Model OP-P/MF

Field Service Manual

April, 2014

Symbols, Terminology

Conventions

Commonly Used Icons for Replacements and Adjustments

Symbol	What it means						
\$	Binding screw (shoulder hexagonal head)						
æ	Binding screw (round flathead)						
*	Black screw (heavy, fusing unit, TCRU)						
	Bushing						
0	C-ring						
CD	Connector						
C	E-ring						
E	FFC (Flat Film Connector)						
E	FFC (Flat Film Connector)						
۲	Gear						
4	Harness clamp						
94	Harness clamp (metal: fusing unit)						
-	Hook (or tab release)						
	Knob screw (black)						
1 2	Knob screw (silver)						
æ	Pivot screw						
P	Screw (common screw)						
a la	Shoulder screw						
1	Spring						

Symbol	What it means					
60	Standoff					
ø	Stud screw					
ì	Tapping screw (wide threads for plastic)					
0	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.

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.

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 (TA) or left/right (IP) 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".

Key Presses

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.

Important Safety Notices

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.

• 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

- 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

- 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

- 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

- 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

- 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.
- 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.

- 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

- 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.
- Do not use a vacuum cleaner to remove spilled toner (including used toner). Vacuumed toner may cause a fire or explosion due to sparks or electrical contact inside the cleaner. However, it is possible to use a cleaner designed to be dust explosion-proof. If toner is spilled over the floor, sweep up spilled toner slowly and clean up any remaining toner with a wet cloth.

- 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.
- 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.
- 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 30m³/hr/person.
- 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.
- 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.

- 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.

\Lambda 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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TABLE OF CONTENTS

Symbols, Terminology	1
Conventions	1
Commonly Used Icons for Replacements and Adjustments	1
Paper Feed: SEF/LEF	2
Smart Organizing Monitor	2
AIO (All In One) Cartridge	3
Key Presses	3
RoHS Compliance	4
Important Safety Notices	5
Warnings, Cautions, Notes	5
General Safety Instructions	5
Responsibilities of the Customer Engineer	6
Customer Engineer	6
Reference Material for Maintenance	6
Before Installation, Maintenance	6
Shipping and Moving the Machine	6
Power	6
Installation, Disassembly, and Adjustments	7
Special Tools	7
During Maintenance	7
General	7
Safety Devices	8
Organic Cleaners	8
Power Plug and Power Cord	8
After Installation, Servicing	9
Disposal of Used Items	9
Points to Confirm with Operators	9
Special Safety Instructions for Toner	
Accidental Physical Exposure	
Handling and Storing Toner	
Toner Disposal	
Safety Instructions for the Machine	11
Prevention of Physical Injury	

Health Safety Conditions	12
Observance of Electrical Safety Standards	12
Safety and Ecological Notes for Disposal	12
Laser Safety	13
Trademarks	13
1. Product Information	
Series Comparison	
OP-P1/MF1	
OP-P1 SFP	
OP-MF1 3in1	
OP-MF1 4in1	23
OP-P2/MF2	
OP-P2 SFP	
OP-MF2 3in 1	
OP-MF2 4in 1	
Layout	
, AIO	
Paper Path Layout	
Drive Layout	
Image Writing	
2. Installation	
Installation Requirements	
Installation Procedure	
Environment	
Power Requirement	
Space Requirements	
Noving the Machine.	35
3. Preventive Maintenance	
DAA Darte	07

4. Replacement and Adjustments

Before You Begin	39
Precautions	39
Special Tools	39

Exterior Covers, Scanner, ADF	
Printer Covers	
Front Cover	40
Right Cover	40
Left Cover	42
Top Cover	43
Rear Cover and Rear Door	
MF Platen Cover, Flatbed scanner, ADF	45
Platen Cover	45
Left Hinge	45
Flatbed Scanner Unit	
MF Inner Cover	
Original Feed Tray	50
ADF / Flatbed Unit	51
Operation Panels	54
Printer Operation Panel	54
OP-MF1 3in1 Operation Panel	54
OP-MF1 4in1 / OP-MF2 Operation Panel	
Laser Unit	
Removing the Laser Unit	
After Replacing the Laser Unit	
Paper Path	60
Paper Feed Roller	60
Friction Pad	62
Paper Transport Roller	63
Image Transfer Roller	65
Paper Exit Roller Unit	68
Fusing Exit Roller	69
Sensors	70
Registration Sensor	
Paper End Sensor	71
Bypass Set Sensor	71
Paper Exit Sensor	72

Main Motor	73
Removing the Main Motor	73
Reinstalling the Main Motor	74
Clutch	75
Paper Feed Clutch	75
Switches	76
Front Door Switch	76
Interlock Switch	77
Fusing Unit	
Separating the Fusing Unit	
Pressure Roller	
Hot Roller, Fusing Lamp	
Thermostat	
Thermistor	
Ground Plate	85
Boards	
SFP Main Board	
3in 1 MF Main Board	86
4in 1 MF Main Board	
After Replacing the Main Board	
4in 1 MF Fax Board	
4in1 MF Fax Speaker	
PSU	
H.V.P.P.	
OP-P1/MF1 Wi-Fi Module	93
OP-P2/MF2 Wi-Fi PCB	94
Scanner Unit	96
ADF	
ADF Friction Pad Ass'y	97
Refilling the AIO	
Before You Begin	
What You Need	
Refill Procedure	

Removing Old Toner	
Filling the AIO with New Toner	
4in1 MF: After Refilling	
5. Maintenance Reference	
- Firmware Update	
Checking the Machine Firmware Version	
OP-P1/MF1 Firmware Update Procedure	
OP-P2/MF2 Firmware Update Procedure	
Service Tables	
OP-P1/MF1 Service Mode	
Service Mode Screen	
OP-P2/MF2 Service Mode	
Enter the Service Mode from SOM	
Enter the Service Mode from Operation panel (MF only)	
Fax Maintenance (4in1 MF only)	
Fax Service Test Menu (4in1 MF only)	
Entering the Fax Service Test Menu	
Exiting the Maintenance Mode Menu	
Menu List	
Reports	
Configuration Page & Maintenance Page (OP-P2/MF2 only)	
Total Counter	
Other Reports	
Test Page	
To Print the Test Page	
Test Pattern Printing (OP-P2/MF2 only)	
To Print the Test Pattern	
6. Troubleshooting	
Service Calls	
Overview	
Fusing Related SC Codes	
SC Tables	
SC1xx: Scanning	

SC2xx: Scanning	
SC4xx: Image Transfer and Transfer Error	
SC5xx: Motor, Fusing Error	
SC6xx: Communication	
SC8xx: Other	
Image Problems	
Overview	
Image Quality Problems	
Jam / Paper Feed Problems	
Other Problems	

7. Energy Saving

Energy Save	147
Energy Save Modes	147
Timer Settings	147
Recommendations	147
Paper Save	149
Effectiveness of Duplex/Combine Functions	149
1. Duplex	149
2. Combine Mode	
3. Duplex + Combine	149
Total Counter	

1. Product Information

Series Comparison

OP-P1/MF1

• Note

- Only 4in1 MF (Multi-Function) has Fax function.
- Only 4in1 MF M***-21 (China model) has Handset.
- Only MF with network interface has Scan2USB function
- All MF has Flatbed scanner.
- * 1: Can continue print by changing "toner end option",
 *2: Cannot print after toner end.
- OP-P1/MF1 only supports GDI printer language.

Machine Product	Product	ame ADF Network Interface Display Refillable ret Fi	Network Interface				Genuine AIO	Starter
Code	Name		e Ether Wi- net Fi	Ether Wi- net Fi	Ketiliadie	Detection	Yield	
M133-21	SP 200	No	No	No	2 LEDs	Yes	No	1.0k
M162-27	SP 200	No	No	No	2 LEDs	Yes	No	1.0k
M209-21	SP 200 Q	No	No	No	2 LEDs	No	No	1.0k
M144-21	SP 200N	No	Yes	No	2 LEDs	Yes	No	1.0k
M163-27	SP 200N	No	Yes	No	2 LEDs	Yes	No	1.0k
M145-27	SP 201N	No	Yes	No	2 LEDs	No	Yes *2	0.7k
M145-17	SP 201N	No	Yes	No	2 LEDs	No	Yes *2	0.7k
M164-27	SP 200Nw	No	Yes	Yes	2 LEDs	Yes	No	1.0k
M146-27	SP 201Nw	No	Yes	Yes	2 LEDs	No	Yes *2	0.7k

OP-P1 SFP

Machine	Product		Netv Inter	work face	— Display	Pofillable	Genuine AIO	Starter
Code	Name	ADI	Ether net	Wi- Fi		Kennuble	Detection	Yield
M146-17	SP 201Nw	No	Yes	Yes	2 LEDs	No	Yes *2	0.7k

OP-MF1 3in1

Machine	Product		Net Inter	work face			Genuine AlO	Starter
Code	Name	ADF	Ether net	Wi- Fi	Display	Kefillable	Detection	Yield
M134-21	SP 200S	No	No	No	2-digit 7-seg	Yes	No	1.0k
M165-27	SP 200S	No	No	No	2-digit 7-seg	Yes	No	1.0k
M210-21	SP 2005 Q	No	No	No	2-digit 7-seg	No	No	1.0k
M147-27	SP 203S	No	No	No	2-digit 7-seg	No	Yes *2	0.7k
M147-17	SP 203S	No	No	No	2-digit 7-seg	No	Yes *2	0.7k
M142-21	SP 2015	No	Yes	No	2-digit 7-seg	Yes	No	1.0k
M191-21	SP 202S	Yes	No	No	2-LINE LCD	Yes	No	1.0k
M166-27	SP 202SN	Yes	Yes	No	2-LINE LCD	Yes	No	1.0k
M148-27	SP 204SN	Yes	Yes	No	2-LINE LCD	No	Yes *2	0.7k
M148-17	SP 204SN	Yes	Yes	No	2-LINE LCD	No	Yes *2	0.7k

OP-MF1 4in1

Machine	Product		Netv Inter	work face	rork ace Display		Genuine AIO	Starter
Code	Name	ADF	Ether net	Wi- Fi	Display	Kefillable	Detection	AIO Yield
M141-21	SP 200SF	No	No	No	2-LINE LCD	Yes	Yes *1	1.0k
M212-21	SP 200SF Q	No	No	No	2-LINE LCD	No	Yes *1	1.0k
M135-21	SP 201SF	Yes	No	No	2-LINE LCD	Yes	Yes *1	1.0k
M211-21	SP 201SF Q	Yes	No	No	2-LINE LCD	No	Yes *1	1.0k
M143-21	SP 202SF	Yes	Yes	No	2-LINE LCD	Yes	Yes *1	1.0k
M167-27	SP 203SF	Yes	No	No	2-LINE LCD	Yes	Yes *1	1.0k
M149-27	SP 204SF	Yes	No	No	2-LINE LCD	No	Yes *1	0.7k
M149-17	SP 204SF	Yes	No	No	2-LINE LCD	No	Yes *1	0.7k
M168-27	SP 203SFN	Yes	Yes	No	2-LINE LCD	Yes	Yes *1	0.7k
M150-27	SP 204SFN	Yes	Yes	No	2-LINE LCD	No	Yes *1	0.7k
M150-17	SP 204SFN	Yes	Yes	No	2-LINE LCD	No	Yes *1	0.7k
M169-27	SP 203SFNw	Yes	Yes	Yes	2-LINE LCD	Yes	Yes *1	1.0k
M151-27	SP 204SFNw	Yes	Yes	Yes	2-LINE LCD	No	Yes *1	0.7k

Machine	Product		Netv Inter	vork face	Display	Pofillable	Genuine AIO	Starter
Code	Name	ADI	Ether net	Wi- Fi	Display	Keimable	Detection	Yield
M151-17	SP 204SFNw	Yes	Yes	Yes	2-LINE LCD	No	Yes *1	0.7k

OP-P2/MF2

Vote

- All MF has Flatbed scanner, 4-line back light LCD display and Scan2USB function.
- All SFP (Single Function Printer) has 3LEDs display.
- Only 4in1 MF M***-21 (China model) has Handset.
- Only 4in1 MF has Fax function.
- All MF has Flatbed scanner.

Machine	Declark	Printer		Netv Inter	vork face		Genuine AIO Toner-	Starter
Code	Product Name	Language	ADF	Ether net	Wi- Fi	Ketillable	end Detection	Yield
M223-21	SP 210	GDI	No	No	No	Yes	No	1.0k
M223-29	SP 210	GDI	No	No	No	Yes	No	1.0k
M223-27	SP 210	GDI	No	No	No	Yes	No	1.0k
M222-21	SP 210 Q	GDI	No	No	No	No	No	1.0k
M222-27	SP 211	GDI	No	No	No	No	Yes *2	0.7k
M248-27	SP 212w	PCL	No	No	Yes	Yes	No	1.0k
M245-27	SP 213w	PCL	No	No	Yes	No	Yes *2	0.7k
M214-21	SP 212Nw	PCL	No	Yes	Yes	Yes	No	1.0k
M214-29	SP 212Nw	PCL	No	Yes	Yes	Yes	No	1.0k

OP-P2 SFP

Machine	Product Name	Printer	Printer		Network Interface		Genuine AIO Toner-	Starter
Code	Troduct Nume	Language	ADI	Ether net	Wi- Fi	Keililäbie	end Detection	Yield
M214-27	SP 212Nw	PCL	No	Yes	Yes	Yes	No	1.0k
M214-17	SP 212Nw	PCL	No	Yes	Yes	Yes	No	1.0k
M213-21	SP 212Nw Q	PCL	No	Yes	Yes	No	No	1.0k
M213-27	SP 213Nw	PCL	No	Yes	Yes	No	Yes *2	0.7k
M213-17	SP 213Nw	PCL	No	Yes	Yes	No	Yes *2	0.7k

OP-MF2 3in1

Machine	Dra duat Nama	Printer		Netw Inter	vork face	Dafilladala	Genuine AIO Toner-	Starter
Code	Product Name	Language	ADF	Ether net	Wi- Fi	Kennapie	end Detection	Yield
M226-21	SP 210SU	GDI	No	No	No	Yes	No	1.0k
M226-29	SP 210SU	GDI	No	No	No	Yes	No	1.0k
M226-27	SP 210SU	GDI	No	No	No	Yes	No	1.0k
M225-21	SP 210SU Q	GDI	No	No	No	No	No	1.0k
M225-27	SP 211SU	GDI	No	No	No	No	Yes *2	0.7k
M232-21	SP 210S	GDI	Yes	No	No	Yes	No	1.0k
M239-21	SP 210S Q	GDI	Yes	No	No	No	No	1.0k
M239-17	SP 211S	GDI	Yes	No	No	No	Yes *2	0.7k
M249-27	SP 212SUw	PCL	No	No	Yes	Yes	No	1.0k
M246-27	SP 213SUw	PCL	No	No	Yes	No	Yes *2	0.7k
M216-21	SP 212SNw	PCL	Yes	Yes	Yes	Yes	No	1.0k
M216-29	SP 212SNw	PCL	Yes	Yes	Yes	Yes	No	1.0k

Machine	Product Name	Printer		Netv Inter	vork face	Pofillable	Genuine AIO Toner-	Starter
Code	Trodoci radile	Language	АЛ	Ether net	Wi- Fi	Kellilable	end Detection	Yield
M216-27	SP 212SNw	PCL	Yes	Yes	Yes	Yes	No	1.0k
M216-17	SP 212SNw	PCL	Yes	Yes	Yes	Yes	No	1.0k
M215-21	SP 212SNw Q	PCL	Yes	Yes	Yes	No	No	1.0k
M215-27	SP 213SNw	PCL	Yes	Yes	Yes	No	Yes *2	0.7k
M215-17	SP 213SNw	PCL	Yes	Yes	Yes	No	Yes *2	0.7k

OP-MF2 4in1

Machine		Printer		Netv Inter	work face		Genuine AIO Toner-	Starter
Code	Product Name	Language	ADF	Ether net	Wi- Fi	Kefillable	end Detection	Yield
M229-21	SP 210SF	GDI	Yes	No	No	Yes	No	1.0k
M240-21	SP 210SF Q	GDI	Yes	No	No	No	No	1.0k
M235-29	SP 210SF	GDI	Yes	No	No	Yes	No	1.0k
M235-27	SP 210SF	GDI	Yes	No	No	Yes	No	1.0k
M230-27	SP 211SF	GDI	Yes	No	No	No	Yes *1	0.7k
M250-27	SP 212SFw	PCL	Yes	No	Yes	Yes	No	1.0k
M247-27	SP 213SFw	PCL	Yes	No	Yes	No	Yes *1	0.7k
M218-21	SP 212SFNw	PCL	Yes	Yes	Yes	Yes	No	1.0k
M241-21	SP 212SFNw Q	PCL	Yes	Yes	Yes	No	No	1.0k
M237-29	SP 212SFNw	PCL	Yes	Yes	Yes	Yes	No	1.0k
M237-27	SP 212SFNw	PCL	Yes	Yes	Yes	Yes	No	1.0k
M237-17	SP 212SFNw	PCL	Yes	Yes	Yes	Yes	No	1.0k

Machine	Product Name	Printer		Net Inter	work face	Dafillahla	Genuine AIO Toner-	Starter
Code	Froduct Indine	Language	ADF	Ether net	Wi- Fi	Kefillable	end Detection	Yield
M217-27	SP 213SFNw	PCL	Yes	Yes	Yes	No	Yes *1	0.7k
M217-17	SP 213SFNw	PCL	Yes	Yes	Yes	No	Yes	0.7k

Layout

AIO



No. No. Part Part Waste Toner Tank Toner Supply Roller 1 7 2 Development Roller 8 Image Transfer Roller 3 Toner Hopper 9 Drum ID Chip Charge Roller 4 10 Cleaning Blade 5 Agitator 11 Agitator Feeler 6

Paper Path Layout



No.	Part	No.	Part
1	Paper Exit Sensor	7	Image Transfer Roller
2	Fusing Exit Roller	8	Registration Sensor
3	Exit Roller	9	Paper
4	Hot Roller	10	Feed Roller
5	Pressure Roller	11	Bypass Set Sensor
6	Drum	12	Paper End Sensor

Drive Layout



No.	Part	No.	Part
1	Main Motor	5	Drum (inside AIO)
2	Gear Train	6	Hot Roller
3	Feed Roller	7	Paper Exit Roller
4	Paper Transport Roller	8	Paper Feed Clutch

Image Writing



No.	Part
1	Registration Sensor
2	Polygon Mirror
3	Lenses, Mirrors
4	Drum
5	Image Transfer Roller

1. Product Information

Installation Requirements

Installation Procedure

This machine is installed by the end user.

For instructions on unpacking the machine, installing the print cartridge (AIO), 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

- 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. Locate the machine on a strong, flat surface. (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 5A or less (Asia/EU)
- 120V 60 Hz 8A or less (North America)

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.

Space Requirements

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


	Space Requirements
А	45 cm (17.8 in.)
В	10 cm (4.0 in.)
С	20 cm (7.9 in.)
D	10 cm (4.0 in.)
E	40 cm (15.8 in.)
F	20 cm (7.9 in.)

Moving the Machine

- 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.

3. Preventive Maintenance

PM Parts

There are no PM Parts and Yield Parts for this machine. All preventive maintenance should be done by the end user. Please refer chapter "Maintaining the Machine" in user guide.

3. Preventive Maintenance

Before You Begin

Precautions

- 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.
- Remove the AIO before disassembling the machine.

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
- A PC to upgrade the firmware
- USB or network cable

Exterior Covers, Scanner, ADF

Printer Covers

Front Cover

- 1. Pull the paper feed tray out of the machine.
- 2. Press in and release either peg on the front cover [A].



Right Cover

Preparation

Remove:

- Front cover
- Feed tray
- 1. Screws [A]



- 2. Stand the machine as shown.
- 3. Locate the triangle marks that show you where the tab releases are located.
 - There are nine tabs on the right cover.
 - There are four tabs on the bottom.
 - There are two tabs on the front, one tab on the top, and two hooks on the back.
- 4. Release the bottom tabs, then the front tabs.
- 5. Open the cover front to back with attention to the rest of the tabs and hooks.

Note

• Do not place the machine vertically for long. It causes oil leaking from the motor.



1. Right Cover

4



Left Cover

Preparation

Remove:

- Front cover
- Feed tray
- 1. Screws [A]



- 2. Stand the machine as shown.
- 3. Locate the triangle marks that show you where the tab releases are located.
 - Twelve tabs on the left cover.
 - Four tabs on the bottom.

- Two tabs on the front, three tabs on the top, and three tabs on the back.
- 4. Release the bottom tabs, then the front tabs.
- 5. Open the cover front to back with attention to the rest of the tabs.



6. Left Cover



Top Cover

Preparation

Remove:

- Front Cover
- Right Cover
- Left Cover



Rear Cover and Rear Door

Preparation

Remove:

- Left Cover
- Right Cover
- 1. Rear Cover [A]. (🌶 x 2, 🔽 x 2)



Note

• The red arrows in the picture above indicate where the hooks are.

2. Rear Door [A] (peg x 2)



MF Platen Cover, Flatbed scanner, ADF

Platen Cover

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





Left Hinge

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

Preparation

Remove:

- Left Cover.
- Feed Tray.
- 1. Release the spring [A].



m1332017.jpg

- 2. Stand the machine as shown below.
- 3. Release the hook [A].



- 4. Release the hook [A] to separate the boss [B] from the flatbed unit slightly.
- 5. Release the hook [C] to detach the guide which connects to the hinge.

Note

• Without step No. 4, the hook [C] cannot release due to the boss [B].



6. Detach the hinge [A] from the guide [B].



m1332026.jpg

7. Bend and release the joint part with a screwdriver to detach the hinge.



47

4

• Note

- Bend the hinge carefully not to break it.
- 8. Left Hinge



m1332110.jpg

Flatbed Scanner Unit

Preparation

Remove:

- Platen Cover
- Front Cover
- Right Cover
- Left Cover
- Rear Cover
- Detach the Left Hinge from the Guide
- 1. Disconnect the FFCs and the connector on the main board. (💷 x 2, 📬 x 1).



• Note

- To disconnect the FFC on the left corner, remove the screw at the back to move the cover out. (The cover is also hooked at the bottom, so release it.)
- 2. Raise the cover as shown below and pull it out of the hinges.



3. Flatbed Scanner Unit.



m1332089

MF Inner Cover

4

Preparation Remove:

- Front Cover
- Right Cover
- Left Cover
- Rear Cover
- Detach ADF / Flatbed Unit from the machine

Inner Cover [A] (**T** x 4)



Original Feed Tray

- 1. Open the covers [A] and keep on.
- 2. Press in and release either peg on each end of the tray.



ADF / Flatbed Unit

Preparation

Remove:

- Front Cover
- Right Cover
- Left Cover
- Detach the Left Hinge from the Guide
- 1. Disconnect the FFCs and the connectors [A]. (💷 x 2, 📬 x 3).
- 2. Disconnect the ground wire [B]. (🎤 x1)



Vote

- To disconnect the FFCs and the ground wire on the corner, remove the screw at the back to move the cover out. (The cover is also hooked at the bottom, so release it.)
- 3. Raise the cover as shown below and pull it out of the hinges.



- 4. Pull the ADF out of the flatbed unit.
- 5. Pull the harnesses through the rear corner of the flatbed unit.



- A latch will get stuck when you try to pull the ADF out. So tilt the ADF backward to let it out while pulling.
- 6. ADF / Flatbed Unit.



m103r022

4

Operation Panels

Printer Operation Panel

Preparation

- Top cover
- 1. Lay the top cover upside down.
- 2. Operation panel PCB (🌶 x 2).



OP-MF1 3in1 Operation Panel

Operation Panel

- 1. Remove the platen cover.
- 2. Insert a screwdriver into the hole and press it downward to take the latch off as shown [1] while pushing firmly toward the front of the machine [2] until you hear it click and release.



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





4. Turn the operation panel over, and then disconnect the flat cable (💷 x 1).



m102r034

Panel Cover

Panel Cover [A] can be detached in the same manner as the other MF without disconnection.



OP-MF1 4in1 / OP-MF2 Operation Panel

- 1. Raise the ADF/flatbed unit.
- 2. OP-MF1: Insert a flat-blade screwdriver while pushing either side of the latches [A] to release the hooks [B]. (× 5)

OP-MF2: Detach the screw [A] on both sides, then release the hooks [B] (array x 2,
array x 3)



- 3. Pull the operation panel.
- 4. Disconnect the FFC [A]. (💷 x 1)



5. Operation Panel



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

Remove:

- Top cover / Inner Cover
- 1. Detach the screws [circles] and the connectors [arrows]. (🌶 x 5, 📬 x 3)



2. Laser Unit



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. Adjust the Factory Registration settings in service mode if necessary.

Paper Path

Preparation

Remove:

- Top cover / Inner Cover
- Main Board
- Laser Unit

Paper Feed Roller

Note

- To detach the paper feed roller, the paper feed clutch that is attached to the end of the paper feed roller shaft must be removed first.
- 1. Gear cover [A] (🌶 x 8).



- One of the screws is hidden at the back of the main motor cover [B].
- 2. Detach the gear [A] to take the paper feed clutch [B] off.

4



3. Release the right end of the shaft [A].



Note

- To release the shaft, pull the shaft [1] to bend it while pushing to the left [2] to let the latch in the area of the film [B] out from the notch which is carved in the shaft.
- 4. Slide the paper feed roller out.



5. Paper Feed Roller.



Friction Pad

- 1. Pull the feed tray out.
- 2. Detach the friction pad [A] from the feed tray. (🔽 x 2).



3. Friction Pad



Paper Transport Roller

Preparation

- Gear Cover
- 1. Gear [A] on the paper transport roller shaft.



2. Open the roller cover [A].



- 3. E-ring [A] on the left side end of the shaft.
- 4. Slide the shaft to the left and release the right end. Then pull it out.



5. Paper Transport Roller



Image Transfer Roller

Preparation

- Laser Unit
- 1. Before you remove the Image transfer roller:
 - The collar on the right end of the roller [A] is black.
 - The collar on the left end of the roller [B] is white.
 - The Image transfer roller must be installed the same way, with the black collar on the right and the white collar on the left.



2. The collars are set in grooves. Pull up on both ends of the Image transfer roller [A] and [B] to free the collars.



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





• If you are replacing the Image transfer roller, keep these springs. New springs may not be provided with the new Image transfer roller.

Re-installation

- 1. Clean the charge plates [A] on the side where the right end of the roller will be re-installed. The spring will be re-attached over the peg [B].
- 2. After re-installing the Image transfer roller, press and release the Image transfer roller several times to confirm that the roller bounces up and down evenly.







Note

- 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 Image transfer roller and re-install it. Make sure each spring is set onto the metal peg on both sides.

Paper Exit Roller Unit

1. Remove Exit Roller Unit [A]



m1332021.jpg

2. Paper Exit Sensor [A] (🖾 x 1, 🔽 x 3)



m1455509

Fusing Exit Roller

Preparation

- 1. Detach the fusing exit roller unit from the machine.
- 2. Bend the shaft carefully to take the left end [A] off.
- 3. Turn the roller until you see the flat side of the roller shaft facing up, and pull the right side [B] out.



Sensors

Registration Sensor

Preparation

Remove:

- AIO
- Feed Tray
- 1. Raise the machine so you can see the bottom.
- 2. Bottom Cover [A] (**T** x 4).



3. Registration Sensor [A] (🖾 x 1, 🔽 x 3)


4

Paper End Sensor

Preparation

Remove:

- AIO.
- Feed Tray.
- Bottom Cover

Paper End Sensor [A] (🖾 x 1, 🔽 x 3)



Bypass Set Sensor

Preparation

Remove:

- Left Cover
- 1. Stand the machine as shown below.
- 2. Release the hooks while keeping the feeler [A] out.



- To release the hooks, access with a screwdriver from the indicated area [B].
- 3. Bypass Set Sensor (🗂 x 1)



Paper Exit Sensor

See "Paper Exit Roller Unit".

Main Motor

Removing the Main Motor

Preparation

Remove:

- Main Board
- Fax Board
- Gear Cover
- 1. All of the gears [A] (x 1)
- 2. Screws [B]



3. Main Motor (🖾 x 1)



Reinstalling the Main Motor

1. Match boss [A] with the hole [B] in the gear cover. This aligns the holes correctly for re-attachment of the motor to the gear cover.





m1332062.jpg

Clutch

Paper Feed Clutch

See "Paper Feed Roller".

Switches

Front Door Switch

Preparation

Remove:

- Left Cover
- 1. Disconnect the harness [A] on the main board.



2. Screw [A]



3. Front Door Switch (🖾 x 2)



Interlock Switch

Preparation

Remove:

• Main Board

Interlock Switch [A] (🎤 x 1, 📬 x 2)



Fusing Unit

Separating the Fusing Unit

Preparation

- Paper Exit Roller Unit
- 1. Screw [A] on the right side.
- 2. Ground Wire [B]. (🌶 x 1)
- 3. Release the spring [C].



4. Screw [A] on the top side.



m1455505

5. Disconnect the fusing unit harness [A].



m1332024.jpg

6. Fusing Unit [A] (🌶 x 6, 📬 x 1)



m1455508

- 7. Release the springs [A].
- 8. Arms [B] on both ends.



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

- 9. Screws [A].
- 10. Ground plate [B]. (🌶 x 2)



11. Separate the Fusing Unit.



🔂 Important

• Be sure to prevent the springs or pawls [A] from falling off and becoming lost.

Pressure Roller

Preparation

- Fusing Unit
- Separate the fusing unit

81

4

- 1. Pull the pressure roller [A] out as shown.
- 2. Lay the roller on a flat clean surface.



Content (1997)

• Do not touch the surface of the pressure roller with your fingers or bare hands. Wipe the surface with a clean dry cloth If the roller needs cleaning.

Hot Roller, Fusing Lamp

Preparation

Remove:

- Fusing Unit
- Separate the top and bottom halves of the fusing unit
- 1. Screws [A].



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



m101r080

🔁 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.
- 3. Pull the fusing lamp slowly out of the left end of the hot roller.



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



d1332133

🔁 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

Remove:

- Fusing Unit
- 1. Cover [A] (🔊 x 1)
- 2. Thermostat [B] (🌶 x 2).



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

Vote

• Two thermistors are installed in this machine.

Preparation

• Fusing Unit

Thermistor [A] (🎤 x 1 each)



• Before removing each thermistor, remember how the thermistors touch the hot roller. The tips are pointing upward.

Ground Plate

See "page 78".



Boards

RTB 11 Things to do before replacing the main board

🔁 Important

• Since there are no removable RAMs on the board, enter the SP mode to output reports (Service Date List, Fax Dial List, and Fax Speed Dial List) before doing the replacement. Refer to these reports when making settings after replacement.

SFP Main Board

Preparation

Remove:

- Rear Cover
- 1. Disconnect all of the harnesses on the main board.



2. Main Board (*k* x 4 on the corner)

Vote

• To access the screw at the left corner of the board, you need to remove the left, the right, and the rear cover.

3in1 MF Main Board

Preparation

Remove:

- Rear Cover
- 1. Disconnect all of the harnesses on the main board.



OP-MF1

m2161003

2. Main Board (*k* x 4 on the corner)

Note

• OP-MF2: Be sure to re-connect the ground wire at the upper left corner.

4in1 MF Main Board

Preparation

Remove:

- Rear Cover
- 1. Disconnect all of the harnesses on the main board.



OP-MF1

OP-MF2

m2161004

2. Main Board (🔊 x4 on the corner)

• Note

• Be sure to re-connect the ground wire at the upper left corner.

After Replacing the Main Board RTB 11: Section replaced

Do the procedures below after replacing the main board.

- 1. Start Smart Organizing Monitor, then enter the service mode..
- 2. 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.
Factory Registration	Restores factory setting for horizontal alignment of the image area.
	Restores factory setting for vertical alignment of the image area.

4in1 MF Fax Board

Preparation

Remove:

• Left Cover

Fax Board (🎤 x 3, 📬 x 1, 匡 x 1)



m2161005

4

Note

• The Fax Speaker connector of OP-MF2 is on the Main Board. You do not need to disconnect it if only the Fax Board needs to be replaced.

4in1 MF Fax Speaker

The fax speaker is installed on the other side of the fax board (right side).

Preparation

Remove:

- Right Cover
- Inner Cover

Fax Speaker (🎤 x 2, 📬 x 1, 😂 x 1)



PSU

Preparation

Remove:

- Right Cover
- Top Cover / Inner Cover
- 1. Separate the PSU cover [A] slightly from the machine. (🌶 x6, 💉 x1)



m1455506

2. Disconnect the harnesses on the PSU to separate it completely.



3. PSU (🌶 x 4)



H.V.P.P.

Preparation

Remove:

- Right Cover
- 1. H.V.P.P. (Back face) [A] (🌶 x 5, 🖋 x 1 🔽 x 1)



2. H.V.P.P. (🗂 x 1)



AIO Terminals

There are four AIO springs but only three terminal nodes [A] (the black one doesn't have a terminal node).



Re-installation

1. Be sure to re-attach the black spring at [A], and then the other springs with the terminal nodes in the other holes.



2. When you re-install the board, make sure that the edge tabs are inserted into the bottom slots.



OP-P1/MF1 Wi-Fi Module

Preparation

Remove:

- Right Cover
- 1. Wi-Fi Module [A] (🌶 x 2)



4

m1461007

To replace Wi-Fi Module harness

- 1. Remove Left Cover
- 2. Disconnect the connector Wi-Fi module connector [A] and Scan2USB Connector [B] on the main board unit.



m1461008

• Note

• Remove inner cover to replace the harness easily.

OP-P2/MF2 Wi-Fi PCB

Preparation

Remove:

• Left Cover

4

1. Wi-Fi Board [A] (🗂 x 1, 🔽 x 1)



m2161006

To Replace Wi-Fi PCB harness

1. Disconnect the connector [B] on the main board.

Scanner Unit

There are no serviceable parts in the Scanner Unit. If other part malfunctions occur, replace the whole Scanner Unit.

ADF

The only serviceable part in the ADF is the original tray cover and pad ass'y. If other part malfunctions occur, replace the whole ADF.

ADF Friction Pad Ass'y

ADF Friction Pad Ass'y [A] (🔽 x 2)



OP-MF1



OP-MF2

m2161007

4

Refilling the AIO

Before You Begin

Note

- The refilling procedure should be performed by a trained technician.
- Do not refill one AIO over three times because of the life limit of OPC drum and the capacity of waste toner tank.
- There is no refill counter. Ask the user or see the total counter to estimate how many times it has been refilled.

What You Need



m1333087

No.	ltem
1	Scissors
2	Funnel
3	Flathead (-) screwdriver
4	Toner Pack

No.	ltem
5	Gloves
6	Gauze Mask

Refill Procedure

Removing Old Toner

Vote

- Please skip if the AIO doesn't have the square cap.
- 1. Spread some newspaper on a flat surface.
- 2. Remove the square cap [A] of the waste toner tank.



m1333088

- 3. Hold the AIO on its end and shake it to dump the waste toner out of the square port.
- 4. Shake the AIO gently to remove all the waste toner.



m1333089

5. Re-attach the square cap of the waste toner port.



m1333090



• Always obey the local laws and regulations regarding the disposal of items such as the waste toner.

• To avoid a fire hazard and personal injury, never incinerate waste toner.

Filling the AIO with New Toner

1. Remove the round cap of the toner supply tank with a screwdriver.



m1333091

2. Use scissors to cut off one small part of a corner of the toner pack as shown below. The cut should be about 10 to 16 mm long (about 1/2 in.).



m1333092



• The cut must be small. Cutting large a hole will cause toner to scatter.

- 3. Raise the end of the AIO about 30 degrees by placing something under the toner supply tank as shown below.
- 4. Insert the tip of the funnel in the port of the toner supply tank.



m1333093

🔿 Important

- You must hold the funnel to prevent the tip of the funnel from touching and damaging components inside the AIO.
- 5. Work carefully. Never allow toner to fall into the open slot where the green surface of the drum is exposed.



m1333094

- 6. Slowly pour the toner from the pack [A] into the mouth of the funnel.
 - Pour the toner slowly to prevent it from clumping the neck of the funnel.
 - If the toner flow stops, use the tip of the screwdriver [B] to stir the toner gently so it falls through the neck of the funnel.



m1333095

7. Re-attach the round cap of the toner supply tank.



m1333096

4in1 MF: After Refilling

Set **[User Tools]** > **Toner End Option** to **Continue Printing**. The remaining toner level will not be detected any more.

4

5. Maintenance Reference

Firmware Update

OP-P1/MF1: Controller Firmware

Firmware	Destination	Product Name	FW Type
Controller for 4in1 MF1	Others	SP 203SF	4in1 type-C
	Others	SP 204SF	
	CHINA	SP 200SF	4in1 type-A
	CHINA	SP 200SF Q	
	CHINA	SP 201SF	
	CHINA	SP 201SF Q	
	CHINA	SP 202SF	4in1 type-B
	Others	SP 203SFN	
	Others	SP 204SFN	
	Others	SP 203SFNw	4in1 type-D
	Others	SP 204SFNw	
	Others	SP 2005	3in1 type-D
Controller for 3in1 MF1	Others	SP 203S	
	CHINA	SP 2005	
	CHINA	SP 2005 Q	3inT type-A
	CHINA	SP 2015	3in1 type-B
	Others	SP 202SN	3in1 type-C
	Others	SP 204SN	
	CHINA	SP 202S	3in1 type-E

Firmware	Destination	Product Name	FW Type
Controller for P1	Others	SP 200	Printer type-C
	CHINA	SP 200	Printer type-A
	CHINA	SP 200 Q	
	CHINA	SP 200N	Printer type-B
	Others	SP 200N	
	Others	SP 201N	
	Others	SP 200Nw	Printer type-D
	Others	SP 201Nw	

OP-P1/MF1: Engine Firmware

Firmware	Destination	
En sin a Einennaa	All CHINA models	
Engine Filmware	All Other models	

Vote

- Firmware for OP-P1/MF1 is provided as a ".dwn" file which can be recognized by SOM.
- Different machines using different firmware may have the same product name. Please check the machine's destination then download the correct firmware.
- An Engine Firmware upgrade failure may trigger an SC which can only be cleared by replacing the main board. Please make sure to use the correct firmware, update it in READY mode, don't cut the power, don't unplug the USB cable, and don't do any other operation during the update.
- The machine needs to be rebooted manually after update is complete. Please follow the instructions of SOM or on the display.

OP-P2/MF2
Model	GDI/PCL	Product Name	FW Type			
		SP 210SF				
	GDI	SP 210SF Q	Package 1			
		SP 211SF				
4:-1 ME2		SP 212SFNw				
		SP 212SFNw Q				
	PCL	SP 213SFNw	w Package 1 w Package 2 w Package 1 Q Package 1			
		SP 212SFw				
		SP 213SFw				
		SP 210SU				
		SP 213SFw SP 210SU SP 210SU Q SP 211SU Package 1				
	GDI	SP 211SU	Package 1			
		SP 2105				
2:-1 МЕО		SP 2105 Q	Package 1 Package 2 Package 1 Package 3			
3in1 MF2		SP 212SNw				
		SP 212SNw Q				
	PCL	SP 210SU SP 210SU Q SP 211SU SP 210S SP 210S Q SP 212SNw SP 212SNw Q SP 213SNw SP 212SU Package 3				
		SP 212SU				
		SP 213SU				

Model	GDI/PCL	Product Name	FW Type
		SP 210	
	GDI	SP 210 Q	Package 4
		SP 211	-
		SP 212w	
P2 PCL SP 213w SP 212Nw SP 212Nw Q		SP 213w	Package 5
	PCL	SP 212Nw	
	SP 212Nw Q		
		SP 213Nw	

• Note

- Firmware for OP-P2/MF2 is provided as a executable file.
- The machine power will turn off/on automatically after update is complete. Please don't cut the power, unplug the cable, or do any other operation during the update.

Checking the Machine Firmware Version

Print a Configuration Page before and after updating the firmware.

OP-P1/MF1 Firmware Update Procedure

- 1. Download the firmware file.
- 2. Start Smart Organizing Monitor.
- 3. Click the [User Tools] tab, and then click [Printer Configuration].
- 4. Click [Printer Firmware Update].
- 5. Click [OK].
- 6. Specify the location of the ".dwn" file, and then click [Open].
- 7. A message will alert you if the wrong file is selected.

Display on the machine

Display	During the update	After update completed
2-line LCD Display	"UPDATING FIRMWARE" and a progress indicator.	"UPDATE IS COMPLETE TURN POWER OFF -> ON""
2-digit 7-Seg LED display	"UF"	"OF"
2 LED Display	Power LED "blinks".	Power LED "lights".

Note

- Instruction messages will be displayed in SOM.
- Controller FW updating takes about 20 sec.
- Engine FW updating takes about 4 to 5 min.

OP-P2/MF2 Firmware Update Procedure

- 1. Download the firmware file.
- 2. Click the "FWUpdateTool.exe" file to execute the updating program.
- 3. Check the information, and then click [OK].
- 4. For a USB connection, click "F/W Update (USB)". For a network connection, enter the machine's IP address in "Machine IP", and then click "F/W Update (NET)".

mware Update for Users v	0.06
F/W Update (USB)	F/W Update (NET)
Machine IP:	
Never turn off the engine po The firmware has been updat *** Please wait until the ma message appears on the cor	ower before the red. uchine has restarted. *** nsole.
(Close
	m21610

5. The machine will reboot automatically after updating is complete.

Vote

- "Wrong Model." will be displayed if the firmware is not the correct one for the machine.
- The updating takes maximum 5 min. depending on the F/W version and the network condition.

Service Tables

OP-P1/MF1 Service Mode

Service Mode Screen

The Service Mode is opened from inside the SOM (Smart Organizing Monitor). Please refer the TTP or ask your supervisor for the access code.

Service	Mode								×
Engine	Maintenance		Controller Ma	aincenance	60	Counter Information	(m	Error History	
1 Fuse	r SC Detect:	On 💌	(11) CCD Main Z	oom: 100.0	0	Firmware Version:2012/12/14 V0.01	9	SC Log SC670	
2 Fuse	r Temperature:	0	12 CCD Sub Zo	ion: 100.0		Print Total:67 Scan Total:0 Ed Color:0		Error Log	
3 Seria	l No:	22222222222	(13) CCD Main R	eçist: 0.0		Black:0			
4 Desti	ination:	NA	14 CCD Sub Re	egist: 0.0		Printer:0			
5 Bran	d ID:	RJCOH-E	(15) ADF Sub Zo	on: 100.0		Copier:0 Scanner:0			
6 PriP /	Name:	SP 2025F	(16) ADF Main R	egist: 0.0		Full Color:0 Black:0 Fax:0			
7 Des!	Mode:	0 💌	(17) ADF Sub Re	ngist: 0.0		Transmission:0 Reception:0			
8)5. M	ode:	0 .	0			Jam Total:0			
9 Subs	can Mag.:	0				«	1	1	
22 Ener	gy Saver Mode 2:	off 💌						7	
10 Fact	ory Registration		1	It is not dis	play	yed when the connect	ed		
Tray	1 Horizontal:	n -		device is C	hina	a USB model device.			
	Vertical:	0		Not includir	ng N	/IF1a.			
Вура	ss Horizontal:	0	10					-	
	Vertical:	0	10 F	user SC Reset					
			(19) F	actory Default		OK		Cancel	Apply
								m1461	006.png

	Fuser SC Detect
(1)	Detects Fuser SC or not. Keep it "On" to ensure safe operation of the machine.
(2)	Fuser Temperature
(2)	Adjust target fusing temperature. [0 to 40/0/1 1°C steps] *Not functional
(2)	Serial No.
(3)	The serial number of the machine. Length: 11 characters.

	Destination			
	This selection affects the following options			
(4)	 Units of measure. Inches in NA millimeters in all other areas. 			
	 Default paper size. LT in NA and A4 for all other areas. 			
	Fixed steps for reduction/enlargement (see Specifications).			
(5)	Brand ID			
(5)	Only Ricoh can be set.			
	PnP Name			
(6)	This facilitates the discovery of configuration, or user interve	of the mach ntion in res	nine, without the need for physical device solving resource conflicts.	
	Des(Destination) Mode			
(7)	Affects the Supply control routine			
V* 1	0: For emerging countries.			
	1: For developed countries.			
	S Mode			
(8)	Application settings for unexpected problems or other future use.			
(0)	Ignore this setting and do not change it.			
	[0 to 255/0/1 step]			
(0)	Subscan Magnification			
(7)	[-8 to 8/0/1(0.1%) step]			
	Factory Registration			
(10)	The image registration settings.			
(10)	Horizontal	[-40 to 40	0 / 0 / 1 mm steps]	
	Vertical	[-40 to 40	0 / 0 / 1 mm steps]	
	CCD Main Zoom		OP-MF1	
(11)	Adjusts magnification in the horizontal direction (main scan direction), perpendicular to the direction of paper feed [98 to 102/0.4% steps]		direction (main scan direction), perpendicular to the	

	CCD Sub Zoom	OP-MF1	
(12)	Adjusts magnification in the vertical direction (sub scan direction), parallel to the direction of paper feed. [98 to 102 / 0.4% steps]		
	CCD Main Regist	OP-MF1	
(13)	Adjusts the scan start position in the main scan direction. [-5 to 5/0.5 mm steps]		
	CCD Sub Regist OP-MF1		
(14)	Adjusts the scan start position in the sub scan direction. [-5 to 5/0.5 mm steps]		
	ADF Sub Zoom	OP-MF1	
(15)	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]		
	ADF Main Regist	OP-MF1	
(16)	Adjusts the magnification of the image i fed from the ADF. [-5 to 5/0.5 mm steps]	n the main scan direction copied from an original	

	ADF Sub Regist	OP-MF1		
(17)	7) Adjusts the magnification of the image in the sub scan direction copied from an original fer from the ADF.			
[-5 to 5/0.5 mm steps]				
	Fuser SC Reset			
(18)	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.			

Factory Default

The function clears all logs and returns all settings to their default settings. The settings that are returned to their factory defaults include:

- Counters (Except the total counter)
- Error Log (SC codes)
- Print Log
- (19) Fax TX/RX Log
 - Image Data for Faxes (TX/RX)
 - Report Images
 - Fax Speed Dial List
 - User Tool Settings
 - Service Mode settings
 - Fax Maintenance (fax-related service mode settings).

	Counter Information			
	ltem	Printer	3in1 MF	4in1 MF
	Print Total	Yes	Yes	Yes
	Scan Total	No	Yes	Yes
	Full Color	No	Yes	Yes
	• Black	No	Yes	Yes
	• ADF Scan	No	No	Yes
(00)	Printer	Yes	Yes	Yes
(20)	Copier	No	Yes	Yes
	Scanner	No	Yes	Yes
	Full Color	No	Yes	Yes
	• Black	No	Yes	Yes
	Fax	No	No	Yes
	Transmission	No	No	Yes
	Reception	No	No	Yes
	Jam Total	Yes	Yes	Yes

• Note

- **Print Total.** : Count-up is done at the time of image writing. So in this machine, count-up is done even when jam detection occurs after writing. This process differs from existing machines, where count-up is done after printed-paper ejection.
- Scan Total. : The scan counter increments every time an original is scanned on the exposure glass or by ADF original feed. 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

Error History

There are two classes of errors: The "SC Log" and the "Error Log".

- The "SC Log" displays the numbers of the latest 8 errors. The errors are listed by their "SC" (Service Code) number.
- The "Error Log" lists the 8 most recent error results cleared by cycling the machine off/on. (See list below.)

	Engine Error	Display
(21)	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

Energy Saver Mode 2

- 1. For the China USB Version Utility, this item does not exist.
- 2. For CNW and Wi-Fi Version Utility:
 - When the connected device is China USB model device (Not including MF1a), this item is not displayed.
 - When the connected device is not China USB model device, this item is displayed and can be set.
- 3. Set the main control of energy saver mode 2. This setting does not affect the energy saver mode 2 setting in System tab.
- 4. When the machine becomes disconnected, this setting will disable.
- 5. This setting is not interacted with the setting of Energy Save Mode 2 in the System tab.
- 6. Please refer to 2.1. System Setting in COPA User Tool Specification for the condition that the device will enter energy saver mode 2.
- [On or Off/Based on the device setting/-]

(22)

OP-P2/MF2 Service Mode

Enter the Service Mode from SOM

The Service Mode is opened from inside the Smart Organizing Monitor. Please refer the TTP or ask your supervisor for the access code.

er input maintenance : Tray 1 Horizontal: 0 Vertical: Plain Paper: 0	Bypass Tray Horizontal: 0 + Vertical: + Plain Paper: 0 +	Plain Paper: 177 Thick Paper: 187 - Thin Paper: 170 - Recycled: 175	
SC559 Detection: AIO Type: Destination:	Off Refill CMINA	Jan Lounter Total Jan O Tray 1 Jan O Bypass Tray Jan O Inner Jan O Outer Jan O Counter Information	
Na 19. Serial No. : DL Menu: Sub Scan Magnification:	0 0 0 0 0 0	Factory Default for Service Print Test Pattern Reset Fusing Unit SC	
pecial Mode:	<u>ه</u>	Auto IP Setting:	

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SP modes are displayed when a service access code is input.

The SP mode sheet only supports English. Other multi-language SP mode sheets will display in English. For GDI models, the unsupported items such as "PDL Menu", "Auto IP" will be hidden. The GUI will be as follows:

	Horizontal	Adjusts the horizontal registration for tray 1. If the machine settings are reset to the factory defaults, this value does not change. [-40 to 40 / 0 (Default) / 0.1 mm/step]
Registration: tray t	Vertical: Plain Paper	Adjusts the vertical registration of plain paper for tray 1. If the machine settings are reset to the factory defaults, this value does not change. [-40 to 40 / 15 (Default) / 0.1 mm/step]

Registration: Bypass Tray	Horizontal	Adjusts the horizontal registration for the bypass tray. If the machine settings are reset to the factory defaults, this value does not change. [-40 to 40 / 0 (Default) / 0.1 mm/step]
	Vertical: Plain Paper	Adjusts the vertical registration of plain paper for the bypass tray. If the machine settings are reset to the factory defaults, this value does not change. [-40 to 40 / 0 (Default) / 0.1 mm/step]
SC559 Detection	[On or Off (Default)]	
Auto IP Setting (PCL model only)	[On [Default] or Off]	
АЮ Туре	[Refill or Non-refill]	
Destination	Sets the destination and updates the engine setting. (Factory use.) DOM / NA / EU / ASIA / CHN	
PnP ID	11 / 13 / 14 (Factory use)	
Serial No.	11 characters	
PDL Menu	PCL model only [On (Default) or Off]	
Sub Scan Magnification	[-8 to 8 / 0(Default) / 1	step]
Special Mode	(Factory use)	

Fusing Temperature	Plain Paper	Adjusts the fusing temperature for plain paper. [152 to 192 / 177 (Default) / 1°C/step]	
	Thick Paper	Adjusts the fusing temperature for thick paper. [140 to 180 / 170 (Default) / 1°C/step]	
	Thin Paper	Adjusts the fusing temperature for thin paper. [140 to 180 / 170 (Default) / 5°C/step]	
	Recycled	Adjusts the fusing temperature for recycled paper. [145 to 185 / 175 (Default) / 5°C/step]	
	Low Power Mode	Adjusts the fusing temperature in the low power mode. [80 to 135 / 120 (Default) / 5°C/step]	
	Displays Jam Counters for each location.		
Jam Counter	Total Jam, Tray 1 Jam, Bypass Tray Jam, Inner Jam, Outer Jam		
Counter Information	Engine Counter (Read only. Won't be cleared by executing Factory Default)		
Factory Default for Service	Clears/resets the contents of the controller memory (all data programmed by the user, log data application counters) to factory defaults.		
Print Test Pattern	Prints three test patterns		
Fuser SC Reset	Resetting the SC related to fusing errors		



• The setting in SP Mode is related to engine. When user get into SP Mode sheets, SP mode menu send command to engine, printer will be woken up in silent mode. Then SDC status in main window displays ready.

Enter the Service Mode from Operation panel (MF only)

Please refer the TTP or ask your supervisor for the access code.

Display Info	
Model Name	Displays the Model Name, Depends on Engine Firmware Settings

Display Info		
FW Version	CTL FW Version	Displays the Firmware Version
	FAX FW Version	Displays the Fax Firmware Version.
	Engine FW Version	Displays the Engine Firmware Version
Counter	Printer Counter	Displays the following counters of the printer engine. Black image (Total Page)
	Scanner Counter	Displays the sum total of scanner counters for each mode.
		Total Page/ Color Image/ Black Image/ ADF Used
	Jam Counter	Displays the number of paper jams at each location. Jam Total/ ADF/ Printer Out Bin/ Internal/ Tray1

Print Reports	
G3 Protocol dump list	G3 protocol dump of the latest communication is printed. Off (Default)/ Error/ On

Engine Maintenance		
PnP Name	Do not change this setting (Designed for Factory Use). [0x00 to 0x7F]	
Subscan Magnification	Adjusts the sub scan magnification. [-8 to 8 / 0 (Default) / 1/step]	

Engine Maintenance		
Fusing Unit Temperature	Plain Paper	Adjusts the fusing temperature for plain paper. [152 to 192 / 177 (Default) / 1deg/step]
	Recycled	Adjusts the fusing temperature for recycled paper. [145 to 185 / 175 (Default) / 1deg/step]
	Thin Paper	Adjusts the fusing temperature for thin paper. [140 to 180 / 170 (Default) / 1deg/step]
	Thick Paper	Adjusts the fusing temperature for thick 2 paper. [140 to 180 / 170 (Default) / 1deg/step]
SC559 Detection	[On or Off (Defau	lt)]
Total Counter Info	Engine Counter	Displays the total counter (Engine).
Fuser SC Reset	This button is for r	esetting an SC related with the fusing errors.
Registration	Horiz. Tray 1	Adjusts the horizontal registration for tray 1. If the machine settings are reset to the factory defaults, this value does not change. [-40.0 to 40.0 / 0.0 (Default) / 0.1 mm/step]
	Vert. Tray1 Plain	Adjusts the vertical registration of plain paper for tray 1. If the machine settings are reset to the factory defaults, this value does not change. [-40.0 to 40.0 / 15.0 (Default) / 0.1 mm/step]
	Horiz Bypass tray	Adjusts the horizontal registration for the bypass tray. If the machine settings are reset to the factory defaults, this value does not change. [-40.0 to 40.0 / 0.0 (Default) / 0.1 mm/step]
	Vert Bypass Plain	Adjusts the vertical registration of plain paper for the bypass tray. If the machine settings are reset to the factory defaults, this value does not change. [-40.0 to 40.0 / 0.0 (Default) / 0.1 mm/step]
Destination	Sets the destination and updates the engine setting. Do not change this setting (Factory Use). [DOM / NA / EU / ASIA / CHN]	

Engine Maintenance		
Test Pattern	Prints the test pattern	
АЮ Туре	[Refill / Non-refill]	
Special mode	0x00 (Factory Use)	
Serial No.	11 characters	

Scan Maintenance			
Mono Compression	Sets the monochrome compression type for scanning.		
	ADF Main Reg.	Adjusts the ADF Scan main-scan registration.	
		[-2.0 to 2.0 / 0 (Default) / 0.1 mm / step]	
	ADF Sub Reg.	Adjusts the ADF Scan sub-scan registration.	
Desistanting Altret		[-2.0 to 2.0 / 0 (Default) / 0.1 mm / step]	
Registration Adjust	Flatbed Main	Adjusts the Flatbed Scan main-scan registration.	
	Reg.	[-2.0 to 2.0 / 0 (Default)/ 0.1 mm / step]	
	Flatbed Sub	Adjusts the Flatbed Scan sub-scan registration.	
	Reg.	[-2.0 to 2.0 / 0 (Default)/ 0.1 mm / step]	
	ADF Main Reg.	Adjusts the ADF Scan main-scan magnification.	
Size Adjust		[-0.9 to 0.9 / 0 (Default)/ 0.1 mm / step]	
	ADF Sub Reg.	Adjusts the ADF Scan sub-scan magnification.	
		[-0.9 to 0.9 / 0 (Default)/ 0.1 mm / step]	
	Flatbed Main	Adjusts the Flatbed Scan main-scan magnification.	
	Reg.	[-0.9 to 0.9 / 0 (Default)/ 0.1 mm / step]	
	Flatbed Sub	Adjusts the Flatbed Scan sub-scan magnification.	
	Reg.	[-0.9 to 0.9 / 0 (Default)/ 0.1 mm / step]	

Factory Default		
	Return	Does not execute anything. Returns to an upper level.
Factory Default	Execute	 Resets all the settings to factory default. Clears/ resets the contents of the controller memory (all data programmed by the user, log data application counters) to factory default. After executing, initial setup menu starts after power- on.

CTL Maintenance	
PDL Mode	ON = "PDL Settings" is shown (Default) OFF = "PDL Settings" is hidden
Auto IP (PCL model only)	[ON (Default) / OFF]

Fax Maintenance (4in1 MF only)

Please refer the TTP or ask your supervisor for the access code.

Modem Settings	
RX Level	Adjusts reception level. OP-MF1: -43dBm (Fixed) OP-MF2: [-43 (Default) / -33 / -26 / -16 dBm]
TX Level	Adjusts transmission level. OP-MF1: [-2 to -17 / -10(Default) / 1dBm/Step] OP-MF2: [-1 to -15 / -8(Default) / 1dBm/Step]
Cable Equalizer	Improves the pass-band characteristics of analog signals on a telephone line. OP-MF1: [General Value (Default) / 0 / 1.8 / 3.6 / 7.2 Km] OP-MF1: [0 (Default) / 1.8 / 3.6 / 7.2 Km]

Modem Settings	
	Sets the transmission start speed.
	 V.34 First TX Speed (Default: 33600 bps)
	 V.17 First TX Speed (Default: 14400 bps)
	 V.29 First TX Speed (Default: 9600 bps)
First TX Speed	 V.27 First TX Speed (Default: 4800 bps)
(OP-MF1 only)	Note:
	 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.
	Sets the reception start speed.
	 V.34 First RX Speed (Default: 33600 bps)
	 V.17 First RX Speed (Default: 14400 bps)
	 V.29 First RX Speed (Default: 9600 bps)
First RX Speed (OP-MF1 only)	 V.27 First RX Speed (Default: 4800 bps)
	Note:
	 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	Sets the number of training retries to be repeated before automatic fallback takes effect. [1 / 2 (Default) / 3 / 4 times]	
Encoding	Selects data compression mode for TX/RX. [MMR+MR+MH (Default) / MR+MH / MH]	

Protocol Definition Timer	
TO Timer	Timeout for the remote station to respond in automatic send mode.
	[35 / 45 / 55 / 60 (Default)/ 90 / 140 sec]

Protocol Definition Timer		
T1 Timer	Sets the DIS waiting time. [40 (Default) / 50 sec]	
T4 Timer	Sets the time interval between command signal transmissions. [3 (Default) / 4.5 sec]	

RX Settings	
CNG Tone Detection (OP-MF2 only)	CNG tone detection time (RX mode : FAX / TEL, FAX / TAD Only) After the line is connected via the external telephone, the machine can detect a CNG signal for the time length specified by this setting. [5 (Default)/ 10 Sec]
CNG Cycles (OP-MF2 only)	Number of CNG cycles to be detected This setting is only effective for FAX/TAD mode. [1.5 (Default)/ 2.0 Cycle]
Tone Sound Monitoring	Determines when tones are monitored. [No Monitoring / Up to Phase B (Default) / All TX Phases
Stop/Clear Key	Stop the current receiving operation by pressing [Stop/Clear]. Received data will be lost. [Not Functional (Default) / Functional]
Off-Hook Detection (OP-MF2 only)	Sets the Off-Hook detection period. [200 (Default) / 800 msec]

TX Settings		
Redial Interval	Sets the time interval being redialing attempts if a TX fails. [2 (Default) / 6 min]	
Redialings	Sets the number of redial attempts if a TX fails. OP-MF1: [2 (Default) / 3 / 4 Times] OP-MF2: [2 / 3 / 4 (Default) /5 Times]	

Overseas Comm Mode Settings	
Overseas Comm Mode	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. [Off (Default) / Ignore DIS Once}
Minimum Time Length	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. OP-MF1: [100 / 200 / 300 / 350 (Default) / 400 ms] OP-MF2: [100 / 200 / 300 / 350 / 400 ms (Default)]

Dial Pulse Setting	
Dial Pulse Type	 Sets the number of pulses generated during dialing. N. Dialed "0" generates 10 pulses, "9" generates 9 pulses. (Default)
	• 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. [100 ms (Default)]
Minimum Pause in Tone Dialing	Sets the minimum pause during tone dialing. [100 (Default) / 150 / 200 ms]
DTMF Level	Dual tone output level High. OP-MF1: [-2 to -17dBm, -6dBm (Default)] OP-MF2: [-12 / -11 / -10 / -8 (Default) / -6 dBu]
DTMF Delta	Sets the difference in the level between high and low band frequency signals DTMF tones are sent. OP-MF1: [2 (Default) /3 dBM] OP-MF2: [1 / 2 (Default)/ 3 dBu]

1 Dial Tone Detection	
Wait Time	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". [3.5 (Default) / 7.0 / 10.5 / 14.0 sec]
Timeout Length	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. [10 (Default) / 15 / 20 / 30 sec]

BT (Busy Tone) Detection	
BT Setting	Sets busy tone detection. [On (Default) /Off]
BT Frequency (OP-MF2 only)	[300-550 / 300-650 / 325-525 / 340-550 / 350-500 (Default) / 350-550 / 375-475 / 380-520 Hz]
BT Level (OP-MF2 only)	[-35 / -36 / -37 / -38 / -39 dB (Default)]
BT Cadence (OP-MF2 only)	[0.10/ 0.15/ 0.20/ 0.25/ 0.30/ 0.35/ 0.40/ 0.45/ 0.50 (Default) / 0.75]

Comm Settings		
PTNI Pata	Sets the error ratio for error judgment on data received in non-ECM mode.	
	OP-MF1: [11% (Default) / 14%]	
	OP-MF2: [10% (Default) / 15%]	
V34 Modem	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.	
	• Permitted . (Default) Use of V34 modem is allowed.	
	• Prohibited . Use of V34 modem not allowed.	

Comm Settings	
V17 Modem	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.
	• Permitted . (Default) Use of V34 modem is allowed.
	• Prohibited . Use of V34 modem not allowed.

V34 Settings	
Equalizer	Sets the equalizer training level to be applied if training fails due to poor line connection. [Automatic (Default) / 4 / 16 Points]
Redialing	Sets up resending if a communication error occurs. OP-MF1: [Disabled / Not Disabled (Default)] OP-MF2: [Disabled (Default) / Not Disabled]
First TX Speed (OP-MF2 only)	Sets the first transmission speed choice, before fallback. [2400 / 4800 / 7200 / 9600 / 12000 / 14400 / 16800 / 19200 / 21600 / 24000 / 26400 / 28800 / 31200 / 33600 Bps (Default)]
Symbol Rate	Limits the transmission speed range in V.34 mode by masking the rates of selected symbols. [Not Used (Default) / 2400 / 2800 / 3000 / 3200 / 3429 Sym/sec]

All Document Transfer (OP-MF2 only)

Transfers all documents in fax memory to other fax machine. Emergency use only.

Inputs forwarding fax number.

Max. 40 digits (includes #, *, pulse)

To start transferring all documents, press "Start" key.

To cancel all documents transferring and back to Fax Maintenance menu, press "Clear/Stop" key.

Fax Service Test Menu (4in1 MF only)

Entering the Fax Service Test Menu

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

Exiting the Maintenance Mode Menu

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

Menu List

Fax Test		
Off-Hook Test	On Hook	Executes the on hook test.
	Off Hook	Executes the off hook test
CED Test		Executes the CED test.
CNG Test	1100 Hz	Executes the CNG test
ANSam Test		Executes the ANSam test.
Ring Tone Test (OP-MF2 only)		Executes the ring tone test.
	Tone [0] to [9]	Executes the DTMF tone 0 to 9 test.
	Tone [*]	Executes the DTMF tone * test.
	Tone [#]	Executes the DTMF tone # test.
	Tone Stop	Executes the Stop DTMF tone test.

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

Reports

Configuration Page & Maintenance Page (OP-P2/MF2 only)

The configuration page and maintenance page have information about the machine's status. Check them when doing machine maintenance.

To print the configuration page and maintenance page

Machines with LCD keypad operation panel: Press "User Tools" > "Print List/Report" > "Configuration Page" / "Maintenance Page"

Others: Start SOM > User Tools > List/Test Print > Configuration Page / Maintenance Page

Total Counter

Total Counter:

The total counter is incremented by the **"main board"** each time the board issues a print command to the engine.

The value is calculated as follows:

Total counter = Copier counter + Printer counter + FAX counter + Reports print

Application Counters:

Application counters exist for each individual primary machine function (Copier, Printer, Fax, etc.), and are incremented by the **"main board"** each time the board issues a print request for the function in question.

🚼 Important

 The total counter can't be cleared. But the application counters can be cleared by executing "Factory Default" in maintenance mode.

Other Reports

Other reports in "Print List/Report"

- Fax Journal Prints a fax transmission and reception journal for the last 50 jobs.
- TX Standby File List Prints a list of fax jobs remaining in the machine's memory to be printed, sent, or forwarded.
- Quick Dial Destination List
- Fax Speed Dial Destination List
- Scanner Destinations List

- Scanner Journal Prints a scanner journal for the last 100 Scan to E-mail, Scan to FTP, and Scan to Folder transmissions.
- PCL Font List

Test Page

Print the test pages for checking image problem.

To Print the Test Page

To print the configuration page:

- Machines with LCD keypad operation panel: Press "User Tools" > "Print List/Report" > "Test Page"
- Others: Start SOM > User Tools > List/Test Print > Test Page



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Test Pattern Printing (OP-P2/MF2 only)

Print the test patterns (Checker flag/ Grid pattern/ Trimming pattern) for checking image problem.



To Print the Test Pattern

To print the test patterns, enter the maintenance Mode from operation panel or SOM, select "Test Pattern".

6. Troubleshooting

Service Calls

Overview

The machine issues an SC (Service Call) when an error occurs. Error codes can be viewed on the Operation Panel and SOM. OP-MF1 with a 2-digit 7-seg LED display shows the SC as a 2-digit code.

Make sure the following points:

- All SC codes are logged.
- First of all, try turning the machine OFF/ON to clear the SC.
- Check the harnesses on PCB (Main Board, Fax Board, PSU, HVPS, etc.) to make sure that the problem was not caused by a loose connection before replacing the PCB.
- Check around to make sure that no physical obstruction such as a scrap of paper or something that has fallen inside the machine (paper clip, pin, etc.) before replacing the motor or sensor.

Fusing Related SC Codes

To prevent physical damage and safety issue, the machine cannot be operated until the fusing related SC has been reset by a service representative.

Enter the maintenance Mode from operation panel or SOM, select "Fuser SC Reset"

SC	Tabl	es
----	------	----

SC1xx: Scanning

SC100 (c6)	CIS Lamp/Scanner Motor Error
	 A problem occurred with the CIS or scanner motor in the flatbed scanner: After CIS power check After shading After CIS failed to return to home position
	Check the scanner harness connectionReplace the scanner

SC2xx: Scanning

Polygon Motor On Timeout Error
 No lock signal was received within 10 sec. after the polygon motor turned on. Check the laser unit harness connection Replace the laser unit
Polygon Motor Off Timeout Error
 The lock signal did not go HIGH (inactive) within 20 sec. after the polygon motor turned off. Check the laser unit harness connection Replace the laser unit
Polygon Motor Lock Signal Error
 Four samplings within 200 ms revealed that the polygon motor lock signal remained HIGH beyond the prescribed number of revolutions. Check the laser unit harness connection Replace the laser unit
Beam Synchronization Error
 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. Check the laser unit harness connection Replace the laser unit
Laser Scanning Unit thermistor error
 After the main power switch ON, writing thermistor temperature is detected at 100ms intervals and Less than -30 degrees Celsius is detected for more than 4 seconds (Thermistor defective). More than 105 degrees Celsius is detected for more than 1 second (Thermistor short).
Cneck the laser unit harness connectionReplace the laser unit

SC4xx: Image Transfer and Transfer Error

SC491 (C5)	Bias Leak
	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.
	HVPS harness loose, broken, defective
	HVPS board defective
	AIO terminal defective
	Cycle the machine off/on
	 Check all the harness connections of the HVPS
	 Check spring-loaded AIO terminal installation behind the HVPS.
	• Replace HVPS.

SC5xx: Motor, Fusing Error

SC500 (C6)	Main Motor Error
	One of the following problems occurred: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.
	 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. Replace the Main motor
	Fusing Unit Thermistor Error (Fatal Error)
SC541 (C7)	No temperature was detected within 5 sec. after the machine was turned on (temperature was less than 0°C).
	 Check the Fusing unit thermistor if it's disconnected, broken or not set correctly Check the Fusing lamp if it's disconnected, broken or not set correctly Replace Fusing unit

SC542 (C8)	Fusing Reload Temperature Error (Fatal Error)
	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. • Unstable input voltage • Fusing thermistor deformed or out of position • Fusing lamp harness loose, broken, defective • Fusing lamp defective • Fusing unit defective
	 Use high quality power source Check the Fusing thermistor position and it's harness connection Check the Fusing lamp and it's harness connection Replace Fusing unit
SC543 (C9)	High Temperature Error - Software (Fatal Error)
	 The temperature inside the fusing unit exceeded 225°C (437°F) for more than 1 sec. 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)
	 Check all PCB harness connection Check or replace PSU Replace Main board
SC544	High Temperature Error- Hardware (Fatal Error)
	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.
(c)	Check or replace Fusing unit
	Check or replace PSU
	Replace Main board

SC545 (c2)	Fusing Lamp Remains ON Error (Fatal Error)
	The heating element of the fusing lamp remained at full power longer than 9 sec. after the reload temperature was detected.
	• Fusing thermistor harness connector loose, broken, defective
	 Fusing thermistor warped or positioned incorrectly
	 Fusing lamp harness connector loose, broken, defective
	Check Fusing thermistor position and it's harness connection
	 Check Fusing lamp and it's harness connection
	Zero cross Error
SC:547	Power supply frequency is unstable. HVP or PSU failure.
(r2)	Reset by turning the power OFF/ON.
	• Use high quality power supply.
	Replace the HVP or PSU.
	Edge thermistor error (Fatal Error)
SC551	In the condition of relay ON, the end thermistor on the fusing detects less than 0 degrees Celsius for more than 5 seconds.
(r1)	Check Fusing thermistor position and it's harness connection
	 Check Fusing lamp and it's harness connection
	Replace Fusing unit
SC556 (c0)	temperature deviation error (Fatal Error)
	More than 1 degree Celsius temperature difference (between Center – End thermistor) is detected for 1.5 seconds 5 times in a row.
	Check Fusing thermistor position and it's harness connection
	 Check the input voltage if it's out of the limit
	Replace Fusing unit
SC557	Zero cross Frequency Over
	Power supply frequency is unstable.
	No error message will be issued on this SC. A log of this SC will be logged in the SOM service mode SC

SC559 (c3)	Fusing Unit Third Jam Error (Fatal Error)
	The exit sensor failed to detect the leading edge of the paper within the prescribed time and triggered a jam alert.
	 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
SC560	Low input voltage (-21 and -27 model only)
	When the input voltage is extremely low (Lower than 140V).
	Can be reset by turning the power OFF/ON.Use high quality power supply.

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• Execute "Fuser SC Reset" after solving a fusing unit problem. Otherwise, the machine will continue to issue this SC code and cannot be operated.

SC6xx: Communication

SC650	Modem Error
	Modem chip defective.
	• Replace fax board.
SC669 (c5)	EEPROM Communication Error
	A read/write error occurred with the EEPROM on the main board.
	Cycle the machine off/on
	EEPROM defective, replace main board.
SC688 (c4)	No CTL_PRREQ_N Signal
	Paper failed to feed after the machine reached the reload temperature because the main board did not issue a PRREQ signal.
	Check all Main board harness connection
	Replace Main board

SC670 (c9)	Engine Communication Error
	The engine failed to communicate with the firmware. Firmware update failure.
	Cycle the machine off/on and update the firmware againReplace Main board

SC8xx: Other

SC820	Controller Error
	Unexpected error. Cycle the machine off/on.
SC828 (c8)	ROM Checksum or Data Lost Error
	A firmware type error or checksum error occurred.
	Update firmware
SC871 (c7)	Flash ROM Write Error
	The flash memory is defective or there is a problem with the fax board cable.
	Check the harness connection between fax board and main board.
	Replace Main board or Fax board

Image Problems

Overview

Image problems may appear at regular intervals due to the different circumferences of rollers in the machine and inside the AIO.



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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	Image Transfer Roller
22	69.1	Pressure roller
23.96	75.2	Drum (AIO)
25.02	78.6	Hot roller
28	28	Paper feed roller
Image Quality Problems

Problem	Cause / Solution
	• AIO is out of toner. Refill or replace the AIO.
	 The polygon mirror of the laser unit is dirty.
	 Adjust the image density.
	 Paper is damp. Use paper that has been stored properly.
Blurred or too light	 If you enable [Toner Saving], printing is generally less dense. User Tools > System Settings >Toner Saving: Off Printer Driver > Print Quality > Toner Saving: Off
	• Toner is almost depleted. Replace the print cartridge.
	 Condensation may have collected. If rapid change in temperature or humidity occurs, use this machine only after it has acclimatized.
	• Drum life ended. Replace the AIO.
	 Image density is too high. Adjust the image density.
Dirty or too dark	 Toner on the printed surface is not dry. Do not touch printed surfaces immediately after copying. Remove freshly printed sheets one by one, taking care not to touch printed areas.
	• The exposure glass or ADF is dirty.
Distribution	• Drum life ended or waste toner tank full. Replace the AIO.
Dirty background	 Adjust with "Charge Bias" in the Maintenance Mode.
	• The stripper pawls of the fusing unit are dirty.
Vertical black lines	• The exposure glass or ADF is dirty.
	Replace the print cartridge.
	• The exposure glass or ADF is dirty.
Vertical White lines	 Toner is almost depleted. Replace the print cartridge.
	Humidity level surrounding the machine may be too low.
Horizontal black lines	Refer to "Dark lines in halftone areas at 75mm Intervals".
	The original probably has heavily lined or dotted areas.
A moire pattern is produced.	Switching the setting for image quality between [Photo] and [Mixed] may eliminate the moire pattern.

Problem	Cause / Solution
Insufficient fusing	Check the levers for printing on envelopes inside the rear cover. Pull up the levers.
Dark lines in halftone area	Might 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.)
	Selecting [On] for [Low Humidity Mode] under [System Settings] (User Tools) may help to prevent these lines from appearing.
	When the humidity mode setting is enabled, the drum is rotated slightly every 15 minutes. This keeps the light sensitivity constant across the entire surface of the drum.

Jam / Paper Feed Problems

Problem	Cause / Solution	
Paper does not feed	• Use supported types of paper.	
	 Load paper correctly, making sure that the paper guides are properly adjusted. 	
smoothly.	 If the paper is curled, straighten the paper. 	
	 Take out the paper from tray and fan it well. Then, reverse the top and bottom of the paper, and put it back in the tray. 	
	• There remain pieces of paper in the paper path.	
	 Poor contact or disconnection of the sensor. 	
	 There is some foreign body in the paper guides of the paper path. 	
	 If there are gaps between the paper and the paper guides, adjust the paper guides to remove the gaps. 	
Paper jams occur frequently.	 Avoid printing on both sides of paper when printing images that contain large solid areas, which consume a lot of toner. 	
	 Use supported types of paper. 	
	 Load paper only as high as the upper limit markings on the paper guide. 	
	 Make sure that the friction pads and paper feed rollers are clean. Clean the Friction Pad and Paper Feed Roller. 	

6

Problem	Cause / Solution	
Multiple sheets of paper are fed at one time.	 Fan the paper well before loading. Also make sure that the edges are even by tapping the stack on a flat surface such as a desk. Make sure that the paper guides are in the right position. Use supported types of paper. Load paper only as high as the upper limit markings on the paper guide. Make sure that the friction pads and paper feed rollers are clean. Check that paper was not added while there was still some left in the tray. Only add paper when there is none left in the tray. 	
Paper gets wrinkles.	 Deterioration of the hot roller or the pressure roller. Paper is damp. Use paper that has been stored properly. Paper is too thin. If there are gaps between the paper and the paper guides, adjust the paper guides to remove the gaps. 	
The printed paper is curled.	 Load the paper upside down in the paper tray. If the paper curl is severe, take prints from the output tray more frequently. Paper is damp. Use paper that has been stored properly. Adjust with "Curl Control mode" in the Maintenance Mode. 	
Images are printed diagonally to the pages.	If there are gaps between the paper and the paper guides, adjust the paper guides to remove the gaps.	
Printed envelopes come out creased.	e out Check the levers for printing on envelopes inside the rear cover. Lower the levers.	

Other Problems

Problem	Cause / Solution	
SC542	 SC542 may occur frequently due to the unstable input voltage. Upgrade the firmware to the last version or ask the user to use a stable power supply. 	

Problem	Cause / Solution	
Paper size mismatch	 Setting the OS language as "English (US)" may change the application paper default settings to "Letter". Ask the user to check the settings before printing, or set "Sub paper size": ON. 	
Last paper noise	 Printing the last piece of paper in the paper tray might generate a bit louder sound. 	
Over Heat	• The machine might stop for cooling down after heavy continuous print jobs or in a high temperature environment.	
User cannot install printer driver	• Encourage the user to use the install wizard from the driver CD. Follow the instructions (especially the correct time for connecting the USB or network cable).	
ADF scan too slow	 Scan speed depends on the PC specifications and the network conditions. Use a USB cable instead of a network connection. 	

7. Energy Saving

Energy Save

Energy Save Modes

Use the energy saver modes correctly in order to save energy and protect the environment.



Timer Settings

The user can set these timers with User Tools (Admin. Tools > Energy Saver Mode> EnergySaver Mode1 or Mode2)

- Energy Saver Mode 1 (30 sec.): This can be only turned on or off.
- Energy Saver Mode 2 (1 to 240 min.): This can be turned on or off and timer setting is adjustable (default: 1 min.).

Recommendations

We recommend that the default settings should be kept.

- If the customer requests that these settings should be changed, please explain that their energy costs could increase, and that they should consider the effects on the environment of extra energy use.
- If it is necessary to change the settings, please try to make sure that the Energy Saver Mode 2 Timer is not too long. Try with a shorter setting first, such as 30 min., then go to a longer one (such as 60 min.) if the customer is not satisfied.
- If the timers are all set to the maximum value, the machine will not begin saving energy until 240 minutes has expired after the last job. This means that after the customer has finished using the machine for the day, energy will be consumed that could otherwise be saved.

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.



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2. Combine Mode

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



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.



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)

Total Counter

The machine total counter counts the number of sides printed (a duplex page is counted as two, not one).

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.

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

Combine 2-in-1 Mode

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
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

7

MEMO



Appendices

April, 2014

TABLE OF CONTENTS

1. Appendices: Specifications

Machine Specifications
OP-P1/MF1
General Specifications
Printer Specifications8
Copier Specifications (M134, M165, M147, M142, M166, M148, M135, M141, M143, M167, M149, M168, M150, M191, M151, M169)11
Scanner Specifications (M134, M165, M147, M142, M166, M148, M135, M141, M143, M167, M149, M168, M150, M191, M151, M169)15
Fax Specifications (M135, M141, M143, M167, M149, M168, M150)19
Software Specifications23
OP-P2/MF2
General Specifications23
Printer25
Copier (M215, M216, M217, M218, M225, M226, M229, M230, M232, M235, M237, M239, M240, M241, M246, M247, M249, M250)
Scanner Specifications (M215, M216, M217, M218, M225, M226, M229, M230, M232, M235, M237, M239, M240, M241, M246, M247, M249, M250)
Fax Specifications (M217, M218, M229, M230, M235, M237, M240, M241, M247, M250)

Machine Specifications

OP-P1/MF1

General Specifications

Configuration		Desktop	
Languages M133, M144, M134, M142, M135, M141, M143		Chinese (Simplified Characters), English	
	M162, M163, M145, M165, M147, M166, M148, M167, M149, M168, M150	English, German, French, Italian, Spanish, Dutch, Swedish, Norwegian, Danish, Finnish, Portuguese, Czech, Hungarian, Polish, Russian, Brazilian, Turkish	
Original exposure		Laser electrostatic transfer	
Printing speed		22 ppm (A4)	
		23 ppm (LT)	
First print (A4/LT 600 x 600 dpi)	M133, M144, M134, M142, M135, M141, M143	6 sec. or less (from paper-feed-start to paper-ejection)	
	M162, M163, M145, M165, M147, M166, M148, M167, M149, M168, M150	10 sec. or less (from paper-feed-start to paper-ejection)	
Printing resolution		600 x 600 dpi or 1200 x 600 dpi (selected with the printer driver)	

Warm-up time (Ready status)		Less than 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	Drum	Optical photo-conductor		
system*')	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 AlO (M133, M162, M144, M163, M134, M165, M142, M166, M135, M141, M143, M167, M168, M164, M191, M169): 1000 sheets		
		Starter AIO (M145, M147, M148, M149, M150, M146, M151): 700 sheets		
		Replacement AIO:		
		2600 sheets (All region)		
		1500 sheets (Region other than China)		
	ID chip	Yes		
	Chamman	Temperature: -30°C to 40°C (-54°F to 104°F)		
	conditions	Humidity: 15% to 80% RH		
		Note: Store away from direct sunlight.		
*1 The AIO cartric supply unit. The	*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.			
The AIO has ar	n ID chip which help	s to detect when an AIO is set and a new AIO.		
Fusing		Hot roller+ Halogen fusing lamp		

Paper	Paper type and Weight	Plain paper: 65 to 99 g/m ² (17 to 26 lb.)		
		Recycled paper: 75 to 90 g/m ² (20 to 24 lb.)		
		Thin paper: 52 to 64 g/m ² (14 to 24 lb.)		
		Thick paper:	100 to 13	0 g/m ² (26.6 to 34 lb.)
	Delivery	Face-up		
		Input Tray 1		50 sheets
	Capacity (70 g/		Bypass T	ray: 1 sheet
	m²/19 lb.)	Output	Output Tr	ray: 50 sheets
			Rear: 1 s	heet
	Paper size	Standard (SEF)	A4, $8^{1}/2^{"} \times 11^{"}$ (Letter), $8^{1}/2^{"} \times 14^{"}$ (Legal), B5, $5^{1}/2^{"} \times 8^{1}/2^{"}$ (Half letter) $7^{1}/4^{"} \times 10^{1}/2^{"}$ (Executive), A5, A6, E 16K (197 x 273 mm), 16K (195 x 27 mm), 16K (184 x 260 mm)	
		Custom	Width:	Tray 1: 100 to 216 mm (3.9 to 8.5 in.)
				Bypass Tray: 90 to 216 mm (3.6 to 8.5 in.)
			Length:	148 to 356 mm (5.8 to 14 in.)
Paper feed	Duplexing	ng No, but manual duplexing possible by p pages, and then 2nd side pages.		ing possible by printing 1st side de pages.
	Paper out alert	LED flash		
Power supply		220 to 240 V 50/60 Hz Less than 5 A (mainly Europe and Asia)		
		120 V 60 Hz Less than 8 A (mainly North America)		

		1		
Power consumption (average)		Max.	900 W	
		Operation	400 W	
		Standby	55 W (mainly Europe and Asia)	
			60 W (mainly North America)	
		Energy Save 1	40 W or less	
		Energy Save 2	5 W or less	
Dimensions M133, M162, (w x d x h) M144, M163, M145, M146, M164		402 x 360 x 165 mm	n (15.8 x 14.2 x 6.5 in.)	
	M134, M165, M147, M142, M166, M148	402 x 360 x 249mm	(15.8 x 14.2 x 9.8 in.)	
	M135, M141, 402 x 360 x 291 mm M143, M167, M149, M168, M150, M151, M169, M191		n (15.8 x 14.2 x 11.5 in.)	
Weight	M133, M162, M144, M163, M145, M146, M164	62, 7.2 kg (15.9 lb.) 53, 16,		
M134, M165, 9.9 kg (M147, M142, M166, M148 M135, M141, 11.1 kg M143, M167, M149, M168, M150, M151, M169, M191		9.9 kg (21.8 lb.)		
		11.1 kg (24.5 lb.)		
Calendar/Clock		M135, M141, M143, M167, M149, M168, and M150, M151, M169, M191 only		
Interface		USB 2.0		

Operation Panel	M133, M162, M144, M163, M145, M146, M164	2 LEDs, 2 keys		
	M134, M165, M147, M142	7-segment 2-digit LED, 6 keys		
	M166, M148, M135, M141, M143, M167, M149, M168, M150, M151, M169, M191	Dot-matrix LCD (168 x 64 dot) with LED		
Energy Save Mode 2	Shift time	Europe, Asia, Oceania, part of South America (220V-240V/50, 60Hz)	1 to 30 min. (adjusted in 1 min. steps)	
		North America, Canada, Part of South America (120V/60Hz), China	1 to 240 min. (adjusted in 1 min. steps)	
	Recovery trigger	Job in or any key is pressed		
		M133, M144	3.7 W or less	
	Power consumption	M134, M142, M141, M135, M143, M191	4.5 W or less	
		M162, M163, M145, M146, M164	3.1 W or less	
		M165, M147, M166, M148, M167, M149, M168, M150, M151, M169	3.9 W or less	
	Recovery time	25 sec. or less		

Controller	Туре	GDI Controller
	Interface	USB / net work / Wi-Fi
	Printer Language	DDST (GDI)
	Image Resolution	600 x 600 dpi (Max. 1200 x 600 dpi)
Noise		Operation: Less than 62.7 dB (A)
		Standby: Less than 40 dB (A)
		Energy Save: Less than 40 dB (A)

Printer Specifications

Printing Method		Semi-conductor laser beam with dry electrostatic toner development
Printing Speed		22 ppm (A4)
		23 ppm (LT)
	M133, M144, M134, M142, M135, M141, M143	6 sec. or less (from paper-feed-start to paper-ejection)
First Print Time (A4/LT 600 x 600 dpi)	M162, M163, M145, M165, M147, M166, M148, M167, M149, M168, M150, M146, M164, M161, M169	10 sec. or less (from paper-feed-start to paper-ejection)
Resolution		600 x 600 dpi (Max. 1200 x 600 dpi)

	M133, M162, M134, M165, M147, M191, M146, M164	16 MB	
Memory capacity	M144, M163, M145, M142, M166, M148, M135, M141, M143, M167, M149, M168, M150, M151, M169	32 MB	
		USB 2.0	
Interface		Ethernet (10BASE-T, 100BASE-TX)	
		IEEE802.11b/IEEE802.11g/IEEE802.11n standards	
Printer Language		DDST	
Fonts (M133, M144, M134, M142, M135, M141, M143, M191)		Chinese National Standard (GB 1830)	
Compatible operating	g systems	Windows XP and later	
Image Writing System	1	Semi-conductor laser system	
Estimated Service Life		5 years (or 60,000 prints)	
Counter		Provided (number of prints)	
Toner End Detection (M135, M141, M143, M167, M149, M168, M150, M146, M151 only)		Yes* ¹	

*1 When toner management is ON:

- Toner consumption is estimated by a dot-count calculation.
- When the dot-count total reaches the prescribed limit, a toner near-end warning is issued.
- If the count continues, a toner-end alert is issued.
- When an AIO is replaced, the ID chip on the AIO helps the machine to detect the new AIO. And if a new AIO is detected, the toner counter is reset automatically.

Zoom	25 to 400% (1-step)
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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



	Marain	Width		
	Margin	mm	inch	
[A]	Left	4.2	0.2	
[B]	Right	4.2	0.2	
[C]	Leading	4.2	0.2	
[D]	Trailing	4.2	0.2	

Copier Specifications (M134, M165, M147, M142, M166, M148, M135, M141, M143, M167, M149, M168, M150, M191, M151, M169)

Copy Speed		Multiple copy: 22 ppm (A4)/23 ppm (LT) 1 to 1 copy (ADF): 13 ppm (A4)		
Copy Delivery		Face-up, reverse order		
First copy		Less than 25 s	sec (Platen/600 x 600 dpi)	
		Less than 25 s	sec (ADF/600 x 300 dpi)	
Resolution	M134, M165,	Scanning	600 x 600 dpi	
	M147, M142, M166, M148	Printing	600 x 600 dpi	
	M135, M141,	Scanning	Exposure glass: 600 x 600 dpi	
	M143, M167. M149, M168,		ADF: 600 x 300 dpi	
	M150, M191, M151, M169	Printing	600 x 600 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: Fixe		Mainly Europe and Asia: 50, 71, 82, 93, 100, 122, 141, 200 (%)		
		Mainly North America: 50, 65, 78, 93, 129, 155, 200 (%)		
	Zoom Ratio: Custom	25% to 400% (adjusted in 1% steps)		
Copy Quantity		99		

Original size	Platen book mode	Standard	A6 to A4/LT SEF, ID C	Card	
		Custom (W x L)	216 to 297 mm (8.5 to 11.7 in.)		
	ADF (M166,	Standard	A6SEF to A4/LT/LG		
	M148, M135, M143, M167,	Custom	Width: 105 to 216 mr	n (4.1 to 8.5 in.)	
	M149, M168, M150, M191		Length: 127 to 356 m	Length: 127 to 356 mm (5 to 14 in.)	
	M150, M171, M151, M169 only)	-	Paper Weight: 60 to 90 g/m ² (16 to 24 lb)		
	Maximum size (W x L)	Platen: 216 x 297 mm (8.5 x 11.7 in.)			
		ADF: 216 x 356 mm (8.5 x 14 in.)			
	Auto original size detect	None			
Original capacity		Platen		1 sheet	
		ADF (M166, M148, M135, M143, M167, M149, M168, M150, M191, M151 and M169 only)		15 sheets	
Start reference point (origin)		Book mode: Left upper corner			

Copy Area: Copy from Flatbed



	Årag	Width		
	Area	mm	inch	
[A]	Left margin	3	0.1	
[B]	Right margin	3	0.1	
[C]	Top margin	4.1	0.2	
[D]	Bottom margin	4	0.2	

Copy Area: Copy from ADF



	A	Width		
	Area	mm	inch	
[A]	Left margin	3	0.1	
[B]	Right margin	3	0.1	
[C]	Top margin	4.1	0.2	
[D]	Bottom margin	4.3	0.2	

SADF	None. Scanning begins as soon as platen or ADF is lowered.
APS	None

Paper Size Selection	M133, M162, M144, M163, M145, M134, M165, M147, M142, M146, M164	From utility only
	M166, M148, M135, M141, M143, M167, M149, M168, M150, M191, M151, M169	From utility and operation panel
Copy Density Adjustment	M134, M165, M147, M142, M166, M148	3 steps
	M135, M141, M143, M167, M149, M168, M150, M191, M151, M169	5 steps
Manual Density Adjustment	5 notches	

Scanner Specifications (M134, M165, M147, M142, M166, M148, M135, M141, M143, M167, M149, M168, M150, M191, M151, M169)

Туре		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	Monochrome	75.3 mm/sec.	
	(M135, M143, M167, M149, M168, M150, M151, M169, M191)	Color	37.6 mm/sec.	

ADF Capacity (M166, M148, M135, M143, M167, M149, M168, M150, M151, M169, M191 only)		15 originals 70 g/m ²	
	Book Mode	A4 (210 x 297 mm)/Letter (215.9 x 279.4 mm)	
	ADF (M166,	Width: 105 to 216 mm (4.1 to 8.5 in.)	
Original Size	M148, M135, M143, M167, M149, M168, M150, M151, M169, M191 only)	Length: 148 to 356 mm (5.8 to 14 in.)	
Gradation		More than 7 steps	
Digitized Output		8-bit	
	Exposure Glass	216 x 297 mm (8.5 x 11.7 in.)	
Max. Scanning Area (horizontal x vertical)	ADF (M166, M148, M135, M143, M167, M149, M168, M150, M151, M169, M191 only)	216 x 356 mm (8.5 x 14 in.)	

Scan Area: Scan from Flatbed



	Manaia	Width		
	Margin	mm	inch	
[A]	Left	1	0.05	
[B]	Right	1	0.05	
[C]	Leading	1	0.05	
[D]	Trailing	1	0.05	

Scan Area: Scan from ADF



	A	Width		
	Area	mm	inch	
[A]	Left margin	1	0.05	
[B]	Right margin	1	0.05	
[C]	Top margin	1	0.05	
[D]	Bottom margin	2	0.08	

Main Scan Density	300 dpi, 600 dpi
Grayscale	Supported
	M134, M165, M147, M135, M141, M167, M149: USB2.0
PC Interface	M142, M166, M148, M143, M168, M150: USB2.0, Ethernet10/100BASE-TX
Scanner Drivers	WIA, TWAIN
Operating Systems	Windows XP and later

Fax Specifications (M135, M141, M143, M167, M149, M168, M150)

Transmission Speed G3		G3	33.6K - 2400 bps auto shift down method	
V.27ter		V.27ter	4800/2400 bps	
V.29		V.29	9600/7200 bps	
		V.17	14400/12000/9600/7200 bps	
V.34		V.34	33600/31200/28800/26400/24000/21600 19200/16800/14400/12000/9600/7200/4800/ 2400bps	
Transmission Time			3 sec. (8 dots/mm x 3.85 line/mm	
			33.6 kbps, MMR, ITU-T Chart 1)	
Data Compression	Metho	d	MH, MR, MMR	
Resolution (main se	can)		600 x 600 dpi	
Resolution	Stand	ard	CD Direction: 8 dot/mm	
			FD Direction: 3.85 dot/mm	
	Detail		CD Direction: 8 dot/mm	
Photo			FD Direction: 7.7 dot/mm	
			CD Direction: 8 dot/mm	
			FD Direction: 7.7 dot/mm	
Scan width			A4: 204 mm (8.03 in.)	
			LT: 210 mm (8.27 in.)	
Connection			G3 telephone line PSTN/PBX (one connector)	
Transmission Line Density			Each scan line width: 1728 pixels	
			Max. width: 356 mm	
Scanning Selection			Std (Standard), Fine, Photo	
Max. Scan Width			ADF/FB: 204 mm (A4 paper)	

Max. Scan Length	ADF: 356 mm
	Flatbed: 288.9 mm (A4 paper)

Scan Area: Fax from Flatbed



	Å	Width		
	Ared	A4 (mm)	LT (in.)	
[A]	Left margin	3.0	0.1	
[B]	Scanning width	204	10.8	
[C]	Right margin	3.0	0.1	
[D]	Top margin	4.1	0.2	
[E]	Bottom margin	4.0	0.2	
[F]	From top margin	288.9	13.6	

Scan Area: Fax from ADF



	Å	Width		
	Area	mm	inch	
[A]	Left margin	3	0.1	
[B]	Right margin	3	0.1	
[C]	Top margin	4.1	0.2	
[D]	Bottom margin	4.3	0.2	

Scan Image Density	5 levels selectable
ADF	M135, M143, M167, M149, M168, and M150 only (standard)
Memory Capacity	TX: Up to 5 jobs (10 pp./job)
	RX: Up to 50 jobs (100 pp. total)
SAF Memory	100 pages (ITU Chart 1)
PC Fax	Supported
Address Book	Speed dial 100 destinations

Fax Operation Features	Fax/Telephone Select	Manual mode, Fax dedicated mode
	Halftone/Error Diffusion	Supported for sending
	Memory Display	Memory remaining display
	Dialing	One-touch key: No
		Coded key: Yes (Up to 100 numbers)
	Redial	Yes
		Auto / Manual (Destination 1)
	Line Monitoring	Yes
	Off-hook Dialing	Yes
	Tone Sending	Yes
Fax Operation Features	Pause Entry	Yes
	Busy Signal Sound Output	Yes
	Direct Sending	Yes
	Memory Sending	Yes
	Sequential Sending	Yes
	Page Re-sending	Yes
	ΠΙ	Yes
	CSI	Yes
	TX Reserve	Yes

Fax Operation Features	ECM	Yes
	Auto RX	Yes
	Memory RX	Yes
	Night RX	Yes
	Sound Level Adjustment	Yes
	Handset	Yes
	On Hook Alarm	Yes
	Phone Call	Yes
	PC Fax	Yes

Software Specifications

Smart Organizing Monitor

Required OS	Windows XP, Windows Server 2003, Windows Server 2003 R2, Windows Vista, Windows Server 2008, Windows Server 2008 R2, Windows 7, Windows 8, Windows Server 2012		
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 only		

OP-P2/MF2

General Specifications

Configuration

Desktop

Paper capacity	Main tray	150 sheets (80g/m2, 20lb)	
	By-pass tray	1 sheets	
	Output tray	Up to 35 sheets (A4/LT or 80 g/m ² , 20lb)	
	Main tray	A4,B5,A5,B6,A6,Legal,Letter,	
		HalfLetter, Exective, 16K	
		Custom size:	
		A5 LongEdge, F, Foolscap, Folio	
Paper size		A4,B5,A5,B6,A6,Legal,Letter,	
		HalfLetter,Exective,16K	
	By-pass tray	Custom size:	
		A5 LongEdge, F, Foolscap, Folio	
		Min. 100 x 148 mm (3.9" x 5.8")	
		Max. 216 x 297 mm (8.5" x 11.7")	
	Main tray	60-105 g/m ² (16-28 lb)	
Paper weight	By-pass tray	60-105 g/m ² (16-28 lb)	
	Paper weight	52-105 g/m ² (14-28 lb)	
	Capacity	35 sheets (80g/m ² , 20lb)	
ADF	Width	139.7 to 215.9mm (5.5 to 8.5 inch)	
	Length	139.7 to 355.5mm (5.5 to 14 inch)	
ADF MF: 402 x 360		x 293mm (15.8 x 14.2 x 11.5 inches)	
Machine size	Non-ADF MF: 402 x 360 x 252mm (15.8 x 14.2 x 9.9 inches)		
(W x D x H)	SFP: 402 x 360 x 165mm (15.8 x 14.2 x 6.5 inches)		
Weight	ADF MF: 11.1 Kg (24.4lb) or less		
(Machine body with	Non-ADF MF: 8.9 Kg (19.6lb) or less		
consumables)	SFP: 7.2 Kg (15.8lb) or less		
Energy Saver Mode	US/CH	Selectable 1 to 240 minutes (1 minute steps)	
	EU/AP	Selectable 1 to 30 minutes (1 minute steps)	
Power consumption	Copying	Less than 400W	
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	Standby	Less than 65W	
	Power save mode	Energy Saver Mode 1: Less than 40W Energy Saver Mode 2: Less than 5W	
Power	US	120V, 8A, 60Hz	
	EU/AP	220 - 240 V, 5A, 50/60Hz	
	СН	220 - 240 V, 5A, 50/60Hz	
Sound Power Level	Printing	Less than 63.7dB(A)	
	Standby	Less than 40dB(A)	
Warm-up time	Less than 27 seconds (23°C, 71.6°F)		
Machine life	5 years, 60,000 prints (whichever comes first)		
Laser type	Class I		

Printer

Print speed	US	23 ppm (Letter)
	EU/AP	22 ppm (A4)
Printer language	DDST(GDI), PCL6	
Fonts	DDST: N/A, PCL: 80	
Resolution	600 x 600 dpi, 1200 x 600 dpi	
Toner save mode	Support	
First print speed	Less than 10 sec (from print-data-in to paper-ejection) Less than 6 sec (from paper-feed-start to paper-ejection	
Duplex print	Manual	
PC interface	Ethernet (10/100 BASE-TX), USB 2.0, IEEE 802.11 b/g/n	
Network Protocol	TCP/IP	
Memory RAM	32MB	

OS	Win XP/Vista/7/8, server 2003/server 2008/server 2012 (32bit/64bit)

Copier (M215, M216, M217, M218, M225, M226, M229, M230, M232, M235, M237, M239, M240, M241, M246, M247, M249, M250)

l st copy speed	Less than 32sec (A4, at 23°C, 71.6°F)	
Maximum original size	Flatbed	A4 (216 x 297mm) (8.5 x 11.7 inches)
	ADF	A4 (216 x 356mm) (8.5 x 14 inches)
Copy Speed	Up to 22cpm	
Copy quantity	99	
Resolution (H x V)	Scanning	600 x 600 dpi (Flatbed), 600 x 300 dpi (ADF)
	Printing	600 x 600 dpi
Grayscale	256 levels	
Reduction / Enlargement	Fix	US: 50, 65, 78, 93, 129, 155, 200, 400% EU: 50, 71, 82, 93, 122, 141, 200, 400%
	Zoom	25-400%, 1%/step

Scanner Specifications (M215, M216, M217, M218, M225, M226, M229, M230, M232, M235, M237, M239, M240, M241, M246, M247, M249, M250)

Scanning Device	CIS
Resolution	CIS: 1200 dpi
	Flatbed: 600 x 600 dpi ADF: 600 x 300 dpi
Gray scale	256 levels
Scan modes/ speed (A4, 300dpi, USB2.0)	Black & White: less than 5 sec. Gray Scale: less than 5 sec. Color: less than 10 sec

Maximum original size	Platen	Width max: Up to 216mm, Length max: Up to 297mm
	ADF	Width max: Up to 216mm, Length max: Up to 356mm
Scan Depth	16bit color processing (input), 8bit color processing (output)	
PC Interface	Ethernet (10/100 BASE-TX), USB 2.0, IEEE 802.11 b/g/n	
TWAIN Compliment	TWAIN, WIA	
Scanner utilities and Drivers	TWAIN Driver	

Fax Specifications (M217, M218, M229, M230, M235, M237, M240, M241, M247, M250)

Network	PSTN/ PBX	
Compatibility	ITU-T G3	
Transmission Speed	3sec *8 dots per mm x 3.85 line per mm, 33.6 kbps, MMR, ITU-T #1 chart	
Coding system	MH/MR/MMR	
Document size	ADF Width	139.7 to 215.9mm (5.5" to 8.5")
	ADF Length	139.7 to 356mm (5.5" to 14")
	Flatbed Width	216mm (8.5")
	Flatbed Length	297mm (11.7")
Scanning width	Max. 215.9 mm (8.5")	
Printing width	Max. 215.9 mm (8.5")	
Gray scale	256 levels	
Polling type	None	
Resolution	Standard: 200dpi x 100dpi (8 dot/mm x 3.85 line/mm) Fine/Photo: 200dpi x 200dpi (8 dot/mm x 7.7 line/mm)	

Scanning Speed	Less than 5 sec. (A4 SEF, 200dpi)
Modem Speed	Automatic Fallback: 33600, 31200, 28800, 26400, 24000, 21600, 19200, 16800, 14400, 12000, 9600, 7200, 4800, 2400bps
SAF Memory	100 sheets (8 dots per mm x 3.85 line per mm)
Memory Backup	No
One-touch dial	8 locations
Abbreviated dial	100 locations
Broadcasting	100 stations
Communication source	Public switched telephone network
PC Fax utility	Yes (Only Transmission)
Automatic re-dial	5/4/3/2 times after 5 minutes (Default 5 times)
Auto Answer	3-5 rings (Default 3 rings)
LDAP authentication	No
LDAP address search	No