# Model R-C5 Machine Code: D017/D018/D019/D020

# **SERVICE MANUAL**

October 2007 Subject to change

# Safety, Conventions, Trademarks

### Safety

#### PREVENTION OF PHYSICAL INJURY

- 1. Before disassembling or assembling parts of the machine and peripherals, make sure that the machine and peripheral power cords are unplugged.
- 2. The plug should be near the machine and easily accessible.
- 3. Note that some components of the machine and the paper tray unit are supplied with electrical voltage even if the main power switch is turned off.
- 4. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
- 5. If the [Start] key is pressed before the machine completes the warm-up period (the [Start] key starts blinking red and green ), keep hands away from the mechanical and the electrical components as the machine starts making copies as soon as the warm-up period is completed.
- 6. The inside and the metal parts of the fusing unit become extremely hot while the machine is operating. Be careful to avoid touching those components with your bare hands.
- 7. To prevent a fire or explosion, keep the machine away from flammable liquids, gases, and aerosols.

#### **HEALTH SAFETY CONDITIONS**

- 1. Never operate the machine without the ozone filters installed.
- 2. Always replace the ozone filters with the specified types at the proper intervals.
- Toner and developer are non-toxic, but if you get either of them in your eyes by accident, it may cause temporary eye discomfort. Try to remove with eye drops or flush with water as first aid. If unsuccessful, get medical attention.

#### **OBSERVANCE OF ELECTRICAL SAFETY STANDARDS**

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

#### SAFETY AND ECOLOGICAL NOTES FOR DISPOSAL

1. Do not incinerate toner bottles or used toner. Toner dust may ignite suddenly when exposed to an open flame.

- 2. Dispose of used toner, developer, and organic photoconductors in accordance with local regulations. (These are non-toxic supplies.)
- 3. Dispose of replaced parts in accordance with local regulations.
- 4. When keeping used lithium batteries in order to dispose of them later, do not put more than 100 batteries per sealed box. Storing larger numbers or not sealing them apart may lead to chemical reactions and heat build-up.

### **⚠** CAUTION

 The danger of explosion exists if a battery of this type is incorrectly replaced. Replace only with the same or an equivalent type recommended by the manufacturer. Discard used batteries in accordance with the manufacturer's instructions.

#### LASER SAFETY

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

#### **⚠ WARNING**

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

#### WARNING FOR LASER UNIT

#### **WARNING:**

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

#### **CAUTION MARKING:**



laser\_decal

# Safety Precautions for This Machine

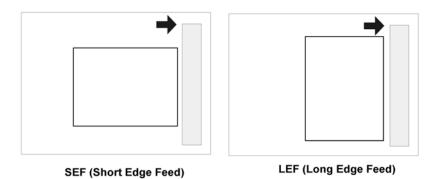
Before moving the mainframe:

- Disconnect all peripheral units (finisher, LCT, etc.) from the mainframe.
- Pull the slide handles out of the mainframe and use them to lift the mainframe.

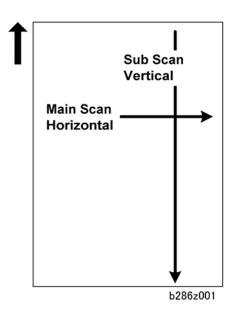
# Conventions and Trademarks

#### **Conventions**

Symbol	What it means
CI	Core Tech Manual
Î	Screw
	Connector
C	E-ring
Ѿ	C-ring
Ž.	Harness clamp
FFC	Flat Film Connector



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



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

# Warnings, Cautions, Notes

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

# **WARNING**

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

# **ACAUTION**

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

# Mportant !

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



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

#### **Trademarks**

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# 1. Installation

# **Installation Requirements**

#### **Environment**

- 1. Temperature Range: 10 °C to 32 °C (50 °F to 89.6 °F)
- 2. Humidity Range: 15% to 80% RH
- 3. Ambient Illumination: Less than 1,500 lux (do not expose to direct sunlight.)
- 4. Ventilation: Room air should turn over at least 30 m<sup>3</sup>/hr/person
- 5. Ambient Dust: Less than 0.10 mg/m<sup>3</sup>
- 6. Avoid an area which is 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.
- 7. Do not place the machine in an area where it will be exposed to corrosive gases.
- 8. Do not install the machine at any location over 2,000 m (6,500 ft.) above sea level.
- 9. Place the copier on a strong and level base. (Inclination on any side should be no more than 5 mm.)
- 10. Do not place the machine where it may be subjected to strong vibrations.

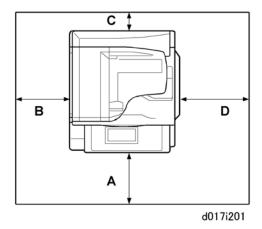
#### Machine Level

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

#### Minimum Space Requirements

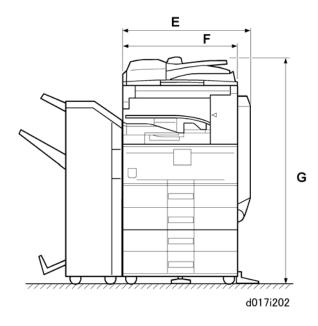
Place the copier near the power source, and provide clearance as shown:

15



A: In Front: Over 750 mm (29.6"), B: Left: Over 100 mm (0.4")

C: To Rear: Over 100 mm (0.4"), D: Right: Over 100 mm (0.4")



E: 640 mm (25.2"), F: 550 mm (21.7"), G: 1137 mm (44.8")



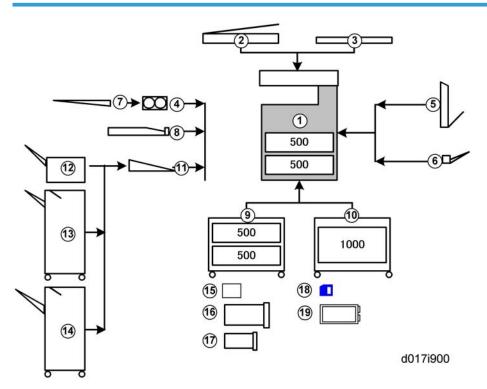
• The 750 mm recommended for the space at the front is only for pulling out the paper tray. If an operator stands at the front of the copier, more space is required.

### **Power Requirements**

# **ACAUTION**

- Make sure that the wall outlet is near the copier and easily accessible.
- Make sure the plug is firmly inserted in the outlet.
- · Avoid multi-wiring.
- Be sure to ground the machine.
- 1. Input voltage level
  - 120 V, 60 Hz: More than 12 A
  - 220 V to 240 V, 50 Hz/60 Hz: More than 7 A
  - 110V, 50 Hz/60 Hz: More than 13 A
- 2. Permissible voltage fluctuation: 10 %
- 3. Do not set anything on the power cord.

# **System Configuration and Options**



No.	Item	Comments
1	Main Machine D017/D018/B019/D020	D019/D017 Monochrome
		-or-
		D018/D020 Color
2	ARDF (D366)	
3	Platen Cover (B406)	
4	Interchange Unit (D371)	Required for Item 5, 7
5	Duplex Unit (D369)	
6	Bypass Tray (D370)	
7	1-Bin Tray (D367)	Requires Item 4
8	Internal Shift Tray (D385)	
9	Paper Tray Unit (D331)	
10	LCT (B391)	
11	Bridge Unit (D368)	Required for Items 12,13,14
12	500-Sheet Finisher (D372)	Requires Item 11
13	1000-Sheet Finisher	Requires Item 11
	(B408: Common with R-C4/4.5)	
14	1000-Sheet Booklet Finisher (B793)	Requires Item 11
15	Copy Data Security Unit (B829)	PCB (installed on BICU)
16	Fax Unit (D361)	See Fax manual
17	Interface Board Controller Options	See Note 1
18	SD Card Controller Options	See Note 2
19	HDD Unit (D362)	D017/D019 only

#### Note 1:

The following interface boards are available for installation.

# 

• There is only one board slot on the back of the machine. Only one of these options can be installed.

These options can be installed at any time.

Interface Board	For Installation See:
Bluetooth Interface Unit Type 3245 (B826)	Printer/Scanner Option
Cumin-M (Modem for @Remote Service)	This Section
File Format Converter Type E (D377)	This Section
IEEE1284 Interface Board Type A (B679)	Printer/Scanner Option
IEEE802.11a/g Interface Unit Type J (D377)	
-or-	Printer/Scanner Option
IEEE802.11g Interface Unit Type K (D377)	
Gigabit Ethernet Type 7300 (G381)	Printer/Scanner Option

#### Note 2:

The following options are provided on SD cards.

- Two SD card slots are available. If more than two options need to be installed, the applications can be moved to one SD card with SP5873-1.
- Due to copyright restrictions, the PostScript Unit (D383) cannot be moved to another SD card.
   However, other applications can be moved onto the PostScript 3 SD card. (For more, see the Printer/Scanner Option manual.)

These options can be installed at any time.

SD Cards	For Installation See:
Browser Unit Type D (D377)	This Section
Data Overwrite Security Unit Type I (D362)	Printer/Scanner Option
HDD Encryption Option (D377)	This Section
PostScript3 Unit Type 3350 (D383)	Printer/Scanner Option
Printer Enhance Option Type 3350 (D383)	Printer/Scanner Option
Printer Unit Type 3350 (D383)	Printer/Scanner Option
Printer/Scanner Unit Type 3350 (D383)	Printer/Scanner Option
RPCS Printer Unit Type 3350 (D383)	Printer/Scanner Option
Scanner Enhance Option Type 3350 (D383)	Printer/Scanner Option

SD Cards	For Installation See:
VM Card Type E (D377)	This Section

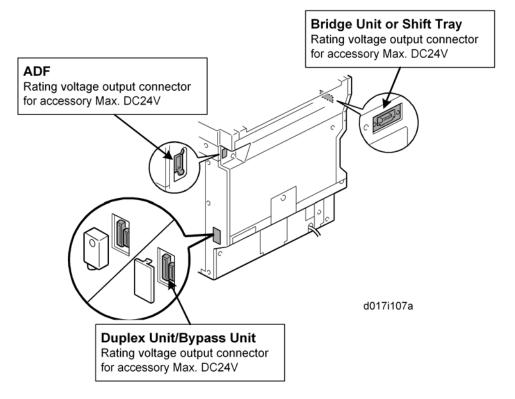
RTB 25 VM Type F

# **Copier Installation**

# **Power Sockets for Peripherals**

# **ACAUTION**

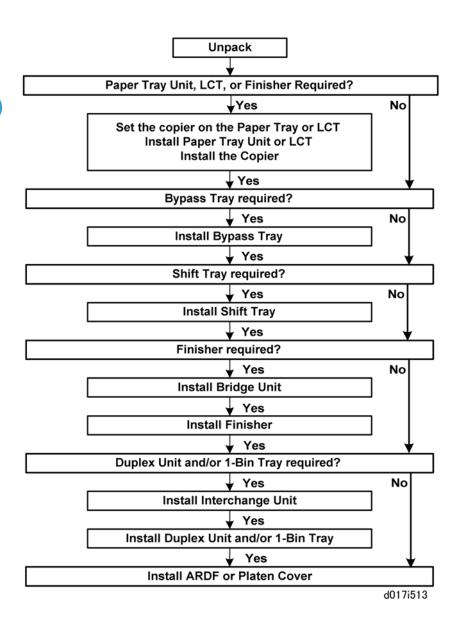
• Rating voltages for peripherals.



Make sure to connect the cables to the correct sockets.

# **Installation Flow Chart**

The following flow chart shows how to install the optional units more efficiently.



# **Accessory Check**

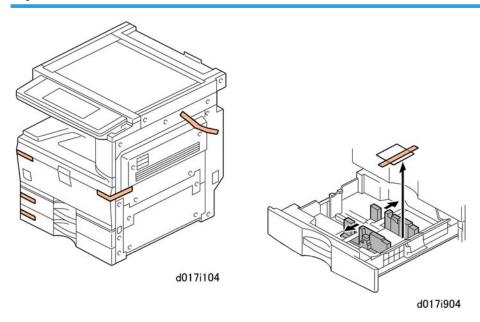
Check the quantity and condition of the accessories in the box against the following list:

No.	Description	Quantity
1	Paper Tray Decal	1

No.	Description	Quantity
2	Emblem Cover	1
3	Emblem	1
4	Model Name Decal	1
5	End Fence	1
6	HDD Caution Decal (-17, -29 only)	1
7	Operating Instructions – System Setting	1
8	Operating Instructions – Copy Reference	1

# Installation Procedure

### **Tapes and Retainers**



# **ACAUTION**

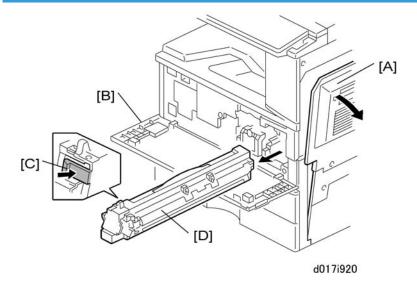
• Unplug the machine power cord before you start the following procedure.

If the optional paper tray or the optional LCT is going to be installed now, put the copier on the paper tray unit or the LCT first, then install these options, then install the copier.

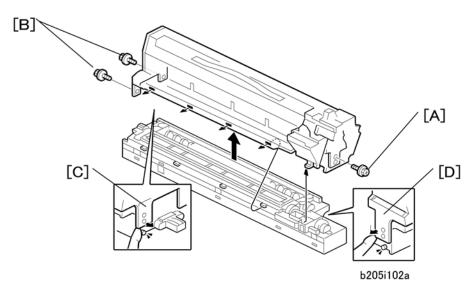


- Keep the shipping retainers after installing the machine. They will be reused if the machine is moved to another location in the future.
- 1. Remove the tapes and the shipping retainer on the exterior of the copier.
- 2. Install the end fence.

# Developer



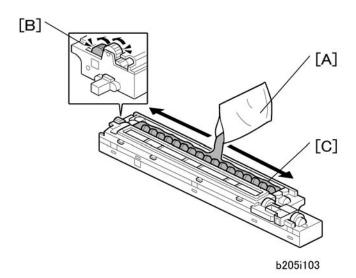
- 1. Spread the vinyl sheet provided with the developer kit on a flat surface.
- 2. Open the right door [A].
- 3. Open the front door [B].
- 4. Push the latch [C] and remove the PCU [D].



- 5. Remove the front screw [A] ( $\mathscr{F}$  x1)
- 6. Remove the rear screws [B] ( \$\beta\$ x2)
- 7. Release the rear tab [C] then front tab [D], then separate the top and bottom.



• Be sure to release the rear tab first and the front tab second.



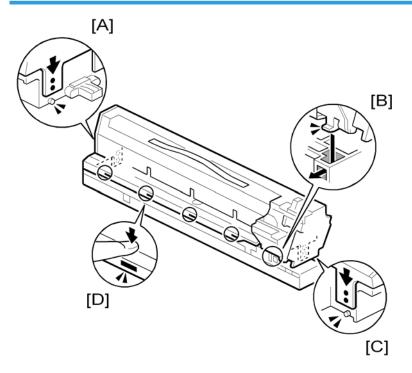
- 8. Open the developer pack [A].
- 9. While turning the black gear [B], slowly move the pack left and right and pour half of the developer over the auger [C].
- 10. Continue to turn the black gear until the developer is level.

11. While continuing to turn the black gear, slowly move the pack left and right and pour the remaining half of the developer over the auger until the developer is level.



- Be careful. Do not spill developer on the gears and sponges.
- If you accidentally spill developer on the gears or sponges, remove it with a magnet or the tip of a magnetized screwdriver.

#### Re-assembly

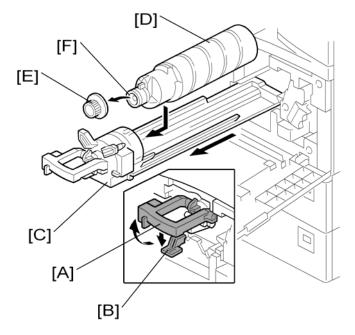


- 1. Make sure that all of the holes and tabs are engaged at [A], [B], [C], and [D]. Then push down to lock the tabs on the front and rear end of the PCU.
- 2. Make sure that the holes for the screws on the front and rear end of the PCU are aligned correctly. If the holes are not aligned correctly, make sure that the tabs at the front, rear, and left side of the PCU are engaged correctly.



- Reattach the rear screws ( $\mathscr{F} \times 2$ ) first, then reattach the front screw ( $\mathscr{F} \times 1$ ).
- Do not push down on the top of the PCU when you attach the rear and front screws

#### **Toner Bottle**



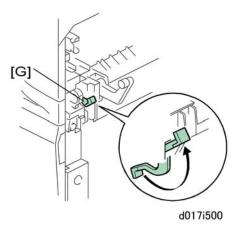
- 1. Raise the toner bottle holder lever [A], push lever [B] down, and pull the toner bottle holder [C] out.
- 2. Shake the toner bottle [D].



- Do not remove the toner bottle cap [E] until after shaking.
- 3. Unscrew the bottle cap [E] and insert the bottle into the holder.

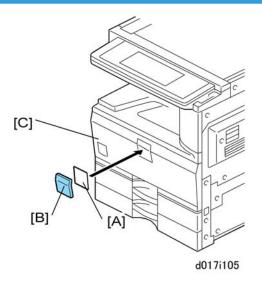


- Do not touch the inner bottle cap [F].
- 4. Reposition the holder and press down the holder lever to secure the bottle.
- 5. Open the right cover.

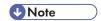


6. Rotate the green fusing pressure lever [G] to the up position.

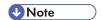
# Emblem, Decals



1. Attach the emblem [A] and panel [B] to the front door [C].

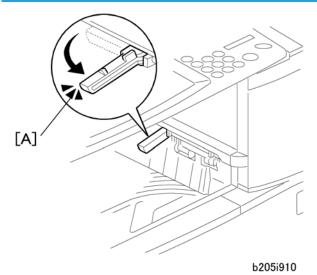


- Push the panel in until the emblem and panel move into their positions. You will hear a click.
- 2. Adjust the side guides and end guide to match the paper size.

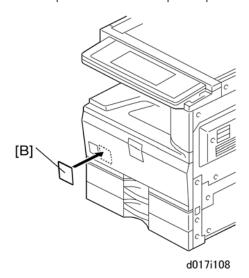


 To move the side guides, first pull out the tray fully, then push down the green lock at the rear of the tray.

# Completion



- 1. If the optional bridge unit will not be installed, swing the sensor feeler [A] out.
- 2. Install the optional ARDF or the optional platen cover (see "ARDF Installation" or "Platen Cover").



3. If the HDD will be installed for a -17, -29 model, attach the HDD caution decal [B] to the front cover.

#### **SP Settings**

- 1. Connect the copier and turn the machine on.
- 2. Go into the SP mode and do SP2801 (Developer Initialization).
- 3. Do SP1912 and SP1913 to set automatic paper size selection for the upper and lower tray.

1912	1: Tray: Auto Paper Size Detection	Upper Tray
1913	2: Tray: Auto Paper Size Detection	Lower Tray
1	Size 1: B5/Exe Landscape	
2	Size 2: A5/HLT	[0 to 1/ <b>0</b> /1]
3	A4/LT	0: ISO (A3, A4, A5, etc.)
4	A4/LG	1: USA (DLT, LT, EXE, etc.)
5	A3/LT	

- 4. Enable the NIB and/or USB function.
  - To enable the NIB function, enter the SP mode and set SP5985-001 (On Board NIC) to "1"(Enable).
  - To enable the USB function, enter the SP mode and set SP5985-002 (On Board USB) to "1"(Enable).
- 5. Exit SP mode.
- 6. Do some test copies to make sure that the machine operates correctly.

# **Transporting the Machine**

1. Do SP 4806-001 to move the scanner carriage from the home position. This prevents dust from falling into the machine during transportation.

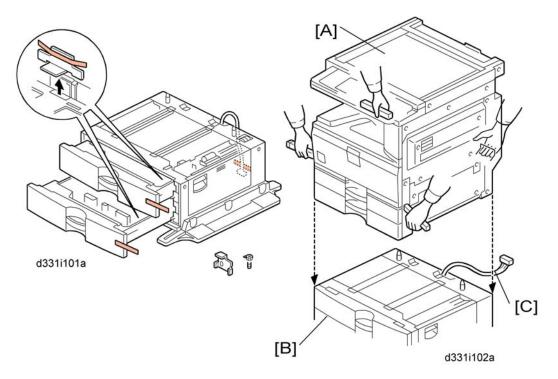
# Paper Tray Unit (D331)

# **Accessory Check**

Check the quantity and condition of the accessories against the following list.

No.	Description	Quantity
1	Securing Bracket	2
2	Screw – M4 x 8	4

# Installation Procedure



# **ACAUTION**

- Unplug the machine power cord before starting the following procedure.
- The handles of the main machine for lifting must be inserted inside the machine and locked unless these handles are used for the installation or relocation of the main machine.

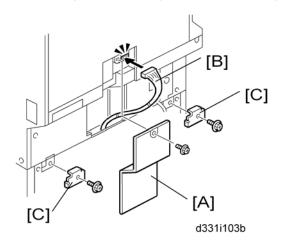
#### D331 RTB 1

#### Note for installation

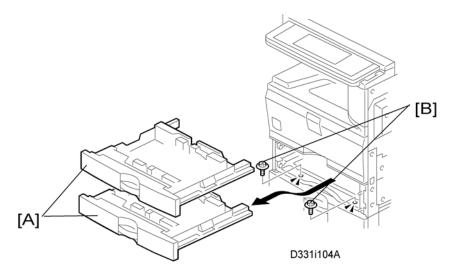
- You need two or more persons to lift the copier. The copier is highly unstable when lifted by one
  person, and may cause human injury or property damage.
- 1. Remove the strips of tape.
- 2. Put the copier [A] on the paper tray unit [B].



• When you install the copier, be careful not to pinch the cable [C].



- 3. Remove the connector cover [A] (Fx1: M3x8).
- 4. Connect the cable [B] to the copier, as shown.
- 5. Attach a securing bracket [C] to each side of the paper tray unit, as shown ( $\hat{\mathcal{E}}$  x 1: M4 x 8 each).
- 6. Re-install the connector cover.

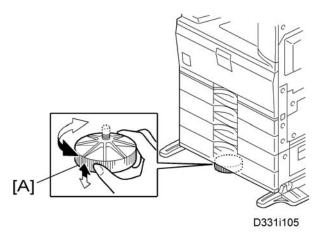


7. Remove the 1st and 2nd paper trays [A]

- 8. Fasten the paper tray unit at [B] (\$\hat{\varepsilon}^2 x 2 M4x8).
- 9. Reinstall the all paper trays.
- 10. Attach the appropriate paper tray number decal and paper size decal to the each handle of the trays.



• The paper tray number and size sheet is in the accessory box of the main machine.



- 11. Rotate the adjuster [A] until the machine cannot be pushed across the floor.
- 12. Load paper into the paper trays and set the side fences and bottom fence.

#### **SP Settings**

- 1. Connect the copier and turn the machine on.
- 2. Do SP1914 and SP1915 to set automatic paper size detection for the upper and lower tray of the paper tray unit.

1914	3: Tray: Auto Paper Size Detection	Upper Tray
1915	4: Tray: Auto Paper Size Detection	Lower Tray
1	Size 1: B5/Exe Landscape	
2	Size 2: A5/HLT	[0 to 1/ <b>0</b> /1]
3	A4/LT	0: ISO (A3, A4, A5, etc.)
4	A4/LG	1: USA (DLT, LT, EXE, etc.)
5	A3/LT	

- 3. Exit SP mode.
- 4. Do some test copies to make sure that the machine operates correctly.

# LCT (B391)

# **Accessory Check**

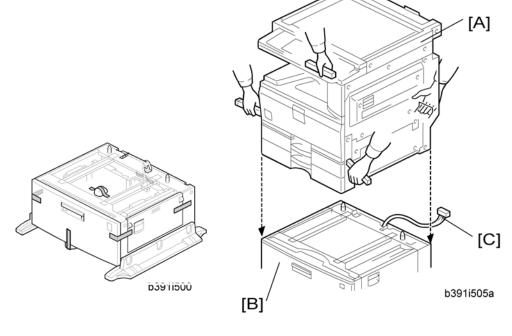
Check the quantity and condition of the accessories against the following list.

No.	Description	Quantity
1	Securing Bracket	2
2	Screw – M4 x 10	4
3	Paper Size Decal	1

# Installation Procedure

# **ACAUTION**

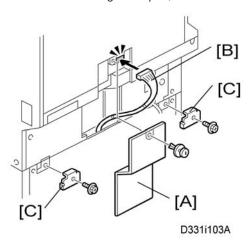
- Unplug the machine power cord before starting the following procedure.
- The handles of the main machine for lifting must be inserted inside the machine and locked, unless these handles are used for the installation or relocation of the main machine.
- You need two or more persons to lift the copier. The copier is highly unstable when lifted by one person, and may cause human injury or property damage.



- 1. Remove the strips of tape.
- 2. Set the copier [A] on the LCT [B].

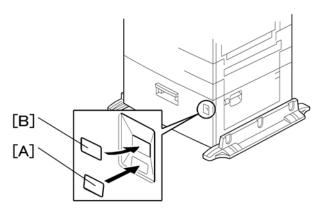


• When installing the copier, Be careful not to pinch the cable [C].



- 3. Remove the connector cover [A] (rivet screw x 1).
- 4. Connect the cable [B] to the copier, as shown.
- 5. Attach a securing bracket [C] to each side of the LCT, as shown ( $\mathscr{F}$  x 1 each).
- 6. Re-install the connector cover.

- 7. Remove the 1st and 2nd paper trays, and then secure the LCT with two screws ①, ②.
- 8. Load paper into the LCT
- 9. Reinstall the 1st and 2nd paper trays.

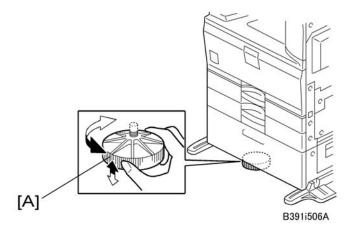


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10. Attach the appropriate paper tray number decal [A] and paper size decal [B] to the LCT tray cover.



• The paper tray number decal is in the accessory box for the main copier.



- 11. Rotate the adjuster [A] until the machine cannot be pushed across the floor.
- 12. Load paper into the paper tray and turn on the main switch.

#### **SP Setting**

- 1. Connect the copier and turn the machine on.
- 2. Do SP1914 to set automatic paper size detection for the LCT.

1914	3: Tray: Auto Paper Size Detection	
1	Size 1: B5/Exe Landscape	
2	Size 2: A5/HLT	[0 to 1/ <b>0</b> /1]
3	A4/LT	0: ISO (A3, A4, A5, etc.)
4	A4/LG	1: USA (DLT, LT, EXE, etc.)
5	A3/LT	

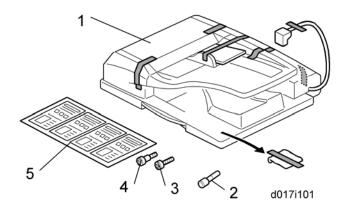
- 3. Exit SP mode.
- 4. Do some test copies to make sure that the machine operates correctly.

## **ARDF (D366)**

## **Component Check**

Check the quantity and condition of the accessories against the following list.

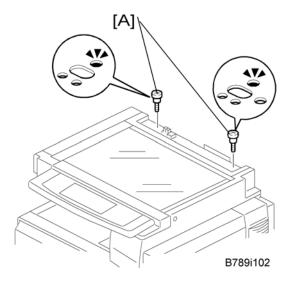
No.	Description	Q'ty
1	ARDF	1
2	Stamp Cartridge	1
3	Knob Screw	2
4	Stud Screw	2
5	Attention Decal-Top Cover	1



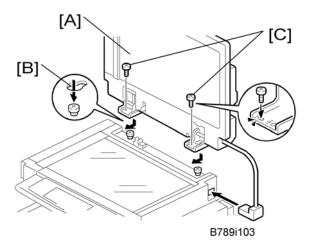
### Installation Procedure

## **A**CAUTION

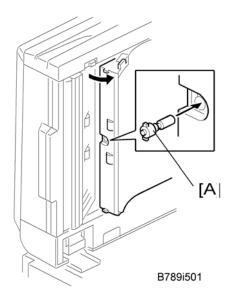
- Unplug the copier power cord before starting the following procedure.
- 1. Remove the all tapes and shipping retainers.



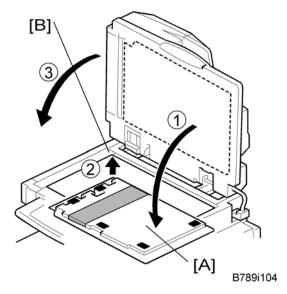
2. Insert the two stud screws [A] on the top of the machine.



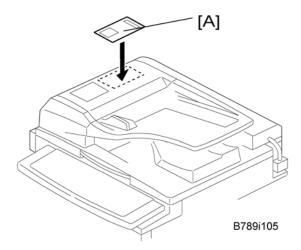
- $3. \ \ Mount the ARDF [A] by aligning the screw keyholes [B] of the ARDF support plate over the stud screws.$
- 4. Slide the ARDF toward the front of the machine.
- 5. Secure the ARDF with the two knob screw [C].



6. Install the stamp cartridge [A] in the ARDF.



- 7. Peel off the platen sheet [A] and place it on the exposure glass.
- 8. Align the rear left corner (of the platen sheet) with the corner [B] on the exposure glass.
- 9. Close the ARDF.
- 10. Open the ARDF and check that the platen sheet is correctly attached.



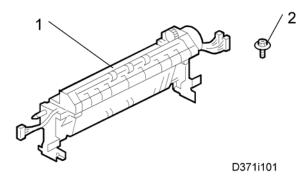
- 11. Attach the decal [A] to the top cover as shown. Choose the language you want.
- 12. Plug in and turn on the main power switch of the machine, and then check the ARDF operation.
- 13. Make a full size copy. Check that the registrations (side-to side and leading edge) and image skew are correct. If they are not, adjust the registrations and image skew, referring to the service manual ("Copy Adjustments" in the "Replacements and Adjustments").

# Interchange Unit (D371)

### **Component Check**

Check the quantity and condition of the components against the following list.

No.	Description	Quantity
1	Interchange Unit	1
2	Tapping Screw M3 x 8	2

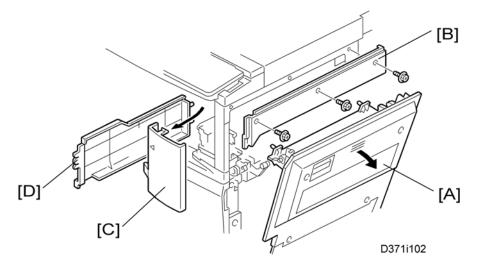


#### **Installation Procedure**

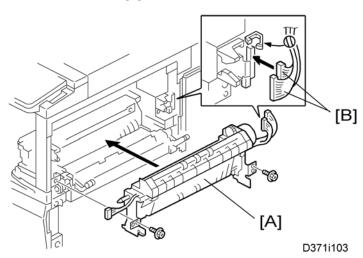
## **ACAUTION**

- Unplug the copier power cord before starting the following procedure.
- 1. Remove all tapes.

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- 2. Open the right cover [A] of the copier.
- 3. Remove the right upper cover [B] ( $\mathscr{F} \times 3$ )
- 4. Remove the front right cover [C] (hook)
- 5. Slide out the exit cover [D].



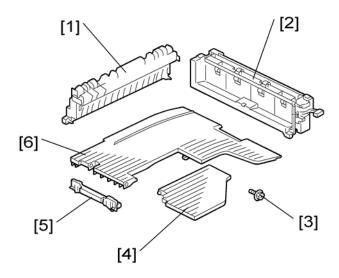
- 6. Install the interchange unit [A] (□ x 2).
- 7. Connect the two harnesses [B].

# 1-Bin Tray Unit (D367)

## Component Check

Check the quantity and condition of the components against the following list.

No.	Description	Qty
1	1-Bin Tray Guide	1
2	1 Bin Tray Unit	1
3	Tapping Screw M3 x 8	1
4	Sub-tray	1
5	Tray Guide	1
6	Tray	1



D367i101

#### **Installation Procedure**

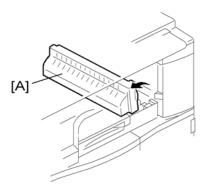


### **ACAUTION**

• Unplug the copier power cord before starting the following procedure.

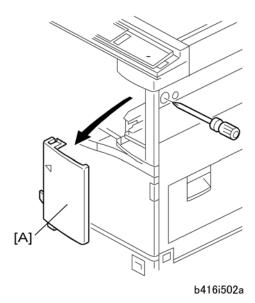
## **U** Note

- Before installing this 1-bin tray unit, the optional interchange unit (D371) must be installed.
- 1. Remove all tapes.

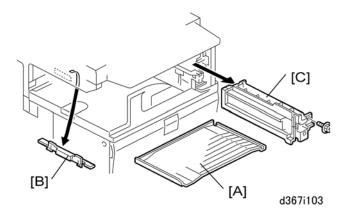


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- 2. If the optional bridge unit has been installed, open the right jam removal cover [A] of the bridge unit. -or-
  - If the optional bridge unit is not installed, skip this step.
- 3. If the duplex unit has not been installed go to Step 7.
  - If the duplex unit has been installed...

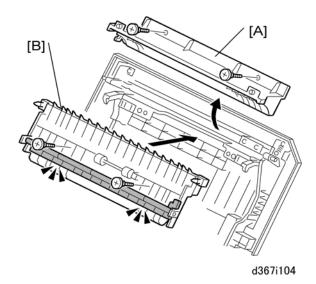


4. Remove the front right cover [A].

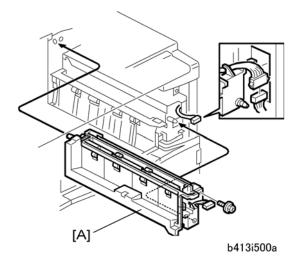


- 5. Remove the duplex tray [A] and duplex tray guide [B].
- 6. Remove the duplex guide [C] ( $\hat{F}$  x 1).

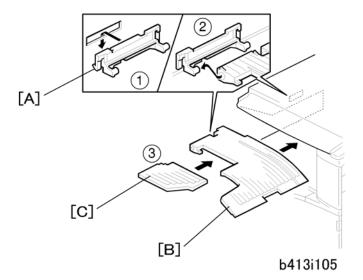
Install the 1-Bin Tray



- 7. Remove plate [A] ( \$\hat{x}^2 x 2 )
- 8. Attach the 1-bin tray guide [B] ( $\hat{\mathscr{E}}$ x2)



- 9. Install the 1-bin tray unit [A] (  $\mbeta\times$  1,  $\mbeta$   $\times$  1)
- 10. Re-install the front right cover.



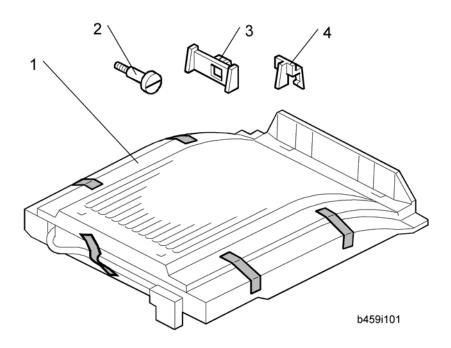
- 11. Install the tray guide [A].
- 12. Install the tray [B].
- 13. Install the sub-tray [C].
- $14.\,$  Turn on the main power switch and check the 1-bin tray unit operation.

# Shift Tray (D385)

## **Component Check**

Check the quantity and condition of the components against the following list.

No.	Description	Q'ty
1	Shift Tray Unit	1
2	Stepped Screw	1
3	Paper Guide – Large	2
4	Paper Guide - Small	1

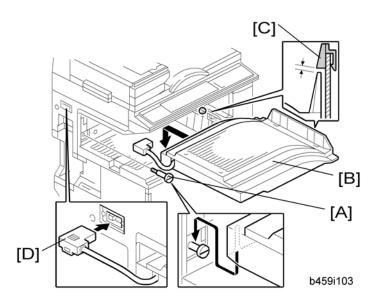


### **Installation Procedure**

## **ACAUTION**

• Unplug the copier power cord before starting the following procedure.

- 1. Remove all tapes.
- 2. Remove the plate [A].with nippers.
- 3. Install the large paper guide [B] and two small paper guides [C], as shown.



- 4. Install the stepped screw [A].
- 5. Install the shift tray unit [B], as shown.



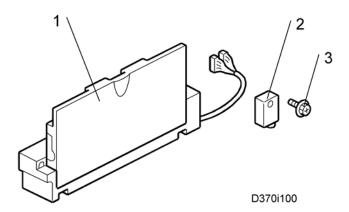
- Set the shift tray on the stepped screw.
- The shift tray must be installed under the paper guide [C] installed in step 3.
- 6. Connect the cable [D] to the copier.
- 7. Turn on the main power switch. Then select the shift tray with the user tool
  - System Settings General Features Output: Copier (and Output: Document Server, Facsimile, Printer): Enable the shift tray – you can also enable the standard tray (internal Tray 1), 1-bin tray (internal tray 2), or the finisher proof tray.
- 8. Check the shift tray operation.

# Bypass Feed Unit (D370)

## Components Check

Check the quantity and condition of the components against the following list.

No.	Description	Quantity
1	By-pass Tray Unit	1
2	Connector Cover	1
3	Tapping Screw	2

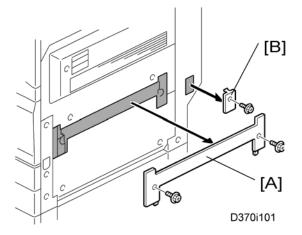


#### Installation Procedure

## **ACAUTION**

• Disconnect the copier power cord before you start this procedure.

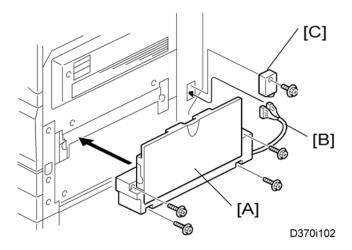
53



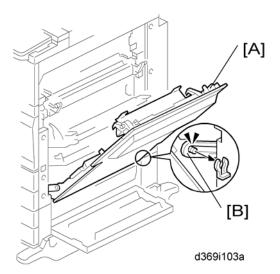
- 1. Remove all tapes.
- 2. Remove the entrance cover [A] (  $\mbox{\ensuremath{\beta}}\mbox{ x 2)}$  and cover [B] (  $\mbox{\ensuremath{\beta}}\mbox{ x 2)}.$



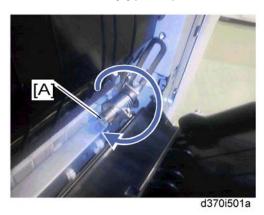
• These removed screws will be used in steps 3 and 5.



- 3. Install the by-pass tray unit [A] (  $\mbox{\ensuremath{\beta}}$  x 4: two of these are removed in Step 2).
- 4. Connect the cable [B] to the machine.
- 5. Install the connector cover [C] (  $\widehat{\mathscr{E}}^{1}$  x 1: this screw is removed in Step 2).



- 6. Open the right cover [A].



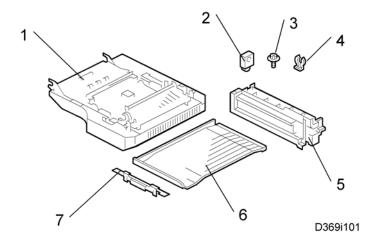
- 8. Rotate the rear link shaft [A] clockwise by 360 degrees to strengthen the spring tension.
- 9. Reattach the rear link (🖏 x 1).
- 10. Close the right cover.
- 11. Turn the main power switch on and check the by-pass tray function.
- 12. Make a copy from the by-pass tray. Then check the registration.

# **Duplex Unit (D369)**

## Accessory Check

Check the quantity and condition of the components against the following list.

No.	Description	Quantity
1	Duplex Unit	1
2	Connector Cover	1
3	Tapping Screw – M3 x 8	3
4	Clip	1
5	Duplex Guide	1
6	Duplex Tray	1
7	Duplex Tray Guide	1



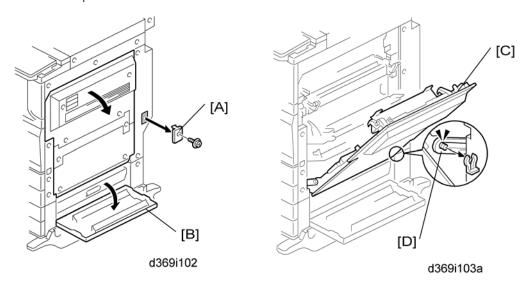
## Installation Procedure

## **ACAUTION**

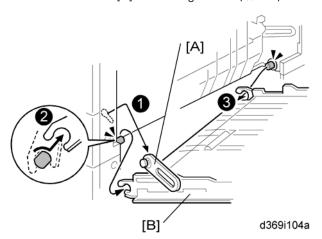
• Unplug the copier power cord before starting the following procedure.

#### **U** Note

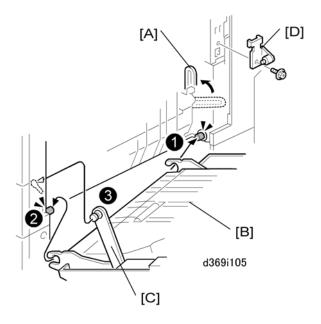
- Before installing the duplex unit, the optional interchange unit (D371) must be installed.
- 1. Remove all tapes.



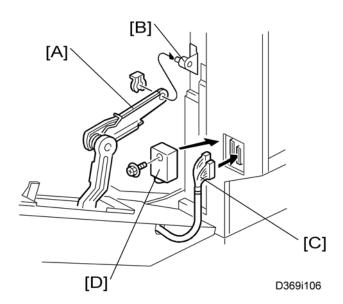
- 2. Remove the connector cover [A] ( $\mathscr{F} \times 1$ ).
- 3. Open the right cover [B] of the optional paper tray unit or LCT and right cover [C].
- 4. Release the rear link [D] from the right cover ( $\langle \overline{\langle} \rangle \times 1$ ).



- 5. Release the front link [A] from the mainframe.
- 6. Remove the right cover [B].



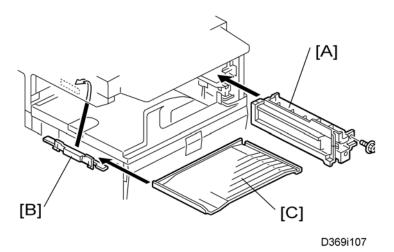
- 7. Turn up the rear link [A] of the main machine.
- 8. Install the duplex unit [B].
- 9. Attach the front link [C] of the duplex unit to the main machine.
- 10. Install the bracket [D] ( ${\hat{\mathbb{F}}} \times 1$ ).



- 11. Attach the link [A] to the shaft [B] and secure it with the clip.
- 12. Connect the cable [C] and install the connector cover [D] (  $\mathscr{F}$  x 1).

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• These last steps are not required if the 1-Bin Tray has been installed.

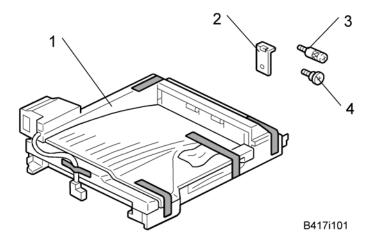


- 13. Install the duplex guide [A] (  $\mathscr{F}$  x 1).
- 14. Install the duplex tray guide [B] and duplex tray [C].
- 15. Turn on the main power switch and check the duplex unit function.

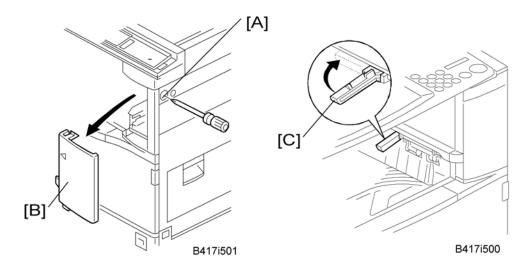
## Component List

Check the quantity and condition of the components against the following list.

No.	Description	Quantity
1	Bridge Unit	1
2	Securing Plate	1
3	Shoulder Screw	1
4	Knob Screw	1

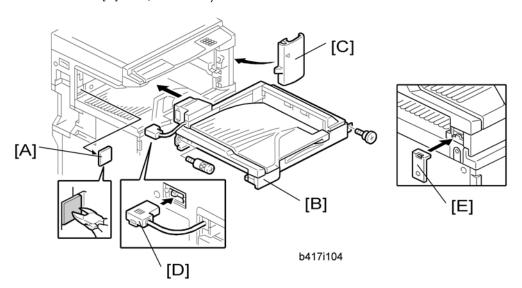


## Installation Procedure



### **ACAUTION**

- Unplug the copier power cord before starting the following procedure.
- 1. Remove all tapes.
- 2. Loosen the screw [A] and remove the front right cover [B].
- 3. If the sensor feeler [C] is out, fold it away into the machine.



- 4. Remove the cover [A].
- 5. Install the bridge unit [B] (1 shoulder screw, 1 knob screw).

- 1
- 6. Reinstall the front right cover [C].
- 7. Connect the cable [D] to the main machine.
- 8. Attach the securing plate [E], as shown.

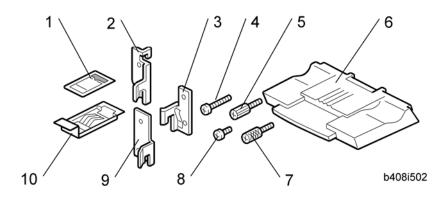


- Do not attach it with a screw; This is done when securing the front stand for the optional finisher.
- 9. Install the optional finisher (refer to the finisher installation procedure).

# 1000-Sheet Finisher (B408)

## **Accessory Check**

Check the quantity and condition of the accessories against the following list.



No.	Description	Q'ty	For this model
1	Staple Position Decal	1	V
2	Rear Joint Bracket	1	V
3	Front Joint Bracket	1	V
4	Screw - M4 x 14	4	<b>✓</b> (Use 3)
5	Knob Screw - M4 x 10	1	V
6	Copy Tray	1	V
7	Knob Screw - M3 x 8	1	V
8	Screw - M3 x 8	1	V
9	Rear Joint Bracket	1	
10	Grounding Plate	1	V

✓ = Necessary, --- = Not necessary

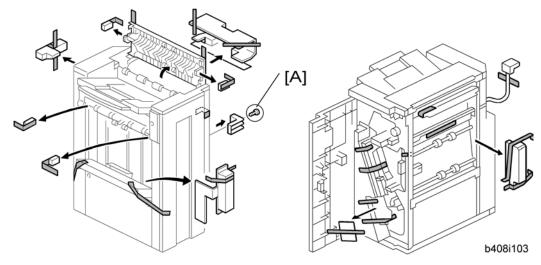
### Installation procedure



• Unplug the main machine power cord before starting the following procedure.

The following options must be installed before you install this finisher:

- Bridge Unit (D368)
- Paper Tray Unit (D331) or LCT (B391)

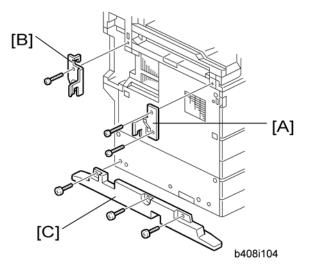


b408i102

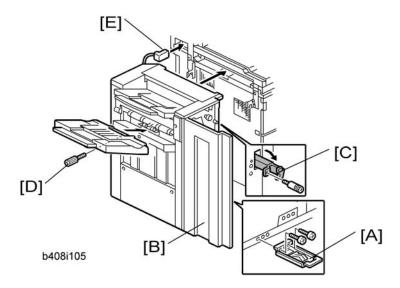
1. Unpack the finisher and remove the tapes.

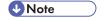


• Be sure to keep screw [A]. It will be needed to secure the grounding plate in step 4.



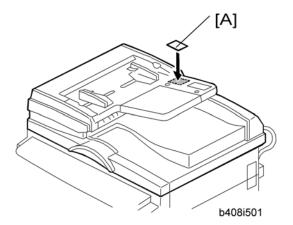
- 2. Install the front joint bracket [A] ( $\hat{\mathscr{E}}$  x 2; M4 x 17) and rear joint bracket [B] ( $\hat{\mathscr{E}}$  x 1; M4 x 17).
- 3. Remove the left stand [C] ( $\mathscr{F}$  x 3).





- Use the screw removed in step 1 and the screw from the accessory box.
- 5. Open the front door [B]. Then pull the locking lever [C] ( $\mathscr{F}$  x 1; knob M3 x 8).
- 6. Align the finisher on the joint brackets, and lock it in place by pushing the locking lever.
- 7. Secure the locking lever ( $\hat{F} \times 1$ ; knob M3 x 8) and close the front door.
- 8. Install the copy tray [D] (  $\mbox{\ensuremath{\beta}}\mbox{ x 1; knob M4 x 10)}.$

9. Connect the finisher cable [E] to the main machine.



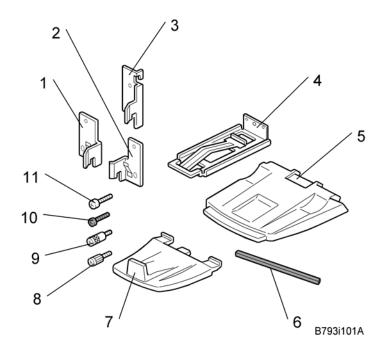
- 10. Attach the staple position decal [A] to the ARDF as shown.
- 11. Turn on the ac switch and check the finisher operation.

# 1000-Sheet Booklet Finisher (B793)

## Accessory Check

Check the quantity and condition of the components against the following list.

No.	Description	Quantity	For D017/D018/D019/D020
1	Rear Joint Bracket	1	No
2	Front Joint Bracket	1	Yes
3	Rear Joint Bracket	1	Yes
4	Grounding Plate	1	Yes
5	Upper Output Tray	1	Yes
6	Cushion	2	Yes
7	Lower Output Tray	1	Yes
8	Short Knob screw	1	Yes
9	Long Knob screw	1	Yes
10	Screw (M3 x 8)	2	Yes
11	Screw (M4 x 14)	4	Yes (Use all)



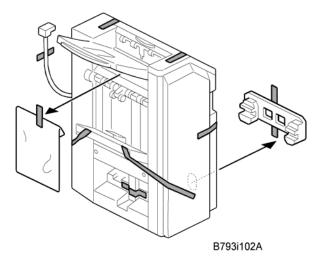
## Installation Procedure

## **ACAUTION**

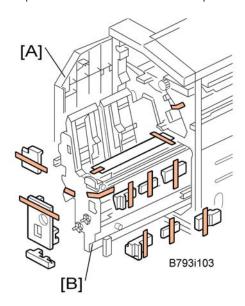
• Unplug the machine power cord before starting the following procedure.

Some optional units must be installed before installing this finisher (B793). Refer to the table below about requirement options for each machine.

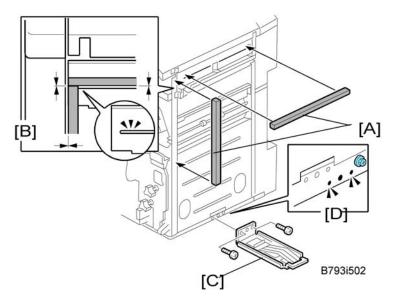
Machine Code	Requirement Optional Units
D017/D018/D019/D020	D368 and either B391 or D331



1. Unpack the finisher and remove all tapes and packing materials from the finisher.



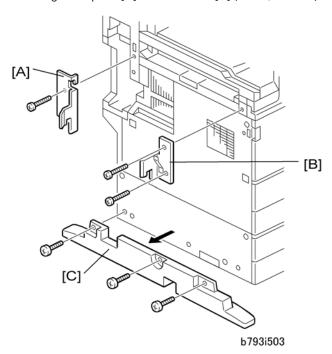
- 2. Open the front door [A] of the 1000-sheet booklet finisher, and then pull out the jogger unit [B].
- 3. Remove all tapes and packing materials from the inside of the finisher.



4. Attach the cushions [A] to the finisher.

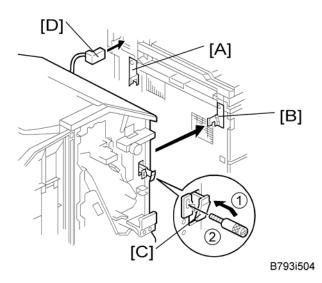


- Make sure that the cushions are placed within 0 to 1 mm [B] from the edge of the cover or frame.
- 5. Install the ground plate [C] on the finisher [D] ( $\hat{\mathcal{E}}$  x 2; M3 x 8).

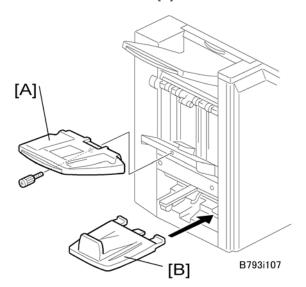


- 6. Attach the rear joint bracket [A] ( $\mathscr{F}$  x 1; M4 x 14).
- 7. Attach the front joint bracket [B] ( $\mathscr{F}$  x 2; M4 x 14).

8. Remove the left support [C] from the optional paper tray unit or LCT.



- 9. Slowly push the finisher to the left side of the machine, keeping its front door open until the brackets [A] [B] go into their slots.
- 10. Push the lock lever [C], and then secure it (Long knob screw x 1).
- 11. Close the front door of the finisher.
- 12. Connect the finisher connector [D] to the machine.



- 13. Install the upper output tray [A] (short knob screw x 1).
- 14. Install the lower output tray [B].

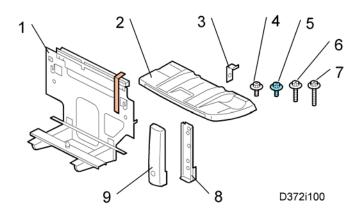
- 15. Turn on the main power switch of the machine.
- 16. Check the 1000-sheet booklet finisher operation.

# 500-Sheet Finisher (D372)

## **Accessory Check**

Check the quantity and condition of the accessories against the following list.

No	Description	Q'ty	For D017/D018/D019/D020
1	Unit Holder	1	Yes
2	Shift Tray	1	Yes
3	Holder Bracket	1	Yes
4	Screw: M3 x 8	4	Yes (Use 2)
5	Screw: M3 x 6	1	Yes
6	Screw: M4 x 14	4	Yes (Use 3)
7	Screw: M4 x 20	4	No
8	Support Bracket	2	No
9	Support Bracket Cover	2	No



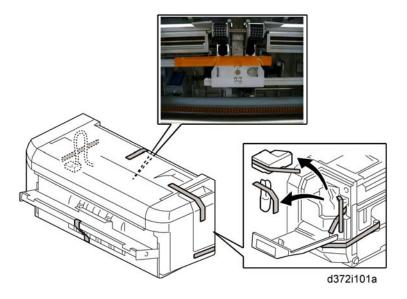
## Installation Procedure

## **ACAUTION**

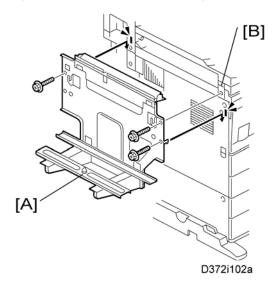
• Unplug the main machine power cord before starting the following procedure.



• Before you install the 500-sheet finisher, the optional bridge unit (D368) must be installed.

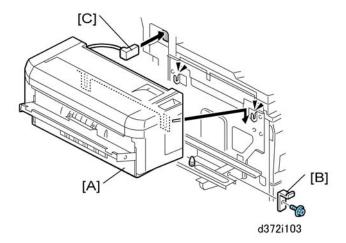


1. Unpack the finisher and remove the tapes.

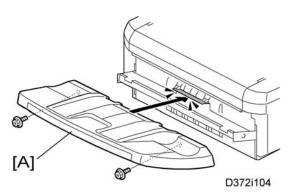




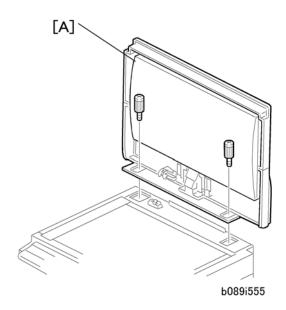
• Make sure that the bracket [B] is installed in the bridge unit.



- 3. Install the 500-sheet finisher [A].
- 4. Install the holder bracket [B] ( $\widehat{\mathscr{F}}$  x 1; M3 x 6).
- 5. Connect the finisher cable [C].



- 6. Install the shift tray [A] ( $\hat{\mathscr{E}}$  x 2 M3 x 8).
- 7. Turn on the main power switch and check the finisher operation.



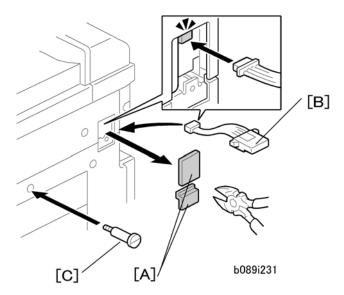
1. Install the platen cover [A] ( $\hat{\mathscr{F}}$  x 2).

# Key Counter (B452)

## Installation Procedure

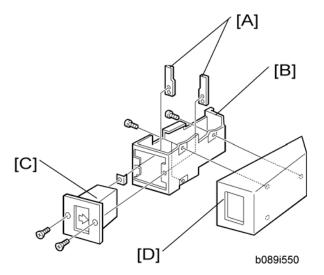
## **ACAUTION**

• Disconnect the copier power cord before you start this procedure.

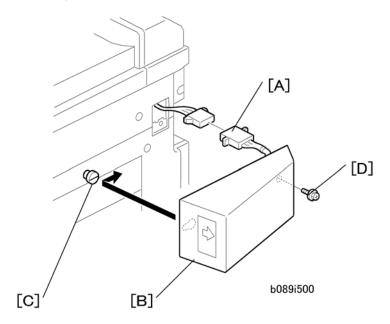


- 1. Remove two caps [A].
- 2. Connect the key counter cable [B].
- 3. Install the stepped screw [C].

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- 4. Hold the key counter plate nuts [A] on the inside of the key counter bracket [B] and insert the key counter holder [C].
- 5. Secure the key counter holder to the bracket ( $\hat{\mathbb{F}} \times 2$ ).
- 6. Install the key counter cover [D] ( $\hat{\beta}^{x} \times 2$ ).

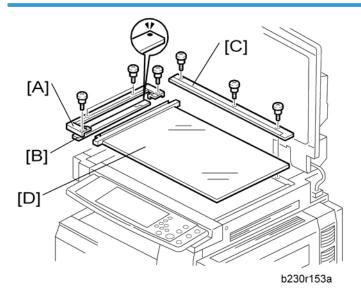


- 7. Connect the cable [A].
- 8. Hook the key counter holder assembly [B] onto the stepped screw [C].
- 9. Secure the key counter holder assembly with a screw [D].

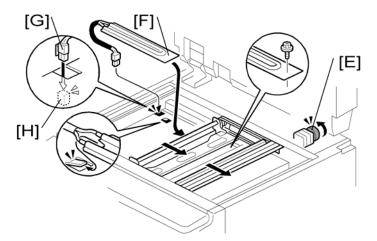
- 10. Use the User Tools to enable the counter function for the following modes:
  - Copy mode
  - Document server mode
  - Fax mode
  - Scanner mode
  - Printer mode

## **Anti-Condensation Heater (Scanner Unit)**

#### **Installation Procedure**



- 1. Rear cover (see "Rear Cover" in the "Replacement and Adjustment" section)
- 2. Open the ARDF or platen cover.
- 3. Glass cover [A] ( x 4)
- 4. ARDF exposure glass [B]
- 5. Rear scale [C] ( 🕏 x 3)
- 6. Exposure glass with left scale [D]

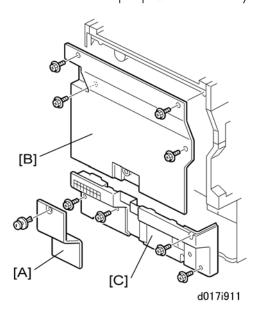


- 7. Move the scanner carriage to the right side by rotating the scanner motor [E].
- 8. Install the heater [F] in the scanner unit ( $\mathbb{Z}^{2} \times 1$ , hook)
- 9. Put the connector [G] through the cutout.
- 10. Connect it to the connector [H] (blue and red cords) in the frame of the machine.
- 11. Reassemble the machine.

## Tray Heater (Copier)

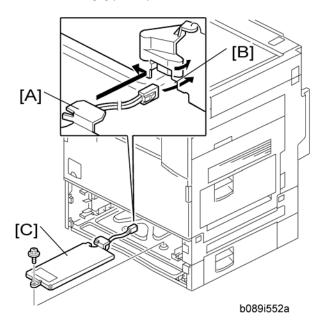
## **ACAUTION**

• Disconnect the copier power cord before you start this procedure.

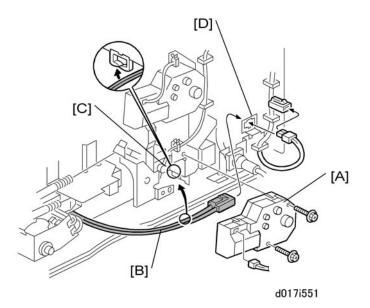


#### 1. Remove:

- Connector cover [A]
- Rear upper cover [B] ( 🛱 x 4)
- Rear lower cover [C] ( 🛱 x 4)



- 2. Slide out the 1st and 2nd paper trays.
- 3. Pass the connector [A] through the opening [B].
- 4. Install the tray heater assembly [C] (  $\ensuremath{\widehat{\mathcal{F}}}$  x 1).

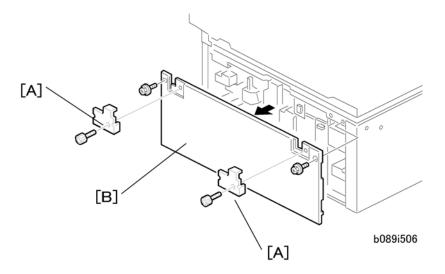


- 5. Remove the 2nd paper lift motor [A] ( $\mathscr{F}$  x 2,  $\mathrel{\mathbb{Z}}^{\parallel}$  x 1).
- 6. Route the heater cable [B] as shown.
- 7. Clamp the heater cable at [C] as shown.
- 8. Connect the heater cable to the ac cable at [D].

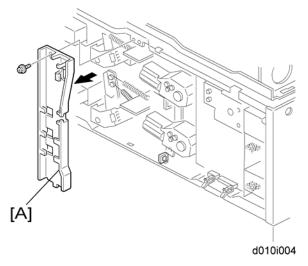
## Tray Heater (Optional Paper Tray Unit)

## **ACAUTION**

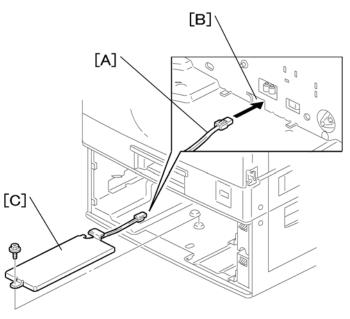
• Disconnect the copier power cord before you start this procedure.



- 1. Remove the joint brackets [A] (  $\mbox{\ensuremath{\beta}}\mbox{ x 1 each}).$
- 2. Remove the rear cover [B] for the optional paper tray unit ( $\mathscr{F}$  x 2).

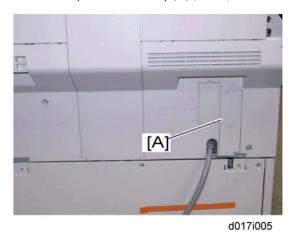


3. Remove the cable guide [A] ( $\hat{\mathscr{E}}$  x 1).

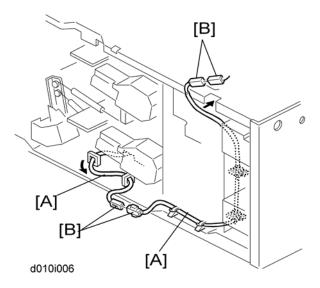


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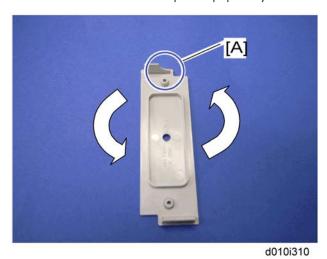
- 4. Slide out the two paper trays from the optional paper tray unit.
- 5. Pass the connector [A] through the opening [B].
- 6. Install the tray heater assembly [C] ( $\mathscr{F}$  x 1).



7. Remove the heater harness cover [A] (rivet screw x 1).



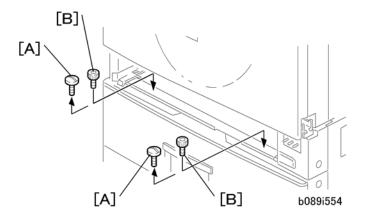
- 8. Clamp the cables [A], as shown.
- 9. Join the connectors [B].
- 10. Reinstall the cable guide.
- 11. Reinstall the rear cover for the optional paper tray unit.



12. Turn the heater harness cover upside down and reinstall it in the rear cover of the main machine.



- Make sure that cutout [A] is directed downward. Otherwise, the rear cover of the main machine
  pinches the heater harness and breaks it.
- 13. Reinstall the two paper trays into the optional paper tray unit.

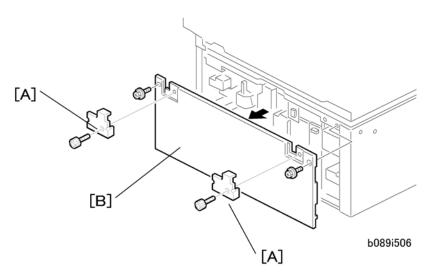


- 14. Remove the 2nd paper tray of the copier.
- 15. Remove two screws [A] and install the screws [B] which were removed in step 11.
- 16. Reinstall the 2nd paper tray of the copier.

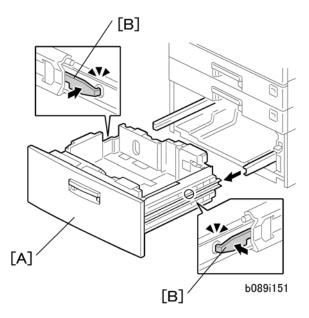
## Tray Heater (Optional LCT)

## **ACAUTION**

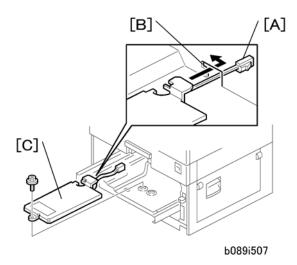
• Disconnect the copier power cord before you start this procedure.



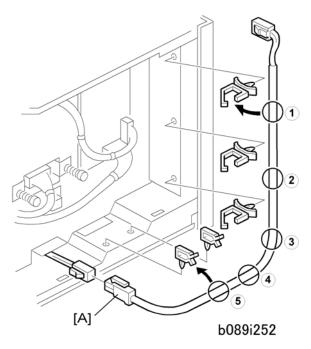
- 1. Remove two joint brackets [A] ( $\mathscr{F}$  x 1 each).
- 2. Remove the rear cover for the LCT [B] (  $\ensuremath{\widehat{\mathcal{F}}}$  x 2).



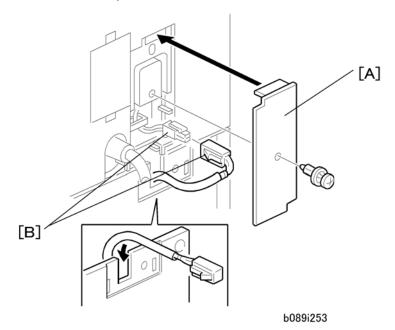
- 3. Slide out the paper tray [A].
- 4. Push the stopper [B] on both slide rails and remove the paper tray.



- 5. Pass the connector [A] through the opening [B].
- 6. Install the tray heater [C] ( $\mbeta$  x 1).

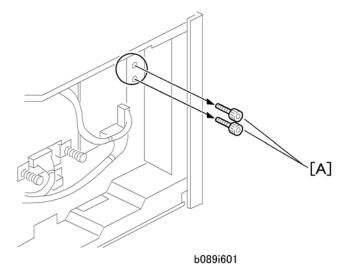


- 7. Install five clamps (🛱 x5).
- 8. Connect the cable tray heater cable [A].

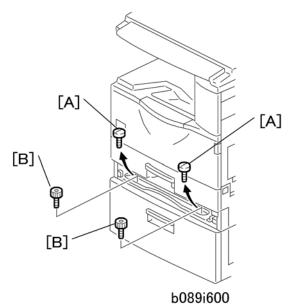


- 9. Route the cable and clamp it.
- 10. Remove the connector cover of the copier [A].
- 11. Join the connectors [B].

12. Reinstall the connector cover of the copier.



- 13. Remove two screws [A] from the rear side of the LCT.
- 14. Reinstall the rear cover of the LCT.
- 15. Reinstall the paper tray.



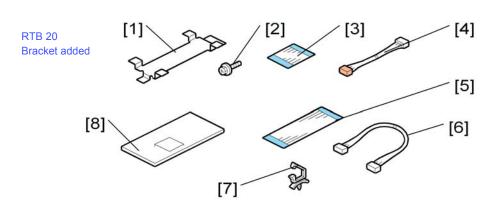
- 16. Remove the 2nd paper tray of the copier.
- 17. Remove two screws [A] and install the screws [B] which were removed in step 13.
- 18. Reinstall the 2nd paper tray of the copier.

## Copy Data Security Unit (B829)

#### Accessories

Check the accessories and their quantities against the following list:

No.	Description	Quantity
1	Bracket (Not used for the B205 series copiers)	1
2	Screws	4
3	FFC (Short) (Not used)	1
4	Harness (Not used)	1
5	FFC (Long)	1
6	Connection Cable	1
7	Harness Clamp	1
8	ICIB	1

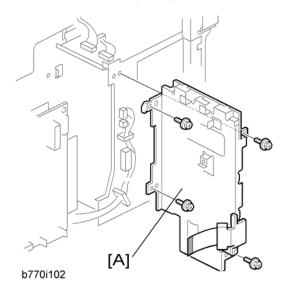


### Installation Procedure

## **ACAUTION**

- Turn off the main power switch and disconnect the copier power cord before you start this procedure.
- 1. Remove these parts: (see Controller Board in Replacement and Adjustment)
  - Controller board plastic cover ( \*x1).

- FCU faceplate (\$\hat{\epsilon} x3)
- Controller board unit ( 🛱 x 3)
- 2. Remove these parts: (see section 3.10.4)
  - Paper tray unit connector cover ( \$\beta x 1)
  - Disconnect the paper tray unit or LCT (if it is installed) ( x1)
  - Rear cover ( Fx1).
- 3. Pull the controller board partially out of the left slot to disconnect it from the IPU.



4. Remove the IPU [A] from the main machine.



• The board for this option is installed on the back of the IPU board.

- 5. Attach the harness clamp [B].
- 6. Attach the ICIB [C] ( \$\hat{\beta} x4)
- 7. Connect the cable [D] between the ICIB [C] and the IPU Board [A].
- 8. Connect the flat film connector [E] to the ICIB and IPU boards.
- 9. Reinstall the IPU board.
- 10. Turn on the machine.
- 11. Enable the Copy Data Security function:
  - [User Tools]> System Settings> Administrator Tools> Data Security for Copying

# Hard Disk (D362, only for D017/D019)

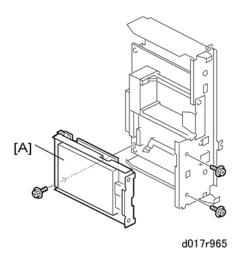
## Accessory Check

No.	Description	Q'ty	For D017/D019
1	HDD Unit	1	V
2	Screw	3	V
3	Keytop: Copy	2	V
4	Keytop: Document Server	2	V
5	Knob Screw	3	

✓ = Necessary, --- = Not necessary

#### Installation

- 1. Remove the plastic application cover ( \$\hat{\epsilon} \text{ x 1} ).
- 2. Remove the controller board. (See 'Controller Board'.)



- 3. Attach the HDD unit [A] to the controller board bracket ( $\mathbb{Z}^{2}$  x2,  $\mathscr{F}$ x3).
- 4. Reinstall the controller board with the HDD.

## After Installing the HDD

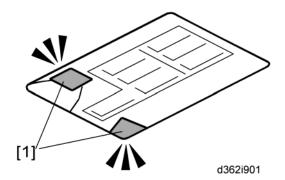
- 1. Do SP5832-001 to format the hard disk.
- 2. Do SP5853-001 to copy the preset stamp data from the firmware to the hard disk.
- 3. Do **SP5846-040** to copy the address book to the hard disk from the controller board.
- 4. Do SP5846-041 to let the user get access to the address book.
- 5. Turn the main power switch off/on.

1

## **HDD Encryption Unit**

#### Installation

#### Seal Check and Removal



- 1. Check the box seals [1] on each corner of the box.
  - Make sure that a tape is attached to each corner.
- 2. Open the box.

#### Installation Procedure

- 1. Make sure that the following settings are not at the factory default settings:
  - Supervisor login password
  - Administrator login name
  - Administrator login password



- These settings must be set up by the customer before the encryption option can be installed.
- 2. Confirm that "Admin. Authentication" is on:

[User Tools]>"System Settings">"Administrator Tools">"Administrator Authentication Management">
"Admin. Authentication"> "On"

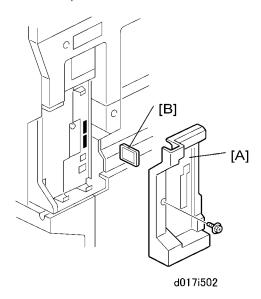
If this setting is "Off" tell the customer that this setting must be "On" before you can do the installation procedure.

3. Confirm that "Administrator Tools" is selected and enabled:

[User Tools]>"System Settings">"Administrator Tools">"Administrator Authentication Management">
"Available Settings

• "Available Settings" is not displayed until "Admin. Authentication" is switch on.

If this setting is not selected tell the customer that this setting must be selected before you can do the installation procedure.

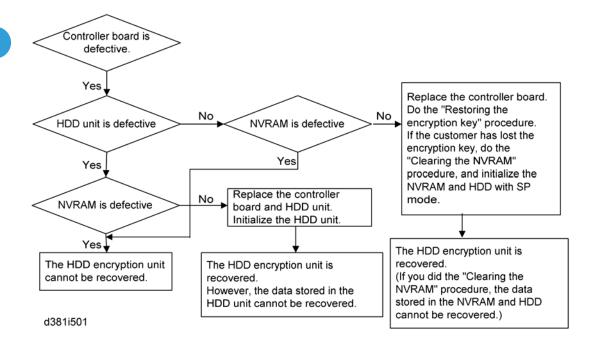


- 4. Remove the plastic application cover [A] ( $\mathscr{F} \times 1$ ).
- 5. Insert the SD card in SD card [B] Slot 2 (lower).

## 

- The encryption SD card must be installed in Slot 2 (lower).
- 6. Turn on the main power switch.
- 7. Enter the SP mode.
- 8. Select SP5878-002 (Option Setup Encryption Option), and then touch [Execute].
- 9. Turn off the main power switch.
- 10. Remove the SD card.
- 11. Attach the slot cover [A] ( x 1).
- 12. Switch the machine on.

#### Recovery from a Device Problem



#### Restoring the encryption key

When replacing the controller board for a model in which the HDD encryption unit has been installed, updating the encryption key is required.

- 1. Prepare an SD card which is initialized.
- 2. Make the "restore\_key" folder in the SD card.
- 3. Make an "nyram\_key.txt" file in the "restore\_key" folder in the SD card.
- 4. Ask an administrator to input the encryption key (this has been printed out earlier by the user) into the "nvram\_key.txt" file.
- 5. Remove only the HDD unit ( HDD Unit).
- 6. Turn on the main power switch.
- 7. Confirm that the prompt on the LCD tells you to install the SD card (storing the encryption key) in the machine.
- 8. Turn off the main power switch.
- 9. Insert the SD card that contains the encryption key into slot 2.
- 10. Turn on the main power switch, and the machine automatically restores the encryption key in the flash memory on the controller board.
- 11. Turn off the main power switch after the machine has returned to normal status.

- 12. Remove the SD card from slot 2.
- 13. Reinstall the HDD unit.

#### Clearing the NVRAM

When replacing the controller board for a model in which the HDD encryption unit has been installed and a customer has lost the encryption key, clearing the NVRAM is required to recover the HDD encryption unit.

- 1. Prepare an SD card which is initialized.
- 2. Make the "restore\_key" folder in the SD card.
- 3. Make an "nvram\_key.txt" file in the "restore\_key" folder in the SD card.
- 4. Input "nvclear" into the "nvram\_key.txt" file.
- 5. Turn on the main power switch.
- 6. Confirm that the prompt on the LCD tells you to install the SD card (storing the encryption key) in the machine.
- 7. Turn off the main power switch.
- 8. Insert the SD card that contains "nvclear" into slot 2.
- 9. Turn on the main power switch, and the machine automatically restores the encryption key in the flash memory on the controller board.
- 10. Turn off the main power switch after the machine has returned to normal status.
- 11. Remove the SD card from slot 2.
- 12. Turn on the main power switch.
- 13. Initialize the NVRAM (SP5801-001) and HDD unit (SP5832-001) with SP mode.
- 14. The user must enable the HDD encryption unit with a user tool.

#### More about HDD Encryption Unit (D377)

#### Overview

The HDD Encryption unit encodes user data and machine settings to prevent this data from being stolen if somebody steals the hard disk. To activate this unit, an administrator must enable the unit with the user mode after installation by a customer engineer. Also, if "Administrator Authentication Management" is not turned on, this function is not displayed in the menu on the LCD.

#### **Encrypted Data**

The data to be encrypted are shown below:

#### User Data in the HDD

- Address book data\*2
- User authentication data
- Stored document data
- Temporary data on the HDD

- Security log data\*2
- Network I/F setting data\*1
- User mode setting data \* 2

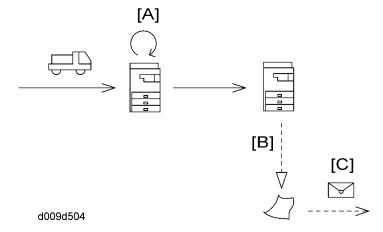
#### Machine Data in the NVRAM

Machine settings data\*1

At installation, an administrator can choose one of three settings to determine what happens to the data that is already in the NVRAM and HDD unit.

- 1. "File System Data Only" encrypts the items indicated with \*1 and \*2 in the table above and deletes other data.
- 2. "Format All Data" encrypts the item indicated with \*1 in the table above and deletes other data.
- 3. "All Data" encrypts all data in the table above.

#### **Procedure Flow**

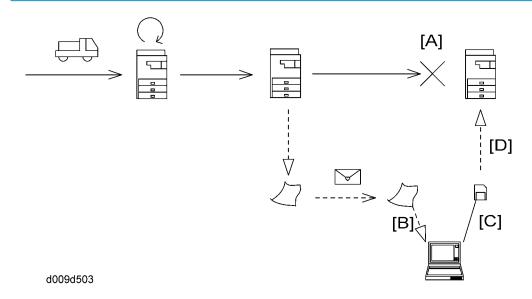


[A]: The CE (customer engineer) installs the unit [A], then an administrator uses the activating function. The administrator prints out the encryption key [B]. The administrator keeps the encryption key information [C] in a safe place.

#### **Encryption Key**

After this unit is installed and activated, an encryption key is printed out, and stored in a flash memory chip on the controller board. The encryption key is also copied to each device (NVRAM, HDD) to be encoded by this unit. The printed encryption key must be safeguarded by the administrator. The customer engineer must not see or ask for the key.

#### **Encryption Key Restoration**



If the controller board becomes defective [A] and needs to be replaced, "Encryption key restoring" is required in order to use the data on the NVRAM and HDD.

- This is because this encryption function works properly only when the keys in the controller board, NVRAM and HDD match.
- SC858, 859 or 878 occurs if there is a problem with restoring or updating the encryption key. (For details of how to update the encryption key, refer to the Operating Instructions.)
- The customer engineer then asks an administrator to input the encryption key [B] into an SD card [C].
- Encryption key restoration is completed [D] after installation (by the CE) and activation by the administrator.

## Data Overwrite Security Unit (D362)



#### **Before You Begin**

RTB 19 New information

1. Confirm that the Data Overwrite Security unit SD card is the correct type for the machine. The correct type for this machine is "Type I".

RTB 19 Delete this note



- If you install any version other than "Type I", you will have to replace the NVRAM and do this installation procedure again.
- 2. Make sure that the following features have been set up:
  - · Supervisor login password
  - · Administrator login name
  - Administrator login password



- These settings must be set up by the customer before the DOS option can be installed.
- 3. Confirm that "Admin. Authentication" is on:

[User Tools]>"System Settings">"Administrator Tools">"Administrator Authentication Management">
"Admin. Authentication"> "On"

If this setting is "Off" tell the customer that this setting must be "On" before you can do the installation procedure.

4. Confirm that "Administrator Tools" is selected and enabled:

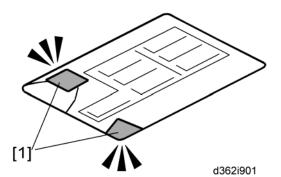
[User Tools]> "System Settings"> "Administrator Tools"> "Administrator Authentication Management"> "Available Settings

If this setting is not selected tell the customer that this setting must be selected before you can do the installation procedure.

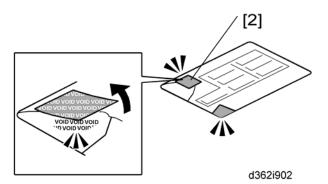


• "Available Settings" is not displayed until Step 2 has been done.

### Seal Check and Removal



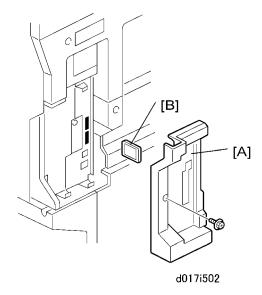
- 1. Check the box seals [1] on each corner of the box.
  - Make sure that a tape is attached to each corner.
  - The surfaces of the tapes must be blank. If you see "VOID" on the tapes, do not install the components in the box.
- 2. If the surfaces of the tapes do not show "VOID", remove them from the corners of the box.



3. When you remove each seal, the "VOID" marks [2] can be seen. In this condition, they cannot be reattached to the box.

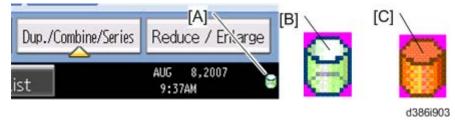
#### **DOS** Installation

- 1. Switch off the machine.
- 2. Disconnect the network cable.
- 3. Turn the main power switch on.
- 4. Turn the operation switch and main power switch off.



- 5. Remove the plastic application cover [A] ( F x 1).
- 6. Insert the SD card [B] in SD Slot 1 (upper).
- 7. Reconnect the network cable, if the network is connected to the copier.
- 8. Turn the main power switch on.
- 9. Do SP5878-1 (Option Setup Data Overwrite Security) and touch [EXECUTE].
- 10. Go out of the SP mode, turn the operation switch off, then turn the main power switch off.
- 11. Turn the machine power on.
- 12. Push [User Tools] and select System Settings> Administrator Tools> Auto Erase Memory Setting> On.
- 13. Exit from User Tools mode.

RTB 19 Incorrect diagram



- 14. Check the display and make sure that the overwrite erase icon [A] is displayed.
- 15. Make a Sample Copy.
- 16. Check the overwrite erase icon.
  - The icon [B] changes to [C] when job data is stored in the hard disk.
  - The icon goes back to its usual shape [B] after this function has completed a data overwrite operation to the hard disk.

1

- 17. Do SP5990-005 (SP print mode Diagnostic Report).
- 18. Look at the report: RTB 19: This step must be changed
  - Under "[ROM No./Firmware Version]" check the number and version number listed for "HDD Format Option".
  - Under "[Loading Program]" check the option number and version number listed for "GW\_zoffy".
  - These two version numbers should be identical.
- 19. Exit SP mode.
- 20. Remove the Document Server and Scanner key-tops, and replace them with the blank key-tops that are supplied with the kit.

# Browser Unit Type D (D377)

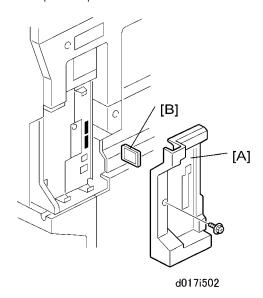
#### Accessories

Check the accessories and their quantities against the table below.

Description	Qt'y
1. Browser Unit D377 SD Card	1

## Installation

This option requires a HDD unit.



Browser unit RTB 2

1. Switch the machine off.

- The installation procedure was modified.
- 2. Remove the plastic application cover [A] ( $\mathscr{F} \times 1$ ).
- 3. Insert the browser SD card [B] into SD card Slot 1 (upper).
- 4. Turn the machine on.
- 5. Push [User Tools]> [Login/Logout].
- 6. Login with the administrator user name and password.
- 7. Touch "Extended Feature Settings" twice.
- 8. Touch "SD Card" then touch the "Browser" line.

- 9. Under "Install to:" touch "Machine HDD"> "Next".
- 10. When you see "Ready to Install", check the information on the screen to confirm your previous selection.
- 11. Touch "OK". You will see "Installing..." then "Completed".
- 12. Touch "Exit" twice to return to the copy screen.
- 13. Remove the SD card from the SD card slot.

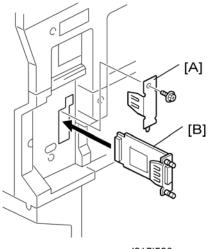
# File Format Converter Type E (D377)

## **Accessory Check**

Check the accessories and their quantities against this list:

	Description	Q'ty
1.	File Format Converter (MLB: Media Link Board)	1

#### Installation



d017i503

- 1. Switch the machine off.
- 2. Remove the plastic application cover (\$\hat{x} \text{ x1}).
- 3. Remove the board slot cover [A] ( $\mathscr{F}$  x2).
- 4. Touch a metal surface to discharge any static electricity from your hands.
- 5. Set the interface board [B] in the open slot.
- 6. Confirm that the board is inserted completely, then fasten it ( $\hat{F} \times 2$ ).
- 7. Turn the machine power on.
- 8. Enter the SP mode and do SP5990 to print an SMC Report.
- 9. Read the report and confirm that the interface board is installed correctly.

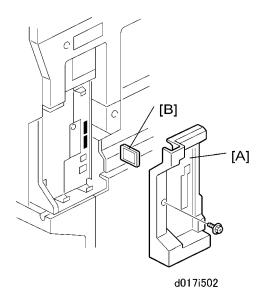
# VM Card Type E (D377)

#### Accessories

Check the accessories and their quantities against the table below.

Description	Q'ty
1. VM SD Card	1
2. Decal	1

#### Installation



- 1. Switch the machine off.
- 2. Remove the plastic application cover ( \$\beta x 1 ).
- 3. Remove the SD card slot cover [A] ( $\mathscr{F}$  x1).
- 4. Insert the SD card [B] into SD Slot 2 (lower).



• This SD card must be inserted into Slot 2, the lower slot.

# 2. Preventive Maintenance

## **PM Table**



- The amounts mentioned as the PM interval indicate the number of prints.
- After carrying out PM, clear the maintenance counter (SP7-804).

Symbol key: C: Clean, R: Replace, L: Lubricate, I: Inspect

	EM	120K	240K	360K	NOTE			
SCANNER/LASER OPTICS								
Reflector		С	С	С	Optics cloth			
1 st Mirror	С	С	С	С	Optics cloth			
2nd Mirror	С	С	С	С	Optics cloth			
3rd Mirror	С	С	С	С	Optics cloth			
Scanner Guide Rails		С	С	С	Do not use alcohol.			
Platen Sheet Cover	С	I	I	I	Replace the platen sheet, if necessary.  Dry cloth or alcohol			
Exposure Glass		С	С	С	Dry cloth or alcohol			
Toner Shield Glass		С	С	С	Optics cloth			
APS Sensor		С	С	С	Dry cloth or blower brush			

	EM	120K	240K	360K	NOTE		
AROUND THE DRUM							
Transfer/Separation Unit		R	R	R			
ID Sensor		С	С	С	Perform the ID sensor initial setting (SP2-935) after cleaning (blower brush)		

	EM	60K	120K	180K	NOTE		
PCU							
Drum		R	R	R			
Charge Roller		R	R	R			
Cleaning Roller		R	R	R	Do SP2801. This initializes the developer and resets the TD and ID		
Cleaning Blade		R	R	R	sensor outputs to their defaults. It		
Pick-off Pawls		R	R	R	also resets the red counter.		
Developer		R	R	R			

	EM	120K	240K	360K	NOTE		
PAPER FEED							
Registration Rollers	С	С	С	С	Clean with water		
Paper Feed Roller	С	R	R	R	Clean with water		
Friction Pad	С	R	R	R	Dry cloth		
Paper Feed Guides	С	С	С	С	Clean with alcohol.		
Relay Rollers	С	С	С	С	Clean with water.		
Bottom Plate Pad	С	С	С	С	Clean with water.		
Registration Roller Mylar	С	С	С	С	Clean with water.		
Dust collection box	С	С	С	С	Remove, empty, clean		

	EM	120K	240K	360K	NOTE
FUSING UNIT AND PAPE					
Fusing Entrance and Exit Guide Plates		С	С	С	Clean with water or alcohol.
Hot Roller		R	R	R	
Pressure Roller		R	R	R	Clean with water or alcohol.
Fusing Thermistors		R	R	R	

	EM	120K	240K	360K	NOTE
Cleaning Roller		С	С	С	
Cleaning Roller Bushings		С	С	С	
Hot Roller Strippers		R	R	R	
Hot Roller and Pressure Roller Bushings	L	L	L	L	Grease Barrierta JFE5 5/2 (A0289300)
Paper Exit Guide Ribs		С	С	С	Clean with water or alcohol.
OTHERS					
Main Motor Drive Gear	L	I	I	ı	Silicone Grease G501 (see 'Main Motor Drive Gear')

	EM	120K	240K	360K	NOTE			
ADF (PM interval is measured in originals)								
Pick-up Roller	С	R	R	R	Clean with water			
Feed Belt	С	R	R	R	Clean with water			
Separation Roller	С	R	R	R	Clean with water			
Stamp		1	1	1	Replace if necessary			
ADF Exposure Glass	С	С	С	С	Clean with alcohol			
White Plate	С	С	С	С	Clean with alcohol			
Platen Sheet	С	С	С	С	Clean with alcohol			

	EM	120K	240K	360K	NOTE
PAPER TRAY UNIT					
Paper Feed Roller	С	R	R	R	Clean with water
Friction Pad	С	R	R	R	Dry cloth
Paper Feed Guides	С	С	С	С	Clean with alcohol.
Relay Rollers	С	С	С	С	Clean with water.

	EM	120K	240K	360K	NOTE
Bottom Plate Pad	С	С	С	С	Clean with water.
Relay Clutch		I	I	I	Replace if necessary
Paper Feed Clutch		I	I	I	Replace if necessary

	EM	120K	240K	360K	NOTE
LCT					
Paper Feed Roller		R	R	R	
Pick-up Roller		R	R	R	
Separation Roller		R	R	R	
Transport Rollers		С	С	С	Clean with water
Bottom Plate Pad		С	С	С	Clean with water
Relay Clutch		1	1	1	Replace if necessary
Paper Feed Clutch		1	I	1	Replace if necessary

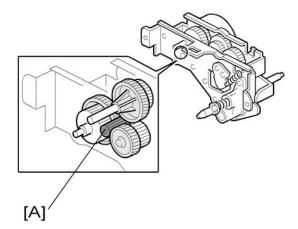
	EM	120K	240K	360K	NOTE
1,000-sheet Finisher					
Rollers	С				Clean with water or alcohol.
Brush Roller	I	1	I	I	Replace if necessary.
Discharge Brush	С	С	С	С	Clean with a dry cloth
Sensors	С				Blower brush
Jogger Fences	I	I	I	I	Replace if necessary.

	EM	120K	240K	360K	NOTE
1,000-sheet Booklet Finish	er				
Rollers	С				Damp cloth
Discharge Brush	С				Dry cloth

	EM	120K	240K	360K	NOTE
Sensors	С				Blower brush
Punch Kit					
Punch Chads	С				Discard chads.

	EM	120K	240K	360K	NOTE
500-sheet Finisher					
Rollers	С				Damp cloth
Discharge Brush	С				Dry cloth
Sensors	С				Blower brush

	EM	150K	300K	450K	NOTE
1-bin tray unit					
Rollers	С				Dry or damp cloth
Copy Tray	С				Dry or damp cloth
Sensors	С				Blower brush



At every EM lubricate the main motor drive gear [A] with silicone grease G501.

# 3. Replacement and Adjustment

# **Special Tools and Lubricants**

## **Special Tools**

No.	Part No.	Description	Q'ty	Availability
1	A0069104	Scanner Positioning Pins (4 pins/set)	1	Common – R-C3
2	A2929500	Test Chart S5S (10 pcs/set)	1	Common - General
3	VSSM9000	Digital Multimeter FLUKE 87	1	Common - General
4	A2309003	Adjustment Cam – Laser Unit	1	Common – R-C3
5	A2679002	Positioning Pin – Laser Unit	1	Common – R-C3
6	B6455010	SD-Card	1	Common - General
7	B6456800	USB Reader/Writer	1	Common - General
8	G0219350	Loop-back Connector	1	Common - General

#### Lubricants

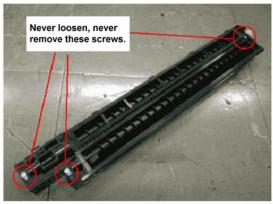
No.	Part No.	Description	Q'ty	Availability
1	A2579300	Grease Barrierta S552R	1	Common - General
2	52039502	Silicone Grease G-501	1	Common - General

## **General Cautions**

#### **PCU (Photoconductor Unit)**

The PCU consists of the OPC drum, development unit, charge roller, and cleaning unit. Follow the cautions below when handling a PCU.

- Never touch the drum surface with bare hands. When the drum surface is touched or becomes dirty,
   wipe it with a dry cloth or clean it with wet cotton. Wipe with a dry cloth after cleaning with the cotton.
- Never used alcohol to clean the drum; alcohol dissolves the drum surface.
- Store the PCU in a cool, dry place away from heat.
- Never expose the drum to corrosive gases such as ammonia gas.
- Never shake the used PCU. Doing so may cause toner and/or developer to spill out.
- Dispose of used PCUs in accordance with local regulations.
- Turn off the main power switch and disconnect the power cord before you start any of the procedures
  in this section. To prevent toner leakage, never loosen or remove the screws shown in the illustration
  below.



d017r901

#### Transfer Roller Unit

- Never touch the transfer roller surface with bare hands.
- Take care not to scratch the transfer roller as the surface is easily damaged.

#### Scanner Unit

- Clean the exposure glass with alcohol or with glass cleaner to reduce the amount of static electricity on the surface of the glass.
- Use a blower brush or a cotton pad with water to clean the mirrors and lens.
- Do not bend or crease the exposure lamp flat cable.
- Do not disassemble the lens unit. Doing so will throw the lens and the copy image out of focus.
- Do not turn any of the CCD positioning screws. Doing so will throw the CCD out of position.

#### Laser Unit

- Do not loosen the screws that secure the LD drive board to the laser diode casing. Doing so will throw the LD unit out of adjustment.
- Do not adjust the variable resistors on the LD unit, as they are adjusted in the factory.
- The polygon mirror and F-theta mirror are very sensitive to dust.
- Do not touch the glass surface of the polygon mirror motor unit with bare hands.

#### **Fusing Unit**

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

#### **Paper Feed**

- Do not touch the surface of the paper feed roller.
- To avoid paper misfeeds, the side fences and end fences of the paper tray must be positioned correctly
  to align with the actual paper size.

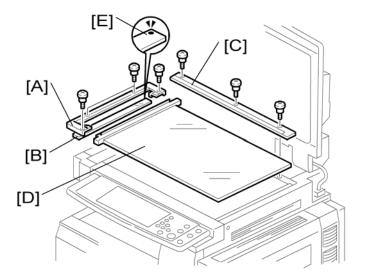
#### Others

• The toner bottle should be replaced while the main switch is on.

5

## **Scanner Unit**

## **Exposure Glass**

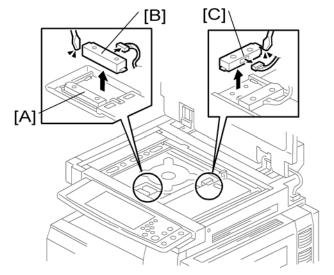


- 1. Glass cover [A] ( \$\hat{x} 4)
- 2. ARDF exposure glass [B]
- 3. Rear scale [C] ( \$\hat{k} x 3)
- 4. Exposure glass with left scale [D]



• Position the white marker [E] at the rear-left corner and the blue marker at the front-left corner when you reattach the ARDF exposure glass.

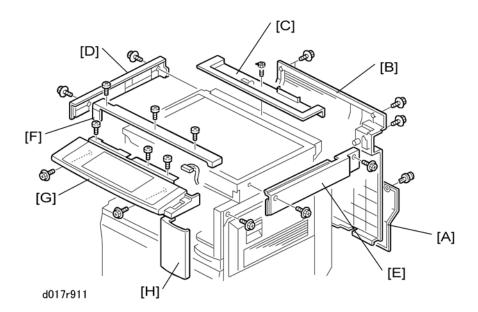
## Original Length/Width Sensors



- 1. Exposure glass with left scale ( Scanner Unit)
- 2. Original length sensor bracket [A] ( x 1, x 1)
- 3. Original length sensors [B] (snap, x 1 each)
- 4. The number of the original length sensors depends on the model; 3 for EU, 2 for others.
- 5. Original width sensors [C] (snap, ₱ x 1, □ x1 each)

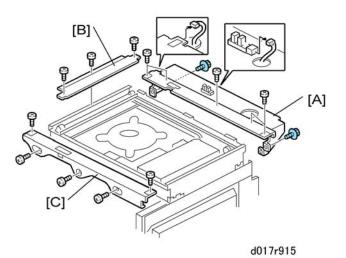
K

## **Exposure Lamp**

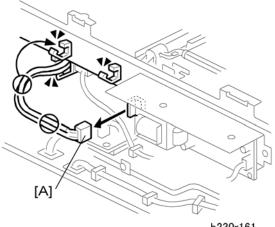


#### 1. Remove:

- [A] Harness cover ( 🛱 x 1 )
- [B] Rear cover ( x4)
- [C] Scanner rear cover (\$\hat{\mathcal{E}} x1)
- [D] Scanner left cover (\$\hat{k}^2 x2)
- [E] Scanner right cover (\$\hat{\varepsilon} x2)
- [F] Scanner front cover (\$\hat{\epsilon}\$ x3)
- [G] Operation panel (\$\hat{x}\$ x5, \$\boxed{z}\$ x1)
- [H] Support cover (Tab x1)

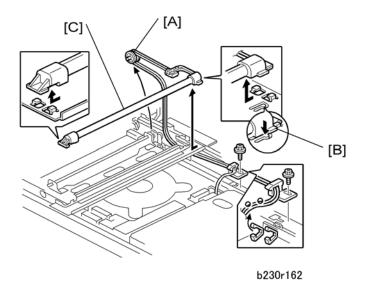


- 2. Remove:
  - [A] Rear stay (⋛ x7, 🗐 x2)
  - [B] Left stay (🛱 x3)
  - [C] Front stay ( 🛱 x 5 )



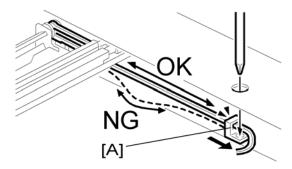
b230r161

3. Disconnect the connector [A] ( $\stackrel{\frown}{\hookrightarrow} x2, \stackrel{\frown}{\Longrightarrow} 1$ ).



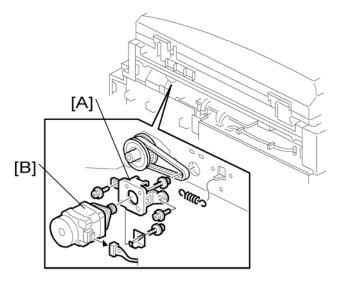
- 4. Remove the pulley [A].
- 5. Hold down the snap [B]
- 6. Remove the exposure lamp [C] ( $\mbox{$\stackrel{\triangle}{\cong}$} x2$ ,  $\mbox{$\stackrel{\partial}{\cong}$} x1$ ,  $\mbox{$\stackrel{\partial}{\approx}$} x1$ )

### Reassembling



- 1. Run the cable so that there is no slack.
- 2. Slide clamp [A] to adjust the cable slack.

#### Scanner Motor

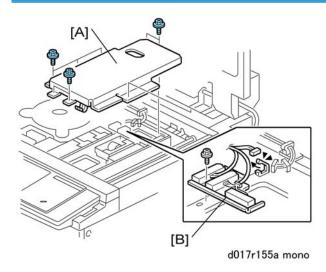


- 1. Rear cover ( Rear Cover)
- 2. Scanner motor assembly [A] ( \$\hat{x} \times 2, \quad \text{2} \times 1, spring x 1)
- 3. Scanner motor [B] ( Fx 2)

After replacement, do the Copy Adjustments: Printing/Scanning

## Sensor Board Unit (SBU)

#### **Monochrome Scanner Unit**

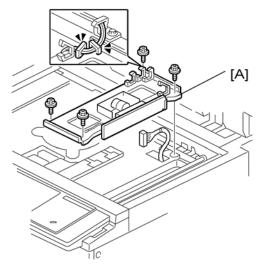


1. Remove:

• Exposure glass ( Exposure glass)

[A] SBU cover ( 🛱 x3)

[B] Original length sensor bracket (⋛ x1, ⋈ x1)

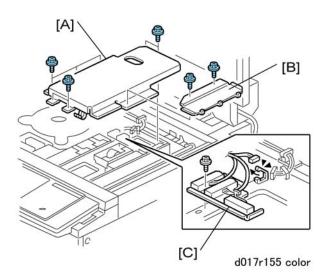


d017r156a mono

1. Remove:

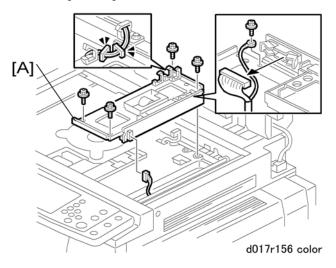
[A] Sensor board unit (⋛ x3, ≒ x3, ≡ x1)

#### **Color Scanner Unit**



- 1. Remove:
  - Exposure glass ( Exposure glass)

- [A] SBU cover ( x3)
- [B] Cover ( \$\hat{\beta} x2)
- [C] Original length sensor bracket ( \*x 1, \*\hat{2} x 1)



1. Remove:

[A] Sensor board unit ( ⟨ x 4, □ x 1, □ x 2)

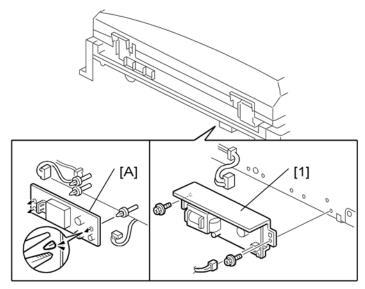
#### When reassembling

Adjust the following SP modes after you replace the sensor board unit:

- SP4-008 (Sub Scan Mag)
- SP4-010 (Sub Mag Reg.)
- SP4-011 (Main Scan Reg)
- SP4-688 (DF: Density Adjustment). This SP code adjusts the density level if the ID of outputs made in the DF and Platen mode is different.

For more details, see Image Adjustment: Scanning.

## Exposure Lamp Stabilizer



d017r152 mono/color

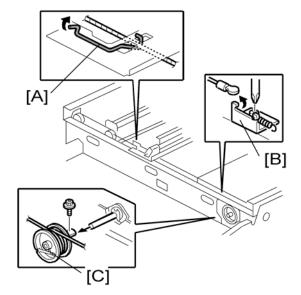
#### 1. Remove:

• Rear cover ( Rear Cover)

Exposure lamp stabilizer [A] (Standoff x1, 🖆 x 2) (Monochrome Scanner Unit)

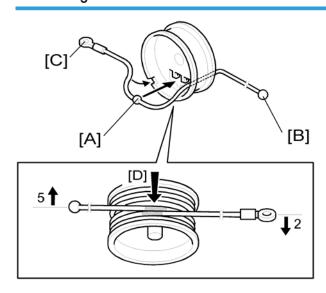
-or-

Exposure lamp stabilizer [1] (  $\mathscr{F} \times 2$ ,  $\boxtimes \times 2$ ) (Color Scanner Unit)



- 1. Exposure glass ( Exposure Glass)
- 2. Front frame ( Exposure Lamp)
- 3. Front scanner wire clamp [A]
- 4. Front scanner wire bracket [B] ( $\mathscr{F} \times 1$ )
- 5. Front scanner wire and scanner drive pulley [C] (  $\ensuremath{\widehat{\mathcal{E}}}\xspace^2$  x 1)

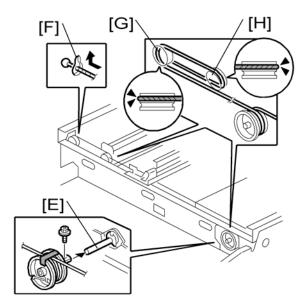
### Reinstalling the Front Scanner Wire



- 1. Position the center ball [A] in the middle of the forked holder.
- 2. Pass the right end (with the ball) [B] through the square hole. Pass the left end (with the ring) [C] through the notch.
- 3. Wind the right end counterclockwise (shown from the machine's front) five times. Wind the left end clockwise twice.



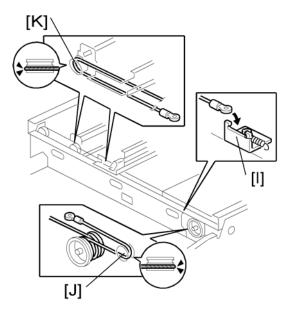
• The two red marks [D] come together when you have done this. Stick the wire to the pulley with tape. This lets you easily handle the assembly at the time of installation.



4. Install the drive pulley on the shaft [E].



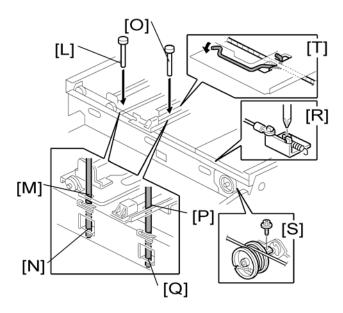
- Do not attach the pulley to the shaft with the screw at this time.
- 5. Insert the left end into the slit [F]. The end should go via the rear track of the left pulley [G] and the rear track of the movable pulley [H].



6. Hook the right end onto the front scanner wire bracket [I]. The end should go via the front track of the right pulley [J] and the front track of the movable pulley [K].



• Do not attach the scanner wire bracket with the screw at this time.



7. Remove the tape from the drive pulley.

- 8. Insert a scanner-positioning pin [L] through the 2nd carriage hole [M] and the left holes [N] in the front rail. Insert another scanner positioning pin [O] through the 1st carriage hole [P] and the right holes in the front rail [Q].
- 9. Insert two more scanner positioning pins through the holes in the rear rail.
- 10. Screw the drive pulley to the shaft [R].
- 11. Screw the scanner wire bracket to the front rail [S].
- 12. Install the scanner wire clamp [T].
- 13. Pull out the positioning pins.

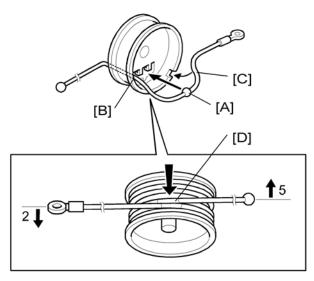


 Make sure the 1st and 2nd carriages move smoothly after you remove the positioning pins. Do steps 8 through 13 again if they do not.

After you replace a scanner wire, do the Copy Adjustments: Printing/Scanning

#### **Rear Scanner Wire**

#### Reinstalling the Rear Scanner Wire



d017r164a

- 1. Position the center ball [A] in the middle of the forked holder.
- 2. Pass the left end (with the ball) [B] through the drive pulley notch.
- 3. Pass the right end (with the ring) [C] through the drive pulley notch.
- 4. Wind the left end [B] clockwise (from the machine front) five times.
- 5. Wind the right end [C] counterclockwise twice.



- The two red marks [D] come together after winding. Attach the wire to the pulley with tape. This lets you easily handle the assembly at installation.
- 6. Install the drive pulley on the shaft.



- Do not attach the pulley on the shaft with the screw at this time.
- 7. Install the wire.



- The winding of the wire on the three pulleys at the rear of the scanner should be the same as the winding on the three pulleys at the front. This must show as a mirror image.
- At the front of the machine, the side of the drive pulley with the two windings must face the front
  of the machine.
- At the rear of the machine, it must face the rear.

After you replace a scanner wire, do the Copy Adjustments: Printing/Scanning

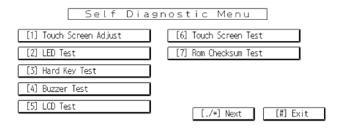
#### **Touch Panel Position Adjustment**

The touch panel must be recalibrated if it is not functioning correctly or after replacing these items:

- Operation panel
- Controller board

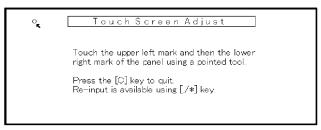
Do not use items [2] to [9] on the Self-Diagnostic Menu. These items are for design use only.

1. Press [Clear], press [1] [9] [9] [3], press 🗐 5 times to open the Self-Diagnostics menu.



b178r548a

- 2. On the touch screen press Touch Screen Adjust (or press [1]).
- 3. Use a pointed (not sharp) tool to press the upper left mark  ${}^{\mathbf{O}}_{\mathbf{K}}$ .



b178r549

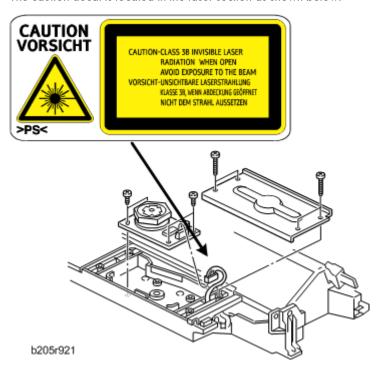
- 4. Press the lower right mark when on shows.
- 5. Touch a few spots on the touch panel to make sure that the marker + shows exactly where the screen is touched.
- 6. Press Cancel. Then start from Step 2 again if the + mark does not show where the screen is touched.
- 7. Press [#] OK on the screen (or press [#]) when you are finished.
- 8. Touch [#] Exit on the screen to close the Self-Diagnostic menu. Save the calibration settings.

### **MARNING**

• Turn off the main power switch and disconnect the power cord before you start any of the procedures in this section. Laser beams can seriously damage your eyes.

#### **Caution Decal Locations**

The caution decal is located in the laser section as shown below.

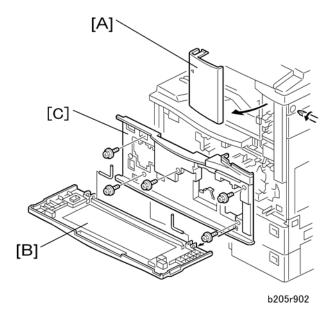


#### Laser Unit

## **MARNING**

• Turn off the main power switch and disconnect the power cord before you start this procedure in this section. Laser beams can seriously damage your eyes.

3

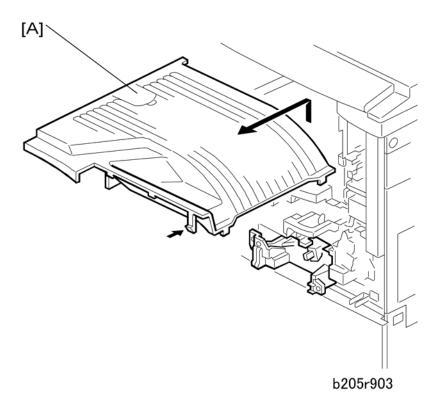


#### 1. Remove:

- 500-Sheet finisher
- Bridge unit
- Optional shift tray (or 1-Bin tray)

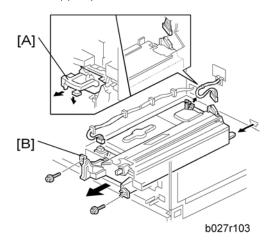
#### 2. Remove:

- [A] Upper front cover ( $\hat{\mathscr{E}}$  x1, Hook x1)
- [B] Front cover (Pins x2)
- [C] Inner cover ( \$\hat{k}^2 x5)



#### 3. Remove:

[A] Copy tray (Hook x1)

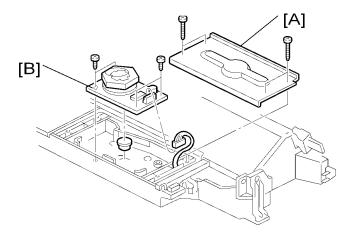


#### 1. Remove:

- [A] Toner bottle
- [B] Laser unit (♠ x2, 🗐 x2)

## **Polygon Mirror Motor**

1. Remove the laser unit (see 'Laser Unit').



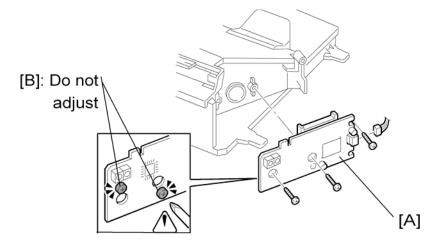
- 2. Remove the heat sink [A] ( $\mathscr{F}$  x4).



• When you install the new polygon mirror motor, do not touch the surface of the mirror with bare hands. After replacement, do the Copy Adjustments: Printing/Scanning

#### LD Unit

1. Remove the laser unit (see 'Laser Unit').



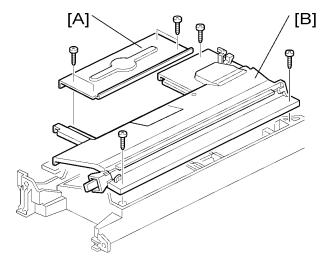
2. Replace the LD unit [A] ( $\hat{F} \times 3$ ,  $\Rightarrow x = 1$ ).



- Do not remove the screws [B].
- Do not touch any variable resistors on the LD unit.

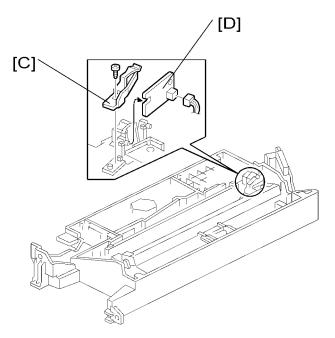
## Laser Synchronization Detector

1. Remove the laser unit (see 'Laser Unit').



- 2. Remove the heat sink [A] ( $\mathscr{F}$  x4).
- 3. Remove the laser unit cover [B] ( 🛱 x3).

9

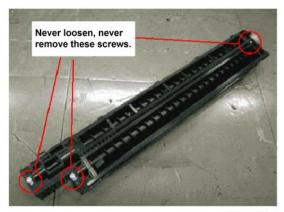


- 4. Remove the bracket [C] (\$\hat{k}^2 x 1).
- 5. Replace the laser synchronization detector [D] (  $\hat{\mathscr{F}}$  x1).

# Photoconductor Unit (PCU)

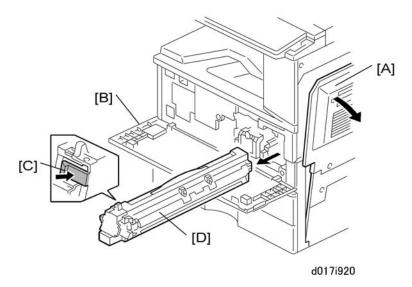
### **ACAUTION**

Turn off the main power switch and disconnect the power cord before you start any of the procedures
in this section. To prevent toner leakage, never loosen or remove the screws shown in the illustration
below.



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#### **PCU Removal**

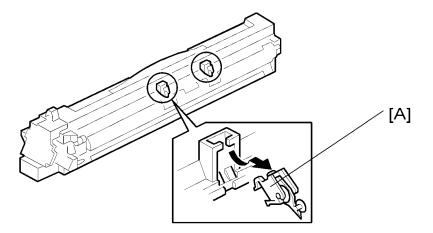


- 1. Open the right cover [A] and front cover [B].
- 2. Pull the PCU [C] out a small distance while you push the release lever [D], then remove the PCU.



• Do not touch the drum surface with bare hands.

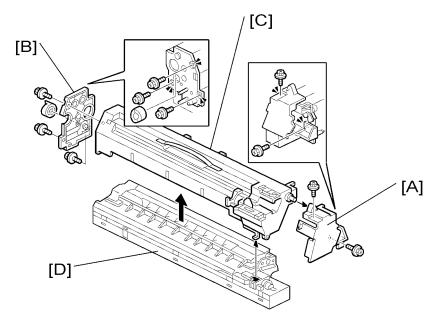
## Pick-off Pawls



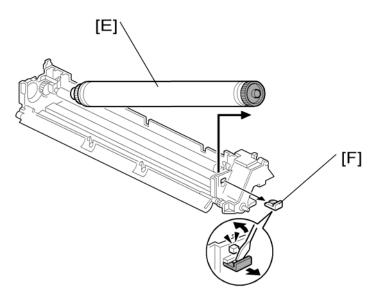
- 1. Remove the PCU. (See 'PCU Removal'.)
- 2. Hold the pawl [A] by its sides, pull it down and slowly twist it away from the PCU.

#### **OPC Drum**

1. Remove the PCU. (See 'PCU Removal'.)



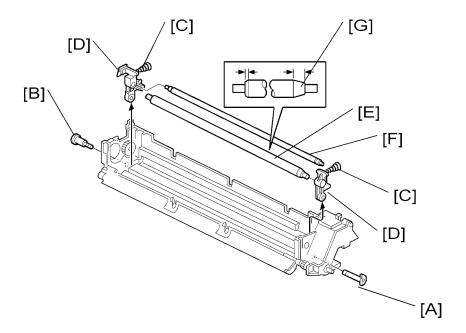
- 2. Front cover [A] (\$\hat{\beta}\$ x2)
- 3. Rear cover [B] ( \$\hat{\beta} x3, Coupling x1)
- 4. Top part [C]
- 5. Bottom part [D]



6. Drum [E] (White clip x1 [F])

### Charge Roller, Cleaning Roller

- 1. Remove the PCU. (See 'PCU Removal'.)
- 2. Remove the OPC drum. (See 'OPC Drum'.)



- 3. Front stud [A]
- 4. Rear shoulder screw [B] ( F x 1)
- 5. Release the front and rear springs [C].
- 6. Remove the roller assembly [D] (Springs x2, Arms x2, Rollers x2)
- 7. Charge roller [E]
- 8. Cleaning roller [F]

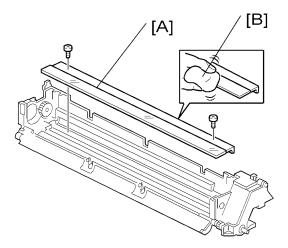
#### Re-installation: Charge Roller

- Put the end of the charge roller with the wide bevel [G] at the front of the PCU.
- The ends of the cleaning roller [F] are the same (put either end at the front).
- Make sure that the front stud of the roller assembly is put in the correct position.
- Install the front stud before you tighten the rear shoulder screw. Make sure that the head of the stud is put in the correct position.

# Cleaning Blade

1. Remove the PCU. (See 'PCU Removal'.)

- 2. Remove the OPC drum. (See 'OPC Drum'.)
- 3. Remove the charge roller and cleaning roller. (See 'Charge Roller, Cleaning Roller').



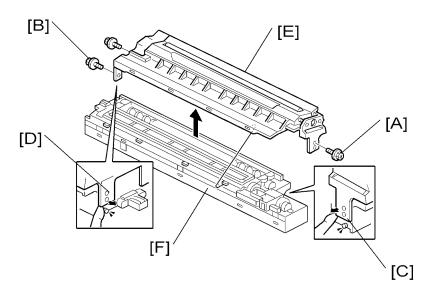
4. Cleaning blade [A] ( \$\hat{\mathcal{E}} \times x2 )

#### Reinstallation: Cleaning Blade

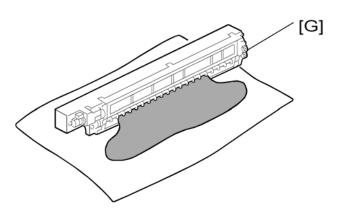
- To prevent damage to the new cleaning blade and OPC drum, apply some toner to the edge of the new blade [B].
- Install the new blade. Remove some toner from the edge of the old blade with your finger, and apply it evenly along the full length of the new blade.

### Developer

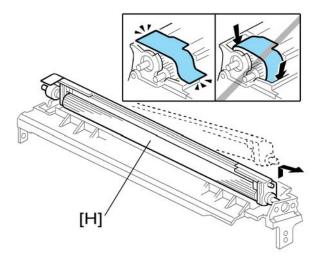
- 1. Spread the vinyl sheet provided with the developer kit on a flat surface.
- 2. Separate the top and bottom parts of the PCU. (See 'Charge Roller, Cleaning Roller').
- 3. Set the bottom on the vinyl sheet.



- 4. Remove the front screw [A] ( $\hat{F} \times 1$ )
- 5. Remove the rear screws [B] ( $\hat{\mathcal{E}}$  x2).
- 6. Release the front tab [C].
- 7. Release the rear tab [D].
- 8. Separate the top [E] and bottom [F] of the development unit.



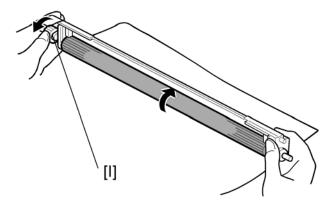
9. Turn the gears [G] to remove the developer from the bottom half.



10. Remove the development roller [H] from the development unit.



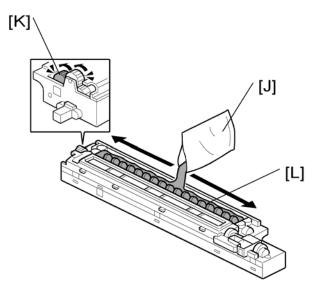
• At reinstallation, make sure that the mylar is positioned as shown.



- 11. Turn the development roller gear [1] to remove toner from around the development roller.
- 12. Assemble the development unit.



• Dispose of the used developer according to the local laws and regulations regarding the disposal of such items.



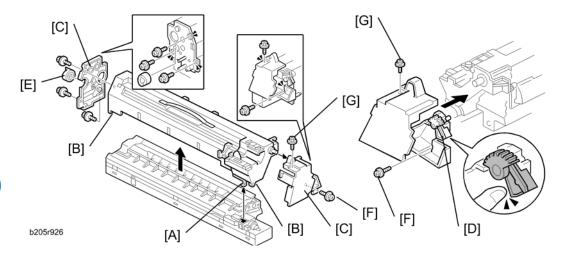
- 13. Open the developer pack [J]
- 14. While turning the black gear [K], slowly move the pack left and right and pour half of the developer over the auger [L].
- 15. Continue to rotate the black gear until the developer is level.
- 16. While continuing to turn the black gear, slowly move the pack left and right and pour the remaining half of the developer over the augur until the developer is level.



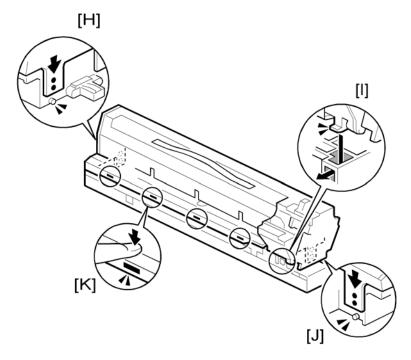
- Be careful. Do not spill developer on the gears or sponges.
- If you accidentally spill developer on the gears or sponges, remove it with a magnet or the tip of a magnetized screwdriver.

#### **PCU Reassembly**

Reassemble the PCU in this order:



- 1. Connect the pawl [A]
- 2. Frame pawls [B], front and rear
- 3. Set the rear cover and front cover [C]
  - Never touch the lever [D] until after the top screw has been fastened.
- 4. Screws ( x3), coupling x1 [E]
  - Never press down on the top of the PCU when you reattach the rear or front cover.
- 5. Lower screw ( \$\hat{F} \times 1 ) [F]
  - Always install the lower screw first to maintain the correct gap between the rollers.
- 6. Top screw ( x1) [G]
  - Lift and lower the lever [D] to make sure that the shutter opens fully and operates smoothly.



- 7. Make sure that all of the holes and tabs on are engaged at [H], [I], [J], and [K]. Then push down to lock the tabs on the front and rear end of the PCU.
- 8. Make sure that the holes for the screws on the front and rear end of the PCU are aligned correctly. If the holes are not aligned correctly, make sure that the tabs at the front, rear, and left side of the PCU are engaged correctly.

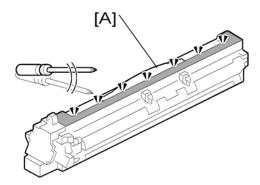
# After Replacement of PCU Components

Do this procedure after you replace the PCU components and developer.

- 1. Assemble the PCU and install it in the machine.
- 2. Turn the machine on.
- 3. If you replaced developer, go into the SP mode and do SP2801 (Developer Initialization).
- 4. Make 5 sample copies.
- 5. Check the copies.
  - If the copies are clean (no black dots), the replacement is completed.

-or-

- If you see black dots of toner that fell on the copies, go to the next step.
- 6. Remove the PCU from the machine.



- 7. Lightly tap the top of the PCU [A] with a screwdriver at 8 locations. These locations must be at equal intervals. Tap 2 or 3 times at each location, to make the toner fall into the development section.
- 8. Install the PCU in the machine.
- 9. Turn the machine on, and close the front door. After the machine turns the development roller for 10 seconds, go to the next step.
- 10. Open and close the door two more times. The total rotation time is 30 seconds.
- 11. If you replaced PCU components:
  - If A4/8½" x11" paper is installed, make 4 copies or prints.
  - If A3/11" x 17" paper is installed, make 2 copies or prints.
  - To make solid black prints, use SP2902 Pattern #8.



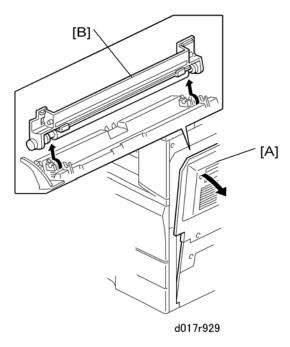
• This step is not necessary if only the developer was replaced.

# **Transfer Unit**

### **ACAUTION**

• Turn off the main power switch and disconnect the power cord before you start any of the procedures in this section.

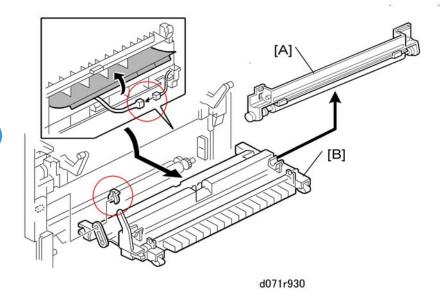
### Transfer Roller Unit



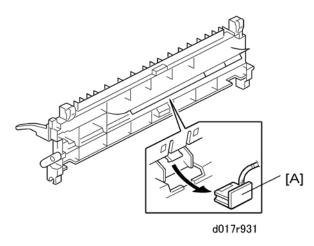
- 1. Open the right cover [A].
- 2. Remove the transfer roller unit [B] (Hook x1).



• Do not touch the transfer roller surface.



- 1. Open the right cover.
- 2. Remove:
  - [A] Transfer roller
  - [B] Roller guide (⟨⟨⟨⟩ x1, 🖫 x1)



- 3. Remove:
  - [A] Image density sensor (🗐 x1).
- 4. Initialize the new sensor with SP2935.

# Fusing/Exit

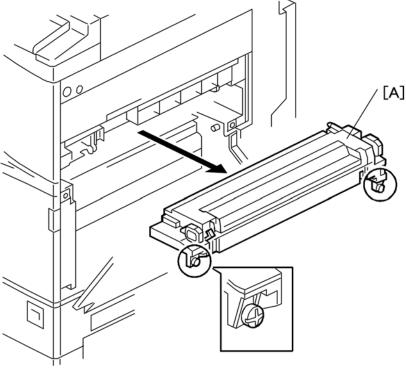
### **ACAUTION**

• Turn off the main power switch and disconnect the power cord before you start any of the procedures in this section.

### **Fusing Unit**

### **ACAUTION**

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

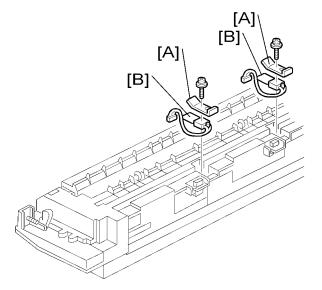


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- 1. Release the duplex unit, if it has been installed, and open the right cover.
- 2. Remove the fusing unit [A] ( Fx2).

### **Thermistors**

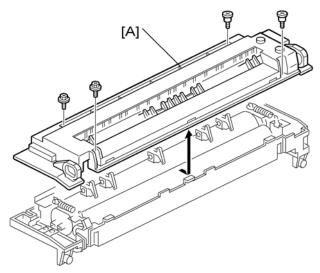
1. Remove the fusing unit. (See 'Fusing Unit'.)



- 2. Remove the plates [A] ( $\hat{\mathcal{E}}$  x1 each).
- 3. Replace the thermistors [B] ( $\mathbb{Z}^{2} \times 1$ ).

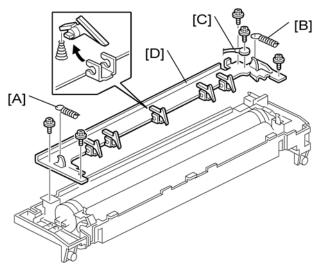
### **Thermostats**

1. Remove the fusing unit. (See 'Fusing Unit'.)



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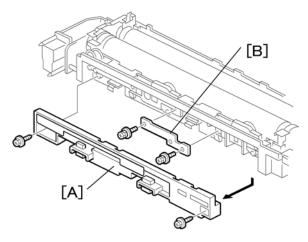
2. Remove the fusing upper cover [A] (  $\mbox{\ensuremath{\beta}}\mbox{ x4}$  ).



d017r504

### 3. Remove:

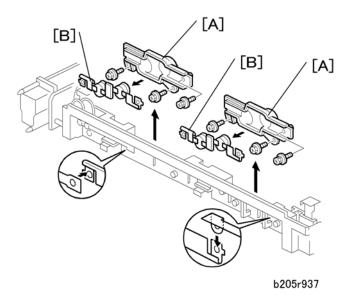
- [A] Pressure spring
- [B] Pressure spring
- [C] Ground wire (Fx1)
- [D] Hot roller stripper bracket ( \*x4).



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### 4. Remove:

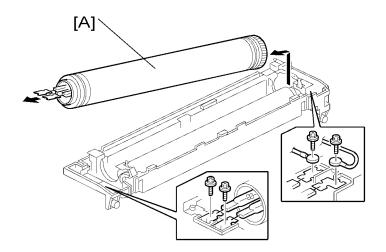
- [A] Thermostat cover (Tap  $\mbox{\ensuremath{\ensuremath{\widehat{\mathcal{F}}}}}\xspace x2).$
- [B] Plate ( Fx2 , spring washers).



- 5. Remove:
  - [A] Thermostat holders x2 (🛱 x3 each.).
  - [B] Thermostats x4

# Hot Roller and Fusing Lamps

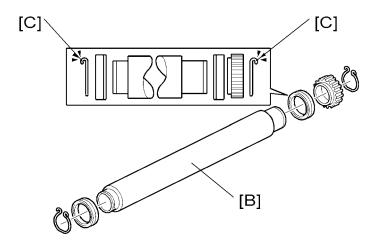
- 1. Remove the fusing unit. (See 'Fusing Unit'.)
- 2. Remove these parts: (see 'Thermostats').
  - Fusing upper cover.
  - Pressure springs.
  - Hot roller stripper bracket.



3. Remove the fusing lamps ( $\mathscr{F}$  x4) and hot roller assembly [A].

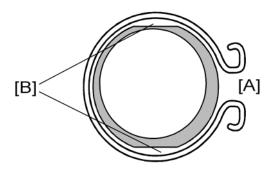


• Do not touch the surface of the fusing lamp with bare hands.

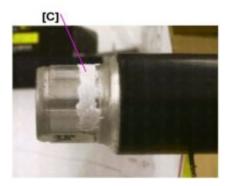


- 4. Replace the hot roller [B] (C-rings x2, Gear x1, Bushings x2).
  - When you reattach the C-rings, the flat sides must face the bearing/roller. (The little hooks [C] must face away from the bearing/roller).

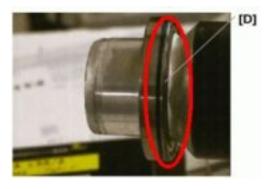
#### Reinstallation



1. At the rear (gear-side), attach the C-ring so that the opening [A] is 90 degrees from the D-cut sections [B] of the fusing roller.



2. Apply enough grease at [C] so the metal surface is not visible.



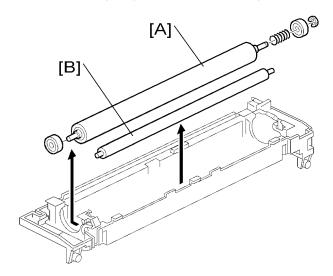
3. The grease should be visible after reattaching the bushing [D].

# Mportant !

- Before you install the new hot roller, peel off 3 cm (1 inch) from both ends of the protective sheet on the new roller.
- Do not touch the surface of the rollers.
- When reinstalling the fusing lamp, secure the front screws first.
- Be careful not to damage the surface of the hot roller.

# **Pressure Roller/Cleaning Roller**

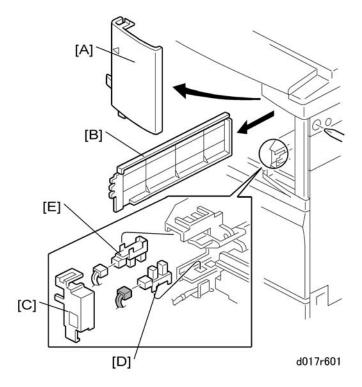
1. Remove the fusing lamp and hot roller assembly. (See 'Hot Roller and Fusing Lamp'.)



- 2. Replace the pressure roller [A] ( $\mathbb{C}$  x1, Bushings x2, Spring x1).
- 3. Replace the cleaning roller [B].



- Apply grease (Barrierta) to the inner surface of the bushing for the pressure roller.
- Do not touch the surface of the rollers.



- 1. Remove the front upper cover [A] (  $\mathscr{F}$  x1, Peg x1).
- 2. Remove the exit cover [B].



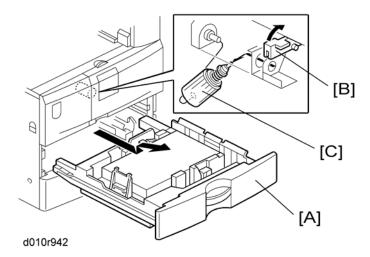
- If the optional one-bin tray unit and/or interchange unit have been installed, remove them.
- 3. Remove the cover [C].
- 4. Replace the exit sensor [D] (□ x1).
- 5. Replace the overflow sensor [E] ( x1).

# **Paper Feed**

### **ACAUTION**

• Turn off the main power switch and disconnect the power cord before you start any of the procedures in this section.

# Feed Roller: Tray 1

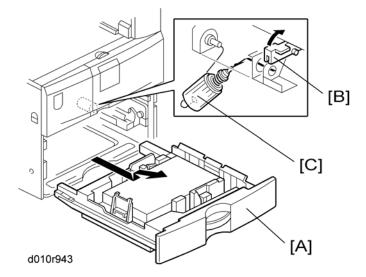


- 1. Pull out the paper tray 1 [A].
- 2. Pull up the stopper [B].
- 3. Paper feed roller [C]



- Do not touch the roller surface with bare hands.
- After reinstalling the feed roller, reset [B] to its former position.

# Feed Roller: Tray 2

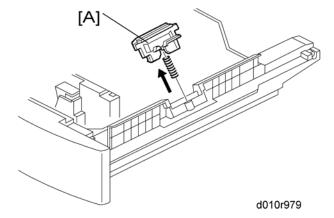


- 1. Pull out the paper tray 1 and 2 [A].
- 2. Pull up the stopper [B].
- 3. Paper feed roller [C]



- Do not touch the roller surface with bare hands.
- After reinstalling the feed roller, reset the stopper [B].

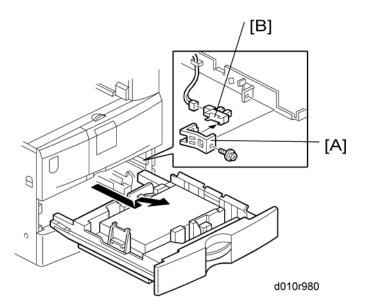
### **Friction Pad**



1. Pull out the paper tray.

2. Friction pad [A] (spring x 1)

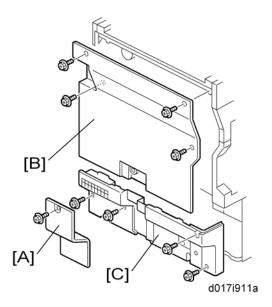
# Paper End Sensor



- 1. Paper cassette
- 2. Bracket [A] (♠ x 1, 🕮 x 1)
- 3. Paper end sensor [B] (Hook x1)

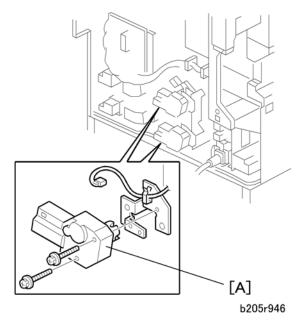
# Paper Tray Lift Motors

1. Remove the paper tray.



#### 2. Remove:

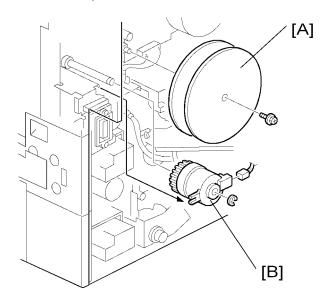
- [A] Connector cover (  $\ensuremath{\widehat{\not}\!\!\!/} x1$  ) and disconnect the cable.
- [B] Rear cover ( 🛱 x4).
- [C] Lower rear cover ( $\mathsection x4$ ).



3. Replace the paper lift motors [A] (  $\mbox{\ensuremath{\ensuremath{\wp}}}$  x2 each,  $\mbox{\ensuremath{\ensuremath{\wp}}}$  x1 each).

# Registration Clutch

- 1. Remove the connector cover and the rear cover. (See 'Paper Tray Lift Motors'.)
- 2. Remove the duplex connector cover and lower rear cover. (See 'Paper Tray Lift Motors'.)

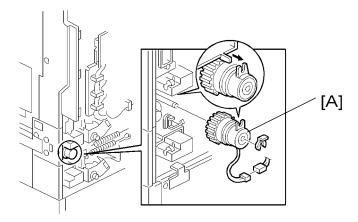


- 3. Remove the fly wheels [A] ( $\mathscr{F}$  x1).
- 4. Remove the registration clutch [B] (ℂ x1, ♥ x1).

# **Paper Feed Clutches**

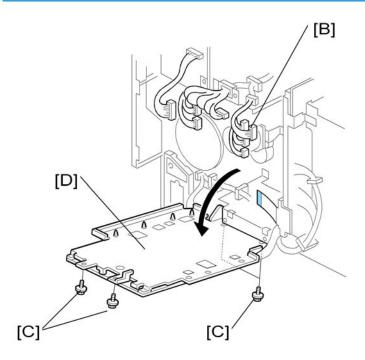
#### Lower Paper Feed Clutch

- 1. Remove the rear cover.
- 2. Remove the lower rear cover.

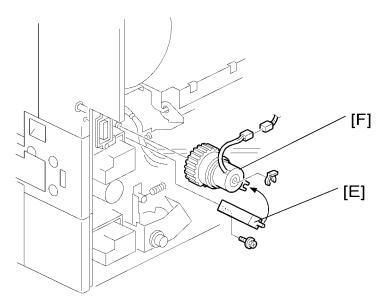


3. Replace the lower paper feed clutch [A] ( $\langle \! \rangle \! \rangle \times 1$ ,  $\square \! \! \square \! \! \square \times 1$ ).

# **Upper Paper Feed Clutch**



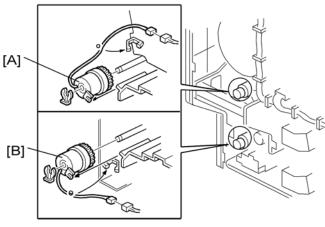
- 1. Disconnect the connectors [B] for the BCU board as shown ( $\mathbb{Z}^{\parallel}$  x15).
- 2. Remove 4 screws [C] securing the BCU board bracket then swing down the BCU board bracket [D].



- 3. Remove the bracket [E] ( $\mathscr{F} \times 1$ ).
- 4. Replace the upper paper feed clutch [F] ( $\otimes$  x 1, > x 1).

# **Relay Clutches**

- 1. Remove:
  - Rear connector cover ( 🛱 x 1 )
  - Rear cover ( 🛱 x4)
  - Lower rear cover (\$\hat{\epsilon} x4)



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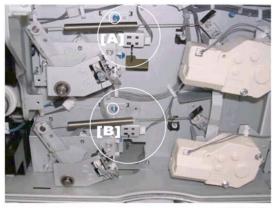
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#### 1. Remove:

[A] Upper relay clutch (∅ x1, ଢ଼ x1, ⋷ x1)

[B] Lower relay clutch (∅ x1, ♀ x1, ♀ x1)

# **Upper/Lower Paper Size Sensors**



d017r952

- 1. Pull out the paper tray 1 and/or 2.
- 2. Remove:
  - Relay connector cover (⋛ x1, 🗐 x1)
  - Rear upper cover ( \$\beta x4)
  - Rear lower cover ( \*x4)
- 3. Remove:

[A] Tray 1 paper size sensor bracket ( $\hat{\mathbb{F}}$  x 1)

• Tray paper size sensor ( x 1, Pawls x4)

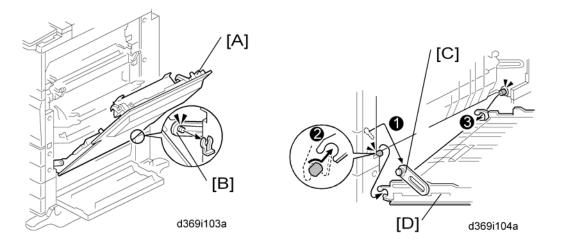
-or-

[B] Tray 1 paper size sensor bracket ( 🛱 x 1)

• Tray paper size sensor ( x 1, Pawls x4)

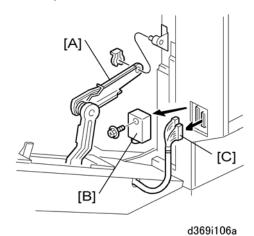
## **Registration Sensor**

1. Open the right cover of the optional paper tray unit or LCT.

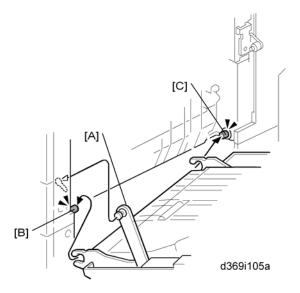


- 1. Open the right cover [A].
- 2. Release the rear link [B] from the right cover ( $\langle \overline{\langle} \rangle \times 1$ ).
- 3. Release the front link [C] from the mainframe.
- 4. Remove the right cover [D].

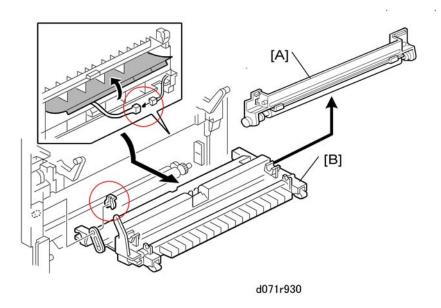
#### If the duplex unit is installed:



- 1. Disconnect the right hinge [A] ( $\langle\!\!\langle \rangle\!\!\rangle$  x1)
- 2. Remove the connector cap [B] ( $\mathscr{F}$  x1).
- 3. Disconnect the duplex unit harness [C] ( $\mathbb{Z}^{2} \times 1$ ).

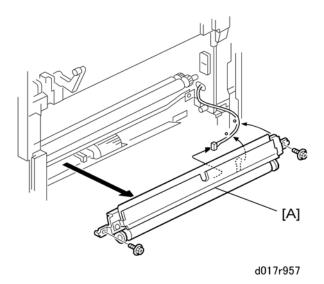


4. Disconnect the arm [A], then disconnect the snap hinges [B] and [C].

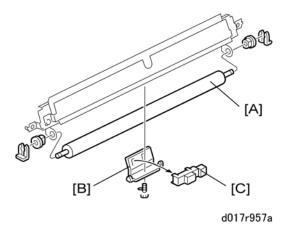


#### 5. Remove:

- [A] Transfer roller
- [B] Transfer roller guide (⟨⟨⟨⟩ x1, □⟨ x1)



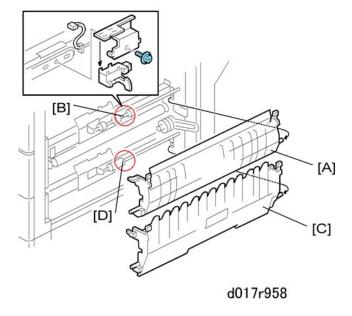
1. Remove the guide plate [A] (  $\mathscr{E}$  x2,  $\overset{\smile}{\hookrightarrow}$  x2,  $\overset{\smile}{\Longrightarrow}$  x1)



### 1. Remove:

- [A] Registration roller ( ${\color{red} \overline{\diamondsuit}}$  x2, Bushings x2)
- [B] Registration sensor bracket ( 🛱 x 1 )
- [C] Registration sensor (Pawls x4)

# Upper, Lower Relay Sensors



#### 1. Remove:

• Right cover

-or-

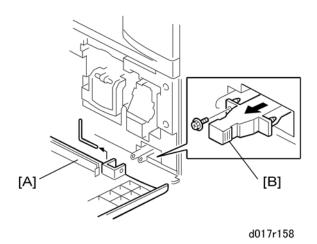
• Duplex unit if it is installed (See the previous section)

#### 2. Remove:

- [A] Upper cover
- [B] Upper relay sensor (Bracket €x1, 🗐 x1, Pawls x4)
- [C] Lower cover
- [D] Lower relay sensor (Bracket 🖗 x 1, 🗐 x 1, Pawls x 4)

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# **Dust Collection Bin**



- 1. Remove:
  - [A] Front door (L-brackets x2)
  - [B] Dust collection bin (\$\hat{g}^2 x 1)
- 2. Tap the dust collection bin above a sheet of paper, to remove the paper dust.
- 3. Use a dry cloth to clean the inside of the dust collection bin.

# PCBs and Other Items

### **CAUTION**

Turn off the main power switch and disconnect the power cord before you start any of the procedures
in this section.

#### Controller Board



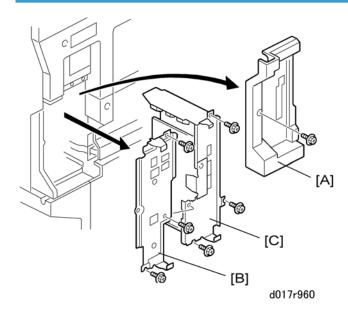
If you intend to replace the NVRAMs, upload their contents to an SD card with SP5824 before you
remove them and replace them with new ones. Never remove the NVRAMs until after you have
uploaded their contents.

#### Before replacing the controller board in the model without HDD

When you replace the controller board in a model without a HDD, address book data can be copied from an old controller board to a new controller board using an SD card.

Copy the address book data to an SD card from the flash ROM on the controller board with SP5846-051 if possible.

#### Replacement Procedure

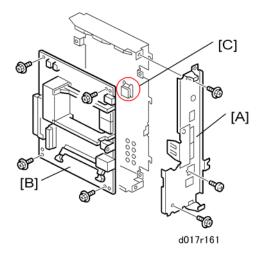


1. Remove:

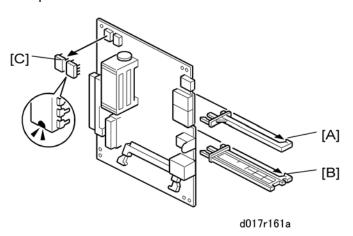
- [A] Controller plastic cover (F x1)
- [B] FCU faceplate (\$\hat{k}^2 x3)
- [C] Controller board unit (F x3)

### 

Before touching the controller board, always touch a metal surface to discharge any static that
has accumulated on your hands.



- 2. Remove:
  - [A] Faceplate ( 🛱 x3)
  - [B] Controller board ( 🛱 x4)
  - - Make sure that the thermal conductive sheet [C] is attached to the bracket after replacement of this procedure.



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- 3. Remove:
  - [A] Upper brace
  - [B] Lower brace
  - [C] NVRAM x2
- 4. Remove the NVRAMs from the old board and install them on the new board.



- The NVRAM chips must always be replaced as a pair.
- 5. If you have replaced the controller board, set the DIP switches on the new controller board to the same settings as the old board.

#### After installing the controller board

- For a model without a HDD, do SP5846-052 to copy back the address book to the flash ROM on the controller board from the SD card to which you have already copied the address book data if possible.
- 2. For a model in which the HDD encryption unit has been installed, restoring the encryption key is required. Refer to "Recovery from a Device Problem" in the installation procedure for "HDD Encryption Unit"
- 3. Turn the main power switch off/on.

#### **NVRAM**

- 1. Do SP5990 001 to print the SMC report.
- See General RTB 32 for new information on NVRAM uploading and downloading.

- 2. Turn off the main switch.
- 3. Remove the controller board cover ( $\mathscr{F} \times 1$ ).
- 4. Put the SD card in SD card slot C3.
- 5. Turn on the main switch.
- 6. Do SP5824.
- 7. Touch "Execute" to start to upload the NVRAM data.
- 8. Turn off the main switch and remove the SD card.
- 9. Remove the controller board ( x1). (See 'Controller Board')
- 10. Remove the NVRAM (x2) and replace them with the new chips. (See 'Controller Board')



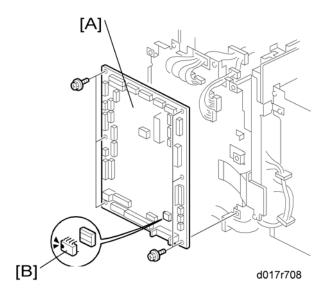
- Both NVRAM chips must be replaced.
- 11. Install the controller board.

- 12. Put the SD card with the NVRAM data in SD card slot C3.
- 13. Turn on the machine.
- 14. Do SP5801 to initialize the new NVRAM.
- 15. To download the NVRAM data from the SD card in C3, do SP5825.
- 16. Touch "Execute" to start to download the NVRAM data.
- 17. Turn off the main switch and remove the SD card.
- 18. Turn on the machine.
- 19. Do SP5990 001 to print another SMC report.
- 20. Compare this new SMC report with the report you printed in Step 1. If any of the SP settings are different, input the SP settings of the first report.
- 21. Do SP5907 and input the brand and model name of the machine for Windows Plug & Play capability.



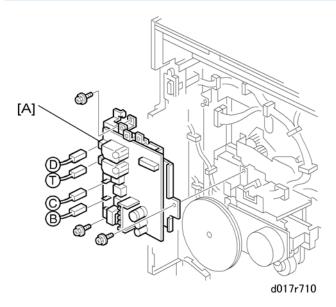
 If the HDD encryption unit has been installed, the HDD encryption unit and encrypted data cannot be recovered. For details, refer to "Recovery from a Device Problem" in the installation procedure of the HDD Encryption Unit.

#### **BCU Board**



- 1. Remove the rear cover. (See 'Paper Tray Lift Motors'.)
- 2. Remove the BCU board [A] ( X All, F x 6).
- 3. Remove the NVRAM [B] from the old board and install it on the new board.

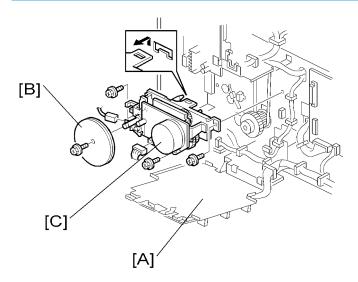
### 5



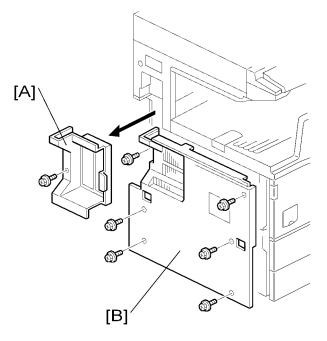
4. Set the DIP switches on the new BCU board to the same settings as the old board.

- 1. Remove the rear cover.
- 2. Swing down the BCU board bracket. (See 'Paper Feed Clutches'.)
- 3. Remove the power pack [A] (  $\mathbb{P}$  x 4,  $\mathbb{P}$  x 3).

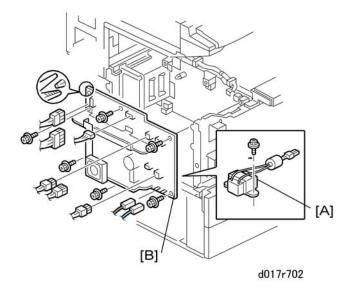
## Main Motor



- 1. Remove the rear cover. (See 'Paper Tray Lift Motors'.)
- 2. Swing down the BCU board bracket [A]. (See 'Paper Feed Clutches'.)
- 3. Remove the flywheels [B] ( $\mathscr{F} \times 1$ ).
- 4. Replace the main motor [C] ( $\mathbb{Z}$  x2,  $\mathscr{F}$  x3).



- 1. Remove the optional finisher if it has been installed.
- 2. Remove the application cover [A] ( $\mathscr{F}$  x1).
- 3. Remove the left cover [B] ( \$\hat{p} \text{ x6}).



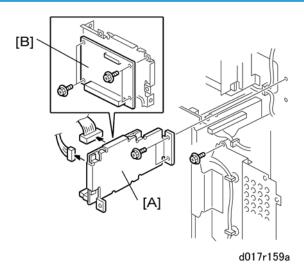
4. Remove:

[A] Transformer ( $\mathscr{F}$  x1) (For the 220 V machine only)

[B] PSU ( $\mathbb{Z}$  x all, x6, Standoff x1).

# SIO

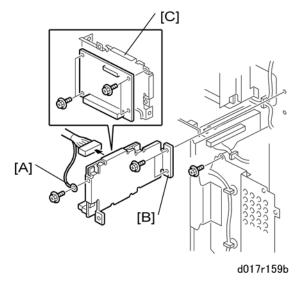
# Monochrome Scanner Unit (D017/D019)



### 1. Remove:

- Rear cover
- [A] SIO bracket (🕏 x3, 🛍 x2)
- [B] SIO board (🛱 x4)

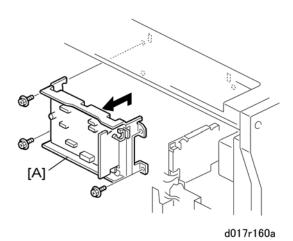
# Color Scanner Unit (D018/D020)



#### 1. Remove:

- Rear cover
- [B] SIO bracket (🛱 x3)
- [C] SIO board ( \$\hat{\epsilon} x4)

# SIU



1. Remove:

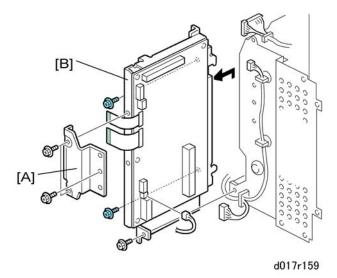
K

• Rear cover

[A] SIU assembly (\$\hat{\noting} x4, \quad \quad x7)

# IPU

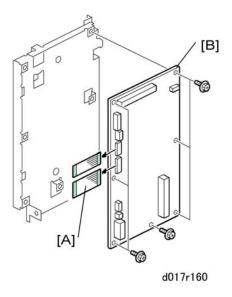
- 1. Remove:
  - Rear cover
  - Controller unit
  - SIO



2. Remove:

[A] FFC cover ( 🛱 x2)

[B] IPU (⋛ x3, 🗐 x4, FFC x2)



3. Remove:

[A] FFC x2

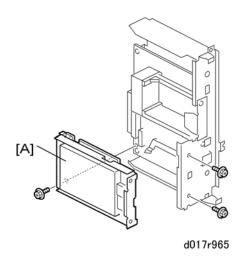
[B] IPU (⋛ x7)

#### **HDD**

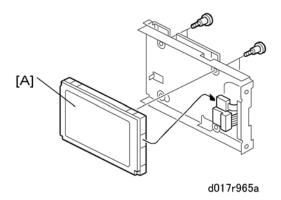
- 1. Before you replace the HDD:
  - Insert an SD card in SD card slot 2 (lower slot).
  - Go into the SP mode.
  - Do SP5846 51 to upload the address book data to the SD card.



- If the HDD is damaged, you may not be able to retrieve this data from the HDD.
- 2. Remove the controller board. (See 'Controller Board'.)



3. Remove the HDD and bracket [A] ( \*x1)



- 4. Remove the old HDD [A] from its bracket ( x4, x2).
- 5. Install the new HDD unit.
- 6. Cycle the machine power off/on.
- 7. Format the HDD with SP5832-1.
- 8. Do SP5853 to copy the preset stamp data from the firmware to the hard disk.
- 9. Do SP5846-52 to restore the address book data to the HDD.

### After HDD Replacement:

- Never remove a used HDD unit from the work site (even if it is suspected of being damaged) without the consent of the client.
- The HDD must remain with the customer for disposal or safe keeping.
- The HDD may contain proprietary or classified (Confidential, Secret) information. Specifically, the HDD contains document server documents and data stored in temporary files created automatically

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- during copy job sorting and jam recovery. Such data is stored on the HDD in a special format, so it cannot normally be read but it can possibly be recovered with illegal methods.
- If the customer is using the Data Overwrite Security feature, the DOS function must be set up again after replacing the HDD unit.
- If the customer is using the HDD Encryption Unit, the encryption key must be restored after replacing the HDD unit. For details, see the installation procedure for the HDD Encryption Unit.

## 3

# Copy Adjustments: Printing/Scanning

You must do these adjustment(s) after replacing any of the following parts:

- Scanner Wire
- Lens Block/SBU Assembly
- Scanner Drive Motor
- Polygon Mirror Motor
- Paper Side Fence
- Memory All Clear

For more details about accessing SP modes, see Service Tables.

## **Printing**



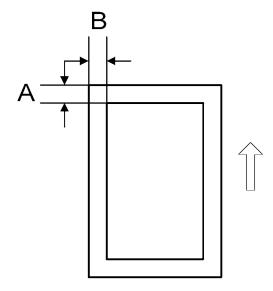
- Make sure the paper is installed correctly in each paper tray before you start these adjustments.
- Use the Trimming Area Pattern (SP2-902, No. 10) to print the test pattern for the following procedures.
- Set SP 2-902 to 0 again after completing these printing adjustments.

#### Registration - Leading Edge/Side-to-Side

- 1. Check the leading edge registration for each paper feed station, and adjust them using SP1-001.
- 2. Check the side-to-side registration for each paper feed station, and adjust them using SP1-002.

Tray	SP mode	Specification
Any paper tray	SP1-001-1	
By-pass feed	SP1-001-2	3 ± 2 mm
Duplex	SP1-001-3	
1st paper feed	SP1-002-1	
2nd paper feed	SP1-002-2	
3rd paper feed (Optional PFU tray 1), or LCT	SP1-002-3	
4th paper feed (Optional PFU tray 2)	SP1-002-4	2 ±1.5 mm

Tray	SP mode	Specification
By-pass feed	SP1-002-5	
Duplex, side 2	SP1-002-6	



- A: Leading Edge Registration
- B: Side-to-side Registration

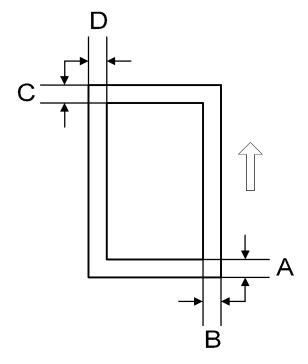
## **Blank Margin**



- If the leading edge/side-to-side registration cannot be adjusted within the specifications, adjust the leading/left side edge blank margin.
- 1. Check the trailing edge and right side edge blank margins, and adjust them using the following SP modes.

	SP mode	Specification
Trailing edge	SP2-101-2/3/4	3 ± 2 mm
Right edge	SP2-101-6	2 +2.5/-1.5 mm
Leading edge	SP2-101-1	3 ± 2 mm
Left edge	SP2-101-5	2 ± 1.5 mm

	SP mode	Specification
Trailing edge (duplex copy, 2nd side)	SP2-101-7	2 ± 2 mm
Left edge (duplex copy, 2nd side)	SP2-101-8	2 ± 1.5 mm
Right edge (duplex copy, 2nd side)	SP2-101-9	2 +2.5/-1.5 mm



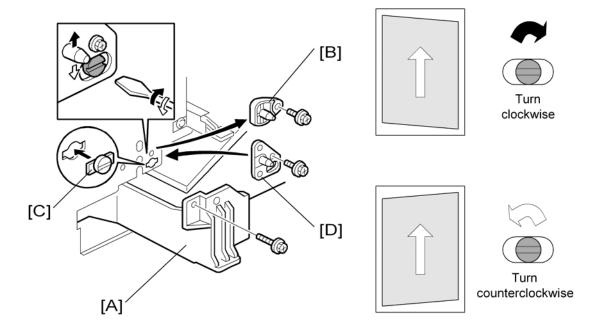
- A: Trailing Edge Blank Margin
- B: Right Edge Blank Margin
- C: Leading Edge Blank Margin
- D: Left Edge Blank Margin

## **Main Scan Magnification**

- 1. Print the single-dot grid pattern (SP2-902, no.5).
- 2. Check the magnification, and adjust the magnification using SP2-909 if necessary. The specification is ± 1%.

## Parallelogram Image Adjustment

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





- The following procedure should be done after adjusting the side-to-side registration for each paper tray station.
- 1. Check whether the trimming area pattern (SP2-902, No.10) is printed as a parallelogram, as shown. If it is, do the following.
- 2. Remove the laser unit [A] (see 'Laser Unit').
- 3. Remove the bracket [B] ( $\mathscr{F}$  x2).
- 4. Install the adjusting cam [C] (P/N: A2309003).
- 5. Secure the adjustment bracket [D] (P/N A2679002) using the screw which was used for bracket [B]. However, do not tighten the screws at this time.
- 6. Adjusts the laser unit position by turning the adjusting cam. (Refer to the above illustration for the relationship between the image and the cam rotation direction).
- 7. Tighten the adjustment bracket.
- 8. Print the trimming area pattern to check the image. If it is still unsatisfactory, repeat steps 4 to 8.

## Scanning

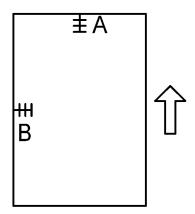


- Before doing the following scanner adjustments, perform or check the printing registration/side-to-side adjustment and the blank margin adjustment.
- Use an S5S test chart to perform the following adjustments.

## Registration: Platen Mode

- 1. Place the test chart on the exposure glass and make a copy from one of the feed stations.
- 2. Check the leading edge and side-to-side registration, and adjust them using the following SP modes if necessary.

	SP mode
Leading Edge	SP4-010
Side-to-side	SP4-011



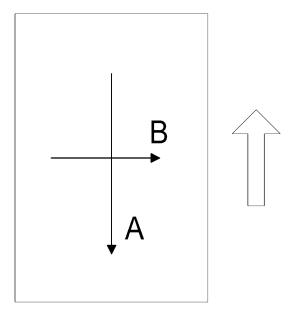
A: Leading Edge Registration

B: Side-to-side Registration

## Magnification



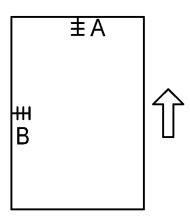
• Use an S5S test chart to do the following adjustment.



- 1. Place the test chart on the exposure glass and make a copy from one of the feed stations.
- 2. Check the magnification ratio. Use SP4-008 (Scanner Sub Scan Magnification) to adjust if necessary. Specification: ±0.9%.

## **ADF Image Adjustment**

## Registration



A: Leading Edge Registration

B: Side-to-side Registration



- Make a temporary test chart as shown above using A3/DLT paper.
- 1. Place the temporary test chart on the ADF and make a copy from one of the feed stations.
- 2. Check the registration, and adjust using the following SP modes if necessary.

	SP mode
Side-to-side Registration	SP6-006-1
Leading Edge Registration (Simplex)	SP6-006-2
Trailing Edge Blank Margin	SP6-006-3

#### **Sub Scan Magnification**



- Make a temporary test chart as shown above using A3/DLT paper.
- 1. Place the temporary test chart on the ADF and make a copy from one of the feed stations.
- 2. Check the magnification, and adjust using the following SP modes if necessary. The specification is ±1%.

	SP mode
Sub scan magnification	SP6-006-5

#### **Touch Screen Calibration**

After clearing the memory, or if the touch panel detection function is not working correctly, follow this procedure to calibrate the touch screen.

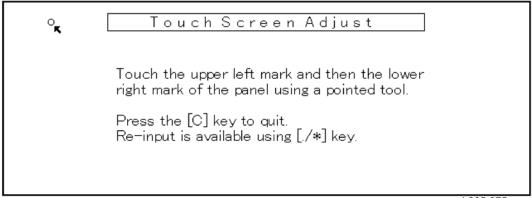


- Do not attempt to use items [2] to [9] on the Self-Diagnostic Menu. These items are for design use only.
- 1. Press 6, input 1993 at the ten-key pad, and then press 6 5 times to open the Self-Diagnostics menu.

Self Diagn	ostic Menu
[1] Touch Screen Adjust	[6] Touch Screen Test
[2] LED Test	[7] Rom Checksum Test
[3] Hard Key Test	
[4] Buzzer Test	
[5] LCD Test	[./*] Next [#] Exit

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2. On the touch screen press "Touch Screen Adjust" (or press 1) on the ten-key pad).



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- 3. Use a pointed (not sharp!) tool to press the mark at the upper left of the screen  $\binom{O_{K}}{K}$ .
- 4. Press the mark at the lower right of the screen (\*0) after it appears.
- 5. Touch a few spots on the touch panel to confirm that the marker (+) appears exactly where the screen is touched.
  - If the + mark does not appear where the screen is touched, press Cancel and repeat from Step 2.
- 6. When you are finished, press [#] OK on the screen (or press [#] on the ten-key pad).
- 7. Touch [#] Exit on the screen to close the Self-Diagnostic menu and save the calibration settings.

# 4. Troubleshooting

# **Service Call Conditions**

### **Summary**

There are 4 levels of service call conditions.

Level	Definition	Reset Procedure
A	To prevent damage to the machine, the main machine cannot be operated until the SC has been reset by a service representative (see the note below).	Enter SP mode, go into SP5810, press [Execute], turn the main power switch off and on.
В	SCs that disable only the features that use the defective item. Although these SCs are not shown to the user under normal conditions, they are displayed on the operation panel only when the defective feature is selected.	Turn the operation switch or main switch off and on.
С	The SC history is updated. The machine can be operated as usual.	The SC will not be displayed. Only the SC history is updated.
D	Turning the main switch off then on resets SCs displayed on the operation panel. These are re-displayed if the error occurs again.	Turn the operation switch off and on.

#### When a Level "D" SC code occurs

When a Level D SC occurs, a screen opens on the operation panel to tell the operator:

- An error occurred
- The job in progress will be erased
- The machine will reboot automatically after approximately 30 seconds.

The operator can wait until the machine reboots automatically or touch "Reset" on the screen to reset the machine immediately and go back to the copy screen.

#### If the operator does not touch "Reset"

The next message tells the operator that the machine will reset automatically and that the previous job was lost and must be started again. After reading the message, the operator touches "Confirm" on the screen. The next screen shows the number and title of the SC code, and stops until the operator turns the machine off and on.

If the operator touches "Reset" to bypass the 30-second interval for the machine to reboot, the machine reboots immediately and the operation panel displays the copy screen.

## Mportant !

Do not try to use the operation panel during an automatic reboot. If the Remote Service System is in
use, the SC code is sent immediately to the Service Center

## **SC Code Descriptions**



- If a problem concerns a circuit board, disconnect and reconnect the connectors and then test the
  machine. Often a loose or disconnected harness is the cause of the problem. Always do this before
  you decide to replace the PCB.
- If a motor lock error occurs, check the mechanical load before you decide to replace the motor or sensors.
- When a Level "A" or "B" SC occurs while in an SP mode, the machine cannot display the SC number.
   If this occurs, check the SC number after leaving the SP mode.
- The machine reboots automatically when the machine issues a Level "D" SC code. This is done for Level "D" SC codes only.

# **ACAUTION**

• Never turn off the main power switch when the power LED is lit or flashing. To avoid damaging the hard disk or memory, press the operation switch to switch the power off, wait for the power LED to go off, and then switch the main power switch off.

# UNote

• The main power LED ( ( ) lights or flashes while the platen cover or ARDF is open, while the main machine is communicating with a fax machine or the network server, or while the machine is accessing the hard disk or memory for reading or writing data.

		Exposure lamp error 1
101-1	D	The standard white level could not be set properly when scanning the white plate during automatic white level adjustment.
		White plate dirty
		Spurious electrical noise on power supply line
		Exposure lamp connection loose, broken, defective
		Exposure lamp defective

4

Lamp stabilizer connection, loose, broken, defective
Lamp stabilizer defective
High voltage power supply harness loose, broken, defective
SBU defective
BCU defective
SIO defective

101-2	D	Exposure lamp error 1
101-2		The standard white level setting dropped below the specified range during scanning.
		White plate dirty
		Spurious electrical noise on power supply line
		Exposure lamp connection loose, broken, defective
		Exposure lamp defective
		Lamp stabilizer connection, loose, broken, defective
		Lamp stabilizer defective
		High voltage power supply harness loose, broken, defective
		SBU defective
		BCU defective
		SIO defective

120	D	Scanner home position error 1
120		The scanner HP sensor did not turn off during scanner initialization or copying.
121	D	Scanner home position error 1
121		The scanner HP sensor did not turn on during scanner initialization or copying.
		Scanner motor harness loose, broken, defective at scanner motor or at BCU
		Scanner HP sensor harness, loose, broken, defective at HP sensor or at BCU
		Scanner motor or motor driver board defective
		Scanner motor drive board defective
		Scanner HP sensor defective
		BCU defective

		Black level correction error	Harnesses at the SBU, IPU, BCU loose, broken, defective.
141	D	Black level correction could not be set properly during automatic adjustment.	<ul><li>SBU defective</li><li>IPU defective</li><li>BCU defective</li></ul>

142		D	White level correction error
142		White level correction could not be set properly during automatic adjustment.	
		Harnesses at SBU, IPU, BCU loose, broken, defective	
		Spurious electrical noise on power supply line	
		White plate dirty or missing	
	Anti-condensation heater (option) in scanner unit not operating		
	Exposure lamp harness, loose, broken, defective		
		Exposure lamp defective	
	Lamp stabilizer harness loose, broken, defective		
		Lamp stabilizer defective	
		SBU defective	
	IPU defective		
		BCU defective	
		SIO Defective	

1.40	С	SBU auto adjust error	
143		The machine could not acquire the white or black peak level setting at power on.	
	<ul> <li>Exposure lamp, lamp stabilizer harness connection loose, broken, defective</li> <li>Exposure lamp defective</li> </ul>		
	<ul> <li>Lamp stabilizer defective</li> <li>Spurious electrical noise on power supply line</li> <li>White plate dirty or missing</li> <li>Anti-condensation heater (option) in scanner unit not operating</li> <li>Harness connection at SBU, iPU, BCU, SIO, loose, broken, defective</li> <li>SBU defective</li> </ul>		
		IPU defective	

BCU defective
SIO Defective

#### RTB 33 SC 144

144-1	D	SBU connection error	
		Connection to the SBU could not be confirmed, possibly due to a defect in the BCU detection board	
1.44.0	D	SBU serial communication error	
144-2		Poor SBU power supply caused by SIO, or BCU detection board defective.	
144-3	D	SBU GASBU reset error	
		SBU defective, BCU detection circuit defective.	
1.4.4.4	_	SBU version error	
144-4	D	SBU defective, BCU detection circuit defective.	
		Harness connection at IPU, BCU, SBU loose, broken, defective.	
		Spurious electrical noise on power supply line	
		IPU defective	
		BCU defective	
		SBU defective	

161	D	IPU Error  The self-diagnostic test detected an error at the IPU at power on, or after the machine returned from energy save mode.	<ul> <li>Harness between SBU and IPU loose or broken</li> <li>IPU defective</li> <li>SBU defective</li> </ul>

165	An error occurred when the machine attempted to recognize the Copy Data Security Unit board.	Check installation of Copy Data Security (CDS) Unit  CDS unit not correct type for the machine  CDS unit defective
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		Polygon motor error 1: ON timeout
202	D	The polygon mirror motor did not reach the targeted operating speed within 10 sec. after turning on or changing speed

203		Polygon motor error 1: OFF timeout	
	D	The polygon mirror motor did not leave READY status within 3 sec. after polygon motor switched off.	
204 D	_	Polygon motor error 1: XSCRDY signal error	
	ט	The XSCRDY signal remained HIGH for 200 ms while the LD unit was firing.	
		Polygon motor/driver board harness loose or broken	
	Polygon motor/driver board defective		
		Laser optic unit defective	
		IPU defective	

220	D	D Laser synchronization detection error: LDO	
		The laser synchronizing detection signal for the start position of the LD was not output for two sec. after LDB unit turned on with the polygon motor rotating normally.	<ul> <li>Laser synchronizing detection board harness loose or broken.</li> <li>Laser synchronization detection board defective</li> <li>LDB unit defective</li> <li>IPU defective</li> </ul>

230	D	FGATE ON error	
		The FGATE signal did not assert within the prescribed time. (The BCU generates the FGATE signal and sends it to the LD unit when the registration sensor switches on.)	BCU, Controller board     harness loose or broken
231	D	FGATE OFF error	BCU defective
		The FGATE signal did not go off within the prescribed time. (The BCU generates the FGATE signal and sends it to the LD unit when the registration sensor switches on.)	Controller board defective

240	LD error	LD error	
	The IPU detected a problem at the LD unit.	<ul> <li>LD unit harness broken, defective</li> <li>BCU harness broken defective</li> <li>LD unit defective</li> </ul>	

		BCU defective	
		Charge level output error	
302	D	The PWM output level was detected higher than 50% after 10 consecutive samplings.	<ul> <li>HVPS (High Voltage Power Supply) board harness loose, broken.</li> <li>PCU connection loose or broken</li> </ul>

		ID sensor calibration – Error 1	
		One of the following conditions occurred when the ID sensor pattern was calibrated during printing:	
350 B Vsp > 2.5V Vsg < 2.5V		Vsp > 2.5V	
		Vsg < 2.5V	
		$V_{SP} = OV$	
		Vsg = 0V	
		ID sensor defective or dirty	
		ID sensor harness disconnected or connector is damaged	
		BCU defective	
		Scanning system or image creation system malfunction	
		High voltage power supply board (power pack) defective	

	В	ID sensor calibration – Error 2
351		The following conditions occurred simultaneously when the ID sensor pattern was calibrated during printing:
		Vsg = 5V
		PWM = 0 (LED current drop)
		ID sensor dirty or defective
		ID sensor harness disconnected, or connector damaged
		BCU board defective
High voltage power supply board (power pack) defective		High voltage power supply board (power pack) defective

353	В	ID sensor LED current error	
		Error occurred during automatic adjustment of Vsg:	ID sensor dirty or defective

354

- Vsg output did not attain 4V, even with PWM = 1023 (maximum current for LED)
- Vsg output was greater than 4V, even with PWM=1 (no current for the LED)

ID sensor adjustment timeout error

SC350 to 354 above.

- ID sensor harness disconnected, or connector damaged
- IOB defective
- High voltage power supply board (power pack) defective
- Scanning system or image creation system malfunction

High voltage power supply board (power pack)

		Error occurred during automatic adjustment of Vsg. Vsg could not be adjusted to 4.0V ±0.2V within the prescribed time.	<ul> <li>ID sensor dirty or defective</li> <li>ID sensor harness disconnected, or connector damaged</li> <li>BCU defective</li> <li>High voltage power supply board (power pack) defective</li> </ul>	
		ID sensor error		
			ID sensor dirty or defective	
355	С	For more details about the cause of the problem, please refer to	ID sensor harness disconnected, or connector damaged	
		SC350 to 354 above	BCU defective	

389	С	TD sensor error 1	
		TD sensor output was less than 0.5V, or more than 0.5V 10 times in succession. If the fax unit is installed, this SC is issued immediately. If the fax unit is not installed, this SC is issued after the prescribed number of copies has printed.	
390	D	TD sensor error 2	
		The TD sensor outputs less than 0.5V or more than 4.0V 10 times consecutively during copying.	
		Note: If the fax option is installed, this SC is issued immediately.	
		If the fax option is not installed, this SC is issued after the prescribed number of pages is copied.	

defective

• TD sensor abnormal Poor connection of the PCU 391 Development bias leak Poor connection at the PCU bias terminal A development bias leak signal is detected. • High voltage supply board defective 392 В TD sensor initial setting error • The PCU toner seal was not removed • ID sensor harness loose, broken Initialization of the new PCU unit • TD sensor harness loose, broken failed (the drum and development roller did not start rotating). ID sensor defective • TD sensor defective 398 PCU error (South Korea only) Illegal PCU unit. Install the correct type of PCU. 399 Illegal toner bottle (South Korea only) The installed toner bottle installed is not intended Install the correct type of toner for use with this machine. bottle. 401 Transfer roller leak error 1 • High voltage supply board set A transfer roller current leak signal wad incorrectly or defective detected. (The current feedback signal for the • Transfer roller set incorrectly or transfer roller was not detected within the damaged correct time.) • Transfer unit set incorrectly 402 Transfer roller leak error 2 A transfer roller current leak signal is detected. Transfer roller set incorrectly or The current feedback signal for the transfer

roller is not detected within the correct time.

damaged

			High voltage supply board set incorrectly or defective	
411	В	Separation bias leak error		
		A separation bias leak signal was detected.	<ul> <li>High voltage supply board defective</li> <li>Discharge plate defective</li> </ul>	
490	В	Toner supply motor leak error		
		More than 1 ampere supplied to the toner supply motor for longer than 200 ms.	Toner supply motor defective	
	1			
500	В	Main motor lock		
			An obstruction has blocked operation of the main motor	
		The machine detected motor lock (motor is not operating correctly)	Main motor harness loose or broken	
			Main motor or main motor driver board defective	
501		1		
501	В	1 st paper tray lift motor malfunction		
502	В	2nd paper tray lift motor malfunction		
503	В	3rd paper tray lift motor malfunction (optional Paper Tray Unit)		
504	В	4th paper tray lift motor malfunction (optional	Paper Tray Unit)	
304		The paper lift sensor did not activate within 18 sec. after the tray lift motor switched on.		
		An obstruction (jammed paper, paper scr caused an overload.	aps, etc.) has blocked the motor drive and	
		Paper lift sensor connection loose, discor	nnected, or damaged	
		Paper lift sensor defective		
		Tray lift motor connection loose, disconnection loose, disconnectio	ected, or damaged	
		Tray lift motor defective		

506	В	Paper tray motor lock (optional Paper Tray Unit)	
		A motor lock signal is not detected for more than 1.5 s or the lock signal is not detected for more than 1.0 s during rotation.	<ul> <li>An obstruction (jammed paper, paper scraps, etc.) has blocked the motor drive and caused an overload.</li> <li>Paper tray motor connection loose, disconnected, or damaged</li> <li>Paper tray motor defective</li> </ul>

	В	LCT rear fence drive error	
508		The return position sensor is not activated after the rear fence drive motor has been on to lower the tandem tray for 8 seconds.	
		An obstruction (jammed paper, paper scraps, etc.) has jammed the rear fence motor	
	Rear fence motor connection loose, disconnected, or damaged		
		Rear fence motor defective	
	<ul> <li>Return position sensor connector loose, disconnected, or damaged</li> <li>Return position sensor defective</li> </ul>		

		LCT side fence drive error	
509	В	The side fence positioning sensor is not activated for more 3 seconds when the paper stack in the left tray is moved to the right tray. The side fence close sensor is not activated for more 3 seconds after moving the paper stack to the right tray.	
		An obstruction (jammed paper, paper scraps, etc.) has jammed the rear fence of motor	
		Side fence motor disconnected or defective	
		<ul> <li>Side fence position sensor disconnected or defective</li> </ul>	
		Side fence close sensor disconnected or defective	

510	В	LCT lower limit error	
310	В	The lower limit sensor does not activate within 8 seconds after the tray has been lowered.	
		An obstruction (jammed paper, paper scraps, etc.) has jammed the tray lift motor	
	<ul> <li>Tray lift motor defective</li> <li>Poor connection of the tray lift motor</li> </ul>		

· Lower limit sensor disconnected or defective Obstruction that causes overload on the drive mechanism. 541 Fusing thermistor open (center) • Fusing thermistor out of its position because of The temperature of the hot incorrect installation roller remained below 0°C for Fusing thermistor disconnected or defective 5 sec at the center of the hot • Power supply not within rated range (15% or more roller. below rating) 542 Fusing temperature warm-up error (center) · Fusing thermistor defective or out of The fusing temperature did not reach the position standby temperature within 20 sec. at the Fusing lamp disconnected center of the hot roller after the main switch Thermistor defective turned on. • Fusing lamp defective 543 Fusing overheat error 1 (center) TRIAC short on PSU (PSU defective) The fusing thermistor detected a fusing temperature over 230 °C for 5 sec. at the BCU board defective center of the hot roller. • Fusing thermistor defective 544 Fusing overheat error 2 (center) A fusing temperature over 250 °C is detected TRIAC short on PSU (PSU defective) at the center of the hot roller by the fusing

545	Α	Fusing overheat error 3 (center)	
		After warmup, the center of the hot roller attained full operating temperature and maintained this temperature for 10 sec. without the hot roller rotating.	<ul> <li>Center hot roller thermistor installed incorrectly, disconnected.</li> <li>Center hot roller thermistor defective</li> </ul>

temperature monitor circuit in the BCU board.

The power was interrupted for more than 0.3

sec.

BCU board defective

Fusing thermistor defective

• Power supply voltage unstable

547	В	Zero cross signal detection erro	or	
		Zero cross signals were not det within the prescribed time.	tected	<ul><li>PSU, BCU harness loose or broken</li><li>PSU defective</li><li>BCU defective</li></ul>
551	А	Fusing thermistor open (end)		
		The temperature of the hot roller remained below 0°C for 5 sec. at the end of the hot roller.	incorr • Fusing • Powe	g thermistor out of its position because of ect installation g thermistor disconnected or defective r supply not within rated range (15% or more v rating)
552	Α	Fusing temperature warm-up error (end)		
		The fusing temperature did not reach the standby temperature within 20 sec. at the center of the hot roller after the main switch turned on.		<ul> <li>Fusing thermistor defective or out of position</li> <li>Fusing lamp disconnected</li> <li>Thermistor defective</li> <li>Fusing lamp defective</li> </ul>
553	А	Fusing overheat error 1 (end)		
		The fusing thermistor detected of temperature over 230 °C for 5 center of the hot roller.	-	<ul> <li>TRIAC short on PSU (PSU defective)</li> <li>BCU board defective</li> <li>Fusing thermistor defective</li> </ul>
554	А	Fusing overheat error 2 (end)		
		A fusing temperature over 250 of at the center of the hot roller by temperature monitor circuit in the The power was interrupted for resec.	the fusing e BCU boar	BCU board defective      Fusing thermistor defective
555	Α	Fusing overheat error 3 (end)		

		After warmup, the center of the attained full operating temper maintained this temperature full without the hot roller rotating.	rature and or 10 sec.	<ul> <li>Center hot roller thermistor installed incorrectly, disconnected.</li> <li>Center hot roller thermistor defective</li> </ul>
557	В	Zero cross waveform signal e	error	
		The waveform of the zero crodetected out of range.	oss signal was	Electrical noise on the power supply line
559	A	Consecutive fusing unit paper	r jams	
		Three consecutive paper jams fusing unit.  The paper jam counter for the reaches 3 times. The paper jar after the paper feeds correct!  Note: This SC is issued only if to "1".	e fusing unit m counter clears y.	<ul> <li>Remove the paper jam in the fusing unit.</li> <li>Make sure that the paper path in the fusing unit is clear.</li> </ul>
590	В	Exhaust fan motor error		
		The CPU detects an exhaust fa more than 3.5 seconds.	ın lock signal for	<ul> <li>Poor connection of the exhaust fan motor</li> <li>Too much load on the motor drive</li> </ul>
620	В	Communication error betwee	en IPU and ADF	
		A break occurred in the connection between the IPU and ADF	ADF disconn     ADF defectiv	re connection loose, broken
621	В	Communication timeout betw	roon BCII and ti-	vichor
OZI	D	A break (LOW) signal was received from the finisher.	Finisher se     BCU defe	erial cable connection loose, broken

		• External	noise	
	В	B Key/card counter device error 1		
632		After 1 data frame is sent to the device, an ACK signal is not received within 100 ms, and is not received after 3 retries.	Serial line from the device to the main machine is unstable, disconnected, or defective	
		Key/card counter device error 2		
633	В	During communication with the device, the MCU received a break (Low) signal.	Serial line from the device to the main machine is unstable, disconnected, or defective	
		Key/card counter device error 3		
634	В	The backup battery of the counter device RAM is low.	<ul><li>RAM backup battery exhausted</li><li>Counter device defective</li></ul>	
		Key/card counter device error 4		
635	В	After installation of the device a message alerts user to a battery voltage abnormal error.	<ul> <li>Device control board defective</li> <li>Device control board backup battery defective</li> </ul>	
636	В	OSM User Code File Error		
		The correct "usercode" file could not be found the root folder of the SD card because the file not present, or the existing file is corrupted or wrong type file.	e is	
641	D	Engine-Controller Communication Error: Nor	ı-Response	
		There was no response to a frame sent from t controller board to the engine.	• Turn the machine power off/ on.	
650	В	Communication error of the remote service modem (Cumin-M)		

		Authentication error
	-	The authentication for the Cumin-M failed at dial up connection.
-001		Incorrect SP settings     Disconnected telephone line     Disconnected modem board
		Check and set the correct user name (SP5816-156) and password (SP5816-157).
		Incorrect modem setting
-004	-	Dial up fails due to the incorrect modem setting.
		Same as -001
		Communication line error
-005	-	The supplied voltage is not sufficient due to the defective communication line or defective connection.
		Same as -001
		Consult with the user's local telephone company.
	-	Incorrect network setting
011		Both the NIC and Cumin-M are activated at the same time.
-011		Same as -001
		Disable the NIC with SP5985-1.
		Modem board error
		The modem board does not work properly even though the setting of the modem board is installed with a dial up connection.
-012	-	Same as -001
		Install the modem board.
		Check and reset the modem board setting with SP5816.
		Replace the modem board.
		Incorrect dial up connection
651	С	-001: Program parameter error

### -002: Program execution error

An unexpected error occurred when the modem (Cumin-M) tried to call the center with a dial up connection.

- Caused by a software bug
- No action required because this SC does not interfere with operation of the machine.

669	В	EEPROM Communication Error	
		The machine failed to detect a match between the read/write data for the EEPROM on the	EEPROM installed incorrectly     EEPROM defective. Turn the     machine power off/on after
		BCU after 3 attempts.	replacing the EEPROM.
			BCU defective.

670	D	Engine response error	
		After powering on the machine, a response is not received from the engine within 30 seconds.	<ul><li>BCU installed incorrectly</li><li>BCU defective</li><li>Controller board defective</li></ul>

672	D	Controller-to-operation panel communication	error at startup
		After powering on the machine, the communication circuit between the controller and the operation panel is not opened, or communication with controller is interrupted after a normal startup.	<ul> <li>Controller stalled</li> <li>Controller board installed incorrectly</li> <li>Controller board defective</li> <li>Operation panel connector loose or defective</li> </ul>

687	D	Memory address (PER) command error	
		The BCU did not receive a memory address command from the controller with the prescribed time once the paper reached the registration sensor.	<ul> <li>Harness connection at BCU, Controller board loose or broken</li> <li>Defective BCU</li> <li>Defective Controller Board</li> </ul>

721	В	Front fence motor error
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The jogger fence motor in the finisher is not operating.	<ul> <li>Jogger motor drive is obstructed (jammed paper, paper scraps, etc.)</li> <li>The motor harness loose or broken</li> <li>Jogger fence HP sensor dirty, loose, defective</li> <li>Jogger fence motor defective</li> </ul>
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722	В	Rear fence motor error	
		The rear jogger fence motor in the	<ul> <li>Rear jogger motor drive is obstructed (jammed paper, paper scraps, etc.)</li> <li>The rear jogger fence motor harness loose or broken</li> </ul>
		finisher is not operating.	<ul> <li>Rear jogger fence HP sensor dirty, loose, defective</li> <li>Rear jogger fence motor defective</li> </ul>

723	В	Feed-out belt motor error	
		Feed-out belt motor drive is obstructed (jammed paper, paper scraps, etc.)	
		The feed-out belt did not return to	<ul> <li>Feed-out belt motor drive obstructed (jammed paper, paper scraps, etc.)</li> </ul>
		the home position within the prescribed time.	Motor harness loose or broken
			Feed-out belt HP sensor dirty, disconnected, broken
			Motor defective

725	В	Finisher stack feed-out motor error	
		The stack feed-out belt HP sensor did not activate within the prescribed time after the stack feed-out motor turned on.	<ul> <li>Finisher stack feed-out motor drive is obstructed (jammed paper, paper scraps, etc.)</li> <li>Stack feed-out motor harness loose, broken</li> <li>Stack feed-out HP sensor harness loose, broken</li> <li>Stack feed-out motor defective</li> <li>Stack feed-out HP sensor defective</li> </ul>

730	В	Shift tray motor error	
		The shift tray motor in the 1000-sheet finisher is not operating.	<ul> <li>Shift motor drive is obstructed (jammed paper, paper scraps, etc.)</li> <li>Shift motor harness loose, broken</li> <li>Shift tray HP sensor harness loose, broken</li> <li>Shift motor defective</li> <li>Shit tray HP sensor defective</li> </ul>

740	В	Corner stapler motor error	
			Staple jam
		The corner stapler motor in the 1000-sheet finisher is not	<ul> <li>Number of sheets in stack exceeds allowed number of sheets for stapling</li> </ul>
		operating.	Stapler motor obstructed
			Stapler motor defective

742	В	Stapler movement motor	
		The stapler movement motor in the 1000-sheet finisher is not operating.	<ul> <li>Stapler or motor drive is blocked by obstruction</li> <li>Motor harness loose or broken</li> <li>Stapler HP sensor harness loose, broken</li> <li>Motor defective</li> <li>Stapler HP sensor defective</li> </ul>

746	Stack feed motor error	
	The stack feed HP sensor in the 1000-sheet booklet finisher did not detect "ON" twice (once: jam error) within the prescribed time after the stack feed motor turned on.	
	-or-	
	The stack feed HP sensor did not detect "OFF" twice (once: jam error) for the specified time after the stack feed motor turned on.	
	Motor drive obstructed	
	Stack feed motor harness loose, broken	
	Stack feed motor defective	

750	В	Tray lift motor error	
		The tray lift motor in the 1000-	Motor harness loose, broken     Motor drive obstructed
		sheet booklet finisher is not operating.	Stack height sensor dirty, harness loose, broken     Motor defective
			Stack height sensor defective

751	В	Stack pressure solenoid error	
		The stack pressure solenoid in the finisher is not operating.	<ul> <li>Solenoid harness loose, broken</li> <li>Solenoid obstructed</li> <li>Stack height sensor dirty, harness loose, broke</li> <li>Solenoid defective</li> <li>Stack height sensor defective</li> </ul>

760	В	Finisher punch motor error	
		The punch HP sensor did not activate within the prescribed time after the punch motor turned on. The 1st detection issues a jam error, and the 2nd failure issues this SC code.	<ul> <li>Punch HP sensor harness loose, broken</li> <li>Punch motor harness loose, broken</li> <li>Punch motor obstructed</li> <li>Punch motor defective</li> <li>Punch HP sensor defective</li> </ul>

761	В	Folder plate motor error
		The folder plate in the 1000-sheet booklet finisher moved but was not detected at the home position within the prescribed time. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
		<ul> <li>Folder plate motor drive obstructed</li> <li>Folder plate HP sensor harness loose, broken</li> <li>Folder plate motor harness loose, broken</li> <li>Folder plate motor defective</li> <li>Folder plate HP sensor defective</li> </ul>

763	В	Punch movement motor error	
		The punch unit moved but it was not detected a position within the prescribed time. The 1st det failure issues a jam error, and the 2nd failure is SC code.	rection broken
764	В	Paper position slide motor error	·
		The paper position sensor detected movement but the slide was not detected at the home posithe prescribed time. The 1st detection failure is error, and the 2nd failure issues this SC code.	ition within broken
765	В	Fold unit bottom fence lift motor	
		The fold unit bottom fence lift motor in the 100 booklet finisher is not operating. The 1st detection issues a jam error, and the 2nd failure issues this	tion failure  • Motor drive obstructed
766	В	Clamp roller retraction motor	
		The clamp roller retraction motor in the 1000-booklet finisher is not operating. The 1st detection issues a jam error, and the 2nd failure issues the	tion failure  • Motor drive obstructed
791	В	Bridge unit error	
		The machine can communicate with the finisher but not the bridge unit.	<ul> <li>Poor connection between the finisher and mainframe</li> <li>Bridge unit harness damaged or defective</li> <li>Bridge unit defective</li> </ul>
792	В	Finisher unit error	

SC798 RTB 22			The machine cannot communicate with the bridge unit but not the finisher.	ne	finisher and mainframe  Finisher harness damaged or defective  Finisher unit defective
RTB 28	816	D	Energy saver I/O sub system error		
SC817 RTB 36			Energy saver sub system is not operating correctly.	J	Controller board defective
4	819	С	Fatal kernel error		
SC819 RTB 38			Due to a control error, a RAM overflow occurred during system processing.	• Ir	controller board defective sufficient memory xpanded memory defective
SC820 RTB 38			e details about this SC code error, execute code. The error code is not displayed on th		
SC838 RTB 27	839	В	USB flash error		
SC842			This is a self-diagnostic error. The device ID of the on-board USB flash ROM was not recognized.	• R	eplace the controller board
RTB 6i: Added (f/w ver 1.17)	851	D	IEEE 1394 I/F Abnormal		
			IEEE1394 interface error.		IEEE1394 interface board defective     Controller board defective
	853	D	Wireless LAN board error 1		
			At startup the wireless LAN board could accessed, but the wireless LAN board (II 802.11b or Bluetooth) could not access controller board.	EEE	Wireless LAN board not installed when the machine was turned on
	854	D	Wireless LAN board error 2		

• Poor connection between the

		The board that holds the wireless LAN board can be accessed, but the wireless LAN board (802.11b/Bluetooth) itself cannot be accessed while the machine is operating	Wireless LAN board has been removed during machine operation.
855	D	Wireless LAN board error 3	
		An error was detected for the wireless LAN board (802.11b or Bluetooth).	Wireless LAN board defective     Wireless board connection not tight
856	D	Wireless LAN board error	
		An error is detected for the wireless LAN board (802.11b or Bluetooth).	Wireless LAN board defective     PCI connector loose
857	D	USB I/F Error	
		The USB driver is unstable and generated and USB I/F cannot be used. The USB driver can three types of errors: RX, CRC, and STALL error the STALL error can generate this SC code.	generate Controller board

858	Α	Data encryption conversion error		
		A serious error occurred during data encryption.		
0	Α	Key acquisition error • Replace the controller board		
1	Α	HDD key setting error	<ul><li>Turn the machine power off/on</li><li>If the error reoccurs, replace the controller board</li></ul>	
2	Α	NVRAM read/write error • Replace the NVRAM		
30	A	NVRAM error	<ul><li>Turn the machine power off/on</li><li>If the error reoccurs, replace the controller board</li></ul>	
31	Α		• See SC991	

859	В	HDD data encryption error
		Encryption of data on the hard disk failed.

8	В	HDD check error	Format the HDD
6	В	Power loss during encryption	Format the HDD
10	В	Data read/write error	• See SC863 below

860	В	HDD error 1	
			Cable between HDC and HDD loose or defective
		The hard disk connection is not	HDD power connector loose or defective
		detected because it is defective	HDD not formatted
		or has not been formatted	HDD defective
			Replace the controller board
		· I	HDD defective

861	В	HDD error 2	
			Cable between HDC and HDD loose or defective
		The HDD did not enter the ready status within 30 sec. after power	HDD power connector loose or defective
		on.	HDD defective
	Oil.		Replace the controller board

863 B HDD error 3	HDD error 3		
Startup without HD data lead. Data stored on the hard disk is not read correctly, due to a bad sector on the HDD	<ul><li>Format the HDD</li><li>HDD defective</li><li>Controller board defective</li></ul>		

		HDD error 4	
864	D	HD data CRC error. During operation of the HD, the HD responded with a CRC error.	HDD defective

		HDD error 5	
865	D	HDD responded to an error during operation for a condition other than those for SC863 or 864.	HDD defective.

SC866 RTB 26

866 D SD card error 1: Recognition error

		The SD card in the slot contains illegal program data.	Use only SD cards that contain the correct data.
		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 power was on.	Insert the SD card, then turn the machine off and on.
		SD card error 3: SD card access	
			SD card not inserted correctly
868	D		SD card defective
		An error occurred while an SD card was used.	Controller board defective
			Note: If you want to try to reformat the SD card, use SD Formatter Ver 1.1.

SC870 RTB 38

			Note: If you want to try to reformat the SD card, use SD Formatter Ver 1.1.
870	В	Address Book Data Error	
		Address book data stored on the hard disk was detected as abnormal when it was accessed from either the operation panel or the network.	<ul> <li>Initialize the address book data (SP5-846-050).</li> <li>Initialize the user information (SP5-832-006).</li> <li>Replace the HDD.HDD defective</li> </ul>
872	В	HDD mail RX data abnormal	
		An error was detected at power on. The data received during mail receive could be neither read nor written.	HDD sector corrupted. Reformat with SP5832 007.  If this does not repair the problem, replace the HDD.
		HDD mail TX data error	
873	В	An error was detected on the HDD immediately after the machine was turned on, or power was turned off while the machine used the HDD.	<ul> <li>Do SP5832-8 (Format HDD – Mail TX Data) to initialize the HDD.</li> <li>Replace the HDD</li> </ul>

		Delete All error 1: HDD		
874	D	A data error was detected for the HDD/ NVRAM after the Delete All option was used. <b>Note</b> : The source of this error is the Data Overwrite Security Unit D362 running from an SD card.	<ul> <li>Turn the main switch off/on, and try the operation again.</li> <li>Install the Data Overwrite Security Unit again. For more, see "Installation".</li> <li>HDD defective</li> </ul>	
		Delete All error 2: Data area		
875	D	An error occurred while the machine deleted data from the HDD.  Note: The source of this error is the Data Overwrite Security Unit D362 running from an SD card.	Turn the main switch off/on, and try the operation again.	
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 if you turn the machine off while it is operating.	<ul> <li>Software error. Update the firmware</li> <li>NVRAM defective</li> <li>HDD defective</li> </ul>	
		Data Overwrite Security SD card error		
877	D	The 'all delete' function did not execute but the Data Overwrite Security Unit (D362) is installed and activated.	<ul><li>Replace the NVRAM</li><li>Reinstall the DOS from the SD card</li><li>SD card defective</li></ul>	
		TPM electronic recognition error		
878	D	The main machine firmware failed to recogn because USB flash is not operating or a syst was updated incorrectly.	<ul> <li>Keplace the controller</li> </ul>	
880	D	File format converter error		

SC878 RTB 38

### 4

#### SC899 RTB 48

		A request for access to the File Format Converter (MLB) was not answered within the specified time.	<ul> <li>File format converter disconnected</li> <li>File format converter board defective</li> </ul>
900	D	Electrical total counter error	
		The total count 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>
901	D	Mechanical total counter error	
		The counter was removed during standby or while it is operating, possibly damaging he connector.	Check the connection of the mechanical counter     Counter defective
920	D	Printer Error 1	
		An internal application error was detected and operation cannot continue.	Software defective     Insufficient memory
		Printer error 2	
921	В	When the application started, the necessary font was not on the SD card.	• Font not on the SD card
925	D	Network File Error	
		The file that manages NetFile is corrupted and operation cannot continue.	<ul><li>Software defective</li><li>Files on the HDD corrupted</li></ul>
		Software performance error	
990	D	The software attempted to perform an unexpecting incorrect internal parameter, 3) insufficient was	
Turn the machine power off/on			

• Reinstall the controller and/or main firmware

**Note**: When this SC occurs, the file name, address, and data will be stored in NVRAM. This information can be checked by using SP7-403. Note the above data and the situation in which this SC occurs. Then report the data and conditions to your technical control center.

991	С	Software continuity error	
		The software attempted to perform an unexpected operation. However, unlike SC990, the object of the error is continuity of the software.	No operation required.  Note: This SC code does not appear on the panel, and is only logged.

992	D	Unexpected Software Error	
		Software encountered an unexpected operation not defined under any SC code.	<ul><li>Software defective</li><li>An error undetectable by any other SC code occurred</li></ul>

SC997 RTB 52

997	В	Application function selection error
		Application selected by the operator did not start or end normally due to a software problem. An option required by the application may not be installed.
		<ul> <li>Confirm which devices are required for the application.</li> <li>Make sure all devices are configured correctly.</li> <li>If the problem is with the fax unit, the nesting of the fax group may be too complicated</li> </ul>

		Application start error
	D	No applications start within 60 sec. after the power is turned on.
		Loose connection of RAM-DIMM, ROM-DIMM
		Defective controller
998		<ul> <li>Software problem: check the setting of SP5875-001. If the setting is set to "1 (OFF)", change it to "0 (OFF)".</li> </ul>
		Check if the RAM-DIMM and ROM-DIMM are correctly connected.
		Reinstall the controller system firmware.
		Replace the controller.

#### Note 1

If a problem always occurs under specific conditions (for example, printer driver setting, image file), the problem may be caused by a software error. In this case, the following data and information need to be sent back to your product specialist. Please understand that it may take some time to get a reply on how to solve the problem, because in some cases the design staff in Japan must analyze the data.

- Symptom / Possible Causes / Action taken
- Summary sheet (SP mode "Printer SP", SP1-004 [Print Summary])
- SMC All (SP5-990-001)
- SMC Logging (SP5-990-004)
- Printer driver settings used when the problem occurs
- All data displayed on the screen (SC code, error code, and program address where the problem is logged.)
- Image file which causes the problem, if possible

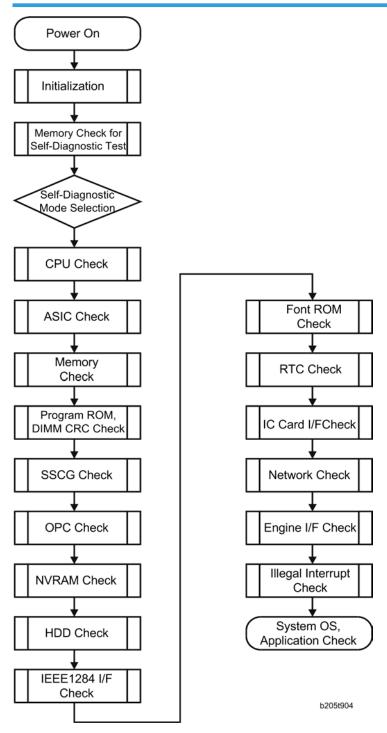
## Self-Diagnostic Mode

## Self-Diagnostic Mode at Power On

As soon as the main machine is powered on, the controller waits for the initial settings of the copy engine to take effect and then starts an independent self-diagnostic test program. The self-diagnostic test follows the path of the flow chart shown below and checks the CPU, memory, HDD, and so on. An SC code is displayed in the touch panel if the self-diagnostic program detects any malfunction or abnormal condition.

4

## **Self-Diagnostic Test Flow Chart**



### **Detailed Self-Diagnostic Mode**

#### **Purpose**

In addition to the self-diagnostic test initiated every time the main machine is powered on, you can set the machine in a more detailed diagnostic mode manually in order to test other components or conditions that are not tested during self-diagnosis after power on.

The following device is required in order to put the machine in the detailed self-diagnosis mode.

Also, the printer/scanner unit and the optional Centronics (IEEE1284) interface must be installed.

Part No.	Name
G0219350	Parallel Loopback Connector

#### **Executing Detailed Self-Diagnosis**

Follow this procedure to do the detailed self-diagnosis.

- 1. Switch off the machine, and connect the parallel loopback device to the Centronics I/F port.
- 2. Hold down the # button, press and hold down the \* button, and then while pressing both keys at the same time, switch on the machine.
  - You will see "Now Loading" on the touch-panel, and then you will see the results of the test.

A report like the one below is printed every time a detailed self-diagnostic test is executed, whether errors were detected or not.

```
MODEL NAME XXXX
                                  Ser.ial AND ... D000034
                                                    Frmware P/#
                                                                      : ACP82XXXX
                                                                                                               [ 1/ 1]
                                                    Frm ware Version : 2.49.01
                                                                                             Wed Nov 22 13: 15: 30 2000
Sef-Dagnosis Report
[System Construction]
   Kernel Version : Net BSD 1.3.3 (SH NYO KO HAM A_RO M ) #0: Sat Nov 11 16:15:35 JST 2000
   CPU System BusClock: 100.0 MHz
                                                              CPU Plpehe Clock : 200.0 M Hz
                                                              ASI C Version : 1397306160

RAM Capact y : 100.663296 M B
   Board Type
                  : 7
   RTC Exist ence
                  : exist ence
   HDD Exist ence
                   : exist ence
                                                              HDD M odel
[TotalCounter]
   0001000
[ Program\b.
               @]
   MAIN : ACP82XXXX
                                                              BNG INE : Ver 1.96
   LCCC : V1.39
                                                              В
                                                                      : B0045383
   ADF : B3515620B
                                                              SIB
   FIN :
                                                              FIN_SOL:
   BANK : A6825150
                                                              LCT
   MBX :
                                                              FCU
   DPX :
[Error List @@@]
                  (EFFROOR DE)
                               SC CO DE
                                                 ( BRRO R CO DE)
                                                                   SC CO DE
                                                                                     (ERROR CODE)
   SOOD DE
                                                                                                         SC CO DE
   S0835 (110C)
                               SC820 (0001)
                                                              SC820 (0002)
                                                                                               SC820 (0003)
   SC820 (0004)
                               SC820 (0005)
```

The machine is designed to automatically adjust the bottom plate pressure of each paper feed station in the main machine and paper tray unit for the paper size and amount of paper remaining in the tray. If the machine is frequently double-feeding or failing to feed with a particular paper size with a certain amount of paper remaining in the tray, this problem can be corrected with SP code settings, SP1908 to 1911. These SP codes change the amount of time the bottom plate motor runs forward or reverse to increase or decrease pressure on the bottom of the stack.

- **Double feeding** occurs when the bottom plate is exerting too much pressure on the paper remaining in the tray. To correct this, increase the length of time the motor runs in reverse to lower the tray. This is a minus (-) value.
- Failure to feed occurs when the bottom plate is not exerting enough pressure on the paper remaining in the tray. To correct this, increase the length of time the motor runs forward to raise the tray. This is a positive setting.

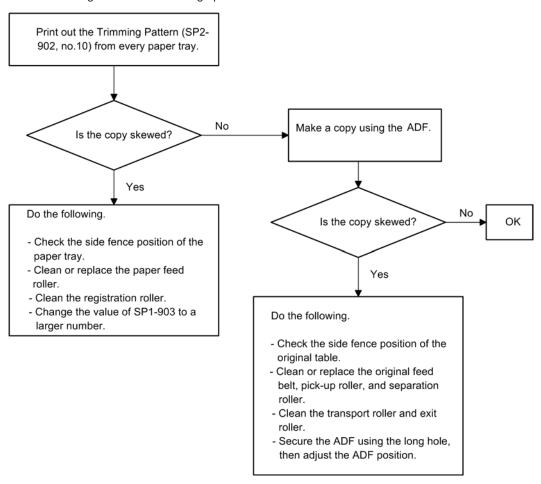
Before doing any adjustments with these SP codes, confirm that the correct paper size has been selected for each tray with SP codes 1912, 1913, 1914, 1915.

- For more details about how this feature operates, please refer to "Feed Pressure Adjustment for Paper Size" in Detailed Section Descriptions – Paper Feed.
- For more details about how to do the adjustments, please refer to "SP1xxx: Feed" in Service Tables.

4

## **Skewed Image**

Do the following to fix a skewed image problem.



## **Image Problems**

## Skewed, Trapezoid and Parallelogram Images

## **Skewed Images**

- The image's leading and trailing edges are parallel.
- The image's left and right edges are also parallel.
- But, all four sides are not parallel with the paper edge.

Parallel

Parallel

Parallel

The image can also become skewed in the opposite direction

Paper

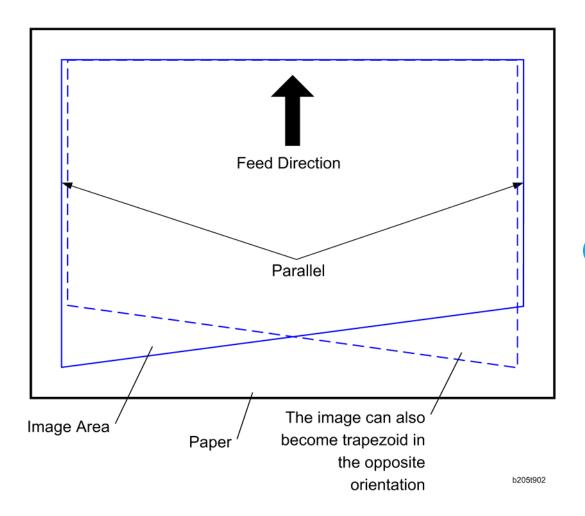
Paper

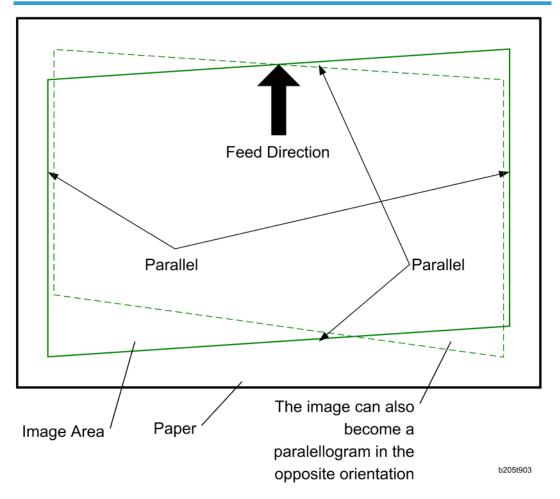
December 1

## Trapezoid Images

• Only the image's trailing edge is not parallel with the paper edge. The other 3 sides are parallel to the paper's edges.

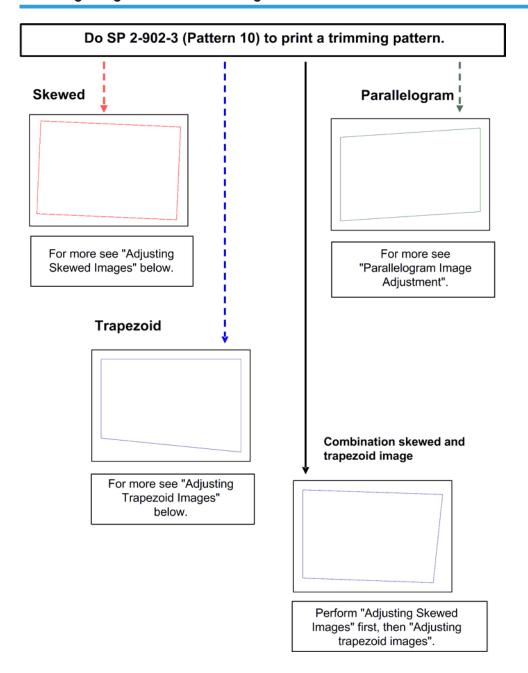
4





• Like skewed images, the leading/trailing edges and left/right edges are parallel to each other. But, the leading and trailing edges are not parallel to the paper's edges.

## **Checking Images with the Trimming Pattern**



## **Correcting Skewed Images**

## 1. Test pattern (Trimming Pattern) mode check

Is the image skewed?	
No	Yes
	Adjust the side fences. There must be no gap between the fences and the paper stack.
	2. Adjust the paper buckle: SP1-003-1 and 2.

### 2. Platen mode check

Set an original flush against the left and rear scales and make a copy.  Does the image come out as a parallelogram?			
No Yes			
	Attach the Scanner Holder (a supporter that is normally attached during shipping)		
OR			
Do Procedure A below.			

### 3. ADF mode check

Feed an original through the ADF.		
Is the image skewed?		
No	Yes	
	Do the front and rear transport rollers feed the original straight?	
	No	Yes
		Change the position of the right hinge screw to the longer hole, and make small position adjustments that are necessary.

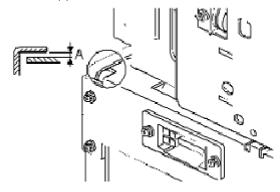
4

	Do Procedure B below.	
Procedure complete.		

### Procedure A

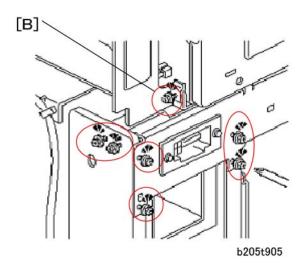
1. Remove the rear and left covers, then the left scanner cover.

## Rear, left upper side of machine



b205t904a

- 2. Check to see if there is a gap between the scanner unit holder and frame at [A].
- 3. If there is no gap, the left front section of the scanner unit is lower than the standard position.



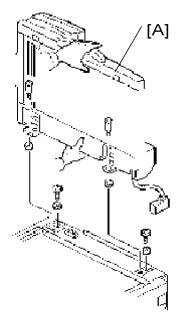
- 4. Loosen all screws (F x7) [B].
- 5. Lift up the left front of unit until there is a 1 to 2 mm gap.
- 6. Tighten the 7 screws.
- 7. Insert a washer (#07080050, 1 mm thick) into gap [A].

8. Attach the washer in its position with an adhesive that sets quickly.

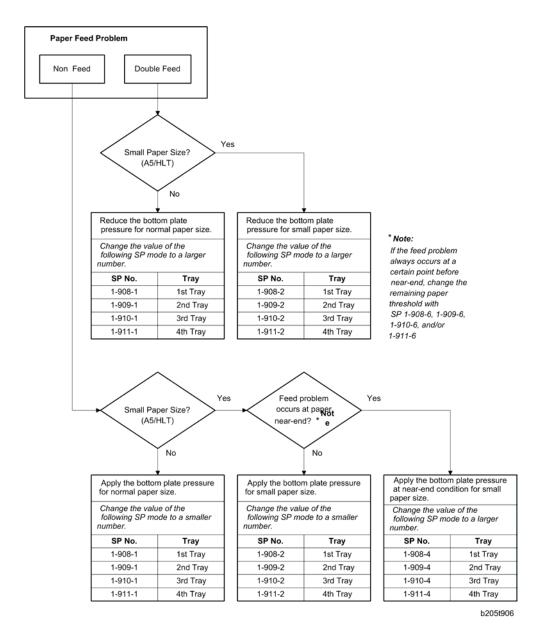


- This washer will also absorb small amounts of shock.
- 9. Check if the parallelogram image still appears.

### Procedure B



 $1. \ \ Remove the \ ADF \ [A], \ machine \ rear \ cover, \ scanner \ left \ cover, \ and \ scanner \ rear \ cover.$ 



2. Measure the height difference [B] between the hinge bracket [C] and scanner housing [D].

#### 3. If the difference is 0.5 mm or more:

Add a spacer (t = 0.5 to 0.8) between the hinge bracket (mainframe) and ADF left hinge, to lift the left side of the ADF

-or-

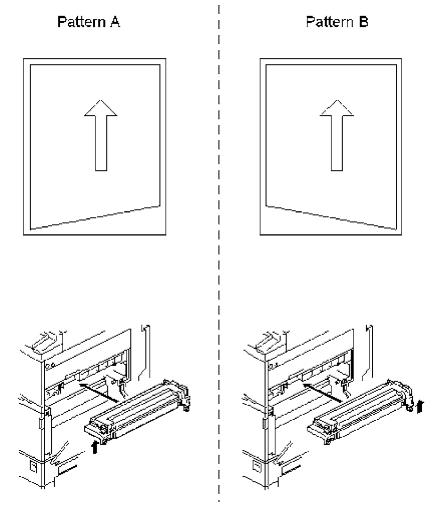
Adjust the stepped height difference between the hinge bracket and scanner housing until it is within  $0 \pm 0.3$  mm.



• This is necessary because skew occurs when the hinge bracket more than 0.3 mm lower than the scanner housing.

## **Correcting Trapezoid Images**

Procedure 1: Minor Adjustment of the Fusing Unit Height (front-to-rear)



- 1. Print out the SP2-902 Trimming Pattern (value: 10).
- 2. If the image is a pattern A trapezoid:
  - a) Remove and reinstall the Fusing Unit.
  - b) Tighten the left fixing screw while you push up the unit's left side (until it stops).
- 3. If the image is a pattern B trapezoid, do the same for the unit's right side.

4. If the image is still printed out as a trapezoid, do Procedure 2 below.

#### Procedure 2: Minor Adjustment of the Fusing Unit Position (front-to-rear)

1. Remove the fusing unit, then add a washer (t = 0.5 to 1.6) to the front fixing screw.



- This will increase the distance from the mainframe stay.
- 2. Check the image.
  - Still NG: Go to the next step.
  - OK: Adjustment Complete.
- 3. Add more washers (t = 0.5 to 1.6, as above).



- Too many washers can cause wrinkling in the paper.
- Still NG: Go to the next step.
- OK: Adjustment Complete.
- 4. Remove the fusing unit and all the washers added in steps 1 and 2 above.
- 5. Then, add washer(s) in the same way for the rear side.

#### Recommended Washers:

t = 0.5, 07080040Z or 07080040G

t = 0.8, 07080050Z or 07080050G

#### **Correcting Parallelogram Images**

For the procedure, see "Parallelogram Image Problems".

# **Electrical Component Defects**

## Sensors

Component	CN	РСВ	State	
1st Bottom Fence Sensor 1	309-1	BCU	Open	The CPU cannot detect the paper
1 St Bottom Fence Sensor 1	309-1	ВСО	Shorted	size properly.
1st Bottom Fence Sensor 2	309-4		Open	The CPU cannot detect the paper
1 St Bottom Fence Sensor 2	309-4	BCU	Shorted	size properly.
1.4 D.44 F S	309-7	DCI I	Open	The CPU cannot detect the paper
1st Bottom Fence Sensor 3	309-7	BCU	Shorted	size properly.
Lat Dans on English Source	207.1	DCII.	Open	The Paper End indicator lights even if paper is placed in the 1st paper tray.
1st Paper End Sensor	307-1	BCU	Shorted	The Paper End indicator does not light even if there is no paper in the 1st paper tray.
		BCU	Open	The CPU cannot determine the paper near-end condition properly.
1st Paper Height Sensor 1	310-1		Shorted	
		BCU	Open	The CPU cannot determine the
1st Paper Height Sensor 2	310-4		Shorted	paper near-end condition properly.
			Open	SC501 displays.
1st Paper Lift Sensor	306-1	BCU	Shorted	Paper jam will occur during copying.
1st Side Fence Sensor	309-10	BCU	Open	The CPU cannot detect the paper
1 31 Side Felice Selisof	307-10		Shorted	size properly.
1st Tray Detect Sensor	309-13	BCU	Open	The CPU cannot detect the paper
131 Huy Delect SellsOf	307-13	DC0	Shorted	size properly.

2nd Bottom Fence Sensor		D.C.I.I	Open	The CPU cannot detect the paper
3	309-21	BCU	Shorted	size properly.
2nd Bottom Fence Sensor	000.15		Open	The CPU cannot detect the paper
1	309-15	BCU	Shorted	size properly.
2nd Bottom Fence Sensor	309-18	D.C.L.	Open	The CPU cannot detect the paper
2	309-18	BCU	Shorted	size properly.
2nd Paper End Sensor	308-1	BCU	Open	The Paper End indicator lights even if paper is placed in the 2nd paper tray.
Zna raper Ena Sensor	306-1	ВСО	Shorted	The Paper End indicator does not light even if there is no paper in the 2nd paper tray.
		BCU	Open	The CPU cannot determine the
2nd Paper Height Sensor 1	310-7		Shorted	paper near-end condition properly.
	010.10	BCU	Open	The CPU cannot determine the paper near-end condition properly.
2nd Paper Height Sensor 2	310-10		Shorted	
			Open	SC502 displays.
2nd Paper Lift Sensor	306-2	BCU	Shorted	Paper jam will occur during copying.
2nd Side Fence Sensor	309-24	BCU	Open	The CPU cannot detect the paper
Zild Side Ferice Serisor	309-24		Shorted	size properly.
2nd Tray Detect Sensor	309-27	BCU	Open	The CPU cannot detect the paper
Zild i'dy Delect Jelisol	307-27		Shorted	size properly.
APS Sensor 1: Original	222 1	SIO	Open	The CPU cannot detect the
Width	223-1		Shorted	original size properly. APS and ARE do not function correctly.
APS Sensor 2: Original	000 4		Open	The CPU cannot detect the
Width	223-4	SIO	Shorted	original size properly. APS and ARE do not function correctly.

APS Sensor 3: Original			Open	The CPU cannot detect the
Length	223-7	SIO	Shorted	original size properly. APS and ARE do not function correctly.
APS Sensor 4: Original	000.10		Open	The CPU cannot detect the
Length	223-10	SIO	Shorted	original size properly. APS and ARE do not function correctly.
APS Sensor 5: Original	202.12	SIO	Open	The CPU cannot detect the
Length	223-13	SIO	Shorted	original size properly. APS and ARE do not function correctly.
Bridge Open Sensor	701-3	CKB	Open	"Open Cover" is displayed even the cover is closed.
(Paper Exit)	701-3	CKB	Shorted	"Open Cover" is not displayed even the cover is open.
Bridge Open Sensor	701-1		Open	"Open Cover" is displayed even the cover is closed.
(Relay)	701-1	СКВ	Shorted	"Open Cover" is not displayed even the cover is open.
Duplex Unit Entrance	0.40.10	BCU	Open	The Paper Jam indicator will light whenever a copy is made.
Sensor	340-10		Shorted	The Paper Jam indicator lights even if there is no paper.
D	0.50 1	BCU	Open	The Paper Jam indicator will light whenever a copy is made.
Duplex Unit Exit Sensor	859-1		Shorted	The Paper Jam indicator lights even if there is no paper.
Dunlay Hait Sat Sanasa			Open	The Cover Open indicator is not lit even if the right upper cover is opened.
Duplex Unit Set Sensor	859-9	BCU	Shorted	The Cover Open indicator is lit even if the right upper cover is closed.
Exit Sensor	703-4	СКВ	Open	The Paper Jam indicator will light whenever a copy is made.

			Shorted	The Paper Jam indicator lights even if there is no paper.
ID Caman	201 1	DCI I	Open	\$C202 :- displayed (see 7.44)
ID Sensor	321-1	BCU	Shorted	SC392 is displayed (see note)
Interchange/Inverter	331-9	BCU	Open	The Paper Jam indicator will light whenever a copy is made.
Sensor	331-9	ВСО	Shorted	The Paper Jam indicator lights even if there is no paper.
Lauran Dalaur Sanara	308-4	BCU	Open	The Paper Jam indicator will light whenever a copy is made.
Lower Relay Sensor	300-4	ВСО	Shorted	The Paper Jam indicator lights even if there is no paper.
		-6 BCU	Open	The TD sensor initial setting procedure is not performed when a new PCU is installed.
New PCU Detect Sensor 3	327-6		Shorted	The TD sensor initial setting procedure is performed whenever the front cover is closed.
Danas End Sanas (D. mass)		BCU	Open	The Paper End indicator lights even if paper is placed in the 1st paper tray.
Paper End Sensor (Bypass)	860-3		Shorted	The Paper End indicator does not light even if there is no paper in the 1st paper tray.
Dan as En d San as I Dan d	er End Sensor (Duplex) 860-3	BCU	Open	The Paper End indicator lights even if paper is placed in the 1st paper tray.
raper Ena Sensor (Duplex)			Shorted	The Paper End indicator does not light even if there is no paper in the 1st paper tray.
Paper Exit Sensor	324-1	BCU	Open	The Paper Jam indicator will light whenever a copy is made.

			Shorted	The Paper Jam indicator lights even if there is no paper.
Paper Overflow Sensor	324-4	BCU	Open	The paper overflow message is not displayed when the paper overfull condition exist.
			Shorted	The paper overflow message is displayed.
Paper Overflow Sensor	703-1	СКВ	Open	The paper overflow message is not displayed when the paper overfull condition exist.
			Shorted	The paper overflow message is displayed.
Daniel Brown L. Communication		BCU	Open	LED does not light even if paper is in 1-bin tray.
Paper Present Sensor 3	330-1		Shorted	LED lights even if paper is not in 1-bin tray.
Paper Size Sensor			Open	The CPU cannot detect the
(Bypass)	860-6	BCU	Shorted	proper paper size, and misfeeds may occur when a copy is made.
Paper Size Sensor			Open	The CPU cannot detect the
(Duplex)	860-6	BCU	Shorted	proper paper size, and misfeeds may occur when a copy is made.
Danishadian Sanan	321-5	BCU	Open	The Paper Jam indicator will light whenever a copy is made.
Registration Sensor	321-3		Shorted	The Paper Jam indicator lights even if there is no paper.
Relay Sensor 702-	702 1	CIVE	Open	The Paper Jam indicator will light whenever a copy is made.
	702-1	СКВ	Shorted	The Paper Jam indicator lights even if there is no paper.
Scanner HP Sensor	228-1	SIO	Open	SC120 is displayed.

			Shorted	The CPU does not detect the scanner home position and the scanner motor does not stop.
Shift Sansar	002 1	CTD	Open	SC770 is displayed
Still Sensor	Shift Sensor 903-1	STB	Shorted	SC770 is displayed.
TD Sensor	327-1	BCU	Open	\$C200:
TD Sensor	327-1		Shorted	SC390 is displayed.
Upper Relay Sensor 307-4	BCU	Open	The Paper Jam indicator will light whenever a copy is made.	
		Shorted	The Paper Jam indicator lights even if there is no paper.	



• An SC condition occurs only when a new PCU is being installed in the machine. During copying, if the ID sensor fails, the image density will be changed.

## **Switches**

Component	CN	PCB	State	Symptom
Correct PCU Detect	327-8	BCU	Open	The TD sensor initial setting procedure is not performed when a new PCU is installed.
Switch	327-8	всо	Shorted	The TD sensor initial setting procedure is performed whenever the front cover is closed.
Front Door Safety	ety	201.2	Open	The Cover Open indicator is not lit even if the front cover is opened.
Switch 321-3	BCU	Shorted	The Cover Open indicator is lit even if the front cover is closed.	
Right Upper Cover Switch	321-8	BCU	Open	The Cover Open indicator is not lit even if the right upper cover is opened.

			Shorted	The Cover Open indicator is lit even if the right upper cover is closed.
Right Lower Cover	D.C.I.I	Open	The Cover Open indicator is not lit even if the right lower cover is opened.	
Switch	321-1	BCU	Shorted	The Cover Open indicator is lit even if the right lower cover is closed.

## **Blown Fuse Conditions**

Fuse	Ro	ating	Construction of the second sec
ruse	115 V	220 to 240 V	Symptom when turning on the main switch
PSU			
FU1	15 A/250 V	8 A/250V	No response.
FU2	8 A/125 V	5 A/250 V	No response
FU3	2 A/125 V	1 A/250V	Anti-condensation/Tray Heater does not turn on.
FU4	6.3 A/125 V	6.3 A/250V	Optional finisher, bridge unit, and shift tray does not work then SC792 is displayed.
FU5	6.3 A/125 V	6.3 /250 V	All motors do not rotate. The "Cover Open" and SC indicators light.
FU6	6.3 A/125 V	6.3 A/250V	The touch panel does not turn on, and all motors (except scanner motor) do not rotate.
FU7	5 A/250 V	5 A/250 V	No response
FU8	5 A/250 V	5 A/250 V	No response

## 5. Service Tables

## Service Program Mode

The service program (SP) mode is used to check electrical data, change modes, and adjust values.

## **CAUTION**

Never turn off the main power switch when the power LED is lit or flashing. To avoid damaging the
hard disk or memory, press the operation switch to switch the power off, wait for the power LED to
go off, and then switch the main power switch off.

### Service Mode Lock/Unlock

At locations where the machine contains sensitive data, the customer engineer cannot operate the machine until the Administrator turns the service mode lock off. This function makes sure that work on the machine is always done with the permission of the Administrator.

- If you cannot go into the SP mode, ask the Administrator to log in with the User Tool and then set "Service Mode Lock" to OFF. After he or she logs in:
  - [User Tools] > System Settings > Administrator Tools > Service Mode Lock > OFF
  - This unlocks the machine and lets you get access to all the SP codes.
  - The service technician can do servicing on the machine and turn the machine off and on. It is not
    necessary to ask the Administrator to log in again each time the machine is turned on.
- 2. If you must use the printer bit switches, go into the SP mode and set SP5169 to "1".
- 3. After machine servicing is completed:
  - Change SP5169 from "1" to "0".
  - Turn the machine off and on.
  - Tell the administrator that you completed servicing the machine.
  - The administrator will then set the "Service Mode Lock" to ON.

## Service Program Mode Operation

#### Overview

The service program mode is used to check electrical data, change modes, and adjust values. Two service program modes are provided:

SP Mode (Service). Includes all the options in the SP displays for normal maintenance and adjustments.

SSP Mode (Special Service). Includes the normal SP modes and some additional options in the SP
displays not required for normal settings and adjustments. (Most are marked "DFU" in the following
tables.) Do not change these important settings needlessly. For details, contact your supervisor.

#### **Entering and Exiting SP mode**

#### Entering the Service Mode.

- 1. Press the Clear Mode ( ) key.
- 2. Use the keypad to enter "107".
- 3. Hold down the Clear/Stop (©) key for at least 3 seconds.

### To enter the Normal Service Mode:

1. On the touch-panel, press Copy SP.

#### To enter the Special Service Mode:

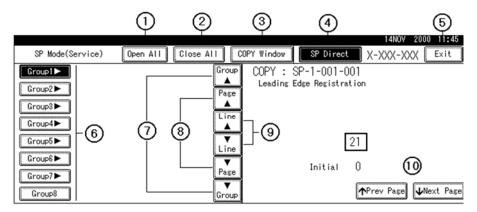
- 1. Hold down the # button, then press Copy SP.
- 2. Press Exit two times to return to the copy window.



• Use SP2902 to print a test pattern (see 'Test Pattern Printing').

### **SP Mode Button Summary**

Here is a short summary of the touch-panel buttons.



- ① Opens all SP groups and sublevels.
- 2 Closes all open groups and sublevels and restores the initial SP mode display.
- ③ Opens the copy window (copy mode) so you can make test copies. To return to the SP mode screen, press SP Mode (highlighted) in the copy window.

- ④ Enter the SP code directly with the number keys if you know the SP number and then press #. (SP Mode must be highlighted before you can enter the number. Just press SP Mode if it is not highlighted.)
- (5) Press twice to leave the SP mode and return to the copy window to resume normal operation.
- ® Press any Group number to open a list of SP codes and titles for that group. For example, to open the SP code list for SP1nnn, press Group 1. If an SP has sublevels, touch the appropriate button to expand the list.
- The Press to scroll the display to the previous or next group.
- ® Press to scroll to the previous or next display in segments the size of the screen display (page).
- Press to scroll the display to the previous or next line, line by line.
- 10 Press to move the highlight on the left to the previous or next selection in the list.

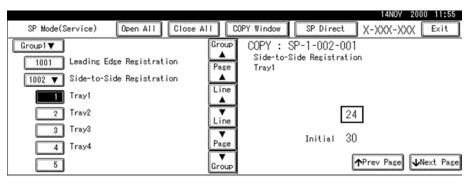
### Switching Between SP Mode and Copy Mode for Test Printing

- 1. In the SP mode, select the test print and then press Copy Window.
- 2. Use the copy window (copier mode), to select the appropriate settings (paper size, etc.) for the test print.
- 3. Press the Start button ((\*)) to execute the test print.
- 4. Press SP Mode (highlighted) to return to the SP mode screen and repeat from step 1.

### Selecting the Program Number

Program numbers have two or three levels.

- 1. Before you begin, refer to the Service Tables to find the SP that you want to adjust. (See 'Service Program Mode Tables'.)
- 2. Press the Group number on the left side SP Mode window that contains the SP that you want to adjust.
- 3. Use the scrolling buttons in the center of the SP mode window to display the SP number that you want to open, and then press that number to expand the list.
- 4. Use the center touch-panel buttons to scroll to the number and title of the item that you want to set and press. The small entry box on the right is activated and displays the default or the current setting below.



- **U** Note
  - See the Service Program Mode Tables for the range of allowed settings.
- 5. To enter a setting
  - Press the button to toggle between plus and minus, and then use the keypad to enter the
    appropriate number. The number you enter writes over the previous setting.
  - Press # to enter the setting. (If you enter a number that is out of range, the key press is ignored.)
  - When you are prompted to complete the selection, press Yes.
- 6. If you need to perform a test print, press Copy Window to open the copy window and select the settings for the test print. Press Start (\*) twice, and then press SP Mode (highlighted) in the copy window to return to the SP mode display.
- 7. When you are finished, press Exit twice to return to the copy window.

# **Commonly Used SP Codes and Features**

This section is a summary of commonly used SP codes.

For details about the input/output checks, please refer to the SP code tables:

	Input Check	Output Check
Main Machine	SP5803	SP 5804
ARDF	SP 6007	SP 6008
Finisher	SP 6117	SP 6118

# Test Pattern Printing (SP2902)



• You can print a test pattern to confirm correct operation of the machine.

- 1. Enter the SP mode and select SP2902.
- 2. Enter the number for the test pattern that you want to print and press #. (See the tables below.)
- 3. Press Copy Window to open the copy window and then select the settings for the test print (paper size, etc.)
- 4. Press Start twice. (Ignore the "Place Original" messages) to start the test print.
- 5. Press SP Mode (highlighted) to return to the SP mode display.

No.	Test Pattern
0	None
1	Vertical Line (1 dot)
2	Horizontal Line (1 dot)
3	Vertical Line (2-dot)
4	Horizontal Line (2-dot)
5	Grid Pattern (1 dot)
6	Independent (1-dot)
7	Independent (2-dot)
8	100% Black Coverage
9	Belt Pattern
10	Trimming Area
11	Argyle
12	Argyle (2-dot)
13	Checkered Flag
14	Horizontal Belt
15	Independent (4-dot)
16	Grayscale Horizontal
17	Grayscale Vertical
18	Grayscale Horizontal/Vertical
19	Grayscale Grid

No.	Test Pattern	
20	Grayscale Horizontal White Stripe	
21	Grayscale Vertical White Stripe	
22	Grayscale Horizontal/Vertical White Stripe	
23	100% White Coverage	
24	Trimming Area (OR Outside Data)	



• See SP 4417 in the SP table for a different set of test patterns.

### SMC Data Lists (SP5990)

1. Open SP mode 5990 and select the number corresponding to the list that you wish to print.

	SMC (System Parameter and Data Lists)		
1	All Data List		
2	SP Mode Data List		
3	UP Mode Data List		
4	Logging Data List		
5	Self-Diagnostics Results List		
7	NIB Summary		
8	Capture Log		
21	Copy UP Mode List		
22	Scanner SP Mode List		
23	Scanner UP Mode List		

- 2. Touch "Execute" on the touch panel
- 3. Select. "Single Face" or "Both Face", then touch "Execute" to start printing.
- 4. After printing the list, press Exit twice to close the SP Mode screen and return to copy mode.

### Memory All Clear (SP5801)

Executing Memory All Clear resets all the settings stored in the NVRAM to their default settings except the following:

- SP2989 1-5: PCU ID (South Korea Only)
- SP2990 1-5: Original Toner ID (South Korea Only)
- SP2991 1-5: Original Toner Counter (South Korea Only)
- SP5811 1: Machine serial number
- SP5907: Plug & Play Brand Name and Production Name Setting

Normally, this SP mode should not be used. This procedure is necessary only after replacing the NVRAM, or when the copier malfunctions because the NVRAM is damaged.

1. Enter the SP mode, do SP5801, and press the number for the item that you want to initialize.

No.	What It Initializes	Comments
1	All Clear	Initializes items 2 to 12 below.
2	Engine Clear	Initializes all registration settings for the engine and process settings.
3	SCS	(System Control Service)/SRAM. Initializes default system settings, CSS settings, operation display coordinates, and ROM update information.
4	IMH Memory Clear	Initializes the image file system. (IMH: Image Memory Handler)
5	MCS	(Memory Control Service). Initializes the automatic delete time setting for stored documents.
6	Copier application	Initializes all copier application settings.
7	Fax application	Initializes the fax reset time, job login ID, all TX/RX settings, local storage file numbers, and off-hook timer.
8	Printer application	Initializes the printer defaults, programs registered, the printer SP bit switches, and the printer CSS counter.
9	Scanner application	Initializes the scanner defaults for the scanner and all the scanner SP modes.
10	Network application	Deletes the network file application management files and thumbnails, and initializes the job login ID.

No.	What It Initializes	Comments
11	NCS	(Network Control Service) Initializes the system defaults and interface settings (IP addresses also), SmartNetMonitor for Admin, WebStatusMonitor settings, and the TELNET settings.
12	R-FAX	Initializes the job login ID, SmartNetMonitor for Admin, job history, and local storage file numbers.
14	Clear DCS Settings	Initializes the DCS settings.
15	Clear UCS Settings	Initializes: SP5846 (All), SP5801 15
18	SRM Memory Clear	Initializes information in non-volatile RAM.
19	LCS Memory Clear	Initializes information in non-volatile RAM.

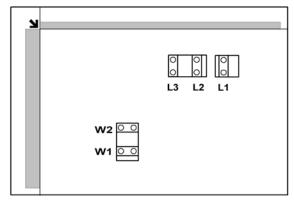
1. Press Execute and turn the main switch off and back on.

# APS Output Display (SP4301)

When you open this SP, a small box will be displayed on the SP mode screen with a series of 0's and 1's. The meaning of the display is as follows.

	0000000
Bit	76543210

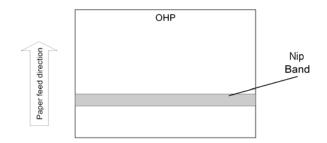
0 = Paper not detected, 1 = Paper detected



d017s905

Bit	Description
7	L2
6	L3
5	W1
4	W2
3	Not Used
2	L1
1	Not Used
0	Not Used

### Nip Band Width Measurement (SP1109)



When paper wrinkling or image off-set occurs, the pressure from the pressure roller can be adjusted by changing the position of the pressure springs. At this time, the nip band width can also be checked with SP1109, as follows.

- 1. Do a free run (SP5802) for about 50 sheets.
- 2. Access SP1109 and press the "1" key.
- 3. Press Copy Window to return to the copy window.
- 4. Place an OHP sheet (A4/8.5"x11" sideways) on the by-pass tray or in the 2nd paper tray.
- 5. Press the "Start" key.
- 6. The OHP sheet is stopped in the fusing unit for about 20 seconds, then it will be fed automatically.
- 7. Check the width of the nip band [A] around the center of the OHP. The relationship between the position of the pressure spring and the width is as follows.

1. Pressure spring position	Nip band width
Upper (default position)	5.2 ±0.5 mm
Lower	5.3 ±0.5 mm
2. Envelope feed mode (green lever down) at the default pressure spring position	4.7 ±0.5 mm

If the width is out of the above specification, the pressure spring should be replaced.

### Software Reset

The software can be rebooted when the machine hangs up. Use the following procedure.

Turn the main power switch off and on.

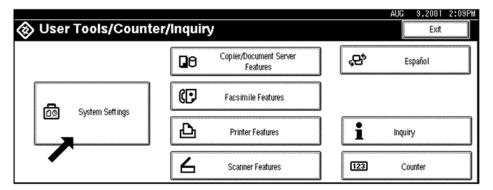
-or-

Press and hold down and together for longer than 10 seconds. When the machine beeps once release both buttons. After "Now loading. Please wait" is displayed for a few seconds, the copy window will open. The machine is ready for normal operation.

### **System Setting Reset**

The system settings in the UP mode can be reset to their defaults. Use the following procedure.

- 1. Press User Tools/Counter.
- 2. Press and hold down (#) and then touch "System Settings".

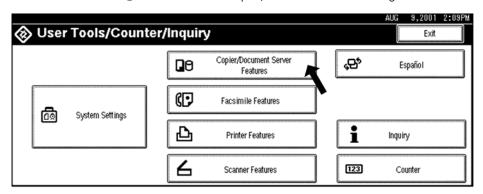


- 3. When the message prompts you to confirm that you want to reset the system settings, press Yes.
- 4. When the message tells you that the settings have been reset, press Exit.

### **Copier Setting Reset**

The copy settings in the UP mode can be reset to their defaults. Use the following procedure.

- 1. Press User Tools/Counter.
- 2. Press and hold down # and then touch "Copier/Document Server Settings".



- 3. When the message prompts you to confirm that you want to reset the Copier Document Server settings, press Yes.
- 4. When the message tells you that the settings have been reset, press Exit.

# **Service Program Mode Tables**

### Service Table Key

Notation	What it means	
[range / default / step]	Example: $[-9 \text{ to } +9 /+3.0 / 0.1 \text{ mm step}]$ . The setting can be adjusted in the range $\pm 9$ , the setting is reset to $+3.0$ after an NVRAM reset, and the value can be changed in 0.1 mm steps with each key press.	
italics	Comments added for reference.	
*	Value stored in NVRAM. After a RAM reset, this default value (factory setting) is restored.	
An SP number set in bold denotes a "Special Service Program" mode that appears only after entering the SP mode by pressing (#) and Co together. (See 'Service Program Mode Operation'.)		
DFU	"Design or Factory Use". Do not change this value.	
Japan only	The feature or item is for Japan only. Do not change this value.	

	Notation	ation What it means	
(S) Sideways feed direction		Sideways feed direction	
(L) Lengthwise feed direction		Lengthwise feed direction	

# SP1xxx: Feed

1001*	Leading Edge Registration	
1	Tray	Adjusts the printing leading edge registration from each
2	By-pass	paper feed station using the Trimming Area Pattern (SP2902 Pattern No. 10).
3 Duplex Side2	[+9.0 to -9.0 / +0.0 / 0.1 mm/step]	
	Duplex Side2	Use the $^{(*)}$ key to toggle between + and – before entering the value.
		The specification is 3 ± 2 mm.
		See "Replacement and Adjustment - Copy Adjustment" for details.

1002*	Side-to-Side Registration	
1	Tray 1	
2	Tray 2	Adjusts the printing side-to-side registration from each paper feed station using the Trimming Area Pattern
3	Tray 3 (Optional PFU Tray 1, or LCT)	(SP2902 Pattern No. 10). [+9.0 to -9.0 / +0.0 / 0.1 mm/step]
4	Tray 4 (Optional PFU Tray 2)	Use the $\stackrel{(*)}{\bigcirc}$ key to toggle between + and – before entering the value. The specification is $2 \pm 1.5$ mm. See
5	By-pass	"Replacement and Adjustment - Copy Adjustment" for details.
6	Duplex Side 2	defuns.

1003*	Registration Buckle Adjustment		
1	Tray 1	Adjusts the paper feed clutch timing at registration. The	
2	Tray 2/3/4 By-pass	paper feed clutch timing determines the amount of paper buckle at registration. (A larger setting leads to more buckling.)  [0 to 10 / 5 / 1 mm/step]	
3	Duplex Side 2	[0 to 20 / 6 / 1 mm/step]	

1007*	By-pass Paper Size Detection
	Controls paper size detection for the by-pass feed table.

	1	Detection Timing	[-15 to 15 / <b>0</b> / 5 mm step]
	2 LG Detection	IC Detection	[0 to 1 / 0 / -]
		0: LT SEF, 1: LG	

		Fusing Idling
Switches fusing idling on/off.		Switches fusing idling on/off.
	1103	[0 = Off / 1 = On / 2 = Off plus machine temperature check]
		Switch on if fusing on the 1st and 2nd copies is incomplete (this may occur if the room is cold.)

	Fusing Temperature Control <b>DFU</b>
1104	[0 to 1/1/1]
1104	0: Hysterysis Control
	1: Normal Control

1105*	Fusing Temperature Adjustment	
1	Roller Center	Adjusts the fusing temperature at the center and
2	Roller Ends	both ends of the hot roller for normal printing. [120 to 200 / 180 / 1°C/step]
3	Energy Saver	Adjusts the fusing temperature at the center and both ends of the hot roller for energy saver mode.  [0 to 160 / 150 / 1°C/step]
4	Thick Paper – Roller Center	Adjusts the additional fusing temperature for thick
5	Thick Paper – Roller Ends	tray.  [0 to 30 / 15 / 1°C/step]
6	After Warming-up - Center	Adjusts the fusing temperature at the center of the hot roller after the machine has warmed up.  [120 to 200 / 180 / 1°C/step]
7	After Warming-up - Ends	Adjusts the fusing temperature at both ends of the hot roller after the machine has warmed up.  [120 to 200 / 185 / 1°C/step]

8	After Warming-up - No. of Pages	In this machine, fusing temperature is kept 10°C higher than the normal temperature for a number of pages after the machine has warmed up. This SP selects the number of pages made at this temperature. See Detailed Section Descriptions – Fusing for more details.  [0 to 10 / 3 / 1 page/step]
9	After Warming-up - Time	In this machine, fusing temperature is kept 10°C higher than the normal temperature for a short while after the machine warms up. This SP selects the length of time that this temperature is used. See Detailed Section Descriptions – Fusing for more details.  [0 to 180 / 60 / 1s/step]
10	Wait Temp: Center Minus	
11	Wait Temp: Ends Minus	

1106	Fusing Temperature Display	
1	Roller Center	Displays the fusing temperature for the center or both
2	Roller Ends	ends of the hot roller.
3	In the Machine at Power On	Displays the temperature in the machine at power on.  This temperature is monitored by the thermistor on the SBCU board.

	Fusing Soft Start Adj: Cycle
1108*	Selects whether the fusing temperature control cycle is 1 or 3 seconds.  If this is "1 (3 s)", the power supply fluctuation caused by the fusing lamp turning on is less often.  [0 = 1 s / 1 = 2 s]  Default: 0 = N. America, Taiwan, 1 = Europe/Asia

1109*	Fusing Nip Band Check	
	Checks the fusing nip band.	

1	Execution	
2	Idling Rotation Time	[0 to 120 / <b>60</b> / 1 sec]
	Specifies the fusing rotation time before executing SP1109-001.	
3	Pre-Idling Time	[5 to 30 / <b>10</b> / 1 sec]
	Specifies the time that the paper stops in the fusing unit for measuring the nip.	

		Fusing Jam Detection
	1159	Disables or enables the consecutive jam error for the fusing unit.
		[0 to 1/0/1 Step]
		When set to "1" (on) this SC code is issued after the 3rd consecutive jam in the fusing unit.

		AC Frequency Display <b>DFU</b>	
	Displays the AC frequency for fusing temperature control.		
	1902*	[0 to 1/0/1 Step]	
		Used to check the measured number of interrupts for the zero cross signal. Measured time interval is 500 ms with 5 interrupts per 2 mms:	
		10 ms x 50 = 500	

1903* Feed Clutch Re-energize		re
Adjusts the paper feed amount allowed by the clutch after correcting the skew registration. When paper jams occur after restarting paper feed after registrati increase the value to help the registration roller feed the paper.		er jams occur after restarting paper feed after registration,
1	By-pass Feed	[0 to 10 / 6 / 1 mm/step]
2	Tray 1 Feed	[0 += 10 / 0 / 1 /-+]
3	Other Trays	[0 to 10 / 0 / 1 mm/step]

1907*	Timing Adjustment <b>DFU</b>
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1908	F1 Plate Adj	Upper Tray: Main Machine (Standard)
1909	F2 Plate Adj	Lower Tray: Main Machine (Standard)

1910	F3 Plate Adj	Upper Tray: PTU (Option)	
1911	F4 Plate Adj	Lower Tray: PTU (Option)	
	These SP codes adjust the initial amount of pressure that the bottom plate exerts on the bottom of the stack that presses against the feed roller. Adjust these SP codes if the machine is consistently double-feeding or failing to feed a specific paper size.		
	These SP codes adjust the length of time that the lift motor runs forward or reverse to raise or lower the bottom plate under the stack after the top of stack has reached the feed position.		
	_	ccurs when there is too much pressure. To correct this, increase the motor runs in reverse to lower the tray (to do this, reduce etting).	
	Failure to feed occurs when there is not enough pressure. To correct this, increase the length of time the motor runs forward to raise the tray. (to do this, increase the value of the setting).		
	How to Read These SP	Codes	
	• Each selection shows the paper size and a percentage that indicates the amount of paper remaining in the tray when the setting will take effect. For example, "B4,LG 70%" means the setting will take effect when B4 or Legal size paper is loaded in the tray and 70% of the paper remains in the tray.		
	• The "Initial" notation in the display indicates the default value for the setting. A positive number (+) indicates the length of time (ms) the lift motor runs forward to raise the bottom plate and increase pressure. A negative number (-) indicates the length of time (ms) the lift motor runs in reverse to lower the bottom plate and reduce pressure.		
	<ul> <li>Please note that the "Initial" settings for some settings are negative (reverse run time), others are positive (forward run time).</li> </ul>		
	<b>Note</b> : Before doing any adjustments with these SP codes, confirm that the correct paper size has been selected for each tray with SP codes 1912, 1913, 1914, 1915.		
1	A3, DLT:100%	To correct feed problems for a paper size, be sure to	
		set all four settings (100%, 70%, 30%, 10%) for each paper size that is causing problems.	
56	A5T:70%->30%	<ul><li>The "T" notation denotes "SEF" (Short Edge Feed).</li><li>The "Y" notation denotes "LEF" (Long Edge Feed)</li></ul>	

1913	Tray 2: Auto Paper Size Detection		
1914	Tray 3: Auto Paper Size Detection		
1915	Tray 4: Auto Paper Size Detection		
Some paper sizes are very nearly the same (A4, LT for example). The paper size are not sensitive enough to distinguish between such paper sizes. Use these SP select the paper size for the tray. A setting can be done for each tray:		between such paper sizes. Use these SP codes to	
	Tray 1: Upper Tray (Main Machine)		
Tray 2: Lower Tray (Main Machine)			
	Tray 3: LCT Tray or Upper Tray: Pape	r Tray Unit	
	Tray 4: Lower: Tray Paper Tray Unit		
1	Size 1: B5/Exe Landscape		
2	Size 2: A5/HLT Landscape	[0 to 1/ <b>0</b> /1]	
3	3 Size 3: A4/LT 1: USA (DLT, LT, E	0: ISO (A3, A4, A5, etc.) 1: USA (DLT, LT, EXE, etc.)	
4		Note: "Landscape" means LEF (Long Edge Feed)	
5	Size 5: A3/LT		

1991	Max Fusing Lamp Duty <b>DFU</b>	
1991	These SP codes are debugging tools.	
1	Roller Center	
2	Roller Ends	[40 to 100/80/10%]
3	After Warming-up – Center	
4	After Warming-up - Ends	[40 to 100/100/10%]

	Mtr Rvrs Time at Fusing Drv Rls <b>DFU</b>	
1992	This is a debugging tool.	
	[0 to 3/3/1]	

1996	Heater Forced Off <b>DFU</b>	
1990	These are debugging tools	

1	Starting Temperature (Center)	[150 to 180/180/5 deg]
2	Starting Temperature (Side)	
3	Time (Center)	[0 to 5/0/1]
4	Time (Side)	
5	After Printing	[0 to 5/1/1]

# SP2xxx: Drum

2001*	Charge Bias
	Setting (Copying)
	Adjusts the voltage applied to the charge roller during printing.
1*	This value will be changed automatically when the charge roller bias correction is performed.
	Note that if this value is changed, the charge roller voltage will be corrected based on the new voltage.
	[2100 to 1500 / -1700 / 1 V/step]
	ID Sensor Pattern
2*	Adjusts the voltage applied to the charge roller when making the Vsdp ID sensor pattern (for charge roller bias correction).
	The actual charge roller voltage is this value plus the value of SP2001 1.
	[0 to 400 / 200 / 1 V/step]
	Temporary Input
3	Inputs the charge roller voltage temporarily for test purposes.
	Do not change the value.
	[0 to -2500 / 0 / 1 V/step]

2005*	Charge Bias Correction
	Vsdp Min
	Adjusts the lower threshold value for the charge roller correction.
1	When the value of Vsdp/Vsg is less than this value, the charge roller voltage increases by 50V (e.g. from $-500$ to $-550$ ). The size of the increase depends on SP2005 3.
	[0 to 100 / 90 / 1%/step]
	Vsdp Max
	Adjusts the upper threshold value for the charge roller correction.
2	When the value of Vsdp/Vsg is greater than this value, the charge roller voltage decreases by 50V (e.g. from $-550$ to $-500$ ). The size of the decrease depends on SP2005 3.
	[0 to 100 / 95 / 1 %/step]

	Charge Roller Bias Correction
3	Adjusts the size of the charge roller voltage correction.
	[0 to 200 / 50 / 1 V/step]

2101*	Erase Margin Adjust
	Leading Edge
1	Adjusts the leading edge erase margin.  The specification is 3 ±2 mm. See "Replacement and Adjustment - Copy Adjustment" for details.  [0.0 to 9.0 / 3.0 / 0.1 mm/step]
	Trailing Edge - Small Paper
2	Adjusts the trailing edge erase margin for paper of length 216 mm or less.  The specification is 3 ±2 mm. See "Replacement and Adjustment - Copy Adjustment" for details.
	[0.0 to 9.0 / 2.0 / 0.1 mm/step]
	Trailing Edge – Middle Paper
3	Adjusts the trailing edge erase margin for paper of length 216.1 to 297 mm.  The specification is 3 ±2 mm. See "Replacement and Adjustment - Copy Adjustment" for details.  [0.0 to 9.0 / 3.0 / 0.1 mm/step]
	Trailing Edge – Large Paper
4	Adjusts the trailing edge erase margin for paper longer than 297 mm.  The specification is 3 ±2 mm. See "Replacement and Adjustment - Copy Adjustment" for details.  [0.0 to 9.0 / 4.0 / 0.1 mm/step]
	Left Side
5	Adjusts the left edge erase margin.  The specification is 2 ±1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.  [0.0 to 9.0 / 2.0 / 0.1 mm/step]

	Right Side
	Adjusts the right edge erase margin.
6	The specification is 2 +2.5/-1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.
	[0.0 to 9.0 / 2.0 / 0.1 mm/step]
	Rear – Trailing Edge (Duplex 2nd Side)
	Adjusts the trailing edge erase margin on the reverse side of duplex copies.
7	The actual trailing edge erase margin on the reverse side is this value plus the value of SP2101-2 or 3 or 4.
	The specification is 3 ±2 mm. See "Replacement and Adjustment - Copy Adjustment" for details
	[0.0 to 9.0 / 1.2 / 0.1 mm/step]
	Rear – Left Side (Duplex 2nd Side)
	Adjusts the left side erase margin on the reverse side of duplex copies.
8	The actual left side erase margin on the reverse side is this value plus the value of SP2101-5.
	The specification is $2 \pm 1.5$ mm. See "Replacement and Adjustment - Copy Adjustment" for details.
	[0.0 to 9.0 / 0.3 / 0.1 mm/step]
	Rear – Right Side (Duplex 2nd Side)
	Adjusts the right side erase margin on the reverse side of duplex copies.
9	The actual right side erase margin on the reverse side is this value plus the value of SP2101-6.
	The specification is 2 +2.5/-1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.
	[0.0 to 9.0 / 0.3 / 0.1 mm/step]
	Printer - Rear Trailing Edge
	In printer mode, adjusts the trailing edge erase margin on the reverse side of duplex copies.
10	The actual trailing edge erase margin on the reverse side is this value plus the value of SP2101-7.
	The specification is 3 ±2 mm. See "Replacement and Adjustment - Copy Adjustment" for details

	[0.0 to 9.0 / 0.0 / 0.1 mm/step]	
		1

	LD Power Adjustment <b>DFU</b>
2103*	[50 to 170 / 129 / 1/step]
	Adjusts the LD power.
	Do not change the value.

	Test Mode dpi
	Sets the scanning resolution (dpi). <b>DFU</b>
2110*	[See below / 8 / Oto 18]
2110	0: 400x400 dpi
	4: 300x300 dpi
	8: 600x600 dpi

2201*	Development Bias Adjust
	Printing
1	Adjusts the development bias during printing.
	This can be adjusted as a temporary measure if faint copies appear due to an aging drum.
	[-1500 to -200 / -650 / 1 V/step]
	ID Sensor Pattern
	Adjusts the development bias for making the ID sensor pattern.
2	The actual development voltage for the ID sensor pattern is this value plus the value of SP2201-1.
	This should not be used in the field, because it affects ID sensor pattern density, which affects toner supply.
	[0 = N (200V) / 1 = H (240V) / 2 = L (160V) / 3 = HH (280V) / 4 = LL (120V)]

2210*	Bias Off Time
	Charge Bias <b>DFU</b>
1	Adjusts the charge voltage (-1200V) application time.
	When the charge voltage and development bias are turned off at the same time, toner or
	carrier will be attracted to the drum. To reduce the toner or carrier attraction, the machine

	applies –1200V to the charge roller before the development bias is turned off. This SP adjusts the time for applying the charge.  [0 to 150 / 80 / 1 ms /step]
	Development Bias <b>DFU</b>
2	Adjusts the development bias off time.
	[-120 to 120 / 0 / 1 ms/step]

2211*	PCU Reverse Interval		
		Adjusts the PCU reverse interval for cleaning during a job.	
	When the machine has made this number of copies in the middle of a job, the machine reverses to clean the edge of the cleaning blade. After cleaning, the machine resumes the job. Set to a shorter interval if thin white lines appear on printouts.		
		[0 to 999 / 100 / 1 sheet/step]	
		0: Never cleans during job	

	Copies after Toner Near End	
2213*	Selects the number of copies that can be made after toner near-end has been detected.	
	[0 = 50 pages / 1 = 20 pages]	
	If the user normally makes copies with a high proportion of black, reduce the interval.	

2220*	Vsg/V/Vsdp/Vt/Vts Display		
1	Vsg		
2	V		
3	Vsdp	Displays the individual Vt, Vsg, Vsp, Vsdp, and Vts values.	
4	Vt		
5	Vts		
6	Vsp/Vsg/Vsdp/Vt/Vts	Displays all the data used in process control, separated by slashes (/).	

2301*	Transfer Current Adjust
1*	Normal Paper

	Adjusts the current applied to the transfer roller during copying from a paper tray when the user uses the "Normal" paper setting.		
	If the user normally feeds thicker paper from a paper tray, use a higher setting.		
$[0 = -2 \mu A / 1 = 0 \mu A / 2 = +2 \mu A / 3 = +4\mu A]$			
	Thick/Thin Paper		
	Adjusts the current applied to the transfer roller during copying from the by-pass tray.  These settings are also used if the 2nd tray is used and special paper is selected.		
2*	If the user normally feeds thicker paper from the by-pass tray/2nd tray (special paper), use a higher setting. If waste toner is re-attracted from the drum (this can occur when using an OHP sheet), use a higher setting.		
	$[0 = -2 \mu A / 1 = 0 \mu A / 2 = +2 \mu A / 3 = +4\mu A]$		
	Duplex Side 2		
3*	Adjusts the current applied to the transfer roller during copying from the duplex unit when the user uses the "Normal" paper setting.		
	Use this SP when the image on the rear side of the paper has a problem caused by poor image transfer.		
	$[0 = -2 \mu A / 1 = 0 \mu A / 2 = +2 \mu A / 3 = +4 \mu A]$		
	Cleaning		
	Adjusts the current applied to the transfer roller during roller cleaning.		
4*	If toner remains on the roller after cleaning (dirty background appears on the rear side of the paper), increase the current.		
	[-10 to 0 / -4 / 1 µA /step]		
5	Input – Front <b>DFU</b>		
6	Input – Rear <b>DFU</b>		
	Temp Inside the Machine		
7	Displays the temperature measured inside the machine just after power-on (by the thermistor on the SBCU board) the last time that the fusing unit was less than 40°C just after the machine was switched on.		
	The transfer current is corrected in accordance with this value.		

|--|

Initializes the developer and resets the TD and ID sensor outputs to their defaults. Do this	
SP after you fill the PCU with developer at machine installation and every time developer	
is replaced.	

		Developer Mixing
	2802	Mixes the developer and checks Vt. The machine mixes the developer for 2 minutes and while doing this, it reads the TD sensor output (Vt). It does not initialize the TD sensor output.
		If the machine has not been used for a long time, prints may have a dirty background. In this case, use this SP mode to mix the developer.

2803*	Developer Initialization Data	
	Vts	
1	When the machine detects a new PCU (photoconductor unit) in the machine, it checks the heat seals at the creation of the first ID sensor pattern. After the agitator is rotated for 30 sec., the machine creates the second ID sensor pattern and corrects the reference value of the TD sensor. The corrected reference value for the TD sensor is recorded here.	
2	ID Sensor PWM Value	
2	Displays the PWM value of the ID sensor after performing the developer initialization.	

	New PCU Check <b>DFU</b>
	This SP determines whether the machine is set to recognize a new PCU.
2804	[0 to 1/0/1]
	0: New PCU recognition on.
	1: New PCU recognition off.

2901*	Separation Voltage Adj	
Front – Leading Edge  Adjusts the voltage that is applied to the separation plate during printing at the lea edge of the paper on the front side.		
	[-4000 to -1000 / -1800 / 1 V/step]	
2	Front – Image Area	

	Adjusts the voltage that is applied to the separation plate during printing on the image area of the paper on the front side.  If the copies have pawl marks in the image area, increase this voltage.  [-4000 to -1000 / -1800 / 1 V/step]
3	Rear – Leading Edge  Adjusts the voltage applied to the separation plate, during printing at the leading edge of the paper on the rear side.  See SP2901 1.  [-4000 to -1000 / -2100 / 1 V/step]
4	Rear – Image Area  Adjusts the voltage applied to the separation plate, during printing at the image area of the paper on the rear side.  See SP2901 2.  [-4000 to -1000 / -2100 / 1 V/step]

2902*	Test Pattern
	Prints the test patterns. Select the number of the test pattern that you want to print. When adjusting the printing registration, select no.10 (Trimming Area Pattern). [0 to 24 / 0 / 1 step]

## Test Patterns for SP2902

0	None	13	Checker Flag Pattern
1	Vertical Line (1 dot)	14	Black Band (Vertical)
2	Horizontal Line (1 dot)	15	Independent Pattern (4 dot)
3	Vertical Line (2 dot)	16	Grayscale Horizontal
4	Horizontal Line (2 dot)	17	Grayscale Vertical
5	Grid Pattern 1	18	Grayscale Vertical Horizontal
6	Independent Pattern (1 dot)	19	Grayscale Grid
7	Independent Pattern (2 dot)	20	Grayscale (Horizontal Margin)
8	Full Dot Pattern	21	Grayscale (Vertical Margin)

9	Black Band (Horizontal) Trimming Area Argyle Pattern		Grayscale (Ver Hor Margin)
10			All White Pattern
11			Trimming Area Or Out
12	Hounds Tooth Check (2 dot Hor)		

2906*	Tailing Correction
	Shift Value
	Shifts the image across the page at the interval specified by SP2906 2.
1	When making many copies of an original that contains vertical lines (such as a table), separation may not work correctly, then a tailing image will occur (ghosts of the vertical lines will continue past the bottom of the table). This SP prevents this problem.
	[0.0 to 1.0 / 0.0 / 0.1 mm/step]
	Interval
2	Changes the interval for the image shift specified by SP2906 1.
	[0 to 10 / 0 / 1 page/step]

2907* Filter Setting		
	Adjusts the line width for the copy mode. The defar smaller than the default makes lines thinner, a nu thicker.	9
1	Text: Multilevel Copy	[0 to 10 / 5 / 1 step]
2	Photo: Multilevel Copy	[0 to 10 / 6 / 1 step]
3	Text/Photo: Multilevel Copy	
4	Pale: Multilevel Copy	[0 to 10 / 5 / 1 step]
5	Generation: Multilevel Copy	

	Forced Toner Supply
2908	Forces the toner bottle to supply toner to the toner supply unit.
	Press Execute on the touch panel to start.

During this process, the machine supplies toner until the toner concentration in the development unit reaches a standard level. However, if the toner concentration does not reach a standard level, the machine supplies toner for 2 minutes maximum.

2909*	Main Scan Magnification Adj
2909	[-0.5 to 0.5 / 0.0 / 0.1%/step]
	Copy: Short Edge Feed
1	Adjusts the main scan magnification in copy mode when the machine feeds the paper in the short edge feed orientation.
	Printer: Short Edge Feed
2	Adjusts the main scan magnification in printer mode when the machine feeds the paper in the short edge feed orientation.
	Copy: Long Edge Feed
3	Adjusts the main scan magnification in copy mode when the machine feeds the paper in the long edge feed orientation.
	Printer: Long Edge Feed
4	Adjusts the main scan magnification in printer mode when the machine feeds the paper in the long edge feed orientation.

	Margin Adjust for By-pass
2910*	Adjusts the blank margin at the trailing edge of paper fed from the by-pass table.
	[-9.0 to +9.0 / 0 mm / 0.1 mm/step]

	ID Test Pattern
2913*	Adjusts the image density level for black pixels on test pattern printouts (patterns are made with SP2902)
	[0 to 15 / 15 / 1/step]
	This SP affects all test patterns except for the grayscale test patterns.

2915*	Polygon Motor Idling Time
2913	Selects the polygon motor idling time.

	2) touches a key, or 3) opens the to the first copy. However, with nothing for 10 s after doing one Note: If set at "0", the polygon	ing up to its operation speed if the user 1) sets an original, the platen cover or document feeder. This shortens the time the default (10 s) set, the motor stops if the user does the actions above, and stops 10 s at the end of a job. I motor never turns off during stand-by. However, when aver mode, the polygon motor turns off regardless of this
1	1 Idling Time Adj.	
2	Post Idling Time Adj.	[0 to 60/10/1]

	Toner Supply Mode
2921*	Selects the toner supply mode.
2921	[0 = Sensor 1 / 1 = Sensor 2 / 2 = Fixed 1 / 3 = Fixed 2, 4 = Sensor 3]
	Normally, only use setting 0. Change to 3 temporarily if the TD sensor is defective. Do not use settings 1, 2 and 4; these are for designer's use only.

	Toner Supply Time
	Adjusts the toner supply motor on time for sensor supply mode.
2922*	This SP is effective only when SP2921 is "0" or "1".
	[0.1 to 5.0 / 0.6 / 0.1 s/step]
	Increasing this value increases the toner supply motor on time. So, use a high value if the user tends to make lots of copies that have a high proportion of black.

		Toner Recovery Time
2		Adjusts the toner supply motor on time during recovery from toner near-end/end.
	2923*	This SP is effective only when SP2921 is "0", "1", or "2".
		[1 to 60 / 30 / 1 s/step]
		Note that toner recovery is done in a 3-second cycle. So, the input value should be a multiple of 3 (e.g. 3, 6, 9). See "Toner Density Control" for more details.

	Toner Supply Ratio
2925*	Adjusts the toner supply rate for fixed toner supply mode.
This SP is effective only when SP2921 is "2" or "3".	

Increasing this value increases the toner supply motor on time. So, use a high value if the user tends to make lots of copies that have a high proportion of black. See "Toner Density Control" for more details.

[0 to 7 / 0 / 1/step]

0: t, 1: 2t, 2: 4t, 3: 8t, 4: 12t, 5: 16t, 6: On continuously, 7: 0 s

t: 200 ms

	Standard Vt <b>DFU</b>
2926*	Adjusts Vts (Vt for a new PCU). The TD sensor output is adjusted to this value during the TD sensor initial setting process. This SP is effective only when SP2921 is "0", "1", or "2".
	[0.00 to 5.00 / 2.50 / 0.05 V/step]

2927*	ID Sensor Control
	Selects whether the ID sensor is used or not for toner density control.
	[0 = No / 1 = Yes]
	If this value is "0", dirty background may occur after the machine has not been used for a long time.
	*

		Toner End Clear
		Clears the toner end condition. Press Execute on the touch panel to clear the toner end condition without adding new toner.
		When you press Execute, the following are cleared:
	2928*	Toner end indicator (goes out)
		Toner near-end counter
		Toner near-end level
		When making a lot of copies after changing this setting to "1", the carrier may be attracted to the drum when the toner runs out, which may damage the drum.

2929*	Vref Adjustment	
1	Upper Limit	
ı	Adjusts the upper limit for Vref. [0.5 to 3.5 / 3.10 / 0.05 V/step]	
2 Lower Limit		

	Adjusts the lower limit for Vref. [0.5 to 3.5 / 1.40 / 0.05 V/step]				
	TD Sensor Manual Setting				
2930*	Adjusts the TD sensor output. <b>DFU</b>				
	[0 to 5 / 0.0V / 0.05V/step]				
	TD (V/wt%) Setting				
2931*	Adjusts the TD sensor sensitivity (co [0.01 to 1.50 / 0.4 / 0.01/step]	efficient: S) for toner density control. <b>DFU</b>			
	Toner Density Control Level				
2932*	Adjusts the toner density control threshold level.				
2732	[0 = Normal / 1 = Dark / 2 = Light / 3 = Darker / 4 = Lighter]				
	Use this SP when you want to adjus	st the image density.			
	ID Sensor Control Correction				
Adjusts the ID sensor control coefficient. <b>DFU</b> [0.5 to 3 / 1 / 0.1/step]		cient. <b>DFU</b>			
	, , , , ,				
2934*	ID Sensor PWM Setting				
1	Display	Displays the PWM of the ID Sensor LED.			
	Upper Limit Correction				
3	Corrects the upper limit of the PWM for the ID sensor LED. <b>DFU</b>				
	[0 to 255 / 50 / 1/step]				
	ID Sensor Initialization				
2935	Performs the ID sensor initial setting	ı.			
2700	Press Execute on the touch panel to the ID sensor.	start. Perform this setting after replacing or cleaning			
2989	Original PCU ID South Korea only				

	Displays the ISSUER CODE of the loaded PCU. The history of the PCU ID codes is stored in NVRAM for display.		
1	Latest	Most current code (in use).	
2	Last 1		
3	Last 2	Up to four issuer codes of toner lots in the same series can be stored. If a PCU with a new series code is set, then the new code replaces the history of the previous PCU.	
4	Last 3		
5	Last 4		

	Original Toner ID <b>South Korea only</b>		
2990	Displays the ISSUER CODE of the loaded toner. The history of the toner ID codes are stored in NVRAM for display.		
1	Latest	Most current code (in use).	
2	Last 1	Up to four issuer codes of toner lots in the same series can be stored. If toner with a new series code is set, then the new code replaces the history of the previous toner.	
3	Last 2		
4	Last 3		
5	Last 4		

	Original Toner Counter South Korea only		
Displays the page counts for the issuer code history.  [0 to 65535 / 0 / 1]			
1	Latest		
2	Last 1	This SP displays the page counts for each successive issuer code. See SP2990 above.	
3	Last 2		
4	Last 3		
5	Last 4		

2992*	Copies After TD Sensor Error
	Selects the number of copies that can be made after a TD sensor error has been detected.
	When the machine copies this amount, an SC condition will occur. If the optional fax unit

	is installed, the SC condition occurs immediately regardless of the number of prints (this is because the sender of the fax cannot check the image quality of the printout).		
1	0:100 Pages 1:200 Pages		
2	Counter		

	ISSUER CODE Ref South Korea Only
2993*	Sets the standard issuer code, once it has been determined.
	[0 to 9999 / 0 / 1]

2994*	Vts Limitation - Factory	
1	Upper Limit - Factory Only	DFU
2	Lower Limit - Factory Only	DFU

2995*	ID Sensor Detection Interval	
	Warming-up	
1	This SP controls the temperature at which the ID sensor pattern is created after the machine is turned on, or after the machine returns to full operation from the energy saver or auto off mode.  [0 to 255 / 30 / 1 degree]	
	Number of Pages	
2	The machine makes an ID sensor pattern after the specified number of prints has been made.	
	[0 to 999 / 300 / 1 page/step]	
3	Job End/Interrupt	
	Determines when the ID sensor reads the ID sensor pattern.  0: Job End. Read pattern at job end.  1: Interrupt. Read pattern at interval set with SP2995-2, even if the job is not completed.	

2996	Transfer Roller Cleaning
2990	These SP codes determine how the transfer roller is cleaned.

# O:OFF 1:ON Selects whether the transfer roller is cleaned. Transfer roller cleaning is necessary only when black spots occur in the image areas of copies. This can occur when bad environmental conditions increase the toner density. Set this to '1' when dirty background appears on the reverse side of the first page of a copy job. However, the first copy time will be longer regardless of the SP2996 001 setting. [0 = No / 1 = Yes] Interval This SP sets the page interval for transfer roller cleaning when SP2996 001 is set to "1" (Yes). Increase this setting only when absolutely necessary. A higher setting increases wear on the PCU. [0to100/50/1 sheets] Note: This SP does not execute for the first copy after power on or when the machine returns from the energy save or auto off mode. This SP setting does cannot correct poor copies if there is a problem with the TD sensor.

277/	Sidilidate vi (i deloty Only) bi o	
2998*	PCU Reverse Rotation Time <b>DFU</b>	
	Wait Time	
1	Adjusts the waiting time for starting to rotate the drum in reverse after the end of each job.  The wait time calculation formula is as follows.	
1	[0 to 999 / 600 / 1]	
	This SP is adjusted in units of 30 ms (1 step = 30 ms, 2 steps = 60 ms, etc.)	
	If "O" is selected, the drum reverses immediately at the end of the job.	
	Reverse Time	
	Adjusts the drum reverse rotation time.	
2	[0 to 99 / 60 / 1]	
	This SP is adjusted in units of 60 ms (1 step = 6 ms, 2 steps = 12 ms, etc.)	
	If "O" is selected, the drum does not reverse at the end of the job.	
	Brake Time	
3	Adjusts the length of time of braking to stop reverse rotation of the drum.	

2997\*

Standard Vt (Factory Only) **DFU** 

[0 to 99/60/1]

This SP is adjusted in units of 6 ms (1 step = 6 ms, 2 steps = 12 ms, etc.)

If "O" is selected, the drum stops reverse rotation immediately.

**Note:** Adjust the SP only if the PCU makes noise during braking when the drum rotation slows. To reduce or eliminate the noise, select a lower setting to reduce the braking time.

### 5

# SP3xxx

There are no Group 3 SP codes for this machine.

# **SP4xxx: Scanner**

	Scanner Sub Scan Magnification
4008*	Adjusts the magnification of the sub scan direction during scanning. Changing this value changes the scanner motor speed. Press to toggle ±.  [-1 to 1 / 0 / 0.1%]

4010*		Scanner Leading Edge Registration
	4010*	Adjusts the leading edge registration for scanning. Press 🔭 to toggle ±.
		[-2 to 2 / <b>0</b> / 0.1 mm]
		As you enter a negative value, the image moves toward the leading edge.

	Scanner Side-to-side Registration
	Adjusts side-to-side registration for scanning. Press to toggle ±.
4011*	C: [-2.5 to +2.5 / 0.0 / 0.1 mm step]
	M: [-4.2 to +4.2 / 0.0 / 0.1 mm step]
	As you enter negative values, the image will disappear at the left, and as you enter positive values, the image will appear at the left.

4012*	Scanner Erase Margin: Scale		
	Adjusts the erase margin at each side for scanning in book mode and ADF mode.  Note		
	<ul> <li>Do not adjust this unless the user wishes to have a scanner margin that is greater than the printer margin.</li> <li>These settings are adjusted to erase shadows caused by the gap between the original and the scale of the scanner unit.</li> </ul>		
1	Book: Leading Edge	[0 to 3.0 / 1.0 / 0.1 mm / step]	
2	Book: Trailing Edge	[0 to 3.0 / 0.0 / 0.1 mm / step]	
3	Book: Left	[0 to 3.0 / 1.0 / 0.1 mm / step]	
4	Book: Right		
5	ADF: Leading Edge	[0 to 3.0 / 0.0 / 0.1 mm / step]	

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4013	Scanner Free Run	
4013	Performs a scanner free run with the exposure lamp on or off.	
001	Lamp: ON [0 to 1 / 0 / 1]	
002	Lamp: OFF	0=Off, 1=On

	Scanner Free Run		
Performs a scanner free run with the exposure lamp on.  Note: The free run is done for full size (A3/DLT).		·	
1	HP Detection Enable	Touch [Execute] to start this feature.	
2	HP Detection Disable	• Press the © (Clear/Stop) key to stop.	

	ADF Scan Glass Dust Check	
4020	This function checks the narrow scanning glass of the ADF for dust that can cause blo lines in copies. If dust is detected a system banner message is displayed, but process does not stop.	
	Check On/Off Change	
	Issues a warning if there is dust on the narrow scanning glass of the ADF when the original size is detected before a job starts. This function can detect dust on the white plate above the scanning glass, as well as dust on the glass. Sensitivity of the level of detection is adjusted with SP4020 2.	
1	[0 to 1 / 0 / 1]	
	0: Off. No dust warning.	
	1: On. Dust warning. This warning does not stop the job.	
	Note	
	Before switching this setting on, clean the ADF scanning glass and the white plate above the scanning glass.	
2 Detect Level		

Adjusts the sensitivity for dust detection on the ADF scanning glass. This SP is available only after SP4020 1 is switched on.

[0 to 8 / 4 / 1]

If you see black streaks in copies when no warning has been issued, raise the setting to increase the level of sensitivity. If warnings are issued when you see not black streaks in copies, lower the setting.

Note: Dust that triggers a warning could be removed from the glass by the originals in the feed path. If the dust is removed by passing originals, this is not detected and the warning remains on.

3 Correction Level

Selects the level of the sub scan line correction when using the ARDF.

[0 to 4 / 0 / 1 / step]

	APS Scanner Output Display
4301	Displays the status of the APS sensors and platen/DF cover sensor (see 'APS Output Display').

0: Off, 1: Weakest, 2: Weak, 3: Strong, 4: Strongest

	APS A5/LT Size Detection
	Selects if the copier defaults to A5 SEF/LEF if the APS sensor cannot detect the size of a small original.
4303*	[0 to 2/0/1]
	0: Not detected as A5
	1: Detected as A5 SEF
	2: Detected as A5 LEF

	Original Size Detection
	Selects whether the machine determines that the original is A4/LT, or 8K/16K.
4305*	8K/16K is not available for USA models.
4000	[0 = Normal (LT for USA models, A4 for Europe/Asia models)
	1 = Reversed [A4 for USA models, LT for Europe/Asia models]
	2 = 8K/16K]

4400	Scanner Erase Margin		
4400	These SPs set the area to be masked during platen (book) mode scanning.		
1 Book: Leading Edge			
2	Book: Trailing Edge	[0.1.20/00/01/]	
3 Book: Left		[0 to 3.0 / 0.0 / 0.1 mm/step]	
4	Book: Right		
5	5 ADF: Leading Edge [0 to 3.0 / 2.0 / 0.1 mm/step]		
7	ADF: Right	[0, 20/0/01 /, 1	
8	ADF: Left	[0 to 3.0 / 0 / 0.1 mm/step]	

	IPU Test Patte	rn			
	Selects the IP	Selects the IPU test Pattern.			
		[0 to 28 / <b>0</b> / 1]			
		0: Scanned image	15: Gray pattern (1)		
		1: Gradation main scan A	16: Gray pattern (2)		
		2: Gradation main scan B	17: Gray pattern (3)		
		3: Gradation main scan C	18: Shading pattern		
		4: Gradation main scan D	19: Thin line pattern		
4417	Test Pattern Selection	5: Gradation sub scan (1)	20: Scanned + Grid pattern		
		6: Grid pattern	21: Scanned + Grid scale		
		7: Slant grid pattern	22: Scanned + Color patch		
		8: Gradation K	23: Scanned + Slant Grid C		
		9: Check pattern 16	24: Scanned + Slant Grid D		
		10: Gray patch 16 (1)	25: Gray Scale 18 text		
		11: Gray patch 16 (2)	26: Gray Scale 18 photo		
		12: Gray patch 64	27: Gray Scale 256 text		

13: Grid pattern (2)	28: Gray Scale 256 photo
14: Color patch K	

4429	ICI Output Selection	
4429	Adjusts the ICI density level.	
1	Сору	
2	Scanner	[32 to 255 / <b>128</b> / 1 /step] 255: Strongest density
3	Fax	200. On ongest density

4450	Scan Image Path Detection		
4430	Determines the method of image path detection.		
1 Black Reduction ON/OFF		Switches black image path detection on/off	
2	SH ON/OFF	Switches shading image path detection on/off	

	4440	Digital AE Setting	
4460	Specifies the detection threshold for background deletion in ADS mode.		
	1	Lower Limit	[0 to 1024 / <b>364</b> / 4 digit/step]
	2	Background Level	[512 to 1532 / <b>972</b> / 1 digit/step]

	Printer Vector Correction		
4540	This SP corrects the printer coverage for 12 hues (RY, YR, YG, etc. x 4 Colors [R, G, B, Option]) for a total of 48 parameters.		
1-4	RY Phase: Option/R/G/B		
5-8	YR Phase: Option/R/G/B		
9-12	YG Phase: Option/R/G/B	Specifies the printer vector correction value.	
13-16	GY Phase: Option/R/G/B	[0 to 255 / 0 / 1 /step]	
17-20	GC Phase: Option/R/G/B		
21-24	CG Phase: Option/R/G/B		

25-28	CB Phase: Option/R/G/B
29-32	BC Phase: Option/R/G/B
33-36	BM Phase: Option/R/G/B
37-40	MB Phase: Option/R/G/B
41-44	MR Phase: Option/R/G/B
45-48	RM Phase: Option/R/G/B

4550*	Scanner: Text/Chart	
4551*	Scanner: Text	
4552*	Scanner: Text (Dr	opout Color)
4553*	Scanner: Text/Ph	oto
4554	Scanner: Photo	
4565	Scanner: Graysco	ale
4570	Scanner: Color: T	ext/Photo
4571	Scanner: Color: T	ext/Photo
4572	Scanner: Color: A	Auto Color
5	MTF: O(Off), 1-15 (On)	
	[0 to 15 / <b>8</b> / 1 /step]	
	0: MTF Off	
	When the CCD converts the original image to electrical signals, the contrast is reduced due to the influence that adjacent white and black pixels have on one another as a result of lens properties. Typically, you may see very narrow width and spacing between black and white areas. MTF corrects this problem and emphasizes image detail.	
6	Smoothing	Selects the level of smoothing for originals that contain dithered images.  [0 to 7 / 4 / 0 / step]  0: Default (Off) → 7: Strongest
7	Brightness	Sets the overall brightness of the image. [1 to 255/128/1]

		1: Weakest ← 128: Default → 255: Strongest
		Sets the overall contrast of the image.
8	Contrast	[1 to 255/128/1]
		1: Weakest ← 128: Default → 255: Strongest
		Sets the level of independent dot erasure to improve the appearance of background.
9	Ind. Dot Erase	[0 to 7/0/1]
		0: Default (Off) → 7: Strongest

4580	Fax: Text/Chart	
4581	Fax: Text	
4582	Fax: Text/Photo	
4583	Fax: Photo	
4584	Fax: Original 1	
4585	Fax: Original 2	
5	MTF: 0(Off), 1-15 (O	n)
	[0 to 15 / 8 / 1 /step]  0: MTF Off  When the CCD converts the original image to electrical signals, the contrast is redudue to the influence that adjacent white and black pixels have on one another as a rof lens properties. Typically, you will see very narrow width and spacing between and white areas. MTF corrects this problem and emphasizes image detail.	
6	Smoothing	Selects the level of smoothing for originals that contain dithered images.  [0 to 7 / 4 / 0 / step]  0: Default (Off) → 7: Strongest
7	Brightness	Sets the overall brightness of the image.  [1 to 255/128/1]  1: Weakest ← 128: Default → 255: Strongest
8	Contrast	Sets the overall contrast of the image. [1 to 255/128/1]

		1: Weakest ← 128: Default → 255: Strongest
9		Sets the level of independent dot erasure to improve the appearance of background.
9	Ind. Dot Erase	[0 to 7/0/1]
		0: Default (Off) → 7: Strongest
		Sets the erasure level of textures. Set higher for stronger effect, lower for weaker effect.
10	Text Erasure [0 to 2 / 0 / 1 /step] 0: Not activated	[0 to 2 / 0 / 1 /step]
		0: Not activated
	Note: This SP code exists for SP4580, SP4582 and SP4583 only.	

4600	SBU Version
4000	Displays the version number of the SBU.

4602	Scanner Memory Erase	
1	Scanner Memory Access	Enables the read and write check for the SBU registers.
2	Address Setting	Not used.
3	Data Set	Not used.

4603	AGC Execution <b>DFU</b>
4003	Executes the AGC.
1	HP Detection Enable
2	HP Detection Disable

		FGATE Open/Close	
Opens or closes the FGATE signal. This SP automatical after exiting this SP.  [0 or 1 / 0 / 1/step]	Opens or closes the FGATE signal. This SP automatically returns to the default status (close) after exiting this SP.		
	[0 or 1 / 0 / 1/step]		
		0: OFF, 1: ON	
		Note:	

<ul> <li>When the registration sensor goes ON, the BCU generates the FGATE signal and sends it to the LD units.</li> </ul>
As soon as the LD units receive the FGATE signal, they send a feedback signal to the BCU.
SC230, SC231 if the FGATE signal fails to switch on or off.

4606	White Balance Target: R
4607	White Balance Target: G
4608	White Balance Target: B
	These SP codes set the target values for R, G, B (Red, Green, Blue) during white level adjustment.
	[0 to 1024 / <b>784</b> / 1 digit/step]

4623	Black Level Fine Adj. Display  Note:  RE: Red Even signal  RO: Red Odd signal	
1	Displays the black offset value (rough adjustment) for the even red signal in the CCD circuit board (color printing speed).  [0 to 255 / 128 / 1 digit/step]	
2	Latest: RO Color	Displays the black offset value (rough adjustment) for the odd red signal in the CCD circuit board (color printing speed).
3	Latest: RE Color	Displays the black offset value (fine adjustment) for the even red signal in the CCD circuit board (color printing speed).
4	Latest: RO Color	Displays the black offset value (fine adjustment) for the odd red signal in the CCD circuit board (color printing speed).
5	Latest: RE BW	Displays the black offset value (rough adjustment) for the even red signal in the CCD circuit board (black and white printing speed).  [0 to 255 / 128 / 1 digit/step]

6	Latest: RO BW	Displays the black offset value (rough adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).
7	Latest: RE BW	Displays the black offset value (fine adjustment) for the even red signal in the CCD circuit board (black and white printing speed).
8	Latest: RO BW	Displays the black offset value (fine adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).

4624	Black Level Rough Adj. Display	
	Note:  GE: Green Even signal GO: Green Odd signal	
1	Displays the black offset value (rough adjustment) for even green signal in the CCD circuit board (color prespeed).  [0 to 255 / 128 / 1 digit/step]	
2	Latest: GO Color	Displays the black offset value (rough adjustment) for the odd green signal in the CCD circuit board (color printing speed).
3	green signal in the CCD circuit board (color printing sp  Displays the black offset value (fine adjustment) for the	
4		
5	Latest: GE BW	Displays the black offset value (rough adjustment) for the even green signal in the CCD circuit board (black and white printing speed).  [0 to 255 / 128 / 1 digit/step]
6	Latest: GO BW	Displays the black offset value (rough adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).

7	Latest: GE BW	Displays the black offset value (fine adjustment) for the even green signal in the CCD circuit board (black and white printing speed).
8	Latest: GO BW	Displays the black offset value (fine adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).

4628	Gain Adjustment Display	
4026	Displays the gain value of the amplifiers on the controller for Red.	
1	Latest: RE Color	
2	Latest: RO Color	[0 to 255 / 0 / 1 divit/stan]
3	Latest: RE BW	[0 to 255 / 0 / 1 digit/step]
4	Latest: RO BW	

4629	Gain Adjustment Display	
4029	Displays the gain value of the amplifiers on the controller for Green.	
1	Latest: GE Color	
2	Latest: GO Color	[0 255 / 0 / 1 dimit/stan]
3	Latest: GE BW	[0 to 255 / 0 / 1 digit/step]
4	Latest: GO BW	

4630	Gain Adjustment Display	
4030	Displays the gain value of the amplifiers on the controller for Blue.	
1	Latest: BE Color	
2	Latest: BO Color	[0 255 / 0 / 1 diair/]
3	Latest: BE BW	[0 to 255 / 0 / 1 digit/step]
4	Latest: BO BW	

4640	SBU Black Level Loop
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	Displays the black level adjustment time for each mode. The black level adjustment is done twice. The 1st loop decides the reference value for the 2nd loop.	
1	Loop Count 1st: Color	1 st adjustment
2	Loop Count 1st: B/W	[0 to 20 / <b>0</b> / 1 /step]
3	Loop Count 2nd: Color	2nd adjustment
4	Loop Count 2nd: B/W	[0 to 20 / <b>0</b> / 1 /step]

SBU White Level Loop  Displays the white level adjustment time for each mode.		SBU White Level Loop	
		ent time for each mode.	
	1	Loop Count: Color	[0+-20/0/1/+]
	2	Loop Count: B/W	[0 to 20 / <b>0</b> / 1 /step]

	SBU Timeout Error	
Use this SP to determine whether the automatic scanner adjustment to the prescribed number of loops and flagged a timeout.		·
1	Black Level Adjustment 1	
2	Black Level Adjustment 2	1: AGC adjustment failure
3	White Level Adjustment	1.7.00 dajosinioni ranoro

4647	SBU Error
4047	Displays the result of the SBU connection check.

4654	Black Level 1: Rough Adj. Display	
	RE: Red Even signal, RO: Red Odd signal	
1	Previous: RE Color	Displays the previous black offset value (rough adjustment) for the even red signal in the CCD circuit board (color printing speed).  [0 to 255 / 112 / 1 digit/step]

2	Previous: RO Color	Displays the previous black offset value (rough adjustment) for the odd red signal in the CCD circuit board (color printing speed).
3	Previous: RE Color	Displays the previous black offset value (fine adjustment) for the even red signal in the CCD circuit board (color printing speed).  [0 to 255 / 128 / 1 digit/step]
4	Previous: RO Color	Displays the previous black offset value (fine adjustment) for the odd red signal in the CCD circuit board (color printing speed).
5	Previous: RE BW	Displays the previous black offset value (rough adjustment) for the even red signal in the CCD circuit board (black and white printing speed).  [0 to 255 / 112 / 1 digit/step]
6	Previous: RO BW	Displays the previous black offset value (rough adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).
7	Previous: RE BW	Displays the previous black offset value (fine adjustment) for the even red signal in the CCD circuit board (black and white printing speed).  [0 to 255 / 128 / 1 digit/step]
8	Previous: RO BW	Displays the previous black offset value (fine adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).

4655	Black Level 1: Rough Adj. Display	
4033	GE: Green Even signal, GO: Green Odd signal	
1	Previous: GE Color	Displays the previous black offset value (rough adjustment) for the even green signal in the CCD circuit board (color printing speed).  [0 to 255 / 112 / 1 digit/step]
2	Previous: GO Color	Displays the previous black offset value (rough adjustment) for the odd green signal in the CCD circuit board (color printing speed).

3	Previous: GE Color	Displays the previous black offset value (fine adjustment) for the even green signal in the CCD circuit board (color printing speed).  [0 to 255 / 128 / 1 digit/step]
4	Previous: GO Color	Displays the previous black offset value (fine adjustment) for the odd green signal in the CCD circuit board (color printing speed).
5	Previous: GE BW	Displays the previous black offset value (rough adjustment) for the even green signal in the CCD circuit board (black and white printing speed).  [0 to 255 / 112 / 1 digit/step]
6	Previous: GO BW	Displays the previous black offset value (rough adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).
7	Previous: GE BW	Displays the previous black offset value (fine adjustment) for the even green signal in the CCD circuit board (black and white printing speed).  [0 to 255 / 128 / 1 digit/step]
8	Previous: GO BW	Displays the previous black offset value (fine adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).

4656	Black Level 1: Rough Adj. Display		
4030	BE: Blue Even signal, BO: Blue Odd signal		
Previous: BE Color		Displays the previous black offset value (rough adjustment) for the even blue signal in the CCD circuit board (color printing speed).  [0 to 255 / 112 / 1 digit/step]	
2	Previous: BO Color	Displays the previous black offset value (rough adjustment) for the odd blue signal in the CCD circuit board (color printing speed).	
3 Previous: BE Color		Displays the previous black offset value (fine adjustment) for the even blue signal in the CCD circuit board (color printing speed).  [0 to 255 / 128 / 1 digit/step]	
4	Previous: BO Color	Displays the previous black offset value (fine adjustment) for the odd blue signal in the CCD circuit board (color printing speed).	

5	Previous: BE BW	Displays the previous black offset value (rough adjustment) for the even blue signal in the CCD circuit board (black and white printing speed).  [0 to 255 / 112 / 1 digit/step]
6	Previous: BO BW	Displays the previous black offset value (rough adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed).
7	Previous: BE BW	Displays the previous black offset value (fine adjustment) for the even blue signal in the CCD circuit board (black and white printing speed).  [0 to 255 / 128 / 1 digit/step]
8	Previous: BO BW	Displays the previous black offset value (fine adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed).

4658	Gain Adjustment Display	
4036	Displays the previous gain value of the amplifiers on the controller for Red.	
1	Previous: RE Color	
2	Previous: RO Color	[O. O. O. F. / O. / 1. drute/sec]
3	Previous: RE BW	[0 to 255 / 0 / 1 digit/step]
4	Previous: RO BW	

4659	Gain Adjustment Display	
4039	Displays the previous gain value of the amplifiers on the controller for Green.	
1	Previous: GE Color	
2	Previous: GO Color	[0 255 / 0 / 1 dimit/]
3	Previous: GE BW	[0 to 255 / 0 / 1 digit/step]
4	Previous: GO BW	

4660	Gain Adjustment Display		
4000	Displays the previous gain value of the amplifiers on the controller for Blue.		
1	Previous: BE Color	[0 to 255 / 0 / 1 digit/step]	

2	Previous: BO Color	
3	Previous: BE BW	
4	Previous: BO BW	

4661	Black Level 2: Rough Adjustment Display	
4001	RE: Red Even signal, RO: Red Odd signal	
1	Previous: RE Color	Displays the previous 2nd black offset value (rough adjustment) for the even red signal in the CCD circuit board (color printing speed).  [0 to 255 / 112 / 1 digit/step]
2	Previous: RO Color	Displays the previous 2nd black offset value (rough adjustment) for the odd red signal in the CCD circuit board (color printing speed).
3	Previous: RE Color	Displays the previous 2nd black offset value (fine adjustment) for the even red signal in the CCD circuit board (color printing speed).  [0 to 255 / 128 / 1 digit/step]
4	Previous: RO Color	Displays the previous 2nd black offset value (fine adjustment) for the odd red signal in the CCD circuit board (color printing speed).
5	Previous: RE BW	Displays the previous 2nd black offset value (rough adjustment) for the even red signal in the CCD circuit board (black and white printing speed).  [0 to 255 / 112 / 1 digit/step]
6	Previous: RO BW	Displays the previous 2nd black offset value (rough adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).
7	Previous: RE BW	Displays the previous 2nd black offset value (fine adjustment) for the even red signal in the CCD circuit board (black and white printing speed).  [0 to 255 / 128 / 1 digit/step]

8	Displays the previous 2nd black offset value (fine adjustment) for the odd red signal in the CCD circuit board	
	(black and white printing speed).	

4662	Black Level 2: Rough Adjustment Display		
4002	GE: Green Even signal, GO: Green Odd signal		
1	Previous: GE Color	Displays the previous 2nd black offset value (rough adjustment) for the even green signal in the CCD circuit board (color printing speed).	
		[0 to 255 / 112 / 1 digit/step]	
2	Previous: GO Color	Displays the previous 2nd black offset value (rough adjustment) for the odd green signal in the CCD circuit board (color printing speed).	
3	Previous: GE Color	Displays the previous 2nd black offset value (fine adjustment) for the even green signal in the CCD circuit board (color printing speed).  [0 to 255 / 128 / 1 digit/step]	
4	Previous: GO Color	Displays the previous 2nd black offset value (fine adjustment) for the odd green signal in the CCD circuit board (color printing speed).	
5	Previous: GE BW	Displays the previous 2nd black offset value (rough adjustment) for the even green signal in the CCD circuit board (black and white printing speed).  [0 to 255 / 112 / 1 digit/step]	
6	Previous: GO BW	Displays the previous 2nd black offset value (rough adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).	
7	Previous: GE BW	Displays the previous 2nd black offset value (fine adjustment) for the even green signal in the CCD circuit board (black and white printing speed).  [0 to 255 / 128 / 1 digit/step]	
8	Previous: GO BW	Displays the previous 2nd black offset value (fine adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).	

	Black Level 2: Rough Adjustment Display		
4663	BE: Blue Even signal, BO: B	E: Blue Even signal, BO: Blue Odd signal	
1	Previous: BE Color	Displays the previous 2nd black offset value (rough adjustment) for the even blue signal in the CCD circuit board (color printing speed).	
		[0 to 255 / 112 / 1 digit/step]	
2	Previous: BO Color	Displays the previous 2nd black offset value (rough adjustment) for the odd blue signal in the CCD circuit board (color printing speed).	
3	Previous: BE Color	Displays the previous 2nd black offset value (fine adjustment) for the even blue signal in the CCD circuit board (color printing speed).  [0 to 255 / 128 / 1 digit/step]	
4	Previous: BO Color	Displays the previous 2nd black offset value (fine adjustment) for the odd blue signal in the CCD circuit board (color printing speed).	
5	Previous: BE BW	Displays the previous 2nd black offset value (rough adjustment) for the even blue signal in the CCD circuit board (black and white printing speed).  [0 to 255 / 112 / 1 digit/step]	
6	Previous: BO BW	Displays the previous 2nd black offset value (rough adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed).	
7	Previous: BE BW	Displays the previous 2nd black offset value (fine adjustment) for the even blue signal in the CCD circuit board (black and white printing speed).  [0 to 255 / 128 / 1 digit/step]	
8	Previous: BO BW	Displays the previous 2nd black offset value (fine adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed).	

4673	Black Level 2: Rough Adjustment Display	
40/3	RE: Red Even signal, RO: Red Odd signal	

1	Factory Setting: RE Color	Displays the factory setting values of the black level adjustment for the even red signal in the CCD circuit board (color printing speed)  [0 to 255 / 112 / 1 digit/step]
2	Factory Setting: RO Color	Displays the factory setting values of the black level adjustment (rough adjustment) for the odd red signal in the CCD circuit board (color printing speed).
3	Factory Setting: RE Color	Displays the factory setting values of the black level adjustment (fine adjustment) for the even red signal in the CCD circuit board (color printing speed).  [0 to 255 / 128 / 1 digit/step]
4	Factory Setting: RO Color	Displays the factory setting values of the black level adjustment (fine adjustment) for the odd red signal in the CCD circuit board (color printing speed).
5	Factory Setting: RE BW	Displays the factory setting values of the black level adjustment (rough adjustment) for the even red signal in the CCD circuit board (black and white printing speed).  [0 to 255 / 112 / 1 digit/step]
6	Factory Setting: RO BW	Displays the factory setting values of the black level adjustment (rough adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).
7	Factory Setting: RE BW	Displays the factory setting values of the black level adjustment (fine adjustment) for the even red signal in the CCD circuit board (black and white printing speed).  [0 to 255 / 128 / 1 digit/step]
8	Factory Setting: RO BW	Displays the factory setting values of the black level adjustment (fine adjustment) for the odd red signal in the CCD circuit board (black and white printing speed).

4674	Black Level 2: Rough Adjustment Display	
4074	GE: Green Even signal, GO: Green Odd signal	
1	Factory Setting: GE Color	Displays the factory setting values of the black level adjustment (rough adjustment) for the even green signal in the CCD circuit board (color printing speed).  [0 to 255 / 112 / 1 digit/step]

2	Factory Setting: GO Color	Displays the factory setting values of the black level adjustment (rough adjustment) for the odd green signal in the CCD circuit board (color printing speed).
3	Factory Setting: GE Color	Displays the factory setting values of the black level adjustment (fine adjustment) for the even green signal in the CCD circuit board (color printing speed).  [0 to 255 / 128 / 1 digit/step]
4	Factory Setting: GO Color	Displays the factory setting values of the black level adjustment (fine adjustment) for the odd green signal in the CCD circuit board (color printing speed).
5	Factory Setting: GE BW	Displays the factory setting values of the black level adjustment (rough adjustment) for the even green signal in the CCD circuit board (black and white printing speed).  [0 to 255 / 112 / 1 digit/step]
6	Factory Setting: GO BW	Displays the factory setting values of the black level adjustment (rough adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).
7	Factory Setting: GE BW	Displays the factory setting values of the black level adjustment (fine adjustment) for the even green signal in the CCD circuit board (black and white printing speed).  [0 to 255 / 128 / 1 digit/step]
8	Factory Setting: GO BW	Displays the factory setting values of the black level adjustment (fine adjustment) for the odd green signal in the CCD circuit board (black and white printing speed).

	4675	Black Level 2: Rough Adjustment Display	
	40/3	BE: Blue Even signal, BO: Blue Odd signal	
	1	Factory Setting: BE Color	Displays the factory setting values of the black level adjustment (rough adjustment) for the even blue signal in the CCD circuit board (color printing speed).  [0 to 255 / 112 / 1 digit/step]

2	Factory Setting: BO Color	Displays the factory setting values of the black level adjustment (rough adjustment) for the odd blue signal in the CCD circuit board (color printing speed).
3	Factory Setting: BE Color	Displays the factory setting values of the black level adjustment (fine adjustment) for the even blue signal in the CCD circuit board (color printing speed).  [0 to 255 / 128 / 1 digit/step]
4	Factory Setting: BO Color	Displays the factory setting values of the black level adjustment (fine adjustment) for the odd blue signal in the CCD circuit board (color printing speed).
5	Factory Setting: BE BW	Displays the factory setting values of the black level adjustment (rough adjustment) for the even blue signal in the CCD circuit board (black and white printing speed).  [0 to 255 / 112 / 1 digit/step]
6	Factory Setting: BO BW	Displays the factory setting values of the black level adjustment (rough adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed).
7	Factory Setting: BE BW	Displays the factory setting values of the black level adjustment (fine adjustment) for the even blue signal in the CCD circuit board (black and white printing speed).  [0 to 255 / 128 / 1 digit/step]
8	Factory Setting: BO BW	Displays the factory setting values of the black level adjustment (fine adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed).

Gain Adjustment Display		
40//	Displays the factory setting values of the gain adjustment for Red.	
1	Factory Setting: RE Color	
2	Factory Setting: RO Color	[0 to 255 / 0 / 1 digit/step]
3	Factory Setting: RE BW	
4	Factory Setting: RO BW	

4678	Gain Adjustment Display	
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Displays the factory setting values of the gain adjust		Displays the factory setting values of t	he gain adjustment for Green.
	1	Factory Setting: GE Color	
	2	Factory Setting: GO Color	[0.5.055 / 0. / 1.
	3	Factory Setting: GE BW	[0 to 255 / 0 / 1 digit/step]
	4	Factory Setting: GO BW	

4679	Gain Adjustment Display	
	Displays the factory setting values of the gain adjustment for Blue.	
1	Factory Setting: BE Color	
2	Factory Setting: BO Color	[0 0.55 / 0. / 1. dimit/
3	Factory Setting: BE BW	[0 to 255 / 0 / 1 digit/step
4	Factory Setting: BO BW	

4685	Gray Balance Set: R <b>DFU</b>	
	Adjusts the gray balance of the red signal for each scanning mode.	
1	Book Read	[512 to 511 / 240 / 1 digit/stop]
2	DF Read	- [-512 to 511 / -240 / 1 digit/step]

4686	Gray Balance Set: G <b>DFU</b>		
	Adjusts the gray balance of the green signal for each scanning mode.		
	1	Book Read	[512 to 511 / 240 / 1 divit/stop]
	2	DF Read	[-512 to 511 / -240 / 1 digit/step]

4407	Gray Balance Set: B DFU		
	4687	Adjusts the gray balance o	of the blue signal for each scanning mode.
	1	Book Read	[510 + 511 / 240 / 1 divit/+]
	2	DF Read	[-512 to 511 / -240 / 1 digit/step]

		DF: Density Adjustn	nent		
4688		Adjusts the white shading parameter when scanning an image with the DF. Adjusts the density level if the ID of outputs made in the DF and Platen mode is different.			
		[50 to 150 / 109	/ 1%/ step ]		
4800		SBU ID Check Setti	SBU ID Check Setting <b>DFU</b>		
		DF Shading Free R	un		
4802		Executes the scanner free run for shading movement with the exposure lamp on or off. The free run moves the scanning lamp a short distance and immediately returns it to its home position.			
	1	Lamp ON	Touch [ON] to start the free run		
	2	Lamp OFF	Be sure to touch "OFF" to stop the free run.		
		Home Position Adj	ustment		
4803		Adjusts the home p	osition of the exposure lamp.		
		Returning to Scann	er HP		
4804		Moves the exposure lamp a short distance and immediately returns it to its home position.  Touch [Execute]> "Completed"> [Exit].			
		Moving from Scan	ner HP		
4806		Moves the exposure lamp a short distance away from the home position and stops.  • Touch [Execute]> "Completed"> [Exit]			
		Do SP4804 to return the exposure lamp to its home position.			
		Note			
			e before shipping the machine to another location.  achine power off/on also returns the exposure lamp to its home		

4903\*

Filter Settings

	This SP code sets the threshold value for independent dot erase.	
The "O" setting disables independent dot erase.		
	A higher setting detects more spurious dots for erasing. However, this could cause dots to erase in images that contain areas filled by dithering.	
1	Independent Dot Erase: Text/Photo	[0 +- 7/0/1]
2	Independent Dot Erase: Generation	[0 to 7/0/1]

Dither Selection <b>DFU</b>
Changes the parameters for dithering.  [0 to 255 / 0 / 1 /step]

4906	Filter Setting: Other		
	Outline level Adj	[0/10/0/1]	

4907	SBU Test Pattern Change
	Selects the test pattern generated by the controller board.
	[0 to 255 / 0 / 1 /step]
	0: Default (Scanning Image)
	1: Grid pattern
	2: Gradation main scan
	3: Gradation sub scan
	4 to 250: Default (Scanning Image)

4908	Factory Setting Input <b>DFU</b>
1	Execution: ON/OFF
2	Execution Flag

4918	Manual Gamma Adjustment <b>DFU</b>
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	4991	IPU Image Pass [Path] Selection (RGB Frame Memory) <b>DFU</b>	
4991	Selects the image path. Enter the number to be selected using the 10-key pad.	]	

[0 to 11/2/1]	
0	Scanner input RGB images
1	Scanner I/F RGB images
2	RGB images done by Shading correction (Shading ON, Black offset ON)
3	Shading data
4	Inner pattern data: Gray scale
5	RGB images done by Line skipping correction
6	RGB images done by Digital AE
7	RGB images done by Vertical line correction
8	RGB image done by Scanner gamma correction
9	RGB image done by Filtering correction
10	RGB images done by Full color ADS
11	RGB image done by Color correction

4993	Highlight Correction		
	Selects the level of highlight correction.		
1	Sensitivity Selection	Selects the Highlight correction level.  [0 to 9 / 4 / 1 /step]  0: weakest sensitivity  9: strongest sensitivity	
2	Range Selection	Selects the range level of Highlight correction.  [0 to 9 / 4 / 1 /step]  0: weakest skew correction,  9: strongest skew correction	

	Text/Photo Detection Level Adj.
	Selects the definition level between Text and Photo for high compression PDF.
	[0 to 2 / 1 / 1 /step]
	0: Text priority

1: Normal
2: Photo priority

## 5

## SP5xxx: Mode

5024*	mm/inch Selection
	Selects whether mm or inches are used in the display.
	Note: After selecting the number, you must turn the main power switch off and on.
	Europe/Asia model: [0 = mm / 1 = inch]
	American model: [0 = mm / 1 = inch]

5045	Accounting Counter
	Selects whether the printer counter is displayed on the LCD.
	[0-1/0/1]
	0: Displays the total counter only.
	1: Displays both total counter and printer counter.

5047	Paper Display
	Determines whether the tray loaded with paper printed on one side is displayed.
	[0 to 1/1]
	0: Not displayed
	1: Displayed

	Return Time Priority Type		
	5052	The recovery time of the Basic model is 5 sec. so two settings are provided, one for energy save priority and one for start time priority.	
		0: Energy save priority	
	1: Start time priority		

		Display IP Address
5055*	Display or does not display the IP address on the LCD.	
		[0 to 1 / <b>0</b> / 1]
	0: OFF, 1: ON	

5056*	Coverage Counter Display
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Display or does not display the coverage counter on the LCD.
[0 to 1 / <b>0</b> / 1]
0: Not displayed, 1: Displayed

5061*	Toner Remaining Icon Display
	Display or does not display the remaining toner display icon on the LCD. [0 to $1/0/1$ ]
	0: Not display, 1: Display

5104*	A3/DLT Double Count (SSP)
	Specifies whether the counter is doubled for A3/DLT. "Yes" counts except from the bypass tray. When "Yes" is selected, A3 and DLT paper are counted twice, that is A4 x2 and LT x2 respectively.

	Density Level Setting
	Selects the image density level used in ADS mode.
	[1 to 7 / 4 / 1 notch per step]
5106*	Example: If you set SP5106 to "2": Pressing the Auto Image Density key toggles the display off and manual notch 2 is selected.
	Adjust this SP if the customer cannot attain clean copies after performing automatic density adjustment

5113	Optional Counter Type
	Default Optional Counter Type
	Selects the type of counter:
	0: None
	1: Key Card (RK3, 4) Japan only
1	2: Key Card Down
	3: Pre-paid Card
	4: Coin Lock
	5: MF Key Card (Must be enabled with SP5114)
	11: Exp Key Card (Add)

	12: Exp Key Card (Deduct)
	External Optional Counter Type
	Enables the SDK application. This lets you select a number for the external device for user access control.
	Note: "SDK" refers to software on an SD card.
2	[0 to 3/1]
	0: None
	1: Expansion Device 1
	2: Expansion Device 2
	3: Expansion Device 3

5114*	Optional Counter I/F
	MF Key Card Extension
001	Use this SP to change the setting to "1" only when the "5" (MF Key Card) is selected with SP5113-001.
	[0: Not installed/ 1: Installed (scanning accounting)]

5118	Disable Copying
	Temporarily denies access to the machine. Japan Only
	[0 to 1/1]
	0: Release for normal operation
	1: Prohibit access to machine

	Mode Clear Opt. Counter Removal
	Do not change. <b>Japan Only</b>
5120	[0 to 2/1]
0120	0: Yes. Normal reset
	1: Standby. Resets before job start/after completion
	2: No. Normally no reset

5121	Counter Up Timing
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Determines whether the optional key counter counts up at paper feed-in or at paper exit.

## Japan Only

[0 to 1/1]

0: Feed count

1: No feed count

	F Size Original Setting
	Selects the F-size original setting.
5126	[0 to 2 / <b>0</b> / 1 /step]
0120	0: 8.5" x 13" (Foolscap)
	1: 8.25" x 13" (Folio)
	2: 8" x 13" (F)

		APS OFF Mode	
		This SP can be used to switch APS (Auto Paper Select) off when a coin lock or pre-paid key card device is connected to the machine.	
	5127	[0 to 1/1]	
		0: On	
		1: Off	

	F Paper Size Selection
	Selects the "F" paper size.
5129*	[0 to 2 / 0 / 1 step]
0127	0: 8" x 13"
	1: 8.5" x 13"
	2: 8.25" x 13"

	5131*	Paper Size Type Selection
		Selects the paper size (type) for both originals and copy paper.  [0 to 2 / DIP SW setting / 1 step]
		0: Japan
		1: North America

2: Europe

After changing the setting, turn the copier off and on. If the paper size of the archive files stored on the HDD is different, abnormal copies could result. Ask the customer to restore the archive files.

	Bypass Length Setting
	Sets up the by-pass tray for long paper.
5150	[0 to 1/1]
0100	0: Off
	1: On. Sets the tray for feeding paper up to 600 mm long.
	With this SP selected on, paper jams are not detected in the paper path.

5162	App. Switch Method
	Controls if the application screen is changed with a hardware switch or a software switch.
	[0 to 1/1]
	0: Soft Key Set
	1: Hard Key Set

	Z-Fold Position (Not Used)		
5165	Adjusts the position of the first fold to decrease or increase the distance between the leading edge and the crease of the 2nd fold.		
1	A3T (SEF)		
2	B4T (SEF)		
3	A4T (SEF)		
4	DLTT (SEF)	[-4 ~ +4/0/ 0.2 mm]	
5	LGT (SEF)	[-4 ~ +4/ 0/ 0.2 mm]	
6	LTT (SEF)		
7	12×18 (SEF)		
8	Other		

5167	Fax Printing Mode at Optional Counter Off
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Enables or disables the automatic print out without an accounting device. This SP is used when the receiving fax is accounted for by an external accounting device.

0: Automatic printing

1: No automatic printing

5169	CE Login
	If you will change the printer bit switches, you must 'log in' to service mode with this SP before you go into the printer SP mode.  [0 to 1/1]
	0: Off. Printer bit switches cannot be adjusted.
	1: On. Printer bit switches can be adjusted.

	Bypass Size Error
5179*	This SP determines whether a paper size error prompt appears when the machine detects the wrong paper size for the job and jams during feed from the bypass tray.  [0 to 1/0/1]  0: Off
	1: On

5186	RK 4: Setting Japan Only
	Enables or disables the prevention for RK4 (accounting device) disconnection. If the RK4 is disconnected for 10 seconds when this SP is set to "1 (Enable)", the machine automatically jams a sheet of paper and stops.
	[0 or 1 / 0 / 1/step]
	0: Disable
	1: Enable

5188	Copy NV Version <b>DFU</b>
5195	Limitless SW <b>DFU</b>
5212	Page Numbering

3	Duplex Printout Left/Right Position	Horizontally positions the page numbers printed on both sides during duplexing.  [-10 to +10/1 mm]  O is center, minus is left, + is right.
4	Duplex Printout High/Low Position	Vertically positions the page numbers printed on both sides during duplexing.  [-10 to +10/1 mm]  O is center, minus is down, + is up.

5302	Set Time <b>DFU</b>
	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.]
	JA: +540 (Tokyo)
3302	NA: -300 (NY)
	EU: +6- (Paris)
	CH: +480 (Peking)
	TW: +480 (Taipei)
	AS: +480 (Hong Kong)

	Summer Tir	ne	
	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 a	Day and time to go forward automatically in April.	
	Day and time to go back automatically in October.		
5307	Set the length of time to go forward and back automatically.		
0007	The settings for 002 and 003 are done with 8-digit numbers:		
	Digits	Meaning	
	1st, 2nd	Month. 4: April, 10: October (for months 1 to 9, the first digit of 0 cannot be input, so the eight-digit setting for 002 or 003 becomes a seven-digit setting)	
	3rd	Day of the week. 0: Sunday, 1: Monday	

	4th	The number of the week for the day selected at the 3rd digit. If "0" is selected for "Sunday", for example, and the selected Sunday is the start of the 2nd week, then input a "2" for this digit.
5th, 6th  Example: 00:00 (Midnight) = 00, 01:00 (1 a.m.) = 01, a  7th  The number of hours to change the time. 1 hour: 1		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.
		The number of hours to change the time. 1 hour: 1
		If the time change is not a whole number (1.5 hours for example), digit 8 should be 3 (30 minutes).
1	Setting	Enables/disables the settings for 002 and 003.  [0 to 1/1]  0: Disable  1: Enable
2	Rule Set (Start)	The start of summer time.
4	Rule Set (End)	The end of summer time.

5401	Access Control <b>DFU</b>		
3401	This SP stores the settings that limit uses access to SDK application data.		
103	Default Document ACL		
200	SDK1 Unique ID		
201	SDK1 Certification Method		
210			
211	SDK2 Certification Method	This data can be converted from SAS (VAS) when installed or uninstalled. <b>DFU</b>	
220	SDK3 Unique ID		
221	SDK3 Certification Method		
230	Certification Device		

5404	User Code Count Clear
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Clears the counts for the user codes assigned by the key operator to restrict the use of the machine. Press [Execute] to clear.

5411	LDAP Certification
4	Easy Certification  Determines whether easy LDAP certification is done.  [0 to 1/1/1]  1: On  0: Off
5	Password Null Not Permit  This SP is referenced only when SP5411-4 is set to "1" (On).  [0 to 1/0/1]  0: Password NULL not permitted.  1: Password NULL permitted.

5413	Lockout Setting
1	Lockout On/Off Switches on/off the lock on the local address book account.
	[0 to 1/0/1]
	0: Off
	1: On
2	Lockout Threshold
	Sets a limit on the frequency of lockouts for account lockouts.
	[1 to 10/5/1]
	Cancellation On/Off
3	Determines whether the system waits the prescribed time for input of a correct user ID and password after an account lockout has occurred.
	[0 to 1/0/1]
	0: Off (no wait time, lockout not cancelled)
	1: On (system waits, cancels lockout if correct user ID and password are entered.
4	Cancellation Time

Determines the length of time that the system waits for correct input of the user ID and password after a lockout has occurred. This setting is used only if SP5413-3 is set to "1" (on).

[1 to 999/60/1 min.]

5414	Access Mitigation
1	Mitigation On/Off Switches on/off masking of continuously used IDs and passwords that are identical.  [0 to 1/0/1]  0: Off 1: On
2	Mitigation Time  Sets the length of time for excluding continuous access for identical user IDs and passwords.  [0 to 60/15/1 min.]

5415	Password Attack
1	Permissible Number  Sets the number of attempts to attack the system with random passwords to gain illegal access to the system.  [0 to 100/30/1 attempt]
2	Detect Time  Sets the time limit to stop a password attack once such an attack has been detected.  [1 to 10/5/1 sec.]

5416	Access Information
1	Access User Max Number  Limits the number of users used by the access exclusion and password attack detection functions.  [50 to 200/200/1 users]
2	Access Password Max Number  Limits the number of passwords used by the access exclusion and password attack detection functions.

	[50 to 200/200/1 passwords]
	Monitor Interval
3	Sets the processing time interval for referencing user ID and password information.
	[1 to 10/3/1 sec.]

5417	Access Attack
1	Access Permissible Number  Sets a limit on access attempts when an excessive number of attempts are detected for MFP features.  [0 to 500/100/1]
2	Attack Detect Time  Sets the length of time for monitoring the frequency of access to MFP features.  [10 to 30/10/1 sec.]
3	Productivity Fall Waite  Sets the wait time to slow down the speed of certification when an excessive number of access attempts have been detected.  [0 to 9/3/1 sec.]
4	Attack Max Number  Sets a limit on the number of requests received for certification in order to slow down the certification speed when an excessive number of access attempts have been detected.  [50 to 200/200/1 attempt]

5420	User Authentication
	These settings should be done with the System Administrator.  Note: These functions are enabled only after the user access feature has been enabled.
1	Сору
	Determines whether certification is required before a user can use the copy applications.  [0 to 1/0/1]  0: On  1: Off
11	Document Server

	Determines whether certification is required before a user can use the document server.		
	[0 to 1/0/1]		
	0: On		
	1: Off		
	Fax		
	Determines whe	ther certification is required before a user can use the fax application.	
21	[0 to 1/0/1]		
	0: On		
	1: Off		
Scanner			
	Determines whether certification is required before a user can use the scan applications.		
31	[0 to 1/0/1]		
	0: On		
	1: Off		
	Printer		
	Determines whe	ther certification is required before a user can use the printer applications.	
41	[0 to 1/0/1]		
	0: On		
	1: Off		
51	SDK1	[0 or 1/ <b>0</b> /1] 0: ON. 1: OFF	
61	SDK2	Determines whether certification is required before a user can use the SDK application.	
71	SDK3		

5 40 1	Authentication Error Code
5481	These SP codes determine how the authentication failures are displayed.
	System Log Disp
1	Determines whether an error code appears in the system log after a user authentication failure occurs.
	[0 to 1/0/1]
	0: Off
	1: On

	Panel Disp
	Determines whether an error code appears on the operation panel after a user authentication failure occurs.
2	[0 to 1/1/1]
	1: On
	0: Off

	MF Keycard Japan Only
	Sets up operation of the machine with a keycard.
5490	[0 to 1/0/1]
	0: Disabled. Cancels operation if no code is input.
	1: Enabled. Allows operation if another code is input and decrements the counter once for use of the entered code.

5501*	PM Alarm
	PM Alarm Interval
Sets the PM interval.  The value stored in this SP is used when the value of SP5501 2 is "1".  [0 to 255 / 0 / 1 k copies/step]	
	Original Count Alarm <b>DFU</b>
2	Selects whether the PM alarm for the number of scans is enabled or not.  If this is "1", the PM alarm function is enabled.  [0 = No / 1 = Yes]

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

	Error Alarm
5505*	Sets the error alarm level. Japan only DFU
	[0 to 255 / 50 / 100 copies per step]

5507	Supply Alarm		
1	Paper Supply Alarm (0:Off 1:On)	Switches the control call on/off for the paper supply. <b>DFU</b> 0: Off, 1: On 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,	
2	Staple Supply Alarm (0:Off 1:On)	HLT)  Switches the control call on/off for the stapler installed in the finisher. <b>DFU</b> 0: Off, 1: On  0: No alarm  1: Alarm goes off for every 1K of staples used.	
3	Toner Supply Alarm (0:Off 1:On)	Switches the control call on/off for the toner end. <b>DFU</b> 0: Off, 1: On If you select "1" the alarm will sound when the copier detects toner end.	
128*	interval: Others		
132*	Interval: A3		
133*	Interval: A4		
134*	Interval: A5		
141*	Interval: B4	The "Paper Supply Call Level: nn" SPs specify the paper control call interval for the referenced paper sizes. <b>DFU</b> [00250 to 10000 / 1000 / 1 Step]	
142*	Interval: B5		
160*	Interval: DLT		
164*	Interval: LG		
166*	Interval: LT		
172*	Interval: HLT		

5508	CC Call Japan Only		
1	Jam Remains	Enables/disables initiating a call.	
2	Continuous Jams	[0 to 1/1]	
3	Continuous Door Open	0: Disable 1: Enable	
11	Jam Detection: Time Length	Sets the length of time to determine the length of an unattended paper jam.  [03 to 30/1]	
12	Jam Detection Continuous Count	Sets the number of continuous paper jams required to initiate a call.  [02 to 10/1]	
13	Door Open: Time Length	Sets the length of time the remains opens to determine when to initiate a call.  [03 to 30/1]	

	SC/Alarm Setting		
With NRS (New Remote Service) in use, these SP code an SC error occurs. If this SP is switched off, the SC coccurs.			
1	SC Call		
2	Service Parts Near End Call	[0 or 1 / 1 / -] 0: Off	
3	Service Parts End Call	1: On	
4	User Call		
6	Communication Test Call		
7	Machine Information Notice		
8	Alarm Notice	[0 or 1 / 1 / -]	
9	Non Genuine Toner Alarm	0: Off 1: On	
10	Supply Automatic Ordering Call		
11	Supply Management Report Call		

12 J	am/Door Open Call		
5792	MCS Debug Log <b>DFU</b>		
5793	ECS Debug SW <b>DFU</b>		
	Memory Clear		
5801	Resets NVRAM data to the default settings. Before executing any of these SP codes, print an SMC Report.		
1	All Clear	Initializes items 2 to 15 below.	
2	Engine	Initializes all registration settings for the engine and copy process settings.	
3	SCS	Initializes default system settings, SCS (System Control Service) settings, operation display coordinates, and ROM update information.	
4	IMH Memory Clear	Initializes the image file system. (IMH: Image Memory Handler)	
5	MCS	Initializes the automatic delete time setting for stored documents.  (MCS: Memory Control Service)	
6	Copier application	Initializes all copier application settings.	
7	Fax application	Initializes the fax reset time, job login ID, all TX/RX settings, local storage file numbers, and off-hook timer.	
8	Printer application	Initializes the printer defaults, programs registered, the printer SP bit switches, and the printer CSS counter.	
9	Scanner application	Initializes the defaults for the scanner and all the scanner SP modes.	
10	Web Service	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
11	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)
12	R-FAX	Initializes the job login ID, SmartNetMonitor for Admin, job history, and local storage file numbers.
14	Clear DCS Setting	Initializes the DCS (Delivery Control Service) settings.
15	Clear UCS Setting	Initializes the UCS (User Information Control Service) settings.
16	MIRS Setting	Initializes the MIRS (Machine Information Report Service) settings.
17	CCS	Initializes the CCS (Certification and Charge-control Service) settings.
18	SRM Memory Clear	Initializes the SRM (System Resource Manager) settings.
19	LCS	Initializes the LCS (Log Count Service) settings.
20	Web Apli	Initializes Web application settings.
21	ECS	Initializes ECS (Engine Control Service).

	Free Run	
5802	Performs a free run for both scanner and the printer.  Touch [ON] to start the free run.  Touch [OFF] to stop.	
1	A4 (LEF)/F1	Free run for A4-size paper, long-edge feed, from the upper tray.
2	A3/F2	Free run for A3-size paper from the lower tray.
3	A4 (SEF)/F2	Free run for A4-size paper, short-edge feed, from the lower tray.

	Input Check
5803	Displays signals received from sensors and switches.
	Press the ᠍ (Clear Modes) key to exit
1	Original Size Sensor
2	ENG Enable Signal
3	Tray 2: Paper Height Sensor
4	Tray 1: Paper Height Sensor
5	Tray 2: Paper End Sensor
6	Tray 2: Paper Feed Sensor
7	Warm-up Signal
8	ENG Down Time Signal
9	Bank Motor Ready Signal
10	Bank Paper Height Sensor
11	Bank: Set Sensor
12	Bank: Cover Open
13	Fusing Unit Set
14	Interchange Sensor
15	Interchange Unit Set
16	1-Bin Unit Set
17	1-Bin Unit: Paper Set
18	Tray 1: Paper Feed Sensor
19	Tray 1: Paper End Sensor
20	Tray 2: Paper Lift Sensor
21	Tray 1: Paper Lift Sensor
22	Tray 3: Paper End Sensor
23	Tray 4: Paper End Sensor

24	Tray 3: Paper Lift Sensor
25	Tray 4: Paper Lift Sensor
26	Duplex Unit Set
27	Mechanical Counter Set
28	By-pass Tray Unit Set
29	By-pass: Paper End Sensor
30	By-pass: Paper Size Sensor
31	Duplex: Entrance Sensor
32	Duplex: Exit Sensor
33	Registration Sensor
34	Front Safety SW- 24V
35	Front Safety SW – 5V
36	Paper Overflow Sensor
37	Fan Lock
38	Bottle Lock Motor
39	Destination Code
40	SIU: BW/Color
42	Bridge Exit Sensor
43	Bridge Relay Sensor
44	Bridge Center Cover Open
45	Bridge Right Cover Open
46	Bridge Unit Set Detection
47	Bridge Motor Lock
48	Shift Tray Unit Set
49	Key Counter Set
50	Key Card Set

51	Tray 3: Paper Feed Sensor
52	Tray 4: Paper Feed Sensor
53	Tray 3: Paper Size Sensor
54	Tray 4: Paper Size Sensor
55	Paper Exit Sensor
56	PCU Set
57	New PCU Sensor
58	Tray 2: Paper Size Sensor
59	Tray 1: Paper Size Sensor
60	Main Motor Ready Signal
61	Tray 2: Tray Set Sensor
62	Tray 1: Tray Set Sensor
63	Right Cover Open
200	Scanner HP Sensor
201	Platen Cover Sensor

5804	Output Check	
3604	Turns on electrical components individually for test purposes.	
1	Main Motor (Fwd)	Main motor (forward)
2	Main Motor (Rev)	Main motor (Reverse) <b>Do not use</b>
3	Registration CL	Registration clutch
5	Toner Bottle Motor	Toner supply motor
6	Exhaust Fan Motor (High Speed)	Exhaust fan (High Speed)
7	Exhaust Fan Motor (Low Speed)	Exhaust fan (Low Speed)
9	1 st Paper Feed CL	Upper paper feed clutch
10	2nd Paper Feed CL	Lower paper feed clutch

11	1 st Paper Tray Up	Upper paper lift motor (Up)
12	1 st Paper Tray Down	Upper paper lift motor (Down)
13	2nd Paper Tray Up	Lower paper lift motor (Up)
14	2nd Paper Tray Down	Lower paper lift motor (Down)
15	Paper Transport CL1	Upper relay clutch
16	Paper Transport CL2	Lower relay clutch
17	Fuser Drive Cancel SOL	Fusing drive release solenoid
21	Paper Transport CL3	Relay clutch (Optional paper tray unit)
22	3rd Paper Feed CL	Upper paper feed clutch (Optional paper tray unit)
23	4th Paper Feed CL	Lower paper feed clutch (Optional paper tray unit)
24	Paper Bank Motor	Tray motor (Optional paper tray unit)
25	3rd/LCT Tray Up	Upper Paper lift motor (Up) (Optional paper tray unit or LCT)
26	3rd/LCT Tray Down	Upper paper lift motor (Down) (Optional paper tray unit or LCT)
27	4th Tray Up	Lower paper lift motor (Up) (Optional paper tray unit)
28	4th Tray Down	Lower paper lift motor (Down) (Optional paper tray unit)
33	Exit Junction Gate SOL (Upper Unit)	Exit junction gate (Optional interchange unit)
41	Interchange Motor CCW	Interchange motor (Reverse) (Optional duplex unit)
42	Interchange Sensor SW	Interchange sensor
43	Duplex Motor	Duplex transport motor (Optional duplex unit)

44	Duplex SOL	Inverter gate solenoid (Optional duplex unit)
51	Relay Fan Motor	Bridge cooling fan motor (Optional bridge unit)
52	Relay Transport Motor	Bridge unit drive motor (Optional bridge unit)
53	Relay SOL	Junction gate solenoid (Optional bridge unit)
54	Total Counter	Total counter
60	Polygon Motor	Polygonal mirror motor
61	Polygon Motor	Polygonal mirror motor and laser diode
62	LD ON	Laser diode - <b>Do not use</b>
107	QL	
108	PP. Chrg.	
109	PP. Development	
110	PP. Image Transfer	PP. means "Power Pack" (PCBs).
111	PP. Separation Voltage	
202	Scanner Lamp	

5807*	Option Connection Check SP5807 RTB 31: 1	This SP is not used
1	ARDF	Checks the connectors to the optional peripheral
2	Paper Tray Unit	devices. Execution will return either a "1" or "0" on the display.
3	LCT	1: Device connected correctly.
4	Finisher	0: Device not connected correctly.

	SC Reset
	Resets all level A service call conditions, such as fusing errors. To clear the service call, touch "Execute" on the LCD, then turn the main power switch off/on.

	Machine No. Setting <b>DFU</b>	
5811	This SP presents the screen used to enter the 11-digit number of the machine. The allowed entries are "A" to "Z" and "0" to "9". The setting is done at the factory, and should not be changed in the field.	

5812	Service Tel. No. Setting	
1	Service	Inputs the telephone number of the CE (displayed when a service call condition occurs.)
2	Facsimile	Use this to input the fax number of the CE printed on the Counter Report (UP mode). <b>Not Used</b>
3	Supply	Displayed on the initial SP screen.
4	Operation	Allows the service center contact telephone number to be displayed on the initial screen.

5816	Remote Service	
	I/F Setting	
	Turns the remote diagnostics off and on.	
1	[0 to 2/1]	
·	0: Remote diagnostics off.	
	1: Serial (CSS or NRS) remote diagnostics on.	
	2: Network remote diagnostics.	
	CE Call	
2	Lets the customer engineer start or end the remote machine check with CSS or NRS; to do this, push the center report key	
	Function Flag	
	Enables and disables remote diagnosis over the NRS network.	
3	[0 to 1/1]	
	0: Disables remote diagnosis over the network.	
	1: Enables remote diagnosis over the network.	
7	SSL Disable	

	Controls if RCG (Remote Communication Gate) confirmation is done by SSL during an RCG send for the NRS over a network interface.
	[0 to 1/1]
	0: Yes. SSL not used.
	1: No. SSL used.
	RCG Connect Timeout
8	Sets the length of time (seconds) for the time-out when the RCG (Remote Communication Gate) connects during a call via the NRS network.
	[1 to 90/1 sec.]
	RCG Write Timeout
9	Sets the length of time (seconds) for the time-out when sent data is written to the RCG during a call over the NRS network.
	[0 to 100/1 sec.]
	RCG Read Timeout
10	Sets the length of time (seconds) for the timeout when sent data is written from the RCG during a call over the NRS network.
	[0 to 100/1 sec.]
	Port 80 Enable
11	Controls if permission is given to get access to the SOAP method over Port 80 on the NRS network.
	[0 to 1/1]
	0: No. Access denied
	1: Yes. Access granted.
	RCG – C Registed
21	This SP displays the Cumin installation end flag.
	1: Installation completed
	2: Installation not completed
	RCG – C Registed Detail
22	This SP displays the Cumin installation status.
	0: Basil not registered
	1: Basil registered

	2: Device registered
	Connect Type (N/M)
23	This SP displays and selects the Cumin connection method.
	0: Internet connection
	1: Dial-up connection
61	Cert. Expire Timing <b>DFU</b>
01	Proximity of the expiration of the certification.
	Use Proxy
62	This SP setting determines if the proxy server is used when the machine communicates with the service center.
	HTTP Proxy Host
063	This SP sets the address of the proxy server used for communication between embedded RCG-N and the gateway. Use this SP to set up or display the customer proxy server address. The address is necessary to set up embedded RCG-N.
	<b>Note</b> : The address display is limited to 128 characters. Characters beyond the 128th character are ignored.
	This address is customer information and is not printed in the SMC report.
	HTTP Proxy Port
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.
	HTTP Proxy Aut Usr
	This SP sets the HTTP proxy certification user name.
065	Note:
	• The length of the name is limited to 31 characters. Any character beyond the 31st character is ignored.
	This name is customer information and is not printed in the SMC report.
044	HTTP Proxy Aut Pass
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.					
	• ]	This name is customer information and is not printed in the SMC report.				
	CERT: Up State					
	Displays the status of the certification update.					
	0	The certification used by Cumin 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.				
67	12	The rescue certification setting is completed and the GW URL is being notified of the certification update request.				
	13	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.				
	14	The notification of the certification request has been received from the rescue GW controller, and the certification is being stored.				
	15	The certification has been stored, and the GW URL is being notified of the successful completion of this event.				
	16	The storing of the certification has failed, and the GW URL is being notified of the failure of this event.				
	17	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			
	Displays a number code that describes the reason for the request for update of the certification.			
	0	Normal. There is no request for certification update in progress.		
	1	Request for certification update in progress. The current certification has expired.		
68	2	An SSL error notification has been issued. Issued after the certification has expired.		
	3	Notification of shift from a common authtentication to an individual certification.		
	4	Notification of a common certification without ID2.		
	5	Notification that no certification was issued.		
	6	Notification that GW URL does not exist.		
69	CERT: Up ID			
09	The ID of the request for certification.			
83	Firmware Up Status			
03	Displays the status of the firmware update.			
84	Non-HDD Firm Up			
04	This setting determines if the firmware can be updated, even without the HDD installed.			
	Firm Up User Check			
firmware before the firmware update execution. If the option to confirm t		P setting determines if the operator can confirm the previous version of the are before the firmware update execution. If the option to confirm the previous n is selected, a notification is sent to the system manager and the firmware update e with the firmware files from the URL.		
	Firmware Size			
86	Allows the service technician to confirm the size of the firmware data files during the firmware update execution.			

0.7	CERT: Macro Version
87	Displays the macro version of the NRS certification
0.0	CERT: PAC Version
88	Displays the PAC version of the NRS certification.
	CERT: ID2 Code
89	Displays ID2 for the NRS certification. Spaces are displayed as underscores (_). Asterisks (****) indicate that no NRS certification exists.
	CERT: Subject
90	Displays the common name of the NRS certification subject. CN = the following 17 bytes. Spaces are displayed as underscores (_). Asterisks (****) indicate that no DESS exists.
	CERT: Serial Number
91	Displays serial number for the NRS certification. Asterisks (****) indicate that no DESS exists.
	CERT: Issuer
92	Displays the common name of the issuer of the NRS certification. CN = the following 30 bytes. Asterisks (****) indicate that no DESS exists.
02	CERT: Valid Start
93	Displays the start time of the period for which the current NRS certification is enabled.
94	CERT: Valid End
94	Displays the end time of the period for which the current NRS certification is enabled.
95	Server On Check <b>DFU</b>
96	GW Host <b>DFU</b>
97	GW URL Path <b>DFU</b>
99	Debug Rescue G/WURL Set <b>DFU</b>
150	Selection Country <b>DFU</b>
151	Line Type Automatic Judgement <b>DFU</b>
152	Line Type Judgement Result <b>DFU</b>

153	Selection Dial/Push <b>DFU</b>		
154	Outside Line Outgoing Number <b>DFU</b>		
156	Dial Up User Name <b>DFU</b>		
157	Dial Up Password <b>DFU</b>		
161	Local Phone Number <b>DFU</b>		
162	Connection Timing Adjustment <b>DFU</b>		
163	Access Point <b>DFU</b>		
164	Line Connecting <b>DFU</b>		
173	Modem Serial No. <b>DFU</b>		
174	Retransmission Limit <b>DFU</b>		
186	RCG-C M Debut Bit SW <b>DFU</b>		
187	Fax TX Priority <b>DFU</b>		
200	Manual Polling		
200	No information is available at this time.		
	Regist: Status		
	Displays a number that indicates the status of the NRS service device.		
	O Neither the NRS device nor Cumin device are set.		
201	The Cumin device is being set. Only Box registration is completed. In this status the Basil unit cannot answer a polling request.		
	The Cumin device is set. In this status the Basil unit cannot answer a polling request.		
	The NRS device is being set. In this status the Cumin device cannot be set.		
	4 The NRS module has not started.		
202	Letter Number		
202	Allows entry of the number of the request needed for the Cumin device.		
203	Confirm Execute		
203	Executes the inquiry request to the NRS GW URL.		

	Conf	irm Result			
	Displays a number that indicates the result of the inquiry executed with SP5816 203.				
	0	Succeeded			
	1	Inquiry number error			
	2	Registration in progress			
00.4	3	Proxy error (proxy enabled)			
204	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				
205	Displays the result of the notification sent to the device from the GW URL in answer to the inquiry request. Displayed only when the result is registered at the GW URL.				
207	Register Execute				
Executes Cumin Registration.		utes Cumin Registration.			
	Register Result				
	Displ	ays a number that indicates the registration result.			
	0	Succeeded			
	2	Registration in progress			
207	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	Registration execu	ting			
	Erro	Error Code				
		olays a number that de or SP5816 207 was		error code that was issued when either SP5816		
	Cau	se	Code	Meaning		
			-11001	Chat parameter error		
	1 -	jal Modem ameter	-11002	Chat execution error		
			-11003	Unexpected error		
			-12002	Inquiry, registration attempted without acquiring device status.		
	1 .	Operation Error, Incorrect Setting	-12003	Attempted registration without execution of an inquiry and no previous registration.		
			-12004	Attempted setting with illegal entries for certification and ID2.		
20	8		-2385	Attempted dial up overseas without the correct international prefix for the telephone number.		
			-2387	Not supported at the Service Center		
			-2389	Database out of service		
			-2390	Program out of service		
	Erro	r Caused by	-2391	Two registrations for same device		
	Resp	Response from GW URL	-2392	Parameter error		
			-2393	Basil not managed		
			-2394	Device not managed		
			-2395	Box ID for Basil is illegal		
			-2396	Device ID for Basil is illegal		
		,				

-2397

Incorrect ID2 format

		-2398	Incorrect request number format		
000	Instl Clear				
209	Releases the machine from its embedded RCG setup.				
250	CommLog Print				
	Prints the communication le	og.			

5821	Remote Service Address Japan Only		
1	CSS PI Device Code	Sets the PI device code. After you change this setting, you must turn the machine off and on.	
2	RCG IP Address	Sets the IP address of the RCG (Remote Communication Gate) destination for call processing at the remote service center.  [00000000htoFFFFFFFh/1]	

	NVRAM Data Upload
5824	Uploads the NVRAM data to an SD card (B140). Push Execute.
	Note: When uploading data in this SP mode, the front door must be open.

	NVRAM Data Download
5825	Downloads data from an SD card to the NVRAM in the machine. After downloading is completed, remove the card and turn the machine power off and on.

5828	Network Setting	
1	IPv4 Address (Ethernet/IEEE 802.11)	
This SP allows you to confirm and reset the IPv4 address for Ethernet and a wirele (802.11):		
aaa.bbb.ccc.ddd		
	For example, if the 8-bit entry is "192.168.000.001" this is read "OC0A80001h"	
2	2 IPv4 Subnet Mask (Ethernet/IEEE 802.11)	
This SP allows you to confirm and reset the IPv4 subnet mask for Ethernet and a wire LAN (802.11):		

	aaa.bbb.ccc.ddd
	For example, if the 8-bit entry is "255.255.255.00" this is read "FFFFFF00h".
3 IPv4 Default Gateway (Ethernet/IEEE 802.11)	
	This SP allows you to confirm and reset the IPv4 default gateway used by the network for Ethernet and wireless LAN (802.11):  aaa.bbb.ccc.ddd
	For example, if the 8-bit entry is "192.169.000.001" this is read "OCOA80001h"
6	DHCP (Ethernet/IEEE 802.11)
	This SP code allows you confirm and change the setting that determines whether the IP address is used with DHCP on an Ethernet or wireless (802.11) LAN network.  [0 to 1/1/0]  O: Not used (manual setting)
	1: Used
21	Active IPv4 Address
	This SP allows you to confirm the IPv4 address that was used when the machine started up with DHCP. For example, if the the setting of the the IPv4 address is "OCOA80001h" this is displayed as "192.169.000.001".
22	Active IPv4 Subnet Mask
	This SP allows you to confirm the IPv4 subnet mask setting that was used when the machine started up with DHCP. For example, if the setting for the IPv4 subnet mask is "FFFFFF00H" this is displayed as "255.255.255.000"
23	Active IPv4 Gateway Address
	This SP allows you to confirm the IPv4 default gateway setting that was used when the machine started up with DHCP. For example, if the setting for the IPv4 gateway is "OCOA80001h" this is displayed as "192.168.000.001".
50	1284 Compatibility (Centro)
	Enables and disables bi-directional communication on the parallel connection between the machine and a computer.
	[0 to 1/1]
	0:Off
	1: On

52	ECP (Centro)				
	Disables and enables the ECP feature (1284 Mode) for data transfer.				
	-	[0 to 1/1] 0: Disabled			
		abled			
65	Job S	pooling			
	Switc	hes job spooling on and o	off.		
	0: No	spooling, 1: Spooling en	abled		
66	Job S	pool Clear: Start Time			
	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: Resumes printing spooled jog.  0: Clears spooled job.				
		· · ·			
69	Job S	Job Spool Protocol			
	This SP determines whether job spooling is enabled or disabled for each protocol. This is a 8-bit setting.				
	0	LPR	4	BMLinks (Japan Only)	
	1	FTP (Not Used)	5	DIPRINT	
	2	IPP	6	Reserved (Not Used)	
	3	SMB	7	Reserved (Not Used)	
90	TELNET (0:OFF 1:ON)				
	Disables or enables Telnet operation. If this SP is disabled, the Telnet port is closed.  [0 to 1/1]  0: Disable  1: Enable				
91	Web Operation (0:OFF 1:ON)				
	Disab	les or enables the Web o	peratio	on.	
	[0 to 1/1]				
	0: Disable				

	1: Enable		
145	ActlPv6LinkLocal		
	This is the IPv6 local address referenced on the Ethernet or wireless LAN (802.11) 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.		
147	ActIPv6Sttles1		
149	ActIPv6Sttles2	These SPs are the IPv6 stateless addresses (1 to 5) referenced on the Ethernet or wireless LAN (802.11) in the format:	
151	ActIPv6Sttles3	"Stateless Address" + "Prefix Length"	
153	ActIPv6Sttles4	The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each.	
155	ActIPv6Sttles5		
156	IPv6 Manual Address		
	This SP is the IPv6 manually set address referenced on the Ethernet or wireless LAN (802.11) in the format:		
	"Manual Set 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.		
158	IPv6 Gateway		
	This SP is the IPv6 gateway address referenced on the Ethernet or wireless LAN (802.11). 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.		

Note: IPV6 Addresses

Ethernet and the Wireless LAN (802.11) 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:  $0x0^{\circ}0x80$ ). 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:

 ${\it fe80::207:40ff:0:340e} \ (only \ the \ first \ null \ sets \ zero \ digits \ are \ abbreviated \ as \ "::")$ 

-or

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

161	IPv6 Stateless Auto Setting Enables/disables the stateless automatic setting for Ethernet/wireless LAN operation. [0 to 1/1/1] 1: Enable 0: Disable
236	Web Item Invisible  Determines whether each item can be set in Websys.  [0x0000 to 0xffff/0xffff]  Bit 1: NetRICOH  Bit2: Vendor for consumables  Bit2-15: Reserved
237	Web Shopping Link Invisible  Determines whether the NetRICOH link is displayed on the Websys top page and link page.  [0 to 1/1/1]  1: Display  0: No display
238	Web Supplies Link Invisible

	Determines whether the consumable vendor link is displayed on the Websys top page and
	link page. [0 to 1/1/1]
	1: Display
	0: No display
	Web Link 1 Name
239	Determines whether an name entered for "URL1" is displayed on the Websys link page. The name length is limited to 31 characters.
	Web Link 1 URL
240	Sets the URL referenced for URL1 linked to the Websys linked page. The link name is limited to 127 characters.
	Web Link 1 Visible
	Determines whether the link for URL1 is displayed on the Websys top page.
241	[0 to 1/1/1]
	1: Display
	0: No display
	Web Link 2 Name
242	Determines whether a name entered for "URL2" is displayed on the Websys link page. The name length is limited to 31 characters.
	Web Link 2 URL
243	Sets the URL referenced for URL2 linked to the Websys linked page. The link name is limited to 127 characters.
	Web Link 2 Visible
	Determines whether the link for URL2 is displayed on the Websys top page.
244	[0 to 1/1/1]
	1: Display
	0: No display

	HDD Formatting
5832	Enter the SP number for the partition to initialize, then press #. When the execution ends, cycle the machine off and on.
. 1	HDD Formatting (All)

. 2	HDD Formatting (IMH)
. 3	HDD Formatting (Thumbnail)
. 4	HDD Formatting (Job Log)
5	HDD Formatting (Printer Fonts)
. 6	HDD Formatting (User Info)
. 7	Mail RX Data
. 8	Mail TX Data
. 9	HDD Formatting (Data for Design)
. 10	HDD Formatting (Log)
. 11	HDD Formatting (Ridoc I/F) (for Ridoc Desk Top Binder)

5007	C 1 C 11.		
5836	Capture Setting		
	Capture Function (0:Off 1:On)		
1	With this function disabled, the settings related to the capture feature cannot be initialized, displayed, or selected.		
1	[0 to 1/1]		
	0: Disable		
	1: Enable		
	Panel Setting		
	Determines whether each capture related setting can be selected or updated from the initial system screen.		
2	[0 to 1/1]		
	0: Disable		
	1: Enable		
The setting for SP5836-001 has priority.		has priority.	
71	Reduction for Copy Color	[0 to 3/1]	
71		0:1, 1:1/2, 2:1/3, 3:1/4 <b>DFU</b>	
72	Reduction for Copy B&W	[0 to 6/1]	
/2	Text	0:1, 1:1/2, 2:1/3, 3:1/4, 6:2/3	

	Reduction for Copy B&W	[0 to 6/1]	
73	Other	0:1, 1:1/2, 2:1/3, 3:1/4, 6:2/3	
	Reduction for Printer Color		
74		[0 to 3/1]	
		0:1, 1:1/2, 2:1/3, 3:1/4 <b>DFU</b>	
75	Reduction for Printer B&W	[0 to 6/1]	
/5	Reduction for Fillier DXVV	0 1, 1:1/2, 2:1/3, 3:1/4, 6:2/3	
7,	Reduction for Printer B&W	[1 to 5/1]	
76	HQ	1:1/2, 3:1/4, 4:1/6, 5:1/8	
		[0 to 3/1]	
81	Format for Copy Color	0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR <b>DFU</b>	
		[0 to 3/1]	
82	Format for Copy B&W Text	0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR	
83	Format Copy B&W Other	[0 to 3/1]	
		0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR	
0.4	Format for Printer Color	[0 to 3/1]	
84		0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR <b>DFU</b>	
	Format for Printer B&W	[0 to 3/1]	
85		O: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR	
	Format for Printer B&W HQ	[0 to 3/1]	
86		O: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR	
	Default for JPEG	[5 to 95/1]	
91	Sets the JPEG format default for documents sent to the document management server with the MLB, with JPEG selected as the format. Enabled only when optional File Format Converter (MLB: Media Link Board) is installed.		

5840	IEEE 802.11
	Channel MAX
6	Sets the maximum range of the bandwidth for the wireless LAN. This bandwidth setting varies for different countries.  [1 to 14/1]

	Channel MIN		
7	Sets the minimum range of the bandwidth for operation of the wireless LAN. This bandwidth setting varies for different countries.  [1 to 14/1]		
	Transmission Speed	[0 x 00 to 0 x FF / <b>0</b> x FF to Auto / -]	
	0 x FF to Auto [Default]		
	0 x 11 - 55M Fix 0 x 07 - 11M Fix		
	0 x 10 - 48M Fix	0 x 05 - 5.5M Fix	
8	0 x 0F - 36M Fix	0 x 08 - 1 M Fix	
	0 x 0E - 18M Fix	0 x 13 - 0 x FE (reserved)	
	0 x 0D - 12M Fix	0 x 12 - 72M (reserved)	
	0 x 0B - 9M Fix	0 x 09 - 22M (reserved)	
	0 x 0A - 6M Fix		
	WEP Key Select		
	Determines how the initiator (SBP-2) handles subsequent login requests.		
	[0 to 1/1]		
11	0: If the initiator receives another login request while logging in, the request is refused.		
	1: If the initiator receives another login request while logging in, the request is refused and		
	the initiator logs out.  Note: Displayed only when the wireless LAN card is installed.		
40			
42	Fragment Thresh		
	Adjusts the fragment threshold for the IEEE802.11 card.		
	[256 to 2346 / <b>2346</b> / 1]		
	This SP is displayed only when the IEEE802.11 card is installed.		
43	11g CTS to Self		
	Determines whether the CTS self function is turned on or off.		
	[0 to 1 / 1 / 1] 0: Off, 1: On		
	This SP is displayed only when the IEEE802.11 card is installed.		
44	1 1g Slot Time		
	Selects the slot time for IEEE802.11.		

	[0 to 1 / <b>0</b> / 1] 0: 20 μm, 1: 9 μm		
This SP is displayed only when the IEEE802.11 card is installed.			
45	WPA Debug Lvl		
Selects the debug level for WPA authentication application.			
	[1 to 3 / <b>3</b> / 1] 1: Info, 2: warning, 3: error		
	This SP is displayed only when the IEEE802.11 card is installed.		

	Supply Name Setting			
5841	Press the User Tools key. These names appear when the user presses the Inquiry button on the User Tools screen.			
1	Toner Name Setting: Black			
7	Org Stamp			
11	StapleStd1			
12	StapleStd2			
13	StapleStd3	Not Used		
14	StapleStd4			
21	StapleBnd 1			
22	2 StapleBnd2			
23	StapleBnd3			

5842	GWWS Analysis <b>DFU</b>
3842	This is a debugging tool. It sets the debugging output mode of each Net File process

5844	USB		
	Transfer Rate		
1	Sets the speed for USB data transmission.		
	[Full Speed]		
	[Full Speed] [Auto Change]		
2	Vendor ID		

	Sets the vendor ID: Initial Setting: 0x05A Ricoh Company [0x0000 to 0xFFFF/1] <b>DFU</b>
3	Product ID
	Sets the product ID.  [0x0000 to 0xFFFF/1] <b>DFU</b>
4	Device Release No.
	Sets the device release number of the BCD (binary coded decimal) display.  [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 Server Setting		
	These are delivery server settings.		
1	FTP Port No.		
	[0 to 65535/1]		
	IP Address (Primary)		
2	Use this SP to set the Scan Router Server address. The IP address under the transfer tab can be used with the initial system setting.  [O to FFFFFFFF/1]		
	Delivery Error Display Time		
6	Use this setting to set the length of time that the message is shown when a test error occurs during document transfer with the NetFile application and an external device.  [0 to 999/1]		
	IP Address (Secondary)		
8	Sets the IP address that is given to the computer that is the secondary delivery server for Scan Router. This SP lets you set only the IP address, and does not refer to the DNS setting.		
	Delivery Server Model		
9	Lets you change the model of the delivery server that is registered by the I/O device.  [0 to 4/1]		

	0: Unknown		
	1: SG1 Provided		
	2: SG1 Package		
	3: SG2 Provided		
	4: SG2 Package		
	Delivery Svr. Capability		
	Changes the functions that the registered I/O device can do.		
	[0 to 255/1]		
	Bit7 = 1 Comment information exits		
	Bit6 = 1 Direct specification of mail address possible		
10	Bit5 = 1 Mail RX confirmation setting possible		
	Bit4 = 1 Address book automatic update function exists		
	Bit3 = 1 Fax RX delivery function exists		
	Bit2 = 1 Sender password function exists		
	Bit1 = 1 Function to link MK-1 user and Sender exists		
	BitO = 1 Sender specification required (if set to 1, Bitó is set to "O")		
	Delivery Svr.Capability (Ext)		
11	These settings are for future use. They will let you increase the number of registered devices (in addition to those registered for SP5845 010).		
	There are eight bits (Bit 0 to Bit 7). All are unused at this time.		
13	Server Scheme (Primary)		
14	Server Port Number (Primary)		
15	Server URL Path (Primary)		
16	Server Scheme (Secondary)		
17	Server Port Number (Secondary)		
18	Server URL Path (Secondary)		
19	Capture Server Scheme		
20	Capture Server Path Number		
21	Capture Server URL Path		

# 22 Report Setting Control

5846*	UCS Setting		
	Machine ID (for Delivery Server)		
1	Displays the unique device ID in use by the delivery server directory. The value is only displayed and cannot be changed.		
	This ID is created from the NIC MAC or IEEE 1394 EUI.		
	The ID is displayed as either 6-byle or 8-byte binary.		
	Machine ID Clear (Delivery Server)		
2	Clears the unique ID of the device used as the name in the file transfer directory. Execute this SP if the connection of the device to the delivery server is unstable. After clearing the ID, the ID will be established again automatically by cycling the machine off and on.		
	Maximum Entries		
3	Changes the maximum number of entries that UCS can handle. [2000 to 50000/1]		
	If a value smaller than the present value is set, the UCS managed data is cleared, and the data (excluding user code information) is displayed.		
	Delivery Server Retry Timer		
6	Sets the interval for retry attempts when the delivery server fails to acquire the delivery server address book.		
	[0 to 255/1 s]		
	0: No retries		
	Delivery Server Retry Times		
7	Sets the number of retry attempts when the delivery server fails to acquire the delivery server address book.		
	[0 to 255/1]		
	Delivery Server Maximum Entries		
8	Lets you set the maximum number of account entries and information about the users of the delivery server controlled by UCS.		
	[20000 to 50000/1]		
10	LDAP Search Timeout		

Sets the length of the time-out for the search of the LDAP server.

[1 to 255/1]

### Addr Book Migration (SD -> HDD)

This SP moves the address book data from an SD card to the HDD. You must cycle the machine off and on after executing this SP.

Turn the machine off.

Install the HDD.

Insert the SD card with the address book data in SD card slot C3.

Turn the machine on.

Do SP5846 040.

An Turn the machine off.

Remove the SD card from SD card slot C3.

Turn the machine on.

#### Note

- Executing this SP overwrites any address book data already on the HDD with the data from the SD card.
- We recommend that you back up all directory information to an SD card with SP5846
   051 before you execute this SP.
- After the address book data is copied to HDD, all the address book data is deleted from the source SD card. If the operation fails, the data is not erased from the SD card.

#### Fill Addr Acl Info.

This SP must be executed immediately after installation of an HDD unit in a basic machine that previously had no HDD. The first time the machine is powered on with the new HDD installed, the system automatically takes the address book from the NVRAM and writes it onto the new HDD. However, the new address book on the HDD can be accessed only by the system administrator at this stage. Executing this SP by the service technician immediately after power on grants full address book access to all users.

## 41 Procedure

- 1. Turn the machine off.
- 2. Install the new HDD.
- 3. Turn the machine on.
- 4. The address book and its initial data are created on the HDD automatically. However, at this point the address book can be accessed by only the system administrator or key operator.

	<ol> <li>Enter the SP mode and do SP5846 041. After this SP executes successfully, any user can access the address book.</li> </ol>		
43	Addr Book Media		
46	Initialize All Settings & Addr Book		
	Initializ	e Local Address Book	
47	Clears with UC	all of the address information from the local address book of a machine managed CS.	
	Initializ	e Delivery Addr Book	
48		xecute] to delete all items (this does not include user codes) in the delivery address at is controlled by UCS.	
	Initializ	e LDAP Addr Book	
49	Push [Execute] to delete all items (this does not include user codes) in the LDAP address book that is controlled by UCS.		
	Initializ	e All Addr Book	
50	Clears everything (including users codes) in the directory information managed by UCS.  However, the accounts and passwords of the system administrators are not deleted.		
	Backup	All Addr Book	
51		Is all directory information to the SD card. Do this SP before replacing the HDD. The on may not succeed if the HDD is damaged.	
	Restore	All Addr Book	
52		pads all directory information from the SD card. Upload the address book from the D with SP5846 51 before removing it. Do SP5846 52 after installing the new HDD.	
	Clear B	ackup Info.	
53	Deletes the address book uploaded from the SD card in the slot. Deletes only the files uploaded for that machine. This feature does not work if the card is write-protected.		
	Note: After you do this SP, go out of the SP mode, turn the power off. Do not remove the SD card until the Power LED stops flashing.		
	Search	Option	
60	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		
	2	Japan Only	
	3		
	4	Not Used	
	5	Not Used	
	6	Not Used	
	7	Not Used	
	Compl	exity Option 1	
	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.		
62	[0 to 32/1]		
	Note:		
	This 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.		
	Compl	exity Option 2	
	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.		
63	[0 to 3	2/1]	
	Note		
	This SP does not normally require adjustment.		
	1	nis SP is enabled only after the system administrator has set up a group password olicy to control access to the address book.	
	Compl	exity Option 3	
64	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 3	2/1]	

## Note • This 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. Complexity Option 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. [0 to 32/1]Note • This 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. FTP Auth. Port Settings Sets the FTP port to get the delivery server address book that is used in the individual 91 authorization mode. [0 to 65535/1] **Encryption Start** Shows the status of the encryption function of the address book on the LDAP server.

5847	Rep Resolution Reduction		
	5847 1 through 5847 6 changes the default settings of image data sent externally by the Net File page reference function. [0 to 2/1]		
004/	5847 21 sets the default for JPEG image quality of image files controlled by NetFile.		
	"NetFile" refers to jobs to be printed from the document server with a PC and the DeskTopBinder software.		
5847 2	Rate for Copy B&W Text	[0 to 6/1]	0: 1x
5847 3	Rate for Copy B&W Other	[0 to 6/1]	1: 1/2x
5847 5	Rate for Printer B&W	[0 to 6/1]	2: 1/3x 3: 1/4x
5847 6	Rate for Printer B&W HQ	[0 to 6/1]	4: 1/6x 5: 1/8x

[0 to 255/1] No default

			6: 2/3x1
			1: "6: 2/3x" applies to 003, 005, 006 only.
	Network Quality Default for JPEG		
5847 21	Sets the default value for the quavailable only with the MLB (N [5 to 95/1]	•	nages sent as NetFile pages. This function is d) option installed.

	Web Service		
5848	5847 2 sets the 4-bit switch assignment for the access control setting. Setting of 0001 has no effect on access and delivery from Scan Router.		
	5847 100 sets the maximum size of images that can be downloaded. The default is equal to 1 gigabyte.		
	Access Control.: NetFile (Lower 4 Bits Only)		
1	Bit switch settings. 0000: No access control		
	0001: Denies access to Desk Top Binder. Access and deliveries from Scan Router have no effect on capture.		
2	Acc. Ctrl.: Repository (only Lower 4 Bits)	0000: No access control 0001: Denies access to DeskTop Binder.	
3	Acc. Ctrl.: Doc. Svr. Print (Lower 4 Bits)		
4	Acc. Ctrl.: User Directory (Lower 4 Bits)		
5	Acc. Ctrl.: Delivery Input (Lower 4 Bits)		
7	Acc. Ctrl Comm. Log Fax (Lower 4 Bits)		
9	Acc. Ctrl.: Job Control (Lower 4 Bits)	Switches access control on and off.	
11	Acc. Ctrl: Device Management (Lower 4 Bits)	0000: OFF, 0001: ON	
21	Acc. Ctrl: Delivery (Lower 4 Bits)		
22	Acc. Ctrl: User Administration (Lower 4 Bits)		
41	Acc. Ctrl: Security Setting (Lower 4 Bits only)		

100	Repository: Download Image Max. Size	[1 to 1024/1 K]	
100		[1101024/11]	
	Access Ctrl: Regular Trans		
201	No information is available at this time.		
	0: Not allowed		
	1: Allowed		
210	Setting: Log Type: Job 1		
210	No information is available at this time.		
211	Setting: Log Type: Job 2		
211	No information is available at this time.		
212	Setting: Log Type: Access		
212	No information is available at this time.		
213	Setting: Primary Srv		
213	No information is available at this time.		
214	Setting: Secondary Srv		
214	No information is available at this time.		
215	Setting: Start Time		
213	No information is available at this time.		
216	Setting: Interval Time		
210	No information is available at this time.		
217	Setting: Timing		
217	No information is available at this time.		

5040	Installation Date	
5849	Displays or prints the installation date of the machine.	
1	Display	The "Counter Clear Day" has been changed to "Installation Date" or "Inst. Date".

2	Switch to Print	Determines whether the installation date is printed on the printout for the total counter.  [0 to 1/1]  0: No Print  1: Print
3	Total Counter	

5850*	Address Book Function <b>Japan Only</b>
	The machine is shipped ready to use with a G3 line. Use this SP to switch all at once to G4 after adding a G4 line. If the G4 line becomes unusable for some reason, you can use this SP to switch easily back to G3. Just touch [Replacement].

	Bluetooth Mode
5851	Sets the operation mode for the Bluetooth Unit. Press either key.
	[O: Public] [1: Private]

5853		Stamp Data Download
	5853	Push [Execute] to download the fixed stamp data from the machine ROM onto the hard disk. Then these stamps can be used by the system. If this is not done, the user will not have access to the fixed stamps ("Confidential", "Secret", etc.).
		You must always execute this SP after replacing the HDD or after formatting the HDD.  Always switch the machine off and on after executing this SP.

	Remote ROM Update
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. Allows the technician to upgrade the firmware using a parallel cable
	[0 to 1/1]
	0: Not allowed
	1: Allowed

5857	Save Debug Log
1	On/Off (1:ON 0:OFF)

	Switches on the debug log feature. The debug log cannot be captured until this feature is switched on.
	[0 to 1/1]
	0: OFF
	1: ON
	Target (2: HDD 3: SD)
2	Selects the destination where the debugging information generated by the event selected by SP5858 will be stored if an error is generated  [2 to 3 / 1]
	2: HDD
	3: SD Card
5	Save to HDD
3	Specifies the decimal key number of the log to be written to the hard disk.
6	Save to SD Card
	Specifies the decimal key number of the log to be written to the SD Card.
	Copy HDD to SD Card (Latest 4 MB)
9	Takes the most recent 4 MB of the log written to the hard disk and copies them to the SD Card.
	A unique file name is generated to avoid overwriting existing file names on the SD Card. Up to 4MB can be copied to an SD Card. 4 MB segments can be copied one by one to each SD Card.
	Copy HDD to SD Card Latest 4 MB Any Key)
10	Takes the log of the specified key from the log on the hard disk and copies it to the SD Card.
	A unique file name is generated to avoid overwriting existing file names on the SD Card. Up to 4 MB can be copied to an SD Card. 4 MB segments can be copied one by one to each SD Card. This SP does not execute if there is no log on the HDD with no key specified.
11	Erase HDD Debug Data
11	Erases all debug logs on the HDD
12	Erase SD Card Debug Data

	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.
13	Free Space on SD Card
13	Displays the amount of space available on the SD card.
	Copy SD to SD (Latest 4MB)
14	Copies the last 4MB of the log (written directly to the card from shared memory) onto an SD card.
	Copy SD to SD (Latest 4MB Any Key)
15	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.
1.4	Make HDD Debug
16	This SP creates a 32 MB file to store a log on the HDD.
17	Make SD Debug
17	This SP creates a 4 MB file to store a log on an SD card.

	Debug Save When		
5858*	These SPs select the content of the debugging information to be saved to the destination selected by SP5857 002.		
	SP5858 3 stores one SC specified by number.		
1*	Engine SC Error (0:OFF 1:ON)	Stores SC codes generated by copier engine errors.	
2*	Controller SC Error (0:OFF 1:ON)	Stores SC codes generated by GW controller errors.	
3*	Any SC Error (0:OFF 1:ON)	[0 to 65535 / 0 / 1]	
4*	Jam (0:OFF 1:ON)	Stores jam errors.	

5859	Debug Log Save Function
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1	Key 1	
2	Key 2	
3	Key 3	
4	Key 4	
5	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.  [-999999 to 999999/1]
6	Key 6	
7	Key 7	
8	Key 8	
9	Key 9	
10	Key 10	

5860	SMTP/POP3/IMAP4
	Partial Mail Receive Timeout
20	[1 to 168/72/1] 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.
21	MDN Response RFC2298 Compliance  Determines whether RFC2298 compliance is switched on for MDN reply mail.  [0 to 1/1]  0: No  1: Yes
22	SMTP Auth. From Field Replacement  Determines whether the FROM item of the mail header is switched to the validated account after the SMTP server is validated.  [0 to 1/1]  0: No. "From" item not switched.  1: Yes. "From" item switched.
25	SMTP Auth Direct Sending

5

26

Occasionally, SMTP certification may fail with encryption enabled 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 encryption has been enabled.

Bit 0: LOGIN

Bit 1: PLAIN

Bit 2: CRAM\_MD5

Bit 3: DIGEST\_MD5

Bit 4 to Bit 7: Not Used

5866	E-Mail Report <b>Not Used</b>	
1	Report Validity	Enables or disables the E-mail alert function.  [0 or 1 / 0 / -] 0: Enabled, 1: Disabled
		Adds or does not add the date field to the header of the alert mail.
2		[0 or 1 / <b>0</b> / – ] 0: Not added, 1: Added

S/MIMI: MIME Header Setting

	5870	Common Key Ir	nfo Writing
	3670	Writes to flash F	ROM the common proof for validating the device for NRS specifications.
1 Writing		The CD and the factor and a second and a second	
	3	Initialize	These SPs are for future use and currently are not used.

	SD Card Apli. Ma	ve
5873	Allows you to mov	ve applications from one SD card another. For more, see "Merging One SD Card".
1	Move Exec Executes the move from one SD card to another.	
2	Undo Exec	This is an undo function. It cancels the previous execution.

5875 SC Auto Reboot	
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This SP determines whether the machine reboots automatically when an SC error oc Note: The reboot does not occur for Type A SC codes.		,	
	1	Reboot Setting	[0 to 1/0/1]  0: The machine reboots automatically after the machine issues an SC error and logs the SC error code. If the same SC occurs again, the machine does not reboot.  1: The machine does not reboot when an SC error occurs.
	2	Reboot Type	[0 to 1 / 0 / 1]  0: Manual reboot, 1: Automatic reboot

	Option Setup		
5878	Use this SP to enable the Data Overwrite Security option or HDD Encryption Option after installation.		
1	Data Overwrite Security		
2	Encryption Option		

5879	Editing Option Setup <b>DFU</b>
36/9	This SP is used to install the edit option card.

5881 Fixed Phase Block Erasing <b>DFU</b>
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5885	Set WIM Function	
20		Close or disclose the functions of web image monitor.
		0: OFF, 1: ON
	Doc Svr Acc Ctrl	Bit:
		0: Forbid all document server access
		1: Forbid user mode access
		2: Forbid print function
		3: Forbid Fax
		4: Forbid scan sending
		5: Forbid download
		6: Forbid delete

		7: Forbid guest user
50	DocSvr Format	Selects the display type for the document box list.  [0 to 2 / 0 / 1]  0: Thumbnail, 1: Icon, 2: Details
51	DocSvr Trans	Sets the number of documents to be displayed in the document box list.  [5 to 20 / 10 / 1]
100	Set Signature	
101	Set Encryption	Determines whether the scanned documents with WIM are encrypted when they are transmitted by an e-mail.  [0 to 1 / 0 / 1]  0: Not encrypted, 1:Encryption
200	Detect Mem Leak	
201	DocSvr Timeout	

	Farm (Firmware) Update Procedure
5886*	This SP determines whether the ROM can be updated remotely.
	[0 or 1 / <b>0</b> / 1 step]
	0: ON, 1: OFF

	Personal Information Protect
	Selects the protection level for logs.
5888*	[0 to 1 / <b>0</b> / 1}
	0: No authentication, No protection for logs
	1: No authentication, Protected logs (an administrator can see the logs)

	Plug & Play Maker/Model Name
5907	Selects the brand name and the production name for Windows Plug & Play. This information is stored in the NVRAM. If the NVRAM is defective, these names should be registered again.  After selecting, press the "Original Type" key and "#" key at the same time. When the setting is completed, the beeper sounds five times.

	LCT Paper Size
	Selects the paper size for the LCT. Use this SP after changing the paper size in the optional LCT (i.e., after changing the side plate position for the LCT).
	[0 to 1 / 1 / 1] North America
5908*	0: A4
	1: LT
	[0 to 1 / 0 / 1] Other Areas (Europe/Asia)
	0: A4
	1: LT

5912* PCU Alarm Setting		SP 5912 RTB 35: Deleted
1	Display	
2	Interval	Sets the PCU alarm interval. When the machine reaches this value, the PCU alarm will be displayed on the LCD to inform the user.  [0 to 255 / 60 / 1 k copies/step]  The zero setting switches the alarm off.

5913	Switchover Permission Time
	Sets the length of time to elapse before allowing another application to take control of the display when the application currently controlling the display is not operating because a key has not been pressed.  [3 to 30/1 s]

59		Mechanical Counter Detection
		Checks whether the mechanical counter inside the inner cover is connected or not.
	5915*	Display:
	0710	0: Not detected
		1: Detected
		2: Unknown

	Exhaust Fan Control	
5921*	Sets the timing for slowing the exhaust fan motor speed or shutting the motor off for normal	
	operation, depending on the following conditions:	

	After the machine has enter	ered energy saver mode or stand-by mode, the machine slows the uns out.
	After the machine has enter fan after this time runs out. [30 to 120 / 30 s / 1 s]	ered the auto off mode or an error occurs, the machine stops the
1	Normal	
2	Energy Saver	

	5967	Copy Server: Set Function
		Enables and disables the document server. This is a security measure that prevents image data from being left in the temporary area of the HDD. After changing this setting, you must switch the main switch off and on to enable the new setting.
		[0 to 1/1]
		0: ON
		1: OFF

	5974	Cherry Server
		Selects which version of the Scan Router application program, "Light" or "Full (Professional)", is installed.
		[0 to 1 / 0 / 1 /step]
		0: Light version (supplied with this machine)
		1: Full version (optional)

	Device Setting	
5985	The NIC and USB support features are built into the GW controller. In order to use the NIC and USB functions built into the controller board, these SP codes must be set to "1" (Default: 1 Enabled)	
1	On Board NIC	0: Disable, 1: Enable
2	On Board USB	- O: Disable, 1: Enable

5987	Mech. Counter
	This SP detects that a mechanical counter device is removed. If it is detected, SC610
	occurs.

	SP Print Mode (SMC Print)
5990	In the SP mode, press Copy Window to move to the copy screen, select the paper size, then press Start. Select A4/LT (Sideways) or larger to ensure that all the information prints. Press SP Window to return to the SP mode, select the desired print, and press Execute.
1	All (Data List)
2	SP (Mode Data List)
3	User Program
4	Logging Data
5	Diagnostic Report
6	Non-Default (Prints only SPs set to values other than defaults.)
7	NIB Summary
8	Capture Log
21	Copier User Program
22	Scanner SP
23	Scanner User Program

5995	Factory Mode	DFU
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5996	Machine State <b>DFU</b>	
	Destination	Shows intended destination of the engine board.
		0: Japan
1		1: North America
I		2: Europe
		3: Mainland China
		4: Taiwan
2	SBCU ID	Displays the CPM information for the engine board. For example, 25 (25 cpm), 30 (30 cpm), and so on.

			ı
2	IPLLID	Diambar at a IDLLID /	
ر ا ا	עו טוי	Displays the IPU ID (presently fixed at "30").	
		' ' '	1

## SP6xxx: Peripherals

6006	ADF Registration Adjustment		
1	Side-to-Side Registration		
	Adjusts the side-to-side registration of originals with the ARDF. [-3.0 to $3.0 / 0 / 0.1 \text{ mm/step}$ ]		
3	Leading Edge Registration		
	Adjusts the leading registration of originals with the ARDF.  [-5.0 to 5.0 / 0 / 0.1 mm/step]		
5	Buckle: Duplex Front	Adjust the amount of paper buckle to correct original skew for the front and rear sides.	
6	Buckle: Duplex Rear	[-5.0 to 5.0 / 0 / 0.1 mm/step]	
7	7 Rear Edge Erase		
Adjusts the erase margin at the original trailing edge. [-5.0 to 5.0 / 0 / 0.1 mm/step]			

	ADF Input Check		
6007	Displays the signals received from the sensors and switches of the ARDF. Only Bit 0 is used for ADF input check.		
1	Original B5 Sensor		
2	Original A4 Sensor		
3	Original LG Sensor		
4	Original Width Sensor S		
5	Original Width Sensor M	0: Paper not detected	
6	Original Width Sensor L	- 1: Paper detected	
7	Original Width Sensor LL		
9	Original Set Sensor		
10	Rear Edge Detection		

11	Skew Correction Sensor	
13	Registration Sensor	
14	Exit Sensor	
15	Top Cover Sensor	0: Cover closed, 1: Cover open
16	Lift Sensor	0: ADF closed, 1: ADF open

4009	ADF Output Check				
6008	Switches on each electrical component (motors, solenoids, etc.) of the ARDF for testing.				
3	Feed Motor: Fwd				
4	Feed Motor: Rev				
5	Transport Motor: Fwd				
6	Transport Motor: Rev				
9	Feed Clutch				
10	Feed Solenoid				
11	Junction Gate Solenoid				
12	Stamp Solenoid				

	ADF Free Run
6009	Performs an ARDF free run in duplex mode. Press [ON] to start, press [OFF] to stop.
	Note: This is a general free run controlled from the copier.

	Stamp Position Adj.
6010*	Adjusts the stamp position in the sub-scan direction in fax mode.
	[-5.0 to +5.0 / 0 / 1 mm/step]

	Original Size Detection Priority
6016*	Specifies the original size for a size detected by the original sensor, since original sensors
	cannot recognize all sizes.
	(7) 0000 0000 (0)

Different bits are used for detection, depending on the location as shown below.			
Bit	Size	Location	
7	A4 (L)/LT (L)	1	
6	11" x 15"/DLT (L)	- Japan only	
5	DLT (L)/ 11" x 15"		
4	LT (S)/ US Exec (S)	NIA sele	
3	LT (L)/8" x 10" (L)	NA only	
2	LG (L)/ F4 (L)		
1	A4 (L)/ 16K (L)	F11/AA 1	
0	8K (L)/ DLT (L)	EU/AA only	

	Sheet Through Magnification
6017	Adjusts the magnification in the sub-scan direction for the ARDF.
	[-5.0 to 5.0 / 0 / 0.1 %/step]

6117	Finisher Input Check			
0117	Displays the signals received from finisher sensors and switches. (See the tables below.)			
1	Group 1			
2	Group 2			
3	Group 3 (Only 1000 Fin)			
4	Group 4 (Only 1000 Fin)			

Check the status of each item against the 8-digit bit display listed in the table below.

Number	Bit	Description	Reading	
			0	1
	7	Stack Feed-out Belt HP Sensor	Activated	Deactivated
Group 1	6	Not Used		

Number	Bit	Bit Description	Reading	
			0	1
	5	Jogger Fence HP Sensor	Activated	Deactivated
	4	Stapler HP Sensor	Activated	Deactivated
	3	Stapler Tray Entrance Sensor	Activated	Deactivated
	2	Not Used		
	1	Lower Tray Exit Sensor	Activated	Deactivated
	0	Entrance Sensor	Activated	Deactivated

Number	Bit	it Description	Reading	
			0	1
	7	Not Used		
	6	Not Used		
	5	Stapler Ready Signal	Activated	Deactivated
Group 2	4	Not Used		
G100p 2	3	Not Used		
	2	Staple Sensor	Activated	Deactivated
	1	Staple Hammer HP Sensor	Activated	Deactivated
	0	Stapler Tray Paper Sensor	Activated	Deactivated

Number	Bit	Description	Reading	
			0	1
	7	Not Used		
	6	Lower Tray Lower Limit Sensor	Activated	Deactivated
Group 3	5	Not used		
	4	Stack Height Sensor	Activated	Deactivated
	3	Not Used		

Number	Bit Description	Description	Reading	
		Description	0	1
	2	Not Used		
	1	Shift HP Sensor	Activated	Deactivated
	0	Exit Guide HP Sensor	Activated	Deactivated

Number	Bit	Description	Reading	
Number		Description	0	1
	7	Not Used		
	6	Not Used		
	5	Not Used		
Crown 4	4	Not Used		
Group 4	3	Upper Tray Paper Limit Sensor	Activated	Deactivated
	2	Not Used		
	1	Not Used		
	0	Not Used		

	Finisher Output Check
6118	Switches on each electrical component of the finisher for testing.  Press [1] to switch on or [0] to switch off.
1	Upper Transport/Main Motor
2	Shift Tray Lift/Tray Motor
3	Staple Hammer Motor
4	Shift/Jogger Motor
5	Lower Transport Motor
6	Shift Tray Exit Motor
7	Tray Junction Gate Sol

8	Jogger Motor
9	Stapler Motor
10	Stapler Junction Gate Motor
11	Positioning Roller Sol
12	Stack Feed-Out Motor
13	Exit Guide Motor
14	Paddle Sol
15	Exit Unit Gear Sol
16	Stack Height Lever Sol
17	Transport Motor

6128	Punch Position: Sub Scan		
0120	Adjusts the punching position in the sub scan direction.		
1	Domestic 2Hole		
2	North America 3Hole		
3	Europe 4Hole	[-7.5 to 7.5 / 0 / 0.5 mm/step]]	
4	North Europe 4Hole		
5	North Europe 2Hole		

6129	Punch Position: Main Scan		
0129	Adjusts the punching position in the main scan direction.		
1	Domestic 2Hole		
2	North America 3Hole		
3	Europe 4Hole	[-2.0 to 2.0 / 0 / 0.4 mm/step]]	
4	North Europe 4Hole		
5	North Europe 2Hole		

6130	Skew Correction: Buckle Adj.		
0130	Adjusts the paper buckle for each paper size (B793 finisher).		
1	A3T (SEF)		
2	B4T (SEF)		
3	A4T (SEF)		
4	A4Y (LEF)		
5	B5T (SEF)		
6	B5Y (LEF)	[504-50/0/025/]]	
7	DLT-T (SEF)	[-5.0 to 5.0 / 0 / 0.25 mm/step]]	
8	LG-T (SEF)		
9	LT-T (SEF)		
10	LT-Y (LEF)		
11	12" x 18"		
12	Other		

6131	[Skew Correction Control]		
0131	Selects the skew correction control for each paper size. These are only activated for B793.		
1	A3T (SEF)		
2	B4T (SEF)		
3	A4T (SEF)		
4	A4Y (LEF)	[0 to 2 / 1 / 1/step]]	
5	B5T (SEF)	0: No (No skew correction)	
6	B5Y (LEF)	1: Roller Stop Skew Correction 2: Roller Reverse Skew Correction	
7	DLT-T (SEF)		
8	LG-T (SEF)		
9	LT-T (SEF)		

10	O LT-Y (LEF)
11	1 12" x 18"
12	2 Other

	Jogger Fence Fine Adj		
6132	This SP adjusts the distance between the jogger fences and the sides of the stack on the finis stapling tray in the Booklet Finisher B793. The adjustment is done perpendicular to the direction of paper feed.		
1	A3T (SEF)		
2	B4T (SEF)		
3	A4T (SEF)		
4	A4Y (LEF)		
5	B5T (SEF)	[-1.5 to 1.5 / 0 / 1/step]	
6	B5Y (LEF)	+ Value: Increases distance between jogger fences and the sides of the stack.	
7	DLT-T (SEF)	- Value: Decreases the distance between the jogger fences and the sides of the stack.	
8	LG-T (SEF)		
9	LT-T (SEF)		
10	LT-Y (LEF)		
11	12" x 18"		
12	Other		

	Staple Position Adjustment		
6133	Adjusts the staple position for each finisher (B408/B793/D372).  + Value: Moves the staple position to the rear side.  - Value: Moves the staple position to the front side.		
1	Finisher 1 (B408/B793)	[-3.5 to 3.5 / 0 / 1/step]]	
2	Finisher 2 (D372)	[-2.0 to 2.0 / 0 / 1/step]]	

6134	Saddle Stitch Position Adjustment		
	Use this SP to adjust the stapling position of the booklet stapler when paper is stapled and folded in the Booklet Finisher B793.		
1	A3 SEF		
2	B4 SEF		
3	A4 SEF		
4	B5 SEF	[-3.0 to 3.0 / 0 / 0.2 mm/step]	
5	DLT-T (SEF)	+ Value: Shifts staple position toward the crease.	
6	LG-T (SEF)	- Value: Shifts staple position away from the crease.	
7	LT-T (SEF)		
8	12" x 18"		
9	Other		

6135	Folder Position Adjustment		
	This SP corrects the folding position when paper is stapled and folded in the Booklet Finisher B793.		
1	A3 SEF		
2	B4 SEF		
3	A4 SEF		
4	B5 SEF	[-3.0 to 3.0 / 0 / 0.2 mm/step]	
5	DLT-T (SEF)	+ Value: Shifts staple position toward the crease.	
6	LG-T (SEF)	- Value: Shifts staple position away from the crease.	
7	LT-T (SEF)		
8	12" x 18"		
9	Other		

6136	Folding Number

This SP sets the number of times the folding rollers are driven forward and reverse to sharpen the crease of a folded booklet before it exits the folding unit.

[2 to 30/2/1 times]

6137	Fin. Free Run		
0137	These SPs are used only for B793 finisher.		
1	Free Run 1	Free run for paper edge stapling.	
2	Free Run 2 Free run for booklet stapling.		
3	Free Run 3	Free Run 3 Shipping free run. Simulates standby conditions during shipping.	
4	Free Run 4	DFU	

	FIN (TIG) Input Check 1000-Sheet Finisher B793			
6138	Note: The names in parentheses are the names used in the service manuals.			
	Component	0	1	
1	Interference Escape Sensor (Stapler Safety Sensor)	Inactive	Active	
2	Staple Moving HP Sensor (Staple Unit HP Sensor)	Not HP	At HP	
3	Stuck Relay 1 Release HP Sensor (Stopper S HP Sensor)	Not HP	At HP	
4	Exit Junction Gate HP Sensor (Stack Feed Out HP Sensor)	At HP	Not HP	
5	Jogger HP Sensor (Jogger Fence HP Sensor)	Not HP	At HP	
6	Staple Tray Paper Sensor (Staple Tray Paper Sensor)	No Paper	Paper	
7	Rear Edge Fence HP Sensor (Paper Stack Stopper HP Sensor)	Not HP	At HP	
8	Saddle Stitch Exit Sensor	Paper	No Paper	

9	Stuck Relay2 Roller HP Sensor (Clamp Roller HP Sensor)	At HP	Not HP
10	Folder Tray Full Sensor 1 (Bottom Tray HP 1 Sensor)	Full	Not full
11	Folder Tray Full Sensor 2 (Bottom Tray HP 2 Sensor)	Not full	Full
12	Folder Plate HP Sensor (Fold Plate HP Sensor)	Not HP	At HP
13	Saddle Stitch Arrival Sensor (Fold Unit Entrance Sensor)	No Paper	Paper
14	Folder Cam HP Sensor (Fold Plate Cam HP Sensor)	Not HP	At HP
15	Staple Exit Sensor (Stapler Tray Exit Sensor)	Paper	No Paper
16	Shift Tray Paper Sensor (Shift Tray Paper Position Sensor)	No Tray	Tray
17	Shift Tray Full	Full	Nor full
18	Shift Roller HP Sensor	Not HP	At HP
20	Entrance Sensor (Finisher Entrance Sensor)	Paper	No Paper
21	Shift Exit Sensor (Shift Tray Exit Sensor)	No Paper	Paper
22	Proof Exit Sensor (Proof Tray Exit Sensor)	Paper	No Paper
23	Exit Guide Plate HP Sensor	Not HP	At HP
24	Proof Full Sensor (Proof Tray Full Sensor)	Not full	Full
25	Upper Cover Sensor	Open	Close
26	Door SW (Front Door Switch)	Close	Open

27	Clincher Timing Sensor	Encoder	
28	Clincher HP Sensor	At HP	Not HP
29	Driver Timing Sensor	Encoder	
30	Staple Near End	Staples Remain	Staples N.E.
31	Self Priming	Staples	No Staples
32	Driver HP Sensor	At HP	Not HP
33	Punch Registration Detection HP Sensor	Not HP	At HP
34	Punch Moving HP Sensor (Punch Movement HP Sensor)	Not HP	At HP
35	Punch HP Sensor (Punch HP Sensor)	At HP	Not HP
36	Punch Pulse Count Sensor (Punch Encoder Sensor)	Encoder	
37	Punch Chad Full Sensor (Punch Hopper Full Sensor)	Not full	Full
38	Punch Registration Detection Sensor (Paper Position Sensor)	Paper	No Paper

/120	FIN (KIN) Input Check	1000-Sheet Finisher B408	
Note: The names in parentheses are the names used in the service manuals		inuals.	
	Component	0	1
1	Entrance Sensor	Paper	No Paper
2	Shift Exit Sensor (Lower Tray Exit Sensor)	No Paper	Paper
3	Staple Entrance Sensor (Stapler Tray Entrance Sensor)	Paper	No Paper
4	Staple Moving HP Sensor (Stapler HP Sensor)	Not HP	At HP

5	Jogger HP Sensor (Jogger Fence HP Sensor)	Not HP	At HP
6	Stack Feed-out Belt HP Sensor	At HP	Not HP
7	Staple Tray Paper Sensor	No Paper	Paper
8	Staple Rotation Sensor (Staple Rotation HP Sensor)	Not HP	At HP
9	Staple Sensor	Staples	No Staples
10	Staple READY Detection	Staples	No Staples
11	Exit Guide Plate HP (Exit Guide Plate HP Sensor)	Not HP	At HP
12	Shift HP Sensor	Not HP	At HP
13	Paper Sensor (Stack Height Sensor)	No Tray	Tray
14	Tray Lower Sensor (Lower Tray Lower Limit Sensor)	Lower limit	Not Lower Limit
15	Proof Full Sensor (Paper Limit Sensor)	Not Full	Full

6143	FIN (TIG) Output Check	1000-Sheet Finisher B793	
	Displays the signals received from sensors and switches of the booklet finisher.		
	<b>Note</b> : In the table below, "Display" is what you see on the screen, and "Component" is the name used in the service manuals.		
	Display	Component	
1	Shift Motor	Shift Tray Motor	
2	Entrance Motor	-	
3	Staple Relay Motor	Stapler Unit Motor	
4	Knock Solenoid		
5	Junction Gate SOL 1	Proof Tray Gate Solenoid	

6	Junction Gate SOL 2	Staple Tray Gate Solenoid
7	Folder Roller Rotation Motor	Fold Roller Motor
8	Staple Motor	Staple Fold Motor
10	Exit Guide Plate Motor	-
11	Shift Relay Motor	Upper Transport Motor
12	Tray Motor	Shift Tray Motor
13	Stack Feed-out Motor	Positioning Roller Solenoid
14	Stuck Relay 1 Motor	Upper Clamp Roller Motor
15	Stuck Relay 1 Release Motor	Upper Retraction Motor
16	Rear Edge Fence Drive Motor	Bottom Fence Lift Motor
17	Folder Plate Motor	-
18	Drive Roller Oscillating Motor	Lower Retraction Motor
19	Staple Moving Motor	Staple Unit Driver Motor
20	Jogger Motor	Jogger Motor
21	Punch Registration Moving Motor	Paper Position Sensor Slide Motor
22	Punch Motor	-
23	Punch Moving Motor	Punch Movement Motor

6144	FIN (KIN) Output Check	1000-Sheet Finisher B408	
	Displays the signals received from sensors and switches of the booklet finisher.		
	Note: In the table below, "Display" is what you see on the screen, and "Component" is the name used in the service manuals.		
	Display Component		
1	Relay Up Motor	Upper Transport Motor	
2	Relay Down Motor	Lower Transport Motor	
3	Exit Motor	-	
4	Proof Junction Gate SOL	Tray Junction Gate Solenoid	

5	Tray Up Motor	Lower Tray Lift Motor
6	Jogger Motor	Jogger Fence Motor
7	Staple Moving Motor	Stapler Motor
8	Staple Motor	Stapler Hammer
9	Staple Junction Gate SOL	Stapler Junction Gate Solenoid
10	Positioning Roller Solenoid	Positioning Roller Solenoid
11	Stack Feed-out Motor	-
12	Shift Motor	-
13	Exit Guide Plate Motor	-

500-Sheet Finisher D372

FIN (ELB) Input Check

	, , ,		
	Displays the signals received from sensors and switches of the finisher.		
6145	Note:		
	The names in parentheses below are the names in parentheses below are the name in the	ames used in the service m	anuals.
	• "0" means LOW, "1" means HIGH.		
	Component	0	1
1	Entrance Sensor	Paper	No Paper
2	Hitroll HP Sensor	NLALID	ALLID
2	(Positioning Roller HP Sensor)	Not HP	At HP
3	Front Jogger HP Sensor	Not HP	At HP
3	(Front Fence HP Sensor)	NOLLIL	АГПГ
4	Rear Jogger HP Sensor	Not HP	At HP
4	(Rear Fence HP Sensor)	NOTTI	AIII
5	Staple Tray Paper Sensor	Paper	No Paper
	Staple Moving HP Sensor	NLALID	ALLID
6	(Stapler HP Sensor)	Not HP	At HP
7	Stack Feed-Out Belt HP Sensor	Not HP	At HP
8	Shift Tray Paper Sensor	Not HP	At HP
8	Shift Tray Paper Sensor	Not HP	At HP

9	Upper Cover Sensor	Not HP	At HP
10	Stapler Rotation Sensor	HP	Not HP
11	Staple Near End Sensor	HP	Not HP
12	Self Priming (Stapler)	HP	Not HP
13	Shift Tray Limit Sensor (Tray Upper Limit SW)	Not Full	Full

	FIN (ELB) Output Check	500-Sheet Finisher D372	
6146	Displays the signals received from sensors and switches of the booklet finisher.  Note: In the table below, "Display" is what you see on the screen, and "Component" is the name used in the service manuals.		
	Display Component		
1	Carry Motor	Transport Motor	
2	2 Hitroll Motor Positioning Roller Arm Motor  3 Front Jogger Motor Front Fence Motor  4 Rear Jogger Motor Rear Fence Motor  5 Staple Moving Motor Stapler Movement Motor  6 Stack Feed-Out Motor Feed-Out Belt Motor  7 Tray Motor Tray Lift Motor  8 Staple Motor Stapler Motor  9 Stopper Solenoid Stack Depressor Solenoid		
3			
4			
5			
6			
7			
8			
9			

## SP7xxx: Data Log

	Main Motor Operation Time
7001*	The number of prints and drive time for drum revolutions can be obtained by counting the main motor revolution time. If the amount of the time required for the drum to revolve to print 1 copy increases, this data combined with the number of copies can be used to analyze problems and could be useful for future product development.  Display: 0000000 to 9999999 min.

7401\*

Total SC Counter

Displays the total number of service calls that have occurred.

7403*	SC History	
1	Latest	
2	Latest 1	
3	Latest 2	
4	Latest 3	
5	Latest 4	
6	Latest 5	Displays the most recent 10 service calls.
7	Latest 6	
8	Latest 7	
9	Latest 8	
10	Latest 9	

7502\*

Total Paper Jam Counter

Displays the total number of paper jams.

7503*	7502*	Total Original Jam Counter	
		Displays the total number of original jams.	

12	Trans 2 Sn: Late
	Paper Jam Location
	These SPs display the total number of paper jams by location. A "Check-in" (paper late) error occurs when the paper fails to activate the sensor at the precise time.  Note
7504*	Lag. Jam occurs when the paper remains at the sensor for longer than the prescribed time.
	Late: Jam occurs because paper fails to arrive at the prescribed time.
	KIN. 1000-Sheet Finisher (B408)
	• TIG. 1000-Sheet Finisher (B793)
	ELB. 500-Sheet Finisher (D372)
1	At Power On
3	Tray 1: No Feed
4	Tray 2: No Feed
5	Tray 3: No Feed
6	Tray 4: No Feed
7	LCT: No Feed
8	Bypass PE Sn: Off
9	Duplex: No Feed
11	Trans 1 Sn: Late
13	Bank Trans 1: Late
17	Registration Sn: Late
20	Main Exit Sn: Late
21	Bridge Exit Sn: Late
22	Bridge Trans Sn: Late
25	Junction Gate Sn: Late
26	Jct Inv Sn: Late
27	Duplex Ent Sn: Late

12	Trans 2 Sn: Late	
51	Trans 1 Sn: Lag	
52	Trans 2 Sn: Lag	
53	Frans 3 Sn: Lag	
57	Registration Sn: Lag	
58	LCT Trans Sn: Lag	
60	Main Ex Sn: Lag	
61	Bridge Ex Sn: Lag	
62	Bridge Trans Sn: Lag	
65	Jct Gate Sn: Lag	
66	Jct Inv Sn: Lag	
67	Duplex Ent Sn: Lag	
100	FIN Entrance: KIN	
101	FIN Shift Tray Exit:KIN	
102	FIN Staple: KIN	
103	FIN Exit: KIN	
105	FIN Tray Lift Motor: KIN	
106	FIN Jogger Motor: KIN	
107	FIN Shift Motor: KIN	
108	FIN Staple Motor: KIN	
109	FIN Exit Motor: KIN	
130	FIN Entrance: TIG	
131	FIN Proof Tray Exit: TIG	
132	FIN Shift Tray: TIG	
133	FIN Staple Exit: TIG	
134	FIN Exit: TIG	

12	Trans 2 Sn: Late	
135	FIN Fold: TIG	
136	FIN Fold: TIG	
137	FIN Guide Gate Motor: TIG	
138	FIN Staple Shift Motor: TIG	
139	FIN Paper Punch Motor: TIG	
140	FIN Tray Lift Motor: TIG	
141	FIN Jogger Motor: TIG	
142	FIN Shift Motor: TIG	
143	FIN Staple Motor: TIG	
144	FIN Staple Motor: TIG	
145	FIN Exit Motor: TIG	
146	FIN Stack Release Motor 1: TIG	
147	FIN Stack Release Motor 2: TIG	
148	FIN Stopper Motor: TIG	
160	Entrance Sensor On: ELB	
161	Entrance Sensor Off: ELB	
162	FIN Entrance: ELB	
163	Positioning Roller: ELB	
164	Front Jogger Motor: ELB	
165	Rear Jogger Motor: ELB	
166	Exit Motor: ELB	
167	FIN Staple Shift Motor: ELB	
168	FIN Staple Motor: ELB	
169	FIN Tray Lift Motor: ELB	
170	FIN Stack Height SOL: ELB	

	Original Jam Location		
	Displays the total number of original jams by location. These jams occur when the original does not activate the sensors.		
7505	Note		
	Lag. Jam occurs when the paper remains at the sensor for longer than the prescribed time.		
	Late: Jam occurs because paper fails to arrive at the prescribed time.		
1	At Power On		
3	Skew Correction Sn: Late		
4	Registration Sn: Late		
5	Exit Sn: Late		
53	Skew Correction Sn: Lag		
54	Registration Sn: Lag		
55	Exit Sn: Lag		

7506*	Jam Count by P	aper Size
5	A4 LEF	
6	A5 LEF	
14	B5 LEF	
38	LT LEF	
44	HLT LEF	
132	A3 SEF	Displays the total number of copy jams by paper size.
133	A4 SEF	
134	A5 SEF	
141	B4 SEF	
142	B5 SEF	
160	DLT SEF	
164	LG SEF	

166	LT SEF
172	HLT SEF
255	Others

7507*	Plotter Jam Histo	Plotter Jam History			
7507 1	Last				
7507 2	Latest 1	Displays the copy jam history (the most recent 10 jams) Sample Display:			
7507 3	Latest 2	CODE:007			
7507 4	Latest 3	SIZE:05h	SIZE:05h		
7507 5	Latest 4	TOTAL:0000334			
7507 6	Latest 5	DATE: Mon Mar 15 11:44:50 2000 where:			
75077	Latest 6	CODE is the SP7504-*** number (see above.			
7507 8	Latest 7	SIZE is the ASAP paper size code in hex.  TOTAL is the total jam error count (SP7502)			
7507 9	Latest 8				
7507 10	Latest 9	D/ (TE 13 III C date 1	DATE is the date the jams occurred.		
Size	Code	Size	Code	Size	Code
A4 (S)	05	A3 (L)	84	DLT (L)	A0
A5 (S)	06	A4 (L)	85	LG (L)	A4
B5 (S)	OE	A5 (L)	86	LT (L)	A6
LT (S)	26	B4 (L)	8D	HLT (L)	AC
HLT (S)	2C	B5 (L)	8E	Others	FF

7508*	Original Jam History	
1	Last	Displays the original jam history (the most recent 10 jams).
2	Last 1	Sample Display:
3	Last 2	CODE:007 SIZE:05h
4	Last 3	TOTAL:0000334

5	Last 4	DATE: Mon Mar 15 11:44:50 2000
6	Last 5	where:
7	Last 6	CODE is the SP7505*** number (see above.
8	Last 7	SIZE is the ASAP paper size code in hex.
9	Last 8	TOTAL is the total error count (SP7503)  DATE is the date the jams occurred.
10	Last 9	27 TE to the date the junio eccented.

	ROM No./Firmware Version
7801	This SP codes display the firmware versions of all ROMs in the system, including the mainframe, the ARDF, and peripheral devices.

7803*	PM Counter Display
7803	Displays the PM counter since the last PM.
1	Paper
2	Sheets 60K Part
3	Sheets 120K Part
4	Distance (m) 60 K
5	Distance (m) 120
6	Distance 60K
7	Distance 120K

7804	PM Counter Resets	
7604	Resets the PM counter. To reset, press Exec	ute on the touch panel.
1	Paper	
2	Sheets 60K	
3	Sheets 120K	

7807	SC/Jam Counter Reset
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Resets the SC and jam counters. To reset, press Execute on the touch panel.	
This SP does not reset the jam history counters: SP7507, SP7508.	

	7826	MF Error Counter <b>Japan Only</b>	
	7020	Displays the num	nber of counts requested of the card/key counter.
	1	Error Total	A request for the count total failed at power on. This error will occur if the device is installed but disconnected.
	2	Error Staple	The request for a staple count failed at power on. This error will occur if the device is installed but disconnected.

7827	MF Error Counter Clear <b>Japan Only</b>
7027	Press Execute to reset to 0 the values of SP7826. Japan Only

	Self-Diagnose Result Display	
7832	Execute to open the "Self-Diagnostics Result Display" to view details about errors. Use the keys in the display on the touch-panel to scroll through all the information. If no errors have occurred, you will see the "No Error" message on the screen.	

7834	Coverage Data Clear
7 6 3 4	These SPs clear the counters for the following items.
1	Last & Average
2	No. of Toner Bottles
3	Page Count: Bottle
4	Dot Coverage Clear
255	All Coverage Data

7836	Total Memory Size
7630	Displays the memory capacity of the controller system.

7852*	ADF Exposure Glass
7032	'

	Counts the number of occurrences (0 to 65,535) when dust was detected on the scanning glass of the ADF.	
1*	Dust Check Counter	Counts the occurrences. Counting is done only if SP4020 1 (ADF Scan Glass Dust Check) is switched on.
2*	Dust Check Counter Clear	Clears the count. Memory All Clear (SP5801) resets this counter to zero.

7856	Zero Cross
	Stores and displays the detected zero cross frequency for main power ac.

	Assert Info. DFU		
7901* These SP numbers display the results of the occurrence of the most recent SC of generated by the machine.			
1*	File Name	Module name	
2*	Number of Lines	Number of the lines where error occurred.	
3*	Location	Value	

	Last PM Count		
7906	Displays the most recent PM count for 60K and 120K service parts ("60K" and "120" refer to service life).		
1	Paper		
2	Sheets 60K Part		
3	Sheets 120K Part		
4	Distance (m) 60 K		
5	Distance (m) 120		
6	Distance 60K		
7	Distance 120K		

7907
------

	Displays the PM count before the most recent PM count for 60K and 120K service parts ("60K" and "120" refer to service life).	
1	Paper	
2	Sheets 60K Part	
3	Sheets 120K Part	
4	Distance (m) 60 K	
5	Distance (m) 120 K	
6	Distance 60K	
7	Distance 120K	

	Before 3 PM Count			
7908	Displays the PM count two counts the most recent PM count for 60K and 120K service parts ("60K" and "120" refer to service life).			
1	Paper			
2	Sheets 60K Part			
3	Sheets 120K Part			
4	Distance (m) 60 K			
5	Distance (m) 120 K			
6	Distance 60K			
7	Distance 120K			

7909	PCU Counter Display
1	Displays the value of the PCU counter (number of copies since the last PCU change).

7999	Engine Debug Log Switch				
	This SP switches the contents of the debug log.				
	0	RHM log (all)	4	Scanner log 2	
	1	Plotter log	5	Scanner log 3	

2	Print log	6	Scanner log 4
3	Scanner log 1	7-255	RHM log (all)

# SP8xxx: Data Log 2

Many of these counters are provided for features that are currently not available, such as sending color faxes, and so on. However, here are some Group 8 codes that when used in combination with others, can provide useful information.

SP Numbers	What They Do
SP8211 - SP8216	The number of pages scanned to the document server.
SP841 - SP8406	The number of pages printed from the document server
SP8691 - SP8696	The number of pages sent from the document server

Specifically, the following questions can be answered:

- How is the document server actually being used?
- What application is using the document server most frequently?
- What data in the document server is being reused?

Most of 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 Table, make sure that you understand what these prefixes mean.

Prefixes	What It Means		
T:	Total: (Grand Total).	Grand total of the items counted for all applications (C, F, P, etc.).	
C:	Copy application.		
F:	Fax application.	Totals (pages, jobs, etc.) executed for each application	
P:	Print application.	when the job was not stored on the document serve	
S:	Scan application.		
L:	Local storage (document server)	Totals (jobs, pages, etc.) for the document server. The L: counters work differently case by case. Sometimes, they count jobs/pages stored on the document server; this can be in document server mode (from the document server window), or from another mode, such as from a printer driver or by pressing the Store File button in the Copy mode window. Sometimes, they include occasions when the user uses a file that is already on the document server. Each counter will be discussed case by case.	

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Prefixes	What It Means	
O:	Other applications (external network applications, for example)	Refers to network applications such as Web Image Monitor. Utilities developed with the SDK (Software Development Kit) will also be counted with this group in the future.

The 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. Read over the list of abbreviations below and refer to it again if you see the name of an SP that you do not understand.

## Key for Abbreviations

Abbreviation	What It Means	
/	"By", e.g. "T:Jobs/Apl" = Total Jobs "by" Application	
> More (2> "2 or more", 4> "4 or more"		
AddBook	Address Book	
Apl	Application	
B/W	Black & White	
Bk	Black	
С	Cyan	
ColCr Color Create		
ColMode Color Mode		
Comb Combine		
Comp	Compression	
Deliv Delivery		
Designated Application. The application (Copy, Fax, Scan, Print) used to job on the document server, for example.		
Dev Counter Development Count, no. of pages developed.		
Dup, Duplex Duplex, printing on both sides		
Emul Emulation		
FC Full Color		

Abbreviation What It Means	
FIN	Post-print processing, i.e. finishing (punching, stapling, etc.)
Full Bleed	No Margins
GenCopy	Generation Copy Mode
GPC	Get Print Counter. For jobs 10 pages or less, this counter does not count up. For jobs larger than 10 pages, this counter counts up by the number that is in excess of 10 (e.g., for an 11-page job, the counter counts up 11-10=1)
IFax	Internet Fax
ImgEdt	Image Edit performed on the original with the copier GUI, e.g. border removal, adding stamps, page numbers, etc.
K	Black (YMCK)
LS	Local Storage. Refers to the document server.
LSize	Large (paper) Size
Mag	Magnification
МС	One color (monochrome)
NRS	New Remote Service, which allows a service center to monitor machines remotely. "NRS" is used overseas, "CSS" is used in Japan.
Org	Original for scanning
OrgJam	Original Jam
Palm 2	Print Job Manager/Desk Top Editor: A pair of utilities that allows print jobs to be distributed evenly among the printers on the network, and allows files to moved around, combined, and converted to different formats.
PC Personal Computer	
PGS	Pages. A page is the total scanned surface of the original. Duplex pages count as two pages, and A3 simplex count as two pages if the A3/DLT counter SP is switched ON.
PJob	Print Jobs
Ppr	Paper
PrtJam	Printer (plotter) Jam

Abbreviation	What It Means	
PrtPGS	Print Pages	
Red (Toner Remaining). Applies to the wide format model A2 only. This is under development and currently not available.		
Rez	Resolution	
SC	Service Code (Error SC code displayed)	
Scn	Scan	
Sim, Simplex Simplex, printing on 1 side.		
S-to-Email	Scan-to-E-mail	
SMC	SMC report printed with SP5990. All of the Group 8 counters are recorded in the SMC report.	
Svr	Server	
TonEnd Toner End		
TonSave Toner Save		
TXJob Send, Transmission		
YMC Yellow, Magenta, Cyan		
YMCK Yellow, Magenta, Cyan, BlacK		

## **U** Note

• All of the Group 8 SPs are reset with SP5 801 1 Memory All Clear, or the Counter Reset SP7 808.

8001	T:Total Jobs	The CD could need to the could
8002	C:Total Jobs	These SPs count the number of times each application is used to do a job.  [0 to 9999999/0/1]  Note: The L: counter is the total number of times the other applications are used to send a job to the document server, plus the number of times a file already on the document server is used.
8003	F:Total Jobs	
8004	P:Total Jobs	
8005	S:Total Jobs	
8006	L:Total Jobs	

• These SPs reveal the number of times an application is used, not the number of pages processed.

- When an application is opened for image input or output, this counts as one job.
- Interrupted jobs (paper jams, etc.) are counted, even though they do not finish.
- Only jobs executed by the customer are counted. Jobs executed by the customer engineer using the SP modes are not counted.
- When using secure printing (when a password is required to start the print job), the job is counted at the time when either "Delete Data" or "Specify Output" is specified.
- A job is counted as a fax job when the job is stored for sending.
- When a fax is received to fax memory, the F: counter increments but the L: counter does not (the
  document server is not used).
- A fax broadcast counts as one job for the F: counter (the fax destinations in the broadcast are not counted separately).
- A fax broadcast is counted only after all the faxes have been sent to their destinations. If one
  transmission generates an error, then the broadcast will not be counted until the transmission has been
  completed.
- A printed fax report counts as one job for the F: counter.
- The F: counter does not distinguish between fax sending or receiving.
- When a copy job on the document server is printed, SP8022 also increments, and when a print job stored on the document server is printed, SP8024 also increments.
- When an original is both copied and stored on the document server, the C: and L: counters both increment.
- When a print job is stored on the document server, only the L: counter increments.
- When the user presses the Document Server button to store the job on the document server, only the L: counter increments.
- When the user enters document server mode and prints data stored on the document server, only the L: counter increments.
- When an image received from Palm 2 is received and stored, the L: counter increments.
- When the customer prints a report (user code list, for example), the O: counter increments. However, for fax reports and reports executed from the fax application, the F: counter increments.

8011	T:Jobs/LS	
8012	C:Jobs/LS	These SPs count the number of jobs stored to the document server by each application, to reveal how local storage is being used for input.  [0 to 9999999/0/1]  The L: counter counts the number of jobs stored from within the document server mode screen at the operation panel.
8013	F:Jobs/LS	
8014	P:Jobs/LS	
8015	S:Jobs/LS	
8016	L:Jobs/LS	

8017
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- When a scan job is sent to the document server, the S: counter increments. When you enter document server mode and then scan an original, the L: counter increments.
- When a print job is sent to the document server, the P: counter increments.
- When a network application sends data to the document server, the O: counter increments.
- When an image from Palm 2 is stored on the document server, the O: counter increments.
- When a fax is sent to the document server, the F: counter increments.

8021	T:Pjob/LS	
8022	C:Pjob/LS	
8023	F:Pjob/LS	These SPs reveal how files printed from the document server were stored on the document server originally.
8024	P:Pjob/LS	[0 to 9999999/0/1]  The L: counter counts the number of jobs stored from within the document server mode screen at the operation panel.
8025	S:Pjob/LS	
8026	L:Pjob/LS	
8027	O:Pjob/LS	

- When a copy job stored on the document server is printed with another application, the C: counter increments.
- When an application like DeskTopBinder merges a copy job that was stored on the document server with a print job that was stored on the document server, the C: and P: counters both increment.
- When a job already on the document server is printed with another application, the L: counter increments.
- When a scanner job stored on the document server is printed with another application, the S: counter increments. If the original was scanned from within document server mode, then the L: counter increments.
- When images stored on the document server by a network application (including Palm 2), are printed with another application, the O: counter increments.
- When a copy job stored on the document server is printed with a network application (Web Image Monitor, for example), the C: counter increments.
- When a fax on the document server is printed, the F: counter increments.

8031	T:Pjob/DesApl	These SPs reveal what applications were used to output
	0.01.1.701.1	documents from the document server.
8032	C:Pjob/DesApl	[0 to 9999999/ 0 / 1]

8033	F:Pjob/DesApl	The L: counter counts the number of jobs printed from within the document server mode screen at the operation panel.
8034	P:Pjob/DesApl	
8035	S:Pjob/DesApl	
8036	L:Pjob/DesApl	
8037	O:Pjob/DesApl	

- When documents already stored on the document server are printed, the count for the application that started the print job is incremented.
- When the print job is started from a network application (Desk Top Binder, Web Image Monitor, etc.)
   the L: counter increments.

8041	T:TX Jobs/LS	These SPs count the applications that stored files on the
8042	C:TX Jobs/LS	document server that were later accessed for transmission over the telephone line or over a network
8043	F:TX Jobs/LS	(attached to an e-mail, or as a fax image by I-Fax).
8044	P:TX Jobs/LS	[0 to 9999999/ 0 / 1]  Note:
8045	S:TX Jobs/LS	Jobs merged for sending are counted separately.
8046	L:TX Jobs/LS	The L: counter counts the number of jobs scanned from within the document server mode screen at the
8047	O:TX Jobs/LS	operation panel.

- When a stored copy job is sent from the document server, the C: counter increments.
- When images stored on the document server by a network application or Palm2 are sent as an email, the O: counter increments.

8051	T:TX Jobs/DesApl	
8052	C:TX Jobs/DesApl	These SPs count the applications used to send files from
8053	F:TX Jobs/DesApl	the document server over the telephone line or over a network (attached to an e-mail, or as a fax image by I-
8054	P:TX Jobs/DesApl	Fax). Jobs merged for sending are counted separately.
8055	S:TX Jobs/DesApl	[0 to 9999999 / 0 / 1]  The L: counter counts the number of jobs sent from within
8056	L:TX Jobs/DesApl	the document server mode screen at the operation panel.
8057	O:TX Jobs/DesApl	

• If the send is started from Desk Top Binder or Web Image Monitor, for example, then the O: counter increments.

	T:FIN Jobs		[0 to 9999999/ 0 / 1]
8061	These SPs total the finishing methods. The finishing method is specified by the application.		
	C:FIN Jobs		[0 to 9999999/ 0 / 1]
8062	These SPs total	-	ppy jobs only. The finishing method is specified
	F:FIN Jobs		[0 to 9999999/ 0 / 1]
8063	by the applica	ation.	ax jobs only. The finishing method is specified re not available at this time.
	P:FIN Jobs		[0 to 9999999/ 0 / 1]
8064	These SPs total finishing methods for print jobs only. The finishing method is specified by the application.		
	S:FIN Jobs		[0 to 9999999/ 0 / 1]
8065	by the applica	ation.	can jobs only. The finishing method is specified are not available at this time.
	L:FIN Jobs	<u> </u>	[0 to 9999999/ 0 / 1]
8066	These SPs total finishing methods for jobs output from within the document server mode screen at the operation panel. The finishing method is specified from the prin window within document server mode.		he finishing method is specified from the print
	O:FIN Jobs		[0 to 9999999/ 0 / 1]
8067	These SPs total finishing methods for jobs executed by an external application, of the network. The finishing method is specified by the application.		
806x 1	Sort	Number of jobs started in Sort mode. When a stored copy job is for Sort and then stored on the document server, the L: counter increments. (See SP8066 1)	
806x 2	Stack	Number of jobs started out of Sort mode.	

806x 3	Staple	Number of jobs started in Staple mode.	
806x 4	Booklet	Number of jobs started in Booklet mode. If the machine is in staple mode, the Staple counter also increments.	
806x 5	Z-Fold	Number of jobs started In any mode other than the Booklet mode and set for folding (Z-fold).	
806x 6	Punch	Number of jobs started in Punch mode. When Punch is set for a print job, the P: counter increments. (See SP8064 6.)	
806x 7	Other	Reserved. Not used.	

	T:Jobs/PGS	[0 to 9999999/ 0 / 1]	
8071	These SPs count the number of jobs broken down by the number of pages in the job, regardless of which application was used.		
	C:Jobs/PGS	[0 to 9999999/ 0 / 1]	
8072	These SPs count and calculate the number of copy jobs by size based on the number of pages in the job.		
	F:Jobs/PGS	[0 to 9999999/ 0 / 1]	
8073	These SPs count and calculate the number of fax jobs by size based on the of pages in the job.		
	P:Jobs/PGS	[0 to 9999999/ 0 / 1]	
8074	These SPs count and calculate the number of print jobs by size based on the number of pages in the job.		
	S:Jobs/PGS	[0 to 9999999/ 0 / 1]	
8075	These SPs count and calculate the number of scan jobs by size based on the number of pages in the job.		
	L:Jobs/PGS	[0 to 9999999/ 0 / 1]	
8076	These SPs count and calculate the number of jobs printed from within the document server mode window at the operation panel, by the number of pages in the job.		
	O:Jobs/PGS	[0 to 9999999/ 0 / 1]	
8077	These SPs count and calculate the number of "Other" application jobs (Web Image Monitor, Palm 2, etc.) by size based on the number of pages in the job.		

807x 1	1 Page	807x 8	21 to 50 Pages
807x 2	2 Pages	807x 9	51 to 100 Pages
807x 3	3 Pages	807x 10	101 to 300 Pages
807x 4	4 Pages	807x 11	301 to 500 Pages
807x 5	5 Pages	807x 12	501 to 700 Pages
807x 6	6to 10 Pages	807x 13	701 to 1000 Pages
807x 7	11 to 20 Pages	807x 14	More than 1001 Pages

- For example: When a copy job stored on the document server is printed in document server mode, the appropriate L: counter (SP8076 0xx) increments.
- Printing a fax report counts as a job and increments the F: counter (SP 8073).
- Interrupted jobs (paper jam, etc.) are counted, even though they do not finish.
- If a job is paused and re-started, it counts as one job.
- If the finisher runs out of staples during a print and staple job, then the job is counted at the time the error occurs.
- For copy jobs (SP 8072) and scan jobs (SP 8075), the total is calculated by multiplying the number of sets of copies by the number of pages scanned. (One duplex page counts as 2.)
- The first test print and subsequent test prints to adjust settings are added to the number of pages of the copy job (SP 8072).
- When printing the first page of a job from within the document server screen, the page is counted.

	T:FAX TX Jobs	[0 to 9999999/ 0 / 1]
8111	These SPs count the total number of jobs (color or black-and-white) sent by fax, either directly or using a file stored on the document server, on a telephone line	
	F:FAX TX Jobs	[0 to 9999999/ 0 / 1]
8113	These SPs count the total number of jobs (color or black-and-white) sent by fax directly on a telephone line.	

- These counters count jobs, not pages.
- This SP counts fax jobs sent over a telephone line with a fax application, including documents stored
  on the document server.
- If the mode is changed during the job, the job will count with the mode set when the job started.

- If the same document is faxed to both a public fax line and an I-Fax at a destination where both are available, then this counter increments, and the I-Fax counter (812x) also increments.
- The fax job is counted when the job is scanned for sending, not when the job is sent.

	T:IFAX TX Jobs	[0 to 9999999/ 0 / 1]
8121	These SPs count the total number of jobs (color or black-and-white) sent, directly or using a file stored on the document server, as fax images using	
	F:IFAX TX Jobs	[0 to 9999999/ 0 / 1]
8123	These SPs count the number of jobs (color or black-and-white) sent (not stored on the document server), as fax images using I-Fax.	

- These counters count jobs, not pages.
- The counters for color are provided for future use; the color fax feature is not available at this time.
- The fax job is counted when the job is scanned for sending, not when the job is sent.

		T:S-to-Email Jobs [0 to 9999999/ 0 / 1]		
8131	These SPs count the total number of jobs scanned and attached to an e-mail regardless of whether the document server was used or not.			·
		S:S-to-Email J	obs	
8135		These SPs count the number of jobs scanned and attached to an e-mail, without storing the original on the document server.		· ·
	813x 1	B/W Monochrome		
	813x 2	Color Color		
	813x3	ACS Automatic Color Selection		

- These counters count jobs, not pages.
- If the job is stored on the document server, after the job is stored it is determined to be color or blackand-white then counted.
- If the job is cancelled during scanning, or if the job is cancelled while the document is waiting to be sent, the job is not counted.
- If the job is cancelled during sending, it may or may not be counted, depending on what stage of the process had been reached when the job was cancelled.
- If several jobs are combined for sending to the Scan Router, Scan-to-Email, or Scan-to-PC, or if one job is sent to more than one destination. each send is counted separately. For example, if the same

document is sent by Scan-to-Email as well as Scan-to-PC, then it is counted twice (once for Scan-to-Email and once for Scan-to-PC).

T:Deliv Jobs/S  These SPs cour		Svr	[0 to 9999999/ 0 / 1]	
		ent the total number of jo	nt the total number of jobs scanned and sent to a Scan Router server.	
		S:Deliv Jobs/	Svr	
8145		These SPs count the number of jobs scanned in scanner mode and sent to a Sca Router server.		anned in scanner mode and sent to a Scan
	814x 1	B/W Monochrome		
	814x 2	Color	Color Color	
	814x 3	ACS	Automatic Color Selection	

- The jobs are counted even though the arrival and reception of the jobs at the Scan Router server cannot be confirmed.
- If even one color image is mixed with black-and-white images, then the job is counted as a "Color" job.
- If the job is cancelled during scanning, or if the job is cancelled while the document is waiting to be delivered, the job is not counted.
- If the job is cancelled during sending, it may or may not be counted, depending on what stage of the process had been reached when the job was cancelled.
- Even if several files are combined for sending, the transmission counts as one job.

		T:Deliv Jobs/1	PC	[0 to 9999999/ 0 / 1]	
These SPs count the total number of jobs scanned and sent to a folder on a PC to-PC).		s scanned and sent to a folder on a PC (Scan-			
8155		S:Deliv Jobs/	S:Deliv Jobs/PC		
0133		These SPs count the total number of jobs scanned and sent with Scan-to-PC.		bs scanned and sent with Scan-to-PC.	
	815x 1	B/W Monochrome			
	815x 2	Color	Color		
	815x3	ACS	Automatic Color Selection		

- These counters count jobs, not pages.
- If the job is cancelled during scanning, it is not counted.

- If the job is cancelled while it is waiting to be sent, the job is not counted.
- If the job is cancelled during sending, it may or may not be counted, depending on what stage of the process had been reached when the job was cancelled.
- Even if several files are combined for sending, the transmission counts as one job.

8161	T:PCFAX TX Jobs	These SPs count the number of PC Fax transmission jobs.
8163	F:PCFAX TX Jobs	A job is counted from when it is registered for sending, not when it is sent.
		[0 to 9999999/ 0 / 1]

• This counts fax jobs started from a PC using a PC fax application, and sending the data out to the destination from the PC through the copier.

8191	T:Total Scan PGS	
8192	C:Total Scan PGS	These SPs count the pages scanned by each application
8193	F:Total Scan PGS	that uses the scanner to scan images.
8195	S:Total Scan PGS	[0 to 9999999/ 0 / 1]
8196	L:Total Scan PGS	

- SP 8191 to 8196 count the number of scanned sides of pages, not the number of physical pages.
- These counters do not count reading user stamp data, or reading color charts to adjust color.
- Previews done with a scanner driver are not counted.
- A count is done only after all images of a job have been scanned.
- Scans made in SP mode are not counted.

### **Examples:**

- If 3 B5 pages and 1 A3 page are scanned with the scanner application but not stored, the S: count is 4.
- If both sides of 3 A4 sheets are copied and stored to the document server using the Store File button in the Copy mode window, the C: count is 6 and the L: count is 6.
- If both sides of 3 A4 sheets are copied but not stored, the C: count is 6.
- If you enter document server mode then scan 6 pages, the L: count is 6.

	T:LSize Scan PGS	[0 to 9999999/ 0 / 1]	
8201	These SPs count the total number of large pages input with the scanner for scan and		
	copy jobs. Large size paper (A3/DLT) :	scanned for fax transmission are not counted.	

	Note: These counters are displayed in the SMC Report, and in the User Tools display.		
	S:LSize Scan PGS	[0 to 9999999/ 0 / 1]	
8205	These SPs count the total number of large pages input with the scanner for scan jobs only. Large size paper (A3/DLT) scanned for fax transmission are not counted.		
	Note: These counters are displayed in th	ne SMC Report, and in the User Tools display.	

8211	T:Scan PGS/LS	These SPs count the number of pages scanned into the
8212	C:Scan PGS/LS	document server .   [0 to 9999999
8213	F:Scan PGS/LS	The L: counter counts the number of pages stored from
8215	S:Scan PGS/LS	within the document server mode screen at the operation panel, and with the Store File button from within the Copy
8216	L:Scan PGS/LS	mode screen

- Reading user stamp data is not counted.
- If a job is cancelled, the pages output as far as the cancellation are counted.
- If the scanner application scans and stores 3 B5 sheets and 1 A4 sheet, the S: count is 4.
- If pages are copied but not stored on the document server, these counters do not change.
- If both sides of 3 A4 sheets are copied and stored to the document server, the C: count is 6 and the L: count is 6.
- If you enter document server mode then scan 6 pages, the L: count is 6.

ADF O		Feeds	[0 to 9999999/ 0 / 1]	
8221	These SPs scanning.	count the number of pages fed through the ADF for front and back side		
8221 1	Front count is the same as the nur scanning.  With an ADF that cannot s count is the same as the nur		for scanning:  n both sides simultaneously, the Front side mber of pages fed for either simplex or duplex scan both sides simultaneously, the Front side umber of pages fed for duplex front side determined by which side the user loads face	
8221 2	Back	Number of rear sides fed for scanning:  With an ADF that can scan both sides simultaneously, the Back coun the same as the number of pages fed for duplex scanning.		

With an ADF that cannot scan both sides simultaneously, the Back count	
is the same as the number of pages fed for duplex rear-side scanning.	

- When 1 sheet is fed for duplex scanning the Front count is 1 and the Back count is 1.
- If a jam occurs during the job, recovery processing is not counted to avoid double counting. Also, the pages are not counted if the jam occurs before the first sheet is output.

	Scan PGS/Mode		[0 to 9999999/ 0 / 1]	
8231	These SPs count the number of pages scanned by each AD work load on the ADF.		scanned by each ADF mode to determine the	
1	Large Volume	Selectable. La ADF at one tin	rge copy jobs that cannot be loaded in the	
2	SADF	Selectable. Feeding pages one by one through the ADF.		
3	Mixed Size	Selectable. Select "Mixed Sizes" on the operation panel		
4	Custom Size	Selectable. Originals of non-standard size.		
5	Platen	Book mode. R directly on the	aising the ADF and placing the original platen.	
6	Simplex/Duplex	Single-side, double-side scanning.		

- If the scan mode is changed during the job, for example, if the user switches from ADF to Platen mode, the count is done for the last selected mode.
- The user cannot select mixed sizes or non-standard sizes with the fax application so if the original's page sizes are mixed or non-standard, these are not counted.
- If the user selects "Mixed Sizes" for copying in the platen mode, the Mixed Size count is enabled.
- In the SADF mode if the user copies 1 page in platen mode and then copies 2 pages with SADF, the Platen count is 1 and the SADF count is 3.

	T:Scan PGS/Org	[0 to 9999999/ 0 / 1]	
These SPs count the total number of scanned pages by origin regardless of which application was used.		1 0 , 0 , 1	
00.40	C:Scan PGS/Org	[0 to 9999999/ 0 / 1]	
8242	These SPs count the number of pages scanned by original type for Copy jobs.		
8243	F:Scan PGS/Org	[0 to 9999999/ 0 / 1]	

	These SPs count the number of pages scanned by original type for Fax jobs.			or Fax jobs.			
00.15	S:Scan PGS/Org			[0 to 99	[0 to 9999999/ 0 / 1]		
8245	These SPs co	ount the numb	er of pages	scanned by	original type f	or Scan jobs.	
	L:Scan PGS	/Org		[0 to 99	[0 to 9999999/ 0 / 1]		
8246	These SPs count the number of pages scanned and stored from within the document server mode screen at the operation panel, and with the Store File button from the Copy mode screen						
		8241	8242	8243	8245	8246	
824x 1: Text		Yes	Yes	Yes	Yes	Yes	
824x 2: Text/Photo		Yes	Yes	Yes	Yes	Yes	
824x 3: Photo		Yes	Yes	Yes	Yes	Yes	
824x 4: GenCopy, Pale		Yes	Yes	No	Yes	Yes	
824x 5: Map		Yes	Yes	No	Yes	Yes	
824x 11: Other		Yes	Yes	Yes	Yes	Yes	

• If the scan mode is changed during the job, for example, if the user switches from ADF to Platen mode, the count is done for the last selected mode.

8251	T:Scan PGS/ImgEdt	These SPs show how many times Image Edit features
8252	C:Scan PGS/ImgEdt	have been selected at the operation panel for each application. Some examples of these editing features
8255	S:Scan PGS/ImgEdt	are:
8256	L:Scan PGS/ImgEdt	Erase> Border     Erase> Center
8257	O:Scan PGS/ImgEdt	Image Repeat  Centering  Positive/Negative  [0 to 9999999/ 0 / 1]  Note: The count totals the number of times the edit features have been used. A detailed breakdown of exactly which features have been used is not given.

• The L: counter counts the number of pages stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen.

8281	T:Scan PGS/TWAIN	These SPs count the number of pages scanned using a TWAIN driver. These counters reveal how the TWAIN driver is used for delivery functions.	
8285	S:Scan PGS/TWAIN		
0203	3.5cuii i Goy i WAII v	[0 to 9999999/ 0 / 1]	

8291	T:Scan PGS/Stamp	These SPs count the number of pages stamped with the
8293	F:Scan PGS/Stamp	stamp in the ADF unit. [0 to 9999999/ 0 / 1]
8295	S:Scan PGS/Stamp	The L: counter counts the number of pages stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen

	T:Scan PGS/Size	[0 to 9999999/ 0 / 1]			
8301	-	These SPs count by size the total number of pages scanned by all applications. Use these totals to compare original page size (scanning) and output (printing) page size [SP 8-441].			
	C:Scan PGS/Size	[0 to 9999999/ 0 / 1]			
8302	-	These SPs count by size the total number of pages scanned by the Copy application.  Use these totals to compare original page size (scanning) and output (printing) page size [SP 8-442].			
	F:Scan PGS/Size	[0 to 9999999/ 0 / 1]			
8303	-	These SPs count by size the total number of pages scanned by the Fax application. Use these totals to compare original page size (scanning) and output page size [SP 8-443].			
	S:Scan PGS/Size	[0 to 9999999/ 0 / 1]			
8305	-	These SPs count by size the total number of pages scanned by the Scan application. Use these totals to compare original page size (scanning) and output page size [SP 8-445].			
8306	L:Scan PGS/Size	[0 to 9999999/ 0 / 1]			
	-	These SPs count by size the total number of pages scanned and stored from within the document server mode screen at the operation panel, and with the Store File			

	button from within the Copy size (scanning) and output	mode screen. Use these totals to compare original page page size [SP 8-446].
830x 1	A3	
830x 2	A4	
830x 3	A5	
830x 4	B4	
830x 5	B5	
830x 6	DLT	
830x 7	LG	
830x 8	LT	
830x 9	HLT	
830x 10	Full Bleed	
830x 254	Other (Standard)	
830x 255	Other (Custom)	

	T:Scan PGS/Rez [0 to 9999999/ 0 / 1]		[0 to 9999999/ 0 / 1]
8311	These SPs count by resolution setting the total number of pages scann applications that can specify resolution settings.		, ,
	S:Scan PGS/Rez		[0 to 9999999/ 0 / 1]
8315	These SPs count by resolution setting the total number of pages scanned by applications that can specify resolution settings.  Note: At the present time, 8311 and 8315 perform identical counts.		n settings.
	Thole. At the present line,	OSTT GIIG	55 15 periorin identical counts.
831x 1	1200dpi to		
831x 2	600dpito1199dpi		
831x3	400dpito599dpi		
831x 4	200dpito399dpi		
831x 5	to 199dpi		

• Copy resolution settings are fixed so they are not counted.

• The Fax application does not allow finely-adjusted resolution settings so no count is done for the Fax application.

8381	T:Total PrtPGS	
8382	C:Total PrtPGS	These SPs count the number of pages printed by the customer. The counter for the application used for storing
8383	F:Total PrtPGS	the pages increments.
8384	P:Total PrtPGS	[0 to 9999999/ 0 / 1]
8385	S:Total PrtPGS	The L: counter counts the number of pages stored from within the document server mode screen at the operation
8386	L:Total PrtPGS	panel. Pages stored with the Store File button from within the Copy mode screen go to the C: counter.
8387	O:Total PrtPGS	

- When the A3/DLT double count function is switched on with SP5104, 1 A3/DLT page is counted as 2.
- 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.
  - Blank pages inserted as document covers, chapter title sheets, and slip sheets.
  - 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 copier jam.

	LSize PrtPGS [0 to 9999999/ 0 / 1]				
8391	These SPs count pages printed on paper sizes A3/DLT and larger.				
	<b>Note</b> : In addition to being displayed i the SMC report as well as on the mac	n the SMC Report, These counters appear in hine display.			

8401	T:PrtPGS/LS	These SPs count the number of pages printed from the
8402	C:PrtPGS/LS	document server. The counter for the application used to
8403	F:PrtPGS/LS	print the pages is incremented.

8404	P:PrtPGS/LS	The L: counter counts the number of jobs stored from
8405	S:PrtPGS/LS	within the document server mode screen at the operation panel.
8406	L:PrtPGS/LS	[0 to 9999999/ 0 / 1]

- Print jobs done with Web Image Monitor and Desk Top Binder are added to the L: count.
- Fax jobs done with Web Image Monitor and Desk Top Binder are added to the F: count.

8411	Prints/Duplex
	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.  [0 to 9999999/0/1]

8421	T:PrtPGS/Dup Comb	[0 to 9999999/ 0 / 1]			
	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.				
	C:PrtPGS/Dup Comb	[0 to 9999999/ 0 / 1]			
8422	These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by the copier application.				
	F:PrtPGS/Dup Comb	[0 to 9999999/ 0 / 1]			
8423	These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by the fax application.				
	P:PrtPGS/Dup Comb	[0 to 9999999/ 0 / 1]			
8424	These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by the printer application.				
	S:PrtPGS/Dup Comb	[0 to 9999999/ 0 / 1]			
8425	These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by the scanner application.				
	L:PrtPGS/Dup Comb	[0 to 9999999/ 0 / 1]			
8426	These SPs count by binding and combine, and n-Up settings the number of pages processed for printing from within the document server mode window at the operation panel.				

O:PrtPGS/Dup Comb			[0 to 9999999/ 0 / 1]
8427	These SPs count by binding and combine, and n-Up settings the number of page processed for printing by Other applications		
842x 1	Simplex> Duplex		
842x 2	Duplex> Duplex		
842x 3	Book> Duplex		
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 (SP8421 to SP8427) 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.

Here is a summary of how the counters work for Booklet and Magazine modes:

Booklet		Magazine		
Original Pages	Count	Original Pages		Count
1	1		1	1
2	2		2	2
3	2		3	2
4	2		4	2

Booklet			Magazine		
Original Pages	Count	Original Pages		Count	
5	3		5	4	
6	4		6	4	
7	4		7	4	
8	4		8	4	

	T:PrtPGS/ImgEdt		[0 to 9999999/ 0 / 1]
8431	These SPs count the total number of pages output with the three features below regardless of which application was used.		
	C:PrtPGS/ImgEdt		[0 to 9999999/ 0 / 1]
8432	These SPs count the to the copy application.	•	ges output with the three features below with
	P:PrtPGS/ImgEdt		[0 to 9999999/ 0 / 1]
8434	These SPs count the to the print application.	otal number of pa	ges output with the three features below with
	L:PrtPGS/ImgEdt		[0 to 9999999/ 0 / 1]
8436			ages output from within the document server with the three features below.
	O:PrtPGS/ImgEdt		[0 to 9999999/ 0 / 1]
8437	These SPs count the to Other applications.	otal number of pa	ges output with the three features below with
843x 1	Cover/Slip Sheet		of covers or slip sheets inserted. The count for d on both sides counts 2.
843x 2	Series/Book		pages printed in series (one side) or printed booklet right/left pagination.
843x 3	User Stamp  The number of pages printed where stamps were app including page numbering and date stamping.		. •

0.443	T:PrtPGS/Ppr Size		[0 to 9999999/ 0 / 1]		
8441	These SPs count by print paper size the number of pages printed by all applications.				
	C:PrtPGS/Ppr Size		[0 to 9999999/ 0 / 1]		
8442	These SPs count by print paper size the number of pages printed by the copy application.				
	F:PrtPGS/Ppr Size		[0 to 9999999/ 0 / 1]		
8443	These SPs count by pri application.	nt paper size th	ne number of pages printed by the fax		
	P:PrtPGS/Ppr Size		[0 to 9999999/ 0 / 1]		
8444	These SPs count by pri application.	nt paper size th	ne number of pages printed by the printer		
	S:PrtPGS/Ppr Size		[0 to 9999999/ 0 / 1]		
8445	These SPs count by print paper size the number of pages printed by the scanner application.				
	L:PrtPGS/Ppr Size		[0 to 9999999/ 0 / 1]		
8446	These SPs count by print paper size the number of pages printed from within the document server mode window at the operation panel.				
	O:PrtPGS/Ppr Size		[0 to 9999999/ 0 / 1]		
8447	These SPs count by pri applications.	nt paper size th	ne number of pages printed by Other		
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.

0.451	PrtPGS/Ppr Tray		[0 to 9999999/ 0 / 1]	
8451	These SPs count the number of sheets fed from each paper feed station.			
1	Bypass Tray			
2	Tray 1 Copier			
3	Tray 2 Copier			
4	Tray 3 Paper Tray Unit (		ption)	
5	Tray 4 Paper Tray Unit ( Tray 5 LCT (Option)  Tray 6 500-Sheet Finish		ption)	
6				
7				
8	Tray 7	Currently not used.		
9	Tray 8 Currently not use			
10	Tray 9 Currently not used			
11	Tray 10 Currently not used.			
12	Tray 11 Currently not used.			

	T:PrtPGS/Ppr 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.</li> <li>However, these counts are based on output timing.</li> </ul>			
	Blank sheets (covers, chapter co	vers, slip sheets) are also counted.		

	During duplex printing, pages printed on both sides count as 1, and a page printed on one side counts as 1.		
8462	C:PrtPGS/Ppr Type	[0 to 9999999/ 0 / 1]	
8402	These SPs count by paper type the nu	mber pages printed by the copy application.	
8463	F:PrtPGS/Ppr Type	[0 to 9999999/ 0 / 1]	
8403	These SPs count by paper type the nu	mber pages printed by the fax application.	
8464	P:PrtPGS/Ppr Type	[0 to 9999999/ 0 / 1]	
8404	These SPs count by paper type the number pages printed by the printer application.		
	L:PrtPGS/Ppr Type	[0 to 9999999/ 0 / 1]	
8466	These SPs count by paper type the number pages printed from within the document server mode window at the operation panel.		
846x 1	Normal		
846x 2	Recycled		
846x 3	Special		
846x 4	Thick		
846x 5	Normal (Back)		
846x 6	Thick (Back)		
846x 7	OHP		
846x 8	Other		

8471	PrtPGS/Mag	[0 to 9999999/ 0 / 1]
04/1	These SPs count by magnification rate the number of pages printed.	
1	to49%	
2	50%to99%	
3	100%	
4	101%to200%	
5	201% to	

- Counts are done for magnification adjusted for pages, not only on the operation panel but performed remotely with an external network application capable of performing magnification adjustment as well.
- Magnification adjustments done with printer drivers with PC applications such as Excel are also counted.
- Magnification adjustments done for adjustments after they have been stored on the document server are not counted.
- Magnification adjustments performed automatically during Auto Reduce/Enlarge copying are counted.
- The magnification rates of blank cover sheets, slip sheets, etc. are automatically assigned a rate of 100%.

8481	T:PrtPGS/TonSave
	P:PrtPGS/TonSave
8484	These SPs count the number of pages printed with the Toner Save feature switched on.
0404	Note: These SPs return the same results because this SP is limited to the Print application.
	[0 to 9999999/ 0 / 1]

T:PrtPGS/Emul			[0 to 9999999/ 0 / 1]	
8511	These SPs count by printer emulation mode the total number of pages printed.			
8514	P:PrtPGS/Emul		[0 to 9999999/ 0 / 1]	
		by printer emulation mode the total number of pages printed.		
85141	RPCS			
85142	RPDL			
85143	PS3			
85144	R98			
85145	R16			
85146	GL/GL2			
85147	R55			
85148	RTIFF			

85149	PDF	
8514 10	PCL5e/5c	
851411	PCL XL	
8514 12	IPDL-C	
8514 13	BM-Links	Japan Only
8514 14	Other	

- SP8511 and SP8514 return the same results because they are both limited to the Print application.
- $\bullet$  Print jobs output to the document server are not counted.  $\P$

	T:PrtPGS/FIN	[0 to 9999999/ 0 / 1]		
8521	These SPs count by finishing mode the total number of pages printed by all applications.			
	C:PrtPGS/FIN	[0 to 9999999/ 0 / 1]		
8522	These SPs count by finishing mode the total number of pages printed by the Copy application.			
	F:PrtPGS/FIN	[0 to 9999999/ 0 / 1]		
8523	These SPs count by finishing mode the total number of pages printed by the Fax application.			
	P:PrtPGS/FIN	[0 to 9999999/ 0 / 1]		
8524	These SPs count by finishing mode the total number of pages printed by the Print application.			
	S:PrtPGS/FIN	[0 to 9999999/ 0 / 1]		
8525	These SPs count by finishing mode the total number of pages printed by the Scanner application.			
	L:PrtPGS/FIN	[0 to 9999999/ 0 / 1]		
8526	These SPs count by finishing mode the total number of pages printed from within the document server mode window at the operation panel.			
	Note:			
	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.
852x 1	Sort
852x 2	Stack
852x 3	Staple
852x 4	Booklet
852x 5	Z-Fold
852x 6	Punch
852x 7	Other

8531		This SP counts the amount of staples used by the machine.
8531	Staples	[0 to 9999999/ 0 / 1]

	T:Counter	[0 to 9999999/ 0 / 1]
8581		n down by color output, regardless of the displayed in the SMC Report, these counters isplay on the copy machine.

	O:Counter		[0 to 9999999/ 0 / 1]
8591	These SPs count the totals for A3/DLT paper use, number of duplex pages and the number of staples used. These totals are for Other (O:) application		
1	A3/DLT		
2	Duplex	ıplex	

8601	Coverage Counter		
1	B/W		
2	B/W Printing Pages		

8631	T:FAX TX PGS	[0 to 9999999/ 0 / 1]
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		These SPs count by color mode the number of pages sent by fax to a telephone number.		
		F:FAX TX PGS	[0 to 9999999/ 0 / 1]	
8633	These SPs count by color mode the number of pages sent by fax to a telephone number.			

- If a document has color and black-and-white pages mixed, the pages are counted separately as B/W or Color.
- At the present time, this feature is provided for the Fax application only so SP8631 and SP8633 are
  the same.
- The counts include error pages.
- If a document is sent to more than one destination with a Group transmission, the count is done for each destination.
- Polling transmissions are counted but polling RX are not.
- Relay, memory, and confidential mailbox transmissions and are counted for each destination.

	T:FAX TX PGS	[0 to 9999999/ 0 / 1]	
8641	These SPs count by color mode the number of pages sent by fax to as fax images using I-Fax.		
	F:FAX TX PGS	[0 to 9999999/ 0 / 1]	
8643	These SPs count by color mode the number of pages sent by Fax as fax images using I-Fax.		

- If a document has color and black-and-white pages mixed, the pages are counted separately as B/W or Color.
- At the present time, this feature is provided for the Fax application only so SP8641 and SP8643 are
  the same.
- The counts include error pages.
- If a document is sent to more than one destination with a Group transmission, the count is done for each destination.
- Polling transmissions are counted but polling RX are not.
- Relay, memory, and confidential mailbox transmissions and are counted for each destination.

8651	T:S-to-Email PGS	[0 to 9999999/ 0 / 1]
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	These SPs count by color mode the total number of pages attached to an e-mail for both the Scan and document server applications.		
0455		[0 to 9999999/ 0 / 1]	
		al number of pages attached to an e-mail for	
1	B/W		
2	Color		

### Note

- The count for B/W and Color pages is done after the document is stored on the HDD. If the job is cancelled before it is stored, the pages are not counted.
- If Scan-to-Email is used to send a 10-page document to 5 addresses, the count is 10 (the pages are sent to the same SMTP server together).
- If Scan-to-PC is used to send a 10-page document to 5 folders, the count is 50 (the document is sent to each destination of the SMB/FTP server).
- Due to restrictions on some devices, if Scan-to-Email is used to send a 10-page document to a large number of destinations, the count may be divided and counted separately. For example, if a 10-page document is sent to 200 addresses, the count is 10 for the first 100 destinations and the count is also 10 for the second 100 destinations, for a total of 20.

	T:Deliv PGS/Svr		[0 to 9999999/ 0 / 1]	
8661	These SPs count by color mode the total number of pages sent to a Scan Router server by both Scan and LS applications.			
	S:Deliv PGS/Svr		[0 to 9999999/ 0 / 1]	
These SPs count by country server by the Scan approximately server		•	tal number of pages sent to a Scan Router	
1	B/W			
2	Color			

#### Note

- The B/W and Color counts are done after the document is stored on the HDD of the Scan Router server.
- If the job is canceled before storage on the Scan Router server finishes, the counts are not done.
- The count is executed even if regardless of confirmation of the arrival at the Scan Router server.

	T:Deliv PGS/PC		[0 to 9999999/ 0 / 1]	
8671	These SPs count by color mode the total number of pages sent to a folder on a PC (Scan-to-PC) with the Scan and LS applications.			
	S:Deliv PGS/PC		[0 to 9999999/ 0 / 1]	
8675	These SPs count by color mode the total number of pages sent with Scatthe Scan application.		al number of pages sent with Scan-to-PC with	
1	B/W			
2	Color			

8681	T:PCFAX TXPGS	These SPs count the number of pages sent by PC Fax.
8683	F:PCFAX TXPGS	These SPs are provided for the Fax application only, so the counts for SP8681 and SP8683 are the same.
		[0 to 9999999/ 0 / 1]

- This counts pages sent from a PC using a PC fax application, from the PC through the copier to the destination.
- When sending the same message to more than one place using broadcasting, the pages are only counted once. (For example, a 10-page fax is sent to location A and location B. The counter goes up by 10, not 20.)

8691	T:TX PGS/LS	These SPs count the number of pages sent from the document
8692	C:TX PGS/LS	server. The counter for the application that was used to stot the pages is incremented. $[0 \text{ to } 9999999/0/1]$
8693	F:TX PGS/LS	
8694	P:TX PGS/LS	The L: counter counts the number of pages stored from within
8695	S:TX PGS/LS	the document server mode screen at the operation pane Pages stored with the Store File button from within the Co
8696	L:TX PGS/LS	mode screen go to the C: counter.

### Note

- Print jobs done with Web Image Monitor and Desk Top Binder are added to the count.
- If several documents are merged for sending, the number of pages stored are counted for the application that stored them.
- When several documents are sent by a Fax broadcast, the F: count is done for the number of pages sent to each destination.

	TX PGS/Port		[0 to 9999999/ 0 / 1]	
8701	These SPs count the number of pages sent by the physical port used to send to For example, if a 3-page original is sent to 4 destinations via ISDN G4, the offer ISDN (G3, G4) is 12.			
8701 1	PSTN-1			
8701 2	PSTN-2			
8701 3	PSTN-3			
8701 4	ISDN (G3,G4)			
8701 5	Network			

	T:Scan PGS/Comp		[0 to 9999999/1]		
8711	These SPs count the number of compressed pages scanned into the document server, counted by the formats listed below.				
87111	JPEG/JPEG2000				
87112	TIFF (Multi/Single)				
87113	PDF				
8711 4	Other				

	S:Scan PGS/Comp		[0 to 9999999/ 1]	
8 715	These SPs count the number of compressed pages scanned by the scan application, counted by the formats listed below.			
8715 1	JPEG/JPEG2000			
8715 2	TIFF (Multi/Single)			
8715 3	PDF			
8715 4	Other			

	RX PGS/Port	[0 to 9999999/ 0 / 1]
8741	These SPs count the number of pages them.	received by the physical port used to receive

8741 1	PSTN-1	
8741 2	PSTN-2	
8741 3	PSTN-3	
8741 4	ISDN (G3,G4)	
8741 5	Network	

	Dev Counter	[0 to 9999999/ 0 / 1]
8771	These SPs count the frequency of use (n for black and other color toners.	number of rotations of the development rollers)

Pixel Coverage Ratio

This SP displays the number of toner bottles used. The count is done based on the equivalent of 1,000 pages per bottle.

8791	LS Memory Remain	This SP displays the percent of space available on the document server for storing documents.
		[0 to 100/0/1]

Toner Remain

[0 to 100/0/1]

This SP displays the percent of toner remaining for each color. This SP allows the user to check the toner supply at any time.

Note

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).

This SP is expanded for color MFP and color LP machines. For this machine, the count is done for black only.

8851	Cover Cnt: 0-10%			0 to 9999999]	
0031	These	These SPs count the percentage of dot coverage for black other color toners.			
1	K	Black toner			
2	М	Magenta toner	Do not displ	ay for this machine.	

3	С	Cyan toner
4	Υ	Yellow toner

8861	Cover Cnt: 11-20%			[0 to 9999999]
These SPs count the percentage of dot coverage for black other color tone				overage for black other color toners.
1	K	Black toner		
2	М	Magenta toner		
3	С	Cyan toner	Do not displ	ay for this machine.
4	Υ	Yellow toner		

Cover Cnt: 21-30%				[0 to 9999999]
These SPs count the percentage of dot coverage for black other color ton-				verage for black other color toners.
1	K	Black toner		
2	М	Magenta toner		
3	С	Cyan toner	Do not display for this machine.	
4	Υ	Yellow toner		

8881	Cover Cnt: 31 -%			[0 to 9999999]
These SPs count the percentage of dot coverage for blace				overage for black other color toners.
1	K	Black toner		
2	М	Magenta toner		
3	С	Cyan toner	Do not displ	ay for this machine.
4	Υ	Yellow toner		

8891	Page/Toner Bottle <b>DFU</b>
8901	Page/Toner_Prev1 <b>DFU</b>
8911	Page/Toner_Prev2 <b>DFU</b>

8921	Cvr Cnt/Total
1	Coverage (%) BK
11	Cover/Page (%): BK

	Machine Status	[0 to 9999999/ 0 / 1]		
8941		f time the machine spends in each operation mode. These SPs need to investigate machine operation for improvement in their rds.		
1	Operation Time	,	ation time. Does not include time while controller ta to HDD (while engine is not operating).	
2	Standby Time	data to HDD	Engine not operating. Includes time while controller saves data to HDD. Does not include time spent in Energy Save, Low Power, or Off modes.	
3	Energy Save Time	Includes time while the machine is performing background printing.		
4	Low Power Time	Includes time in Energy Save mode with Engine on. Includes time while machine is performing background printing.		
5	Off Mode Time	Includes time while machine is performing background printing. Does not include time machine remains powered off with the power switches.		
6	SC	Total down time due to SC errors.		
7	PrtJam	Total down time due to paper jams during printing.		
8	OrgJam	Total down time due to original jams during scanning.		
9	Supply PM Wait End	Total down t	time due to toner end.	

	8951	AddBook Register			
8931		These SPs count the number of events when the machine manages data registration.			
	1	User Code	User code registrations.		
	2	Mail Address	Mail address registrations.	[0 to 9999999/ 0 / 1]	
	3	Fax Destination	Fax destination registrations.		

4	Group	Group destination registrations.	
5	Transfer Request	Fax relay destination registrations for relay TX.	
6	F-Code	F-Code box registrations.	
7	Copy Program	Copy application registrations with the Program (job settings) feature.	
8	Fax Program	Fax application registrations with the Program (job settings) feature.	
9	Printer Program	Printer application registrations with the Program (job settings) feature.	[0 to 255 / 0 / 255]
10	Scanner Program	Scanner application registrations with the Program (job settings) feature.	

8999	Admin. Counter List [0 to 9999999/ 0 / 1]		
	Displays the total coverage and total printout number for each color.		
1	Total		
3	Copy: BW		
7	Printer BW		
10	Fax Print: BW		
12	A3/DLT		
13	Duplex		
15	Coverage: BW (%)		
101	Transmission Total: Color		
102	Transmission Total: BW		
103	FAX Transmission		
104	Scanner Transmission: Color		

105 Scanner Transmission: BW	
------------------------------	--

## 5

# Firmware Update

The procedure is the same for all firmware modules.



- If you will change scanner firmware, print 5-990-22 and -23 (SMC reports for scanner settings) before you start this procedure.
- 1. Turn off the main power switch.
- 2. Remove the SD card slot cover (F x 2).
- 3. Insert the SD card [B] containing the software you wish to download into SD card slot C3.
- 4. Open the front cover.
- 5. Turn on the main power.
- 6. Follow the instructions on the operation panel
- 7. Monitor the downloading status on the operation panel.
  - While downloading is in progress, the panel displays "Writing". When downloading has been completed, the panel displays "Completed".
  - The Start key lights red during downloading, then lights green after downloading is completed.
     (only for "Operation Panel" downloading)

## **ACAUTION**

- Never switch off the power while downloading. Switching off the power while the new software
  is being downloading will damage the boot files in the controller.
- 8. After confirming that downloading is completed, turn off the main power and remove the SD card.
- 9. If more software needs to be downloaded, repeat steps 1 to 7.
- 10. Turn the main power on and confirm that the new software loads and that the machine starts normally.
- 11. After installing new scanner firmware, do SP5-801-9 (Memory All Clear Scanner Application). Then input scanner settings that are different from the defaults (see the SMC prints of 5-990-22 and -23 that you made earlier).

If the download failed, an error message appears on the panel. Do the download procedure again. If the second download fails:

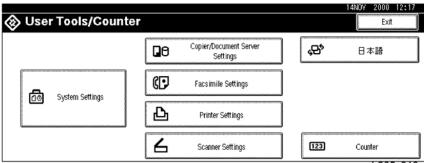
- For the controller module, set bit 1 of DIP switch 1 on the controller board to OFF, then switch
  on the machine. The machine boots from the SD card.
- Other modules. Replace the appropriate PCB.

## **User Tools**

The user program (UP) mode can be accessed by users and operators, and by sales and service staff. UP mode is used to input the copier's default settings. The user can reset the default settings at any time. (See 'System Setting and Copy Setting Reset'.)

## **UP Mode Initial Screen: User Tools/Counter Display**

To enter the UP mode, press User Tools/Counter.

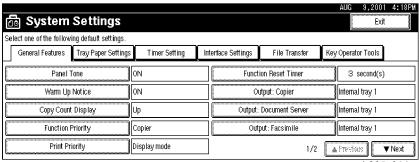


b205s910

## **System Settings**

In the User Tools/Counter display, press System Settings.

- Click a tab to display the settings.
- If the Next button is lit in the lower right corner, press it to display more options.
- Make the settings, press Exit to return to the User Tools/Counter display, and then press Exit to return
  to the copy window.



b205s911

## 5

### **Copier/Document Server Features**

In the User/Tools Counter display, press Copy/Document Server Settings.

- Click a tab to display the settings.
- If the Next button is lit in the lower right corner, press it to display more options.
- Make the settings, press Exit to return to the User Tools/Counter display, and then press Exit to return
  to the copy window.

## Printer, Facsimile, Scanner Settings

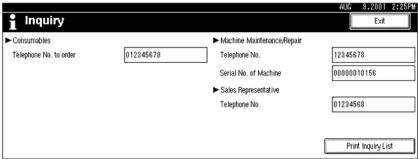
In the User/Tools Counter display, press Printer Settings, Facsimile, or Scanner Settings to open the appropriate screen and then click the tab to display more settings.

### Inquiry

In the User/Tools Counter display, press Inquiry.

The following SP mode settings will be displayed.

- Consumables Telephone Number.
- Service Telephone Number
- Serial Number of Machine
- Sales Representative Telephone No.



b205s913

#### Counter

In the User/Tools Counter display, press [Counter].

View the settings, press Print Counter Exit to return to the User Tools/Counter display, and then press Exit to return to the copy window.

# 5

# **LED** and **DIP** Switches

## LEDs

## Controller

Number	Normal	Controller Software Download	Error
LED 1	Off	Blinking	Off
LED 2	Blinking	Blinking	Lit or Off

### **SBCU**

Number	Normal	Controller Software Download	Error
LED 1	Lit	Lit	Off or Blinking
LED 2	Blinking	Lit	Lit (except downloading) or Off

## **DIP Switches**

## Controller

## SW1

Number	OFF	ON
1	Boot from SD card	Default: Boot from Flash ROM
2 to 7	Default: OFF DFU	
8		Default DFU

### **SBCU**

### SW102

### SW103

**DFU**. Do not change these settings.

## 5

# **Using the Debug Log**

This machine provides a Save Debug Log feature that allows the Customer Engineer to save and retrieve error information for analysis.

Every time an error occurs, debug information is recorded in volatile memory but this information is lost when the machine is switched off and on.

To capture this debug information, the Save Debug Log feature provides two main features:

- · Switching on the debug feature so error information is saved directly to the HDD for later retrieval.
- Copying the error information from the HDD to an SD card.

When a user is experiencing problems with the machine, follow the procedure below to set up the machine so the error information is saved automatically to the HDD. Then ask the user to reproduce the problem.

## Switching On and Setting Up 'Save Debug Log'

The debug information cannot be saved until the "Save Debug Log" function is switched on and a target is selected.

- 1. Enter the SP mode.
  - Press (Clear Modes), then use the 10-key pad to input '107'.
  - Press and hold down (Clear/Stop) for more than 3 seconds.
  - Press "Copy SP" on the touch-panel.
  - Input '5857', then press #.
- 2. Under "5857 Save Debug Log", press ①.

```
COPY: SP-5857-001
Save Debug Log
On/Off (1:ON 0:OFF)

______
Initial 0
```

debuglog\_screen1

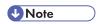
3. On the operation panel keypad, press then press . This switches the Save Debug Log feature on.



 The default setting is "O" (OFF). This feature must be switched on in order for the debug information to be saved. 4. Next, select the target destination where the debug information will be saved. Under "5857 Save Debug Log", touch "2 Target", enter "2" with the operation panel key to select the hard disk as the target destination, then press .



debuglog\_screen2



- Select "3 SD Card" to save the debug information directly to the SD card if it is inserted in the service slot.
- 5. Now touch "5858" and specify the events that you want to record in the debug log. SP5858 (Debug Save When) provides the following items for selection.

1	Engine SC Error	Saves data when an engine-related SC code is generated.
2	Controller SC Error	Saves debug data when a controller-related SC Code is generated.
3	Any SC Error	Saves data only for the SC code that you specify by entering code number.
4	Jam	Saves data for jams.



• More than one event can be selected.

### Example 1: To Select Items 1, 2, 4

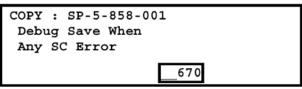
Touch the appropriate items(s). Press "ON" for each selection. This example shows "Engine SC Error" selected.



debuglog\_screen3

Example 2: To Specify an SC Code

Touch "3 Any SC Error", enter the 3-digit SC code number with the operation panel number keys, then press #. This example shows an entry for SC670.



debuglog\_screen4

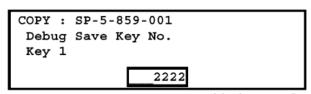


- For details about SC code numbers, please refer to the SC tables in Section 4. Troubleshooting.
- 6. Next, select the one or more memory modules for reading and recording debug information. Touch "5859".
- 7. Under "5859" press the appropriate key item for the module that you want to record.
- 8. Enter the appropriate 4-digit number, then press #.



• Refer to the two tables below for the 4-digit numbers to enter for each key.

The example below shows "Key 1" with "2222" entered.



debuglog\_screen5

The following keys can be set with the corresponding numbers. (The initials in parentheses indicate the names of the modules.)

### 4-Digit Entries for Keys 1 to 10

Key No.	Сору	Printer	Scanner	Web		
1	2222 (SCS)					
2	2223 (SRM)	2223 (SRM)				
3	256 (IMH)					
4	1000 (ECS)					
5	1025 (MCS)					
6	4848(COPY)	4400 (GPS)	5375 (Scan)	5682 (NFA)		

Key No.	Сору	Printer	Scanner	Web	
7	2224 (BCU)	4500 (PDL)	5682 (NFA)	6600 (WebDB)	
8		4600 (GPS-PM)	3000 (NCS)	3300 (PTS)	
9		2000 (NCS)	2000 (NCS)	6666 (WebSys)	
10		2224 (BCU)		2000 (NCS)	



• The default settings for Keys 1 to 10 are all zero ("0").

### Key to Acronyms

Acronym	Meaning	Acronym	Meaning		
ECS	Engine Control Service	NFA	Net File Application		
GPS	GW Print Service	PDL	Printer Design Language		
GSP-PM	GW Print Service – Print Module	PTS	Print Server		
IMH	Image Memory Handler	SCS	System Control Service		
MCS	Memory Control Service	SRM	System Resource Management		
NCS	Network Control Service	WebDB	Web Document Box (Document Server)		

The machine is now set to record the debugging information automatically on the HDD (the target selected with SP5-857-002) for the events that you selected SP5-858 and the memory modules selected with SP5-859.

Please keep the following important points in mind when you are doing this setting:

- The number entries for Keys 1 to 5 are the same for the Copy, Printer, Scanner, and Web memory modules.
- The initial settings are all zero.
- These settings remain in effect until you change them. Be sure to check all the settings, especially the settings for Keys 6 to 10. To switch off a key setting, enter a zero for that key.
- You can select any number of keys from 1 to 10 (or all) by entering the corresponding 4-digit numbers from the table.

- You cannot mix settings for the groups (COPY, PRINTER, etc.) for 006 to 010. For example, if you
  want to create a PRINTER debug log you must select the settings from the 9 available selections for
  the "PRINTER" column only.
- One area of the disk is reserved to store the debug log. The size of this area is limited to 4 MB.

## Retrieving the Debug Log from the HDD

- 1. Insert the SD card into service slot C3 of the copier.
- 2. Enter the SP mode and execute SP5857 009 (Copy HDD to SD Card (Latest 4 MB) to write the debugging data to the SD card.
- 3. Use a card reader to copy the file and send it for analysis to your local Ricoh representative by email, or just send the SD card by mail.

## **Recording Errors Manually**

Since only SC errors and jams are recorded to the debug log automatically, for any other errors that occur while the customer engineer is not on site, please instruct customers to perform the following immediately after occurrence to save the debug data. Such problems would include a controller or panel freeze.



- To use this feature, the customer engineer must have previously switched on the Save Debug Feature (SP5857-001) and selected the hard disk as the save destination (SP5857-002).
- 1. When the error occurs, on the operation panel, press (Clear Modes).
- 2. On the operation panel, enter "01" then hold down (b) for at least 3 seconds, until the machine beeps. Then release the key. This saves the debug log to the hard disk for later retrieval with an SD card by the service representatives.
- 3. Switch the machine off and on to resume operation.
- 4. The debug information for the error is saved on the hard disk so the service representatives can retrieve it on their next visit by copying it from the HDD to an SD card.

## **New Debug Log Codes**

### SP5857-015 Copy SD Card-to-SD Card: Any Desired Key

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. The copy operation is executed in the log directory of the SD card inserted in the same slot. (This function does not copy from one slot to another.) Each SD card can hold up to 4 MB of file data. Unique file names are created for the data during the copy operation to

prevent overwriting files of the same name. This means that log data from more than one machine can be copied onto the same SC card. This command does not execute if there is no log on the HDD for the name of the specified key.

### SP5857-016 Create a File on HDD to Store a Log

This SP creates a 32 MB file to store a log on the HDD. However, this is not a completely empty file. The created file will hold the number "2225" as the SCS key number and other non-volatile information. Even if this SP is not executed, a file is created on the HDD when the first log is stored on the HDD, but this operation takes time. This creates the possibility that the machine may be switched off and on before the log can be created completely. If you execute this SP to create the log file beforehand, this will greatly reduce the amount of time required to acquire the log information and save onto the HDD. With the file already created on the HDD for the log file, the data only needs to be recorded; a new log file does not require creation. To create a new log file, execute SP5857-011 to delete the debug log data from the HDD and then execute this SP (SP5857-016).

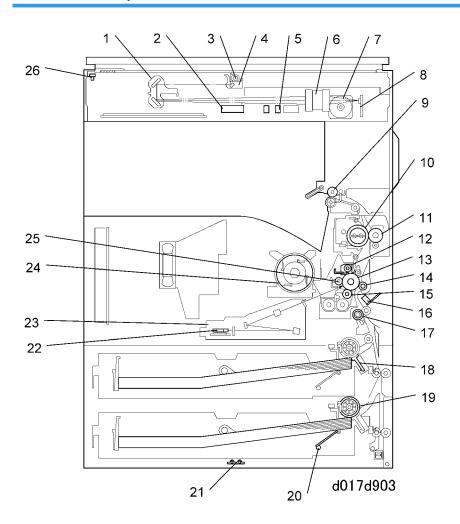
### SP5857-017 Create a File on SD Card to Store a Log

This SP creates a 4 MB file to store a log on an SD card. However, this is not a completely empty file. The created file will hold the number "2225" as the SCS key number and other non-volatile information. Even if this SP is not executed, a file is created on the SD card when the first log is stored on the SD card, but this operation takes time. This creates the possibility that the machine may be switched off and on before the log can be created completely. If you execute this SP to create the log file beforehand, this will greatly reduce the amount of time required to acquire the log information and save onto the SD card. With the file already created on the SD card for the log file, the data only needs to be recorded; a new log file does not require creation. To create a new log file, execute SP5857-012 to delete the debug log data from the SD card and then execute this SP (SP5857-017).

# 6. Detailed Section Descriptions

## Overview

## **Mechanical Components**



- 1. 2nd scanner
- 2. Original width sensor
- 3. Exposure lamp
- 4. 1st scanner
- 5. Original length sensor

- 14. Transfer roller
- 15. Development roller
- 16. ID sensor
- 17. Registration roller
- 18. Friction pad

8. SBU board

9. Exit roller

10. Fusing hot roller

11. Fusing pressure roller

12. Cleaning unit

13. OPC drum

19. Paper feed roller

20. Bottom plate

21. Tray heater

22. Polygon mirror motor

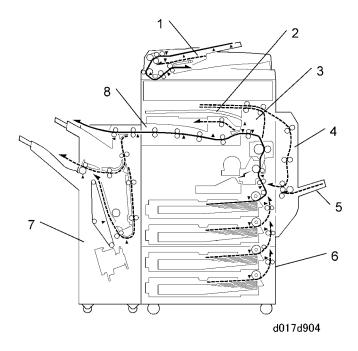
23. Laser unit

24. Toner supply bottle holder

25. Drum charge roller

26. Scanner home position sensor

## Paper Path



- 1. Optional ADF
- 2. Optional 1-bin Tray
- 3. Optional Interchange Unit
- 4. Optional Duplex Unit
- 5. Optional By-pass Feed Tray
- 6. Optional Paper Tray Unit
- 7. Optional 1000-sheet Finisher
- 8. Optional Bridge Unit

(á

## **Electrical Component Descriptions**

Refer to the electrical component layout on the reverse side of the point-to-point diagram for the location of the components.

Symbol	Name	Function			
Motors					
М	Upper Paper Lift Motor	Raises the bottom plate in the 1st paper tray.			
М	Lower Paper Lift Motor	Raises the bottom plate in the 2nd paper tray.			
М	Main Motor	Drives the main unit components.			
М	Toner Supply Motor	Rotates the toner bottle to supply toner to the development unit.			
М	Exhaust Fan Motor	Removes heat from around the fusing unit.			
М	Polygonal Motor	Rotates the polygonal mirror.			
М	Main Motor	Drives the main unit components.			
М	Scanner Motor (Mono)	Monochrome scanner unit.			
М	Scanner Motor (Color)	Color scanner unit.			
Magnetic Clutches					
МС	Lower Paper Feed Clutch	Starts paper feed from the 2nd paper tray.			
МС	Lower Relay Clutch	Drives the lower relay rollers.			
МС	Upper Paper Feed Clutch	Starts paper feed from the 1st paper tray.			
МС	Upper Relay Clutch	Drives the upper relay rollers.			
МС	Registration Clutch	Drives the registration rollers.			
Switches					
SW	Correct PCU Detect Switch	Detects when a new PCU is installed. South Korea only.			
SW	Right Cover Switch	Cuts the +5VLD and +24V dc power line and detects whether the right cover is open or not.			
SW	Right Lower Cover Switch	Detects whether the right lower cover is open or not.			

Symbol	Name	Function			
SW	Front Door Safety Switch	Cuts the +5VLD and +24V dc power line and detects whether the front cover is open or not.			
Sensors					
S	1st Paper Lift Sensor	Detects when the paper in the 1st paper tray is at the feed height.			
S	2nd Paper Lift Sensor	Detects when the paper in the 2nd paper tray is at the feed height.			
S	TD Sensor	Toner Density Sensor. Detects the amount of toner inside the development unit.			
S	New PCU Detect Sensor	Detects when a new PCU is installed.			
S	1st Paper End Sensor	Informs the CPU when the 1st paper tray runs out of paper.			
S	Upper Relay Sensor	Detects misfeeds.			
S	2nd Paper End Sensor	Informs the CPU when the 2nd paper tray runs out of paper.			
S	Lower Relay Sensor	Detects misfeeds.			
S	1st Paper Height Sensor 1	Detects the amount of paper in the 1st paper tray.			
S	1st Paper Height Sensor 2	Detects the amount of paper in the 1st paper tray.			
S	2nd Paper Height Sensor 1	Detects the amount of paper in the 2nd paper tray.			
S	2nd Paper Height Sensor 2	Detects the amount of paper in the 2nd paper tray.			
S	1st Bottom Fence Sensor 1	1 of 3 paper size sensors inside the machine that detect paper size in the upper tray according to the position of the bottom fence.			
S	1 st Bottom Fence Sensor 2	1 of 3 paper size sensors inside the machine that detect paper size in the upper tray according to the position of the bottom fence.			
S	1st Bottom Fence Sensor 3	1 of 3 paper size sensors inside the machine that detect paper size in the upper tray according to the position of the bottom fence.			

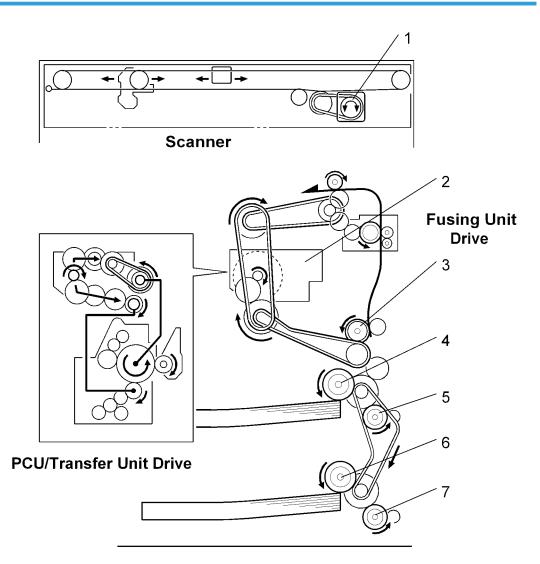
Symbol	Name	Function		
S	1st Side Fence Sensor	Detects paper size in the upper tray according to the position of the side fence (used in combination with the upper tray bottom fence sensors).		
S	1st Tray Detect Sensor	Detects the presence of the upper tray.		
S	2nd Bottom Fence Sensor 1	1 of 3 paper size sensors inside the machine that detects paper size in the lower tray according to the position of the bottom fence.		
S	2nd Bottom Fence Sensor 2	1 of 3 paper size sensors inside the machine that detect paper size in the lower tray according to the position of the bottom fence.		
S	2nd Bottom Fence Sensor 3	1 of 3 paper size sensors inside the machine that detect paper size in the lower tray according to the position of the bottom fence.		
S	2nd Side Fence Sensor	Detects paper size in the lower tray according to the position of the side fence (used in combination with the bottom fence sensors).		
S	2nd Tray Detect Sensor	Detects the presence of the lower tray.		
S	ID Sensor	Detects the density of various patterns and the reflectivity of the drum for process control.		
S	Registration Sensor	Detects misfeeds and controls registration clutch off-on timing.		
S	Correct Toner Type Sensor	Determines whether correct type of toner is in use. South Korea only.		
S	Paper Exit Sensor	Detects misfeeds.		
S	Paper Overflow Sensor	Detects paper overflow in the built-in copy tray.		
S	APS Sensor 1: Original Width (Mono)	1 of 5 APS sensors used in the monochrome scanner unit to detect the size of the original.		
S	APS Sensor 2: Original Width (Mono)	1 of 5 APS sensors used in the monochrome scanner unit to detect the size of the original.		
S	APS Sensor 3: Original Length (Mono)	1 of 5 APS sensors used in the monochrome scanner unit to detect the size of the original.		

Symbol	Name	Function		
S	APS Sensor 4: Original Length (Mono)	1 of 5 APS sensors used in the monochrome scanner unit to detect the size of the original.		
S	APS Sensor 5: Original Length (Mono)	1 of 5 APS sensors used in the monochrome scanner unit to detect the size of the original. <b>EU only.</b>		
S	Scanner HP Sensor (Mono)	Detects the scanner unit home position sensor in the monochrome scanner.		
S	APS Sensor 1: Original Width (Color)	1 of 5 APS sensors used in the color scanner unit to detect the size of the original.		
S	APS Sensor 2: Original Width (Color)	1 of 5 APS sensors used in the color scanner unit to detect the size of the original.		
S	APS Sensor 3: Original Length (Color)	1 of 5 APS sensors used in the color scanner unit to detect the size of the original.		
S	APS Sensor 4: Original Length (Color)	1 of 5 APS sensors used in the color scanner unit to determine the size of the original.		
S	APS Sensor 5: Original Length (Color)	1 of 5 APS sensors used in the color scanner unit to detect the size of the original. <b>EU only</b> .		
S	Scanner HP Sensor (Color)	Detects the position of the scanner unit in the color scanner.		
PCBs				
РСВ	Operation Panel	Controls the operation panel.		
PCB	MBU	Mother Board Unit. Interfaces between the BCU and controller board.		
PCB	Controller Board	Controls all applications both directly and through other control boards.		
PCB	Network Interface Card	Enables scan-to-email, LAN faxing, IP faxing, Internet faxing, and other functions.		
PCB	IPU	Image Processing Unit. Performs image processing.		
PCB	LSDB	Laser Synchronization Detection Board. Detects when the laser is about to start another main scan across the OPC drum		
РСВ	LDD	Laser Diode Driver. Controls the laser diodes.		

Symbol	Name	Function	
РСВ	PSU	Power Supply Unit. Provides dc power to the system and ac power to the fusing lamp and heaters.	
РСВ	SBU (Mono)	Sensor Board Unit. Contains the CCD, and outputs a video signal to the IPU board.	
РСВ	SIU (Mono)	Connects and interfaces between the IPU and the SIO of the monochrome scanner unit.	
РСВ	SIO (Mono)	Interfaces between scanner unit and BCU, controls sensors and motors in the scanner unit.	
РСВ	Lamp Stabilizer (Mono)	Stabilizes the exposure lamp power supply.	
РСВ	SBU (Color)	Sensor Board Unit. Contains the CCD, and outputs a video signal to the IPU board.	
РСВ	SIU (Color)	Connects and interfaces between the IPU and the SIO of the color scanner unit.	
РСВ	SIO (Color)	Interfaces between scanner unit and BCU, controls sensors and motors in the scanner unit.	
PCB	Lamp Stabilizer (Color)	Stabilizes the power to the exposure lamp.	
Solenoids			
SOL1	Fusing Drive Release	Releases the drive for the fusing unit.	
Lamps			
L	Quenching Lamp	Neutralizes any charge remaining on the drum surface after cleaning.	
L S	Secondary Fusing Lamp	Heats both ends of the hot roller.	
L I	Main Fusing Lamp	Heats the center of the hot roller.	
L E	Exposure Lamp (Mono)	Monochrome scanner unit. Applies high intensity light to the original for exposure.	
L E	Exposure Lamp (Color)	Color scanner unit. Applies high intensity light to the original for exposure.	
Heaters			

Symbol	Name	Function
Н1	Anti-condensation (Option)	Turns on when the main power switch is off to prevent moisture from forming on the optics.
H2	Tray (Option)	Turns on when the main power switch is off to prevent moisture from forming around the paper trays.
Others		
СО	Mechanical Counter	Keeps track of the total number of prints made.
СО	Key Counter (Option)	Used for control of authorized use. If this feature is enabled for copying, copying will be impossible until it is installed.
Н	Tray Heater	Option. Turns on when the main power switch is off to prevent moisture from forming around the paper trays.
Н	Anti-Condensation Heater	Option. Turns on when the main power switch is off to prevent moisture from forming on the optics.
TH	Thermistor (Sub)	Reads the temperature at the end of the hot roller. These readings are used for fusing temperature control.
TH	Thermistor (Main)	Reads the temperature at the center of the hot roller. These readings are used for fusing temperature control.
TS	Thermostats	Open the fusing lamp circuit if the fusing unit overheats.

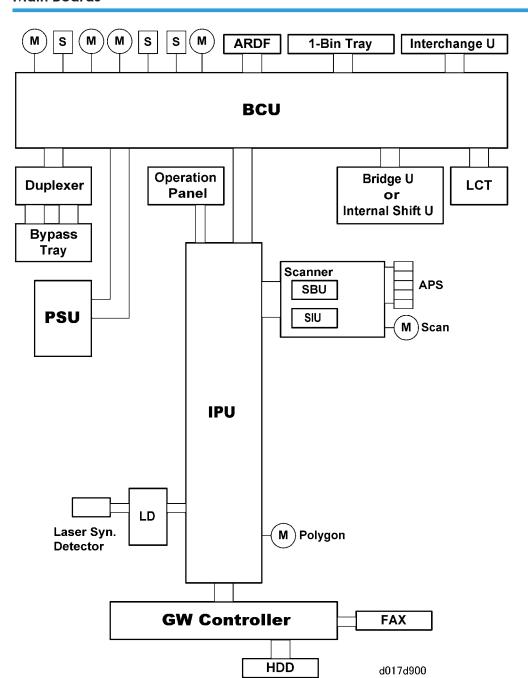
## **Drive Layout**



- 1. Scanner Drive Motor
- 2. Main Motor
- 3. Registration Clutch
- 4. Upper Paper Feed Clutch
- 5. Upper Transport Clutch
- 6. Lower Paper Feed Clutch
- 7. Lower Transport Clutch

## **Board Structure**

### **Main Boards**



Here is a summary of the new features of the boards in this machine. For more details, please refer to the point-to-point diagram provided with the machine.

### **BCU (Base Engine Control Unit)**

This is the scanner and engine control board. It controls the following functions:

- Engine sequence
- Timing control for peripherals
- Image processing control and video control
- Operation control
- Drive control for the sensors, motors, and solenoids of the printer and scanner
- High voltage supply board control
- Fusing control

### **PSU (Power Supply Unit)**

Provides dc power to the system and ac power to the fusing lamp and optional heaters.

### **Operation Panel**

Controls the operation panel user interface (key input) and the LCD display.

### IPU (Image Processing Unit)

The IPU board does the image processing (auto shading, filtering, magnification, gradation processing), and finally sends the data to the LD drive board. The IPU also functions as a motherboard because it has connection points for the GW controller and FCU. The ICIB (Illegal Copy Interface Board) also connects directly to the IPU

### Scanner Board (Mono or Color)

The machine can have either a black-and-white or color scanner unit. Although the machine does not print color, the color scanner provides color scanning for applications such scan-to-email, scan to PDF, etc. Either unit is installed (not both).

- SBU (Sensor Board Unit). Converts the analog signals to 8-bit digital signals, and then sends them to the IPU for processing.
- SIU (Scanner Interface Unit). Interface between the scanner unit and the IPU.

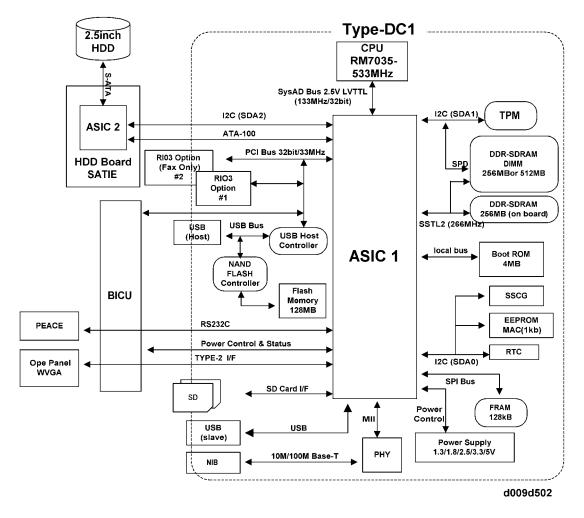
### LD (Laser Diode Board)

The laser diode board is controlled directly by the GAVD mounted on the IPU.

### **GW Controller**

Controls the memory and the fax/scanner/printer options. The NIB (Network Interface Board) and USB 2.0 interfaces are built into the controller board and do not require installation.

Fax Unit D361. The fax unit is an option for this machine. A G3 option is also available.



The controller controls all applications, including copier, printer, scanner, and fax applications. To add the optional printer, scanner, or fax applications, SD cards must be inserted in the SD card slots of the controller. The fax option, however, requires installation of an FCU.

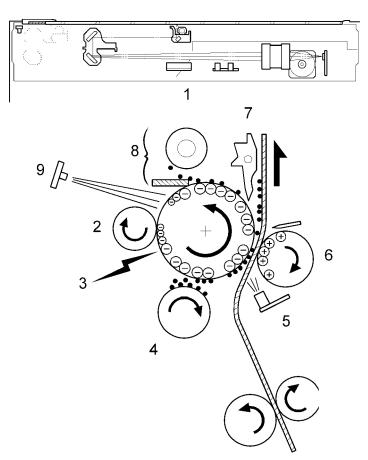
**ASCI 1:** Contains the dedicated GW controller chips of the shared resources (the CPU, memory, and HDD hardware) for the copying and printing functions.

 CPU (RM7035-533MHz). The central processing unit that controls the operation of the controller board.

- HDD. The interface for connection of the flat film cable connection to the HDD unit.
- DDR SDRAM. The image memory for the printer function where image compression, image rotation and other operations are done.
- SD. This is the interface for SD card slots 1 and 2. Slot 2 is for optional applications, or for firmware version updates, moving applications to other SD cards, and downloading/uploading NVRAM contents
- Board Option Slot Only one of the following options can be installed: IEEE1284 Interface Board (Centronics), IEEE802.11a/g, g (Wireless LAN), Bluetooth Interface Unit, File Format Converter (MLB) or Cumin-M.
- Flash ROM. Stores the program. Maximum capacity: 128 MB.
- USB. The interface for USB 2.0 devices. Supports both low-speed and high-speed modes. USB support
  is built-into the controller. No installation is required for the USB function. But, SP5985 001 must be
  set to "1" to enable the network functions.
- NIB. The Ethernet interface connection. Network support is built-into the controller. No installation is required for the network function. But, SP5985 002 must be set to "1" to enable the network functions.
- **EEPROM.** Stores the data for the SP code settings.
- NVRAM. The memory that stores the system configuration and other information.

HDD: A 2.5" HDD (more than 40 GB) can be connected using an S-ATA I/F.

# **Copy Process**



### 1. Exposure

A xenon lamp exposes the original. Light reflected from the original passes to the CCD, Were it is converted into an analog data signal. This data is converted to a digital signal, processed and stored in the memory. At the time of printing, the data is retrieved and sent to the laser diode. For multi-copy runs, the original is scanned once only and stored to the memory.

### 2. Drum Charge

In the dark, the charge roller gives a negative charge to the organic photo-conductive (OPC) drum. The charge remains on the surface of the drum because the OPC layer has a high electrical resistance in the dark.

### 3. Laser Exposure

The processed data scanned from the original is retrieved from the memory and transferred to the drum by a laser beam, which forms an electrical latent image on the drum surface. The amount of charge remaining as a latent image on the drum depends on the laser beam intensity, which is controlled by the IPU board.

#### 4. Development

The magnetic developer brush on the development rollers comes in contact with the latent image on the drum surface. Toner particles are electrostatically attached to the areas of the drum surface Were the laser reduced the negative charge on the drum.

#### 5. ID Sensor

The laser forms a sensor pattern on the drum surface. The ID sensor measures the reflectivity of the pattern. The output signal is one of the factors used for toner supply control. Also, the ID sensor measures the reflectivity of the drum surface. The output signal is used for charge roller voltage control.

### 6. Image Transfer

Paper is fed to the area between the drum surface and the transfer roller at the proper time for aligning the copy paper and the developed image on the drum surface. Then, the transfer roller applies a high positive charge to the reverse side of the paper. This positive charge pulls the toner particles from the drum surface onto the paper. At the same time, the paper is electrostatically attracted to the transfer roller.

### 7. Paper Separation

Paper separates from the drum as a result of the electrostatic attraction between the paper and the transfer roller. The discharge plate helps separate the paper from the drum.

### 8. Cleaning

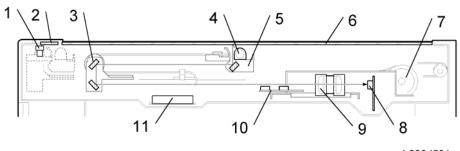
The cleaning blade removes any toner remaining on the drum surface after the image transfers to the paper.

### 9. Quenching

The light from the quenching lamp electrically neutralizes the charge on the drum surface.

# **Scanning**

### Overview



b230d501

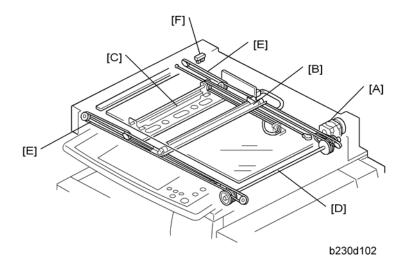
1.	Scanner HP sensor		Scanner motor		
2.	2. ADF exposure glass		Sensor board unit (SBU)		
3.	2nd scanner (2nd carriage)		Lens Block		
4.	. Scanner lamp		Original length sensor		
5.	1 st scanner (1 st carriage)	11.	Original width sensor		
6.	Exposure glass				

The original on the exposure glass or ARDF exposure glass reflects the light emitted from the scanner lamp. The reflected light goes to the CCD on the sensor board by way of the 1st and 2nd scanners. The sensor board converts the CCD analog signals into digital signals.

When the original is manually placed on the exposure glass, the scanner motor pulls the 1st and 2nd scanners via mechanical linkage. The original is scanned from left to right.

When the original is fed from the optional ARDF, it is automatically transported onto the ARDF exposure glass, and to the original exit. The original does not stay on the glass; but goes to the exit. The 1st and 2nd scanners stay at their home positions.

### **Scanner Drive**



The scanner motor [A] drives the 1st scanner [B] and the 2nd scanner [C] through the scanner drive pulley, scanner drive shaft [D], and two scanner wires [E].

#### Book mode -

The SBU board controls the scanner drive motor. The 2nd scanner speed is half that of the 1st scanner.

In reduction or enlargement mode, the scanning speed depends on the magnification ratio. The returning speed is always the same, whether in full size or magnification mode. The image length change in the sub scan direction is done by changing the scanner motor speed. In the main scan direction it is done by image processing on the BICU board.

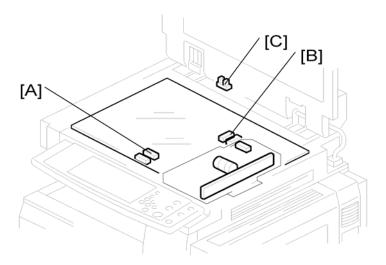
You can adjust the magnification in the sub-scan direction by changing the scanner motor speed with SP4-008.

### ARDF mode -

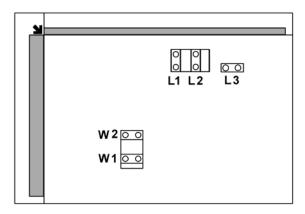
The scanners always stay in their home position (the scanner HP sensor [F] detects the 1st scanner) to scan the original. The ARDF motor feeds the original through the ARDF. In reduction/enlargement mode, the image length change in the sub-scan direction is done by changing the ARDF motor speed. Magnification in the main scan direction is done in the BICU board. This is the same as for book mode.

You can adjust magnification in the sub-scan direction by changing the ARDF motor speed with SP6-017.

## **Original Size Detection**



- The original width sensors [A] detect the original width. The original length sensors [B] detect the original length.
- The SBU controller on the SBU board checks each sensor status when the platen cover sensor [C] is activated as it is closed. It detects the original size by the on/off signals it gets from each sensor.
- If the copy is made with the platen cover fully open, the SBU controller on the SBU determines the original size from the sensor outputs after the Start key is pressed.



Original Size		Length Sensor			Width Sensor		SP4-301 display
Metric version	Inch version	L3	L2	L1	W1	W2	aispiay
A3	11" x 17"	0	0	0	0	0	00011111

B4	10" x 14"	0	0	0	0	Х	00011110
F4 8.5" x 13", 8.25" x 13", or 8" x 13"	8.5" x 14"	0	0	0	X	Х	00011100
SP 5126 controls the size that is detected							
A4 LEF	8.5" x 11"	Х	Х	Х	0	0	00000011
B5 LEF	-	Х	Х	Х	0	Х	00000010
A4 SEF	11" x 8.5"	Х	0	0	Х	Х	00001100
B5 SEF	-	Х	Х	0	Х	Х	00000100
A5 LEF/ SEF	5.5" x 8.5", 8.5" x 5.5"	Х	Х	Х	Х	Х	00000000

O: Paper present,

X: Paper not present

The above table shows the outputs of the sensors for each original size. This original size detection method eliminates the necessity for a pre-scan and increases the machine's productivity.

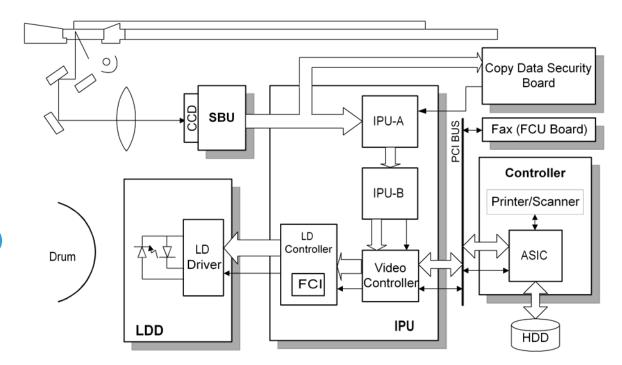
However, if the by-pass tray is used, the machine assumes that the copy paper is lengthwise (L). For example, if A4 sideways paper is placed on the by-pass tray, the machine assumes it is A3 paper and scans a full A3 area. Information from the original size sensors is disregarded.

Refer to the ARDF manual for more information on original size detection with the ARDF.

#### **Anti-Condensation Heater**

The anti-condensation heater is available as an optional unit. The anti-condensation heater prevents condensation on the mirrors. Condensation can occur when the scanner unit is, for example, moved from a cold room to a warm room. Condensation can cause abnormal images.

#### Overview



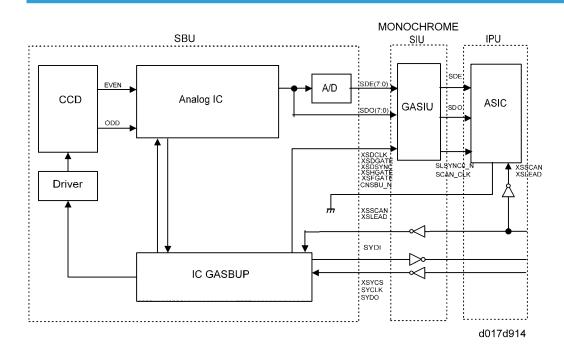
The CCD generates an analog video signal. The SBU (Sensor Board Unit) converts the analog signal to an 8-bit digital signal, then it sends the digital signal to the IPU (Image Processing Unit) board.

The IPU board performs the image processing, such as auto shading, filtering, magnification, gradation processing.

The ASIC on the controller board performs the image editing, such as image repeat, double copy. Finally, the IPU board sends the video data to the LD drive board.

#### SBU (Sensor Board Unit)

#### Monochrome Scanner Unit

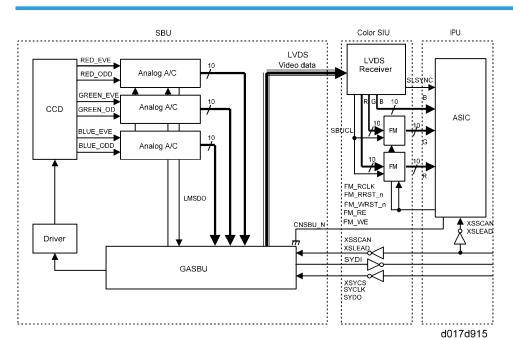


The CCD converts the light reflected from the original into an analog signal. The CCD line has 7,400 pixels and the resolution is 600 dpi (23.6 lines/mm).

The CCD has two output lines, for odd and even pixels, to the analog processing IC. The analog processing IC performs the following operations on the signals from the CCD:

- 1. Z/C (Zero Clamp):
  - Adjusts the black level reference for even pixels to match the odd pixels.
- 2. Signal Amplification:
  - The analog signal is amplified by operational amplifiers in the AGC circuit.
- 3. Auto Gain Control
  - Adjusts the gain curve for the scanned image density.

After the above processing, the analog signals are converted to 8-bit signals by the A/D converter. This will give a value for each pixel on a scale of 256 grades. Then, the digitized image data goes to the IPU board.



#### **SBU**

The VPU (Video Processor Unit) does the following functions:

- 1. Black level correction
- 2. White level correction
- 3. Gradation calibration
- 4. ADS control (Background Density)
- 5. Creating the SBU test pattern

#### **Operation Summary**

The signals from the 3-line CCD, one line for each color (R, G, B) and 2 analog signals per line (ODD, EVEN), are sampled by the ASIC and converted to digital signals in the 10-bit A/D converter. This is the first phase of processing the data scanned from the original.

#### **Storing Operation Settings**

The controller stores the SBU settings. These values must be restored after the lens block is replaced:

SP4-008-001	Sub Scan Mag	Sub Scan Magnification Adjustment
SP4-010-001	Leading Edge Reg	Leading Edge Registration Adjustment
SP4-011-001	Side to Side Reg	Side to Side Registration Adjustment

Also, before lens block replacement, enter the SP mode and note the settings of **SP4-688-001** (DF density adjustments). After lens block replacement, do some copy samples with the DF, then check the copies, If the copies have background, change **SP4-688-001** to their previous settings, or adjust until the background is acceptable. This SP code is also used to adjust the DF scanning density, if the scanning densities of the DF and the platen mode is not the same.

#### SBU Test Mode

There are two SP codes to create a test pattern which can be used as a diagnostic tool to troubleshoot problems in the SBU:

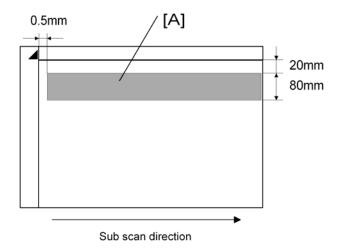
SP4907 001 SBU Pattern - Test Pattern change

To print the pattern:

Select the pattern to print.

Touch "Copy Window" then press the Start key twice.

#### **Auto Image Density**



ADS prevents the background of an original from appearing on copies.

The copier scans the auto image density detection area [A] as shown in the diagram. This corresponds to a few mm at one end of the main scan line. As the scanner scans down the page, the SBU detects the peak white level for each scan line. The IPU performs the ADS function in accordance with the peak white level.

When an original with a gray background is scanned, the density of the gray area is the peak white level density. Therefore, the original background will not appear on copies. Because peak level data is taken for each scan line, ADS corrects for any changes in background density down the page.

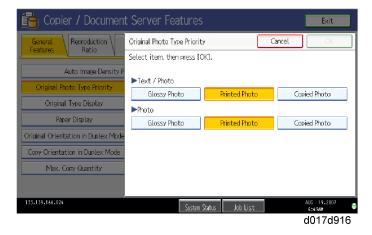
As with previous digital copiers, the user can select manual image density when selecting auto image density mode, and the machine will use both settings when processing the original.

#### **Original Type Settings**

The user can select one of the following modes with the User Tools screen: Text, Text/Photo, Photo, Pale, Generation.

Text/Photo and Photo have three different settings (Glossy Photo, Printed Photo, Copied Photo, etc).

To display this screen, press the User Tools/Counter button (), press 'Copier/Document Server Settings' on the display panel, press the 'General Features' tab, and then press 'Original Photo Type Priority'.



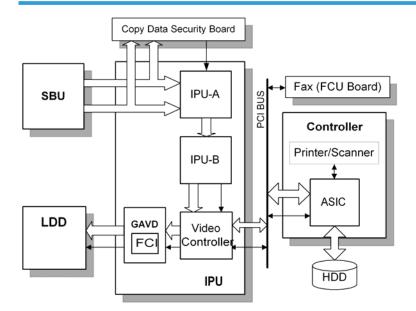
Mode	Function
Text	Best reproduction of text and sharp lines. Ignores background texture.
Text/Photo	Good reproduction of mixed text and photographs with accurate grayscaling, better than that achieved in the Text mode.
Photo	Best possible reproduction of photographs.
Pale	Reproduction similar to text mode, but of lower contrast. Ideal for copying thin original.
Generation Copy	Attempts to achieve the best reproduction of copied originals that are faded because they are copies of copies.

In addition, there are two main image processing modes: grayscale processing and binary picture processing. When no optional hard disk has been installed, the machine uses binary picture processing.

However, when the optional hard disk has been installed, the machine uses grayscale processing. The user or technician cannot select the mode.

#### **IPU (Image Processing Unit)**

#### Overview



The image data from the SBU goes to the IPU (Image Processing Unit) ICs on the IPU board, which does the following processes on the image data.

#### IPU-A

- Auto shading
- Pre-filtering
- Magnification
- Test pattern generation

#### IPU-B

- Filtering (MTF and smoothing)
- ID gamma correction
- Grayscale processing
- Binary picture processing
- Error diffusion
- Dithering

• Video path control

Video Controller

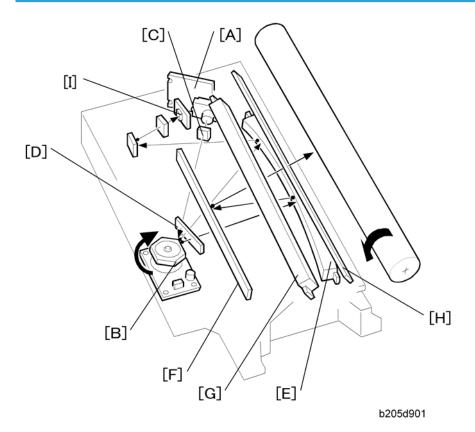
#### GAVD

• FCI (Fine Character and Image)

The image data then goes to the LD driver (LDD).

## **Laser Exposure**

#### Overview



The optical path from the laser diode to the drum is shown above.

The LD unit [A] outputs a laser beam to the polygon mirror [B] through the cylindrical lens [C]. The shield glass [D] prevents dust from reaching the polygon mirror.

Each surface of the polygon mirror reflects one full main scan line. The laser beam goes to the F-theta mirror [E], mirror [F], and BTL (barrel toroidal lens) [G]. Then the laser beam goes to the drum through the toner shield glass [H].

The laser synchronizing detector [1] determines the main scan starting position.

The speed of the polygon mirror motor is 35,433 rpm for 600 dpi.

The LD d

6

The LD driver IC drives the laser diode. To prevent the intensity of the laser beam from changing because of the temperature, the machine monitors the current passing through the laser diode (LD). The machine adjusts the current to the laser diode by comparing it with the reference level from the reference circuit.

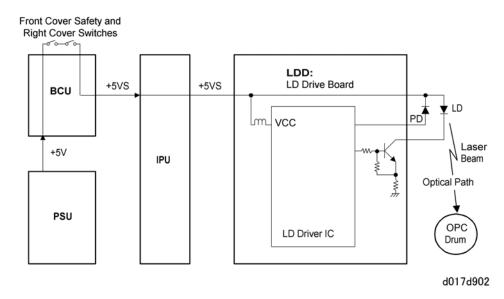
This auto power control is done just after the machine is turned on and during printing while the laser diode is active.

The laser diode power is adjusted on the production line.



• Do not touch the variable resistors on the LD unit in the field.

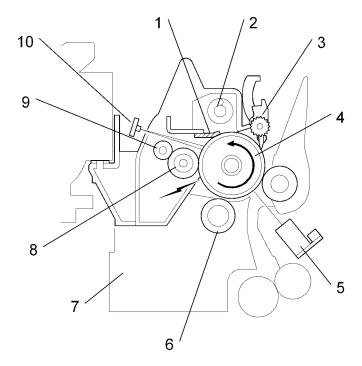
#### LD Safety Switch



To ensure technician and user safety and to prevent the laser beam from inadvertently switching on during servicing, safety switches are located at the front and right covers. The switches are installed on the +5VLD line coming from the power supply unit through the BCU and IPU boards.

When the front cover or the right cover is opened, the power supply to the laser diode is interrupted.

#### Overview



The PCU consists of the components shown in the above illustration. An organic photoconductor (OPC) drum (diameter: 30 mm) is used in this machine.

- 1. Cleaning Blade
- 2. Toner Collection Coil
- 3. Pick-off Pawl
- 4. OPC Drum
- 5. ID Sensor (see the note below this list)

- 6. Development Roller
- 7. Development Unit
- 8. Charge Roller
- 9. Charge Roller Cleaning Roller
- 10. Quenching Lamp (see the note below this list)

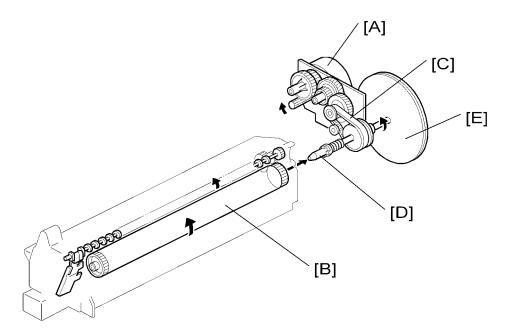


• These parts are not included in the PCU.

The machine informs the user when the PCU life has finished. However, the user can continue to make copies.

SP5-912 can be used to enable or disable this warning message, and to change the default replacement interval (the default is 60k).

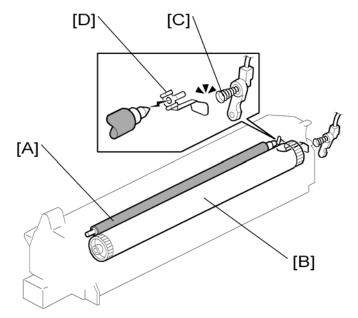
#### **Drive**



The main motor [A] drives the drum [B] through a series of gears, a timing belt [C], and the drum drive shaft [D]. The main motor assembly includes a drive controller, which outputs a motor lock signal when the rotation speed is out of the specified range.

The fly-wheel [E] on the end of the drum drive shaft stabilizes the rotation speed (this prevents banding and jitter from appearing on copies).

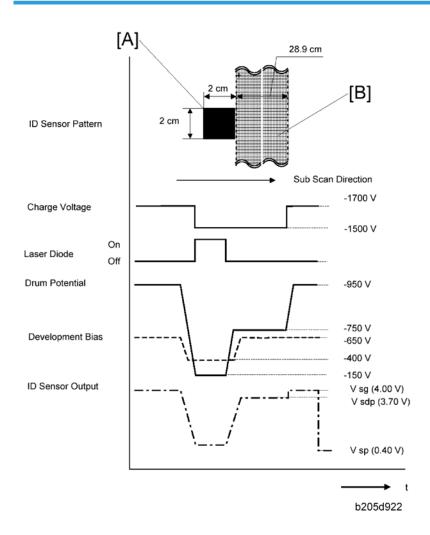
#### Overview



This copier uses a drum charge roller to charge the drum. The drum charge roller [A] always contacts the surface of the drum [B] to give it a negative charge of -900V.

The high voltage supply board gives a negative dc voltage to the drum charge roller through the spring [C] and terminal plate [D].

#### **Charge Roller Voltage Correction**



With a drum charge roller system, the voltage transferred from roller to drum varies with the temperature and humidity around the drum charge roller. The lower the temperature or humidity is, the higher the applied voltage required.

To compensate, the machine uses the ID sensor to measure the effects of current environmental conditions. For this measurement, the process control parameters are balanced so that any small change in drum potential caused by environmental effects is reflected in a change in the amount of toner transferred to the drum.

This measurement is made immediately after the ID sensor pattern for toner density control. Immediately after making ID sensor pattern [A], the charge roller voltage stays on, but the development bias goes up to -650V; as a result the drum potential is reduced to -750V. The laser diode is not switched on, and the

drum potential is now slightly higher than the development bias, so only a very small amount of toner transfers to the drum.

The ID sensor measures the density of this pattern [B], and the output voltage is known as Vsdp. This voltage is compared with Vsg (read from the bare drum at the same time).

If the humidity drops, the drum potential goes up (to a higher –ve voltage) even if the charge roller voltage supply stays the same (efficiency of voltage transfer is higher with lower humidity). As a result, less toner is transferred to ID sensor pattern [B]. If the sensor output reaches a certain point, the drum charge voltage will be reduced.

To determine whether to change the drum charge roller voltage, the machine compares Vsdp with Vsg.

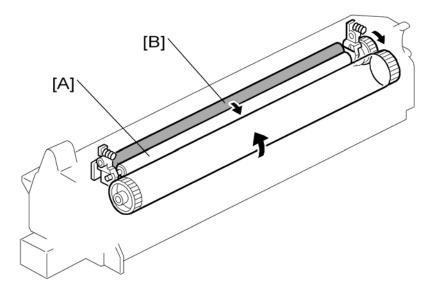
- Vsdp / Vsg > 0.95 = Reduce the magnitude of the drum charge voltage by 50 V
- Vsdp / Vsg < 0.90 = Increase the magnitude of the drum charge voltage by  $50 \ V$

#### **ID Sensor Pattern Production Timing**

The ID sensor pattern is made in the following conditions:

- When the machine is turned on or returns from the energy save mode and the hot roller temperature is less than 30 °C. The temperature threshold can be adjusted with SP2995 001
- After the total number of prints exceeds 300 pages. If this total is exceeded during a job, the pattern is created at the completion of the job. This total can be changed with SP2995 002.
- SP 2995 003 determines whether the job is interrupted to make the ID sensor pattern. If it is set to 1, the job will be interrupted.

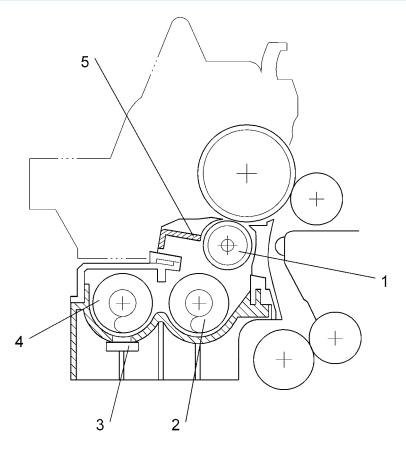
## Drum Charge Roller Cleaning



Because the drum charge roller [A] always contacts the drum, it gets dirty easily. So, the charge roller cleaning roller [B] also contacts the drum charge roller all the time to clean the surface of the drum charge roller.

# **Development**

#### Overview

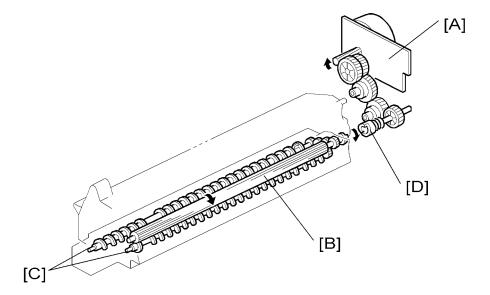


The development unit consists of the following parts.

- 1. Development roller
- 2. Mixing auger 2
- 3. TD sensor
- 4. Mixing auger 1
- 5. Doctor blade

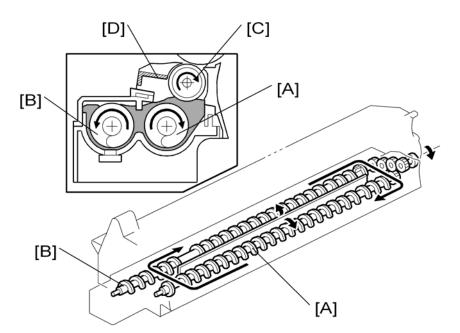
This machine uses a single-roller development system. Two mixing augers mix the developer. The toner density (TD) sensor and image density (ID) sensor (see the illustration in the PCU section) are used to control toner density.

#### Drive



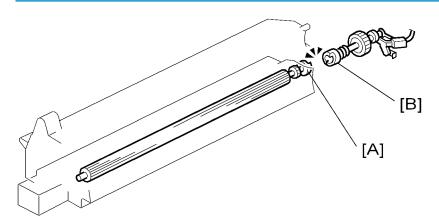
The main motor [A] drives the development roller [B] and mixing augers [C] through a train of gears and the development drive shaft [D]. When the PCU is pushed in, the development drive shaft engages the development roller gear.

The development drive gears (except for the gears in the development unit) are helical gears. These gears are quieter than normal gears.



This copier uses 2 mixing augers, [A] and [B], to keep the developer evenly mixed. Mixing auger 2 [A] transports excess developer, scraped off the development roller [C] by the doctor blade [D], towards the front of the machine. Mixing auger 1 [B] returns the excess developer, along with new toner, to the rear of the mixing assembly. Here the developer is reapplied to the development roller.

#### **Development Bias**



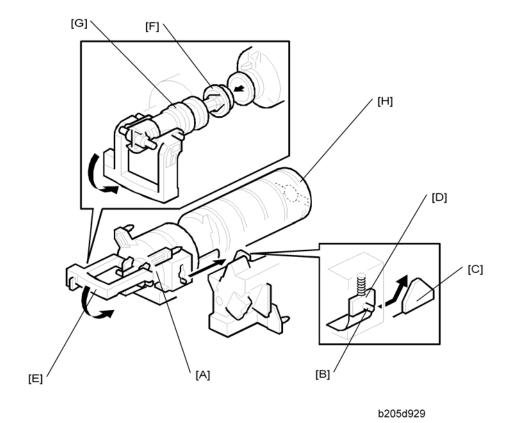
This machine uses a negative-positive development system, in which black areas of the latent image are at a low negative charge (about  $-150 \pm 50 \text{ V}$ ) and white areas are at a high negative charge (about -950 V).

To attract negatively charged toner to the black areas of the latent image on the drum, the high voltage supply board applies a bias of -650 volts to the development rollers throughout the image development process. The bias is applied to the development roller shaft [A] through the drive shaft [B].

The development bias voltage (-650 V) can be adjusted with SP2-201-1.

#### **Toner Supply**

#### **Toner Bottle Replenishment Mechanism**



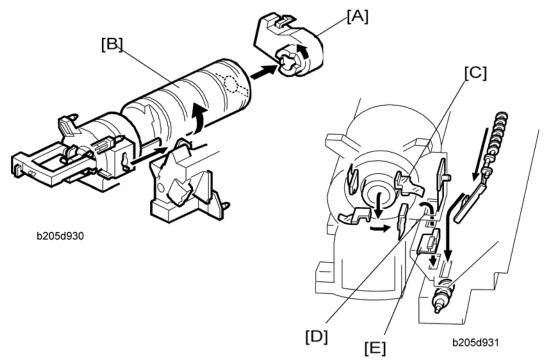
When a toner bottle is placed in the bottle holder unit [A] and the unit is pushed in completely, pin [B] moves against the side [C] of the PCU, and the toner shutter [D] is pulled out to open the bottle. When the toner bottle holder lever [E] is put back in the original position, the cap [F] on the toner bottle is pulled away and kept in place by the chuck [G].

The toner supply mechanism transports toner from the bottle to the development unit. The toner bottle has a spiral groove [H] that helps move toner to the development unit.

When the bottle holder unit is pulled out to add a new toner bottle, the following happens automatically to prevent toner from scattering.

- The chuck releases the toner bottle cap into its proper position.
- The toner shutter shuts to block the opening as a result of pressure from a spring.

#### **Toner Supply Mechanism**



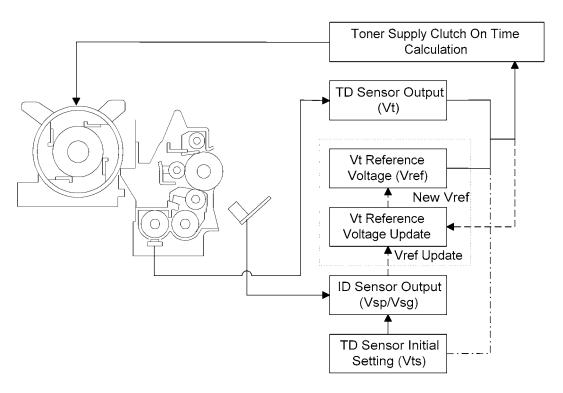
The toner supply motor [A] drives the toner bottle [B] and the mylar blades [C]. First, the toner falls down into the toner bottle holder. The toner supply mylar blades transfer the toner to the slit [D]. When the PCU is installed in the machine, the shutter [E] above the PCU is opened by the machine frame. Then the toner falls down into the development unit through the slit and the shutter.

#### **Toner Density Control**

#### Overview

There are four modes for controlling toner supply as shown in the following tables. The mode can be changed with by SP2-921. The factory setting is sensor control 1 mode.

Basically, toner density is controlled using the standard TD sensor voltage (Vts), toner supply reference voltage (Vref), actual TD sensor output voltage (Vt), and ID sensor output data (Vsp/Vsg).



There are five toner density control modes as follows.

Mode	Sensor control 1 (SP2-921, "0"): Normally use this setting only
Toner supply decision	Compare Vt with a reference voltage (Vts or Vref)
	Toner is supplied to the development unit when Vt is higher than the reference voltage (Vts or Vref). This mode keeps the Vref value for use the next toner density control.
Toner control process	Vts is used for the first toner density control after a new PCU has been installed, until it has been corrected with the ID sensor output.
	Vref is used after Vts has been corrected with the ID sensor output voltage (corrected during the first toner density control for a new PCU).
Toner supply amount	Varies
Toner end detection	Performed

Mode	Sensor control 2 (SP2-921, "1"): <b>DFU</b>
Toner supply decision	Compare Vt with a reference voltage (Vts or Vref)

Mode	Fixed control 1 (SP2-921, "2"): <b>DFU</b>
Toner supply decision	Compare Vt with a reference voltage (Vts or Vref)
Toner control process	This toner control process is the same as sensor control 1 mode.
Toner supply amount	Fixed (SP2-925)
Toner end detection	Performed

Mode	Fixed control 2 (SP2-921, "3"):  Use temporarily if the TD sensor needs to be replaced
Toner supply decision	None
Toner control process	Toner is supplied every printed page regardless of Vt.
Toner supply amount	Fixed (SP2-925)
Toner end detection	Not performed

Mode	Sensor control 3 (SP921, "4". <b>DFU</b>
Toner supply decision	Compare Vt with a reference voltage (Vts)
Toner control process	This toner control process is the same as sensor control 1 mode. However, the reference voltage used is always Vts.
Toner supply amount	Varies
Toner end detection	Performed.

#### **Toner Density Sensor Initial Setting**

The TD sensor initial setting procedure is done by SP2801. During TD sensor initial setting, the TD sensor is set so that the TD sensor output to the value of SP2-926 (default: 2.5V). This value will be used as the standard reference voltage (Vts) of the TD sensor.

#### **Toner Density Measurement**

Toner density in the developer is detected once every copy cycle. The sensor output voltage (Vt) during the detection cycle is compared with the standard reference voltage (Vts) or the toner supply reference voltage (Vref).

#### Vsp/Vsg Detection

The ID sensor detects the following voltages.

- Vsg: The ID sensor output when checking the drum surface
- Vsp: The ID sensor output when checking the ID sensor pattern

In this way, the reflectivity of both the drum surface and the pattern on the drum are checked. This compensates for any variations in the reflectivity of the pattern on the drum or the reflectivity of the drum surface.

The ID sensor pattern is made on the drum by the charge roller and laser diode.

Vsp/Vsg is not detected every page or job; it is detected at the following times to decide Vref:

- When the machine is turned on or returns from the energy save mode and the hot roller temperature is less than 30 °C. The temperature threshold can be adjusted with SP2995 001
- After the total number of prints exceeds 300 pages. If this total is exceeded during a job, the pattern is created at the completion of the job. This total can be changed with SP2995 002.
- SP 2995 003 determines whether the job is interrupted to make the ID sensor pattern. If it is set to 1, the job will be interrupted.

#### Toner Supply Reference Voltage (Vref) Determination

The toner supply reference voltage (Vref) is the threshold voltage for the toner supply determination. Vref is determined using the following data:

- ID sensor output (Vsp/Vsg)
- (Vts or the current Vref) Vt

The reference voltage (Vts or Vref) is the threshold voltage for determining whether or not to supply toner. If Vt becomes greater than the reference voltage, the machine supplies additional toner.

#### **Toner Supply Motor On Time Determinations**

For fixed control mode, the toner supply motor on time is specified by the setting of SP2-925, and does not vary. The default setting is 200 ms for each copy. The toner supply motor on time for each value of SP2-925 is as follows.

SP2-925	Motor On Time (t = 200 ms)	
0	t	
1	2t	
2	4t	
3	8t	
4	12t	
5	16t	
6	Continuously	
7	Not supplied	

For sensor control modes 1 and 2, the toner supply motor on time is decided by the following factors.

- ∆Vt (= Vt (Vref or Vts))
- TD sensor sensitivity (coefficient: S, value is 0.3)

There are seven levels for toner supply motor on time as shown below.

Level	Decision	Motor On Time (seconds)
1	$0 < \Delta Vt < or = S/16$	t (0.6)
2	$S/16 < \Delta Vt < or = S/8$	t x 2 (1.2)
3	$S/8 < \Delta Vt < or = S/4$	t x 4 (2.4)
4	$S/4 < \Delta Vt < or = S/2$	t x 8 (4.8)
5	$S/2 < \Delta Vt < or = 4S/5$	t x 16 (9.6)

Ó

Level	Decision	Motor On Time (seconds)
6	$4S/5 < \Delta Vt < or = S (near-end)$	T (30); see note 3
7	S <∆Vt (toner end)	T (30); see note 3

- The value of "t" can be changed using SP2-922 (default: 0.6 second)
- The value of "T" can be changed using SP2-923 (default: 30 seconds)
- T (30) means that toner is supplied intermittently in a half duty cycle (1.5 s on, 1.5 s off) for 30 seconds

#### **Toner Supply in Abnormal Sensor Conditions**

#### **ID** sensor

Readings are abnormal if any of the following conditions occur:

- Vsg < or = 2.5V
- Vsg < 3.5V when maximum power (254) is applied
- $V_{sp} > or = 2.5V$
- (Vsg Vsp) < 1.0V

ID sensor power required to make the standard output reaches the maximum value (254)

The above ID sensor values can be checked using SP2-220.

When this is detected, the machine changes the value of Vref to the previous value then does the toner density control process (in a similar way to sensor control mode 2).

No SC code is generated if the ID sensor is defective.

#### **TD Sensor**

The TD sensor is checked every copy. If the readings from TD sensor become abnormal, the machine changes the toner density control mode to fixed supply mode 2, and the toner supply amount per page is always 200 ms, regardless of the value of SP2-925. Then at the end of a job (if the optional fax unit is installed), or 100 copies after the TD sensor error was detected (if no fax unit is installed), an SC code is generated (SC390) and the machine must be repaired. The 100-copy threshold can be adjusted with SP 2-992.

### Toner Near-end/End Detection and Recovery

The toner near end and end conditions are detected using the Vt and Vref values, in a similar way to toner density control.

#### **Toner Near-end Detection**

If Vt is at level 6 (see the table on the previous page) five times consecutively, the machine enters the toner near end condition and the toner end indicator starts blinking. Then the machine supplies toner for a certain time, which depends on the setting of SP 2-923 (see above).

#### **Toner Near-end Recovery**

If the machine detects " $S/2 < \Delta Vt < or = 4S/5$ " twice consecutively when in one of the following situations, the machine leaves the toner near end condition.

- While in the toner recovery cycle (supplying toner on and off for 30 s see the previous page) after the machine has detected a toner near end condition.
- During copying in the toner near end condition.
- If the front cover is opened and closed for more than 10 seconds while a toner near end condition exists.

#### **Toner End Detection**

There are two situations for entering the toner end condition.

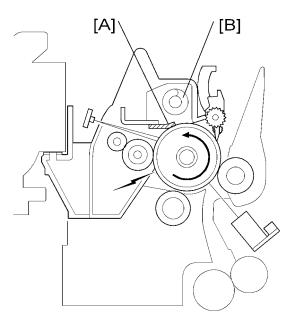
- When Vt is level 7 three times consecutively, the machine enters the toner end condition.
- When "4S/5 < ΔVt < or = S" is detected in the toner near end condition, then 50 copies can be made
  after this condition (the number of copies between this condition and toner end can be changed using
  SP2-213).</li>

#### **Toner End Recovery**

If the front cover is opened and closed for 10 seconds while a toner end condition exists and the toner bottle is replaced, the machine attempts to recover using the same procedure as for toner near end/end detection.

## **Drum Cleaning and Toner Recycling**

#### **Drum Cleaning**

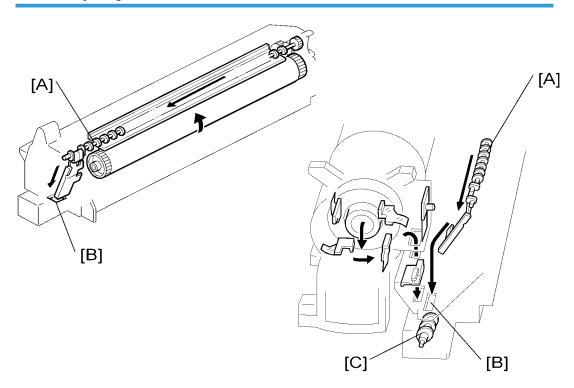


The cleaning blade [A] removes any toner remaining on the drum after the image is transferred to the paper. This model uses a counter blade system.

The cleaning blade scrapes off toner remaining on the drum. When toner builds up in the cleaning unit, toner at the top of the pile is removed by the toner collection coil [B].

To remove the toner and other particles that are accumulated at the edge of the cleaning blade, the drum turns in reverse for about 5 mm at the end of every copy job. This feature is controlled with SP 2-998.

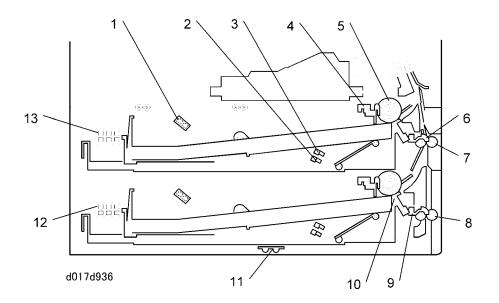
In addition, cleaning is done in the middle of a job if 100 sheets have been made since the previous cleaning. This feature is controlled with SP 2-211.



Toner picked up by the toner collection coil [A], is transported to the opening [B] in the side of the PCU. Then, this toner falls into the development unit with new toner coming from the toner bottle and it is all mixed together by mixing auger 1 [C] and used again.

## Paper Feed

#### Overview

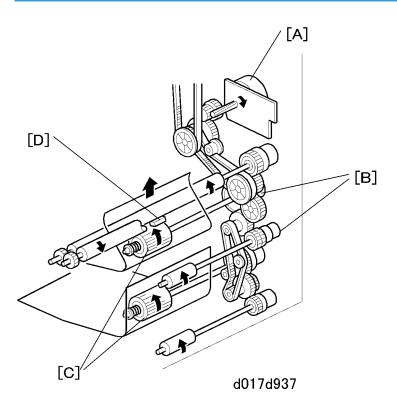


- 1. Paper Lift Sensor
- 2. Paper Height Sensor2
- 3. Paper Height Sensor1
- 4. Paper End Sensor
- 5. Paper Feed Roller
- 6. Upper Relay Sensor
- 7. Upper Relay Roller

- 8. Lower Relay Roller
- 9. Lower Relay Sensor
- 10. Friction Pad
- 11. Tray Heater (option)
- 12. Paper Size Sensor (Tray 2)
- 13. Paper Size Sensor (Tray 1)

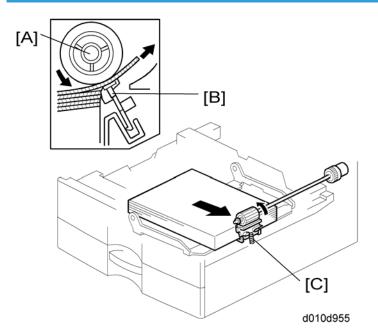
There are two standard paper trays. Each tray holds 550 sheets.

- Each tray uses a friction pad (4) to separate paper so that only one sheet feeds at a time.
- The paper feed roller (2) and shaft do not separate from the tray when the tray is pulled out. This prevents paper from getting caught inside the machine when a tray is removed.
- The two relay sensors are used to detect paper jams. The upper relay sensor (6) detects jams for paper fed from either tray of the main machine. The lower sensor (8) detects jams if paper is fed up from the optional paper feed unit or LCT.

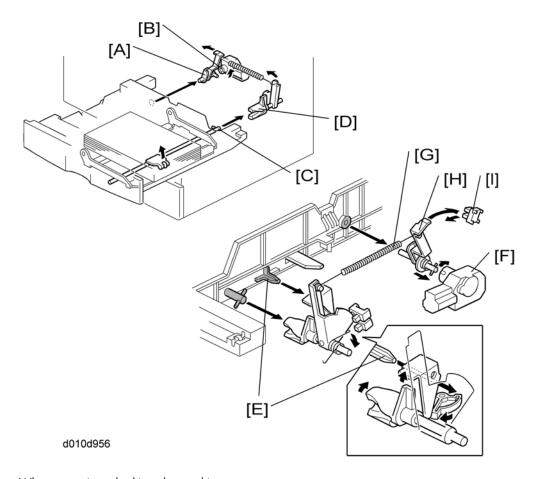


The main motor [A] drives the pick-up and feed mechanism of both the first and second paper trays. The paper feed clutches [B] transfer drive from this motor to the paper feed rollers [C]. When the paper feed clutch activates, the feed roller starts to feed the paper from the tray. The paper feed clutch remains on until shortly after the registration sensor [D] activates.

#### **Paper Feed and Separation**



The paper feed roller [A] feeds the first sheet on top of the stack into the paper feed path. The friction pad [B] stops the sheet below so that only one sheet feeds at a time. A spring [C] pushes up the friction pad so that it applies constant pressure on the feed roller above. (The pressure exerted by the spring on the friction pad is constant and cannot be adjusted.)



When a tray is pushed into the machine:

- A paper size switch (not shown) detects the tray
- Pin [A] for the lift motor pressure shaft engages the lift motor coupling [B].
- Pin [C] for the bottom plate lift shaft in the tray engages the bottom plate pressure lever coupling [D].
- Pin [E] on the rear of the tray pushes the lock lever so that the lift motor can lift the bottom plate pressure lever.

The lift motor [F] turns on, and rotates clockwise.

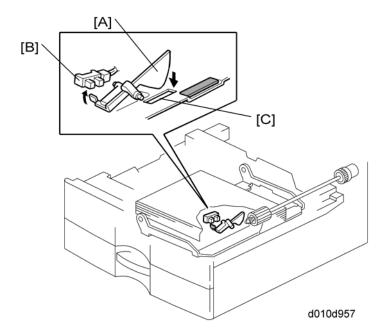
- The main pressure spring [G] pulls the bottom plate pressure lever. This lifts the tray bottom plate.
- When the top of the stack contacts the feed roller, the motor can no longer raise the plate, and the actuator [H] enters the gap of the lift sensor [I], and this stops the motor.

• At this time, the pressure of the feed roller on the paper is too low or too high. The lift motor moves forwards or reverses to increase or reduce this pressure. The length of time that the motor moves forwards or reverses is prescribed for each paper size. (This is described in detail below.)

When the paper tray is pulled out:

- Pins [A], [C] disengage from the couplings [B], [D], and the bottom plate lowers.
- To make it easier to push the tray in, the lift motor reverses to lower the bottom plate pressure lever coupling [D] to its original position.

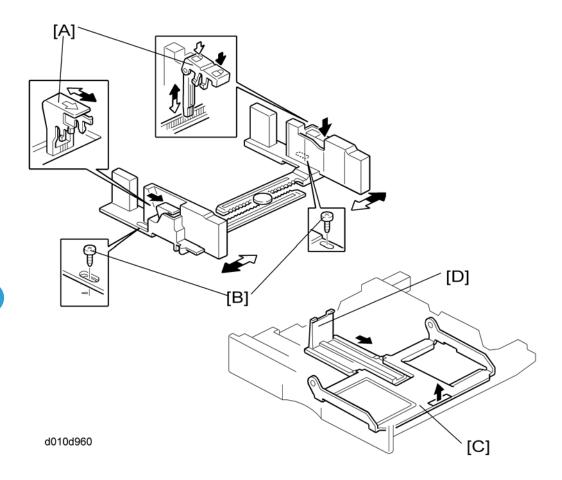
#### **Paper End Detection**



While there is paper in a paper tray, the top of the paper stack lifts the feeler [A] which deactivates the paper end sensor [B]. This signals paper present in the tray.

After the last sheet feeds, the paper end feeler [A] drops into the cutout [C] in the tray bottom plate and activates the paper end sensor. This signals that the paper tray is empty.

When a paper tray is removed with no paper in the tray, the rounded shape of the paper end feeler causes it to rise so that it does not interfere with tray removal.



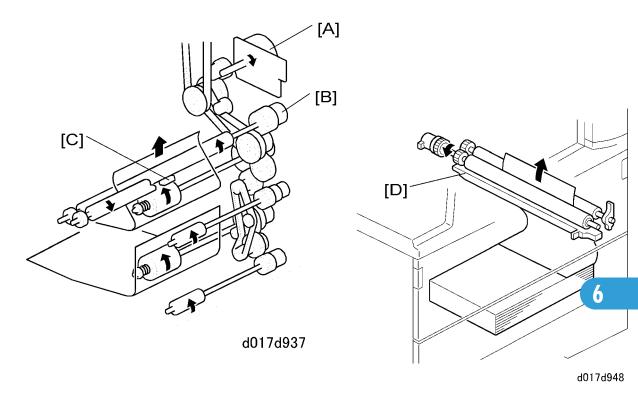
#### **Side Fences**

If the tray is pushed in forcefully when it is full, the fences may warp or bend. This can cause paper skew or incorrect side-to-side registration. To prevent this problem, each side fence has a stopper [A]. Each side fence can be secured with a screw [B], for customers who do not want to change the paper size.

#### **End Fence**

When the amount of paper in the tray decreases, the bottom plate [C] lifts gradually. The end fence [D] is connected to the bottom plate. When the tray bottom plate rises, the end fence moves forward and pushes the back of the paper stack to keep it straight.

#### **Paper Registration**



The drive from the main motor [A] is transmitted to the registration roller through the registration clutch [B].

The registration sensor [C] is used to correct paper skew and to detect paper misfeed.

The cleaning mylar [D] contacts the registration roller. It removes paper dust from the registration roller to prevent the dust from going to the development unit via the drum-cleaning unit.

The amount of paper buckle at the registration roller to correct skew can be adjusted with SP 1003.

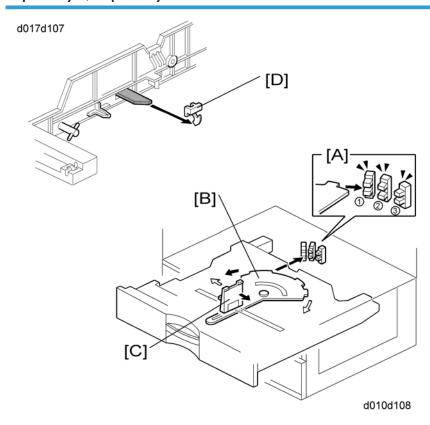
If jams frequently occur after registration, SP 1903 can be used to activate the relay clutch so that the relay roller assists the registration roller in feeding the paper.

When feeding from the by-pass tray, the by-pass feed clutch activates and turns the by-pass feed roller. This feature may be needed when feeding thick paper, and cannot be used for the first paper feed tray.

A jam lever is provided to facilitate removal of jammed sheets.

# **Paper Size Detection**

#### Paper Tray 1, Paper Tray 2



The three paper size sensors [A] (SN1, SN2 and SN3) interact with notched actuators [B] on a movable wheel. The actuators move when the paper end fence [C] is adjusted for the loaded paper. The readings of these three sensors are used with the reading of the side fence sensor [D] to determine the paper size. The combination of these four readings is sent to the CPU to determine the size of the paper loaded in the tray.

The table below shows how the machine uses the on or off signals from the sensors to determine a paper size.

**EUROPE/ASIA** 

L= "LOW" (OFF)

H= "HIGH" (ON)

Tray 1

Name			Sens	sor		SP Set
Name		1	2	3	4	SP1912
A5 LEF	148 x 210	L	Н	L	L	
B5 LEF	182 x 257	Н	L	Н	L	Exec. LEF
A5 SEF	210 x 148	Н	Н	L	Н	HLT SEF
A4 LEF	210 x 297	Н	Н	L	L	LT LEF
B5 SEF	257 x 182	L	L	Н	Н	
LT SEF	279 x 216	L	L	L	L	
A4 SEF	297 x 210	Н	L	L	L	
B4 SEF	364 x 357	Н	Н	Н	L	LG SEF
A3 SEF	420 x 297	L	Н	Н	L	DLT SEF

# Tray 2

Ni	/\A/_1\		Sen	sor		SP Set
Name	(W x L mm)	1	2	3	4	SP1913
A6 SEF	148 x 105	L	Н	L	Н	
A5 LEF	148 x 210	L	Н	L	L	
B6 SEF	182 x 128	Н	L	Н	Н	
B5 LEF	182 x 257	Н	L	Н	L	Exec. LEF
A5 SEF	210 x 148	Н	Н	L	Н	HLT SEF
A4 LEF	297 x 210	Н	Н	L	L	LT LEF
B5 SEF	257 x 182	L	L	Н	Н	
LT SEF	279 x 216	L	L	L	L	
A4 SEF	297 x 210	Н	L	L	L	
B4 SEF	364 x 257	Н	Н	Н	L	LG SEF
A3 SEF	420 x 297	L	Н	Н	L	DLT SEF

# NORTH AMERICA

L= "LOW" (OFF)

H= "HIGH" (ON)

Tray 1

NI	Sensor (W x L mm)					SP Set
Name	(** * * * * * * * * * * * * * * * * * *	1	2	3	4	SP1912
A5 LEF	148 x 210	L	Н	L	L	
B5 LEF	182 x 257	Н	L	Н	L	Exec. LEF
HLT SEF	216 x 140	Н	Н	L	Н	A5 SEF
LT LEF	216 x 279	Н	Н	L	L	A4 LEF
B5 SEF	257 x 182	L	L	Н	Н	
LT SEF	270 x 216	L	L	L	L	
A4 SEF	297 x 210	Н	L	L	L	
LG SEF	356 x 216	Н	Н	Н	L	В4
DLT SEF	432 x 279	L	Н	Н	L	А3

# Tray 2

Nimm	Sensor (W/ x L mm)					SP Set	
Name	(W x L mm)	1	2	3	4	SP1913	
A6 SEF	148 x 105	L	Н	L	Н		
A5 LEF	148 x 210	L	Н	L	L		
B6 SEF	182 x 128	Н	L	Н	Н		
B5 LEF	182 x 257	Н	L	Н	L	Exec. LEF	
HLT SEF	216 x 140	Н	Н	L	Н	A5 SEF	
LT LEF	216 x 279	Н	Н	L	L	A4 LEF	
B5 SEF	257 x 182	L	L	Н	Н		

LT SEF	270 x 216	L	L	L	L	
A4 SEF	297 x 210	Н	L	L	L	
LG SEF	356 x 216	Н	Н	Н	L	В4
DLT SEF	432 x 279	L	Н	Н	L	A3

The CPU disables paper feed from a tray if the paper size cannot be detected. If the paper size actuator is broken, or if there is no tray installed, the "Add Paper" indicator will light.

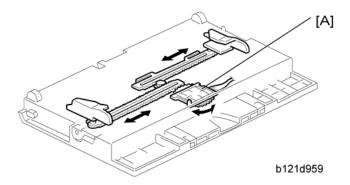
These SP codes allow you to select more precisely which size is detected in the tray. An alternate size can be selected for each paper tray.

#### **Auto Paper Size Detection SP Codes**

Tray Name	SP Code	Available Selections for Each SP
1 st Tray	1912	1 B5 or Executive (LEF)
2nd Tray	1913	2 A5 or Half-Letter (SEF)
3rd Tray*1	1914	3 A4 or Letter (LEF) 4 A4/Legal (SEF)
4th Tray*2	1915	5 A3/Double-Letter (SEF)

<sup>\*1:</sup> LCT (option) or upper tray of paper feed unit (option)

#### **By-pass Tray**



The by-pass feed paper size switch [A] monitors the paper width. The side fence is connected to the terminal plate gear. When the side fences move to match the paper width, the circular terminal plate rotates over

<sup>\*2:</sup> Lower tray of paper feed unit (option).

the wiring patterns on the rectangular part of the paper size switch. The patterns for each paper width in the paper size switch are unique.

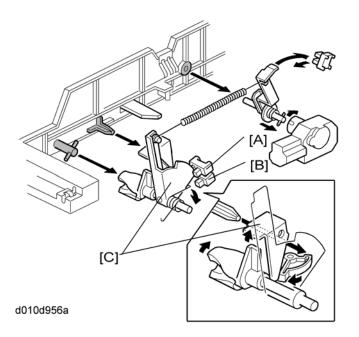
#### North America

CN No. (BCU)	11" x 17"	8 ½ " x 14"	5 ½ " x 8	8 ½ "	
CN136-1	ON/OFF	OFF	OFF	OFF	OFF
CN136-2	OFF	OFF	OFF	ON	OFF
CN136-3 (GND)	OFF	OFF	OFF	OFF	OFF
CN136-4	OFF	ON	OFF	OFF	ON
CN136-5	ON	ON	OFF	OFF	OFF

## Europe/Asia

CN No. (BCU)	A3	A4 SEF	8" x 13"	A5 SEF
CN136-1	ON/OFF	OFF	OFF	OFF
CN136-2	OFF	OFF	OFF	ON/OFF
CN136-3 (GND)	OFF	OFF	OFF	OFF
CN136-4	OFF	ON	ON	OFF
CN136-5	ON	ON	OFF	OFF

#### **Paper Height Detection**



The amount of paper in a tray is detected by the combination of on/off signals from two paper height sensors [A] and [B]. These sensors are switched on/off by an actuator that rises as the stack of paper becomes smaller. (The paper amount that remains in a tray is displayed on the LCD.)

When the paper stack becomes smaller, the bottom plate pressure lever [C] pushes an actuator up through the gaps in the paper height sensors. This activates and deactivates the paper height sensors.

Four on/off states are possible. These on/off combinations (shown in the table below) signal how much paper remains in a tray.

Paper Remaining	Paper Height Sensor 1 [A]	Paper Height Sensor 2 [B]
100%	OFF	OFF
70%	ON	OFF
30%	ON	ON
10%	OFF	ON

# Feed Pressure Adjustment for Paper Size

To ensure effective paper separation at the friction pad, the stack lift motor and bottom plate must maintain the correct, constant pressure of the top on the stack on the feed roller above.

6

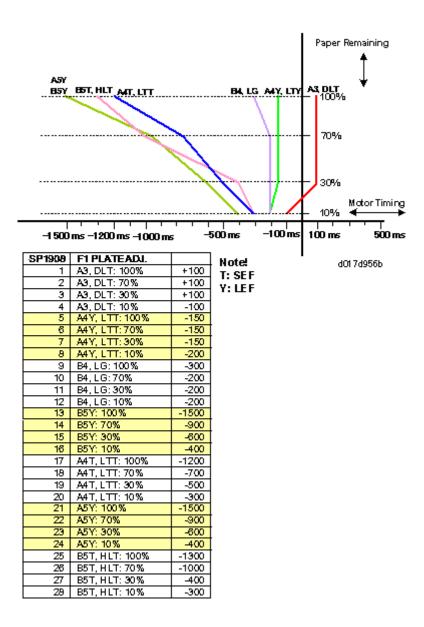
- If the pressure is too high, this can cause double-feeding.
- If the pressure is too low, paper feed failure.

To prevent these problems, the machine takes into account the size of the paper in the tray and constantly monitors the amount of paper remaining in the tray. It uses this information to make slight adjustments by raising or lowering the bottom plate with the stack lift motor to maintain the correct pressure against the feed roller.

Several SP codes can be used to adjust feed pressure based on these variables:

- Paper size. The paper size detectors tell the machine the paper size loaded in the tray.
- Amount of paper remaining in the tray. The paper height sensors monitor the amount of paper remaining in the tray.

The pressure of the spring under the friction pad does not change and cannot be adjusted. However, downward pressure from weight of the stack on the bottom plate varies according to paper size and orientation (LEF or SEF). A stack of A3 size paper, for example, will weigh much more than a stack of A5.)



Look at the graph and table above.

#### A3, DLT

To keep the stack of this heavy paper at the correct pressure against the feed roller above:

- The machine runs the tray lift motor forward for 100 ms (+100 ms) to lift the tray at 100%, 70%, and 30% paper remaining to prevent a failure to feed.
- The machine runs the tray lift motor in reverse for 100 ms (-100 ms) to lower the tray at 10% remaining to compensate for the lower weight of the smaller amount of paper remaining. This prevents double-feeding.

#### B5T, HLT

To keep the stack of this light paper at the correct pressure against the feed roller above:

- The machine runs the tray lift motor in reverse for 1300 ms, 1000 ms, 400 ms, and 300 ms at 100%, 70%, 30% and 10% paper remaining.
- This lowers the pressure of the stack against the roller to prevent double-feeding.

The run time of the tray lift motor can be adjusted with SP codes for each paper size at each step of paper remaining. This can be done for every feed tray except the bypass tray.

Tray Name	Tray Location	SP Code
1 st Tray	Upper Tray (Main Machine)	1908 F1 Plate Adj
2nd Tray	Lower Tray (Main Machine)	1909 F2 Plate Adj
3rd Tray	LCT or Upper Tray of Paper Feed Unit	1910 F3 Plate Adj
4th Tray	Lower Tray of Paper Feed Unit	1911 F4 Plate Adj

6

Each SP code has a total of 56 settings to adjust for:

- Paper size (A3, A4, A5, etc.)
- Four settings for the amount of paper remaining with each paper size (100%, 70%, 30%, 10%)

For more information about these SP codes, see Service Tables.

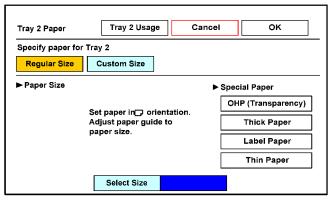
- If a particular paper size is consistently double-feeding, this means there is too much pressure between
  the feed roller and paper stack. Increasing the reverse run time of the tray lift motor (-300 to -500,
  for example) should reduce the pressure and solve the problem.
- If a particular paper size is consistently failing to feed, this means there is not enough pressure between
  the feed roller and paper stack. Increasing the forward run time of the tray lift motor (200 to 400, for
  example) should increase the pressure and solve the problem.

Another set of SP codes allow you to select more precise automatic detection of size by the tray paper size sensors. An alternate size can be selected for each paper tray. (See Paper Size Detection.)

# **Special Paper Setting**

Only the 2nd tray can feed special paper such as thick paper or envelopes. The special paper type can be selected either by using the UP mode or with the following operation.

1. Touch the Tray 2 Icon on the operation panel, then press [#].



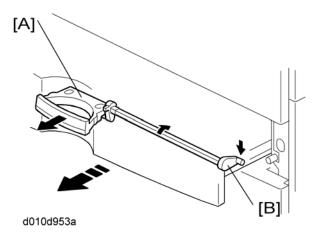
d010d109

After selecting the special paper type, the fusing temperature and transfer roller current will be changed as follows.

- 2. Fusing temperature (when thick paper is selected):
  - Current operation temperature + 15 °C
- 3. Transfer roller current:
  - A3 width (11"): 14muA
  - B4 width (10"): 15muA
  - A4 width (8.5"): 17muA
  - A5 width (5.5"): 20muA

Note that for the by-pass tray, the fusing and transfer conditions for special paper are also applied if the user uses thick (non-standard) mode.

# Tray Lock Mechanism



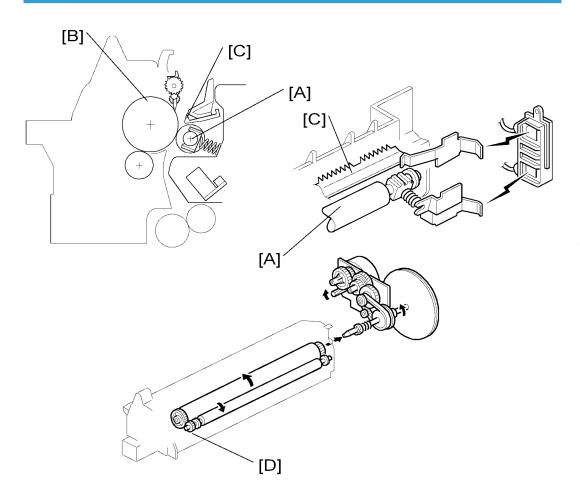
6

A lock mechanism in each tray prevents it from coming out accidentally when the machine is moved.

- Pulling on the sides of a tray will not open it. A tray can be opened only by pulling on its handle to release the tray for opening.
- Pulling the handle [A] lowers the lock lever [B] and releases the lock so the tray will open.

# **Image Transfer and Paper Separation**

#### Overview



The machine uses a transfer roller [A], which touches the surface of the drum [B]. The high voltage supply board supplies a positive current to the transfer roller, which attracts the toner from the drum onto the paper. The current depends on the paper width, paper type, and paper feed tray.

The curvature of the drum and the discharge plate [C] help the paper to separate from the drum. The high voltage supply board also supplies a negative dc voltage to the discharge plate.

Drive from the drum through a gear [D] turns the transfer roller

# **Image Transfer Current Timing**

There are two transfer current levels: low transfer current level and high transfer current level. The image transfer procedure is as follows:

- 1. When the CPU receives the image writing start signal, the CPU instructs the high voltage supply board to supply  $+10\mu A$  (low transfer current level) to the roller. This prevents any positively charged toner on the drum surface from transferring to the transfer roller.
- 2. At a certain time after the low transfer current has been supplied to the roller, an appropriate current is applied to the roller to transfer the toner to the paper.
- 3. After the trailing edge of the paper has passed through the roller, transfer current turns off. In multiple copy mode, the transfer current shifts again to the low transfer current.

The transfer current (high transfer current level) depends on the paper feed station, paper width, and the temperature in the machine.

Example: Temperature = 15 °C to 24 °C

Paper Width	Paper Tray / By-pass Tray (Normal)	Duplex (2nd Side)	By-pass Tray (Thick) / 2nd Paper Tray (Special Paper)
A3/11" x 17", A4/8.5 x 11" sideways	14μΑ	10μΑ	14μΑ
B4	13μΑ	12μΑ	15μΑ
A4/11" x 8.5 lengthwise, A5/5.5 x 8.5 sidewise	13μΑ	16μΑ	17μΑ
A5/8.5 x 5.5 lengthwise and less	16μΑ	16μΑ	20μΑ

The transfer current can be adjusted using SP2301, except for the low transfer current.

Be careful when increasing the transfer current. This might cause a ghosting effect, in which part of the image at the top of the page is repeated lower down the page at a lower density. It may also damage the OPC drum in the worst case.

# **Transfer Roller Cleaning**

If the paper size is smaller than the image, or if a paper jam occurs during printing, toner may be transferred to the roller surface. To prevent the toner from transferring to the back side of the printouts, the transfer roller requires cleaning before the next printing run.

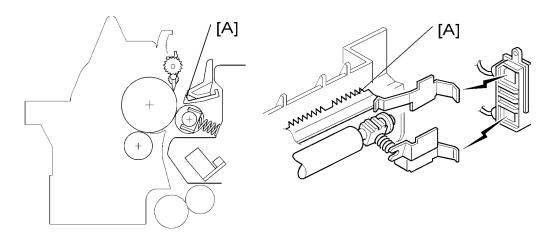
During transfer roller cleaning, the high voltage supply unit supplies a negative cleaning current (- $4\mu$ A) to the transfer roller. Any negatively charged toner on the transfer roller is then transferred back to the drum. Then a positive cleaning current (+ $10\mu$ A) is applied to the transfer roller to push back to the drum any positively charged toner on the transfer roller.

The machine goes through the cleaning mode in the following conditions:

- Before starting the printing job (only if enabled with SP2-996; note that the default setting is off)
- Just after the power is switched on.
- After a copy jam has been cleared
- After 50 sheets have printed. If a job is in progress when the number of prints exceeds 50, the machine
  enters cleaning mode at the completion of the current job (the print job is not interrupted for cleaning).

The transfer roller cleaning current can be adjusted using SP2-301-4.

#### **Paper Separation Mechanism**

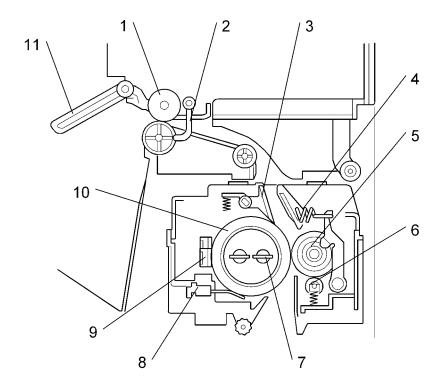


The discharge plate [A] and the drum curvature of the drum help the paper to separate away from the drum. The high voltage supply board applies a constant dc voltage, -1.8 kV (when feeding from a paper tray) or -2.1 kV (from the duplex unit) to the discharge plate.

The discharge plate voltage can be adjusted using SP2-901.

# **Image Fusing and Paper Exit**

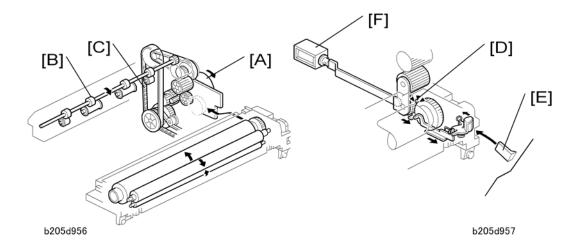
#### Overview



1.	Paper exit roller	7.	Two fusing lamps
2.	Fusing exit sensor	8.	Two thermistors
3.	Hot roller strippers	9.	Four thermostats
4.	Pressure spring	10.	Hot roller
5.	Pressure roller	11.	Paper overflow sensor
6.	Cleaning roller		

The pressure lever applies the correct pressure at the nip between the pressure roller and hot roller. When the lever is released, the pressure roller moves away from the hot roller. If a paper jam occurs in the fusing unit, releasing this lever makes jam removal easier.

## Fusing Drive and Release Mechanism



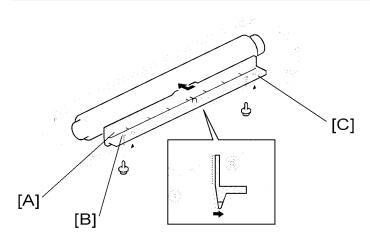
The main motor [A] drives the fusing unit through a gear train and drives the paper exit rollers [B] through a timing belt [C].

The fusing unit release mechanism automatically disengages the fusing unit drive gear [D] when the right cover [E] is opened. This allows the fusing unit drive gear to rotate freely so that misfed paper can easily be removed.

Also, the fusing drive is released by the fusing drive release solenoid [F]. To reduce the warming up time, the machine cuts the drive to the fusing unit during warming up. Just after the main switch is turned on, this solenoid is energized and the fusing unit drive gear [D] is disengaged.

However, the fusing unit drive is not released when the temperature is lower than 15 °C.

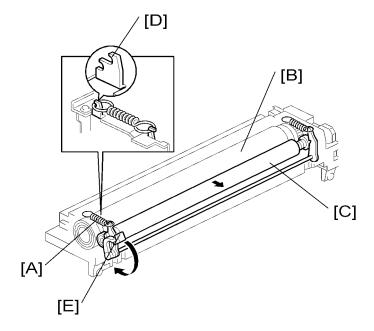
# Fusing Entrance Guide Shift Mechanism



If creasing occurs frequently in the fusing unit, adjust the entrance guide to the right, by securing it with the other holes [C]. This allows more direct access to the gap between the hot roller and the pressure roller.

#### **Pressure Roller**

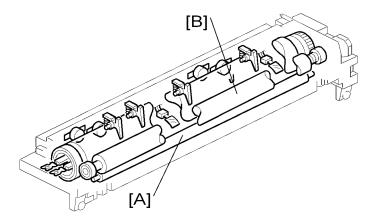
at the top [D] as the default setting.



The pressure springs [A] constantly apply pressure between the hot roller [B] and the pressure roller [C]. Applied pressure can be changed by adjusting the position of the pressure springs. The spring is positioned

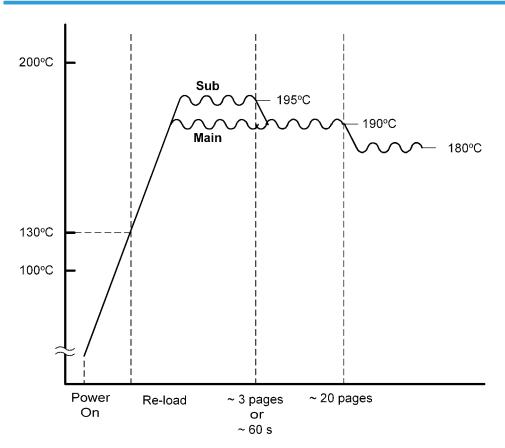
The user moves lever [E] when using thicker copy paper or envelopes, to reduce the pressure between the hot and pressure rollers.

# Cleaning Mechanism



The cleaning roller [A] is always in contact with the pressure roller [B]. It collects toner and paper dust adhered to the surface of the pressure roller.





#### **Temperature Control**

Just after the main power switch is turned on, the CPU turns on the fusing lamp to obtain a fusing temperature of 190 °C (Main fusing lamp), 195 °C (Sub fusing lamp) for the first 60s, or for the first three consecutive pages of printing, whichever comes first. After that, the machine keeps the fusing temperature at 190 °C for the first 20 consecutive pages of printing. Then the fusing temperature is kept at 180 °C.

The three-page and 60-second limits can be adjusted with SP1-105-8 and -9.

Note that the fusing temperature is higher if the user uses special paper in the 2nd tray or thick paper mode from the bypass tray.

#### **Fusing Lamp Control**

When the fusing lamp power turns off and on, this causes fluorescent lights in the room to flicker. To reduce the flickering, use the following SP modes.

#### Fusing temperature detection cycle (SP mode 1-108)

The CPU checks the output from the fusing thermistor once a second (default setting). The CPU compares the current and previous temperatures. Based on the result, it then decides how long the fusing lamp power should be on during the next one-second interval (also, if the current temperature is too high, the power will not be needed).

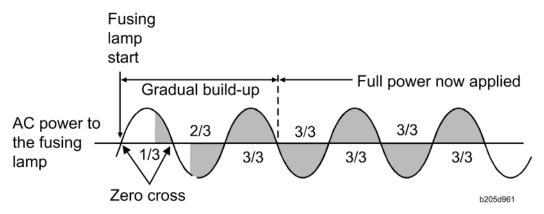
Starting and stopping the fusing lamp power every second causes fluorescent lighting in the room to flicker. To reduce this flickering, use SP1-108 to change the cycle from 1 second to 2 seconds.

#### Fusing soft-start

In addition, whenever the fusing lamp power switches on, full power is applied to the fusing lamp gradually, not all at once. This prevents the power in the room from dropping suddenly. This feature is known as "Soft Start". The machine does this by gradually allowing more power to the fusing lamp over a number of zerocross cycles of the ac supply. The diagram below shows full power being applied gradually over the duration of 3 zero-cross cycles. Soft start occurs every time the fusing lamp power switches on (i.e., at some time during every second), not just at the start of the print job.



• This feature is effective to counter flickering lights. However, generated noise increases if the setting is changed from the default. If a radio or a TV is close by the machine, the noise may have some effect on the image or sound.



#### Overheat Protection

If the hot roller temperature becomes higher than 231 °C, the CPU cuts off the power to the fusing lamp. At the same time, SC543 is generated.

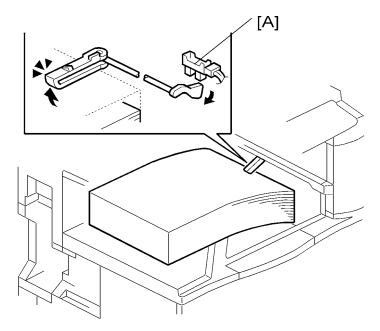
Even if the thermistor overheat protection fails, there are four thermostats in series with the common ground line of the fusing lamp. If the temperature of the thermostat reaches 210 °C, one of the thermostats opens, removing power from the fusing lamp. At the same time, SC542 is generated and the machine stops operating.

In addition to these protection devices, there is a backup temperature control circuit on the SBCU. If the thermistor protection fails, or if a short circuit occurs on the PSU board.

If the temperature exceeds 250 °C:

- This backup temperature control circuit switches off the fusing lamps
- The machine issues SC544.

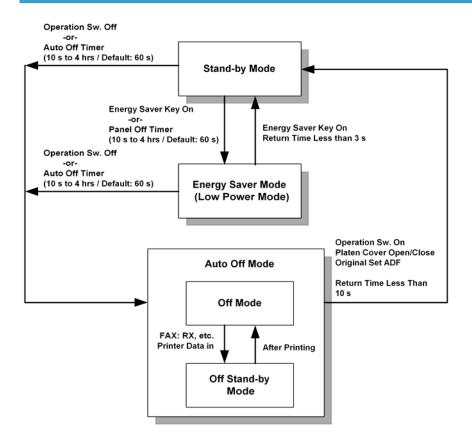
#### **Paper Exit**



The paper overflow detection sensor [A] is located at the paper exit section of the fusing unit. When this sensor is activated, the machine detects that the paper stack height exceeded a certain limit and stops printing.

# **Energy Saver Modes**

#### Overview



When the machine is not being used, the energy saver function reduces power consumption by decreasing the fusing temperature.

This machine has two types of energy saver mode as follows.

- Energy saver mode
- Auto Off mode

These modes are controlled by the following UP and SP modes.

- Panel off timer (energy saver mode timer): User Tools> System Settings> Timer Setting> Panel Off
   Timer
- Auto off timer: User Tools> System Settings> Timer Setting> Auto Off Timer

#### **Energy Saver Mode**

#### Entering the energy saver mode

The operation manual uses the term 'panel off mode' for the timer.

The machine enters energy saver mode when one of the following is done.

- The panel off timer runs out
- The Clear Mode/Energy Saver Key is held down for one second

Note that the default setting of the panel off timer is 60 s, which is the same as the auto off timer. In this condition, if the machine is not touched for 60 s, it will go straight to auto off mode. If the user wants an energy saver mode and an auto off mode, the panel off timer must be set to a shorter value than the auto off timer.

#### What happens in energy saver mode

When the machine enters energy saver mode, the fusing lamp drops to a certain temperature, and the operation panel indicators are turned off except for the Energy Saver LED and the Power LED.

If the CPU receives an image print out command from an application (e. g. to print incoming fax data or to print data from a PC), the fusing temperature rises to print the data.

### Return to stand-by mode

If one of the following is done, the machine returns to stand-by mode:

- The Clear Mode/Energy Saver Mode key is pressed
- · Any key on the operation panel or touch panel screen is pressed
- An original is placed in the ADF
- The ADF is lifted
- A sheet of paper is placed in the by-pass feed table

The recovery time from energy saver mode is about 3 s.

Mode	Operation Switch	Energy Saver LED	Fusing Temp.	+24V	System +5V
Energy Saver	On	On	150 °C	On	On



#### **Auto Off Mode**

There are two Auto Off modes: Off Stand-by mode and Off mode. The difference between Off Stand-by mode and Off mode is the machine's condition when it enters Auto Off mode.



• The machine will not enter the Auto Off mode for at least 90 seconds. after the machine is turned on when applications other than Copy (printer/scanner, printer, etc.) are installed.

#### Entering off stand-by and off modes

The machine enters the Off Stand-by mode or Off mode when:

- The auto off timer runs out
- The operation switch is pressed to turn the power off

If one or more of the following conditions exists, the machine enters Off Stand-by mode. If none of these conditions exist, the machine enters Off Mode.

- Error or SC condition
- An optional G4 unit is installed
- Image data is stored in the memory
- During memory TX or polling RX
- The handset is off hook
- An original is in the ADF
- The ADF is open

#### Off Stand-by mode

The system +5V is still supplied to all components. When the machine detects a ringing signal or receives a stream of data for a print job, the +24V supply is activated and the machine automatically prints the incoming message or executes the print job.

#### Off Mode

The system +5V supply also turns off. However, +5VE (+5V for energy saver mode) is still activated. When the machine detects a ringing signal, off-hook signal, or receives a print job, the machine returns to the Off Stand-by mode and the system +5V and +24V supplies are activated.

# Returning to stand-by mode

The machine returns to stand-by mode when the operation switch is pressed. The recovery time is about 10 s.

Mode	Operation Switch	Energy Saver Mode	Fusing Lamp	+24V	System +5V	Note
Off Stand-by	Off	Off	Off (On when printing)	On	On	
Off	Off	Off	Off	Off	Off	+5VE is supplied

# 7. Specifications

# **Specifications**

# Main Machine

Configuration:	Desktop
Copy Process:	Dry electrostatic transfer system
Originals:	Sheet, Book
Original Size:	Platen/ARDF: Max. A3/11" x 17"
Copy Paper Size	Tray 1: A5 to A3,/DLT, Custom  Tray 2: A6 SEF to A3, DLT, Postcard, Custom  Bypass: A6 SEF to A3/DLT, Postcard, Custom
Custom Sizes (W x L)	Tray 1: 140 to 297 mm x 180 to 432 mm  Tray 2: 100 to 297 mm x 148 to 432 mm  Bypass: 90 to 305 mm x 148 to 1260 mm
Duplexing	A5/HLT to A3/DLT
Paper Weight	Tray 1: 60 to 105 g/m <sup>2</sup> Tray 2: 52 to 107 g/m <sup>2</sup> Bypass: 52 to 157 g/m <sup>2</sup> Duplex: 60 to 105 g/m <sup>2</sup>
Copy Speed	D018: 25 cpm (A4 LEF/Letter LEF) D019: 33 cpm (A4 LEF/Letter LEF)
Resolution	600 dpi
Gradation	Read: 256-level (1-dot) Write: 2/3-level (1-dot)
1st Copy Print Time	4.5 sec. (A4/LT LEF, Tray 1)
Warm-up Time	Basic: Less than 12 sec. Operation Key: Less than 10 sec.

	LCD on: Less than 3 sec. Standby: Less than 6 sec.		
	Scan Start: Less than 6 sec.		
Continuous Copies	001 to 999 Sheets		
Zoom Platen Mode: 25% to 400% ARDF Mode: 25% to 200%			
Paper Supply	Tray 1, 2: 500 Sheets Bypass: 100 Sheets		
Output Capacity	A4, smaller: 500 Sheets face-down B4, larger: 250 Sheets face-down		
Power Source	NA: 120V 60 Hz EU: 220 to 240V 50/60 Hz (Asia, China) Taiwan: 110V 60 Hz		
	Full System (Operating)	Less than 1.4 KW	
Power Consumption	Off Mode	Less than 1.65 W	
Towar Consumption	Sleep Mode	Less than 6 W (NA Less than 6.5 W (EU)	

Dimensions (w x d x h)			
Standard	No PTU	570 x 653 x 709 mm (22.4 x 25.7 x 30 in.)	
	With PTU	570 x 653 x 980 mm (22.4 x 25.7 x 38.6 in.)	
Duplexer	With Duplexer (No PTU)	630 x 653 x 709 mm (24.8 x 25.7 x 30 in.)	
	With Duplexer (With PTU)	630 x 653 x 980 mm (24.8 x 25.7 x 38.6 in.)	
Maximum (w x d)	With Side Finisher, Bypass	858 x 653 mm (33.8 x 25.7 in.)	

Full System	All Ontions	1165 x 653 x 1100 mm
Full System	All Opilons	(48.9 x 25.7 x 43.3 in.)

Weight	No Duplexer	Less than 60 kg (132 lb)
vveigni	With Duplexer	Less than 65 kg (143 lb)

Noise Emission (Sound Power Level):		
Stand-by (Mainframe only):	40 db	
Operating (Mainframe only):	64.8 db (D017/D019) 67.6 db (D018/D020)	



- The above measurements were made in accordance with ISO 7779.
- Full System: Mainframe + ADF + 1-bin Sorter + Paper Tray Unit + Duplex Unit + Bridge Unit + Finisher

# Options

# **ARDF (D366)**

	Simplex	Size	A3 to A5, DLT to HLT	
Down of City (NAV) to Let		Weight	40 to 12	8 g/m² (10 to 34 lb)
Paper Size/Weight:	Duplex	Size	A3 to A5, DLT to HLT	
		Weight	52 to 105 g/m² (14 to 28 lb)	
Table Capacity:	50 sheets (80 g/m², 20 lb)			
Original Standard Position:	Rear left co	rner		
Separation: Feed belt an		nd separation	roller	
Original Transport:	Roller trans	oort		
Original Feed Order:	From the top	o original		
Supported Magnification Ratios:	Сору	-		32 to 200 %

7	ì	1
6		

		Color	32.6 to 200 %
	Fax	Black & white	48.9 to 200 %
Power Source:	DC 24V, 5	5V from the scanner unit	
Power Consumption:	50 W or le	ess	
Dimensions (W × D × H) :	550 mm x 491 mm x 120 mm (21.7" x 19.3" x 4.7")		
Weight:	10 kg (22 lb)		

# Duplex Unit (D369)

Paper Size;	Standard sizes: A5 LEF to A3, HLT to DLT Non-standard sizes: Width: 140 to 297 mm, Length: 182 to 432 mm
Paper Weight:	64 g/m <sup>2</sup> to 105 g/m <sup>2</sup> (20 lb to 28 lb)
Tray Capacity:	1 sheet
Power Consumption:	40 W
Power Source:	DC 24 V, 5 V
Weight:	7 kg
Size (W x D x H):	160 x 490 x 570 mm

# Bypass Feed Unit (D370)

	Standard sizes:
Paper Size:	A6 LEF to A3, HLT lengthwise to DLT
	Non-standard sizes:
	Width: 90 to 305 mm, Length: 148 to 432 mm
Paper Weight:	$52 \text{ g/m}^2 \text{ to } 157 \text{ g/m}^2 \text{ (16 lb to } 42 \text{ lb)}$
Tray Capacity:	50 sheets (80 g/m2, 20 lb)
Paper Feed System:	Friction Pad Paper Feed

Power Source:	DC 24 V, 5 V
Weight:	3 kg
Size (W x D x H):	430 x 110 x 240 mm

# Interchange Unit (D371)

Paper Size:	Standard sizes:  A6 LEF to A3, HLT to DLT  Non-standard sizes:  Width: 100 to 305 mm, Length: 148 to 432 mm	
Paper Weight:	52 g/m <sup>2</sup> to 135 g/m <sup>2</sup> (16 lb to 36 lb)	
Power Consumption:	15 W	
Weight:	1.6 kg	
Size (W x D x H):	117 x 447 x 92 mm (4.6" x 17.6" x 3.6")	

# 1-Bin Tray (D367)

Paper Size:	A5 LEF to A3, HLT to DLT
Paper Weight:	60 g/m <sup>2</sup> to 105 g/m <sup>2</sup> (16 lb to 28 lb)
Tray Capacity:	125 sheets (80 g/m², 20 lb)
Power Source:	DC 5 V, 24 V (from copier)
Power Consumption:	15 W
Weight:	4 kg
Size (W x D x H):	470 mm x 550 mm x 110 mm

# Bridge Unit (D368)

Paper Size:	Standard sizes:
	A6 LEF to A3, HLT to DLT

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//

	Non-standard sizes: Width: 100 to 305 mm, Length: 148 to 432 mm	
Paper Weight:	52 g/m <sup>2</sup> to 135 g/m <sup>2</sup> (16 lb to 42 lb)	
Power Source:	DC 24 V, 5 V (form copier)	
Dimensions (W x D x H):	413 x 435 x 126 mm	
Weight	3.0 kg (6.6 lbs)	

# Shift Tray Unit (D385)

Paper Size:	Standard Size: A5 LEF to A3, HLT LEF to DLT Non-standard Size: Width: 90 to 297 mm, Length: 148 to 432 mm
Paper Weight:	60 to 105 g/m² (16 to 28 lbs.)
Tray Capacity:	125 sheets (80 g/m², 20 lbs.): B4 or larger 250 sheets (80 g/m², 20 lbs.): A4 or smaller
Power Source:	DC 5 V, 24 V (from copier)
Power Consumption:	17 W
Weight:	1.1 kg
Size (W x D x H):	530 mm x 410 mm x 120 mm

# Paper Tray Unit (D331)

Paper Size:	A5 to A3, $5^{1}/_{2}$ " x $8^{1}/_{2}$ " SEF to 11" x 17"
Paper Weight:	60 - 105 g/m², 16 - 28 lb
Tray Capacity:	500 sheets (80 g/m², 20 lb) x 2 trays
Paper Feed System:	Feed roller and friction pad
Paper Height Detection:	4 steps (100%, 70%, 30%, Near end)
Power Source:	• 24 Vdc and 5Vdc (from the copier/printer):

	120 Vac (120 V version) from the copier/printer when the optional tray heater is installed	
	<ul> <li>220 – 240 Vac (230 V version) from the copier/printer when the optional tray heater is installed</li> </ul>	
D	Max:	28 W (Copying/printing) 23 W (Optional Tray Heater On)
Power Consumption:	Average:	17 W (Copying/printing) 15 W (Optional Tray Heater On)
Weight:	25 kg (55 lb)	
Size (W x D x H):	550 mm x 520 mm x 271 mm	

# LCT (B391)

A4 LEF/LT LEF		
60 g/m <sup>2</sup> to 169 g/m <sup>2</sup> , 16 lb to 45 lb RTB 42 This specification is not		
2,000 sheets (80 g/m <sup>2</sup> , 20lb.)		
5 steps (100%, 70%, 30%, 10%, Empty): Right Tray 4 steps (100%, 70%, 30%, Empty): Left Tray		
DC 24 V, 5 V (from copier/printer)		
50 W (Max.)/30 W (Ave.)		
25 kg (55 lb)		
580 mm x 620 mm x 260 mm (22.8" x 24.4" x 10.2")		
	60 g/m² to 169 g/m², 16 lb to 45 lb 2,000 sheets (80 g/m², 20lb.) 5 steps (100%, 70%, 30%, 10%, Empty 4 steps (100%, 70%, 30%, Empty): Left DC 24 V, 5 V (from copier/printer) 50 W (Max.)/30 W (Ave.) 25 kg (55 lb)	

## 500-Sheet Finisher

Target Line Speed	77 mm/sec. to 205 mm/sec
Target CPM	35 cpm
	12"x18", A3 SEF to A6 SEF, DLT to HLT SEF
Face-down Output Size	Shift sizes: A3 SEF to B5 SEF
	A5, B6, A6 SEF labels possible

Paper Thickness	52 g/m² (45 K) to 157 g/m² (135 K)			
raper mickness	Up to 253 g/m <sup>2</sup> (220K) without shift			
Stapling				
Stank Haimbt for Stanling	50 sheets: A4, LT and smaller			
Stack Height for Stapling	30 sheets: B4, LG and larger			
Size	A3 SEF to B5 SEF (can be	A3 SEF to B5 SEF (can be mixed if same width)		
Stack Thickness	64g/m <sup>2</sup> (45 K) to 157 g/m (135 K)			
Stapling Positions	Front/Oblique: 1, Front/Parallel: 1 Rear/Oblique: 1, Rear/Parallel: 1, 2 locations			
Output Tray Capacity	, , , ,	,		
Non-staple Mode	500 sheets: A4, LT and smaller			
14011-staple Mode		siliuliei		
Staple Mode	250 sheets: B4, LG and larger	Stacks	Size	
olapie Mode	Stack Size (Stapling)	oracko	0.20	
	2 to 9 Sheets	55 to 46		
	10 to 50 Sheets	45 to 10	A4, B5, LT LEF	
	2 to 9 Sheets	55 to 27	A 4 D5 17 055	
	10 to 50 Sheets	25 to 8	A4, B5, LT SEF	
	2 to 9 Sheets	55 to 27	10.04.017.10	
	10 to 30 Sheets	25 to 8	– A3, B4, DLT, LG	
Stacking	Non-Stapling Mode	Vertical: 15 mm or less		
		Horizontal: 15 mm or less		
Jogging Precision		1		
2 to 30 Sheets	2 mm			
31 to 50 Sheets	3 mm			
Dimensions (w x d x h)	396 x 551 x 276 mm (15.6 x 21.7 x 10.9 in.)			

# 1000-Sheet Finisher (B408)

# Upper Tray

Paper Size:	A3 to A6 11" x 17" to 5.5" x 8.5"	
Paper Weight:	60 to 157 g/m² (16 to 42 lb)	
Paper Capacity:	250 sheets (A4 LEF/8.5" x 11" SEF or smaller) 50 sheets (A4, 8.5" x 11" or smaller) 30 sheets (B4, 8.5" x 14" or larger)	

## Lower Tray

Paper Size:	No staple mode: A3 to B5, DLT to HLT Staple mode: A3, B4, A4, B5, DLT to LT			
Paper Weight:	No staple mode: 60 to 157 g/m² (16 to 42 lb) Staple mode: 64 to 90 g/m² (17 to 24 lb)			
Stapler Capacity:	30 sheets (A3, B4, DLT, LG) 50 sheets (A4, B5 LEF, LT)			
	No staple mode:  1,000 sheets (A4/LT or smaller: 80 g/m², 20 lb)  500 sheets (A3, B4, DLT, LG: 80 g/m², 20 lb)  Staple mode: (80 g/m², 20 lb, number of sets)			
Paper Capacity:	Set Size	2 to 9	10 to 50	-
	Size		10 to 30	31 to 50
	A4/LT LEF B5 LEF	100	100 to 20	100 to 20
	A4/LT SEF	100	50 to 10	50 to 10

	A3, B4, DLT, LG	50	50 to 10	-
Staple positions:	1 Staple: 2 positions (Front, Rear) 2 Staples: 2 positions (Upper, Left)			
Staple Replenishment:	Cartridge (5,000 staples/cartridge)			
Power Source:	DC 24 V, 5 V (from the copier/printer)			
Power Consumption:	50 W			
Weight:	25 kg (55.2 lbs)			
Dimensions (W x D x H):	527 x 520 x 790 mm (20.8" x 20.5" x 31.1")			

# 1000-Sheet Finisher (B793)

	No punch mode:	
Print Paper Size:	A3/11" x 17" to A5/8.5" x 5.5" (LEF)	
	Punch mode:	
	2 holes: A3/11" x 17" to B6/5.5" x 8.5" (SEF) or A4/8.5" x 11" to A5/8.5" x 5.5" (LEF) 3 holes:	
	A3, B4, 11" x 17" (SEF) or A4, B5, 8.5" x 11" (LEF)	
	4 holes (Europe):	
	A3, B4, 11" x 17" (SEF) or A4, B5, 8.5" x 11" (LEF)	
	4 holes (North Europe):	
	A3/11" x 17" to B6/5.5" x 8.5" (SEF)	
	Staple mode:	
	A3/11" x 17" to B5/8.5" x 11"	
	No punch mode:	
Paper Weight:	52 to 256 g/m <sup>2</sup> (14 to 68 lb) (Shift tray)	
	52 to 105 g/m² (14 to 28 lb) (Proof tray)	
	Punch mode:	
	52 to 163 g/m² (14 to 43 lb)	
	Staple mode:	
	64 to 90 g/m <sup>2</sup> (17 to 24 lb)	

	Label/Thick paper/OHP cannot be stapled		
	[Proof tray]		
Tray Capacity:	100 sheets: A4, 8.5" x 11" or less		
	50 sheets: B4, 8.5" x 14" or more		
	[Shift tray]		
	1000 sheets: A4, 8.5" x 11" (LEF) or smaller		
	500 sheets: B4, 8.5" x 14" or larger		
	Single size:		
Staple capacity:	50 sheets: A4, 8.5" x 11" or smaller		
	30 sheets: B4, 8.5" x 14" or larger		
	3 positions		
Staple position:	1-staple: 2 positions (Top Left, Top Right)		
	2-staples: 1 positions		
Staple replenishment:	Cartridge (5000 staples)		
Power consumption:	60 W		
Dimensions (W x D x H):	535 mm x 600 mm x 930 mm (21.1" x 23.6" x 36.6")		
Weight	Without punch unit:	48 kg (105.8 lb)	
	With punch unit:	50 Kg (110.3 lb)	

MEMO