# Model S-P1 Machine Code: G176/G177

### **SERVICE MANUAL**

1st Edition, December 2006 2nd Edition, February 2008 3rd Edition, September 2008 Subject to change

### Safety, Conventions, Trademarks

#### Safety

#### PREVENTION OF PHYSICAL INJURY

- 1. Before disassembling or assembling parts of the printer and peripherals, make sure that the printer power cord is unplugged.
- 2. The wall outlet should be near the printer and easily accessible.
- 3. Note that some components of the printer and the paper tray unit are supplied with electrical voltage even if the main power switch is turned off.
- 4. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
- The inside and the metal parts of the fusing unit become extremely hot while the printer is operating.Be careful to avoid touching those components with your bare hands.
- 6. To prevent a fire or explosion, keep the machine away from flammable liquids, gases, and aerosols.

#### **HEALTH SAFETY CONDITIONS**

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**

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

#### SAFETY AND ECOLOGICAL NOTES FOR DISPOSAL

- Do not 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.

#### **ACAUTION**

- The controller board in this machine contains a lithium battery.
- The danger of explosion exists if a battery of this type is incorrectly replaced. Replace only with the same or an equivalent type of battery recommended by the manufacturer.
- Dispose of batteries in accordance with the manufacturer's instructions and local laws and regulations.

#### LASER SAFETY

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

#### **<b>⚠** WARNING

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

#### **⚠ WARNING**

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

#### **Caution Labels**



CAUTION-CLASS 3B INVISIBLE LASER RADIATION
WHEN OPEN AVOID EXPOSURE TO THE BEAM
VORSICHT-UKSICHTBARE LASERSTRA-LLING KLASSE 3B,
WEN ABBROOMS GEÖTTNET MICHT DEN STIAHL AUSSETZEN

X X

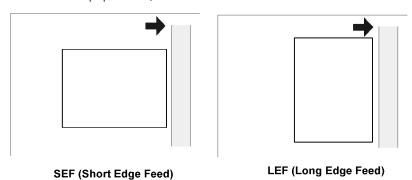
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#### Conventions and Trademarks

#### **Conventions**

Symbol	What it means		
	Refer to section number		
CI	See Core Tech Manual for details		
Î	Screw		
	Connector		
C	E-ring		
ℴ	C-ring		

The following notations are used in text to describe the direction of paper feed: lengthwise and sideways. The annotations "SEF" and "LEF" denote "Short Edge Feed" and "Long Edge Feed". (The arrows indicate the direction of paper feed.)



#### **Trademarks**

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

This manual uses several symbols and some simple abbreviations.

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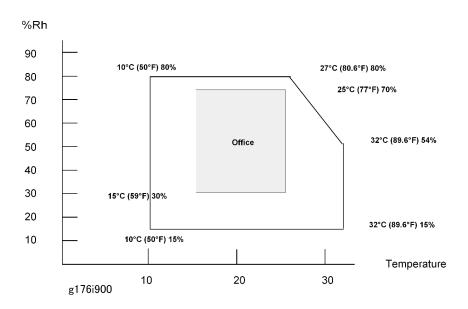
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### **Installation Requirements**

#### **Environment**



Temperature/Humidity Ranges:	Acceptable: 10C (50F) 15% to 27C (80.6F) 80%  Recommended (Office): 15C (59F) 30% to 25C (77F) 70%
Ambient Illumination:	Less than 2000 lux (do not expose to direct sunlight).
Ventilation:	3 times/hr/person

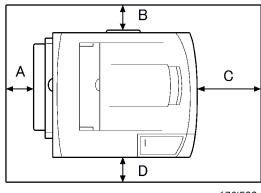
- 1. Avoid areas that are exposed to sudden temperature changes. This includes:
  - Areas directly exposed to cool air from an air conditioner.
  - Areas directly exposed to heat from a heater.
- 2. Do not install this machine in an area where it will be exposed to corrosive gases.
- 3. Do not install the machine at locations over 2,500 m (8,125 ft.) above sea level.
- 4. Put the machine on a strong and level base. Inclination on any side should not exceed 5 mm.
- 5. Do not put the machine where it may be subjected to strong vibrations.

#### Machine Level

Front to back:	Within 5 mm. (0.2 inches) of level.
Right to left:	Within 5 mm. (0.2 inches) of level.

#### Required Space

Place the machine near the power source, providing the clearance as shown below:



g176i500

- A: Over 10 cm (4 inches)
- B: Over 10 cm (4 inches)
- C: Over 40 cm (15.8 inches)
- D: Over 10 cm (4 inches)

### **Power Supply**

#### **ACAUTION**

- Make sure the plug is firmly inserted in the outlet.
- Avoid multi-wiring.
- Be sure to ground the machine.

Input voltage level	NA: 120 volts, 60 Hz	
Input voltage level	EU: 220-240 volts, 50 Hz/60 Hz	
Permitted voltage	Fluctuation: ±10 %	

### **ACAUTION**

• Never place anything on the power cord.

### **Machine Installation**

Refer to the following sections of the Operating Instructions for installation details for all models.

	Installing the Printer Unit: Quick Installation Guide.		
Main unit	Connecting the machine to a computer: Quick Installation	n Guide	
	Paper Feed Unit G894		
	Envelope Feeder G362		
	Duplex Unit G893		
	Memory Unit Type C 128 MB G331		
	Memory Unit Type C 256 MB G332		
	Hard Disk Drive Type 2650 M311	Hardware Guide, Section 2	
Options	IEEE 802.11b interface Unit Type H G813 *1		
	IEEE 802.11b Interface Unity Type I G874 *1		
	Gigabit Ethernet Board Type A G874 *1		
	VM Card Type D G874		
	Data Storage Card Type A G874		
	Data Overwrite Security Unit Type E G874	See next section of this manual.	
Drivers	For more about drivers and other software, see Section 1 of the Software Guide.		

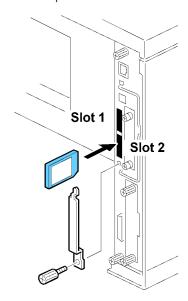
<sup>\* 1</sup> These units cannot be installed at the same time.

### **Data Overwrite Security Unit Installation**

#### Installation

#### **Important**

- The correct number and type for this installation is Type E. Do not attempt to install any other type (Type C, Type D, for example).
- The SD card that holds the DOS application must always reside in SD card slot C2. (This can be the
  original SD or another SD card where the DOS application has been moved with SP5873.)
- 1. If the machine is on, turn off the main power switch.
- 2. Disconnect the network cable.
- 3. Turn the main power switch on.
- 4. Turn the operation switch and main power switch off.



g176s510b

- 5. Remove the SD card slot cover ( $\mathcal{F}x1$ ).
- 6. Insert the DOS SD card into Slot 2.
- 7. Reconnect the network cable, if the network is connected to the copier.
- 8. Turn the main power switch on.
- 9. Enter the SP mode and do SP5878 and push [#Enter] to enable the DOS application.
- 10. Go out of the SP mode, turn the operation switch off, then turn the main power switch off.

#### **Checking and Completing the Installation**

Do this procedure to confirm that the data overwrite security feature is enabled and operating.

- 1. Turn the machine power on.
- 2. .Do SP5990 005 (Diagnostic Report) to print the diagnostic report
- 3. Check the diagnostic report.
  - Under [ROM No./Firmware Version] you should see "B7355060/0.03" displayed for "HDD Format Option".
  - Under [Loading Program] you should see "GW1a\_zoffy:B7355060/0.03"

#### Important

- The numbers in the diagnostic report must match. (The ROM number and firmware version number change after the firmware has been upgraded.)
- If the ROM numbers or version numbers do not match, this means that the DOS unit type was incorrect (not "Type E"),
- If this occurs:
  - (1) Obtain the Type E DOS unit card or confirm that the DOS unit is Type E.
  - (2) Replace the NVRAM on the controller board.
  - (3) Insert the Type E DOS unit SD card in Slot 2.
  - (4) Do the DOS unit installation procedure again.
- 4. Push and release in this order: [#Enter]> [Escape]> [Menu].
- 5. Push [▼] or [▲] to display "Maintenance" then push [#Enter].
- 6. Push [▼] or [▲] to display "Memory Erase" and "Erase All Mem."
- 7. If you see "Memory Erase" and "Erase All Mem." in the selections, then the DOS application has been enabled and is operating.

### 2. Preventive Maintenance

### **User Maintenance**

The customer can replace all PM items with the Maintenance Kit.

The user can maintain this machine. For more see "Printer Engine Service Mode".

The operation panel shows "Replace Maintenance Kit" when the PM counter reaches 90K. After the user replaces the fusing unit in the maintenance kit, the machine automatically resets the PM counter.

ltem	Quantity	Remarks
Fusing unit	1	
Transfer roller	1	
Paper feed roller	3	For standard and optional tray(s)
Friction pad	3	For standard and optional tray(s)

### **Service Maintenance**

To enable the machine for maintenance by the service technician, the meter-charge mode must be set to "enabled" with SP5930.

The table below shows the PM items serviced by the service technician.

After completing a PM procedure, reset the PM counter for the replaced part with SP7-804.

#### Symbol key:

- C: Clean
- R: Replace
- L: Lubricate
- I: Inspect

#### Main unit

ltem	90K	EM	Quantity	Remarks
Paper Feed				
Paper Feed Roller	R	С	1	Clean with water
Friction Pad	R	С	1	Clean with water
Registration Roller	С	С	1	Clean with water
Bottom Plate Pad	С	С	1	Clean with water
Around the Drum				
Transfer Roller	R		1	
Fusing Unit and Paper Exit				
Hot Roller	R		1	
Pressure Roller	R		1	
Hot Roller Strippers	R		3	
Fusing Thermistor	R	С	1	Clean with alcohol if necessary.
Bushings - Hot Roller	R		2	
Bushings - Pressure Roller	R		2	

İtem	90K	EM	Quantity	Remarks
Fusing Entrance and Exit Guide Plates	С		1 each	Clean with water or alcohol
Fusing Unit Ass'y 110V/220 V	R		1	

#### Paper Tray Unit

	90K	EM	Quantity	NOTE
Paper Feed Roller	R	С	1	Clean with water
Friction Pad	R	С	1	Clean with water
Bottom Plate Pad	С	С	1	Clean with water

### 3. Replacement and Adjustment

#### General

#### **Precautions on Disassembly**

#### **ACAUTION**

 Always turn off the main power switch and unplug the machine before attempting any of the procedures in this section.

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

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

#### Before servicing the machine:

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

Make sure all components are returned to their original positions.

#### Laser Unit

- Do not loosen or adjust the screws securing the LD drive board on the LD unit. Doing so will throw the LD unit out of adjustment.
- 2. Do not adjust the variable resistors on the LD unit, as these are permanently adjusted at the factory. If replacement of the LD drive board is necessary, replace the entire LD unit.
- 3. Keep the polygon mirror and toroidal lens free of dust. Laser performance is very sensitive to dust on these components.
- 4. Do not touch the shield glass or the surface of the polygon mirror with bare hands.
- Do not adjust the Laser Synchronization detector on the LD unit, as these are permanently adjusted at the factory. If the position of the Laser Synchronization detector has changed from the factory set position, SC 322 will be shown.

#### Transfer Roller

1. Never touch the surface of the transfer roller with bare hands.

2. Be careful not to scratch the transfer roller, as the surface is easily damaged.

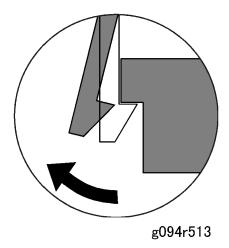
#### **Fusing**

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

#### Paper Feed

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

#### **Releasing Plastic Latches**



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

#### After servicing the machine

- 1. Make sure all parts that require grounding are properly grounded.
- 2. Make sure the interlock switch is functioning.
- 3. Do not leave unused solder or parts inside the machine.
- 4. Do not leave any tools inside the machine.

- 5. Make sure all wires are properly connected and routed.
- 6. Make sure wires are not jammed between parts of the machine.

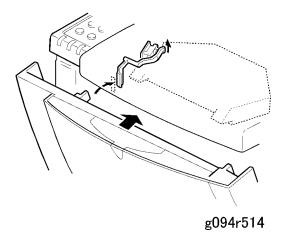
## **Special Tools**

	Part No.	Description	Q'ty	Remarks
1	B6455010	SD Card	1	Common
2	B6456700	PCMCIA Card Adapter	1	Common
3	B6456800	USB Reader/Writer	1	Common
4	VSSM9000	Digital Multimeter – FLUKE 187	1	Common
5	A0069104	Scanner Positioning Pin	1	Common
6		Ricoh System Information Tool (Support Tool Ver. 2)		
		Basic version	1	
		Mail version	1	

#### 3

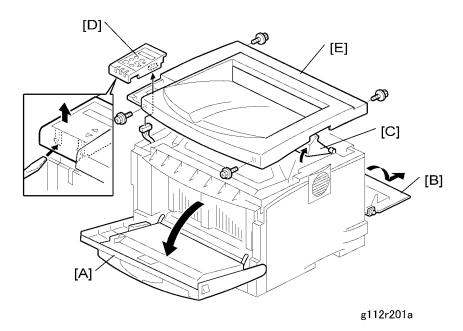
### Covers

#### Front Cover



To open the front cover, gently push the cover inward (hooks x2).

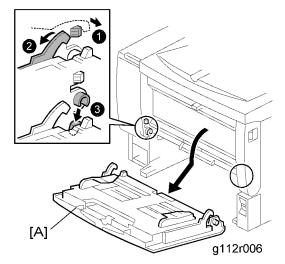
### **Upper Cover**



[A] Open the front cover.

- [B] Open the rear cover, then remove the AIO.
- [C] Open the exit guide plate.
- [D] Operation panel (2 hooks)
- [E] Upper cover (⋛x4, 록型x1)
- UNote
  - Remove the exit guide plate after you have removed the upper cover.

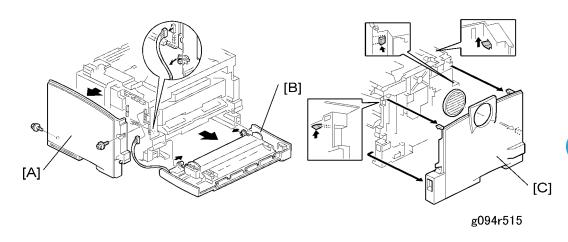
#### By-pass Tray Unit



- **U** Note
  - Remove the by-pass tray unit before removing the exterior covers.
  - Remove the paper tray.
  - Remove the by-pass tray unit before removing the exterior covers.

[A] By-pass tray unit (hooks x2)

#### **Exterior Covers**



To remove the left or right cover, separate the machine from the optional paper tray unit first.

- [A] Left cover (Fx 2)
- [B] Front cover (♠ x3, ៧ x2)
- [C] Right cover (hooks x3, fan cover x1)



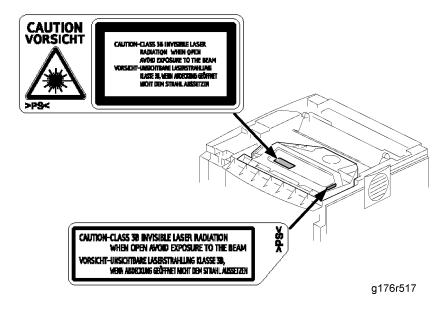
• Pull out the standard paper tray before removing the front cover.

#### **ACAUTION**

Laser Unit

• Turn off the main power switch and unplug the machine before attempting any of the procedures in this section. Laser beams can seriously damage your eyes.

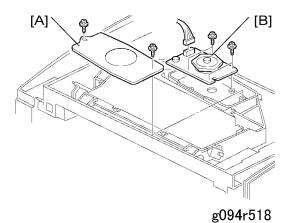
#### **Caution Decal Locations**



#### **Polygon Mirror Motor**

#### **ACAUTION**

• Turn off the main switch and unplug the machine before attempting any of the procedures in this section. Laser beams can seriously damage your eyes.

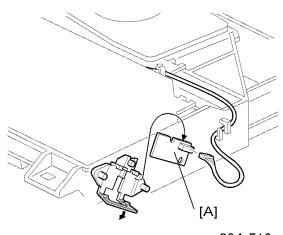


- Upper cover ( See "Upper Cover")
- [A] Polygon mirror cover ( x 2)



• Never touch the surface of the mirror with bare hands.

#### Laser Synchronization Detector

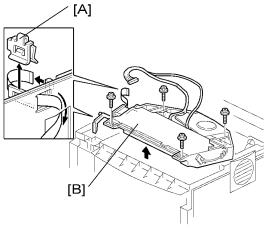


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- Upper cover (See "Upper Cover")
- By-pass tray unit (See "Bypass Tray Unit")
- Exterior covers (See "Exterior Covers")

[A] Laser synchronization detector (🗐 x1)

#### Laser Unit



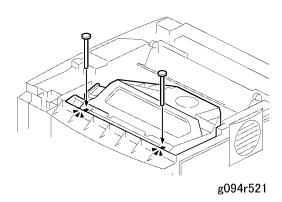
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- Upper cover (See "Upper Cover")
- Exterior covers (See "Exterior Covers")

[A] Clip

[B] Laser unit ( $\mathscr{F} \times 4$ , 1 flat cable,  $\mathscr{F} \times 2$ )

When reinstalling the laser unit.

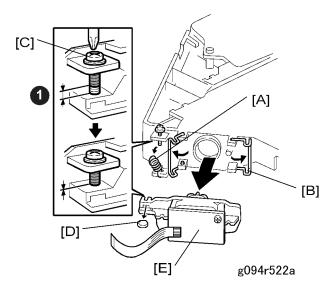


Use the scanner positioning pins (P/N: A0069104) to reinstall the unit.

Set the positioning pins as shown above. Then secure the laser unit.

K

#### Laser Diode Unit



- Laser Unit (See "Laser Unit")
- [A] Spring
- [B] LD unit holders (x 2)
- [C] Loosen the screw
- [D] Nut
- [E] LD Unit



- Do not remove the screws that secure the LD board.
- Do not touch any variable resistors on the LD board.

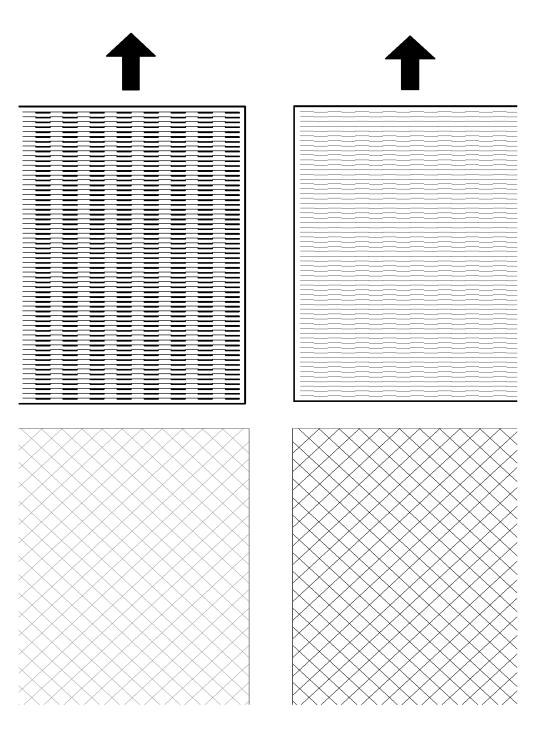
#### Reinstallation:

- Tighten the screw [C] until the unpainted portion of the screw is not visible.
- After installing the LD unit, check the test pattern for the final adjustment (see the following procedure).

#### Laser Beam Pitch Adjustment

- 1. Print out the following test patterns cross-stitch pattern and two-dot argyle pattern.
  - Select the test pattern with SP 2902.
  - After selecting a pattern, the display automatically goes to SP 5902. Use SP 5902-1 to print
    one test pattern.

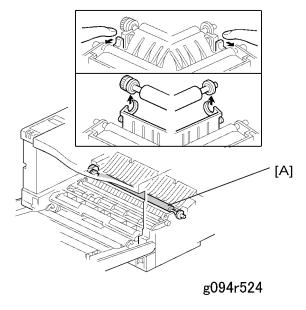
- After completing the adjustment, reset SP 2902 to 'no specified'.
- 2. Check these test patterns. If the laser beam pitch is not correct, the images are as follows.
  - Cross-stitch pattern: Vertical black strips seem to appear.
  - Argyle pattern: The density of the diagonal lines is light or the lines have disappeared.
- 3. Adjust the LD unit holder position: Tighten or loosen the screw [C] (see the previous page) until the printout appears as follows.
  - Cross-stitch pattern: The thin lines are of uniform thickness (no striping effect should appear on the printout).
  - Grid pattern: The diagonal lines appear clearly and are of normal density.



Adjustment not complete

Adjustment complete g094r523

### **Transfer Roller**



• Remove the AIO.

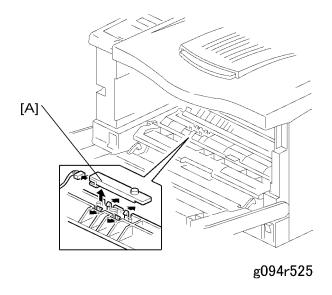
[A] Transfer roller



• Do not touch the transfer roller surface.

#### K

### **Toner End Sensor**



• Remove the AIO.

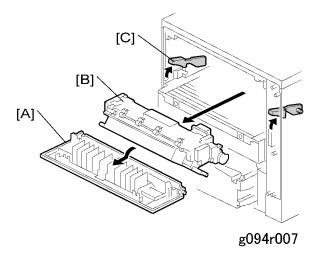
[A] Toner end sensor (hooks x4, 🗐 x 1)

### **Fusing**

#### **ACAUTION**

• Allow time for the unit to cool before doing the following procedure.

#### **Fusing Unit**



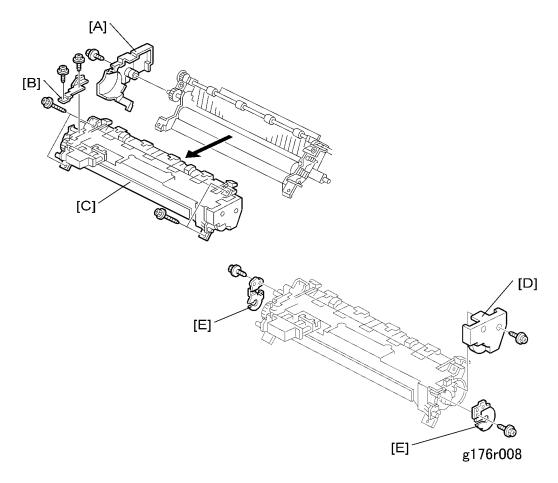
[A] Rear cover

[B] Fusing unit hooks [C] (x2).



• Lift both hooks before attempting to remove the fusing unit from the machine.

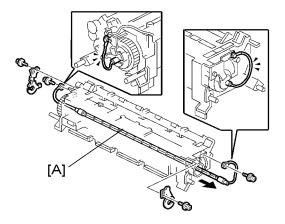
## Hot Roller and Fusing Lamp

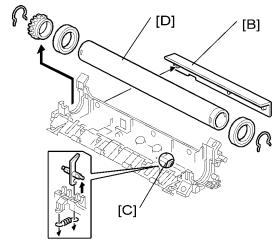


- Fusing Unit (See "Fusing Unit")
- [A] Left cover ( Fx 1)
- [B] Plate ( F x 2)
- [C] Upper fusing unit assembly ( $\hat{\mathscr{E}} \times 4$ , Springs x2)
- [D] Right cover (F x 1)
- [E] Lamp holders (F x 1 each)

## **U** Note

- Remove both springs before taking apart the fusing unit assembly. The reason for this is to relieve pressure on the unit.
- When reinstalling the fusing unit assembly, install both springs last. The reason for this is to reset the springs back to their default position.





g094r526

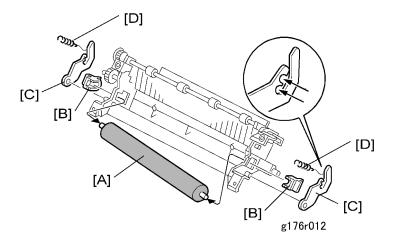
[A] Fusing Lamp ( Fx2)



- The colored cable must be at the hot roller gear side.
- [B] Guide plate (3 hooks)
- [C] Hot roller strippers (1 spring each)
- [D] Hot roller (2 C-rings, 1 gear, 2 bushings)

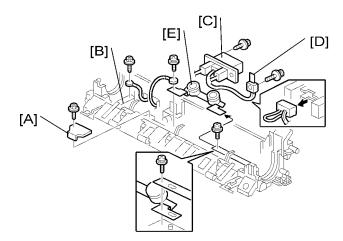
- · Before removing the hot roller from the unit, remove the gear and the pin first,
- Use a small screwdriver to separate the guide plate from the unit.
- Before installing the new hot roller, peel off 3 cm (1 inch) from both ends of the protective sheet on the new hot roller. Be sure to remove the remaining paper before starting the machine.

## **Pressure Roller**



- Fusing Unit (See "Fusing Unit")
- Hot roller and fusing lamp (See "Hot Roller and Fusing Lamp")
- [A] Pressure roller
- [B] Bushing
- [C] Pressure roller lever
- [D] Spring

## Thermistor and Thermostat

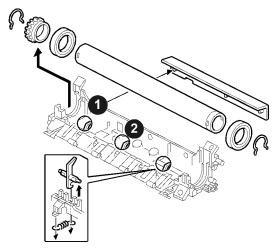


g094r011

• Hot roller and fusing lamp (See "Hot Roller and Fusing Lamp")

- [A] Wire cover ( Fx 1)
- [B] Grounding plate (F x 2, 1 wire)
- [C] Fusing unit connector ( x 6, all x1, 2 hooks)
- [D] Thermistor (ℰx 1, 🗐 x 1)
- [E] Thermostat ( Fx 1)
- Mportant (
  - When removing the thermistor, remove the entire unit first and then separate it into two parts.
  - Do not touch the thermostat with your hands.

## **Hot Roller Strippers**



g094r003

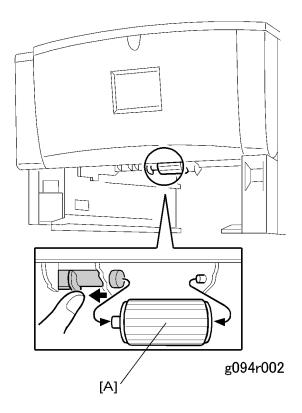
• Hot roller and fusing lamp (See "Hot Roller and Fusing Lamp")



• Two extra hot roller strippers •, • are installed for a better grip on narrow paper. This prevents paper from curling around the hot roller. When installing the extra hot roller strippers, insert them in the two slots using a small pair of pliers until they snap into place.

# **Paper Feed**

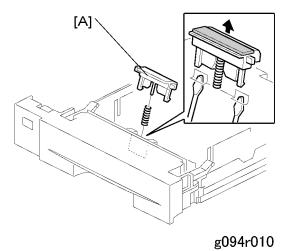
## Paper Feed Roller



• Pull out the paper tray before removing the paper feed roller.

## [A] Paper feed roller

## **Friction Pad**



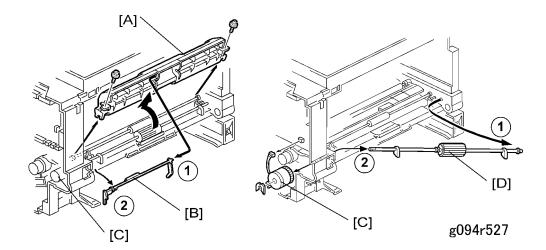
• Remove the paper tray unit from the machine before removing the friction pad.

[A] Friction pad (2 hooks, 1 spring)

## When reinstalling the friction pad follow this order

- 1. Replace the spring.
- 2. Insert the right side of the friction pad first followed by the left side.
- 3. Gently push the friction pad down into the slot and then pull forward very slightly.

# **By-pass Tray**

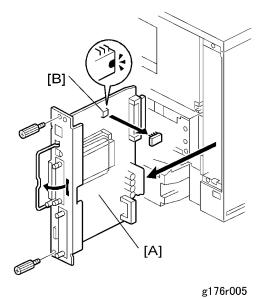


- Left Cover (See "Exterior Covers")
- Front Cover (See "Exterior Covers")
- Remove the AIO.
- [A] Paper guide (🛱 x 2)
- [B] Actuator
- [C] Clutch ((() x1)
- [D] By-pass feed roller

## When reinstalling the paper guide.

- 1. Set the paper guide on the bushing.
- 2. Install the right part of the actuator on the paper guide.
- 3. Install the left part of the actuator in the machine.
- 4. Install the paper guide.
- 5. Check that the actuator moves smoothly and swings freely.

# **Printer Controller Board**



[A] Printer controller board (F x 2)

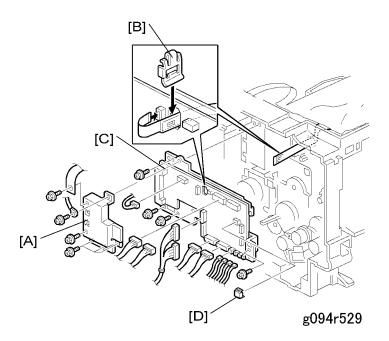
## [B] NVRAM

• Remove the NVRAM from the old printer controller board and insert it on the new board.



- The screws on the printer controller board are hand screws. Gently turn these screws when removing the printer control board.
- Pull on the handle to remove the printer controller board from the machine.

# **Engine Board**



- Left cover (See "Exterior Covers")
- Printer controller board (See "Printer Controller Board")

[A] Bracket ( \$\beta\$ x7, 1 grounding wire)

## **☆ Important**

• Be careful not to damage the flat cable.

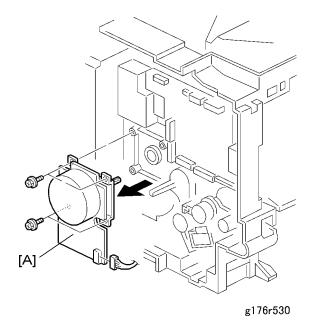
[B] Clip

[C] Engine board ( F x4, all connectors)

## **☆ Important**

• Remove the NVRAM [D] from the old engine board and insert it on the new board.

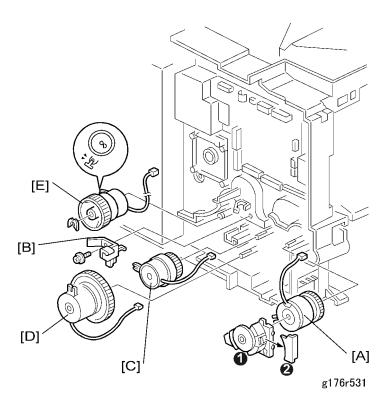
# **Main Motor**



• Left cover (See "Exterior Covers")

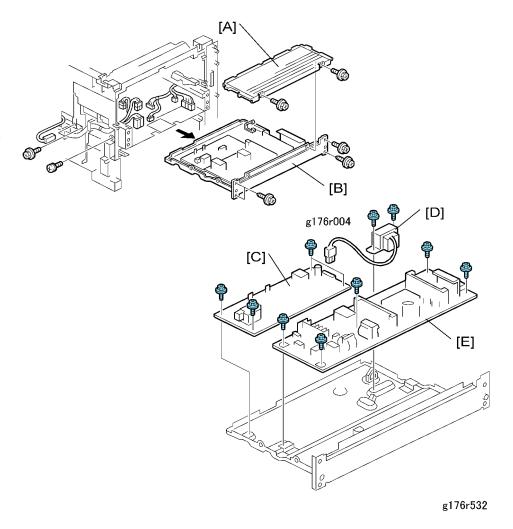
[A] Main motor (⋛ x4, 록 x 1)

# Clutches



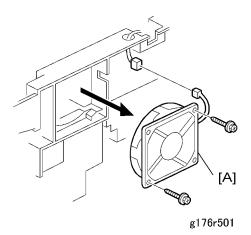
- Left cover (See "Exterior Covers")
- [A] By-pass feed clutch (© x 1) with clutch bracket ●, holder ●
- [B] Stopper (⋛ x 1)
- [C] Relay clutch (⟨⟨⟩ x 1, 🖆 x 1)
- [D] Paper feed clutch (□ x 1)
  - Main motor (See "Main Motor")
- [E] Registration clutch ( $\langle \! \! \langle \! \! \rangle \! \! x \, 1$ ,  $\square \! \! \! \! \! \square \! \! \! \! \! x \, 1$ )

# PSU, HVPS



- Left cover. See "Exterior Covers"
- Fusing unit. See "Fusing Unit"
- [A] PSU cover ( F x 2)
- [B] PSU assembly ( $\mathscr{F} \times 7$ , all connectors)
- [C] High voltage supply board ( F x 4)
- [D] **230-volt machine only**: Choke coil ( $\mathscr{F} \times 2 \mathrel{\square} \times 1$ )
- [E] PSU (⋛x 5)

# **Cooling Fan**



• Right cover (See "Exterior Covers")

[A] Cooling fan (🕸 x 2, 🗐 x 1)



• The cooling fan must be reinstalled in its original position. Do not reinstall the cooling fan opposite to the original position.

# 4. Troubleshooting

## **Service Call Conditions**

## **Summary**

There are 4 levels of service call conditions

Level	Definition	Reset Procedure
А	Fusing unit SCs shown on the operation panel. The machine is disabled. The user cannot reset the SC.	<ol> <li>Do SP5810 and press [#Enter].</li> <li>When "execute" is displayed, press [#Enter] again.</li> <li>Press [Escape].</li> <li>Turn the machine power off/on.</li> </ol>
В	These SCs disable only the features that use the defective item. The user does not see these SCs in usual conditions. But, they are shown on the operation panel when the defective feature is used.	Set the main power switch to "off" then to "on".
С	SCs that are not shown on the operation panel. They are recorded internally.	Recorded only.
D	These SCs are shown on the operation panel. To reset these SCs, turn the operation switch or main power switch off and on. These SCs are shown again if the error occurs again.	Set the operation switch or the main power switch to "off" then to "on".



- If the problem is with electrical circuit boards, disconnect the connectors first. Then reconnect the connectors before you replace the PCBs.
- If the problem is with a motor lock, first examine the mechanical load. Then replace motors or sensors.

## **SC Code Descriptions**

302	В	Charge roller current leak	Cartridge (charge roller) defective
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		The PWM duty output exceeded 60% for longer than 200 ms., indicating a leak in the charge roller current.	<ul> <li>High voltage supply board defective</li> <li>Defective cartridge connection</li> </ul>
320	В	Polygon motor error  The polygon motor did not enter the lock state within 20 sec. after it switched onor- Once the polygon motor was detected in the lock state after started to rotate, within 0.6 sec. it entered the unlock stateor- After the polygon motor switched off, it did not enter unlock state within 20 sec.	<ul><li>Polygon motor</li><li>Polygon motor cable</li></ul>
322	В	1 st beam laser synchronization error  With all doors closed the polygon motor is locked and not rotating, or the laser synchronization detector could not detect 1 st beam laser detection signal within 5 ms	<ul> <li>Laser synchronization detector board out of position</li> <li>Laser synchronization detector board or cable defective</li> <li>Laser synchronization mirror out of position</li> <li>LD unit defective</li> <li>Engine board defective</li> </ul>
323	В	LD drive current exceeded  The LD driver detected an error for 500 ms.	LD unit defective
326	В	2nd beam laser synchronization error  With all doors closed the polygon motor is locked and not rotating, or the laser synchronization detector could not detect 2nd beam laser detection signal within 500 ms.	<ul> <li>Laser synchronization detector board out of position</li> <li>LD unit defective</li> <li>Engine board defective</li> </ul>
320	В	Polygon motor error	<ul><li>Polygon motor</li><li>Polygon motor cable</li></ul>

The polygon motor did not enter the lock state within 10 sec. after it switched on. Once the polygon motor was detected in the lock state after started to rotate, within 0.6 sec. it entered the unlock state... -or-After the polygon motor switched off, it did not enter unlock state within 20 sec. Development bias leak • High voltage supply board defective 391 В A development bias leak signal was detected Defective cartridge connection for 200 ms. Main motor error Main motor defective A main motor lock signal was not detected 500 В Mechanical overload on the drive within 700 ms after the main motor started to mechanism rotate Fusing thermistor error • Thermistor disconnected, defective The fusing temperature did not rise higher than Fusing lamp disconnected, 20°C within 11 sec. after the main motor defective switched off. 541 Fuse blown -or-Power supply board defective The fusing temperature was detected lower than 0°C for over 1 sec. after the power relay • Fusing unit connected improperly switched on. Thermistor defective Fusing temperature warm-up error Fusing lamp open Just before reaching warm-up temperature, • Fusing thermostat open the fusing temperature did not rise above 542 80°C within 17.5 sec. after the power relay • Power supply board Defective switched on. · Defective connection of the fusing Note: unit

		<ul> <li>The machine starts to test the temperature 2 sec. after the machine powers on if the machine temperature is above 45°C.</li> <li>If the machine temperature is below 45°C, the temperature is not sampled until the machine temperature reaches 45°C.</li> </ul>	
		Fusing overheat error – software	
543	A	The fusing temperature was detected higher than 245°C for longer than 200 ms while the main motor was on or within 60 sec. after the main motor switched off.  -or- The fusing temperature was detected higher than 235°C for longer than 200 ms at any other time.	<ul> <li>Fusing thermistor defective</li> <li>Power supply board defective</li> </ul>
545	A	Fusing lamp remains on  The fusing lamp remained on longer than 12 sec. after the fusing unit reached optimum temperature and the main motor switched off.	<ul> <li>Fusing thermistor defective</li> <li>Power supply board defective</li> <li>Defective connection of the fusing unit</li> </ul>
		1	
546	6 A	Unstable fusing temperature  During standby, the fusing temperature went below 60 °C twice or went above 60 °C three times within 500 ms.	<ul> <li>Fusing thermistor defective</li> <li>Power supply board defective</li> <li>Defective connection of the fusing</li> </ul>
		A 60°C increase in fusing temperature was detected at five 1-sec. intervals within 60 to 90 sec. before reaching fusing temperature.	unit
		Zero cross signal error	• D
547	В	Zero cross signals of wavelength 50-60 Hz	<ul><li>Power supply board defective</li><li>Defective mains power supply</li></ul>

condition

were not detected within 5 sec after the fusing

relay switched on.

		-or- Zero cross interrupts did not issue at the prescribed 1 sec. intervals.	
559	А	Fusing unit jam  Three consecutive paper lag jams (paper failed to arrive) were detected in the fusing unit.  -or-  During printing of the 1st side during duplexing, the paper did not arrive at the duplex entrance sensor three times.  Note: SP1913 determines whether SC559 is after three consecutive jams in the paper unit power off/on does not reset the jam counter	. If <b>SP1913</b> is set to on, turning the machine
590	В	Fan motor error  The machine detected an error in the fusing unit fan or the PSU fan. Either or both fan motors started to rotate within 10 sec. after power on.	<ul> <li>Fan motor disconnected, defective</li> <li>Fan motor harness loose, broken, defective</li> </ul>
610	В	Communication error - duplex unit  The engine board could not communicate with the duplex unit. (The duplex unit did not respond within 1 sec. to a status request.)  Note: This SC is logged, not displayed.	<ul> <li>Defective connection between engine board and duplex unit</li> <li>Engine board defective</li> <li>Duplex control board defective</li> </ul>
634	В	Key/card counter device error 3  The backup battery of the counter device RAM is low.	Replace the RAM backup battery.
635	В	Key/card counter device error 4	

After installation of the device a message
alerts user to a battery voltage abnormal
error.

- Device control board defective
- Device control board backup battery defective

650	В		Communication error – GAVD I2C	
		The engine board detected an unknown device on the I2C I/F bus (internal bus on the engine control board).	Engine board defective	
		The engine board detected an I2C I/F bus error. The number of devices connected to the I2C bus exceeded 12.		

621		Communication error – FCI I2C	<ul> <li>Engine board defective</li> </ul>
	В	The engine board detected an unknown device on the I2C I/F bus (internal bus on the engine control board).	
		The engine board detected an I2C I/F bus error.	
		The number of devices connected to the I2C bus exceeded 12.	

		Communication error – FCI I2C	
651	В	The engine board detected an unknown device on the I2C I/F bus (internal bus on the engine control board).	Engine board defective
		The engine board detected an I2C I/F bus error.	
		The number of devices connected to the I2C bus exceeded 12.	

		NVRAM Error	
669	A	The NVRAM was not connected at power on, or read/write operations on the NVRAM failed.	<ul><li>NVRAM connected improperly</li><li>NVRAM missing</li></ul>

670		Engine startup error	
	D	The BCU failed to respond with the prescribed time when the machine was	<ul> <li>Connections between BCU and controller board are loose, disconnected, or damaged</li> </ul>
		turned on.	Replace the BCU
			Replace the controller board





		Controller startup error			
672	D	After power on, the line between the controller and the operation panel did not open for normal operation.  After normal startup, communication with the controller stopped.	<ul> <li>Controller stalled</li> <li>Controller installed incorrectly</li> <li>Controller board defective</li> <li>Operation panel harness disconnected or defective</li> </ul>		



819	С	Fatal kernel error		
		Due to a control error, a RAM overflow occurred during system processing. One of the following messages was displayed on the operation panel.		<ul> <li>System program defective</li> <li>Controller board defective</li> <li>Optional board defective</li> <li>Replace controller firmware</li> </ul>
		0x696e	init died	
		0x766d	vm_pageout: VI	M is full
		4361	Cache Error	
		Other		

For more details about this SC code error, execute SP5990 to print an SMC report so you can read the error code. The error code is not displayed on the operation panel.

		Self-Diagnostic Error: CPU	Controller board defective	
820	D	The central processing unit returned an error during the self-diagnostic test.	Software defective	

		Self-diagnostic error 2: ASIC	
821	D	The ASIC provides the central point for the control of bus arbitration for CPU access, for option bus and SDRAM access, for SDRAM refresh, and for management of the internal bus gate.	ASIC (controller board defective)

For more details about this SC code error, execute SP5990 to print an SMC report so you can read the error code. The error code is not displayed on the operation panel.

822	В	Self-dia	Self-diagnostic error 3: HDD		
		3003	Check performed when HDD is installed: HDD device busy for over 31 s. After a diagnostic command is set for Sthe HDD, but the device remains busy for over 6 s. A diagnostic command is issued to the HDD device but the result is an erro		HDD defective     HDD harness     disconnected, defective     Controller board defective
		3004	No response to the self-diagnosti from the ASIC to the HDDs	c command	HDD defective
823	В	Self-diagnostic Error: NIC  The network interface board returned an error during the self-diagnostic test.  • Network interface board defective		·	
		Self-dia	gnostic error 4: NVRAM		
824	D		A device does not exist, NVRAM is damaged, NVRAM socket ed	<ul><li>Contro</li><li>NVRA/</li></ul>	M defective ller board defective M backup battery exhausted M socket damaged
826	D		gnostic Error: NVRAM/ al NVRAM	in its so	sure NVRAM is seated correctly ocket te the NVRAM on the controller

diagnostic test.		The NVRAM or optional NVRAM returned an error during the self-	
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		Self-diagnostic Error: RAM	Update controller firmware again
827	D	The resident RAM returned a verify error during the self-diagnostic test.	,
		Self-diagnostic error 7: ROM	
828	D	Measuring the CRC for the boot monitor and operating system program results in an error.  A check of the CRC value for ROMFS of the entire ROM area results in an error.	<ul><li>Software defective</li><li>Controller board defective</li><li>ROM defective</li></ul>

For more details about this SC 833, SC834 error, execute SP5990 to print an SMC report so you can read the error code. The error code is not displayed on the operation panel. The additional error codes (0F30, 0F31, etc. are listed in the SMC report.

		Self-diagnostic Error: Optional RAM	Replace the optional memory board	
829	В	The optional RAM returned an error durin the self-diagnostic test.		
		T		
		Self-diagnostic Error: Clock Generator		
838	D	A verify error occurred when setting data was read from the clock generator via the I2C bus.	Replace the controller board	
		IEEE 1394 I/F error		
851	В	Driver setting incorrect and cannot be	NIB (PHY), LINK module defective; change the Interface Board	

• Controller board defective

used by the 1394 I/F.

		Wireless LAN Error 1	
853	В	During machine start-up, the machine can get access to the board that holds the wireless LAN, but not to the wireless LAN card (802.11b or Bluetooth).	Wireless LAN card missing (was removed)

		Wireless LAN Error 2	
854	В	During machine operation, the machine can get access to the board that holds the wireless LAN, but not to the wireless LAN card (802.11b or Bluetooth).	Wireless LAN card missing (was removed)
		Wireless LAN error 3	
855	В	An error was detected on the wireless LAN card (802.11b or Bluetooth).	<ul><li>Wireless LAN card defective</li><li>Wireless LAN card connection incorrect</li></ul>
856		Wireless LAN error 4	
	В	An error was detected on the wireless LAN card (802.11b or Bluetooth).	<ul><li>Wireless LAN card defective</li><li>PCI connector (to the mother board) loose</li></ul>
		USB I/F Error	
857	В	The USB driver is not stable and caused an error.	Bad USB card connection     Replace the controller board
		HDD startup error at main power on	
860	В	HDD is connected but a driver error is detected.  The driver does not respond with the status of the HDD within 30 s.	<ul><li>HDD is not initialized</li><li>Level data is corrupted</li><li>HDD is defective</li></ul>
861	D	HDD re-try failure	

At power on the HDD was detected. Power supply to the HDD was interrupted after the system entered the energy save mode, but after the HDD was awakened from the energy save mode it did not return to the ready status within 30 sec.

- Harness between HDD and controller board disconnected, defective
- HDD power connector disconnected
- HDD defective
- Controller board defective

		HDD data read failure			
863	D	The data written to the HDD cannot be read normally, due to bad sectors generated during operation.	• HDD defective  Note: If the bad sectors are generated at the image partition, the bad sector information is written to NVRAM, and the next time the HDD is accessed, these bad sectors will not be accessed for read/write operation.		
864	D	HDD data CRC error  During HDD operation, the HDD cannot an CRC error query. Data transfer did r			

		HDD access error	
865	D	HDD responded to an error during operation for a condition other than those for SC863, 864.	HDD defective.

normally while data was being written to the HDD.

866		SD card error 1: Confirmation
	В	The machine detects an electronic license error in the application on the SD card in the controller slot immediately after the machine is turned on. The program on the SD card contains electronic confirmation license data. If the program does not contain this license data, or if the result of the check shows that the license data in the program on the SD card is incorrect, then the checked program cannot execute and this SC code is displayed.
		<ul> <li>Program missing from the SD card</li> <li>Download the correct program for the machine to the SD card</li> </ul>

		SD card error 2: SD card removed		
867	D	The SD card in the boot slot when the machine was turned on was removed while the machine was on.	• Insert the SD card, then turn the machine off and on.	



		SD card error 3: SC card access		
868	D	An error occurred while an SD card was used.	<ul> <li>SD card not inserted correctly</li> <li>SD card defective</li> <li>Controller board defective</li> <li>Note: If you want to try to reformat the SC card, use SD Formatter Ver 1.1.</li> </ul>	

# Address book data error Address book data on the hard disk was detected as abnormal when it was accessed from either the operation panel or the network. The address book data cannot be read from the HDD or SD card where it is stored, or the data read from the media is defective.

An error was detected on the HDD

immediately after the machine was

- HDD defective.
- Initialize the HDD with SP5832. If this does not solve the problem, replace the HDD and initialize with SP5832.

**Note**: If you turn off the machine while the HDD is being accessed, this can damage the HDD.

872	В	HDD mail receive data error  The machine detected that the HDD was not operating correctly at power on.  The machine detected that the HDD was not operating correctly (could	HDD defective.     Initialize the HDD with SP5832. If this does not solve the problem, replace the HDD and initialize with SP5832.
		neither read nor write) while processing incoming email	<b>Note</b> : If you turn off the machine while the HD is being accessed, this can damage the HDD
		HDD mail send data error	

• HDD defective.

873

В

		turned on, or power was turned off while the machine used the HDD.	Initialize the HDD with SP5832. If this does not solve the problem, replace the HDD and initialize with SP5832.  Note: If you turn off the machine while the HDD is being accessed, this can damage the HDD.	
	D	Delete All error 1: HDD		
874		A data error was detected for the HDD/NVRAM after the Delete All	Turn the main switch off/on and try the operation again.	
		option was used.  Note: The source of this error is the Data Overwrite Security Unit B660	Install the Data Overwrite Security Unit	
			again. For more, see section "1. Installation".	
		running from an SD card.	HDD defective	

	D	Delete All error 2: Data area		
875		An error occurred while the machine deleted data from the HDD.  Note: The source of this error is the Data Overwrite Security Unit B660 running from an SD card.	<ul> <li>Turn the main switch off/on and try the operation again.</li> </ul>	
876	D	Log data abnormal		
		An error was detected in the handling of the log data at power on or during machine operation. This can be caused by switching the machine off while it is operating.	<ul><li>Software error. Update the firmware</li><li>NVRAM defective</li><li>HDD defective</li></ul>	
		File Format Converter (MLB) error		
880	В	A request to get access to the MLB was not answered within the specified time.	MLB defective, replace the MLB	



B A request to get access to the MLB was not answered within the specified time.			MLB defective, replace the MLB
	900 D Electrical total counter error		

The total counter contains something that is not a number.	<ul> <li>NVRAM incorrect type</li> <li>NVRAM defective</li> <li>NVRAM data scrambled</li> <li>Unexpected error from external source</li> </ul>
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		Printer error 1	
920	В	An internal application error was detected and operation cannot continue.	<ul> <li>Software defective; turn the machine off/on, or change the controller firmware</li> <li>Insufficient memory</li> </ul>

		Software error 1	
990	D	The software performs an unexpected function and the program cannot continue.	Software defective, re-boot* 1

		Software error 2		
991	С	The software performs an unexpected function. However, unlike SC990, recovery processing allows the program to continue.	Software defective, re-boot*1	

- \* 1: In order to get more details about SC990 and SC991:
  - 1. Execute SP7403 or print an SMC Report (SP5990) to read the history of the 10 most recent logged errors.
- 2. If you press the zero key on the operation panel with the SP selection menu displayed, you will see detailed information about the recently logged SC990 or SC991, including the software file name, line number, and so on. 1) is the recommended method, because another SC could write over the information for the previous SC.

			Model information error	
99	95	Α	The CPM information sent from the controller to the engine immediately after power on did not match the DIP SW settings.	Engine firmware not installed correctly









# **Error Messages**

Here is a list of common error messages, a description of the problems, and their solutions. This is just a reference information.

1st/2nd Message	Problem/Solution
Cannot check, Signal in Ad hoc	Disable Ad hoc in the Comm. Mode settings.
Cannot duplex Tray #/ Press Form Feed or reset the Job	Duplexing prohibited from specified tray.  Cancel duplex mode  Press [Form Feed] or [Job Reset].
Cannot install from this SD card	SD card contains a DOS (Data Overwrite Security) program that has already been installed for another machine.  • Contact system administrator.
Certificate auto renewal failed	Automatic certificate renewal has failed.  • Call your service provider.
Change Setting Tray #/Paper Size:, Paper Type:	The paper size/paper type settings in the application program and printer driver do not match.  • Change the paper type on the paper type setting menu on the machine operation panel  • Push [Form Feed]  • Cancel the print job.
Change Setting Tray #/ Paper Size:, Paper Type:	The paper size/paper type settings in the application program and printer driver do not match.  Do one of the following:  • Load the tray with the correct paper  • Change the paper size using the dial or the special paper size setting menu on the operation panel.  • Push [Form Feed]  • Cancel the print job.
Close Duplex Unit Cover	The duplex unit cover is open.  • Close the duplex unit cover.
Close Front Cover	The front cover is open.  • Close the front cover.

1st/2nd Message	Problem/Solution	
Close Rear/Paper Exit Cover	The paper output tray cover or the rear cover is open, or both covers are open.  • Check the covers, make sure they are closed.	
DHCP assigned, Cannot change	DHCP has been enabled to assign network addresses of: IP address, subnet mask, gateway address.  • Disable DHCP in host interface network setup to change	
	any of these addresses.	
Error: Enter 10, or 26 Characters	Number of hex characters entered for the WEP key is incorrect.  • Enter correct number of characters.	
Error: Enter 5, or 13 Characters	Number of ASCII characters entered for the WEP key is incorrect.	
	Enter correct number of characters.	
Hardware Problem, Ethernet	Machine detected an Ethernet error.	
Trataware Froblem, Emerici	Replace controller board.	
Hardware Problem, HDD	Machine identified a HDD Board error.  • Replace HDD board.	
Hardware Problem, Option RAM	Machine detected an optional RAM error.  • Replace optional RAM.	
Hardware Problem, Parallel I/F	Machine failed self-diagnostic test due to a loop back error.  • If parallel I/F is in use, replace the IEEE1284 interface board.	
Hardware Problem, Printer Font	Problem with machine font file.  • Replace print module.	
Hardware Problem, USB	Machine detected a USB I/F board error.  • Replace the USB I/F board.	
Hardware Problem, Wireless Board	Access to the IEEE 802.11b board was possible, but an error has been detected.	
	Machine can access IEEE802.11b board but an error was detected.	
	Confirm that the board is installed correctly.	

1 st/2nd Message	Problem/Solution	
Hardware Problem, Wireless Card	Machine failed to access IEEE 802.11b board.  • Confirm that the board is installed correctly.	
Invalid Data, Power Off On	Machine has received spurious data.  • Turn the printer off/on.	
	The invalid password was entered and Locked Print or Saved File Print is not applicable.	
Invalid Password, Try again	Invalid password entered, Locked Print or Saved File Print cannot apply.	
, , , , , , , , , , , , , , , , , , , ,	Printer displays this message for 4 sec., then returns to previous display.	
	Enter correct password.	
Load Correct Size Paper/Paper Size:,	Size of paper selected does not match size selected with dial on paper tray.  • Use the dial to select the correct paper size.	
Paper Type:	-or-	
	Press [Form Feed].	
Load Paper: Tray# or Form Feed	The specified tray is out of paper.	
Loud Paper. Hayn or Form Feed	Load paper in the specified tray.	
Menu Protected, Cannot change	The operation panel has been digitally locked, settings cannot be changed. Message displays for 5 sec., returns to previous display.	
Misfeed: Duplex Check paper size/ Open Duplex Unit cover	Paper fed from bypass tray jammed in duplex unit.	
Misfeed: Internal, Check paper size/ Open Front Cover	Paper fed from bypass tray jammed in duplex unit.	
Misfeed: Ppr, Exit Check paper size/ Open Paper Exit Cover	Paper fed from bypass tray jammed in duplex unit.	
Misfeed: Ppr. Tray, Check paper size/ Pull out Tray	Paper is jammed in the duplex unit.	
No Files exist	No files available for deleting or printing. This error displays for 3 sec., then machine returns to previous display.	

1st/2nd Message	Problem/Solution		
Press # to continue/ Paper Size:, Paper Type:	Requested paper size does not match dial setting on the paper tray.  • Press [#] to start printing.		
Proxy User Name, Password error	Proxy user name and password are incorrect.  • Change current user name and password to the correct user name and password.		
Proxy setting or connection error	<ol> <li>Proxy address port No. is invalid, 2) proxy is not active, 3) invalid center URL is set, 4) center is not active, 5) proxy is not set.</li> <li>Check all proxy settings.</li> </ol>		
RC Gate, Connection error	Cannot communicate with remote communication gate.  Check printer connection.  Check remote communication gate.		
ROM Update, Waiting for Data	The printer is waiting for updated data. The image file will be downloaded from an Internet Web site. The image data will overwrite previous ROM, engine firmware, PS DIMM, and other data on the machine.  • No action required.		
ROM Update:, Waiting for Data	The printer is receiving updated data.  • No action required.		
Remove Misfeed Duplex Unit/ Open Duplex Unit cover	Paper is jammed under the paper exit cover.  Remove and re-install the duplex unit.  Remove any jammed paper from the duplex unit and under the rear cover.		
Remove Misfeed Internal Path/ Open Front Cover	Paper is jammed in the specified input paper feed tray.  Open the front and rear cover.  Remove jammed paper.		
Remove Misfeed Paper Exit Cover/ Open Paper Exit Cover	Paper is jammed in the specified input paper tray.  Open the front and rear cover Remove jammed paper.		

1 st/2nd Message	Problem/Solution	
Remove Misfeed Paper Tray/ Pull out Tray	Paper is jammed in the specified input paper tray.  Remove paper from the input paper tray.  Reload paper.  Open and close front cover to extinguish message.	
Remove Paper Standard Tray	The standard output tray is full.  Remove paper from output tray.	
Replace Maintenance Kit	It is time to replace: feed roller, transfer unit, fusing unit, development unit.	
Replace Print Cartridge	Print cartridge requires replacement.	
Replace Print Cartridge	Print cartridge requires replacement (out of toner).	
Replace Print Cartridge	Print cartridge requires replacement (used toner tank full).	
Replace Print Cartridge soon	The print cartridge is out of toner or has reached the end of its service life. Print cartridge requires replacement.	
Reset Fusing Unit correctly	<ul> <li>Fusing unit not set correctly, or incorrect type installed.</li> <li>Check the type of fusing unit installed.</li> <li>Confirm that unit is installed correctly.</li> </ul>	
Reset Print Cartridge	AIO unit not installed or is not installed correctly.  Insert AIO.  Check that it is inserted properly.	
Reset Tray # or Form Feed	Specified paper input tray is not set correctly. (Current resider printer languages only).  • Set input tray correctly.	
Reset the Job or Form Feed/ Paper Size:, Paper Type:	<ul> <li>Actual paper type and size do not match the paper tray size and type setting.</li> <li>Load the indicated tray with the correct paper.</li> <li>Or, change the paper size using tray dial or operation panel.</li> <li>Or, push [Form Feed] to print on current paper.</li> <li>Or, cancel job.</li> </ul>	

1st/2nd Message	Problem/Solution	
SD authentication failed	Authentication from the SD card failed.  • Turn the machine off/on.	
SD card not set, Contact admin.	The SD card for DOS is not set.	
SSID not entered	This message confirms that no ID has been entered. Enter correct ID	
Supply order	Call for supply order has failed.	
failed.	Confirm the setting of @Remote.	
Update Mode Err, Power Off On	The printer has failed to restart the update.  • Turn the machine off/on.	

## 4

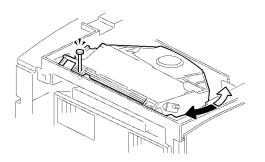
# **General Troubleshooting**

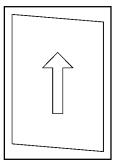
## **Image Adjustment**

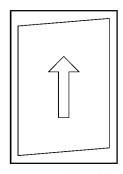
## **Registration Adjustment**

The registration is adjusted in the user mode ("Maintenance-Registration"). For details, see the Printer Reference operation manual.

## Parallelogram Image Adjustment







g094r533

Do the following procedure if a parallelogram is printed while adjusting the printing registration using a trimming pattern.



- Use the scanner positioning pin (P/N: A0069104) for this adjustment.
- 1. Remove the upper cover (See "Upper Cover")
- 2. Put a positioning pin in one of the holes
- 3. Loosen four screws and move the laser unit.
- 4. Tighten the laser unit.
- 5. Print the trimming area pattern to check the image. If it is still the same, repeat steps 3 to 5.

## **Electrical Defects**

### Sensors



• The "CN" numbers describe the connector number on the engine board.

CN	Component	Condition	Symptom
17-5 Paper Exit	D 5 '	Open	The Paper Jam indicator will light whenever a print is made.
	гарег Ехіі	Shorted	The Paper Jam indicator lights even if there is no paper.
17-8 Pape	Paper Overflow	Open	The paper overflow message is not displayed even when a paper overflow condition exists.
		Shorted	The paper overflow message is displayed.
6-A2 Registration	Open	The Paper Jam indicator will light whenever a print is made.	
	Shorted	The Paper Jam indicator lights even if there is no paper.	
6-A5 Remaining paper sensor 1	D	Open	The Paper End indicator lights even if paper is placed in the 1st paper tray.
	Shorted	The Paper End indicator does not light even if there is no paper in the 1st paper tray.	
6-A8	Remaining paper sensor 2	Open	The machine cannot determine the paper
		Shorted	near-end condition properly.
4-3	Toner End	High	Toner near-end (toner end) is not detected.
		Low	The add toner message is displayed.

## **Switches**



• The "CN" numbers describe the connector number on the engine board (except for the main switch).

CN	Component	Condition	Symptom
103-1.3 (PSU 120V)	Main	Open	The machine does not turn on.
101-1.2 (PSU 230V)		Shorted	The machine does not turn off.

11-1	Front Cover	Open	The Front Cover Open message is not displayed even if the front cover is opened.
11-1	Safety	Shorted	The Front Cover Open message is displayed even if the front cover is closed.
Rear Cover Safety	Rear Cover	Open	The Rear Cover Open message is not displayed even if the rear cover or paper exit cover is opened.
	Shorted	The Rear Cover Open message is displayed even if the rear cover or paper exit cover is closed.	

### Fuses

### North America

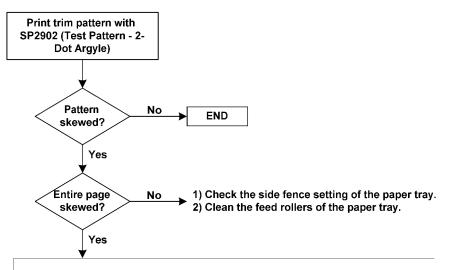
Fuse	Current	Voltage
FU1	15.0 A	AC 100V/120V
FU2	5.0 A	AC 100V/120V
FU3	4.0 A	DC 5V
FU4	4.0 A	DC 5V

### Europe

Fuse	Current	Voltage
FU1	6.3 A	AC 220V-240V
FU2	3.15 A	AC 220V-240V
FU3	4.0 A	DC 5V
FU4	4.0 A	DC 5V

### Skew Adjustment

Follow the instructions in this flowchart to correct image skew.



- 1) Clean the registration roller.
- Check near the registration sensor and roller for obstructions, dust, paper scraps, etc.
- 3) Check the amount of buckle at the registration roller and adjust with SP1003.

g176r901

### Streaks in the Sub Scan Direction

If you see streaks or lines at a regular interval in the sub scan direction:

- 1. Measure the width of the interval between the streaks.
- 2. Identify the component in the table below that is causing the problem (based on the size of the measured interval), then inspect that component.

Interval Width (approx.)	Check:
94 mm	OPC Drum (diameter 30 mm)
50 mm	Transfer Roller (diameter 16 mm)
105 mm	Fusing Roller (diameter 33 mm)
100 mm	Pressure Roller(diameter 32 mm)

### Miscellaneous Problems

Here is a summary of some problems, what causes them, and how they can be solved.

Problem	Probable Cause/Solution
Black spots at approximately 94 mm intervals.	AIO is defective, transfer roller is dirty.  Replace AIO  Clean the transfer roller
Spurious noise during printing	Relay clutch defective.  • Replace relay clutch
Vertical positioning of printed image is not consistent (sub scan direction)	Registration clutch defective  Replace registration clutch
Multiple vertical stripes appear in areas of black coverage	NIC defective  • Replace NIC
Entire page appears gray, text appears light and enlarged	Synchronization defective.  • Replace main (engine) board
Frequent paper jams, or message prompts to load correct paper size and type.	Registration sensor defective, registration sensor actuator defective. (High usage can foul the actuator with paper dust.)  • Replace registration sensor  • Replace registration sensor actuator
HDD unit not recognized	The HDD unit of another machine cannot be used.  • Replace the HDD unit with the new HDD.

### 5. Service Tables

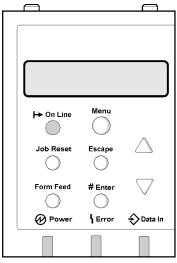
### Service Program Mode

### **☆ Important**

 Before calling for service, first, confirm that there is no print data in the printer buffer (the Data-in LED should not be lit or blinking). If the LED is blinking, this means there is data in the buffer. Wait until all data has been printed.

### Service Program Mode: Overview

### **Entering the Service Mode**



g094s509

There are two ways to enter the service mode.

### Method 1: Fast Start (Power Off)

Use this method to open the SP mode when you are turning the machine's power on. This method bypasses the warm-up time.

- 1. Hold down [On Line] and [Escape] together, then turn the machine on.
- 2. Hold down both keys until "1. Service Menu" appears on the display.

### Method 2: Normal Start (Power On)

Use this method to enter the SP mode with the machine on.

- 1. With the machine on, press  $[\mathbf{V}][\mathbf{A}]$  together and hold them down for about 5 sec.
- 2. Press [Enter]. "1. Service Menu" appears on the screen.

### Setting a Service Program

- 1. Enter the service program mode as explained above.
- 2. The setting that appears on the display is the current setting. Select the required setting using the "Up/Down arrow" keys,
- 3. Press the [Enter] key. The previous value remains if the [Enter] key is not pressed.

### **Exiting Service Mode**

Select "3. End" from the service mode main menu, then press the "Enter" key.

### **Printer Controller Service Mode**

### Service Mode Menu ("1. Service Menu")



SPMode	Description	Function	
1001	Bit switch	Adjusts bit switch settings.  Note: Currently the bit switches are not being used.	
1003	Clear Setting	Initializes settings in the "System" menu of the user mode.	
1004	Print summary	Prints the service summary sheet (a summary of all the controller settings).	
1005	Disp Version	Displays the version of the controller firmware.	

### **Bit Switch Programming**

Currently, the bit switches are not being used.

- 1. Enter the sp mode, select "Service Menu", then press [Enter] twice.
- 2. Select #1, #2, #3, or #4 for the desired bit switch, then press [Enter].
  - [▲] [▼]: Move to the next switch.
- 3. Adjust the bit switch using the following keys.
  - [▲] [▼]: Move to the next bit.
  - [Escape]: Exit without saving changes.
  - [Enter]: Exit and save changes.
  - The left digit on the display is bit 7 and the right digit is bit 0.
- 4. Press [Enter] to save changes and exit.

### **Printer Engine Service Mode**

### Service Mode Table

Notation	What it means
[range/ <b>default</b> /step]	Example: [-9 to $+9/+3.0/0.1$ mm step]. The setting can be adjusted in the range $\pm 9$ , value reset to $+3.0$ after an NVRAM reset, and the value can be changed in 0.1 mm steps with each key press.
DFU	Denotes "Design or Factory Use". Do not change this value.

### SP1-xxx: Feed

	Lead Edge Regist	Leading Edge Registration
1001	Adjusts the printing leading edge registration for feeding from the trays and duplex using the trimming area pattern (SP2-902 No.12).	
	Push $[\blacktriangle]$ or $[\blacktriangledown]$ to select the settings (plus or minus).	
	The specification is 4±2 mm	
1001 001	Bypass Tray Plain	
1001 002	Bypass Tray Thick	
1001 003	Main Tray Plain	[-40 to +40/ <b>0</b> /1]
1001 004	Main Tray Thick	[-40 10 +40/ <b>0</b> / 1]
1001 005	Optional Tray	
1001 006	Duplex	

	Side to Side Reg	Side-to-Side Registration
Adjusts the printing side-to-side registration from the 1st paper feed station trimming area pattern (SP2-902 No.12).		
	Push [▲] or [▼] to select the settings (plus or minus).  Specification: 0 ±2.0 mm.	
1002 001	1 st Tray	[-40 to +40/ <b>0</b> /1]

5

1002 002	2nd Tray
1002 003	3rd Tray
1002 004	Bypass Tray
1002 005	Duplex

	Regist sag	Registration Buckle Adjustment
1003	Adjusts the relay clutch timing at registration. Relay clutch timing determines the amount of paper buckle at registration. (A "+" setting causes more buckling.)	
1003 001	Cassette	[-8 mm to+8 mm/ <b>0</b> /2 mm step]
1003 002	Multi Tray	[-8 mm to+8 mm/0/2 mm step]
1003 003	Duplex Tray	[-8 mm to+8 mm/ <b>0</b> /2 mm step]

	Fusing control	Normal, Phase control
1104	Use phase control if the room I	ights flicker when the fusing lamp starts.
	On: Phase Control	
	Defaults: NA Off (Normal), EU	On (Phase Control)

1105	Fusing Temp <b>DFU</b>		
1103	Adjusts the fusing temperatures for printing and standby mode.		
1105 001	Fusing Temp	Adjusts the fusing temperature for printing on normal paper.  [150 to 195/180/5 deg.]	
1105 002	Fusing T Stand	Adjusts the fusing temperature for standby mode. [140 to 185/168/1 deg.]	

1106	Fusing T Disp(lay)	
	Displays the current fusing temperature.	

1902	OHP Clutch Rt	OHP Clutch Rotations

Selects the number of rotations for the bypass feed roller when the paper type is set for "Transparencies". Change this setting to "2" if jams occur frequently when feeding transparencies from the bypass tray.

1 = 1 rotation, 2 = 2 rotations

### Fusing Start DFU [Roller Turn / Normal] Roller Turn: Warms up the fusing unit for 20 sec. just after the power switch has been turned on or when the machine warms up from energy saver mode. Normal: There is no 20 sec. warm-up period. However, just after the main power switch is turned on, the motor rotates to clean the drum. Normal, Roller Turn

# Thin paper has a tendency to jam or wrinkle, especially during duplex printing. When this SP code is switched on: • The machine ignores the fusing temperature set for SP1105. • When the machine is powered on or recovers from the low power mode the machine requires about 20 sec. to warm up (this is longer than normal). [0 to 1/0/1] 0: Normal 1: Curl Control

1913	SC559 Detect	Fusing Jam SC Setting
	This SP setting determines whether SC559 is issued after three paper late jams occurrence of a fusing unit. After this SP code is turned on, a counter monitors the number of polate jams that occur in the fusing unit. After the 3rd occurrence of a fusing jam, SC5 issued and the machine cannot be used until the service technician releases the end	
	Note: Switching the machine off/on does nafter the cause of the jam has been removed the fusing exit sensor.	ot reset this jam counter. The counter is reset d and a sheet of paper successfully passes
	[0 to 1/ <b>0</b> /1]	
	0: No	
	1: Yes	

1916	Idle Rotation (For Taiwan model)	
1916 001	Mode Setting	[0 or 1 / 0 / -]  0: Rotates (less than 15°C)  1: Rotates (always)  The machine operates the fusing idle rotation before first printing.
1916 002	Time Setting	[3 to 20 / 15 / 1] This SP Sets the fusing idle rotation time. The condition for the operation is followed SP1916-001.

### SP2-xxx: Drum

	Charge Rol Bias <b>DFU</b>
2001	Adjusts the voltage applied to the charge roller for printing.  [-2000 to 1000/-1670/10V step]

	Mainscan Mag	Main Scan Magnification
2112	Adjusts the main scan magnific [-0.5% to 0.5%/ <b>0</b> /0.1% step]	

	Subscan Mag	Sub Scan Magnification
2113	Adjusts the sub scan magnificate [-0.5% to 0.5%/ <b>0</b> /0.1% step]	

	Developer Bias
2201	Adjusts the development bias for printing.
	[200 to 800/ <b>750V</b> /10V step] DFU

	Toner End Count
2213	Adjusts the number of prints the machine can make after it detects toner near-end.
	[50 to 200/ <b>200</b> /50 sheets/step]

		Transfer Curr	Transfer Current
1	2301	Adjusts the correction current a	pplied to the transfer roller.
	[-2 to +4/0/2 mu A/step]		

	Test Pattern	
	Selects a printer test pattern.	
	After selecting the pattern, the display automatically goes to SP 5902.	
	2. Use SP 5902 to print either one test pattern (5902-1) or more than one pattern. (5902-2).	
	3. Reset SP 2902 to "Not Specified" after printing the test pattern.	
	<b>Note</b> : If SP2902 is not reset to "Not Specified", the pattern will continue to print on every page of every page printed by the operator.	
	Pattern	
2902	Not Specified	
	Checker Flag	
	Cross-Stitch	
	2Dot Argyle (Use for SP1001, SP1002)	
	1 Dot Argyle	
	2Dot Trim	
	2Dot Grid	
	1 Dot Grid	

	Thermistor Adj <b>DFU</b>	Thermistor Adjustment
2910	If this is "Yes", the machine autocurrent in response to the temp [Yes/No]	omatically adjusts the charge roller voltage and transfer erature in the machine.

2000	Waste Toner Cnt	Used Toner Count
Displays the waste toner count.		

### 5

### **SP3-xxx: Process**

	Cartridge Stop
2022	Determines whether the machine stops printing after the cartridge counter reaches a set number of main motor rotations.
3923	[No/Yes]
	No: Does not stop after the number of rotations is exceeded.
	Yes: Stops after the number of rotations is exceeded.

3924	Toner End Sensor	
3924 001	Toner Near-end	Threshold adjustment for toner near-end detection. [100 to 1000/200/100 ms step]
3924 002	Toner End	Threshold adjustment for toner end detection. [100 to 1000/550/100 ms step]

	Prevention of fi	Prevention of Filming
	No, Yes	
If set to "Yes": This is done every 50 prints, for 0.2 s, to lubricate the contarge roller voltage is cut, and toner is transferred to the cleaning by interval is reached during a job, printing stops and this process is do		t, and toner is transferred to the cleaning blade. If the 50-print
	<ul> <li>Set this to yes to prevent the following:</li> <li>Grey banding parallel to the paper feed direction</li> <li>Cleaning blade flipping due to friction between blade and drum</li> <li>Noise due to friction between blade and drum</li> </ul>	

## TonerEndJudg This SP code determines whether the machine disables printing when the machine detects toner end. • Even when toner end is detected, there is a small amount of toner left in the AIO. If a user wants to print with the AIO until all toner is used up, then set this SP to 1. But then, there is no toner end detection, and the user must watch the print quality and change the AIO when prints become too pale. [0 to 1/0/1] O: Yes (Printing stops when toner end is detected.)

5

1: No (Printing can continue even after toner end is detected.)

### SP5-xxx: Mode

	mm/inch Display Selection
Selects the unit of measurement.	Selects the unit of measurement.
	After selection, turn the main power switch off and on.
	0: Europe/Asia (mm), 1: North America (inch)

	Toner Refill Displ	Toner Refill Detect Display	
5051	This SP switches on/off the message that prompts the operator when it is necessary to replenish toner in the machine.		
	0: enable (Message displayed (	Default))	
	1: disable (Message not display	ed)	

	Display IP add	Display IP Address		
	Switches the banner display of the IP address off and on.			
		[0 to 1/ <b>0</b> /1] 0= No, 1= Yes		
5055	For example, if this SP is switched on, the IP address will be displayed below "Ready" while the printer is in standby mode:			
	Ready 169.254.187.055			

5302	Set Time
	Time Difference
	Sets the time clock for the local time. This setting is done at the factory before delivery. The setting is GMT expressed in minutes.
	[-1440 to 1440 / - / 1 min.]
002	Japan: +540 (Tokyo)
	NA: -300 (NY)
	EU: +60 (Paris)
	CH: +480 (Peking)
	TW: +480 (Taipei)

AS: +480 (Hong Kong)
KO: +540 (Korea)

### Summer Time

Lets you set the machine to adjust its date and time automatically with the change to Daylight Savings time in the spring and back to normal time in the fall. This SP lets you set these items:

Day and time to go forward automatically in April.

Day and time to go back automatically in October.

Set the length of time to go forward and back automatically.

The settings for 002 and 003 are done with 8-digit numbers:

Digits	Meaning	
1 st, 2nd	Month. 4: April, 10: October (for months 1 to 9, the first digit of 0 decimput, so the eight-digit setting for 002 or 003 becomes a sever setting)	
3rd	Day of the week. 0: Su	unday, 1: Monday
4th	selected for "Sunday",	ek for the day selected at the 3rd digit. If "0" is for example, and the selected Sunday is the start input a "2" for this digit.
5th, 6th	The time when the change occurs (24-hour as hex code).  Example: 00:00 (Midnight) = 00, 01:00 (1 a.m.) = 01, and so on.	
7th	The number of hours to change the time. 1 hour: 1	
8th	If the time change is not a whole number (1.5 hours for example), digit 8 should be 3 (30 minutes).  Enables/disables the settings for 002 and 003.  [0 to 1/1] 0: Disable 1: Enable	
001		
003	Rule Set (Start)	The start of summer time.
004	Rule Set (End)	The end of summer time.

5307

	UCodeCtrClr	User Code Count Clear
5404	Clears the counts for the user co the machine. Press [#Enter] to cl	des assigned by the key operator to restrict the use of ear.

	PM Alarm
5501 [0 to 9999/0/1 step] 0: Alarm off	[0 to 9999/ <b>0</b> /1 step]
	0: Alarm off
	1 to 9999: Alarm goes off when Value (1 to 9999) ≥ PM counter

5504	Jam Alarm
	Sets the alarm to sound for the specified jam level (document misfeeds are not included).
	[0 to 3/3/1 step]
	0: Zero (Off)
	1: Low (2.5K jams)
	2: Medium (3K jams)
	3: High (6K jams)

	Error Alarm <b>DFU</b>
5505	Sets the error alarm level.
	[0 to 255/ <b>30</b> /100 copies per step]

5507	Supply Alarm	
		Switches the control call on/off for the paper supply. DFU
		<b>0: Off</b> , 1: On
5507 001	Paper Supply Ala(rm)	0: No alarm.
		1: Sets the alarm to sound for the specified number transfer sheets for each paper size (A3, A4, B4, B5, DLT, LG, LT, HLT)
5507 004	MaintenanceKit A	When switched on this function informs the @Remote supply center that the maintenance kit requires servicing.  [OFF/ON]

5507 009	Cartridge Alarm	When switched on this function informs the @Remote supply center that the toner cartridge is almost empty (near-end).  [OFF/ON]
5507 128	Interval: Others	
5507 132	Interval: A3	
5507 133	Interval: A4	
5507 134	Interval: A5	
5507 141	Interval: B4	The "Paper Supply Call Level: nn" SPs specify the paper control call interval for the referenced paper
5507 142	Interval: B5	sizes. DFU [00250 to 10000/1000/1 Step]
5507 160	Interval: DLT	[00230 to 10000/ 1000/ 1 step]
5507 164	Interval: LG	
5507 166	Interval: LT	
5507 172	Interval: HLT	

	SC/Alarm Setting		
5515*	With @Remote in use, these SP codes can be set to issue an SC call when an SC error occurs. If this SP is switched off, the SC call is not issued when an SC error occurs.		
001	SC Call	[0 or 1 / 1 / 1] 0: OFF 1: ON	
002	Service Parts Near End Call	[0 1 /0 /1] 0 055 1 0 1	
003	Service Parts End Call	[0 or 1 / <b>0</b> / 1] 0: OFF 1: ON	
004	User Call		
006	Communication Information Test Call	[0 or 1 / <b>1</b> / 1] 0: OFF 1: ON	
007	7 Machine Information Notice		
008	Alarm Notice	[0 or 1 / <b>0</b> / 1] 0: OFF 1: ON	
009	Non Genuine Toner		
010	Supply Automatic Ordering Call	[0 or 1 / <b>1</b> / 1] 0: OFF 1: ON	

	Memory Clear		
5801	Resets NVRAM data to the default settings. Before executing any of these SP codes, print an SMC Report.		
5801 001	All Initializes items 2 to 15 below.		
5801 002	Eng Memory Clr	Initializes all registration settings for the engine and process settings.	
5801 003	SCS	Initializes default system settings, SCS (System Control Service) settings, operation display coordinates, and ROM update information.	
5801 004	ІМН	Initializes the image file system. (IMH: Image Memory Handler)	
5801 005	Initializes the automatic delete time setting for stored documents.  (MCS: Memory Control Service)		
5801 008	PRT	Initializes the printer defaults, programs registered, the printer SP bit switches, and the printer CSS counter.	
5801 010	WebService	Deletes the Netfile (NFA) management files and thumbnails, and initializes the Job login ID.  Netfiles: Jobs to be printed from the document server using a PC and the DeskTopBinder software	
5801 011	NCS	Initializes the system defaults and interface settings (IP addresses also), the SmartNetMonitor for Admin settings, WebStatusMonitor settings, and the TELNET settings.  (NCS: Network Control Service)	
5801 014	DCS Setting	Initializes the DCS (Delivery Control Service) settings.	
5801 015	Clr UCS Setting	Initializes the UCS (User Information Control Service) settings.	
5801 016	MIRS Setting	Initializes the MIRS (Machine Information Report Service) settings.	
5801 017	CCS	Initializes the CCS (Certification and Charge-control Service) settings.	

5801 018	SRM	Initializes information in non-volatile RAM.
5801 019	LCS Setting	Initializes information in non-volatile RAM.

	Free Run
	The machine performs a free run.
5802	Press [#Enter] to start.
	Press [#Enter] to stop.
	Please note that the machine will not stop immediately after the [#Enter] key is pressed.

	Input check	
5803	Displays signals received from sensors and switches.	
	SP Modes other than those listed in this table, are not used in the machine.	
	Operation Panel	Component Name
5803 001	Front Cover	Front cover safety switch
5803 002	Main Moter CLK	Main Motor Lock
5803 003	PollyMoter CLK	Polygon Motor Lock
5803 005	Duplex Cover	Duplex Unit cover switch
5803 006	Duplex UnitSet	Duplex Unit
5803 007	Fuser UnitSet	Fusing Unit
5803 008	Fuser New	New Fusing Unit Detection  Note: The fusing unit included in maintenance kit has a detection sensor. This SP displays the signal received from new fusing unit after it has been replaced.
5803 011	Paper Full Sens	Paper Overflow Sensor
5803 016	Regist Sens	Registration Sensor
5803 017	Exit Sens	Paper Exit Sensor
5803 018	Dplx Turn Sens	Duplex Inverter Sensor
5803 019	Dplx Ent Sens	Duplex Entrance Sensor

5803 020	Dplx Exit Sens	Duplex Exit Sensor
5803 021	Mlt PaperEnd	Bypass paper sensor
5803 022	Tray1 PaperEnd	Paper end sensor, Standard Tray
5803 023	Tray1 PSize	Paper size switch, Standard tray
5803 024	Tray1 RestSens	Remaining paper sensor-Standard tray
5803 026	Tray2 PaperEnd	Paper end sensor, 1st Opt. Paper Tray
5803 029	Tray3 PaperEnd	Paper end sensor, 2nd Opt. Paper Tray
5803 030	Tray3 PSize	Paper size switch, 2nd Opt. Paper Tray
5803 031	Tray3 RestSens	Remaining paper sensor, 2nd Opt. Paper Tray
5803 032	No2 Carry Sens	Paper feed sensor, 1st Opt. Paper Tray
5803 033	No3 Carry Sens	Paper feed sensor, 2nd Opt. Paper Tray
5803 034	Tray2 PSize	Paper size switch, 1st Opt. Paper Tray
5803 036	Tray2 RestSens	Remaining paper sensor, 1st Opt. Paper Tray

	Output check	
5804	Turns on electrical components individually for test purposes.	
	SP Modes other than those listed in this table, are not used in the machine.	
	Operation Panel	Component Name
5804 001	Main Motor	Main Motor
5804 002	Middle CL	Relay Clutch
5804 003	Regist CL	Registration Clutch
5804 005	No1 CL	Paper Feed Clutch
5804 006	Multi SOL	Bypass Feed Clutch
5804 011	Fan High	Exhaust fan
5804 012	Fan Low	Exhaust fan
5804 013	Fuser Re	Fusing Lamp Relay

5804 019	Poly + LD1 Both	Polygon Motor + LD 1
5804 020	LD2 Compulsion	Force Test LD 2
5804 021	Poly + LD Both	Polygon Motor + LD 1 + LD 2
5804 022	Polygon Motor	Polygon Motor
5804 023	Poly + LD	Polygon Motor and Laser Diode
5804 026	No2 CL	Paper Feed Clutch-1st Opt. Paper Tray
5804 027	Bank2 Motor	Paper Tray Motor-1st Opt. Paper Tray
5804 028	No3 CL	Paper Feed Clutch-2nd Opt. Paper Tray
5804 029	Bank3 Motor	Paper Tray Motor-2nd Opt. Paper Tray
5804 041	Dplx Mt Normal	Duplex Inverter Motor-forward
5804 042	Dplx Mt Revers(e)	Duplex Inverter Motor-reverse
5804 043	Dplx Mt Long	Duplex Transport Motor
5804 044	Dplx Split SOL	Inverter Gate Solenoid
5804 047	Charge Bias	
5804 048	Developer Bias	
5804 049	Transfer Plus	
5804 050	Transfer minus	

	Fusing Err Clr
5810	Resets an SC code for a fusing unit error.
After using this SP mode, turn the main switch off and on.	

5811	Machine No. Sett <b>DFU</b>	
	Used to input the machine serial number. This is normally done at the factory.	

	Tel. No. Setting	
5812	Use these SP modes to input service and support telephone numbers. Enter the number and press [#Enter].	

58121	Service	Use this to input the telephone number of the CE printed on the SP print mode printout.
58122	Fax Tel No.	Use this to input the fax number of the CE printed on the SP print mode printout.

5816	Remote Service		
	I/F Setting		
5816 001	Selects the remote service setting.  [0 or 2 / 2 / 1 /step]		
	0: OFF (Remote service off) 2: Network (@Remote remote service on)		
	CE Call		
5816 002	Performs the CE Call at the start or end of the service.  [0 or 1 / 0 / 1 / step]  0: Start of the service  1: End of the service  NOTE: This SP is activated only when SP 5816-001 is set to "2".		
	Function Flag		
5816 003	Enables or disables the remote service function.  [0 to 1 / 0 / 1 /step]  0: Disabled  1: Enabled		
	SSL Disable		
5816 007	Uses or does not use the RCG certification by SSL when calling the RCG.  [0 to 1 / 0 / 1 /step]  0: Uses the RCG certification  1: Does no use the RCG certification		
	RCG Connect Timeout		
5816 008	Specifies the connect timeout interval when calling the RCG.  [1 to 90 / 10 / 1 second /step]		

	RCG Write Timeout				
5816 009	Specifies the write timeout interval when calling the RCG.				
	[1 to 100 / 60 / 1 second /step]				
	RCG Read Timeout				
5816 010	Specifies the read timeout interval when calling the RCG.				
	[1 to 100 / <b>60</b> / 1 second / step]				
	Port 80 Enable -				
	Enables/disables access via port 80 to the SOAP method.				
5816 011	[0 or 1 / 0 / -]				
	0: Disabled				
	1: Enabled				
	@Remote Service 1				
5816 012	Enables/disables @Remote service.				
	[0 or 1 / 1 / - ] 0: Disabled, 1: Enabled				
	RCG-C Registed				
	This SP displays the embedded RCG installation end flag.				
5816 021	0: Installation not completed				
	1: Installation completed				
	RCG-C Regist Det				
	This SP displays the external RCG installation status.				
5816 022	0: External RCG not registered				
	1: External RCG registered				
	2: Device registered				
	Connect Type (N/M)				
5816 023	This SP displays and selects the embedded RCG connection method.				
3010023	[0 or 1 / 0 / 1 /step] 0: Internet connection				
	1: Dial-up connection				
	<u>'</u>				

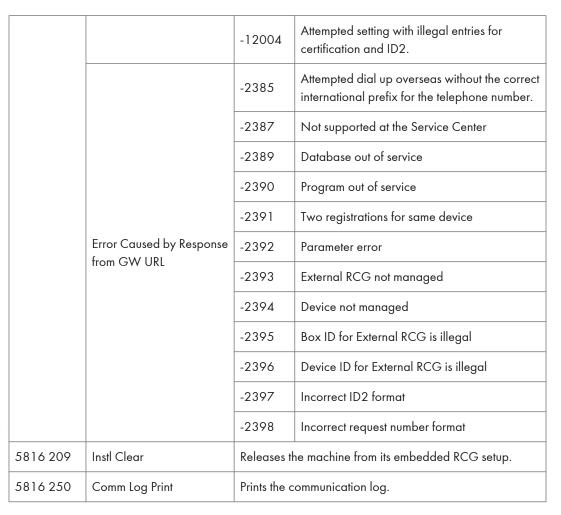
5816 061	Cert Expire Tim(ing) DFU	Proximity of the expiration of the certification.		
	HTTP Proxy			
5816 062	This SP setting determines if the proxy server is used when the machine communicates with the service center.  [0 or 1 / 0 / 1 / step]  0: HTTP Proxy not used  1: HTTP Proxy used			
	HTTP Proxy (Host)			
5816 063	RCG-N and the gateway. l	ne proxy server used for communication between embedded  Use this SP to set up or display the customer proxy server sessary to set up embedded RCG-N.		
	<b>Note</b> : The address display is limited to 128 characters. Characters beyond the 128 character are ignored.			
	This address is customer info	ormation and is not printed in the SMC report.		
	Proxy Port Number			
5816 064	This SP sets the port number of the proxy server used for communication between embedded RCG-N and the gateway. This setting is necessary to set up embedded RCG-N.			
	Note: This port number is customer information and is not printed in the SMC report.			
	Proxy/User Name			
	This SP sets the HTTP proxy certification user name.			
5816 065	Note:  • The length of the name is limited to 31 characters. Any character beyond the 31st character is ignored.			
		information and is not printed in the SMC report.		
	Proxy Password			
5816 066	This SP sets the HTTP proxy certification password.  • The length of the name is limited to 31 characters. Any character beyond the 31st character is ignored.			
5816 067	This name is customer information and is not printed in the SMC report.  Cert: Up State			
3010007	55 5p 56			

	Displays the status of the certification update.		
	0	The certification used by embedded RCG is set correctly.	
	1	The certification request (setAuthKey) for update has been received from the GW URL and certification is presently being updated.	
	2	The certification update is completed and the GW URL is being notified of the successful update.	
	3	The certification update failed, and the GW URL is being notified of the failed update.	
	4	The period of the certification has expired and new request for an update is being sent to the GW URL.	
	11	A rescue update for certification has been issued and a rescue certification setting is in progress for the rescue GW connection.	
	12	The rescue certification setting is completed and the GW URL is being notified of the certification update request.	
and the system is waiting for the certification.  URL.  The notification of the certification reques		The notification of the request for certification update has completed successfully, and the system is waiting for the certification update request from the rescue GW URL.	
		The notification of the certification request has been received from the rescue GW controller, and the certification is being stored.	
	The certification has been stored, and the GW URL is being notified of the completion of this event.  The storing of the certification has failed, and the GW URL is being not failure of this event.		
was notified of the results of error has been received, and The rescue certification of N		The certification update request has been received from the GW URL, the GW URL was notified of the results of the update after it was completed, but an certification error has been received, and the rescue certification is being recorded.	
		The rescue certification of No. 17 has been recorded, and the GW URL is being notified of the failure of the certification update.	
	CERT:Error		
5816 068		lays a number code that describes the reason for the request for update of the ication.	
	0	Normal. There is no request for certification update in progress.	

	1	Request for certification update in progress. The current certification has expired.		
	2	An SSL error notification has been issued. Issued after the certification has expired.		
	3	Notification of shift from a common authentication to an individual certification.		
	4	Notification of a comm	non certification without ID2.	
	5	Notification that no ce	rtification was issued.	
	6	Notification that GW	URL does not exist.	
5816 069	CER	RT Up ID	The ID of the request for certification.	
5816 083	Firm	Up Status	Displays the status of the firmware update.	
			This setting determines if the firmware can be updated, even without the HDD installed.	
5816 084	Nor	n-HDD Firm Up	0: Not allowed update	
			1: Allowed update	
5816 085	Firm Up User Che(ck)		This SP setting determines if the operator can confirm the previous version of the firmware before the firmware update execution. If the option to confirm the previous version is selected, a notification is sent to the system manager and the firmware update is done with the firmware files from the URL.	
5816 086	Firmware Size		Allows the service technician to confirm the size of the firmware data files during the firmware update execution.	
5816 087	CER	RT: Macro Ver.	Displays the macro version of the @Remote certification.	
5816 088	CER	T: PAC Ver.	Displays the PAC version of the @Remote certification.	
5816 089	CERT: ID2Code		Displays ID2 for the @Remote certification. Spaces are displayed as underscores (_). Asteriskes (* * *) indicate that no @Remote certification exists.	
5816 090	CERT: Subject		Displays the common name of the @Remote certification subject. CN = the following 17 bytes. Spaces are displayed as underscores (_). Asterisks (***) indicate that no DESS exists.	
5816 091	CER	RT: SerialNo.	Displays serial number for the @Remote certification. Asterisks (* * *) indicate that no DESS exists.	

	1				
5816 092	CERT: Issuer	Displays the common name of the issuer of the @Remote certification. CN = the following 30 bytes. Asteriskes (***) indicate that no DESS exists.			
5816 093	CERT: Valid Start	Displays the start time of the period for which the current @Remote certification is enabled.			
5816 094	CERT: Valid End	Displays the end time of the period for which the current @Remote certification is enabled.			
	Manual Polling				
5816 200	· · ·	umin periodically polls the @Remote Gateway by HTTPS. This se this SP at any time to poll the @Remote supply center.			
	Regist Status				
	Displays a number that indi	cates the status of the @Remote service device.			
	0: Neither the registered device by the embedded RCG nor embedded RCG device is set.				
5816 201	1: The embedded RCG device is being set. Only Box registration is completed. In this status the external RCG unit cannot answer a polling request.				
	2: The embedded RCG device is set. In this status the external RCG unit cannot answer a polling request.				
	3: The registered device by the embedded RCG is being set. In this status the embedded RCG device cannot be set.				
	4: The registered module by the embedded RCG has not started.				
5816 202	Letter Number  Allows entry of the number of the request needed for the embedded RCG device.				
5816 203	Confirm Execute	Executes the inquiry request to the @Remote GateWay URL.			
	Confirm Result				
	Displays a number that indicates the result of the inquiry executed with SP5816 203.				
5816 204	0: Succeeded				
	1: Inquiry number error				
	2: Registration in progress				
	3: Proxy error (proxy enabled)				
	4: Proxy error (proxy disabled)				
	5: Proxy error (Illegal user name or password)				

	6: Communication error					
	7: Certification update error					
	8: Other error					
	9: Inquiry executing					
	Confirm Place					
5816 205	Displays the result of the notification sent to the device from the GW URL in answer to inquiry request. Displayed only when the result is registered at the GW URL.					
5816 206	Register Execute	Executes E	Embedded RCG Registration.			
	Register Result	1				
	Displays a number that indi	cates the re	gistration result.			
	0: Succeeded					
	2: Registration in progress					
	3: Proxy error (proxy enabled)					
5816 207	4: Proxy error (proxy disabled)					
	5: Proxy error (Illegal user name or password)					
	6: Communication error					
	7: Certification update error					
	8: Other error					
	9: Registration executing					
	Error Code					
	Displays a number that describes the error code that was issued when either SP5816-204 or SP5816-207 was executed.					
	Cause	Code	Meaning			
		-11001	Chat parameter error			
5816 208	Illegal Modem Parameter	-11002	Chat execution error			
		-11003	Unexpected error			
	Operation Error, Incorrect	-12002	Inquiry, registration attempted without acquiring device status.			
	Setting	-12003	Attempted registration without execution of an inquiry and no previous registration.			



**Note**: The proxy number, user name, and password comprise proprietary customer information required by the service technician to do the necessary settings for Cumin-N. To prevent unauthorized access this information, these SP settings do not appear in the SMC report.

5821	Remote Service A(ddress)	
5821 1	Sets the PI device code. After changing this setting, y must switch the machine off and on.	
5821 2	RCG IP Address	Sets the IP address of the RCG (Remote Communication Gate) destination for call processing at the remote service center.  [00000000h to FFFFFFFh/0000000h/

5823	Paper Supply for <b>DFU</b>
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	An @Remote setting. Not required for service technician.	

### NVRAMUpload Uploads the UP and SP mode data (except for counters and the serial number) from NVRAM on the control board to a flash memory card. While using this SP mode, always keep the front cover open. This prevents a software module accessing the NVRAM during the upload.

5825	NVRAMDownload	
3623	Downloads the content of a flash memory card to the NVRAM on the control board.	

	Network  This machine supports both Internet Protocols IPv4 and IPv6. IPv6 is the next generation protocol designed by the IETF to replace IPV4. IPv6 adds many improvements such as routing and network auto-configuration.	
5828		
5828 022	ActIPv4 SbNet  This SP allows you to confirm the IPv4 subnet mask setting that used when the machine started up with DHCP. For example, setting for the IPv4 subnet mask is "FFFFFFOOH" this is displaced as "255.255.255.000"	
5828 023	ActIPv4Gatew  This SP allows you to confirm the IPv4 default gateway se was used when the machine started up with DHCP. For e if the setting for the IPv4 gateway is "OCOA80001h" this displayed as "192.168.000.001".	
5828 045	Bi Direct Centro	Enables and disables the Centro communication.  [Oto 1/1]  0:Off, 1: On
5828 050	1284 Compatible	Enables and disables bi-directional communication on the parallel connection between the machine and a computer.  [0to 1/1]  0:Off, 1: On
5828 052	ECP	Disables and enables the ECP feature (1284 Mode) for data transfer.  [0to1/1]  0: Disabled

		1: Enabled	
5828 065	Job Spool	Switches job spooling spooling on and off.  O: No spooling, 1: Spooling enabled	
5828 066 HD job Clear		This SP determines whether the job interrupted at power off is resumed at the next power on. This SP operates only when SP5828 065 is set to 1.  1: OFF (Resumes printing spooled jog.)  0: ON (Clears spooled job.)	
5828 069	JobSpool Protocl		
	a 8-bit setting.  0: LPR/ 1: FTP (Not U	ether job spooling is enabled or disabled for each protocol. This is sed)/ 2: IPP/ 3: SMB/ 4: BMLinks (Japan Only)/ved (Not Used)/ 7: Reserved (Not Used)	
5828 090	TELNET	Disables or enables Telnet operation. If this SP is disabled, the Telnet port is closed.  [Oto 1/1]  O: Disable  1: Enable	
5828 091	Web	Disables or enables the Web operation.  [0to 1/1]  0: Disable  1: Enable	
5828 145	ActIPv6LinkLocal	This is the IPv6 local address referenced on the Ethernet or wireless LAN (802.11b) in the format:  "Link-Local address" + "Prefix Length"  The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each. These notations can be abbreviated. See "Note: IPV6 Addresses" below this table.	
5828 147	Act1Pv6Sttles1	These SPs are the IPv6 stateless addresses (1 to 5) referenced on	
5828 149	ActIPv6Sttles2	the Ethernet or wireless LAN (802.11b) in the format: "Stateless Address" + "Prefix Length"	
5828 151	ActIPv6Sttles3	The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each.	

5828 153	ActIPv6Sttles4	
5828 155	ActIPv6Sttles5	
	IPv6Manual Address	This SP is the IPv6 manually set address referenced on the Ethernet or wireless LAN (802.11b) in the format:
5828 156		"Manual Set Address" + "Prefix Length"
3020 130		The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each. These notations can be abbreviated. See "Note: IPV6 Addresses" below this table.
5828 158	IPv6 Gateway	This SP is the IPv6 gateway address referenced on the Ethernet or wireless LAN (802.11b). The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each. These notations can be abbreviated. See "Note: IPV6 Addresses" below this table.
5828 161	IPvó Statelss Auto	Enables or disables the IPv6 Stateless Auto setting on the Ethernet or wireless LAN (802.11b).  0: Off, 1: On

Note: IPV6 Addresses

Ethernet and the Wireless LAN (802.11b) reference the IPV6 "Link-Local address + Prefix Length". The IPV6 address consists of 128 bits divided into 8 blocks of 16 bits:

aaaa:bbbb:cccc:dddd:eeee:ffff:gggg:hhhh:

The prefix length is inserted at the 17th byte (Prefix Range: 0x0to0x80). The initial setting is 0x40(64).

For example, the data:

2001123456789012abcdef012345678940h

is expressed:

2001:1234:5678:9012:abcd:ef01:2345:6789: prefixlen 64

However, the actual IPV6 address display is abbreviated according to the following rules.

### Rules for Abbreviating IPV6 Addresses

- The IPV6 address is expressed in hexadecimal delmited by colons (:) with the following characters: 0123456789abcdefABCDEF
- 2. A colon is inserted as a delimiter every 4th hexadecimal character.

fe80:0000:0000:0000:0207:40ff:0000:340e

3. The notations can be abbreviated by elminating zeros where the MSB and digits following the MSB are zero. The example in "2" above, then, becomes:

fe80:0:0:0207:40ff:0:340e

4. Sections where only zeros exist can be abbreviated with double colons (::). This abbreviation can be done also where succeeding sections contain only zeros (but this can be done only at one point in the address). The example in "2" and "3" above then becomes: fe80::207:40ff:0:340e (only the first null sets zero digits are abbreviated as "::")

-or-

fe80:0:0:0:207:40ff::340e (only the last null set before "340e" is abbreviated as "::")

5020	HDD Init.
5832	Initializes the hard disk and clears all data. Use this only if there is a hard disk error.
583 <i>7</i>	Prog Checksum
3637	Displays the checksum for the engine firmware.

5840	IEEE 802.11b	
	Channel Max	
5840 006	Sets the maximum range of the bandwidth for the wireless LAN. This bandwidth setting varies for different countries.	
	[1 to 11(NA) or 13 (EU)/11 (NA) or 13 (EU)]	
	Channel Min	
5840 007	Sets the minimum range of the bandwidth for operation of the wireless LAN. This bandwidth setting varies for different countries.	
	[1 to 11(NA) or 13 (EU)/1 (NA) or 1 (EU)]	
	WEP key number	
	Determines how the initiator (SBP-2) handles subsequent login requests.	
	[00 to 11/00/1]	
5840 011	Note: There are four settings (binary numbers): 00, 01, 10, 11. These settings are possible only after the wireless LAN card has been installed.	
	00: 1st key. If the initiator receives another login request while logging in, the request is refused.	
	01, 10, 11: 2nd, 3rd, 4th keys are "Reserved".	

5842 NFA analysis DFU	Netfile Analysis
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	Bit	Groups
	0	System & other groups (LSB)
The bond of the second of the second of	1	Capture related
This is a debugging tool. It sets the debugging output mode of each	2	Certification related
Net File process. Bit SW 0011 1111	3	Address book related
BIFSYV OUTT TITT	4	Machine management related
	5	Output related (printing, delivery)
	6	Repository related

5844	USB
	Transfer Rate
001	Sets the speed for USB data transmission.
	[Full Speed or <b>Auto Change</b> ]
	Vendor ID
002	Sets the vendor ID:
	Initial Setting: 0x05A Ricoh Company
	[0x0000 to 0xFFFF/1] <b>(DFU)</b>
	Product ID
003	Sets the product ID.
	[0x0000 to 0xFFFF/1] <b>(DFU)</b>
	Device Release No.
	Sets the device release number of the BCD (binary coded decimal) display.
004	[0000 to 9999/1] <b>(DFU)</b>
	Enter as a decimal number. NCS converts the number to hexadecimal number recognized as the BCD.

5845	Delivery Srv
	Provides items for delivery server settings.

5845 003	Retry Interval	Determines the time interval between retries before the machine returns to standby after an error occurs during an image transfer with the delivery scanner or SMTP server.  [60 to 900/300/1]		
5845 004	No. of Retries	Determines the number of retries before the machine returns to standby after an error occurs during an image transfer with the delivery or SMTP server.		
		[0 to 99/3/1]		
5845 022	InstantTrans Off			
	Switches instant transmission off/on.			
	[0 to 1/1/1]			
	0: Off. Instant transmission not possible with network setting errors.			
	1: On. Instant transmission possible with network setting errors.			
	Note:			
	The machine will continue to transmit over the network, even if the network settings are incorrect. (This causes multiple errors, of course.)			
	With this SP off, the machine will stop communicating with the network if the settings are wrong. This reduces the amount of spurious network traffic caused by errors due to incorrect settings.			

5846	UCS Setting		
5846 043	AddB Media		
	Displays the location of the address book currently in use.		
	0: Not specified		
	1: SD Card Slot 1		
	2: SD Card Slot 2		
	20: HDD		
	30: None		
5846 047	Init Local Add B		
	Clears all of the address information from the local address book of a machine managed with UCS.		
5846 050	Init All Dir		

	Clears everything (including users codes) in the directory information managed by UCS. However, the accounts and passwords of the system administrators are not deleted.				
	Search Option				
5846 060	This SP uses bit switches to set up the fuzzy search options for the UCS local address book.				
	Bit	Meaning			
	0	Checks both upper/lower case characters			
	1	Japan Only			
	2				
	3				
	4	Not Used			
	5	Not Used			
	6	Not Used			
	7	Not Used			
	Complexity Opt 1				
5846 062	Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to upper case and sets the length of the password.				
	[0 to 32/ <b>0</b> ]				
	Note:  • This SP does not permally require adjustment				
	<ul> <li>This SP does not normally require adjustment.</li> <li>This SP is enabled only after the system administrator has set up a group password policy to control access to the address book.</li> </ul>				
	Complexity Opt 2				
5846 063	Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to lower case and defines the length of the password.				
	[0 to 32/ <b>0</b> ]				
	Note:				
	• This S	SP does not normally require adjustment.			

	This SP is enabled only after the system administrator has set up a group password policy to control access to the address book.		
5846 064	Complexity Opt 3		
	Use this SP to set the conditions for password entry to access the local address book.  Specifically, this SP limits the password entry to numbers and defines the length of the password.		
	[0 to 32/ <b>0</b> ]		
	<b>Note</b> : This SP does not normally require adjustment. It is enabled only after the system administrator has set up a group password policy to control access to the address book.		
5846 065	Complexity Opt 4		
	Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to symbols and defines the length of the password.		
	[0to32/ <b>0</b> ]		
	<b>Note</b> : This SP does not normally require adjustment. It is enabled only after the system administrator has set up a group password policy to control access to the address book.		

5848	WebService	
5848 004	ac:ud	
5848 009	ac:jc	Switches access control on and off.  0000: OFF, 0001: ON
5848 011	ac:dm	3000. 611, 00011. 611
5848 210	Log Type:Job 1 <b>DFU</b>	
3646 210	[0 to 0xFFFFFFF/0/1]	
5848 211	Log Type:Job 2 DFU	
3646 211	[0 to 0xFFFFFFF/0/1]	
5848 212	Log Type Access DFU	Note: These SP codes are for display only;
3646 212	[0 to 0xFFFFFFF/0/1]	they cannot be changed.
5848 213	PrimarySrv DFU	
5848 214	Secondary Srv DFU	
5848 215	StartTime DFU	

	[0 to 0xFFFFFFFF/0/1]
	IntervalTime DFU
5848 216	meryanime Di O
	[1 to 100/1/1]
	Timing DFU
	[0 to 2/0/1]
5848 217	0: Transmission off
	1: Transmission 1 by 1
	2: Periodic transmission

50.40	Installation Date	
5849	Displays or prints the installation date of the machine.	
5849 002	Switch to Print	Determines whether the installation date is printed on the printout for the total counter.
		[0 to 1/1]
		0: OFF (No Print)
		1: ON (Print)
5849 003	Total Counter	Displays the total counter of the machine installation's day.

	Remote Update
	Allow ROM Update from Remote Source
5856	When set to "1" allows reception of firmware data via the local port (IEEE 1284) during a remote ROM update. This setting is reset to zero after the machine is cycled off and on.
	[0to1 / 0 / 1]
	0: Not allowed
	1: Allowed

5857	Save Debug Log	
	On/Off	
5857 001	Switches on the debug log feature. The debug log cannot be captured until this feature is switched on.	
	[0 to 1/0]	

	0: OFF
	1: ON
5857 006	Save to SD
3637 000	Saves the debug log of the input SC number in memory to SD card.
	Erase SD Log
5857 012	Erases all debug logs on the SD Card. If the card contains only debugging files generated by an event specified by SP5858, the files are erased when SP5857 010 or 011 is executed.
	To enable this SP, the machine must be cycled off and on.
5857 013	FreeSpaceonSD
3637 013	Displays the amount of space available on the SD card.
	SD to SD (4MB)
5857 014	Copies the last 4MB of the log (written directly to the card from shared memory) onto an SD card.
	SD to SD (Any)
5857 015	This SP copies the log on an SD card (the file that contains the information written directly from shared memory) to a log specified by key number.
5057017	Make SD LogFile
5857 017	This SP creates a 4 MB file to store a log on an SD card.

	Debug Save When	
These SPs select the content of the debugging information to be so Refer to Section 4 for a list of SC error codes.		
5858 001	EngineSC Error	Stores SC codes generated by copier engine errors.
5858 002	SystemSC Error	Stores SC codes generated by GW controller errors.
5858 003	Any SC Error	[0 to 65535/0/1]
5858 004	Jam	Stores jam errors.

5859	LogSaveKey No.
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5859 001	Key 1	
5859 002	Key 2	
5859 003	Key 3	
5859 004	Key 4	
5859 005	Key 5	These SPs allow you to set up to 10 keys for log files for functions that use common memory on the controller board [-9999999 to 9999999/0/1]
5859 006	Кеу б	
5859 007	Key 7	
5859 008	Key 8	
5859 009	Key 9	
5859 010	Key 10	

5860	SMTP/POP3/IMAP	
5860 002	SMTP SW Port No.	Input the SMTP server port number
5860 003	SMTP Auth Encryp	SMTP authentication enable/disable.  [0-1/ <b>0</b> /2]  0: Disable  1: Enable
5860 006	SMTP Auth encryp	Encryption mode for SMTP authentication enable/disable (Only valid if 5860 3 is set to "enable")  [0-2/ <b>0</b> /1]  0: Automatic  1: No encryption  2: Encrypt
5860 007	POP Before SMTP	Enable/disable POP before SMTP. If the SMTP server does not have authentication, you can enable POP before SMTP, them POP authentication is available (SP 5860 13)  [0-1/0/1]  0: Disable  1: Enable

5860	SMTP/POP3/IMAP	
5860 008	POP to SMTP Wait	When using POP before SMTP, this SP mode determines the maximum wait time between POP authentication and connection with SMTP. Communication stops if this time is exceeded.  [0-3000/300]
5860 009	Rcv Protocol	This SP specifies POP3 protocol or switches off receiving.  1: POP3  2: IMAP4  3: SMTP
5860 013	POP Auth Encrypt	If POP before SMTP is enabled, then you can use this SP to enable or disable encryption mode for POP authentication.  [0-2/0/1]  0: Automatic  1: No encryption  2: Encrypt
5860 014	POP Srv Port No.	Input the POP server port number
5860 015	IMAP Srv Port No	This SP sets the number of the IMAP4 server port.  [1 to 65535/143/1]
5860 016	SMTP Rcv Port No	This SP sets the number of the port that receives SMTP mail.  [1 to 65535/25/1]
5860 017	Receive Interval	This SP sets the timing for mail received at regular intervals.  [2 to 1440/3/1 min.]  Note: Setting this SP to "0" switches off receiving mail at timed intervals.
5860 019	Mail Keep Sett.	This SP setting determines whether received mail is stored on the server.  O: Received mail not stored  1: All received mail stored

5860	SMTP/POP3/IMAP		
		2: Stores only mail that generated errors during receiving	
	ParMail RectOut		
5040000	[1 to 168/ <b>72</b> /1]		
5860 020	Sets the amount of time to wait before saving a mail that breaks up during reception. The received mail is discarded if the remaining portion of the mail is not received during this prescribed time.		
	MDN Res RFC2298		
	Determines whether RFC2298	compliance is switched on for MDN reply mail.	
5860 021	[0 to 1/1]		
	0: No		
	1: Yes		
	SMTPAut FieldRep		
5860 022	Determines whether the FROM item of the mail header is switched to the validated account after the SMTP server is validated.		
3800 022	[0 to 1/0]		
	0: No. "From" item not switched.		
	1: Yes. "From" item switched.		
	SMTP Auth Direct		
5860 025	Occasionally, all SMTP certifications may fail with SP5860 006 set to "2" to enable encryption during SMTP certification for the SMTP server. This can occur if the SMTP server does not meet RFC standards. In such cases you can use this SP to set the SMTP certification method directly. However, this SP can be used only after SP5860 003 has been set to "1" (On).  BitO: LOGIN		
	Bit1: PLAIN		
	Bit2: CRAM_MD5		
	Bit3: DIGEST_MD5		
	Bit4 to Bit 7: Not Used		

	This SP controls operation of the email notification function.	
5866 001	E-Mail Validity	Disables and re-enables the email notification feature.  [Oto 1/0/1]  O: Enable  1: Disable
5866 005	ForceDateField	Disables and re-enables the addition of a date field to the email notification.  [0to1/0/1]

5869	RAM Disk Setting		
	This SP enables and disables email sending and receiving. This setting determines the size of the RAM disk (MB) that the machine uses to manage email sending and receiving.		
5869 001	[0 to 1/ <b>0</b> /1]		
	0: Use. Allocates 46 MB for sending and 8 MB for receiving.		
	1: Do not use		
5869 002	Adjusts the RAM Disk size for the PDL storage.		
	[0 to 255 / <b>4</b> / 1]		

	Common Key	Info W(riting)
	Writes to flash ROM the common proof for validating the device for @Remote specifications.	
5870 Note:		
	These SP settings are required to connect @Remote or must also be set after the board is replaced.	
	<ul> <li>Even if @Remote is not connected, these settings are used for Web validation, so at least SP5870 003 must be enabled.</li> </ul>	
5870 001	Writing Writes the authentication data (used for NRS) in the memory.	
5870 003	Initialize	Initializes the authentication data in the memory.

	SDCardAppliMove
5873	Allows you to move applications from one SD card another. For more, please refer to the "SD Card Application Move" section.

5873 001	MoveExec	Executes the move from one SD card to another.
5873 002	UndoExec	This is an undo function. It cancels the previous execution.

5878	Option Setup	Data Overwrite Security (DOS) Setup
3676	Press [#Enter] to initialize the Data Overwrite Security option.	

ROM update	
5886	The setting of this SP allows or prohibits updating the ROM.
	0:Yes, 1:No

SD GetCounter

This SP outputs a text file ( .txt) that lists the counts for the application SD card inserted into the SD service slot. Before executing this SP, you must first create a folder entitled "SD\_COUNTER" in the root directory of the SD card.

5902	Test Print
3902	Prints the test pattern that you selected with SP 2902.
5902 001	1 Sheet Test
	Prints one test pattern
5902 002	Cont Test
	Prints consecutive copies of the test pattern

Sets the brand name and the production name for Windows Plug & Play. This information is stored in NVRAM. If the NVRAM is defective or has been replaced, these names should be registered again.

To set the plug and play model name, enter the model number, and then press [#Enter].

5930	Meter Charge
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	Meter Charge
	Switches the meter-click charge mode on and off.
	[No], [Yes]
	Important: Turn the main switch off/on after changing this setting.
	No: Meter charge mode disabled (default). This setting is for machines were the operator is responsible for replacing the AIO and the Maintenance Kit.
5930 001	<ul> <li>Alert messages are displayed on the operation panel when the AIO or PM parts reach the limit of their yield.</li> </ul>
	The PM counter resets automatically after the user replaces the fusing unit.
	Yes: Meter charge mode enabled. This setting is for machines where the service technician has responsibility for servicing the machine.
	<ul> <li>Alert messages are not displayed when the AIO or PM parts reach the limits of their yield.</li> </ul>
	Pressing the [Menu] button displays the meter charge count.
	The service technician must reset the PM counter after completing machine maintenance.
	M C Display
	Switches the PM alerts on and off.
	[ <b>No</b> ], [Yes]
	No: Maintenance Kit alerts will not display.
5930 002	Yes: Maintenance Kit alerts will display.
	Important:
	The setting of SP5930 002 is ignored unless SP5930 001 is set to "Yes".
	<ul> <li>In order for the PM alerts to display both SP5930 001 and SP5930 002 must be set to "Yes".</li> </ul>
	Pcon. Life Alert
5930 003	This SP switches the near-end and end alerts on/off for the service life of the OPC (not toner), based on the accumulated operation time of the main motor.
	Note: "Pcon" (photoconductor) means OPC drum.
	[ <b>No</b> ], [Yes]
	No: Near-end and end alerts will not display.
	Yes: Near-end and end alerts will display.
	Important:

- The setting of SP5930 003 is ignored unless SP5930 001 is set to "Yes".
- In order for the OPC alerts to display (near-end, end of service life) for the AIO, both SP5930 001 and SP5930 003 must be set to "Yes".

5990	SP Print Mode		
5990 001	All (Data List)		
5990 002	SP (Mode Data Li(st)		
5990 004	Logging Data		
5990 005	Diagnostic Repor(t)	Prints the summary sheet for the item selected.	
5990 006	Non-Default		
5990 007	NIB Summary		

### SP7-xxx: Data Log

	Operation Time
	Displays the total number of engine rotation cycles made so far.
7001	Note:
7 00 1	One cycle is calculated as 3.9 sec. of drum rotation.
	However, this counter also includes idle rotations.
	This counter is not reset at PM.

7401	SC Counter	Displays the total number of service calls that have occurred.
		Display range: 0000 to 9999

7403	Latest 1 OSCLog	
7403 001	Latest	
7403 002	Latest 1	Displays the most recent service calls successive groups
7403 003	Latest 2	of 10.
7403 004	Latest 3	

7403 005	Latest 4
7403 006	Latest 5
7403 007	Latest 6
7403 008	Latest 7
7403 009	Latest 8
7403 010	Latest 9

7502	Total Jam	Displays the total number of jams.
		Display range: 0000 to 9999

	Jam Location		
	Displays the total number of jams by location.		
	A "Paper Late" error occurs when the paper fails to activate the sensor at the precise time.  A "Paper Lag" paper jam occurs when the paper remains at the sensor for longer than the prescribed time.		
	Display range: 0000 to 9999		
	Error No.	Error	
	1	At Power On	
	17	Off-1 VerticalSN	
7504	18	Off-2 VerticalSN	
	19	Off-RegistBypass	
	20	Off-Regist Tray 1	
	21	Off-Regist Tray2	
	22	Off-Regist Tray3	
	23	Off-RegistDuplex	
	24	On-Regist SN	
	25	Off-Exit SN	
	32	On-Exit SN	

49	Off-Duplx Exit
50	On- Duplx Exit
51	Off-Dup Inverter
52	On- Dup Inverter
53	Off-Duplex Exit
54	On- Duplex Exit

7506	Paper Size	
7506 006	A5 LEF	
7506 044	HLT LEF	
7506 133	A4 SEF	
7506 134	A5 SEF	
7506 142	B5 SEF	Displays the total number of jams by paper size
7506 164	LG SEF	
7506 166	LT SEF	
7506 172	HLT SEF	
7506 255	Others	

	Jam History		
	Displays the copy jam history in groups of 10, starting with the most recent 10 jams.  Display contents are as follows:		
7507	7507 CODE is the SP7-504-nnn number.		
	SIZE is the ASAP paper size (hexadecimal).		
	TOTAL is the total jam error count (SP7-003)		
	DATE is the date the jams occurred.		
7507 001	Latest	Sample Display:	
7507 002	Latest 1	CODE: 007	
7507 003	Latest 2	TOTAL: 0000334	

7507 004	Latest 3
7507 005	Latest 4
7507 006	Latest 5
7507 007	Latest 6
7507 008	Latest 7
7507 009	Latest 8
7507 010	Latest 9

Paper Size	Code (hex)	Paper Size	Code (hex)
A4 LEF	05	B4 SEF	8D
A5 LEF	06	B5 SEF	8E
B5 LEF	OE	DLT SEF	AO
LT LEF	26	LG SEF	A4
HLT LEF	2C	LT SEF	A6
A3 SEF	84	HLT SEF	AC
A4 SEF	85	Others	FF
A5 SEF	86		

	PM Counter
7803	Displays the PM counter. This is not a page counter. It estimates the page count using the engine rotation cycle count. It counts up one page when the engine has made the average number of rotations that is required for one page of a three-page job.
7803 001	Paper
7803 002	Transfer Rol(ler)
7803 003	Paper Feed Rol(ler)
7803 004	Fusing Unit

7804	PM Counter Reset	
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	Resets the PM counter. To reset, press [#Enter].	
7804 001 Paper		
7804 002 Transfer Rol(ler)		
7804 003	Paper Feed Rol(ler)	
7804 004 Fusing Unit		

	SC/Jam Clear
7807	Resets the SC and jam counters. To reset, press [#Enter].
	Note: This SP does not reset the jam history counter: SP7-507

	DiagResult	
7832	Press [#Enter] to display a list of error codes. Nothing is displayed if no errors have occurred.	

	7836	TotalMemorySize	
/83		Displays the memory capacity of the controller system.	

<i>7</i> 901	Assert Info		
7901 001	File Name		
7901 002	# of Lines	Records the location where a problem is detected in the program. The data stored in this SP is used for problem analysis.	
7901 003	Location	,	

7910	ROM No.	
7910 001	System	
7910 002	Engine	
7910 013	Duplex	
7910 018	NIB	
7910 132	Netware Opt.	
7910 150	RPCS	

7910 151	PS	
7910 158	PCL	
7910 159	PCLXL	
7910 180	FONT	
<i>7</i> 910 181	FONT1	
7910 182	FONT2	
<i>7</i> 910 183	FONT3	
7910 200	Factory	
7910 202	Net File	
7910 204	Printer	
7910 209	Test Suite	
7910 210	MIB	
7910 211	Web System	
7910 213	SDK1	
7910 214	SDK2	
7910 215	SDK3	

7911	Firmware Ver.	
7910 001	System	
7910 002	Engine	
7910 013	Duplex	
7910 018	NIB	
7910 132	Netware Opt.	
7910 150	RPCS	
7910 151	PS	
7910 158	PCL	

PCLXL
FONT
FONT1
FONT2
FONT3
Factory
Net File
Printer
Test Suite
MIB
WebSystem
SDK1
SDK2
SDK3

	Cartridge info		
	Displays information about the cartridge.		
<i>7</i> 931	Returns a value of "O" if the number stored in the cartridge is not recognized.		
	This is information on the AIO ID Chip so if the cartridge is not installed, if the AIO is not set properly, or if the front door is open, no value will be displayed because the machine cannot communicate with the AIO.		
7931 001	Machine ID	Identification number of the machine (Model Name)	
7931 002	Version	Cartridge version number	
	Brand ID	Acquires value at "01H" on the AIO ID chip and for the OEM brand displays:  1: Ricoh	
7931 003		2: NRG	
		3: Komachi	
		4: Fujitsu	

7931 004	Area ID	Acquires value at "03H" on the AIO ID chip and displays:  1: DOM (Japan  2: NA (North America)  3: EU (Europe)  4: Asia
7931 005	Kind ID	Acquires value at "04H" on the AIO ID chip and for the part code number displays:  1: 6K  3: 15K
7931 006	Color ID	Acquires value at "05H" on the AIO ID chip and displays "1" for the color of the toner (Black). This is the only setting for this machine.
7931 007	Maintenance ID	Acquires value at "06H" on the AIO ID chip and displays:  1: Printer (no maintenance contract)  3: Accessories  99: AIO
7931 008	New AIO	Acquires value at "08H" on the AIO ID chip and displays: 0: Normal 64: New AIO
7931 009	Recycle Count	Acquires value at "09H" on the AIO ID chip and displays 0 to 3.
7931 010	EDP Code	Acquires value at "OFH" on the AIO ID chip and displays the toner order code. The code is a string of ASCII characters.
7931 011	Maker ID	Acquires values at "10H" to "17H" on the AIO ID chip and displays an ASCII string that identifies the manufacturer.  Note:  This data is originally entered as BCD and changes into a 16-character string in order to convert it to ASCII.  However, only 10 bytes can be used to communicate with the controller, so the 16 bytes are truncated to 10 bytes.
7931 012	Remaining Toner	Acquires the value at the AIO ID Chip address "2CH" and displays "0" to "100" (the percentage of toner remaining in the cartridge.



7931 013	Toner End	Acquires the value at the AIO ID Chip address "2DH" and displays:  N: Toner near end  E: Toner end	
7931 014	Refill Flag	Acquires the values at the AIO ID Chip addresses "2EH" to "2FH" and displays "RF" when the cartridge requires refilling.	
7931 015	R:Total Counter	Acquires the values at the AIO ID Chip addresses "30H" to "3BH" and displays a number in the range "0" to "99999999". This is the total count at time of installation.	
7931 016	E:Total Counter	Acquires the values at the AIO ID Chip addresses "38H" to "33H" and displays a number in the range "0" to "99999999". This is the total count at toner end.	
7931 017	Unit Counter	Acquires the values at the AIO ID Chip addresses "40H" to "43H" and displays a number in the range "0" to "99999999". This is the total number of pages output by the AIO unit. Counter adds once for each sheet output.	
7931 018	Install Date	Acquires the values at the AIO ID Chip addresses "58H" to "5BH" and displays Year-Month-Date of installation for the AIO unit. This setting updates automatically through a serial interface with the machine when the new unit is installed.	
7931 019	Toner End Date	Acquires the values at the AIO ID Chip addresses "5CH" to "5FH" and displays Year-Month-Date when toner end occurred.	
7931 020	Conductor Time 1	Acquires the values at 68H, 69H displays a number in the range	
7931 021	Conductor Time2	"0" to "00000000". This is the count for OPC.  Note:	
7931 022	Conductor Time3	This information resides at four locations (020, 021, 022,	
7931 023	Conductor Time4	<ul> <li>023. The recycle count determines where the value is written.</li> <li>The counter increments by "1" for every 6 sec. of drum rotation time.</li> <li>To calculate the actual time in sec., multiply the displayed value by 6.</li> </ul>	

7932	CartRidge Life
	Displays information about the cartridge service life.

	Returns a value of "0" if the number stored in the cartridge is not recognized.				
	is not set properly, o	This is information on the AIO ID Chip so if the cartridge is not installed, if the AIO is not set properly, or if the front door is open, no value will be displayed because the machine cannot communicate with the AIO.			
7932 001	ConductorTime	The is the same information retrieved from 68H, 69H of the AIO ID Chip with SP7931 (see 7931 020to023 above), but the value displayed here calculated with the rotation time			
		• C	rs at 46H, 47H of the EEPROM (sec.) onductor Time. Rotation count of the OPC presently stalled.		
			eConduct Time. Rotation count of the previous OPC.		
7932 002	PreConductTime	Note:			
			The counter increments by "1" for every 6 sec. of drum rotation time.		
		To calculate the actual time in sec., multiply the displayed value by 6.			
	Cart Alert	Displays a 6-bit array that provides information about toner, used toner, and OPC service life of the cartridge presently installed in the machine.			
		Note: "000000" indicates "Normal". A "1" indicates that a change has occurred for the in the alert status at one or more of the bit positions below.			
		Bit	What It Means		
7932 003		0	Toner near-end		
		1	Toner end		
		2	Used toner near-end		
		3	Used toner end		
		4	OPC service life near-end		
		5	OPC service life end		
7932 04	Pre Cart Alert	Displays a 6-bit array that provides information about toner, used toner, and OPC service life of the cartridge previously installed in the machine.			

		Note: "000000" indicates "Normal". A "1" indicates that a change has occurred for the in the alert status at one or more of the bit positions below.		
			What It Means	
		0	Toner near-end	
		1	Toner end	
		2	Used toner near-end	
		3	Used toner end	
		4	OPC service life near-end	
		5	OPC service life end	
7932 005	VarietyID	This is the same type of information read with SP7931 005 from the AIO ID Chip for the cartridge presently installed in the machine. However, this SP displays the value read from 4CH of the EEPROM.		
, , , , ,		1: 3K		
		2: 6K 3: 15K		
	Pre VarietyID	This is the same type of information read with SP7931 005 from the AIO ID Chip for the cartridge presently installed in the machine, but this SP displays the value read from 4CH of the EEPROM for the previously installed cartridge.		
7932 006		1: 3K		
		2: 6K		
		3: 15K		
		4: 20K		
		This SP saves the rotation count (sec.) for the OPC when a refilled cartridge is detected. When a re-filled cartridge is detected, the value for the OPC rotation count is copied from the AIO ID Chip and saved this SP.		
7932 007	RFConductTime	Note:		
		<ul> <li>If the cartridge is not installed, if the AIO is not set properly, or if the front door is open, no value will be displayed because the machine cannot communicate with the AIO.</li> </ul>		

		<ul> <li>The counter increments by "1" for every 6 sec. of drum rotation time.</li> <li>To calculate the actual time in sec., multiply the</li> </ul>
		displayed value by 6.
	RemainingCart	This SP displays the length of the service life that remains for the OPC.
		The value is read from the AIO ID Chip.
7932 008		<ul> <li>The number displayed indicates as a percentage the amount of time remaining for the OPC based on the number of drum rotations.</li> </ul>
		<ul> <li>If the cartridge is not installed, if the AIO is not set properly, or if the front door is open, no value will be displayed because the machine cannot communicate with the AIO.</li> </ul>
		Important Note: This SP reads only the engine information. This information is not sent to the controller.

7993	Total counter
	Displays the engine total counter. It counts up for all prints, including service reports.

#### SP8XXX: Data Log 2

The SPs in this group are prefixed with a letter that indicates the mode of operation. The mode of operation is referred to as an 'application'. Before reading the Group 8 Service Tables, make sure that you understand what these prefixes mean.

Prefix	Application	What It Means	
T:	Total	Grand total of the items counted for all applications (C, F, P, etc.).	
P:	Print	Totals (pages, jobs, etc.) executed for each application when the job was not stored on the document server.	
O:	Other	Other applications (external network applications, etc.). Refers to network applications such as Web Image Monitor. Utilities developed with the SDK (Software Development Kit) are also counted.	

Group 8 SP codes are limited to 17 characters, forced by the necessity of displaying them on the small LCDs of printers and faxes that also use these SPs.



• All of the Group 8 SPs are reset with SP5 801 1 Memory All Clear.

8381	T:2-2-01	These SPs count the number of pages printed by the customer. The counter
8384	P:2-2-01	for the application used for storing the pages increments.
8387	O:2-2-01	[0 to 9999999/0/1]

- When the A3/DLT double count function is switched on with SP5104, 1 A3/DLT page is counted as
- When several documents are merged for a print job, the number of pages stored are counted for the application that stored them.
- These counters are used primarily to calculate charges on use of the machine, so the following pages are not counted as printed pages:
- Blank pages in a duplex printing job.
- Reports printed to confirm counts.
- All reports done in the service mode (service summaries, engine maintenance reports, etc.)
- Test prints for machine image adjustment.
- Error notification reports.
- Partially printed pages as the result of a jam.

	T:2-2-02	Large Size Pages Printed
8391	These SPs count pages printed on paper sizes A3/DLT and larger.	
[0 to 9999999/0/1]		/1]

	T:2-2-04	Total Duplex Pages Printed	
8411		This SP counts the amount of paper (front/back counted as 1 page) used for duplex printing.  Last pages printed only on one side are not counted.	

	T:2-2-05	-05 Total Simplex/Duplex Pages		
8421	These SPs count by binding and combine, and n-Up settings the number of pages processed for printing. This is the total for all applications.  [0 to 9999999/0/1]			
8424	P: 2-2-05	2-05 Total Simplex/Duplex Pages		

	These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by the printer application.  [0 to 9999999/0/1]		
	O: 2-2-05	Total Simplex/Duplex P	ages
8427	processed for	SPs count by binding and combine, and n-Up settings the number of pages used for printing by Other applications	
842x 1	Simplex> Dup	lex	
842x 4	Simplex Combine		
842x 5	Duplex Combine		
842x 6	2>		2 pages on 1 side (2-Up)
842x 7	4>		4 pages on 1 side (4-Up)
842x 8	6>		6 pages on 1 side (6-Up)
842x 9	8>		8 pages on 1 side (8-Up)
842x 10	9>		9 pages on 1 side (9-Up)
842x 11	16>		16 pages on 1 side (16-Up)
842x 12	Booklet		
842x 13	Magazine		

- These counts are especially useful for customers who need to improve their compliance with ISO standards for the reduction of paper consumption.
- Pages that are only partially printed with the n-Up functions are counted as 1 page.

	T:2-2-07	Total Printed/Paper Size: All Applications		
8441	These SPs count by print paper size the number of pages printed by all applica [0 to 9999999/0/1]			
	P: 2-2-07	Total Printed/Paper Size: Printer Application		
These SPs count by print paper size the number of pages printed by the p [0 to 9999999/0/1]				

	O: 2-2-07	Total Printed/Paper Size: Other
These SPs count by print paper size the number of po [0 to 9999999/0/1]		print paper size the number of pages printed by Other applications.
844x 1	A3	
844x 2	A4	
844x 3	A5	
844x 4	B4	
844x 5	B5	
844x 6	DLT	
844x 7	LG	
844x 8	LT	
844x 9	HLT	
844x 10	Full Bleed	
844x 254	Other (Standard)	
844x 255	Other (Custom)	

• These counters do not distinguish between LEF and SEF.

	2-2-08	Printed Pages/Paper Tray	
8451	These SPs count the number of sheets fed from each paper feed station.  [0 to 9999999/0/1]		
001	Bypass Tray	Bypass Tray	
002	Tray 1	Main Machine	
003	Tray 2	Main Machine	
004	Tray 3	Paper Tray Unit (Option)	
005	Tray 4	Paper Tray Unit (Option)	
006	Tray 5	LCT (Option)	
007	Tray 6	Currently not used.	

008	Tray 7
009	Tray 8
010	Tray 9

	T:2-2-09	Printed Pages/Paper Type			
	[0 to 9999999/0/1]				
	These SPs count by paper type the number pages printed by all applications.				
8461	<ul> <li>These counters are not the same as the PM counter. The PM counter is based on feed timing to accurately measure the service life of the feed rollers. These counts are based on output timing.</li> </ul>				
	Blank sheets (co	vers, chapter covers, slip sheets) are also counted.			
During duplex printing, pages printed on boom one side counts as 1.		rinting, pages printed on both sides count as 1, and a page printed nts as 1.			
8464	P: 2-2-09	[0 to 9999999/0/1]			
8404	These SPs count by paper type the number pages printed by the printer application.				
846x 1	Normal				
846x 2	Recycled				
846x 3	Special				
846x 4	Thick	Thick			
846x 5	Normal (Back)				
846x 6	Thick (Back)				
846x 7	OHP				
846x 8	Other				

	T:2-2-15	Total Pages/Finish		
8521	[0 to 9999999/0/1]			
	These SPs count by finishing mode the total number of pages printed by all applications.			
P: 2-2-15 Total Pages/Finish		Total Pages/Finish		
8524	These SPs count by finishing mode the total number of pages printed by the Print application.			

	[0 to 9999999/0/1]
852x 1	Sort
852x 2	Stack
852x 3	Staple
852x 4	Booklet
852x 5	Z-Fold
852x 6	Punch
852x 7	Other

- If stapling is selected for finishing and the stack is too large for stapling, the unstapled pages are still counted.
- The counts for staple finishing are based on output to the staple tray, so jam recoveries are counted.

T:2-2-26 Total Counter: Breakdown		Total Counter: Breakdown	
	8581	These SPs count the total output broken down by color output, regardless of the applicatio used. In addition to being displayed in the SMC Report, these counters are also displayed [0 to 9999999/0/1]	

	O: 2-2-26	Total Counter: Other			
8591		t the totals for A3/DLT paper used, number of duplex pages printed, r of staples used. These totals are for Other (O:) applications only.			
8591 001	A3/DLT				
8591 002	Duplex				

9401	T:2-2-28	Coverage Counter	
8601	These counts correspond to the total counts recorded with the mechanical counter.		
8601 001	Cvg: BW %		Coverage: BW Pages
8601 011	Cvg: BW Pages		Coverage: BW Percent

8 <i>77</i> 1	3-0-01	Dev Counter
---------------	--------	-------------

This SP counts the number of development roller rotations for development.

[0 to 9999999/0/1]



8781 Pixel Coverage Ratio

This SP displays the count for the number of toner bottles used. The count is done based on the assumption that one toner bottle yields about 1,000 printed pages.

3-0-05

Toner Remain

This SP displays (as a percentage) the amount of toner remaining. This precise method of measuring remaining toner supply (1% steps) is better than other machines in the market that can only measure in increments of 10 (10% steps).

[0 to 100/0/1]

	3-2-03	Toner Coverage 0-10%
These SPs count the percentage of dot coverage for K toner.  [0 to 9999999]		
8851 011	0 to 2%:BK	
8851 021	3 to 4%:BK	
8851 031	5 to 7%:BK	
8851 041	8 to 10%:BK	

3-2-04 Toner Coverage 11-20%

This SP counts the number of prints that had a percentage of black dot coverage in the range 11-20%.

[0 to 9999999]

3-2-05 Toner Coverage 21-30%

This SP counts the number of prints that had a percentage of black dot coverage in the range 21-30%.

[0 to 9999999]

	8881	3-3-06	Toner Coverage 31 -%
		This SP counts the number of prints that had a percentage of black dot coverage in the range above 31%.	
		[0 to 9999999]	

8891	3-2-07	Coverage Display (Current)
8901	3-2-08	Coverage Display (Previous)
8911	3-2-09	Coverage Display (Before Previous)

	3-2-10	Dot Coverage Count Total	
8921	These counters count the percentage of dot coverage for K toner. (This machine uses only black toner)		
8921 001	Coverage (%):BK		
8921 011	Coverage/P:BK		

	3-6-01	Machine Status
8941	These SPs count the amount of time the machine spends in each operation mode. These SPs are useful for customers who need to investigate machine operation for improvement in their compliance with ISO Standards.  [0 to 9999999/0/1]	
8941 001	Operation Time	Engine operation time. Does not include time while controller is saving data to HDD (while engine is not operating).
8941 002	Standby Time	Engine not operating. Includes time while controller saves data to HDD. Does not include time spent in Energy Save mode.
8941 003	Energy Save Time	Includes time while the machine is performing background printing.
89/11/00/1 Low Power Line		Includes time in Energy Save mode with Engine on. Includes time while machine is performing background printing.
8941 005	Off Mode Time	Includes time while machine is performing background printing.  Does not include time machine remains powered off with the power switches.

8941 007 PrtJam Total down time due to paper jam		Total down time due to SC errors.
		Total down time due to paper jams during printing.
		Total down time due to original paper jams.
8941 009	PM Unit End	Total down time due to toner end.

	AdminCounter	Machine Administra	ation Counter
8999	This SP displays the counts for the items listed below. Use this SP as a quick reference to see the total counts of the corresponding SP codes listed below.		
Note: This machine supports K printing only, so the counts for 015 and		nly, so the counts for 015 and 017 are identical.	
8999 001	Total (SP8381 001)		Total output (sheets fed out)
8999 007	Printer: BW		Total output for black & white
8999 013	Duplex (SP8411 001)		Total output of duplexed sheets
8999 015	Cvg:BW% (SP8601 001)		Total output of K pages
8999 017	Cvg:BW Pages (SP8601 011)		Total output of K pages

## Firmware Update



• Never turn off the machine while downloading the firmware.

### Type Of Firmware

The table lists the firmware programs used by the machine. All programs can fit on one SD card.

Program	What It Updates
Engine	Printer engine control
Network DocBox	Document server firmware
Printer	Printer feature applications
System	Printer management
Network Support	Network application
Update Mode Err.	Displays if an error occurs.
Verify Data	Verifies that the update executed successfully.

#### **Precautions**

#### **Handling SD Cards**

Observe these precautions when handling SD cards:

- Always turn off the main power switch before you insert or remove an SD card. Data on an SD card
  can be corrupted if you insert or remove an SD card while the main power switch is on.
- Never turn off the main power switch during downloading.
- Keep SD cards in a safe location. Never store SD cards in locations where they will be exposed to:
  - High temperature, high humidity
  - · Direct sunlight
  - Strong vibrations
  - Magnetic fields generated by machines or electronic devices
- Handle SD cards carefully to avoid dropping them, bending, scratching, etc.

### 5

#### Upload/Download

In this service manual, "upload" and "download" have these meanings:

- Upload: Copying data from the printer to the SD card
- Download: Copying data from the SD card to the printer

#### **Network Connection**

A print job sent to the machine during firmware update will interrupt the procedure. Before you start the firmware update procedure tell the operator:

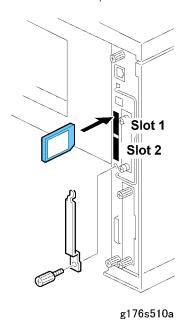
- The machine must be disconnected from the network.
- The machine cannot be used during firmware update.



#### Machine Firmware Update

Each program must be updated one a time. Follow the procedure below to update one program.

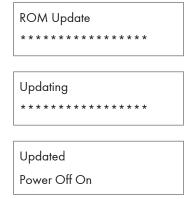
- 1. Prepare a card that contains the required program.
- 2. If the machine is on, switch it off.



- 3. Remove the SD card cover (Fx1).
- 4. Insert the SD card into Slot 1.
- 5. Turn on the power. The screen remains blank for about 20 to 30 sec., "Please Wait" appears, then you will see "Engine", the first item available for selection.



- The first selection "Engine" will appear about 1 min. after switching the power on.
- 6. Scroll to the program to upgrade, then press [#Enter].
- 7. Press the [Online] to start the upgrade. You will see a series of messages. If you selected "Engine", for example", you would see:



The "Power Off On" message appears after about 90 sec.

8. Turn off the power, remove the SD card from Slot 1, and turn on the power.

-or-

If you intend to update another program, leave the SD card in Slot 1 and turn on the power.



• The firmware has not updated successfully if the "Power Off On" message does not appear. If this occurs, turn the machine power off/on and repeat the procedure.

#### 5

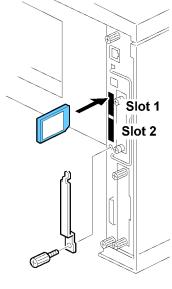
# **NVRAM Data Upload/Download**

#### **Uploading NVRAM Data**

Follow this procedure to upload the NVRAM data to an SD card.



- If the NVRAM data cannot be uploaded successfully before NVRAM replacement, you must manually
  input the required settings after the NVRAM has been replaced. For this reason, you should always
  print an SMC report before NVRAM replacement.
- 1. Enter the SP mode and do SP5990 1 (All) to print the SMC Report.
- 2. Exit the SP mode.
- 3. Turn off the main power switch.



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- 4. Remove the SD card slot cover.
- 5. Insert an SD card into Slot 1.
- 6. Turn on the main power switch.
- 7. Enter the SP mode and do SP5824 (NVRAM Upload).
- 8. Push [#Enter].

<NVRAM Upload>

- 9. Push [#Enter].
- 10. You will see "Processing". Then when you see "result=OK" the NVRAM data has been uploaded successfully.

This procedure creates an NVRAM folder on the SD card with one file that holds the NVRAM data. The file name is the serial number and the file extension is \*.nv.

Example: G1772700016.nv,

- 11. Exit the SP mode.
- 12. Turn off the main power switch.
- 13. Remove the SD card.
- 14. Mark the SD card with the machine code for later reference. You will need this SD card to download NVRAM to the new NVRAM.



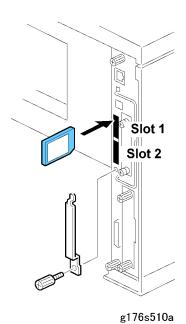
• One SD card can store the NVRAM data of two or more machines.

#### **Downloading NVRAM Data**

Follow this procedure to download the data from the SD card to the NVRAM, after the NVRAM has been replaced.



- If the NVRAM data file cannot be downloaded successfully, the settings must be restored manually using the SMC report that was printed before NVRAM uploading.
- 1. Confirm that the main power switch is off.
- 2. Confirm that you have the SD card that contains the proper NVRAM data for the machine.



- 3. Remove the SD card slot cover.
- 4. Insert the SD card into Slot 1.
- 5. Turn on the main power switch.
- 6. Enter the SP mode and do SP5825 (NVRAM Download).
- 7. Push [#Enter].

<NVRAM Download>

8. Push [#Enter].

You will see "Processing". Then when you see "result=OK", the NVRAM data has been downloaded successfully.



- The machine cannot do the download if the file name SD card name is different from the printer serial number.
- 9. Exit the SP mode.
- 10. Turn off the main power switch.
- 11. Remove the SD card.
- 12. Turn on the main power switch.

#### Overview

The service program "SD Card Appli Move" (SP5873) moves application programs from one SD card to another.

Obey these precautions during the SD Card Appli move procedure:

**SD Card Application Move** 

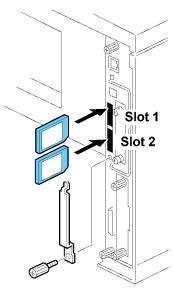
- The authentication data is moved with the application program from an SD card to the other SD card.
   Authentication fails if you try to use the SD card after you move the application program from this card to another SD card.
- Do not use an SD card if it has been used for some other work, for example, on a computer. Normal
  operation is not guaranteed when such SD card is used.
- Store the original SD card in a safe location after the procedure. The original SD card cannot be used
  but it must be saved because (1) the original card is the only proof that the user is licensed to use the
  application program, and (2) you may need to check the SD card and its data to solve a problem in
  the future.

#### Move Exec

"Move Exec" (SP5873 1) moves application programs from the original SD card to another SD card. The application programs are moved from Slot 1 to Slot 2.

1. Turn off the main power switch.

5



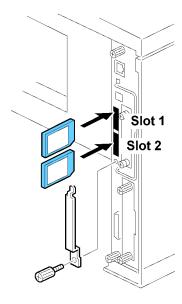
g176s510c

- 2. Remove the SD card slot cover.
- 3. Insert the original SD card with the application in Slot 1.
- 4. Insert the SD card to receive the application in Slot 2.
- 5. Turn on the main power switch.
- 6. Enter the SP mode and do SP5873 1 "Move Exec."
- 7. Follow the messages on the operation panel to complete the procedure.
- 8. Exit the SP mode.
- 9. Turn off the main power switch.
- 10. Remove the original SD card from Slot 1.
- 11. Leave the other SD card in Slot 2.
- 12. Turn on the main power switch.
- 13. Confirm that the application program runs normally.
- 14. Tell the customer to store the original SD card in a safe place.

### **Undo Exec**

"Undo Exec" (SP5873 2) restores an application to its original SD card. The application is moved from Slot 2 to Slot 1.

1. Turn off the main power switch.



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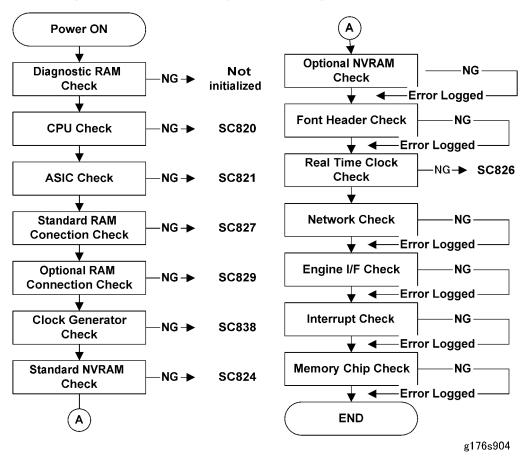
- 2. Remove the SD card slot cover.
- 3. Insert the SD card that currently holds the application in Slot 2.
- 4. Insert the original SD card to receive the restored application in Slot 1.
- 5. Turn on the main power switch.
- 6. Enter the SP mode and do SP5873 "Undo Exec."
- 7. Follow the messages on the operation panel to complete the procedure.
- 8. Exit the SP mode.
- 9. Turn off the main power switch.
- 10. Remove both SD cards.
- 11. Insert the SD card with the restored application in Slot 2.
- 12. Turn on the main power switch.
- 13. Confirm that the application operates normally.

## Controller Self Test at Power-On

There are two types of self-diagnostics for the controller:

- Power-on self-diagnostics: The machine automatically starts the self-diagnostics just after the power has been turned on.
- SC detection: The machine automatically detects SC conditions at power-on or during operation.

The following flowchart shows flow of the power-on self-diagnostic test.



## Menu Mode

There are two menu modes:

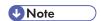
- User menu mode
- System administrator menu mode

#### To enter and use the user menu mode:

- 1. Press [Menu]
- 2. Press [▼] or [▲] to scroll through the menu listing.
- 3. To return to the previous level, press [Escape].
- 4. After changing the settings, press [On Line] to return to standby mode

#### To enter and use the system administrator menu mode:

- 1. Push and release in order: [#Enter]> [Escape]> [Menu]
- 2. Press [▼] or [▲] to scroll through the menu listing.
- 3. To return to the previous level, press [Escape].
- 4. After changing the settings, press [On Line] to return to standby mode



- The user menu list shown below can be printed: [Menu]> "List/Test Print"> [▼] 4 times> "Menu List"> [#Enter].
- The first four items (Sample, Locked, Hold, Stored Print) are not included in the printed list.

#### Menu Mode Tree

Here is quick summary of the menus. The system administrator mode menus have some additional items that are not displayed in the user menu mode.



 The items that are displayed only in the system administrator menu mode are enclosed in square brackets in the table below.

1 st Level	2nd Level
Sample Print	Print One File
	Print All Files
	Delete One File
	Del. All Files
	Error File(s)

1 st Level	2nd Level	
Locked Print	Print One File	
	Print All Files	
	Delete One File	
	Del. All Files	
	Error File(s)	
Hold Print	Print One File	
	Print All Files	
	Delete One File	
	Del. All Files	
	Error File(s)	
Stored Print	Print One File	
	Print All Files	
	Delete One File	
	Del. All Files	
	Error File(s)	
Paper Input	Bypass Size	
	Tray Paper Size	
	Paper Type	
	Aut. Tray Select	
	Tray Priority	
List/Test Print	Multiple Lists	
	Config. Page	
	Error Log	
	Network Summary	
	Menu List	

1 st Level	2nd Level	
	PCL Config. Page	
	PS Config. Page	
	PDF Config. Page	
	Hex Dump	
Maintenance	Image Density	
	Registration	
	Curl Prevention	
	Del. All Temp	
	Del. All Stored	
	HD Format	
	Date/Time	
	[Network Security]	
	Key Repeat	
	Panel Key Sound	
	Warm-Up Beeper	
	[Menu Protect]	
	[List Print Lock]	
	[Ppr. Size Err.]	
	[File Locking]	
	[Memory Erase]	
	[Erase All Memory]	
	[Log Transfer]	
	[@Remote Service]	
System	Print Err. Report	
	Auto Continue	

1 st Level	2nd Level	
	Memory Overflow	
	Copies	
	Printer Lang	
	Sub Paper Size	
	Page Size	
	Edge-Edge Print	
	Def. Print Lang.	
	Blank Pages	
	Rotate 180 Deg.	
	Energy Saver	
	Auto Reset Time	
	Auto Del. Temp	
	Auto Del. Stored	
	Memory Usage	
	Unit of Measure	
	Edge Smoothing	
	Toner Saving	
	Spool Printing	
	Letterhead Mode	
	Bypass Priority	
	Auto Tray SW	
	Auto Email Ntfy	
Host Interface	I/O Buffer	
	I/O Timeout	
	Network Setup	

1 st Level	2nd Level	
	[USB Speed]	
	Fixed USB Port	
PCL Menu	Orientation	
	Form Lines	
	Font Source	
	Font Number	
	Point Size	
	Font Pitch	
	Symbol Set	
	Courier Font	
	Ext. A4 Width	
	Append CR to LF	
	Resolution	
PS Menu	Data Format	
	Resolution	
PDF Menu	PDF: Change PW	
	PDF Group PW	
	Resolution	
Language	(Select 1 of 14 available languages)	

### 5

# **Controller Board DIP Switches**

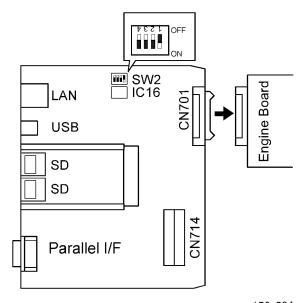
The controller board DIP switches must always be set as shown below.

### Controller Board Default DIP SW Settings

DIP SW	Setting
1	ON
2	OFF
3	OFF
4	OFF



• Do not change these settings.

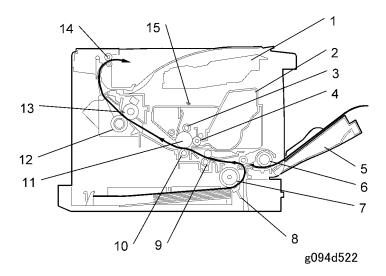


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# 6. Details

## Overview

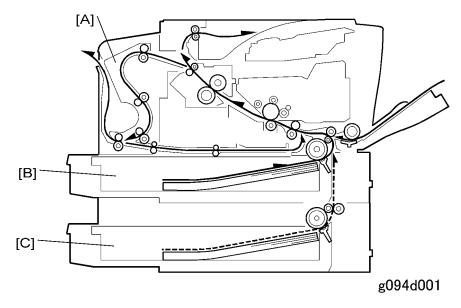
## **Mechanical Component Layout**



- 1. Laser unit
- 2. Cartridge (AIO-type)
- 3. Charge roller
- 4. Development roller
- 5. By-pass feed tray
- 6. By-pass feed roller
- 7. Paper feed roller
- 8. Friction pad

- 9. Registration roller
- 10. Transfer roller
- 11. Drum
- 12. Pressure roller
- 13. Hot roller
- 14. Paper exit roller
- 15. Quenching lamp

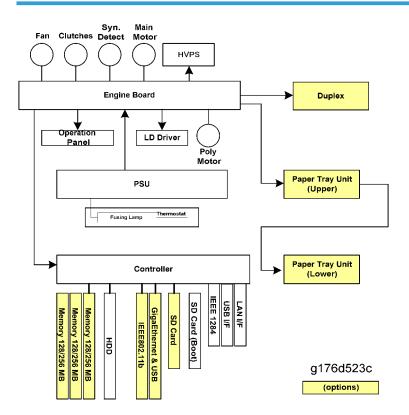
## Paper Path



- [A] Optional duplex unit
- [B] Standard paper tray unit
- [C] Optional paper tray unit

## **Board Structure**

## **Block Diagram**



The engine board controls all the mechanical components.

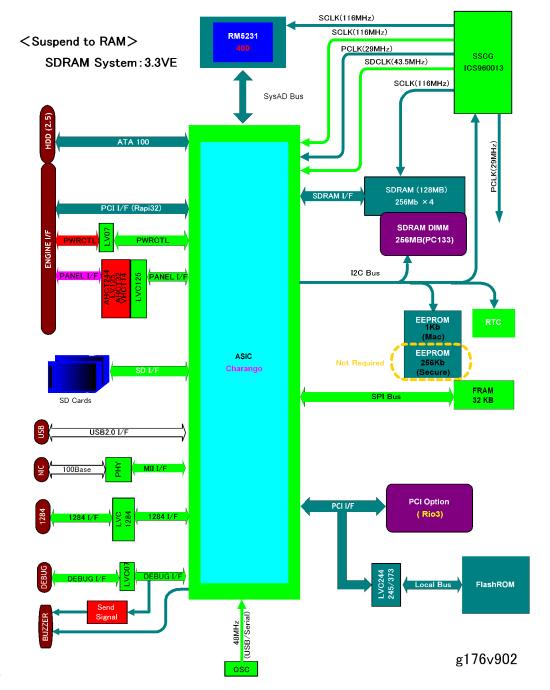
The printer controller board connects to the engine board through a PCI bus.



• The IEEE 802.11b Interface Unit (G813/B874) and Gigabit Ethernet Board (G874) cannot be installed at the same time.

### **Controller Board**





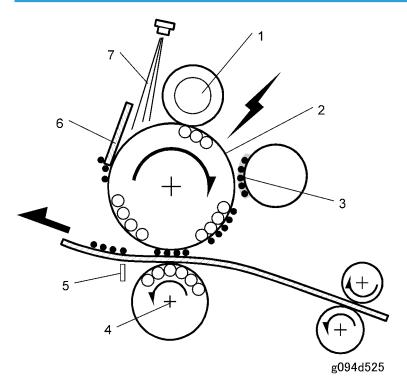
The controller controls all applications. Optional features can be added by inserting application an SD card into the controller SD slot.

**ASIC.** Contains the dedicated GW controller chips of the shared resources (the CPU, memory, and HDD hardware) for the copying and printing functions.

- CPU. The central processing unit that controls the operation of the controller board.
- SD Card Slot. Service slot for firmware version updates, moving applications to other SD cards, and downloading/uploading NVRAM contents.
- SDR SDRAM. The image memory for the printer functions where image compression, image rotation and other operations are done.
- Board Option Slots. One slot (CN714) is available for the optional HDD unit and another slot (CN704) is available for either the IEEE 802.11b Interface Unit or Gigabit Ethernet Board.
- Flash ROM. Stores the program. Maximum capacity: 32 MB.
- USB. The interface for USB 2.0. Supports both low-speed and high-speed modes. USB support is built into the controller. No installation is required for the USB function.
- NIB. The Ethernet interface connection. Ethernet support is built into the controller. No installation is required for the Ethernet function.
- **EEPROM**. Stores the data for the SP code settings.
- NVRAM. The memory that stores the system configuration and other information.

## **Printing Process**

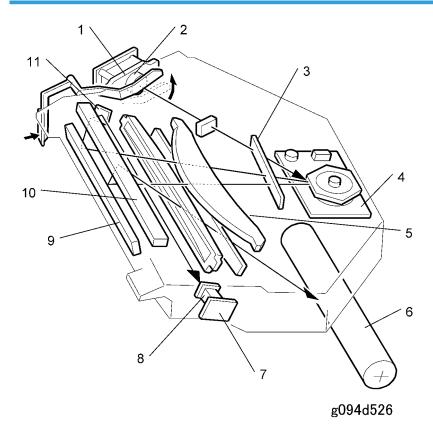
### Overview



- 1. **Drum Charge**: The charge roller gives the drum a negative charge.
- 2. Laser Exposure: A laser beam writes the print data on the drum.
- 3. Development: The development roller moves toner to the latent image on the drum surface.
- 4. Image Transfer: The transfer roller moves the toner from the drum to the paper.
- 5. **Separation**: The separation plate helps to remove the paper from the drum.
- 6. **Cleaning**: The cleaning blade removes remaining toner on the drum surface after the image moved to the paper.
- 7. Quenching: The light from the quenching lamp cancels the charge that stays on the drum.

### Laser Exposure

### Overview



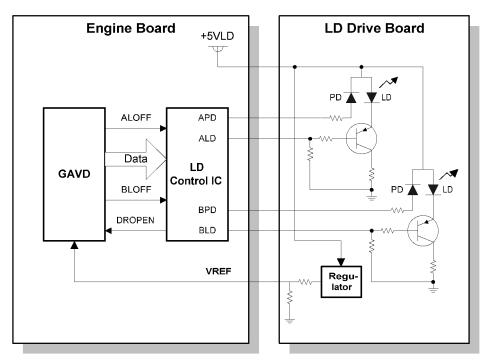
- 1. LD unit
- 2. Laser shutter
- 3. Shield glass
- 4. Polygon mirror
- 5. F-Theta lens
- 6. Drum

- 7. Synchronization detector
- 8. Toroidal lens
- 9. 1st mirror
- 10. 2nd mirror
- 11. Detector mirror
- Synchronization detector: The 1st mirror, 2nd mirror, and the detector mirror reflect the beam from the LD unit to the synchronization detector.
- Two laser beams: The LD unit writes two lines at the same time.
- LD safety shutter: When the user opens the front cover, the shutter closes and blocks the laser beam path.

After you replace the LD unit, adjust its position (see Replacement and Adjustment).

The thermistor next to the laser unit (not shown) checks the temperature inside the machine. The machine automatically corrects the charge roller and transfer voltages for this temperature.

### **Automatic Power Control (APC)**



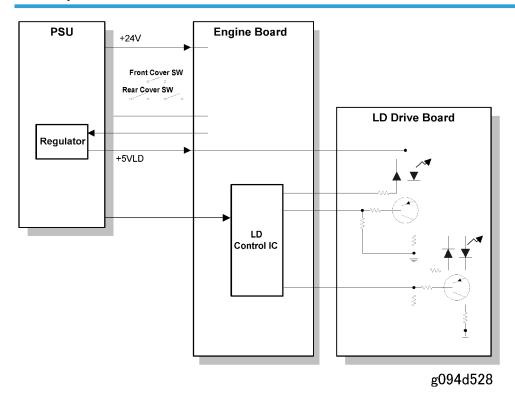
g094d527

The LD control IC on the engine board automatically controls power for the laser diodes. The laser diode power is adjusted in the factory.



• Never touch the variable resistors on the LD unit in the field.

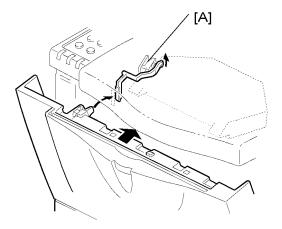
## **LD Safety Mechanisms**



### **Laser Safety Switch**

There are safety switches on the front and rear covers. These switches stop the laser while the cover is open. If the user opens one of these covers, the +5VLD power to the laser diodes is stopped.

### Laser Shutter

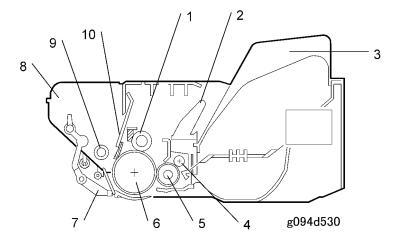


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The laser shutter [A] is for back-up safety. If the switches do not work, the +5VLD power gets to the laser diodes if the cover is open.

The laser shutter cuts the laser beam when the front cover is open.

## Cartridge Overview



- 1. Charge roller
- 6. Drum
- 2. Developer tank
- 7. Drum shutter

3. Toner tank

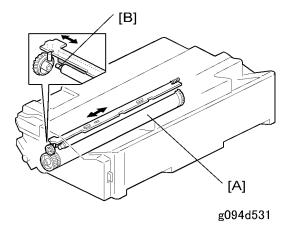
- 8. Waste toner tank
- 4. Reverse roller
- 9. Toner collection roller

### 5. Development roller

10. Cleaning blade

This type of cartridge is known as the "All-in One" (AIO) cartridge.

## **Drum Charge**



[A] Charge roller

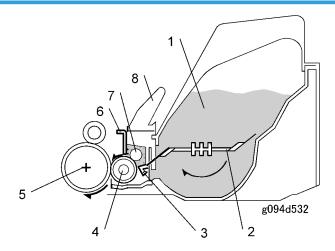
### [B] Cleaning pad

The charge roller [A] gives the drum surface a negative charge of approximately -900 V.

The cleaning pad [B] touches the charge roller to clean the surface.

### **Development**

### **Toner Supply and Development**



1. Toner tank

5. Drum

2. Agitator

6. Doctor blade

3. Pre-doctor blade

7. Reverse roller

4. Development roller

8. Developer tank

### **Toner Supply**

The agitator [2] mixes toner and sends it to the development roller.

### **Development Unit**

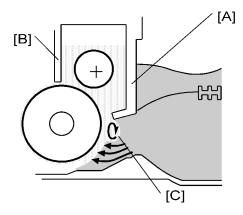
This machine uses a one-roller development system. The high voltage supply applies -700V to the development roller.

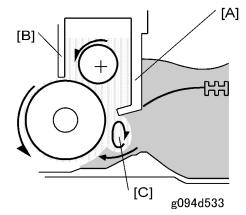
When the user removes the developer seal, the developer falls and the magnetic reverse roller [7] mixes the developer.

This machine does not use a TD sensor or ID sensor to control toner density. The pre-doctor blade [3] and the doctor blade [6] control the toner density.

## 6

### **Toner Density Control**





More toner is fed when the toner coating on the development roller is thin

Less toner is fed when the toner coating on the development roller is thick

[A]: Pre-doctor blade

[B]: Doctor blade

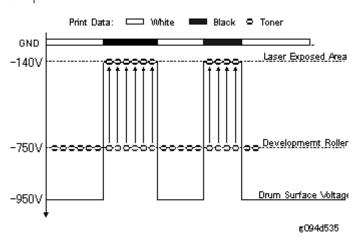
[C]: Circulation of developer

A mixture of toner and developer circulates at the pre-doctor blade [A].

When the toner on the development roller decreases, the circulating region [C] gets smaller to let more toner get to the development roller.

When the toner on the development roller increases, the circulating region [C] gets bigger to let less toner get to the development roller.

### **Development Bias**



Toner transfers from the development roller to the areas on the drum that were exposed to the laser.

### **Toner End Detection**

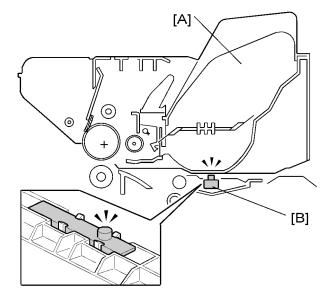
#### Overview

This machine uses two methods to detect toner near-end and toner end:

- A toner-end sensor, mounted below the print cartridge, monitors the level of the toner in the cartridge.
- The machine monitors the length of time the main motor has been running with the same AIO cartridge.

Note that print quality between toner near-end and toner end cannot be guaranteed. This is because toner end is not detected directly; it is automatically detected 200 pages after near-end (or, in the case of main motor rotation count, after the motor rotates enough to print an additional 200 A4 pages at 2 pages/job). Toner can run out more quickly than this, if the coverage ratio is high.

### **Toner End Sensor**



g094d536

- [A] Toner tank
- [B] Toner end sensor

The toner end sensor detects toner near-end by the voltage output. When the output from the toner end sensor is below a given level, the machine displays "Low on Toner".

After toner near-end, the machine can print approximately 200 additional pages. At this time, the "Replace Printer Cartridge Soon" message appears.

After the additional pages have printed, printing stops and then the "Replace Printer Cartridge" message remains in the display.



The 200 page limit for after the near-end alert appears can be adjusted with SP2213. However, the
print quality of these pages cannot be completely guaranteed. This is because the 200-page limit is
calculated for A4, with a 5% coverage ratio (depending on the coverage ratio of these 200 pages,
toner could run out before the 200 pages are made).

#### Main Motor Rotation Count

The time to replace the AIO cartridge can also be determined by the length of time the main motor has been rotating.

When toner end is detected, 'Replace Print Cartridge' is displayed alternately with 'Ready'.



• The servicing alert messages are not displayed when SP5930 001 (meter click charge) is set to "Yes". The default setting of SP 5930 001 is "No". For more, please refer to "5. Service Tables".

At about 200 pages before this (based on A4 prints at 2 pages/job), the machine detects toner near-end. At this time, 'Replace Print Cartridge Soon' is displayed.

• Note that toner can run out more quickly 200 pages after near-end, if the coverage ratio is high. Because of this, after toner near-end, printing quality cannot be guaranteed.

#### **Toner Overflow Prevention**

With the main motor rotation count feature, the machine can be set to stop printing after the print total exceeds a certain set value. If the print count exceeds this value, then 'Replace Print Cartridge' remains in the display. Then a new AIO cartridge must be installed.

This feature is a safety measure to prevent the used toner tank from becoming full (there is no toner overflow detection mechanism).

To enable this feature, you must set SP3923 (Cartridge Stop) to "Yes".

#### Why do we need this feature?

Normally, the AIO is replaced by the user at about 15k. But some users will refill the old AIO with toner, and use the same AIO again. If this occurs, the used toner tank will not be emptied. So there must be a way to stop users from repeatedly filling the old AIO with fresh toner.

If you enable SP 3923, then after a certain number of prints are made with the same AIO, the machine prevents printing, and a completely new AIO must be installed. If you try to print again by removing/replacing the old AIO or adding new toner or other trickery, there will be no printing.

The AIO has serial number information on a chip. The machine checks this number when the AIO is placed in the machine.

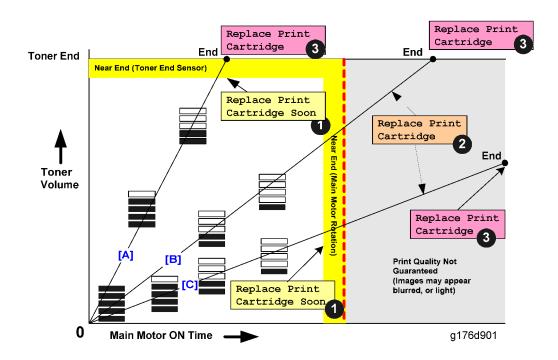
### Why is this feature disabled?

Ricoh does not support the practice of refilling old AIOs with fresh toner, so the feature is disabled by default. But if field service stations know that this practice occurs in their region, or they know a customer who is doing this, then they can enable the feature.

### **Summary**

In the illustration below [A], [B], and [C] have these meanings:

- [A] Heavy usage (jobs that require large amounts of toner)
- [B] Toner coverage is 5% more than normal. The machine detects toner near end based on main motor rotation before the toner end sensor detects that toner is low.
- Toner coverage is 5% lower than normal. The machine detects toner near end based on main [C] motor rotation before the toner end sensor detects that toner is low. The toner overflow prevention mechanism is triggered before toner is completely exhausted.



0	"Replace Print Cartridge Soon"	Displays at toner near-end (based on the toner end sensor), or when the print cartridge is near the end of its service life (based on main motor rotation).  Printing can continue but print quality is not guaranteed.
2	"Replace Print Cartridge" flashes and alternates with "Ready".	The print cartridge is at the end of its service life (about 200 pages or more after near end is detected by main motor rotation) but some toner still remains (toner end sensor did not detect toner end).  Printing can continue but print quality is not guaranteed.  This condition will occur if an old AIO is refilled with toner. The grey area in the diagram is marked 'out of guaranteed range' because Ricoh cannot guarantee the operation of the machine if an old AIO is refilled with toner.
3	"Replace Print Cartridge" remains in the display	Toner is exhausted (200 pages after the toner end sensor detects near end), or the toner overflow prevention mechanism is triggered (based on main motor rotation). Printing cannot continue and "Replace Print Cartridge" will remain in the display until the AIO unit is replaced.

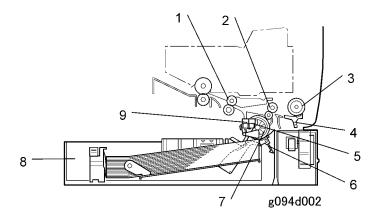
The following items have been added to the SMC Report (printed with SP5990).

- 1. Previous Running Time
- 2. Previous Number of Alerts
- 3. Previous AIO Type (Accessory or 15 K)
- 4. Present Running Time
- 5. Present Number of Alerts
- 6. Present AIO Type (Accessory or 15 K)
- 7. Running Time When AIO Replaced
- 8. Current Running Time Remaining (%)

### 6

# **Paper Feed**

### Overview



- 1. Registration Roller
- 2. Relay Roller
- 3. By-pass feed roller
- 4. By-pass friction pad
- 5. Paper end sensor

- 6. Friction pad
- 7. Feed roller
- 8. Paper tray
- 9. Remaining paper sensors (1 and 2)

## Paper Tray

Paper Feed System:	Feed roller and friction pad
Paper Lift Mechanism:	Tray arm and spring
Paper End Detection:	Remaining paper sensors Paper end sensor
Paper Size Detection:	Paper size switch
Tray Capacity:	500 sheets
Tray Extension:	Available

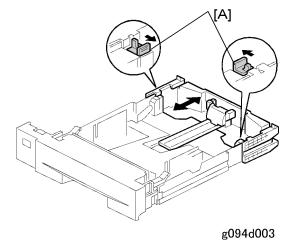
## By-pass Tray

Paper Feed System:	Feed roller and friction pad
Paper Lift Mechanism:	Cams and springs

Paper Detection:	By-pass tray paper sensor
Paper Size Detection:	None
Tray Capacity:	100 sheets

## Paper Tray

## **Tray Extension**



The user can extend the tray manually to hold paper longer than A4/Letter size.

To use longer paper:

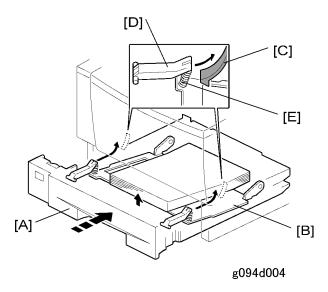
- Release the two locks [A]
- Extend the tray and close the locks.

These paper sizes can be used:

### **Paper Sizes**

Tray Mode	Possible Paper Sizes	
Short (default)	A5 (LEF/SEF), B5 (SEF), A4 (SEF), LT (SEF)	
Long	LG (SEF), 8.5" x 13" (SEF), 8" x 13" (SEF), 8.25" x 13" (SEF)	

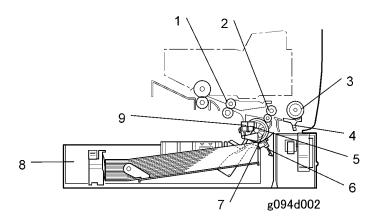
### **Paper Lift**



When the user puts the tray [A] in the machine, the bottom plate [B] lifts as follows.

- The slopes on the guide blocks [C] on the machine lift the tray arms [D] up.
- The springs [E] between the tray arms and bottom plates lift the plate.
- The springs [E] keep the top sheet of the paper at the correct height.

### **Paper Feed and Registration**



- 1. Registration Roller
- 2. Relay Roller
- 3. By-pass feed roller

- 4. By-pass friction pad
- 5. Paper end sensor
- 6. Friction pad

6

7. Feed roller

9. Remaining paper sensors (1 and 2)

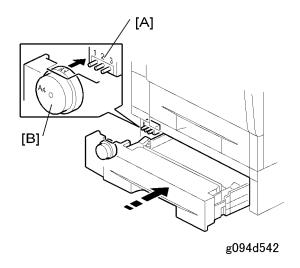
8. Paper tray

The friction pad cannot be adjusted.

The machine makes a paper buckle at the registration roller to correct paper skew.

The paper buckle can be adjusted with engine SP 1003.

### **Paper Size Detection**



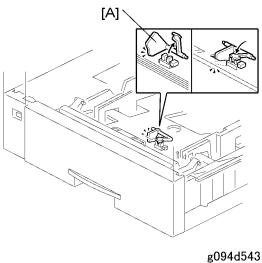
- [A] Paper size switch
- [B] Paper size dial

### Paper Size Detection Table

Size	SW1	SW2	SW3
A4 SEF	ON	ON	OFF
A5 SEF	ON	OFF	ON
B5 SEF	OFF	ON	OFF
Custom Size	ON	OFF	OFF
LG SEF	OFF	OFF	OFF
LT SEF	OFF	OFF	ON

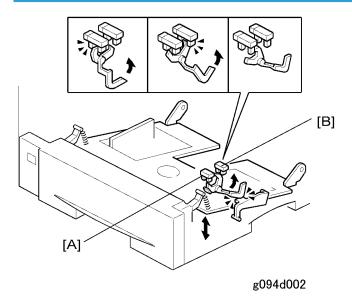
Size	SW1	SW2	SW3
HLT SEF	OFF	ON	ON

## **Paper End Detection**



When there is no paper in the tray, the feeler [A] falls into the cutout in the bottom plate, and the paper end sensor comes on.

## **Remaining Paper Detection**



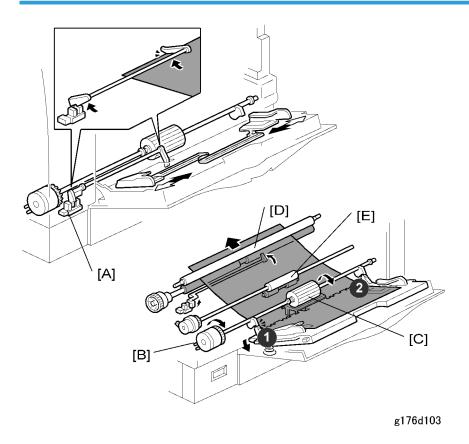
Remaining paper is detected by the combination of the remaining paper sensor signals. The signals from the sensors indicate whether there are 500, 450, 250, or 50 sheets remaining.

[A] Remaining paper sensor 1

[B] Remaining paper sensor 2

Amount of paper	Rem. paper sensor 1	Rem. paper sensor 2
1-50 sheets (10%)	OFF	OFF
51-250 sheets (50%)	OFF	ON
251-450 sheets (90%)	ON	ON
451-500 sheets (100%)	ON	OFF

### **By-pass tray**



The by-pass paper sensor [A] detects when paper is placed on the tray.

The CPU energizes the by-pass clutch [B]. Then the by-pass feed roller [C] starts to feed paper to the registration roller [D] through the relay roller [E].

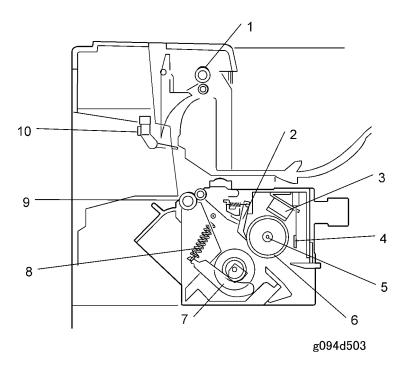
The by-pass feed roller shaft has two cams •. These cams release the bottom plate to press the stack of paper against the feed roller. There is no width sensor.



 To prevent bad effects from too much friction between the feed roller and friction pad, the feed roller contains a metal plate.

# **Image Fusing and Paper Exit**

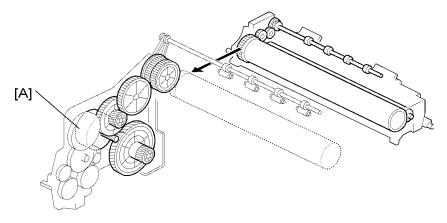
## Overview



- 1. Paper exit roller
- 2. Hot roller strippers
- 3. Thermostat
- 4. Thermistor
- 5. Fusing lamp
- 6. Hot roller
- 7. Fusing pressure roller
- 8. Pressure spring
- 9. Fusing exit roller
- 10. Paper exit sensor

### 6

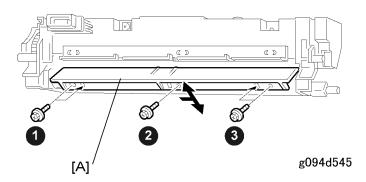
### **Fusing Drive**



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The main motor [A] drives the fusing unit through a gear train.

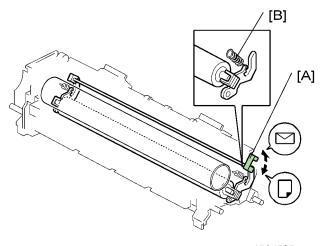
### **Fusing Entrance and Guide Shaft**



The entrance guide [A] is adjustable for paper thickness to prevent creasing.

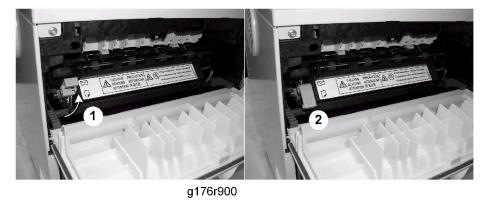
If creasing occurs frequently in the fusing unit, remove all screws ( and slide the entrance guide to the right. Replace the two end screws only. Do not replace the middle screw. This procedure allows paper to have more direct access to the gap between the hot roller and the pressure roller.

#### **Pressure Roller**



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To change the applied pressure (for example, if the customer complains of insufficient fusing), adjust the position of the pressure springs [B]. The factory setting for the spring position is at the top (minimum pressure).

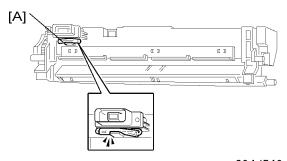


The envelope lever [A] is used by the operator to adjust the size of the gap between the pressure roller and hot roller. A larger gap is needed for envelopes, which are thicker than paper.

- Raise the lever to increase the size of the gap between the hot roller and pressure roller. This prevents jams and wrinkling when printing on envelopes.
- Lower the lever ② to reduce the gap for all other print jobs. Normally this lever should be down.

### 6

### **New Fusing Unit Detection**



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There are two types of fusing unit: Service part, and Maintenance Kit part.

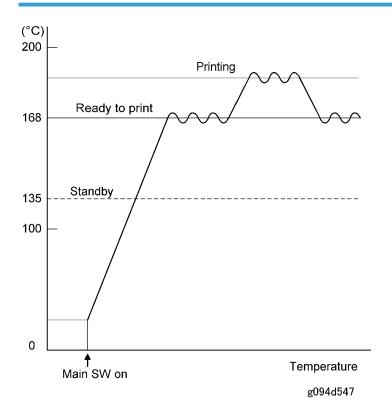
Only the fusing unit in the maintenance kit has the detection mechanism.

In the maintenance kit fusing unit, the looped wire on the fusing unit connector contains a fuse [A]. When power is switched on after installing a new fusing unit, the engine board detects the fusing unit through the looped wire. However, the fuse opens very shortly afterwards.

What happens next depends on the setting of engine SP mode 5930 (Meter Charge):

- If Meter Charge Mode is enabled, after the technician replaces the fusing unit, the maintenance counter must be reset with SP mode 7804.
- If Meter Charge Mode is disabled (default), after the fusing unit has been replaced: (1) the CPU detects the new unit, (2) the "Replace Maintenance Kit" message disappears automatically, and (3) the maintenance counter resets automatically.





When the main switch turns on, the CPU turns on the fusing lamp using the soft start process. (The soft start process prevents the room lights from flickering.) The lamp stays on until the thermistor detects the standby temperature. Then the CPU maintains this temperature using on-off control. To start printing, the CPU raises the temperature to the printing temperature.

The fusing temperature for each mode is as follows:

Condition			Temperature (°C)						
Standby Mode			135						
Ready to Print			168						
Printing	Printing								
Charge Thermistor	Paper Feed		Start-30 s	0.5-2min.	2-4min	4-6min.	6min		
<15°C	Plain, OHP	Bypass	190	185	180	175	170		
	Env.	Bypass,	195	195	190	190	190		

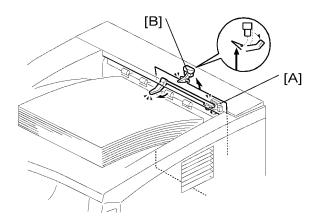
Condition			Temperature (°C)					
		Env. Feeder						
	Postcard	Bypass	195	195	190	190	190	
	Thick	Bypass	195	195	190	190	190	
>15°C	Plain, OHP	Bypass	180	180	175	170	170	
	Env.	Bypass, Env. Feeder	190	190	190	190	190	
	Postcard	Bypass	190	190	190	190	190	
	Thick	Bypass	190	190	190	190	190	

.

#### **Overheat Protection**

If the hot roller temperature becomes greater than  $245\,^{\circ}$ C, the CPU cuts off the power to the fusing lamp. At this time, SC543 will be generated.

If the thermistor overheat protection fails, there is a thermostat in series with the common ground line of the fusing lamp. If the temperature of the thermostat becomes greater than 210 °C, the thermostat opens, removing power from the fusing lamp. At this time, the machine stops operation.



g094d601

- [A] Paper overflow detection sensor
- [B] Paper exit sensor

When the paper overflow detection sensor [A] is activated, the machine detects that the paper stack height has exceeded a certain limit and stops printing.

The paper exit sensor [B] detects paper misfeeds.

### **Energy Saver Mode**

When the machine is not being used, the energy saver feature reduces power consumption by switching off the fusing lamp.

Entering Energy Saver Mode



Energy saver mode starts after the machine has been idle for a specified time. The operator can set the time on the System menu. ([Menu] > "System"]. Several settings are available: Off, 1, 5, 15, 30, 45, 60 min (Default: 5 min.)

When the machine is in energy saver mode, the CPU turns off the fusing lamp. The +5VE (power enabled in energy saver mode) line is active in energy saver mode; however, the +24V and +5V lines are not active.

Leaving Energy Saver Mode

The machine leaves energy saver mode when one of the following events occur:

- Print command received from the PC
- Any cover opened and closed

b

• Any operation panel keys pressed

### **Controller Functions**

#### Meter-charge Counter Display

When meter charge mode is switched on with SP5930-001, the meter-charge counter menu is the first item shown on the user menu:

Menu:	
Counter	

(The "Sample Print" menu appears first when the meter-charge mode is switched off.)

#### PM Warning Display

When meter charge mode is switched on with SP5930, "Replace Maintenance Kit" will not be displayed at 90k prints. The default setting for this machine is meter-charge mode off.

ltem	Meter-charge On	Meter-charge Off	Remarks
Meter-charge counter	Shown as the first item in the user menu	Not shown	User menu
PM Warning	Not shown	"Replace Maintenance Kit" displayed at 90k prints	
PM	Service	Customer	
PM Counter	Reset manually	Automatically reset when the fusing unit is replaced using the maintenance kit	Printer engine service mode "PM counter"

The meter-charge counter is not the same as the PM counter because the meter-charge counter does not count up in the following cases:

- Blank rear side during duplex printing
- Blank page when using the "Cover Page" or "Two in One" features
- Service reports



• The meter-charge counter cannot be reset.



# 7. Specifications

# **Basic Specifications**

### General Specifications

Туре	Desktop				
Technology	Laser beam scanning & Electro photographic printing and Dual-component toner development				
Operation Panel	<ul><li>8 keys, 4 LEDs</li><li>2-line display (2 lines x 16 characters/line)</li></ul>				
Resolution (dpi )	1,200 x 600 dpi, 600 x 600 dpi,	300 x 300 dpi			
Printing Speed	P1b/P1L 31 ppm, P1c 36 ppm (plain paper, A4/LT SEF)  Note: 31 ppm/36 ppm applies to both simplex and duplex printing.				
First Print	6.9 sec or less (A4/LT, SEF, Std. Tray)				
Duplex Printing	A4/LT Approx. 100% productivity	(from the standard tray)			
	Standard	388 x 450 x 345 mm 15.3 x 17.8 x 13.6 in.			
	With back cover	388 x 455 x 345 mm 15.3 x 18.0 x 13.6 in.			
Dimensions	LG Mode	388 x 509 x 345 mm 15.3 x 20.1 x 13.6 in.			
(WxDxH)	With duplex attached	388 x 543 x 345 mm 15.3 x 21.4 x 13.6 in.			
	With Opt. Tray (x1 500)	388 x 450 x 477 mm 15.3 x 17.8 x 18.8 in.			
	With Opt. Trays (x2)	388 x 450 x 609 mm 15.3 x 17.8 x 24.0 in.			
Weight	17.5 kg / 38.6 lb. (with std. tray o	17.5 kg / 38.6 lb. (with std. tray and AIO)			

	15.5 kg / 34.2 lb. (without AIO)				
	C. 1 1	Std Tray	500 sheets (75g/m <sup>2</sup> , 20 lb.)		
	Standard	Bypass tray	100 sheets (75g/m², 20 lb.)		
Input capacity	Op. Paper Tray	PFU	500 sheets x 2 (75g/m², 20lb)		
	Max	1600 sheets (75g	/m <sup>2</sup> , 20 lb.)		
Output capacity	Standard Tray Face down	250 sheets (A4/L	T, 75g/m², 20lb)		
Input Paper Size	Std. Tray	A4 SEF-A5 SEF, LG SEF-A5 SEFB, Width 98 to 216 mm - Length 140 to 356 mm (Width 3.9 to 8.5 in - Length 5.6 to 14 in.)			
	Bypass Tray	A4 SEF-A6 SEF, LG SEF-A6 SEF, Width 64 to 216 mm - Length 140 to 356 mm (Width 2.6 to 8.5 in - Length 5.6 to 14 in.)			
	Opt. Tray	A4 SEF-A5 SEF, LG SEF-A5 SEF, Width 98 to 216 mm - Length 160 to 356 mm (Width 3.9 to 8.5 in - Length 6.3 to 14 in.)			
	Std./Opt. Tray, Duplex Unit	Plain Paper, Thick Paper, Recycled Paper			
Media Type	Bypass tray	Plain Paper, Thick Paper, Transparency, Recycled Paper, Envelope			
	Env. Feeder	Envelope			
	Standard Tray	60-130g/m <sup>2</sup> , 16	-34 lb.		
Paper Weight	Op. Paper Tray	60-130g/m <sup>2</sup> , 16	-34 lb.		
	Bypass tray	60-162g/m <sup>2</sup> , 16	-43 lb.		
Warm-up Time	P1b/c: 34 sec or less, 12 sec or less recovery from sleep mode				
	P1L: 19 sec or less, 1	2 sec or less recove	ry trom sleep mode		
	Toner (AIO)	15K prints. Starter	: 6K prints		
Target Yield	Maint. Kit	90K prints			
Targer Held	Note: 1) A4 (8.5"x11")/ 5	e: 4 (8.5″x11″)/ 5% Chart is used to measure the above yield.			

	2) The condition is standard temperature and humidity.					
	3) This yield number may change depending on the circumstances and printing conditions.					
Environment	Energy Star Mode	•	5 min (default) Selectable: 1, 5, 15, 30, 45, 60, Off			
Safety Standard			US: UL60950, CUL EU: CE Marking, TUV(EN60950), ICE60950			
Environmental Stand	Environmental Standard		US: Energy Star EU: BAM specifications			
Total counter		Electric Counter				
NRS		Supported				
DESS	DESS		Supported			
HDD		40 GB				
RAM	Standard	192 MB				
KAM	Maximum	384 MB				

### **External Options**

Paper Tray (500 x1)				
Paper Size	A4 SEF-A5 SEF, LG SEF-A5 SEF			
Paper Weight	60-130g/m <sup>2,</sup> 16-34 lb.			
Paper capacity 500 sheets x 2 tray ( 2 unit installable )				
Dimensions(w x d x h)	388 x 496 x 140 mm (1.53 x 1.96 x 0.56 in.)			
Weight	6.0 kg or less, 13.3 lb. or less			
Envelope Feeder				
Paper Size	Crane Crest Com#10, Strathmore Writing Com#10, Neenah Classic Crest Com#10, C5,C6, DL			
Paper capacity	60 Envelopes			

### **Paper Sizes**

#### **Plain Paper**

Туре	Orient	Size	Std. Tray	Opt. Tray	Bypass	Env. Feed	Dup.
A4	SEF	210x297 mm	D	D	С	N	Α
B5	SEF	182×257 mm	D	D	С	N	А
A5	SEF	148×210 mm	D	D	С	N	А
	LEF	210x148 mm	В	N	С	N	А
B6	SEF	128x182 mm	Ν	N	N	N	N
A6	SEF	105x148 mm	Ν	N	С	N	N
Legal	SEF	8 1/2"x14" mm	D	D	С	N	A
Letter	SEF	8 1/2"x11" mm	D	D	С	N	А
HLT	SEF	5 1/2" x 8 1/2"	D	D	С	N	А
	LEF	5 1/2" x 8 1/2"	В	N	С	N	А
Exec	SEF	7 1/4"x10 1/2"	Ν	В	С	N	А

F	SEF	8" x 13"	В	В	С	N	А
Foolscap	SEF	8 1/2" x 13"	В	В	С	N	Α
Folio	SEF	8 1/4" x 13"	В	В	С	N	Α

### Envelope

Туре	Orient	Size	Std. Tray	Opt. Tray	Bypass	Env. Feed	Dup.
Com10	SEF	4 1/8" x 9 ½"	Ν	N	С	С	N
Monarch	SEF	3 7/8" x 7 ½"	Ν	N	С	С	N
C6	SEF	114 x 162 mm	Ν	N	С	С	N
C5	SEF	162 x 229 mm	Ν	N	С	С	N
DL Env	SEF	110 x 220 mm	Ν	N	С	С	N

#### Custom

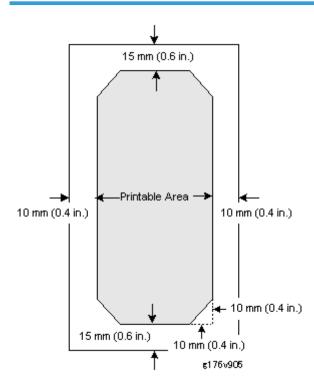
		Std. Tray	Opt. Tray	Bypass	Env. Feed	Dup.
Width	98-216 mm (3.9-0.8.5 in.)	В	В	/	N	N
Length	140-356 mm (5.5-14 in.) 160-356 mm (6.3-14 in.) Opt. Tray	В	В	/	N	N
Width	64-216 mm (2.5-8.5 in.)	/	/	С	N	Ν
Length	140-356 mm (5.5-14 in. in.)	/	/	С	N	Ν

Α	Supported and the size is automatically detected.
В	Need to select paper size by operation panel after the dial is set to
С	Need to input paper size by operation panel and driver.
D	Need to specify paper size by using dial.
N	Not supported.
/	Does not apply



• The printable area may vary depending on paper size, printer language and printer driver settings.

### **Envelopes**

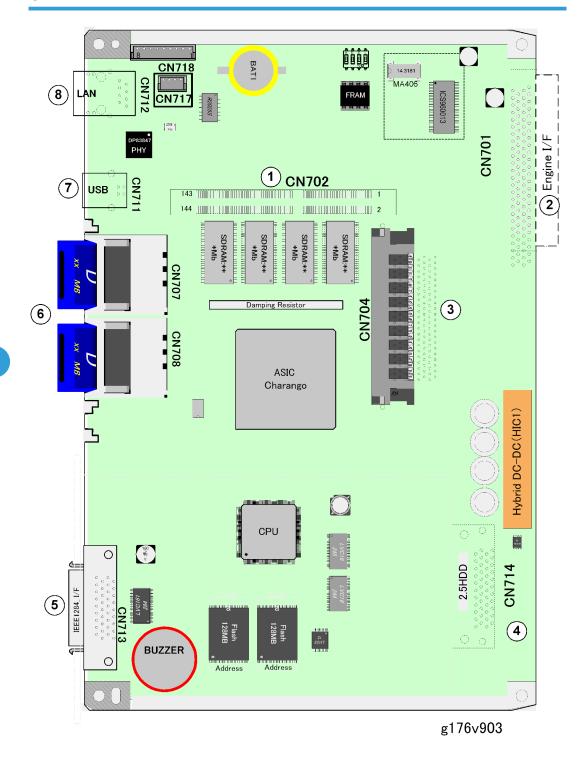


### Operating Environment

_	North America: 120	) V, 60 Hz				
Power Source	Europe: 220-240 V, 50/60 Hz					
	North America	Main Unit	Full System			
Power Consumption (North	Maximum	930 W or less	960 W or less			
America)	Printing	630 W or less	630 W or less			
	Energy Saver	4.5 W or less	10 W or less			
	Europe	Main Unit	Full System			
Power Consumption	Maximum	970 W or less	990 W or less			
(Europe)	Printing 630 W or less		630 W or less			
	Energy Saver	6.5 W or less	12.5 W or less			
	S-P1b/1L	Main Unit	Full System			
	Printing	65 dB or less	69 dB or less			
Noise Emission	Standby	42 dB or less	42 dB or less			
(All Models)	S-P1c	Main Unit	Full System			
	Printing	67 dB or less	71 dB or less			
	Standby	42 dB or less	42 dB or less			
	S-P1b/1L	Main Unit	Full System			
Sound Pressure	Printing	59 dB or less	63 dB or less			
Level	Standby	36 dB or less	36 dB or less			
(All Models)	S-P1c	Main Unit	Full System			
(Operating Position)	Printing	61 dB or less	65 dB or less			
	Standby	36 dB or less	36 dB or less			

LED	Color	Appearance	Meaning
	Off		Power off or in Energy Saver mode
Power	Green	Flashing	Warming up
On		On	Power on and not in Energy Saver mode
		Off	No data
Data In	Green	Flashing	Data being received or processed or the printer is spooling
		On	Data being received or processed; more data coming
		Off	Printer off-line
Online	Green	Flashing	Going off-line
		On	Ready to print
E	Red	Off	No messages or error conditions requiring attention
Error	rea	On	Printer requires service

**Controller Specifications** 



- 1. SDRAM DIMM I/F
- 2. Engine I/F
- 3. PCI Option
- 4. HDD I/F
- 5. IEEE1284 I/F
- 6. SD Card I/F (Slots x2)
- 7. USB I/F
- 8. LAN I/F

### **Printing Functions**

Job Spool	Υ*
Adjustment Registration	Y
Adjustment Image Density	Y
* With HDD	

### **Printer Drivers**

		RPCS	PostScript3					
			Windows			Mac		
ltem	PCL5e/6		9x/Me	NT4	2000 / XP	OS 8.6-9.2	OSX	
Job Binding	N	Υ	N	N	N	N	N	
Send to Document Server	N	N	N	N	N	N	N	
Sample Print	Y	Υ	Υ	Υ	Υ	Υ	Y*3	
Locked Print	Y	Υ	Υ	Y	Υ	Y	Y*3	
Reduce/Enlarge (Scaling)	N	Υ	Υ	Υ	Υ	Υ	Y	
Reduce/Enlarge Centering	Y	Y	N	N	N	N	Ν	

Collate	Υ	Υ	Υ	Y	Υ	Υ	Y
Layout (N-up)	Υ	Υ	Υ	Υ	Y	Y	Y
Poster	Ν	Υ	N	N	N	Υ	N
Duplex	Υ	Υ	Υ	Υ	Υ	Υ	Υ
Booklet 1	Ν	Υ	N	N	Ν	Ν	N
Booklet2 (Magazine)	Υ	Υ	N	N	N	Ν	N
Non-Reduction Booklet	Ν	Υ	N	N	Ν	Ν	N
Punch	Ν	N	N	N	Ν	Ν	N
Staple	Ν	N	N	N	Ν	Ν	N
Front Cover Sheet	Υ	Υ	N	N	N	Y*1	Y*1
Front and Back Cover Sheets	Ν	N	N	N	N	N	N
Slip Sheet	Υ	Υ	Υ	N	N	N	N
Chaptering (Page Layout)	Ν	N	N	N	N	N	N
Chaptering (Single Page Insert)	Ν	N	N	N	N	N	N
Chaptering (Page Block Insert)	N	N	N	N	N	N	N
User Defined Pages	Υ	N	N	N	N	N	N
Tab Stock Printing	Ν	N	N	N	Ν	Ν	N
Mirror Image Print	Ν	N	Υ	Y	Y	Y	N
Negative Image Print	Ν	N	Υ	Υ	Υ	Y	N
Dithering	Υ	Υ	Υ	Υ	Υ	Y	Y
Image Smoothing	/	/	Υ	Υ	Υ	Υ	Y
Edge Smoothing	Υ	Υ	Y	Y	Υ	Y	Υ
Toner Saving	Υ	Υ	Y	Y	Υ	Y	Y
Watermark	Υ	Υ	Υ	Y*2	Y*2	Y	Y*2

Form Overlay	N	Y	N	N	N	N	N
Header/Footer	N	Υ	N	N	N	N	N
Adjust image position	N	Υ	N	N	N	N	N
Binding Margins	N	Υ	N	N	N	N	N
User ID	Υ	Υ	Υ	Υ	Y	Υ	Y*3
User Code	Υ	Υ	Υ	Υ	Y	Υ	Y*3
Rotate Print	Υ	Υ	Υ	Υ	Y	N	N
Reverse Order Print	N	Υ	N	N	Y	Υ	Υ
Do not print Blank pages	N	Y	N	N	N	N	N
Edge to Edge Print	Υ	Y	Υ	Y	Y	Υ	Y
Y*3: After Mac OSX10.2	1			1			1

### Supported Environments

### **Windows Environments**

Windows OS	Туре	PCL5e	PCL6	RPCS	PS3
Win 9x/Me	-	Yes	Yes	Yes	Yes
Win NT*7	WorkStation 4.0	Yes *1	Yes *1	Yes *1	Yes *2
	Server 4.0	Yes *1	Yes *1	Yes *1	Yes *2
	Server 4.0 TSE (*5)	Yes *2	Yes *2	Yes *2	Yes *2
	Server 4.0 Enterprise Ed.	No	No	No	No
Win 2000	Professional	Yes	Yes	Yes	Yes *3
	Server (* 5)	Yes	Yes	Yes	Yes *3
	Advanced Server (* 5)	Yes	Yes	Yes	Yes *3
	Datacenter Server	No	No	No	No
Win XP	Professional	Yes	Yes	Yes *4	Yes *3

	Professional x64 Ed.	Yes* <sup>7</sup>	Yes* <sup>7</sup>	Yes *4*8	Yes *3*7
	Home Ed.	Yes	Yes	Yes *4	Yes *3
Win Server 2003/2003R2	Standard	Yes	Yes	Yes	Yes *3
	Enterprise	Yes	Yes	Yes	Yes *3
	Datacenter Ed.	No	No	No	No
	Standard x64 Ed.	Yes* <sup>7</sup>	Yes* <sup>7</sup>	Yes* <sup>8</sup>	Yes *3 *7
	Enterprise x64 Ed.	Yes* <sup>7</sup>	Yes* <sup>7</sup>	Yes* <sup>8</sup>	Yes *3 *7
	Datacenter x64 Ed.	No* <sup>7</sup>	No* <sup>7</sup>	No*8	No* <sup>7</sup>
	Web Ed.	No	No	No	No

#### Notes

*1	Service Pack 6a or Later is required
*2	Service Pack 6 or Later is required
*3	Adobe does not release PS driver for Windows 2000 and XP. Only MS-PostScript driver is available and PPD file for MS-PS is included in the Driver CD.
*4	RPCS driver does not support "Fast User Switching" function of Windows XP.
*5	See "Point & Print" and "Terminal Service and Citrix Metaframe"
*6	NT4 drivers are not included in driver CD-ROM and are provided by web site.
*7	64bit drivers are not included in driver CD-ROM and are provided by web site(Engilish only)
*8	RPCS64bit driver is in the progress of release schedule.

### **Mac OS Environments**

Mac OS	PS3	Printer Utility for MAC
Mac OS 8.6 - 9.2.X (OS X Classic)	Υ	Υ
Mac OS X Native (v. 10.1 or Later) *1	Y	Y*2

#### Notes

- \* 1 Mac OS X v.10.0.X is not supported. Plug-in function for "Sample Print", "Locked Print" and "User Code" is supported from Mac OS X 10.2 and later.
- \*2 Mac OS X v.10.2.0 is not supported.

#### **UNIX Environment**

Supported Platforms	Network Installation	Device Option Support*
Sun Solaris	2.6 / 7 / 8 / 9 / 10	2.6 / 7 / 8 / 9 / 10
HP-UX	10.X / 11.X / 11iv2	10.X / 11.X / 11iv2
SCO OpenServer	5.07 , 6.0	5.07 , 6.0
RedHat Linux	6.X / 7.X / 8.X / 9.X / Enterprise	6.X / 7.X / 8.X / 9.X / Enterprise
IBM AIX	V4.3 / 5L V5.1 / 5L V5.2 / 5 L V5.3	V4.3 / 5L V5.1 /5L V5.2 / 5L V5.3
Data Stream	PostScript, PCL, ASCII	
Localization	English only	

<sup>\*</sup> Device Option feature is not supported in PCL.

### **Novell Netware**

Nahuma Camua	Supported Version	Netware 3.12, 3.2, 4.1, 4.11, 5.0, 5.1, 6, 6.5	
Netware Server	Client OS	Windows 95 /98 /Me, NT4.0 / 2000, XP(Professional)	
	Supported Server OS	NetWare 5.1 with SP7 or later, 6.0 with SP4 or later, 6.5	
NDPS Gateway (V4 Release)	Supported Client OS	Microsoft Windows 95/98 with Novell Client 3.32 or later Microsoft Windows NT4.0/2000/XP Professional with Novell Client 4.83 or later *Windows Me/XP Home Edition is not supported since Novell Client does not support this OS.	
	Localization	English, German, French, Italian, Spanish	

### SAP R/3 Environment

R/3 version	3.x or later (4.x = Supported, 3.x, 6.x = Compatible)		
Platform	Independent		
PDL	PCL5e		
Character Set	Latin 1 (Western European), Latin 2 (Eastern European)		
Localization	English only		
i.e: Input/Output Bin, Duplex, Stapling, Punching, Resolution, Collation, EconoMode/TonerSaving, Smoothing, Page Protect, Auto Tray Change/Opt Tray select			
Barcode Fonts (Support Latin 1 only)	Code 128, Code 39, Code 93, Codebar, 2 of 5 interleaved/Industrial/Matrix, MSI, USPS, UPC/EAN		
OCR Fonts	OCR A, OCR B		
	Platform  PDL  Character Set  Localization  i.e: Input/Output Bin, Duplex, EconoMode/TonerSaving, Sr Tray select  Barcode Fonts (Support Latin 1 only)		

<sup>\*</sup> Need to purchase Barcode & OCR Package

### Controller Interface Specifications

Network Interface (Standard)			
Data Transmission Speed 10M bps, 100 Mbps			
Protocol TCP/IP, IPX/SPX, SMB, AppleTalk			
Supported OS	Windows 9x/Me/NT/2000/XP, Mac OS		
Distance between devices	100m		
USB 2.0 Interface (Standard)			
Data Transmission Speed	480 Mbps (High Speed:USB 2.0), 12 Mbps (Full Speed)		
Supported OS	Windows 98 SE/Me/2000/XP (USB 1.1), Windows 2000/XP (USB 2.0)		

IEEE 1284 Interface (Standard)			
Data Transmission Speed	Compatible/Nibble/Byte/ECP mode		
Supported OS	Windows 9x/ Me/ NT4.0/ 2000 /XP /Server2003, Mac OS		
Distance between devices	2.5m		
Wireless LAN Interface (Option)			
Data Transmission Speed	11 Mbps, 5.5 Mbps, 2 Mbps, 1 Mbps		
Protocol	TCP/IP, IPX/SPX, SMB, AppleTalk		
Supported OS	Windows 9x/Me/NT/2000/XP, Mac OS		
Distance between devices	140m (11M bps), 200m (5.5 Mbps), 270 m (2 Mbps), 400 m (1 Mbps)		
Frequency	From 2,400 MHz to 2,497 MHz		
Channel	1-11 ch (US model), 1-13 ch (EU model)		
Type of connection	Ad hoc mode, 802.11b Ad hoc mode, Infrastructure mode, WPA		
Gigabit Ethernet (Option)			
Data Transmission Speed	10M bps, 100 Mbps, 1000 Mbps		
Protocol	TCP/IP, IPX/SPX, SMB, AppleTalk		
Supported OS	Windows 9x/Me/NT/2000/XP, Mac OS		
Distance between devices	100m		

## Supported Utilities

### **Bundled Utilities**

No.	Utility Name	Supported?
1	SmartDeviceMonitor for Admin	YES
2	Printer Utility for Mac	YES*1,*2

3	DeskTopBinderLite –SmartDeviceMonitor for Client	YES
4	Font Manager 2000	YES
5	WebImageMonitor (embedded web server)	YES

<sup>\* 1</sup> Mac OS X v. 10.0.x is not supported.

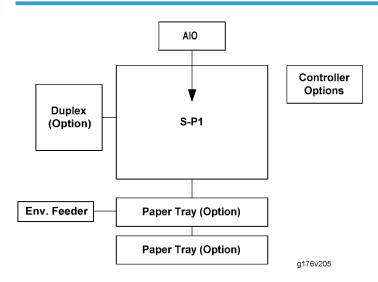
### **Optional Utilties**

No.	Utility Name	Supported?
1	DeskTopBinder Professional	YES
2	Web Smart Device Monitor	YES

<sup>\*2</sup>Mac OS X v.10.2.0 is not supported

# **Machine Configuration**

### **System Components**



All the options listed below can be installed by the customer, except the Data Overwrite Security Unit.

Main			
Mainframe (31 ppm)	G176	S-P1b/P1L: 31 ppm	
Mainframe (36 ppm)	G177	S-P1c: 36 ppm	
Options			
Paper Feed Unit TK 1030	G894	1 or 2 trays can be installed.	
Duplex Unit AD 1000	G893		
Envelope Feeder Type 400	G362	If 2 PFUs are installed, the envelope feeder must go in the top tray.	
Internal Options			
Memory Unit Type C 128 MB	G331		
Memory Unit Type C 256 MB	G332		
Hard Disk Drive Type 2650	M311		
IEEE 802.11b interface Unit Type H	G813		

IEEE 802.11b Interface Unit Type I	G874	
Gigabit Ethernet Board Type A	G874	
VM Card Type D	G874	
Data Storage Card Type A	G874	
Data Overwrite Security Unit Type E	G874	Must be installed by a technician.

MEMO

MEMO

