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D017/D018/D019 /D020/D084/D085
SERVICE MANUAL

003320MIU

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SERVICE MANUAL

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D017/D018/D019/ D020/D084/8085 SERVICE MANUAL

003320MIU

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WARNING

The Service Manual contains information regarding service techniques, procedures, processes and spare parts of office equipment distributed by Ricoh Americas Corporation. Users of this manual should be either service trained or certified by successfully completing a Ricoh Technical Training Program.

Untrained and uncertified users utilizing information contained in this service manual to repair or modify Ricoh equipment risk personal injury, damage to property or loss of warranty protection.

Ricoh Americas Corporation

LEGEND

PRODUCT CODE	COMPANY			
	GESTETNER	LANIER	RICOH	SAVIN
D017	MP 2550B	LD425B	Aficio MP2550B	9025B
D018	MP 2550SP	LD425SP	Aficio MP2550SP	9025SP
D019	MP 3350B	LD433B	Aficio MP 3350B	9033B
D020	MP 3350SP	LD433SP	Aficio MP 3350SP	9033bSP
D084	MP 2851SP	LD528SP	Afficio MP2851SP	9228S
D085	MP 3351SP	LD533SP	Afficio MP3351SP	9233SP

DOCUMENTATION HISTORY

REV. NO.	DATE	COMMENTS
*	01/2010	Original Printing

D017/D018/D019/D020/D084/D085

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Read This First

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

Observance of Electrical Safety Standards

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

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.

Handling Toner

- Work carefully when removing paper jams or replacing toner bottles or cartridges to avoid spilling toner on clothing or the hands.
- If toner is inhaled, immediately gargle with large amounts of cold water and move to a well ventilated location. If there are signs of irritation or other problems, seek medical attention.
- If toner gets on the skin, wash immediately with soap and cold running water.
- If toner gets into the eyes, flush the eyes with cold running water or eye wash. If there are signs of irritation or other problems, seek medical attention.
- If toner is swallowed, drink a large amount of cold water to dilute the ingested toner. If there are signs of any problem, seek medical attention.
- If toner spills on clothing, wash the affected area immediately with soap and cold water. Never use hot water! Hot water can cause toner to set and permanently stain fabric.
- Always store toner and developer supplies such as toner and developer packages, cartridges, and bottles (including used toner and empty bottles and cartridges) out of the reach of children.
- Always store fresh toner supplies or empty bottles or cartridges in a cool, dry location that is not exposed to direct sunlight.

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:**

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
CT	Core Tech Manual
(screw icon)	Screw
(connector icon)	Connector
(E-ring icon)	E-ring
(C-ring icon)	C-ring
(harness clamp icon)	Harness clamp
FFC	Flat Film Connector
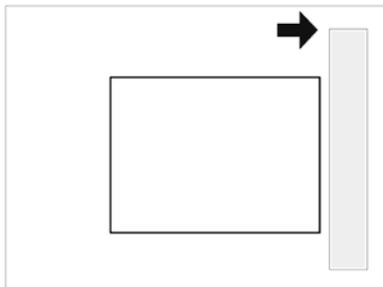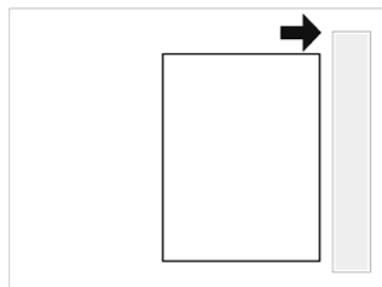
SEF (Short Edge Feed)   **LEF (Long Edge Feed)**

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

b286z001
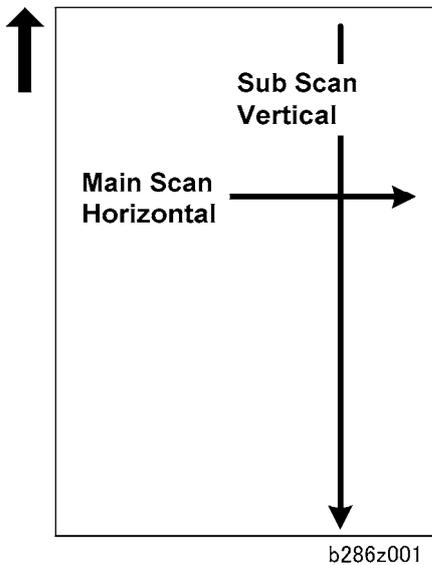
In this manual "Horizontal" means the "Main Scan Direction" and "Vertical" means the "Sub Scan Direction" relative to the paper feed direction.

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.

⚠ CAUTION

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

⭐ Important

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

⬇ Note

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

Trademarks

- Microsoft®, Windows®, and MS-DOS® are registered trademarks of Microsoft Corporation in the United States and /or other countries.
- PostScript® is a registered trademark of Adobe Systems, Incorporated.
- PCL® is a registered trademark of Hewlett-Packard Company.
- Ethernet® is a registered trademark of Xerox Corporation.
- PowerPC® is a registered trademark of International Business Machines Corporation.
- Other product names used herein are for identification purposes only and may be trademarks of their respective companies. We disclaim any and all rights involved with those marks.

PRODUCT INFORMATION

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

1. PRODUCT INFORMATION

1.1 SPECIFICATIONS

See "Appendices" for the following information:

- General Specifications
- Optional Equipment

1.2 MACHINE CONFIGURATION

1.2.1 SYSTEM CONFIGURATION AND OPTIONS

d017i900
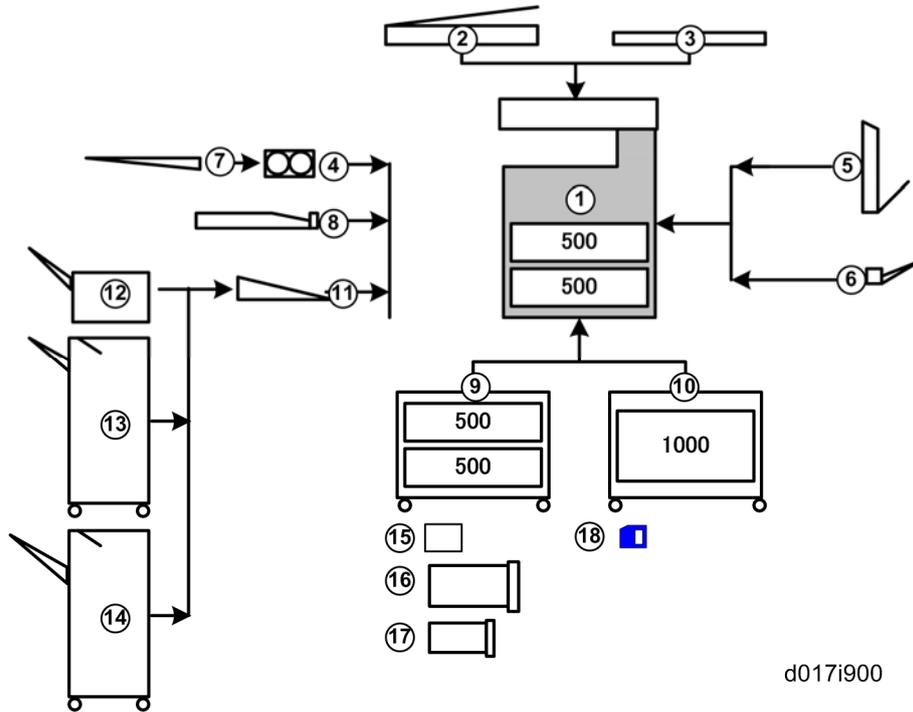
No.	Item	Comments
1	Main Machine D017/D018/D019/D020/D084/D085	
2	ARDF (D366)	
3	Platen Cover (B406)	
4	Interchange Unit (D371)	Required for Item 5, 7
5	Duplex Unit (D369)	
6	Bypass Tray (D370)	
7	1-Bin Tray (D367)	Requires Item 4
8	Internal Shift Tray (D385)	

Product
Information

No.	Item	Comments
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 (B408)	Requires Item 11
14	1000-Sheet Booklet Finisher (B793)	Requires Item 11
	Punch Unit (B807)	Not included with Finisher, must order separately
15	Copy Data Security Unit (B829)	PCB (installed on BCU)
16	Fax Unit (D361 for D017/D018D019/D020, D510 for D084/D085)	See Fax manual
17	Interface Board Controller Options	See **Note 1**
18	SD Card MFP Options	See **Note 2**

Machine Configuration

Note 1:

The following interface boards are available for installation.

⭐ Important

- 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
Bluetooth Interface Unit Type 3245 (B826)
File Format Converter Type E (D377)
IEEE1284 Interface Board Type A (B679)
IEEE802.11a/g Interface Unit Type J (D377)   -or-   IEEE802.11g Interface Unit Type K (D377)
Gigabit Ethernet Type 7300 (G381)

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.)
- VM Card Type F is standard for D084/D085 models.

These options can be installed at any time.

SD Cards
Browser Unit Type D (D377)
Data Overwrite Security Unit Type I (D362)
HDD Encryption Option (D377)
PostScript3 Unit Type 3350 (D383)
IPDS Unit Type 3350 (D383)
VM Card Type F (D377)[*1] only for D017/D018/D019/D020 models

*1: VM card is installed in the D084/D085 models by default. The VM Card Type F which is supplied as an option is different from the VM card in the D084/D085 models.

- VM Card Type F: No "App 2 Me" application installed
- VM card in the D084/D085 models: "App 2 Me" application installed

1.3 GUIDANCE FOR THOSE WHO ARE FAMILIAR WITH PREDECESSOR PRODUCTS

The D084/D085 series are successor models to the D017/D018/D019/D020 series. If you have experience with the predecessor products, the following information will be of help when you read this manual.

Different Points from Predecessor Products

	D084/D085	D017/D018/D019/D020
Model Line Up	2 models 28 cpm/ 33 cpm	2 models 25 cpm/ 33 cpm
VM Card	Standard	Option
Scanner	Color only	Color and B/W

1.4 OVERVIEW

1.4.1 MECHANICAL COMPONENTS

d017d903
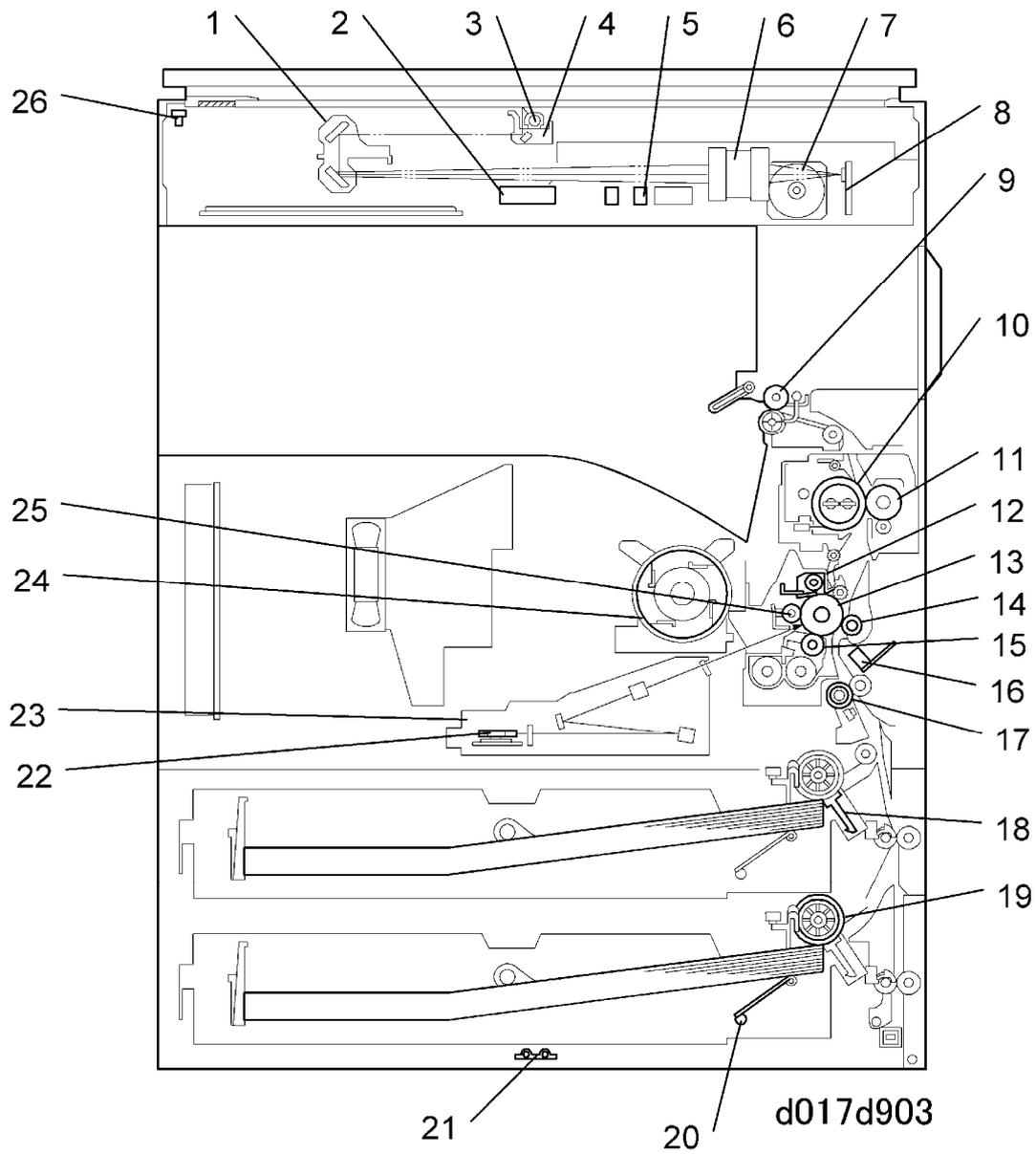
Overview

1. 2nd scanner	14. Transfer roller
2. Original width sensor	15. Development roller
3. Exposure lamp	16. ID sensor
4. 1st scanner	17. Registration roller
5. Original length sensor	18. Friction pad
6. Lens	19. Paper feed roller
7. Scanner motor	20. Bottom plate
8. SBU board	21. Tray heater
9. Exit roller	22. Polygon mirror motor
10. Fusing hot roller	23. Laser unit
11. Fusing pressure roller	24. Toner supply bottle holder
12. Cleaning unit	25. Drum charge roller
13. OPC drum	26. Scanner home position sensor

1.4.2 PAPER PATH
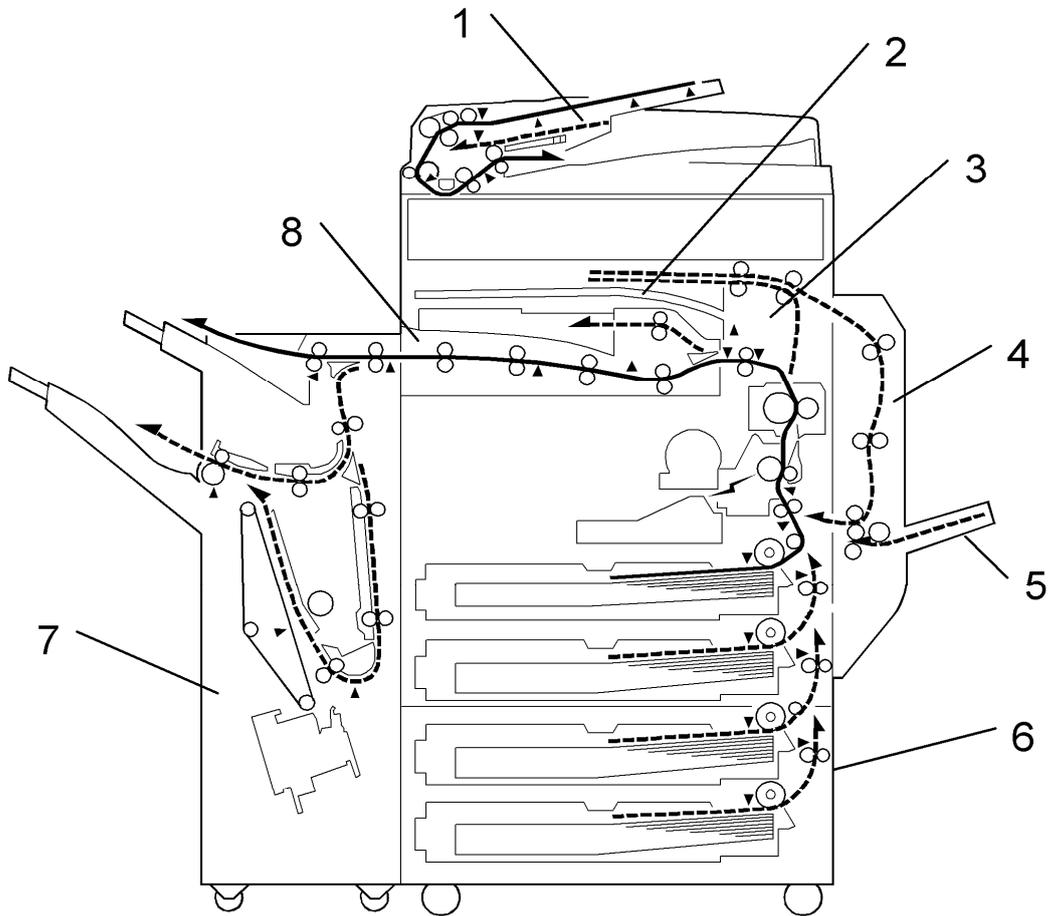
d017d904

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

1.4.3 DRIVE LAYOUT

Scanner

Fusing Unit Drive

PCU/Transfer Unit Drive
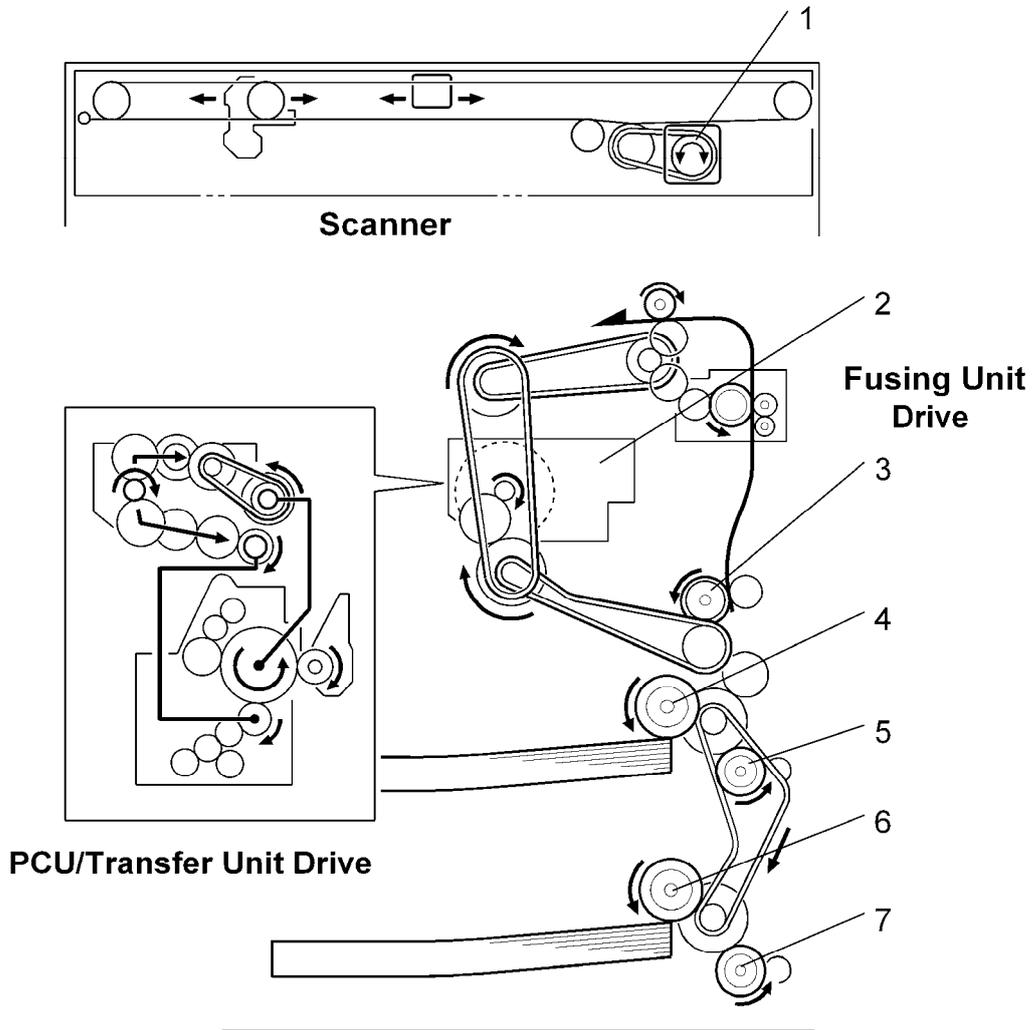
1. Scanner Drive Motor

2. Main Motor

3. Registration Clutch

4. Upper Paper Feed Clutch

5. Upper Transport Clutch

6. Lower Paper Feed Clutch

7. Lower Transport Clutch

INSTALLATION

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

2. INSTALLATION

2.1 INSTALLATION REQUIREMENTS

2.1.1 ENVIRONMENT

1. Temperature Range: 10 °C to 32 °C (50 °F to 89.6 °F)

2. Humidity Range: 15% to 80% RH

3. Ambient Illumination: Less than 1,500 lux (do not expose to direct sunlight.)

4. Ventilation: Room air should turn over at least 30 m^3/hr/person

5. Ambient Dust: Less than 0.10 mg/m^3

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.

2.1.2 MACHINE LEVEL

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

2.1.3 MINIMUM SPACE REQUIREMENTS

Place the copier near the power source, and provide clearance as shown:
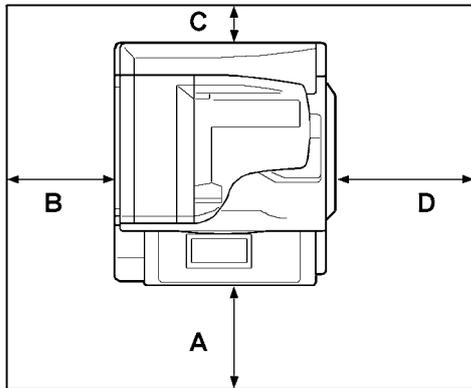
d017i201

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")
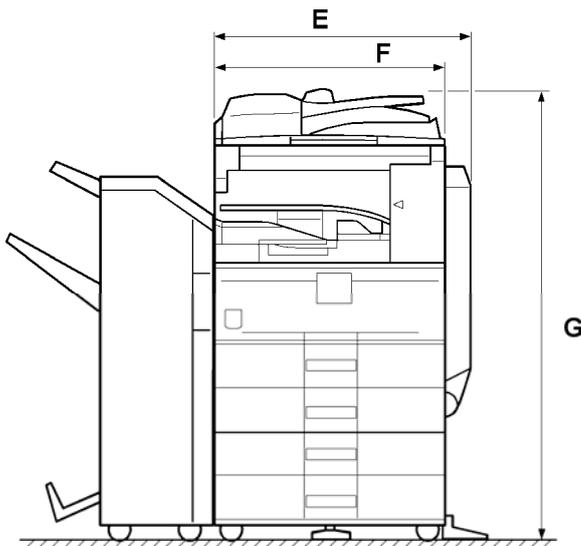
d017i202

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

↓ Note

- 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.

2.1.4 POWER REQUIREMENTS

⚠CAUTION

- 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.

2.2 COPIER INSTALLATION

2.2.1 POWER SOCKETS FOR PERIPHERALS

⚠ **CAUTION**

- Rating voltages for peripherals.

Bridge Unit or Shift Tray
Rating voltage output connector
for accessory Max. DC24V

ADF
Rating voltage output connector
for accessory Max. DC24V

Duplex Unit/Bypass Unit
Rating voltage output connector
for accessory Max. DC24V

d017i107a
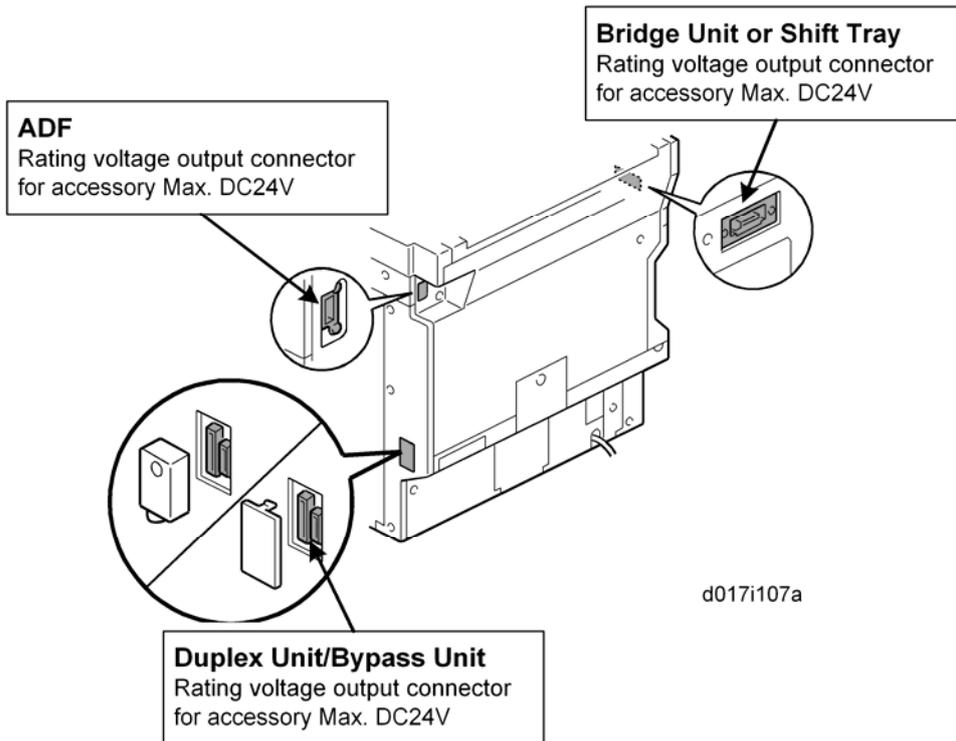
Make sure to connect the cables to the correct sockets.

2.2.2 INSTALLATION FLOW CHART

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

Installation

```
                        ┌──────────────┐
                        │    Unpack    │
                        └──────┬───────┘
                               │
        ┌──────────────────────┴───────────────────────┐
        │  Paper Tray Unit, LCT, or Finisher Required?  │
        └──────────────────────────────────────────────┘
                      │Yes                    No
        ┌─────────────────────────────────┐
        │ Set the copier on the Paper Tray or LCT
        │   Install Paper Tray Unit or LCT
        │       Install the Copier         │
        └─────────────────────────────────┘
                      │Yes
        ┌──────────────────────────────────────────────┐
        │             Bypass Tray required?            │
        └──────────────────────────────────────────────┘
                      │Yes                    No
        ┌─────────────────────────────────┐
        │         Install Bypass Tray      │
        └─────────────────────────────────┘
                      │Yes
        ┌──────────────────────────────────────────────┐
        │              Shift Tray required?            │
        └──────────────────────────────────────────────┘
                      │Yes                    No
        ┌─────────────────────────────────┐
        │          Install Shift Tray      │
        └─────────────────────────────────┘
                      │Yes
        ┌──────────────────────────────────────────────┐
        │               Finisher required?             │
        └──────────────────────────────────────────────┘
                      │Yes                    No
        ┌─────────────────────────────────┐
        │         Install Bridge Unit      │
        └─────────────────────────────────┘
                      │Yes
        ┌─────────────────────────────────┐
        │           Install Finisher       │
        └─────────────────────────────────┘
                      │Yes
        ┌──────────────────────────────────────────────┐
        │   Duplex Unit and/or 1-Bin Tray required?    │
        └──────────────────────────────────────────────┘
                      │Yes                    No
        ┌─────────────────────────────────┐
        │       Install Interchange Unit   │
        └─────────────────────────────────┘
                      │Yes
        ┌─────────────────────────────────┐
        │  Install Duplex Unit and/or 1-Bin Tray
        └─────────────────────────────────┘
                      │Yes
        ┌──────────────────────────────────────────────┐
        │         Install ARDF or Platen Cover         │
        └──────────────────────────────────────────────┘
```

d017i513

2.2.3 ACCESSORY CHECK

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

No.	Description	D017/D018 D019/D020	D084/D085
1	Paper Tray Decal	1	1
2	Emblem Cover	1	1
3	Emblem	1	1
4	Model Name Decal	1	1
5	End Fence	1	1
6	HDD Caution Decal (-17, -29 only)	1	-
7	Operating Instructions – About This Machine	1	1
8	Operating Instructions – Troubleshooting	1	1
9	Quick Reference Guide - Copy	1	1
10	Quick Reference Guide - Printer	1	1
11	Quick Reference Guide - Scanner	1	1
12	Quick Reference Guide - App 2 Me	-	1
13	CD-ROM Operation Instruction - User	1	1
14	CD-ROM Operation Instruction - Administrator	1	1
15	CD-ROM Operation Instruction - App 2 Me	-	1
16	CD-ROM - SDK	-	1
17	CD-ROM - Printer/Scanner	-	1
18	CD-ROM - Printer	1	-

Installation

No.	Description	D017/D018 D019/D020	D084/D085
19	CD-ROM - Scanner	1	-
20	CD-ROM - P2600	1	1
21	CD-ROM - Driver (-19 only)	1	1
22	CD-ROM - Font	1	-
23	Cloth Holder	1	1
24	Cloth - DF Exposure Glass	1	1
25	Ferrite Core	1	1

2.2.4 INSTALLATION PROCEDURE

Tapes and Retainers
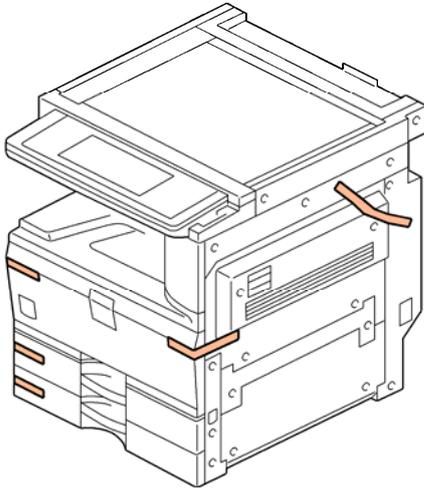
d017i104
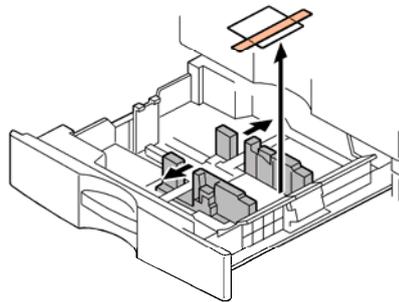
d017i904

⚠ CAUTION

- 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.

⬇ Note

- 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
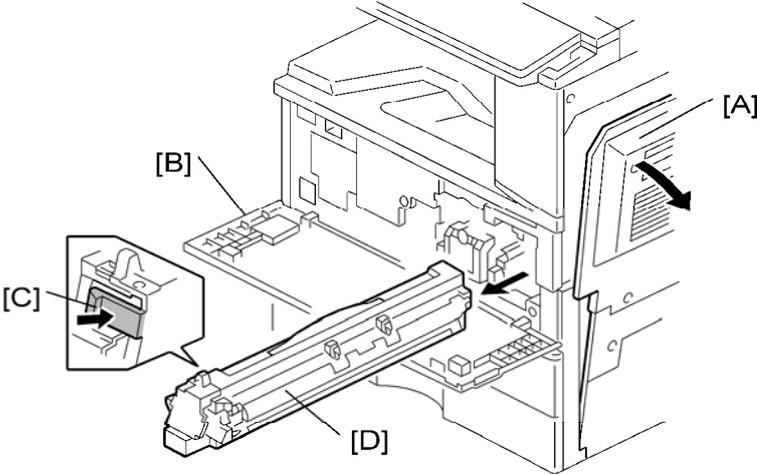
d017i920

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].
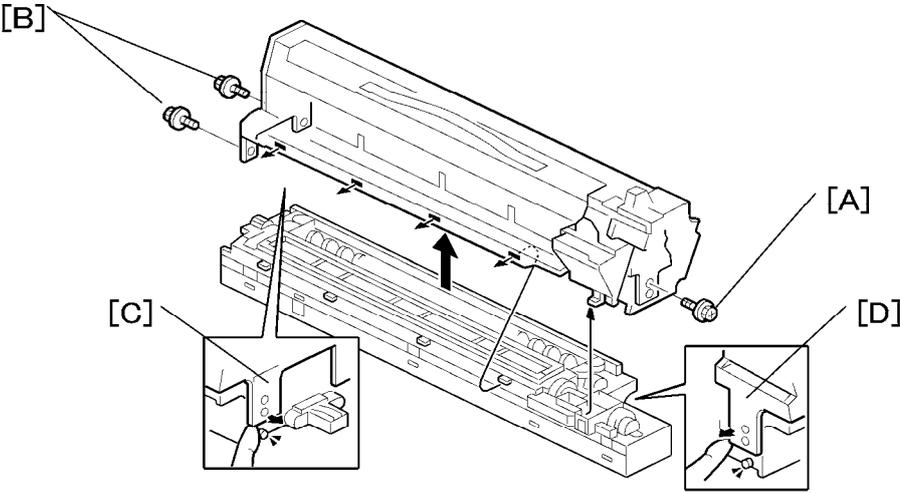
b205i102a

5. Remove the front screw [A] (🖉 x1)

6. Remove the rear screws [B] (🖉 x2)

7. Release the rear tab [C] then front tab [D], then separate the top and bottom.

   ⭐ Important

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

Copier Installation
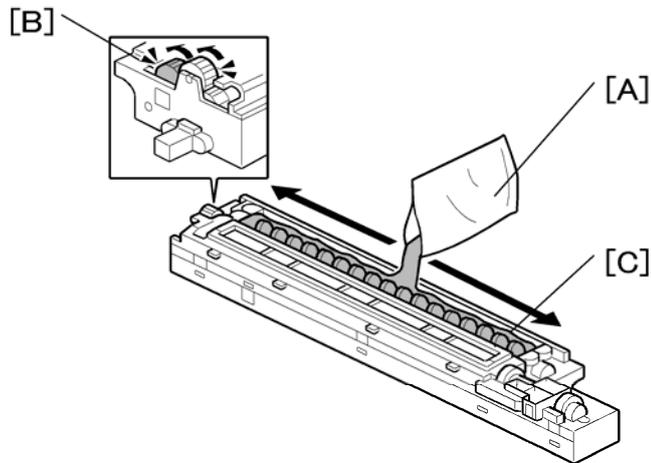
b205i103

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.

★ Important

- 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
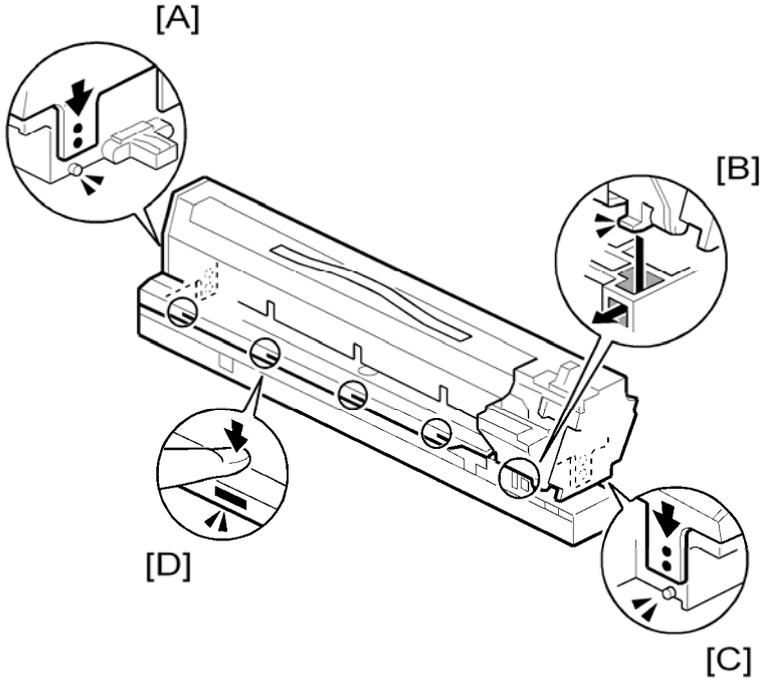
1. Make sure that all of the holes and tabs are engaged at [A], [B], [C], and [D]. Then push down to lock the tabs on the front and rear end of the PCU.

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.

   ⭐ Important

   - Reattach the rear screws (🖋 x 2) first, then reattach the front screw (🖋 x 1).
   - Do not push down on the top of the PCU when you attach the rear and front screws
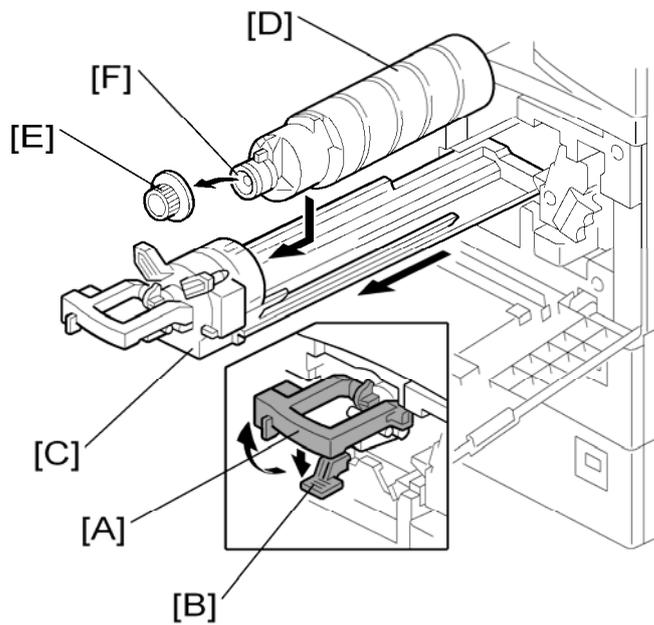
Toner Bottle

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].

   ↓ Note

   - Do not remove the toner bottle cap [E] until after shaking.

3. Unscrew the bottle cap [E] and insert the bottle into the holder.

   ↓ Note

   - 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.
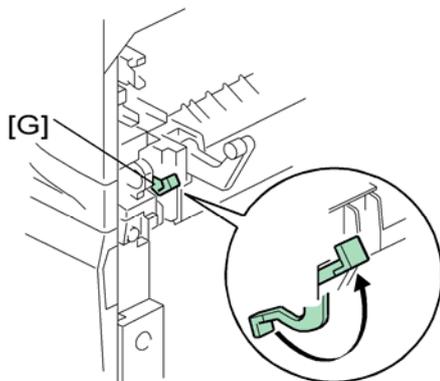
d017i500

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

Emblem, Decals

d017i105
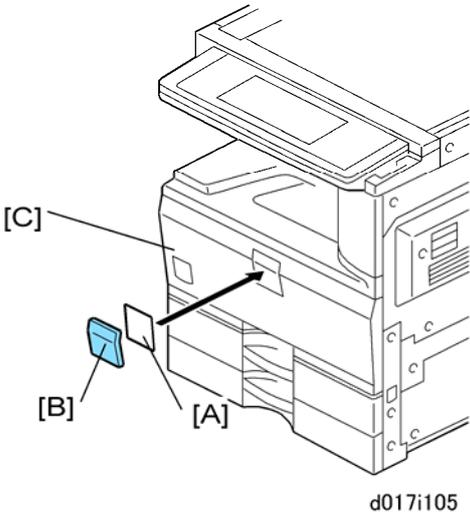
1. Attach the emblem [A] and panel [B] to the front door [C].

    ↓ Note

    ▪ 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.

    ↓ Note

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

Completion

b205i910
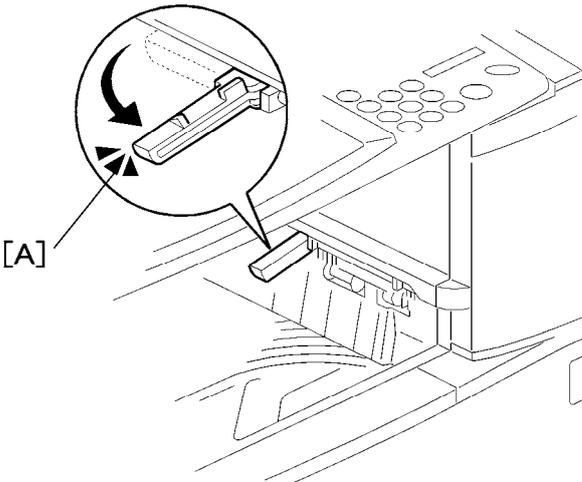
1. If the optional bridge unit will not be installed, swing the sensor feeler [A] out.

2. Install the optional ARDF or the optional platen cover (see p.2-25 "ARDF (D366)" or

Copier Installation

p.2-65 "Platen Cover (B406)").

[B]
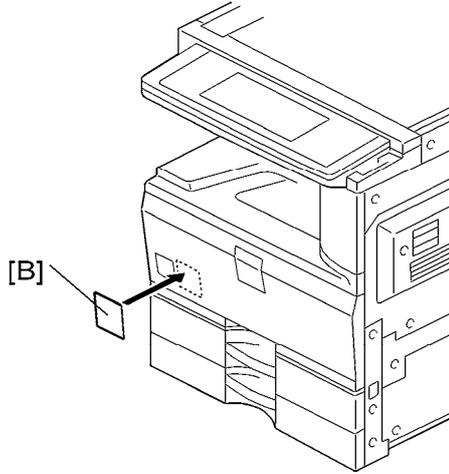
d017i108

3. If the HDD will be installed for a D017-17, -29 or D019-17, -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 / **0** / 1] 0: ISO (A3, A4, A5, etc.) 1: USA (DLT, LT, EXE, etc.)
3	A4/LT	
4	A4/LG	
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.

App 2 Me Setting (D084/D085 only)

D084/D085 modes have VM Card including "App 2 Me" provider by default. Do the following procedure if a customer want to use the "App 2 Me".

1. Press "User Tools" key on the operation panel.

2. Touch the "Extended Feature Settings" button twice.

3. Touch the "App 2 Me" line in the Startup Setting tab.

4. Touch the "Extended Feature Info" tab on the LCD.

5. Touch the "App 2 Me" line.

6. Set the setting of "Auto Start" to "On".

7. Touch the "Exit" button.

8. Exit the "User Tools" settings.

Update Procedure for App 2 Me Provider

1. Push the "User/Tools" key.

2. If an administrator setting is registered for the machine, step 2 and 3 are required. Otherwise, skip to step 4.

3. Push the "Login/Logout" key.

4. Login with the administrator user name and password.

5. Touch "Extended Feature Settings" twice on the LCD.

6. Touch the each application. Then, the status will be changed to "Stop".

7. Turn off the machine. And then remove the VM Card.

Copier Installation

d377i501
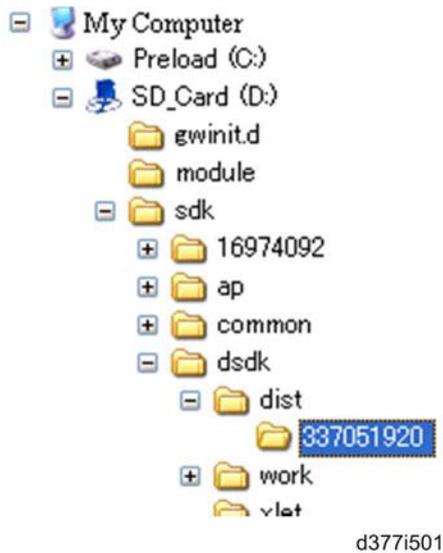
8. Prepare newer App 2 Me Provider zip file from Firmware Download Center. Unzip the zip file. (The folder name is "337051920".) And then copy the App 2 Me Provider folder in the specified path of VM card. The path is "SD_Card Drive¥ sdk¥dsdk¥dist¥337051920" as shown above.

9. Turn the SD card label face to the rear of the machine. Then push it slowly into slot 2 until you hear a click.

10. Turn on the main power switch.

11. Press the "User Tools" key on the operation panel.

12. Touch the "Extended Feature Settings" button twice.

13. Touch the "Extended Feature Info" tab on LCD.

14. Touch the "App2Me" line.

15. Set the setting of the "Auto Start" to "On".

16. Touch the "Exit" button.

17. Exit the "User Tools/Counter" settings.

2.2.5 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.

2.3 PAPER FEED UNIT (D331)

2.3.1 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

2.3.2 INSTALLATION PROCEDURE
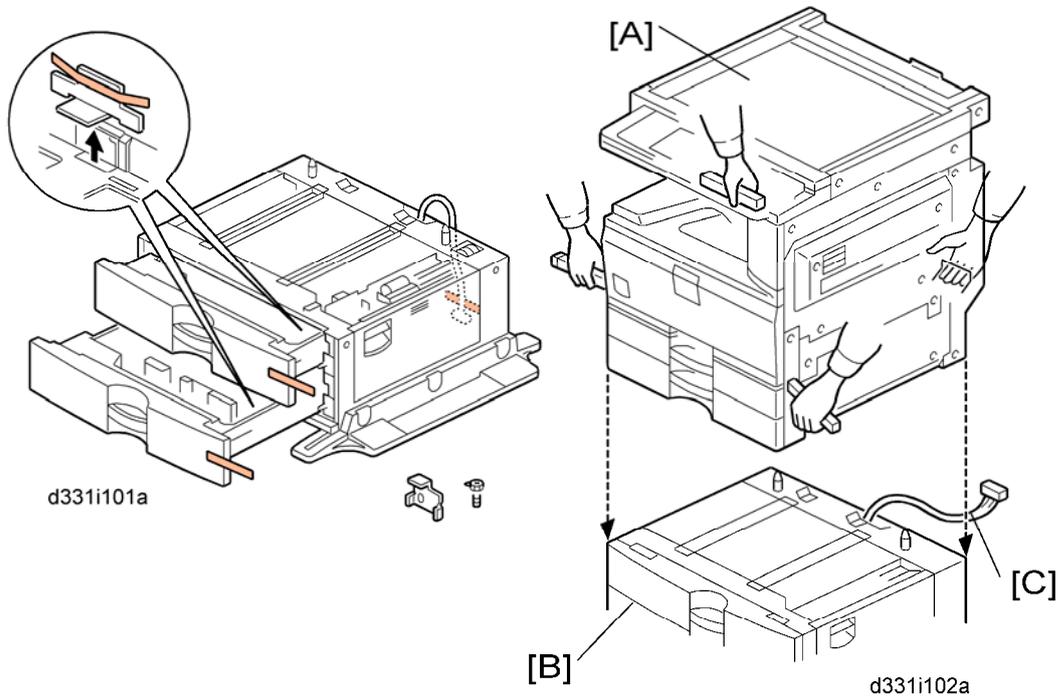
d331i101a

d331i102a

⚠ CAUTION

- 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. Put the copier [A] on the paper tray unit [B].

   ↓ Note

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

d331i103b
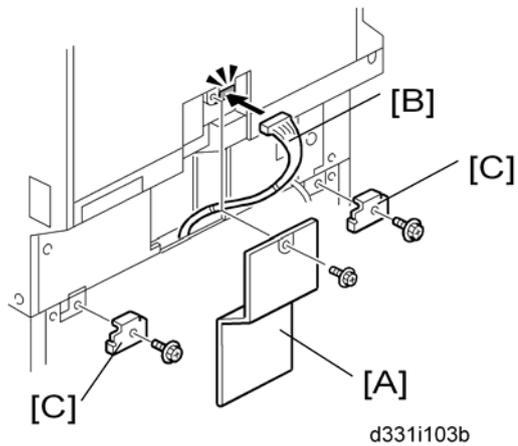
3. Remove the connector cover [A] (🔩 x 1: M3x8).

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 (🔩 x 1: M4x8 each).

6. Re-install the connector cover.

D331i104A
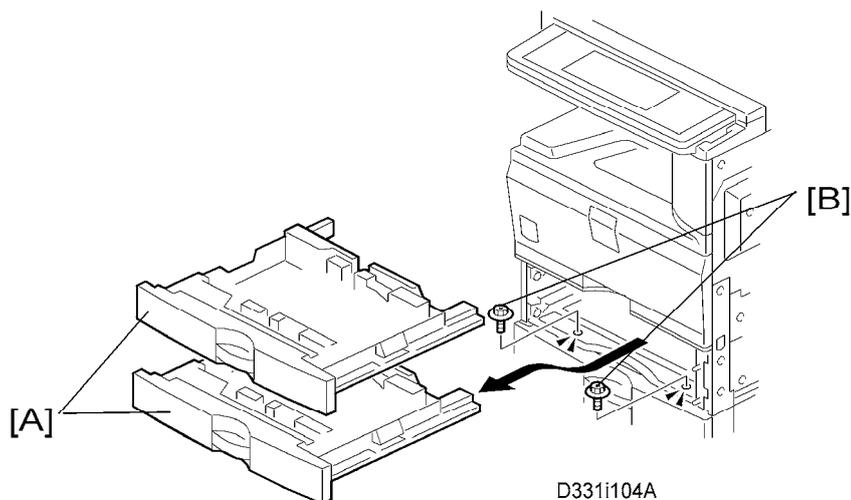
7. Remove the 1st and 2nd paper trays [A]

8. Fasten the paper tray unit at [B] (🔩 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.

⬇ Note

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

Paper Feed Unit (D331)
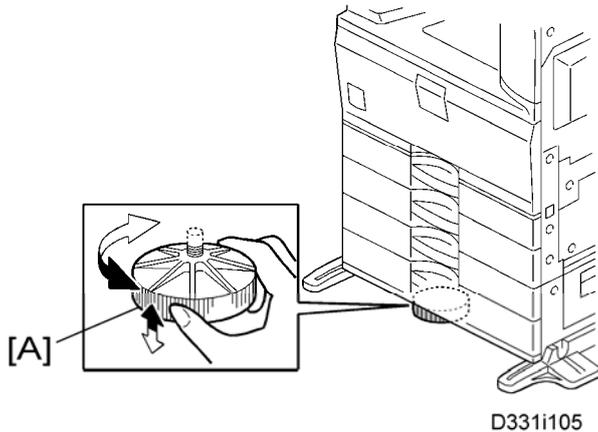
D331i105

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 / **0** / 1] 0: ISO (A3, A4, A5, etc.) 1: USA (DLT, LT, EXE, etc.)
3	A4/LT	
4	A4/LG	
5	A3/LT	

3. Exit SP mode.

4. Do some test copies to make sure that the machine operates correctly.

2.4 LCT (B391)

2.4.1 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

2.4.2 INSTALLATION PROCEDURE

⚠CAUTION

- 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.

LCT (B391)

b391i500   b391i505a

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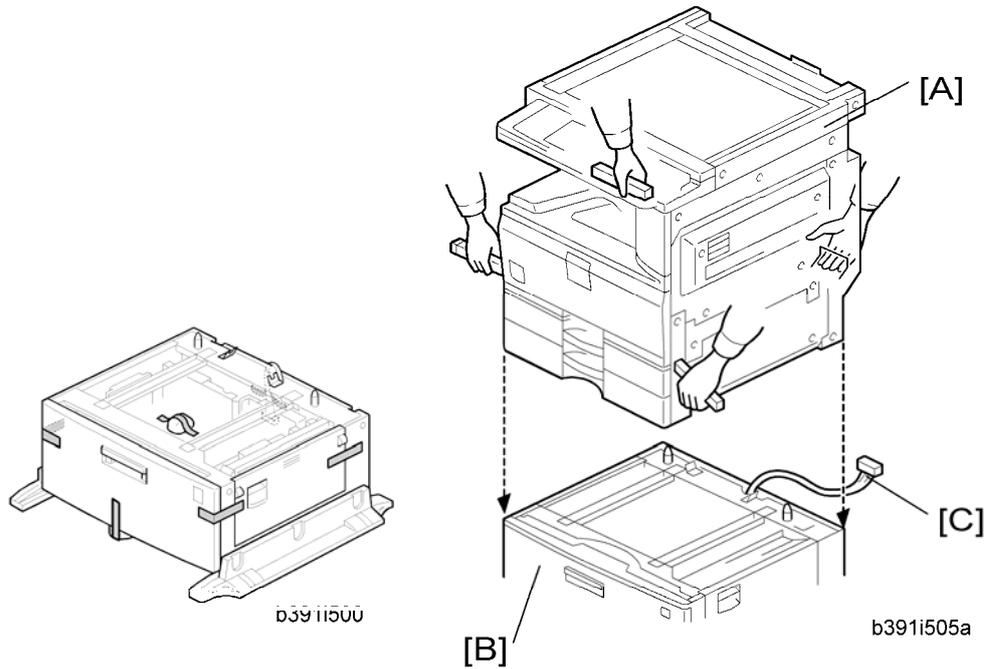
1. Remove the strips of tape.
2. Set the copier [A] on the LCT [B].

   ↓ Note

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

D331i103A

[B]   [C]   [A]   [C]
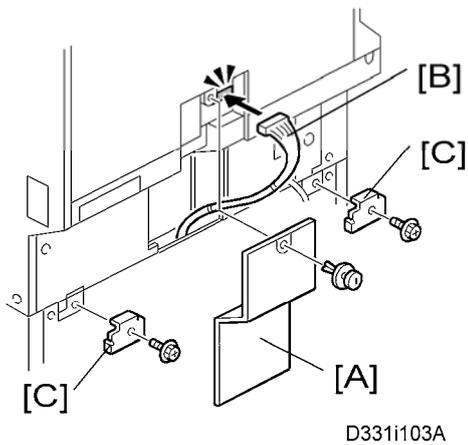
3. Remove the connector cover [A] (rivet screw x 1).
4. Connect the cable [B] to the copier, as shown.
5. Attach a securing bracket [C] to each side of the LCT, as shown (⚲ x 1 each).
6. Re-install the connector cover.
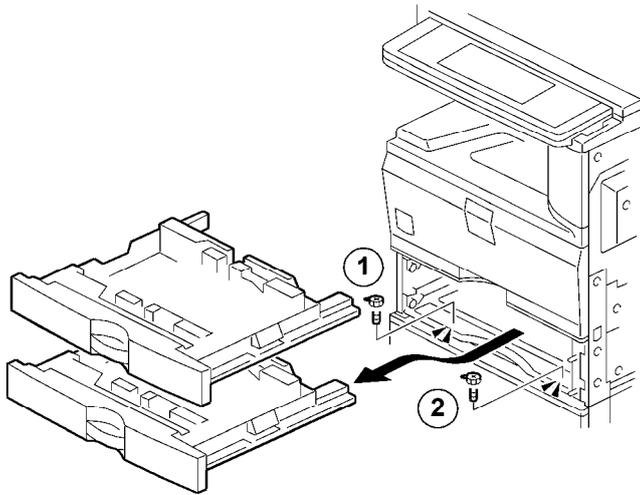
b391i501a

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.
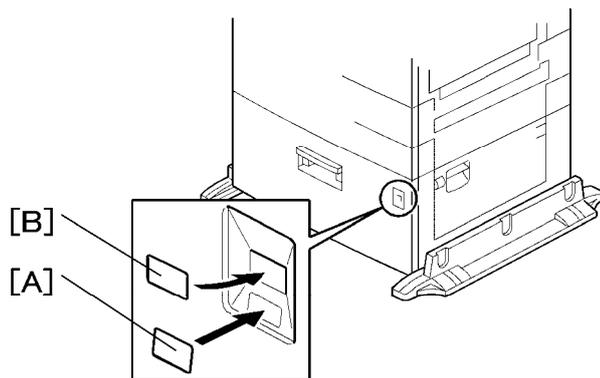
b391i502

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

    ↓ Note

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

LCT (B391)
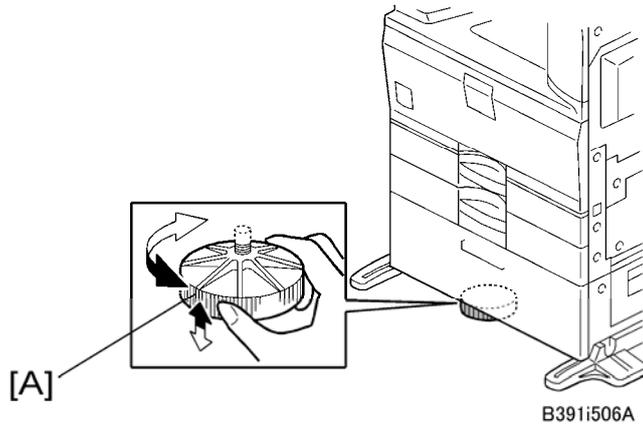
B391i506A

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 / **0** / 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.

2.5 ARDF (D366)

2.5.1 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

d017i101
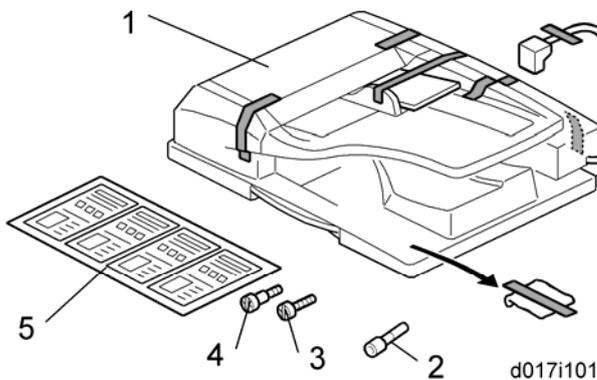
2.5.2 INSTALLATION PROCEDURE

⚠ CAUTION

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

1. Remove the all tapes and shipping retainers.

ARDF (D366)

B789i102
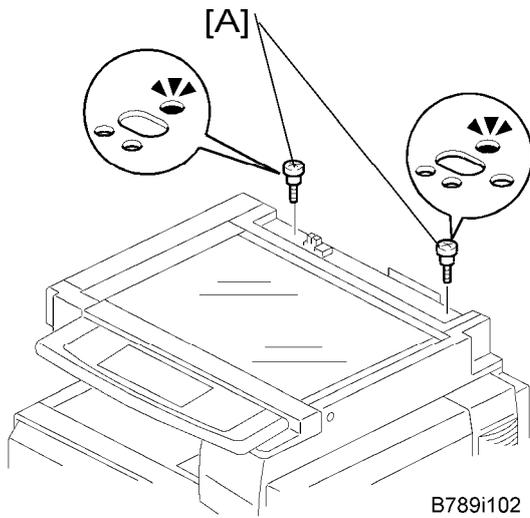
2. Insert the two stud screws [A] on the top of the machine.

B789i103
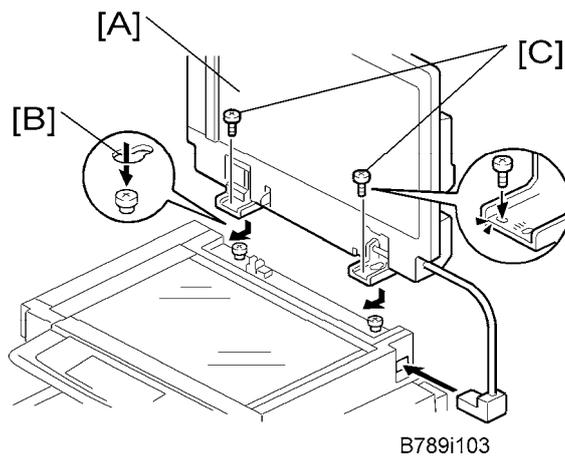
3. Mount the ARDF [A] by aligning the screw keyholes [B] of the ARDF support plate over the stud screws.
4. Slide the ARDF toward the front of the machine.
5. Secure the ARDF with the two knob screw [C].

B789i501
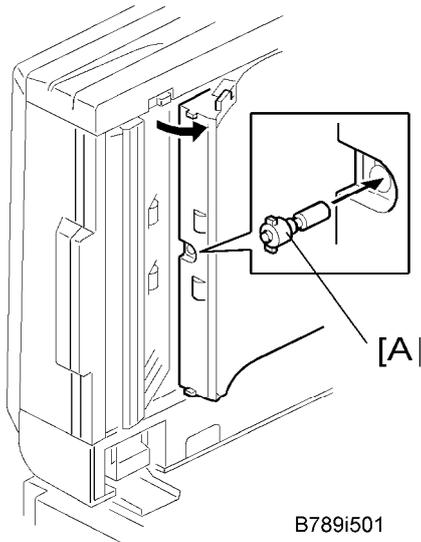
6. Install the stamp cartridge [A] in the ARDF.

[B]

③

①

②

[A]

B789i104
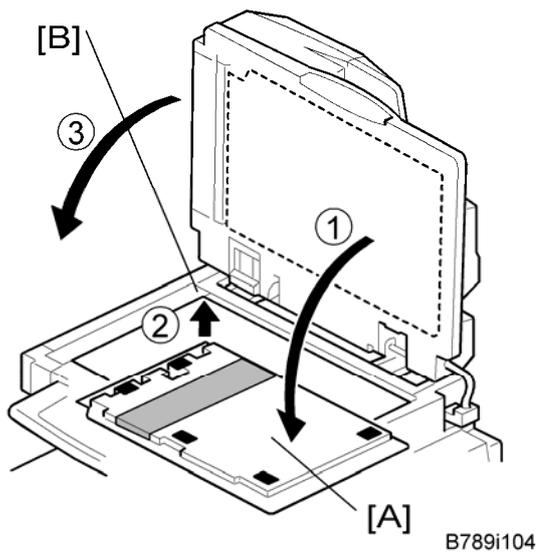
7. Peel off the platen sheet [A] and place it on the exposure glass.

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.

ARDF (D366)

B789i105
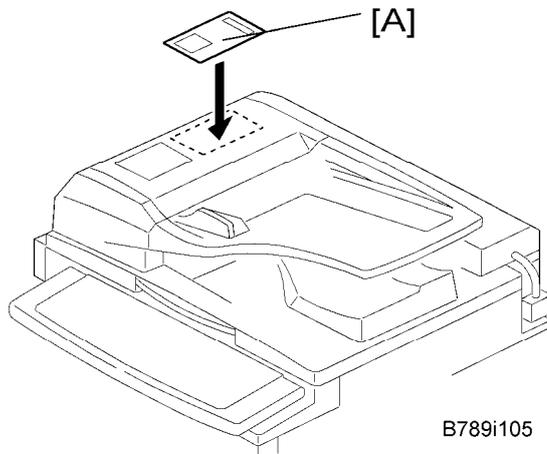
11. Attach the decal [A] to the top cover as shown. Choose the language you want.

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").

2.6 INTERCHANGE UNIT (D371)

2.6.1 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 6	2
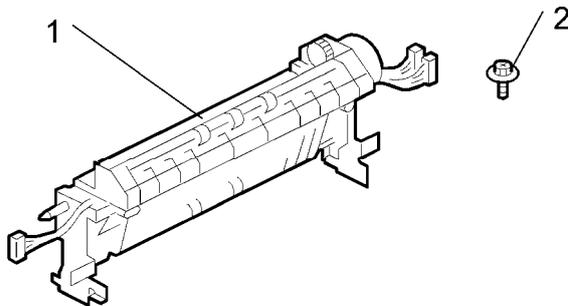
D371i101

2.6.2 INSTALLATION PROCEDURE

⚠CAUTION

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

1. Remove all tapes.

D371i102
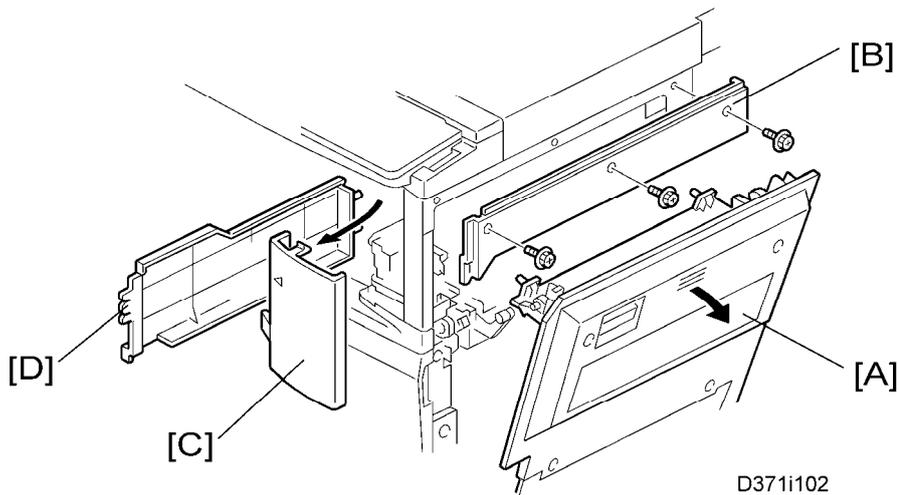
2. Open the right cover [A] of the copier.

3. Remove the right upper cover [B] (🔩 x 3)

4. Remove the front right cover [C] (hook)

5. Slide out the exit cover [D].

D371i103
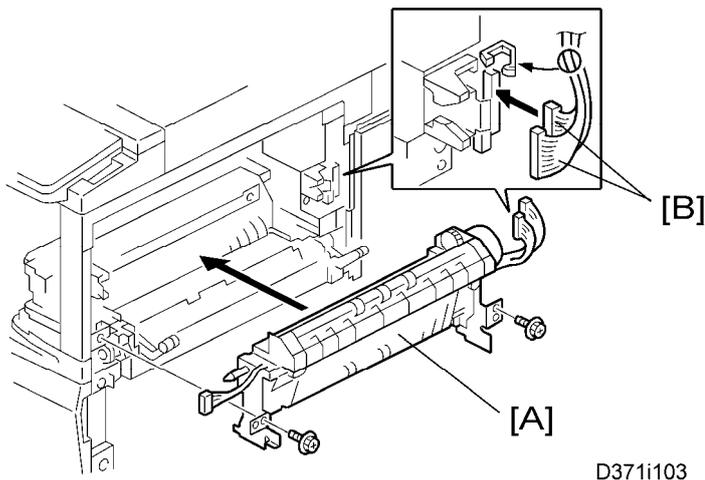
6. Install the interchange unit [A] (🔌 x 2).

7. Connect the two harnesses [B].

2.7 1-BIN TRAY UNIT (D367)

2.7.1 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
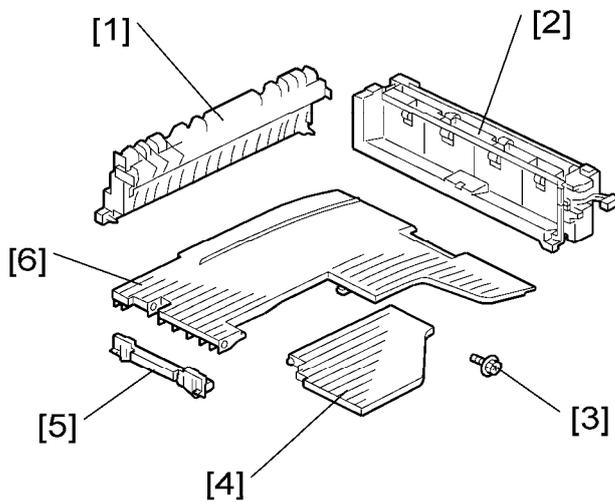
D367i101

2.7.2 INSTALLATION PROCEDURE

⚠️**CAUTION**

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

↓ Note

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

1. Remove all tapes.

[A]
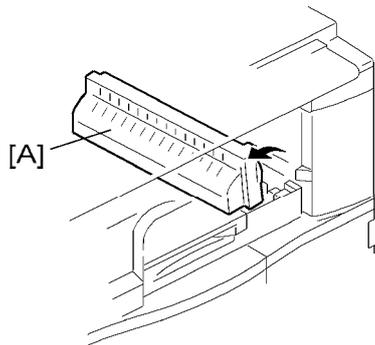
b413i501

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…

[A]

b416i502a

4. Remove the front right cover [A].

d367i103
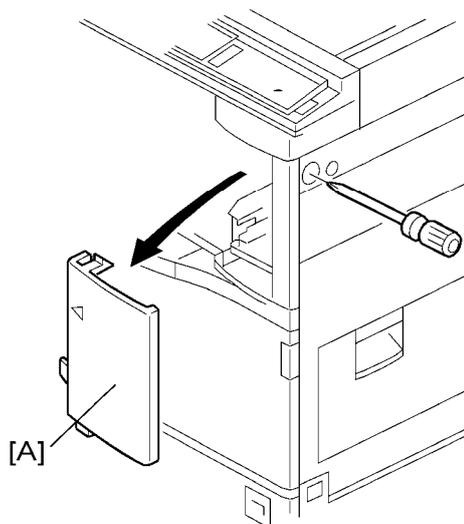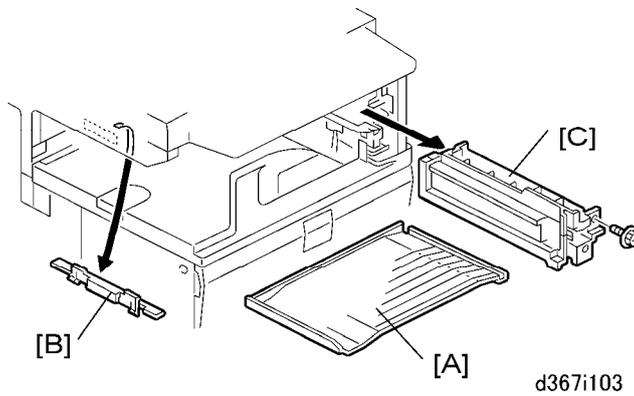
5. Remove the duplex tray [A] and duplex tray guide [B].

6. Remove the duplex guide [C] (🔩 x 1).

Install the 1-Bin Tray

d367i104
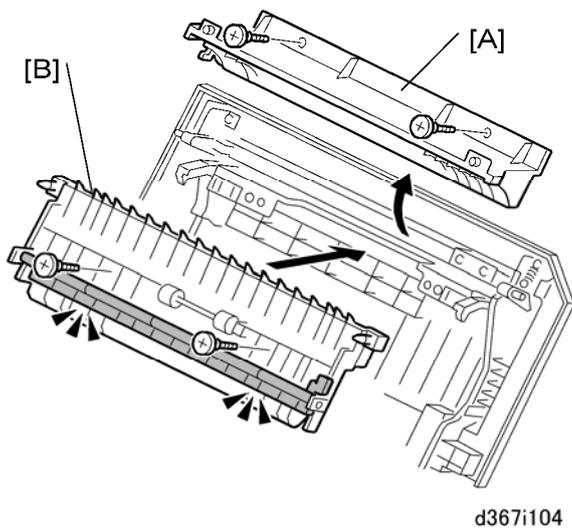
7. Remove plate [A] (🔩 x 2)

8. Attach the 1-bin tray guide [B] (🔩 x 2)

1-Bin Tray Unit (D367)

b413i500a
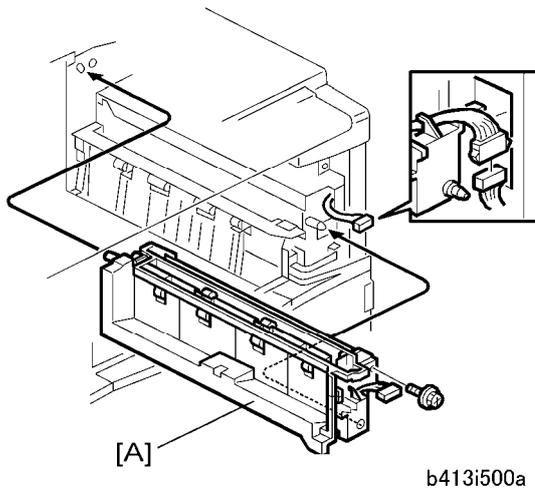
9. Install the 1-bin tray unit [A] (🔩 x 1, 🔌 x 1)

10. Re-install the front right cover.

b413i105
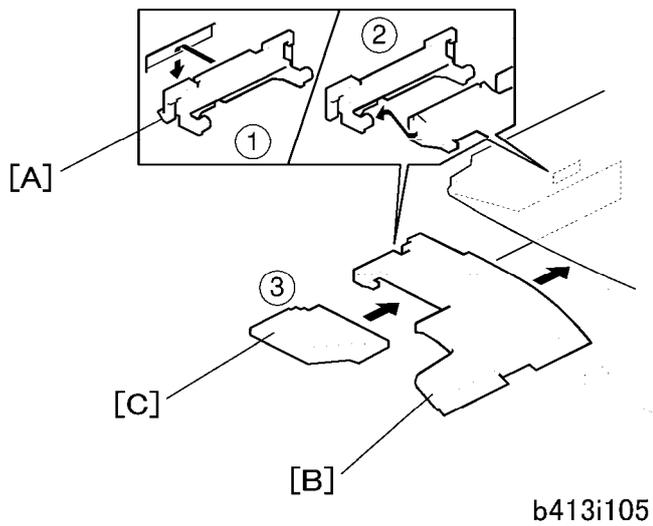
11. Install the tray guide [A].

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.

2.8 SHIFT TRAY (D385)

2.8.1 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

b459i101
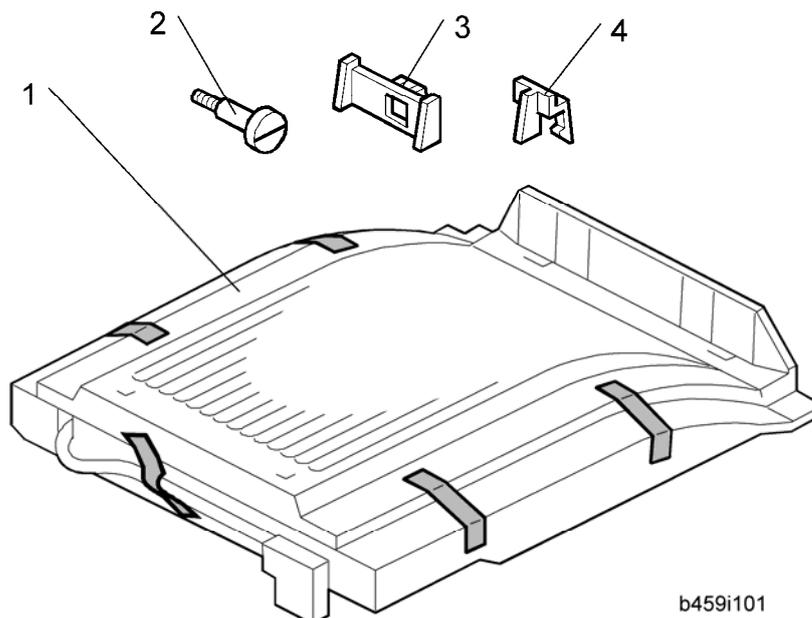
Installation

Shift Tray (D385)

2.8.2 INSTALLATION PROCEDURE

⚠️ **CAUTION**

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

B459I104
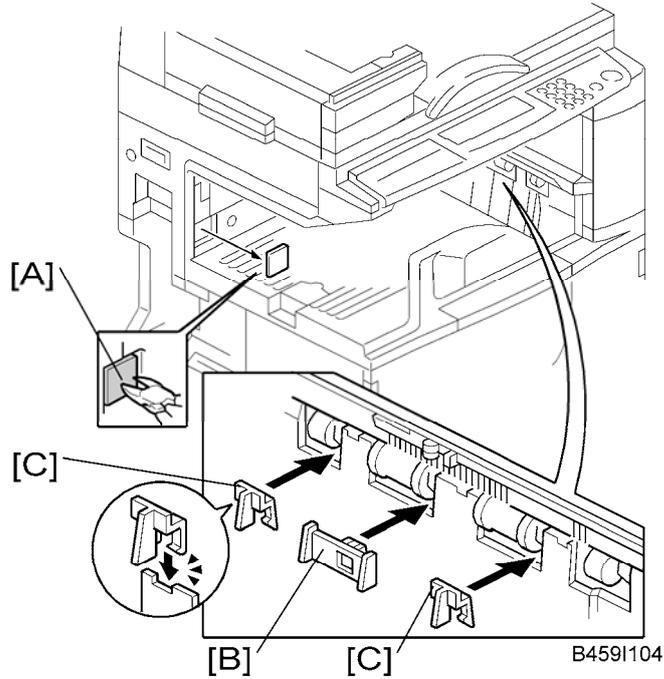
1. Remove all tapes.
2. Remove the plate [A].with nippers.
3. Install the large paper guide [B] and two small paper guides [C], as shown.

b459i103
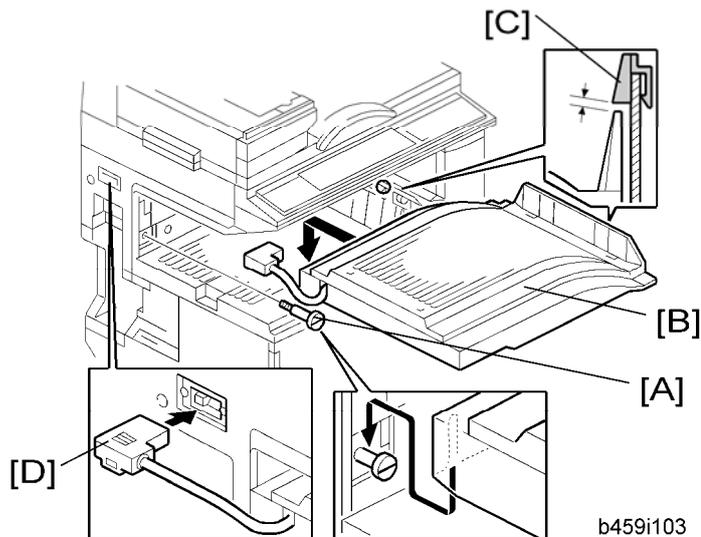
4. Install the stepped screw [A].
5. Install the shift tray unit [B], as shown.

↓ Note

- ▪ 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.

2.9 BYPASS FEED UNIT (D370)

2.9.1 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

D370i100
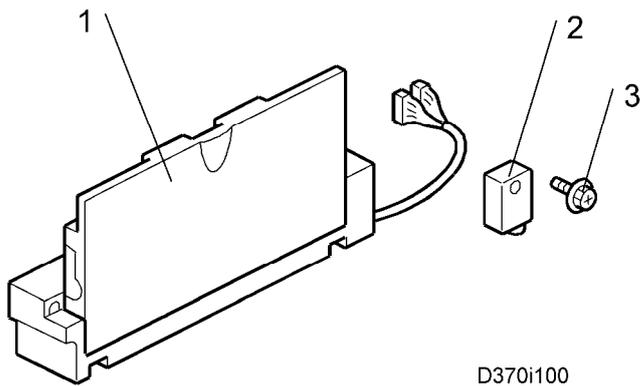
2.9.2 INSTALLATION PROCEDURE

⚠ **CAUTION**

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

D370i101
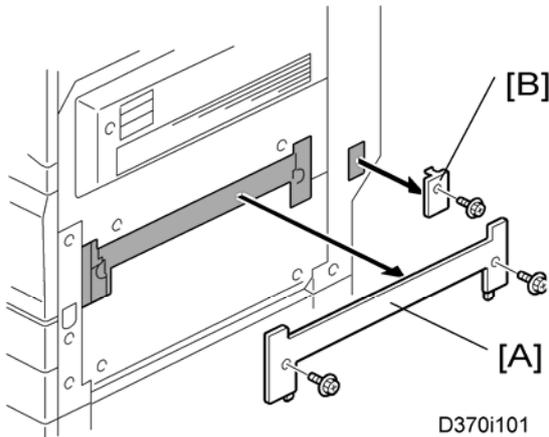
1. Remove all tapes.

2. Remove the entrance cover [A] (🔩 x 2) and cover [B] (🔩 x 2).

   ↓ Note

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

D370i102
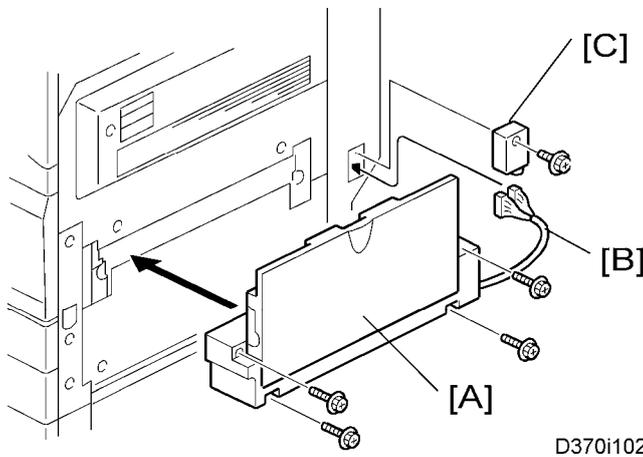
3. Install the by-pass tray unit [A] (🔩 x 4: two of these are removed in Step 2).

4. Connect the cable [B] to the machine.

5. Install the connector cover [C] (🔩 x 1: this screw is removed in Step 2).

Bypass Feed Unit (D370)

d369i103a
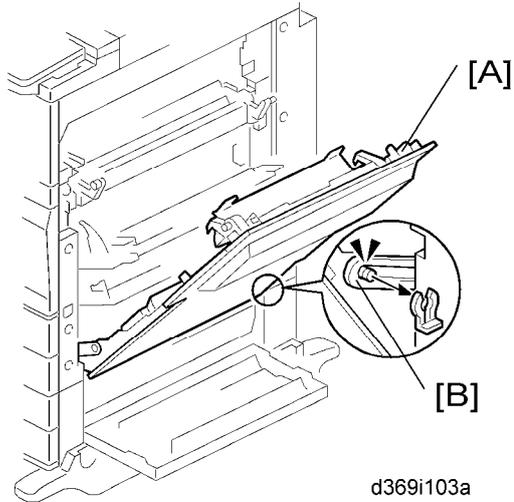
6. Open the right cover [A].

7. Release the rear link [B] (🔧 x 1).

d370i501a
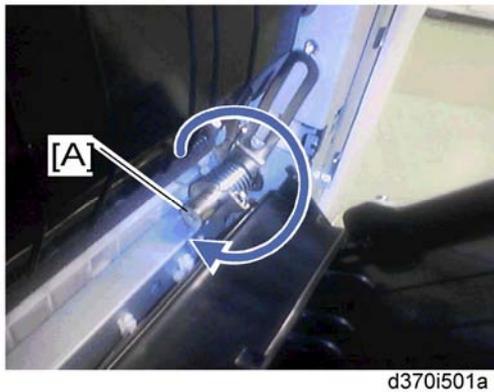
8. Rotate the rear link shaft [A] clockwise by 360 degrees to strengthen the spring tension.

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.

2.10 DUPLEX UNIT (D369)

2.10.1 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 - M3x8	1
4	Clip	1
5	Tapping Screw - M3x6	1
6	Duplex Guide	1
7	Duplex Tray	1
8	Duplex Tray Guide	1
9	Link Bracket	1
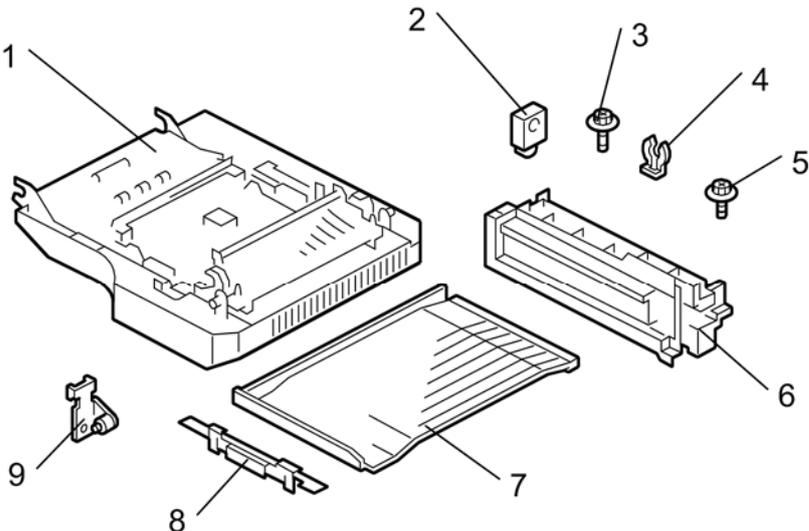
d369i101a

Duplex Unit (D369)

2.10.2 INSTALLATION PROCEDURE

⚠**CAUTION**

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

✓ Note

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

1. Remove all tapes.

d369i102

d369i103a
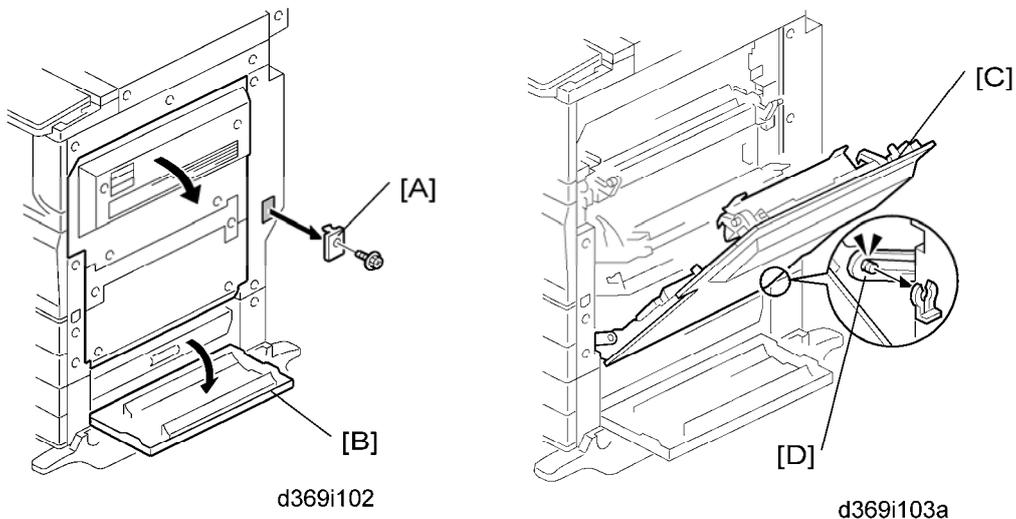
2. Remove the connector cover [A] (🔩 x 1).

✓ Note

- Keep this screw. This screw will be used in **step 12**.

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 (🔘 x 1).

d369i104a
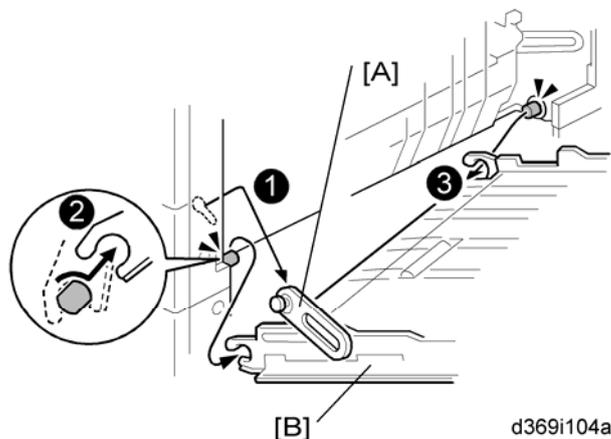
5. Release the front link [A] from the mainframe.

6. Remove the right cover [B].

d369i105
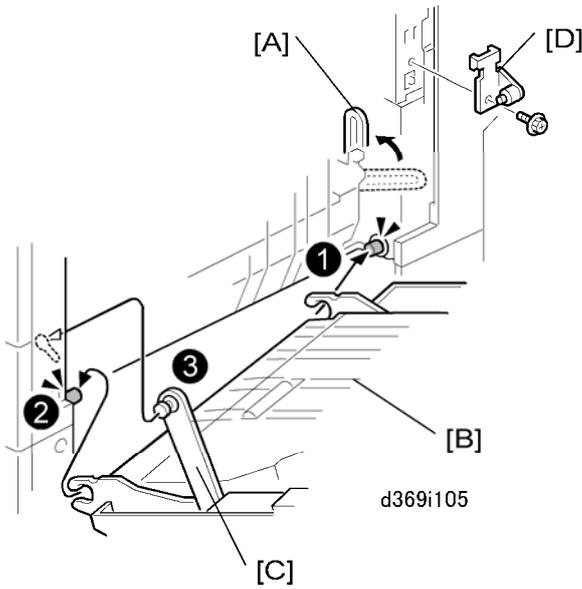
7. Turn up the rear link [A] of the main machine.

8. Install the duplex unit [B].

9. Install the link bracket [D] (🔩 x 1: M3x6).

10. Attach the front link [C] of the duplex unit to the main machine.

D369i106
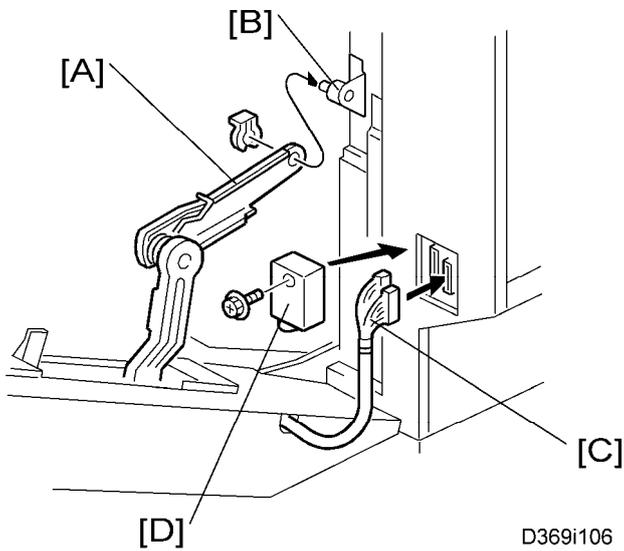
11. Attach the link [A] to the shaft [B] and secure it with the clip.

12. Connect the cable [C] and install the connector cover [D] (🔩 x 1).

Duplex Unit (D369)

- This screw is removed in **step 2**.
- Steps 13 and 14 described below are not required if the 1-Bin Tray has been installed.
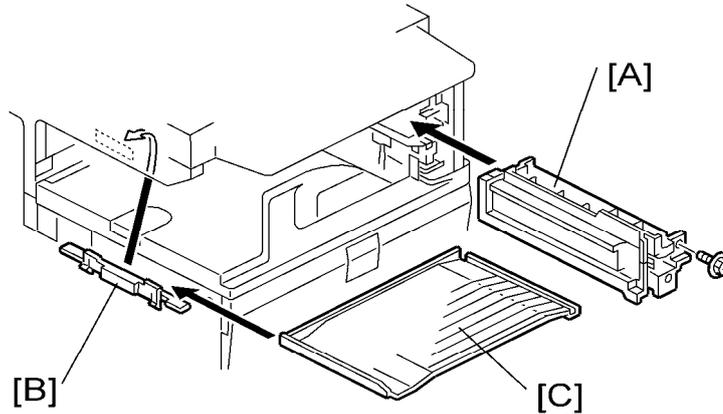
D369i107

13. Install the duplex guide [A] (🖉 x 1: M3x8).
14. Install the duplex tray guide [B] and duplex tray [C].
15. Turn on the main power switch and check the duplex unit function.

2.11 BRIDGE UNIT (D368)

2.11.1 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

B417i101

Bridge Unit (D368)
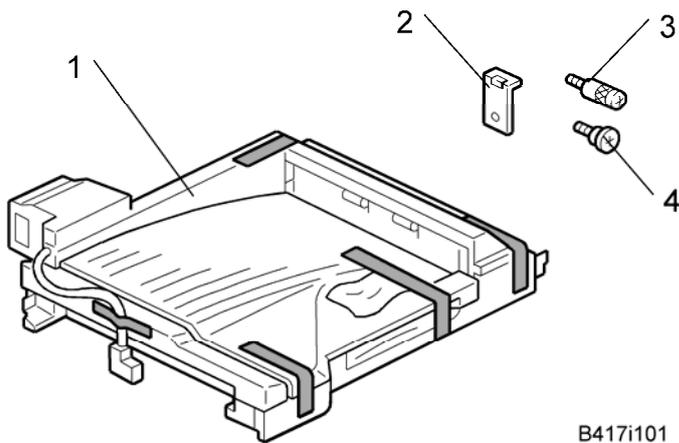
2.11.2 INSTALLATION PROCEDURE
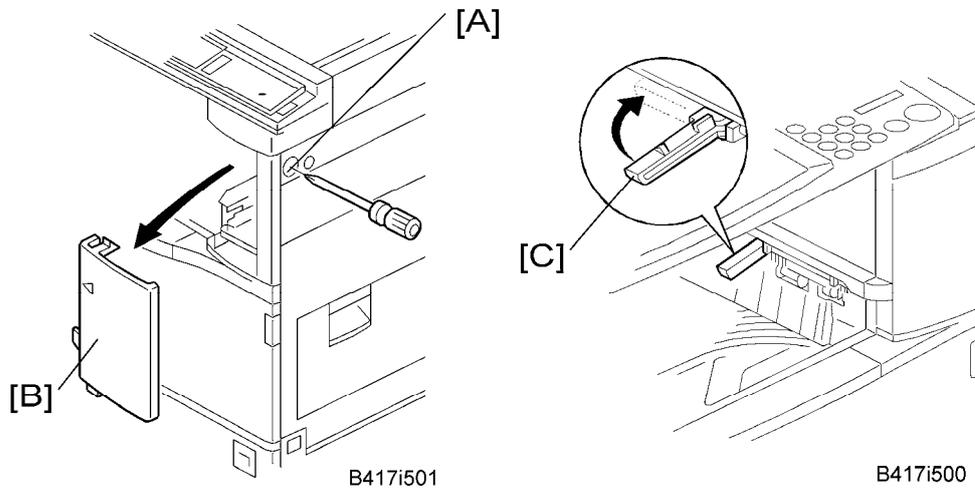
B417i501

B417i500

⚠**CAUTION**

- 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.

b417i104
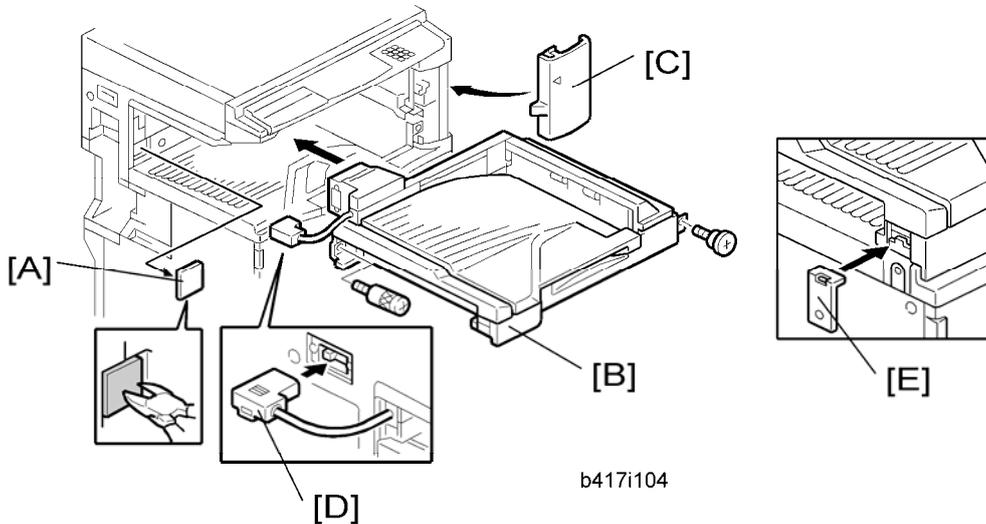
4. Remove the cover [A].

5. Install the bridge unit [B] (1 shoulder screw, 1 knob screw).

6. Reinstall the front right cover [C].

7. Connect the cable [D] to the main machine.

8. Attach the securing plate [E], as shown.

↓ Note

- 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).

Installation

2.12 1000-SHEET FINISHER (B408)

2.12.1 ACCESSORY CHECK

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

b408i502
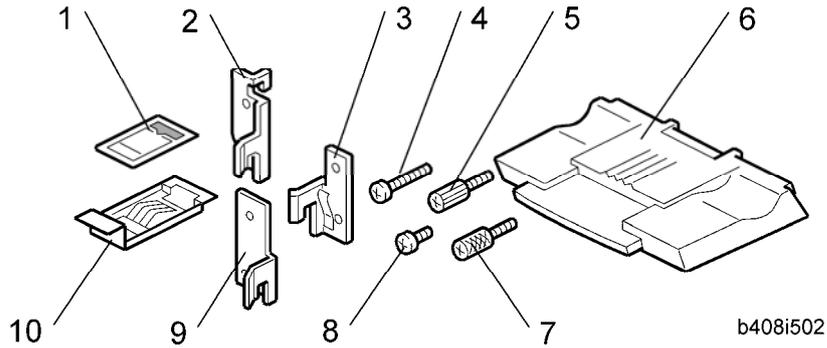
No.	Description	Q'ty	For this model
1	Staple Position Decal	1	✔
2	Rear Joint Bracket	1	✔
3	Front Joint Bracket	1	✔
4	Screw - M4 x 14	4	✔ (Use 3)
5	Knob Screw - M4 x 10	1	✔
6	Copy Tray	1	✔
7	Knob Screw - M3 x 8	1	✔
8	Screw - M3 x 8	1	✔
9	Rear Joint Bracket	1	---
10	Grounding Plate	1	✔

✔ = Necessary, --- = Not necessary

2.12.2 INSTALLATION PROCEDURE

⚠CAUTION

- 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)
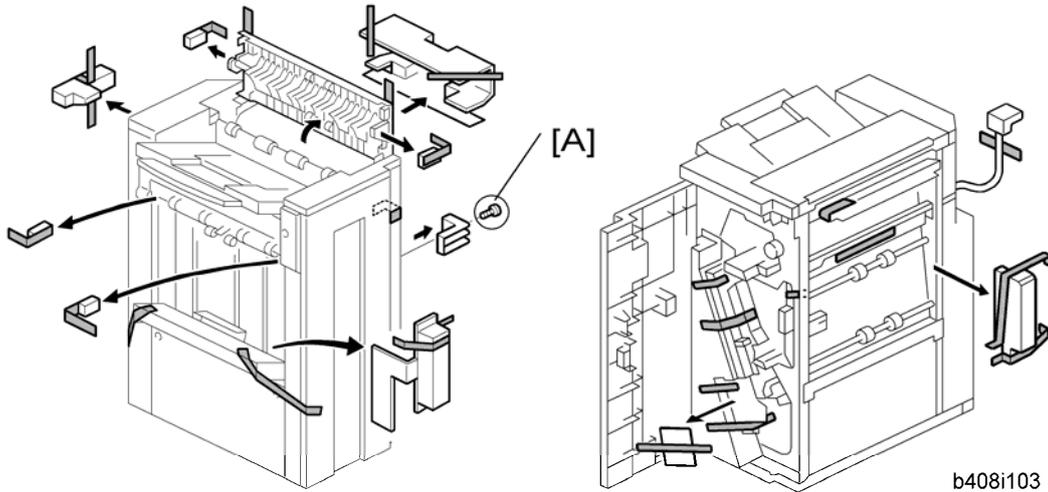
b408i102

b408i103

1. Unpack the finisher and remove the tapes.

    🔽 Note

    - Be sure to keep screw [A]. It will be needed to secure the grounding plate in step 4.
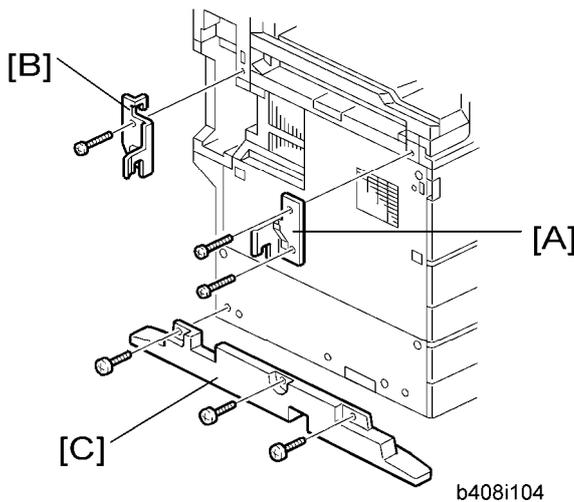
b408i104

2. Install the front joint bracket [A] (🔩 x 2; M4x17) and rear joint bracket [B] (🔩 x 1; M4x17).

3. Remove the left stand [C] (🔩 x 3).

1000-Sheet Finisher (B408)

b408i105
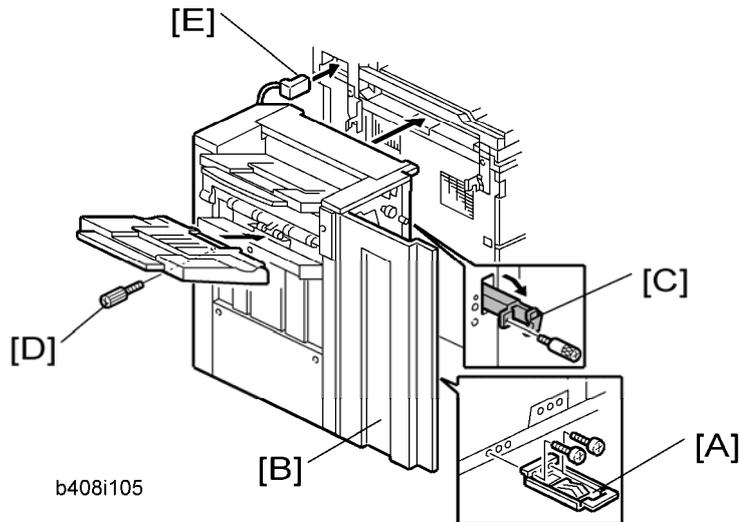
4. Install the lower grounding plate [A] on the finisher (✎ x 2; M3x8).

   ⬇ Note

   ▪ 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] (✎ x 1; knob M3x8).

6. Align the finisher on the joint brackets, and lock it in place by pushing the locking lever.

7. Secure the locking lever (✎ x 1; knob M3x8) and close the front door.

8. Install the copy tray [D] (✎ x 1; knob M4x10).

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

b408i501
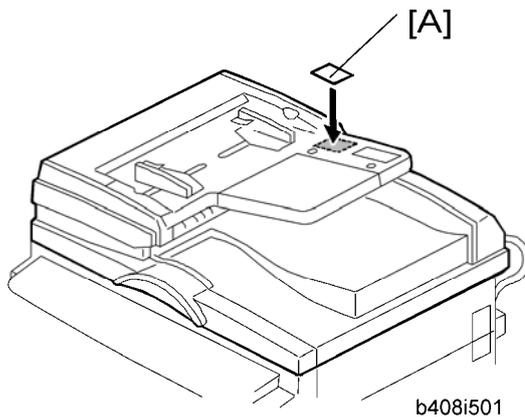
10. Attach the staple position decal [A] to the ARDF as shown.

11. Turn on the ac switch and check the finisher operation.

2.13 1000-SHEET BOOKLET FINISHER (B793)

2.13.1 ACCESSORY CHECK

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

No.	Description	Quantity	For This Model
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)

1000-Sheet Booklet Finisher (B793)

B793i101A
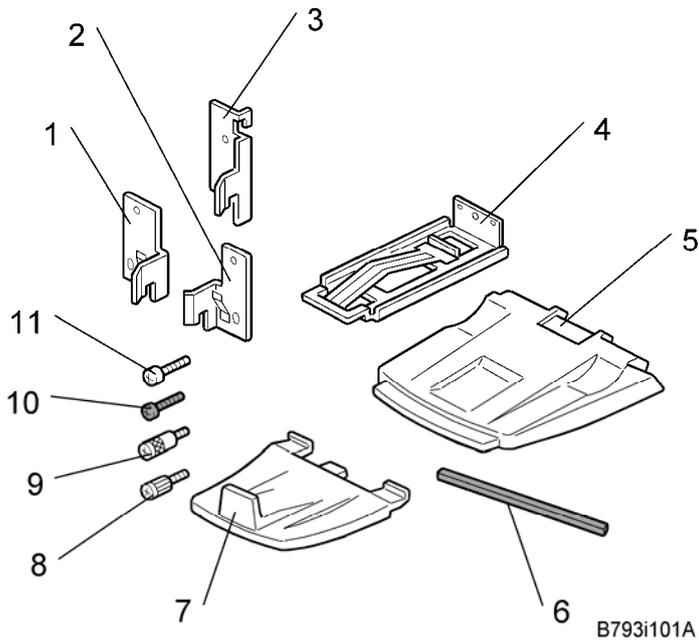
2.13.2 INSTALLATION PROCEDURE

⚠️ **CAUTION**

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

Some optional units must be installed before installing this finisher (B793). Refer to the following:

- D368 and either B391 or D331

B793i102A
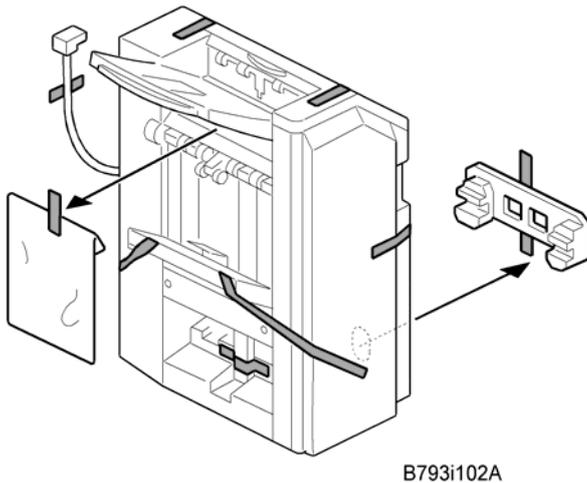
1. Unpack the finisher and remove all tapes and packing materials from the finisher.

B793i103
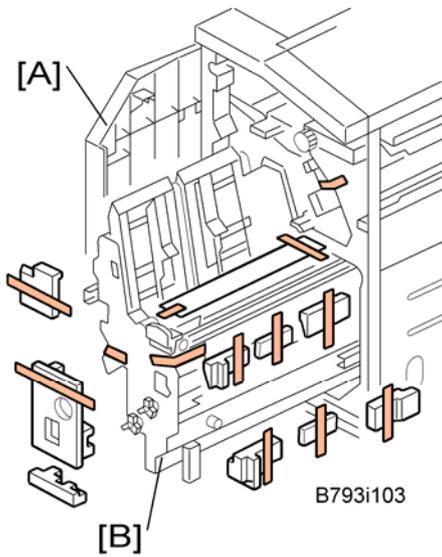
2. Open the front door [A] of the 1000-sheet booklet finisher, and then pull out the jogger unit [B].

3. Remove all tapes and packing materials from the inside of the finisher.

B793i502
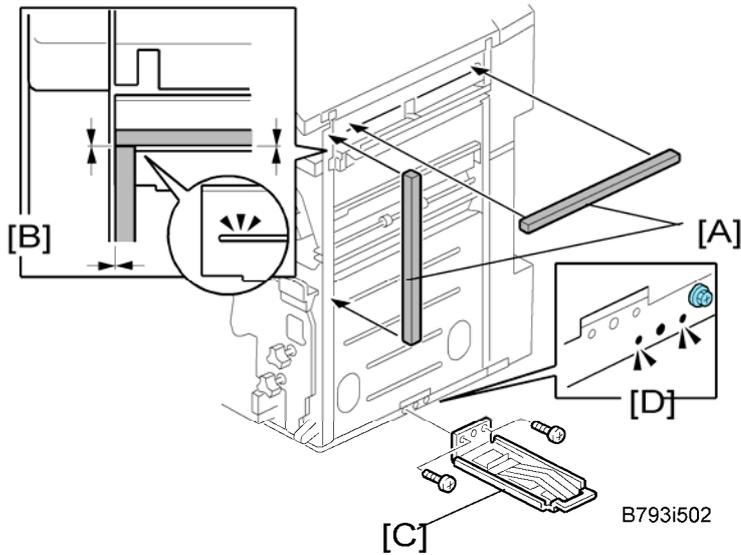
4. Attach the cushions [A] to the finisher.

   ✓ Note

   ▪ 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] (🔩 x 2; M3x8).

1000-Sheet Booklet Finisher (B793)

b793i503
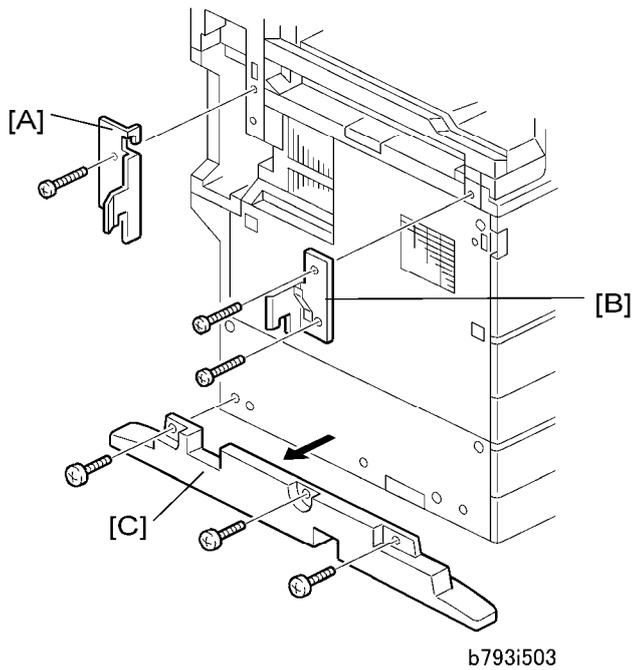
6. Attach the rear joint bracket [A] (🔩 x 1; M4x14).

7. Attach the front joint bracket [B] (🔩 x 2; M4x14).

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

B793i504
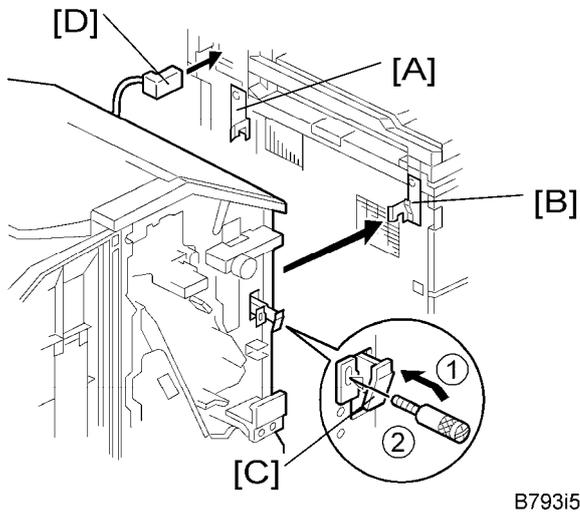
9. Slowly push the finisher to the left side of the machine, keeping its front door open until the brackets [A] [B] go into their slots.

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.

[A]

[B]

B793i107
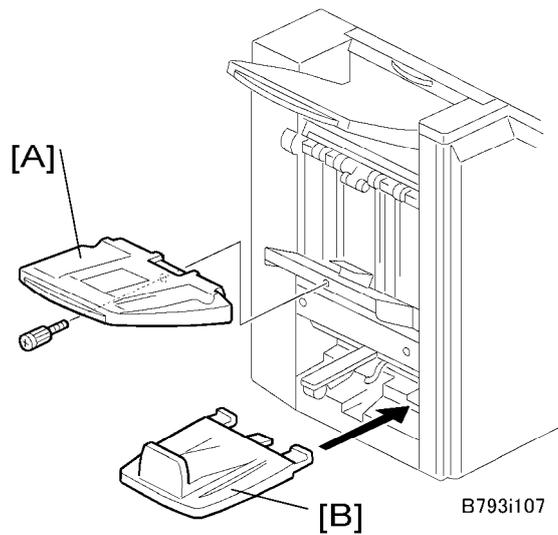
13. Install the upper output tray [A] (short knob screw x 1).

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.

2.14 PUNCH UNIT (B807)

2.14.1 COMPONENT CHECK

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

No.	Description	Q'ty
1	Punch Unit	1
2	Punch Drive Motor	1
3	Hopper Full Sensor Arm	1
4	Sub-scan Registration Sensor Unit	1
5	Punch Unit Stay	1
6	Sub-scan Registration Sensor Guide	1
7	Hopper	1
8	Screw	1
9	Step Screw	1
10	Spring	1
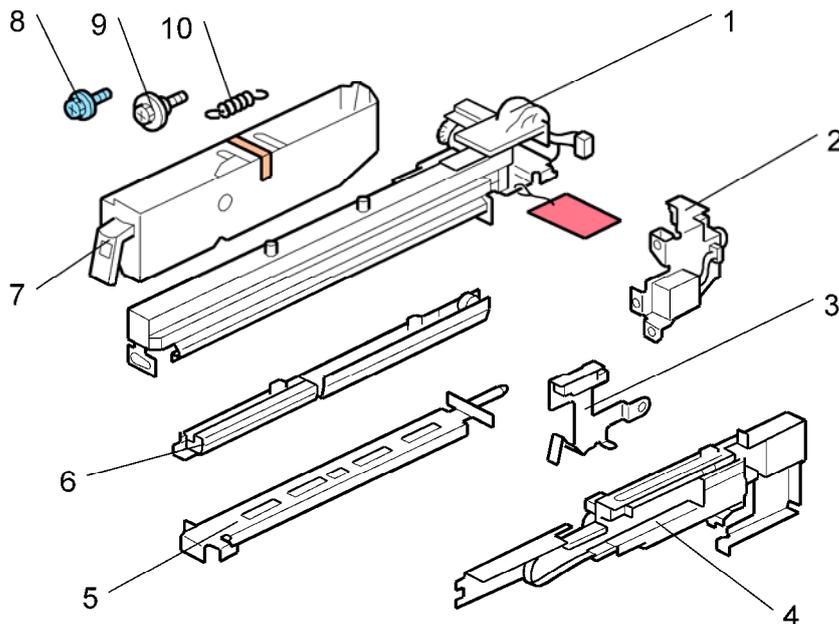
2.14.2 INSTALLATION

⚠CAUTION

- ▪ Unplug the main machine power cord before starting the following procedure. If the 1000-sheet booklet finisher has been installed, disconnect it and pull it away from the machine.
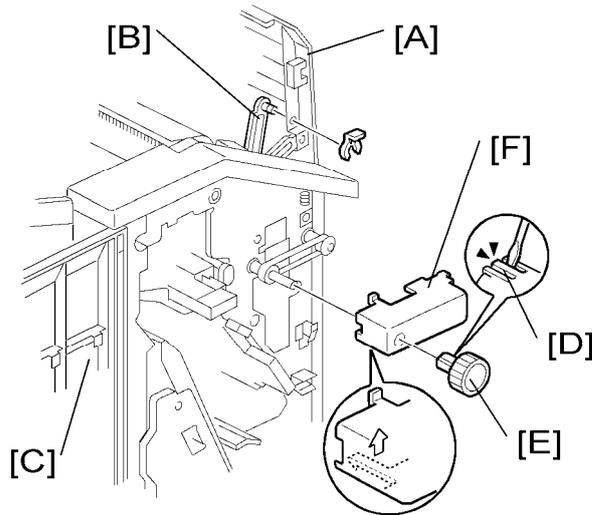
1. If the finisher is connected to the machine, disconnect it.
2. Open the top cover [A] and then release the guide arm [B] (🌀 x 1).
3. Open the front door [C].
4. Pull the hook [D] up then remove the knob [E].
5. Timing belt cover [F].
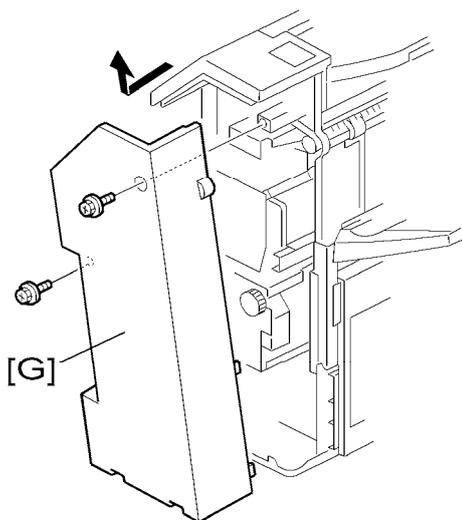
6. Rear cover of the 1000-sheet booklet finisher [G] (🔩 x 2).

Punch Unit (B807)
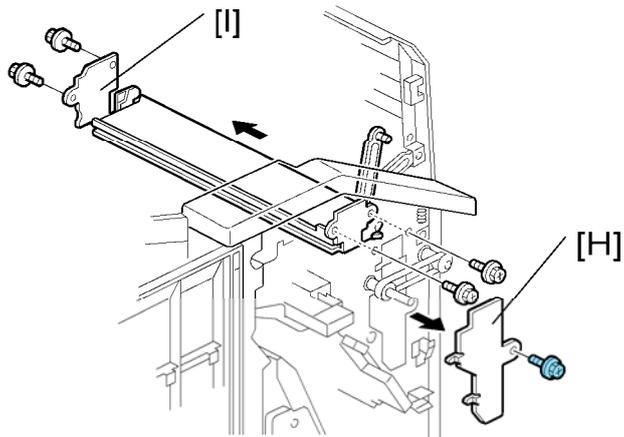
7. Cover bracket [H] (🔩x 1)

8. Remove the paper guide plate [I] from the rear side (🔩 x 4).
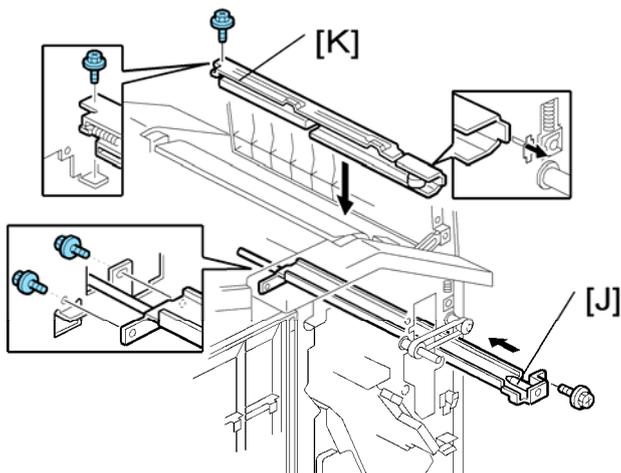
9. Install the punch unit stay [J] from the front side (🔩 x 3).

10. Install the sub-scan registration sensor guide [K] from the top (🔩 x 1).
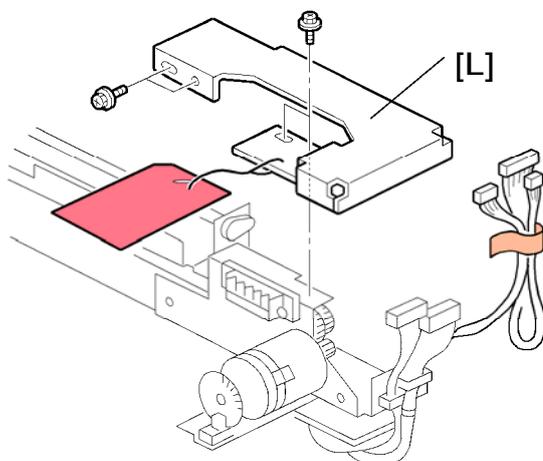
11. Remove the bracket [L] from the punch unit (🔩 x 1).
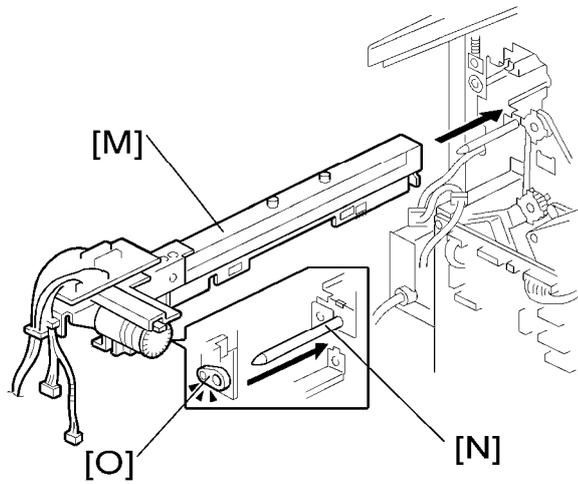
12. Install the punch unit [M] along the punch unit stay from the rear side.

13. Make sure to put the punch unit stay pin [N] through the hole
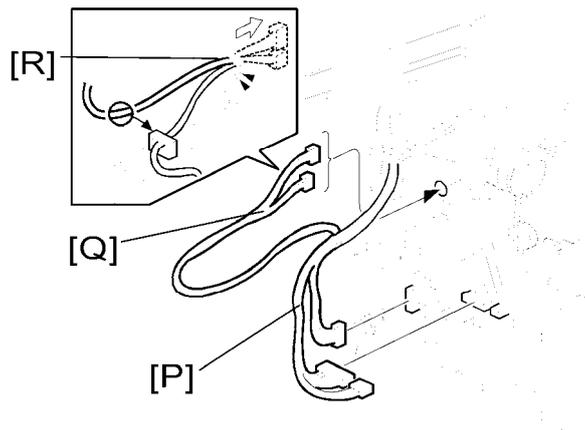
14. Connect the harnesses [P] to the main PCB.

15. Put the harnesses [Q] through the hole [R] in the rear frame (📎 x 1).

Installation
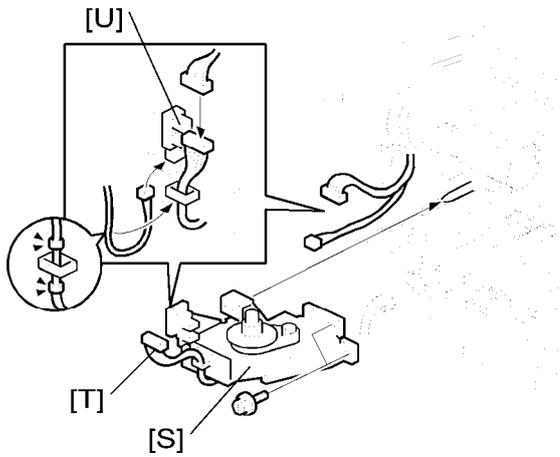
Punch Unit (B807)

16. Install the punch drive motor [S] on the rear frame ($\mathscr{F}$ x 2).

17. Connect the drive motor harness [T] to the harness from the punch unit (⬚ x 1).

18. Connect the home position sensor harness from the punch unit to the home position sensor [U].
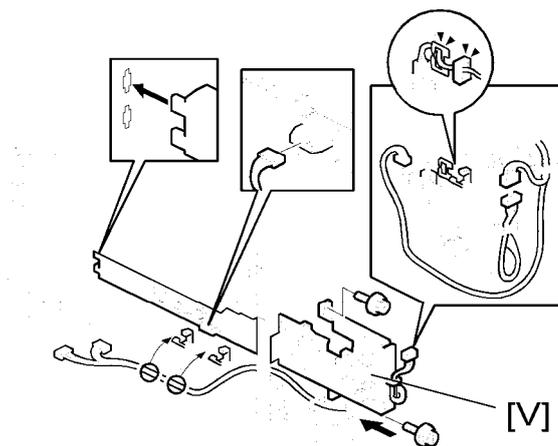
19. Install the sub-scan registration sensor unit [V] from the rear side ($\mathscr{F}$ x 2).

20. Route and connect the harnesses as shown (⬚ x 2).
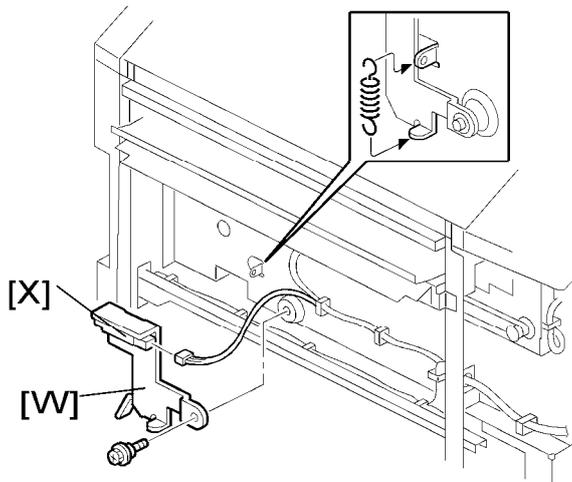
21. Install the hopper full sensor arm [W] (🔩 x 1, spring x 1).

22. Connect the harness from the sub-scan registration sensor unit to the hopper full sensor [X].
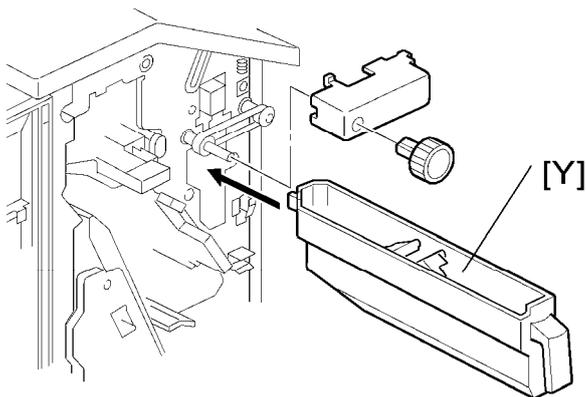
23. Install the hopper [Y] from the front side.

24. Reinstall the timing belt cover and knob.

25. Reinstall the rear cover (🔩 x 2).

26. Close the front door and top cover.

27. Install the 1000-sheet booklet finisher on the copier.

28. Plug in and turn on the main power switch.

29. Check the 1000-sheet booklet finisher operation.

2.15 500-SHEET FINISHER (D372)

2.15.1 ACCESSORY CHECK

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

No	Description	Q'ty	For This Model
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

D372i100
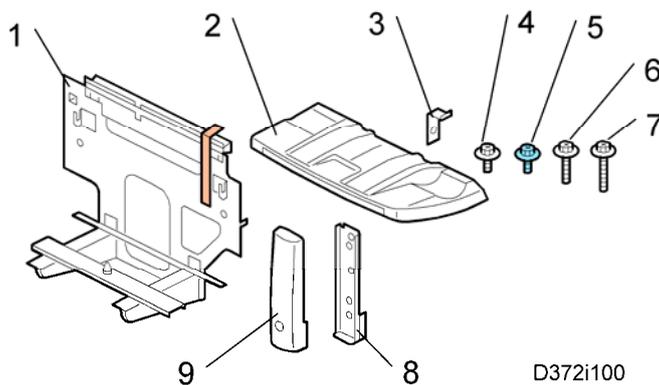
2.15.2 INSTALLATION PROCEDURE

⚠ **CAUTION**

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

↓ Note

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

d372i101a

1. Unpack the finisher and remove the tapes.

D372i102a
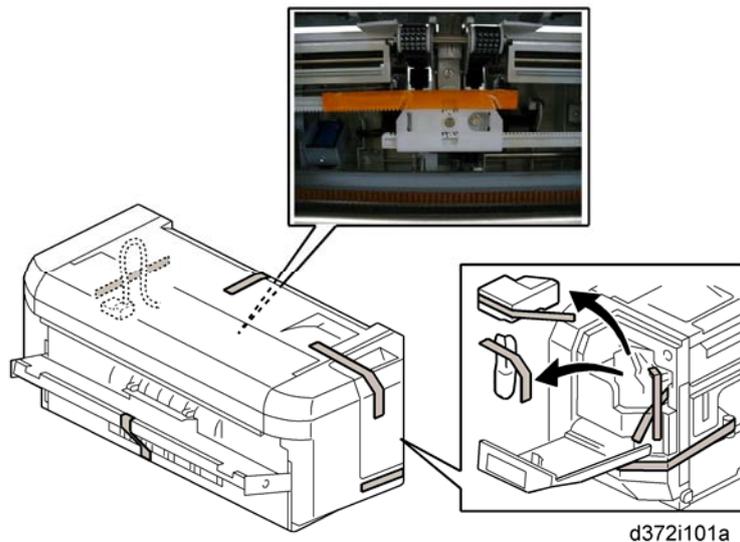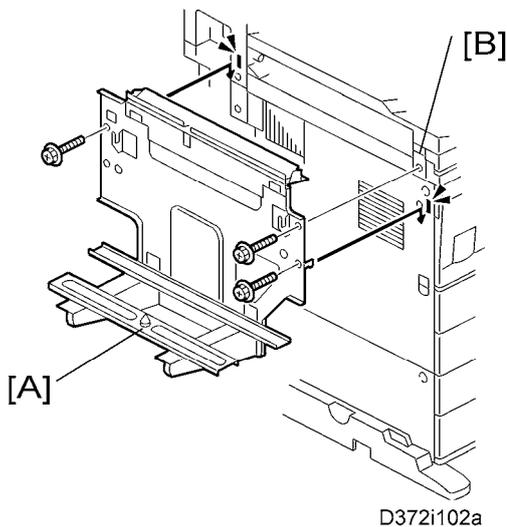
2. Install the unit holder [A] ($\mathscr{P}$ x 3 - M4x14).

↓ Note

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

500-Sheet Finisher (D372)

d372i103
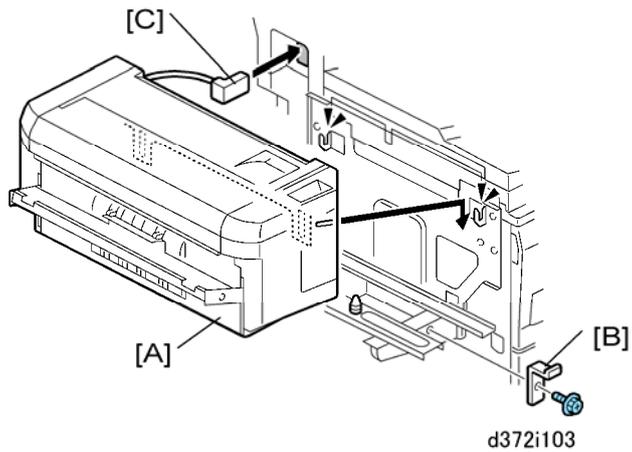
3. Install the 500-sheet finisher [A].

4. Install the holder bracket [B] (🖉 x 1; M3 x 6).

5. Connect the finisher cable [C].

D372i104
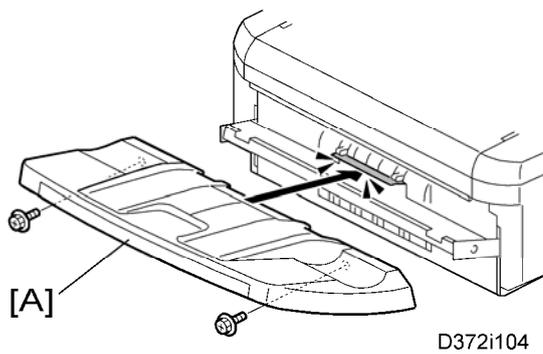
6. Install the shift tray [A] (🖉 x 2 - M3 x 8).

7. Turn on the main power switch and check the finisher operation.

2.16 PLATEN COVER (B406)

b089i555
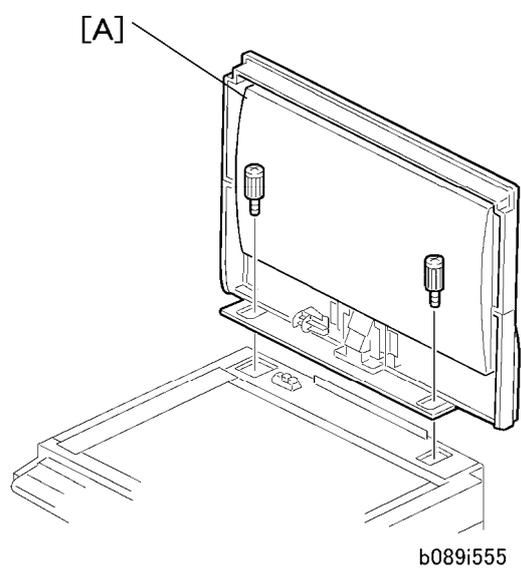
1. Install the platen cover [A] (🔩 x 2).

2.17 KEY COUNTER (B452)

2.17.1 INSTALLATION PROCEDURE

⚠ **CAUTION**

- Disconnect the copier power cord before you start this procedure.
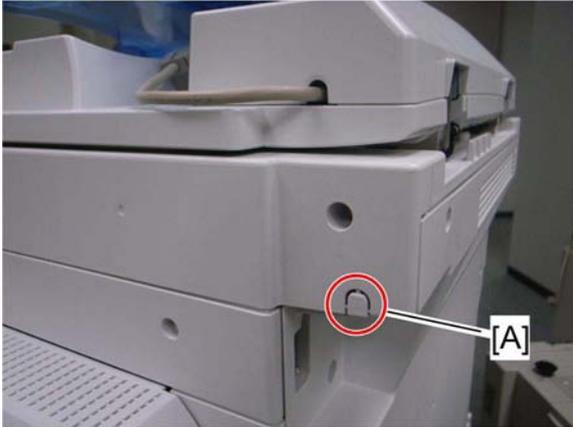
b452i502

1. Cut off the part [A] of the right over.
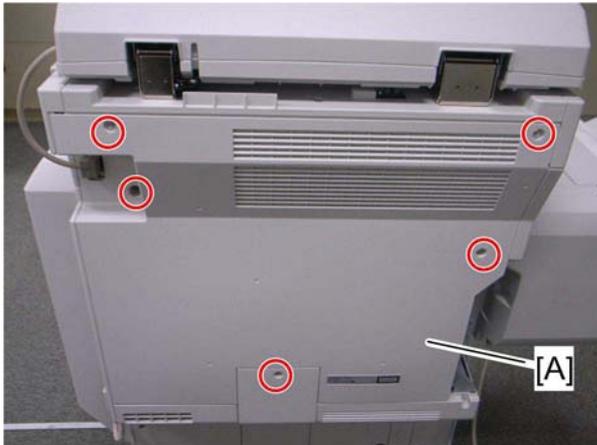
b452i501

2. Remove the rear cover [A] (🔧 x 5)

b089i550
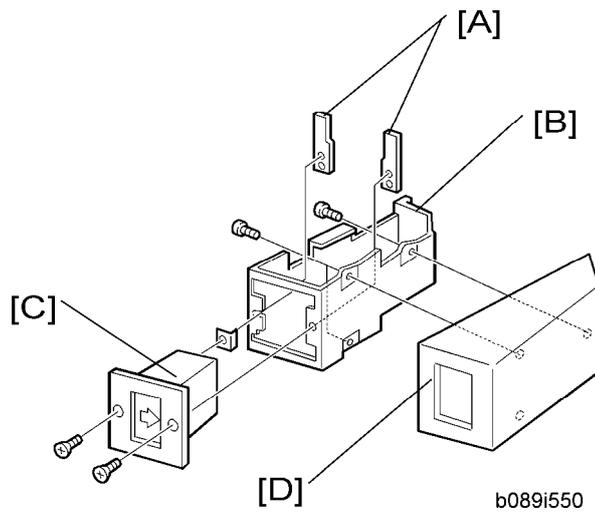
3. Hold the key counter plate nuts [A] on the inside of the key counter bracket [B] and insert the key counter holder [C].

4. Secure the key counter holder to the bracket (🔩 x 2).

5. Install the key counter cover [D] (🔩 x 3).

b452i503
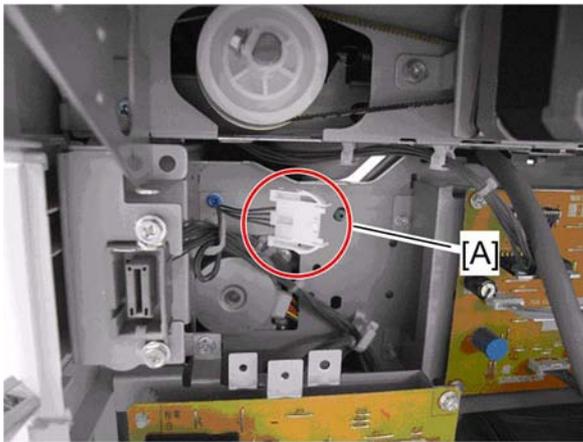
6. Connect the harness of the key counter to the connector [A] inside the machine.

7. Reattach the rear cover (🔩 x 5).

Key Counter (B452)

b452i504
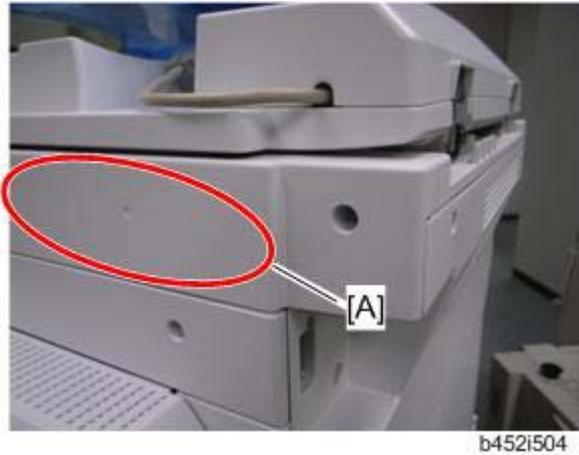
8. Peel off the double-sided tape on the key counter bracket and attach the key counter to the scanner right cover [A].

9. Reassemble the machine.

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

2.18 HEATERS

2.18.1 ANTI-CONDENSATION HEATER (SCANNER UNIT)

Installation Procedure

b230r153a
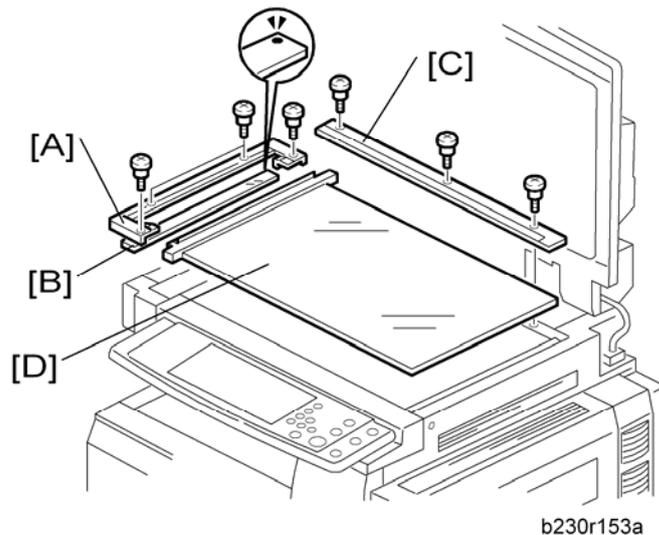
1. Rear cover (see p.4-7 "Exposure Lamp" in the "Replacement and Adjustment" section)

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]
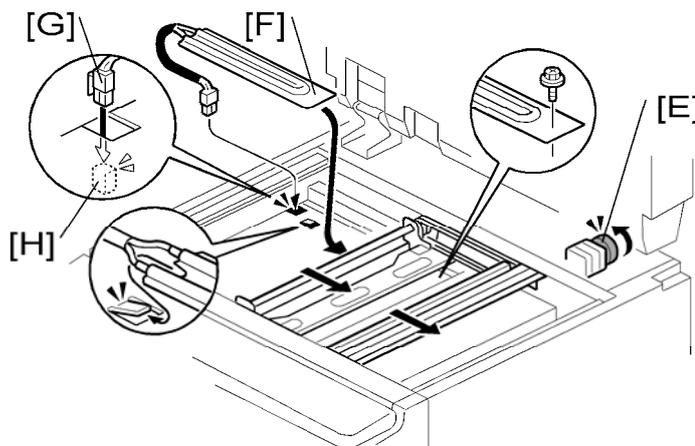
7. Move the scanner carriage to the right side by rotating the scanner motor [E].

8. Install the heater [F] in the scanner unit (🔌 x 1, hook)

Heaters

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.

2.18.2 TRAY HEATER (COPIER)

⚠️ **CAUTION**

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

d017i911
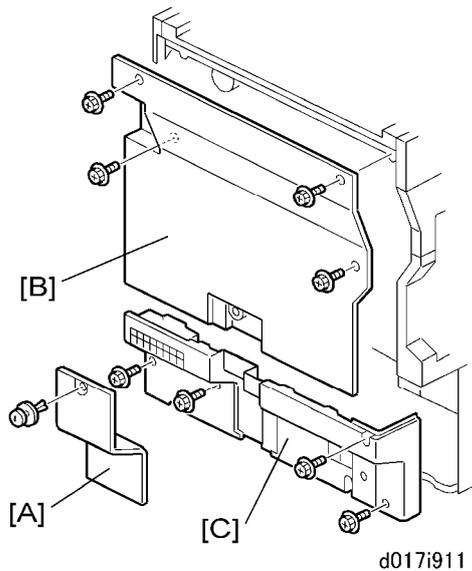
1. Remove:

   - Connector cover [A]
   - Rear upper cover [B] (🔩 x 4)
   - Rear lower cover [C] (🔩 x 4)
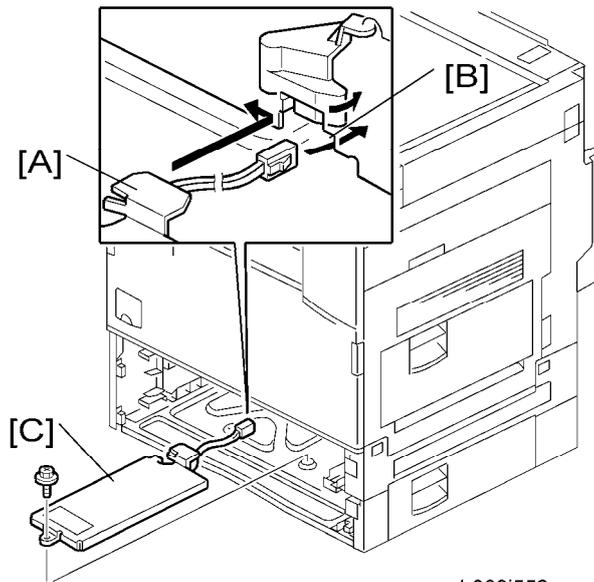
b089i552a

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] (🖊 x 1).
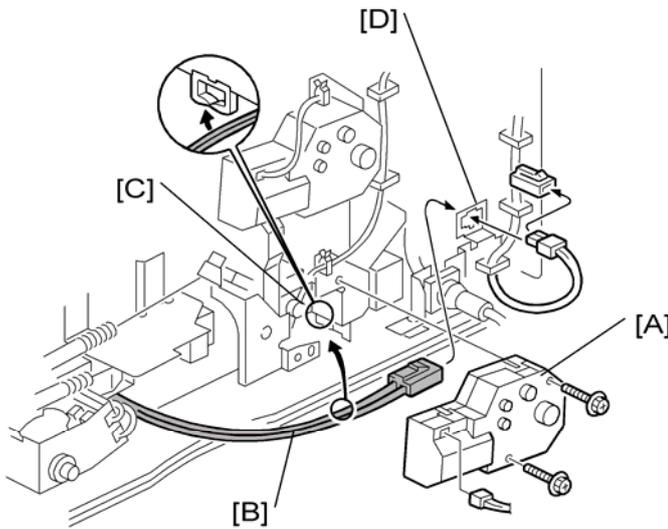
d017i551

5. Remove the 2nd paper lift motor [A] (🖊 x 2, 🔌 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].

2.18.3 TRAY HEATER (OPTIONAL PAPER TRAY UNIT)

⚠ **CAUTION**

▪ Disconnect the copier power cord before you start this procedure.
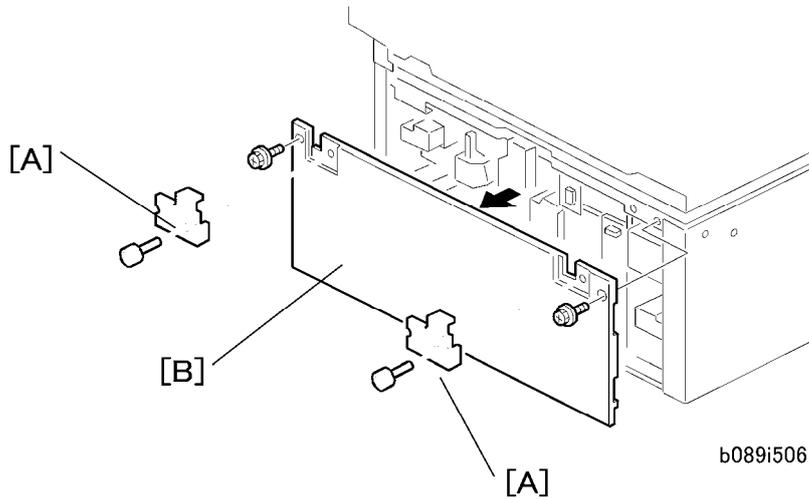
b089i506

1. Remove the joint brackets [A] (🔩 x 1 each).

2. Remove the rear cover [B] for the optional paper tray unit (🔩 x 2).

d010i004
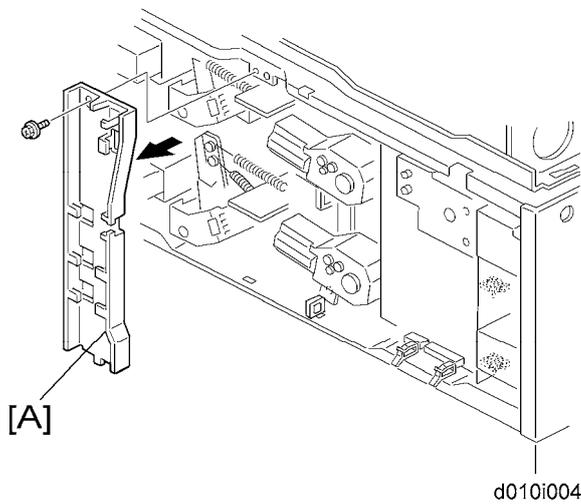
3. Remove the cable guide [A] (🔩 x 1).
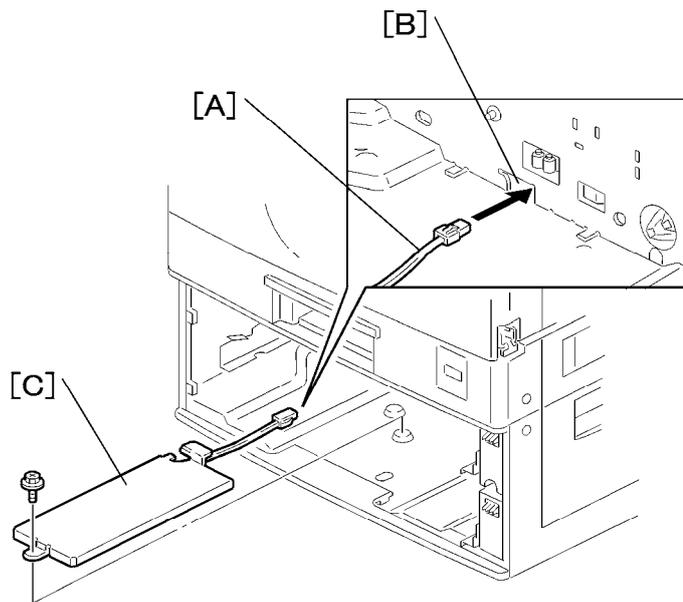
b089i553

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] ($\mathscr{P}$ x 1).
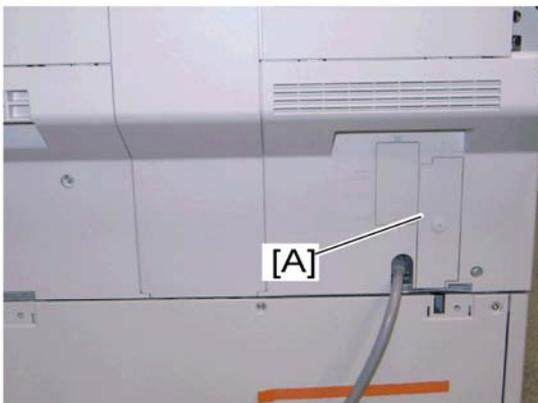
d017i005

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

Heaters

d010i006
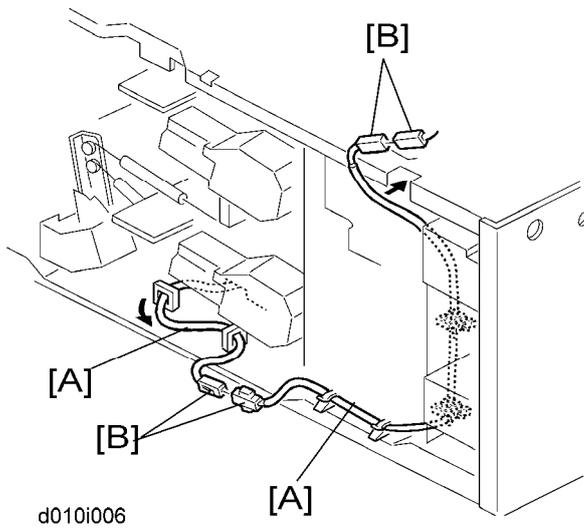
8. Clamp the cables [A], as shown.

9. Join the connectors [B].

10. Reinstall the cable guide.

11. Reinstall the rear cover for the optional paper tray unit.

d010i310
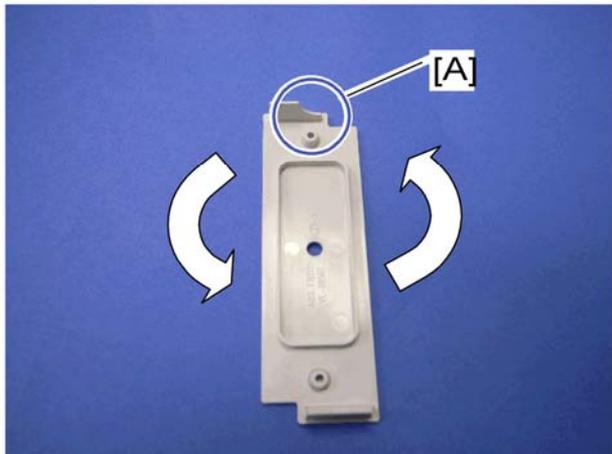
12. Turn the heater harness cover upside down and reinstall it in the rear cover of the main machine.

    ⭐ Important

    ▪ 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.

b089i554
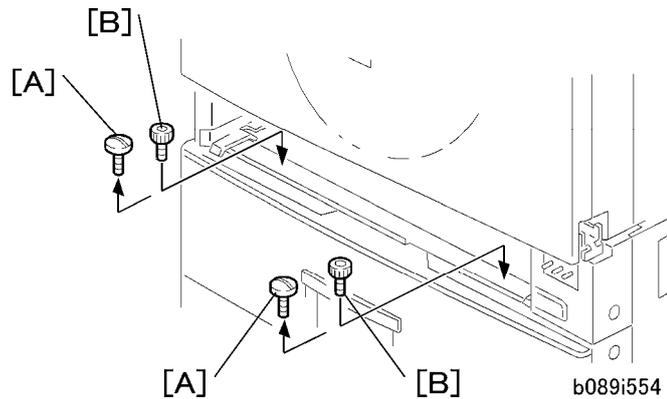
14. Remove the 2nd paper tray of the copier.

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.

2.18.4 TRAY HEATER (OPTIONAL LCT)

⚠CAUTION

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

b089i506
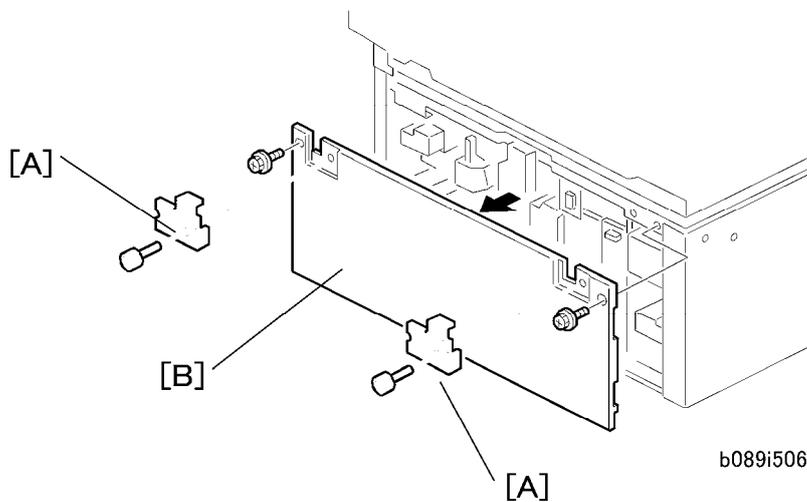
1. Remove two joint brackets [A] (🔩 x 1 each).

2. Remove the rear cover for the LCT [B] (🔩 x 2).

Heaters

b089i151
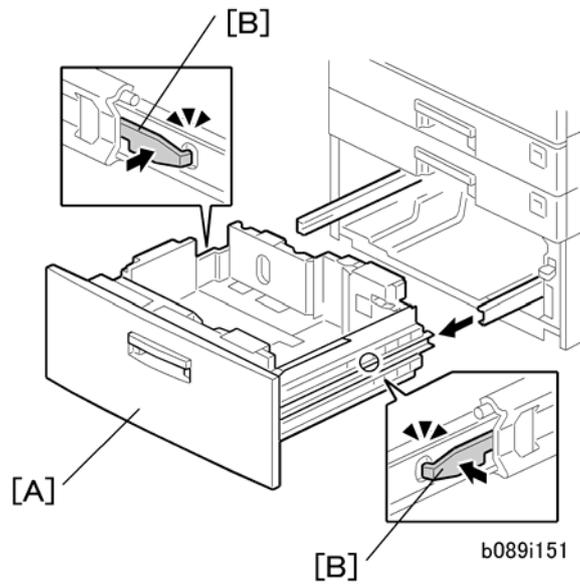
3. Slide out the paper tray [A].

4. Push the stopper [B] on both slide rails and remove the paper tray.

b089i507
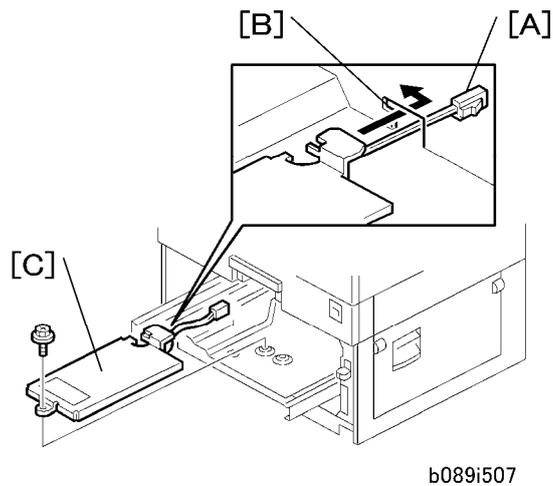
5. Pass the connector [A] through the opening [B].

6. Install the tray heater [C] (🔩 x 1).

b089i252
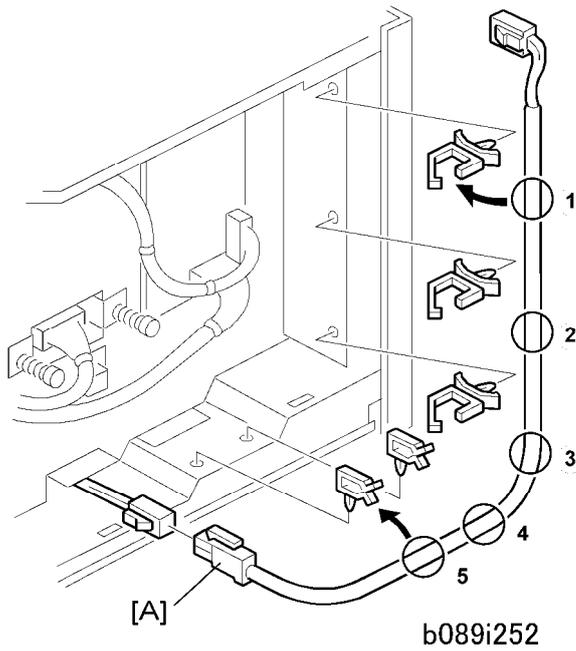
7. Install five clamps (🖫 x 5).

8. Connect the cable tray heater cable [A].

b089i253
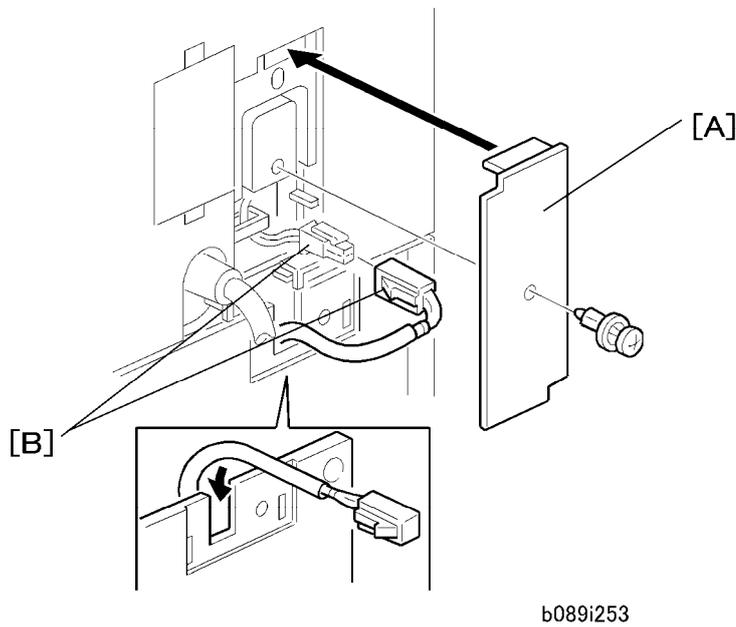
9. Route the cable and clamp it.

10. Remove the connector cover of the copier [A].

11. Join the connectors [B].

12. Reinstall the connector cover of the copier.

Heaters
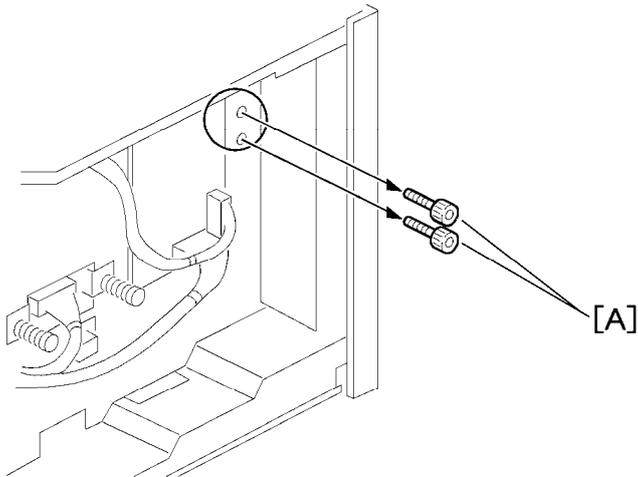
b089i601

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.
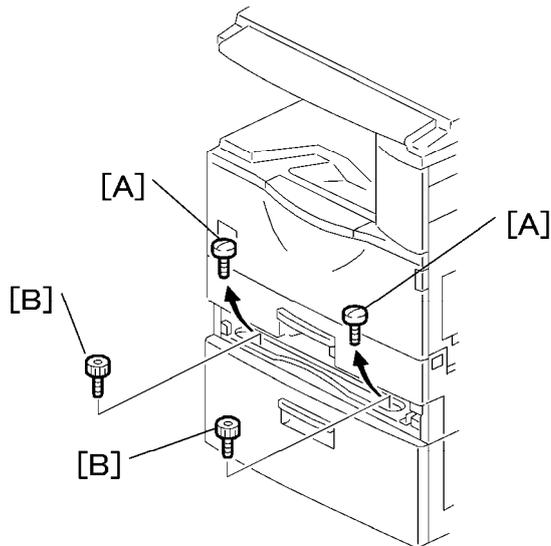
b089i600

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.

2.19 COPY DATA SECURITY UNIT (B829)

NOTE: *For only D017/D018/D019/D020*

2.19.1 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
9	Bracket	1

b770i101

Copy Data Security Unit (B829)
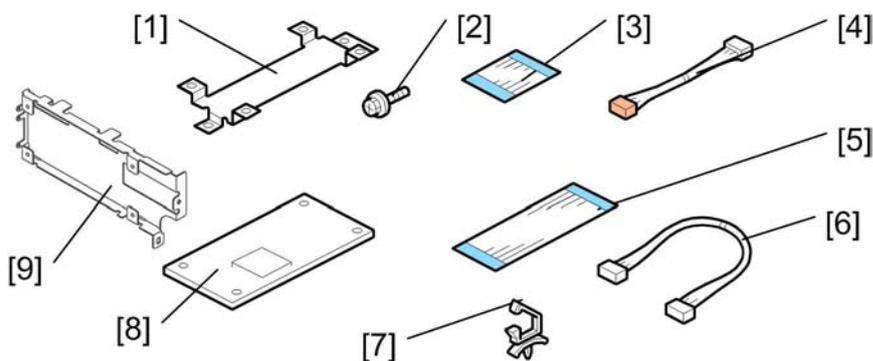
2.19.2 INSTALLATION PROCEDURE

⚠ **CAUTION**

- Turn off the main power switch and disconnect the copier power cord before you start this procedure.

1. Remove these parts: (see p.4-58 "Controller Board" in "Replacement and Adjustment")

    - Controller board plastic cover (🔩 x1).
    - FCU faceplate (🔩 x3)
    - Controller board unit (🔩 x3)

2. Remove these parts: (see p.4-48 "Paper Tray Lift Motors" in "Replacement and Adjustment")

    - Paper tray unit connector cover (🔩 x1)
    - Disconnect the paper tray unit or LCT (if it is installed) (🔌 x1)
    - Rear cover (🔩 x1).

3. Pull the controller board partially out of the left slot to disconnect it from the IPU.

b770i102
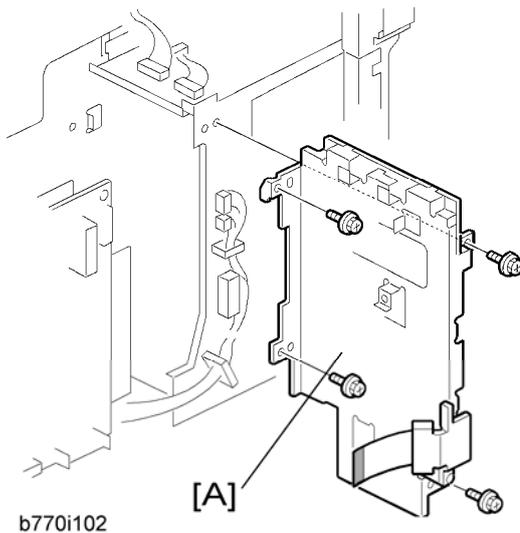
4. Remove the IPU [A] from the main machine.

   ⬇ Note

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

b770i103
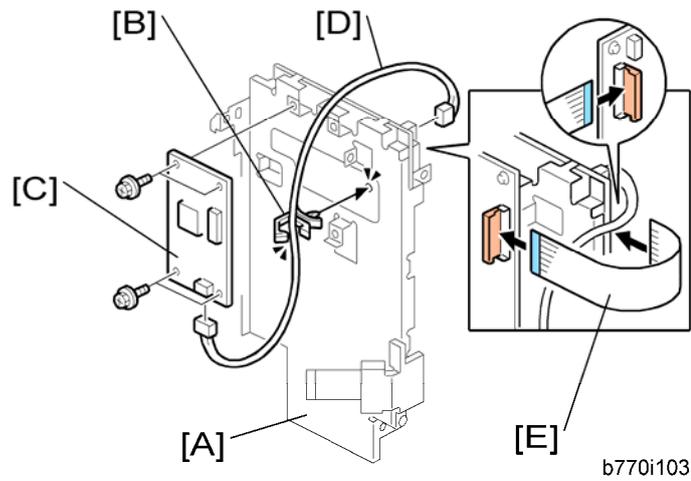
5. Attach the harness clamp [B].

6. Attach the ICIB [C] (🔩 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

2.20 HARD DISK (D362)

2.20.1 ACCESSORY CHECK

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

✔ = Necessary, --- = Not necessary

2.20.2 INSTALLATION

1. Remove the plastic application cover (🔧 x1).
2. Remove the controller board. (See p.4-58 in the "Replace and Adjustment".)

d017r965
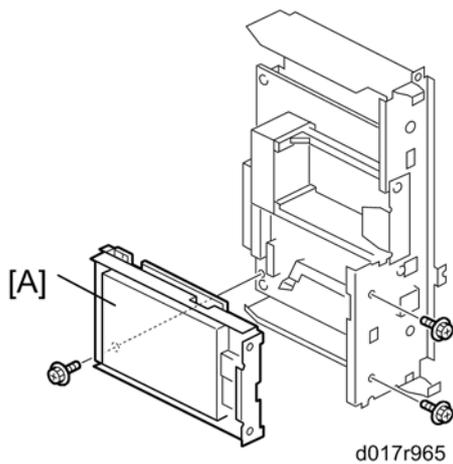
3. Attach the HDD unit [A] to the controller board bracket (🔩 x2, 🔧x3).
4. Reinstall the controller board with the HDD.

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.

2.21 MECHANICAL COUNTER

This counter is only used for NA models.

2.21.1 ACCESSORY CHECK

No.	Description	Q'ty
1	Mechanical counter	1

2.21.2 INSTALLATION

⚠CAUTION

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

b205r902
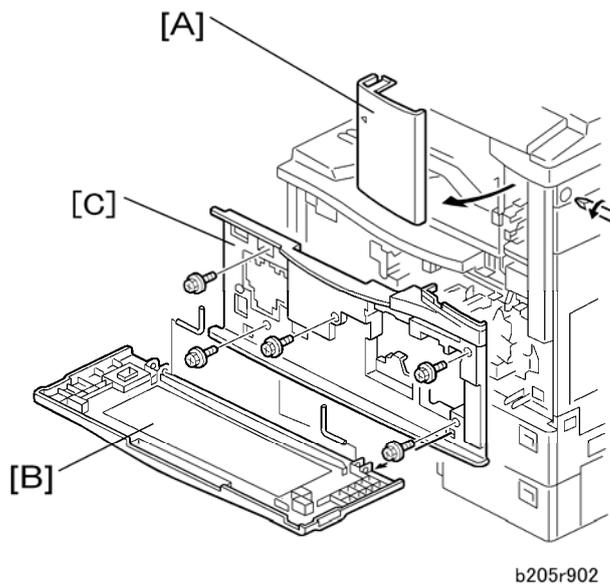
1. Remove the front right cover [A]. (🔩 x 1, Hook x 1)
2. Remove the front cover [B] (L-brackets x2).
3. Remove the front inner cover [C] (🔩 x 5).
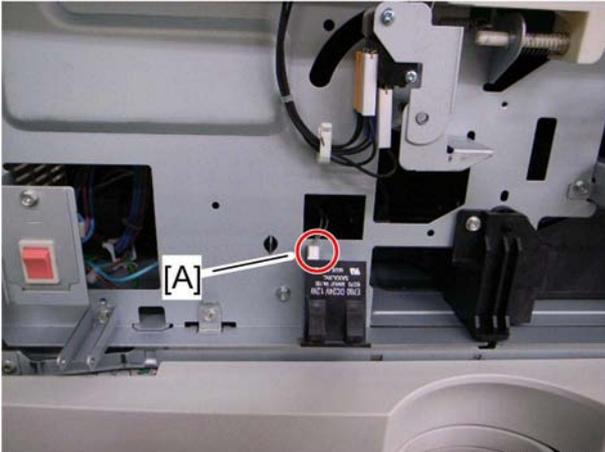
d017i515

4. Connect the harness [A] to the mechanical counter.
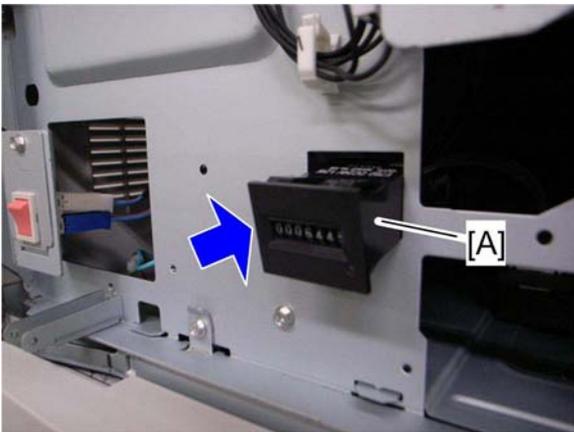
d017i516

5. Push the mechanical counter [A] into the machine.

6. Reassemble the machine.

2.22 KEY COUNTER INTERFACE UNIT

2.22.1 INSTALLATION PROCEDURE

b870i501
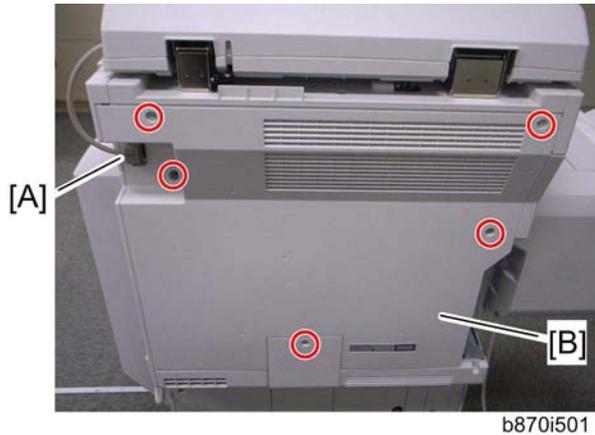
1. Disconnect the DF I/F cable [A] if the ARDF is installed.
2. Remove the rear cover [B] (🔩 x 5)

b870i502
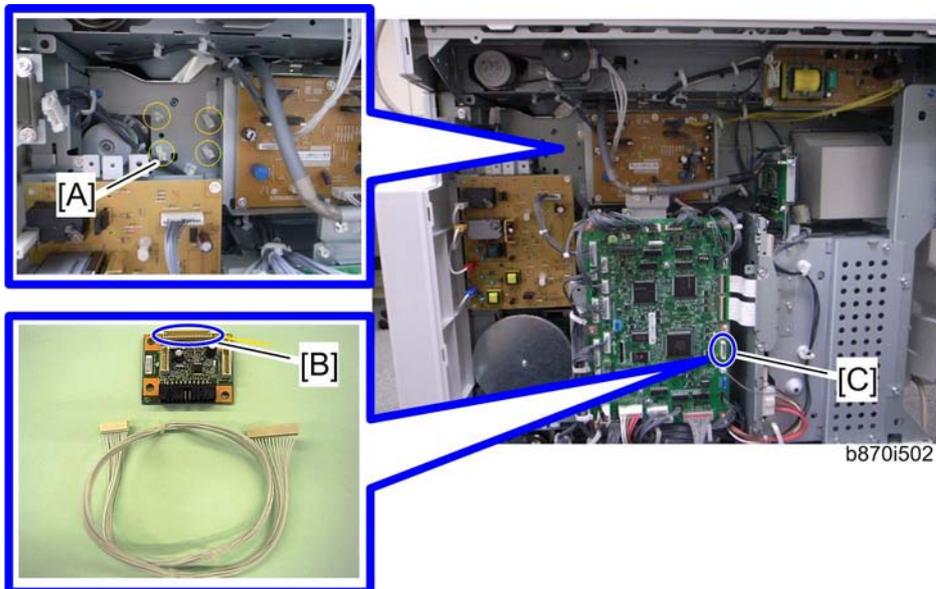
3. Attach the studs [A] (x 4) in the holes on the controller box.
4. Install the key counter interface board on the four studs [A].
5. Connect the harness to "CN3" [B] on the key counter interface board.
6. Connect the other terminal of the harness to "CN345" [C] on the IOB (🔌 x 1).
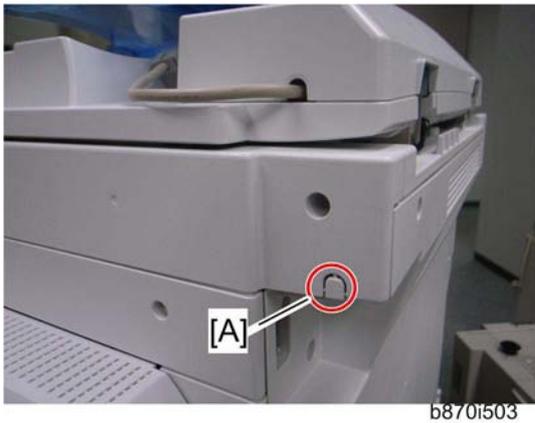
b870i503

7. Cut off the part [A] of the scanner right cover.

8. Connect the harness from the counter device to "CN4" on the key counter interface board.

9. Reassemble the machine.

Installation

2.23 CONTROLLER OPTIONS

2.23.1 CONTROLLER BOARD SLOTS

Interface Board, SD Card Slots

The machine controller box has one board slot and two SD card slots.

- Only one interface board option can be installed.
- Only two SD cards are available for applications and maintenance.

d017i901
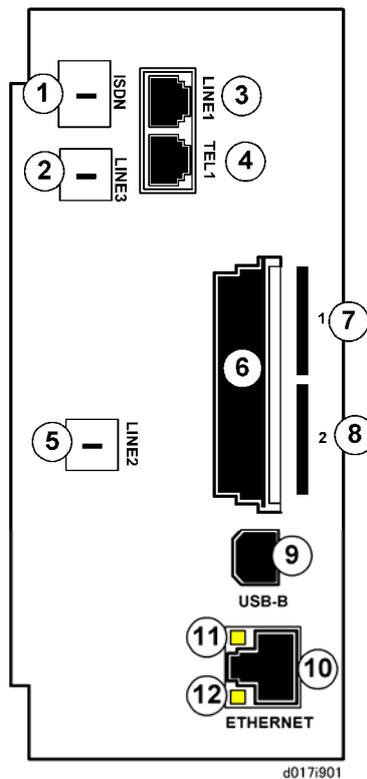
Board Slots

No.	Name	Description
1	ISDN	Jack for ISDN connection (**Japan Only**)
2	Line 3	Not used. (G4 is not available for installation outside Japan at this time.)
3	Line 1	Jack for the main telephone line from the outside for connection to Fax Option (D361).

No.	Name	Description
4	TEL1	Jack for telephone connection
5	Line 2	Jack for a 2nd line connection to the Fax Interface Unit (D361) (G3) when this option is installed.
6	Board Slot	Optional interface boards are installed here.
7	SD Card Slot 1	For options provided on SD cards. The application SD card (with the exception of the HDD Encryption unit or VM SD card) should be installed in Slot 1. If more than one application is to be used, move the applications to the same SD card with SP5873.
8	SD Card Slot 2	For options provided on SD cards and servicing. The VM application, HDD Encryption Unit and Browser Unit SD cards must be installed in Slot 2 (lower). However, HDD Encryption Unit and Browser Unit SD cards do not need to be kept in SD slot 2 (these can be removed after installing).
9	USB-B	Built-in for connection of USB devices (USB 2.0)
10	Ethernet	Standard LAN connection point. 100BaseT LAN
11	Green LED	Lights when the network is connected and operating.
12	Orange LED	Indicates the current transmission speed: ON: 100Base OFF: 10Base

- Only two SD Card slots are available for applications.
- To install more applications, they must be moved onto one SD Card. (See Moving an Application to Another SD Card)

Board Slot

The following optional interface boards are available. There is only one board slot so only one can be installed.

No.	Interface Board
B679	IEEE1284 Interface Board Type A (B679)
B826	Bluetooth Interface Unit Type 3245 (B826)
D377	File Format Converter Type E (D377)
D377	IEEE802.11a/g Interface Unit Type J/K (D377)
G831	Gigabit Ethernet Type 7300 (G831)

SD Card Slots

The following options are provided on SD cards.

- Two SD card slots are available.
- The VM application, HDD Encryption Unit and Browser Unit SD cards must be installed in Slot 2 (lower). However, HDD Encryption Unit and Browser Unit SD cards do not need to be kept in SD slot 2 (these can be removed after installing).
- Other applications should be installed in Slot 1 (upper). If more than one application is required, move the applications onto one SD card with SP5873-1.
- Due to limitations, the VM Card (D377) can be neither merged nor moved to another SD card. This card must be installed in Slot 2 (lower).
- Due to copyright restrictions, the PostScript3 Unit (D383) cannot be moved to another SD card. However, other applications can be moved onto the PostScript 3 SD card.

No.	SD Card Applications for All Models
D362	Data Overwrite Security Unit Type I (D362)
D377	Browser Unit Type D (D377)
D377	HDD Encryption Unit (D377)

No.	SD Card Applications for All Models
D377	VM Card Type E (D377)
D383	PostScript3 Unit Type 3350 (D383)
D383	IPDS Unit Type 3350 (D383)

No.	SD Card Applications for D017/D019 Models
D383	Printer Enhance Option Type 3350 (D383)
D383	Printer Unit Type 3350 (D383)
D383	Printer/Scanner Unit Type 3350 (D383)
D383	RPCS Printer Unit Type 3350 (D383)
D383	Scanner Enhance Option Type 3350 (D383)

Installation

2.23.2 IEEE 1284 INTERFACE BOARD (B679)

Accessories

Check the accessories and their quantities against the following list:

No	Description	Quantity
1	IEEE 1284 Interface Board B679	1

Installation

⚠️**CAUTION**

- Turn off the main power switch and disconnect the power supply cord.
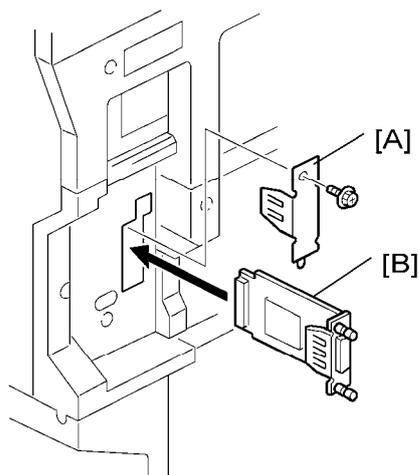
d017i503

1. Remove the application cover (🔩 x1).
2. Remove the cover [A] of the board slot (🔩 x1).
3. Install the interface board [B] (🔩 x2 knob screws).

   ⬇️ Note

   - Use a screwdriver to tighten the knob-screws. Do not tighten manually, because this can disconnect the board.

4. Reattach the application cover (🔩 x1).

   ⭐ Important

   - If the 500-Sheet Finisher is installed, remove it before you attach the parallel cable. Install the finisher again after you connect the parallel cable.

2.23.3 IEEE 802.11A/G (D377)

Accessories

Check the accessories and their quantities against the following list:

No	Description	Quantity
1	IEEE 802.11a/g Interface Board	1
2	Antenna Cables	2
3	Antenna Clamps	8

Installation

⚠CAUTION
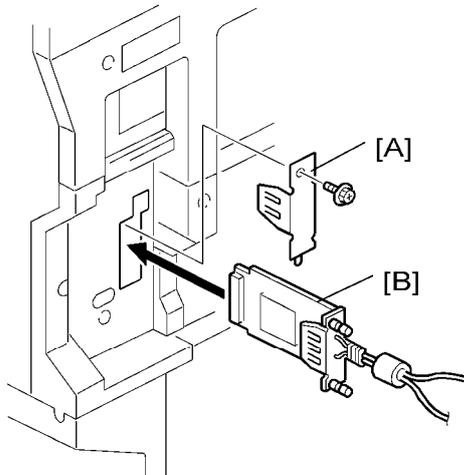
- Turn off the main power switch and disconnect the power supply cord.

d017i507

1. Remove the plastic application cover (🔩 x1).
2. Remove the cover [A] of the board slot (🔩 x1).
3. Insert the interface card [B] as shown above.

Controller Options

- Use a screwdriver to tighten the knob-screws. Do not tighten manually, because this can disconnect the board.

4. Look at the markings on the antenna bracket.

- **ANT1**. Antenna 1 transmits and receives. It must be installed on the front left corner of the main machine. (The core on the Antenna 1 cable is black.)

- **ANT2**. Antenna 2 only receives. It is installed on the rear right corner of the machine.
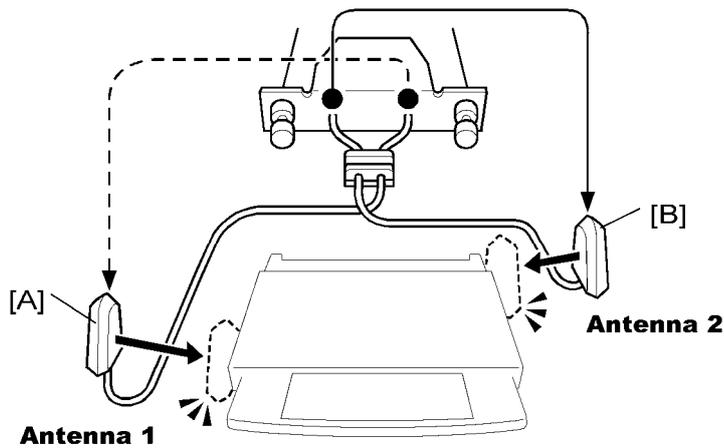
d017i508

★ Important

- To assure reliable data sending and receiving, Antenna 1 must be installed on the front left corner of the machine.
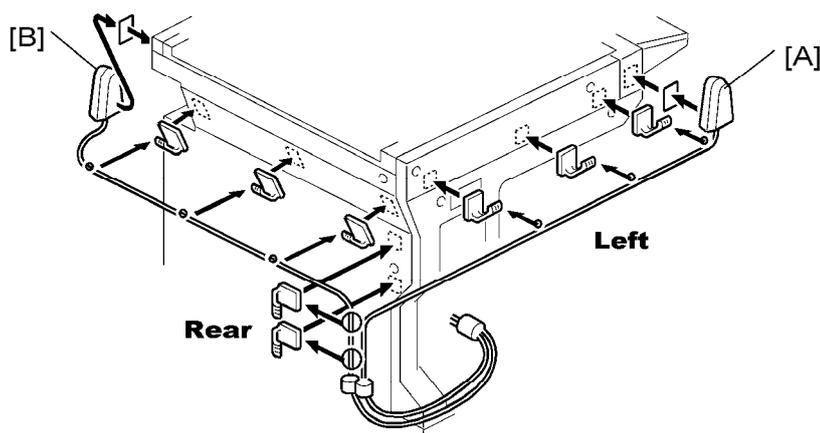
d017i509

5. Remove the seals from of the cable clamps and attach them to the left side of the machine as shown above.

6. Attach Antenna 1 [A] to the left front corner of the machine. (The core on the Antenna 1 cable is black.)

7. Set the cable of Antenna 1 in the clamps and close them.

8. Remove the seals from the cable clamps and attach them to the rear of the machine as shown above.

9. Attach Antenna 2 [B] to the right rear corner of the machine.

10. Set the cable of Antenna 2 in the clamps and close them.

User Tool Settings for IEEE 802.11a/g

Go into the User Tools mode and do the procedure below. These settings take effect every time the machine is powered on.

↓ Note

- You cannot use IEEE 802.11a/g if you use Ethernet.

1. Press the "User Tools" key.

2. On the touch panel, touch "System Settings".

   ↓ Note

   - The Network I/F (default: Ethernet) must be set for either Ethernet or wireless LAN.

3. Select "Interface Settings"> "Network"> "Network I/F Setting"

4. Press "IEEE 802.11". Only the wireless LAN options show.

5. Set the Communication Mode. Select either "802.11 Ad hoc", "Ad hoc" or "Infrastructure".

6. Enter the SSID setting. (The setting is case sensitive.)

7. Set the Channel. You need this setting when Ad Hoc Mode is selected.

   - Range: 1 to 14 (default: 11)
   - The allowed range for the channel settings may vary for different countries.

8. Do the WEP (Encryption) Setting.

   - The WEP (Wired Equivalent Privacy) setting is designed to protect wireless data transmission. The same WEP key is required on the receiving side in order to unlock encoded data. There are 64 bit and 128 bit WEP keys.
   - WEP: Select "Active" or "Inactive". ("Inactive" is the default.)
   - Range of Allowed Settings: 64-bit (10 characters) or 128-bit (26 characters)

Controller Options

9. Set the Transmission Speed.

- Press the Next button to show more settings. Then select the transmission speed for the mode: Auto, 11 Mbps, 5.5 Mbps, 2 Mbps, 1 Mbps (default: Auto). This setting should match the distance between the closest machine or access point. This depends on which mode is selected.

- For the Ad Hoc Mode, this is the distance between the machine and the closest PC in the network. For the Infrastructure Mode, this is the distance between the machine and the closest access point.

11 Mbps	140 m (153 yd.)
5.5 Mbps	200 m (219 yd.)
2 Mbps	270 m (295 yd.)
1 Mbps	400 m (437 yd.)

10. Press "Return to Default" to initialize the wireless LAN settings. Press "Yes" to initialize the following settings:

- Transmission mode
- Channel
- Transmission Speed
- WEP
- SSID
- WEP Key

SP Mode Settings for IEEE 802.11a/g Wireless LAN

The following SP commands and UP modes can be set for IEEE 802.11a/g.

SP No.	Name	Function
5840 006	Channel MAX	Sets the maximum range of the channel settings for the country.
5840 007	Channel MIN	Sets the minimum range of the channels settings allowed for your country.
5840 011	WEP Key Select	Used to select the WEP key (Default: 00).
UP mode	Name	Function
	SSID	Used to confirm the current SSID setting.
	WEP Key	Used to confirm the current WEP key setting.
	WEP Mode	Used to show the maximum length of the string that can be used for the WEP Key entry.

2.23.4 BLUETOOTH UNIT (B826)

Accessories

Check the accessories and their quantities against the following list:

No	Description	Quantity
1	Bluetooth Unit B826	1
2	PCI Card	1
3	Cap	1

Installation

⚠CAUTION

- ▪ Turn off the main power switch and disconnect the power supply cord.

d017i504
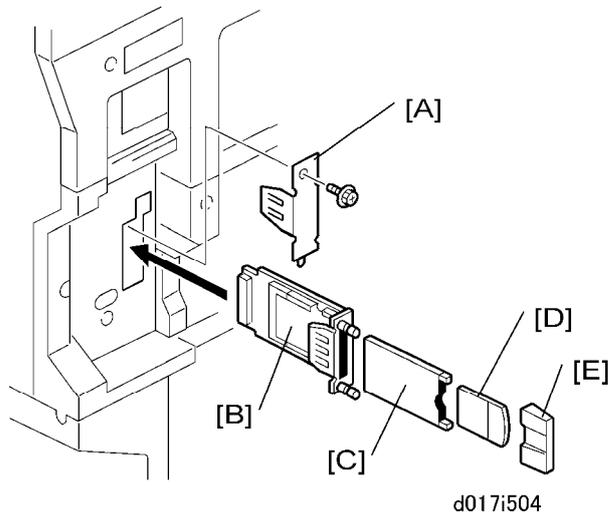
1. Remove the plastic application cover (🔧 x1).
2. Remove the cover [A] of board slot (🔧 x1).
3. Attach the interface board [B] to the controller board (🔧 x2 knob screws).

   ↓ Note

   - ▪ Use a screwdriver to tighten the knob-screws. Do not tighten manually, because this can disconnect the board.

4. Install the Bluetooth card [C] in the slot in the Bluetooth unit.
5. Insert the antenna [D] into the Bluetooth card.
6. Attach the antenna cap [E].

2.23.5 GIGABIT ETHERNET (G831)

Accessories

Check the accessories and their quantities against the following list:

No	Description	Quantity
1	Gigabit Ethernet (G381)	1
2	Ferrite Core	1

Installation

1. Switch the machine off.
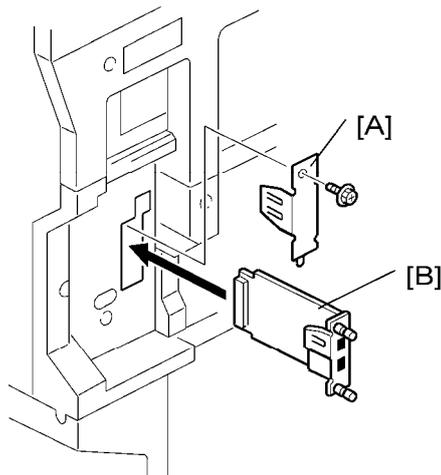
d017i505

2. Remove the plastic application cover (🔩 x1).
3. Remove the board cover [A] (🔩 x 2).
4. Insert the Gigabit Ethernet Board [B] into the slot and fasten it with the screws.
5. Switch the machine on.
6. Print a configuration page to confirm that the machine recognizes the installed board for USB2.0:

   User Tools > Printer Features > List/Test Print > Configuration Page

2.23.6 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
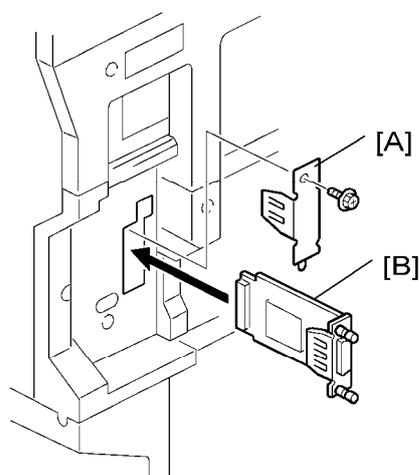
d017i503

1. Switch the machine off.

2. Remove the plastic application cover (🔩 x1).

3. Remove the board slot cover [A] (🔩 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 (🔩 x 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.

10. Scan a document to the document server.

11. Access Web Image Monitor and confirm that the document can be downloaded.

2.23.7 POSTSCRIPT 3 UNIT (D383)

Accessories

Check the accessories and their quantities against the following list:

No	Description	Quantity
1	PostScript 3 Emulation SD Card (D383)	1
2	Decal	1

Installation

⚠CAUTION

▪ Turn off the main power switch and disconnect the power supply cord.
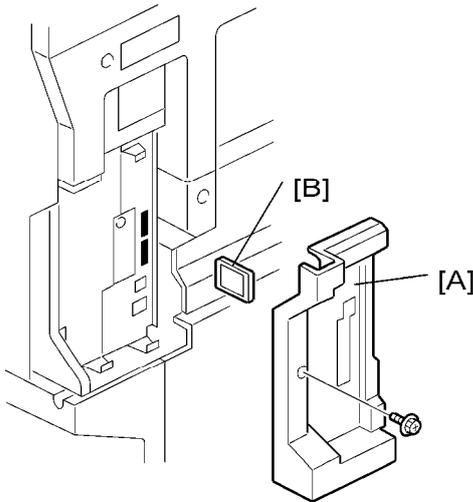
d017i502

1. Remove the plastic application cover [A] (🔩 x1).

2. Insert the SD card [B] into Slot 1 (upper slot).

3. Reattach the plastic application cover (🔩 x1).

4. Attach the "Adobe PostScript 3" decal to the front cover.

2.23.8 HDD ENCRYPTION UNIT

Installation

Seal Check and Removal
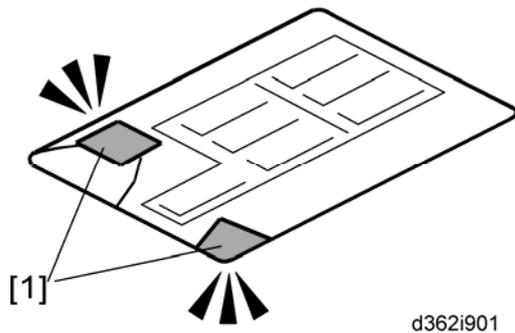
d362i901

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

    ⭐ Important

    ▪ 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

↓ Note

▪ "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. For models which have the VM card, do the followings:

▪ Press "User Tools" button to enter the User Tools mode.
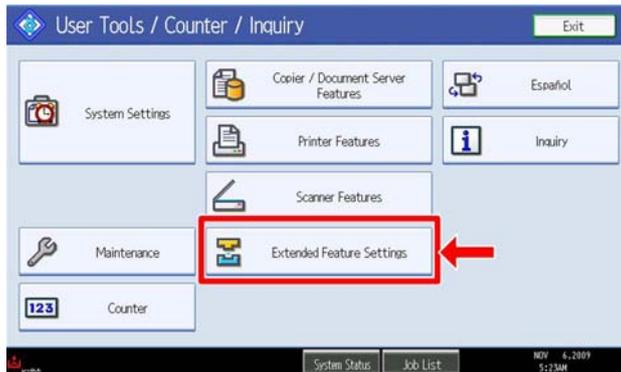
d377i502

▪ Press "Extended Feature Settings" on the LCD.
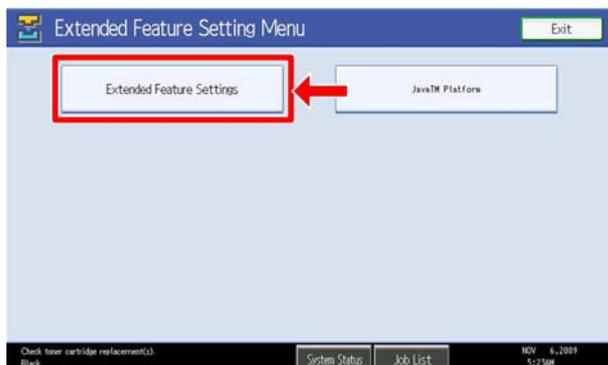
d377i503

▪ Press "Extended Feature Settings" on the LCD again.

d377i504

▪ Press "Startup Setting" tab.

▪ Stop all SDK applications with touching application lines.

Controller Options

- Exit the UP mode, and then turn off the machine.
- Remove the VM card from the SD card slot 2.
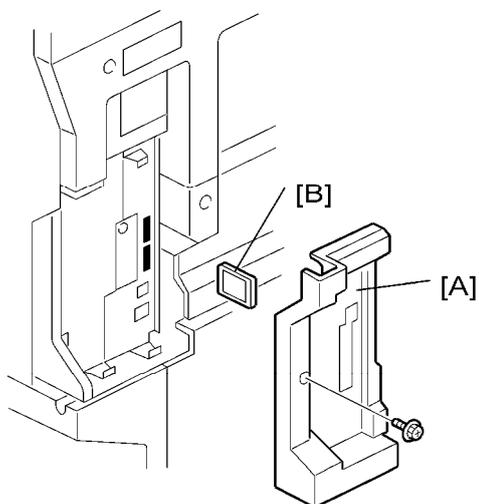
d017i502

5. Remove the plastic application cover [A] (🔩 x 1).

6. Insert the SD card in SD card [B] Slot 2 (lower).

   ★ Important

   - The encryption SD card must be installed in Slot 2 (lower).

7. Turn on the main power switch.

8. Enter the SP mode.

9. Select SP5878-002 (Option Setup – Encryption Option), and then touch [Execute].

10. Turn off the main power switch.

11. Remove the SD card.

12. Attach the slot cover [A] (🔩 x 1).

13. Switch the machine on.

Recovery from a Device Problem

d381i501
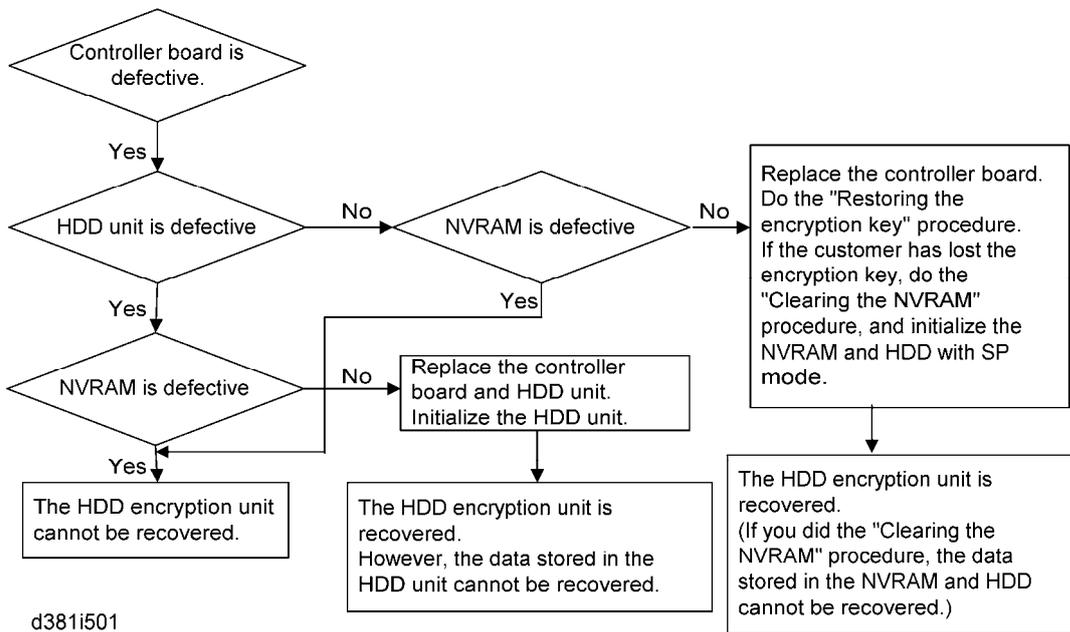
Restoring the encryption key

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 "nvram_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 (☞ p.4-69).

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.

Controller Options

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.

Installation

Controller Options

Procedure Flow
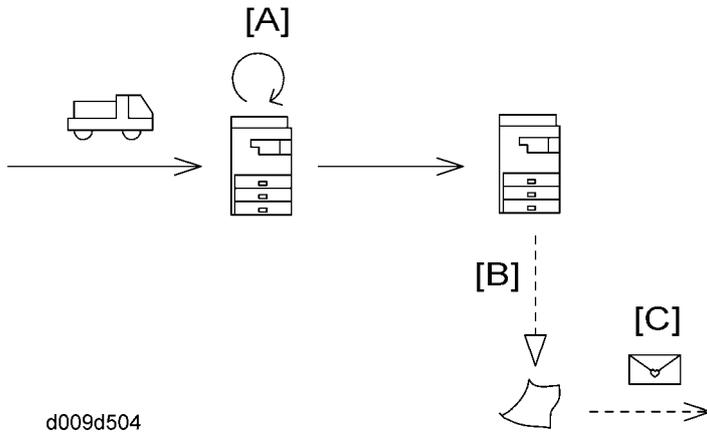
d009d504

[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
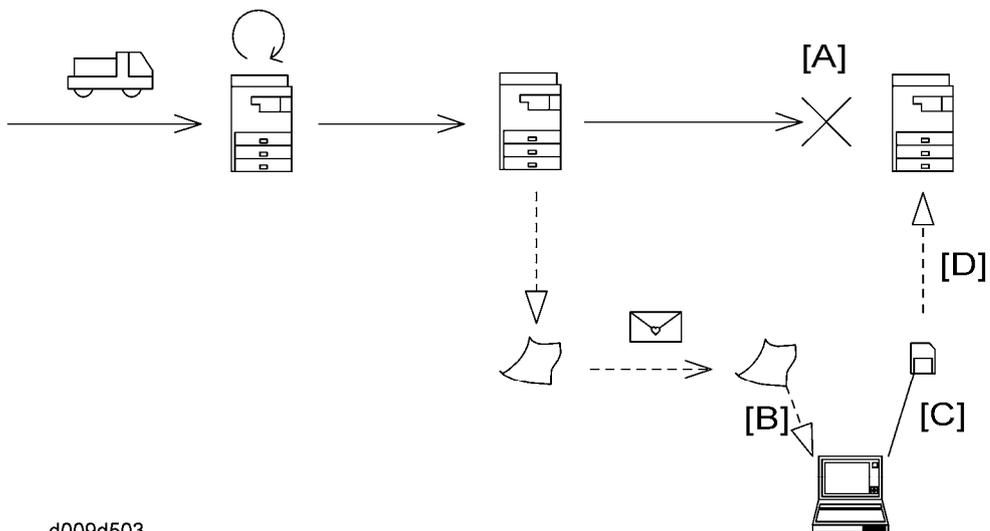
d009d503

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.

2.23.9 DATA OVERWRITE SECURITY UNIT (D362)

Accessory Check

Check the accessories and their quantities against the table below.

No	Description	Quantity
1	Data Overwrite Security SD Card	1
2	Operating Instructions CD-ROM	1
3	Comments Sheet (17 languages)	2

Before You Begin

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**".
2. Make sure that the following features have been set up:
    - Supervisor login password
    - Administrator login name
    - Administrator login password

    ★ Important
    - 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.

    ↓ Note
    - "Available Settings" is not displayed until Step 2 has been done.

Seal Check and Removal
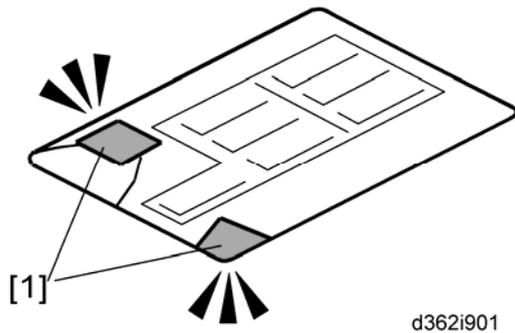
d362i901

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.

d362i902
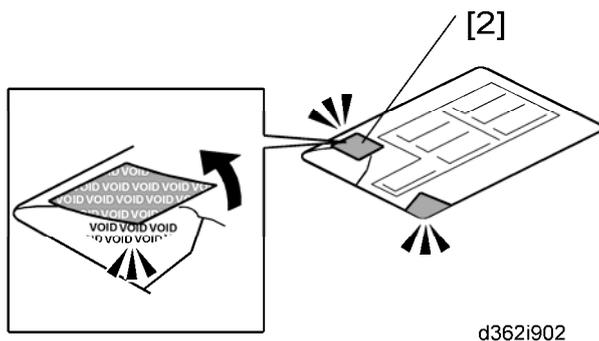
3. When you remove each seal, the "VOID" marks [2] can be seen. In this condition, they cannot be reattached to the box.

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.

Controller Options
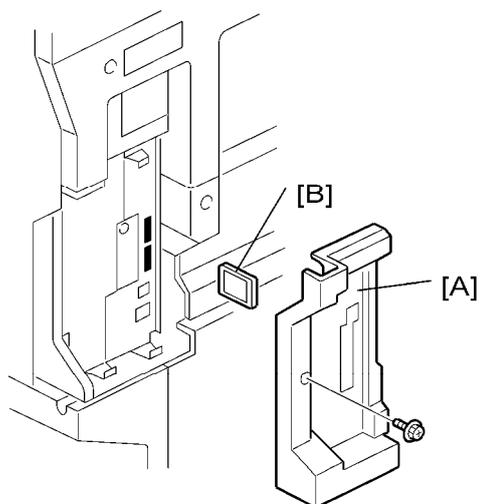
d017i502

5. Remove the plastic application cover [A] (🔩 x1).

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. Make sure the ROM number and firmware version in area [a] of the diagnostic report are the same as those in area [b].

   ▪ [a]: "ROM Number/Firmware Version" – "HDD Format Option"

   ▪ [b]: "Loading Program" - "GW**5**a_zoffy**m**"

Diagnostic Report:	"ROM No. / Firmware Version" [a]	"Loading Program" [b]
DataOverwriteSecurity Unit	HDD Format Option: **D3775912A / 1.01m**	**GW5a_zoffym: D3775912A / 1.01m**

13. Push [User Tools] and select System Settings> Administrator Tools> Auto Erase Memory Setting> On.

14. Exit from User Tools mode.

d386i903
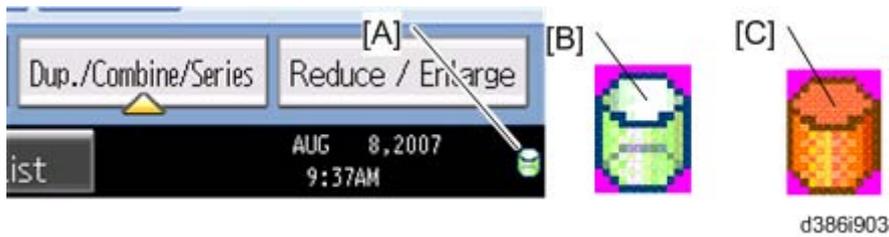
15. Check the display and make sure that the overwrite erase icon [A] is displayed.

16. Make a Sample Copy.

17. 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.

18. Do SP5990-005 (SP print mode - Diagnostic Report).

19. Look at the report:

   ▪ 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.

20. Exit SP mode.

2.23.10 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.

1. For models which have the VM card, do the followings:

    ▪ Press "User Tools" button to enter the User Tools mode.

d377i502

    ▪ Press "Extended Feature Settings" on the LCD.

d377i503

    ▪ Press "Extended Feature Settings" on the LCD again.

d377i504
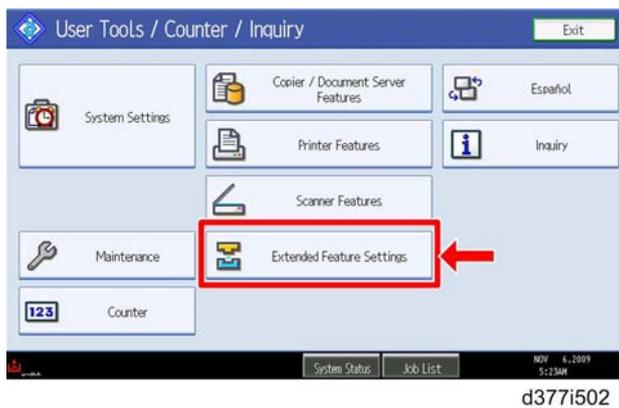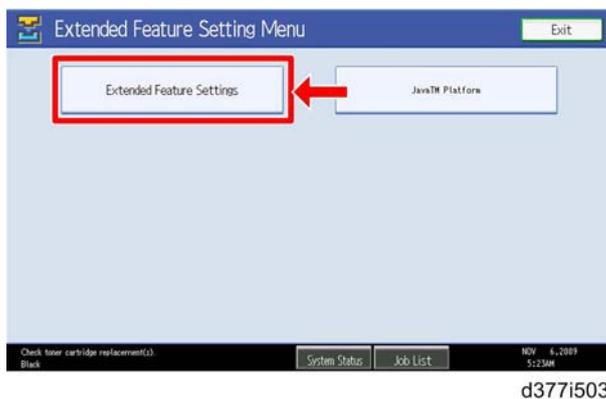
Installation

- Press "Startup Setting" tab.
- Stop all SDK applications with touching application lines.
- Exit the UP mode, and then turn off the machine.
- Remove the VM card from the SD card slot 2.

[B]

[A]

d017i502
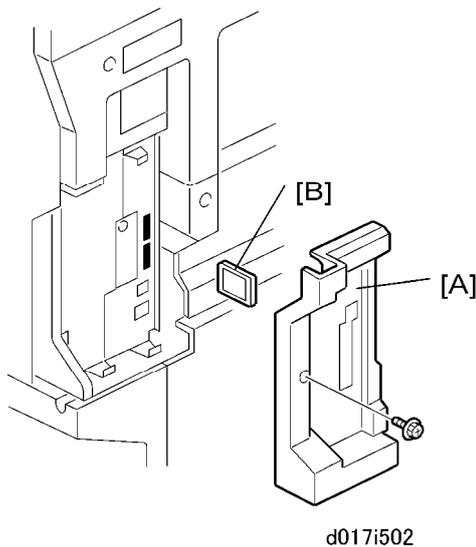
2. Switch the machine off.

3. Remove the plastic application cover [A] (🔩 x1).

4. Insert the browser SD card [B] into SD card Slot 1 (upper).

5. Turn the machine on.

6. Push [User Tools]> [Login/Logout].

7. Login with the administrator user name and password.

8. Touch "Extended Feature Settings" twice.

9. Touch "SD Card" then touch the "Browser" line.

10. Under "Install to:" touch "Machine HDD"> "Next".

11. When you see "Ready to Install", check the information on the screen to confirm your previous selection.

12. Touch "OK". You will see "Installing…" then "Completed".

13. Touch "Exit" twice to return to the copy screen.

14. Remove the SD card from the SD card slot.

2.23.11 VM CARD TYPE F (D377)

This option is only for D017/D018/D019/D020 models.

Accessories

Check the accessories and their quantities against the table below.

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

Installation

d017i502
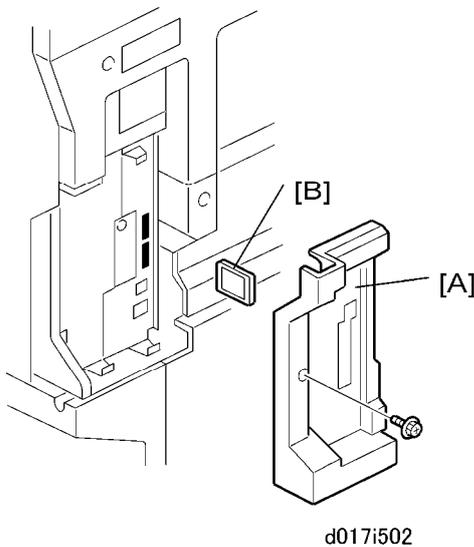
1. Switch the machine off.

2. Remove the plastic application cover [A] (🔧 x1).

3. Insert the SD card [B] into SD Slot 2 (lower).

⭐ Important

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

2.23.12 IPDS UNIT

Accessories

Check the accessories and their quantities against the table below.

No.	Description	Q'ty
1	IPDS Emulation SD Card	1
2	Decal	1

↓ Note

- Only one slot (C1) is available for SD cards that contain applications. If you want to use more than one application, merge all applications into one SD card (SP5873-001).

Installation

1. Check the software version.
   - Make sure the following versions are installed:

Firmware Name	Version	Firmware Number
System/Copy (For D018/D020/ D084/D085 models)	**V1.13 or later**	**D0205331K**
System/Copy (For D017/D019 models)	**V1.13 or later**	**D0195331K**
NCS	V7.14 or later	D0205334B
Websys	V1.09 or later	D0205335B
Printer	V1.03 or later	D0205338D
IPDS	V4.732 or later	D0195336A

2. If necessary, update the firmware to the version(s) listed above.
3. Turn OFF the main switch.

Controller Options
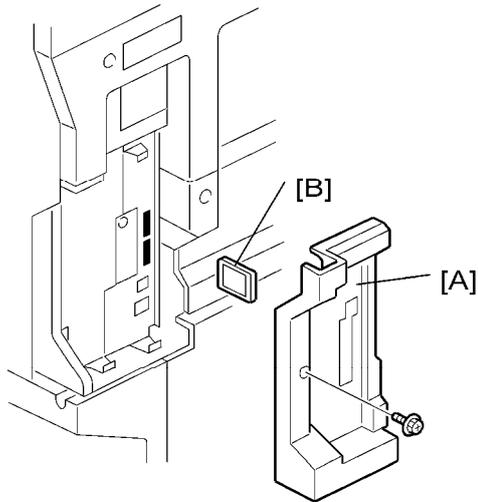
d017i502

4. Remove the application cover [A] (🔩 x 1).

5. Insert the IPDS SD Card [B] into Slot C1.

   ▪ If Slot C1 is occupied, insert it in to Slot C2, then merge this application into the SD card in Slot C1.

   ⭐ Important

   ▪ Pushing in the SD Card releases it for removal. Make sure the SD Card is inserted and locked in place. If it is partially out of the slot, push it in gently until it locks in place.

6. Reattach the cover and turn ON the main switch.

7. Do one of the following ("A" or "B") to enable the IPDS function.

   A. [Enable the IPDS function via telnet]

   1. Connect the machine via telnet.

   2. Execute the following commands:

   msh> **set ipds up**

   ***If you want to stop the function.

   msh> **set ipds down**

   B. [Enable the IPDS option via WebImageMonitor]

   1. Log in to WebImageMonitor.

   2. Change the setting to enable IPDS.

d017i514
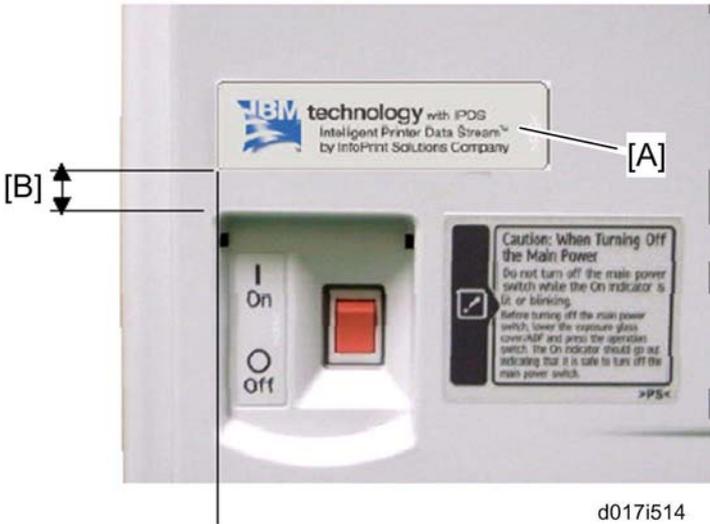
8. Attach the decal [A] as shown in the photo above.

  ▪ Line up the left side of the decal with the left edged of the main power switch. ([B]: 10 mm or more)

2.23.13 PRINTER AND P/S OPTIONS (ONLY FOR D017/D019)

Overview

This section describes the installation of the following items:

  ▪ RPCS Printer Unit

  ▪ Printer Unit

  ▪ Printer/Scanner Unit

  ▪ 256 MB Memory. Optional memory is required for each unit.

  ▪ HDD unit

  ▪ Printer Enhance Option

  ▪ Scanner Enhance Option

options.png
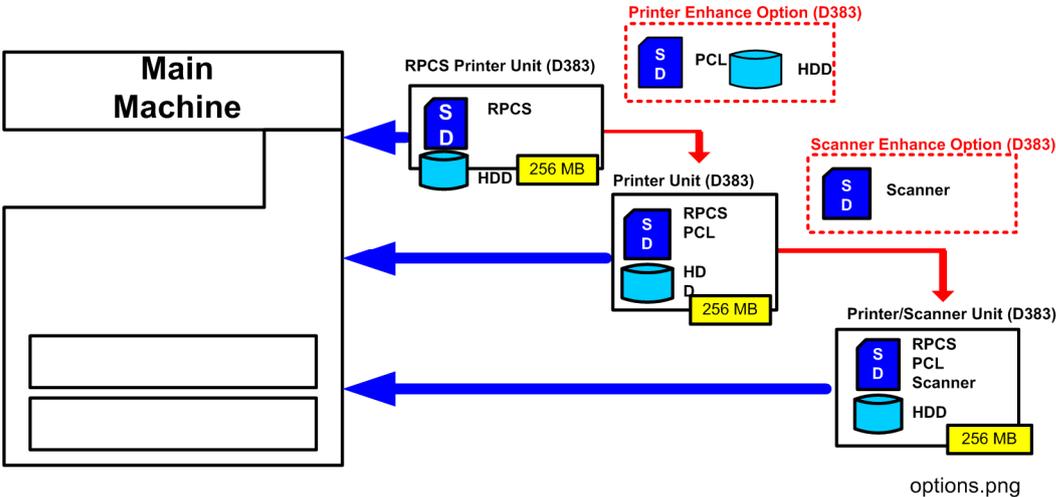
Controller Options

Main Units

The three main units are:

- **RPCS Printer Unit Type 3350.** For customers who require only basic copying and printing and the RPCS printer language. The HDD is not required but the 256 MB memory must be installed.

- **Printer Unit Type 3350.** For customers who do not require the extended scanning features but need more printing capability (both RPCS and PCL printer languages are provided). The 256 MB memory is required.

- **Printer/Scanner Unit Type 3350.** For customers who require the full range of DS features (advanced scanning and printing features such as "scan-to" solutions, virtual mailboxes, PCL, etc.). The 256 MB memory unit is required.

Separate Options

There are three separate options: HDD, 256 MB memory and PS3.

- **HDD.** Provided with the following kits: Printer Enhance Option, Printer Unit, and Printer/Scanner Unit. Refer to the illustration above. If an HDD has already been installed as a separate item, the HDD unit in the machine does not need to be replaced with the HDD from the kit.

- **256 MB memory.** Not provided with any option. However, every unit (RPCS, Printer Unit, P/S unit) requires installation of the 256 MB memory.

- **PostScript 3 Unit.** The PS3 option can be used with the RPCS Unit, the Printer Unit, or the Printer/Scanner Unit.

Enhance Options

There are two enhance options:

- Printer Enhance Option Type 3350. Updates the RPCS unit by adding PCL.

- Scanner Enhance Option Type 3350. Updates the RPCS unit or Printer Unit by adding the advanced scanning features.

Kit Contents

Check the accessories and their quantities against the list below and the illustration on the next page. This is a common list for all the kits.

Common Accessory Table

This common accessory table lists all the items of the following units and options for the D017/D019:

- RPCS: RPCS Printer Unit
- PU: Printer Unit
- P/S: Printer/Scanner Unit
- PEO: Printer Enhance Unit
- SEO: Scanner Enhance Unit

	Description	Q'ty	Kit Contents				
			RPCS	PU	P/S	PEO	SEO
	256 MB Memory*1	1	No	No	No	No	No
1.	HDD*2	1	No	Yes	Yes	Yes	No
2.	Screws	2	No	Yes	Yes	Yes	
3.	SD Card	1	Yes	Yes	Yes	Yes	Yes
4.	NA Keytop Set*3	1	Yes	Yes	Yes	Yes	Yes
	EU Keytop Set*3	1	Yes	Yes	Yes	Yes	Yes
5.	Ferrite Core	1	No	Yes	Yes	Yes	Yes

*1: The 256 Memory is a separate option and it is not provided in the kits. However, one memory unit is required for the installation of every print unit.

*2: The HDD can be installed anytime as a separate option. If an HDD unit has already been installed, it does not need to be replaced with the HDD unit from the Printer Enhance Option, Printer Unit, or Printer/Scanner Unit kit.

*3: The number of keytops provided varies:

Controller Options

Kit	Keytops			
	Copy	Document Server	Printer	Scanner
RPCS Unit	1	-	1	
Printer Unit	1	1	1	
Printer/Scanner Unit	1	1	1	1
Printer Enhance Unit	-	1	-	
Scanner Enhance Unit	-	-	-	1

d383i100
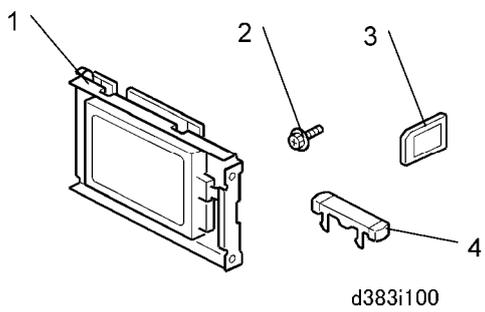
Printer, Printer/Scanner Unit Installation

⚠ **CAUTION**

- Turn off the main power switch and disconnect the power supply cord.
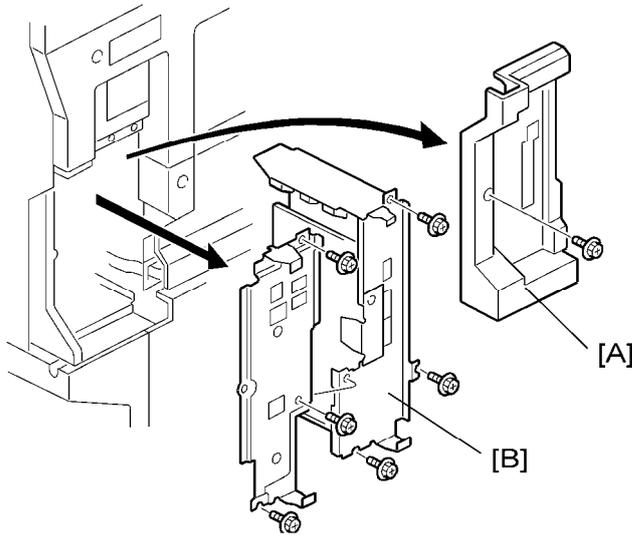
d017r960

1. Remove the application cover [A] (🔩 x1).
2. Remove the controller board [B] (🔩 x3).
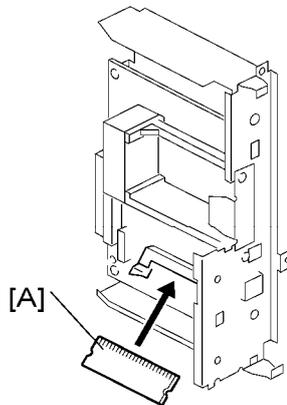
d017i501

3. Install the 256 MB memory [A].

Controller Options

d017r965
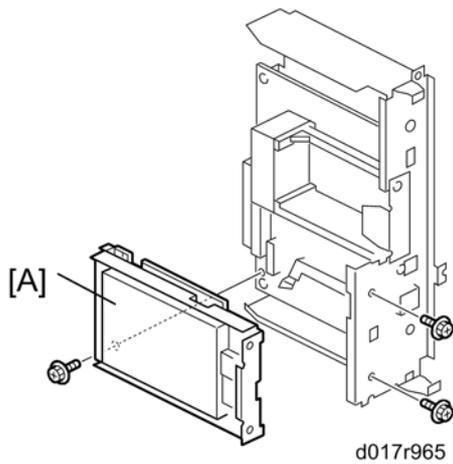
4. Attach the HDD unit [A] to the controller board bracket (⬚ x2, 🔩 x3).

5. Reinstall the controller board with the HDD.
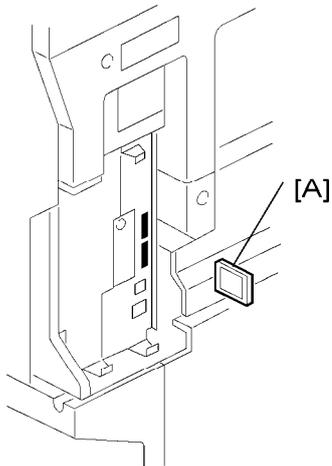
d017i502a

6. Insert the SD card [A] in SD card Slot 1 (upper).

7. Cycle the machine power off/on.

8. Format the HDD with SP5832-1.

9. Do SP5853 to copy the preset stamp data from the firmware to the hard disk.

10. Do SP5846-040 to copy the address book to the hard disk from the controller board.

11. Do SP5846-041 to let the user get access to the address book.

12. Reattach the application cover (🔩 x1).

Installation
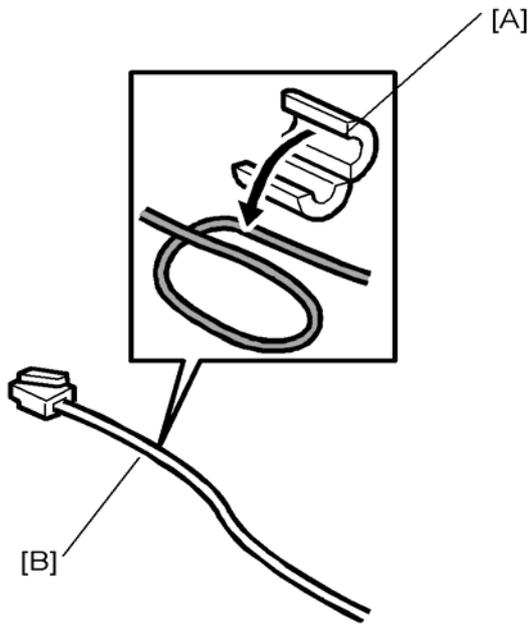
b767i903

13. Attach the ferrite core [A] to the LAN cable [B].

14. Connect the LAN cable to the "NIC" connection.

15. Connect the USB cable to the "USB" connection.
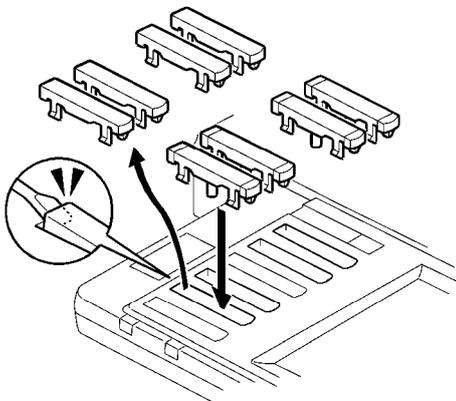
d383i105

16. Remove the 1st, 2nd, 4th, and 5th blank key tops.

↓ Note

- The 3rd blank keytop from the top is reserved for the "Fax" keytop. Do not remove it at this time.

Controller Options

17. Replace the blank keytops with the keytops received in the kit from top to bottom:
    - 1st Copy
    - 2nd Document Server
    - 4th Printer
    - 5th Scanner
18. Connect the machine power cord and turn the main power switch on.
19. 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).
20. If there was no HDD in the machine before you installed the Printer Enhance Option, Printer Unit, or Printer/Scanner Unit:
    - Do SP5846 41 so the user can use the address book.
    - Do SP5853 to copy the preset stamp data to the hard disk. Then turn the main power switch off/on

⭐ Important

    - These SPs must be done immediately after installation of an HDD unit in a machine that previously had no HDD.
    - The first time the machine power is turned on with the new HDD installed, the system automatically takes the address book from the NVRAM and writes it on the new HDD. However, only the system administrator can use the new address book on the HDD at this time.
    - If you do SP5846 41 immediately after power on, then all users can use the address book.

⬇ Note

    - It is not necessary to format the new hard disk after installation.

Printer Enhance, Scanner Enhance Options

Accessory Check

Refer to the "Common Accessory Table"

Installation

The installation of the printer enhance option and scanner enhance option is done with SP5873 001 (Application Move).

Installation

Note

- If you are going to update the RPCS unit with both the printer and scanner enhance options, the order of execution is not important.

1. Turn off the copier.
2. Remove the cover (🔩 x1).
3. Confirm that the RPCS Unit or Printer Unit SD card is in the upper slot.
4. Put the option SD Card (Printer Enhance Option or Scanner Enhance Option) in the lower slot.
5. Turn the copier on.
6. Go into the SP mode and select SP5873-1.
7. Touch "Execute".
8. Obey the instructions on the display and touch "Execute" to start.
9. When the display tells you copying is completed, touch "Exit", then turn the machine off.
10. Remove the option SD card from the lower slot.
11. Turn the copier on.
12. Go into the User Tools mode and confirm that update was successful.
    User Tools> System Settings> Administrator Tools> Firmware Version> Next
13. Turn the copier off and reattach the SD card slot cover.
14. Return the copied SD card to the customer for safekeeping, or tape it to the faceplate of the controller.

To undo an option update

1. Turn the main switch off.
2. Confirm that the RPCS Unit or Printer Unit SD card is in the upper slot.
3. Put the empty SD card (Printer Enhance Option or Scanner Enhance Option D383) in the lower slot.
4. Turn the main switch on.
5. Go into the SP mode and do SP5873-2 (Undo Exec).
6. Obey messages on the operation panel to complete the procedure.
7. Turn the main switch off.
8. Remove the restored SD card from the lower slot.
9. Turn the main switch on.
10. Go into the User Tools mode and confirm that undo was successful.
    User Tools> System Settings> Administrator Tools> Firmware Version> Next
11. Turn the copier off again, then reattach the cover.

Important Notes About SD Cards

Here are some basic rules about moving an application to another SD card.

Controller Options

- The authentication data is moved with the application program to the target SD card.
- Once an application has been moved from the original SD card, the original SD card cannot be used unless the application is restored to the SD card with SP5873-2 (Undo Execute).
- SD cards must be stored in a safe location at the customer site The empty SD card serves as proof of purchase and is the only evidence that the customer is licensed to use the application program.
- Before storing the card from which an application has been copied, label it carefully so that you can identify it easily if you need to do the undo procedure later.

If PostScript3 is not used…

Move all applications which the customer wants onto one SD card. The destination card should have the largest amount of space available so it can hold as many other applications as possible.

★ Important

- The VM Card can be neither merged nor moved to another SD card. This card must be installed in Slot 2 (lower).

SD Card Options	SD Card Size	Module Size
Printer/Scanner Unit Type 3350	32 MB	9.3 MB
RPCS Printer Unit Type 3350	32 MB	6.3 MB
Printer Unit Type 3350	32 MB	8.3 MB
Printer Enhance Option Type 3350	16 MB	4 MB
Scanner Enhance Option Type 3350	16 MB	3 MB
DataOverwriteSecurity Unit Type I	16 MB	4 MB
PostScript3 Unit Type 3350	64 MB	14.6 MB
IPDS Unit Type 3350	32 MB	13.5 MB

If PostScript3 is used…

Move all applications to the PostScript3 SD card.

PREVENTIVE MAINTENANCE

REVISION HISTORY		
Page	Date	Added/Updated/New
		None

3. PREVENTIVE MAINTENANCE

3.1 PM TABLES

See "Appendices" for the following information:

- PM Tables

3.2 MAIN MOTOR DRIVE GEAR
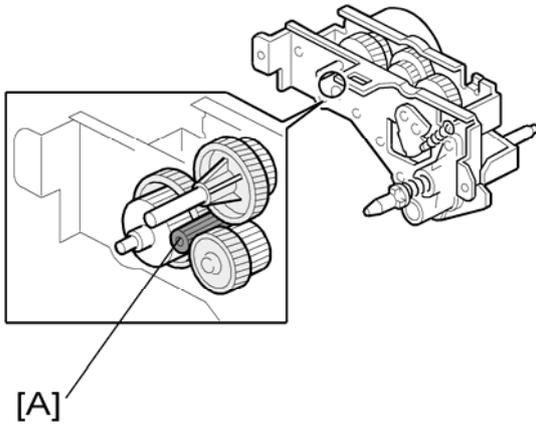
At every EM lubricate the main motor drive gear [A] with silicone grease G501.

REPLACEMENT AND ADJUSTMENT

REVISION HISTORY		
Page	Date	Added/Updated/New
		None

4. REPLACEMENT AND ADJUSTMENT

4.1 SPECIAL TOOLS AND LUBRICANTS

4.1.1 SPECIAL TOOLS

No.	Part No.	Description	Q'ty	Availability
1	A0069104	Scanner Positioning Pins (4 pins/set)	1	Common – D017/D018/019/D020
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 – D017/D018/019/D020
5	A2679002	Positioning Pin – Laser Unit	1	Common – D017/D018/019/D020
6	B6455010	SD-Card	1	Common - General
7	B6456830	USB Reader/Writer	1	Common - General
8	G0219350	Loop-back Connector	1	Common - General

4.1.2 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

Replacement and Adjustment

4.2 GENERAL CAUTIONS

4.2.1 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.

Never loosen, never remove these screws.

d017r901

4.2.2 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.

4.2.3 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.

4.2.4 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.

4.2.5 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.

4.2.6 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.

Replacement and Adjustment

4.2.7 OTHERS

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

▪ If the optional tray, drum, and optics anti-condensation heaters have been installed,
keep the copier power cord plugged in, even when the copier main switch is turned off.
This keeps the heaters energized.

4.3 SCANNER UNIT

4.3.1 EXPOSURE GLASS
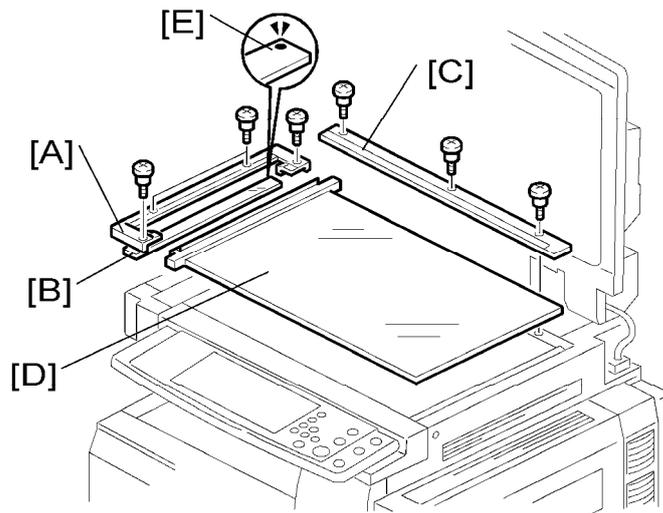
1. Glass cover [A] (🔩 x 4)
2. ARDF exposure glass [B]
3. Rear scale [C] (🔩 x 3)
4. Exposure glass with left scale [D]

   ↓ Note

   - 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.

4.3.2 ORIGINAL LENGTH/WIDTH SENSORS
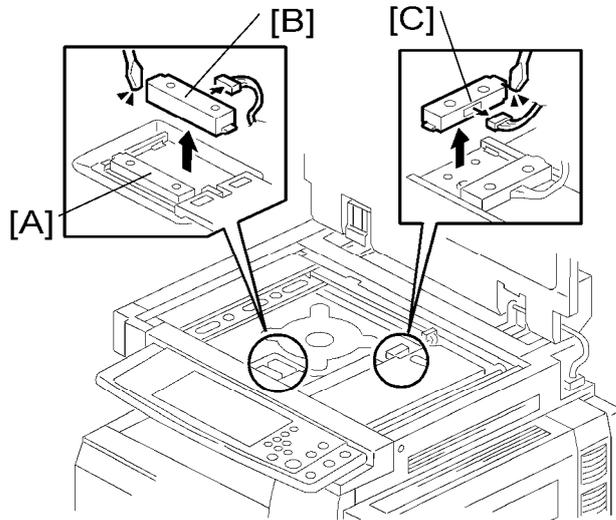
1. Exposure glass with left scale (☛ p.4-5 "Exposure Glass")
2. Original length sensor bracket [A] (🔩 x 1, 🔌 x1)
3. Original length sensors [B] (snap, 🔌 x 1 each)
4. The number of the original length sensors depends on the model; 3 for EU, 2 for others.
5. Original width sensors [C] (snap, 🔩 x 1, 🔌 x1 each)

4.3.3 EXPOSURE LAMP
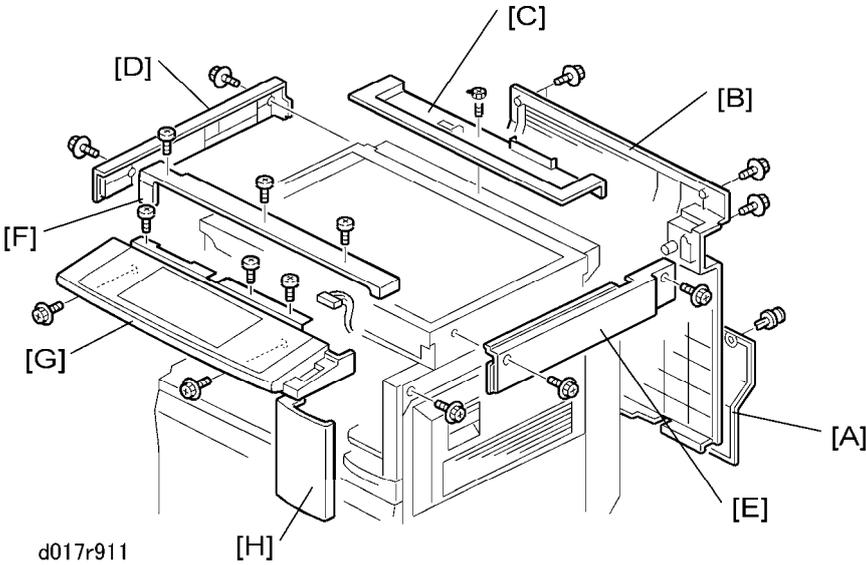
d017r911

1.   Remove:

   [A] Harness cover (🔩 x1)

   [B] Rear cover (🔩 x4)

   [C] Scanner rear cover (🔩 x1)

   [D] Scanner left cover (🔩 x2)

   [E] Scanner right cover (🔩 x2)

   [F] Scanner front cover (🔩 x3)

   [G] Operation panel (🔩 x5, 🔌 x1)

   [H] Support cover (Tab x1)

Replacement
and
Adjustment

Scanner Unit
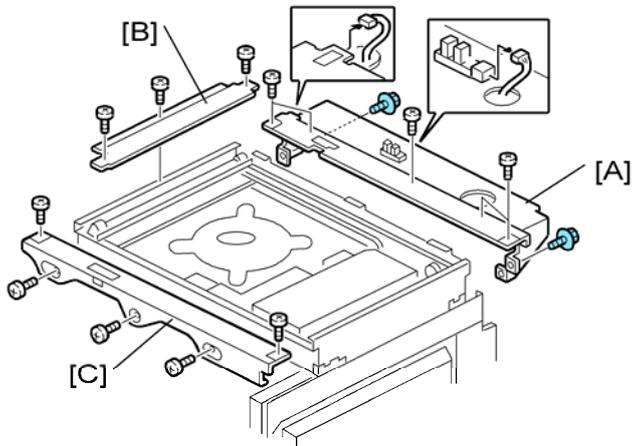
d017r915

2. Remove:

[A] Rear stay (🔩 x7, 🔌 x2)

[B] Left stay (🔩 x3)

[C] Front stay (🔩 x5)
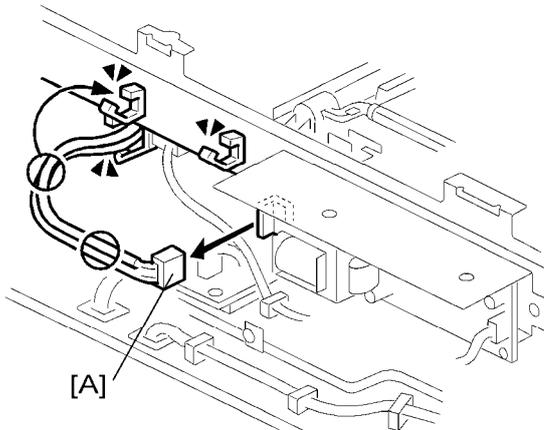
b230r161

3. Disconnect the connector [A] (🔌 x2, 🔌 x1).
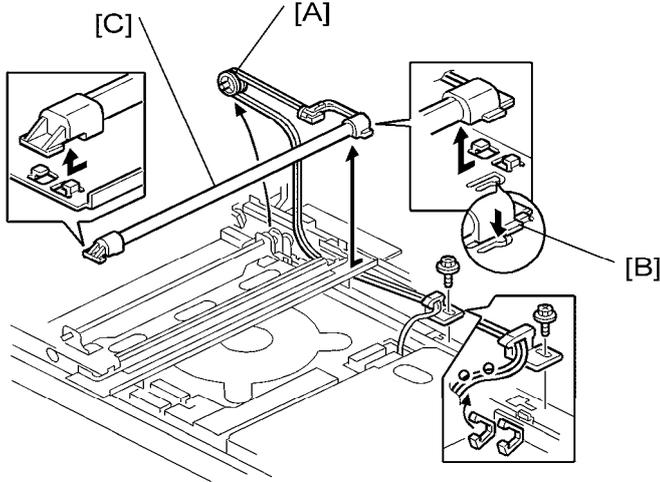
b230r162

4. Remove the pulley [A].

5. Hold down the snap [B]

6. Remove the exposure lamp [C] (🔲 x2, 🔲 x1, 🔧 x1)

Reassembling
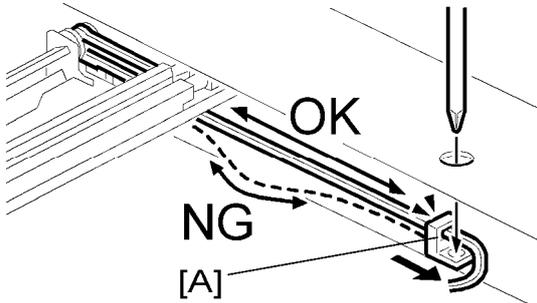
1. Run the cable so that there is no slack.

2. Slide clamp [A] to adjust the cable slack.
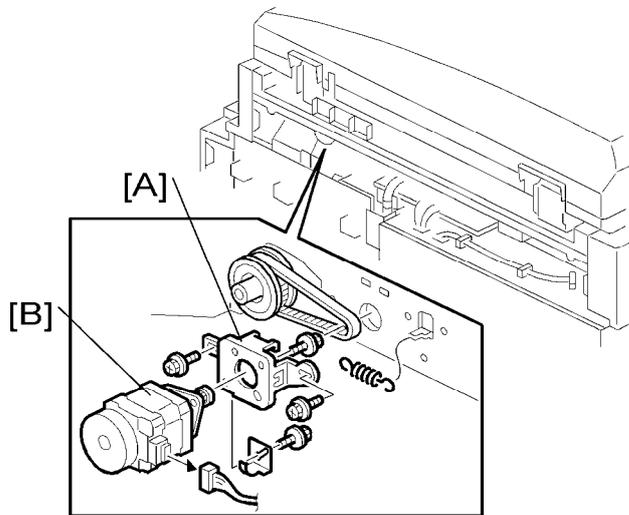
4.3.4 SCANNER MOTOR

1. Rear cover (☛ p.4-7 "Exposure Lamp")

2. Scanner motor assembly [A] (🔩 x 2, 🔌 x 1, spring x 1)

3. Scanner motor [B] (🔩 x 2)

4.3.5 SENSOR BOARD UNIT (SBU)

Monochrome Scanner Unit (D017/D019)

d017r155a mono
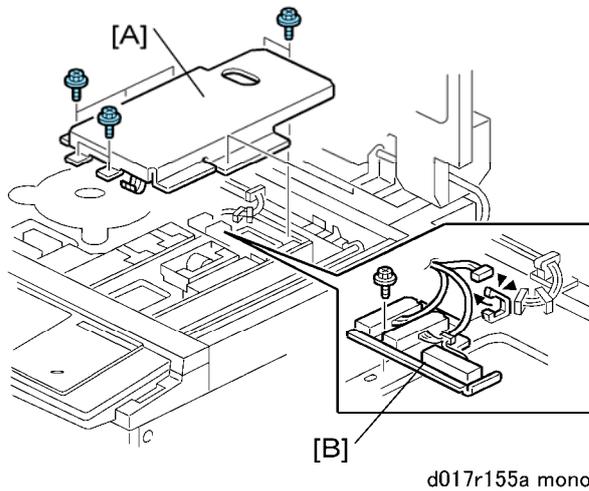
1. Remove:

   ▪ Exposure glass (☞ p.4-5)

   [A] SBU cover (🔩 x3)

   [B] Original length sensor bracket (🔩 x1, 🔌 x1)

d017r156a mono
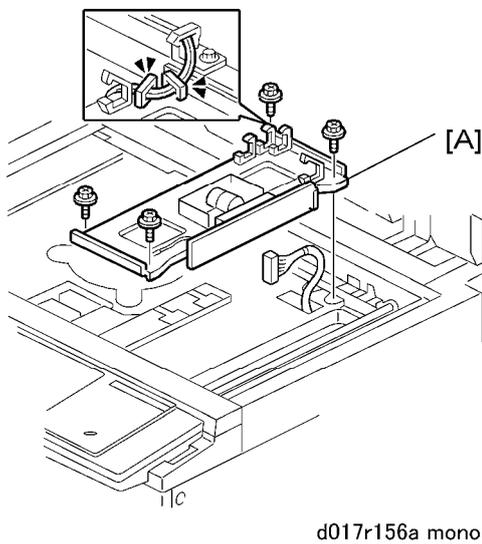
2. Remove:

   [A] Sensor board unit (🔩 x3, 🔌 x3, 🔲 x1)

Color Scanner Unit (D018/D020/D084/D085)

d017r155 color
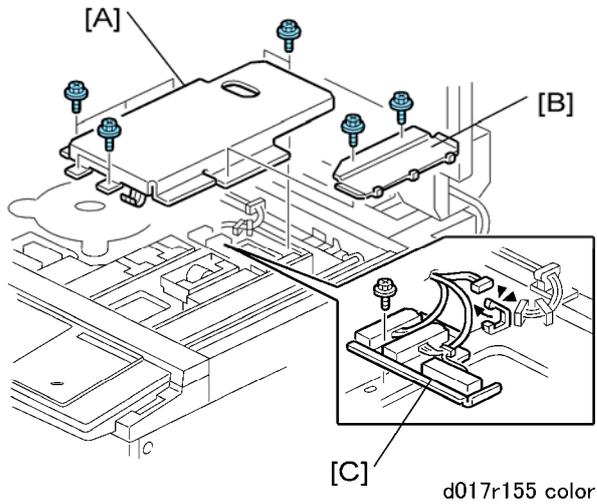
1. Remove:

   ▪ Exposure glass (☛p.4-5)

   [A] SBU cover (🔩 x3)

   [B] Cover (🔩 x2)

   [C] Original length sensor bracket (🔩 x1, 🔌 x1)

d017r156 color
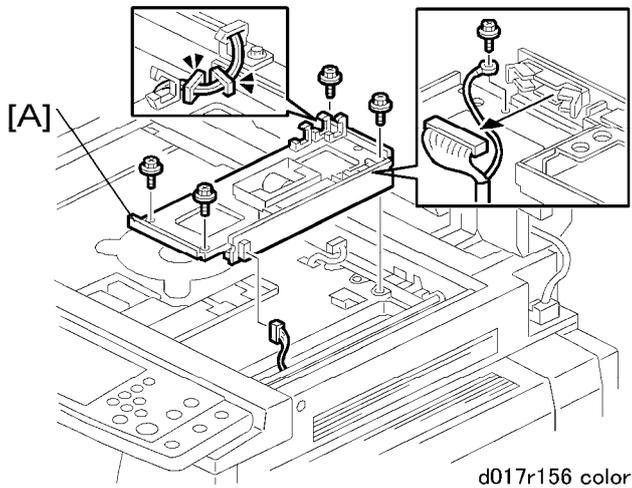
2. Remove:

   [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.

4.3.6 EXPOSURE LAMP STABILIZER
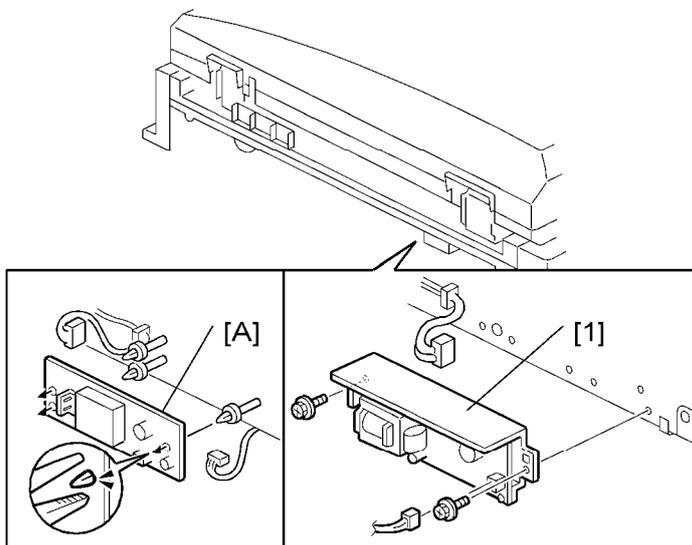
d017r152 mono/color

1. Remove:

   - Rear cover (☛ p.4-7 "Exposure Lamp")

   Exposure lamp stabilizer [A] (Standoff x1, 🔲 x 2) (Monochrome Scanner Unit (D017/D019))

   -or-

   Exposure lamp stabilizer [1] (🔩 x 2, 🔲 x 2) (Color Scanner Unit (D018/D020/D084/D085))

4.3.7 FRONT SCANNER WIRE
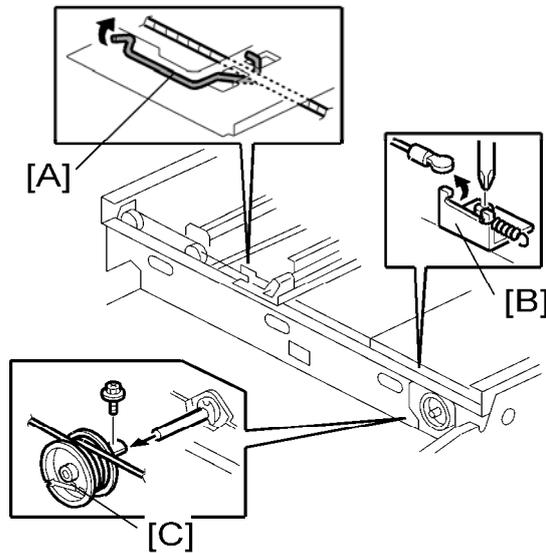
1. Exposure glass (☞ p.4-5)
2. Front frame (☞ p.4-7 "Exposure Lamp")
3. Front scanner wire clamp [A]
4. Front scanner wire bracket [B] (🔩 x 1)
5. Front scanner wire and scanner drive pulley [C] (🔩 x 1)

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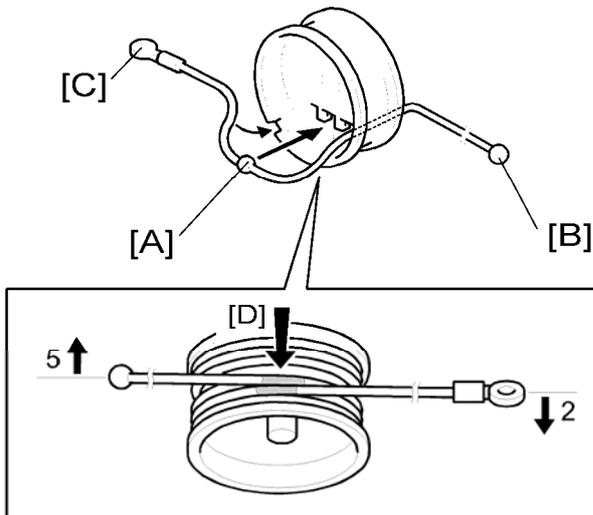
1. Position the center ball [A] in the middle of the forked holder.
2. Pass the right end (with the ball) [B] through the square hole. Pass the left end (with the ring) [C] through the notch.
3. Wind the right end counterclockwise (shown from the machine's front) five times. Wind the left end clockwise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

↓ Note

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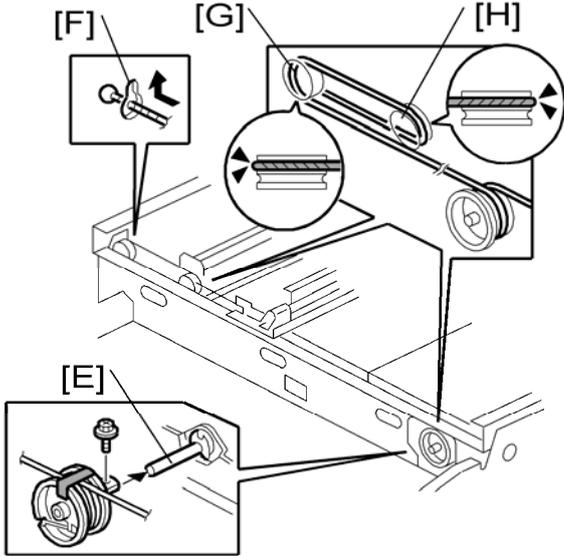
4. Install the drive pulley on the shaft [E].

↓ Note

- 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].
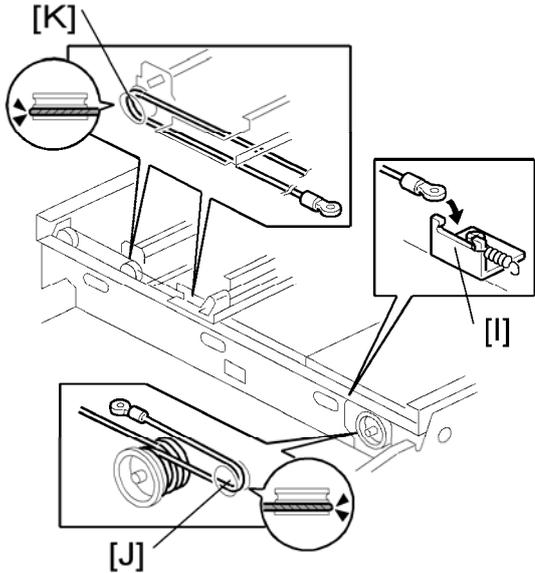
6. Hook the right end onto the front scanner wire bracket [I]. The end should go via the

Scanner Unit

front track of the right pulley [J] and the front track of the movable pulley [K].

↓ Note

▪ Do not attach the scanner wire bracket with the screw at this time.
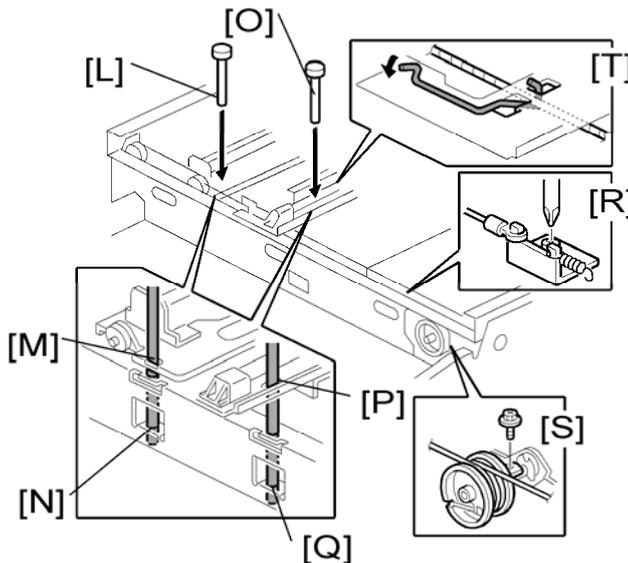
7. Remove the tape from the drive pulley.

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 [S].

11. Screw the scanner wire bracket to the front rail [R].

12. Install the scanner wire clamp [T].

13. Pull out the positioning pins.

↓ Note

▪ 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.

4.3.8 REAR SCANNER WIRE

Reinstalling the Rear Scanner Wire
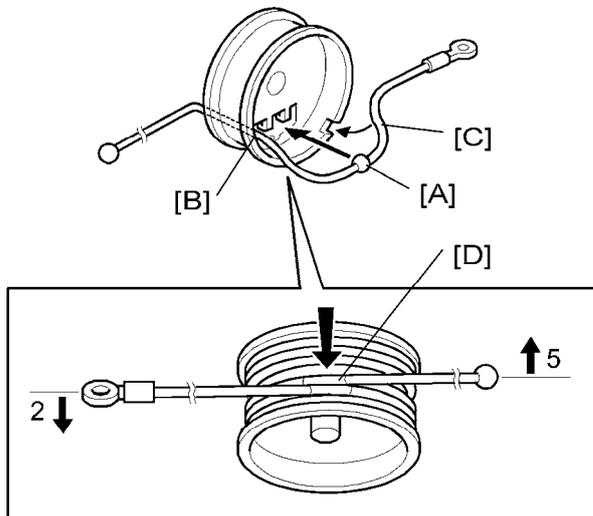
d017r164a

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.

    ↓ Note

    ▪ 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.

    ↓ Note

    ▪ Do not attach the pulley on the shaft with the screw at this time.

7. Install the wire.

    ↓ Note

    ▪ 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.

4.3.9 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.

```
       Self Diagnostic 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
```
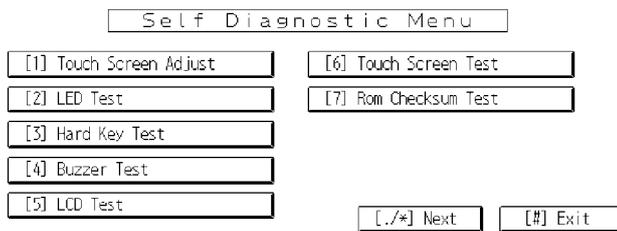
b178r548a

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 ⌐.

```
               Touch Screen Adjust

       Touch the upper left mark and then the lower
       right mark of the panel using a pointed tool.

       Press the [C] key to quit.
       Re-input is available using [/*] key.
```
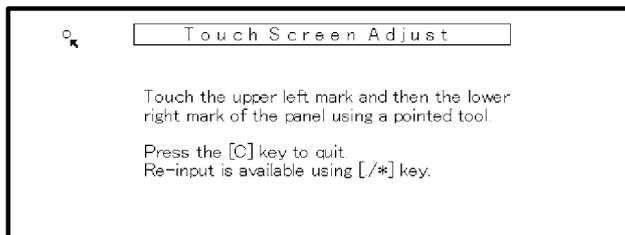
b178r549

4. Press the lower right mark when ✲ 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.

4.4 LASER UNIT

⚠ WARNING

▪ 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.

4.4.1 CAUTION DECAL LOCATIONS

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

CAUTION
VORSICHT

>PS<

CAUTION-CLASS 3B INVISIBLE LASER
RADIATION WHEN OPEN
AVOID EXPOSURE TO THE BEAM
VORSICHT-UNSICHTBARE LASERSTRAHLUNG
KLASSE 3B, WENN ABDECKUNG GEÖFFNET
NICHT DEM STRAHL AUSSETZEN

b205r921
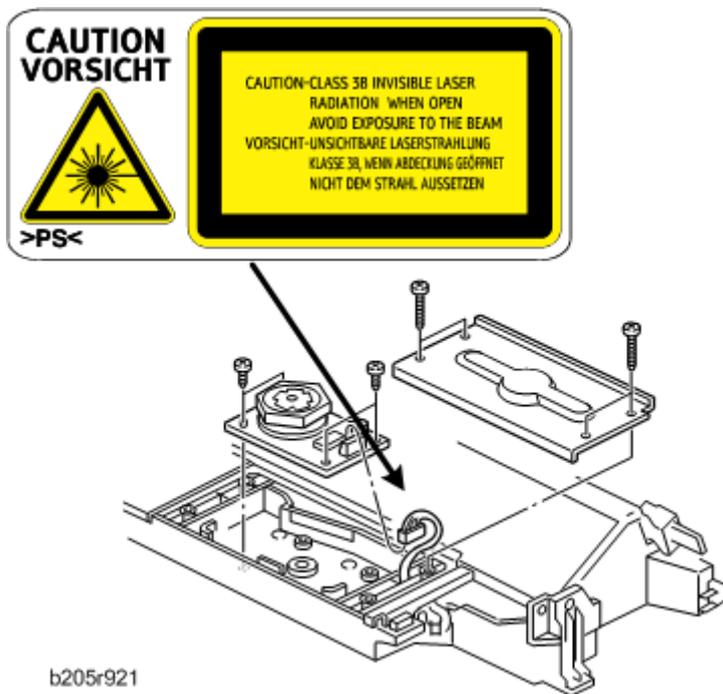
4.4.2 LASER UNIT

⚠ **WARNING**

- 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.

[A]

[C]

[B]

b205r902
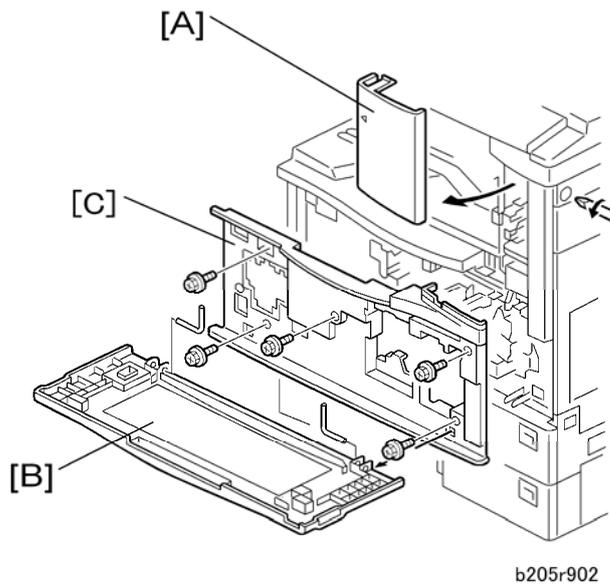
1. Remove:
    - 500-Sheet finisher
    - Bridge unit
    - Optional shift tray (or 1-Bin tray)
2. Remove:

    [A] Upper front cover (🔩 x1, Hook x1)

    [B] Front cover (Pins x2)

    [C] Inner cover (🔩 x5)

b205r903
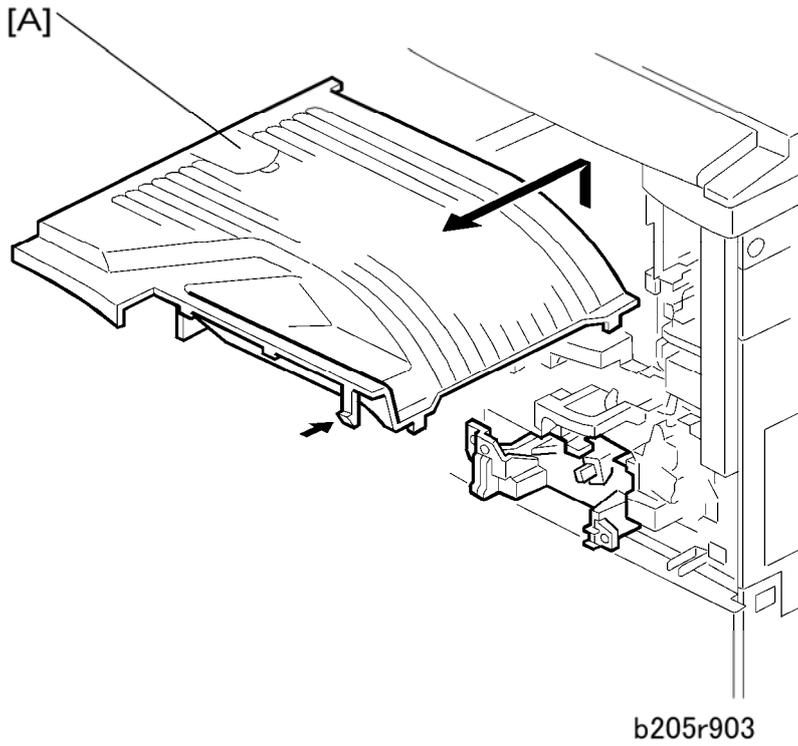
3. Remove:

    [A] Copy tray (Hook x1)

b027r103
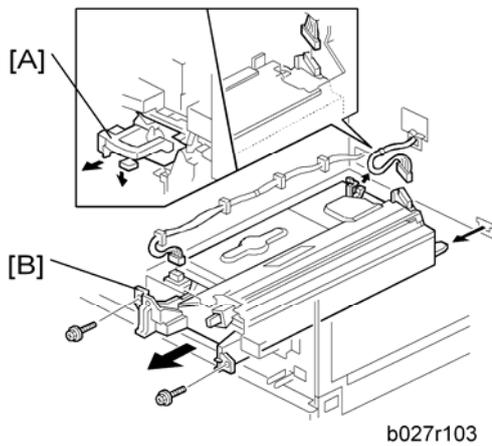
4. Remove:

    [A] Toner bottle

    [B] Laser unit (✎ x2, ▣ x2)

4.4.3 POLYGON MIRROR MOTOR

1. Remove the laser unit (☛ p.4-20).
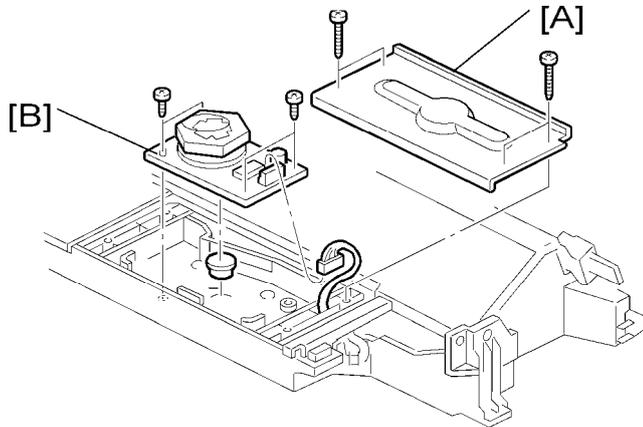
2. Remove the heat sink [A] (🔩 x4).
3. Replace the polygon mirror motor [B] (🔩 x4, 🔌 x1).

↓ Note

- When you install the new polygon mirror motor, do not touch the surface of the mirror with bare hands.

4.4.4 LD UNIT

1. Remove the laser unit (☛ p.4-20).
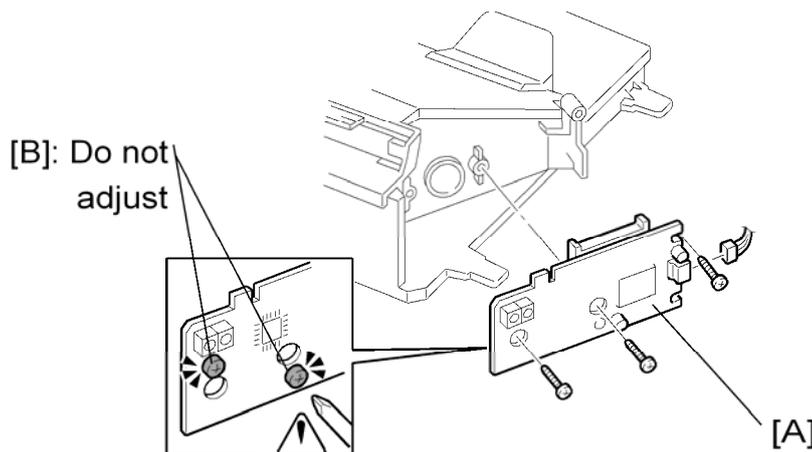
2. Replace the LD unit [A] (🔩 x3, 🔌 x1).

↓ Note

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

4.4.5 LASER SYNCHRONIZATION DETECTOR

1. Remove the laser unit (☞ p.4-20).
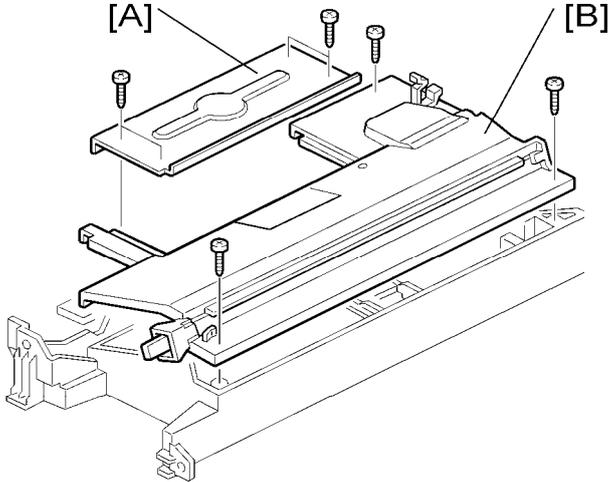
2. Remove the heat sink [A] (🔩 x4).
3. Remove the laser unit cover [B] (🔩 x3).
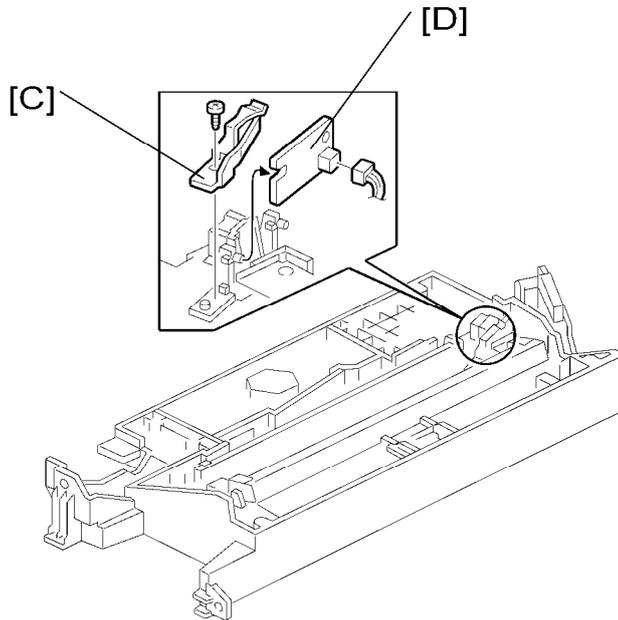
4. Remove the bracket [C] (🔩 x1).
5. Replace the laser synchronization detector [D] (🔩 x1).

4.5 PHOTOCONDUCTOR UNIT (PCU)

⚠CAUTION

- 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

4.5.1 PCU REMOVAL
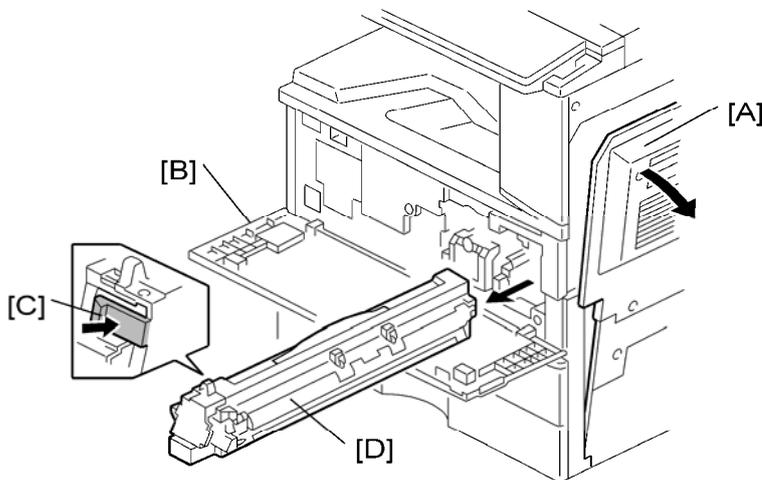
d017i920

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

↓ Note

- Do not touch the drum surface with bare hands.

4.5.2 PICK-OFF PAWLS
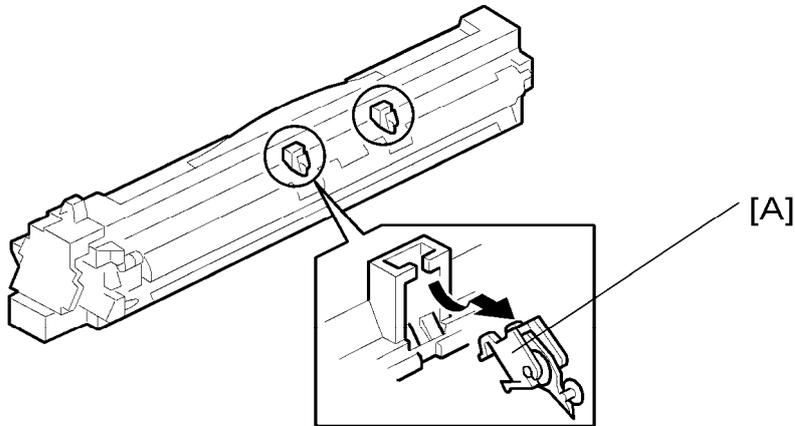
1. Remove the PCU. (☛ p.4-24)
2. Hold the pawl [A] by its sides, pull it down and slowly twist it away from the PCU.

4.5.3 OPC DRUM

1. Remove the PCU. (☛ p.4-24)
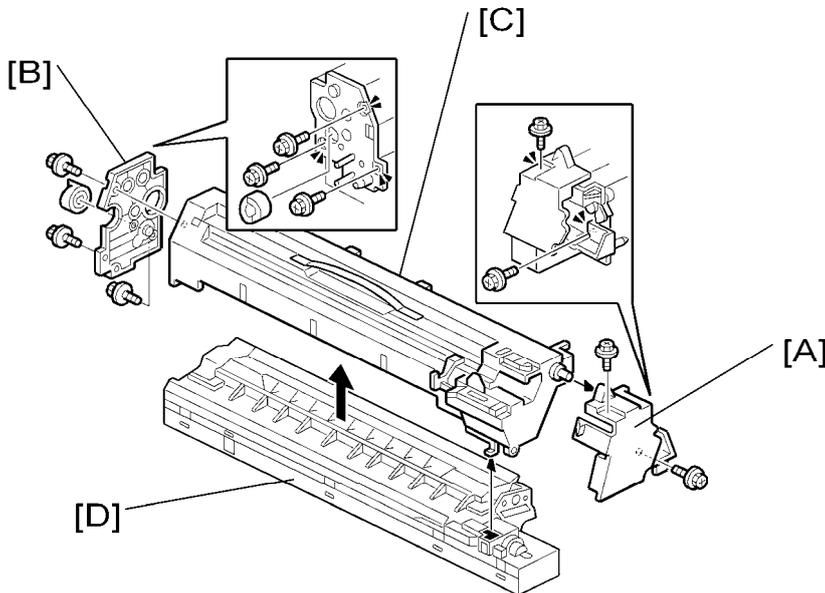
2. Front cover [A] (🔩 x2)
3. Rear cover [B] (🔩 x3, Coupling x1)
4. Top part [C]
5. Bottom part [D]

Photoconductor Unit (PCU)

[E]

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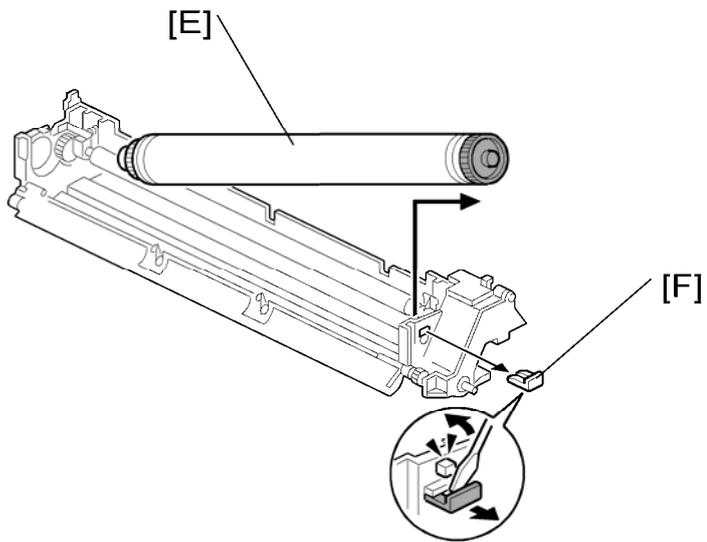
6.   Drum [E] (White clip x1 [F])

4.5.4 CHARGE ROLLER, CLEANING ROLLER

1. Remove the PCU. (☛ p.4-24)
2. Remove the OPC drum. (☛p.4-25)
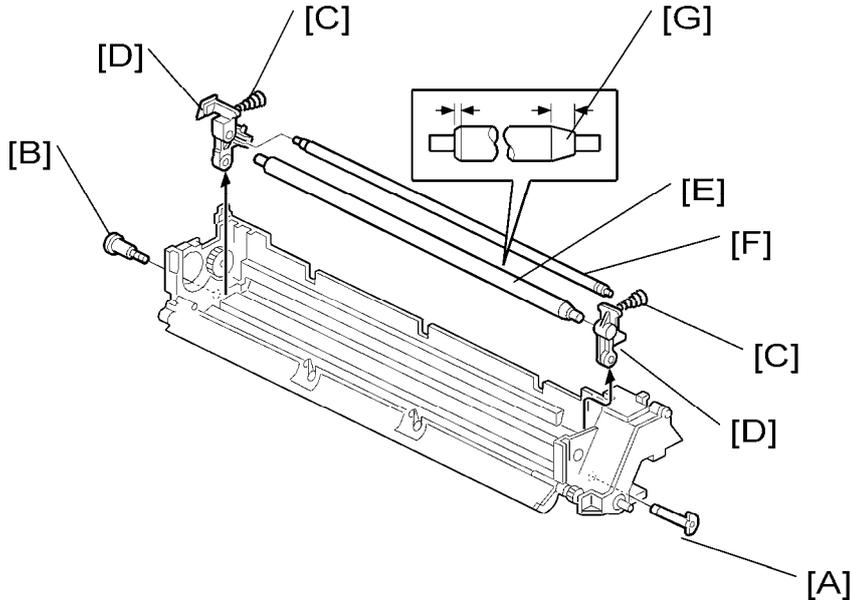
3. Front stud [A]
4. Rear shoulder screw [B] (🔩 x1)
5. Release the front and rear springs [C].
6. Remove the roller assembly [D] (Springs x2, Arms x2, Rollers x2)
7. Charge roller [E]
8. Cleaning roller [F]

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.

Replacement and Adjustment

4.5.5 CLEANING BLADE

1. Remove the PCU. (☛ p.4-24)
2. Remove the OPC drum. (☛ p.4-25)
3. Remove the charge roller and cleaning roller. (☛ p.4-27)
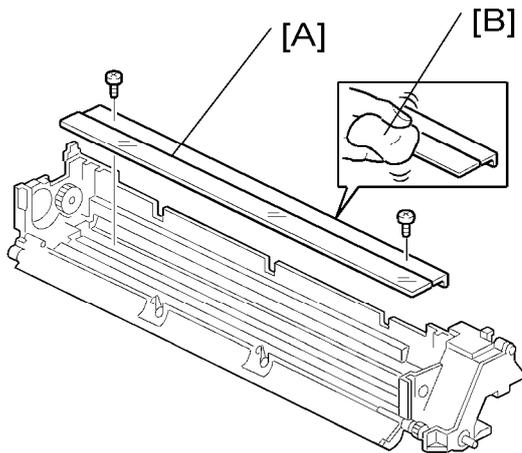
4. Cleaning blade [A] (🔩 x2)

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.

4.5.6 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. (☛ p.4-25 "OPC Drum")

3. Set the bottom on the vinyl sheet.
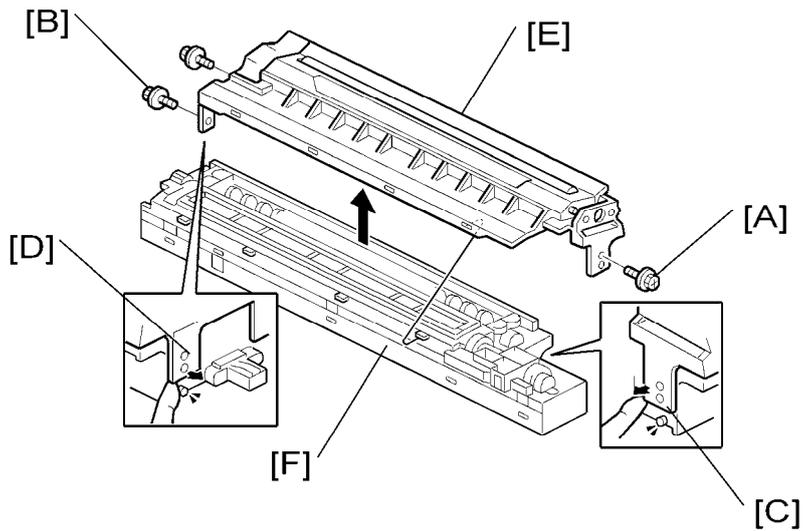
4. Remove the front screw [A] (🔩 x1)

5. Remove the rear screws [B] (🔩 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.
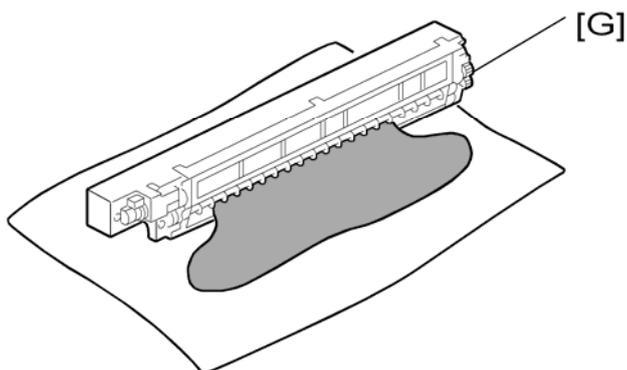
9. Turn the gears [G] to remove the developer from the bottom half.

Photoconductor Unit (PCU)
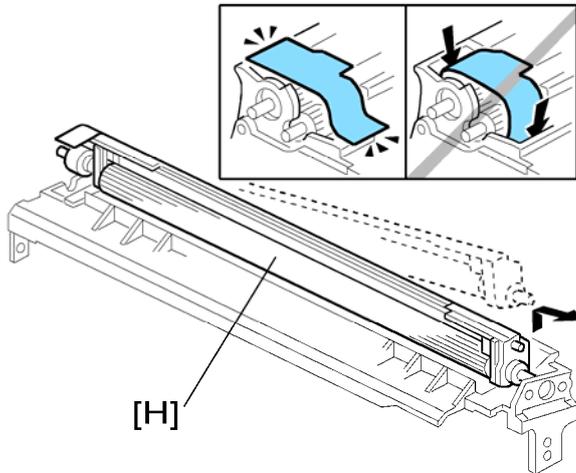
10. Remove the development roller [H] from the development unit.

⭐ Important

- At reinstallation, make sure that the mylar is positioned as shown.
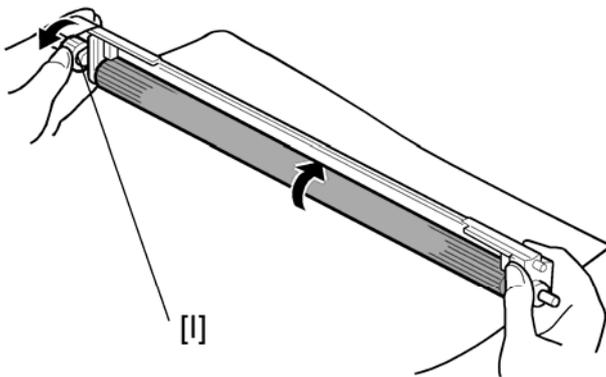
11. Turn the development roller gear [I] to remove toner from around the development roller.
12. Assemble the development unit.

⭐ Important

- Dispose of the used developer according to the local laws and regulations regarding the disposal of such items.
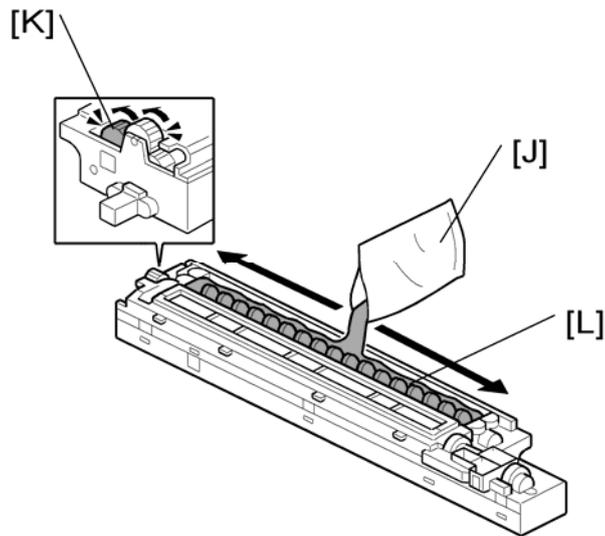
13. Open the developer pack [J]

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.

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.

⭐ Important

- ▪ 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.

Replacement and Adjustment

Photoconductor Unit (PCU)

PCU Reassembly

Reassemble the PCU in this order:

b205r926
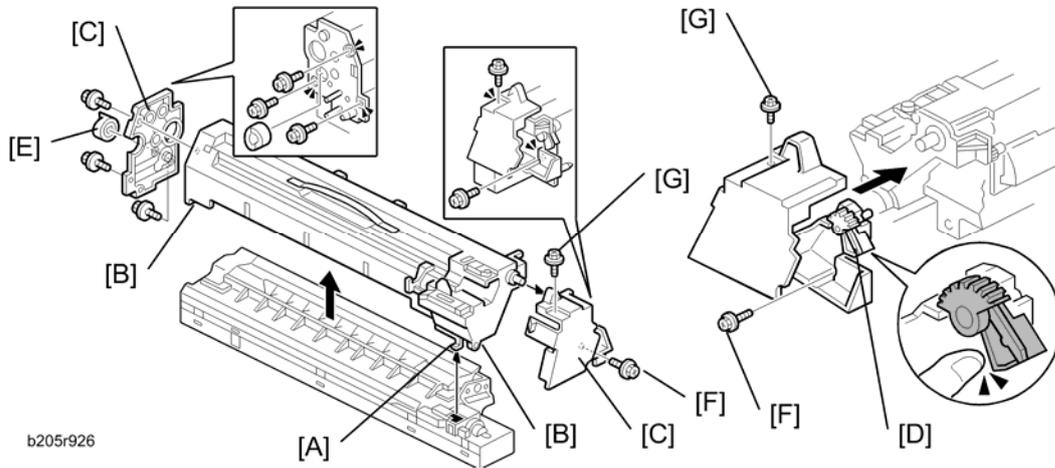
1. Connect the pawl [A]

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 (🗝 x1) [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.

[H]

[I]

[K]

[J]
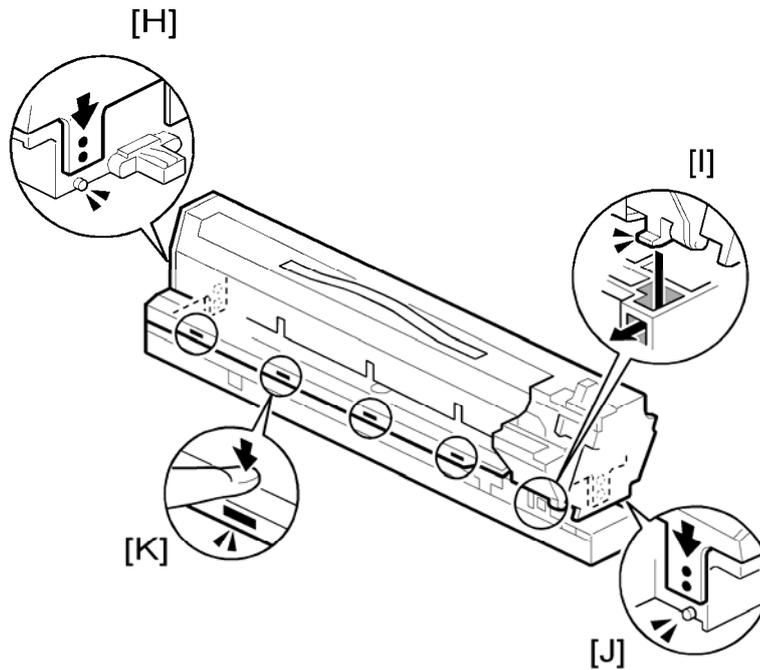
7. Make sure that all of the holes and tabs on are engaged at [H], [I], [J], and [K]. Then push down to lock the tabs on the front and rear end of the PCU.

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.

4.5.7 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.

Photoconductor Unit (PCU)
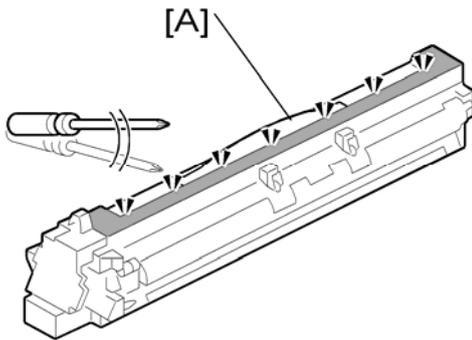
7. Lightly tap the top of the PCU [A] with a screwdriver at 8 locations. These locations must be at equal intervals. Tap 2 or 3 times at each location, to make the toner fall into the development section.

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 A4/8$_{1/2}$" 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.

   ↓ Note

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

4.6 TRANSFER UNIT

⚠CAUTION

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

4.6.1 TRANSFER ROLLER UNIT
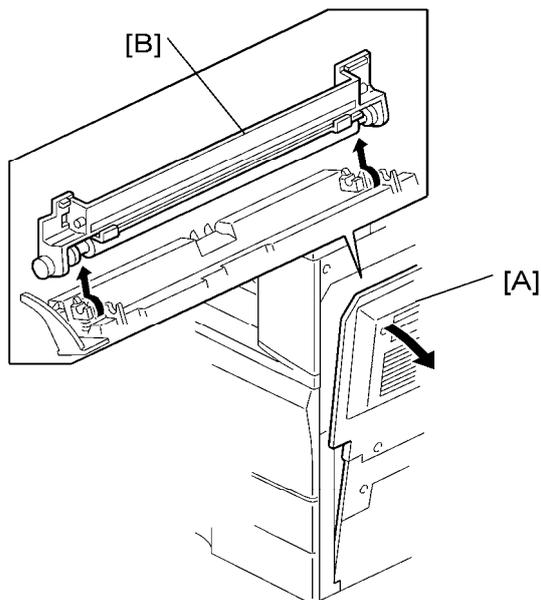
d017r929

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

   ↓ Note

   - ▪ Do not touch the transfer roller surface.

4.6.2 IMAGE DENSITY SENSOR
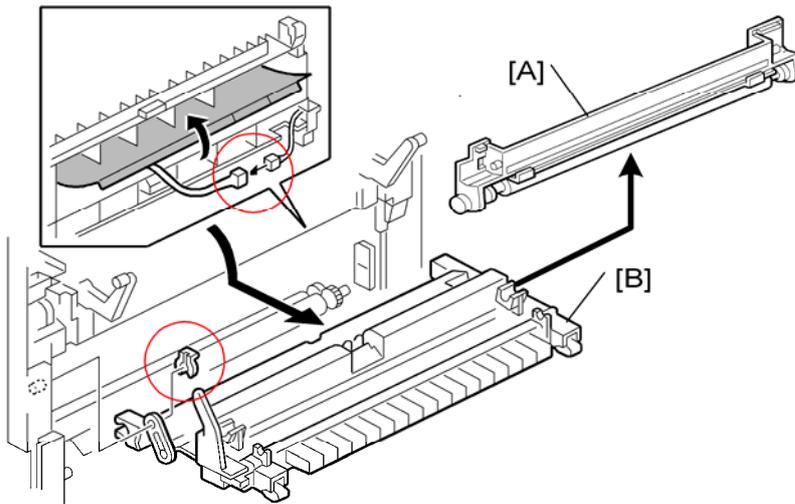
d071r930

1. Open the right cover.
2. Remove:

   [A] Transfer roller

   [B] Roller guide (⊘ x1, ▭ x1)
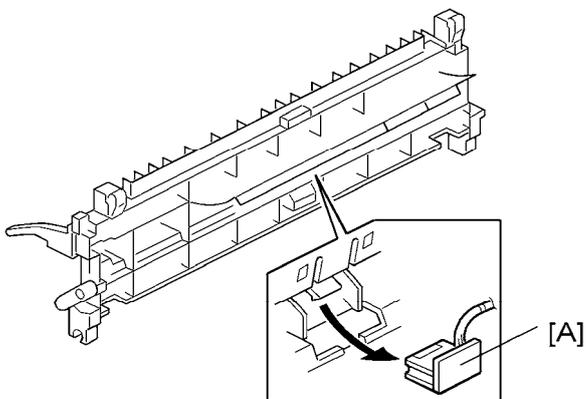
d017r931

3. Remove:

   [A] Image density sensor (▭ x1).
4. Initialize the new sensor with SP2935.

4.7 FUSING/EXIT

⚠CAUTION

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

4.7.1 FUSING UNIT

⚠CAUTION

▪ Allow time for the unit to cool before doing the following procedure.
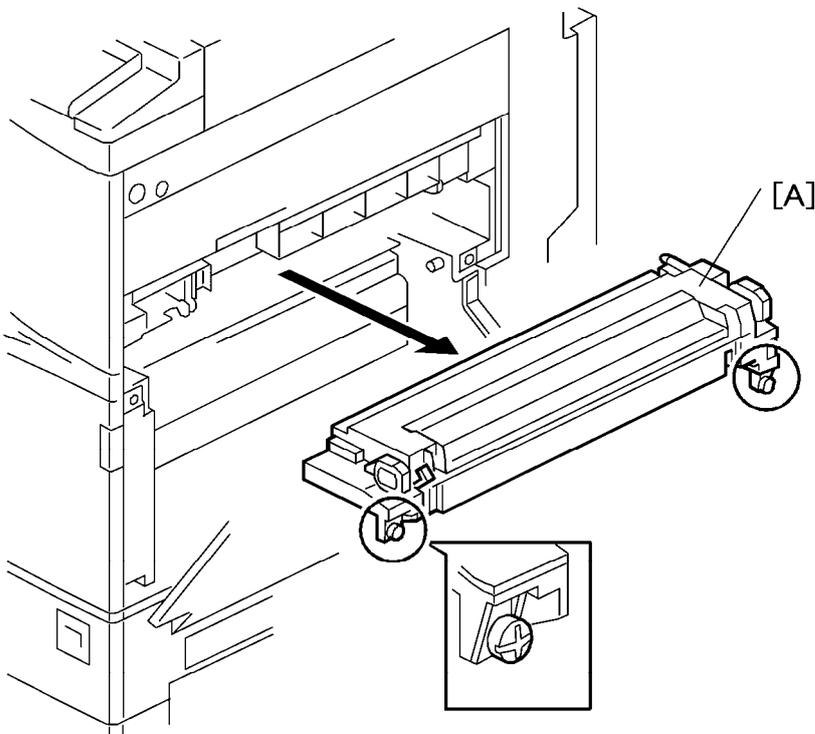
b205r932

1. Release the duplex unit, if it has been installed, and open the right cover.
2. Remove the fusing unit [A] (🖝 x2).

Replacement and Adjustment

4.7.2 THERMISTORS

1. Remove the fusing unit. (☛ p.4-37)
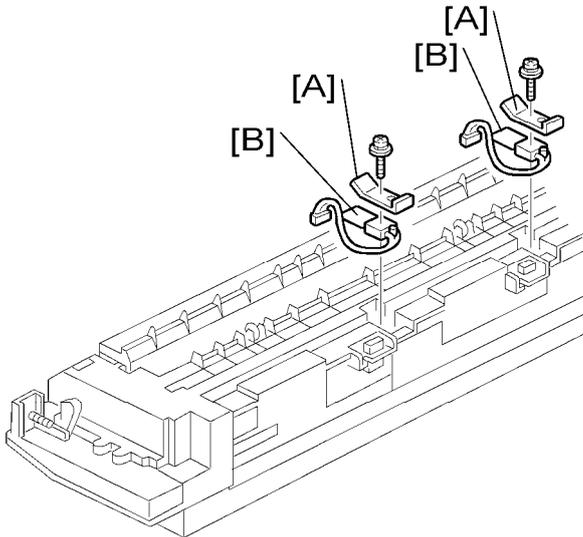
2. Remove the plates [A] (🔩 x1 each).
3. Replace the thermistors [B] (🔌 x1).

4.7.3 THERMOSTATS

1. Remove the fusing unit. (☛ p.4-37)
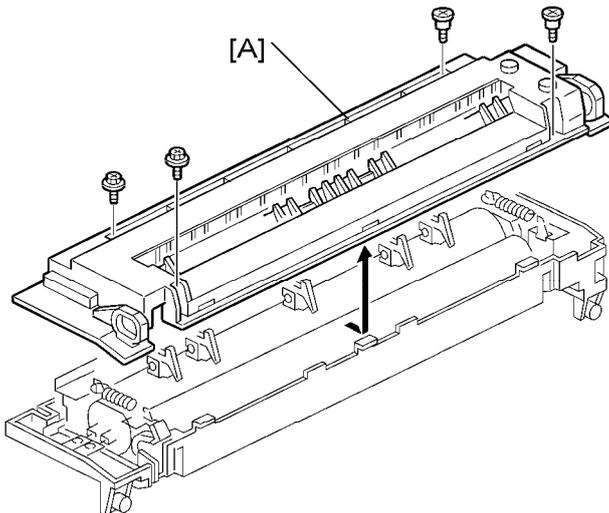
d017r503

2. Remove the fusing upper cover [A] (🔩 x4).
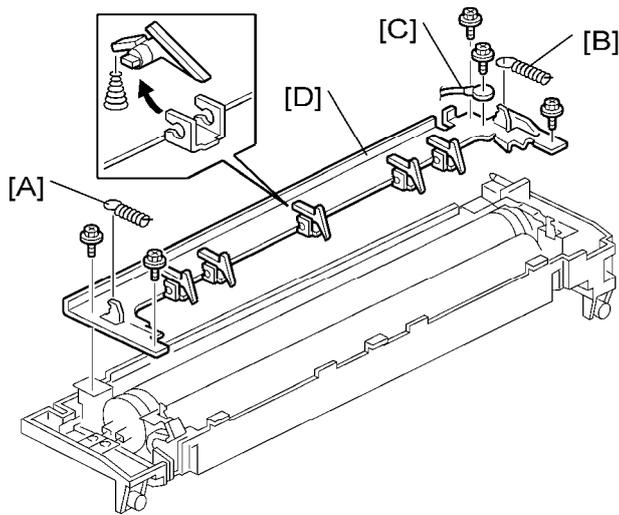
d017r504

3. Remove:

[A] Pressure spring

[B] Pressure spring

[C] Ground wire (🖉 x1)

[D] Hot roller stripper bracket (🖉 x4).
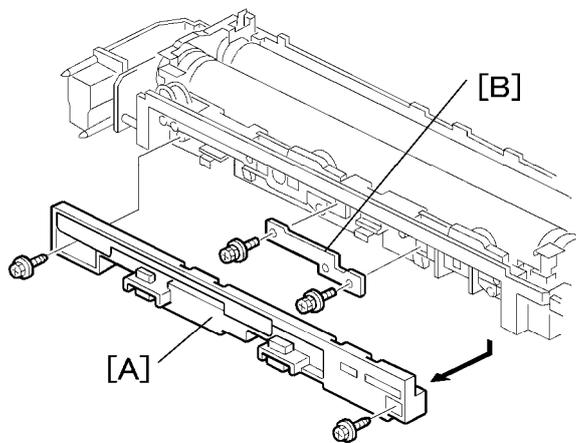
b205r936

4. Remove:

[A] Thermostat cover (Tap 🖉 x2).

[B] Plate (🖉 x2 , spring washers).

Replacement and Adjustment

Fusing/Exit
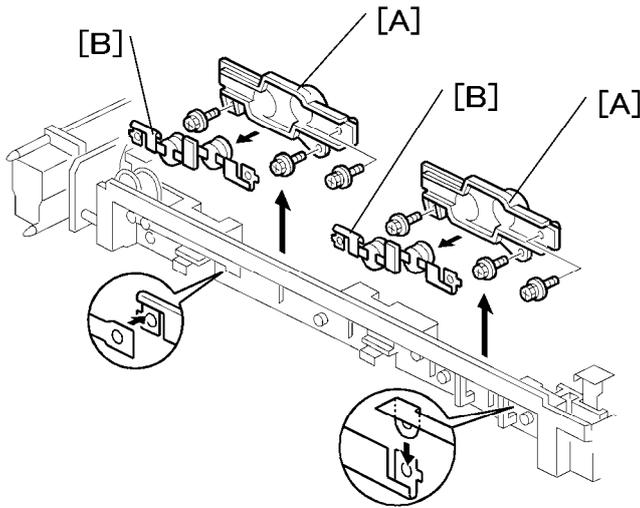
b205r937

5. Remove:

[A] Thermostat holders x2 (🔩 x3 each.).

[B] Thermostats x4

4.7.4 HOT ROLLER AND FUSING LAMPS

1. Remove the fusing unit. (☛ p.4-37)

2. Remove these parts: (☛ p.4-38 "Thermostats").

   ▪ Fusing upper cover.

   ▪ Pressure springs.

   ▪ Hot roller stripper bracket.
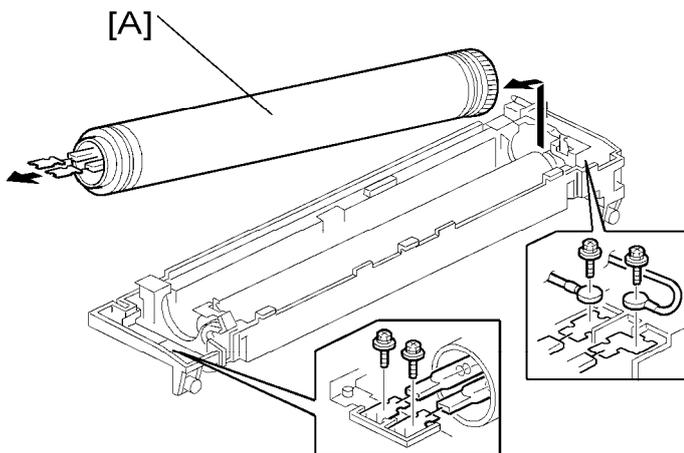
3. Remove the fusing lamps (🔩 x4) and hot roller assembly [A].

   ⬇ Note

   ▪ Do not touch the surface of the fusing lamp with bare hands.
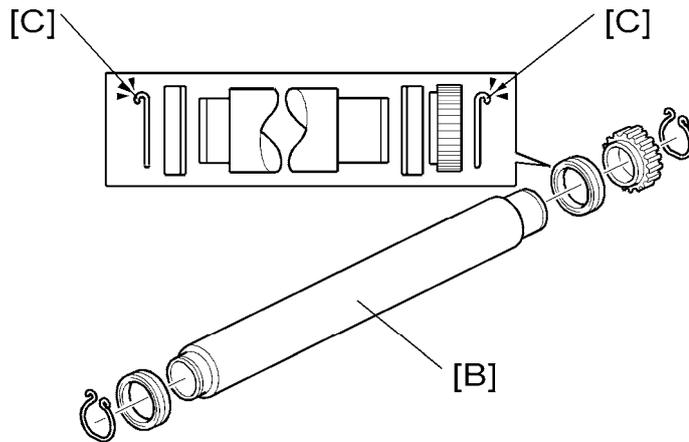
4. Replace the hot roller [B] (C-rings x2, Gear x1, Bushings x2).

   ▪ 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
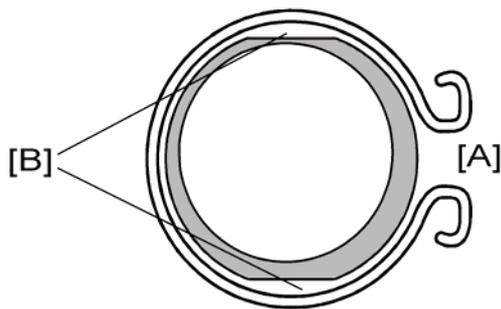
1. At the rear (gear-side), attach the C-ring so that the opening [A] is 90 degrees from the D-cut sections [B] of the fusing roller.
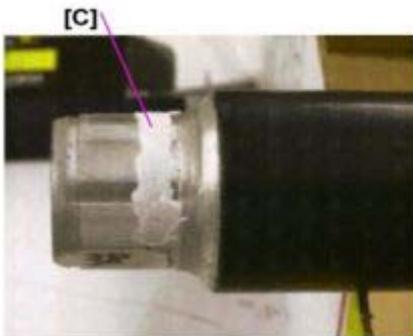
2. Apply enough grease at [C] so the metal surface is not visible.

Replacement and Adjustment

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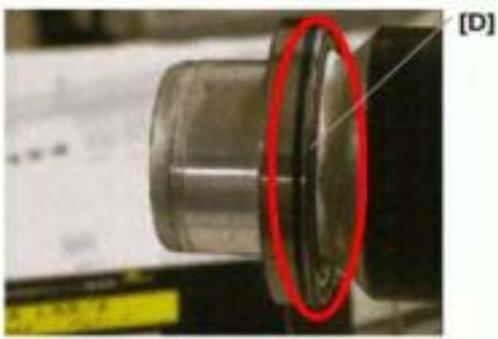
3. The grease should be visible after reattaching the bushing [D].

★ Important

- 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.

4.7.5 PRESSURE ROLLER/CLEANING ROLLER

1. Remove the fusing lamp and hot roller assembly. (☛ p.4-40 "Hot Roller and Fusing Lamps")
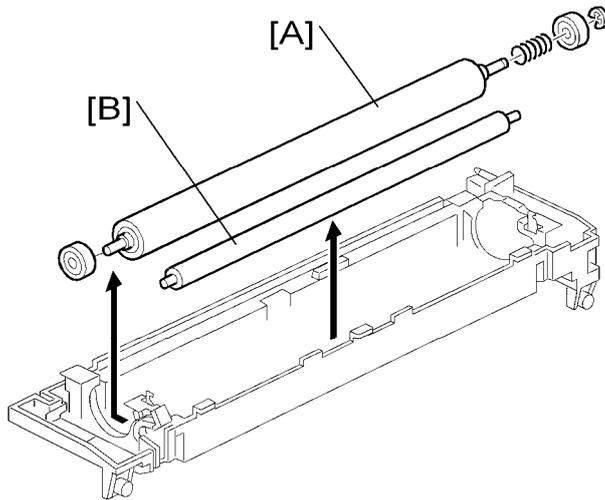
2. Replace the pressure roller [A] (© x1, Bushings x2, Spring x1).
3. Replace the cleaning roller [B].

↓ Note

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

Replacement and Adjustment

4.7.6 PAPER EXIT SENSOR/PAPER OVERFLOW SENSOR

d017r601
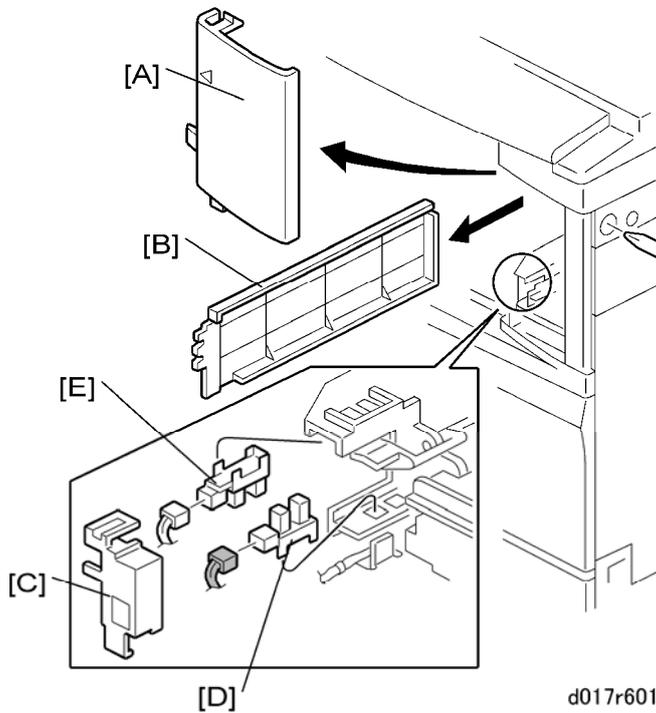
1. Remove the front upper cover [A] (🔩 x1, Peg x1).

2. Remove the exit cover [B].

   ⬇ Note

   ▪ 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).

4.8 PAPER FEED

⚠CAUTION

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

4.8.1 FEED ROLLER: TRAY 1
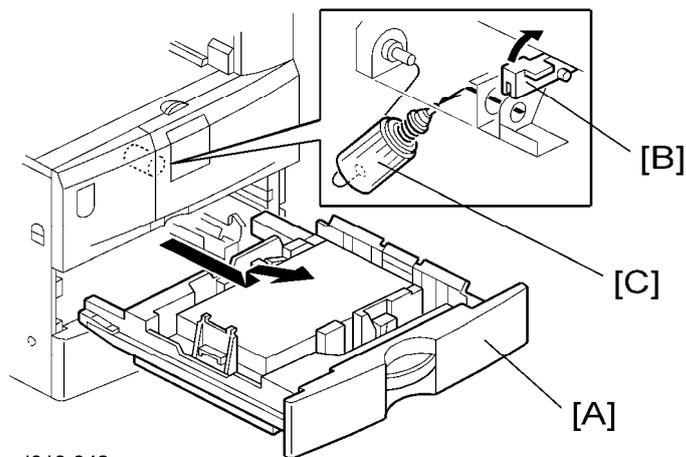
d010r942

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

↓ Note

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

4.8.2 FEED ROLLER: TRAY 2

d010r943
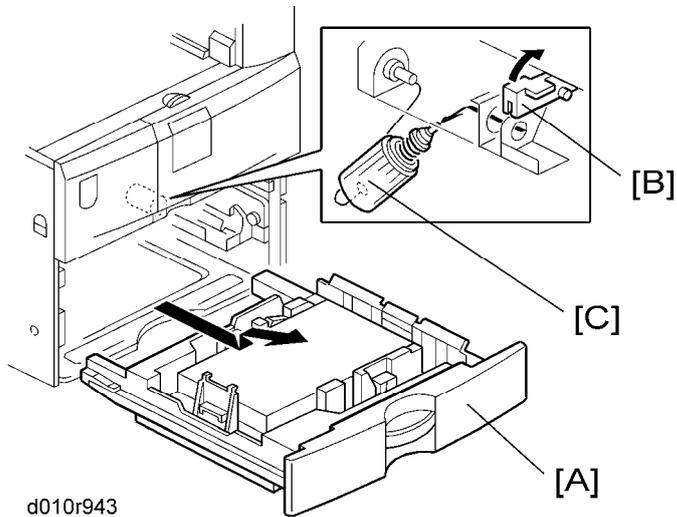
1. Pull out the paper tray 1 and 2 [A].

2. Pull up the stopper [B].

3. Paper feed roller [C]

↓ Note

- Do not touch the roller surface with bare hands.

- After reinstalling the feed roller, reset the stopper [B].

4.8.3 FRICTION PAD
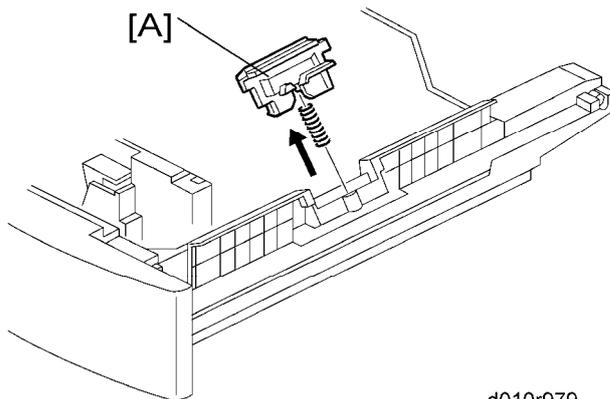
d010r979

1. Pull out the paper tray.

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

4.8.4 PAPER END SENSOR
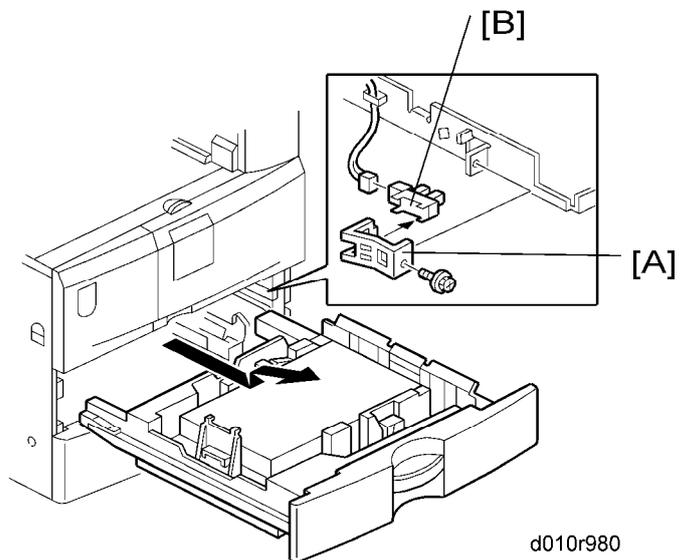
d010r980

1. Paper cassette
2. Bracket [A] (🔩 x 1, 🔌 x 1)
3. Paper end sensor [B] (Hook x1)

Replacement and Adjustment

4.8.5 PAPER TRAY LIFT MOTORS

1. Remove the paper tray.

d017i911a
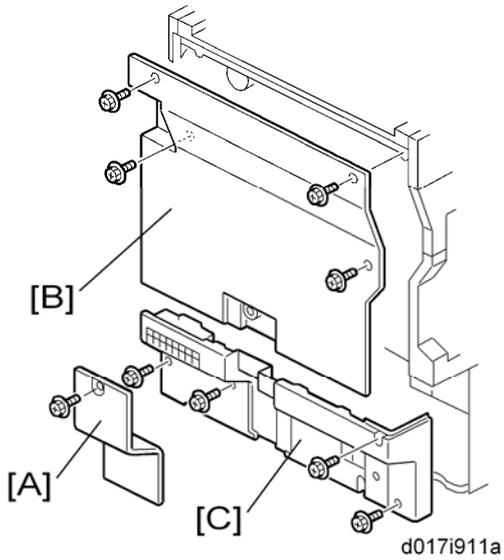
2. Remove:

[A] Connector cover (🖋 x1) and disconnect the cable.

[B] Rear cover (🖋 x4).

[C] Lower rear cover (🖋 x4).

b205r946
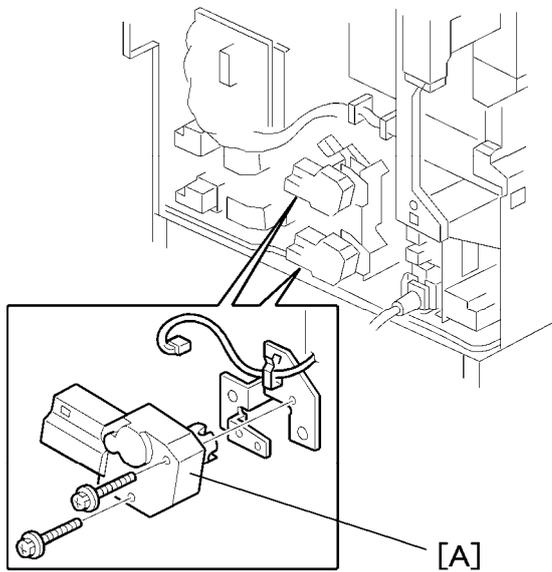
3. Replace the paper lift motors [A] (🖋 x2 each, 🔌 x1 each).

4.8.6 REGISTRATION CLUTCH

1. Remove the connector cover and the rear cover. (☞ p.4-48 "Paper Tray Lift Motors")

2. Remove the duplex connector cover and lower rear cover. (☞ p.4-48 "Paper Tray Lift Motors")

[A]

[B]
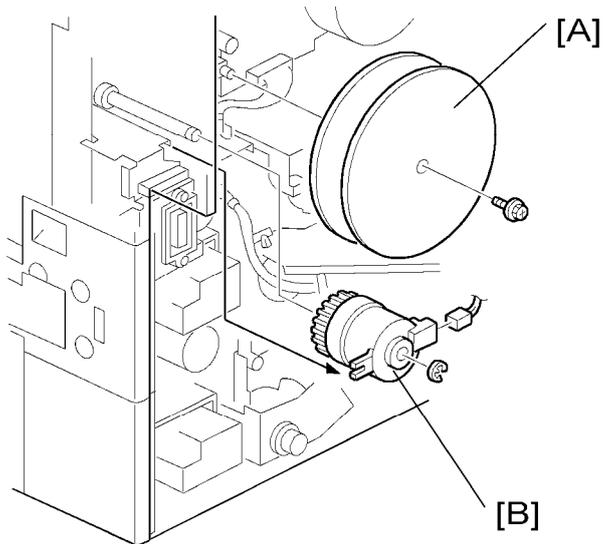
3. Remove the fly wheels [A] (🔩 x1).

4. Remove the registration clutch [B] (Ⓒ x1, 🔌 x1).

Replacement and Adjustment

4.8.7 PAPER FEED CLUTCHES

Lower Paper Feed Clutch

1.   Remove the rear cover.

2.   Remove the lower rear cover.
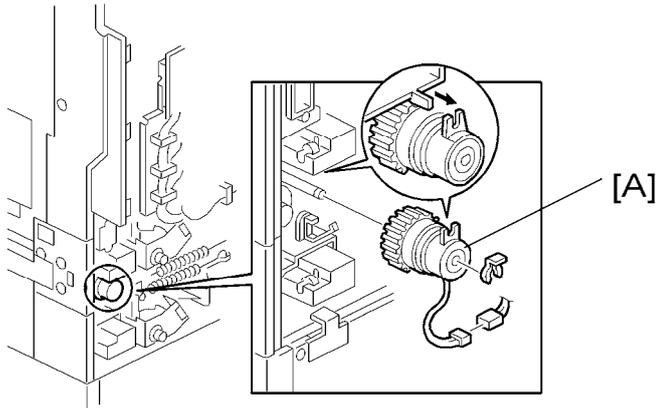
3.   Replace the lower paper feed clutch [A] ($\oslash$ x 1, $\square$ x 1).

Upper Paper Feed Clutch
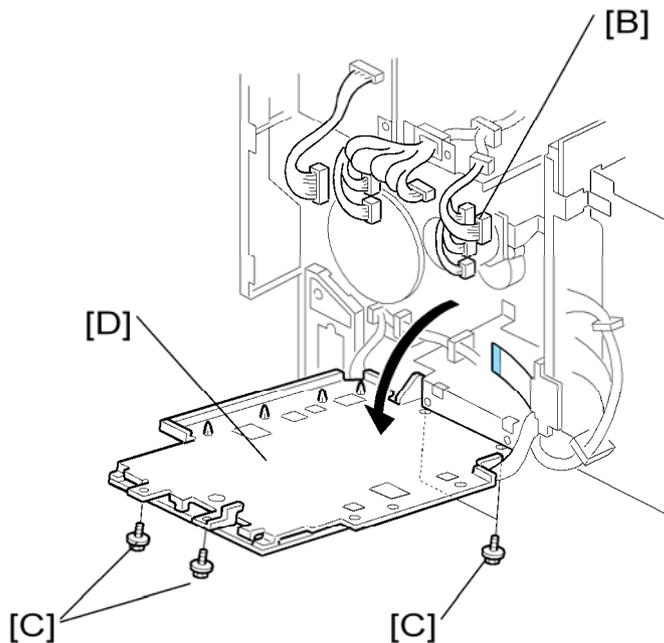
1.   Disconnect the connectors [B] for the BCU board as shown ($\square$ x15).

2.   Remove 4 screws [C] securing the BCU board bracket then swing down the BCU board bracket [D].
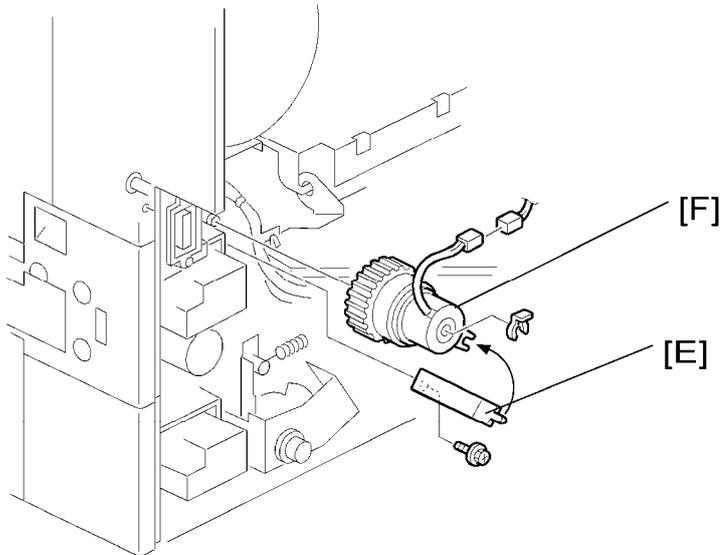
3. Remove the bracket [E] (🔩 x1).

4. Replace the upper paper feed clutch [F] (🔩 x 1, 🔌 x 1).

4.8.8 RELAY CLUTCHES

1. Remove:

   - Rear connector cover (🔩 x1)

   - Rear cover (🔩 x4)

   - Lower rear cover (🔩 x4)
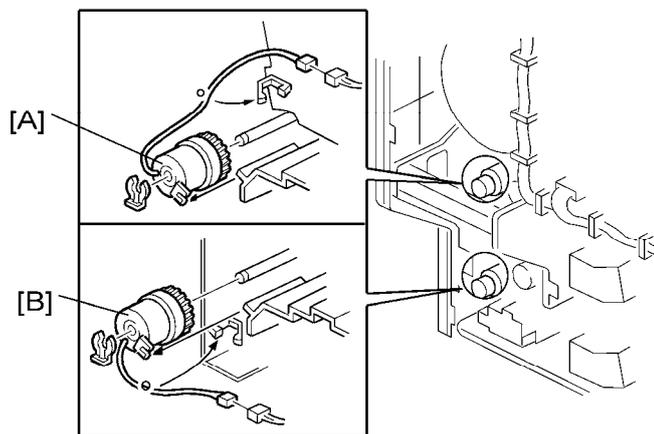
d017r950

2. Remove:

   [A] Upper relay clutch (🔩 x1, 🔩 x1, 🔌 x1)

   [B] Lower relay clutch (🔩 x1, 🔩 x1, 🔌 x1)

4.8.9 UPPER/LOWER PAPER SIZE SENSORS
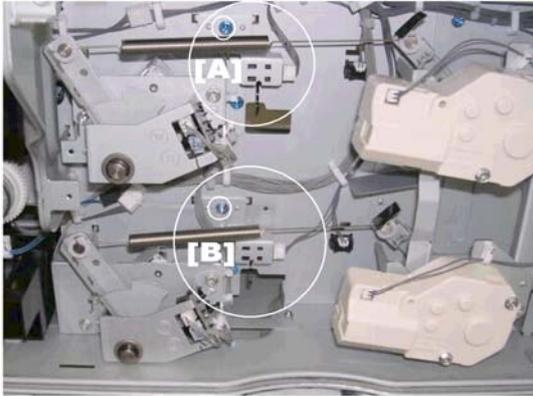
d017r952

1. Pull out the paper tray 1 and/or 2.
2. Remove:
   - Relay connector cover (🔩 x1, 🔌 x1)
   - Rear upper cover (🔩 x4)
   - Rear lower cover (🔩 x4)
3. Remove:

   [A] Tray 1 paper size sensor bracket (🔩 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)

4.8.10 REGISTRATION SENSOR

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

d369i103a

d369i104a
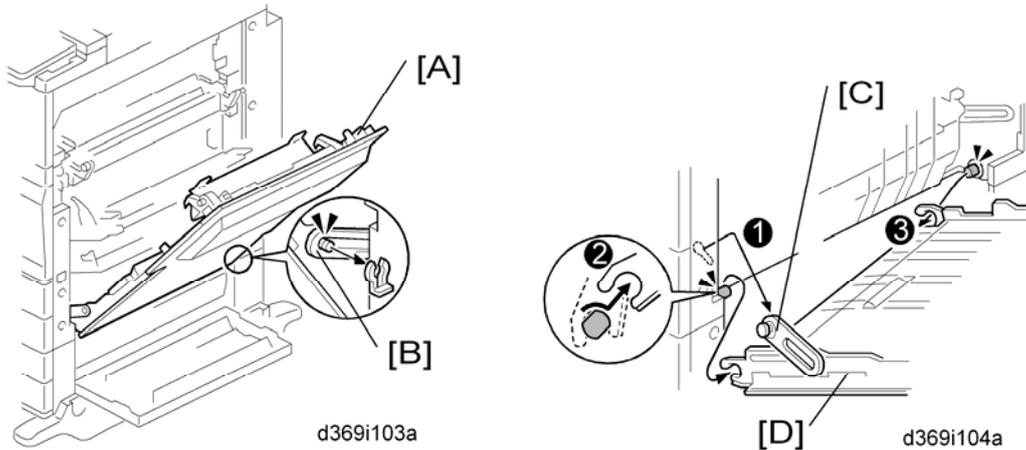
2. Open the right cover [A].

3. Release the rear link [B] from the right cover (⌇ x 1).

4. Release the front link [C] from the mainframe.

5. Remove the right cover [D].

    If the duplex unit is installed:

d369i106a
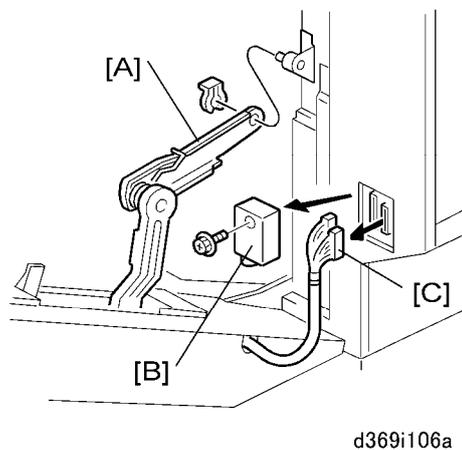
6. Disconnect the right hinge [A] (⌇ x1)

7. Remove the connector cap [B] (🔩 x1).

8. Disconnect the duplex unit harness [C] (▱ x1).

Paper Feed

d369i105a
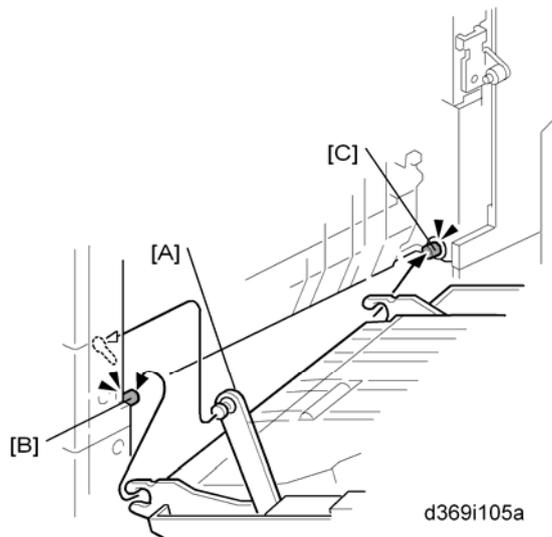
9. Disconnect the arm [A], then disconnect the snap hinges [B] and [C].

d071r930
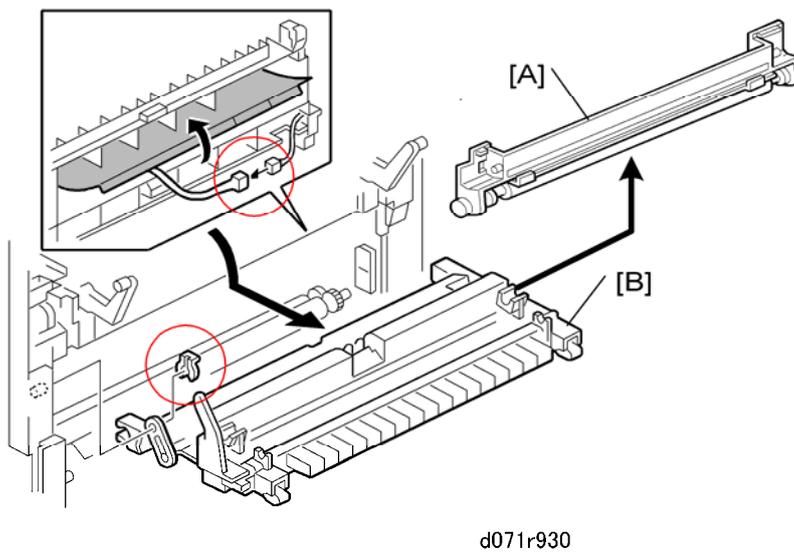
10. Remove:

[A] Transfer roller

[B] Transfer roller guide (⟲ x1, 🔲 x1)
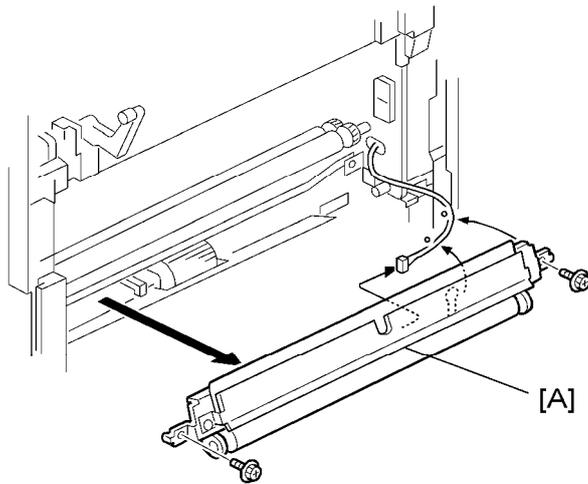
d017r957

11. Remove the guide plate [A] (🔩 x2, 🔗 x2, 🔌 x1)
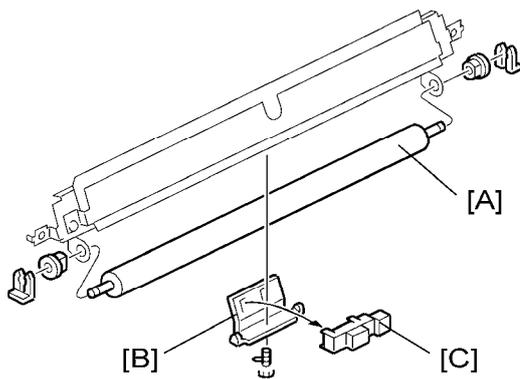
d017r957a

12. Remove:

[A] Registration roller (🔗 x2, Bushings x2)

[B] Registration sensor bracket (🔩 x1)

[C] Registration sensor (Pawls x4)

4.8.11 UPPER, LOWER RELAY SENSORS
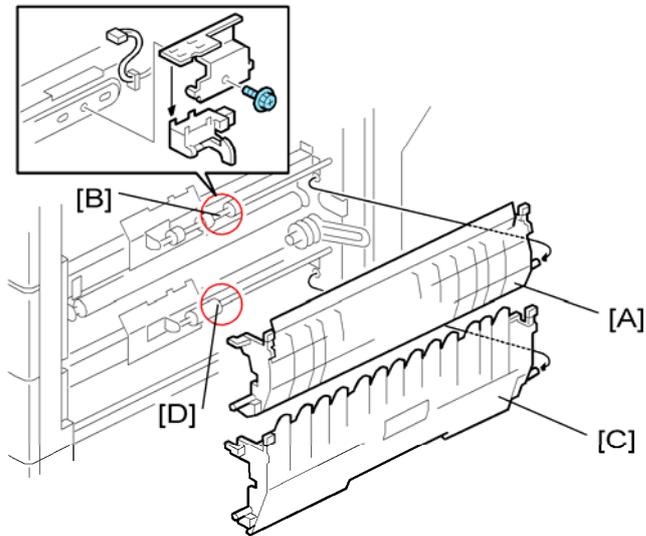
d017r958

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 🔧 x1, 🔌 x1, Pawls x4)

4.8.12 DUST COLLECTION BIN
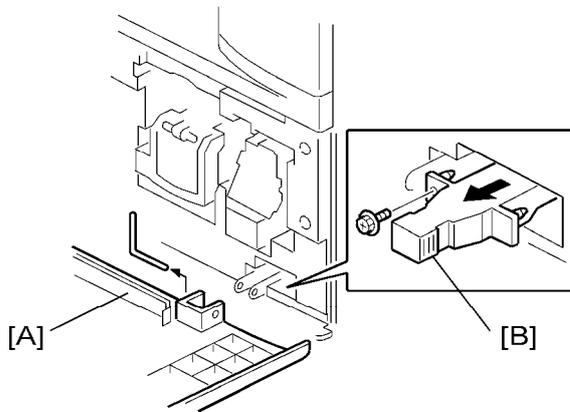
d017r158

1. Remove:

    [A] Front door (L-brackets x2)

    [B] Dust collection bin (📌 x1)

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.

Replacement and Adjustment

4.9 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.

4.9.1 CONTROLLER BOARD

⭐ Important

- 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
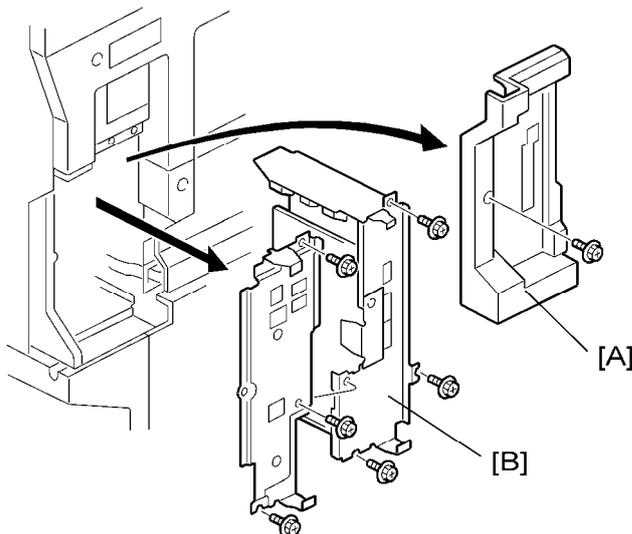
d017r960

1. Remove:
    [A] Controller plastic cover (🔩 x1)
    [B] FCU faceplate (🔩 x3)

[C] Controller board unit (🔩 x3)

⭐ Important

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

d017r161
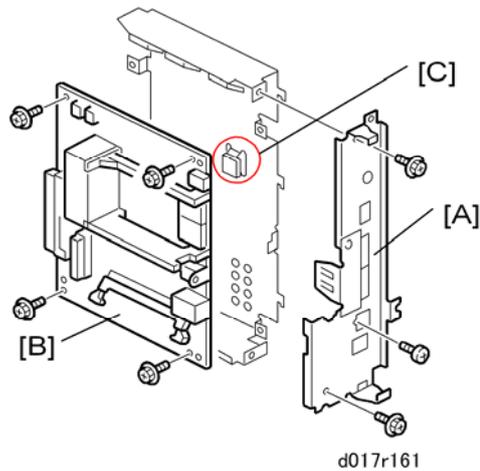
2. Remove:

[A] Faceplate (🔩 x3)

[B] Controller board (🔩 x4)

⭐ Important

- ▪ Make sure that the thermal conductive sheet [C] is attached to the bracket after replacement of this procedure.

d017r161a
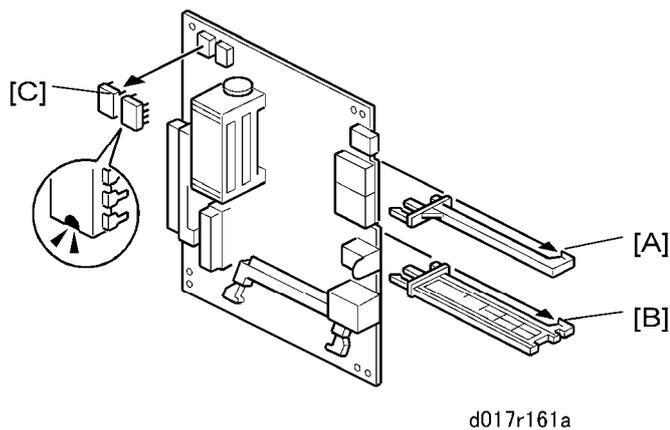
3. Remove:

[A] Upper brace

[B] Lower brace

[C] NVRAM x2

4. Remove the NVRAMs from the old board and install them on the new board.

PCBs and Other Items

> ★ Important

> - 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

1. 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.

4.9.2 NVRAM

The following data stored in the NVRAM will not be saved to the SD card when you perform an NVRAM data upload (SP5824).

- Total counter value
- C/O, P/O counter values
- Duplex, A3/DLT/Over 420mm, Stapler, and Scanner counter values
- Engine SP data

Therefore, whenever you perform an NVRAM upload/download, make sure to print out the SP Data List before you perform SP5801-001 (Memory Clear: All Clear) or SP5801-002 (Memory Clear: Engine).

1. Do SP5990 001 to print the SMC report.

2. Stop all SDK applications if the VM card is installed (☛ p.2-102 "HDD Encryption Unit").

3. Turn off the main switch.

4. Remove the controller board cover (🔩 x1).

5. Remove the VM card from SD card slot C2 if it is installed.

6. Put the SD card in SD card slot C2.

7. Turn on the main switch.

8. Do SP5824.

9. Touch "Execute" to start to upload the NVRAM data.

10. Turn off the main switch and remove the SD card.

11. Remove the controller board (🔩 x1). (☛ p.4-58)

12. Remove the NVRAM (x2) and replace them with the new chips. (☛ p.4-58)

    ↓ Note

    ▪ Both NVRAM chips must be replaced.

13. Install the controller board.

14. Put the SD card with the NVRAM data in SD card slot C2.

15. Turn on the machine.

16. Do SP5801 to initialize the new NVRAM.

17. To download the NVRAM data from the SD card in C2, do SP5825.

18. Touch "Execute" to start to download the NVRAM data.

19. Turn off the main switch and remove the SD card.

20. Turn on the machine.

21. Do SP5990 001 to print another SMC report.

22. 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.

23. Do SP5907 and input the brand and model name of the machine for Windows Plug & Play capability.

    ↓ Note

    ▪ 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 p.2-102 "HDD Encryption Unit".

Replacement and Adjustment

4.9.3 BCU BOARD

d017r708
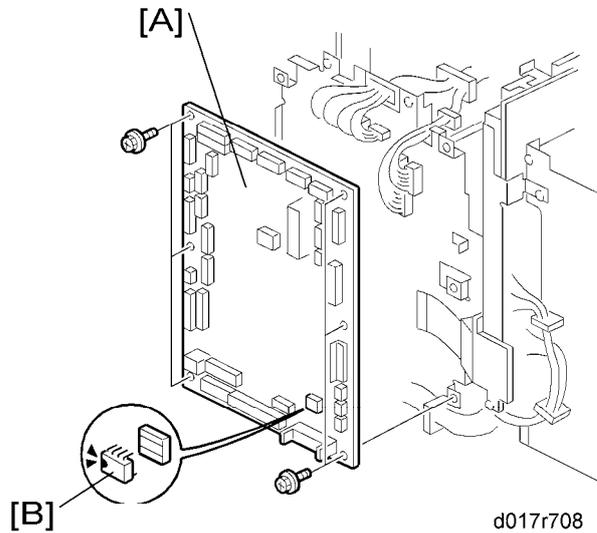
1. Remove the rear cover. (☛ p.4-48 "Paper Tray Lift Motors")
2. Remove the BCU board [A] (🔲 x All, 🔩 x6).
3. Remove the NVRAM [B] from the old board and install it on the new board.
4. Set the DIP switches on the new BCU board to the same settings as the old board.

4.9.4 POWER PACK

d017r710
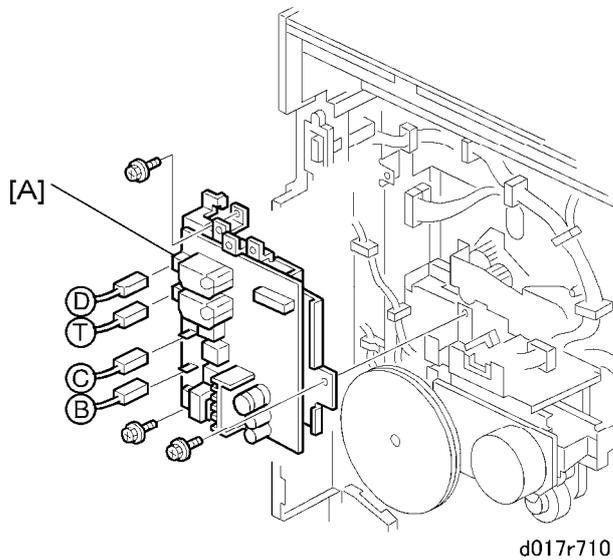
1. Remove the rear cover.

2. Swing down the BCU board bracket. (☞ p.4-50 "Paper Feed Clutches")

3. Remove the power pack [A] (⬚ x 4, 🔧 x3).

4.9.5 MAIN MOTOR
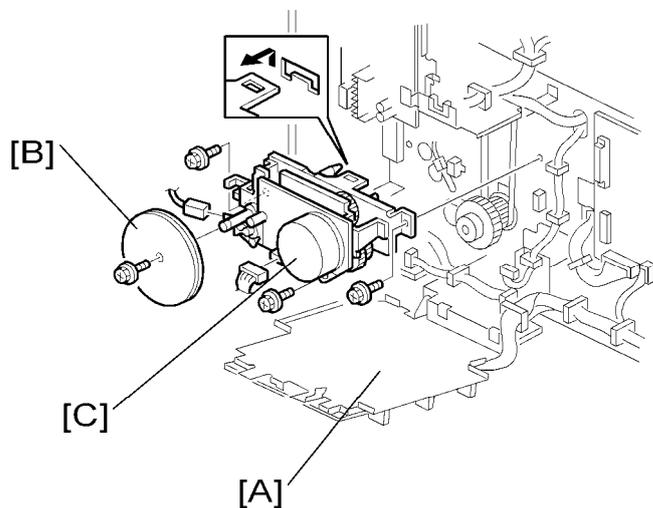
1. Remove the rear cover. (☞ p.4-48 "Paper Tray Lift Motors")

2. Swing down the BCU board bracket [A]. (☞ p.4-50 "Paper Feed Clutches")

3. Remove the flywheels [B] (🔧 x1).

4. Replace the main motor [C] (⬚ x2, 🔧 x3).

4.9.6 PSU
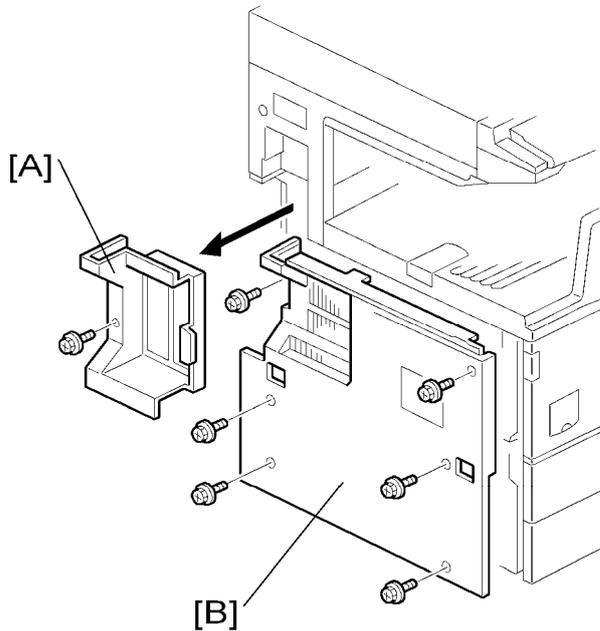
1. Remove the optional finisher if it has been installed.

2. Remove the application cover [A] (🔩 x1).

3. Remove the left cover [B] (🔩 x6).
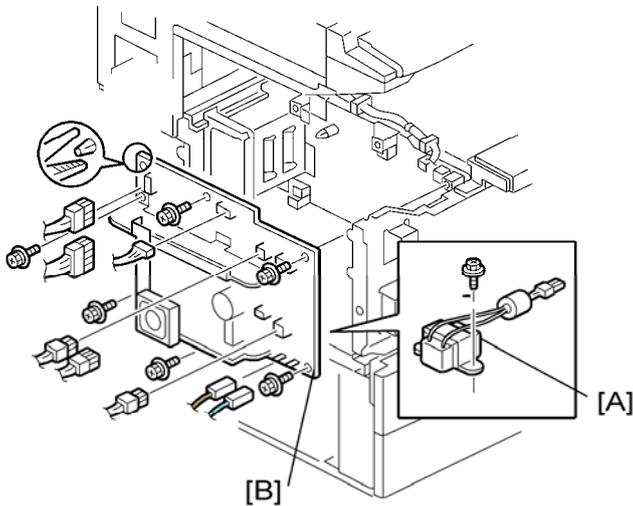
d017r702

4. Remove:

   [A] Transformer (🔩 x1) (For the 220 V machine only)

   [B] PSU (🔌 x all, 🔩 x6, Standoff x1).

4.9.7 SIO

Monochrome Scanner Unit (D017/D019)
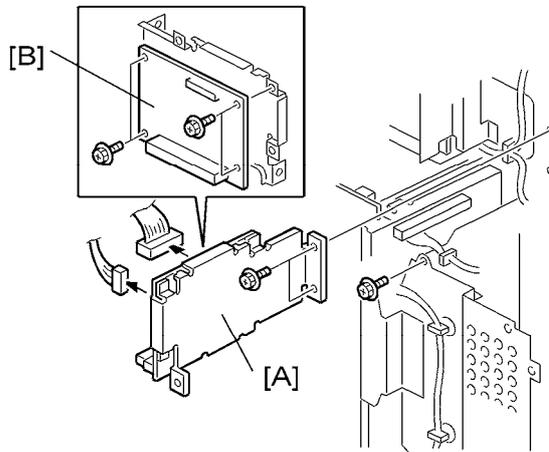
d017r159a

1. Remove:

   ▪ Rear cover (☛ p.4-48 "Paper Tray Lift Motors")

   [A] SIO bracket (🔩 x3, 🔌 x2)

   [B] SIO board (🔩 x4)

Color Scanner Unit (D018/D020/D084/D085)
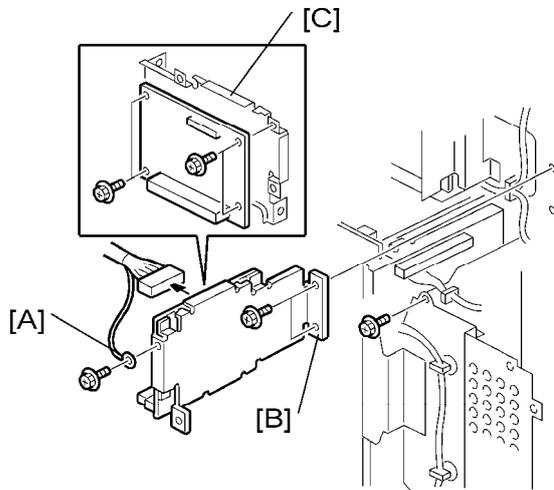
d017r159b

1. Remove:

   ▪ Rear cover (☞ p.4-48 "Paper Tray Lift Motors")

   [A] Ground wire, connector (🔩 x1, 🔌 x1)

   [B] SIO bracket (🔩 x3)

   [C] SIO board (🔩 x4)

4.9.8 SIU
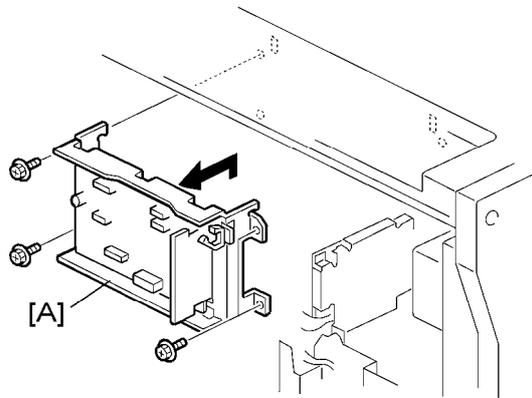
d017r160a

1. Remove:

    ▪ Rear cover (☛ p.4-48 "Paper Tray Lift Motors")

    [A] SIU assembly (🔩 x4, 🔌 x7)

Replacement
and
Adjustment

4.9.9 IPU

1. Remove:

    ▪ Rear cover (☞ p.4-48 "Paper Tray Lift Motors")

    ▪ Controller board unit (☞ p.4-58 "Controller Board")

    ▪ SIO (☞ p.4-65)
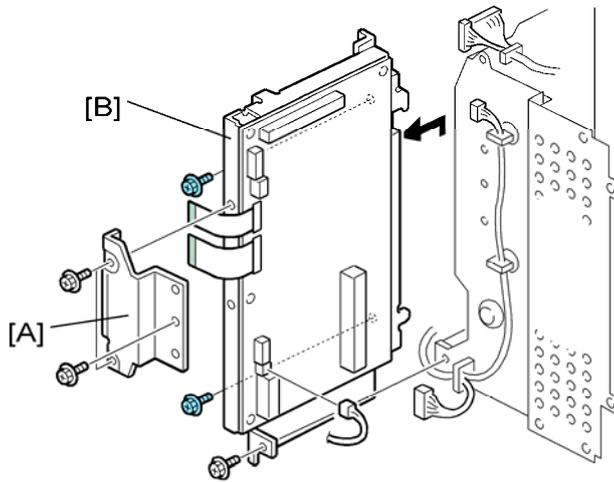
d017r159

2. Remove:

    [A] FFC cover (🔩 x2)

    [B] IPU (🔩 x3, ▭ x4, FFC x2)
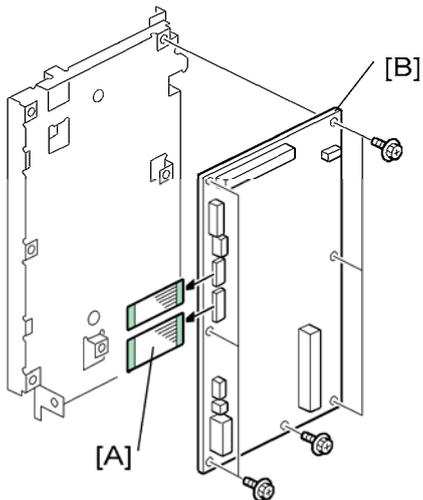
d017r160

3. Remove:

    [A] FFC x2

    [B] IPU (🔩 x7)

4.9.10 HDD

1. Before you replace the HDD:

    ▪ Stop all SDK applications, and then remove it from the machine if the VM card is installed (☛ p.2-102 "HDD Encryption Unit").

    ▪ 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.

    ★ Important

    ▪ If the HDD is damaged, you may not be able to retrieve this data from the HDD.

2. Remove the controller board. (☛ p.4-58)

d017r965
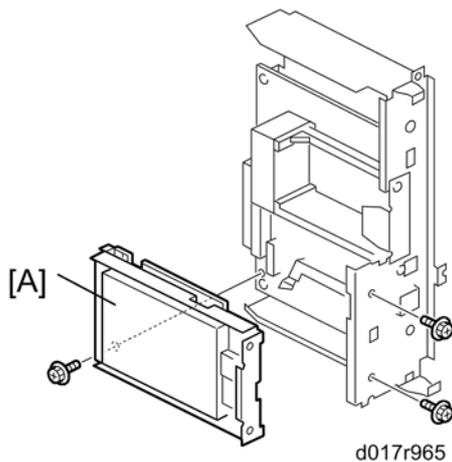
3. Remove the HDD and bracket [A] (🔩 x1)

d017r965a
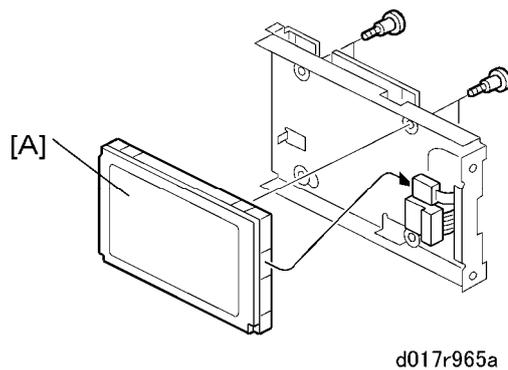
4. Remove the old HDD [A] from its bracket (🔩 x4, 🔌 x2).

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.

PCBs and Other Items

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 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 p.2-102 "HDD Encryption Unit".

4.10 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.

4.10.1 PRINTING

↓ Note

- 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	2 ±1.5 mm

Replacement and Adjustment

Copy Adjustments: Printing/Scanning

Tray	SP mode	Specification
3rd paper feed (Optional PFU tray 1), or LCT	SP1-002-3	
4th paper feed (Optional PFU tray 2)	SP1-002-4	
By-pass feed	SP1-002-5	
Duplex, side 2	SP1-002-6	
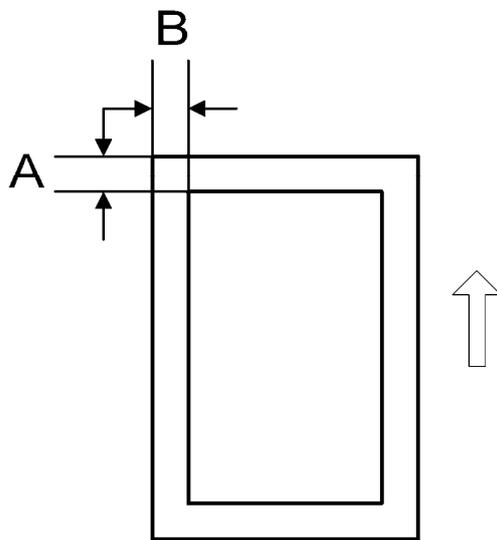
A: Leading Edge Registration

B: Side-to-side Registration

Blank Margin

 Note

- 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
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

Replacement and Adjustment
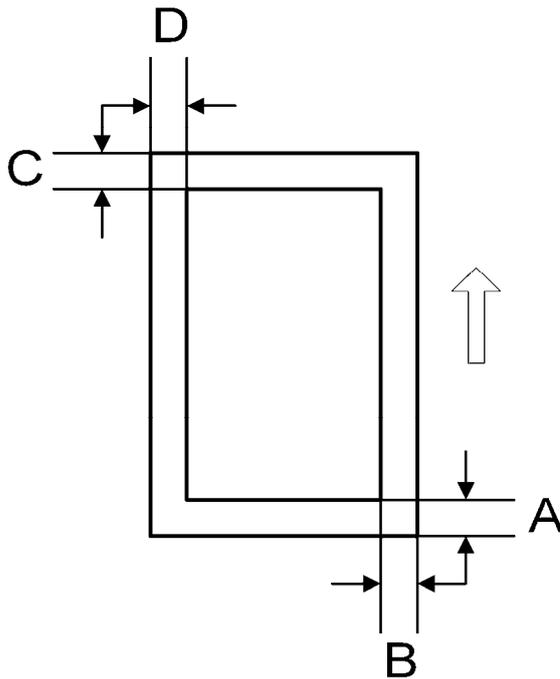
A: Trailing Edge Blank Margin

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.

[B]

Turn
clockwise

[C]

[D]

[A]

Turn
counterclockwise
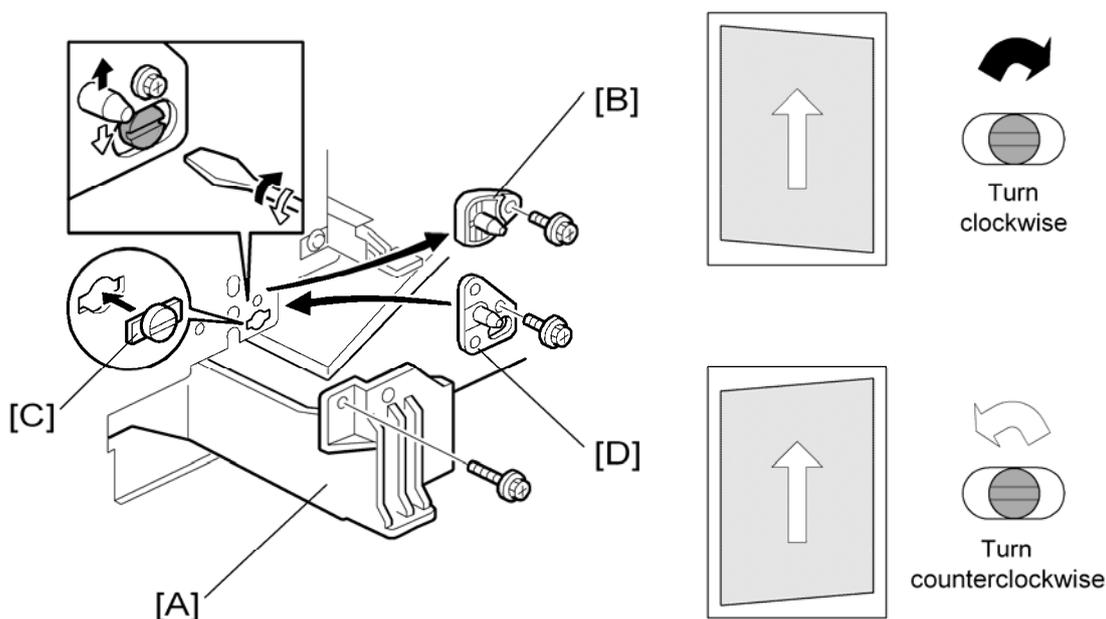
↓ Note

- 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] (☛ p.4-20).

3. Remove the bracket [B] (🔩 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.

4.10.2 SCANNING

[↓ Note]

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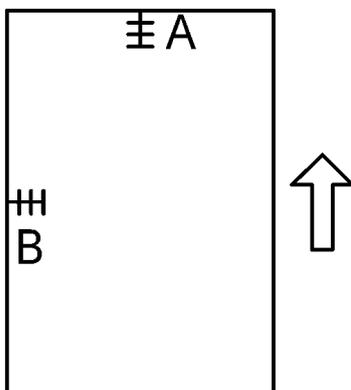
A: Leading Edge Registration
B: Side-to-side Registration

Magnification

↓ Note

- Use an S5S test chart to do the following adjustment.
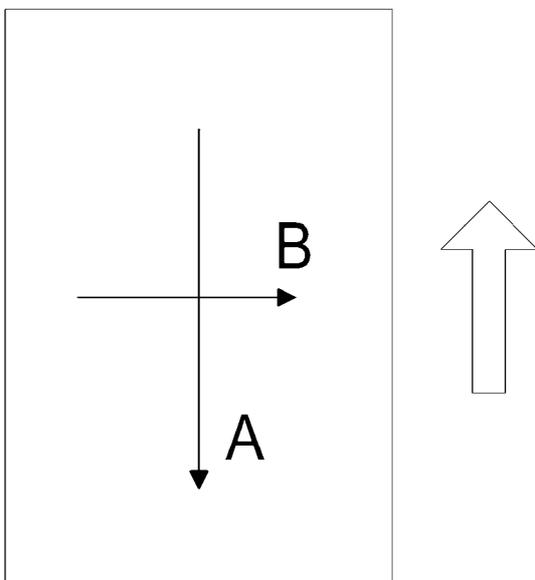
1. Place the test chart on the exposure glass and make a copy from one of the feed stations.

2. Check the magnification ratio. Use SP4-008 (Scanner Sub Scan Magnification) to adjust if necessary. Specification: ±0.9%.

Replacement and Adjustment

4.10.3 ADF IMAGE ADJUSTMENT

Registration
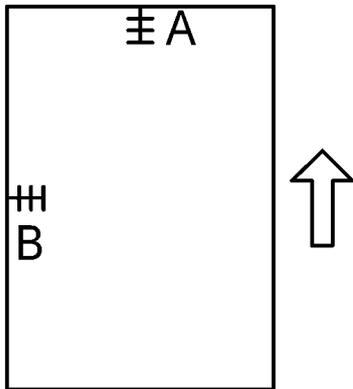
A: Leading Edge Registration

B: Side-to-side Registration

↓ Note

- 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

↓ Note

- 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

Replacement and Adjustment

4.10.4 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.

↓ Note

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

1. Press [⊘], input 1993 at the ten-key pad, and then press ⊙ 5 times to open the Self-Diagnostics menu.


```
┌─────────────────────────────────────────────────────────────┐
│              S e l f   D i a g n o s t i c   M e n u          │
│                                                               │
│   [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     │
└─────────────────────────────────────────────────────────────┘
```
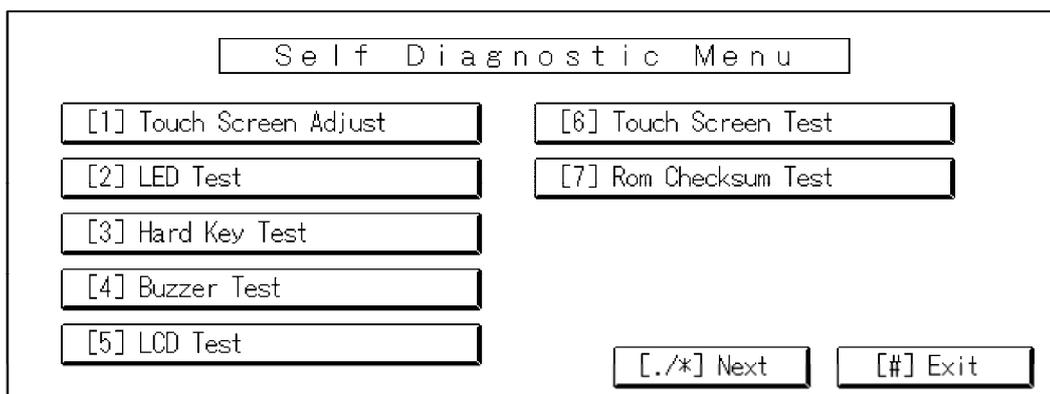
b205r974

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


```
┌─────────────────────────────────────────────────────────────┐
│  ○↖              T o u c h   S c r e e n   A d j u s t        │
│                                                               │
│                                                               │
│         Touch the upper left mark and then the lower          │
│         right mark of the panel using a pointed tool.         │
│                                                               │
│         Press the [C] key to quit.                            │
│         Re-input is available using [/*] key.                 │
│                                                               │
└─────────────────────────────────────────────────────────────┘
```
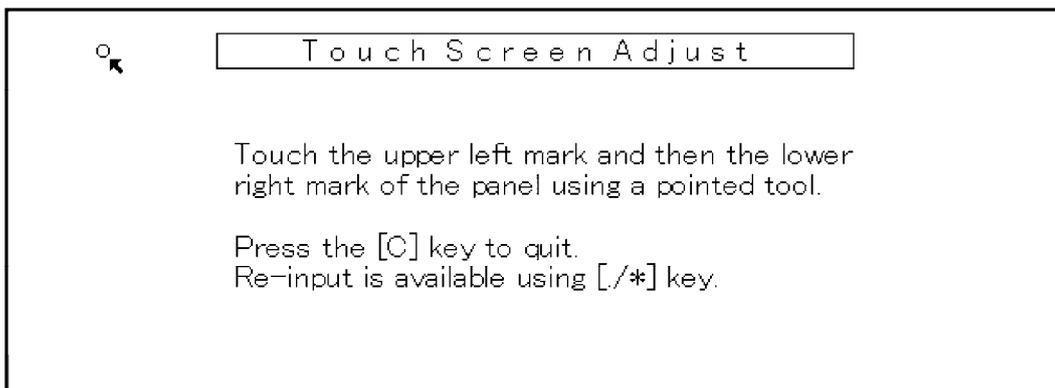
b205r975

3. Use a pointed (not sharp!) tool to press the mark at the upper left of the screen (○↖).
4. Press the mark at the lower right of the screen (↖○) 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.

Replacement and Adjustment

SYSTEM MAINTENANCE

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

5. SYSTEM MAINTENANCE

5.1 SERVICE PROGRAM MODE

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

⭐ Important

- 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.

5.1.1 SP TABLES

See "Appendices" for the following information:

- <u>System SP Tables</u>
- <u>Printer SP Tables</u>
- <u>Scanner SP Tables</u>

5.1.2 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.

1. 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.

5.1.3 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

Ask your supervisor how to enter and/or exit the service program mode.

SP Mode Button Summary

d084s901
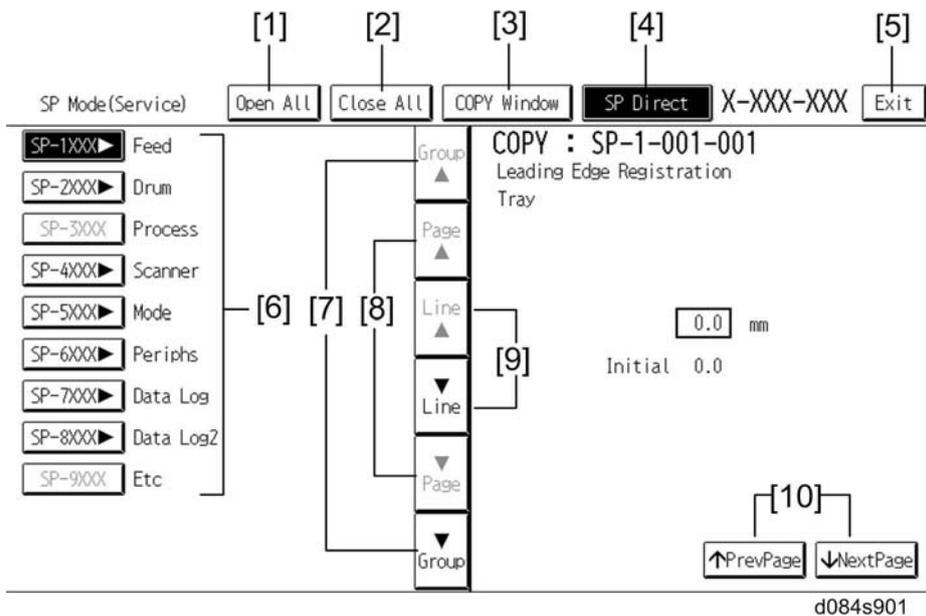
Here is a short summary of the touch-panel buttons.

- [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.
- [6] 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 Group1. If an SP has sublevels, touch the appropriate button to expand the list.
- [7] Press to scroll the display to the previous or next group.
- [8] Press to scroll to the previous or next display in segments the size of the screen display (page).
- [9] 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.

System Maintenance

Service Program Mode

d084s902
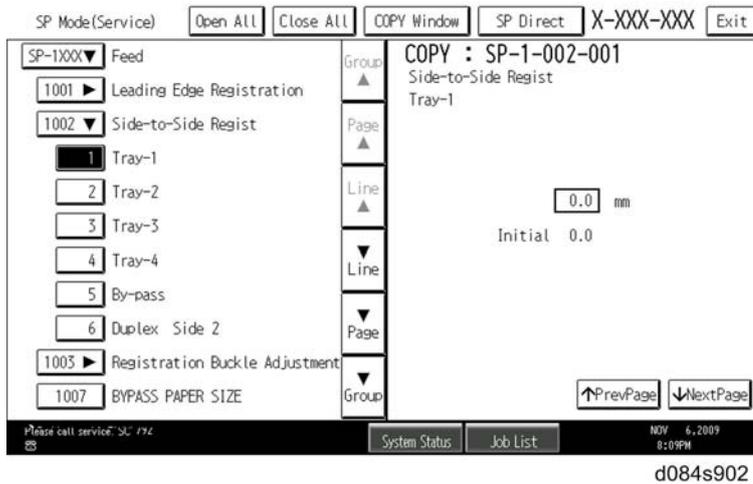
↓ Note

- 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 (q) 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.

5.1.4 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)

↓ Note

- ▪ 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 q 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 (1dot)
2	Horizontal Line (1dot)
3	Vertical Line (2-dot)
4	Horizontal Line (2-dot)
5	Grid Pattern (1dot)

System Maintenance

Service Program Mode

No.	Test Pattern
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
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)

↓ Note

- 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.

System Maintenance

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

No.	What It Initializes	Comments
		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.
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.

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

System Maintenance

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.

	0 0 0 0 0 0 0 0
Bit	7 6 5 4 3 2 1 0

0 = Paper not detected, 1 = Paper detected
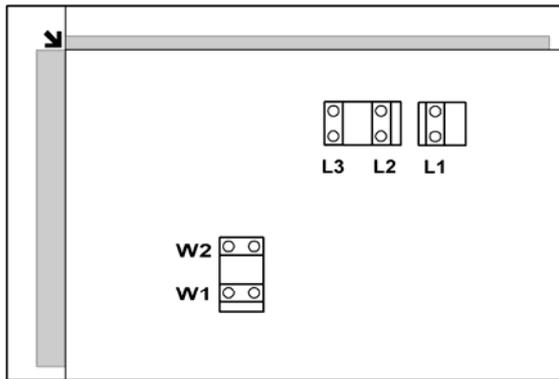
d017s905

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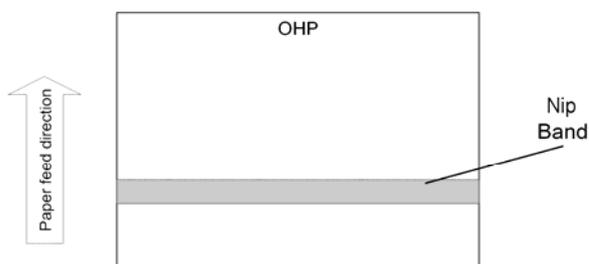
When paper wrinkling or image off-set occurs, the pressure from the pressure roller can be adjusted by changing the position of the pressure springs. At this time, the nip band width can also be checked with SP1109, as follows.

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.

d084s910a
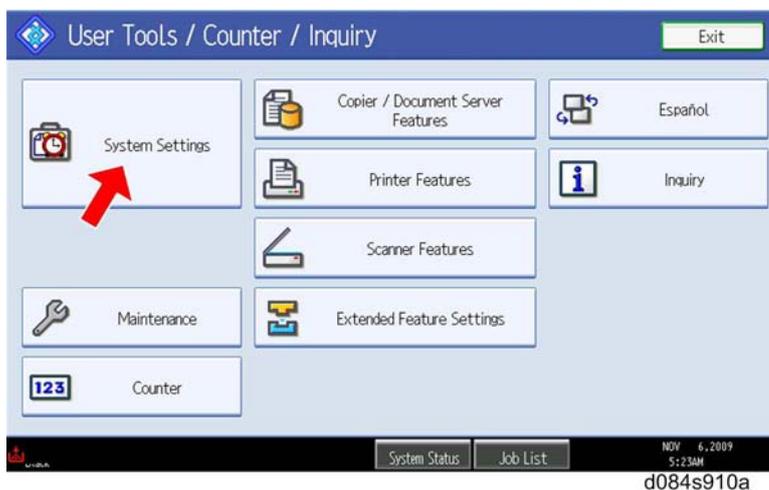
2. Press and hold down ⊕ and then touch "System Settings".
3. When the message prompts you to confirm that you want to reset the system settings, press Yes.
4. When the message tells you that the settings have been reset, press Exit.

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".

d084s910b
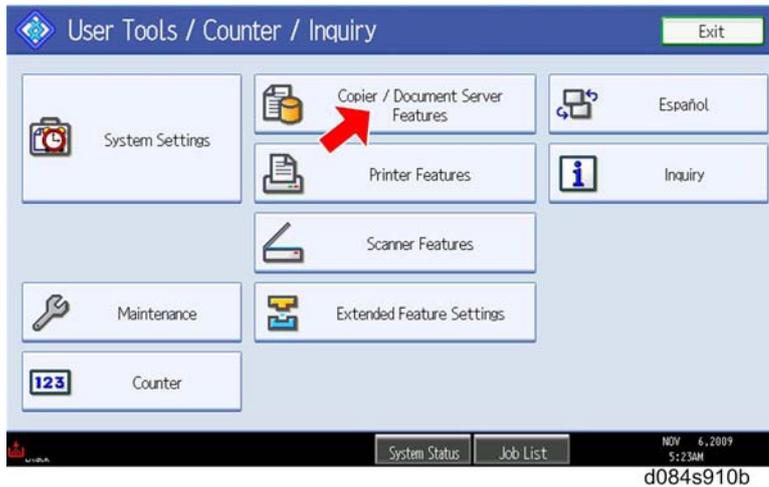
3. When the message prompts you to confirm that you want to reset the Copier Document Server settings, press Yes.
4. When the message tells you that the settings have been reset, press Exit.

5.1.5 SERVICE PROGRAM MODE TABLES

Service Table Key

Notation	What it means
[range / default / step]	Example: [-9 to +9 / +3.0 / 0.1 mm step]. The setting can be adjusted in the range ±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.
1111	An SP number set in bold denotes a "Special Service Program" mode setting that appears only after entering the SP mode by pressing ⊕ and Copy SP 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.
(S)	Sideways feed direction
(L)	Lengthwise feed direction

5.2 FIRMWARE UPDATE

The procedure is the same for all firmware modules.

↓ Note

- If you will change scanner firmware, print 5-990-22 and -23 (SMC reports for scanner settings) before you start this procedure.

1. Stop all SDK applications if the VM card is installed (☞ p.2-102 "HDD Encryption Unit").
2. Turn off the main power switch.

d017i502
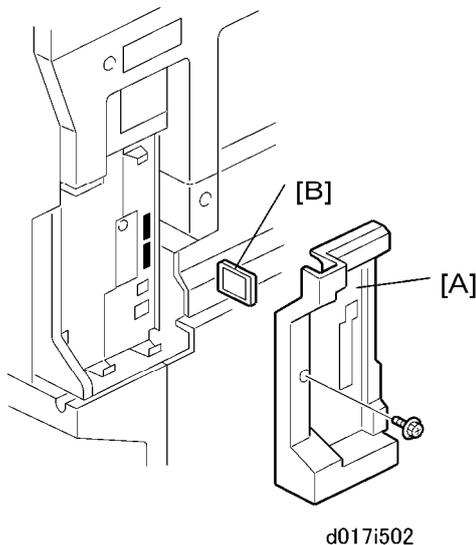
3. Remove the plastic application cover [A] (🔩 x 1).
4. Remove the VM card from SD card slot 2 if it is installed.
5. Insert the SD card [B] containing the software you wish to download into SD card slot 2 (lower slot).
6. Open the front cover.
7. Turn on the main power.
8. Follow the instructions on the operation panel
9. 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)

System Maintenance

Firmware Update

⚠ CAUTION

- 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.

10. After confirming that downloading is completed, turn off the main power and remove the SD card.

11. If more software needs to be downloaded, repeat steps 1 to 7.

12. Turn the main power on and confirm that the new software loads and that the machine starts normally.

13. 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.

5.3 NVRAM DATA UPLOAD/DOWNLOAD

The content of the NVRAM can be uploaded to and downloaded from an SD card.

5.3.1 UPLOADING NVRAM DATA (SP5-824)

1. Turn off the main switch.
2. Remove the SD card cover (🗝 x 1).
3. Insert the SD card into SD card slot 2.
4. Turn on the main switch.
5. Execute SP5-824.
6. Press ⏻ to start uploading the NVRAM data.

5.3.2 DOWNLOADING NVRAM DATA (SP5-825)

The following data are not downloaded from the SD card:

- Total counter
- C/O, P/O Counter
- Dupelx, A3/DLT/Over 420 mm, Staple and Scanner application scanning counters (system settings).
- Engine SP data

1. Stop all SDK applications if the VM card is installed (☛ p.2-102 "HDD Encryption Unit").
2. Turn off the main switch.
3. Remove the SD card cover [A].
4. Remove the VM card from SD card slot 2 if it is installed.
5. Plug the SD card [B] into SD card slot 2.
6. Turn on the main switch.
7. Execute SP5-825.
8. Press ⏻ to start downloading the NVRAM data.

Note that the following errors could occur during downloading:

- If a card is not installed in the card slot and a message tells you that downloading cannot proceed, you cannot execute downloading, even by pressing ⏻.
- If the correct card for the NVRAM data is not inserted in the card slot, after you press ⏻ a message will tell you that downloading cannot proceed because the card is abnormal and the execution will halt.

System Maintenance

5.4 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'.)

5.4.1 UP MODE INITIAL SCREEN: USER TOOLS/COUNTER DISPLAY

d084s910
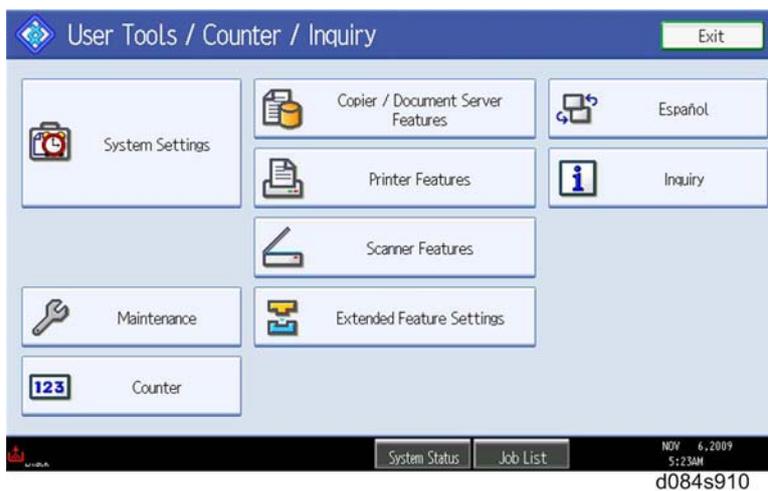
To enter the UP mode, press User Tools/Counter.

5.4.2 SYSTEM SETTINGS

d084s911
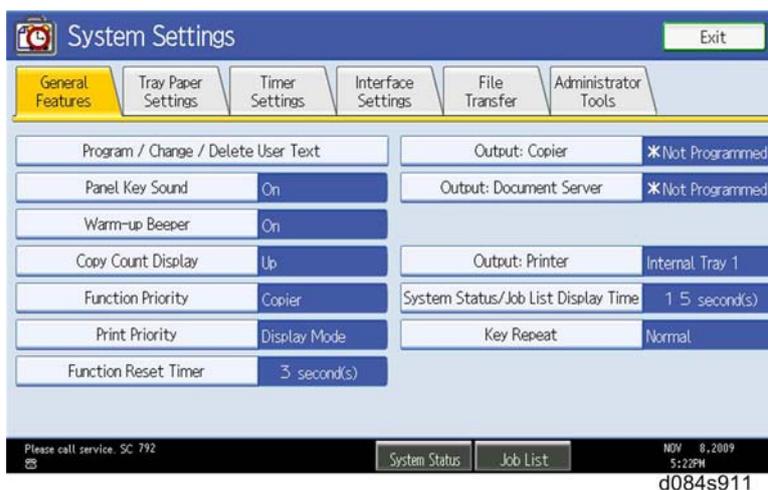
In the User Tools/Counter display, press System Settings.

▪ 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.

5.4.3 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.

5.4.4 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.

System Maintenance

5.4.5 INQUIRY

d084s913
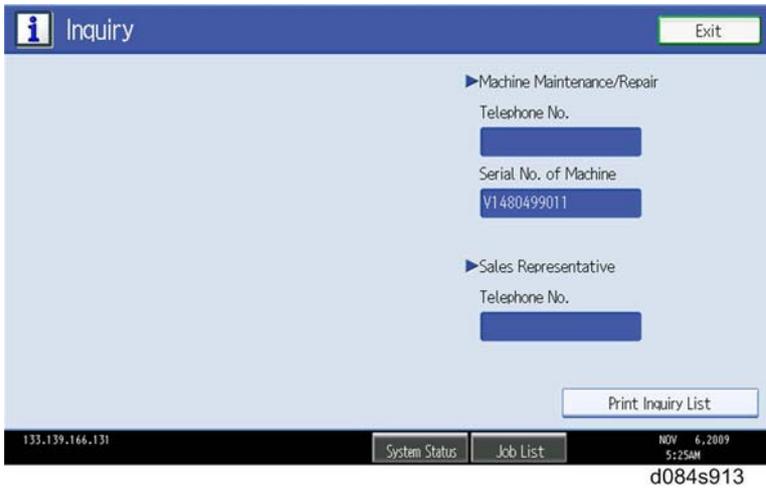
In the User/Tools Counter display, press Inquiry.

The following SP mode settings will be displayed.

- Service Telephone Number
- Serial Number of Machine
- Sales Representative Telephone No.

5.4.6 COUNTER

d084s914

In the User/Tools Counter display, press Counter.

View the settings, press Exit to return to the User Tools/Counter display, and then press Exit to return to the copy window.

5.5 LED AND DIP SWITCHES

5.5.1 LEDS

Controller

Number	Normal	Controller Software Download	Error
LED 1	Off	Blinking	Off
LED 2	Blinking	Blinking	Lit or Off

BCU

Number	Normal	Controller Software Download	Error
LED 1	Lit	Lit	Off or Blinking
LED 2	Blinking	Lit	Lit (except downloading) or Off

System Maintenance

5.5.2 DIP SWITCHES

Controller

SW2

Number	OFF	ON
1	Boot from SD card	Default: Boot from Flash ROM
2 to 4	Default: OFF DFU	---

BCU

SW102

Destination	Bit			
	1	**2**	**3**	**4**
Japan	OFF	OFF	OFF	OFF
NA	ON	OFF	OFF	OFF
EU/ASIA	OFF	ON	OFF	OFF

5.6 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.

5.6.1 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.
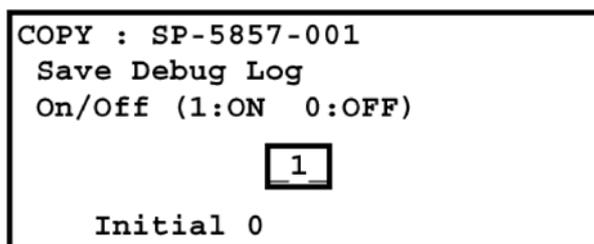
```
COPY : SP-5857-001
 Save Debug Log
 On/Off (1:ON   0:OFF)

        [ 1_ ]

    Initial 0
```
debuglog_screen1

3. On the operation panel keypad, press ① then press ⬚. This switches the Save Debug Log feature on.

   ↓ Note

   - The default setting is "0" (OFF). This feature must be switched on in order for the debug information to be saved.

Using the Debug Log

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 ⌗.
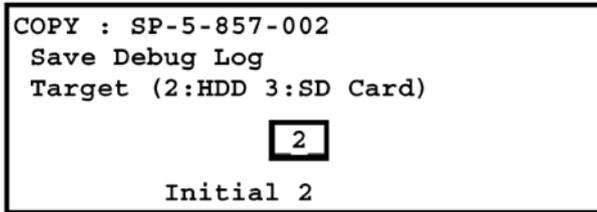
```
COPY : SP-5-857-002
 Save Debug Log
 Target (2:HDD 3:SD Card)

              2

         Initial 2
```
debuglog_screen2

↓ Note

- 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.

↓ Note

- 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.
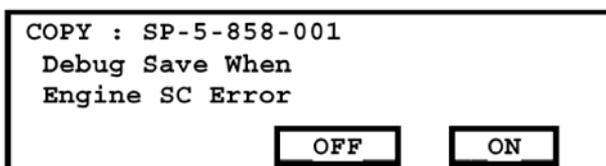
```
COPY : SP-5-858-001
 Debug Save When
 Engine SC Error

           OFF      ON
```
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.

```
COPY : SP-5-858-001
 Debug Save When
 Any SC Error

                  670
```
debuglog_screen4
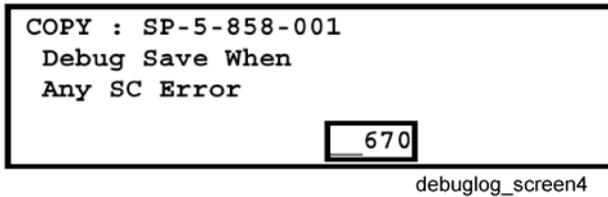
↓ Note

- 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 ⊕.

↓ Note

- 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.

```
COPY : SP-5-859-001
 Debug Save Key No.
 Key 1

                 2222
```
debuglog_screen5
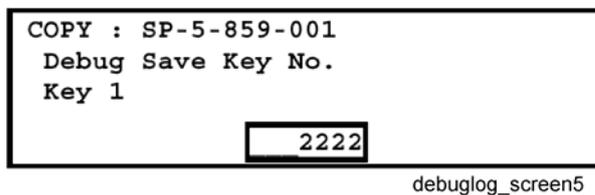
The following keys can be set with the corresponding numbers. (The initials in parentheses indicate the names of the modules.)

4-Digit Entries for Keys 1 to 10

Key No.	Copy	Printer	Scanner	Web
1	2222 (SCS)			
2	2223 (SRM)			
3	256 (IMH)			
4	1000 (ECS)			
5	1025 (MCS)			

System Maintenance

Using the Debug Log

Key No.	Copy	Printer	Scanner	Web
6	4848(COPY)	4400 (GPS)	5375 (Scan)	5682 (NFA)
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)

↓ Note

- 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.

5.6.2 RETRIEVING THE DEBUG LOG FROM THE HDD

1. Insert the SD card into service slot (slot 2) 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.

5.6.3 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.

↓ Note

- 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 ☺ 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.

5.6.4 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

TROUBLESHOOTING

REVISION HISTORY		
Page	Date	Added/Updated/New
		None

6. TROUBLESHOOTING

6.1 SERVICE CALL CONDITIONS

For "Service Call Conditions" information, see "Appendices".

Trouble - Shooting

6.2 SELF-DIAGNOSTIC MODE

6.2.1 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.

Self-Diagnostic Test Flow Chart

```
            ┌──────────────┐
            │   Power On    │
            └──────┬───────┘
                   │
            ┌──────┴───────┐
            │ Initialization│
            └──────┬───────┘
                   │
        ┌──────────┴──────────┐
        │  Memory Check for    │
        │  Self-Diagnostic Test│
        └──────────┬──────────┘
                   │
              ╱──────────╲
             ╱ Self-Diagnostic╲
             ╲ Mode Selection ╱
              ╲──────────╱
                   │
            ┌──────┴───────┐
            │  CPU Check    │
            └──────┬───────┘
                   │
            ┌──────┴───────┐              ┌──────────────┐
            │  ASIC Check   │              │  Font ROM     │
            └──────┬───────┘              │   Check       │
                   │                      └──────┬───────┘
            ┌──────┴───────┐              ┌──────┴───────┐
            │  Memory       │              │  RTC Check    │
            │  Check        │              └──────┬───────┘
            └──────┬───────┘              ┌──────┴───────┐
            ┌──────┴───────┐              │ IC Card I/FCheck│
            │ Program ROM,  │              └──────┬───────┘
            │ DIMM CRC Check│              ┌──────┴───────┐
            └──────┬───────┘              │ Network Check │
            ┌──────┴───────┐              └──────┬───────┘
            │  SSCG Check   │              ┌──────┴───────┐
            └──────┬───────┘              │Engine I/F Check│
            ┌──────┴───────┐              └──────┬───────┘
            │  OPC Check    │              ┌──────┴───────┐
            └──────┬───────┘              │ Illegal Interrupt│
            ┌──────┴───────┐              │   Check       │
            │ NVRAM Check   │              └──────┬───────┘
            └──────┬───────┘              ┌──────┴───────┐
            ┌──────┴───────┐              │ System OS,    │
            │  HDD Check    │              │Application Check│
            └──────┬───────┘              └──────────────┘
            ┌──────┴───────┐
            │ IEEE1284 I/F  │
            │   Check       │
            └──────────────┘
```
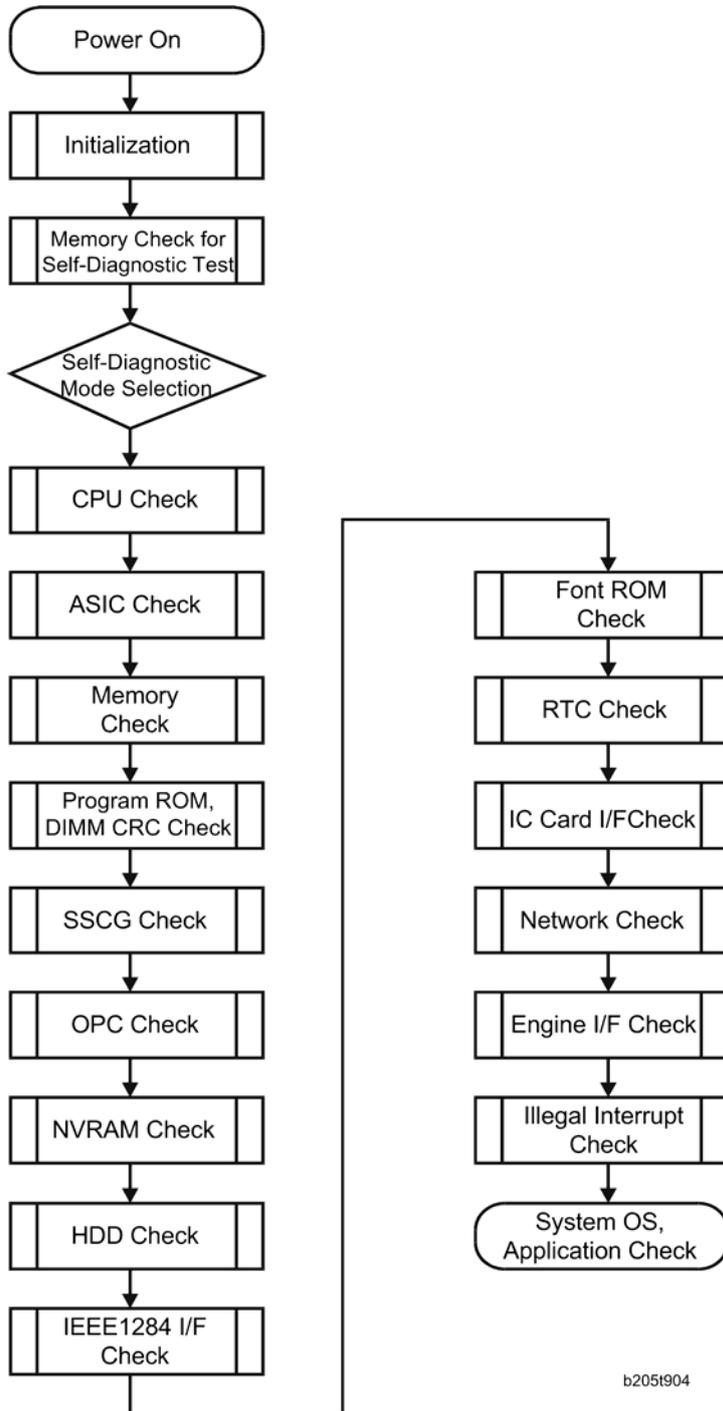
b205t904

Trouble - Shooting

6.2.2 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

| Self-Diagnosis Report | Serial No AOLD000034 | Firmware P/# | : AOP82XXXX | [1/ 1] |
| | | Firmware Version | : 2.49.01 | Wed Nov 22 13:15:30 2000 |

[System Construction]
  Kernel Version   : Net BSD 1.3.3 (SHINYO KO HAMA_ROM) #0: Sat Nov 11 16:15:35 JST 2000
  CPU System BusClock : 100.0 MHz   CPU Ppehe Clock   : 200.0 MHz
  Board Type   : 7   ASIC Version   : 1397306160
  RTC Existence   : existence   RAM Capacity   : 100.663296 MB
  HDD Existence   : existence   HDD Model   :

[Total Counter   ]
  0001000

[Program No.   @]
  MAIN : AOP82XXXX   ENGINE : Ver 1.96
  LCDC : V1.39   PI   :
  ADF   : B3515620B   SIB   : B0045383
  FIN   :   FIN_SDL :
  BANK : A6825150   LCT   :
  MBX   :   FCU   :
  DPX   :

[Error List   @@@]

SC CODE	(ERROR CODE)	SC CODE	(ERROR CODE)	SC CODE	(ERROR CODE)	SC CODE	(
SC835 (110C)		SC820 (0001)		SC820 (0002)		SC820 (0003)	
SC820 (0004)		SC820 (0005)					

Trouble - Shooting

6.3 PAPER FEED TROUBLESHOOTING

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 to do the adjustments, please refer to "SP1xxx: Feed" in Service Tables.

6.4 SKEWED IMAGE

Do the following to fix a skewed image problem.

```
┌─────────────────────────────┐
│ Print out the Trimming       │
│ Pattern (SP2-902, no.10)     │
│ from every paper tray.       │
└─────────────────────────────┘
              │
              ▼
      ◇ Is the copy skewed? ◇ ──No──▶ ┌──────────────────────┐
                                       │ Make a copy using     │
              │ Yes                    │ the ADF.              │
              ▼                        └──────────────────────┘
                                                │
                                                ▼
                                        ◇ Is the copy skewed? ◇ ──No──▶ ┌──────┐
                                                                         │  OK  │
                                                │ Yes                    └──────┘
                                                ▼
```

Do the following.

- Check the side fence position of the paper tray.
- Clean or replace the paper feed roller.
- Clean the registration roller.
- Change the value of SP1-903 to a larger number.

Do the following.

- Check the side fence position of the original table.
- Clean or replace the original feed belt, pick-up roller, and separation roller.
- Clean the transport roller and exit roller.
- Secure the ADF using the long hole, then adjust the ADF position.

6.5 IMAGE PROBLEMS

6.5.1 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.
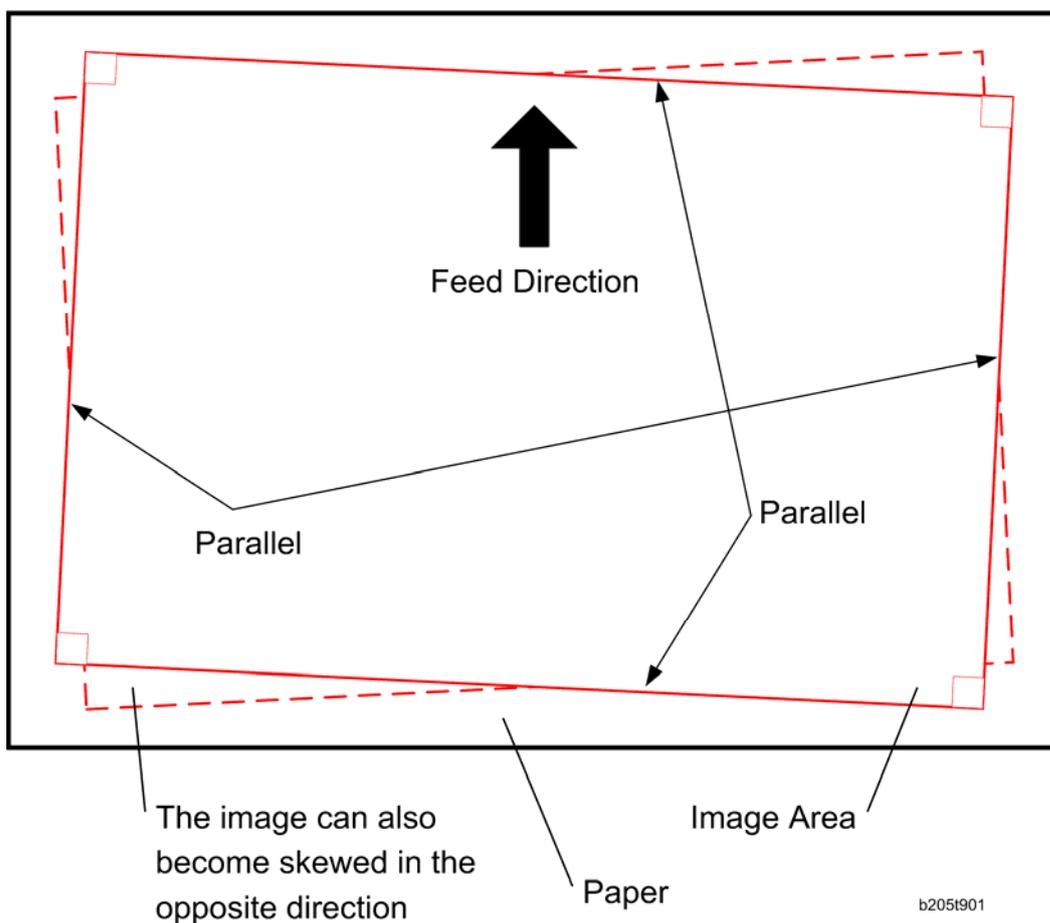
Trapezoid Images

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

b205t902

Trouble - Shooting

Parallelogram Images

Feed Direction
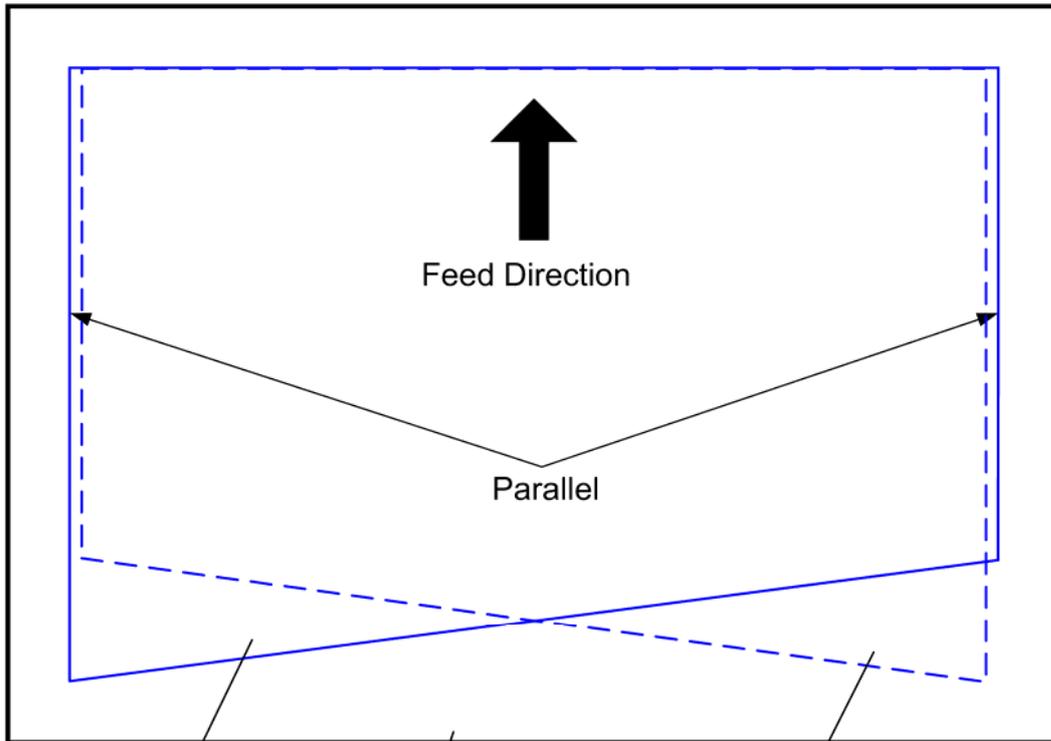
Parallel

Parallel

Image Area

Paper

The image can also
become a
paralellogram in the
opposite orientation

b205t903
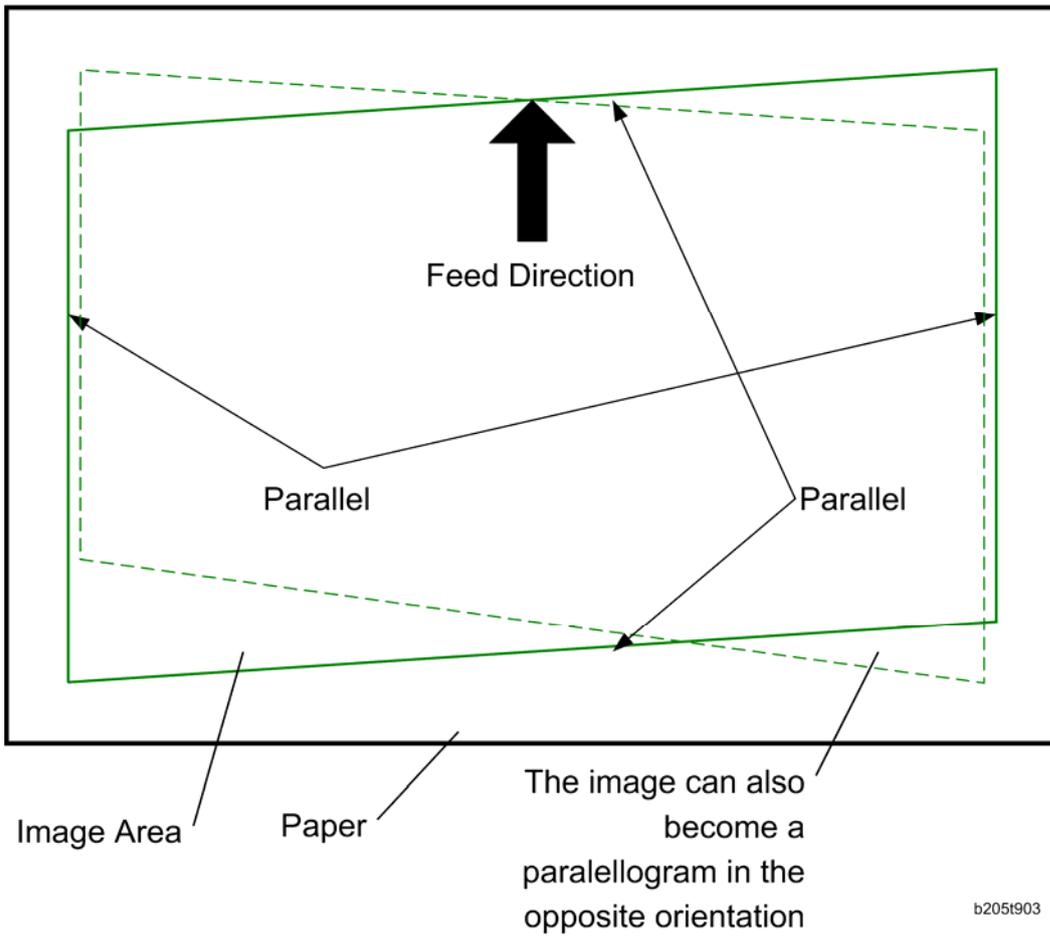
- Like skewed images, the leading/trailing edges and left/right edges are parallel to each other. But, the leading and trailing edges are not parallel to the paper's edges.

6.5.2 CHECKING IMAGES WITH THE TRIMMING PATTERN

Do SP 2-902-3 (Pattern 10) to print a trimming pattern.

Skewed

For more see "Adjusting Skewed Images" below.

Parallelogram

For more see "Parallelogram Image Adjustment".

Trapezoid

For more see "Adjusting Trapezoid Images" below.

Combination skewed and trapezoid image

Perform "Adjusting Skewed Images" first, then "Adjusting trapezoid images".
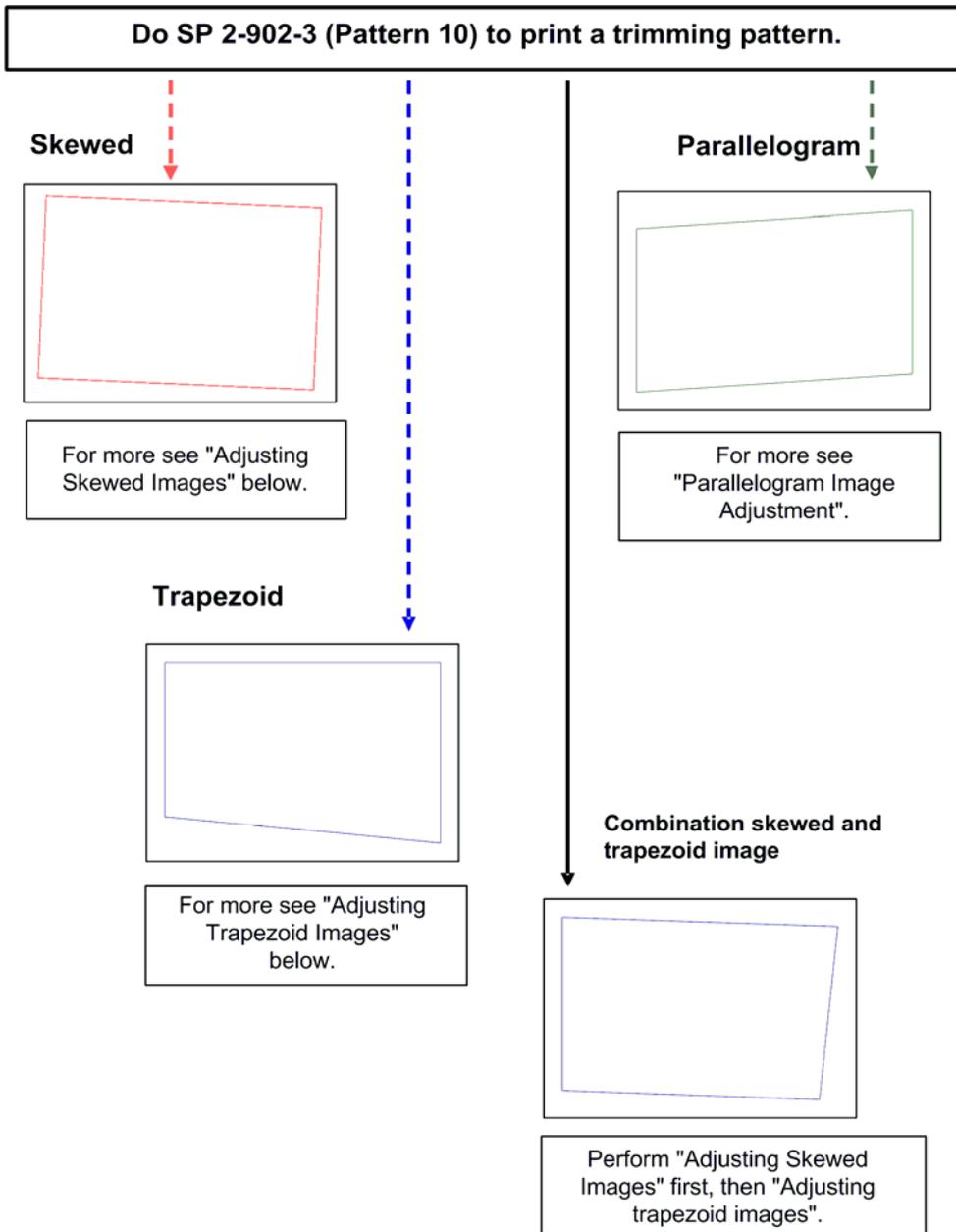
Trouble - Shooting

6.5.3 CORRECTING THE IMAGES

Correcting Skewed Images

1. Test pattern (Trimming Pattern) mode check

Is the image skewed?	
No	**Yes**
	1. 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.
	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
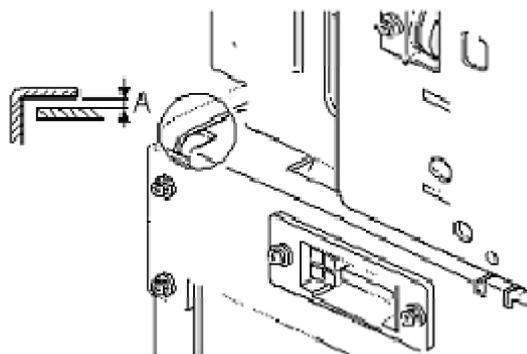
b205t904a

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.

Image Problems

b205t905
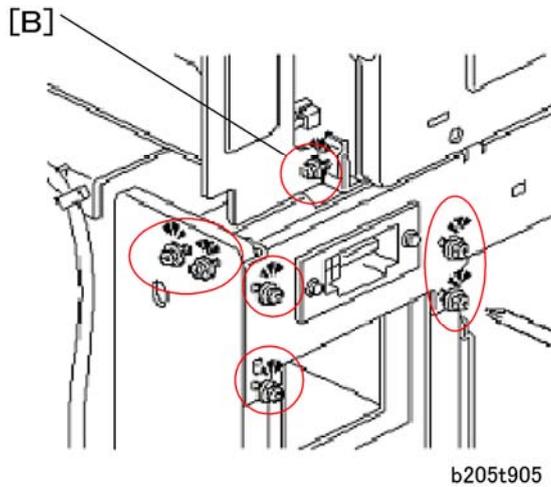
4. Loosen all screws (🖉 x7) [B].

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.

   ↓ Note

   ▪ This washer will also absorb small amounts of shock.

9. Check if the parallelogram image still appears.

Procedure B
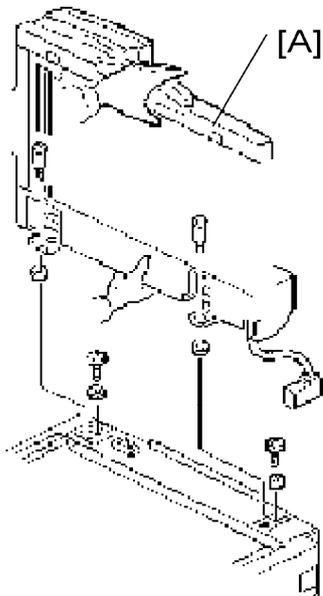
1. Remove the ADF [A], machine rear cover, scanner left cover, and scanner rear cover.

Paper Feed Problem

| Non Feed | Double Feed |

Small Paper Size? (A5/HLT)

Yes / No

Reduce the bottom plate pressure for normal paper size.

Change the value of the following SP mode to a larger number.

SP No.	Tray
1-908-1	1st Tray
1-909-1	2nd Tray
1-910-1	3rd Tray
1-911-1	4th Tray

Reduce the bottom plate pressure for small paper size.

Change the value of the following SP mode to a larger number.

SP No.	Tray
1-908-2	1st Tray
1-909-2	2nd Tray
1-910-2	3rd Tray
1-911-2	4th Tray

*Note:
If the feed problem always occurs at a certain point before near-end, change the remaining paper threshold with SP 1-908-6, 1-909-6, 1-910-6, and/or 1-911-6*

Small Paper Size? (A5/HLT)

Yes / No

Feed problem occurs at paper near-end? *Note

Yes / No

Apply the bottom plate pressure for normal paper size.

Change the value of the following SP mode to a smaller number.

SP No.	Tray
1-908-1	1st Tray
1-909-1	2nd Tray
1-910-1	3rd Tray
1-911-1	4th Tray

Apply the bottom plate pressure for small paper size.

Change the value of the following SP mode to a smaller number.

SP No.	Tray
1-908-2	1st Tray
1-909-2	2nd Tray
1-910-2	3rd Tray
1-911-2	4th Tray

Apply the bottom plate pressure at near-end condition for small paper size.

Change the value of the following SP mode to a larger number.

SP No.	Tray
1-908-4	1st Tray
1-909-4	2nd Tray
1-910-4	3rd Tray
1-911-4	4th Tray

b205t906

Trouble - Shooting

b205t906

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 ±0.3 mm.

> ↓ Note
>
> ▪ 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)
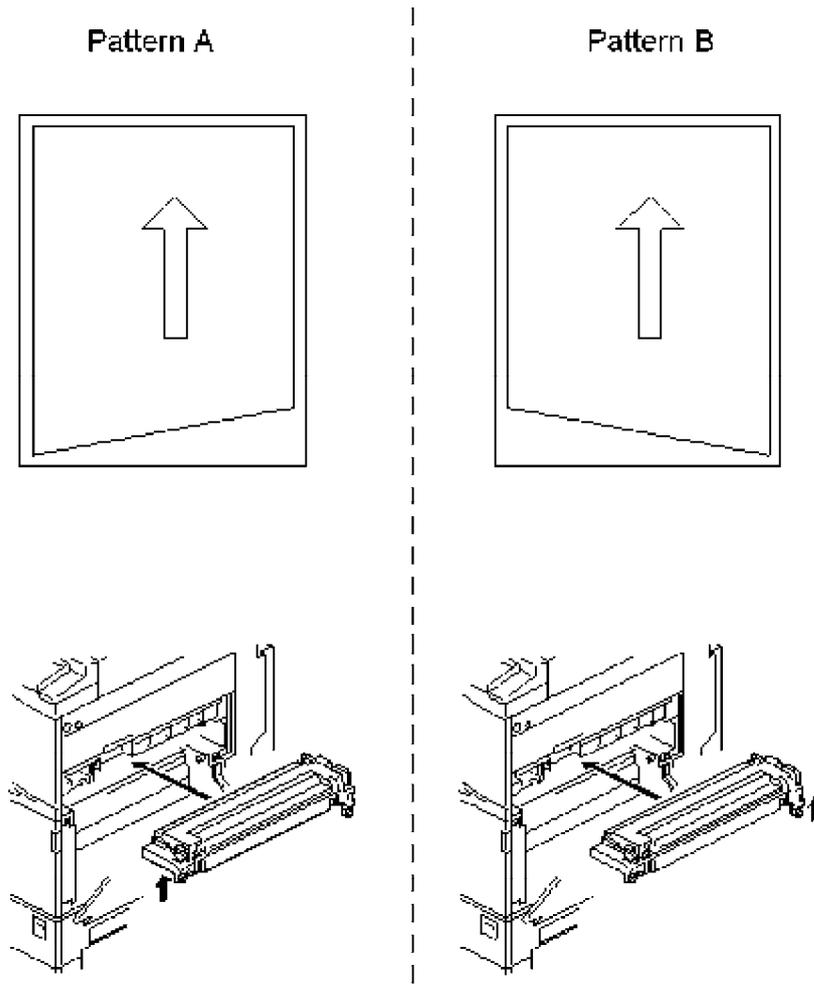
1. Print out the SP2-902 Trimming Pattern (value: 10).
2. If the image is a pattern A trapezoid:

   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.

Image Problems

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 screen.

    ↓ Note

    - 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).

    ↓ Note

    - 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".

6.6 ELECTRICAL COMPONENT DEFECTS

6.6.1 SENSORS

Component	CN	PCB	State	
1st Bottom Fence Sensor 1	309-1	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
1st Bottom Fence Sensor 2	309-4	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
1st Bottom Fence Sensor 3	309-7	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
1st Paper End Sensor	307-1	BCU	Open	The Paper End indicator lights even if paper is placed in the 1st paper tray.
			Shorted	The Paper End indicator does not light even if there is no paper in the 1st paper tray.
1st Paper Height Sensor 1	310-1	BCU	Open	The CPU cannot determine the paper near-end condition properly.
			Shorted	
1st Paper Height Sensor 2	310-4	BCU	Open	The CPU cannot determine the paper near-end condition properly.
			Shorted	
1st Paper Lift Sensor	306-1	BCU	Open	SC501 displays.
			Shorted	Paper jam will occur during copying.

Trouble - Shooting

Electrical Component Defects

1st Side Fence Sensor	309-10	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
1st Tray Detect Sensor	309-13	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
2nd Bottom Fence Sensor 3	309-21	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
2nd Bottom Fence Sensor 1	309-15	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
2nd Bottom Fence Sensor 2	309-18	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
2nd Paper End Sensor	308-1	BCU	Open	The Paper End indicator lights even if paper is placed in the 2nd paper tray.
			Shorted	The Paper End indicator does not light even if there is no paper in the 2nd paper tray.
2nd Paper Height Sensor 1	310-7	BCU	Open	The CPU cannot determine the paper near-end condition properly.
			Shorted	
2nd Paper Height Sensor 2	310-10	BCU	Open	The CPU cannot determine the paper near-end condition properly.
			Shorted	
2nd Paper Lift Sensor	306-2	BCU	Open	SC502 displays.
			Shorted	Paper jam will occur during copying.

2nd Side Fence Sensor	309-24	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
2nd Tray Detect Sensor	309-27	BCU	Open	The CPU cannot detect the paper size properly.
			Shorted	
APS Sensor 1: Original Width	223-1	SIO	Open	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
			Shorted	
APS Sensor 2: Original Width	223-4	SIO	Open	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
			Shorted	
APS Sensor 3: Original Length	223-7	SIO	Open	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
			Shorted	
APS Sensor 4: Original Length	223-10	SIO	Open	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
			Shorted	
APS Sensor 5: Original Length	223-13	SIO	Open	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
			Shorted	
Bridge Open Sensor (Paper Exit)	701-3	CKB	Open	"Open Cover" is displayed even the cover is closed.
			Shorted	"Open Cover" is not displayed even the cover is open.

Trouble - Shooting

Electrical Component Defects

Bridge Open Sensor (Relay)	701-1	CKB	Open	"Open Cover" is displayed even the cover is closed.
			Shorted	"Open Cover" is not displayed even the cover is open.
Duplex Unit Entrance Sensor	340-10	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.
Duplex Unit Exit Sensor	859-1	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.
Duplex Unit Set Sensor	859-9	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.
Exit Sensor	703-4	CKB	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 Sensor	321-1	BCU	Open	SC392 is displayed (see note)
			Shorted	
Interchange/Inverter Sensor	331-9	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.
Lower Relay Sensor	308-4	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.
New PCU Detect Sensor	327-6	BCU	Open	The TD sensor initial setting procedure is not performed when a new PCU is installed.
			Shorted	The TD sensor initial setting procedure is performed whenever the front cover is closed.
Paper End Sensor (Bypass)	860-3	BCU	Open	The Paper End indicator lights even if paper is placed in the 1st paper tray.
			Shorted	The Paper End indicator does not light even if there is no paper in the 1st paper tray.

Trouble - Shooting

Electrical Component Defects

Paper End Sensor (Duplex)	860-3	BCU	Open	The Paper End indicator lights even if paper is placed in the 1st paper tray.
			Shorted	The Paper End indicator does not light even if there is no paper in the 1st paper tray.
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	CKB	Open	The paper overflow message is not displayed when the paper overfull condition exist.
			Shorted	The paper overflow message is displayed.
Paper Present Sensor	330-1	BCU	Open	LED does not light even if paper is in 1-bin tray.
			Shorted	LED lights even if paper is not in 1-bin tray.

Paper Size Sensor (Bypass)	860-6	BCU	Open	The CPU cannot detect the proper paper size, and misfeeds may occur when a copy is made.
			Shorted	
Paper Size Sensor (Duplex)	860-6	BCU	Open	The CPU cannot detect the proper paper size, and misfeeds may occur when a copy is made.
			Shorted	
Registration Sensor	321-5	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.
Relay Sensor	702-1	CKB	Open	The Paper Jam indicator will light whenever a copy is made.
			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.

Trouble - Shooting

Electrical Component Defects

Shift Sensor	903-1	STB	Open	SC770 is displayed.
			Shorted	
TD Sensor	327-1	BCU	Open	SC390 is displayed.
			Shorted	
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.

⬇ Note

- 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.

6.6.2 SWITCHES

Component	CN	PCB	State	Symptom
Correct PCU Detect Switch	327-8	BCU	Open	The TD sensor initial setting procedure is not performed when a new PCU is installed.
			Shorted	The TD sensor initial setting procedure is performed whenever the front cover is closed.
Front Door Safety Switch	321-3	BCU	Open	The Cover Open indicator is not lit even if the front cover is opened.
			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 Switch	321-1	BCU	Open	The Cover Open indicator is not lit even if the right lower cover is opened.
			Shorted	The Cover Open indicator is lit even if the right lower cover is closed.

Trouble - Shooting

6.7 BLOWN FUSE CONDITIONS

⚠ **CAUTION**

- Use a correct rating fuse for the fuse replacement. Never use a wrong rating fuse. If do so, the machine may be damaged.

Fuse	Rating		Symptom when turning on the main switch
	115 V	220 to 240 V	
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

ENERGY SAVING

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

7. ENERGY SAVING

7.1 ENERGY SAVE

7.1.1 ENERGY SAVER MODES

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

d084d911
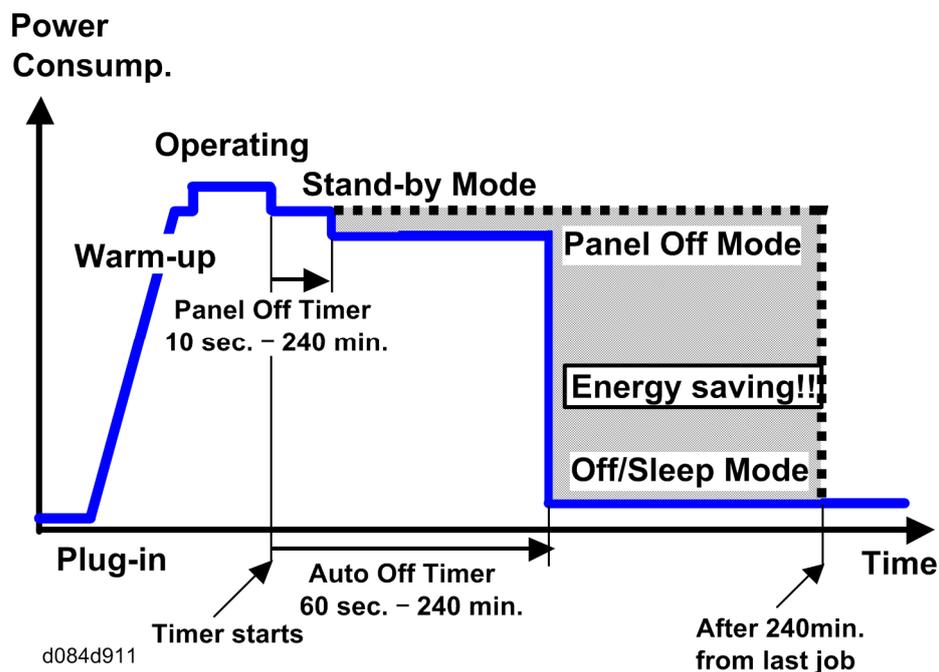
The area shaded grey in this diagram represents the amount of energy that is saved when the timers are at the default settings. If the timers are changed, then the energy saved will be different. For example, if the timers are all set to 240 min., the grey area will disappear, and no energy is saved before 240 min. expires.

Energy Saving

Energy Save

Timer Settings

The user can set these timers with User Tools (System settings > Timer setting)

- Panel off timer (10 sec – 240 min): Panel Off Mode, Default setting: 10 sec.
- Auto off timer (1 – 240 min): Off/Sleep Mode, Default settings: 1 min.

Normally, Panel Off timer < Auto Off timer. But, for example, if Auto Off timer < or = Panel Off timer, the machine goes immediately to Off mode when the Auto Off timer expires. It skips the Panel Off mode.

Example

- Panel off: 1 min.
- Auto Off: 1 min.
- The machine goes to Off mode after 1 minute. Panel Off mode are not used.

Return to Stand-by Mode

Off/Sleep Mode

Recovery time.

- Max 6 sec.

Recommendation

We recommend that the default settings should be kept.

- If the customer requests that these settings should be changed, please explain that their energy costs could increase, and that they should consider the effects on the environment of extra energy use.
- If it is necessary to change the settings, please try to make sure that the Auto Off timer is not too long. Try with a shorter setting first, such as 30 min., then go to a longer one (such as 60 min.) if the customer is not satisfied.
- If the timers are all set to the maximum value, the machine will not begin saving energy until 240 minutes has expired after the last job. This means that after the customer has finished using the machine for the day, energy will be consumed that could otherwise be saved.
- If you change the settings, the energy consumed can be measured using SP8941, as explained below.

7.1.2 ENERGY SAVE EFFECTIVENESS

SP 8941 (Machine Status) keeps a record of the amount of time that the machine spends in each mode.

- 8941-001: Operating mode
- 8941-002: Standby mode
- 8941-003: Panel off mode
- 8941-004: Low power mode (not used in this machine)
- 8941-005: Off/sleep mode

With this data, and the power consumption values from the specifications, we can estimate the amount of energy that is used by the machine.

This should only be used as a reference value, because the power consumption specifications are measured in a controlled environment with a constant power supply.

To get an exact measurement at the customers site, a watt meter must be used to measure the actual energy consumed.

To use SP8941 to calculate the energy consumed:

- At the start of the measurement period, read the values of SP8941 001 to 005.
- At the end of the measurement period, read the values of SP8941 001 to 005 again.
- Find the amount of time spent in each mode (subtract the earlier measurement from the later measurement).
- Multiply this by the power consumption spec for each mode.
- Convert the result to kWh (kilowatt hours)

Here is an example calculation.

Energy Saving

Energy Save

Machine Date	Power Consumption (W): **Data: a**	SP8941:Machine Status	Start Time: (min.) **Data: b**	End Time: (min.) **Data: c**	Time Differences (Data:b - Data: c) (min.) **Data: d**	Power Consumption (Data:a x Data:d) (Wmin.) **Data: e**
① Operating mode	1081.8	001: Operating Time	21089.0	21386.0	297.0	321294.6
② Ready mode (stand by)	214.0	002: Standby Time	306163.0	308046.0	1883.0	402962.0
③ Energy mode (Panel off)	214.0	003: Energy Save Time	71386.0	75111.0	3725.0	797150.0
④ Off/Sleep mode	7.0	005: Off mode Time	508776.0	520377.0	11601.0	81207.0
Total Time of Data: d (min.)					17506.0	
Total Time of Data: d/60min. (Hour)					291.76	
Total Power Consumption of Data: e (Wmin.)						1602613.60
Total Power Consumption of Data: e /60min./1000W (KWH)						26.71

7.2 PAPER SAVE

7.2.1 EFFECTIVENESS OF DUPLEX/COMBINE FUNCTION

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

1. Duplex:

Reduce paper volume in half!

d062d102

2. Combine mode:

Reduce paper volume in half!

d062d100

Energy
Saving
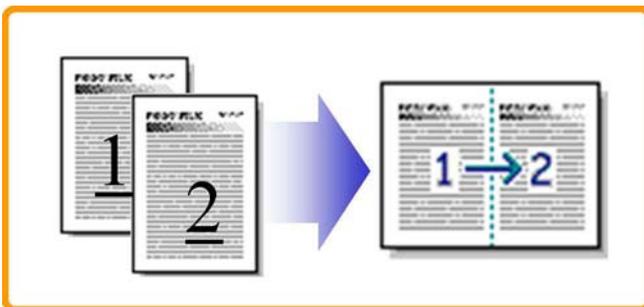
3. Duplex + Combine:

Using both features together can further reduce paper volume by 3/4!
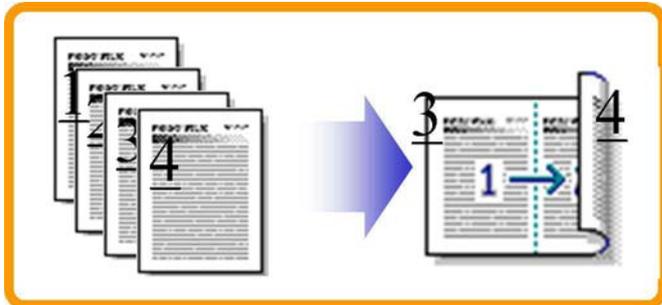
d062d101

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

The total counter counts all pages printed.

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

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

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

D017 Series

- Total counter: SP 8581-001
- Duplex counter: SP 8411-001
- Single-sided with combine mode: SP 8421-004
- Duplex with combine mode: SP 8421-005

The following table shows paper savings and how the counters increase for some simple examples of single-sided and duplex jobs

Duplex mode:

Originals	Simplex Sheet used	Duplex Sheets used	**Paper Saved**	Total counter SP8501-001	Duplex counter SP8411-001
1	1	1	**0**	1	0
2	2	1	**1**	2	1
3	3	2	**1**	3	1
4	4	2	**2**	4	2
5	5	3	**2**	5	2
10	10	5	**5**	10	5
20	20	10	**10**	20	10

If combine mode is used, the total and duplex counters work in the same way as explained previously. The following table shows paper savings and how the counters increase for some simple examples of duplex/combine jobs.

2 in 1 mode:

Originals	Simplex Sheet used	Duplex Sheets used	**Paper Saved**	Total counter SP8501-001	Duplex counter SP8421-004
1	1	1	**0**	1	1
2	2	1	**1**	1	1
3	3	2	**1**	2	2
4	4	2	**2**	2	2
5	5	3	**2**	3	2
10	10	5	**5**	5	5
20	20	10	**10**	10	10

Energy Saving

Paper Save

Duplex + 2 in 1 mode:

Originals	Simplex Sheet used	Duplex Sheets used	**Paper Saved**	Total counter SP8501-001	Duplex counter SP8421-005
1	1	1	**0**	1	1
2	2	1	**1**	1	1
3	3	1	**2**	2	2
4	4	1	**3**	2	2
5	5	2	**3**	3	3
6	6	2	**4**	3	3
7	7	2	**5**	4	4
8	8	2	**6**	4	4
9	9	3	**6**	5	5
10	10	3	**7**	5	5
11	11	3	**8**	6	6
12	12	3	**9**	6	6

D017/D018/D019/D020/D084/D085

SERVICE MANUAL APPENDICES

D017/D018/D019/D020/D084/D085 APPENDICES

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APPENDIX:
GENERAL SPECIFICATIONS

1. APPENDIX: GENERAL SPECIFICATIONS

1.1 SPECIFICATIONS

1.1.1 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^2 Tray 2: 52 to 157 g/m^2 Bypass: 52 to 157 g/m^2 Duplex: 60 to 105 g/m^2
Copy Speed	D017/D018: 25 cpm (A4 LEF/Letter LEF) D084: 28 cpm (A4 LEF/Letter LEF) D019/D020/D085: 33 cpm (A4 LEF/Letter LEF)
Resolution	600 dpi
Gradation	Read: 256-level (1-dot) Write: 2/3-level (1-dot)

Specifications

1st Copy Print Time	4.5 sec. (A4/LT LEF, Tray 1)	
Warm-up Time	Basic (D017/D018/D019/D020): Less than 14 sec Basic (D084/D085): less than 23 sec. Operation Key: Less than 10.4 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 400%	
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	
Power Consumption	Full System (Operating)	Less than 1.4 KW
	Off Mode	Less than 1.65 W
	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	1430 x 653 mm (33.8 x 25.7 in.)
Full System	All Options	1165 x 653 x 1100 mm (48.9 x 25.7 x 43.3 in.)

Weight	No Duplexer	Less than 60 kg (132 lb)
	With Duplexer	Less than 65 kg (143 lb)

Specifications

Noise Emission (Sound Power Level):	
Stand-by (Mainframe only):	40 db (D017/D018/D84) 42.9 (D019/D020/D085)
Operating (Mainframe only):	64.8 db (D017/D018) 65.8 db (D084) 67.6 db (D019/D020/D085)

↓ Note

- 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

1.1.2 PRINTER CONTROLLER (GENERAL)

Printing Speed	D017/D018: Maximum 25 ppm (A4/LT LEF) D084: Maximum 28 ppm (A4/LT LEF) D019/D020/D085: Maximum 33 ppm (A4/LT LEF)
Printer Languages	PCLXL/PCL5e PostScript 3 RPCS (Refined Printing Command Stream - an original Ricoh PDL) (D017/D018/D19/D020 only) IPDS
Resolution (Driver)	RPCS 200/600 dpi (D017/D018/D19/D020 only) PS3 300/600 dpi PCL5e 300/600 dpi PCLXL 300/600 dpi IPDS 300/600 dpi
Resident Fonts	PCL: TrueType: 10, Intellifont: 35, International: 13, Bitmap: 1 PS3: Option fonts PS3
Connectivity	Std.: RJ-45 network port (100BASE-TX, 10BASE-T, USB 2.0) Option: IEEE802.11a/g, g (Wireless LAN), Bluetooth, IEEE1284 (Centronics Parallel), Gigabit Ethernet
Network Protocols	TCP/IP, IPX/SPX, SMB (NetBIOS over TCP/IP), AppleTalk (Auto Switching)
RAM	Maximum MS model: 512 MB (Resident 256 MB + Additional 256 MB) CS model: 768 MB (Resident 512 MB + Additional 256 MB) **Note:** Additional 256 MB is required for all printer/scanner unit and printer units.

1.1.3 SCANNER SPECIFICATIONS

Standard Scanner Resolution:	Main scan/Sub scan 600 dpi
Scanning Speed	MS: 52 ipm (D017/D019)/ 50 ipm (D084), E-mail/Scan-to-Folder/Network Delivery Scanner (A4 LEF, Text 200 dpi, MH Compression) CS: 25 (D018)/ 29 (D084)/ 32 (D020/D085) ipm, E-mail/Scan-to-Folder/Network Delivery Scanner (A4 LEF, Text 200 dpi, MH Compression)
Available scanning Resolution Range:	100 to 1200 dpi (when used as a Network TWAIN scanner) 100, 200, 300, 400, 600 dpi (when used as a network delivery scanner, Scan-to-Folder, Scan-to-Email, or Document Server storage)
Grayscales:	8 bits/pixel
Interface:	Ethernet 10/100BASE TX, Wireless LAN 802.11a/g, g
Compression Method:	MH, MR, MMR (Binary Picture Processing) JPEG (Grayscale Processing)
Video Memory Capacity:	384 MB
Image Storage Capacity:	Number of originals per file: Maximum 1,000 pages Maximum of files: 3000 files Max. Storage on Doc. Server: 9,000 pages (B&W (ITU-T No. 1/200 dpi MMR)

1.1.4 SOFTWARE ACCESSORIES

Printer

The printer drivers and utility software are provided on one CD-ROM. An auto-run installer allows you to select which components to install.

Printer Drivers

Printer Language	Windows 95/98/Me	Windows NT4.0	Windows 2000, XP, Server 2003/Vista	Macintosh
PCL 6	Yes	Yes	Yes	No
PCL 5e	Yes	Yes	Yes	No
PS3	Yes	Yes	Yes	Yes
RPCS	Yes	Yes	Yes	No

↓ Note

- The printer drivers for Windows NT 4.0 are only for the Intel x86 platform. There is no Windows NT 4.0 printer driver for the PowerPC, Alpha, or MIPS platforms.
- The PS3 drivers are all genuine AdobePS drivers, except for Windows 2000/XP/Server 2003/Vista, which uses Microsoft PS. A PPD file for each operating system is provided with the driver.

Specifications

Utility Software

Software	Description
Agfa Monotype Font Manager 2000 (Win 95/98/Me, NT4, 2000)	A font management utility with screen fonts for the printer.
Smart Device Monitor for Admin (Win 95/98/Me, NT4, 2000/XP/Server 2003/Vista)	A printer management utility for network administrators. NIB setup utilities are also available.
DeskTopBinder – SmartDeviceMonitor for Client (Win 95/98/Me, NT4, 2000/XP/Server 2003/Vista)	A printer management utility for client users. Peer-to-peer printing utility and parallel/recovery printing functions are included.
LAN-Fax M7 Driver (Win 95/98/Me, NT4, 2000/XP)	This driver allows use of the LAN-Fax functions by installing the LAN-Fax driver, Address Book, and LAN-Fax Cover Sheet Editor.
PS Utility for Mac	This software provides several convenient functions for printing from Macintosh clients.
Acrobat Reader	A utility that allows reading PDF files.

Utility Software for D084/D085

Software	Description
Agfa Monotype Font Manager 2000 (Win 95/98/Me, NT4, 2000)	A font management utility with screen fonts for the printer.
LAN-Fax M8 Driver (Win 95/98/Me, NT4, 2000/XP)	This driver allows use of the LAN-Fax functions by installing the LAN-Fax driver, Address Book, and LAN-Fax Cover Sheet Editor.
PS Utility for Mac	This software provides several convenient functions for printing from Macintosh clients.
Acrobat Reader	A utility that allows reading PDF files.

Scanner

The scanner driver and utility software are provided on one CD-ROM.

Scanner Driver

▪ Network Twain Driver for Win95/98/Me/NT4/2000/XP/Server 2003/Vista

Scanner Utilities

▪ DeskTopBinder Lite for 2000/XP/Server 2003

1.1.5 OPTIONS

ARDF (D366)

Paper Size/Weight:	Simplex	Size	A3 to A5, DLT to HLT
		Weight	40 to 128 g/m^2 (10 to 34 lb)
	Duplex	Size	A3 to A5, DLT to HLT
		Weight	52 to 105 g/m^2 (14 to 28 lb)
Table Capacity:	50 sheets (80 g/m^2, 20 lb)		
Original Standard Position:	Rear left corner		
Separation:	Feed belt and separation roller		
Original Transport:	Roller transport		
Original Feed Order:	From the top original		
Supported Magnification Ratios:	Copy	-	32 to 200 %
	Fax	Color	32.6 to 200 %
		Black & white	48.9 to 200 %
Power Source:	DC 24V, 5V from the scanner unit		
Power Consumption:	50 W or less		
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^2 to 105 g/m^2 (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)

Paper Size:	Standard sizes: A6 LEF to A3, HLT lengthwise to DLT Non-standard sizes: Width: 90 to 305 mm, Length: 148 to 432 mm
Paper Weight:	52 g/m^2 to 157 g/m^2 (16 lb to 42 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^2 to 135 g/m^2 (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^2 to 105 g/m^2 (16 lb to 28 lb)
Tray Capacity:	125 sheets (80 g/m^2, 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 Non-standard sizes: Width: 100 to 305 mm, Length: 148 to 432 mm
Paper Weight:	52 g/m^2 to 135 g/m^2 (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/m^2 (16 to 28 lbs.)
Tray Capacity:	125 sheets (80 g/m^2, 20 lbs.): B4 or larger 250 sheets (80 g/m^2, 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 Feed Unit (D331)

Paper Size:	A5 to A3, $5^1/_2$" x $8^1/_2$" SEF to 11" x 17"
Paper Weight:	60 – 105 g/m^2, 16 – 28 lb
Tray Capacity:	500 sheets (80 g/m^2, 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 220 – 240 Vac (230 V version) from the copier/printer when the optional tray heater is installed
Power Consumption:	Max: 28 W (Copying/printing) 23 W (Optional Tray Heater On) 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)

Paper Size:	A4 LEF/LT LEF
Paper Weight:	60 g/m^2 to 105 g/m^2, 16lb to 28lb
Tray Capacity:	2,000 sheets (80 g/m^2, 20lb.)
Remaining Paper Detection:	5 steps (100%, 70%, 30%, 10%, Empty): Right Tray 4 steps (100%, 70%, 30%, Empty): Left Tray
Power Source:	DC 24 V, 5 V (from copier/printer)
Power Consumption:	50 W (Max.)/30 W (Ave.)
Weight:	25 kg (55 lb)
Size (W x D x H):	580 mm x 620 mm x 260 mm (22.8" x 24.4" x 10.2")

500-Sheet Finisher (D372)

Target Line Speed	77 mm/sec. to 205 mm/sec
Target CPM	35 cpm
Face-down Output Size	12"x18", A3 SEF to A6 SEF, DLT to HLT SEF Shift sizes: A3 SEF to B5 SEF A5, B6, A6 SEF labels possible
Paper Thickness	52 g/m^2 (45 K) to 157 g/m^2 (135 K) Up to 253 g/m^2 (220K) without shift
Stapling	
Stack Height for Stapling	50 sheets: A4, LT and smaller 30 sheets: B4, LG and larger
Size	A3 SEF to B5 SEF (can be mixed if same width)
Stack Thickness	64g/m^2 (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		
Staple Mode	250 sheets: B4, LG and larger Stack Size (Stapling)	Stacks	Size
	2 to 9 Sheets	55 to 46	A4, B5, LT LEF
	10 to 50 Sheets	45 to 10	
	2 to 9 Sheets	55 to 27	A4, B5, LT SEF
	10 to 50 Sheets	25 to 8	
	2 to 9 Sheets	55 to 27	A3, B4, DLT, LG
	10 to 30 Sheets	25 to 8	
Stacking	Non-Stapling Mode	Vertical: 15 mm or less	
		Horizontal: 15 mm or less	
Jogging Precision			
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.)		
Weight	12 kg (26.4 lb)		

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/m^2 (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/m^2 (16 to 42 lb) Staple mode: 64 to 90 g/m^2 (17 to 24 lb)
Stapler Capacity:	30 sheets (A3, B4, DLT, LG) 50 sheets (A4, B5 LEF, LT)
Paper Capacity:	No staple mode: 1,000 sheets (A4/LT or smaller: 80 g/m^2, 20 lb) 500 sheets (A3, B4, DLT, LG: 80 g/m^2, 20 lb) Staple mode: (80 g/m^2, 20 lb, number of sets)

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 Booklet Finisher (B793)

Print Paper Size:	No punch mode: 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"
Paper Weight:	No punch mode: 52 to 256 g/m^2 (14 to 68 lb) (Shift tray) 52 to 105 g/m^2 (14 to 28 lb) (Proof tray) Punch mode: 52 to 163 g/m^2 (14 to 43 lb) Staple mode: 64 to 90 g/m^2 (17 to 24 lb) Label/Thick paper/OHP cannot be stapled

Tray Capacity:	[Proof tray] 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	
Staple capacity:	Single size: 50 sheets: A4, 8.5" x 11" or smaller 30 sheets: B4, 8.5" x 14" or larger	
Staple position:	3 positions 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)

1.1.6 INTERFACE OPTIONS

USB Specifications

USB connectivity is built into the controller.

Interface	USB 2.0
Data rates	480 Mbps (high speed), 12 Mbps (full speed), 1.5 Mbps (low speed) High speed mode is only supported by USB 2.0.

IEEE 802.11a/g, g Specifications

Standard applied	IEEE802.11a/g, g	
Data transmission rates	Speed	Distance
	11 Mbps	140 m (153 yd.)
	5.5 Mbps	200 m (219 yd.)
	2 Mbps	270 m (295 yd.)
	1 Mbps	400 m (437 yd.)
Network protocols	TCP/IP, Apple Talk, NetBEUI, IPX/SPX, SMB	
Bandwidth	2.4GHz (divided over 14 channels, 2400 to 2497 MHz for each channel)	

Bluetooth Specifications

Transmission Specifications	Based on Bluetooth V1.1
Data Transfer Speed	1 Mbps
Profile	Hard Copy Cable Replacement Profile (HCRP), Serial Port Profile (SPP), BIP
Distance Between Devices	10 m (The maximum distance when using outdoors, otherwise depends on the office environment.)

APPENDIX:
PM TABLES

2. APPENDIX: PM TABLES

2.1 PM TABLE

↓ Note

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

2.1.1 MAIN

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

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

PM Table

	EM	120K	240K	360K	NOTE
Around the Drum					
Transfer/Separation Unit		R	R	R	
ID Sensor		C	C	C	Perform the ID sensor initial setting (SP2-935) after cleaning (blower brush)

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

	EM	120K	240K	360K	NOTE
Paper Feed					
Registration Rollers	C	C	C	C	Clean with water
Paper Feed Roller	C	R	R	R	Clean with water
Friction Pad	C	R	R	R	Dry cloth
Paper Feed Guides	C	C	C	C	Clean with alcohol.
Relay Rollers	C	C	C	C	Clean with water.

	EM	120K	240K	360K	NOTE
Bottom Plate Pad	C	C	C	C	Clean with water.
Registration Roller Mylar	C	C	C	C	Clean with water.
Dust collection box	C	C	C	C	Remove, empty, clean

	EM	120K	240K	360K	NOTE
Fusing Unit and Paper Exit					
Fusing Entrance and Exit Guide Plates		C	C	C	Clean with water or alcohol.
Hot Roller		R	R	R	Clean with water or alcohol.
Pressure Roller		R	R	R	
Fusing Thermistors		R	R	R	
Cleaning Roller		C	C	C	
Cleaning Roller Bushings		C	C	C	
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		C	C	C	Clean with water or alcohol.
Others					
Main Motor Drive Gear	L	I	I	I	Silicone Grease G501 (see 'Main Motor Drive Gear')

2.1.2 OPTIONS

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

ARDF (D366)

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

Paper Feed Unit (D331)

	EM	120K	240K	360K	NOTE
Paper Feed Unit					
Paper Feed Roller	C	R	R	R	Clean with water
Friction Pad	C	R	R	R	Dry cloth
Paper Feed Guides	C	C	C	C	Clean with alcohol.
Relay Rollers	C	C	C	C	Clean with water.
Bottom Plate Pad	C	C	C	C	Clean with water.
Relay Clutch		I	I	I	Replace if necessary
Paper Feed Clutch		I	I	I	Replace if necessary

LCT (B391)

	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		C	C	C	Clean with water
Bottom Plate Pad		C	C	C	Clean with water
Relay Clutch		I	I	I	Replace if necessary
Paper Feed Clutch		I	I	I	Replace if necessary

Appendix: PM Tables

PM Table

SR790 (B408)

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

Booklet Finisher SR3000 (B793)

	EM	120K	240K	360K	NOTE
1,000-sheet Booklet Finisher					
Rollers	C				Damp cloth
Discharge Brush	C				Dry cloth
Sensors	C				Blower brush
Punch Kit					
Punch Chads	C				Discard chads.

Finisher SR3050 (D372)

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

1 Bin Tray BN3030 (D367)

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

**Appendix:
PM Tables**

APPENDIX:
SERVICE CALL CONDITIONS

3. APPENDIX: SERVICE CALL CONDITIONS

3.1 SERVICE CALL CONDITIONS

3.1.1 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.
B	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.
C	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"

Service Call Conditions

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"

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.

⭐ Important

- 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

3.1.2 SC CODE DESCRIPTIONS

⭐ Important

- 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.

⚠ 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.

↓ Note

- The main power LED (✳⓪) 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.

101-1	D	Exposure lamp error 1
		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 ▪ 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
		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 |
| | | The scanner HP sensor did not turn off during scanner initialization or copying. |

| 121 | D | Scanner home position error 1 |
| | | 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

| 141 | D | Black level correction error | ▪ Harnesses at the SBU, IPU, BCU loose, broken, defective. |
| | | Black level correction could not be set properly during automatic adjustment. | ▪ SBU defective
▪ IPU defective
▪ BCU defective |

142	D	White level correction error
		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

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

Appendix: Service Call Conditions

Service Call Conditions

144-1	D	SBU connection error
		Connection to the SBU could not be confirmed, possibly due to a defect in the BCU detection board
144-2	D	SBU serial communication error
		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.
144-4	D	SBU version error
		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
145	C	Scanner adjustment error
		During the SBU adjustment, the machine detects that the white level read from the white plate or paper is out of range. (SP4605)
		▪ Exposure lamp defective ▪ Dirty white plate ▪ Incorrect position or width of white plate scanning (SP4605) ▪ BICU board defective ▪ SBU board defective

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

| 165 | B | Copy Data Security Unit error | ▪ Check installation of Copy Data Security (CDS) Unit |
| | | An error occurred when the machine attempted to recognize the Copy Data Security Unit board. | ▪ CDS unit not correct type for the machine
▪ CDS unit defective |

202	D	Polygon motor error 1: ON timeout
		The polygon mirror motor did not reach the targeted operating speed within 10 sec. after turning on or changing speed
203	D	Polygon motor error 1: OFF timeout
		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
		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 | Laser synchronization detection error: LD0 | |
| | | 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. | ▪ Laser synchronizing detection board harness loose or broken.
▪ Laser synchronization detection board defective
▪ LDB unit defective
▪ IPU defective |

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	
		The IPU detected a problem at the LD unit.	▪ LD unit harness broken, defective ▪ BCU harness broken defective ▪ LD unit defective ▪ BCU defective

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

350	B	ID sensor calibration – Error 1
		One of the following conditions occurred when the ID sensor pattern was calibrated during printing: Vsp > 2.5V Vsg < 2.5V Vsp = 0V 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

351	B	ID sensor calibration – Error 2
		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

Service Call Conditions

353	B	ID sensor LED current error	
		Error occurred during automatic adjustment of Vsg: ▪ 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 dirty or defective ▪ ID sensor harness disconnected, or connector damaged ▪ IOB defective ▪ High voltage power supply board (power pack) defective ▪ Scanning system or image creation system malfunction

354	B	ID sensor adjustment timeout error	
		Error occurred during automatic adjustment of Vsg. Vsg could not be adjusted to 4.0V ±0.2V within the prescribed time.	▪ ID sensor dirty or defective ▪ ID sensor harness disconnected, or connector damaged ▪ BCU defective ▪ High voltage power supply board (power pack) defective

		ID sensor error	
355	C	For more details about the cause of the problem, please refer to SC350 to 354 above.	▪ ID sensor dirty or defective ▪ ID sensor harness disconnected, or connector damaged ▪ BCU defective ▪ High voltage power supply board (power pack) defective

389	C	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.	
		▪ TD sensor abnormal ▪ Poor connection of the PCU	

391	B	Development bias leak	
		A development bias leak signal is detected.	▪ Poor connection at the PCU bias terminal ▪ High voltage supply board defective

392	B	TD sensor initial setting error	
		Initialization of the new PCU unit failed (the drum and development roller did not start rotating).	▪ The PCU toner seal was not removed ▪ ID sensor harness loose, broken ▪ TD sensor harness loose, broken ▪ ID sensor defective ▪ TD sensor defective

398	B	PCU error (**South Korea only**)	
		Illegal PCU unit.	Install the correct type of PCU.

Service Call Conditions

399	B	Illegal toner bottle (**South Korea only**)	
		The installed toner bottle installed is not intended for use with this machine.	Install the correct type of toner bottle.

401	B	Transfer roller leak error 1	
		A transfer roller current leak signal wad detected. (The current feedback signal for the transfer roller was not detected within the correct time.)	▪ High voltage supply board set incorrectly or defective ▪ Transfer roller set incorrectly or damaged ▪ Transfer unit set incorrectly

402	B	Transfer roller leak error 2	
		A transfer roller current leak signal is detected. The current feedback signal for the transfer roller is not detected within the correct time.	▪ Transfer roller set incorrectly or damaged ▪ High voltage supply board set incorrectly or defective

411	B	Separation bias leak error	
		A separation bias leak signal was detected.	▪ High voltage supply board defective ▪ Discharge plate defective

490	B	Toner supply motor leak error	
		More than 1 ampere supplied to the toner supply motor for longer than 200 ms.	▪ Toner supply motor defective

500	B	Main motor lock	
		The machine detected motor lock (motor is not operating correctly)	- An obstruction has blocked operation of the main motor - Main motor harness loose or broken - Main motor or main motor driver board defective

501	B	1st paper tray lift motor malfunction	
502	B	2nd paper tray lift motor malfunction	
503	B	3rd paper tray lift motor malfunction (optional Paper Tray Unit)	
504	B	4th paper tray lift motor malfunction (optional Paper Tray Unit)	
		The paper lift sensor did not activate within 18 sec. after the tray lift motor switched on.	
		- An obstruction (jammed paper, paper scraps, etc.) has blocked the motor drive and caused an overload. - Paper lift sensor connection loose, disconnected, or damaged - Paper lift sensor defective - Tray lift motor connection loose, disconnected, or damaged - Tray lift motor defective	

506	B	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.	- An obstruction (jammed paper, paper scraps, etc.) has blocked the motor drive and caused an overload. - Paper tray motor connection loose, disconnected, or damaged - Paper tray motor defective

Service Call Conditions

508	B	LCT rear fence drive error
		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 or motor ▪ Rear fence motor connection loose, disconnected, or damaged ▪ Rear fence motor defective ▪ Return position sensor connector loose, disconnected, or damaged ▪ Return position sensor defective

509	B	LCT side fence drive error
		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 or motor ▪ Side fence motor disconnected or defective ▪ Side fence position sensor disconnected or defective Side fence close sensor disconnected or defective

510	B	LCT lower limit error
		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 ▪ Tray lift motor defective ▪ Poor connection of the tray lift motor ▪ Lower limit sensor disconnected or defective Obstruction that causes overload on the drive mechanism.

541	A	Fusing thermistor open (center)	
		The temperature of the hot roller remained below 0°C for 5 sec at the center of the hot roller.	• Fusing thermistor out of its position because of incorrect installation • Fusing thermistor disconnected or defective • Power supply not within rated range (15% or more below rating)

542	A	Fusing temperature warm-up error (center)	
		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.	• Fusing thermistor defective or out of position • Fusing lamp disconnected • Thermistor defective • Fusing lamp defective

543	A	Fusing overheat error 1 (center)	
		The fusing thermistor detected a fusing temperature over 230°C for 5 sec. at the center of the hot roller.	• TRIAC short on PSU (PSU defective) • BCU board defective • Fusing thermistor defective

544	A	Fusing overheat error 2 (center)	
		A fusing temperature over 250°C is detected at the center of the hot roller by the fusing temperature monitor circuit in the BCU board. The power was interrupted for more than 0.3 sec.	• TRIAC short on PSU (PSU defective) • BCU board defective • Fusing thermistor defective • Power supply voltage unstable

545	A	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.	• Center hot roller thermistor installed incorrectly, disconnected. • Center hot roller thermistor defective

547	B	Zero cross signal detection error	
		Zero cross signals were not detected within the prescribed time.	• PSU, BCU harness loose or broken • PSU defective • BCU defective

551	A	Fusing thermistor open (end)	
		The temperature of the hot roller remained below 0°C for 5 sec. at the end of the hot roller.	• Fusing thermistor out of its position because of incorrect installation • Fusing thermistor disconnected or defective • Power supply not within rated range (15% or more below rating)

552	A	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.	• Fusing thermistor defective or out of position • Fusing lamp disconnected • Thermistor defective • Fusing lamp defective

553	A	Fusing overheat error 1 (end)	
		The fusing thermistor detected a fusing temperature over 230°C for 5 sec. at the center of the hot roller.	▪ TRIAC short on PSU (PSU defective) ▪ BCU board defective ▪ Fusing thermistor defective

554	A	Fusing overheat error 2 (end)	
		A fusing temperature over 250°C is detected at the center of the hot roller by the fusing temperature monitor circuit in the BCU board. The power was interrupted for more than 0.3 sec.	▪ TRIAC short on PSU (PSU defective) ▪ BCU board defective ▪ Fusing thermistor defective ▪ Power supply voltage unstable

555	A	Fusing overheat error 3 (end)	
		After warmup, the center of the hot roller attained full operating temperature and maintained this temperature for 10 sec. without the hot roller rotating.	▪ Center hot roller thermistor installed incorrectly, disconnected. ▪ Center hot roller thermistor defective

557	B	Zero cross waveform signal error	
		The waveform of the zero cross signal was detected out of range.	▪ Electrical noise on the power supply line

Service Call Conditions

559	A	Consecutive fusing unit paper jams	
		Three consecutive paper jams occurred in the fusing unit. The paper jam counter for the fusing unit reaches 3 times. The paper jam counter clears after the paper feeds correctly. **Note**: This SC is issued only if SP1159 is set to "1".	- Remove the paper jam in the fusing unit. - Make sure that the paper path in the fusing unit is clear.

590	B	Exhaust fan motor error	
		The CPU detects an exhaust fan lock signal for more than 3.5 seconds.	- Poor connection of the exhaust fan motor - Too much load on the motor drive

620	B	Communication error between IPU and ADF	
		A break occurred in the connection between the IPU and ADF	- ADF disconnected - ADF defective - IPU harness connection loose, broken - IPU defective - External noise

621	B	Communication timeout between BCU and finisher	
		A break (LOW) signal was received from the finisher.	- Finisher serial cable connection loose, broken - BCU defective - Finisher main board defective - External noise

632	B	Key/card counter device error 1	
		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

633	B	Key/card counter device error 2	
		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

634	B	Key/card counter device error 3	
		The backup battery of the counter device RAM is low.	▪ RAM backup battery exhausted ▪ Counter device defective

635	B	Key/card counter device error 4	
		After installation of the device a message alerts user to a battery voltage abnormal error.	▪ Device control board defective ▪ Device control board backup battery defective

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636	B	OSM User Code File Error	
		The correct "usercode" file could not be found in the root folder of the SD card because the file is not present, or the existing file is corrupted or the wrong type file.	▪ Make sure the eccm.mod file is in the root folder of the SD card. **Note**: The usercode files are created with the User Setting Tool "IDissuer.exe".

641	D	Engine-Controller Communication Error: Non-Response	
		There was no response to a frame sent from the controller board to the engine.	▪ Turn the machine power off/on.

650	B	Communication error of the remote service modem (Cumin-M)
-001	-	Authentication error
		The authentication for the Cumin-M failed at dial up connection.
		- Incorrect SP settings - Disconnected telephone line - Disconnected modem board
		Check and set the correct user name (SP5816-156) and password (SP5816-157).
-004	-	Incorrect modem setting
		Dial up fails due to the incorrect modem setting.
		Same as -001
-005	-	Communication line error
		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.
-011	-	Incorrect network setting
		Both the NIC and Cumin-M are activated at the same time.
		Same as -001
		Disable the NIC with SP5985-1.

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-012	-	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.
		Same as -001
		Install the modem board. Check and reset the modem board setting with SP5816. Replace the modem board.

651	C	Incorrect dial up connection
		-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	B	EEPROM Communication Error	
		The machine failed to detect a match between the read/write data for the EEPROM on the BCU after 3 attempts.	▪ EEPROM installed incorrectly ▪ EEPROM defective. Turn the machine power off/on after 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.	- BCU installed incorrectly - BCU defective - Controller board defective

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.	- Controller stalled - Controller board installed incorrectly - Controller board defective - Operation panel connector loose or defective

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.	- Harness connection at BCU, Controller board loose or broken - Defective BCU - Defective Controller Board

721	B	Front fence motor error	
		The jogger fence motor in the finisher is not operating.	- Jogger motor drive is obstructed (jammed paper, paper scraps, etc.) - The motor harness loose or broken - Jogger fence HP sensor dirty, loose, defective - Jogger fence motor defective

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722	B	Rear fence motor error	
		The rear jogger fence motor in the finisher is not operating.	▪ Rear jogger motor drive is obstructed (jammed paper, paper scraps, etc.) ▪ The rear jogger fence motor harness loose or broken ▪ Rear jogger fence HP sensor dirty, loose, defective ▪ Rear jogger fence motor defective

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

725	B	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.	▪ Finisher stack feed-out motor drive is obstructed (jammed paper, paper scraps, etc.) ▪ Stack feed-out motor harness loose, broken ▪ Stack feed-out HP sensor harness loose, broken ▪ Stack feed-out motor defective ▪ Stack feed-out HP sensor defective

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

740	B	Corner stapler motor error	
		The corner stapler motor in the 1000-sheet finisher is not operating.	▪ Staple jam ▪ Number of sheets in stack exceeds allowed number of sheets for stapling ▪ Stapler motor obstructed ▪ Stapler motor defective

742	B	Stapler movement motor	
		The stapler movement motor in the 1000-sheet finisher is not operating.	▪ Stapler or motor drive is blocked by obstruction ▪ Motor harness loose or broken ▪ Stapler HP sensor harness loose, broken ▪ Motor defective ▪ Stapler HP sensor defective

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

751	B	Stack pressure solenoid error	
		The stack pressure solenoid in the finisher is not operating.	- Solenoid harness loose, broken - Solenoid obstructed - Stack height sensor dirty, harness loose, broke - Solenoid defective - Stack height sensor defective

760	B	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.	- Punch HP sensor harness loose, broken - Punch motor harness loose, broken - Punch motor obstructed - Punch motor defective - Punch HP sensor defective

761	B	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.
		- Folder plate motor drive obstructed - Folder plate HP sensor harness loose, broken - Folder plate motor harness loose, broken - Folder plate motor defective - Folder plate HP sensor defective

763	B	Punch movement motor error	
		The punch unit moved but it 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.	- Motor harness loose, broken - Motor drive obstructed - Motor defective

764	B	Paper position slide motor error	
		The paper position sensor detected movement of the slide but the slide 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.	- Motor harness loose, broken - Motor drive obstructed - Motor defective

765	B	Fold unit bottom fence lift motor	
		The fold unit bottom fence lift motor in the 1000-sheet booklet finisher is not operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	- Motor harness loose, broken - Motor drive obstructed - Motor defective

766	B	Clamp roller retraction motor	
		The clamp roller retraction motor in the 1000-sheet booklet finisher is not operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	- Motor harness loose, broken - Motor drive obstructed - Motor defective

791	B	Bridge unit error	
		The machine can communicate with the finisher but not the bridge unit.	- Poor connection between the finisher and mainframe - Bridge unit harness damaged or defective - Bridge unit defective

770	B	Shift motor error
		The shift motor HP sensor does not detect any change for 1.86 seconds after the shift motor has turned on at power on or during its operation.
		▪ Defective shift motor ▪ Defective shift motor HP sensor
		Check the connections to the shift motor and the shift motor HP sensor. Defective shift motor or the shift motor HP sensor.

791	B	Bridge unit error	
		The machine can communicate with the finisher but not the bridge unit.	▪ Poor connection between the finisher and mainframe ▪ Bridge unit harness damaged or defective ▪ Bridge unit defective

792	B	Finisher unit error	
		The machine cannot communicate with the bridge unit but not the finisher.	▪ Poor connection between the finisher and mainframe ▪ Finisher harness damaged or defective ▪ Finisher unit defective

798	B	Finisher unit error	
		The machine cannot communicate with the bridge unit but not the finisher.	▪ Poor connection between the finisher and mainframe ▪ Finisher harness damaged or defective ▪ Finisher unit defective

798-1	B	Upper limit switch error	
		The upper limit switch is pushed due to tray lift error or some problems.	▪ Upper limit switch pulled up ▪ Defective upper limit switch 1. Check the harness. 2. Check for blockage around the upper limit switch. 3. Replace the upper limit switch.

798-2	B	Front fence motor error	
		The front fence moves out of the home position but the HP sensor output does not change within the specified number of pulses. The 1st failure issues an original jam message, and the 2nd failure issues this SC code.	▪ Jogger HP sensor disconnected, defective ▪ Front fence motor disconnected, defective ▪ Front fence motor overloaded due to obstruction ▪ Finisher main board and front fence motor 1. Check or replace the harness. 2. Check for blockages in the front jogger motor mechanism. 3. Replace the front jogger HP sensor. 4. Replace the front jogger motor. 5. Replace the finisher main board.

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798-3	B	Rear fence motor error	
		The rear fence moves out of the home position but the HP sensor output does not change within the specified number of pulses. The 1st failure issues an original jam message, and the 2nd failure issues this SC code.	▪ Rear jogger motor drive is obstructed (jammed paper, paper scraps, etc.) ▪ The rear jogger fence motor harness loose or broken ▪ Rear jogger fence HP sensor dirty, loose, defective ▪ Rear jogger fence motor defective 1. Check or replace the harness. 2. Check for blockages in the rear jogger motor drive mechanism. 3. Replace the rear jogger fence HP sensor. 4. Replace the rear jogger fence motor. 5. Replace the finisher main board.

798-4	B	Stack feed-out motor error	
		The stack feed-out HP sensor does not detect the home position of the stack feed-out belt for a certain time after the stack feed-out belt has moved to its home position. The stack feed-out HP sensor does not turn off for a certain time after the stack feed-out belt has moved from its home position. The 1st detection failure causes a jam error, and the 2nd failure causes this SC code.	▪ Defective stack feed-out HP sensor ▪ Overload on the stack feed-out motor ▪ Defective stack feed-out motor ▪ Defective main board ▪ Disconnected or defective harness Check or replace the harness. 1. Check or replace the harness. 2. Check for blockages in the stack feed-out mechanism. 3. Replace the stack feed-out HP sensor. 4. Replace the stack feed-out motor. 5. Replace the main board.

798-5	B	Positioning roller arm motor error
		The positioning roller HP sensor does not turn on or off for a certain time at power-on. The positioning roller HP sensor does not turn on or off for a certain time when the positioning roller returns to its home position from the lower position. The 1st detection failure causes a jam error, and the 2nd failure causes this SC code.	▪ Disconnected or defective harness ▪ Overload on the positioning roller arm motor ▪ Defective positioning roller arm motor ▪ Defective positioning roller HP sensor 1. Check or replace the harness. 2. Check for blockages in the positioning roller arm mechanism. 3. Replace the positioning roller arm motor. 4. Replace the positioning roller HP sensor.

798-6	B	Finisher corner stapler motor error
		The 1st detection failure issues a jam error, and the 2nd failure issues this SC code. **For 500-sheet finisher** The stapler HP sensor does not detect "ON"/"OFF" signal even the stapler moves from the "OFF"/"ON" position for 0.6 seconds. The stapler HP sensor does not detect "ON" when a stapling job is commanded or the stapler moves.	▪ Staple jam ▪ Motor overload ▪ Defective stapler motor 1. Check the connections and cables for the components mentioned above. 2. Replace the HP sensor and/or stapler motor 3. Replace the finisher main board.

798-7	B	Finisher stapler movement motor error	
		For 500-sheet finisher The stapler HP sensor does not detect "OFF" signal even the stapler moves from the "ON" position for 0.35 seconds. The stapler HP sensor does not detect "ON" signal even the stapler moves from the "OFF" position for 5.5 seconds.	▪ Motor overload ▪ Loose connection of the stapler home position sensor ▪ Loose connection of the stapler movement motor ▪ Defective stapler home position sensor ▪ Defective stapler movement motor Check the connections and cables for the components mentioned above. 1. Check the connection of the stapler movement motor. 2. Check the connection of the stapler home position sensor. 3. Replace the stapler home position sensor. 4. Replace the stapler movement motor.

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798-8	B	500-sheet finisher: Tray lift motor error	
			▪ Motor overload ▪ Loose connection of the shift tray motor ▪ Defective shift tray motor 1. Check the connections to the tray lift motor. 2. Replace the tray lift motor.
798-9	B	Stack pressure solenoid error	
		The stack pressure solenoid in the finisher is not operating.	▪ Solenoid harness loose, broken ▪ Solenoid obstructed ▪ Stack height sensor dirty, harness loose, broke ▪ Solenoid defective ▪ Stack height sensor defective 1. Check or replace the solenoid harness. 2. Check for blockages in the stack pressure mechanism. 3. Replace the stack height sensor.

816	D	Energy saver I/O sub system error	
		Energy saver sub system is not operating correctly.	▪ Controller board defective

817	C	Boot loader error	
		The boot loader cannot read one of the following: Self-diagnostic module, kernel, or one of the files of the root file system, or the check of one of these items on the controller board failed.	▪ File or module on the controller board is corrupted. ▪ File or module on the controller board is illegal. ▪ Replace the controller board.

819	C	Fatal kernel error	
		Due to a control error, a RAM overflow occurred during system processing.	▪ Controller board defective ▪ Insufficient memory ▪ Expanded memory defective

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

820	D	Self-diagnostics error: CPU	
		Cut-in in ASIC occurs.	▪ Defective ASIC ▪ Defective devices in which ASIC detects cut-in. ▪ Damaged boot monitor program or self-diagnostic program 1. Replace the controller board. 2. Reinstall the boot monitor or self-diagnostic program.

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821	D	Self-diagnostics error: ASIC [XXXX]: Detailed error code
[0B00]		ASIC error
		The write-&-verify check error has occurred in the ASIC.
		Defective ASIC device
		Replace the controller.
[0B06]		ASIC detection error
		The I/O ASIC for system control is not detected.
		Defective ASIC Defective North Bridge and PCI I/F
		Replace the controller board.
[0D05]		Self-diagnosis error: ASIC
		The CPU checks if the ASIC timer works correctly compared with the CPU timer. If the ASIC timer does not function in the specified range, this SC code is displayed.
		System firmware problem Defective RAM-DIMM Defective controller
		Reinstall the controller system firmware. Replace the RAM-DIMM. Replace the controller board.
[50A1]		Video bridge device (ASIC) error 1
		The CPU does not detect the video bridge device.
		Defective I/F between the video bridge device and controller
		Replace the controller.

[50A2]	Video bridge device (ASIC) register error 1
	The CPU detects the video bridge device, but detects error data from the video bridge device.
	Defective I/F between the video bridge device and controller
	Replace the controller.

822	B	Self-diagnostic error: HDD (Hard Disk Drive) [XXXX]: Detailed error code
[3003]		Timeout error
[3004]		Command error
-	-	When the main switch is turned on or starting the self-diagnostic, the HDD stays busy for the specified time or more.
-	-	▪ Loose connection ▪ Defective HDD ▪ Defective controller
-	-	Check that the HDD is correctly connected to the controller. Replace the HDD. Replace the controller.

823	B	Self-diagnostic error: NIB [XXXX]: Detailed error code
[6101]		MAC address check sum error The result of the MAC address check sum does not match the check sum stored in ROM.
[6104]		PHY IC error The PHY IC on the controller cannot be correctly recognized.
[6105]		PHY IC loop-back error An error occurred during the loop-back test for the PHY IC on the controller.
-		Replace the controller.

824	D	Self-diagnosis error: Standard NVRAM The controller cannot recognize the standard NVRAM installed or detects that the NVRAM is defective.
[1401]		▪ Loose connection ▪ Defective standard NVRAM ▪ Defective controller
		Check the standard NVRAM is firmly inserted into the socket. Replace the NVRAM. Replace the controller

826	D	Self-diagnostic Error: RTC/optional NVRAM
[1501]		The one second counted by the RTC is different from the one second counted by the CPU on the controller.
		▪ Defective the RTC device
		Replace the RTC device..
[15FF]		The RTC device is not detected.
		▪ Defective RTC device ▪ NVRAM without RTC installed ▪ Discharged backup battery
		Replace the NVRAM with another NVRAM with an RTC device.

827	D	Self-diagnostic error: Standard SDRAM DIMM [XXXX]: Detailed error code
[0201]		Verification error
		Error detected during a write/verify check for the standard RAM (SDRAM DIMM).
		▪ Loose connection ▪ Defective SDRAM DIMM ▪ Defective controller
		Turn the main switch off and on. Replace the SDRAM DIMM. Replace the controller.

828	D	Self-diagnostic error: ROM [XXXX]: Detailed error code
[0101]		Check sum error 1 The boot monitor and OS program stored in the ROM DIMM is checked. If the check sum of the program is incorrect, this SC code is displayed.

829	D	Self-diagnostic error: Optional RAM [XXXX]: Detailed error code
[0301]		Verification error
		Error detected during a write/verify check for the optional RAM (SDRAM DIMM).
		▪ Loose connection ▪ Defective SDRAM DIMM ▪ Defective controller
		Turn the main switch off and on. Replace the SDRAM DIMM. Replace the controller.
[0302]		Memory structure data error
		The memory structure data error for the optional RAM (SDRAM DIMM) is detected when the self-diagnostic is executed.
		▪ Defective RAM DIMM ▪ Defective SPD ROM on RAM DIMM ▪ Defective 12C bus
		Replace the RAM DIMM.

833	C	Self-diagnostic error 8: Engine I/F ASIC
[0F30] [0F31]		ASIC (Mandolin) for system control could not be detected. After the PCI configuration, the device ID for the ASIC could not be checked.
		Replace the IPU.
[0F41]		ASIC (Mandolin) for system control could not be detected. After the PCI configuration, the device ID for the ASIC could not be checked.
		Replace the IPU.
[50B1]		Could not initialize or read the bus connection.
		Check for loose connections at the mother board.
		Replace the IPU.
[50B2]		Value of the SSCG register is incorrect.
		Check for loose connections at the mother board.
		Replace the IPU.

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835	C	Self-diagnostic error: Centronic device
[1102]		Loopback connector is connected but check results in an error.
		▪ IEEE1284 connector error ▪ Centronic loopback connector defective Replace the controller board.
[110C]		Loopback connector is connected but check results in an error.
		▪ ASIC device error ▪ IEEE1284 connector error ▪ Centronic loopback connector defective Replace the controller board.
[1120]		Centronic loopback connector is not connected for detailed self-diagnostic test.
		▪ Centronic loopback connector not connected correctly ▪ Centronic loopback connector defective ▪ ASIC device defective
		Replace the controller board.

838	B	Self-diagnostic Error: Clock Generator
[2701]		A verify error occurred when setting data was read from the clock generator via the I2C bus.
		▪ Defective clock generator ▪ Defective I2C bus ▪ Defective I2C port on the CPU Replace the controller board.

839	B	USB flash error	
		This is a self-diagnostic error. The device ID of the on-board USB flash ROM was not recognized.	▪ Replace the controller board

851	D	IEEE 1394 I/F Abnormal	
		IEEE1394 interface error.	▪ IEEE1394 interface board defective ▪ Controller board defective

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853	D	Wireless LAN board error 1	
		At startup the wireless LAN board could be accessed, but the wireless LAN board (IEEE 802.11b or Bluetooth) could not access the controller board.	▪ Wireless LAN board not installed when the machine was turned on

854	D	Wireless LAN board error 2	
		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 an error. The USB I/F cannot be used. The USB driver can generate three types of errors: RX, CRC, and STALL errors. Only the STALL error can generate this SC code.	▪	USB 2.0 disconnected
			▪	Controller board defective

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

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859	B	HDD data encryption error	
		Encryption of data on the hard disk failed.	
8	B	HDD check error	▪ Format the HDD
6	B	Power loss during encryption	▪ Format the HDD
10	B	Data read/write error	▪ See SC863 below

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

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

862	D	Bad sector number error	
		The number of bad sectors in the HDD (image data area) goes over 101.	
▪ Defective HDD			
Format the HDD with SP5-832-002. Replace the HDD.			

863	B	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	▪ Format the HDD ▪ HDD defective ▪ Controller board defective

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

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

| 866 | D | SD card error 1: Recognition error | ▪ Use only SD cards that contain the correct data. |
| | | The SD card in the slot contains illegal program data. | |

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

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

870	B	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.	▪ Initialize the address book data (SP5-846-050). ▪ Initialize the user information (SP5-832-006). ▪ Replace the HDD.HDD defective

872	B	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	B	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.	▪ Do SP5832-8 (Format HDD – Mail TX Data) to initialize the HDD. ▪ Replace the HDD

		Delete All error 1: HDD	
874	D	A data error was detected for the HDD/NVRAM after the Delete All option was used. **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. ▪ Install the Data Overwrite Security Unit again. For more, see "Installation". ▪ HDD defective

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| 875 | D | Delete All error 2: Data area | |
| | | 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. | ▪ Software error. Update the firmware
▪ NVRAM defective
▪ HDD defective |

| 877 | D | Data Overwrite Security SD card error | |
| | | The 'all delete' function did not execute but the Data Overwrite Security Unit (D362) is installed and activated. | ▪ Replace the NVRAM
▪ Reinstall the DOS from the SD card
▪ SD card defective |

| 878 | D | TPM electronic recognition error | |
| | | The main machine firmware failed to recognize TPM because USB flash is not operating or a system module was updated incorrectly. | ▪ Replace the controller board |

880	D	File format converter error	
		A request for access to the File Format Converter (MLB) was not answered within the specified time.	▪ File format converter disconnected ▪ File format converter board defective

900	D	Electrical total counter error	
		The total count contains something that is not a number.	▪ NVRAM incorrect type ▪ NVRAM defective ▪ NVRAM data scrambled ▪ Unexpected error from external source

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

921	B	Printer error 2	
		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.	▪ Software defective ▪ Files on the HDD corrupted

990	D	Software performance error	
		The software attempted to perform an unexpected operation due to: 1) software bug, 2) incorrect internal parameter, 3) insufficient working memory.	
		▪ 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	C	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.	▪ Software defective ▪ An error undetectable by any other SC code occurred

997	B	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.
		- Confirm which devices are required for the application. - Make sure all devices are configured correctly. - If the problem is with the fax unit, the nesting of the fax group may be too complicated

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

Appendix: Service Call Conditions

Service Call Conditions

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

APPENDIX:
SERVICE PROGRAM MODE TABLES

APPENDIX 4 SERVICE PROGRAM MODES REVISION HISTORY		
Page	**Date**	**Added/Updated/New**
18	3/23/2011	SP2803
221	3/23/2011	SP8781
232	1/25/2011	Bit Switch 1001-006

4. APPENDIX: SERVICE PROGRAM MODE TABLES

4.1 SYSTEM SP TABLES-1

4.1.1 SP1XXX: FEED

1001*	Leading Edge Registration	
1	Tray	Adjusts the printing leading edge registration from each paper feed station using the Trimming Area Pattern (SP2902 Pattern No. 10).
2	By-pass	
3	Duplex Side2	[+9.0 to −9.0 / **+0.0** / 0.1 mm/step] 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 (SP2902 Pattern No. 10).
3	Tray 3 (Optional PFU Tray 1, or LCT)	[+9.0 to −9.0 / **+0.0** / 0.1 mm/step]
4	Tray 4 (Optional PFU Tray 2)	Use the ⟳ key to toggle between + and − before entering the value. The specification is 2 ± 1.5
5	By-pass	mm. See "Replacement and Adjustment - Copy Adjustment" for details.
6	Duplex Side 2	

System SP Tables-1

1003*	Registration Buckle Adjustment	
1	Tray 1	Adjusts the paper feed clutch timing at registration. The 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]
2	Tray 2/3/4 By-pass	
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 / **0** / 5 mm step]
2	LG Detection	[0 to 1 / **0** / -] 0: LT SEF, 1: LG

1103	Fusing Idling
	Switches fusing idling on/off. [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.)

1104	Fusing Temperature Control **DFU**
	[0 to 1/**1**/1] 0: Hysterysis Control 1: Normal Control

1105*	Fusing Temperature Adjustment	
1	Roller Center	Adjusts the fusing temperature at the center and both ends of the hot roller for normal printing. [120 to 200 / **180** / 1°C/step]
2	Roller Ends	
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 paper for the 2nd paper tray and for the bypass tray. [0 to 30 / **15** / 1°C/step]
5	Thick Paper – Roller Ends	
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]

Appendix: Service Program Mode

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 ends of the hot roller.
2	Roller Ends	
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.

1108*	Fusing Soft Start Adj: Cycle
	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 / **60** / 1 sec]
	Specifies the fusing rotation time before executing SP1109-001.	
3	Pre-Idling Time	[5 to 30 / **10** / 1 sec]
	Specifies the time that the paper stops in the fusing unit for measuring the nip.	

1159	Fusing Jam Detection
	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.

1902*	AC Frequency Display **DFU**
	Displays the AC frequency for fusing temperature control. [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

Appendix: Service Program Mode

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

1907*	Timing Adjustment **DFU**

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. ▪ **Double feeding** occurs when there is too much pressure. To correct this, increase the length of time the motor runs in reverse to lower the tray (to do this, reduce the value of the setting). ▪ **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. ▪ Please note that the "Initial" settings for some settings are negative (reverse run time), others are positive (forward run time). **Note**: 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.
---		▪ The "T" notation denotes "SEF" (Short Edge Feed).
56	A5T:70%->30%	▪ The "Y" notation denotes "LEF" (Long Edge Feed)

1912	Tray 1: Auto Paper Size Detection
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 sensors are not sensitive enough to distinguish between such paper sizes. Use these SP codes to select the paper size for the tray. A setting can be done for each tray:

		Tray 1: Upper Tray (Main Machine)	
		Tray 2: Lower Tray (Main Machine)	
		Tray 3: LCT Tray or Upper Tray: Paper Tray Unit	
		Tray 4: Lower: Tray Paper Tray Unit	
	1	Size 1: B5/Exe Landscape	[0 to 1/**0**/1]
	2	Size 2: A5/HLT Landscape	0: ISO (A3, A4, A5, etc.)
	3	Size 3: A4/LT	1: USA (DLT, LT, EXE, etc.)
	4	Size 4: A4/LG	Note: "Landscape" means LEF (Long Edge Feed)
	5	Size 5: A3/LT	

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

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

1996	Heater Forced Off **DFU**	
	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]

Appendix: Service Program Mode

4.2 SYSTEM SP TABLES-2

4.2.1 SP2XXX: DRUM

2001*	Charge Bias
1*	Setting (Copying)
	Adjusts the voltage applied to the charge roller during printing. 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]
2*	ID Sensor Pattern
	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]
3	Temporary Input
	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	
1	Adjusts the lower threshold value for the charge roller correction. 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	
2	Adjusts the upper threshold value for the charge roller correction. 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]	

Appendix: Service Program Mode

System SP Tables-2

3	**Trailing Edge – Middle Paper**
	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]
4	**Trailing Edge – Large Paper**
	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]
5	**Left Side**
	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]
6	**Right Side**
	Adjusts the right edge erase margin. 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]
7	**Rear – Trailing Edge (Duplex 2nd Side)**
	Adjusts the trailing edge erase margin on the reverse side of duplex copies. 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]
8	**Rear – Left Side (Duplex 2nd Side)**
	Adjusts the left side erase margin on the reverse side of duplex copies. The actual left side erase margin on the reverse side is this value plus the

	value of SP2101-5.
	The specification is 2 ±1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.
	[0.0 to 9.0 / 0.3 / 0.1 mm/step]
9	Rear – Right Side (Duplex 2nd Side)
	Adjusts the right side erase margin on the reverse side of duplex copies. 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]
10	Printer - Rear Trailing Edge
	In printer mode, adjusts the trailing edge erase margin on the reverse side of duplex copies.
	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]

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

2110*	Test Mode dpi
	Sets the scanning resolution (dpi). **DFU**
	[See below / 8 / 0to18]
	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
2	Adjusts the development bias for making the ID sensor pattern. 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 **DFU**
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 **DFU**
2	Adjusts the development bias off time. [-120 to 120 / 0 / 1ms/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

2213*	Copies after Toner Near End
	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	Displays the individual Vt, Vsg, Vsp, Vsdp, and Vts values.
2	V	
3	Vsdp	
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 µA / 1 = 0 µA / 2 = +2 µA / 3 = +4 µA]
2*	**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. 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 µA / 1 = 0 µA / 2 = +2 µA / 3 = +4 µA]
3*	**Duplex Side 2** 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 µA / 1 = 0 µA / 2 = +2 µA / 3 = +4 µA]
4*	**Cleaning** Adjusts the current applied to the transfer roller during roller cleaning. 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 **DFU**
6	Input – Rear **DFU**
7	Temp Inside the Machine
	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.

2801	Developer Initialization
	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.

2802	Developer Mixing
	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.

Appendix: Service Program Mode

2803*	Developer Initialization Data
1	Vts
	The developer is initialized when a new PCU is installed. After the agitator is rotated for 30 sec., the machine creates the 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
	Displays the PWM value of the ID sensor after performing the developer initialization.

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

2901*	Separation Voltage Adj
	Front – Leading Edge
1	Adjusts the voltage that is applied to the separation plate during printing at the leading edge of the paper on the front side. If the copies have pawl marks at the leading edge, increase this voltage. [–4000 to –1000 / –1800 / 1 V/step]
	Front – Image Area
2	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]
	Rear – Leading Edge
3	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]
	Rear – Image Area
4	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]

System SP Tables-2

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)	22	Grayscale (Ver Hor Margin)
10	Trimming Area	23	All White Pattern
11	Argyle Pattern	24	Trimming Area Or Out
12	Hounds Tooth Check (2 dot Hor)		

2906*	Tailing Correction	
	Shift Value	
1	Shifts the image across the page at the interval specified by SP2906 2. 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 default setting disables this function. A number smaller than the default makes lines thinner, a number larger than the default makes lines thicker.	
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	[0 to 10 / 5 / 1 step]
4	Pale: Multilevel Copy	
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.

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

2913*	ID Test Pattern
	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	
	Selects the polygon motor idling time. The polygon motor starts rotating up to its operation speed if the user 1) sets an original, 2) touches a key, or 3) opens the platen cover or document feeder. This shortens the time to the first copy. However, with the default (10 s) set, the motor stops if the user does nothing for 10 s after doing one of the actions above, and stops 10 s at the end of a job. **Note**: If set at "0", the polygon motor never turns off during stand-by. However, when the machine goes into energy saver mode, the polygon motor turns off regardless of this timer.	
1	Idling Time Adj.	[0 to 60/10/1]
2	Post Idling Time Adj.	

2921*	Toner Supply Mode
	Selects the toner supply mode. [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.

Appendix: Service Program Mode

2922*	Toner Supply Time
	Adjusts the toner supply motor on time for sensor supply mode. 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.

2923*	Toner Recovery Time
	Adjusts the toner supply motor on time during recovery from toner near-end/end. 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.

2925*	Toner Supply Ratio
	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

2926*	Standard Vt **DFU**
	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.

2928*	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: ▪ 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
		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]

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| 2930* | TD Sensor Manual Setting |
| | Adjusts the TD sensor output. **DFU**
 [0 to 5 / 0.0V / 0.05V/step] |

| 2931* | TD (V/wt%) Setting |
| | Adjusts the TD sensor sensitivity (coefficient: S) for toner density control.
 DFU
 [0.01 to 1.50 / 0.4 / 0.01/step] |

| 2932* | Toner Density Control Level |
| | Adjusts the toner density control threshold level.
 [0 = Normal / 1 = Dark / 2 = Light / 3 = Darker / 4 = Lighter]
 Use this SP when you want to adjust the image density. |

| 2933* | ID Sensor Control Correction |
| | Adjusts the ID sensor control coefficient. **DFU**
 [0.5 to 3 / 1 / 0.1/step] |

2934*	ID Sensor PWM Setting	
1	Display	Displays the PWM of the ID Sensor LED.
3	Upper Limit Correction	
	Corrects the upper limit of the PWM for the ID sensor LED. **DFU** [0 to 255 / 50 / 1/step]	

| 2935 | ID Sensor Initialization |
| | Performs the ID sensor initial setting.
 Press Execute on the touch panel to start. Perform this setting after <br> replacing or cleaning the ID sensor. |

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	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.
3	Last 2	
4	Last 3	
5	Last 4	

2990	Original Toner ID **South Korea only**	
	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	

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2991	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	

2993*	ISSUER CODE Ref **South Korea Only**
	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
1	Warming-up
	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]
2	Number of Pages
	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.

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2996	Transfer Roller Cleaning
	These SP codes determine how the transfer roller is cleaned.
1	0: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]
2	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.

| 2997* | Standard Vt (Factory Only) **DFU** |

2998*	PCU Reverse Rotation Time **DFU**
1	Wait Time
	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. [0 to 999 / 600/ 1] This SP is adjusted in units of 30 ms (1 step = 30 ms, 2 steps = 60 ms, etc.) If "0" is selected, the drum reverses immediately at the end of the job.
2	Reverse Time
	Adjusts the drum reverse rotation time. [0 to 99 / 60/ 1] This SP is adjusted in units of 60 ms (1 step = 6 ms, 2 steps = 12 ms, etc.) If "0" is selected, the drum does not reverse at the end of the job.
3	Brake Time
	Adjusts the length of time of braking to stop reverse rotation of the drum. [0 to 99/60/1] This SP is adjusted in units of 6 ms (1 step = 6 ms, 2 steps = 12 ms, etc.) If "0" 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.

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4.3   SYSTEM SP TABLES-3

4.3.1 SP3XXX

There are no Group 3 SP codes for this machine.

4.4 SYSTEM SP TABLES-4

4.4.1 SP4XXX: SCANNER

4008*	Scanner Sub Scan Magnification
	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
	Adjusts the leading edge registration for scanning. Press ⊙ to toggle ±. [–2 to 2 / **0** / 0.1 mm] As you enter a negative value, the image moves toward the leading edge.

4011*	Scanner Side-to-side Registration
	Adjusts side-to-side registration for scanning. Press ⊙ to toggle ±. 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 ■ Do not adjust this unless the user wishes to have a scanner margin that is greater than the printer margin. ■ These settings are adjusted to erase shadows caused by the gap between the original and the scale of the scanner unit.	
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	[0 to 3.0 / 0.0 / 0.1 mm / step]
5	ADF: Leading Edge	
7	ADF: Right	
8	ADF: Left	

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

4014	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.

4020		ADF Scan Glass Dust Check
		This function checks the narrow scanning glass of the ADF for dust that can cause black lines in copies. If dust is detected a system banner message is displayed, but processing does not stop.
	1	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. [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] 0: Off, 1: Weakest, 2: Weak, 3: Strong, 4: Strongest

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

| 4303* | 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.
 [0 to 2/0/1]
 0: Not detected as A5
 1: Detected as A5 SEF
 2: Detected as A5 LEF |

| 4305* | Original Size Detection |
| | Selects whether the machine determines that the original is A4/LT, or 8K/16K.
 8K/16K is not available for USA models.
 [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	
	These SPs set the area to be masked during platen (book) mode scanning.	
1	Book: Leading Edge	[0 to 3.0 / 0.0 / 0.1 mm/step]
2	Book: Trailing Edge	
3	Book: Left	
4	Book: Right	
5	ADF: Leading Edge	[0 to 3.0 / 2.0 / 0.1 mm/step]
7	ADF: Right	[0 to 3.0 / 0 / 0.1 mm/step]
8	ADF: Left	

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	IPU Test Pattern		
	Selects the IPU test Pattern.		
4417	Test Pattern Selection	[0 to 28 / **0** / 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
		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		
	Adjusts the ICI density level.		
1	Copy	[32 to 255 / **128** / 1 /step]	
2	Scanner	255: Strongest density	
3	Fax		

4450	Scan Image Path Detection	
	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

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

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4540	Printer Vector Correction	
	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	
13-16	GY Phase: Option/R/G/B	
17-20	GC Phase: Option/R/G/B	
21-24	CG Phase: Option/R/G/B	Specifies the printer vector correction value. [0 to 255 / 0 / 1 /step]
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 (Dropout Color)
4553*	Scanner: Text/Photo
4554	Scanner: Photo
4565	Scanner: Grayscale
4570	Scanner: Color: Text/Photo

4571	Scanner: Color: Text/Photo

4572	Scanner: Color: Auto Color

	5	MTF: 0(Off), 1-15 (On)

		[0 to 15 / **8** / 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
	8	Contrast	Sets the overall contrast of the image. [1 to 255/128/1] 1: Weakest ← 128: Default → 255: Strongest
	9	Ind. Dot Erase	Sets the level of independent dot erasure to improve the appearance of background. [0 to 7/0/1] 0: Default (Off) → 7: Strongest

4580	Fax: Text/Chart

4581	Fax: Text

4582	Fax: Text/Photo

4583	Fax: Photo

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4584	Fax: Original 1	
4585	Fax: Original 2	
5	MTF: 0(Off), 1-15 (On)	
	[0 to 15 / **8** / 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 will 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
8	Contrast	Sets the overall contrast of the image. [1 to 255/128/1] 1: Weakest ← 128: Default ➔ 255: Strongest
9	Ind. Dot Erase	Sets the level of independent dot erasure to improve the appearance of background. [0 to 7/0/1] 0: Default (Off) ➔ 7: Strongest
10	Text Erasure	Sets the erasure level of textures. Set higher for stronger effect, lower for weaker effect. [0 to 2 / 0 / 1 /step] 0: Not activated **Note**: This SP code exists for SP4580, SP4582 and SP4583 only.

4600	SBU Version
	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	

4603	AGC Execution **DFU**
	Executes the AGC.
1	HP Detection Enable
2	HP Detection Disable

4604	FGATE Open/Close
	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**: ▪ When the registration sensor goes ON, the BCU generates the FGATE signal and sends it to the LD units. ▪ 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

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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 / **784** / 1 digit/step]

4623	Black Level Fine Adj. Display **Note**: ▪ RE: Red Even signal ▪ RO: Red Odd signal	
	1	Latest: RE Color	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	Latest: GE Color	Displays the black offset value (rough adjustment) for the even green signal in the CCD circuit board (color printing speed). [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	Latest: GE Color	Displays the black offset value (fine adjustment) for the even green signal in the CCD circuit board (color printing speed).
4	Latest: GO Color	Displays the black offset value (fine adjustment) for the odd green signal in the CCD circuit board (color printing speed).

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	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).

4625	Black Level Rough/Fine Adj. Display **(CS model only)**
001	Latest: BE Color
	[0 to 255 / **128** / 1 digit] Displays the black offset value (rough adjustment) for the even blue signal in the SBU (color printing speed).
002	Latest: BO Color
	[0 to 255 / **128** / 1 digit] Displays the black offset value (rough adjustment) for the odd blue signal in the SBU (color printing speed).
003	Latest: BE Color
	[0 to 255 / **128** / 1 digit] Displays the black offset value (fine adjustment) for the even blue signal in the SBU (color printing speed).

004	Latest: BO Color
	[0 to 255 / **128** / 1 digit] Displays the black offset value (fine adjustment) for the odd blue signal in the SBU (color printing speed).
005	Latest: BE B/W
	[0 to 255 / **128** / 1 digit] Displays the black offset value (rough adjustment) for the even blue signal in the SBU (black and white printing speed).
006	Latest: BO B/W
	[0 to 255 / **128** / 1 digit] Displays the black offset value (rough adjustment) for the odd blue signal in the SBU (black and white printing speed).
007	Latest: BE B/W
	[0 to 255 / **128** / 1 digit] Displays the black offset value (fine adjustment) for the even blue signal in the SBU (black and white printing speed).
008	Latest: BO B/W
	[0 to 255 / **128** / 1 digit] Displays the black offset value (fine adjustment) for the odd blue signal in the SBU (black and white printing speed).

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4628	Gain Adjustment Display	
	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 digit/step]
3	Latest: RE BW	
4	Latest: RO BW	

4629	Gain Adjustment Display	
	Displays the gain value of the amplifiers on the controller for Green.	
1	Latest: GE Color	
2	Latest: GO Color	[0 to 255 / 0 / 1 digit/step]
3	Latest: GE BW	
4	Latest: GO BW	

4630	Gain Adjustment Display	
	Displays the gain value of the amplifiers on the controller for Blue.	
1	Latest: BE Color	
2	Latest: BO Color	[0 to 255 / 0 / 1 digit/step]
3	Latest: BE BW	
4	Latest: BO BW	

4640	SBU Black Level Loop	
	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	1st adjustment
2	Loop Count 1st: B/W	[0 to 20 / **0** / 1 /step]
3	Loop Count 2nd: Color	2nd adjustment
4	Loop Count 2nd: B/W	[0 to 20 / **0** / 1 /step]

4641	SBU White Level Loop	
	Displays the white level adjustment time for each mode.	
1	Loop Count: Color	[0 to 20 / **0** / 1 /step]
2	Loop Count: B/W	

4646*	SBU Timeout Error	
	Use this SP to determine whether the automatic scanner adjustment loop has exceeded the prescribed number of loops and flagged a timeout.	
1	Black Level Adjustment 1	0: OK
2	Black Level Adjustment 2	1: AGC adjustment failure
3	White Level Adjustment	

4647	SBU Error
	Displays the result of the SBU connection check.

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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	
	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	
	BE: Blue Even signal, BO: Blue Odd signal	
1	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	
	Displays the previous gain value of the amplifiers on the controller for Red.	
1	Previous: RE Color	
2	Previous: RO Color	[0 to 255 / 0 / 1 digit/step]
3	Previous: RE BW	
4	Previous: RO BW	

4659	Gain Adjustment Display	
	Displays the previous gain value of the amplifiers on the controller for Green.	
1	Previous: GE Color	
2	Previous: GO Color	[0 to 255 / 0 / 1 digit/step]
3	Previous: GE BW	
4	Previous: GO BW	

4660	Gain Adjustment Display	
	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	

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4661	Black Level 2: Rough Adjustment Display	
	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	Previous: RO BW	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	
	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).

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4663	Black Level 2: Rough Adjustment Display	
	BE: 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	
	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).

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4674	Black Level 2: Rough Adjustment Display	
	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		
	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).

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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).

4677	Gain Adjustment Display	
	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	
	Displays the factory setting values of the gain adjustment for Green.	
1	Factory Setting: GE Color	
2	Factory Setting: GO Color	[0 to 255 / 0 / 1 digit/step]
3	Factory Setting: GE BW	
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 to 255 / 0 / 1 digit/step
3	Factory Setting: BE BW	
4	Factory Setting: BO BW	

4685	Gray Balance Set: R **DFU**	
	Adjusts the gray balance of the red signal for each scanning mode.	
1	Book Read	[-512 to 511 / -240 / 1 digit/step]
2	DF Read	

4686	Gray Balance Set: G **DFU**	
	Adjusts the gray balance of the green signal for each scanning mode.	
1	Book Read	[-512 to 511 / -240 / 1 digit/step]
2	DF Read	

4687	Gray Balance Set: B DFU	
	Adjusts the gray balance of the blue signal for each scanning mode.	
1	Book Read	[-512 to 511 / -240 / 1 digit/step]
2	DF Read	

4688	DF: Density Adjustment
	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]

4690	White Peak Level	
	Displays the peak level of the white level scanning.	
001	RE	
002	RO	[0 to 1023 / **0** / 1 digit]
003	RE: BK	
004	RO: BK	

4691	White Peak Level	
	Displays the peak level of the white level scanning.	
001	GE	
002	GO	[0 to 1023 / **0** / 1 digit]
003	GE: BK	
004	GO: BK	

4692	White Peak Level	
	Displays the peak level of the white level scanning.	
001	BE	
002	BO	[0 to 1023 / **0** / 1 digit]
003	BE: BK	
004	BO: BK	

4693	Black Peak Level	
	Displays the peak level of the black level scanning.	
001	RE	
002	RO	[0 to 1023 / **0** / 1 digit]
003	RE: BK	
004	RO: BK	

4694	Black Peak Level	
	Display the peak level of the black level scanning.	
001	GE	
002	GO	[0 to 1023 / **0** / 1 digit]
003	GE: BK	
004	GO: BK	

4695	Black Peak Level	
	Display the peak level of the black level scanning.	
001	BE	[0 to 1023 / **0** / 1 digit]
002	BO	
003	BE: BK	
004	BO: BK	

4800	SBU ID Check Setting **DFU**

4802	DF Shading Free Run	
	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.

4803	Home Position Adjustment
	Adjusts the home position of the exposure lamp. [-1 to 1/0.1/0.1]

4804	Returning to Scanner HP
	Moves the exposure lamp a short distance and immediately returns it to its home position. Touch [Execute]> "Completed"> [Exit].

4806	Moving from Scanner HP	
	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** ▪ This SP is done before shipping the machine to another location. ▪ Turning the machine power off/on also returns the exposure lamp to its home position.	

4903*	Filter Settings	
	This SP code sets the threshold value for independent dot erase. ▪ The "0" 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 to 7/0/1]
2	Independent Dot Erase: Generation	

4905*	Dither Selection **DFU**
	Changes the parameters for dithering. [0 to 255 / 0 / 1 /step]

4906	Filter Setting: Other	
	Outline level Adj	[0 / 10 / 0 / 1]

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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 **DFU**
	1	Execution: ON/OFF
	2	Execution Flag

4918	Manual Gamma Adjustment **DFU**

4991		IPU Image Pass [Path] Selection (RGB Frame Memory) **DFU**
		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

<table>
<tr><td rowspan="2">4993</td><td colspan="2">Highlight Correction</td></tr>
<tr><td colspan="2">Selects the level of highlight correction.</td></tr>
<tr><td>1</td><td>Sensitivity Selection</td><td>Selects the Highlight correction level.
[0 to 9 / 4 / 1 /step]
0: weakest sensitivity
9: strongest sensitivity</td></tr>
<tr><td>2</td><td>Range Selection</td><td>Selects the range level of Highlight correction.
[0 to 9 / 4 / 1 /step]
0: weakest skew correction,
9: strongest skew correction</td></tr>
</table>

4994	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

4.5 SYSTEM SP TABLES-5

4.5.1 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

5052	Return Time Priority Type
	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

5055*	Display IP Address
	Display or does not display the IP address on the LCD. [0 to 1 / **0** / 1] 0: OFF, 1: ON

5056*	Coverage Counter Display
	Display or does not display the coverage counter on the LCD. [0 to 1 / **0** / 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
5106*	Selects the image density level used in ADS mode. [1 to 7 / 4 / 1 notch per step] 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
1	Selects the type of counter: 0: None 1: Key Card (RK3, 4) **Japan only** 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
2	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. [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
5120	Do not change. **Japan Only** [0 to 2/1] 0: Yes. Normal reset 1: Standby. Resets before job start/after completion 2: No. Normally no reset

	Counter Up Timing
5121	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
5126	Selects the F-size original setting. [0 to 2 / **0** / 1 /step] 0: 8.5" x 13" (Foolscap) 1: 8.25" x 13" (Folio) 2: 8" x 13" (F)

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	APS OFF Mode
5127	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. [0 to 1/1] 0: On 1: Off

	F Paper Size Selection
5129*	Selects the "F" paper size. [0 to 2 / 0 / 1 step] 0: 8" x 13" 1: 8.5" x 13" 2: 8.25" x 13"

	Paper Size Type Selection
5131*	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
5150	Sets up the by-pass tray for long paper. [0 to 1/1] 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		

5165	Z-Fold Position (**Not Used**)		
	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 to +4/0/ 0.2 mm]
	5	LGT (SEF)	
	6	LTT (SEF)	
	7	12x18 (SEF)	
	8	Other	

5167	Fax Printing Mode at Optional Counter Off	
	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	

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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.

5179*	**Bypass Size Error**
	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 **DFU**

5195	Limitless SW **DFU**

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] 0 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] 0 is center, minus is down, + is up.

	Set Time **DFU**	
5302	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) NA: -300 (NY) EU: +6- (Paris) CH: +480 (Peking) TW: +480 (Taipei) AS: +480 (Hong Kong)	

Appendix: Service Program Mode

		Summer Time
5307		Lets you set the machine to adjust its date and time automatically with the change to Daylight Savings time in the spring and back to normal time in the fall. This SP lets you set these items: ▪ Day and time to go forward automatically in April. ▪ Day and time to go back automatically in October. ▪ Set the length of time to go forward and back automatically. The settings for 002 and 003 are done with 8-digit numbers:
	Digits	**Meaning**
	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	The time when the change occurs (24-hour as hex code). Example: 00:00 (Midnight) = 00, 01:00 (1 a.m.) = 01, and so on.
	7th	The number of hours to change the time. 1 hour: 1
	8th	If the time change is not a whole number (1.5 hours for example), digit 8 should be 3 (30 minutes).
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 **DFU**	
	This SP stores the settings that limit uses access to SDK application data.	
103	Default Document ACL	
200	SDK1 Unique ID	"SDK" is the "Software Development Kit". This data can be converted from SAS (VAS) when installed or uninstalled. **DFU**
201	SDK1 Certification Method	
210	SDK2 Unique ID	
211	SDK2 Certification Method	
220	SDK3 Unique ID	
221	SDK3 Certification Method	
230	Certification Device	

5404	User Code Count Clear
	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]
3	Cancellation On/Off 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.]

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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]
3	Monitor Interval 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	Copy
		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
	21	Fax Determines whether certification is required before a user can use the fax application. [0 to 1/0/1] 0: On 1: Off

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31	Scanner Determines whether certification is required before a user can use the scan applications. [0 to 1/0/1] 0: On 1: Off	
41	Printer Determines whether certification is required before a user can use the printer applications. [0 to 1/0/1] 0: On 1: Off	
51	SDK1	[0 or 1/ **0** / 1] 0: ON. 1: OFF Determines whether certification is required before a user can use the SDK application.
61	SDK2	
71	SDK3	

5481	Authentication Error Code
	These SP codes determine how the authentication failures are displayed.
1	System Log Disp 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
2	Panel Disp Determines whether an error code appears on the operation panel after a user authentication failure occurs. [0 to 1/1/1] 1: On 0: Off

5490	MF Keycard **Japan Only**
	Sets up operation of the machine with a keycard. [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
	1	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 **DFU**
	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 **Japan Only**
	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)

5505*	Error Alarm
	Sets the error alarm level. **Japan only DFU** [0 to 255 / 50 / 100 copies per step]

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5507		Supply Alarm
1	Paper Supply Alarm (0:Off　1:On)	Switches the control call on/off for the paper supply. **DFU** 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, HLT)
2	Staple Supply Alarm (0:Off　1:On)	Switches the control call on/off for the stapler installed in the finisher. **DFU** 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. **DFU** 0: Off, 1: On If you select "1" the alarm will sound when the copier detects toner end.
128*	interval: Others	The "Paper Supply Call Level: nn" SPs specify the paper control call interval for the referenced paper sizes. **DFU** [00250 to 10000 / 1000 / 1 Step]
132*	Interval: A3	
133*	Interval: A4	
134*	Interval: A5	
141*	Interval: B4	
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]

5515		SC/Alarm Setting	
		With NRS (New Remote Service) in use, these SP codes can be set to issue an SC call when an SC error occurs. If this SP is switched off, the SC call is not issued when an SC error occurs.	
	1	SC Call	
	2	Service Parts Near End Call	[0 or 1 / 1 / -] 0: Off 1: On
	3	Service Parts End Call	
	4	User Call	
	6	Communication Test Call	[0 or 1 / 1 / -] 0: Off 1: On
	7	Machine Information Notice	
	8	Alarm Notice	

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9	Non Genuine Toner Alarm	
10	Supply Automatic Ordering Call	
11	Supply Management Report Call	
12	Jam/Door Open Call	

5792	MCS Debug Log **DFU**

5793	ECS Debug SW **DFU**

5801	Memory Clear	
	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.

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19	LCS	Initializes the LCS (Log Count Service) settings.
20	Web Apli	Initializes Web application settings.
21	ECS	Initializes ECS (Engine Control Service).

5802	Free Run	
	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.

5803	Input Check	
	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	
	Turns on electrical components individually for test purposes.	
1	Main Motor (Fwd)	Main motor (forward)
2	Main Motor (Rev)	Main motor (Reverse) **Do not use**
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	1st Paper Feed CL	Upper paper feed clutch
10	2nd Paper Feed CL	Lower paper feed clutch
11	1st Paper Tray Up	Upper paper lift motor (Up)

12	1st 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 - **Do not use**
107	QL	
108	PP. Chrg.	
109	PP. Development	PP. means "Power Pack" (PCBs).
110	PP. Image Transfer	
111	PP. Separation Voltage	
202	Scanner Lamp	

5810	**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.

5811	Machine No. Setting **DFU**
	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). **Not Used**
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	
001	I/F Setting	
	Selects the remote service setting. [0 to 2 / **2** / 1 /step] 0: Remote service off 1: CSS remote service on 2: @Remote service on	
002	CE Call	
	Performs the CE Call at the start or end of the service. [0 or 1 / **0** / 1 /step] 0: Start of the service 1: End of the service **NOTE:** This SP is activated only when SP 5816-001 is set to "2".	
003	Function Flag	
	Enables or disables the remote service function. [0 to 1 / **0** / 1 /step] 0: Disabled, 1: Enabled **NOTE:** This SP setting is changed to "1" after @Remote registor has been completed.	

007	SSL Disable
	Uses or does not use the RCG certification by SSL when calling the RCG.
	[0 to 1 / **0** / 1 /step]
	0: Uses the RCG certification
	1: Does no use the RCG certification
008	RCG Connect Timeout
	Specifies the connect timeout interval when calling the RCG.
	[1 to 90 / **10** / 1 second /step]
009	RCG Write Timeout
	Specifies the write timeout interval when calling the RCG.
	[1 to 100 / **60** / 1 second /step]
010	RCG Read Timeout
	Specifies the read timeout interval when calling the RCG.
	[1 to 100 / **60** / 1 second /step]
011	Port 80 Enable
	Enables/disables access via port 80 to the SOAP method.
	[0 or 1 / **0** / –]
	0: Disabled, 1: Enabled
013	RFU (Remote Frimware Update) Timing
	Selects the RFU timing.
	[0 or 1 / **1** / –]
	0: RFU is executed whenever update request is received.
	1: RFU is executed only when the machine is in the sleep mode.
021	RCG – C Registed
	This SP displays the Embedded RC Gate installation end flag.
	0: Installation not completed
	1: Installation completed

022	RCG – C Regist Detail
	This SP displays the Embedded RC Gate installation status. 0: RCG device not registered 1: RCG device registered 2: Device registered
023	Connect Type (N/M)
	This SP displays and selects the Embedded RC Gate connection method. [0 or 1 / **0** / 1 /step 0: Internet connection 1: Dial-up connection
061	Cert. Expire Timing **DFU**
	Proximity of the expiration of the certification.
062	Use Proxy
	This SP setting determines if the proxy server is used when the machine communicates with the service center.
063	Proxy Host
	This SP sets the address of the proxy server used for communication between Embedded RC Gate-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 RC Gate-N. ↓ Note ▪ The address display is limited to 128 characters. Characters beyond the 128 character are ignored. ▪ This address is customer information and is not printed in the SMC report.

	Proxy Port Number
064	This SP sets the port number of the proxy server used for communication between Embedded RC Gate-N and the gateway. This setting is necessary to set up Embedded RC Gate-N. ↓ Note ▪ This port number is customer information and is not printed in the SMC report.
	Proxy User Name
065	This SP sets the HTTP proxy certification user name. ↓ 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.
	Proxy Password
066	This SP sets the HTTP proxy certification password. ↓ 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.

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067	CERT: Up State	
	Displays the status of the certification update.	
0		The certification used by Embedded RC Gate is set correctly.
1		The certification request (setAuthKey) for update has been received from the GW URL and certification is presently being updated.
2		The certification update is completed and the GW URL is being notified of the successful update.
3		The certification update failed, and the GW URL is being notified of the failed update.
4		The period of the certification has expired and new request for an update is being sent to the GW URL.
	11	A rescue update for certification has been issued and a rescue certification setting is in progress for the rescue GW connection.
12		The rescue certification setting is completed and the GW URL is being notified of the certification update request.
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 a certification error has been received, and the rescue certification is being recorded.
18		The rescue certification of No. 17 has been recorded, and the GW URL is being notified of the failure of the certification update.
068	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.
	2	An SSL error notification has been issued. Issued after the certification has expired.
	3	Notification of shift from a common authentication to an individual certification.
	4	Notification of a common certification without ID2.
	5	Notification that no certification was issued.
	6	Notification that GW URL does not exist.
069	CERT: Up ID	The ID of the request for certification.
083	Firmware Up Status	Displays the status of the firmware update.
084	Non-HDD Firm Up	This setting determines if the firmware can be updated, even without the HDD installed. 0: Not allowed update 1: Allowed update

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085	Firm Up User Check	This SP setting determines if the operator can confirm the previous version of the firmware before the firmware update execution. If the option to confirm the previous version is selected, a notification is sent to the system manager and the firmware update is done with the firmware files from the URL.
086	Firmware Size	Allows the service technician to confirm the size of the firmware data files during the firmware update execution.
087	CERT: Macro Ver.	Displays the macro version of the @Remote certification.
088	CERT: PAC Ver.	Displays the PAC version of the @Remote certification.
089	CERT: ID2 Code	Displays ID2 for the @Remote certification. Spaces are displayed as underscores (_). Asteriskes (*) indicate that no @Remote certification exists. "000000_____" indicates "Common certification".
090	CERT: Subject	Displays the common name of the @Remote certification subject. CN = the following 17 bytes. Spaces are displayed as underscores (_). Asterisks (*) indicate that no @Remote certification exists. "000000_____" indicates "Common certification".
091	CERT: Serial No.	Displays serial number for the @Remote certification. Asterisks (*) indicate that no @Remote certification exists.

092	CERT: Issuer	Displays the common name of the issuer of the @Remote certification. CN = the following 30 bytes. Asteriskes () indicate that no @Remote certification exists.
093	CERT: Valid Start	Displays the start time of the period for which the current @Remote certification is enabled.
094	CERT: Valid End	Displays the end time of the period for which the current @Remote certification is enabled.
150	Selection Country	
	Not used	
151	Line Type Automatic Judgment	
	Not used	
152	Line Type Judgment Result	
	Not used	
153	Selection Dial/Push	
	Not used	
154	Outside Line/Outgoing Number	
	▪ **Not used**	
156	Dial Up User Name	
	▪ **Not used**	
157	Dial Up Password	
	▪ **Not used**	

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161	Local Phone Number			
	Not used			
162	Connection Timing Adjustment: Incoming			
	Not used			
163	Access Point			
	Not used			
164	Line Connecting			
	Not used			
173	Modem Serial Number	**Not used**		
174	Retransmission Limit			
	Not used			
187	FAX TX Priority	-		
	Not used			
200	Manual Polling	-	**Not used**	
201	Regist: Status			
	Displays a number that indicates the status of the @Remote service device. 0: Neither the @Remote device nor Embedded RCG Gate is set. 1: The Embedded RCG Gate is being set. Only Box registration is completed. In this status, @Remote device cannot communicate with this device. 2: The Embedded RCG Gate is set. In this status, the @Remote device cannot communicate with this device. 3: The @Remote device is being set. In this status the Embedded RCG Gate cannot be set. 4: The @Remote module has not started.			

202	Letter Number	Allows entry of the request number needed for the Embedded RCG Gate.
203	Confirm Execute	Executes the confirmation request to the @Remote Gateway.
204	Confirm Result	
	Displays a number that indicates the result of the confirmation executed with SP5816-203. 0: Succeeded 1: Confirmation number error 2: Registration in progress 3: Proxy error (proxy enabled) 4: Proxy error (proxy disabled) 5: Proxy error (Illegal user name or password) 6: Communication error 7: Certification update error 8: Other error 9: Confirmation executing	
205	Confirm Place	
	Displays the result of the notification sent to the device from the Gateway in answer to the confirmation request. Displayed only when the result is registered at the Gateway.	
206	Register Execute	Executes "Embedded RCG Registration".

207	Register Result
	Displays a number that indicates the registration result. 0: Succeeded 2: Registration in progress 3: Proxy error (proxy enabled) 4: Proxy error (proxy disabled) 5: Proxy error (Illegal user name or password) 6: Communication error 7: Certification update error 8: Other error 9: Registration executing

208	Error Code
	Displays a number that describes the error code that was issued when either SP5816-204 or SP5816-207 was executed.

Cause	Code	Meaning
Illegal Modem Parameter	-11001	Chat parameter error
	-11002	Chat execution error
	-11003	Unexpected error
Operation Error, Incorrect Setting	-12002	Inquiry, registration attempted without acquiring device status.
	-12003	Attempted registration without execution of an inquiry and no previous registration.
	-12004	Attempted setting with illegal entries for certification and ID2.
	-12005	@Remote communication is prohibited. The device has an Embedded RC gate-related problem.

		-12006	A confirmation request was made after the confirmation had been already completed.
		-12007	The request number used at registration was different from the one used at confirmation.
		-12008	Update certification failed because mainframe was in use.
	Error Caused by Response from GW URL	-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
		-2391	Two registrations for same device
		-2392	Parameter error
		-2393	RCG device not managed
		-2394	Device not managed
		-2395	Box ID for RCG device is illegal
		-2396	Device ID for RCG device is illegal
		-2397	Incorrect ID2 format
		-2398	Incorrect request number format
209	Instl Clear		Releases the machine from its Embedded RCG Gate setup. **NOTE:** Turn off and on the main power switch after this setting has been changed.

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250	CommLog Print	Prints the communication log.

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. [00000000htoFFFFFFFFh/1]

5824	NVRAM Data Upload
	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.

5825	NVRAM Data Download
	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 wireless LAN (802.11): aaa.bbb.ccc.ddd For example, if the 8-bit entry is "192.168.000.001" this is read "0C0A80001h"	

2	IPv4 Subnet Mask (Ethernet/IEEE 802.11)
	This SP allows you to confirm and reset the IPv4 subnet mask for Ethernet and a wireless 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 "0C0A80001h"
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] 0: 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 "0C0A80001h " 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 "0C0A80001h" 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 1: Enabled
65	Job Spooling
	Switches job spooling on and off. 0: No spooling, 1: Spooling enabled
66	Job Spool 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 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)
	Disables or enables the Web operation. [0 to 1/1] 0: Disable 1: Enable
145	ActIPv6LinkLocal
	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	These SPs are the IPv6 stateless addresses (1 to 5) referenced on the Ethernet or wireless LAN (802.11) in the format: "Stateless Address" + "Prefix Length" The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each.
149	ActIPv6Sttles2	
151	ActIPv6Sttles3	
153	ActIPv6Sttles4	
155	ActIPv6Sttles5	

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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: 0x0~0x80). 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

3. The IPV6 address is expressed in hexadecimal delmited by colons (:) with the following characters:

    0123456789abcdefABCDEF

4. A colon is inserted as a delimiter every 4th hexadecimal character.

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

5. 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

6. Sections where only zeros exist can be abbreviated with double colons (::). This abbreviation can be done also where succeeding sections contain only zeros (but this can be done only at one point in the address). The example in "2" and "3" above then becomes:

fe80::207:40ff:0:340e (only the first null sets zero digits are abbreviated as "::")

-or-

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

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

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239	Web Link 1 Name Determines whether an name entered for "URL1" is displayed on the Websys link page. The name length is limited to 31 characters.
240	Web Link 1 URL Sets the URL referenced for URL1 linked to the Websys linked page. The link name is limited to 127 characters.
241	Web Link 1 Visible Determines whether the link for URL1 is displayed on the Websys top page. [0 to 1/1/1] 1: Display 0: No display
242	Web Link 2 Name Determines whether a name entered for "URL2" is displayed on the Websys link page. The name length is limited to 31 characters.
243	Web Link 2 URL Sets the URL referenced for URL2 linked to the Websys linked page. The link name is limited to 127 characters.
244	Web Link 2 Visible Determines whether the link for URL2 is displayed on the Websys top page. [0 to 1/1/1] 1: Display 0: No display

5832	HDD Formatting
	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)

5836	Capture Setting	
1	Capture Function (0:Off 1:On)	
	With this function disabled, the settings related to the capture feature cannot be initialized, displayed, or selected. [0 to 1/1] 0: Disable 1: Enable	
2	Panel Setting	
	Determines whether each capture related setting can be selected or updated from the initial system screen. [0 to 1/1] 0: Disable 1: Enable The setting for SP5836-001 has priority.	
71	Reduction for Copy Color	[0 to 3/1] 0:1, 1:1/2, 2:1/3, 3:1/4 **DFU**
72	Reduction for Copy B&W Text	[0 to 6/1] 0:1, 1:1/2, 2:1/3, 3:1/4, 6:2/3
73	Reduction for Copy B&W Other	[0 to 6/1] 0:1, 1:1/2, 2:1/3, 3:1/4, 6:2/3
74	Reduction for Printer Color	[0 to 3/1] 0:1, 1:1/2, 2:1/3, 3:1/4 **DFU**
75	Reduction for Printer B&W	[0 to 6/1] 0 1, 1:1/2, 2:1/3, 3:1/4, 6:2/3
76	Reduction for Printer B&W HQ	[1 to 5/1] 1:1/2, 3:1/4, 4:1/6, 5:1/8
81	Format for Copy Color	[0 to 3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR **DFU**

82	Format for Copy B&W Text	[0 to 3/1] 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
84	Format for Printer Color	[0 to 3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR **DFU**
85	Format for Printer B&W	[0 to 3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR
86	Format for Printer B&W HQ	[0 to 3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR
91	Default for JPEG	[5 to 95/1]
	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	
6	Channel MAX	
	Sets the maximum range of the bandwidth for the wireless LAN. This bandwidth setting varies for different countries. [1 to 14/1]	
7	Channel MIN	
	Sets the minimum range of the bandwidth for operation of the wireless LAN. This bandwidth setting varies for different countries. [1 to 14/1]	
8	Transmission Speed	[0 x 00 to 0 x FF / **0 x FF to Auto** / -]
	0 x FF to Auto [Default] 0 x 11 - 55M Fix 0 x 10 - 48M Fix 0 x 0F - 36M Fix 0 x 0E - 18M Fix 0 x 0D - 12M Fix 0 x 0B - 9M Fix 0 x 0A - 6M Fix	0 x 07 - 11M Fix 0 x 05 - 5.5M Fix 0 x 08 - 1M Fix 0 x 13 - 0 x FE (reserved) 0 x 12 - 72M (reserved) 0 x 09 - 22M (reserved)
11	WEP Key Select	
	Determines how the initiator (SBP-2) handles subsequent login requests. [0 to 1/1] 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.	
42	Fragment Thresh	
	Adjusts the fragment threshold for the IEEE802.11 card. [256 to 2346 / **2346** / 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	11g Slot Time	
		Selects the slot time for IEEE802.11. [0 to 1 / **0** / 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 / **3** / 1] 1: Info, 2: warning, 3: error This SP is displayed only when the IEEE802.11 card is installed.

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5841	Supply Name Setting	
	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	StapleBnd1	
22	StapleBnd2	
23	StapleBnd3	

5842	GWWS Analysis **DFU**
	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] [Auto Change]
		Vendor ID
	2	Sets the vendor ID: Initial Setting: 0x05A Ricoh Company [0x0000 to 0xFFFF/1] **DFU**
		Product ID
	3	Sets the product ID. [0x0000 to 0xFFFF/1] **DFU**
		Device Release No.
	4	Sets the device release number of the BCD (binary coded decimal) display. [0000 to 9999/1] **DFU** Enter as a decimal number. NCS converts the number to hexadecimal number recognized as the BCD.

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5845	Delivery Server Setting
	These are delivery server settings.
1	FTP Port No.
	[0 to 65535/1]
2	IP Address (Primary)
	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. [0 to FFFFFFFF/1]
6	Delivery Error Display Time
	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]
8	IP Address (Secondary)
	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.
9	Delivery Server Model
	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
10	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 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 Bit0 = 1 Sender specification required (if set to 1, Bit6 is set to "0")
	11	Delivery Svr.Capability (Ext)
		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

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5846*	UCS Setting
1	Machine ID (for Delivery Server)
	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.
2	Machine ID Clear (Delivery Server)
	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.
3	Maximum Entries
	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.
6	Delivery Server Retry Timer
	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
7	Delivery Server Retry Times
	Sets the number of retry attempts when the delivery server fails to acquire the delivery server address book. [0 to 255/1]

8	Delivery Server Maximum Entries
	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]
40	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. 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.

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	Fill Addr Acl Info.
41	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. **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. 5. Enter the SP mode and do SP5846 041. After this SP executes successfully, any user can access the address book.
43	Addr Book Media
46	Initialize All Settings & Addr Book
47	Initialize Local Address Book
	Clears all of the address information from the local address book of a machine managed with UCS.
48	Initialize Delivery Addr Book
	Push [Execute] to delete all items (this does not include user codes) in the delivery address book that is controlled by UCS.
49	Initialize LDAP Addr Book
	Push [Execute] to delete all items (this does not include user codes) in the LDAP address book that is controlled by UCS.

50	Initialize All Addr Book
	Clears everything (including users codes) in the directory information managed by UCS. However, the accounts and passwords of the system administrators are not deleted.

51	Backup All Addr Book
	Uploads all directory information to the SD card. Do this SP before replacing the HDD. The operation may not succeed if the HDD is damaged.

52	Restore All Addr Book
	Downloads all directory information from the SD card. Upload the address book from the old HDD with SP5846 51 before removing it. Do SP5846 52 after installing the new HDD.

53	Clear Backup Info.
	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.

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		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	**Japan Only**
		2	
		3	
		4	--- Not Used ---
		5	--- Not Used ---
		6	--- Not Used ---
		7	--- Not Used ---
62		Complexity 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. [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.	

63	Complexity 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. [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.
64	Complexity Option 3
	Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to numbers and defines the length of the password. [0 to 32/1] **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.
65	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.
91	FTP Auth. Port Settings
	Sets the FTP port to get the delivery server address book that is used in the individual authorization mode. [0 to 65535/1]

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	Encryption Start
94	Shows the status of the encryption function of the address book on the LDAP server. [0 to 255/1] No default

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] 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 2: 1/3x
5847 5	Rate for Printer B&W	[0 to 6/1]	3: 1/4x
5847 6	Rate for Printer B&W HQ	[0 to 6/1]	4: 1/6x 5: 1/8x 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 quality of JPEG images sent as NetFile pages. This function is available only with the MLB (Media Link Board) option installed. [5 to 95/1]		

5848	Web Service	
	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)	Switches access control on and off. 0000: OFF, 0001: ON
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)	
11	Acc. Ctrl: Device Management (Lower 4 Bits)	
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]
201	Access Ctrl: Regular Trans	
	No information is available at this time. 0: Not allowed 1: Allowed	
210	Setting: Log Type: Job 1	
	No information is available at this time.	
211	Setting: Log Type: Job 2	
	No information is available at this time.	
212	Setting: Log Type: Access	
	No information is available at this time.	
213	Setting: Primary Srv	
	No information is available at this time.	
214	Setting: Secondary Srv	
	No information is available at this time.	
215	Setting: Start Time	
	No information is available at this time.	
216	Setting: Interval Time	
	No information is available at this time.	
217	Setting: Timing	
	No information is available at this time.	

5849	Installation Date	
	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 **Japan Only**
	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].

5851	Bluetooth Mode
	Sets the operation mode for the Bluetooth Unit. Press either key. [**0: Public**] [1: Private]

5853	Stamp Data Download
	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.

5856	Remote ROM Update
	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
	2	Target (2: HDD 3: SD)
		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
		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.

9	Copy HDD to SD Card (Latest 4 MB)	
	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.	
10	Copy HDD to SD Card Latest 4 MB Any Key)	
	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	
	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	
	Displays the amount of space available on the SD card.	
14	Copy SD to SD (Latest 4MB)	
	Copies the last 4MB of the log (written directly to the card from shared memory) onto an SD card.	
15	Copy SD to SD (Latest 4MB Any 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.	

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16	Make HDD Debug	
	This SP creates a 32 MB file to store a log on the HDD.	
17	Make SD Debug	
	This SP creates a 4 MB file to store a log on an SD card.	

5858*	Debug Save When	
	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
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. [-9999999 to 9999999/1]
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.
	MDN Response RFC2298 Compliance
21	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	
	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	
26	S/MIMI: MIME Header Setting	

5866	E-Mail Report **Not Used**	
1	Report Validity	Enables or disables the E-mail alert function. [0 or 1 / **0** / –] 0: Enabled, 1: Disabled
2	Add Date Field	Adds or does not add the date field to the header of the alert mail. [0 or 1 / **0** / –] 0: Not added, 1: Added

5870	Common Key Info Writing	
	Writes to flash ROM the common proof for validating the device for NRS specifications.	
1	Writing	These SPs are for future use and currently are not used.
3	Initialize	

5873	SD Card Apli. Move	
	Allows you to move applications from one SD card another. For more, see "Merging Applications on 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	
	This SP determines whether the machine reboots automatically when an SC error occurs. **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

Appendix: Service Program Mode

5878	Option Setup	
	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 **DFU**
	This SP is used to install the edit option card.

5881	Fixed Phase Block Erasing **DFU**

5885	Set WIM Function	
20	Doc Svr Acc Ctrl	Close or disclose the functions of web image monitor. **0**: OFF, 1: ON 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 / **0** / 1 step] 0: ON, 1: OFF

	Personal Information Protect
5888*	Selects the protection level for logs. [0 to 1 / **0** / 1} 0: No authentication, No protection for logs 1: No authentication, Protected logs (an administrator can see the logs)

Appendix: Service Program Mode

5907	Plug & Play Maker/Model Name
	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.

5908*	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 0: A4 1: LT [0 to 1 / 0 / 1] Other Areas (Europe/Asia) 0: A4 1: LT

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]

5915*	Mechanical Counter Detection
	Checks whether the mechanical counter inside the inner cover is connected or not. Display: 0: Not detected 1: Detected 2: Unknown

5921*	Exhaust Fan Control	
	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 entered energy saver mode or stand-by mode, the machine slows the fan speed after this time runs out. After the machine has entered the auto off mode or an error occurs, the machine stops the fan after this time runs out. [30 to 120 / 30 s / 1 s]	
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)	

Appendix: Service Program Mode

5985		Device Setting	
		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	

5987		Mech. Counter
		This SP detects that a mechanical counter device is removed. If it is detected, SC610 occurs. 0: OFF. 1: ON

5990		SP Print Mode (SMC Print)
		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**

5996	Machine State **DFU**	
1	Destination	Shows intended destination of the engine board. 0: Japan 1: North America 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.
3	IPU ID	Displays the IPU ID (presently fixed at "30").

Appendix: Service Program Mode

4.6 SYSTEM SP TABLES-6

4.6.1 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 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. [-5.0 to 5.0 / 0 / 0.1 mm/step]
	6	Buckle: Duplex Rear	
	7	Rear Edge Erase	
		Adjusts the erase margin at the original trailing edge. [-5.0 to 5.0 / 0 / 0.1 mm/step]	

6007	ADF Input Check	
	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	0: Paper not detected
3	Original LG Sensor	1: Paper detected
4	Original Width Sensor S	

5	Original Width Sensor M	
6	Original Width Sensor L	
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

6008	ADF Output Check	
	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	

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6009	ADF Free Run
	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.

6010*	Stamp Position Adj.
	Adjusts the stamp position in the sub-scan direction in fax mode. [–5.0 to +5.0 / 0 / 1 mm/step]

6016*	Original Size Detection Priority
	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)	Japan only
	6	11" x 15"/DLT (L)	
	5	DLT (L)/ 11" x 15"	NA only
	4	LT (S)/ US Exec (S)	
	3	LT (L)/ 8" x 10" (L)	
	2	LG (L)/ F4 (L)	
	1	A4 (L)/ 16K (L)	EU/AA only
	0	8K (L)/ DLT (L)	

| 6017 | Sheet Through Magnification |
| | Adjusts the magnification in the sub-scan direction for the ARDF.
[-5.0 to 5.0 / 0 / 0.1 %/step] |

6117	Finisher Input Check	
	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
Group 1	7	Stack Feed-out Belt HP Sensor	Activated	Deactivated
	6	Not Used		
	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

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Number	Bit	Description	Reading	
			0	1
Group 2	7	Not Used		
	6	Not Used		
	5	Stapler Ready Signal	Activated	Deactivated
	4	Not Used		
	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
Group 3	7	Not Used		
	6	Lower Tray Lower Limit Sensor	Activated	Deactivated
	5	Not used		
	4	Stack Height Sensor	Activated	Deactivated
	3	Not Used		
	2	Not Used		
	1	Shift HP Sensor	Activated	Deactivated
	0	Exit Guide HP Sensor	Activated	Deactivated

Number	Bit	Description	Reading	
			0	1
Group 4	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	Upper Tray Paper Limit Sensor	Activated	Deactivated
	2	Not Used		
	1	Not Used		
	0	Not Used		

6118	Finisher Output Check
	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

Appendix: Service Program Mode

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	
	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	
	Adjusts the punching position in the main scan direction.	
1	Domestic 2Hole	
2	North America 3Hole	[-2.0 to 2.0 / 0 / 0.4 mm/step]]
3	Europe 4Hole	
4	North Europe 4Hole	
5	North Europe 2Hole	

6130	Skew Correction: Buckle Adj.	
	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)	[-5.0 to 5.0 / 0 / 0.25 mm/step]]
7	DLT-T (SEF)	
8	LG-T (SEF)	
9	LT-T (SEF)	
10	LT-Y (LEF)	
11	12" x 18"	
12	Other	

Appendix: Service Program Mode

6131	[Skew Correction Control]	
	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)	
5	B5T (SEF)	[0 to 2 / 1 / 1/step]]
6	B5Y (LEF)	0: No (No skew correction)
7	DLT-T (SEF)	1: Roller Stop Skew Correction
8	LG-T (SEF)	2: Roller Reverse Skew Correction
9	LT-T (SEF)	
10	LT-Y (LEF)	
11	12" x 18"	
12	Other	

6132	Jogger Fence Fine Adj	
	This SP adjusts the distance between the jogger fences and the sides of the stack on the finisher 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] + Value: Increases distance between jogger fences and the sides of the stack. - Value: Decreases the distance between the jogger fences and the sides of the stack.
6	B5Y (LEF)	
7	DLT-T (SEF)	
8	LG-T (SEF)	
9	LT-T (SEF)	
10	LT-Y (LEF)	
11	12" x 18"	
12	Other	

6133	Staple Position Adjustment	
	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]]

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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	[-3.0 to 3.0 / 0 / 0.2 mm/step] + Value: Shifts staple position toward the crease. - Value: Shifts staple position away from the crease.
2	B4 SEF	
3	A4 SEF	
4	B5 SEF	
5	DLT-T (SEF)	
6	LG-T (SEF)	
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]

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6137	Fin. Free Run	
	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	Shipping free run. Simulates standby conditions during shipping.
4	Free Run 4	**DFU**

6138	FIN (TIG) Input Check	1000-Sheet Finisher B793	
	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 Relay1 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

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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

6139	FIN (KIN) Input Check	1000-Sheet Finisher B408	
	Note: The names in parentheses are the names used in the service manuals.		
	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

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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. **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	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 Relay1 Motor	Upper Clamp Roller Motor

15	Stuck Relay1 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	-

6145	FIN (ELB) Input Check		500-Sheet Finisher D372	
	Displays the signals received from sensors and switches of the finisher. **Note**: ▪ The names in parentheses below are the names used in the service manuals. "0" means LOW, "1" means HIGH.			
	Component		**0**	**1**
1	Entrance Sensor		Paper	No Paper
2	Hitroll HP Sensor (Positioning Roller HP Sensor)		Not HP	At HP
3	Front Jogger HP Sensor (Front Fence HP Sensor)		Not HP	At HP
4	Rear Jogger HP Sensor (Rear Fence HP Sensor)		Not HP	At HP
5	Staple Tray Paper Sensor		Paper	No Paper
6	Staple Moving HP Sensor (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
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

6146	FIN (ELB) Output Check	500-Sheet Finisher D372
	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	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

4.7 SYSTEM SP TABLES-7

4.7.1 SP7XXX: DATA LOG

7001*	Main Motor Operation Time
	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	Displays the most recent 10 service calls.
2	Latest 1	
3	Latest 2	
4	Latest 3	
5	Latest 4	
6	Latest 5	
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*	Total Original Jam Counter
	Displays the total number of original jams.

12	Trans 2 Sn: Late
7504*	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** ▪ 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

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12	Trans 2 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
51	Trans 1 Sn: Lag
52	Trans 2 Sn: Lag
53	Trans 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

12	Trans 2 Sn: Late
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
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

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12	Trans 2 Sn: Late
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

7505	Original Jam Location
	Displays the total number of original jams by location. These jams occur when the original does not activate the sensors. **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 Paper Size	
5	A4 LEF	
6	A5 LEF	
14	B5 LEF	
38	LT LEF	
44	HLT LEF	
132	A3 SEF	
133	A4 SEF	
134	A5 SEF	Displays the total number of copy jams by paper size.
141	B4 SEF	
142	B5 SEF	
160	DLT SEF	
164	LG SEF	
166	LT SEF	
172	HLT SEF	
255	Others	

7507*	Plotter Jam History				
7507 1	Last	Displays the copy jam history (the most recent 10 jams) Sample Display: CODE:007 SIZE:05h TOTAL:0000334 DATE: Mon Mar 15 11:44:50 2000 where: CODE is the SP7504-*** number (see above. SIZE is the ASAP paper size code in hex. TOTAL is the total jam error count (SP7502) DATE is the date the jams occurred.			
7507 2	Latest 1				
7507 3	Latest 2				
7507 4	Latest 3				
7507 5	Latest 4				
7507 6	Latest 5				
7507 7	Latest 6				
7507 8	Latest 7				
7507 9	Latest 8				
7507 10	Latest 9				
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)	0E	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). Sample Display: CODE:007 SIZE:05h TOTAL:0000334 DATE: Mon Mar 15 11:44:50 2000 where: CODE is the SP7505*** number (see above. SIZE is the ASAP paper size code in hex. TOTAL is the total error count (SP7503) DATE is the date the jams occurred.
2	Last 1	
3	Last 2	
4	Last 3	
5	Last 4	
6	Last 5	
7	Last 6	
8	Last 7	
9	Last 8	
10	Last 9	

7801	ROM No./Firmware Version
	This SP codes display the firmware versions of all ROMs in the system, including the mainframe, the ARDF, and peripheral devices.

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7803*	PM Counter Display	
	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	
	Resets the PM counter. To reset, press Execute on the touch panel.	
1	Paper	
2	Sheets 60K	
3	Sheets 120K	

7807	SC/Jam Counter Reset
	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 **Japan Only**		
	Displays the number 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 **Japan Only**
	Press Execute to reset to 0 the values of SP7826. **Japan Only**

7832	Self-Diagnose Result Display
	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	
	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

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7836	Total Memory Size	
	Displays the memory capacity of the controller system.	

7852*	ADF Exposure Glass	
	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.	

7901*	Assert Info. **DFU**	
	These SP numbers display the results of the occurrence of the most recent SC code generated by the machine.	
1*	File Name	Module name
2*	Number of Lines	Number of the lines where error occurred.
3*	Location	Value

7906	Last PM Count	
	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	Before 2 PM Count	
	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	

Appendix: Service Program Mode

7908	Before 3 PM Count	
	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
	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)

4.8 SYSTEM SP TABLES-8

4.8.1 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.	Totals (pages, jobs, etc.) executed for each application when the job was not stored on the document server.
F:	Fax application.	
P:	Print application.	
S:	Scan application.	
L:	Local storage (document server)	Totals (jobs, pages, etc.) for the document server. The L: counters work differently case by

Appendix: Service Program Mode

System SP Tables-8

Prefixes		What It Means
		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.
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
C	Cyan

Abbreviation	What It Means
ColCr	Color Create
ColMode	Color Mode
Comb	Combine
Comp	Compression
Deliv	Delivery
DesApl	Designated Application. The application (Copy, Fax, Scan, Print) used to store the 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
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

Appendix:
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Abbreviation	What It Means
Mag	Magnification
MC	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
PrtPGS	Print Pages
R	Red (Toner Remaining). Applies to the wide format model A2 only. This machine 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

Abbreviation	What It Means
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

↓ 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	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.
8002	C:Total Jobs	
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	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.
8012	C:Jobs/LS	
8013	F:Jobs/LS	
8014	P:Jobs/LS	[0 to 9999999/ 0 / 1]
8015	S:Jobs/LS	The L: counter counts the number of jobs stored from within the document server mode screen at the operation panel.
8016	L:Jobs/LS	
8017	O:Jobs/LS	

- 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	These SPs reveal how files printed from the document server were stored on the document server originally. [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.
8022	C:Pjob/LS	
8023	F:Pjob/LS	
8024	P:Pjob/LS	
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 documents from the document server. [0 to 9999999/ 0 / 1] The L: counter counts the number of jobs printed from within the document server mode screen at the operation panel.
8032	C:Pjob/DesApl	
8033	F:Pjob/DesApl	
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 document server that were later accessed for transmission over the telephone line or over a network (attached to an e-mail, or as a fax image by I-Fax). [0 to 9999999/ 0 / 1] **Note**: ▪ Jobs merged for sending are counted separately. ▪ The L: counter counts the number of jobs scanned from within the document server mode screen at the operation panel.
8042	C:TX Jobs/LS	
8043	F:TX Jobs/LS	
8044	P:TX Jobs/LS	
8045	S:TX Jobs/LS	
8046	L:TX Jobs/LS	
8047	O:TX Jobs/LS	

▪ 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 e-mail, the O: counter increments.

8051	T:TX Jobs/DesApl	These SPs count the applications used to send files from the document server over the telephone line or over a network (attached to an e-mail, or as a fax image by I-Fax). Jobs merged for sending are counted separately. [0 to 9999999/ 0 / 1] The L: counter counts the number of jobs sent from within the document server mode screen at the operation panel.
8052	C:TX Jobs/DesApl	
8053	F:TX Jobs/DesApl	
8054	P:TX Jobs/DesApl	
8055	S:TX Jobs/DesApl	
8056	L:TX Jobs/DesApl	
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.

8061	T:FIN Jobs	[0 to 9999999/ 0 / 1]
	These SPs total the finishing methods. The finishing method is specified by the application.	
8062	C:FIN Jobs	[0 to 9999999/ 0 / 1]
	These SPs total finishing methods for copy jobs only. The finishing method is specified by the application.	
8063	F:FIN Jobs	[0 to 9999999/ 0 / 1]
	These SPs total finishing methods for fax jobs only. The finishing method is specified by the application. **Note**: Finishing features for fax jobs are not available at this time.	
8064	P:FIN Jobs	[0 to 9999999/ 0 / 1]
	These SPs total finishing methods for print jobs only. The finishing method is specified by the application.	

8065	S:FIN Jobs	[0 to 9999999/ 0 / 1]
	These SPs total finishing methods for scan jobs only. The finishing method is specified by the application. **Note**: Finishing features for scan jobs are not available at this time.	
8066	L:FIN Jobs	[0 to 9999999/ 0 / 1]
	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 print window within document server mode.	
8067	O:FIN Jobs	[0 to 9999999/ 0 / 1]
	These SPs total finishing methods for jobs executed by an external application, over 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 set 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.

8071	T:Jobs/PGS	[0 to 9999999/ 0 / 1]		
	These SPs count the number of jobs broken down by the number of pages in the job, regardless of which application was used.			
8072	C:Jobs/PGS	[0 to 9999999/ 0 / 1]		
	These SPs count and calculate the number of copy jobs by size based on the number of pages in the job.			
8073	F:Jobs/PGS	[0 to 9999999/ 0 / 1]		
	These SPs count and calculate the number of fax jobs by size based on the number of pages in the job.			
8074	P:Jobs/PGS	[0 to 9999999/ 0 / 1]		
	These SPs count and calculate the number of print jobs by size based on the number of pages in the job.			
8075	S:Jobs/PGS	[0 to 9999999/ 0 / 1]		
	These SPs count and calculate the number of scan jobs by size based on the number of pages in the job.			
8076	L:Jobs/PGS	[0 to 9999999/ 0 / 1]		
	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.			
8077	O:Jobs/PGS	[0 to 9999999/ 0 / 1]		
	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

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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	6to10 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.

8111	T:FAX TX Jobs	[0 to 9999999/ 0 / 1]
	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.	
8113	F:FAX TX Jobs	[0 to 9999999/ 0 / 1]
	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.

8121	T:IFAX TX Jobs	[0 to 9999999/ 0 / 1]
	These SPs count the total number of jobs (color or black-and-white) sent, either directly or using a file stored on the document server, as fax images using I-Fax.	
8123	F:IFAX TX Jobs	[0 to 9999999/ 0 / 1]
	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.

8131	T:S-to-Email Jobs		[0 to 9999999/ 0 / 1]
	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.		
8135	S:S-to-Email Jobs		
	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	
813x 3	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 black-and-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).

8141	T:Deliv Jobs/Svr		[0 to 9999999/ 0 / 1]
	These SPs count the total number of jobs scanned and sent to a Scan Router server.		
8145	S:Deliv Jobs/Svr		
	These SPs count the number of jobs scanned in scanner mode and sent to a Scan Router server.		
814x 1	B/W	Monochrome	
814x 2	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.

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8151	T:Deliv Jobs/PC	[0 to 9999999/ 0 / 1]
	These SPs count the total number of jobs scanned and sent to a folder on a PC (Scan-to-PC).	
8155	S:Deliv Jobs/PC	
	These SPs count the total number of jobs scanned and sent with Scan-to-PC.	
815x 1	B/W	Monochrome
815x 2	Color	Color
815x 3	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. A job is counted from when it is registered for sending, not when it is sent. [0 to 9999999/ 0 / 1]
8163	F:PCFAX TX Jobs	

- 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	These SPs count the pages scanned by each application that uses the scanner to scan images. [0 to 9999999/ 0 / 1]
8192	C:Total Scan PGS	
8193	F:Total Scan PGS	
8195	S:Total Scan PGS	
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.

8201	T:LSize Scan PGS	[0 to 9999999/ 0 / 1]
	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.	
8203	F:L Size Scan PGS	[0 to 9999999/ 0 / 1]
8205	S:LSize Scan PGS	[0 to 9999999/ 0 / 1]
	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 the SMC Report, and in the User Tools display.	

8211	T:Scan PGS/LS	These SPs count the number of pages scanned into the document server .
8212	C:Scan PGS/LS	[0 to 9999999/ 0 / 1]
8213	F:Scan PGS/LS	The L: counter counts the number of pages stored from within the document server mode screen at the operation panel, and with the
8215	S:Scan PGS/LS	
8216	L:Scan PGS/LS	Store File button from within the Copy 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.

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8221	ADF Org Feeds		[0 to 9999999/ 0 / 1]
	These SPs count the number of pages fed through the ADF for front and back side scanning.		
8221 1	Front	Number of front sides fed for scanning: With an ADF that can scan both sides simultaneously, the Front side count is the same as the number of pages fed for either simplex or duplex scanning. With an ADF that cannot scan both sides simultaneously, the Front side count is the same as the number of pages fed for duplex front side scanning. (The front side is determined by which side the user loads face up.)	
8221 2	Back	Number of rear sides fed for scanning: With an ADF that can scan both sides simultaneously, the Back count is 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.

8231	Scan PGS/Mode		[0 to 9999999/ 0 / 1]
	These SPs count the number of pages scanned by each ADF mode to determine the work load on the ADF.		
	1	Large Volume	Selectable. Large copy jobs that cannot be loaded in the ADF at one time.
	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. Raising the ADF and placing the original directly on the 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.

8241	T:Scan PGS/Org			[0 to 9999999/ 0 / 1]		
	These SPs count the total number of scanned pages by original type for all jobs, regardless of which application was used.					
8242	C:Scan PGS/Org			[0 to 9999999/ 0 / 1]		
	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.					
8245	S:Scan PGS/Org			[0 to 9999999/ 0 / 1]		
	These SPs count the number of pages scanned by original type for Scan jobs.					
8246	L:Scan PGS/Org			[0 to 9999999/ 0 / 1]		
	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 within 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 have been selected at the operation panel for each application. Some examples of these editing features are: ▪ Erase> Border ▪ Erase> Center ▪ 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.
8252	C:Scan PGS/ImgEdt	
8255	S:Scan PGS/ImgEdt	
8256	L:Scan PGS/ImgEdt	
8257	O:Scan PGS/ImgEdt	

▪ 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. [0 to 9999999/ 0 / 1]
8285	S:Scan PGS/TWAIN	

8291	T:Scan PGS/Stamp	These SPs count the number of pages stamped with the stamp in the ADF unit. [0 to 9999999/ 0 / 1] 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
8293	F:Scan PGS/Stamp	
8295	S:Scan PGS/Stamp	

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8301	T:Scan PGS/Size	[0 to 9999999/ 0 / 1]	
	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].		
8302	C:Scan PGS/Size	[0 to 9999999/ 0 / 1]	
	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].		
8303	F:Scan PGS/Size	[0 to 9999999/ 0 / 1]	
	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].		
8305	S:Scan PGS/Size	[0 to 9999999/ 0 / 1]	
	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 mode screen. Use these totals to compare original page size (scanning) and output 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)		

8311	T:Scan PGS/Rez	[0 to 9999999/ 0 / 1]
	These SPs count by resolution setting the total number of pages scanned by applications that can specify resolution settings.	
8315	S:Scan PGS/Rez	[0 to 9999999/ 0 / 1]
	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.	
831x 1	1200dpi to	
831x 2	600dpito1199dpi	
831x 3	400dpito599dpi	
831x 4	200dpito399dpi	
831x 5	to199dpi	

- 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	These SPs count the number of pages printed by the customer. The counter for the application used for storing the pages increments. [0 to 9999999/ 0 / 1] The L: counter counts the number of pages stored from within the document server mode screen at the operation panel. Pages stored with the Store File button from within the Copy mode screen go to the C: counter.
8382	C:Total PrtPGS	
8383	F:Total PrtPGS	
8384	P:Total PrtPGS	
8385	S:Total PrtPGS	
8386	L:Total PrtPGS	
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.

8391	LSize PrtPGS	[0 to 9999999/ 0 / 1]
	These SPs count pages printed on paper sizes A3/DLT and larger. **Note**: In addition to being displayed in the SMC Report, These counters appear in the SMC report as well as on the machine display.	

8401	T:PrtPGS/LS	These SPs count the number of pages printed from the document server. The counter for the application used to print the pages is incremented. The L: counter counts the number of jobs stored from within the document server mode screen at the operation panel. [0 to 9999999/ 0 / 1]
8402	C:PrtPGS/LS	
8403	F:PrtPGS/LS	
8404	P:PrtPGS/LS	
8405	S:PrtPGS/LS	
8406	L:PrtPGS/LS	

- 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.	
8422	C: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 by the copier application.	

8423	F: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 by the fax application.		
8424	P: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 by the printer application.		
8425	S: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 by the scanner application.		
8426	L: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 from within the document server mode window at the operation panel.		
8427	O: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 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
5	3		5	4
6	4		6	4
7	4		7	4
8	4		8	4

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8431	T:PrtPGS/ImgEdt	[0 to 9999999/ 0 / 1]
	These SPs count the total number of pages output with the three features below, regardless of which application was used.	
8432	C:PrtPGS/ImgEdt	[0 to 9999999/ 0 / 1]
	These SPs count the total number of pages output with the three features below with the copy application.	
8434	P:PrtPGS/ImgEdt	[0 to 9999999/ 0 / 1]
	These SPs count the total number of pages output with the three features below with the print application.	
8436	L:PrtPGS/ImgEdt	[0 to 9999999/ 0 / 1]
	These SPs count the total number of pages output from within the document server mode window at the operation panel with the three features below.	
8437	O:PrtPGS/ImgEdt	[0 to 9999999/ 0 / 1]
	These SPs count the total number of pages output with the three features below with Other applications.	
843x 1	Cover/Slip Sheet	Total number of covers or slip sheets inserted. The count for a cover printed on both sides counts 2.
843x 2	Series/Book	The number of pages printed in series (one side) or printed as a book with booklet right/left pagination.
843x 3	User Stamp	The number of pages printed where stamps were applied, including page numbering and date stamping.

8441	T:PrtPGS/Ppr Size	[0 to 9999999/ 0 / 1]
	These SPs count by print paper size the number of pages printed by all applications.	
8442	C:PrtPGS/Ppr Size	[0 to 9999999/ 0 / 1]
	These SPs count by print paper size the number of pages printed by the copy application.	
8443	F:PrtPGS/Ppr Size	[0 to 9999999/ 0 / 1]
	These SPs count by print paper size the number of pages printed by the fax application.	
8444	P:PrtPGS/Ppr Size	[0 to 9999999/ 0 / 1]
	These SPs count by print paper size the number of pages printed by the printer application.	
8445	S:PrtPGS/Ppr Size	[0 to 9999999/ 0 / 1]
	These SPs count by print paper size the number of pages printed by the scanner application.	
8446	L:PrtPGS/Ppr Size	[0 to 9999999/ 0 / 1]
	These SPs count by print paper size the number of pages printed from within the document server mode window at the operation panel.	

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8447	O:PrtPGS/Ppr Size		[0 to 9999999/ 0 / 1]
	These SPs count by print paper size the number of pages printed by Other applications.		
844x 1	A3		
844x 2	A4		
844x 3	A5		
844x 4	B4		
844x 5	B5		
844x 6	DLT		
844x 7	LG		
844x 8	LT		
844x 9	HLT		
844x 10	Full Bleed		
844x 254	Other (Standard)		
844x 255	Other (Custom)		

▪ These counters do not distinguish between LEF and SEF.

8451	PrtPGS/Ppr Tray		[0 to 9999999/ 0 / 1]
	These SPs count the number of sheets fed from each paper feed station.		
1	Bypass	Bypass Tray	
2	Tray 1	Copier	
3	Tray 2	Copier	
4	Tray 3	Paper Tray Unit (Option)	
5	Tray 4	Paper Tray Unit (Option)	
6	Tray 5	LCT (Option)	
7	Tray 6	500-Sheet Finisher	
8	Tray 7	Currently not used.	
9	Tray 8	Currently not used.	
10	Tray 9	Currently not used.	
11	Tray 10	Currently not used.	
12	Tray 11	Currently not used.	

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8461	T:PrtPGS/Ppr Type	[0 to 9999999/ 0 / 1]
	These SPs count by paper type the number pages printed by all applications. ▪ 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. However, these counts are based on output timing. ▪ Blank sheets (covers, chapter covers, 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]
	These SPs count by paper type the number pages printed by the copy application.	
8463	F:PrtPGS/Ppr Type	[0 to 9999999/ 0 / 1]
	These SPs count by paper type the number pages printed by the fax application.	
8464	P:PrtPGS/Ppr Type	[0 to 9999999/ 0 / 1]
	These SPs count by paper type the number pages printed by the printer application.	

8466	L:PrtPGS/Ppr Type	[0 to 9999999/ 0 / 1]
	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]
	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
8484	P:PrtPGS/TonSave
	These SPs count the number of pages printed with the Toner Save feature switched on. **Note:** These SPs return the same results because this SP is limited to the Print application. [0 to 9999999/ 0 / 1]

8511	T:PrtPGS/Emul		[0 to 9999999/ 0 / 1]
	These SPs count by printer emulation mode the total number of pages printed.		
8514	P:PrtPGS/Emul		[0 to 9999999/ 0 / 1]
	These SPs count by printer emulation mode the total number of pages printed.		
8514 1	RPCS		
8514 2	RPDL		
8514 3	PS3		
8514 4	R98		
8514 5	R16		
8514 6	GL/GL2		
8514 7	R55		
8514 8	RTIFF		
8514 9	PDF		
8514 10	PCL5e/5c		
8514 11	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.
- Print jobs output to the document server are not counted.

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8521	T:PrtPGS/FIN	[0 to 9999999/ 0 / 1]
	These SPs count by finishing mode the total number of pages printed by all applications.	
8522	C:PrtPGS/FIN	[0 to 9999999/ 0 / 1]
	These SPs count by finishing mode the total number of pages printed by the Copy application.	
8523	F:PrtPGS/FIN	[0 to 9999999/ 0 / 1]
	These SPs count by finishing mode the total number of pages printed by the Fax application.	
8524	P:PrtPGS/FIN	[0 to 9999999/ 0 / 1]
	These SPs count by finishing mode the total number of pages printed by the Print application.	
8525	S:PrtPGS/FIN	[0 to 9999999/ 0 / 1]
	These SPs count by finishing mode the total number of pages printed by the Scanner application.	

8526	L:PrtPGS/FIN	[0 to 9999999/ 0 / 1]
	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	Staples	This SP counts the amount of staples used by the machine. [0 to 9999999/ 0 / 1]

8581	T:Counter	[0 to 9999999/ 0 / 1]
	These SPs count the total output broken down by color output, regardless of the application used. In addition to being displayed in the SMC Report, these counters are also displayed in the User Tools display on the copy machine.	

8591	O:Counter		[0 to 9999999/ 0 / 1]
	These SPs count the totals for A3/DLT paper use, number of duplex pages printed, and the number of staples used. These totals are for Other (O:) applications only.		
	1	A3/DLT		
	2	Duplex		

8601	Coverage Counter		
	1	B/W		
	2	B/W Printing Pages		

8631	T:FAX TX PGS		[0 to 9999999/ 0 / 1]
	These SPs count by color mode the number of pages sent by fax to a telephone number.		
8633	F:FAX TX PGS		[0 to 9999999/ 0 / 1]
	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.

8641	T:FAX TX PGS	[0 to 9999999/ 0 / 1]
	These SPs count by color mode the number of pages sent by fax to as fax images using I-Fax.	
8643	F:FAX TX PGS	[0 to 9999999/ 0 / 1]
	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]
	These SPs count by color mode the total number of pages attached to an e-mail for both the Scan and document server applications.	
8655	S:S-to-Email PGS	[0 to 9999999/ 0 / 1]
	These SPs count by color mode the total number of pages attached to an e-mail for the Scan application only.	
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.

8661	T:Deliv PGS/Svr		[0 to 9999999/ 0 / 1]
	These SPs count by color mode the total number of pages sent to a Scan Router server by both Scan and LS applications.		
8665	S:Deliv PGS/Svr		[0 to 9999999/ 0 / 1]
	These SPs count by color mode the total number of pages sent to a Scan Router server by the Scan application.		
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.

8671	T:Deliv PGS/PC		[0 to 9999999/ 0 / 1]
	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.		
8675	S:Deliv PGS/PC		[0 to 9999999/ 0 / 1]
	These SPs count by color mode the total number of pages sent with Scan-to-PC with the Scan application.		
1	B/W		
2	Color		

8681	T:PCFAX TXPGS	These SPs count the number of pages sent by PC Fax. These SPs are provided for the Fax application only, so the counts for SP8681 and SP8683 are the same.
8683	F:PCFAX TXPGS	[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 server. The counter for the application that was used to store the pages is incremented.
8692	C:TX PGS/LS	[0 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 the document server mode screen at the operation panel. Pages stored with the Store File button from within the Copy mode screen go to the C: counter.
8695	S:TX PGS/LS	
8696	L:TX PGS/LS	

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.

8701	TX PGS/Port		[0 to 9999999/ 0 / 1]
	These SPs count the number of pages sent by the physical port used to send them. For example, if a 3-page original is sent to 4 destinations via ISDN G4, the count for 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		

8711	T:Scan PGS/Comp		[0 to 9999999/ 1]
	These SPs count the number of compressed pages scanned into the document server, counted by the formats listed below.		
8711 1	JPEG/JPEG2000		
8711 2	TIFF (Multi/Single)		
8711 3	PDF		
8711 4	Other		

8 715	S:Scan PGS/Comp		[0 to 9999999/ 1]
	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		

8741	RX PGS/Port		[0 to 9999999/ 0 / 1]
	These SPs count the number of pages received by the physical port used to receive them.		
8741 1	PSTN-1		
8741 2	PSTN-2		
8741 3	PSTN-3		
8741 4	ISDN (G3,G4)		
8741 5	Network		

8771	Dev Counter	[0 to 9999999/ 0 / 1]
	These SPs count the frequency of use (number of rotations of the development rollers) for black and other color toners.	

8781	Toner_bottl_Info
	This SP displays the number of toner bottles used. The count is done when Toner End is detected.

8791	LS Memory Remain	This SP displays the percent of space available on the document server for storing documents. [0 to 100/ 0 / 1]

8801	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]
		These SPs count the percentage of dot coverage for black other color toners.		
	1	K	Black toner	
	2	M	Magenta toner	Do not display for this machine.
	3	C	Cyan toner	
	4	Y	Yellow toner	

8861	Cover Cnt: 11-20%		[0 to 9999999]	
	These SPs count the percentage of dot coverage for black other color toners.			
	1	K	Black toner	
	2	M	Magenta toner	Do not display for this machine.
	3	C	Cyan toner	
	4	Y	Yellow toner	

8871	Cover Cnt: 21-30%		[0 to 9999999]	
	These SPs count the percentage of dot coverage for black other color toners.			
	1	K	Black toner	
	2	M	Magenta toner	Do not display for this machine.
	3	C	Cyan toner	
	4	Y	Yellow toner	

8881	Cover Cnt: 31 -%		[0 to 9999999]	
	These SPs count the percentage of dot coverage for black other color toners.			
	1	K	Black toner	
	2	M	Magenta toner	Do not display for this machine.
	3	C	Cyan toner	
	4	Y	Yellow toner	

8891	Page/Toner Bottle **DFU**
8901	Page/Toner_Prev1 **DFU**
8911	Page/Toner_Prev2 **DFU**

8921	Cvr Cnt/Total		
1	Coverage (%) BK		
11	Cover/Page (%): BK		

8941	Machine Status	[0 to 9999999/ 0 / 1]
	These SPs count the amount of time the machine spends in each operation mode. These SPs are useful for customers who need to investigate machine operation for improvement in their compliance with ISO Standards.	
1	Operation Time	Engine operation time. Does not include time while controller is saving data to HDD (while engine is not operating).
2	Standby Time	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 time due to toner end.

Appendix: Service Program Mode

8951	AddBook Register		
	These SPs count the number of events when the machine manages data registration.		
1	User Code	User code registrations.	[0 to 9999999/ 0 / 1]
2	Mail Address	Mail address registrations.	
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.	[0 to 255 / 0 / 255]
8	Fax Program	Fax application registrations with the Program (job settings) feature.	
9	Printer Program	Printer application registrations with the Program (job settings) feature.	
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	

Appendix: Service Program Mode

4.9 PRINTER SERVICE TABLES

4.9.1 PRINTER SP TABLES

1001	Bit Switch			
001	Bit Switch 1		0	1
	bit 0	DFU	-	-
	bit 1	DFU	-	-
	bit 2	DFU	-	-
	bit 3	**No I/O Timeout**	0: Disable	1: Enable
		Enable: The MFP I/O Timeout setting will have no effect. I/O Timeouts will never occur.		
	bit 4	**SD Card Save Mode**	0: Disable	1: Enable
		Enable: Print jobs will be saved to an SD Card in the GW SD slot.		
	bit 5	DFU	-	-
	bit 6	DFU	-	-
	bit 7	**[RPCS,PCL]: Printable area frame border**	0: Disable	1: Enable
		Enable: The machine prints all RPCS and PCL jobs with a border on the edges of the printable area.		

1001	**Bit Switch**			
002	Bit Switch 2		0	1
	bit 0	DFU	-	-
	bit 1	DFU	-	-
	bit 2	**Applying a collation Type**	Shift Collate	Normal Collate
		A collation type (shift or normal) will be applied to all jobs that do not already have a "Collate Type" configured. ↓ Note ■ If #5-0 is enabled, this Bit Switch has no effect.		
	bit 3	**[PCL5e/c,PS]: PDL Auto Switching**	0: Enable	1: Disable
		Disable: The MFPs ability to change the PDL processor mid-job. Some host systems submit jobs that contain both PS and PCL5e/c. If Auto PDL switching is disabled, these jobs will not be printed properly.		
	bit 4	DFU	-	-
	bit 5	DFU	-	-
	bit 6	DFU	-	-
	bit 7	DFU	-	-

1001	Bit Switch			
003	Bit Switch 3		0	1
	bit 0	DFU	-	-
	bit 1	DFU	-	-
	bit 2	**[PCL5e/c]: Legacy HP compatibility**	0: Disable	1: Enable
		Enable: Uses the same left margin as older HP models such as HP4000/HP8000. In other words, the left margin defined in the job (usually "<ESC>*r0A") will be changed to "<ESC>*r1A"		
	bit 3	DFU	-	-
	bit 4	DFU	-	-
	bit 5	DFU	-	-
	bit 6	DFU	-	-
	bit 7	DFU	-	-

1001	**Bit Switch**		
004	Bit Switch 4 **DFU**	-	-

1001	Bit Switch			
005	Bit Switch 5		0	1
	bit 0	**Show "Collate Type", "Staple Type" and "Punch Type" buttons on the operation panel.**	Disable	Enable
		If enabled, users will be able to configure a Collate Type, Staple Type, and Punch Type from the operation panel. The available types will depend on the device and configured options. After enabling the function, the settings will appear under: "User Tools > Printer Features > System"		
	bit 1	DFU	-	-
	bit 2	DFU	-	-
	bit 3	**[PS] PS Criteria**	Pattern3	Pattern1
		Change the number of PS criterion used by the PS interpreter to determine whether a job is PS data or not. Pattern3: includes most PS commands. Pattern1: A small number of PS tags and headers		
	bit 4	**Increase max number of the stored jobs to 1000 jobs.**	Disable (100)	Enable (1000)
		Enable: Changes the maximum number of jobs that can be stored on the HDD via Job Type settings to 1000. The default is 100.		
	bit 5	**Face-up output**	Disable	Enable
		Enable: All print jobs will be output face-up in the destination tray.		

Appendix: Service Program Mode

	bit 6	**Method for determining the image rotation for the edge to bind on.**	Disable	Enable
		Enable: the image rotation will be performed as they were in the specifications of older models for the binding of pages of mixed orientation jobs. The old models are below: - PCL: Pre-04A models - PS/PDF/RPCS: Pre-05S models		
	bit 7	Letterhead mode printing	Disable	Enable (Duplex)
		Routes all pages through the duplex unit. Disable: Simplex pages or the last page of an odd-paged duplex job, are not routed through the duplex unit. This could result in problems with letterhead/pre-printed pages. Only affects pages specified as Letterhead paper.		

$\Longrightarrow$

1001	**Bit Switch**			
006	bit Switch 6		0	1
	bit 0 to 5	DFU	-	-
	bit 6	PDL Auto Detection timeout of jobs submitted via USB or Parallel Port (IEEE 1284)	0:Disable (Immediately)	1:Enable (10 seconds)
		To be used if PDL auto- detection fails. A failure of PDL auto-detection doesn't necessarily mean that the job can't be printed. This bit switch tells the device whether to time-out immediately (default) upon failure or to wait 10 seconds.		

| | bit 7 | This bitsw determines the timing of the PJL USTATUS JOB END sent when multiple collated copies are being printed.

0 (default): JOB END is sent by the device to the client after the first copy has completed printing. This causes the page counter to be incremented after the first copy and then again at the end of the job.

1: JOB END is sent by the device to the client after the last copy has finished printing. This causes the page counter to be incremented at the end of each job. | | |

1001	**Bit Switch**			
007	Bit Switch 7		0	1
		Print path	Disable	Enable
	bit 0	Enable: Simplex pages (in mixed simplex/duplex PS/PCL5 jobs only) and the last page of an odd paged duplex job (PS, PCL5, PCL6), are always routed through the duplex unit. Not having to switch paper paths increases the print speed slightly.		
	bit 1	DFU	-	-
	bit 2	DFU	-	-
	bit 3	DFU	-	-
	bit 4	DFU	-	-
	bit 5	DFU	-	-
	bit 6	DFU	-	-
	bit 7	DFU	-	-

Appendix: Service Program Mode

1001	**Bit Switch**			
008	Bit Switch 8		0	1
	bit 0	DFU	-	-
	bit 1	DFU	-	-
	bit 2	DFU	-	-
	bit 3	**[PCL,PS]: Allow BW jobs to print without requiring User Code**	Disable	Enable
		Enable: BW jobs submitted without a user code will be printed even if usercode authentication is enabled. ↓ Note ▪ Color jobs will not be printed without a valid user code.		
	bit 4	DFU	-	-
	bit 5	DFU	-	-
	bit 6	DFU	-	-
	bit 7	DFU	-	-

1003	Clear setting
001	Initialize Printer System Initializes the settings in the printer feature settings of UP mode.
003	Delete Program **DFU**

| 1004 | Print Summary |
| | Touch [Execute] to print the printer summary sheets. |

1005	Display Version.
	Printer Application Version
Displays the version of the controller firmware.	

| | Sample/Locked Print |
| 1006 | This SP disables/enables use of the document server.
[0 or 1/ **0** /1]
0: Enabled. Document server can be used.
1: Disabled. Document server cannot be used. |

**Appendix:
Service
Program
Mode**

4.10 SCANNER SERVICE TABLES

SP	Number/Name	Function/[Setting]
1004	Compression Type	Selects the compression type for binary picture processing. [1-3/1/1] 1: MH, 2: MR, 3: MMR
1005	Erase Margin	Creates an erase margin for all edges of the scanned image. If the machine has scanned the edge of the original, create a margin. [0 – 5/0/1mm]
1009	Forbid Using TWAIN	Sets the system not to use the network TWAIN scanner driver. 0: Not forbidden (can use TWAIN) 1: Forbid using TWAIN driver.

SP	Number/Name	Function/[Setting]	
2021	Compression level (grayscale)		
	These SP codes set the compression ratio for the grayscale processing mode that can be selected with the notch settings on the operation panel. Range: 5 (lowest ratio) to 95 (highest ratio)		
2021 1	Level 3 (Middle I-Qual)	[5~95/40/1/step]	
2021 2	Level 2 (High I-Qual)	[5~95/50/1/step]	
2021 3	Level 4 (Low I-Qual)	[5~95/30/1/step]	
2021 4	Level 1 (Highest I-Qual)	[5~95/60/1/step]	
2021 5	Level 5 (Lowest I-Qual)	[5~95/20/1/step]	

Compression Notch Assignment

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