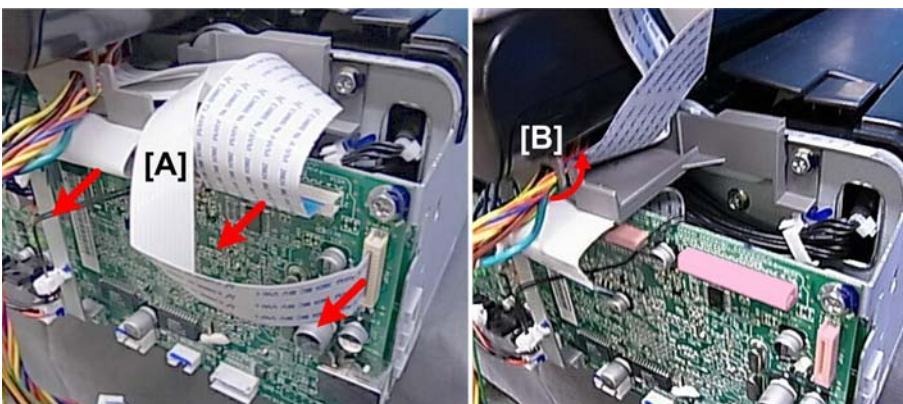
m103r011

1. Disconnect the bottom connectors on the right (🔌x2, 📶x3).



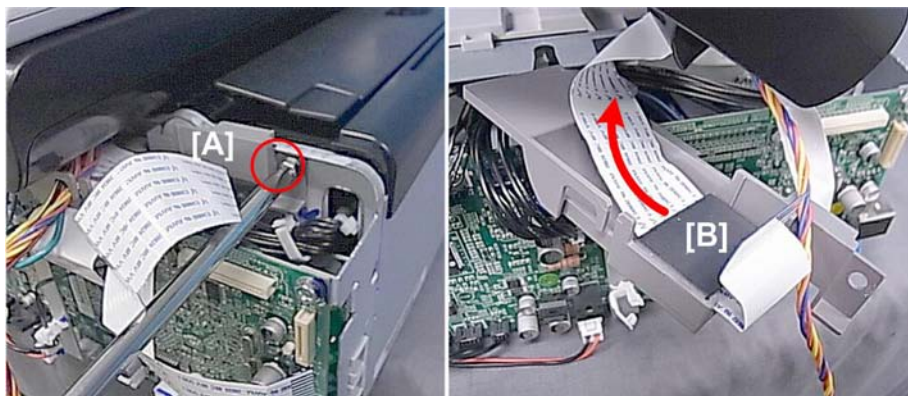
m103r012

2. Disconnect the ground wire (🔌x1).




m103r013

3. Disconnect the FFC's [A] (📶 x3).
4. Disconnect the harness from the harness guide [B].



m103r014

4

5. Disconnect the harness guide [A] ( x1).
6. Pull the flat cable out of the ferrite plate [B], and then remove the harness guide.



m103r015

7. Remove the right hinge pin ( x1).



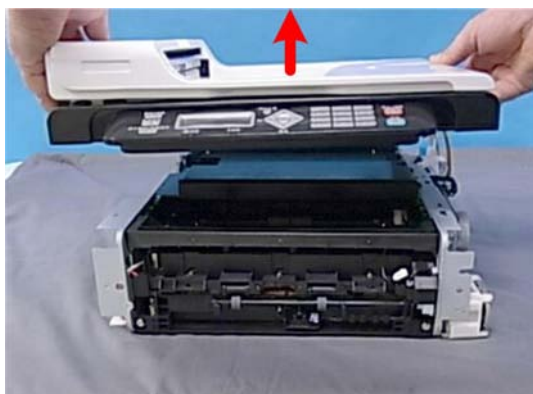
m103r016

8. Remove the left hinge pin ( x1).



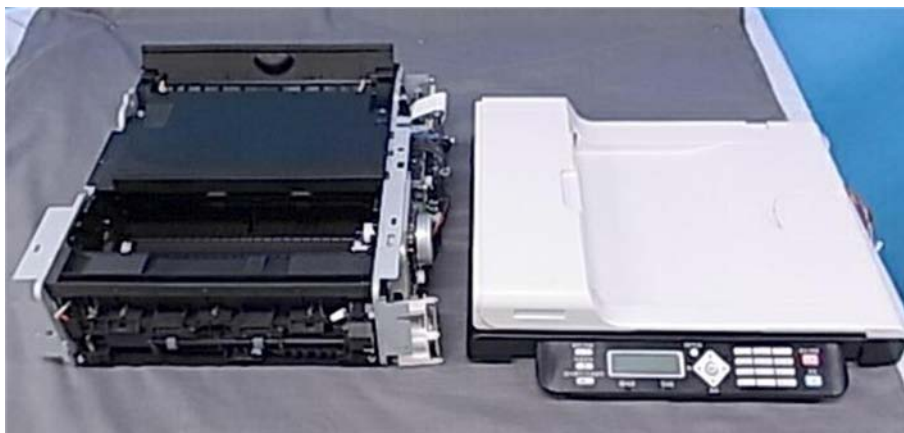
m103r017

9. The hinge pins are identical. Either pin can be re-installed on either side.



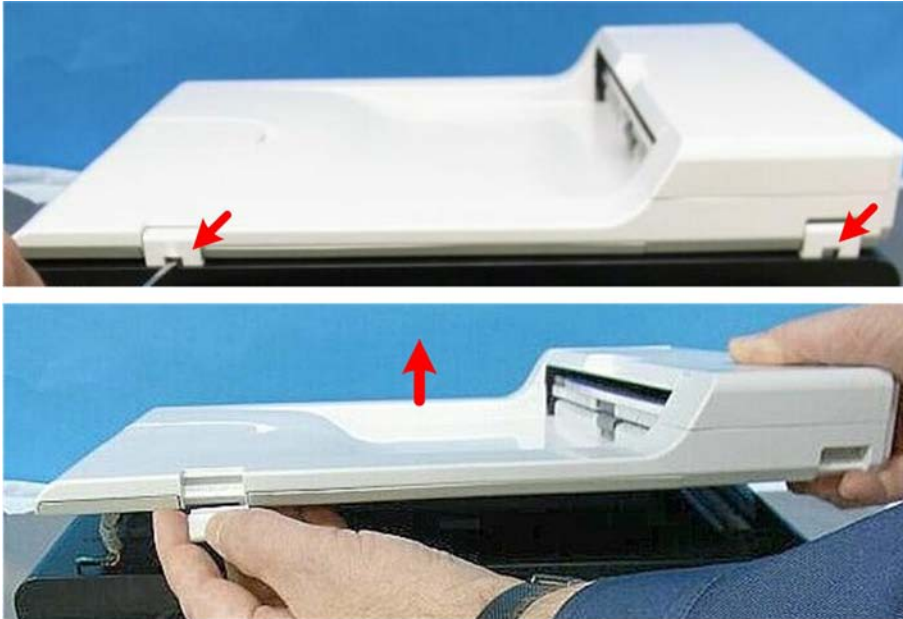
m103r018

10. Leave the flatbed unit and ADF off the top of the machine together.



m103r019

11. Lay flatbed unit and ADF on a flat surface.



m103r020

12. Use the tip of a small screw driver to release the hinges (▼ x2).



m103r021

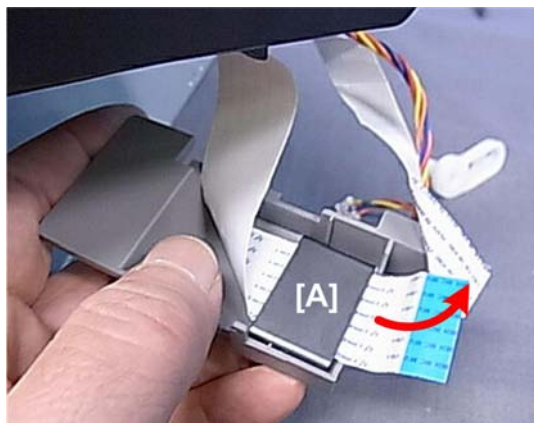
13. Pull the harnesses through the rear right corner of the flatbed unit.



m103r022

Re-installation

4



m102r013

1. Before you re-install the flatbed unit on top of the machine, insert the wide flat cable through the ferrite plate.

★ Important

- It is very difficult to thread this flat cable through the plate after setting the flatbed unit and ADF on top of the machine.

Removing the Fusing Unit

Preparation

M101

(p.43 "M101 Covers")

- AIO
- Front cover

- Left cover

M102

( p.50 "M102 Covers, Platen Cover, Flatbed Unit")

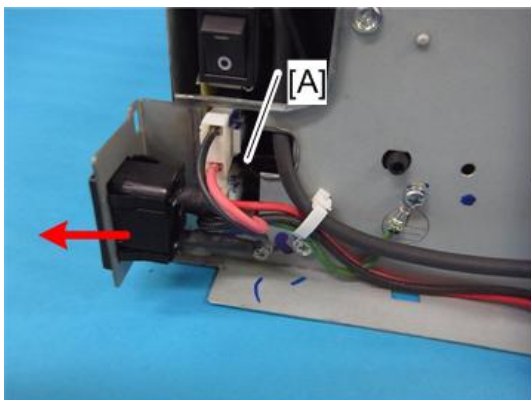
- AIO
- Front cover
- Left cover

M103



( p.60 "M103 Covers, Flatbed Unit, ADF")

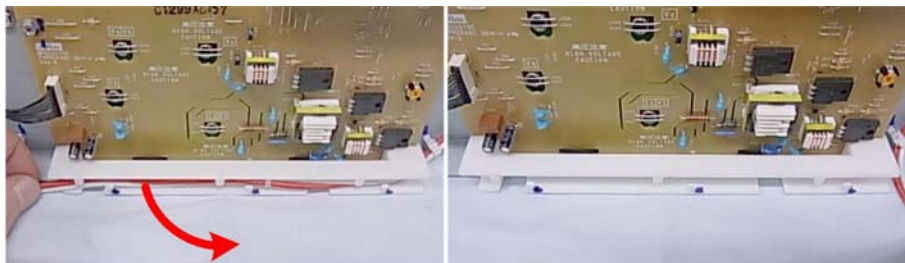
- AIO
- Front cover
- Left cover

4



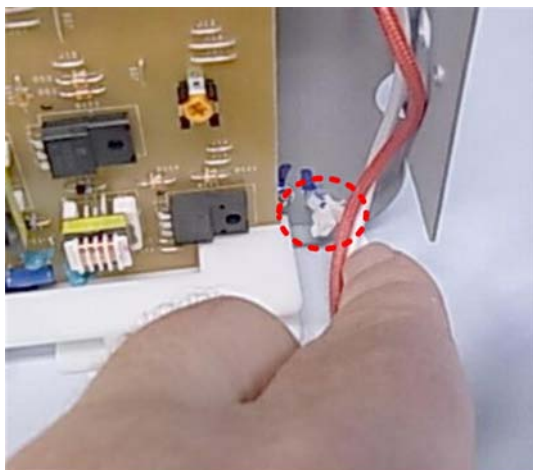
m101r013w

1. Release the power cord.
2. Disconnect the fusing unit harness [A]( x1)
3. Free the harness(s).



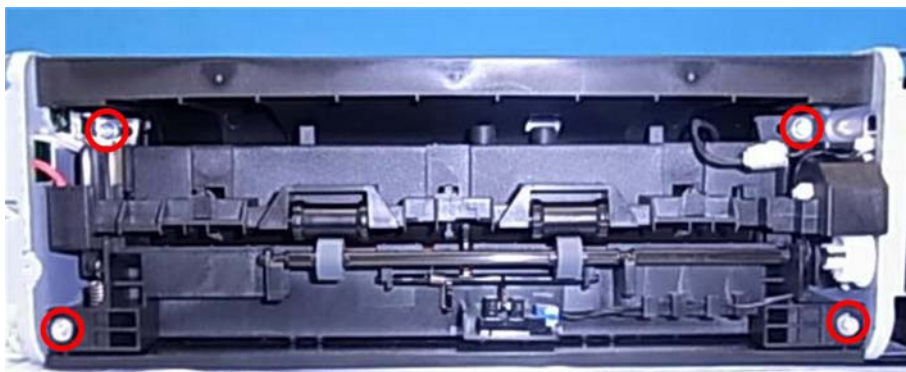
m101r015

4. Pull the harness out of the harness guide.



m101r016

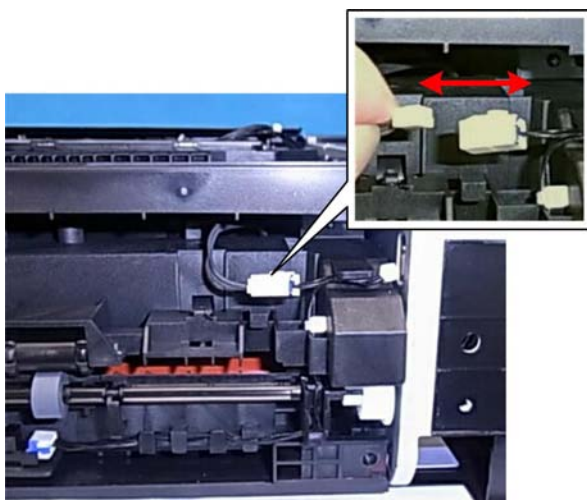
5. Free the harness (🔧 x1).



m101r017

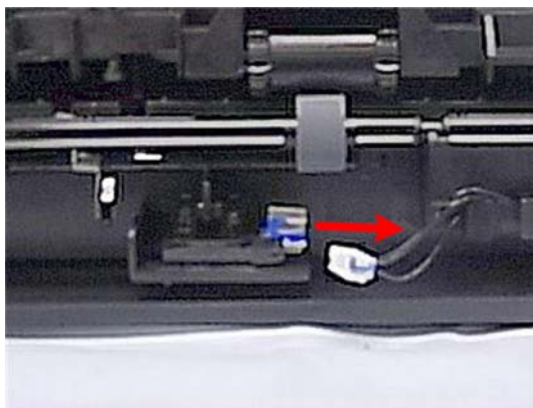
6. At the front, disconnect the fusing unit (🔧 x4).

4



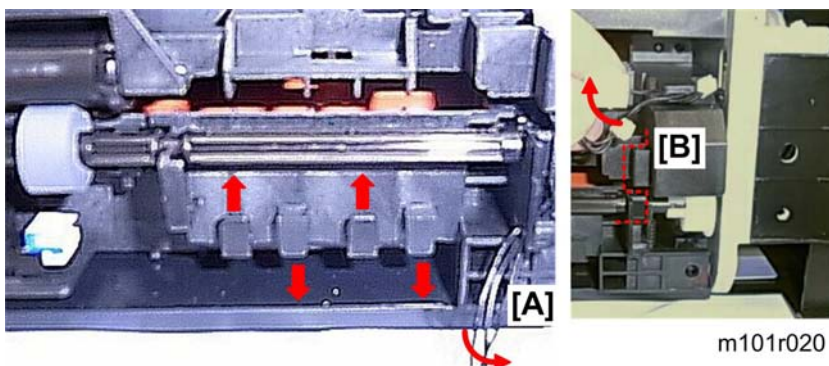
m101r018

7. Disconnect the thermistor harness (E x1).



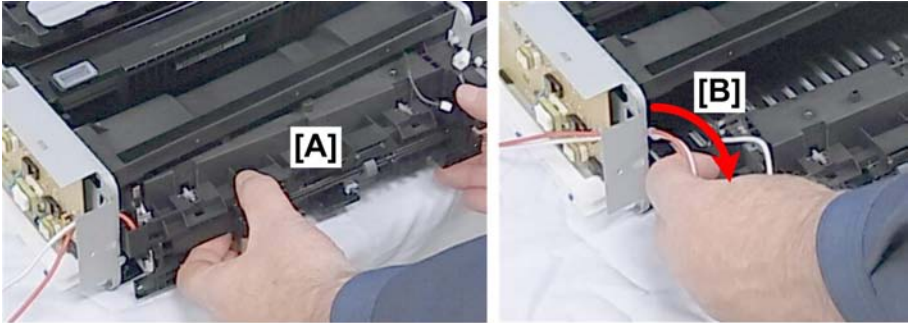
m101r019

8. Disconnect the exit sensor (E x1).



m101r020

9. Separate the exit sensor harness from the fusing unit across the front [A] and up the right side [B].



m101r021

- 10. Pull the fusing unit [A] partially out of the front of the machine.
- 11. Pull the fusing unit harness through the hole [B].

4



m101r022

- 12. Pull the fusing unit out of the machine and lay it on a flat surface.

Utilities and Maintenance

This is a quick summary of the utilities that are available for machine servicing.

No.	Function	Start From	M101	M102	M103
1	Fax Maintenance	Operation Panel	No	No	Yes
2	Fax Test	Operation Panel	No	No	Yes
3	Engine Maintenance	SOM Service Mode Screen	Yes	Yes	Yes
4	Counter Information		Yes	Yes	Yes
5	Error History		Yes	Yes	Yes

1. To start Fax Maintenance (M103 Only)

1. Make sure the machine is in the Ready mode.
2. Press [Stop/Reset] and then press [1] > [0] > [7].
3. Press and hold down [Start].

2. To start Fax Test (M103 Only)

1. Switch the machine on.
2. With the machine in Ready mode, press [Copy/Fax].

3. Engine Maintenance, Counter Information, Error History

Items 3, 4, and 5 in the table above are on the Service Mode screen of the Smart Organizing Monitor..

1. Open Smart Organizing Monitor.
2. Enter the service mode to display the Service Mode screen.

There are other important features in the Smart Organizing Monitor that are used during servicing:

- Printing a Test Page
- Firmware update
- Releasing the machine after a fatal fusing error
- Resetting the machine after correcting a fatal fusing error

More details about these utilities are available in another section of this service manual. (p. 159 "Utilities")

Important

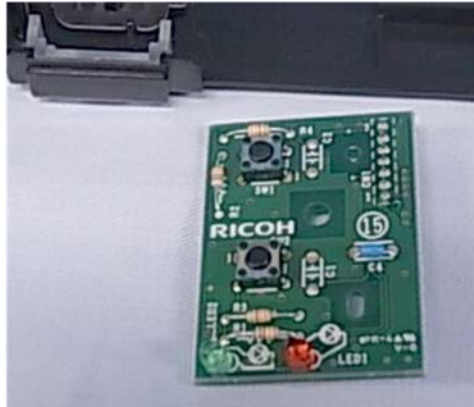
- The M103 has a User Tools key that opens the User Tools menus.,
- Many items in these menus duplicate the tasks that can be performed with the Smart Organizing Monitor.
- Please remember that these User Tools menus are available with the M103 only. (The M101, M102) do not have a User Tools key on their operation panels.

Operation Panels

M101 Operation Panel

Preparation

- Remove top cover (p.43 "M101 Covers")

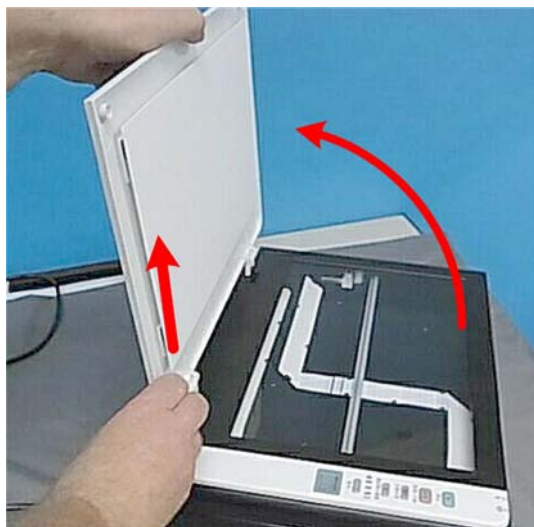


m101r023

1. Lay the top cover on a flat surface.
2. Remove the operation panel PCB (x1).

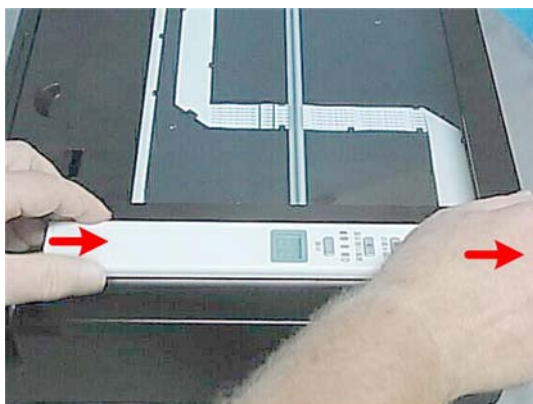
M102 Operation Panel

4



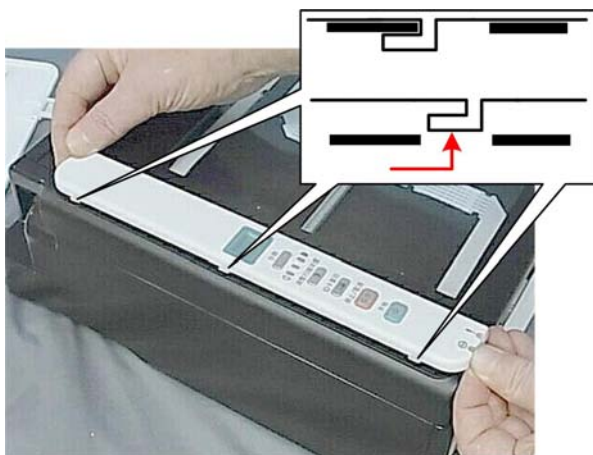
m102r031

1. Raise the platen and then lift it straight up to remove it.



m102r032

2. Press firmly on the top edge of the operation panel and push toward the front of the machine until you hear it click and release.




m102r033

4

3. Lift the operation panel straight up to disconnect the hooks at three points.




m102r034

4. Turn the operation panel over, and then disconnect the flat cable ( x1).

M103 Operation Panel



m103r025a

1. Raise the ADF and flatbed unit.
2. Remove left screw [A] and right screw [B] ( x2).



m103r026a

3. While supporting the operation panel with one hand, remove the center screw ( x1).



m103r027a

4. Lower the operation panel slightly and disconnect it ( x1).



m103r028a

Laser Unit

Removing the Laser Unit

★ Important

- There are no serviceable parts inside the laser unit. Never attempt to disassemble the laser unit and then reinstall it in the machine.

Preparation

M101

( p.43 "M101 Covers")

- AIO
- Front, top cover
- Top cover

M102

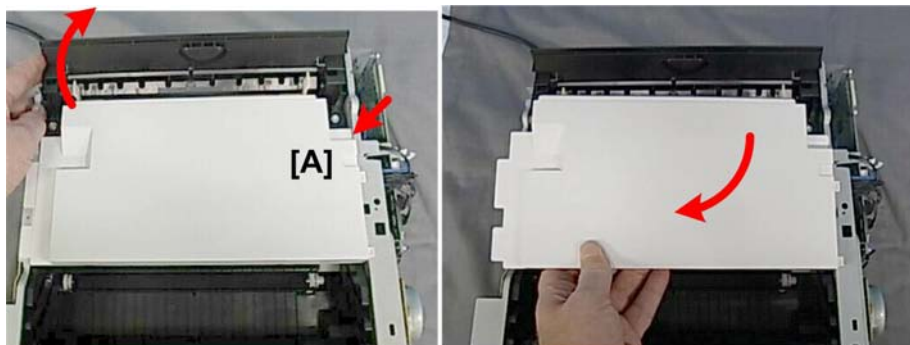
( p.50 "M102 Covers, Platen Cover, Flatbed Unit")

- AIO
- Front, Left, Right covers
- Flatbed unit

M103

( p.60 "M103 Covers, Flatbed Unit, ADF")

- Original feed tray
- AIO
- Front, Left, Right covers
- ADF/Flatbed Unit



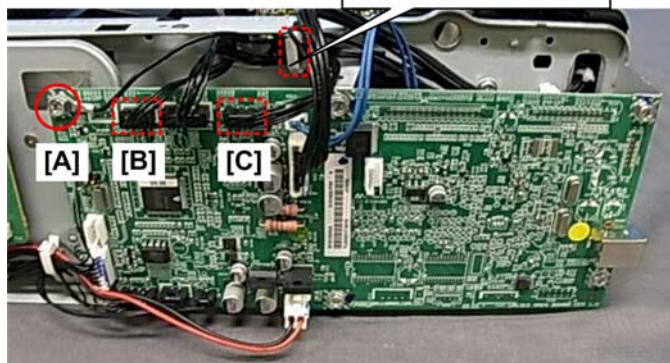
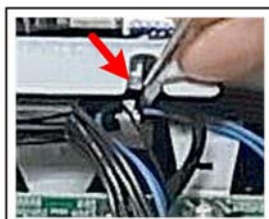
m103r024

4

1. If you are servicing the M102 or M103, you must release the tab on the right [A] and remove the laser unit cover (▼ x1).

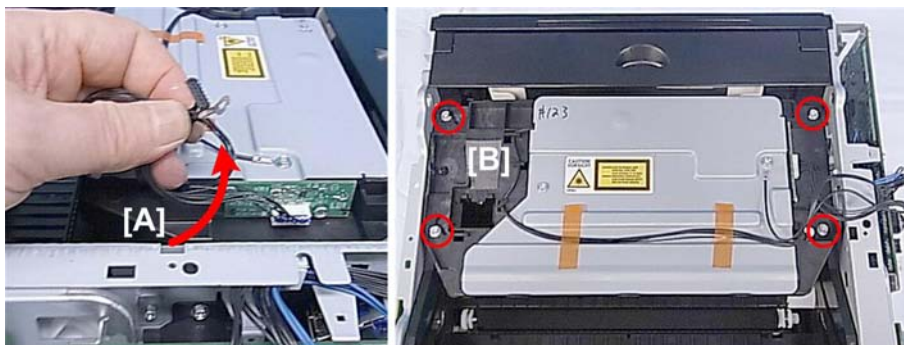
Note

- The M101 does not have this white cover.
- The procedure below from Step 2 applies to all three machines.




m101r024

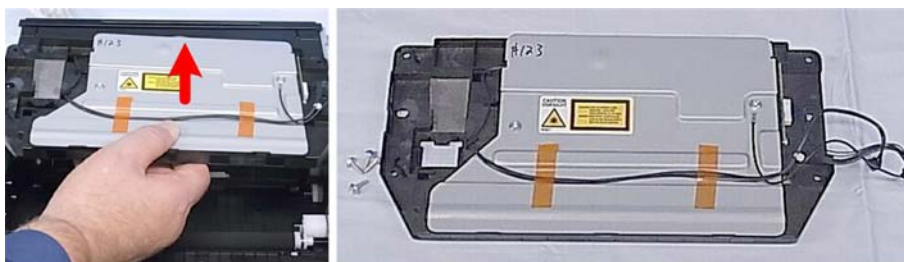
2. Disconnect the laser unit from the main board.
 - [A] Ground wire (▼ x1)
 - [B] Connector (▼ x1)
 - [C] Connector (▼ x1, ▼ x1). (You may need a small screwdriver to release the clamp).



m101r025

3. Pull the ground wire and connectors [A] through the frame.
4. Disconnect the laser unit assembly ( x4).

4



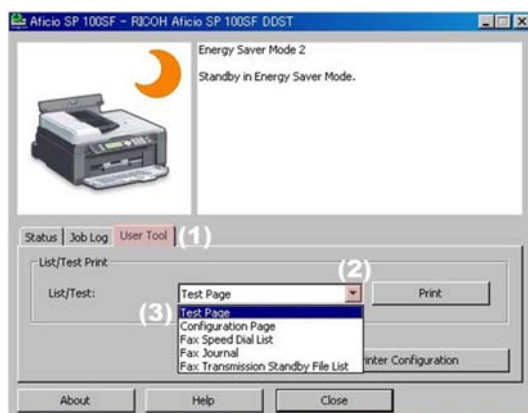
m101r026

5. Remove the laser unit and lay it on a flat surface.

After Replacing the Laser Unit

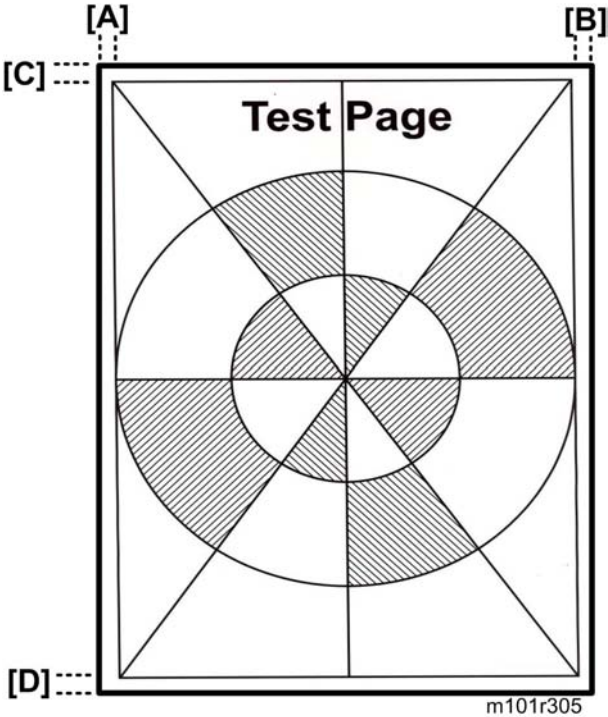
After replacing the laser unit, print the Test Page and check the position of the image area on the page.

1. Start Smart Organizing Monitor.



m101r304

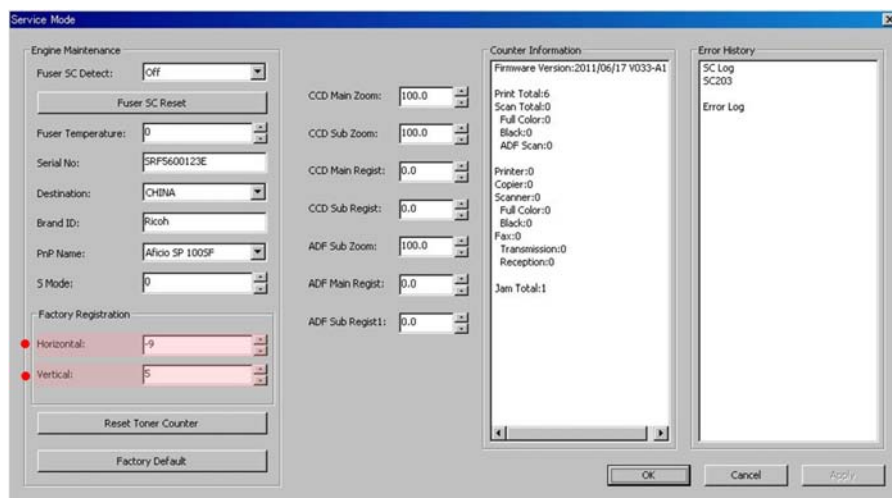
2. Click the User Tool tab (1), open the List/Test pull-down list (2), and then click [Print]. The Test Page prints.



3. Check the margins of the image area to see the width of the margins are satisfactory.

	Margin	Width (mm)
[A]	Left	4.2
[B]	Right	4.2
[C]	Leading	4.2
[D]	Trailing	4.2

4. Enter the service mode and display the Service Mode screen.



m101r132

5. Adjust the Factory Registration settings to adjust the margins.

- **Horizontal.** Shifts the image left or right to adjust the left/margins.
- **Vertical.** Shifts the image up or down to adjust the top/bottom margins.

Paper Feed and Exit

This section describes how to remove these items:

- Pickup Roller
- Friction Pad
- Paper Feed Roller
- Image Transfer Roller
- Exit Roller

Preparation

These items must be removed before doing any procedure in this section. Do this now before going to any other part of this section.

M101

AIO (p.43 "M101 Covers")

Front cover

Top cover

Right cover

Left cover

Laser unit (p.81 "Removing the Laser Unit")

M102

AIO (p.50 "M102 Covers, Platen Cover, Flatbed Unit")

Front cover

Top cover

Right cover



Left cover

Platen cover

Flatbed unit

Laser unit (p.81 "Removing the Laser Unit")


M103

AIO	( p.60 "M103 Covers, Flatbed Unit, ADF")
Front cover	
Top cover	
Right cover	
Left cover	
Flatbed unit, ADF	
Laser unit	( p.81 "Removing the Laser Unit")

Pickup Roller



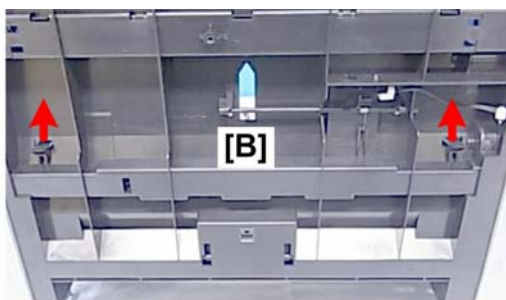
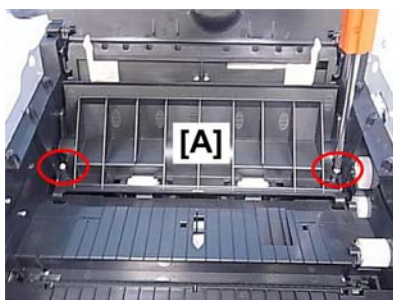
m101r027

1. Set the machine so you can see the bottom plate.
2. Remove the screw that fastens the bottom plate ( x1).



m101r028


3. Slide the plate to release and remove it.



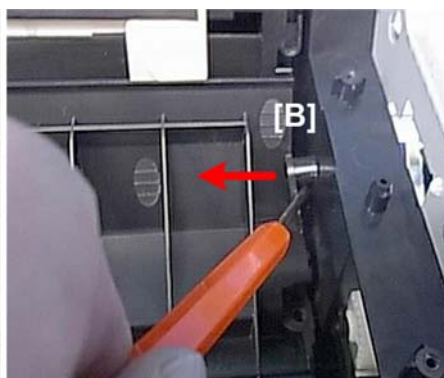
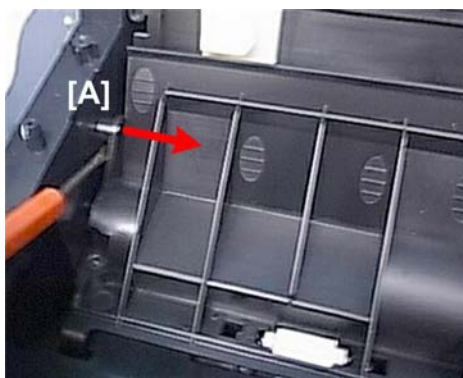
m101r030

4. Disconnect the feed guide:

[A] At the top ( x2)

[B] On the bottom of the machine ( x2)

4



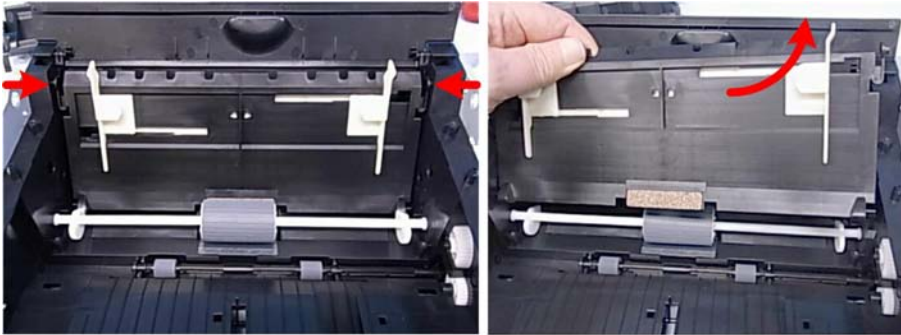
m101r031

5. At the top, disconnect the arm pegs on the left [A] and on the right [B].



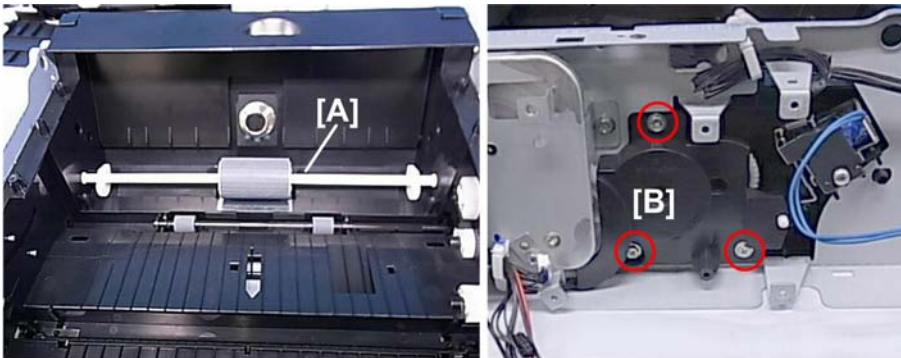
m101r032

6. Lift the feed guide out of the machine.



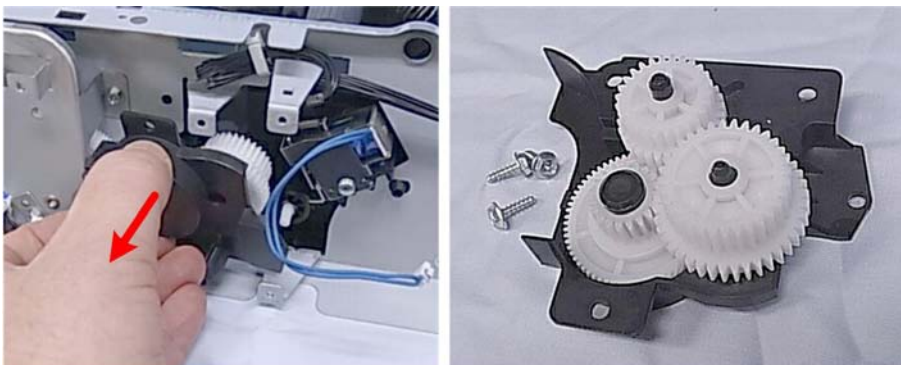
m101r033

7. Release the arm pegs on the left and right, and then remove the paper tray.



m101r034

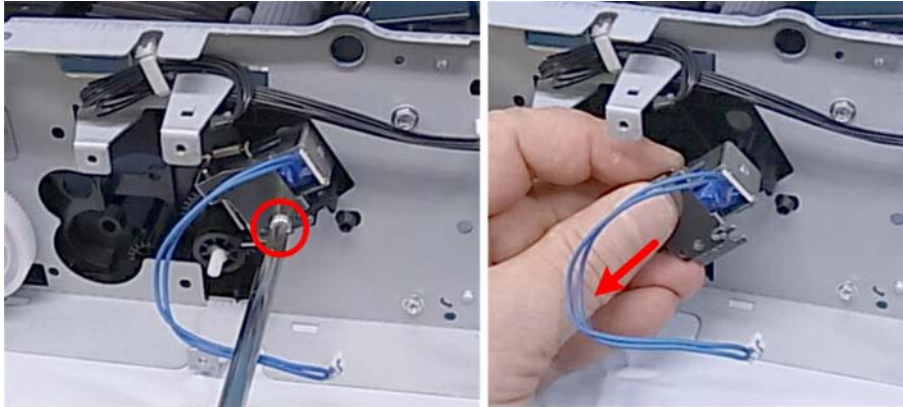
8. The pickup roller [A] in the center of the paper path is permanently attached to its shaft.
 9. On the right, disconnect the gear train [B] (⚙️ x3).



m101r035

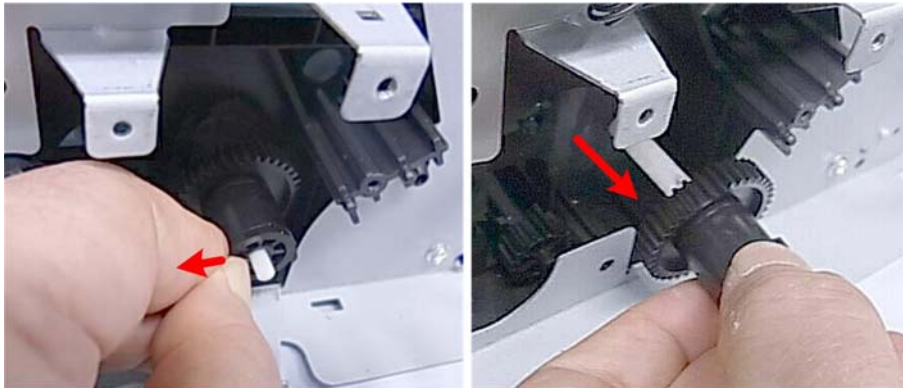
10. Remove the gear train and lay it on a flat surface as shown above to prevent the gears from falling off.

4



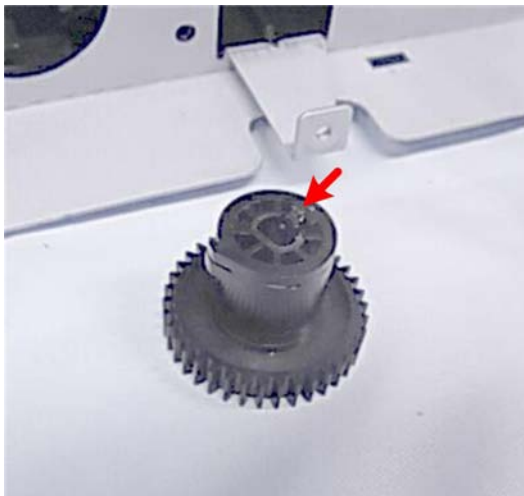
m101r036

11. Remove the pickup solenoid and plate (🔧 x1, 🛠️ x1)



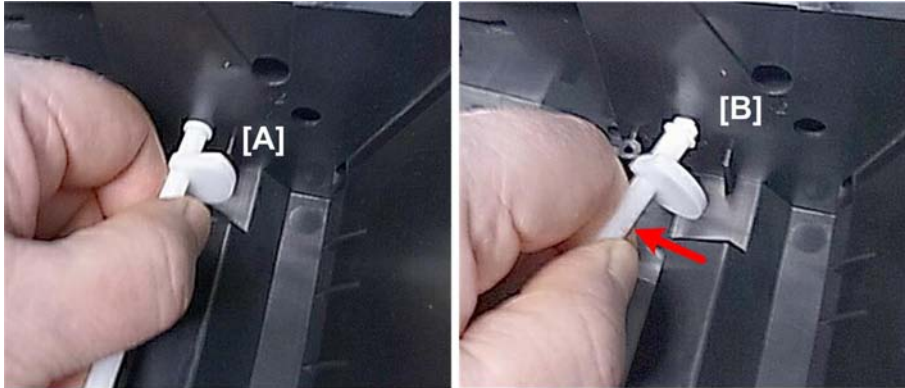
m101r038

12. Pinch the hook lock/release on one-way clutch and pull the clutch off the shaft (🔧 x1).



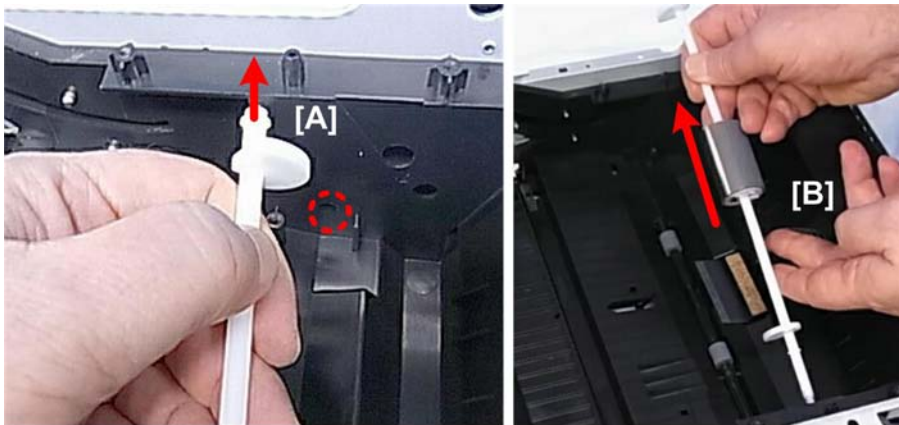
m101r039

- The one-way clutch comes off as one piece.
- The hook lock/release locks the one-way clutch in place when it is re-installed.



m101r040

13. Inside the machine on the left, grip the end of the pickup roller [A].
14. Bend it slightly [B] and pull it out of its guide hole.



m101r041

15. Pull the end of the shaft [A] straight up.
16. Remove the shaft [B].

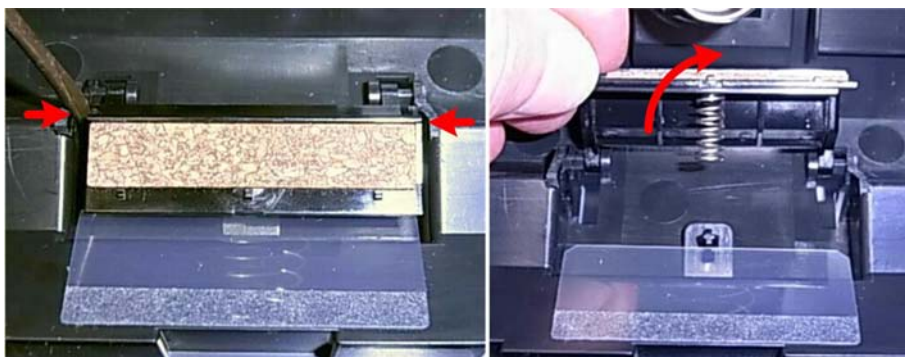


m101r042

4

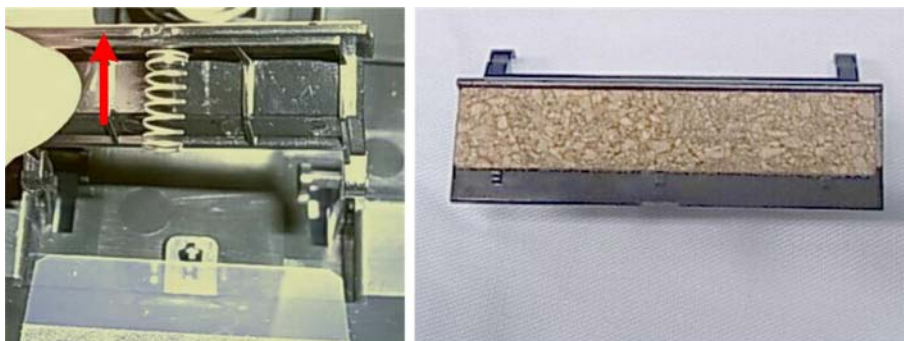
17. The pickup roller and shaft are replaced as one unit (the roller is permanently attached to the shaft).

Friction Pad



m101r043

1. Press the pinch releases on each side (▼ x2).
2. Rotate and raise the pad.



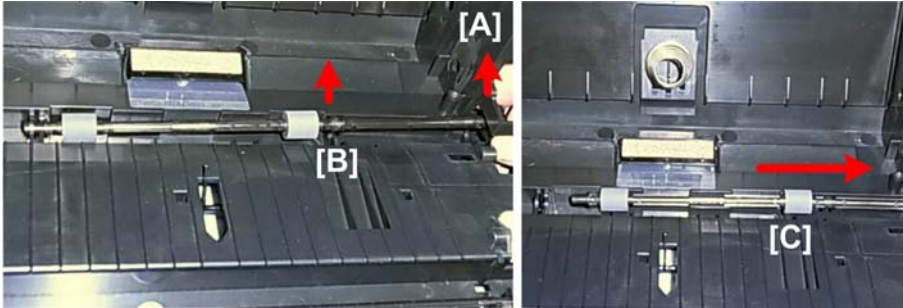
m101r044

3. Pull the pad straight up of the shaft to remove it.

Paper Feed Roller

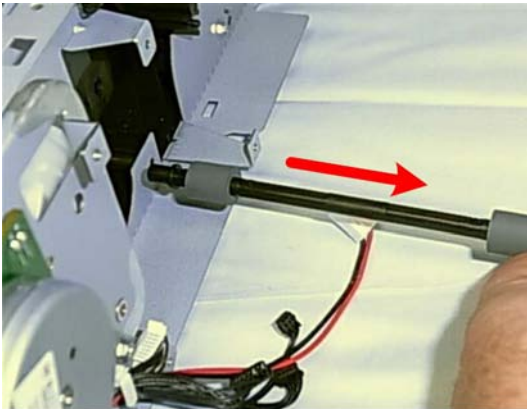
Preparation

- Remove the pickup roller (p.87 "Pickup Roller")



m101r045

1. On the right end of the roller [A] lift the end of the shaft out of its groove.
2. Lift the roller out of the bracket at [B].
3. Start pulling out the roller from the right side [C].



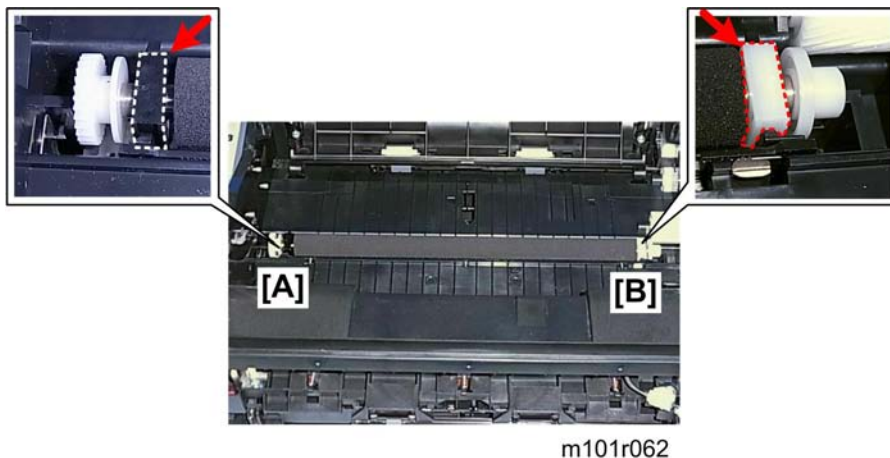
m101r046

4. Pull the roller out of the machine.

Image Transfer Roller

Preparation

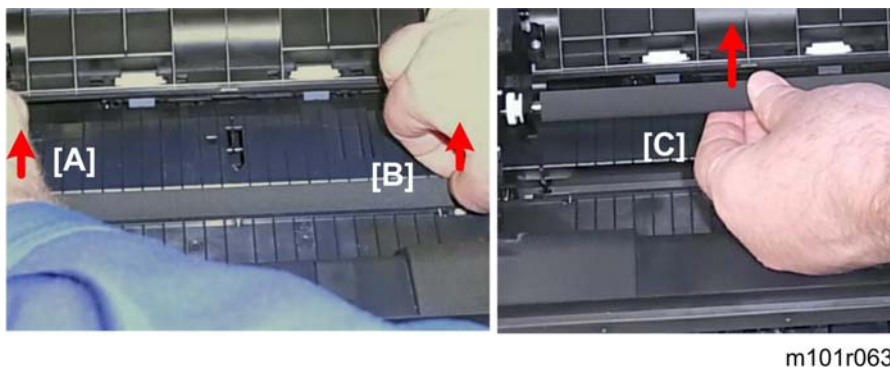
- Remove the laser unit (p.81 "Removing the Laser Unit")



4

1. Before you remove the transfer roller:

- The collar on the left end of the roller [A] is black.
- The collar on the right end of the roller [B] is white.
- The transfer roller must be installed the same way, with the black collar on the left and white collar on the right.



2. The collars are set in grooves. Pull up on both ends of the transfer roller [A] and [B] to free the collars.
3. Lift the roller [C] out and remove it.



m101r064

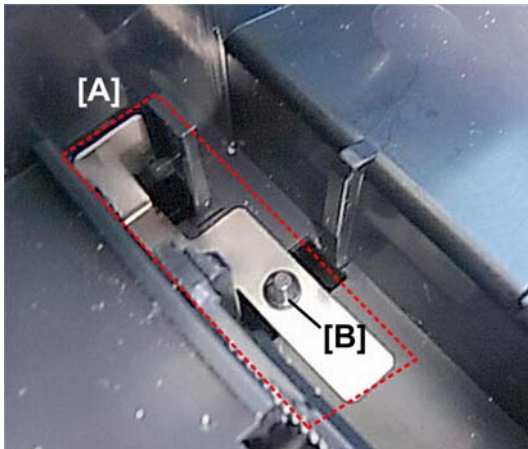
4

4. Remove the spring from the left end [A] and right end [B] to prevent the springs from getting lost.

★ Important

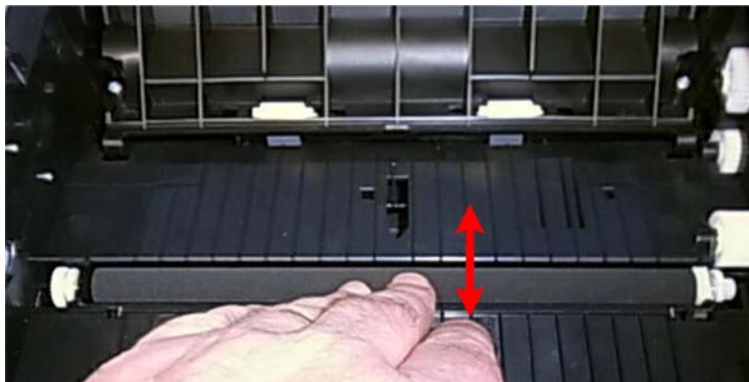
- If you are replacing the transfer roller, save these springs. New springs may not be provided with the new transfer roller.

Re-installation



m101r066

1. Clean the charge plates [A] on the side where the left end of the roller will be re-installed. The spring will be re-attached over the peg [B].



m101r067

4

2. After re-installing the transfer roller, press and release the transfer roller several times to confirm that the roller bounces up and down evenly.
 - If the center or either end of the roller does not bounce up and down freely, this means that one or both springs at the ends of the roller are not installed correctly.
 - Remove the transfer roller and re-install it. Make sure each spring is set onto the metal peg on both sides.

Exit Roller

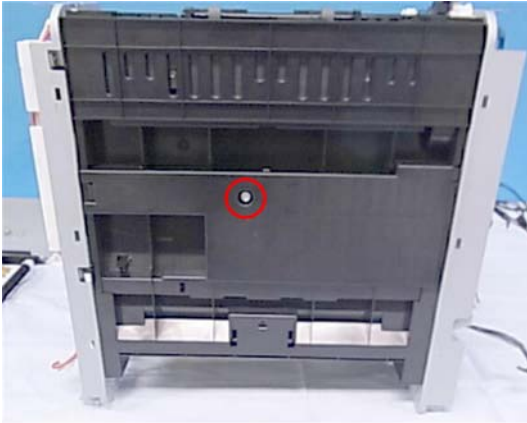
The fusing unit must be removed in order to remove the exit roller. (➡ p.71 "Removing the Fusing Unit")

Sensors


Registration Sensor

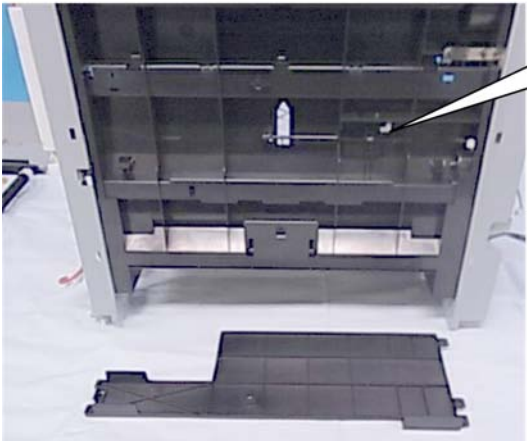
Preparation

- Remove the AIO.



m101r027

1. Raise the machine so you can see the bottom.
2. Disconnect the bottom plate and remove it ( x1).



m101r115

3. Locate the registration sensor on the bottom of the machine.



m101r029

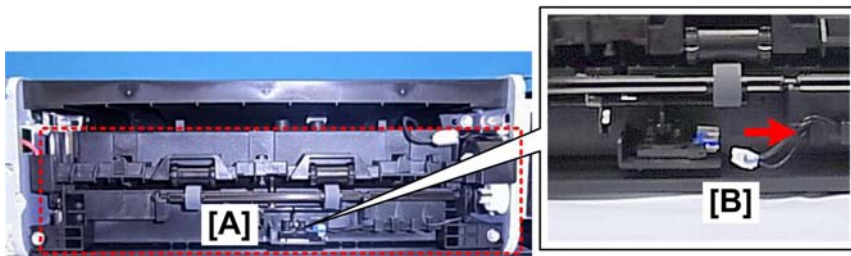
4

4. Disconnect the sensor and remove it (🔧 x1, 🔧 x3).

Exit Sensor

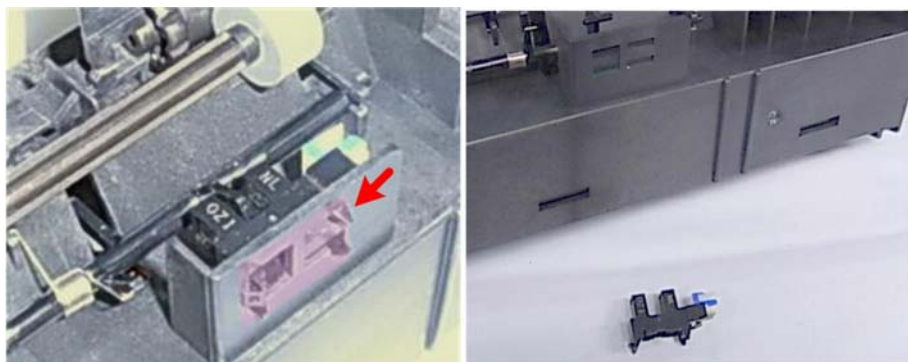
Preparation

- Remove the front cover (🔧 x2).



m101r114

1. On the front of the fusing unit [A], disconnect the exit sensor [B] (🔧 x1).



m101r113

2. Remove the sensor (🔧 x3).

Main Motor

Removing the Main Motor

Preparation

M101

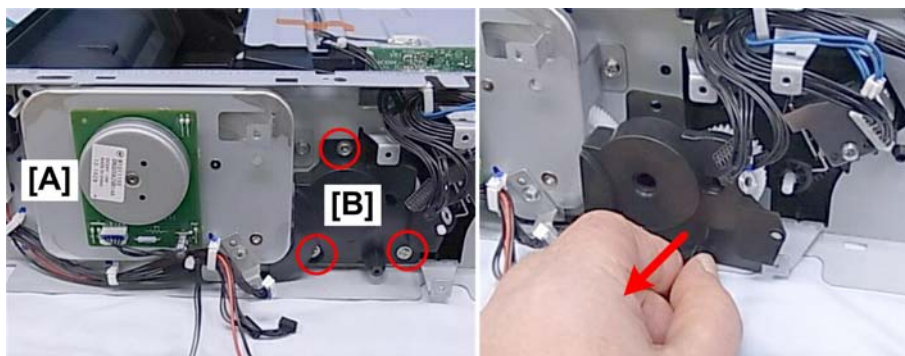
- AIO (p.43 "M101 Covers")
- Front cover
- Right cover

M102

- AIO (p.50 "M102 Covers, Platen Cover, Flatbed Unit")
- Front cover
- Right cover

M103

- AIO (p.60 "M103 Covers, Flatbed Unit, ADF")
- Front cover
- Right cover



m101r047

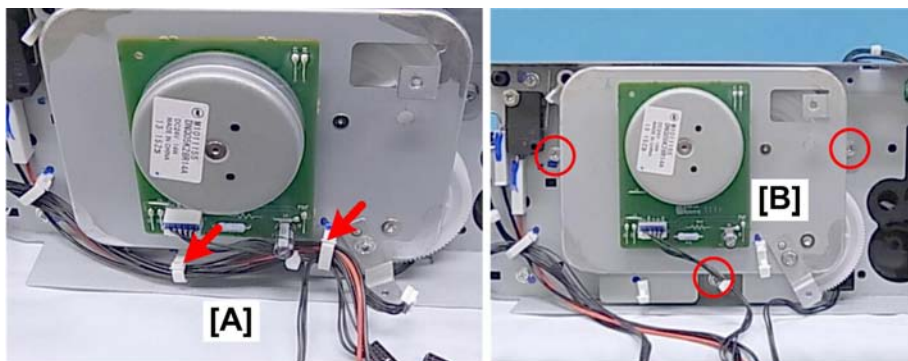
1. The main motor [A] on the right side of the machine drives all gears and rollers in the paper path.
2. Disconnect and remove gear train [B] (x3).



m101r048

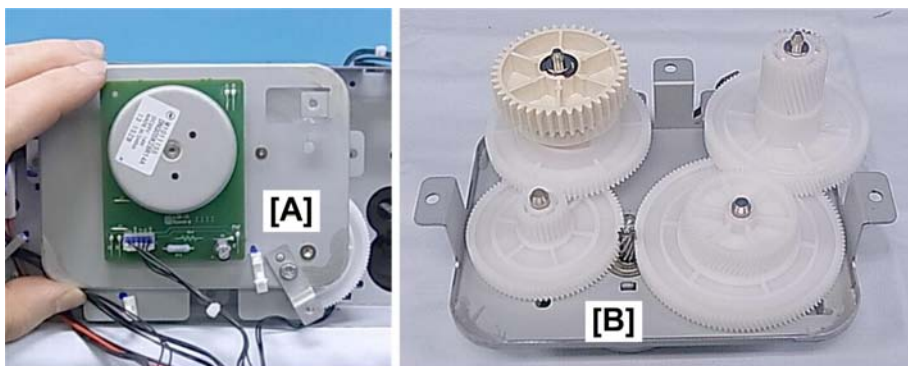
4

3. Remove the gear train and lay it on a flat surface as shown above to prevent the gears from falling off.



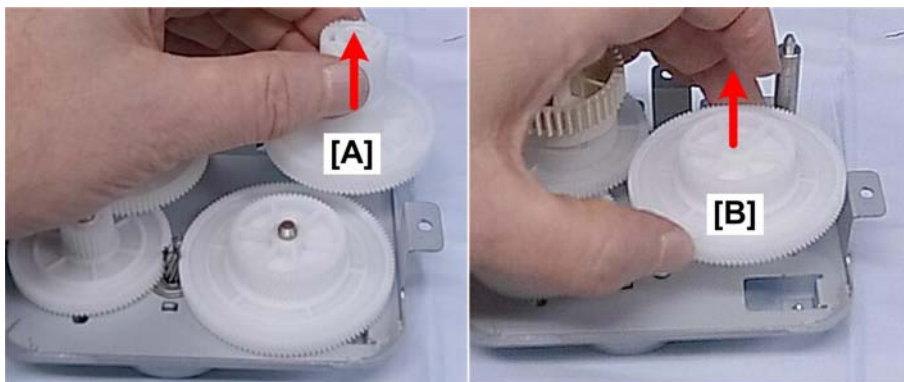
m101r049

4. Free the harnesses [A] (⚙️ x2).
5. Disconnect the motor mount [B] (🔩 x3).



m101r050

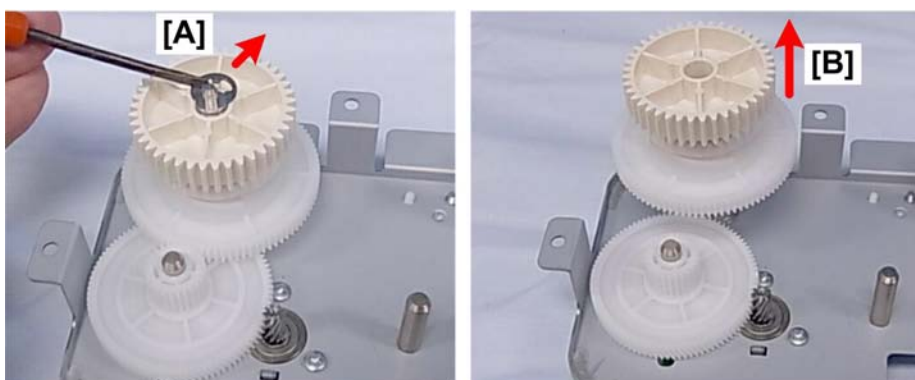
6. Remove the motor mount [A] with the motor attached.
7. Lay the motor mount [B] face down so the gears are up.



m101r051

8. Remove gear [A] and then gear [B].

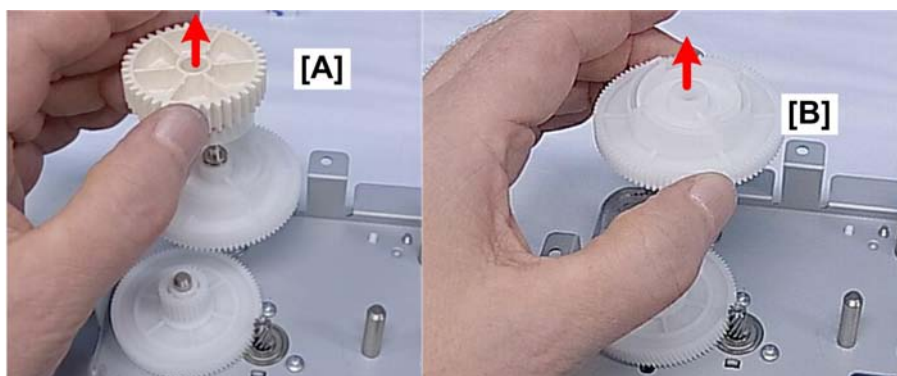
4



m101r052

9. Disconnect gear [A] ($\odot \times 1$).

10. After the e-ring is removed, the gears [B] will spring up slightly.



m101r053

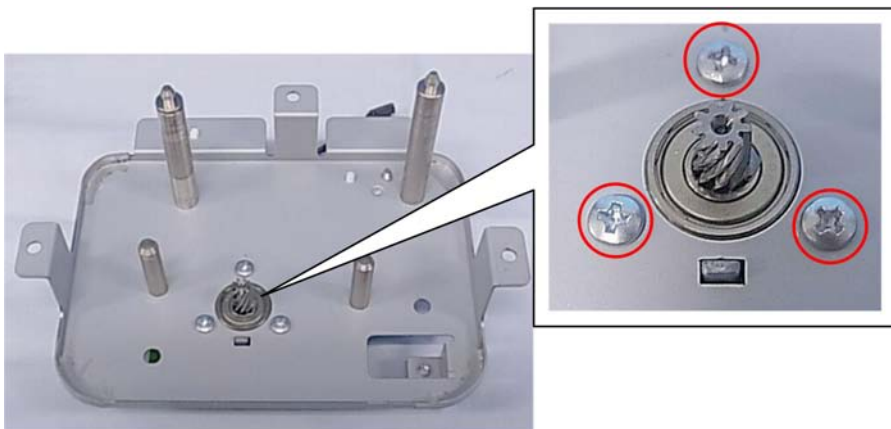
11. Remove gear [A] and then gear [B].



m101r054

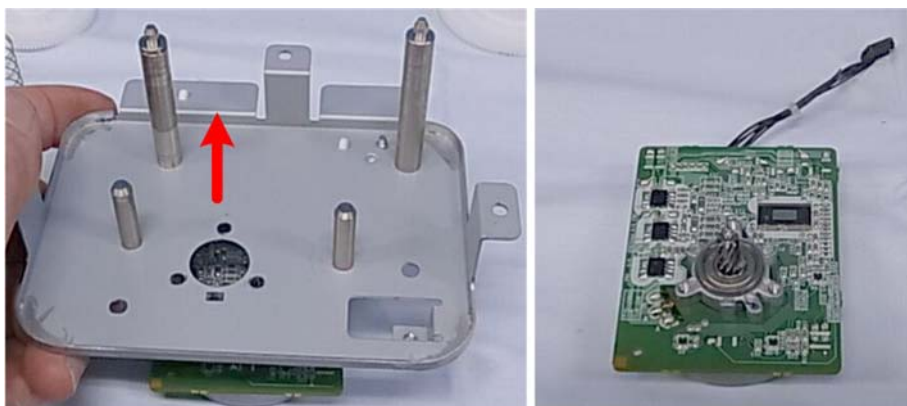
4

12. Remove gear [A] and spring [B].



m101r055

13. Remove the screws (🔩 x3).



m101r056

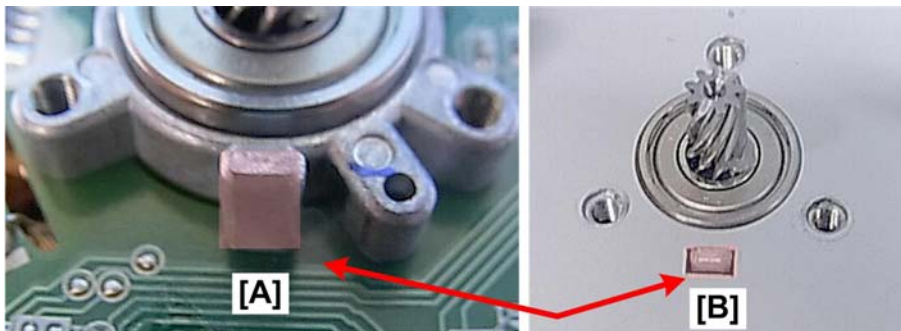
14. Lift the motor mount plate off the motor.



m101r057

15. Turn the motor over.

Reinstalling the Main Motor



m101r058

1. Match boss [A] with the hole [B] on the motor plate. This aligns the holes correctly for re-attachment of the motor to the motor mount plate.

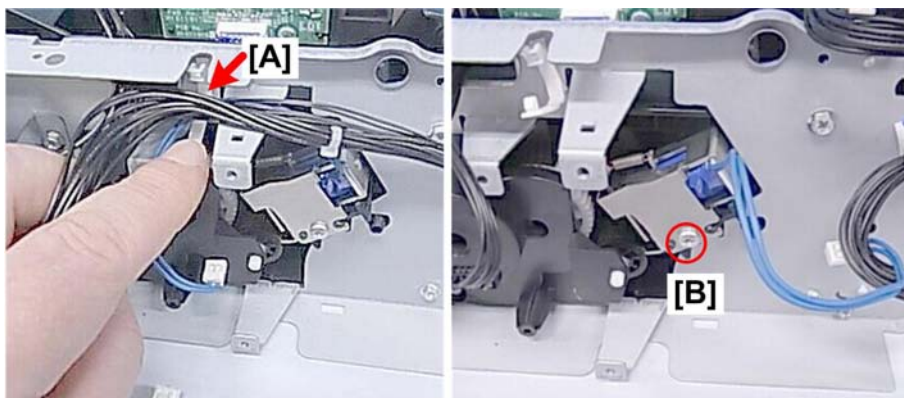
Solenoid

Pickup Roller Solenoid

Preparation

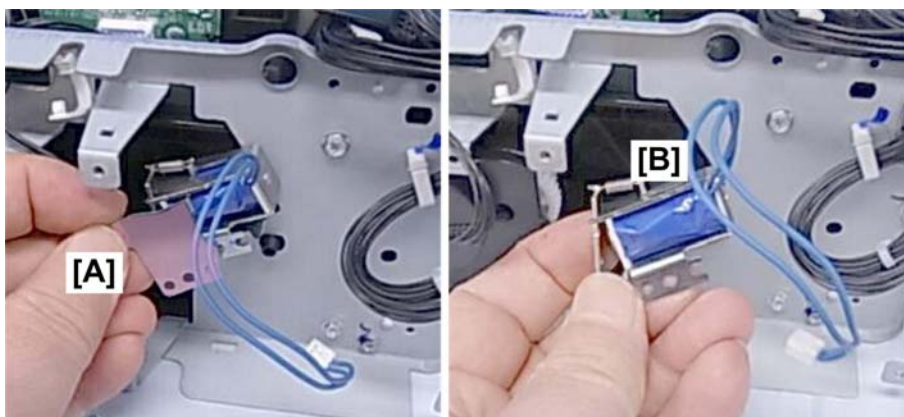
- Remove right cover (p.43 "M101 Covers")
(p.50 "M102 Covers, Platen Cover, Flatbed Unit")
(p.60 "M103 Covers, Flatbed Unit, ADF")

4



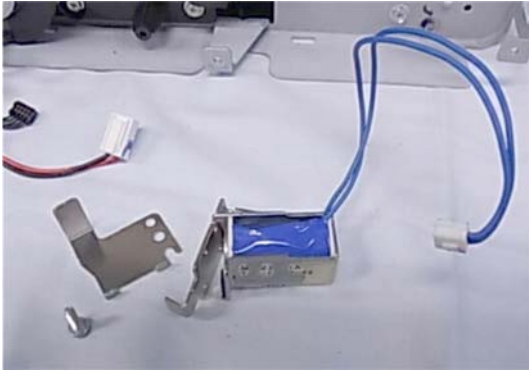
m101r059

1. Free the solenoid harness [A] (p. x1).
2. Remove screw [B] (p. x1).



m101r060

3. Remove plate [A] and then solenoid [B].



m101r061

Switches

Safety Switch

 **Note**

- NA model has the two safety switches (Replacement procedure is as follows).

Preparation

M101  p.43 "M101 Covers")

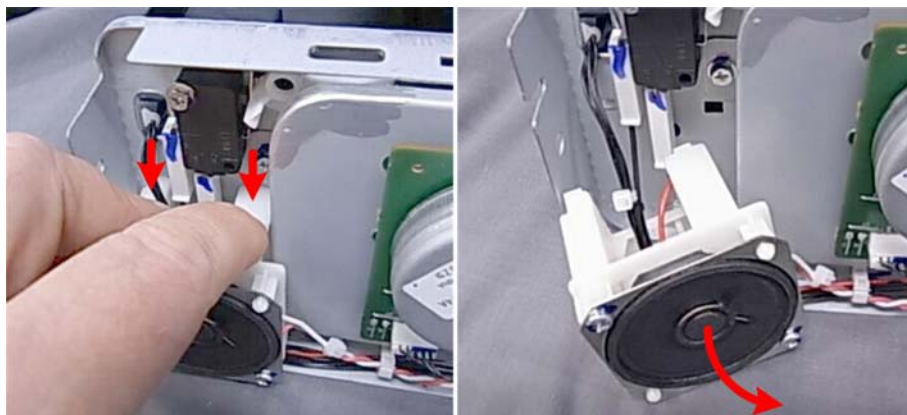
- AIO
- Front cover
- Left cover

M102  p.50 "M102 Covers, Platen Cover, Flatbed Unit")

- AIO
- Front cover
- Left cover

M103  p.60 "M103 Covers, Flatbed Unit, ADF")

- AIO
- Front cover
- Left cover
- Speaker (see below)



m101r110

4

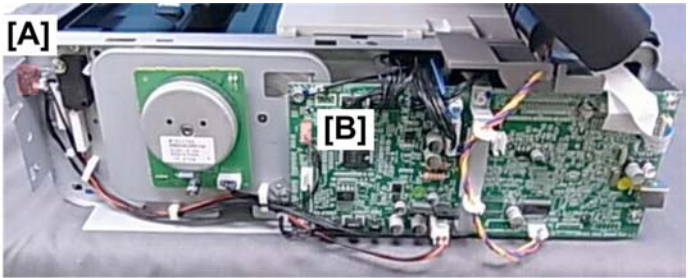
1. If you are servicing the M103, you must move the speaker so you can access the breaker switch.
 - Release the tabs at the top of the speaker mounting plate (🔧 x2).
 - Move the speaker slightly to the right (you do not need to remove it).



m101r111

2. Remove the breaker switch screw [A] (🔧 x1).
3. Disconnect and remove the switch [B] (🔌 x2).





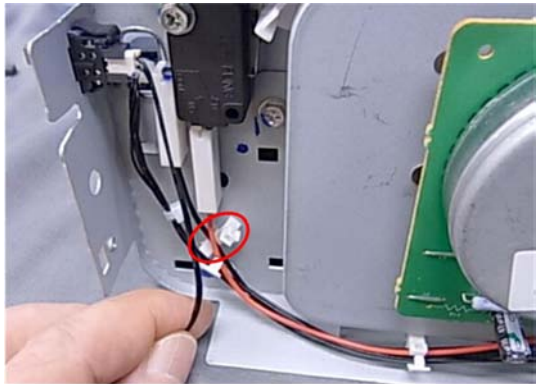
m101r135

1. The output tray push-switch is mounted at [A] and connected to the main board at [B].



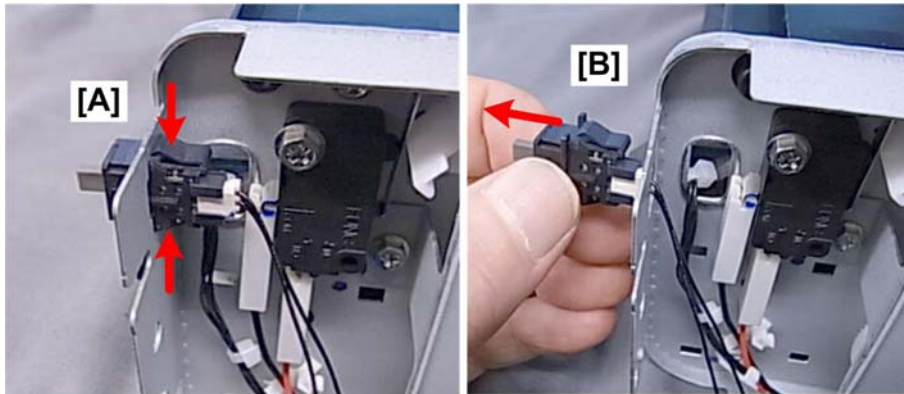
m101r136

2. Disconnect the harness at [A] and [B] (🔌 x1, 🔌 x2).



m101r137

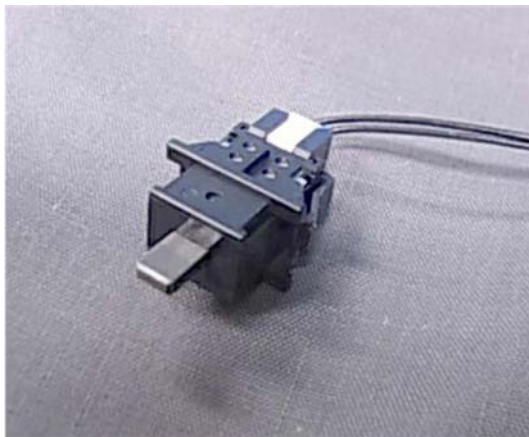
3. Release the harness (🔌 x1).



m101r138

4

4. With finger tips or a pair of radio pliers, depress the top and bottom of the switch release at [A].
5. Pull out the switch [B].



m101r139

Fusing Unit

This section describes how to remove these items:

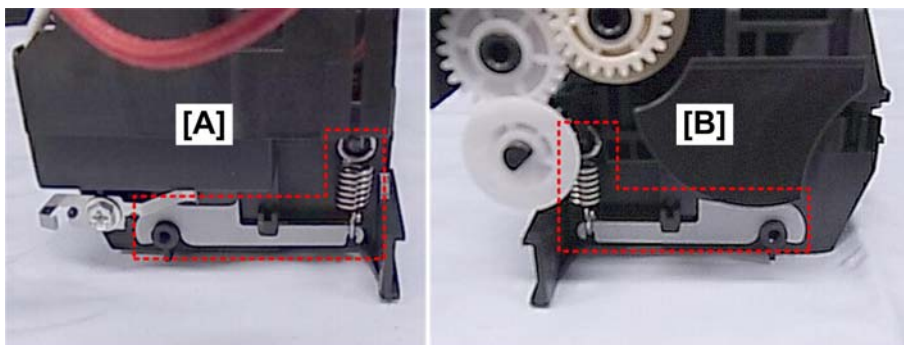
- Exit Roller
- Pressure Roller
- Fusing Lamp
- Thermostat
- Thermistor

Separating Fusing Unit

4

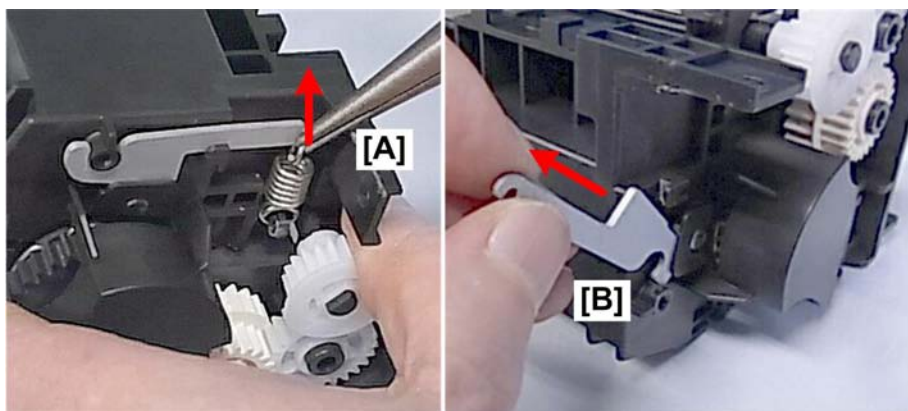
Preparation

- Remove the fusing unit (p.71)



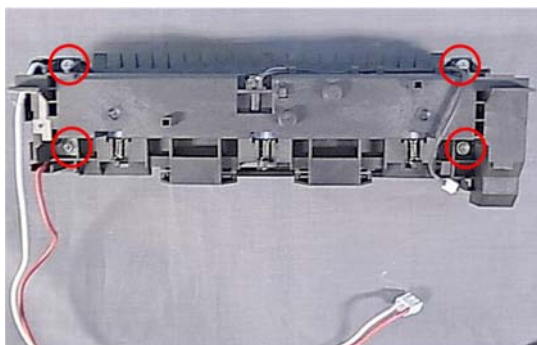
m101r068

1. Two strong springs on either side of fusing unit [A] left and [B] right keep the soft pressure roller compressed against the hot roller. These springs must be removed in order to disassemble the fusing unit.



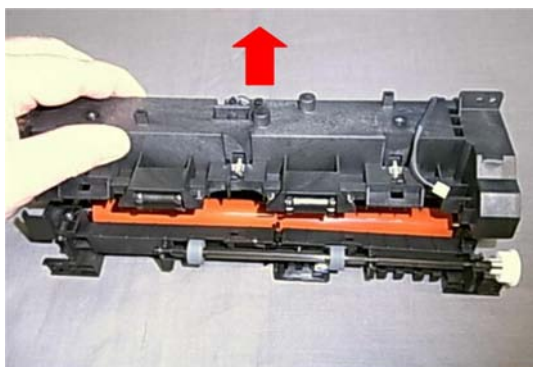
m101r069

2. Use tip of a pair or radio pliers to remove the spring [A] on the right end of the fusing unit (🔧 x1).
3. Remove the pressure arm [B].
4. Repeat Steps 2 and 3 to remove the spring and pressure arm on the left end of the fusing unit (🔧 x1).



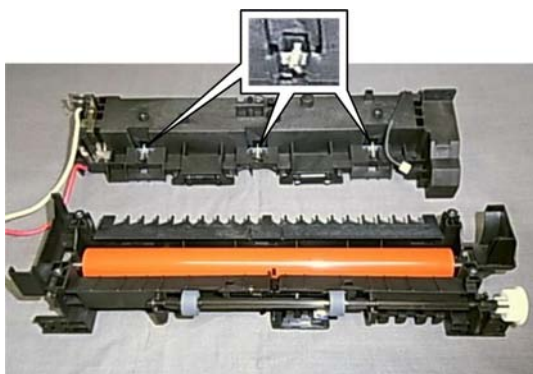
m101r070

5. Disconnect the top of the fusing unit (🔧 x4).



m101r071

6. Lift off the top of the fusing unit.



m101r072

7. Small springs hold the three stripper pawls in place against the hot roller.

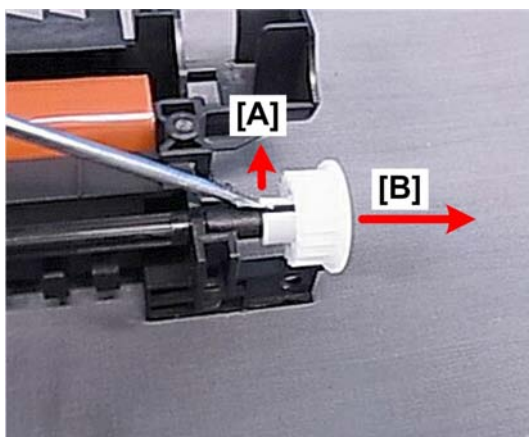
★ Important

- Removing the pawl springs is recommended to prevent the springs or pawls from falling off and becoming lost.

Exit Roller

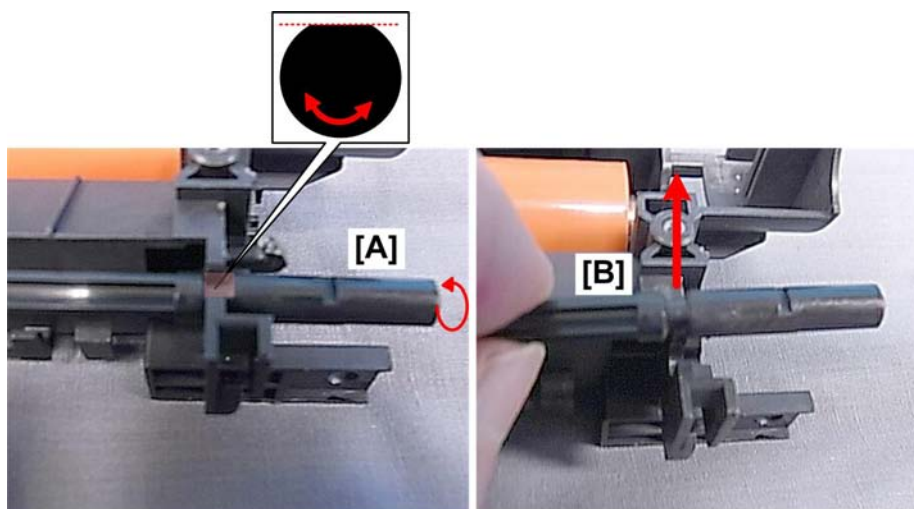
Preparation

- Remove the fusing unit (p.71)
- Separate the top and bottom halves of the fusing unit (p.111 "Separating Fusing Unit")



m101r073

1. Use the tip of a small screwdriver to release the lock pawl [A] of the exit roller gear (x1).
2. Remove the exit roller gear [B].



m101r074

3. Turn the exit roller [A] until you see the flat side of the roller shaft facing up.
4. Pull the roller [B] straight up to remove it from its cradle.



m101r075

5. Remove the rollers and roller shaft. (The rollers are permanently attached to the shaft.)

Pressure Roller

Preparation

- Remove the fusing unit (p.71)
- Separate the top and bottom halves of the fusing unit (p.111 "Separating Fusing Unit")



m101r076

1. Hold the pressure roller on both ends, and then lift it out of the bottom half of the separated fusing unit.



m101r077

2. Lay the roller on a flat clean surface.

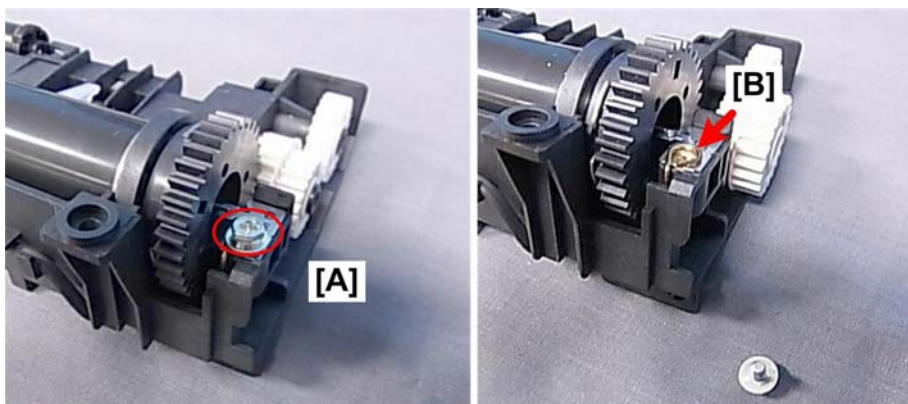
★ Important

- Avoid touching the surface of the pressure roller with your fingers or bare hands. If the roller requires cleaning, wipe the surface with a clean dry cloth.

Hot Roller, Fusing Lamp

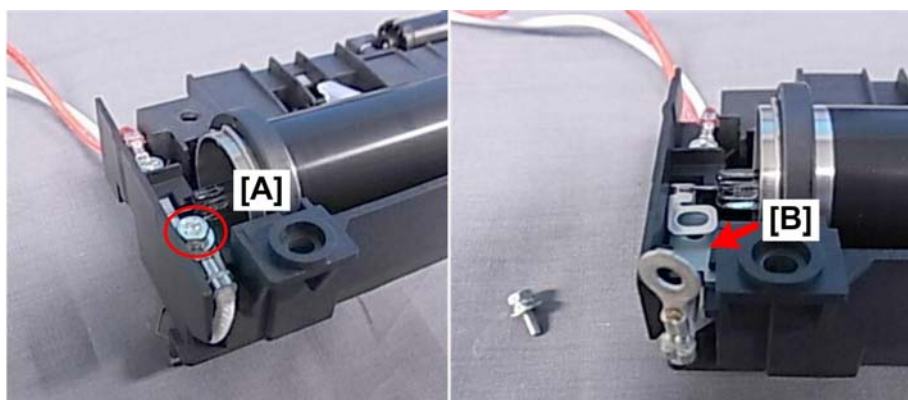
Preparation

- Remove the fusing unit (p.71)
- Separate the top and bottom halves of the fusing unit (p.111 "Separating Fusing Unit")



m101r078

1. On the right end of the top half of the fusing unit, remove screw [A] (x1).
2. Note the position of the wire [B]. The wire and screw must be re-installed as shown above.



m101r079

3. On the left end of the top half of the fusing unit, remove screw [A] (x1).
4. Note the positions of the eyelet and plate [B]. These must be arranged and re-installed as shown above.

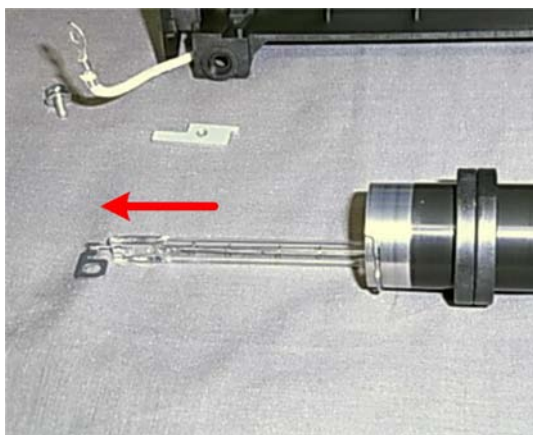


m101r080

5. Lift both ends of the hot roller and remove it.

★ Important

- Avoid touching the surface of the hot roller with your fingers or bare hands.
- If the roller requires cleaning, wipe the surface with a clean dry cloth.



m101r081

6. Pull the fusing lamp slowly out of the left end of the hot roller.



m101r082

7. Lay the fusing lamp on a clean flat surface.

★ Important

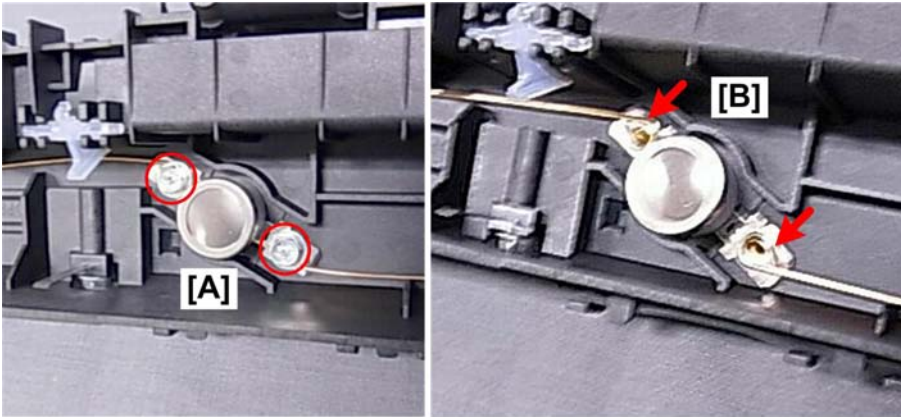
- Avoid touching the surface of the fusing lamp with your fingers or bare hands. The oil from fingerprints or hand smudges can cause the surface of the fusing lamp to heat unevenly.
- If the fusing lamp requires cleaning, wipe the surface with a clean cloth dampened with alcohol, and then dry wipe with a soft clean cloth.

Thermostat

Preparation

4

- Remove the fusing unit (p.71)
- Separate the top and bottom halves of the fusing unit (p.111 "Separating Fusing Unit")
- Remove the hot roller (p.116 "Hot Roller, Fusing Lamp")



m101r083

1. Disconnect the thermostat [A] (x2).
2. Before removing the thermostat, note the positions of the connector wires [B]. They must be re-installed the same way.
3. Remove the thermostat.



m101r084

4

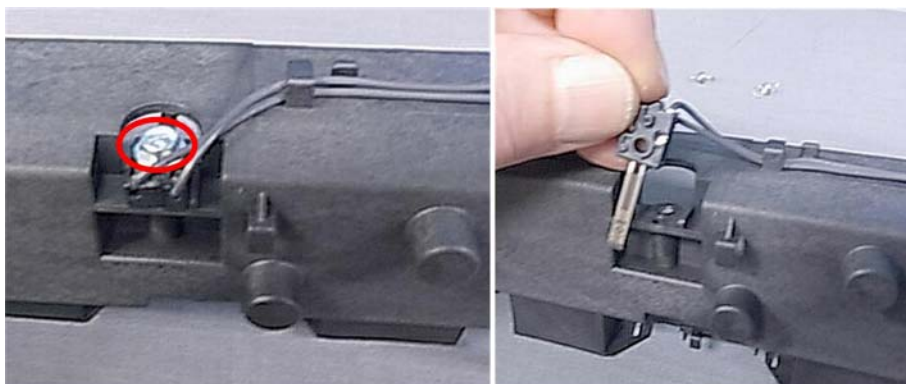
WARNING

- Always replace a blown thermostat with a new one.
- Never attempt to reset a blown thermostat by manipulating the edges of the black cover with a screw driver.
- Resetting a thermostat manually could cause a failure to detect overheating in the fusing unit and cause a fire hazard.


Thermistor

Preparation

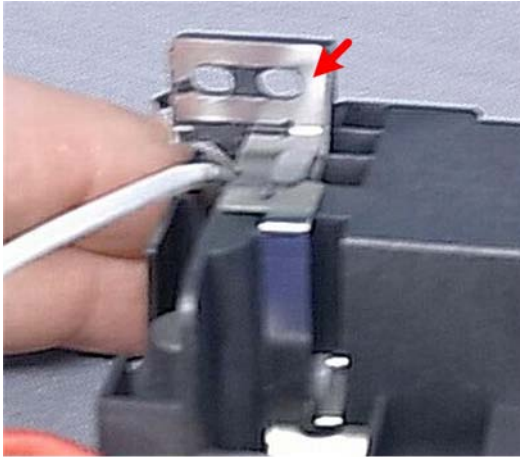
- Remove the fusing unit ( p.71)



m101r085

1. On top of the fusing unit, disconnect the thermistor ( x1).
2. Remove the thermistor.

Ground Plate



4

m101r086

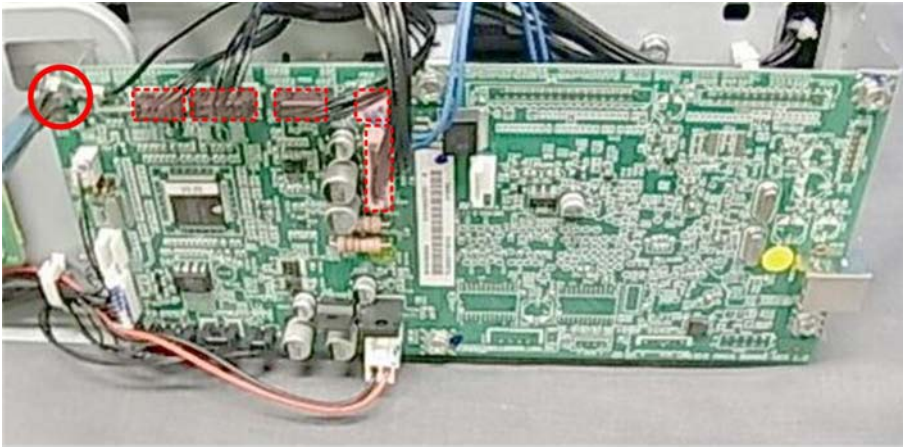
1. Note the correct position for the ground plate before re-installation.

Boards

M101 Main Board

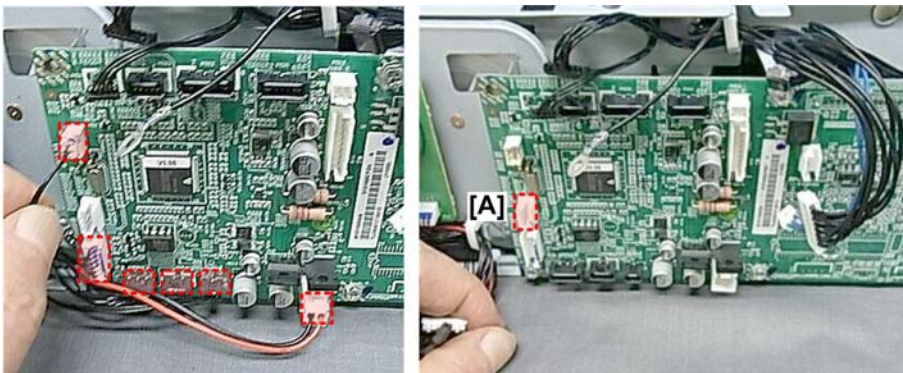
Preparation (p.43 "M101 Covers")

- Front cover
- Top cover
- Right cover



m101r087

1. Disconnect board at the top (x1, x5).

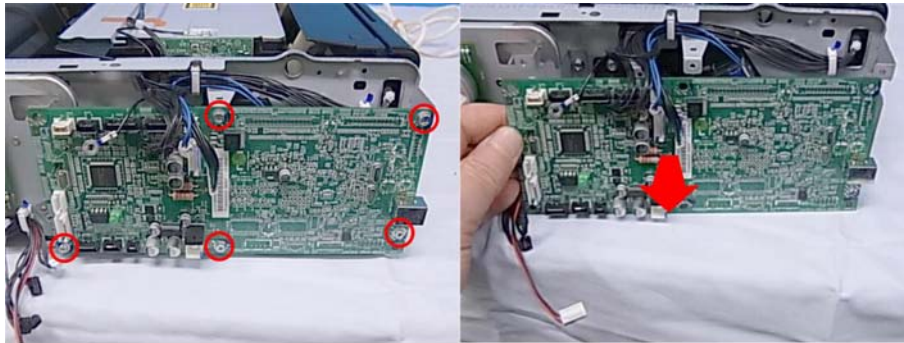


m101r088

2. Disconnect board on the left and bottom edges (x6).

Note

- The socket at [A] is empty. Nothing is disconnected or reconnected here.



m101r089

3. Disconnect and remove the board ( x5).

4



m101r090

Re-installation



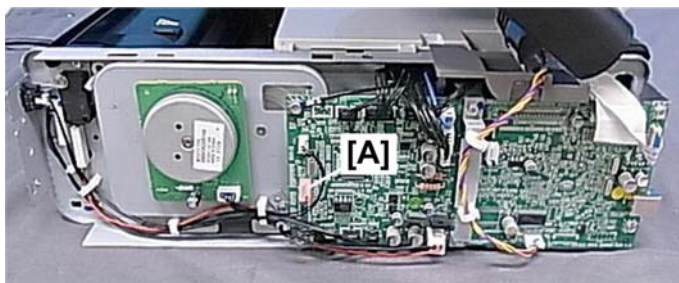
m102r030

1. When you re-install the board, be sure to re-connect the ground wire at the upper left corner of the main board.
2. If the main board has been replaced, be sure to do the procedures for after replacing a main board. (p. 130 "After Replacing the Main Board")

M102 Main Board

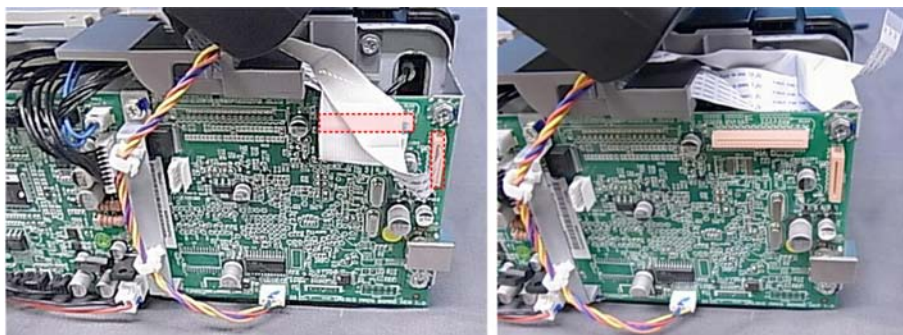
Preparation (p. 50 "M102 Covers, Platen Cover, Flatbed Unit")

- Front cover
- Right cover




m102r020

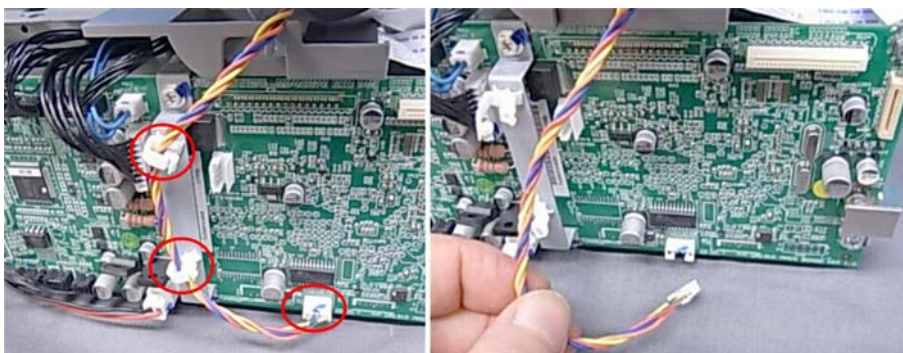
1. Before you begin, note that there is no connector at [A].



m102r021

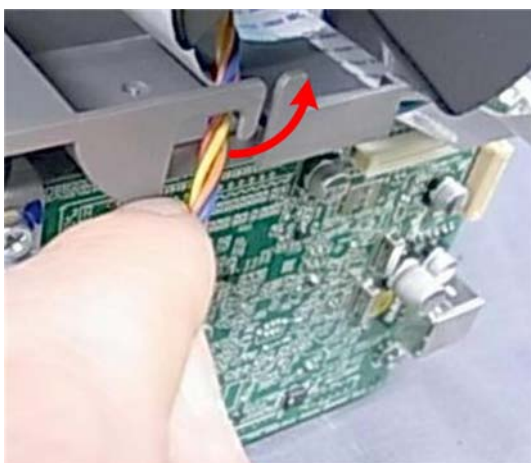
2. Disconnect the flat cables at the upper right corner ( x2).

4



m102r022

3. Disconnect the center harness ( x2,  x1)



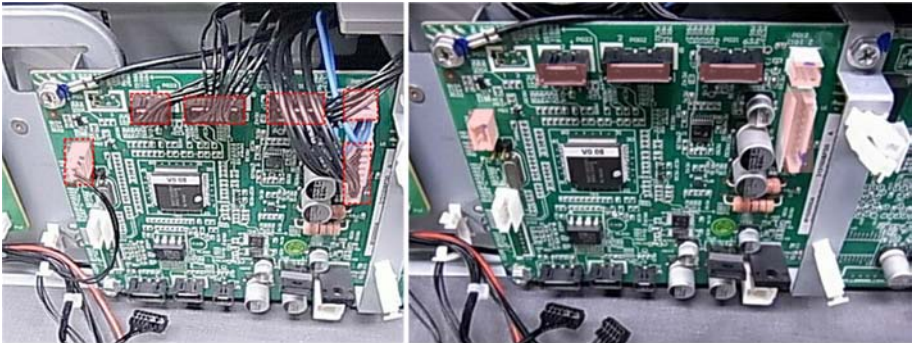
m102r023

4. Above the board, disconnect the center harness from the harness guide.



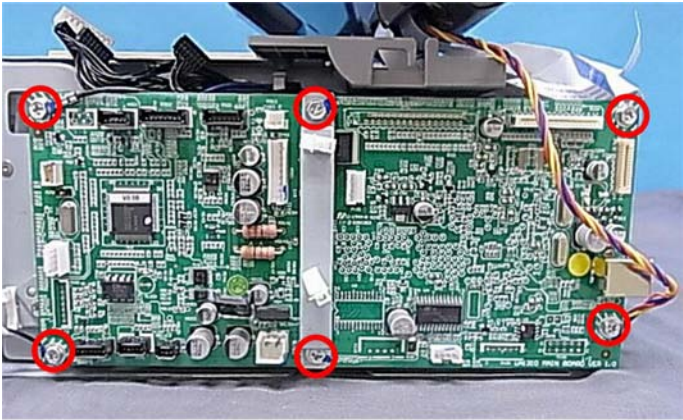
m102r024

5. Disconnect the lower left corner of the board (🔧 x4).



m102r025

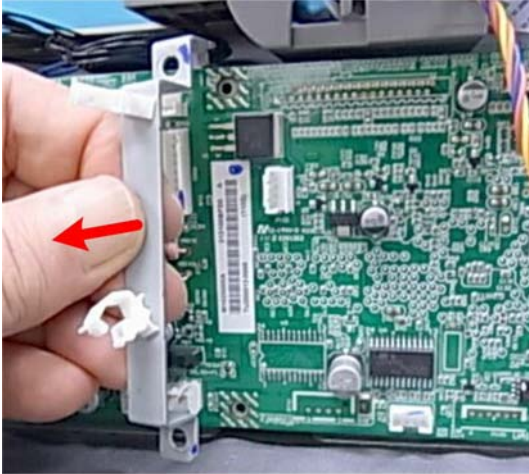
6. Disconnect the upper right corner of the board (🔧 x6).



m102r026

7. Disconnect the main board (🔧 x6).

4



m102r027

8. Remove the center harness bracket.



m102r028

9. Remove the board.



m102r029

Re-installation



m102r030

1. When you re-install the board, be sure to re-connect the ground wire at the upper left corner of the main board.
2. If the main board has been replaced, be sure to do the procedures for after replacing a main board. (p. 130 "After Replacing the Main Board")

M103 Main Board

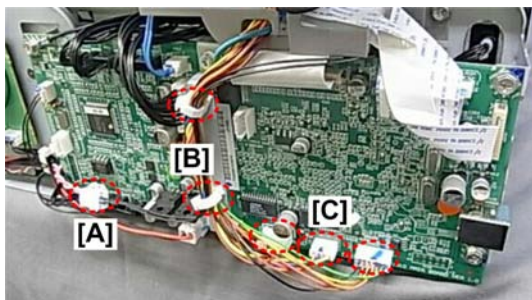
Preparation (p. 60 "M103 Covers, Flatbed Unit, ADF")

- Front cover
- Right cover



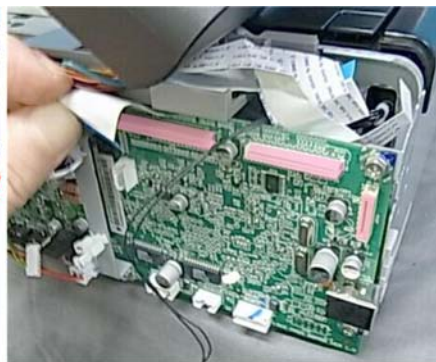
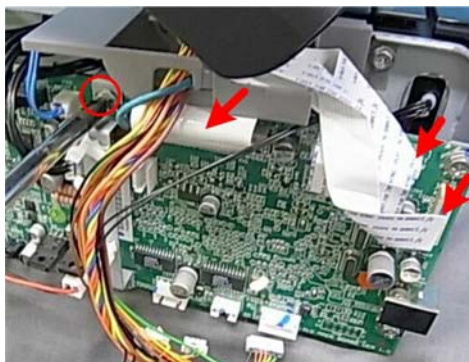
m103r087

1. Before you begin, note that one connector socket is empty.



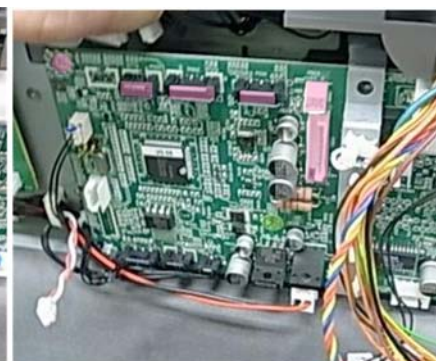
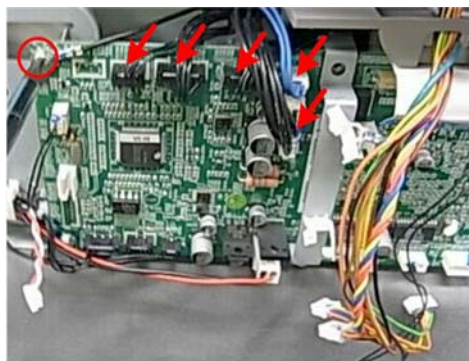
m103r088

2. Disconnect speaker harness [A] (🔌 x1).
3. Open clamps [B] (🔧 x2).
4. Disconnect lower right connectors [C] (🔌 x3).



m103r089

5. Remove the ground screw and flat connectors (🔩 x1, 📏 x3).



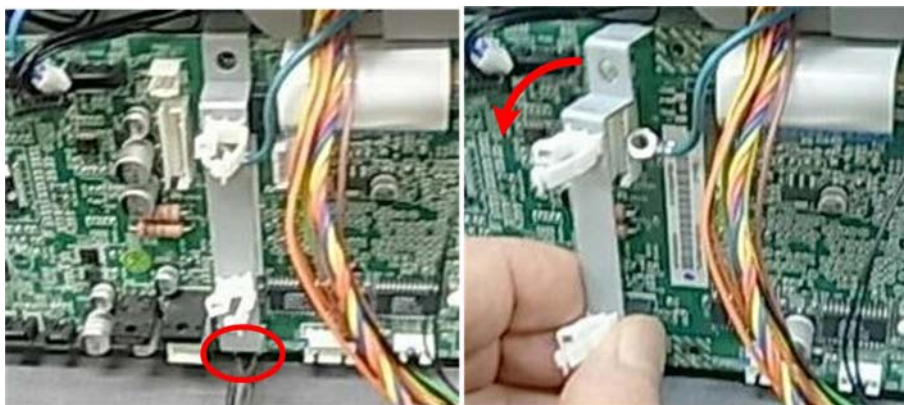
m103r090

6. On the top left corner of the board, remove the ground screw and connectors (🔩 x1, 📏 x5).



m103r091

7. On the left side and bottom left edge of the board, disconnect the connectors (🔌 x5).



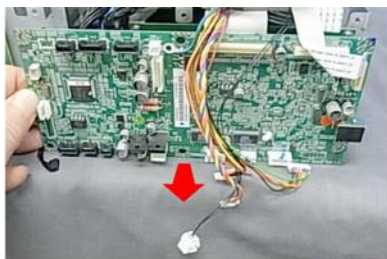
m103r092

8. Disconnect the bottom of the center brace and remove it (🔌 x1).



m103r093

9. Remove the remaining screws (🔌 x3).



m103r094

10. Remove the board.

Re-installation

4



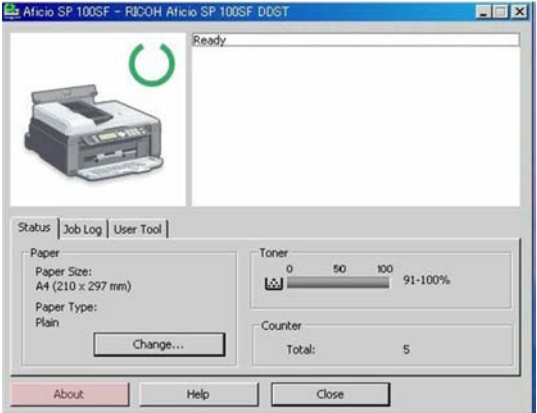
m103r095

1. When you re-install the board, be sure to re-connect the ground wires at the upper left corner and center of the main board.
2. If the main board has been replaced, be sure to do the procedures for after replacing a main board. (p. 130 "After Replacing the Main Board")

After Replacing the Main Board

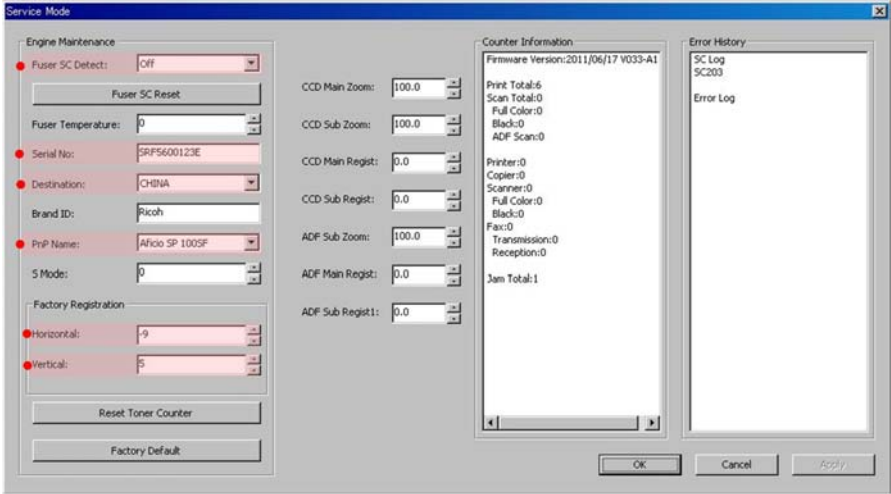
Do the procedures below after replacing the main board of the M101, M103, or M103.

1. Start Smart Organizing Monitor.



m101r301

2. Enter the service mode to display the Service Mode screen.



m101r131

3. Do these settings on the service mode screen.

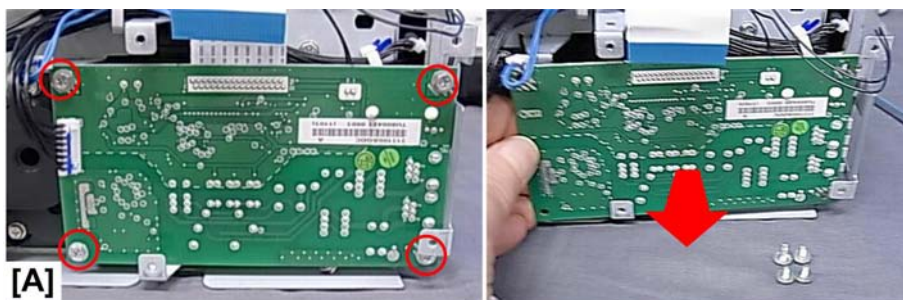
Setting	Comment
Fuser SC Detect	Signals a fatal error after three consecutive jams in the fusing unit.
Serial No.	Serial number of the machine.
Destination	Your geographic location.
PnP Name	Plug-and-Play number of the machine.
Horizontal	Restores factory setting for horizontal alignment of the image area.
Vertical	Restores factory setting for vertical alignment of the image area.

M103 Fax Board

The fax board is behind the main board.

Preparation

- Remove the M103 Main Board (p.127 "M103 Main Board")

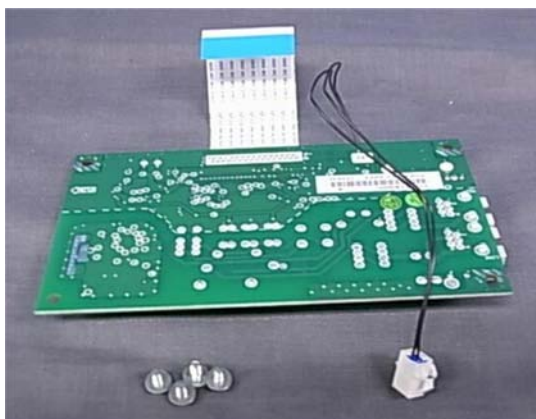


m103r096

1. Disconnect and remove the fax board (⚙ x1, ⚙ x3).

★ Important

- The screw at [A] is a wide-thread tapping screw (for plastic). Make sure that you re-fasten it at this position.

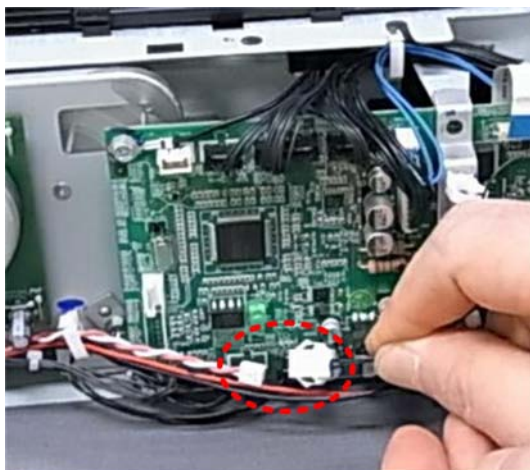


m103r097

M103 Fax Speaker

Preparation (p.60 "M103 Covers, Flatbed Unit, ADF")

- Front cover
- Left cover



m103r098

1. Disconnect the speaker harness (🔌 x1).



m103r099

2. Disconnect and remove the speaker (🔌 x1, 🔩 x2).



m103r100

PSU

Preparation

M101

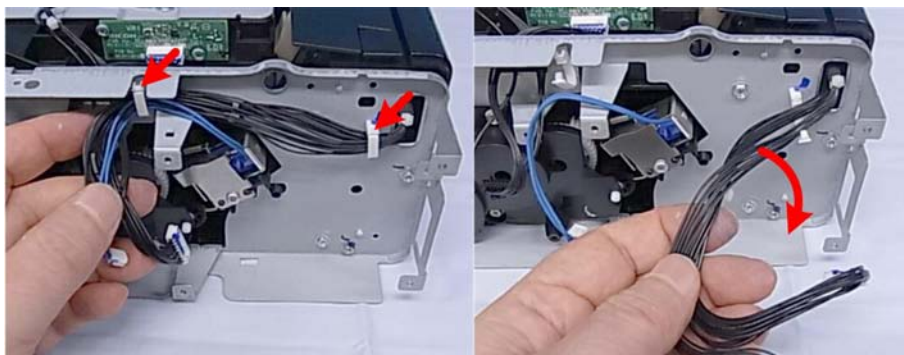
- Front cover (p.43 "M101 Covers")
- Right cover

M102

- Front cover (p.50 "M102 Covers, Platen Cover, Flatbed Unit")
- Right cover

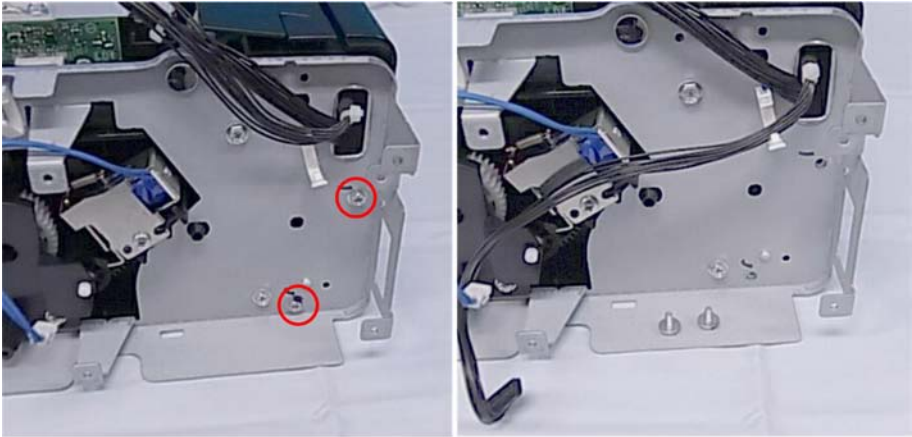
M103

- Front cover (p.60 "M103 Covers, Flatbed Unit, ADF")
- Right cover



m101r091

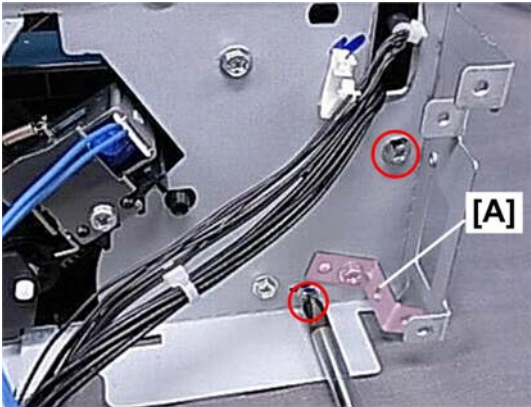
1. Open the clamps and free the harnesses (x2).



m101r092

4

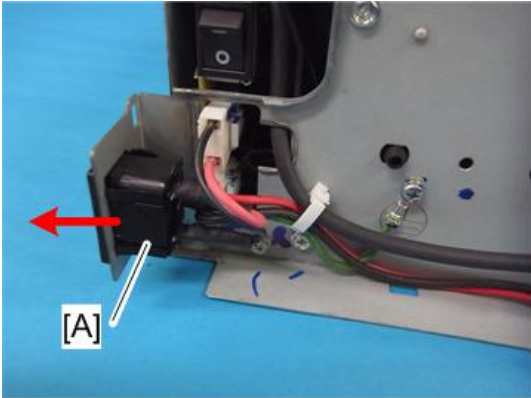
2. Disconnect the rear cover on the right ( x2).



m101r093

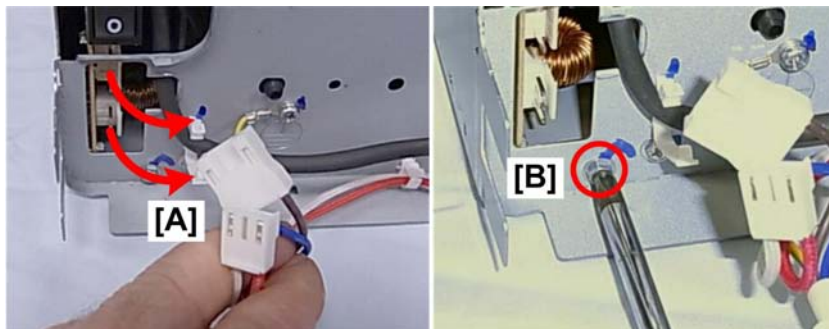
 **Note**

- If you are servicing the M103, you do not need to remove the clamp [A]



m101r094w

3. Remove the base of the power cord [A] from its mount.



m101r095

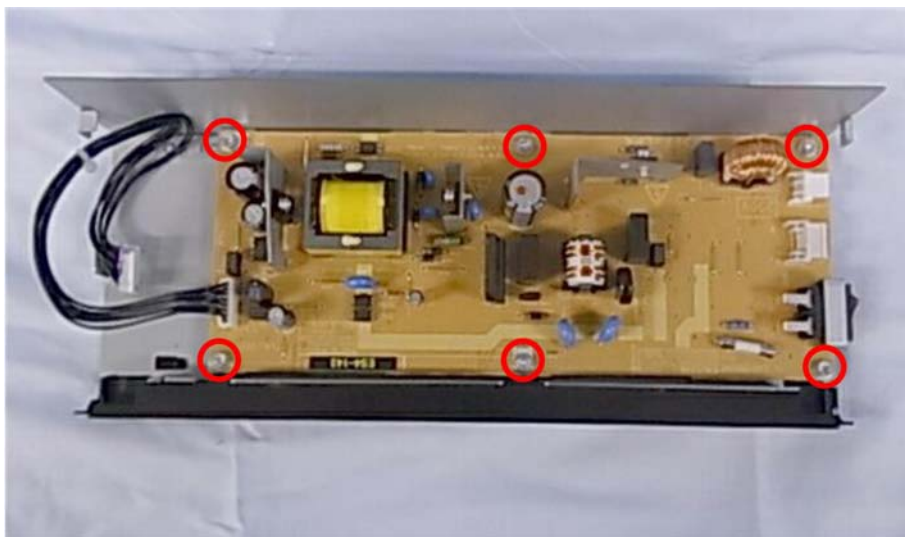
4

4. Disconnect both connectors [A] (x2).
5. Remove the screw [B].




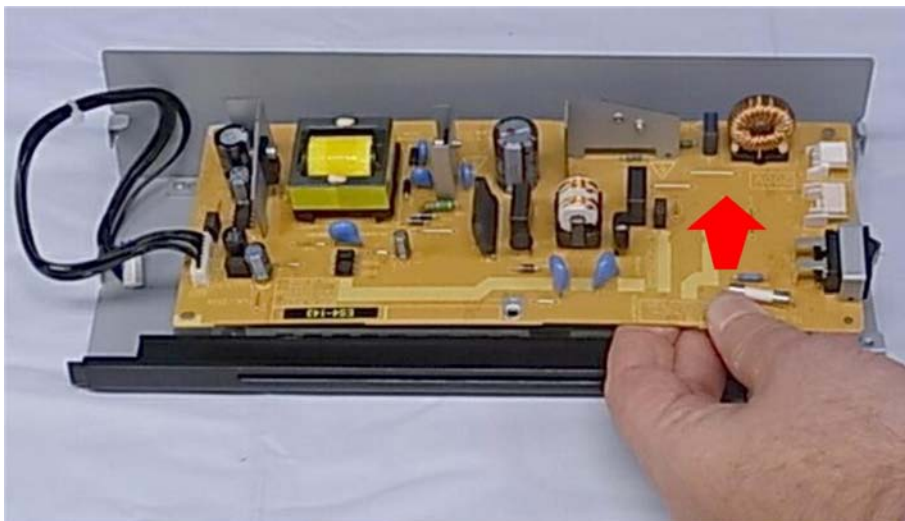
m101r096

6. Pull the rear cover a short distance away from the back of the machine, and then pull the harness through the hole at the corner of the machine.



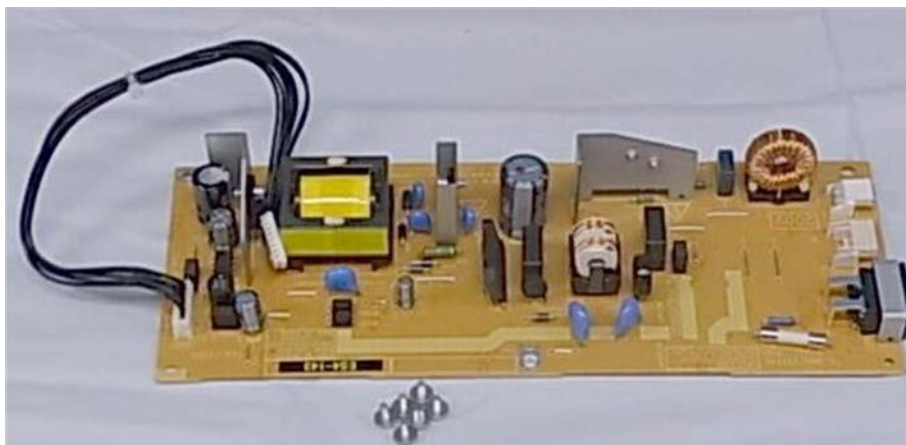
m101r097

7. Lay the rear cover on a flat surface.
8. Disconnect the PSU ( x6).



m101r098

9. Remove the PSU.



m101r099

HVPS

Preparation

M101

- Front cover (p.43 "M101 Covers")
- Top cover
- Left cover

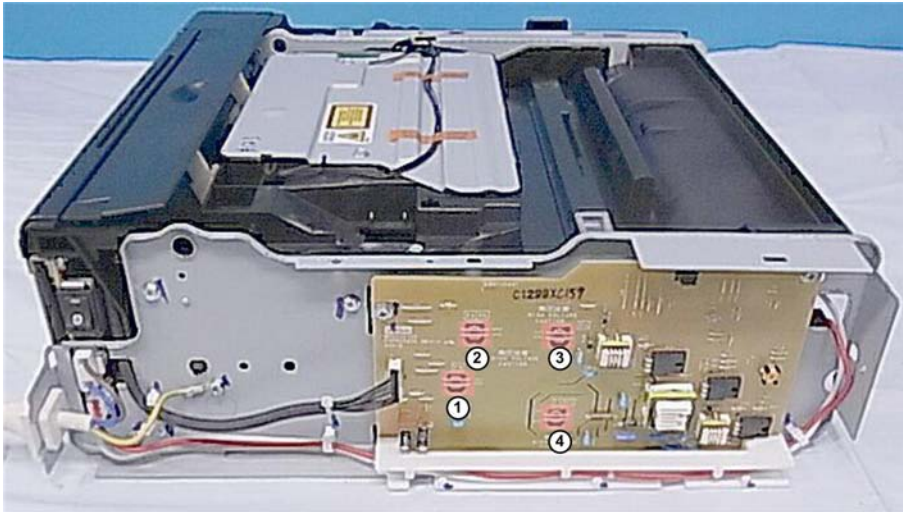
M102

- Front cover (p.50 "M102 Covers, Platen Cover, Flatbed Unit")
- Top cover
- Right cover
- Left cover
- Platen cover
- Flatbed unit

M103

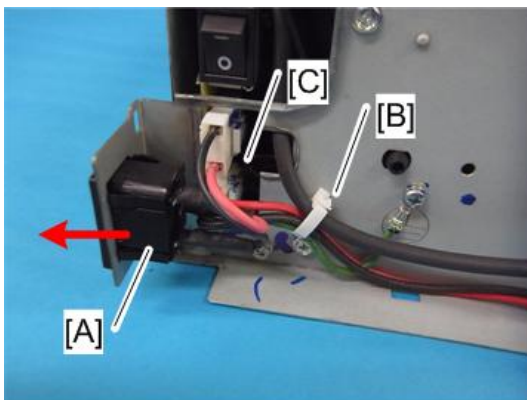
- Front cover (p.60 "M103 Covers, Flatbed Unit, ADF")
- Top cover

- Right cover
- Left cover
- Flatbed unit, ADF



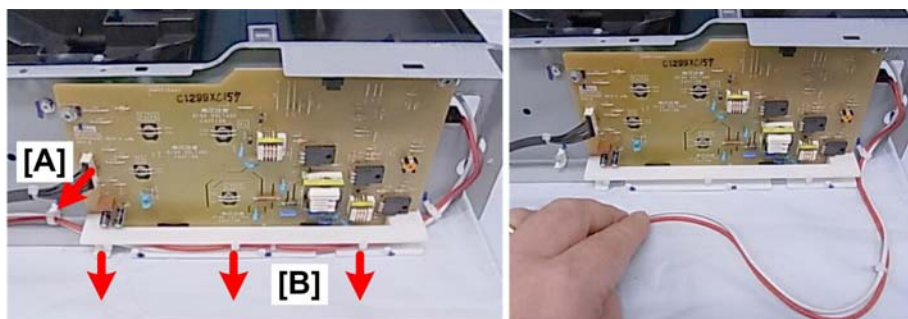
m101r100

1. The HVPS is in contact with four spring-loaded terminal heads behind the board. (These contacts are from the AIO.)



m101r101w

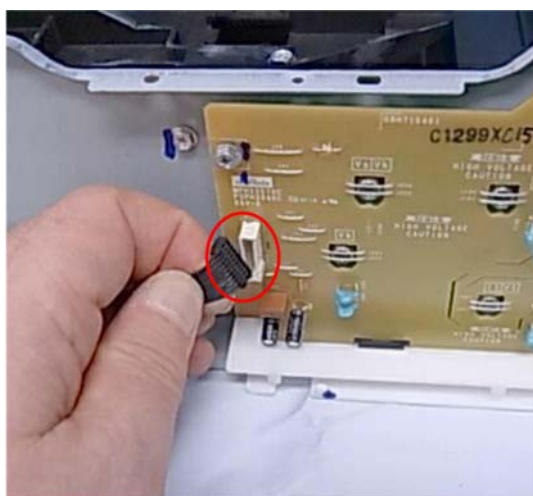
2. Remove the base of the power cord [A] from its mount.
3. Free the harnesses at [B] (🔌 x1).
4. Disconnect the fusing unit harness [C] (🔌 x1).



m101r102

5. Free the harness at [A] (🔧 x1)
6. Pull that harness out of the harness guide [B].

4



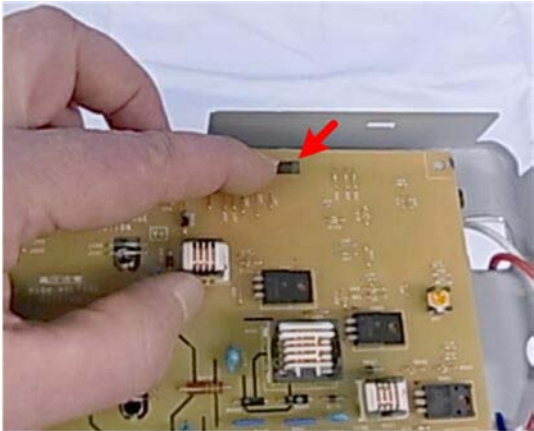
m101r103

7. Disconnect the board (🔧 x1).



m101r104

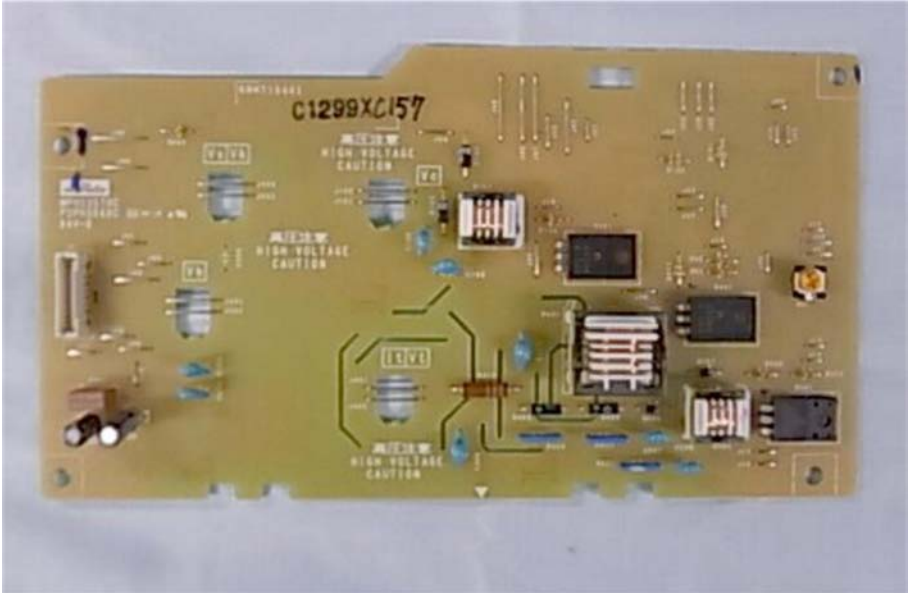
8. Remove the harness guide (🔧 x2).



m101r105

4

9. Press the tab release and remove the board (▼ x1).



m101r106

AIO Terminals



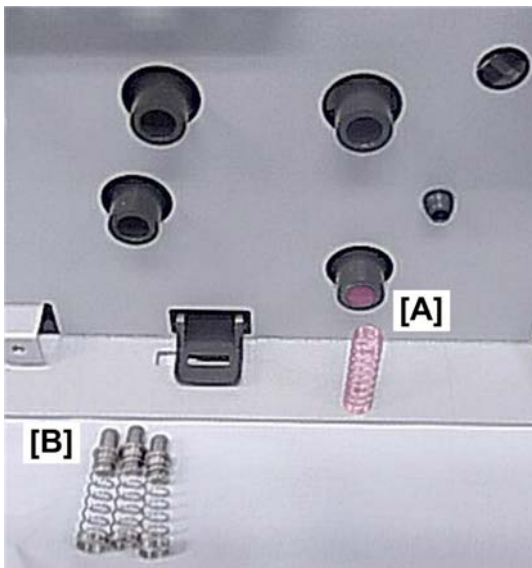
m101r107

4

There are four AIO springs but only three terminal nodes'

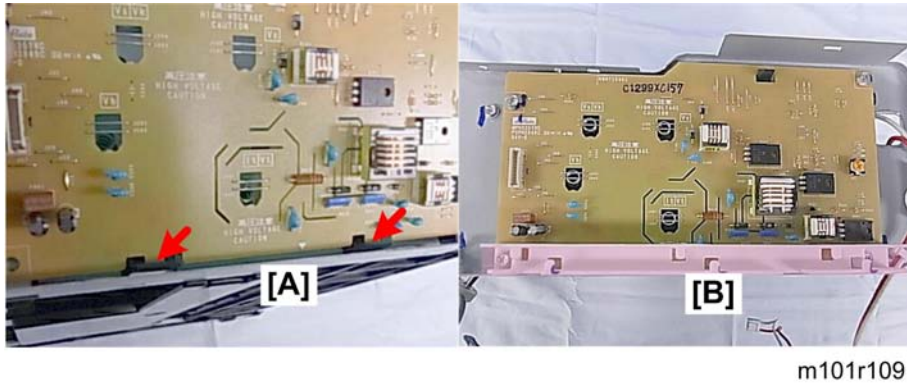
- Points (1), (2), (3) have terminal nodes [A] on the end of the springs.
- Point (4) consists of a spring only.

Re-installation



m101r108

1. The empty spring is re-attached at [A], and then the other springs [B] with the terminal nodes are inserted in the other holes.



2. When you re-install the board, make sure that the edge tabs [A] are inserted into the bottom slots. If the board is not inserted correctly, you will not be able to re-attach the harness guide [B] (the holes will not align correctly).

Flatbed Scanner

Separating the Flatbed Units

The procedures for separating the top and bottom halves of the flatbed unit are different for the M102 and M103.

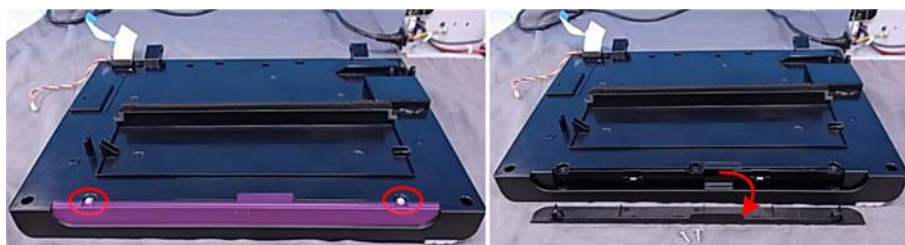
- Follow the appropriate procedure below to separate the top and bottom of the flatbed unit.
- Follow the procedures later in this section to remove the scanner motor or CIS. (These procedures are the same for both the M102 and M103).

4

Flatbed Scanner (M102)

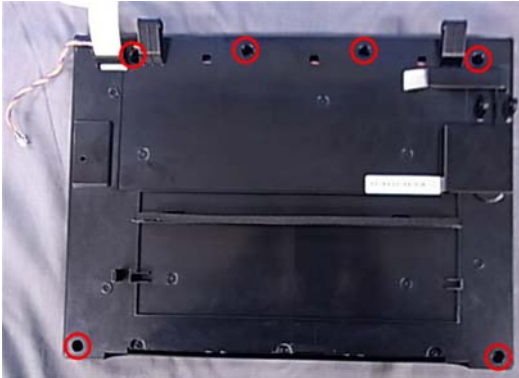
Preparation

- Front cover (p.50 "M102 Covers, Platen Cover, Flatbed Unit")
- Right cover
- Left cover
- Platen cover
- Flatbed unit



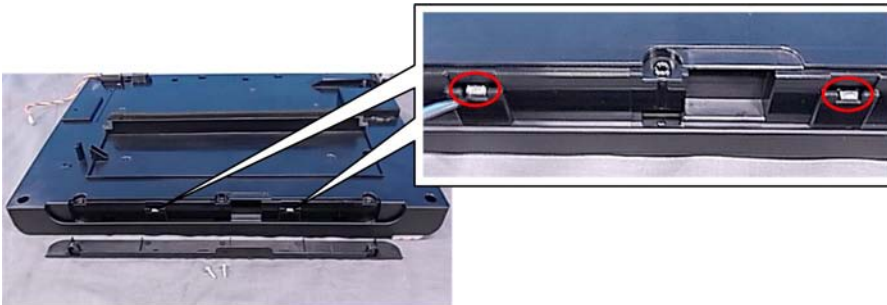
m102r014

1. Turn the flatbed unit over so the exposure glass is facing down.
2. Remove the edge plate (x2).



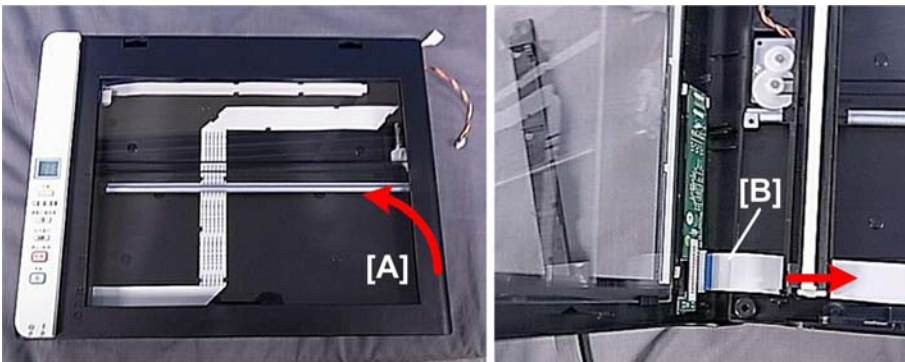
m102r015

3. Disconnect the bottom plate ( x6).




m102r016

4. Disconnect the hooks where the edge plate was removed. The top and bottom halves of the flatbed unit are now disconnected.



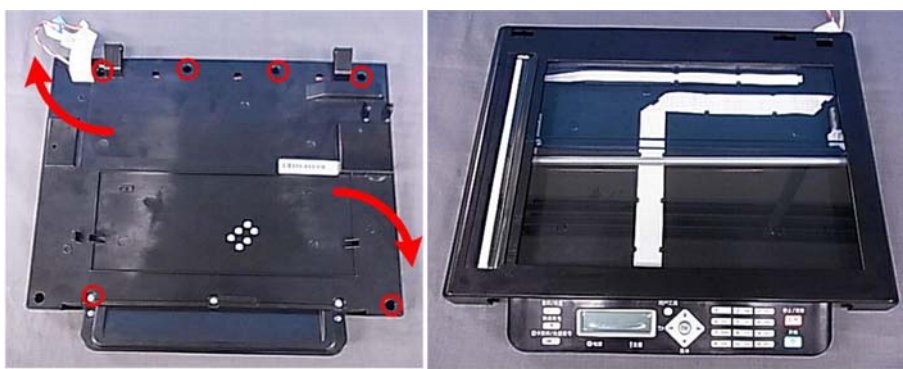
m102r017

5. While holding the unit together with your hands on both sides, turn the unit over so the exposure glass is facing up.
6. Carefully raise the right side of the unit top [A].
7. While holding the top of the unit upright, disconnect the operation panel PCB [B] ( x1).

Flatbed Scanner (M103)

Preparation

- Front cover (p.60 "M103 Covers, Flatbed Unit, ADF")
- Right cover
- Left cover
- Flatbed Unit, ADF



m103r033

1. Lay the flatbed unit on a flat surface with the exposure glass down.
2. Disconnect the bottom of the unit, and then turn over so the exposure glass is facing up (x6).



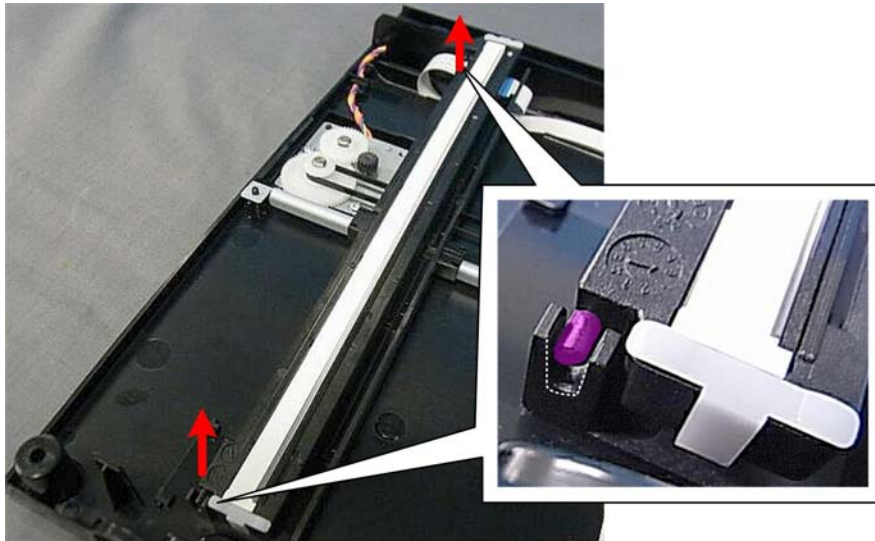
m103r034

3. Separate the top and bottom of the flatbed unit.

CIS

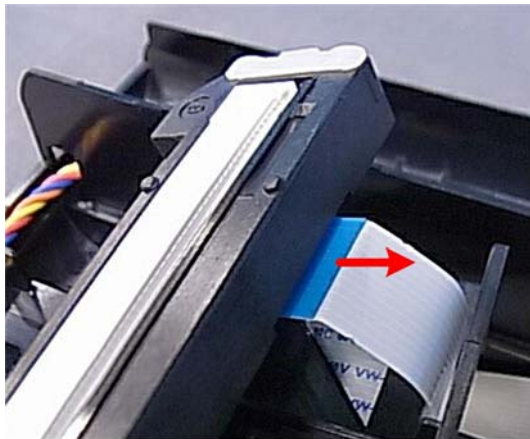
Preparation

- Separate flatbed unit (p.144)




m103r035

1. Separate both ends of the CIS from the cradles.



m103r036

2. Disconnect the CIS ( x1).



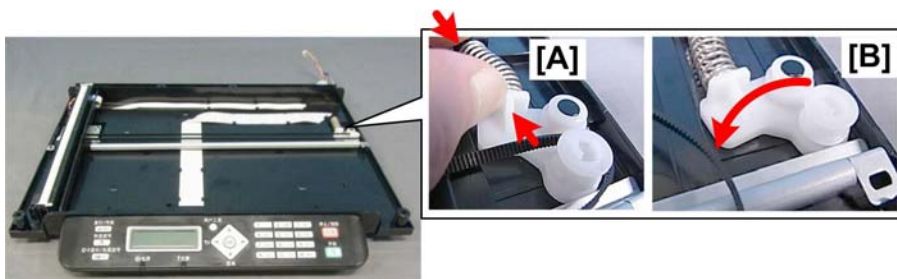
m103r037

4

Scanner Motor

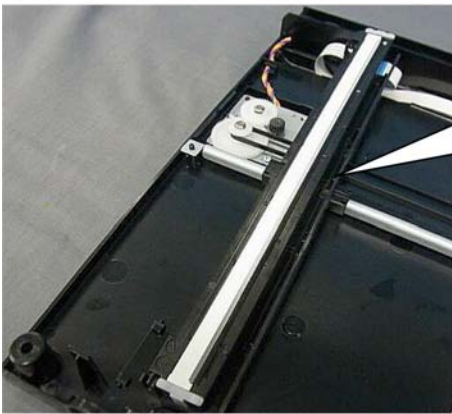
Preparation

- Separate flatbed unit (p. 144)

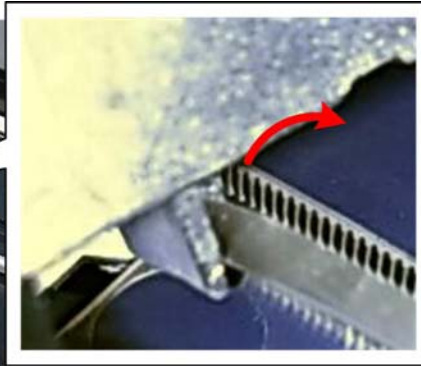


m103r038

1. Compress both ends of the spring [A] to relieve pressure on the scanning belt.
2. Remove the belt from the pulley [B] (x1).

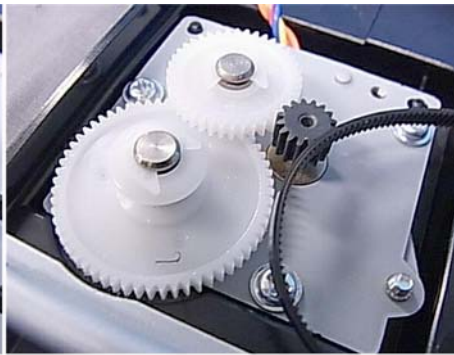
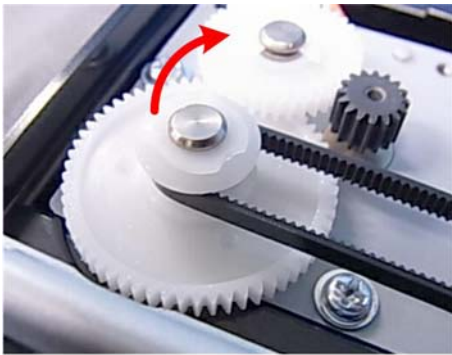


m103r039



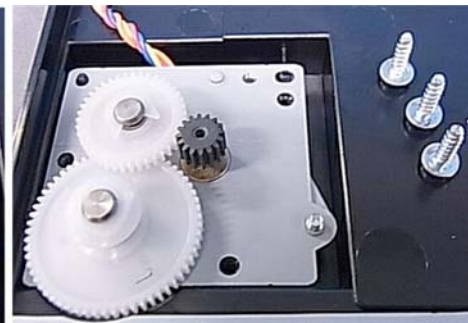
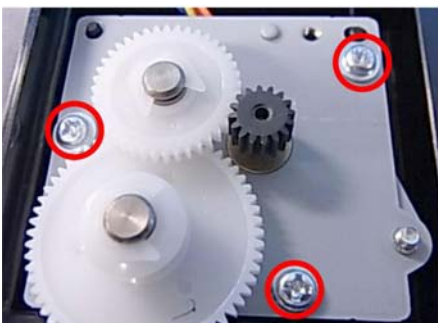
4

3. Disconnect the scanning belt from the bottom of the CIS unit, and then lay the CIS aside (you do not need to disconnect the CIS) (⚙️ x1).



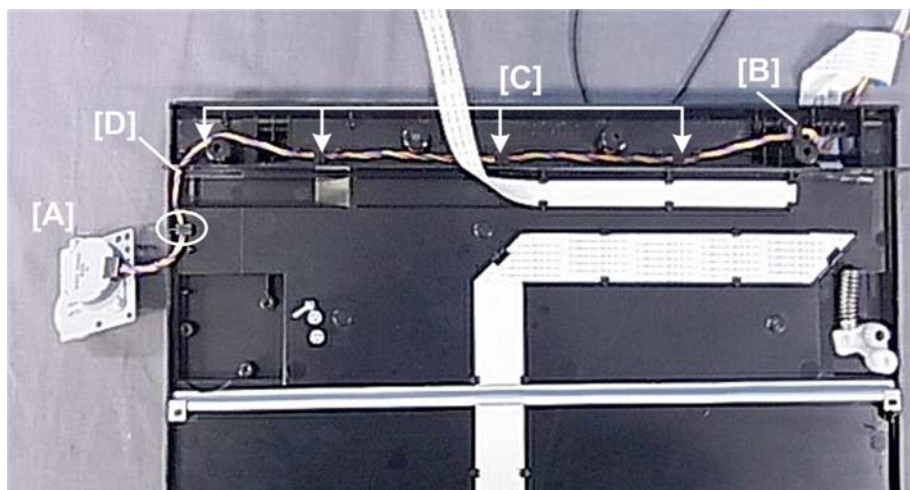
m103r040

4. Disconnect the timing belt from the scanner motor pulley (⚙️ x1).



m103r041

5. Disconnect the scanner motor bracket (🔩 x3).



m103r042

6. Remove scanner motor bracket [A] and set it aside.
7. Pull the end of the harness through the hole [B].
8. Disconnect the harness from the harness guide [C] and at [D] (▼ x4)




m103r043

9. Remove the motor and harness.



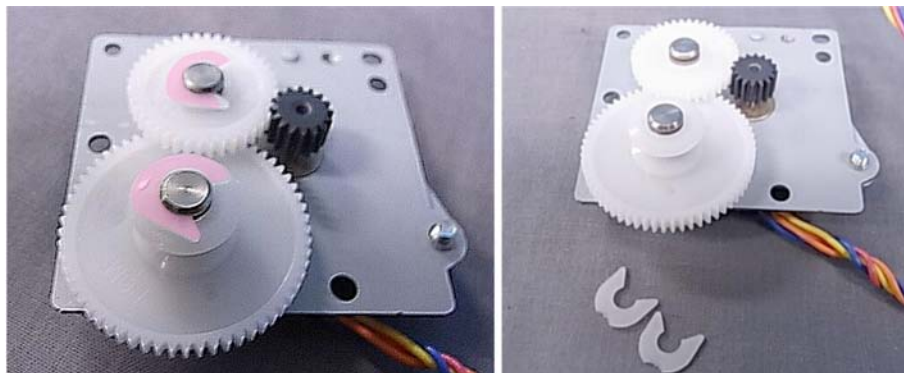
m103r044

10. Disconnect the motor from the bracket ( x2).



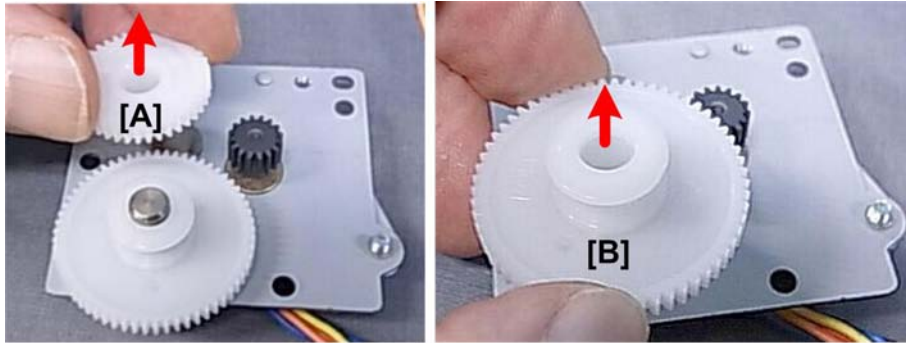
m103r045

11. Separate the motor and bracket.



m103r046

12. Remove the gear clips ( x2).



m103r047

13. Remove gears [A] and [B].

4

Re-installation



m103r048

1. When you re-attach the motor to the bracket, position the motor as shown above before fastening the screws.

ADF (M103 only)

There are no serviceable parts in the ADF.

If the ADF malfunctions replace it. (p.60 "M103 Covers, Flatbed Unit, ADF")

5. System Maintenance Reference

Firmware Update

The machine firmware can be updated with packages downloaded from a Web site. The firmware update procedure is described in the Operating Instructions and can be performed by the operator.

Before Updating the Firmware

Before you update the firmware: [RTB 10b](#)
[Important notes](#)

- Print a Configuration Page before and after updating the firmware.
- Make sure that the machine is on and connected to the PC by its USB cable.
- Never disconnect the USB cable while the firmware is being updated.
- Make sure that the PC is set so it does not enter standby mode or sleep mode automatically during the firmware update. The firmware update may take a while to complete, so you may need to switch off the standby or sleep mode settings in the PC operating system.

5

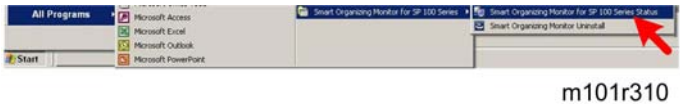
Firmware Update Procedure



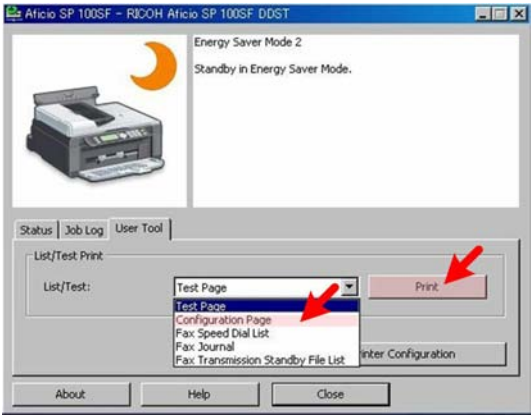
1. Point to the Start button, and then click All Programs.



2. Click Smart Organizing Monitor for SP for SP Series.



3. Click Smart Organizing Monitor for SP for SP Series Status.



m101r316

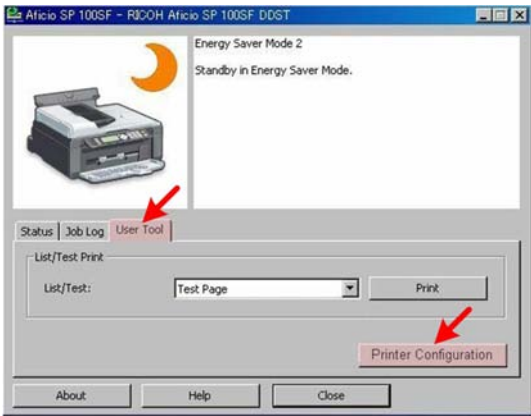
4. Open the List/Test drop-down list, select Configuration Page, and then click [Print].

5



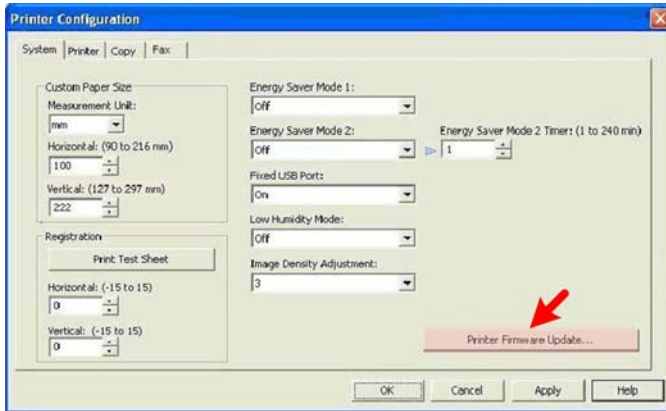
m101r317

5. The Configuration Prints the current Firmware Version number.



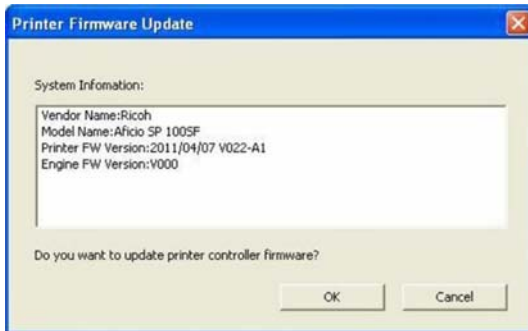
m101r315

6. Click the [User Tools] tab, and then click [Printer Configuration].



m101r311

7. Click [Printer Firmware Update].



m101r312

8. Click [OK].



m101r314

9. Specify the location of the DWN file, and then click [Open].



m101r313

10. A message will alert you if you select the wrong file.
11. After selecting the correct file, a message confirms that firmware update has completed
12. Cycle the machine off/on to initialize the new firmware.
13. Print another Configuration Page (as you did in Step 4).
14. Compare the Firmware Version numbers to confirm that the number for the new version of the firmware is printed.

6. Troubleshooting

Utilities

Overview of Utilities

There are five utilities for setting and servicing these machines, but only three are used for all the machines.

No.	Function	Start From	M101	M102	M103
1	Fax Maintenance	Operation Panel	No	No	Yes
2	Fax Test	Operation Panel	No	No	Yes
3	Engine Maintenance	Service Mode	Yes	Yes	Yes
4	Counter Information		Yes	Yes	Yes
5	Error History		Yes	Yes	Yes

- The first two utilities are for the M103 only because only the M103 has the fax feature.
- Items 3, 4, 5 are used for all machines of this series and are accessed with the Smart Organizing Monitor (Service Mode).

Smart Organizing Monitor

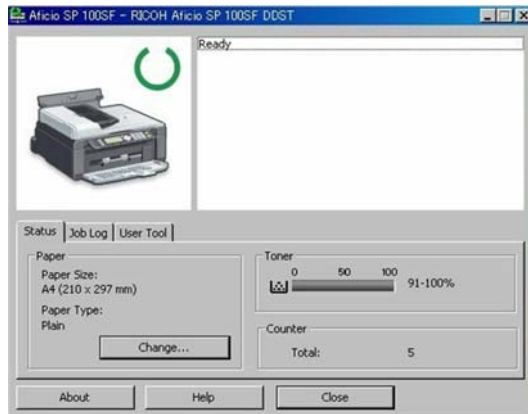
The Smart Organizing Monitor screens are slightly different for each machine. For example, on the Service Mode screen all the machines have the System and Printer tab but:

- M101 has the System and Printer tab but neither the Copy nor Fax tab
- M102 has the System, Printer, and Copy tab but not the Fax tab
- M103 has the System, Printer, Copy, and Fax tab

Note

- In the screen samples used below to describe the Smart Organizing Monitor, are from the M103.
- Differences between the screens are noted when appropriate.

Initial Screen



m101t021

Image area. The image area on the top left, displays the image of the connected machine.

Message area. The message area on the top right, displays the current status of the machine (Ready, Energy Saver 1, etc.)

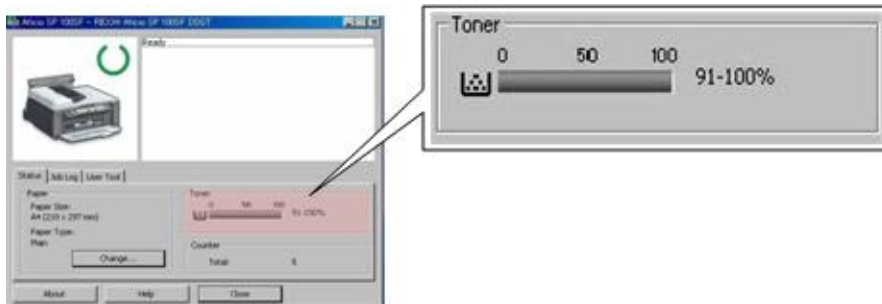
Status tab and area. Indicates the current paper size and type selected for operation.

Change button. Opens the Paper Size/Type Settings dialog box so the operator can choose the paper size and type to be used in the machine (see below).

Job Log tab. Displays the print job history.

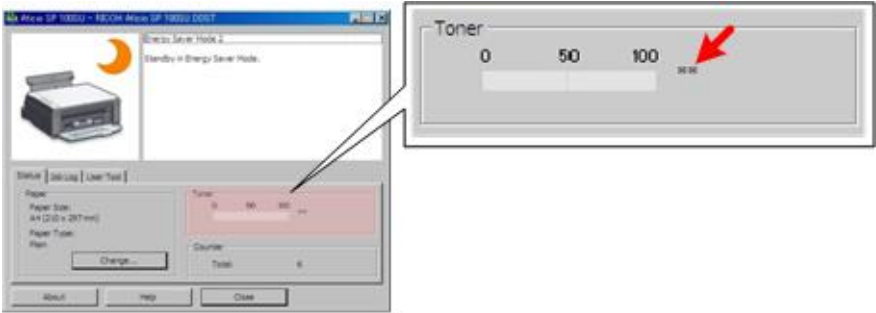
User Tool tab. Presents the Print and Printer Configuration buttons that allow the operator to do test prints and change the device settings.

Toner. (M103 only) This is the toner count progress bar that shows the progress of toner consumption.



m101t057

- When the progress bar appears as shown above, the Toner End Option in User Tools is set for "Stop Printing". The machine will issue a near end alert when the AIO is almost out of toner, and then stop printing when the AIO is out of toner.

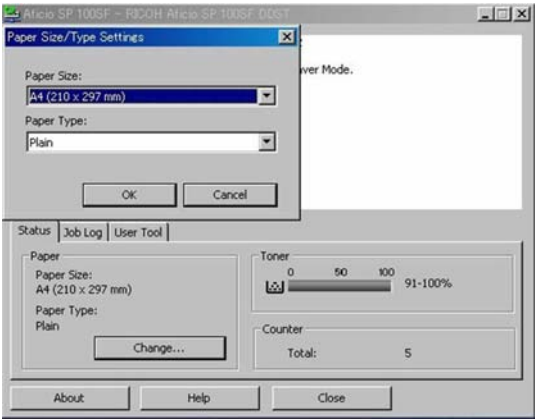


m101t056

- When the progress bar appears blank with two asterisks to the right as shown above, the Toner End Option in User Tools is set for "Continue Printing". The machine does not count toner consumption, does not issue a toner near-end alert, and does not issue a toner end alert. The machine will keep printing until all the toner is used in the AIO. (The operator will know when it is time to replace or re-fill the AIO when prints become faint.)

Counter. Displays the total number of sheets printed by the machine.

Status Tab Change Button



m101t022

Paper Size. Allows the operator to select the size of the paper that will be loaded in the printer.

Name	Size
A4	210 x 290 mm
A5	148 x 210 mm
A6	105 x 148 mm

Name	Size
Letter	8.5 x 11 in.
5 1/2" x 8 1/2"	---
Executive	7 1/4" x 10 1/2"
B5 JIS	182 x 257 mm
B6 JIS	128 x 182 mm
16K	197 x 273 mm
16K	195 x 270 mm
16K	184 x 260 mm
Custom Paper Size	Configure the actual size of the paper with the Custom Paper Size settings on the Printer tab of the Printer Configuration screen.

Paper Type. Allows the operator to select the type of paper that will be loaded in the printer. (Thin, Plain, Thick, Recycled)

Job Log Tab



m101t023

Log: Print Log. Operator can select either Print Log or Fax Log (M103 only).

- The Print Log is the only log available on this screen with the M101 and M102.
- The Print Log is limited to the last 20 jobs. Once this limit is exceeded, the log for the oldest job is deleted so the most recent job can be displayed in the log.
- The current log is erased when the machine is powered off/on.

User Name. The name of the user who logged on and executed the job

File Name. The name of the printed document.

Page(s). The number of pages printed from the document.

Start Date. Date and time the job was printed. The date and time are displayed in the format YYYY/MM/DD and HH:MM:SS

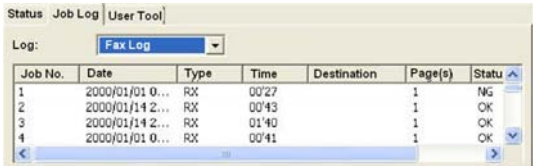
Status. Current status of the job.

- **Completed.** Job has been completed.
- **Canceled.** Job was canceled before completion.
- **Error.** Error in the current job (paper jam, mismatch)

Note

- "Error" is also displayed while the machine is waited paper printed on one side to be set again for reverse side printing.
- **Processing.** Job is current in progress.

Fax Log Information



Job No.	Date	Type	Time	Destination	Page(s)	Status
1	2000/01/01 0...	RX	00:27		1	NG
2	2000/01/14 2...	RX	00:43		1	OK
3	2000/01/14 2...	RX	01:40		1	OK
4	2000/01/01 0...	RX	00:41		1	OK

m101t023a

Log: Fax Log. The Fax Log is available for the M103 only.

- The Fax Log is limited to the last 100 fax jobs. Once this limit is exceeded, the log for the oldest job is deleted so the most recent job can be displayed in the log.
- The current Fax Log remains stored in the machine after the machine is powered off/on.

Job No. The number of the fax job

Date. Date fax was printed. Date/Time are displayed in the format YYYY:MM:DD/HH:MM:SS)

Type. RX or TX.

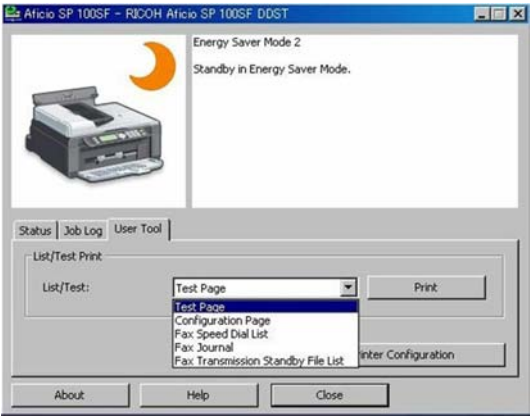
Time. Duration of the RX or TX job.

Destination. Fax number of the remote station.

Pages. Number of pages in the RX/TX job.

Status. Status of the job (OK or NG).

User Tool Tab



m101t024

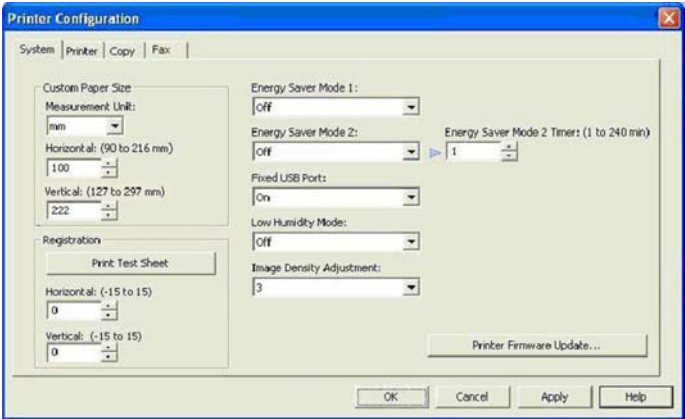
List/Test. This drop-down list presents a list of choices for printing (the fax prints are available for the M103 only):

- **Test Page.** Used to check image quality.
- **Configuration Page.** Lists current machine settings.
- **Fax Speed Dial List.** Lists the numbers registered for speed dialing.
- **Fax Journal.** Lists the TX/RX transactions
- **Fax Transmission Standby List.** Lists all the faxes stored in memory and queued for transmission.

Print button. Prints the item selected from the List/Test drop-down list.

Printer Configuration button. Opens the Printer Configuration Screen (see below).

Printer Configuration Screen



m101t025

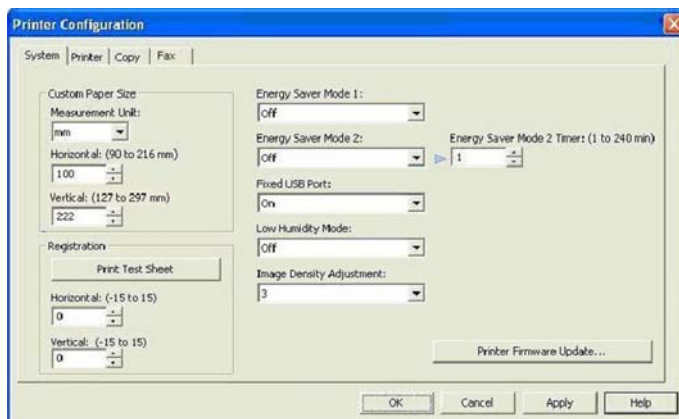
System tab. The features that configure the system settings.

Printer tab. The features that configure the printer settings.

Copy tab (M102/M103 only). The features that configure the copy settings.

Fax tab (M103 only). The features that configure the fax settings.

System Tab

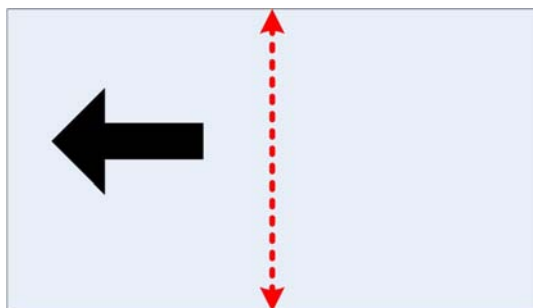


m101t025

6

Custom Paper Size

- **Measurement Unit.** Select either mm or inch for the entries into the Horizontal and Vertical boxes below.
- **Horizontal (90 to 216 mm).** Enter the size of the paper that is vertical relative to the feed direction of the machine.



m101t029

Width Range: 90 to 216 mm (3.54 to 8.5 inch)

Adjustment: 1 mm or 0.01 inch steps

- **Vertical (127 to 297 mm).** Enter the size of the paper that is horizontal relative to the feed direction of the machine.



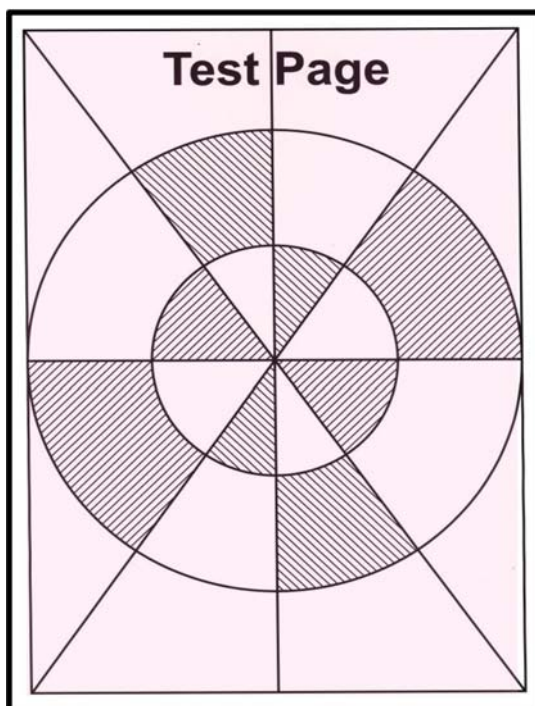
m101t030

Length Range: 127 to 297 mm (5.00 to 11.69 inch).

Adjustment: 1 mm or 0.01 steps

Registration

- **Print Test Sheet button.** Prints the Print Test Sheet.



m101t012

- Horizontal (-15 to 15). Adjusts the horizontal position of the image area. Adjustable in 0.1 mm steps.
- Vertical (-15 to 15). Adjusts the vertical position of the image area. Adjustable in 0.1 mm steps.

Energy Saver Mode 1. Switches Energy Saver Mode 1 off/on. When this feature is on the machine enters Energy Saver Mode 1 after the machine remains idle for 30 sec. This time limit is not adjustable.

Energy Saver Mode 2. Switches Energy Saver Mode 2 off/on. When this feature is on the machine enters Energy Save Mode 2 after the machine remains idle for 1 min. (default setting). This time limit is adjustable.

- **Energy Saver Mode 2 Timer (1 to 240 min.)** Allows adjustment of the timer.

Range: 1 to 240 min. (Default: 1 min.)

Fixed USB Port. Two settings are available.

- **On.** Not Fixed USB Port (Default). The Plug-and-Play function will start up and require re-installation of the printer driver.
- **Off.** Fixed USB Port. The PC will not recognize another machine of the same model as a new device. This prevents the PC's Plug-and-Play function from starting up, and allows the current printer driver to be used without reinstallation.

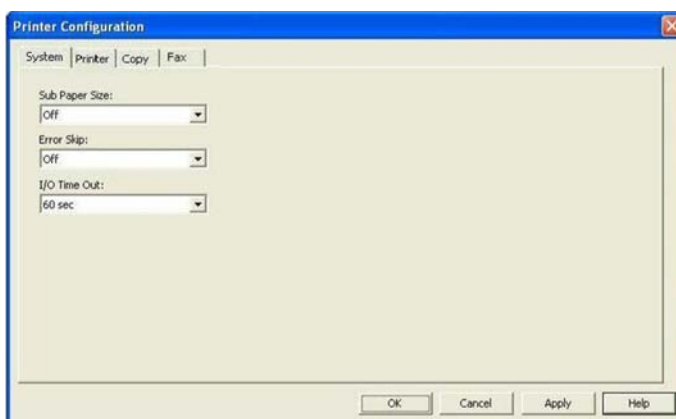
Low Humidity Mode. Two settings are available.

- **Off.** (Default)
- **On.** Black lines a few millimeters thick may appear in prints when the machine operates in a low humidity environment. Switching this feature on may eliminate these lines.

Image Density Adjustment. Adjusts the overall density of printed pages. Adjustable in 6 steps (Default: 3)

Printer Firmware Update Button. Clicking this button starts the firmware update procedure. (p. 155 "Firmware Update Procedure")

Printer Tab



m101t026

Sub Paper Size. Allows substitution of A4 for LT, or LT for A4. This substitution feature is allowed for A4/LT paper sizes only.

- **Off.** (Default) The machine stops when a paper mismatch error occurs between A4/LT.
- **On.** The machine automatically allows A4 to be substituted for LT (or LT for A4) without interrupting printing.

RTB 7c, 8c, 9c
Default changed to 'ON'

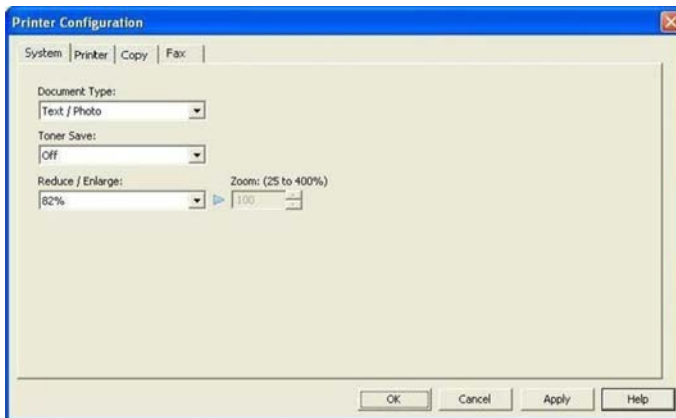
Error Skip. Determines whether printing stops or continues when a paper size or paper type mismatch occurs.

- **On.** (Default) Printing stops when a printer size or printer type mismatch occurs.
- **Off.** The machine ignores a printer size or printer type mismatch and continues print.

I/O Time Out. Sets the length of time for the machine to wait for data from the USB port before it issues an error.

Range: Off, 15 sec., 60 sec., 300 sec.

Copy Tab (M102/M103 Only)



m101t027

Document Type. For the best copying results, select a setting for the content of the pages in the documents.

- **Text/Photo.** (Default) Original pages contain both text and photos (or illustrations with large filled areas).
- **Text.** Originals contains text only.
- **Photo.** Originals contain mostly photos or illustrations with little text.

Toner Save. Two settings are available.

- **Off.** Normal amount of toner is used for printing.
- **On.** Reduces the amount of toner used when printing. This setting extends the service life of the AIO but prints appear slightly lighter. Use this setting for printing drafts, and then switch it off for final prints.

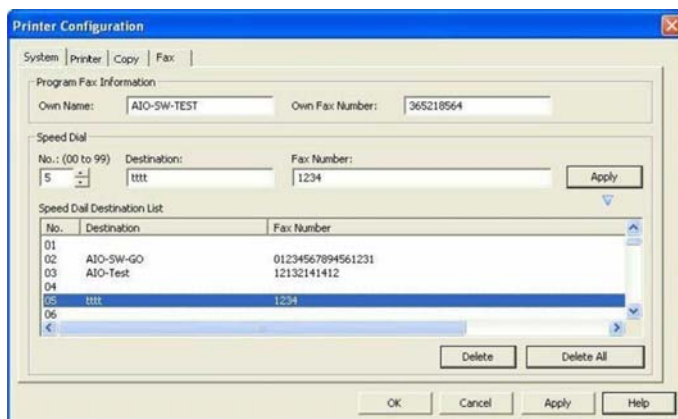
Reduce/Enlarge. Selects a pre-set zoom rate for enlargement or reduction of copied images. Selecting "Custom" enables the "Zoom" feature.

EU/AP	200, 141, 122, 100 (default), 93, 82, 71, 50% Zoom: 25 to 400% (Default: 100%)
NA	200, 155, 129, 100 (default) , 93, 78, 65, 50% Zoom: 25 to 400% (Default: 100%)

Zoom (25 to 400%). Enabled only after "Custom" has been selected for Reduce/Enlarge above.

- Range: 25 to 400%
- Adjustable in 1% steps.

Fax Tab (M103 Only)



m101t028

Program Fax Information. This is the name and fax number of the local machine. This information is printed at the top of every fax sent.

- **Own Name.** Name of the local machine. Range: 20 alphanumeric single-byte characters or 10 double-byte characters.
- **Own Fax Number.** Fax number of the local machine. Range: Up to 20 digits, spaces, and "+" permitted.

Speed Dial. Allows the operator to register speed dial information.

- **No. (00 to 99).** Selects the number where a new speed dial entry will be registered. This is the number the operator will press on the machine operation panel to speed dial a destination number for fax sending.
- **Destination.** Name of the remote machine to receive faxes. Range: 20 alphanumeric single-byte characters or 10 double-byte characters.
- **Fax Number.** The fax number of the remote machine to receive faxes. Range: Up to 20 digits, spaces, and "+" permitted.

Note

- These settings are used to either register new speed dial settings or to edit existing settings.
- To edit an existing speed dial setting, use the scroll bar to display the setting to edit, and then click it once to highlight it. The information will appear in the Destination and Fax Number boxes for edit.
- **Apply.** Saves the newly registered or edited speed dial settings..

Speed Dial Destination List. This area lists all the currently registered information for speed dialing. Use the scroll bar on the right to display more settings.

- **No.** Speed dial number where information is registered.
- **Destination.** Name of the remote machine.
- **Fax Number.** Fax number of the remote machine.

Delete. Deletes the line highlighted in the Speed Dial Destination List. A line can be highlighted with pointing the cursor and clicking the mouse.

Delete All. Deletes all information registered for speed dialing.

Smart Organizing Monitor Service Mode

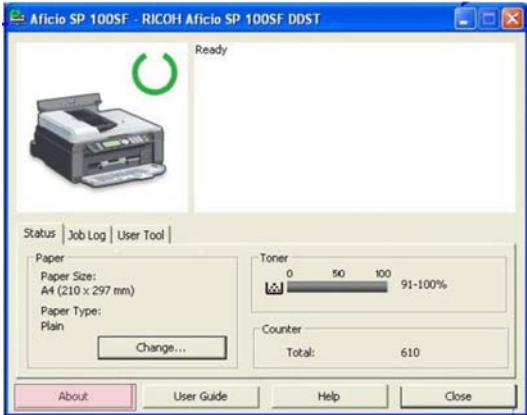
What Is Service Mode?

The Service Mode is opened from inside the Smart Organizing Monitor. Smart Organizing Monitor is the utility that allows the operator to view and change the machine settings. It is installed from the CD ROM with the Smart Organizing Monitor selection.

Service Mode Screen

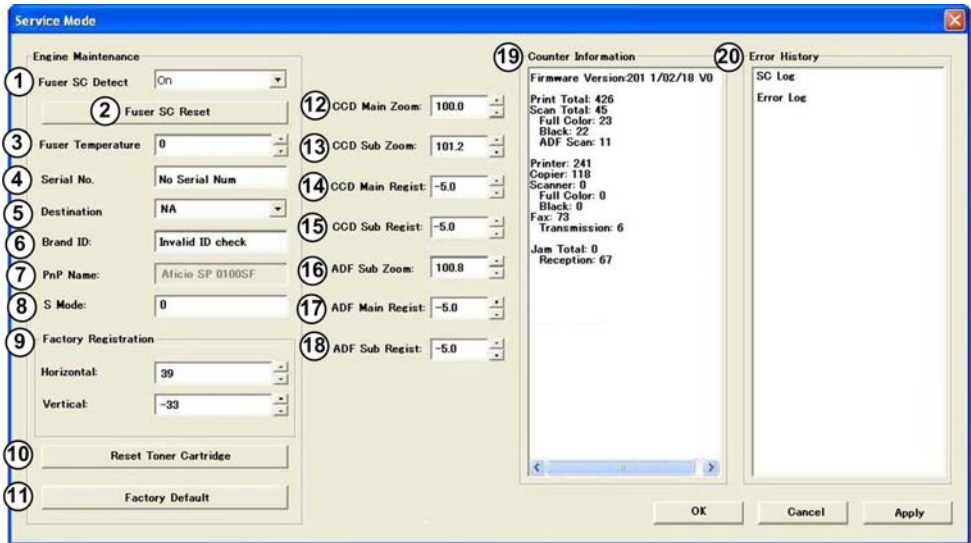
The Service Mode is opened from inside the Smart Organizing Monitor that was installed from the CD ROM at installation.

1. Click the Smart Organizing Monitor icon.



M103v012

2. Enter the service mode to display the Service Mode screen.



m101t060

(1)	Fuser SC Detect
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	<p>When ON detects a third successive paper jam in the fusing unit and shuts down the machine. The machine cannot be operated until the service technician resets the machine with the "Fuser SC Reset" button below. This minimizes the dangers of a fire hazard.</p> <p>[On to Off/On]</p> <p>Note: This feature should always be set to "On" to ensure safe operation of the machine.</p> <p>Here is a list of SC errors that are considered fatal errors. Once three of any of following errors occurs, the machine will shut down and cannot be operated until the service technician has executed a reset (see next feature):</p> <ul style="list-style-type: none"> • SC541 Fusing Unit Thermistor Error • SC542 Fusing Reload Temperature Error • SC543 High Temperature Error (Soft) • SC544 High Temperature Error (Hard) • SC545 Fusing Lamp Remains ON Error • SC559 Fusing Unit Third Jam error
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(2)	Fuser SC Reset
	Resets the machine after a third successive jam in the fusing unit has shut down the machine. The machine must be re-set after a third paper jam in the fusing unit in order to service the machine.
(3)	Fuser Temperature
	Raises the target fusing temperature in 1 degree increments to improve fusing. [0 to 40/0/1 1 °C steps]
(4)	Serial No.
	Displays the serial number of the machine and allows editing of the current number. Name length: 11 alphanumeric characters.
(5)	Destination

	<p>This setting should be done for the area where the machine is sold and used. JPN, NA, EU, ASIA, China, Taiwan, ROK, Other. This is an important selection because it affects the following options, depending on which destination is selected:</p> <ul style="list-style-type: none">• Default paper size. LT in NA and A4 for all other areas.• Units of measure. Inches in NA millimeters in all other areas.• Fixed steps for reduction/enlargement (see Specifications).• Reset Toner Counter	
(6)	Brand ID	
	<p>This setting should be done for the appropriate brand.</p> <p>Settings: 0:Invalid ID Check, 1:Ricoh, 2:SP, 3:Lanier, 4:NRG</p>	
(7)	PnP Name	
	<p>This is the "Plug and Play" name. This facilitates the discovery the machine the system, without the need for physical device configuration, or user intervention in resolving resource conflicts.</p> <p>Settings: Aficio SP100, Aficio SP100SU</p>	
(8)	S Mode	
	<p>Application settings for unexpected problems.</p> <p>Important: Ignore this setting and do not change it. This is for future use.</p> <p>[0 to 255/0/1 step]</p>	
(9)	Factory Registration	
	<p>These are the image registration settings entered at the factory before the machine is shipped.</p>	
	Horizontal	[-40 to 40/0/1 mm steps]
	Vertical	[-40 to 40/0/1 mm steps]
(10)	Reset Toner Cartridge	M103 Only

	<p>This button resets the count for the AIO (toner cartridge). This operation is the same as the cartridge reset feature in the User Tools, with the following exceptions:</p> <ul style="list-style-type: none">• The count for the cartridge can be reset only after the toner end message appears and a new or re-filled cartridge has been inserted.• With this setting, the count can be reset any time by the service technician. <p>Note</p> <ul style="list-style-type: none">• Toner consumption is monitored by a dot count system managed by the engine controller.• The number of pages that can be printer between the toner low alert and toner end alert is approximately 100 pages.• After toner end occurs, approximately 50 pages can be force printed.
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(11)	Factory Default
	<p>The function clears all logs and returns all settings to their default settings. The settings that are returned to their factory defaults include:</p> <ul style="list-style-type: none">• Counters• Error Log (SC codes)• Print Log• Fax TX/RX Log (M103)• Image Data for Faxes (TX/RX) (M103)• Report Images• Fax Speed Dial List (M103)• User Tool Settings (M103)• Service Mode settings• Fax Maintenance (fax-related service mode settings). (M103)

(12)	CCD Main Zoom	M102, M103
	<p>Adjusts magnification in the horizontal direction, vertical relative to the direction of paper feed (main scan direction)</p> <p>[98 to 102/0.4% steps]</p>	

(13)	CCD Sub Zoom	M102, M103
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	Adjusts magnification in the vertical direction, horizontal relative to the direction of paper feed (sub scan direction). [98 to 102/0.4% steps]			
(14)	CCD Main Regist	M102, M103		
	Adjusts the scan start position in the vertical direction. [-5 to 5/0.5 mm steps]			
(15)	CCD Sub Regist	M102, M103		
	Adjusts the scan start position in the horizontal direction. [-5 to 5/0.5 mm steps]			
(16)	ADF Sub Zoom	M103 only		
	Adjusts the magnification of the image in the sub scan direction copied from an original fed from the ADF. [98 to 102/0.4% steps]			
(17)	ADF Main Regist	M103 only		
	Adjusts the magnification of the image in the main scan direction copied from an original fed from the ADF. [-5 to 5/0.5 mm steps]			
(18)	ADF Sub Regist	M103 only		
	Adjusts the magnification of the image in the main scan direction copied from an original fed from the ADF. [-5 to 5/0.5 mm steps]			
(19)	Counter Information			
	Counts are totaled for these items. Note that there are some differences, depending on the machine.			
	Item	M101	M102	M103
	Print Total	Yes	Yes	Yes

	Scan Total	No	Yes	Yes
	Full Color	No	Yes	Yes
	Black	No	Yes	Yes
	ADF Scan	No	Yes	Yes
	Printer	Yes	Yes	Yes
	Copier	No	Yes	Yes
	Scanner	No	Yes	Yes
	Full Color	No	Yes	Yes
	Black	No	Yes	Yes
	Fax	No	No	Yes
	Transmission	No	Yes	Yes
	Reception	No	Yes	Yes
	Paper Misfeed	Yes	Yes	Yes

Notes

- **Print Total.** The print counter increments every time a printed sheet is output. A sheet is not counted when one of the following occurs: 1) Paper misfeed or paper jam, 2) top cover open error, 3) paper size error
- **Scan Total.** The scan counter increments every time an original is scanned on the exposure glass (M102, M103) or by ADF original feed (M103). An original is not counted if it jams in the ADF.
- **Fax TX.** The Fax TX counter increments at completion of each transmission.
- **Fax RX.** The Fax RX counter increments when a Fax prints and when a report prints. The counter increments for these reports: 1) TX Standby File List, 2) Fax Journal, 3) TX Status Report and 4) Power Failure

(20)	Error History
	There are two classes of errors: The "SC Log" and the "Error Log".
	<ul style="list-style-type: none"> • The "SC Log" displays the numbers of the latest 8 errors. The errors are listed by their "SC" (Service Code) number. (p.203 "SC Tables"). • The "Error Log" lists the 8 most recent error results cleared by cycling the machine off/on. (See list below.)

	Engine Error	Display
	Printer Jam/Paper Out	Error Code 3
	ADF Jam	Error Code 3
	Size Error	Error Code 3
	Cover Open	Error Code 3
	Not Set Print Cartridge	Error Code 3
	Out of Toner	Error Code 5
	Toner Almost Empty	Error Code 6

M103 User Tools

The operator can manage the User Tools settings. For more details about how to configure the User Tools settings, please refer to the Operating Instructions. The list below is provided for quick reference for the Service Technician. Here are some important points to keep in mind about User Tools

- Users Tools is a menu driven system. You can open the menus on the M103 by pressing the [User Tools] button on the machine operation panel.

★ Important

- Only the M103 has a [User Tools] button. With the M101 or M102 you have to use the Service Mode of the Smart Organizing Monitor for engine maintenance and other settings.
- The User Tools settings are saved after the machine is powered off.
- The User Tools default settings are determined by which language is selected.
- The table below is a map of the User Tools menu on the M103. For more details, please refer to the Operating Instructions.

System Settings		
	Reset Toner Counter	Resets the toner end count to zero for a new AIO or an AIO that has been re-filled with toner. [Cancel] [Execute] The [Execute] selection is not displayed if the Toner End Option setting below is disabled with the "Continue Printing" selection.
	Tray Paper Settings	Paper Size

		Presents a variety of standard paper sizes for selection (A6 to A4, LT, HLT, Executive, three 16K Chinese paper sizes, and Custom.
		Paper Type
		Plain Paper, Recycled Paper, Thick Paper, Thin Paper
	Adjust Sound Volume	Four settings are available for the sound volume levels listed below: Off, Low, Middle, High.
		Panel Key Sound
		For the key buzzer.
		Alarm Volume
		For the error buzzer.
		On Hook Mode
		For hook mode.
		Copy Job End Tone
		For copy job end sound alert.
		Copy Job Error Tone
		For copy job error sound alert.
		Print Job End Tone
		For print job end sound alert.
		Scan Job End Tone
		For scan job end sound alert.
		Scan Job Error Tone
		For scan job error sound alert.
		Fax TX End Tone
		For fax transmission end sound alert.
		Fax TX Error Tone
		For fax transmission error sound alert.

	Fax RX End Tone
	For fax reception job end sound alert.
	Fax RX Error Tone
	For fax reception job error sound alert.
Set Date/Time	Set Date
	Allows setting the current date in the format: YYYY MM/DD (Year Month/Day) 2011 12 31 (December 31, 2011)
	Set Time
	Allows setting the time in 24-hour format: 23:59 (11 pm)
Program Fax Info.	Own Fax Number
	User fax no: 20 numeric digits (spaces, "+" allowed)
	Own Name
	User name: 20 alphanumeric 1-byte characters, or 10 2-byte characters.
Function Priority	Copier (default) or Fax
Energy Save Mode	Energy Save Mode 1
	ON/OFF (default) Enters energy saver mode if the machine remains idle for 30 sec.
	Energy Save Mode 2
	ON (default)/OFF Enters the energy saver mode after the length of time for the machine to remain idle has expired. Default: 1 min. This setting can be adjusted in the range 1 to 240 min.
Language	Simplified Chinese, English

	Fixed USB Port	<p>Off: Fixed USB Port</p> <p>The PC will not recognize another machine of the same model as a new device. This prevents the PC's Plug-and-Play function from starting up, and allows the current printer driver to be used without reinstallation.</p> <p>On: Not Fixed USB Port (Default)</p>
	Print Cartridge	<p>This is the progress bar for toner remaining in the AIO.</p> <ul style="list-style-type: none"> • If Toner End Option (see below) is on ("Stop Printing") this progress bar is also displayed on the initial screen of the SOM. • If Toner End Option is off ("Continue Printing") the progress bar is blank with two asterisks to the right here (and on the initial screen of the SOM).
	Low Humidity Mode	<p>Off (default)/On</p> <p>Black lines a few millimeters thick may appear in prints when the machine operates in a low humidity environment. Switching this feature on may eliminate these lines.</p>
	Registration	<p>This is image registration. It determines how the image is projected onto the drum and then onto the paper.</p> <ul style="list-style-type: none"> • Horizontal. [0 to 15/0/0.1 mm steps] • Vertical. [0 to 15/0/0.1 mm steps]
	Adjust Image Density	<p>Adjusts the overall image density. Three settings (reflected in the progress bar) are available.</p> <p>Lighter, Normal (Default), Darker</p>

	Toner End Option	<p>Stop Printing (default)/Continue Printing</p> <ul style="list-style-type: none"> • Stop Printing. The machine monitors the level of toner in the AIO. When toner runs low, the machine issues the toner-near end alert, and there is enough toner remaining to print about 100 pages. When the toner runs out, the machine issues the toner end alert and the machine will stop printing. • Continue Printing. The machine will continue to print, even after the AIO runs out of toner. The operators must replace the AIO when they see the quality of the prints deteriorate. <p>Note</p> <ul style="list-style-type: none"> • When "Stop Printing" is selected the machine monitors the toner level in the AIO, and you will see the toner end progress bar on the first screen of the SOM. • When "Continue Printing" is selected, the machine does not monitor the toner level, you will see a blank progress bar and two asterisks displayed at the right side.
	Reset Settings	Reset All Settings
		<p>[Execute], [Cancel]</p> <p>Touching [Execute] restores all User Tool settings to their factory defaults except:</p> <ul style="list-style-type: none"> • Language • Date/Time • Fax Speed Dial numbers registered <p>Touching [Cancel] rotates the menu to the previous level without changing any settings.</p>
		Clear Address Book
		<p>[Execute], [Cancel]</p> <p>Touching execute erases all destination numbers registered for Fax Speed Dial. Touching [Cancel] rotates the menu to the previous level without deleting anything.</p>
	Printer Features	
	I/O Timeout	<p>Sets the length of time for the machine to wait for data from the USB port before it issues an error.</p> <p>Off, 15 sec., 60 sec., 300 sec.</p>

	Auto Continue	<p>Sets the machine to pause temporarily and then ignore paper size or paper type mismatches and continue printing.</p> <ul style="list-style-type: none"> • On. (Default) Mismatch error displays and printing stops. • Off. Mismatch error displays, but the machine pauses for 10 sec., and then continues to print.
	Sub Paper Size	<p>Allows substitution of A4 for LT, or LT for A4.</p> <ul style="list-style-type: none"> • Off. (Default) The machine stops when a paper mismatch error occurs between A4/LT. • On. The machine automatically allows A4 to be substituted for LT (or LT for A4) without interrupting printing.
Copier Features		
	Sort	<p>Sets the sort mode.</p> <ul style="list-style-type: none"> • Off. (Default) Non-sort mode. • On. Sort mode.
	Original Type	<p>Selects the copy function for the type of original for optimum results.</p> <ul style="list-style-type: none"> • Text/Photo. (Default) Original contains both text and photos (or illustrations). • Text. Original contains text only. • Photo. Original contains mostly photos or illustrations.
	Density	<p>Sets the copy scanning density.</p> <p>The setting selections are reflected in a progress bar, from left to right: Lighter, Normal, Darker</p>
	Reduce/Enlarge	Sets the rate for reduction and enlargement.
	EU/AP	<p>200, 141, 122, 100 (default), 93, 82, 71, 50%</p> <p>Zoom: 25 to 400% (Default: 100%)</p>
	NA	<p>200, 155, 129, 100 (default), 93, 78, 65, 50%</p> <p>Zoom: 25 to 400% (Default: 100%)</p>

	Combine	<p>Combines document pages on paper.</p> <ul style="list-style-type: none"> • Off. (Default) 1 document page prints per 1 side of a sheet of paper. • 2on1. 2 document pages print per 1 side of a sheet of paper. Portrait (Default) or Landscape can be selected. • 4on1. 4 document pages print per 1 side of a sheet of paper. The operator can also select Portrait: L to R, Portrait: T to B, Landscape: L to R, Landscape: R to L.
	2 Sided Copy	<p>Allows the operator to set up printing on both sides of the paper.</p> <ul style="list-style-type: none"> • Off. (Default) • Top to Top. The operator can also select Portrait (default) or Landscape. • Top to Bottom. The operator can also select Portrait (default) or Landscape.
	Toner Saving	<p>This setting conserves toner when printing copies.</p> <ul style="list-style-type: none"> • Off. (Default) • On. Printing copies consumes less toner.
Fax Features		These features set up fax communication, sending, and receiving.
	TX Settings	Immediate TX
		<p>Determines whether the original is scanned into memory or sent directly over the line.</p> <ul style="list-style-type: none"> • Off (Default). The original is scanned into memory and queued for sending. • On. The original is scanned and sent immediately (not scanned into memory). • New Fax Only. Sends next fax transmission by Immediate TX, and then resets automatically to "Off".
		Resolution

	<p>Sets the resolution for fax scanning.</p> <ul style="list-style-type: none"> • Standard. (Default) 8x3.85 dots/mm • Detail. 8x7.7 dots/mm • Photo. 8x7.7 dots/mm <p>Note: The Erase Background setting (see below) is disabled when "Photo" is selected.</p>
	Erase Background
	<p>Erases spurious background dots and other imperfections during scanning.</p> <p>On (Default) / Off</p> <p>Note: This features does not operate when "Photo" is selected for "Erase Background" above.</p>
	Density
	<p>Adjusts the overall image density for scanning originals for fax sending. Three settings (reflected in the progress bar) are available.</p> <p>Lighter, Normal (Default), Darker</p>
	Pause Time
	<p>Specifies the length of time to pause between digits of a fax number when dialing.</p> <p>Time (1-15 sec.) Default: 3 sec.</p>
	Auto Redial
	<p>Determines whether the machine automatically redials after transmission failed because the remote fax was busy.</p> <p>Off/On (Default)</p> <p>The number of redial attempts and time interval between attempts to redial are determined by the Service Mode setting. (Defaults: 5 min./3 times)</p>
	Print Fax Header

		<p>Determines whether a header appears in faxes sent by the machine.</p> <ul style="list-style-type: none"> • On. (Default) Faxes sent from the machine have a header that includes: date, time, transmitter's name, transmitter's fax number, session number, page number, and page total. • Off. No header included.
	RX Settings	Switch RX Mode
		<p>Determines how the machine handles incoming calls.</p> <ul style="list-style-type: none"> • Auto. (Default) Automatically receives all incoming call in Fax RX mode. • Manual. Machine rings for all incoming calls and the operator must manually switch to RX mode.
		Auto Reduction
		<p>Determines how the machine handles large images sent by fax.</p> <ul style="list-style-type: none"> • On. (Default) Reduction Print Mode. Automatically reduces the image to fit the paper. • Off. Cut Mode. Data larger than one page is cut and not reduced.
		Sort
		<p>Determines the order of printing pages received by fax.</p> <ul style="list-style-type: none"> • Off. (Default) Prints pages immediately face-up in the order that they are received. • On. Stores received pages in memory and then prints them face-up in reverse order.
		Number of Rings
		<p>Specifies the number of rings before the machine starts to receive an incoming fax.</p> <ul style="list-style-type: none"> • Rings: 3 (Default: 3) Range: 3-5
		Add Footer

		<p>Determines whether a footer is printed 4 mm from the bottom of the print area of a fax.</p> <ul style="list-style-type: none"> • On. (Default) • Off.
	Del. TX Standby File	Delete File
		<p>Allows the operator to delete an unsent fax stored in memory.</p> <ul style="list-style-type: none"> • Delete. Deletes the specified job. • Cancel Deleting. Returns to the previous menu level without deleting.
		Delete All Files
		<p>Allows the operator to delete all unsent faxes stored in memory.</p> <ul style="list-style-type: none"> • Delete. Deletes all unsent faxes. • Cancel Deleting. Returns to the previous menu level without deleting.
	Comm. Settings	These are the fax communication settings
		ECM Transmission
		<p>Sets the machine to automatically re-send parts of data that may have been lost in transmission.</p> <ul style="list-style-type: none"> • On. (Default) Enable. • Off. Disable.
		ECM Reception
		<p>Sets the machine to automatically receive parts of data that may have been lost in transmission.</p> <ul style="list-style-type: none"> • On. (Default) Enable. • Off. Disable.
		Dial Tone Detect

	<p>Sets the machine to detect a dial tone before dialing the destination fax number.</p> <ul style="list-style-type: none"> • Detect. (Default) Detects dial tone before dialing remote fax number. • Do Not Detect. Does not wait for dial tone before dialing remote fax number.
	Transmission Speed
	<p>Sets the transmission speed for the fax modem.</p> <ul style="list-style-type: none"> • 33.6 Kbps (Default) • 2.4 to 33.6 Kbps <p>Note: A slower speed may be required in areas where the telephone lines are in poor condition.</p>
	Reception Speed
	<p>Sets the reception speed for the fax modem.</p> <ul style="list-style-type: none"> • 33.6 Kbps (Default) • 2.4 to 33.6 Kbps <p>Note: A slower speed may be required in areas where the telephone lines are in poor condition.</p>
	Dial/Push Phone
	<p>Specifies the type of line connected to the machine's fax modem.</p> <ul style="list-style-type: none"> • Push Phone. (Default) Tone dial. • Dial Phone (10 PPS). Rotary dial.
	PSTN/PBX
	<p>Specifies how the telephone line is routed.</p> <ul style="list-style-type: none"> • PSTN. Line connection through PSTN. • PBX. Line connection through PBX. The number to access and outside line must be entered for "PBX Access Number" (see below).
	PBX Access Number

	<p>The operator enters the number to access and outside line if the machine is connected via PBX. "PBX" must be selected for "PSTN/PBX" above.</p> <ul style="list-style-type: none"> • Access Number: 9 (Default) Range: 3 digits (000-999)
	Fax No. Confirmation
	<p>Switches fax number confirmation for direct sending on and off.</p> <ul style="list-style-type: none"> • Off. (Default) No confirmation required. • On. When operator sends a fax using direct sending, a message prompts them to enter the number again to confirm the first number entered. <p>Note: This feature does not operate for direct or memory sending using registered speed dial fax numbers, or manual re-dialing.</p>
Report Print Set	TX Status Report
	<p>Determines how status reports print for fax transmissions.</p> <ul style="list-style-type: none"> • Every TX with Image. (Default) A report prints after every transmission with an image of the sent document. • Error Only. A report print only after an error occurs during transmission. • Error: With Image. A report prints with an image of the document only after an error occurs during transmission. • Every TX. A report prints for every transmission. • Every TX: With Image. A report prints with an image of the document after every transmission. • Do Not Print. A report never prints.
	Fax Journal
	<p>Determines whether the fax journal prints automatically.</p> <ul style="list-style-type: none"> • Auto Print. (Default) A fax journal prints automatically after every 100 fax jobs (sending and receiving). • Do Not Auto Print. Fax journal never prints automatically.
Address Book	<p>This is the feature the operator uses to register fax numbers for speed dialing.</p>

	Fax Speed Dial Dest.	<p>These entries are allowed:</p> <ul style="list-style-type: none"> • Fax number. 40 digits (0-9), space, *, #, Pause • Name. 20 alphanumeric characters
	Print List/Report	
	Configuration Page	Prints a list of the current machine settings
	Test Page	Prints the Test Page pattern which illustrates the quality of printing (lines, coverage) and the borders of the of the print area (image registration) on the page.
	Fax Journal	Prints a record of the last 100 fax transactions (RX/TX).
	TX Status Report	Prints a record of the most recent fax transmission.
	TX Standby File List*¹	Prints a list of unsent documents queued in memory for sending.
	Fax Speed Dial List	Prints a list of the fax numbers registered for speed dialing.

Fax Maintenance (M103)

To start Fax Maintenance

1. Make sure the machine is in the Ready mode.
2. Press [Stop/Reset] and then press [1] > [0] > [7].
3. Press and hold down [Start].

Modem Settings		
	RX Level	Adjusts reception level. Default: -43dBm
	TX Level	<p>Adjusts transmission level.</p> <ul style="list-style-type: none"> • -15 dBm (Default) • -2 dBm to -14 dBm • -16 dBm to -17 dBm

Cable Equalizer	<p>Improves the pass-band characteristics of analog signals on a telephone line.</p> <ul style="list-style-type: none"> • General Value (Default) • 0 Km • 1.8 Km • 3.6 Km • 7.2 Km
First TX Speed	<p>Sets the transmission start speed.</p> <ul style="list-style-type: none"> • V.34 First TX Speed (Default: 33600 bps) • V.17 First TX Speed (Default: 14400 bps) • V.29 First TX Speed (Default: 9600 bps) • V.27 First TX Speed (Default: 4800 bps) <p>Note:</p> <ul style="list-style-type: none"> • If 33.6 is selected for TX Speed setting in User Tool, the V. 34 First TX Speed setting in Service Mode is enabled. • In this case, the Service Mode setting is given priority over the 33.6 setting in User Tool, so the actual First TX Speed is not always 33.6
First RX Speed	<p>Sets the reception start speed.</p> <ul style="list-style-type: none"> • V.34 First RX Speed (Default: 33600 bps) • V.17 First RX Speed (Default: 14400 bps) • V.29 First RX Speed (Default: 9600 bps) • V.27 First RX Speed (Default: 4800 bps) <p>Note:</p> <ul style="list-style-type: none"> • If 33.6 is selected for RX Speed setting in User Tool, the V. 34 First RX Speed setting in Service Mode is enabled. • In this case, the Service Mode setting is given priority over the 33.6 setting in User Tool, so the actual First RX Speed is not always 33.6
Protocol Definition	

	Training Retries	<p>Sets the number of training retries to be repeated before automatic fallback takes effect.</p> <ul style="list-style-type: none"> • 1 Time. Reduce speed to next level after 2 PPR commands. • 2 Times. (Default) Reduce speed to next level after 3 PPR commands. • 3 Times. Reduce speed to next level after 4 PPR commands. • 4 Times. Reduce speed to next level after 2 PPR commands.
	Encoding	<p>Selects data compression mode for TX/RX. The first selection is the most complex, the third selection the least complex:</p> <ul style="list-style-type: none"> • MMR+MR+MH (Default) • MR+MH • MH
Protocol Definition Timer		
	T0 Timer	<p>Timeout for the remote station to respond in automatic send mode.</p> <ul style="list-style-type: none"> • Default: 55 sec. • Range: 35 to 140 sec.
	T1 Timer	<p>Sets the DIS waiting time.</p> <ul style="list-style-type: none"> • Default: 40 sec. • Range: 30 or 40 sec.
	T4 Timer	<p>Sets the time interval between command signal transmissions.</p> <ul style="list-style-type: none"> • Default: 3 sec. • Range: 3 or 4.5 sec.
RX Settings		
	Tone Sound Monitoring	<p>Determines when tones are monitored.</p> <ul style="list-style-type: none"> • No Monitoring • Up to Phase B • All TX Phases

Stop/Clear Key	<p>Enables and disables fax RX stop by pressing [Stop/Clear].</p> <ul style="list-style-type: none"> • Not Functional. (Default) Pressing [Stop/Clear] has no effect on the fax transmission being received. • Functional. Pressing [Stop/Clear] cancels the fax transmission being received. Pressing the key after the fax has started print has no effect.
TX Settings	
Redial Interval	<p>Sets the time interval being redialing attempts if a TX fails.</p> <ul style="list-style-type: none"> • Default: 5 min. • Range: 5 min. or 6 min.
Redialings	<p>Sets the number of redial attempts if a TX fails.</p> <ul style="list-style-type: none"> • Default: 3 Times • Range: 2, 3, 4, or 5 Times
Overseas Comm Mode Settings	
Overseas Comm Mode	<p>Sets the machine to ignore a DIS (Digital Identification Signal) sent from a called station. This setting determines whether the machine waits the echo canceller to stop after the CED/ANSam signal is sent. To wait means to ignore the first DIS and wait until the echo canceller that responds stops and restarts.</p> <ul style="list-style-type: none"> • Off (Default) • Ignore DIS Once
Minimum Time Length	<p>If Overseas Comm Mode is "Off" the machine detects the CNG signal as long as the line is connected. If set to "On" the machine detects the CNG signal after the line is connected.</p> <ul style="list-style-type: none"> • Default: 350 ms • Range: 100 to 400 ms
Dial Pulse Setting	

	Dial Pulse Type	<p>Sets the number of pulses generated during dialing.</p> <ul style="list-style-type: none"> • N. (Default) Dialed "0" generates 10 pulses, "9" generates 9 pulses. • N+1. Dialed "0" generates 1 pulse, "9" generates 10 pulses. • 10-N. Dialed "0" generates 10 pulses, "9" generates 1 pulse.
Tone Signal Settings		
	Tone Signal Transmission Time Length	Sets the time length tone signal transmission. Default: 100 ms
	Minimum Pause in Tone Dialing	<p>Sets the minimum pause during tone dialing.</p> <ul style="list-style-type: none"> • Default: 100 ms • Range: 100, 150, 200 ms
	DTMF Level	<p>Dual tone output level High.</p> <ul style="list-style-type: none"> • -2dBm • -3dBm to -6dBm • -7dBm (Default) • -8dBm to -16dBm • -17dBm
	DTMF Delta	<p>Sets the difference in the level between high and low band frequency signals DTMF tones are sent.</p> <ul style="list-style-type: none"> • 2 dBm (Default) • 3 dBm
1 Dial Tone Detection		
	Wait Time	<p>The machine starts dialing after the time below has expired without detecting a dial tone after dial toner detection has been set for "No detection".</p> <ul style="list-style-type: none"> • Default: 3.5 sec. • Range: 3.5 to 14.0 sec.

	Timeout Length	<p>Sets the length of the time-out for the 1st dial tone connection. The machine waits the time specified below for a dial tone, and then disconnects automatically if no dial tone is detected.]</p> <ul style="list-style-type: none"> • Default: 10 sec. • 10 to 30 sec.
BT (Busy Tone) Detecton		
	BT Setting	<p>Sets busy tone detection.</p> <ul style="list-style-type: none"> • On (Default) • Off
Comm Settings		
	RTN Rate	<p>Sets the error ratio for error judgment on data received in non-ECM mode.</p> <ul style="list-style-type: none"> • Default: 11% • Range: 11% or 14%
	V34 Modem	<p>A V34 modem cannot operate if use of a V34 modem is prohibited with the setting below. Therefore, if 33.6 is selected for the TX/RX Speed setting in the User Tool V17 must be selected.</p> <ul style="list-style-type: none"> • Permitted. (Default) Use of V34 modem is allowed. • Prohibited. Use of V34 modem not allowed.
	V17 Modem	<p>A V17 modem cannot operate if use of a V17 modem is prohibited with the setting below. Therefore, if 14.4 is selected for the TX/RX Speed setting in the User Tool V29 must be selected.</p> <ul style="list-style-type: none"> • Permitted. (Default) Use of V34 modem is allowed. • Prohibited. Use of V34 modem not allowed.
V34 Settings		

Equalizer	<p>Sets the equalizer training level to be applied if training fails due to poor line connection.</p> <ul style="list-style-type: none"> Automatic. (Default) 4 Points. 16 Points.
Redialing	<p>Sets up resending if a communication error occurs.</p> <ul style="list-style-type: none"> Disabled. (Default) Not Disabled.
Symbol Rate	<p>Limits the transmission speed range in V.34 mode by masking the rates of selected symbols.</p> <ul style="list-style-type: none"> Default: Not Used Range: 2400 to 3429 Sym/sec.
Report	
Service Data List	Prints the Service Data List report.
Error Log List	Prints the Error Log List report.
T.30 Protocol List	Prints the T.30 Protocol List report.

Service Data List Sample

2011 12/31 23:59

Aficio SP 100SF

Service Data List

Fax Maintenance

Modem Settings

RX Level

TX Level

Cable Equalizer

V.34 First TX Speed

- 43 dBm

- 15 dBm

General Value

3360 Bps

Dial Pulse Setting

Dial Pulse Type

Tone Signal Settings

Tone Sig. TX TimeLEN

Min. Pause In Tone Dial

DTMF Level

DTMF Level Delta

N

100 ms

100 ms

- 8 dBm

2 dBm

m103t001

m103t001

Error Log List (Error Log History List) Report

The error log history records the most recent 40 errors only.

ERROR LOG HISTORY LIST			
Index	Error	Maker	Tele.
0001	:0070	49EE	88634733507
0002	:00A0	49EE	
0003	:0070	0000	
0004	:0070	0000	
0005	:0070	0000	

m103t002

Item	Description
Index	Index numbers: 0001 to 9999
Error	Error code number
Maker	NSF frame maker code
Tele.	Remote side or TX side telephone number for the transaction

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T.30 Protocol List Report

P.001

Protocol Monitor Report

Date)2011 12/31 23:59
Name)Meihua
Fax Number)12345678901234567890

Date	Time	Destination/Sender	TX/RX	Duration	Pages	Status	File No.	Mode
07/01	08:00	12345678901234567890	RX	02' 21"	2	OK	001	ECM 33.6

RING	DATA
ON Time (ms)	1200 1200 1200 1200 1200 1200 1200 1200 1200 1200 1200 1200 1200 1200 1200
OFF Time (ms)	3000 3000 3000 3000 3000 3000 3000 3000 3000 3000 3000 3000 3000 3000 3000

TX	RX
ANS	CM
JM	CJ
NSF	FF 03 20 64 00 00 00 A0 88 CB 04 00 18 20 00 00 10 01 00
NSF	FF 03 20 64 00 00 00 a0 88 cb 00 00 00 00 00 00 10 01 00 00 01 06

m103t003

Item	Description
Date/Time	Transaction date and time
Destination/Sender	Destination name and telephone number
TX/RX	Transmission or receiving
Duration	Time for this transaction

Item	Description
Pages	Total number of pages in this transaction
Status	Transaction result
File No.	Job number
Mode	Communication speed and ECM mode
Ring	Recorded ring on/off time (ms). For RX function and last 16 RX recorded
TX	T.30 command sent by local fax
RX	T.30 command received from remote fax
Data	T.30 frame including address, control, data

Fax Test (M103)

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To start Fax Test

1. Switch the machine on.
2. With the machine in Ready mode, press [Copy/Fax].

Off-Hook Test	On Hook	On hook test.
	Off Hook	Off hook test
CED Test	Executes the CED test.	
CNG Test	1100 Hz	Executes the CNG test
ANSam	Executes the ANSam test.	
DTMF Test	Tone [0] to [9]	Tests DTMF tone 0 to 9.
	Tone [*]	Tests DTMF tone *.
	Tone [#]	Tests DTMF tone #.
	Tone Stop	Tests tone stop.
Modem Test	[V34] 33600 bps	Generates [V34] 33600 bps signal.
	[V34] 28800 bps	Generates [V34] 28800 bps signal.

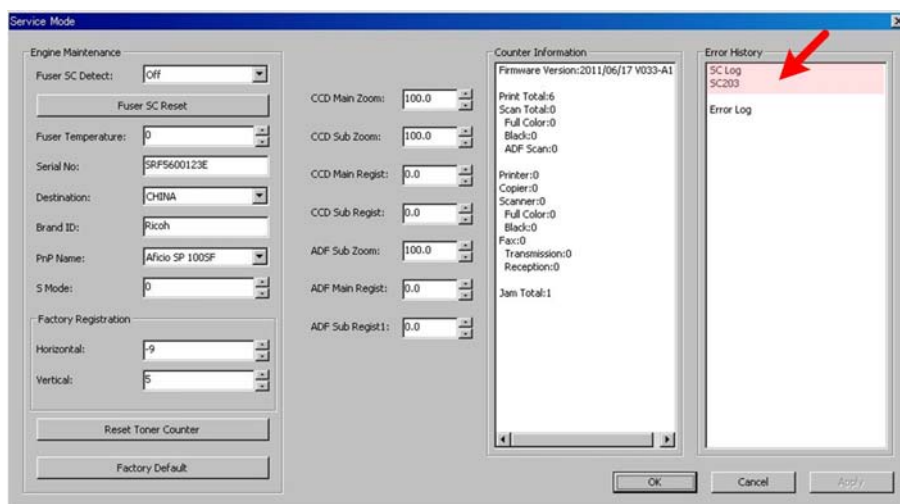
	[V17] 14400 bps	Generates [V17] 14400 bps signal.
	[V17] 12000 bps	Generates [V17] 12000 bps signal.
	[V17] 9600 bps	Generates [V17] 9600 bps signal.
	[V17] 7200 bps	Generates [V17] 7200 bps signal.
	[V29] 9600 bps	Generates [V29] 9600 bps signal.
	[V29] 7200 bps	Generates [V29] 7200 bps signal.
	[V27] 4800 bps	Generates [V27] 4800 bps signal.
	[V27] 2400 bps	Generates [V27] 2400 bps signal.
	[V21] 300 bps	Generates [V21] 300 bps signal.
	Signal Stop	Generates Stop signal.

Service Calls

Overview

General

These machines issue an SC (Service Call) when an error occurs. Error codes can be viewed Error History box of the Service Mode screen in Smart Organizing Monitor.



m101r306

Pay attention to the following points:

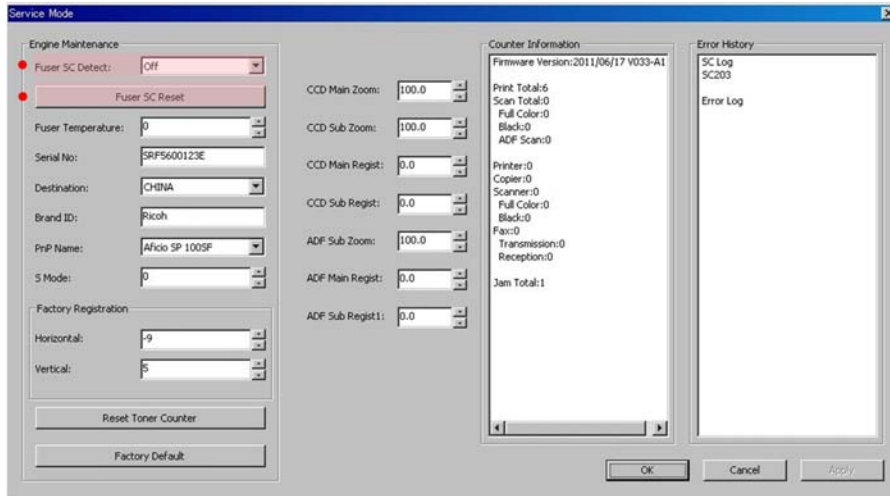
- All SC codes are logged.
- After an error occurs and an SC code is issued, cycle the machine off and on. This usually corrects the problem.
- Before deciding to replace a PCB (main board, PSU, HVPS) always check the harnesses to make sure that the problem was not caused by a loose connection.
- Before deciding to replace a motor or sensor, always check around the motor or sensor feeler to make sure that there is no physical obstruction such as scrap paper or something that has fallen inside the machine (paper clip, pin, etc.)

Fusing Related SC Codes

A fatal error is issued when a problem occurs inside the fusing unit. Fusing related errors present a fire hazard so they require special handling.

- Once a fatal error occurs, the machine cannot be used until the problem has been corrected.

- Fatal SC codes, or "A" Level SC codes, alert the operator to a problem that is a potential fire hazard. These fatal SC codes are related to problems that occur in the fusing unit: SC541, SC542, SC543, SC544, SC545, SC559.



m101r133

- There are two important settings on the Service Mode screen of the Smart Organizing Monitor.
- When Fuser SC Detect is switched on, the machine will shut down after the third consecutive fusing jam error. This setting should remain on for safety.
- Also, a fatal error (fusing related SC code) occurs, the machine cannot be serviced until the service technician releases the error by clicking [Fuser SC Reset] on the Service Mode screen.

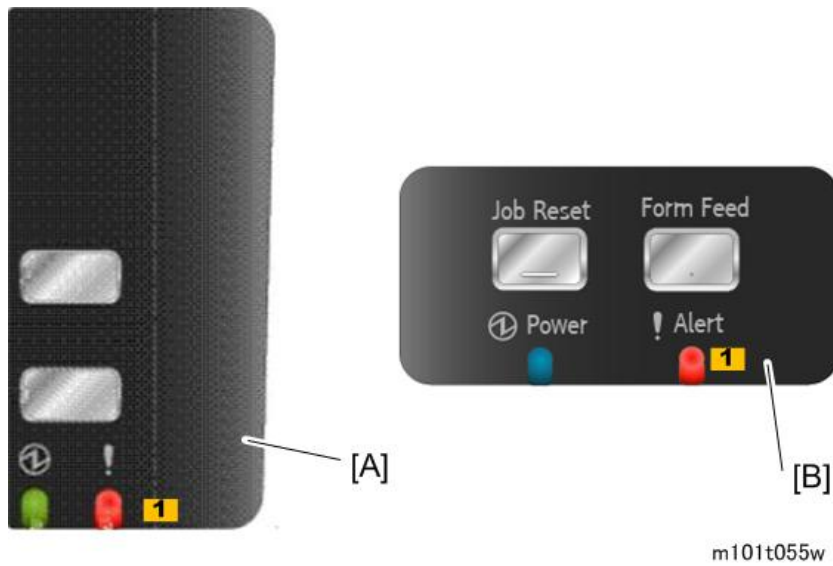
★ Important

- After correcting the problem that caused the fatal SC code to be issued, the service technician must execute [Fuser SC Reset] in order to recover full operation of the machine. Otherwise the machine will continue to issue the same SC code even after the problem has been corrected.

When an Error Occurs

The machines have different operation panels and components so this affects how each machine alerts the operator when a problem occurs.

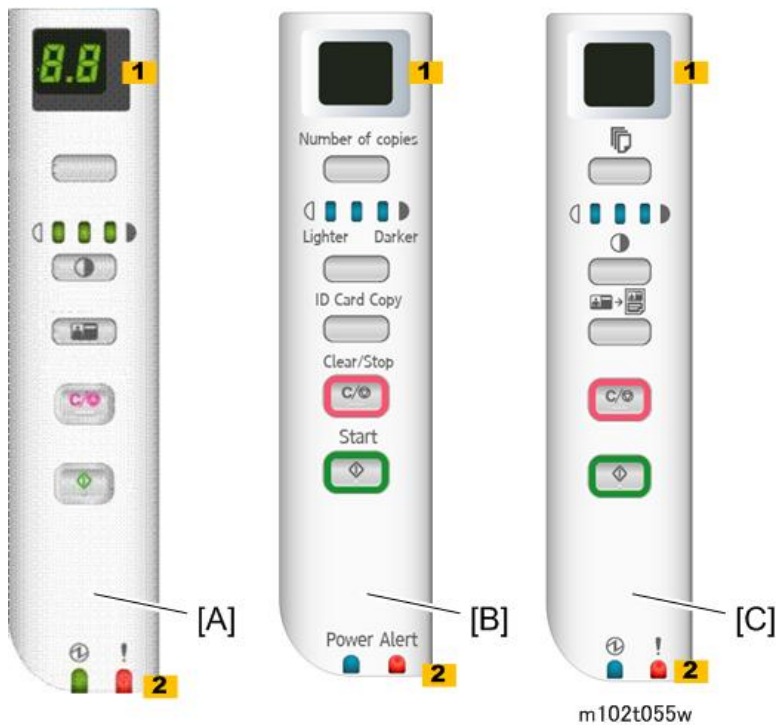
- When an error occurs, the alert indicator on the operation panel lights and the machine stops.
- A buzzer will sound an alert on the M103. Press any key on the operation panel to turn the buzzer off. (This is the fax speaker on the M103 that also functions as an error alarm.)
- There is no buzzer alert for the M101 or M102 because these machines do not have the fax speaker. The SC number can be displayed on the Service Mode screen of the Smart Organizing Monitor. (p. 170 "Smart Organizing Monitor Service Mode")



[A]: CHN, [B]: NA/EU

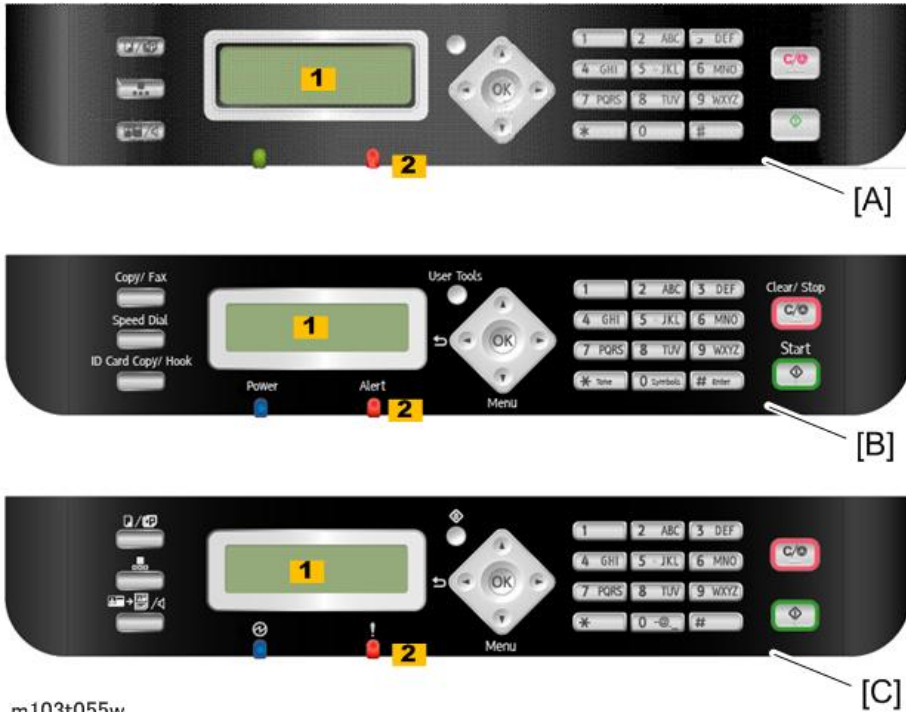
- The M101 has no panel display. When an error occurs only the alert lamp lights [1].

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[A]: CHN, [B]: NA, [C]: EU

- The M102 has a 2-segment display [1]. A letter-number code is used to designate an SC code. For example, "c6" designates "SC101". (These 2-digit codes are included in the SC tables below.) The alert lamp [2] also lights when an error occurs.



m103t055w

[A]: CHN, [B]: NA, [C]: EU

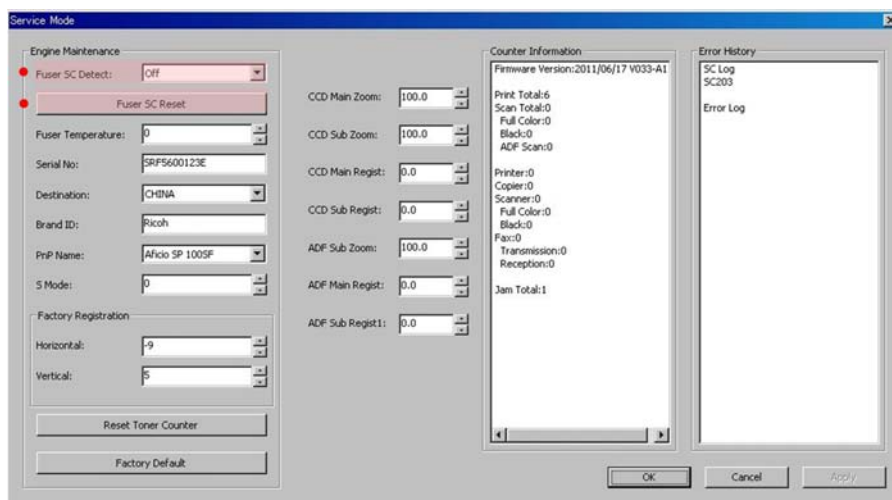
- The M103 has a 7-segment display (1) so the full SC number, "SC101" can be shown on the operation panel display. When an error occurs the alert lamp (2) lights and the fax speaker will sound an alert. (The M103 is the only machine with a speaker.)

★ Important

- For all models of this series, the M101, M102, and M103, the Smart Organizing Monitor can be used to display the most recent SC codes in the Error History box of the Service Mode screen. (p.170 "Smart Organizing Monitor Service Mode")

Executing Fuser SC Reset

- After correcting the problem, open Smart Organizing Monitor.
- Enter the service mode to display the Service Mode screen.



m101r133

3. On the Service Mode screen, click [Fuser SC Reset]. This releases the fatal fusing error which locks the machine.
4. Select "On" for Fuser SC Detect. This setting shuts down the machine if three successive paper jams occur in the fusing unit.

6

SC Tables

SC Table Key

SC codes are assigned a level of severity (A, B, C, D) based on the table below. These letters appear in the 3rd column of the SC tables below.

Level	Definition/ Reset Procedure
A	<p>The machine is disabled due to a problem in the fusing unit, electrical component, or firmware. The operator cannot operate the machine.</p> <ul style="list-style-type: none"> This is a fatal error. The machine requires immediate servicing by a service technician. After solving the problem Fuser SC Reset must be executed to release the machine for normal operation.
B	<p>These SC codes disable only the features that use the defective item. Normally, the user does not see these SC codes, but the SC code is displayed in the Error History box of the Service Mode screen.</p> <ul style="list-style-type: none"> Cycle the machine off/on with the main power switch".

Level	Definition/ Reset Procedure
C	<p>These are SC codes are not shown. They are logged internally.</p> <ul style="list-style-type: none"> Open the Smart Organizing monitor and open the Service Mode screen to see the SC error log in the Error History box.
D	<p>These SC codes are shown on the M102/M103 operation panel.</p> <ul style="list-style-type: none"> To reset machine, cycle the machine off/on. The SC codes are re-appear if the error occurs again.

★ Important

- If the problem is in an electrical circuit board, always disconnect then connect the board connectors again to check for a bad or loose connection before you replace the PCB.

↓ Note

- The 2nd column of each table shows the error code that appears in the 2-digit display of the M102.

SC100: Scanning

SC101	c6	C	CIS Lamp/Scanner Motor Error
			<p>A problem occurred with the CIS or scanner motor in the flatbed scanner:</p> <ul style="list-style-type: none"> After CIS power check After shading After CIS failed to return to home position
			<ul style="list-style-type: none"> Flatbed scanner motor connector (main board) loose, broken, or defective CIS flat film connector at main board loose, broken or defective CIS flat film connector at CIS loose, broken, or defective Scanner motor defective CIS defective

SC200: Scanning

SC202	C1	D	Polygon Motor On Timeout Error
-------	----	---	--------------------------------

			<p>No lock signal was received within 10 sec. after the polygon motor turned on.</p> <ul style="list-style-type: none"> • Polygon motor driver I/F harness loose, broken, defective • Polygon motor broken or defective
			<ul style="list-style-type: none"> • Cycle the machine off/on • Replace I/F harness • Replace polygon motor • Replace laser unit

SC203	C2	D	Polygon Motor Off Timeout Error
			<p>The lock signal did not go HIGH (inactive) within 20 sec. after the polygon motor turned off.</p> <ul style="list-style-type: none"> • Polygon motor I/F harness loose, broken, defective • Motor driver board defective • Motor defective
			<ul style="list-style-type: none"> • Cycle the machine off/on • Replace I/F harness • Replace polygon motor • Replace laser unit

SC204	C3	D	Polygon Motor Lock Signal Error
			<p>Four samplings within 200 ms revealed that the polygon motor lock signal remained HIGH beyond the prescribed number of revolutions.</p> <ul style="list-style-type: none"> • I/F harness between the motor and driver board is loose, broken, defective • Driver board defective • Motor defective
			<ul style="list-style-type: none"> • Cycle the machine off/on • Replace I/F harness • Replace polygon motor • Replace laser unit

SC220	C4	D	Beam Synchronization Error
			<p>Top cover (or maintenance cover) is down and locked, and the polygon motor is locked, but laser synchronization could not be achieved within 40 msec.</p> <ul style="list-style-type: none"> • The I/F harness of the LDB is loose, broken defective • Polygon motor is locked • The angle of incidence of the laser beam and photo-detector is not correct
			<ul style="list-style-type: none"> • Cycle the machine off/on • Replace the I/F harness • Replace polygon motor • Replace laser unit • Replace main board

6

SC400: Around the Drum

SC491	C5	D	Bias Leak
			<p>A bias leak has occurred for the drum charge, development charge, or transfer charge. PWM signals are sampled at 20 msec. intervals. This SC is issued if 10 PWM samplings within 200 msec. are abnormal.</p> <ul style="list-style-type: none"> • HVPS harness loose, broken, defective • HVPS board defective • AIO terminal defective
			<ul style="list-style-type: none"> • Cycle the machine off/on • Check all the harness connections of the HVPS • Check spring-loaded AIO terminal installation behind the HVPS. • Replace HVPS

SC500: Paper Feed, Transport

SC500	C6	D	Main Motor Error
-------	-----------	---	------------------

			<p>One of the following problems occurred:</p> <ul style="list-style-type: none"> • The machine failed to detect a LOCK signal within two sec. after the main motor was turned on. • The machine failed to detect a LOCK release signal with 2 sec. after the main motor was turned off.
			<ul style="list-style-type: none"> • Cycle the machine off/on • Check the areas around motor and main drive train for a physical obstruction (paper scraps, etc.) • Clean the main motor drive train • AIO defective • Main motor defective

SC541	C7	A	Fusing Unit Thermistor Error (Fatal Error)
			<p>No temperature was detected within 5 sec. after the machine was turned on (temperature was less than 0°C).</p> <ul style="list-style-type: none"> • Fusing unit thermistor disconnected, broken or not set correctly • Fusing lamp disconnected, broken or not set correctly. • Fusing unit defective • After servicing the machine to solve the problem, the service technician must execute a "Fuser SC Reset". Otherwise, the machine will continue to issue this SC code and cannot be operated. (p.202 "Executing Fuser SC Reset")

SC542	C8	A	Fusing Reload Temperature Error (Fatal Error)
			<p>After starting up or during operation the machine detected after 5 readings at 1.5 sec. intervals that the hot roller was 5°C below the reload (operating) temperature.</p> <ul style="list-style-type: none"> • Fusing thermistor deformed or out of position • Fusing lamp harness loose, broken, defective • Fusing unit defective • After servicing the machine to solve the problem, the service technician must execute a "Fuser SC Reset". Otherwise, the machine will continue to issue this SC code and cannot be operated. (p.202 "Executing Fuser SC Reset")

SC543	C9	A	High Temperature Error - Software (Fatal Error)
			<p>The temperature inside the fusing unit exceeded 225°C (437°F) for more than 1 sec.</p> <ul style="list-style-type: none"> • After this error has occurred three times, the machine will shut down and must be released with the Smart Organizing Monitor and serviced by a service technician. • Main board defective • PSU defective (TRIAC short) • After servicing the machine to solve the problem, the service technician must execute a "Fuser SC Reset". Otherwise, the machine will continue to issue this SC code and cannot be operated. (p.202 "Executing Fuser SC Reset")

SC544	c1	A	High Temperature Error- Hardware (Fatal Error)
			<p>The machine detected the CPU port LOW twice at 100 ms intervals and issued this SC. This check is always done to check for overheating, even if SC543 does not detect the problem.</p> <ul style="list-style-type: none"> • Fusing unit defective • Main board defective • PSU defective (TRIAC short) • After servicing the machine to solve the problem, the service technician must execute a "Fuser SC Reset". Otherwise, the machine will continue to issue this SC code and cannot be operated. (p.202 "Executing Fuser SC Reset")

SC545	c2	A	Fusing Lamp Remains ON Error (Fatal Error)
			<p>The heating element of the fusing lamp remained at full power longer than 9 sec. after the reload temperature was detected.</p> <ul style="list-style-type: none"> • Fusing thermistor harness connector loose, broken, defective • Fusing thermistor warped or positioned incorrectly • Fusing lamp harness connector loose, broken, defective • After servicing the machine to solve the problem, the service technician must execute a "Fuser SC Reset". Otherwise, the machine will continue to issue this SC code and cannot be operated. (p.202 "Executing Fuser SC Reset")

SC559	c3	A	Fusing Unit Third Jam Error (Fatal Error)
			<p>The exit sensor failed to detect the leading edge of the paper within the prescribed time and triggered a jam alert.</p> <ul style="list-style-type: none"> • After this error has occurred three times, the machine will shut down automatically and cannot be re-started until the machine has been serviced by a service technician. • Check the paper transport path for any physical obstructions (paper scraps, etc.) • Make sure the fusing unit has been installed correctly • After servicing the machine to solve the problem, the service technician must execute a "Fuser SC Reset". Otherwise, the machine will continue to issue this SC code and cannot be operated. (p.202 "Executing Fuser SC Reset")

SC600: Communication

6

SC650	---	A	Modem Error (M103 only)
			Modem chip defective.
			<ul style="list-style-type: none"> • Replace fax board.

SC669	c5	D	EEPROM Communication Error
			<p>A read/write error occurred with the EEPROM on the main board.</p> <ul style="list-style-type: none"> • EEPROM missing or not set correctly. • Cycle the machine off, check the EEPROM installation, re-start the machine. • EEPROM defective, replace EEPROM or main board.

SC688	c4	D	No CTL_PRREQ_N Signal
			<p>Paper failed to feed after the machine reached the reload temperature because the main board did not issue a PRREQ signal.</p> <ul style="list-style-type: none"> • Main board harness connector loose, broken, defective • Main board defective

SC670	c9	A	Engine Communication Error
			The engine failed to communicate with the firmware.
			<ul style="list-style-type: none">• Update the firmware• Main board defective

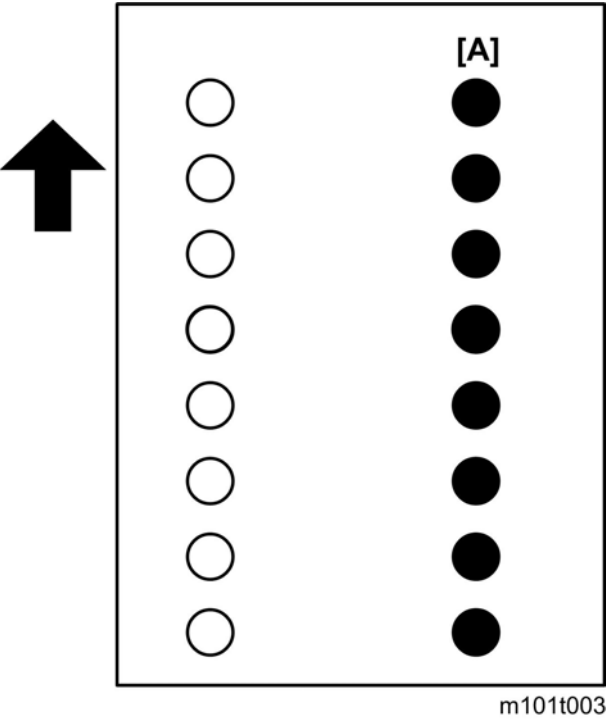
SC800: Other

SC828	c8	A	ROM Checksum or Data Lost Error
			A firmware type error or checksum error occurred.
			<ul style="list-style-type: none">• Update firmware

SC871	c7	A	Flash ROM Write Error
			The flash memory is defective or there is a problem with the fax board cable.
			<ul style="list-style-type: none">• The fax cable between the fax board and the main control board and fax board is loose, broken, or defective• Main control board defective

Image Problems

Overview



6

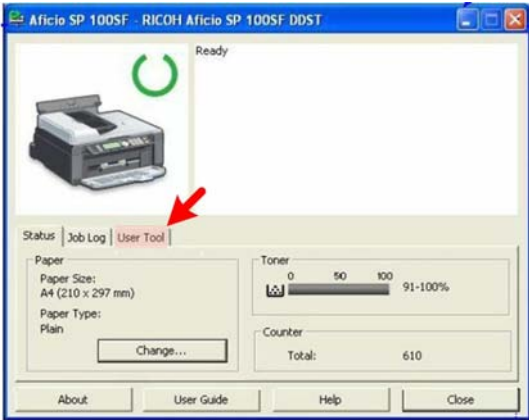
Image problems can occur at regular intervals [A] due to the different circumferences of rollers in the machine and inside the AIO.

Diameter (mm)	Interval (mm)	Component
9.5	29.8	Charge Roller (AIO)
12	37.7	Development roller (AIO)
12.13	38.1	Relay roller
14.2	44.6	Exit Roller
14.6	45.8	Transfer roller
22	69.1	Pressure roller
23.96	75.2	Drum (AIO)

Diameter (mm)	Interval (mm)	Component
25.02	78.6	Hot roller
28	28	Paper feed roller

Printing the Test Page

Print the Test Page so you can visually check for poor image quality.



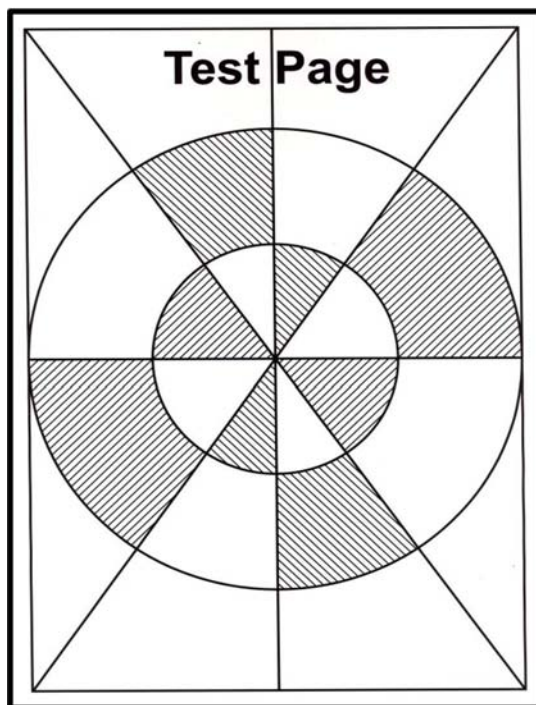
m101t004

1. Start Smart Organizing Monitor and then click the User Tools tab.



m101t005

2. Select "Test Page" from the "List/Test Print" drop-down list.
3. Click [Print] to print the test pattern.



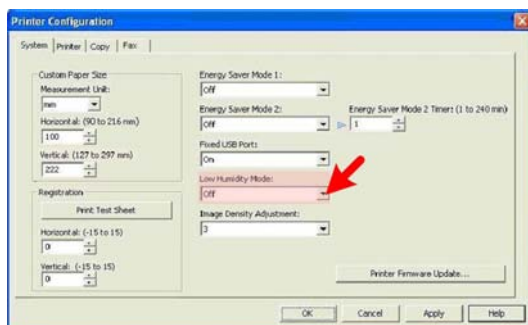
m101t006

6

Dark Lines in Halftone Areas

Dark lines in halftone fill areas can appear at 75 mm intervals when the machine is operating in a room where the humidity is very low. (The low humidity causes variation in light sensitivity across the surface of the drum.)

1. To prevent this problem, open Smart Organizing Monitor.
2. Click the User Tool tab, and then click the Printer Configuration button to open the Printer Configuration screen.



m101t009

3. On the System tab, select "ON" for the Low Humidity Mode.

When this humidity mode setting is on, the drum is rotated slight every 15 min. to keep the light sensitivity consistent across the entire surface of the drum.

Common Problems

All Models

Please remember that print yield will be different based on how the machine is used:

- The rate of toner consumption is much faster with documents that consistently contain photos or charts that require large areas of fill. The AIO will run out of toner much sooner.
- The rate of toner consumption is slower with documents that contain mostly text and a only a moderate number of photos or other images that require large areas of fill.
- The rate of toner consumption will be normal and toner yield will be much closer to the estimate if the documents contain mostly text.

Images become pale or scratchy

Cause 1	AIO is out of toner
Solution	Refill or replace the AIO.
Comments	<ul style="list-style-type: none"> • A replacement AIO can be refilled up to three times. This is the approximate service life of the drum.
Cause 2	Drum service life has ended
Solution	Replace the AIO.
Comments	<ul style="list-style-type: none"> • The AIO should not be refilled because the service life of the drum has expired.
Cause 3	Drum damaged
Solution	Replace the AIO.
Comments	<ul style="list-style-type: none"> • The drum has been damaged and the AIO must be replaced. • The drum cannot be replaced (parts inside the AIO cannot be replaced).

★ Important

- The rate of toner consumption can be greatly reduced by selecting "Toner Save" for the "Copy" feature on the Service Mode screen in Smart Organizing Monitor.

M101, M102

Operators do not know when to change the AIO.

Make sure the operators understand the following points about AIO replacement:

- For the M101, M102 the machine does not monitor the level of toner remaining in the AIO. There is no toner near-end or toner-end alert.
- The AIO in the M101 or M102 must be replaced or refilled when images become pale or scratchy.
- The yield of the starter AIO is 500 sheets and the yield of a replacement AIO is 2,000 sheets.
- A replacement AIO can be refilled up to three times. This is calculated based on the service life of the drum.
- An AIO must be refilled by a trained service technician.

M103

6

Operator wants to reset the counter for a new AIO but the [Execute] button is not displayed for the "Reset Toner Cartridge" item on the Service Mode screen of Smart Organizing Monitor or User Tools menu.

Cause	The toner end option is not set.
Solution	Switch on the toner end feature: [User Tools] > System Settings > Toner End Option > Stop Printing
Comments	After "Stop Printing" is selected, the [Execute] button will appear: [User Tools] > System Settings > Reset Toner Cartridge > [Execute] -or- Enter Service Mode > Service Mode screen > Reset Toner Cartridge > [Execute]

The machine has issued a toner end alert but some toner remains in the AIO.

Cause 1	The service life of the drum has expired before the toner supply has run out.
Solution 1	Replace the AIO
Solution 2	Disable the toner end function in order to use up all the toner in the AIO. [User Tools] > System Settings > Toner End Option > Continue Printing
Comments	<ul style="list-style-type: none"> • An AIO can be refilled up to three times.

Cause 2	A supply AIO (2,000 print capacity) was installed at installation (the starter AIO was not installed at installation),
Solution	Disable the toner end function in order to use up all the toner in the AIO: [User Tools] > System Settings > Toner End Option > Continue Printing
Comments	<ul style="list-style-type: none"> • The machine toner count is set for installation of the starter AIO (500 print capacity) when the machine is removed from the box. • If a supply AIO (2,000 print capacity) is installed at installation, the machine will signal near end and toner end after only 500 prints. • The starter AIO should always be installed at installation and then used until it is empty.
Cause 3	A partially used AIO was taken from another machine and installed.
Solution	Disable the toner end function in order to use up all the toner in the AIO: [User Tools] > System Settings > Toner End Option > Continue Printing
Comments	<ul style="list-style-type: none"> • There is no ID chip on the AIO so the machine cannot detect the toner level an AIO taken from another machine. • Once an AIO is removed from the machine and replaced with a partially used AIO from another machine, the current toner count will not be accurate.

Images started to fade before the machine issued a toner near end alert.

Cause 1	The AIO in the machine was replaced with the starter AIO after the count exceeded 2,000.
Solution	Remove the starter AIO and refill the empty AIO, or replace it.
Comments	<ul style="list-style-type: none"> • Install the starter AIO at installation and continue to use until it is out of toner.
Cause 2	A partially used AIO was taken from another machine and installed.
Solution	Disable the toner end function in order to use up all the toner in the AIO: [User Tools] > System Settings > Toner End Option > Continue Printing

Comments	<ul style="list-style-type: none">• There is no ID chip on the AIO so the machine cannot detect the toner level in another AIO.• Once an AIO is removed from the machine and replaced with a partially used AIO from another machine, the current toner count will not be accurate. However, you can use up all the toner if the toner end option is disabled.
Cause 3	The main board was replaced.
Solution	After the main board has been replaced, disable the toner end function in order to use up all the toner in the AIO: [User Tools] > System Settings > Toner End Option > Continue Printing
Comments	<ul style="list-style-type: none">• The toner count is stored in the NVRAM on the main board.• If the main board needs to be replaced, the NVRAM cannot be removed from the old main board and installed on the new main board.• The toner counter is pre-set for 0.5K (500 sheets for a starter AIO) on a new main board, and this value cannot be changed.• The operator should disable the toner end option until the AIO in the machine runs out of toner, and then reset the counter for the refilled or new AIO.

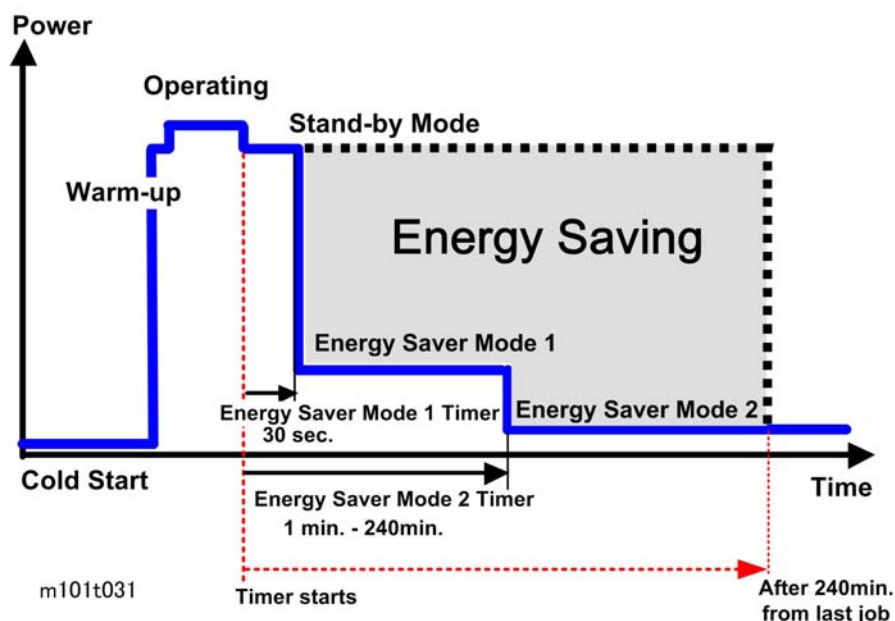
7. Energy Saving

Energy Save

Energy Save Modes

Energy Save Operation

Operators should use the energy saver modes correctly in order to save energy and protect the environment.



The shaded area in the diagram above represents the amount of energy that is saved when the energy save timers are operating.

- The operation panel switches go off after the machine remains idle for 30 sec. and the machine enters the Energy Save 1 mode.
- The machine enters Energy Save Mode 2 and switches off the fusing lamp if the machine remains idle for 60 min. The default setting for the Energy Save Mode 2 timer is 60 min., but this setting can be adjusted in the range 1 to 240 min. (4 hours).

Timer Settings and Return to Standby Mode

The operator can set the two timers with the Smart Organizing Monitor (Printer Configuration > System tab > Energy Saver Mode 1 or Mode 2).

- **Energy Save Mode 1** (30 sec.) can be only turned off or on. The length of the timer cannot be adjusted. Default: On 30 sec. The machine requires 10 sec. to return to full operation from Energy Save Mode 1.
- **Energy Save Mode 2** (60 min.) can be turned off and on, and the length of the timer can be adjusted. Default: On, adjustable in the range 1 to 240 min. The machine requires 20 sec. to return to full operation from Energy Save Mode 2.

Recommendations

- If the operator prefers that these settings be changed or switched off altogether, please explain that switching these energy saver features off could increase energy costs and waste energy.
- If the operator changes the settings please advise that setting Energy Save Mode 2 should not be too long. The longer the machine waits to enter Energy Save Mode 2, the more energy will be wasted.
- Setting Energy Save Mode 2 to the maximum value (240 min.) should be avoided. At close of business for the day, the machine will wait 4 hours before entering Energy Saver Mode 2. This is a waste of energy.

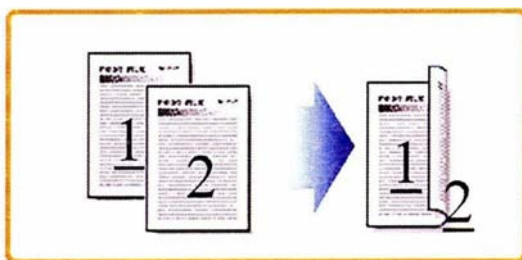
Paper Save

Effectiveness of Duplex/Combine Functions

Duplexing and the combine functions reduce the amount of paper used. Far less energy overall is used for paper production and paper disposal.

1. Duplex

Printing on both sides of each sheet of paper reduces paper consumption by half.

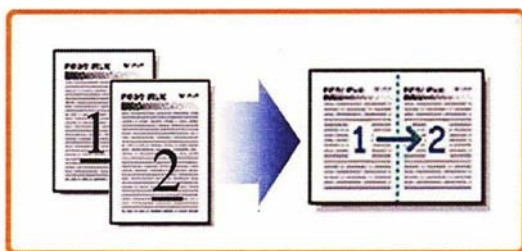


m101t032

7

2. Combine Mode

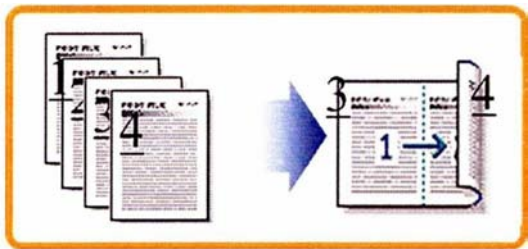
Combine more than one page on a sheet reduces paper consumption by half or more.



m101t033

3. Duplex + Combine

Printing on both sides of each sheet and printing than one page on each side of the sheet can reduce paper consumption even more.



m101t034

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

The total counter counts all pages printed:

- The total counter increments by 2 for each duplex page
- The total counter increments by 3 for two duplex sheets where only three pages are printed (one side is blank).

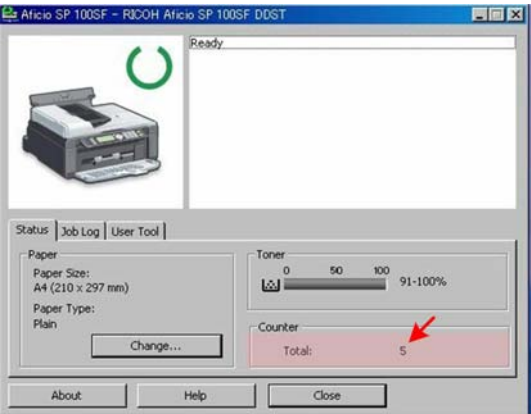
The duplex counter counts sheets of paper that have images on both sides:

- The duplex counter increments by 1 for one duplex page
- The duplex counter increments by 1 for two duplex sheets where only three pages are printed (one side is blank)

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Total Counter

The machine total counter counts the number of sides printed (a duplex page is counted as two, not one). You can check the total count on the initial screen of the Smart Organizing Monitor (see below).



m101t035

The table below shows paper savings and how the counters increment for some simple examples of simplex and duplex jobs.

Original	Simplex Sheets	Duplex Sheets	Paper Saved	Total Counter
1	1	1	0	1
2	2	1	1	2
3	3	2	1	3
4	4	2	2	4
5	5	3	2	5
10	10	5	5	10
20	20	10	10	20

If the combine mode is used, the total and duplex counters work in the same way as explained above. The following tables show paper savings and how the counters increment for some simple duplex/combine jobs.

Combine 2-in-1 Mode

Original	Simplex Sheets	Duplex Sheets	Paper Saved	Total Counter
1	1	1	0	1
2	2	1	1	1
3	3	2	1	2
4	4	2	2	2
5	5	3	2	3
10	10	5	5	5
20	20	10	10	10

7

Duplex + Combine 2-in-1 Mode

Original	Simplex Sheets	Duplex Sheets	Paper Saved	Total Counter
1	1	1	0	1
2	2	1	1	1
3	3	1	2	2
4	4	1	3	2

Original	Simplex Sheets	Duplex Sheets	Paper Saved	Total Counter
5	5	2	3	3
6	6	2	4	3
7	7	2	5	4
8	8	2	6	4
9	9	3	6	5
10	10	3	7	5
11	11	3	8	6
12	12	3	9	6

Model ME-P1/MF1_ww
Machine Code:
M101/M102/M103
Appendices

08 March 2012

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1. Appendix: Specifications

Machine Specifications

Before You Read These Specifications

The printing, scanning, copying, and facsimile specifications described in this section do not apply to all machines of this series.

Main	Printing	Scanning	Copying	Fax
M101	Yes	No	No	No
M102	Yes	Yes	Yes	No
M103	Yes	Yes	Yes	Yes

Notes

- The M102 has a platen so book mode scanning is possible.
- The M103 is the only machine with an ADF. The ADF can be raised for book mode scanning.
- The M101 uses the P1 (Printer) Engine and the M102 and M103 both use the MF1 (Multi-Function) Engine.
- All the machines of this series employ the GDI controller.
- All the machines of this series use the same AIO (All-in-One) unit which contains the 1) OPC drum, 2) charge unit, 3) development unit, 4) cleaning unit, and 5) toner supply unit.

Names and Distribution

Destination	Model name	Product code	ID Chip	Genuine Refill Toner	Toner end detection
North America	ME-P1	M101-17	Mounted	Not Available	On
	ME-MF1a	M102-17			
	ME-MF1b	M103-17			
EU/Asia-Pacific	ME-P1	M101-27			
	ME-MF1a	M102-27			
	ME-MF1b	M103-27			
China	ME-P1	M101-21	Not mounted	Available	Off
	ME-MF1a	M102-21			On (Changeable)
	ME-MF1b	M103-21			
South America	ME-P1	M121-17			Off
	ME-MF1a	M122-17			On (Changeable)
	ME-MF1b	M123-17			
Russia, Saudi Arabia, Middle East, Africa, South America, Asia Pacific	ME-P1	M121-27			Off
	ME-MF1a	M122-27			On (Changeable)
	ME-MF1b	M123-27			

General Specifications

Configuration	Desktop
Languages	Chinese (Simplified Characters), English
Original exposure	Laser electrostatic transfer
Printing speed	13 ppm (A4 SEF)

First print	<ul style="list-style-type: none"> • Less than 6.4 s from the start of paper feed until paper exits. • Less than 13 s from the time data is received until paper exits. 	
Printing resolution	600 x 600 dpi or 1200 x 600 dpi (selected with the printer driver)	
Warm-up time (Ready status)	25 sec. (power on, energy save recovery) at 23°C (71.6°F)	
Paper Path Driver	Single brush-less DC motor	
AIO (All In One system* ¹)	Replaceable cartridge	
Drum	Optical photo-conductor	
Development	Dry electro-static method	
Charge	Charge roller	
Toner supply	Auger agitation, supply	
Used toner collection	Used toner collection container	
Cleaning	Opposable cleaning blade	
Estimated yield	Based on A4 SEF Test Pattern	
	Starter AIO	500 sheets
	Replacement AIO	ID chip model: 1200 sheets Non-ID chip model: 2000 sheets
ID chip	See "Names and Distribution" in this section.	
Storage conditions	Temperature	-30°C to 40°C (-54°F to 104°F)
	Humidity	15% to 80% rH
	Note: Store away from direct sunlight.	

*¹ The AIO cartridge contains the drum, charge unit, development unit, cleaning unit, and toner supply unit. The unit is replaced as a whole; there are no serviceable parts inside.

Fusing	Hot roller+ Halogen fusing lamp	
Paper		
Paper type	Plain 65 to 99 g/m ² Recycled paper 75 to 90 g/m ² Thin paper 52 to 64 g/m ² Thick paper 120 to 130 g/m ²	
Delivery	Face-up	
Capacity	10 sheets (A4 70 g/m ²)	
Paper size		
Standard (SEF)	A4	210 x 297 mm
	B5	182 x 257 mm
	A5	148 x 210 mm
	B6	128 x 210 mm
	A6	105 x 148 mm
	LT	216 x 279 mm
	HLT	140 x 216 mm
	Executive	184 x 267 mm
	16K	197 x 273 mm
	16K	195 x 270 mm
	16K	184 x 260 mm
Custom	Width	90 to 216 mm (3.5 x 8.5 in.)
	Length	148 to 297 mm (5.8 x 11.7 in.)
Paper feed		
Paper feed capacity	50 sheets (A4 70 g/m ²)	
Duplexing	No, but manual duplexing possible by printing 1st side pages, and then 2nd side pages.	

Paper out alert	LED flash	
Feed Source	Bypass tray only	
Power supply		
Europe/Asia	220 to 240 V 50/60 Hz Less than 4 A	
NA	120 V 60 Hz Less than 8 A	
Power consumption (average)	Max.	600 W(NA/ Asia) 650 W(EU)
	Operation	250 W
	Standby	55 W
	Energy Save 1	40 W
	Energy Save 2	5 W
Dimensions (w x d x h)		
M101	402 x 368.5 x 119 mm (15.8 x 14.5 x 4.7 in.)	
M102	402 x 368.5 x 163 (15.8 x 14.5 x 6.4)	
M103	402 x 368.5 x 205 mm (15.8 x 14.5 x 8.1 in.)	
Weight		
M101	6.2 kg (13.6 lb.)	
M102	8 kg (17.6 lb.)	
M103	9 kg (19.8 lb.)	
Calendar/Clock	M103 only	
Interface	USB 2.0	
Operation Panel		
M101	2 LEDs, 2 keys	
M102	7-segment 2-digit LED, 5 keys	
M103	Dot-matrix LCD (169 x 64 dot) with LED	
Energy Save Mode 2		

Shift time	1 to 30 min. (adjusted in 1 min. steps)	
Recovery trigger	Job in, cover opened/closed	
Power consumption	5 W	
Recovery time	25 sec.	
Operation Panel		
M100	LEDs, 2 keys	
M102	7-segment LEDs, 4 keys	
M103	LEDs, LCD, keys and 10-kepad	
Controller		
Type	GDI Controller	
Interface	USB only	
Printer Language	DDST (GDI)	
Image Resolution	600 x 600 dpi	
Noise	Mode	Noise Level
	Operation	Less than 60.6 dB(A)
	Standby	Less than 40 dB(A)
	Energy Save	Less than 40 dB(A)

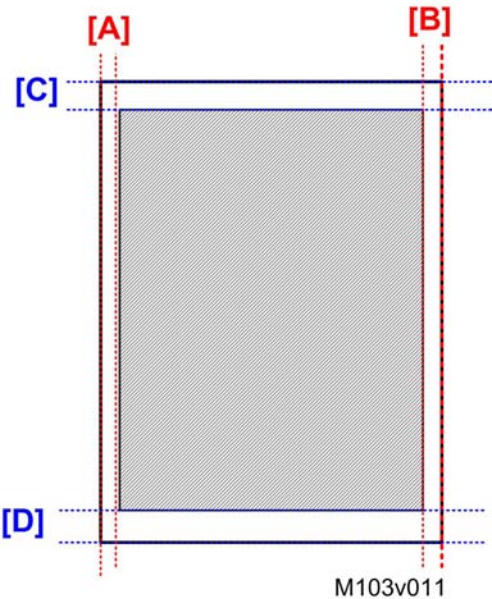
Printer Specifications (M101, M102, M103)

Printing Method	Semi-conductor laser beam with dry electrostatic toner development
Printing Speed	13 ppm (A4/LT)
First Print Time	<ul style="list-style-type: none">• Less than 6.4 s from the start of paper feed until paper exits.• Less than 13 s from the time data is received until paper exits.
Resolution	600 x 600 dpi (Max. 1200 x 600 dpi)

Paper		
Feed Source	Rear paper tray	
Feed Capacity	50 sheets from bypass tray	
Paper size		
Standard (SEF)	A4	210 x 297 mm
	B5	182 x 257 mm
	A5	148 x 210 mm
	B6	128 x 210 mm
	A6	105 x 148 mm
	LT	216 x 279 mm
	HLT	140 x 216 mm
	Executive	184 x 267 mm
	16K	197 x 273 mm
	16K	195 x 270 mm
	16K	184 x 260 mm
Custom	Width	90 to 216 mm (3.5 x 8.5 in.)
	Length	148 to 297 mm (5.8 to 11.7 in.)
	Max.	216 x 297 mm (8.5 x 11.7 in.)
Paper Type	Plain paper, recycled paper, thick paper, thin paper	
Paper Weight	60 to 105 g/m ² (guaranteed)	
	105 to 163 g/m ² (catalog direct)	
Output Capacity	10 sheets on output tray	
Memory capacity	M101	16 MB
	M102	16 MB
	M103	32 MB
Interface	USB 2.0	

Printer Language	GDI (Graphics Device Interface)	
Compatible operating systems	Windows XP and later	
Image Writing System	Semi-conductor laser system	
Estimated Service Life	M100	5 years (or 22,000 prints)
	M102	5 years (or 22,000 prints)
	M103	5 years (or 26,000 prints)
Counter	Provided (number of prints)	
Toner End Detection	See "Names and Distribution" in this section.	
Zoom	25 to 400% (1-step)	
Printer Software		
Language	GDI	
Error Processing	Printer operation panel LED, client PC	
Smoothing	600 dpi/2-bit image data smoothed up to 1200 x 600 dpi	
Grayscale	Halftone	

Printing Area for Fax, GDI Printer Driver



	Margin	Width (mm)
[A]	Left	4.2
[B]	Right	4.2
[C]	Leading	4.2
[D]	Trailing	4.2

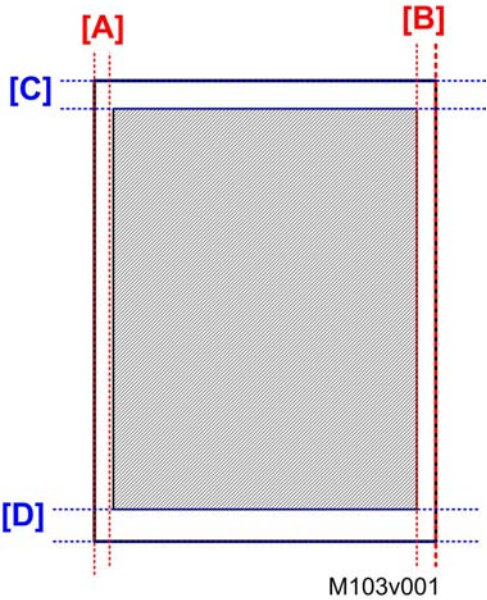
Copier Specifications (M102, M103)

Copy Speed	13 ppm (A4 SEF)
Copy Delivery	Face-up, reverse order
First copy	Less than 25 sec.
Resolution	
Book mode (M102)	600 x 600 dpi, 600 x 300 dpi
ADF book mode (M103)	600 x 300 dpi
Color	Black & white only

Copy Modes	Text, Photo, Text/Photo	
Gradation		
Copying	Read 10-bit, store 8-bit	
Printing	Process 2-bit, print 1-bit	
Halftones	More than 7 steps	
Zoom Copy		
Zoom Ratio: Fixed		
North America (%)	50, 65, 78, 93, 100, 129, 155, 200	
Other Areas (%)	50, 71, 82, 93, 100, 122, 141, 200	
Zoom Ratio: Custom	25% to 400% (adjusted in 1% steps)	
Copy Quantity	99	
Original size		
Platen book mode (M102)		
Standard	A6 to A4/LT SEF	
Custom (W x L)	216 to 297 mm (8.5 x 11.7 in.)	
ADF book mode (M103)		
Standard	A6 to A4/LT SEF	
Custom	Width: 105 to 216 mm (4.1 x 8.5 in.) Length: 127 to 297 mm (5 x 11.7 in.)	
Maximum size (w x l)	216 x 297 mm (8.5 x 11.7 in.)	
Auto original size detect	None	
Original feed size		
Standard	A6 to A4/LT SEF	
Custom	Width: 90 to 216 mm (3.5 x 8.5 in.) Length: 127 to 297 mm (5 x 11.7 in.)	
Original capacity		

Platen (M102, M103)	1 sheet
ADF (M103 only)	15 sheets
Start reference point (origin)	Book mode: Left upper corner

Copy Area



	Margin	Width (mm)
[A]	Left	3
[B]	Right	3
[C]	Leading	4
[D]	Trailing	4

SADF	None. Scanning begins as soon as platen or ADF is lowered.	
APS	None	
Paper Size Selection	M102	From utility
	M103	From operation panel

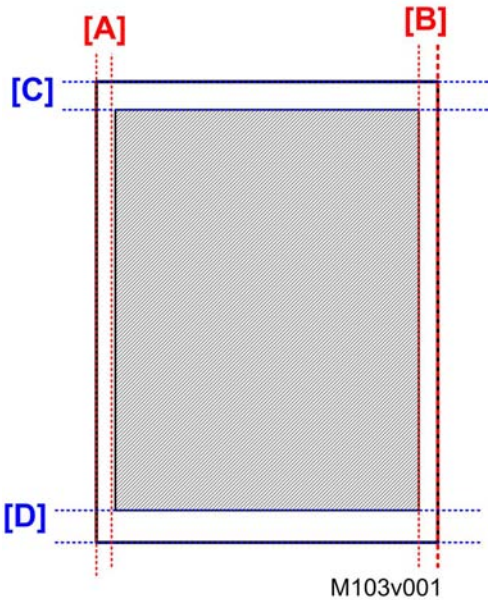
Copy Density Adjustment	M102	3 steps
	M103	4 steps
Manual Density Adjustment	5 notches	

Scanner Specifications (M102, M103)

Type	Scanner/Printer	
Scanning Device	CIS module, driven by belt/gear	
Scanning Speed		
Monochrome	3.9 sec. or less	
Color	7.9 sec. or less (A4 compressed)	
ADF Throughput (M103)	Monochrome	75.3 mm/sec.
	Color	37.6 mm/sec.
ADF Capacity (M103 only)	15 originals 80 g/m ²	
Original Size		
Book Mode	216 x 297 mm (8.5 x 11.7 in.)	
ADF (M103)	216 x 400 mm (8.5 x 15.9 in.)	
Gradation	More than 7 steps	
Zoom Range	Scanning	25 to 400% (custom) 50 to 200% (fixed)
	Copying	25 to 400% (custom) 50 to 200% (fixed)
Scanning Resolution		
ADF	600 x 300 dpi	
Book mode	600 x 600 dpi	
TWAIN application	4800 x 4800 dpi	
WIA application	600 x 600 dpi	

Digitized Output	8-bit
Max. Scanning Area	220 x 300 mm (8 x 12 in.)
Exposure Glass	216 x 297 mm (8.5 x 11.7 in.)
ADF (M103)	216 x 400 mm (8.5 x 15.8 in.)

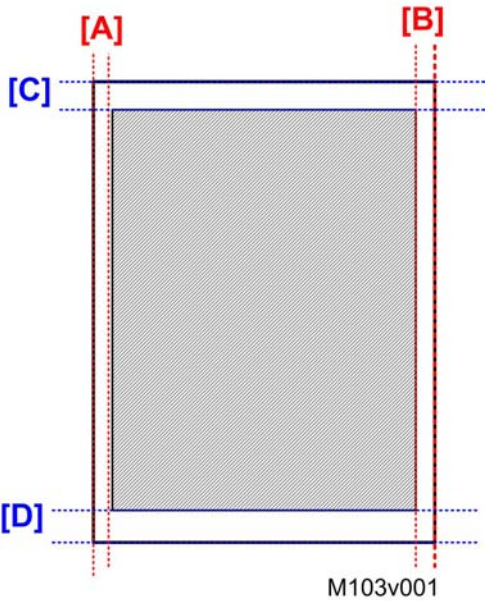
Scan Area



	Margin	Width (mm)
[A]	Left	3.0
[B]	Right	3.0
[C]	Leading	4.1
[D]	Trailing	4.3

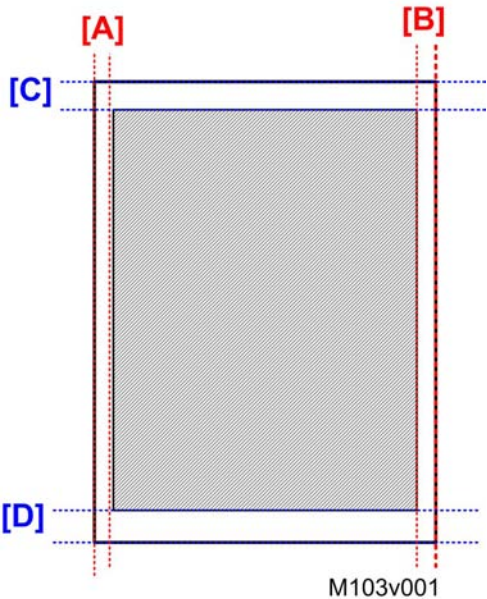
Scan Area: TWAIN Driver Flatbed

1



	Margin	Width (mm)
[A]	Left	0
[B]	Right	0
[C]	Leading	0
[D]	Trailing	0

Scan Area: TWAIN Driver ADF



	Margin	Width (mm)
[A]	Left	0
[B]	Right	0
[C]	Leading	0
[D]	Trailing	2

Main Scan Density	300 dpi, 600 dpi
Grayscale	Supported
PC Interface	USB
Scanner Drivers	WIA, TWAIN
Operating Systems	Windows XP and later

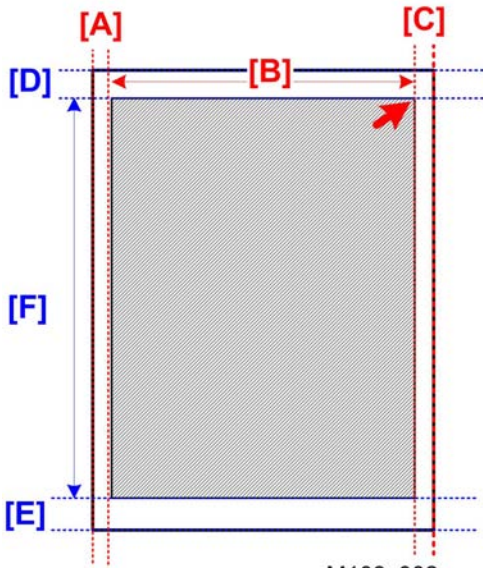
Fax Specifications (M103 Only)

Transmission Speed	
--------------------	--

G3	33.6K 2400 bps auto shift down method		
V.27ter	4800/2400 bps		
V.29	9600/2400 bps		
V.17	14400/12000/9600/7200 bps		
V.34	33600/31200/28800/26400/24000/21600 19200/16800/14400/12000/9600/7200/4800 bps		
Transmission Time	3 sec. (8 dots/mm x 3.85 line/mm 33.6 kbps, MMR, ITU-T Chart 1		
Data Compression Method	MH, MR, MMR		
Resolution (main scan)	600 x 600 dpi		
Fine resolution	CD Direction	FD Direction	
Standard	8 dot/mm	3.85 dot/mm	
Fine	8 dot/mm	7.7 dot/mm	
Photo	8 dot/mm	7.7 dot/mm	
Scan width	A4: 201.6 mm (8 in.) LT: 207.6 mm (8.2 in.)		
Connection	G3 telephone line PSTN/PBX (one connector)		
Main Scan Line Density		CD Dir.	FD Dir.
	Std	8 dot/mm	3.85 dot/mm
	Fine	8 dot/mm	7.7 dot/mm
	Photo	8 dot/mm	7.7 dot/mm
Transmission Line Density	Each scan line width	1729 pixels	
	Max. width	400 mm	
Scanning Selection	Std (Standard), Fine, Photo		
Max. Scan Width	ADF/FB: 210 mm (LT paper)		
Max. Scan Length	ADF: 391.6 mm (400 mm)		

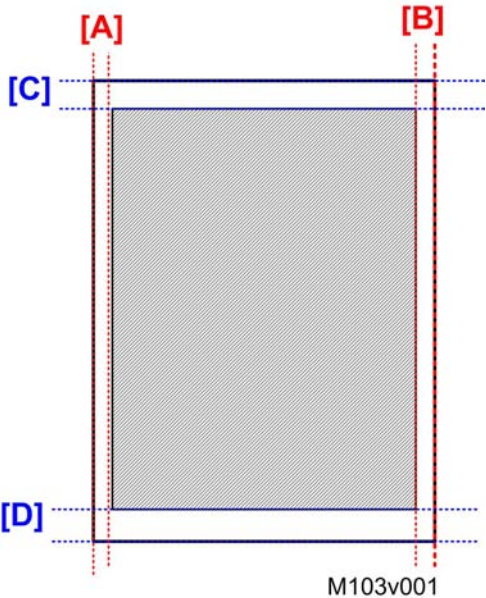
	Flatbed: 288.9 mm (A4 paper)
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Scan Area: Fax from Flatbet



Scanning Method		Area	A4 (mm)	LT (mm)
Flatbed Scanning	[A]	Left margin	3.0	3
	[B]	Scanning width	204	210
	[C]	Right margin	3.0	3
	[D]	Top margin	4.1	4.1
	[E]	Bottom margin	4.0	4.0
	[F]	From top margin	288.9	270.9

Scan Area: Fax from ADF



Scanning Method		Area	All Sizes (mm)
ADF Scanning	[A]	Left margin	3
	[B]	Right margin	3
	[C]	Top margin	4.1
	[D]	Bottom margin	4.1

Scan Image Density	5 levels selectable	
ADF	M103 only (standard)	
Scanning Speed	ADF	20 sec.
	Flatbed	10 sec.
Coding System	MH, MR, MMR	
Memory Capacity	TX	Up to 5 jobs (10 pp./job)
	RX	Up to 5 jobs (100 pp. total)
SAF Memory	500 pages (ITU Chart 1)	
PC Fax	Not supported	

Address Book	Speed dial 100 destinations	
Fax Operation Features	Manual mode, Fax dedicated mode	
Fax/Telephone Select	Manual mode, Fax dedicated mode	
Half-tone/Error Diffusion	Supported for sending	
Memory Display	Memory remaining display	
Smoothing	Implemented	
Dialing	One-touch key	No
	Coded key	Yes (Up to 100 numbers)
Line Monitoring	Yes	
Off-hook Dialing	Yes	
Tone Sending	Yes	
Pause Entry	Yes	
Busy Signal Sound Output	Yes	
Direct Sending	yes	
Memory Sending	Yes	
Turnaround Polling	Yes	
Sequential Sending	Yes	
Page Re-sending	Yes	
TTI	Yes	
Destination Registration	Yes	
TTI	Yes	
TX Reserve	Yes	
ECM	Yes	
Auto RX	Yes	
Memory RX	Yes	
Night RX	Yes	

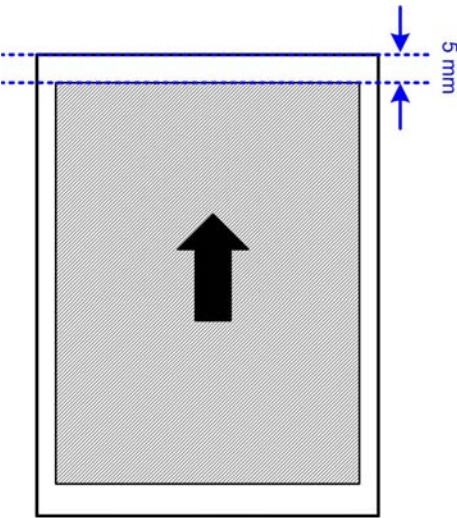
Sound Level Adjustment	Yes
Print at RX	Yes

Reports

There are seven reports that can be printed to provide information about the status of the machine. The table below lists the reports and shows which reports are printed automatically or manually.

No.	Report Name	Auto	Manual
1	Configuration Page	No	Yes
2	Test Page	No	Yes
3	Fax Journal	Yes	Yes
4	TX Status Report	Yes	Yes
5	TX Standby File List	No	Yes
6	Fax Speed Dial List	No	Yes
7	Power Failure Report	Yes	No

Basic Format



M103v003

Every report is the same size. There is a 5 mm margin at the top. The width is the same as A4-size paper and the length is the same as LT-size paper.

Configuration Page

1

The Configuration Page lists the current settings of the machine:

- System reference
- Paper input
- Counter list
- System settings
- Printer features

Note

- For the M102 copier features are listed.
- For the M103 copier and fax features are also listed.

To print the Configuration Page: Start SOM > User Tools > select "Configuration Page" from the List/Test list > click [Print]

M101 Configuration Page

Configuration Page		2011 12/31 23:59	
System Reference		Aficio SP 100	
Machine ID	SRF5600123E		
Firmware Version	033-A1	Bootloader Version	0.05
Engine FW Version	0.09:10		
Paper Input			

M101v006

M101v006

M102 Configuration Page

Configuration Page

2011 12/31 23:59
Aficio SP 100SU

System Reference

Machine ID

Firmware Version

Engine FW Version

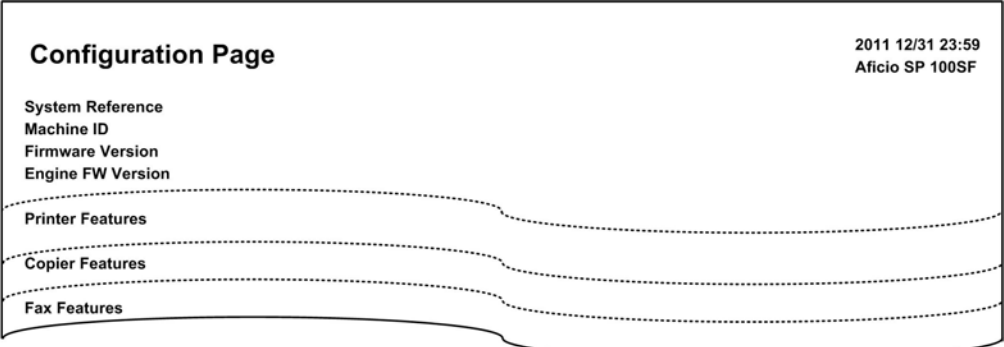
Printer Features

Copier Features

M102v006

M102v006

M103 Configuration Page

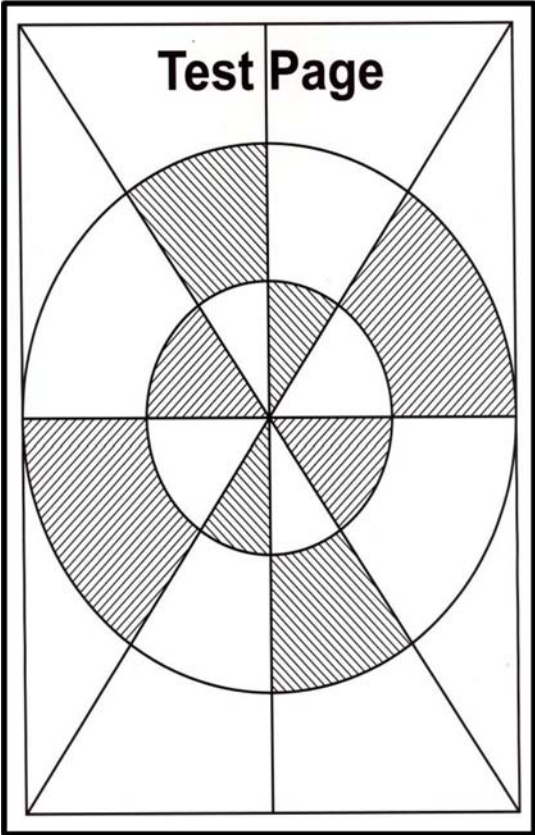


M103v006

Test Page

The Test Page is used to check the results of print position adjustments.

To print the Test Page: Start SOM > User Tools > select "Test Page" from the List/Test list > click [Print]



m103v004

Fax Journal (M103)

The Fax Journal records all TX/RX transactions with the M103 fax feature.

To Print a Fax Journal: Start SOM > User Tools > select "Fax Journal" from the List/Test list > click [Print]

Fax Journal

Fax Journal							
				Date:	2011 12/31 23:59		
				Name:	Meihua		
				Fax Number:	1-666-123-4567		
Date	Time	Destination/Sender	TX/RX	Duration	Pages	Status	File No.
07/01	08:00	666-0000	TX	02' 21	2	OK	001
07/10	09:00	777-0001	RX	03'50	4	OK	002
07/15	10:00	999-0002	TX	04'23	6	Err00A0	003

M103v005

TX Status Report (M103)

The TX Status Report prints and reports the status of each fax transaction. The last record in the list is the most recent.

To Print a TX Status Report: [User Tools] > "Report Print Set" > "TX Status Report"

TX Status Report

TX Status Report						
				Date:	2011 12/31 23:59	
				Name:	Meihua	
				Fax Number:	1-666-123-4567	
File No.	Date	Time	Destination	Pages	Status	Unsent
001	12/31	15:00	666-0000	10	OK	
		15:15	Abcd Company	19	OK	
		17:00	Xyz Company	3	Err2(P.1-3
Err1) Connect. Failed Err2) Line Busy Err3) No Response Err4) Dest. Not Fax Err5) Cancel						
<div>(1st Page Image)</div>						

M103v007

Error Display		
Err1) Connect. Failed		
Err2) Line Busy		
Err3) No Response		
Err4) Dest. Not Fax		
Err5) Cancel		

TX Standby File List (M103)

The TX Standby File List lists all the scanned documents queued in memory for transmission.

To Print a Standby File List: [User Tools] > "Report Print Set" > "TX Standby File List"

TX Standby File List

TX Standby File List						
			Date: 2011 12/31 23:59			
			Name: Meihua			
			Fax Number: 1-666-123-4567			
File No.	Date	Time	Destination	Pages	Status	Unsent
001	12/31	15:00	666-0000	10	Waiting	P.1-10
		15:15	Abcd Company	19	Transmitting	-
		17:00	Xyz Company	3	Waiting	P.1-3

M103v008

Fax Speed Dial List

Lists all the numbers registered by the operator for speed dialing.

To Print a Fax Speed Dial List: [User Tools] > "Report Print Set" > "Fax Speed Dial List"

Fax Speed Dial List

Fax Speed Dial List			P.001
			Date: 2011 12/31 23:59
			Name: Meihua
			Fax Number: 1-666-123-4567
Speed Dial Number	Name	Number	
00	Abcd Company	1-123-4567	
01	Xyz Inc.	456-7890	
03	Lmnop Ltd.	666-7777	

M103v009

Power Failure Report

Fax documents stored in the main memory of the machine for sending, or fax documents that have been received but not printed, will be deleted if the machine is powered off, or if a power failure occurs. This report prints automatically after power is restored to inform the operator about which fax documents were lost before they were sent or printed.

Power Failure Report

Power Failure Report						P.001
						Date: 2011 12/31 23:59
						Name: Meihua
						Fax Number: 1-666-123-4567
File No.	Date	Time	Destination	TX/RX	Pages	
001	12/31	15:00	666-0000	TX	10	
002	12/30	15:15	Abcd Company	TX	19	
003	12/29	17:00	Xyz Company	RX	3	

M103v010

Software Specifications

Smart Organizing Monitor		
Required OS		Windows XP, Windows Server 2003, Windows Vista, Windows Server 2008, Windows 7
	PC Requirements	

Minimum		1 GHz 32-bit or 64-bit processor 1 GB of RAM (32-bit) or 2 GB of system memory (64-bit)
Recommended		1 GHz or faster, 32-bit or 64-bit processor 2 GB of RAM (32-bit) or 4 GB of system memory (64-bit)
	Interface	USB 2.0