# Model PG-C1
# Machine Code: B229

# SERVICE MANUAL

Feb. 28th, 2006
Subject to change

# Important Safety Notices

## Prevention of Physical Injury

1. Make sure that the power cord is unplugged before you disassemble or assemble parts of the copier and peripherals.
2. The wall outlet should be near the machine and easily accessible.
3. 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.
4. If a job has started before the copier completes the warm-up or initializing period, keep hands away from the mechanical and electrical components.
5. The inside and the metal parts of the fusing unit become extremely hot while the machine operates. Do not touch these components with your bare hands.

## Health Safety Conditions

Ink is non-toxic, but if you get it 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.

## Safety and Ecological Notes for Disposal

1. Dispose of ink cartridge and ink tank in accordance with local regulations. (These are non-toxic supplies.)
2. Dispose of replaced parts in accordance with local regulations.

## Observance of Electrical Safety Standards

1. The copier and its peripherals must be installed and maintained by a customer service representative who has completed the training course on those models.
2. The Controller board on this machine contains a lithium battery. The danger of explosion exists if a battery of this type is incorrectly replaced. Replace only with the same or an equivalent type recommended by the manufacturer. Discard batteries in accordance with the manufacturer's instructions and local regulations.

### ⚠ WARNING

- Keep the machine away from flammable liquids, gases, and aerosols. A fire or an explosion might occur.

# Symbols, Abbreviations, and Trademarks

## Symbols and Abbreviations

This manual uses the symbols and abbreviations shown below.

| Symbol | Meaning |
|---|---|
| | Refer to section number |
| | Clip ring |
| | Screw |
| | Connector |
| | Clamp |
| SEF | Short Edge Feed |
| LEF | Long Edge Feed |

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# 1. Installation Procedure

## Beforehand

### ⚠CAUTION

- Before installing options, please do the following:

    1. If there is a fax unit in the machine, print out all messages stored in the memory, the lists of user-programmed items, and the system parameter list.

    2. If there are printer jobs in the machine, print out all jobs in the printer buffer.

    3. Turn off the main switch and disconnect the power cord, the telephone line, and the network cable.

# Installation Requirements

## ⚠️CAUTION

- Before installing options, please do the following:

  1. If there is a fax unit in the machine, print out all messages stored in the memory, the lists of user-programmed items, and the system parameter list.

  2. If there are printer jobs in the machine, print out all jobs in the printer buffer.

  3. Turn off the main switch and disconnect the power cord, the telephone line, and the network cable.

## Environment

For this machine, it may take two hours or more to get normal operation if there is condensation inside the contact glass at the scanner unit. In that case, leave the copier turned on the main power switch for two hours or more.

–Temperature and Humidity Chart–

Humidity

80%

25°C 70%

54%

Recommended
officce
environment

15°C 32%

Operation range

15%

10°C
(50°F)

27°C
(80.6°F)

32°C
(89.6°F)

Temperature

| Temperature Range: | 10°C to 32°C (50°F to 89.6°F) |
|---|---|
| • Humidity Range: | 15% to 80% RH |

| • Ambient Illumination: | Less than 2,000 lux (do not expose to direct sunlight) |
|---|---|
| • Ventilation: | 3 times/hr/person or more |
| • Ambient Dust: | Less than 0.1 mg/m$^3$ (2.7 x 10$^{-6}$ oz/yd$^3$) |

| |
|---|
| • Avoid areas exposed to sudden temperature changes:<br>1) Areas directly exposed to cool air from an air conditioner.<br>2) Areas directly exposed to heat from a heater. |
| • Do not place the machine where it is exposed to corrosive gases. |
| • Do not install the machine at any location over 2,000 m (6,500 ft.) above sea level. |
| • Place the copier on a strong and level base. (Inclination on any side should be no more than 5 mm.) |
| • Do not place the machine where it is subjected to strong vibrations. |
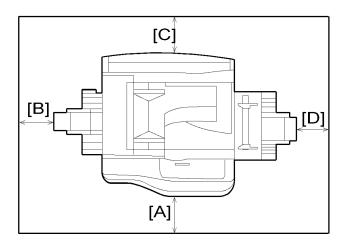
## Machine Level

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

## Minimum Space Requirements

Place the copier near the power source, providing clearance as shown:

**1**



A (front): 440 mm (17.3")

B (left): 520 mm (20.5")

C (rear): 50 mm (2.0")

D (right): 530 mm (20.9")

🔽**Note**

- The recommended 440 mm front space is sufficient to allow the paper tray to be pulled out. Additional front space is required to allow operators to stand at the front of the machine.

## POWER REQUIREMENTS

⚠️**CAUTION**

1. Make sure that the wall outlet is near the machine and easily accessible. After completing installation, make sure the plug fits firmly into the outlet.

2. Avoid multi-wiring.

3. Be sure to ground the machine.

Input voltage:

North and South America, Taiwan:110 – 120 V, 60 Hz, 3.6 A
Europe, Asia: 220 – 240 V, 50/60 Hz, 2 A

# Copier Installation

## Power Sockets for Peripherals

1
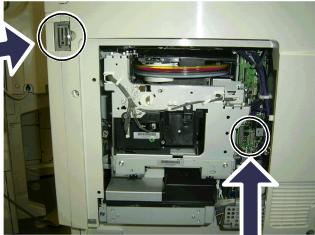
### ⚠ CAUTION

- Rated voltage for peripherals

- Make sure to plug the cables into the correct sockets.
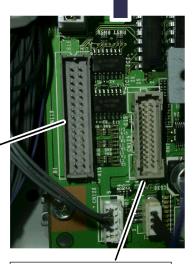


### ADF/ARDF

Rated voltage output
connector for accessory
Max. DC24 V

### Paper Tray Unit

Rated voltage output
connector for accessory
Max. DC24 V

### Duplex Unit

Rated voltage output
connector for accessory
Max. DC24 V

## Accessory Check

Check that you have the accessories indicated below.

| No. | Description | Q'ty |
|---|---|---|
| 1 | CD-ROM - Drivers/ Utilities | 1 |
| 2 | EU Safety Sheet | 1 |
| 3 | Emblem | 1 |
| 4 | Emblem Cover | 1 |
| 5 | Operation Instructions | 1 set |
| 6 | Paper Tray Decal | 1 |
| 7 | Decal - Contact Glass | 1 |
| 8 | Clamp (for ARDF) | 1 |
| 9 | Decal - Operation Panel | 1 |
| 10 | Hexagonal Wrench | 1 |
| 11 | Handle Cover | 3 |
| 12 | Mylar to cover handle slot | 1 |

🔻Note
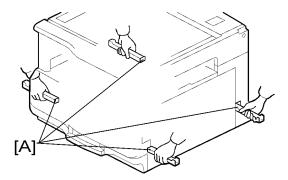
- The above accessories provided with a main unit differ depending on the destination.

## Before Installing a Copier

### ⚠️CAUTION

- When moving or lifting a copier to install, please do the following:
    1. Pull out and grasp the four handles at the each side (two handles each) of this copier to lift the copier.
    2. Two persons must be required to lift the copier at least. The copier is highly unstable when lifted by one person, and may cause human injury or property damage.

## Using the Handles



[A]

1. **Pull out the four handles [A] from the copier.**
2. **Grasp the handles with two persons at least to lift the copier.**
3. **After installation, insert the all handles fully inside the handle slots of the copier.**
4. **Loosen the screw at the each handle slot first, and then secure the screw with the hexagonal wrench provided in the copier to prevent the handles from coming out from the handle slots of the copier.**

## Installation Procedure

### ⚠ CAUTION
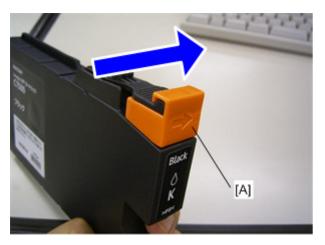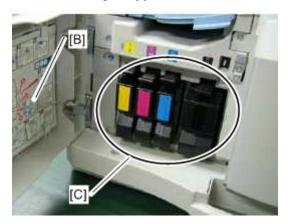
- Unplug the machine power cord before starting the following procedure.



1. **Remove filament tape and other padding.**
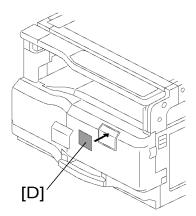
2. **Slide the cartridge stopper [A] in the arrow direction, and then remove it for each color.**
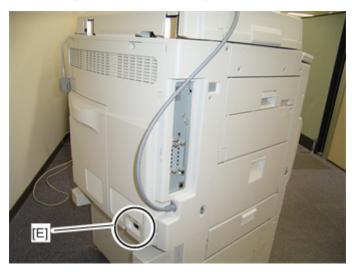


3. **Open the front door [B] and install ink cartridge (4 cartridges) [C].**

   🔽 **Note**
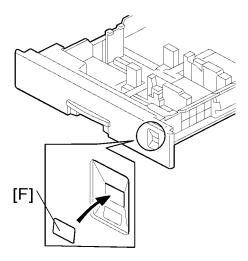
   • Make sure that four cartridges are fully set.

4. **Close the front door.**

[D]

5. Attach the correct emblem [D] to the front cover if the emblem is not attached to the front cover.

6. Install the optional ARDF, ADF, or platen cover.



[E]
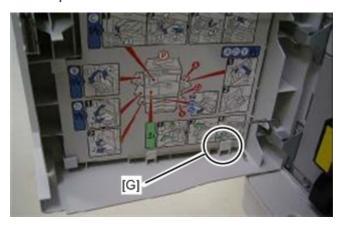
7. Plug in the main power cord and turn on the main switch (Rear side) [E].

8. Activate the User Tools and select the menu "Language."

9. Specify a language. This language is used for the operation panel.

10. Pull the paper tray out. Then turn the paper size dial to select the appropriate size. Adjust the side guides and end guide to match the paper size.
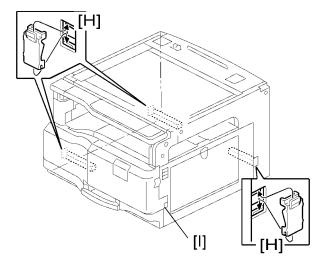
**11.** Attach the appropriate paper tray decal [F] to each paper tray.

🔽**Note**

- Paper tray decal is also used for the optional paper tray. Keep the decal for use with the optional paper tray unit.

**12.** Insert the all handles fully inside the handle slots of the copier.

**13.** Loosen the screw at the each handle slot first, and then secure the screw with the hexagonal wrench provided in the copier to prevent the handles from coming out from the handle slots of the copier.



**14.** Keep the hexagonal wrench inside the front cover [G] of the copier.

**15. Install the three handle covers [H] and attach the mylar to the handle slot [I].**

## Ink Loading

Ink loading is performed after power on, and takes roughly 15 minutes.

## ⚠CAUTION

- **Do not open covers during ink loading.**

- Do not open any covers until the "Ready" message appears on the control panel. If you do, the ink loading procedure is interrupted, and the power must be switched off and then back on.

- If the main power switch is turned back on to complete an interrupted ink loading, additional ink might be used and a further 15 minutes might be required.

## Initial Setting

🔸Note

- The following settings require some knowledge about the print head adjustment.

- Refer to the "Adjust Print Head Position" in the section "Replace and Adjustment" and "Print Head" in the section "Detailed Section Descriptions" for details.

Do the following initial settings after installing the copier.

1. Copy C4 chart in full color mode and B/W mode.

2. Do the "Nozzle Check Pattern".

3. Do the "Head Position Adjust".

4. Copy C4 chart in B/W text mode again.

5. Check the gray scale line on the printout copied in B/W mode.

6. If an image problem occurs, adjust the "Head Gap Adjustment" for the K1 and K2 with SP3-002-017 or -018 (see the "Head Gap Adjustment" for details as following this procedure).

7. .Print out the test pattern "15" with SP4-417-001.

8. Check the printout. If white line or black line occurs in main scan direction, adjust the "SubScan:Send Adj" with SP1-922-001 (see the "Sub Scan: Send Adjustment" for details as following this procedure).

9. Do the "Registration" with UP or SP:

## Checking the Nozzle Pattern

1. **Do the "Nozzle Check Pattern" ("User Tools" > "Maintenance").**

2. **Check if the nozzle check patter on a printed paper is satisfactory.**

3. **Do the "Clean Print-heads" if a printed nozzle check pattern is not satisfactory. For details, refer to the "Replacement and Adjustment" or "Operation Instructions" about details**

   ⬇ Note

   - You must load A4/Letter papers in SEF direction.

## Adjustment

1. **Do the "Head Position Adjust", "Registration" and "Adjust Paper Feed" ("User Tools" > "Adjustment"). For details, refer to the "Replacement and Adjustment" or "Operation Instructions" about details.**

   ⬇ Note
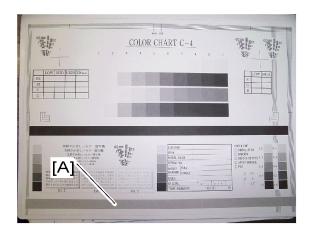
   - You must load A4/Letter papers in SEF direction.
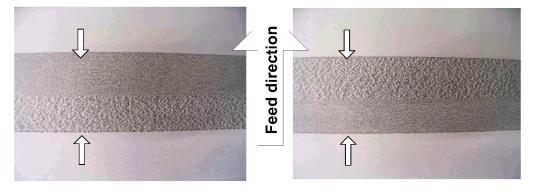
## Head Gap Adjustment

In the 600dpi B/W copy mode, an image problem, which is difficult to be adjusted with "Head Position Adjust" in the UP mode, may occur sometimes. This adjustment compensates for "Head Position Adjust" in the UP mode.

1. **Copy C4 chart in B/W text mode.**

**2.** Check the gray scale line [A] on the printout.



Feed direction

**3.** Adjust the gap between K1 and K2 print heads if a texture image appears.

This machine has following formula for adjusting the print head alignment.

I - A = H
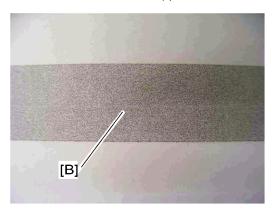
- "A" (K1 forward head position)
- "I" (K2 forward head position)
- "H" (K2 reverse head position)

"I - A" means the shift value between K1 print head and K2 print head in forward scanning.

"H - K1 reverse head position (standard value for alignment: 0)" means the shift value between K1 print head and K2 print head in reverse scanning.

"H - K1 reverse head position (0)" should be equal to "I -A" to prevent a texture image.

**In case of the image problem in the left side picture:**

1. Enter the SP mode.
2. Check the value of SP3-002-010 [1200:A], -017 [1200:H] and -018 [1200:I].
3. Calculates the value "I" using above formula.

   For example, A = +5, H = +1 ⇒ I = +6

4. Enter the result from the formula with SP3-002-018.

5. Exit the SP mode, and then copy C4 chart in B/W text printing mode again.



[B]

6. Try and see until the gray scale line becomes an ideal image [B].

7. Exit the SP mode.

**In case of the image problem in the right side picture:**

1. Enter the SP mode.

2. Check the value of SP3-002-010 [1200:A], -017 [1200:H] and -018 [1200:I].

3. Calculates the value "H" using above formula.

   For example, A = +5, I = +4 ⇒ H = -1
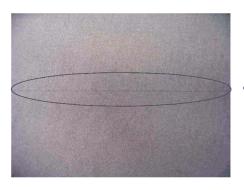
4. Enter the result from the formula with SP3-002-017.

5. Exit the SP mode, and then copy C4 chart in B/W text printing mode again.

6. Try and see until the gray scale line becomes an ideal image [B].

7. Exit the SP mode.

   ⬇️**Note**
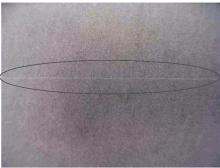
   - You must load A4/Letter papers in SEF direction.

## Sub Scan: Send Adjustment

1. **Enter the SP mode.**

2. **Print out the scanner test pattern "15" (Gray Pat 1) with SP4-417-001.**
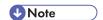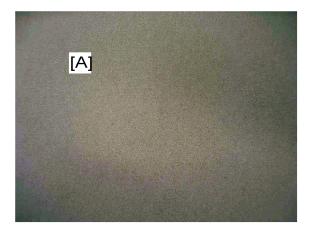
**3.** **If black line or white line in main scan direction occurs on the test pattern, adjust the paper feed timing with SP1-922-001 ("SubScan:Send Adj").**

### In case of black line problem:

1. Select SP1-922-001, and decrease the value one by one.

   ⬇ Note

   • The value of 1 indicates 1 line.



2. Try and see until the gray scale becomes an ideal image [A].

3. Exit the SP mode.

### In case of white line problem:

1. Select SP1-922-001, and increase the value one by one.

   ⬇ Note

   • The value of 1 in the SP setting indicates 1 line.

2. Try and see until the gray scale becomes an ideal image [A].

3. Exit the SP mode.

   ⬇ Note

   • You must load A4/Letter papers in SEF direction.

## Moving the Machine
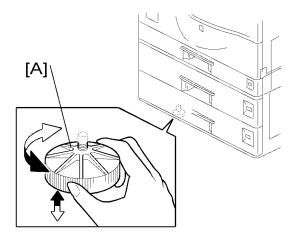
### ⚠CAUTION

- Make sure that the carriage unit is properly engaged with the maintenance unit before turn off the power (see "Maintenance Unit" in the Replacement and Adjustment), otherwise the print head may be damaged while moving the machine.

- If much waste ink is filled in the ink correction tank, remove the tank before moving the machine (see "Ink Collection Tank" in the Replacement and Adjustment).
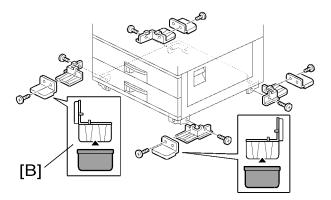
This section shows you how to manually move the machine from one floor to another floor. See "TRANS-PORTING MACHINE" if you will use some transport equipment.

The machine stands make it difficult to move the copier with an optional paper tray or duplex unit installed. You can remove them as necessary.

1. **Check that the machine is in standby status.**

2. **Turn off the main power and unplug the power cable.**

3. **Remove all trays from the optional paper feed unit or LCT.**



4. **Loosen the adjuster [A] to release the machine from the place.**

**5.** Remove the four brackets and covers [B]. (🔩 x 8).

## ⚠ CAUTION

- Do not tilt the machine more than 45 degrees.

- Reinstall the adjuster and brackets after you move the machine. The machine can fall over when you pull out a paper tray or when you work on the machine if you do not do this.

## Transporting the Machine

## ⚠ CAUTION

- Make sure that the carriage unit is properly engaged with the maintenance unit before turn off the power (see "Maintenance Unit" in the Replacement and Adjustment), otherwise the print head may be damaged while moving the machine.

- If much waste ink is filled in the ink correction tank, remove the tank before moving the machine (see "Ink Collection Tank" in the Replacement and Adjustment).

This section shows you how to manually transport the machine by a truck or plane.

The machine stands make it difficult to move the copier with an optional paper tray or duplex unit installed. You can remove them as necessary.

1. **Perform ink purge with SP2100-001.**

2. **Turn off the main power and unplug the power cable.**

3. **Remove the ink cartridges.**

4. **Loosen the adjuster to release the machine from the place. (see "Moving Machine")**

5. **Remove the four brackets and covers (see "Moving Machine").**

6. **Make sure there is no paper left in the paper trays. Then fix down the bottom plates with a sheet of paper and tape.**

7. **Remove the ink correction tank (see "Ink Collection Tank" in the Replacement and Adjustment)**

8. **Do one of the following:**

9. **Attach shipping tape to the covers and doors.**

10. **Shrink-wrap the machine tightly.**

🔽 Note

- Make sure you reinstall the ink correction tank.

- Make sure you check the nozzle pattern (User Tools) and each adjustment (see "Initial setting") after you move the machine.

# Platen Cover Installation

## Accessory Check

Check that you have the accessories indicated below.
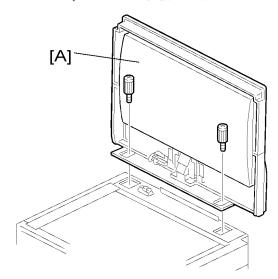
| No. | Description | Q'ty |
|-----|-------------|------|
| 1 | Stepped Screw | 2 |

## Installation Procedure

### ⚠️CAUTION

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

1. **Install the platen cover [A] (🔩 x 2).**
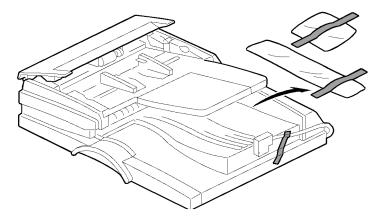
# ARDF Installation

**1**

## Accessory Check

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

| No. | Description | Q'ty |
|-----|-------------|------|
| 1 | Scale Guide | 1 |
| 2 | DF Exposure Glass | 1 |
| 3 | Stud Screw | 2 |
| 4 | Knob Screw | 2 |
| 5 | Original Size Decal | 2 |
| 6 | Screwdriver Tool | 1 |
| 7 | Attention Decal – Top Cover | 1 |
| 8 | Stamp Cartridge | 1 |
| 9 | Installation Procedure | 1 |

## Installation Procedure

### ⚠CAUTION

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

1. Remove the strips of tape.
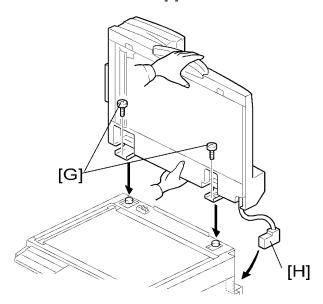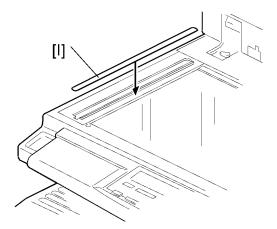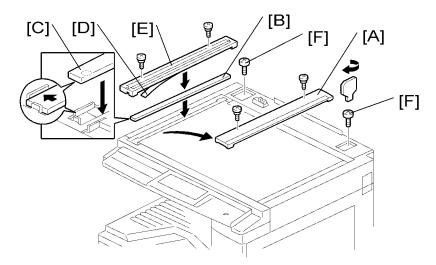


2. Remove the left scale [A] (2 screws).

3. Place the DF exposure glass [B] on the glass holder.
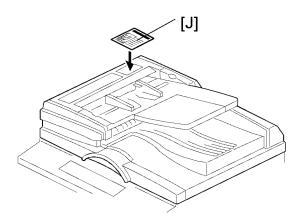
   ⬇Note

   - When installing the DF exposure glass, make sure that the white point [C] is on the lower front side of the glass, as shown.

4. Peel off the backing [D] of the double-sided tape attached to the rear side of the scale guide [E], then install it (2 screws removed in step 2).

5. Install the two stud screws [F].
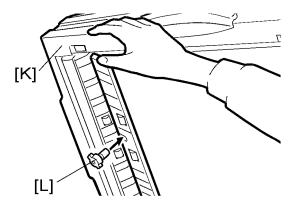
6. **Mount the DF on the copier, and then slide the DF to the front as shown.**

7. **Secure the DF unit with two screws [G].**

8. **Connect the cable [H] to the copier.**



9. **Attach the appropriate scale decal [I] as shown.**



10. **Attach the decal [J] to the top cover as shown, choosing the language most suitable for the machine installed.**

1



11. **Open the ARDF [K].**

12. **Install the stamp cartridge [L] to the ARDF.**



13. **Attach the clamp [M] on the right side of copier and clamp the I/F cable as shown.**

    ⬇ **Note**

    • The clamp [M] is provided with a main frame (B229).

14. **Turn the main power switch on. Then check if the document feeder works properly.**

15. **Make a full size copy. Then check to make sure the side-to-side and leading edge registrations are correct. If they are not, adjust the side-to-side and leading edge registrations (refer to the service manual).**

# ADF Installation
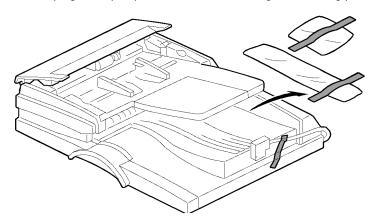
**1**

## ACCESSORY CHECK

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

| No. | Description | Q'ty |
|-----|-------------|------|
| 1 | Scale Guide | 1 |
| 2 | DF Exposure Glass | 1 |
| 3 | Stud Screw | 2 |
| 4 | Fixing Screw | 2 |
| 5 | Original Size Decal | 2 |
| 6 | Screwdriver Tool | 1 |
| 7 | Attention Decal – Top Cover | 1 |
| 8 | Stamp Cartridge | 1 |
| 9 | Installation Procedure | 1 |

## INSTALLATION PROCEDURE

### ⚠ CAUTION

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

1. **Remove the strips of tape.**
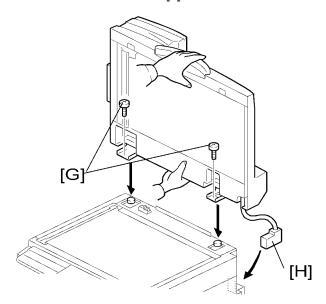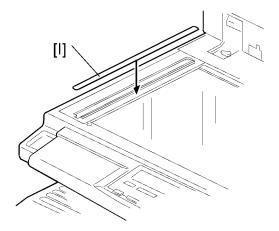


2. **Remove the left scale [A] (🔩 x 2).**
3. **Place the DF exposure glass [B] on the glass holder.**
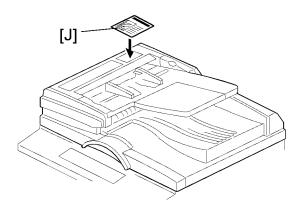
   ⬇️Note

   - When installing the DF exposure glass, make sure that the white point [C] is on the lower front side of the glass, as shown

4. **Peel off the backing [D] of the double-sided tape attached to the rear side of the scale guide [E], then install it (🔩 x 2 removed in step 2).**
5. **Install the two stud screws [F].**
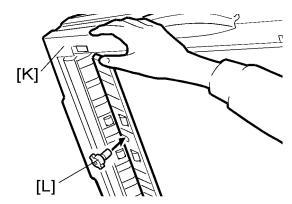
6. **Mount the DF on the copier, then slide the DF to the front as shown.**

7. **Secure the DF unit with two screws [G].**

8. **Connect the cable [H] to the copier.**

9. **Attach the appropriate scale decal [I] as shown.**

10. **Attach the decal [J] to the top cover as shown, choosing the language most suitable for the machine installed.**

11. **Open the ADF [K].**

12. **Install the stamp cartridge [L] to the ADF.**

13. **Turn the main power switch on. Then check if the document feeder works properly.**

14. **Make a full size copy. Then check to make sure the side-to-side and leading edge registrations are correct. If they are not, adjust the side-to-side and leading edge registrations (refer to the service manual).**

**1**

# One-Tray Paper Tray Unit

## Accessory Check
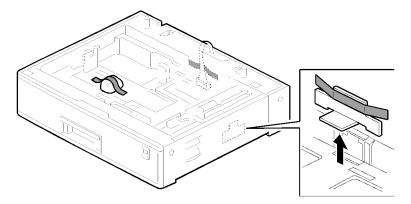
| No. | Description | Q'ty |
|-----|-------------|------|
| 1 | Screw M4 x 10 | 2 |
| 2 | Stepped Screw | 2 |
| 3 | Bracket | 2 |

## Installation Procedure

🔆 Preparation
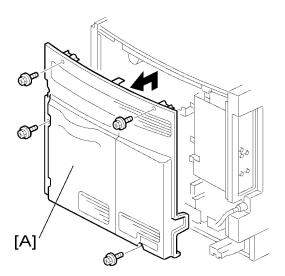
- Before installing this option, do the following:
- If there is a fax unit in the machine, print out all messages stored in the memory, the lists of user-programmed items, and the system parameter list.
- If there is a printer option in the machine, print out all data in the printer buffer.
- Turn off the main switch and disconnect the power cord, the telephone line, and the network cable.



1. **Remove the strips of tape.**
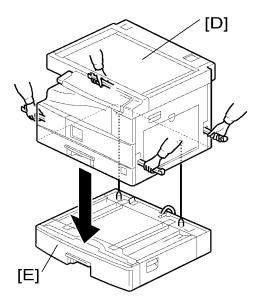
   ⬇ Note

   - After removing the tape that secures the peripheral components and cardboard to the paper tray, make sure that there is no tape and/or tape reside remaining on the tray.

1



2. **Remove the cover [A] ( x 4).**



3. **Remove the bracket [C] ( x 2).**
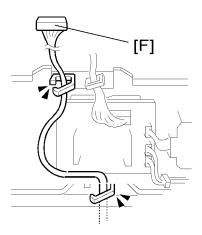
4. **Set the copier [D] on the paper tray unit [E].**

   🗘**Note**

   • When installing the copier, be careful not to pinch the connecting harness.

   **For model B229 "with the duplex unit" (B806)**
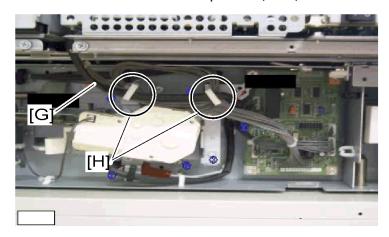


   • Set the duplex unit on the paper tray unit first, and then set the copier on the duplex unit mounted on the paper tray unit.

   • Remove the rear cover of the duplex unit (🔩 x 2).

   • Remove the lower cover of the duplex unit (🔩 x 1).

   • Line the harness [F] in the duplex unit as shown (🔌 x 2).

   • Re-install the rear cover of the duplex unit (🔩 x 2).

- Secure the duplex unit to the paper tray unit.

**Note**
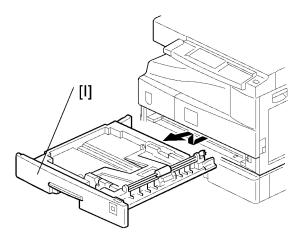
- For details, refer to the DUPLEX UNIT (B806) INSTALLATION PROCEDURE for Machine Code: B229 Copier.
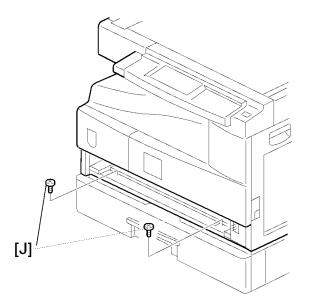
**For the model of B229 "without the duplex unit" (B806):**
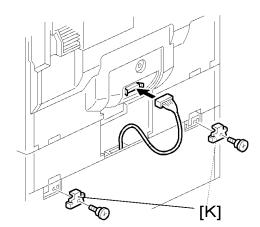


- Remove the rear cover of the paper tray unit ( x 2).
- Line the harness [G] of the paper tray, and loop it between the two clamps [H].
- Re-install the rear cover of the paper tray unit ( x 2).
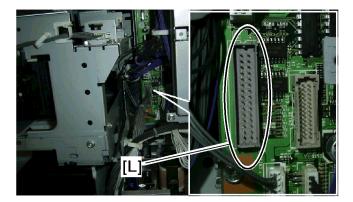


5. **Remove the 1st tray [I].**

1



6. **Install the two stepped screws [J].**

7. **Re-install the 1st tray.**
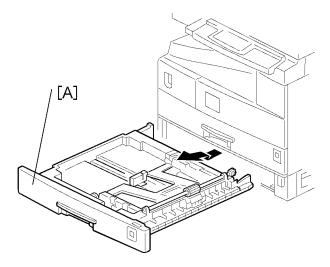


8. **Install the two brackets [K] (🔩x 1 each).**

9. Connect the harness [L] from the paper tray unit to the Copier.

10. Re-install the bracket removed in step 3 (🔩 x 2).

11. Re-install the rear cover removed in step2 (🔩 x 4).

12. Plug in and turn on the main power switch of the copier.

13. Load paper and make full size copies. If the side and leading edge registrations are not correct, adjust them.

## Optional Paper Tray Grip Handle – Optional Paper Tray Unit
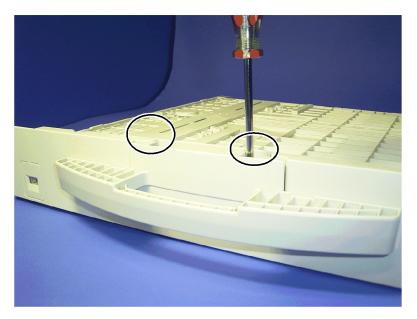
The following procedure is for the 1-tray or 2-tray optional paper feed unit only.



1. Remove the paper tray units [A] from the machine.

2. **Lower the paper tray grip handle [B] into the paper tray slot as shown with the arrow in the above illustration.**



3. **Attach the grip handle to the paper tray (2 x 🔩) as shown above.**

4. **Put the paper tray back into the machine.**

# Two-Tray Paper Tray unit Installation

**1**

## Accessory Check
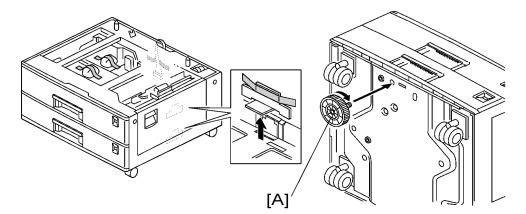
| No. | Description | Q'ty |
|-----|-------------|------|
| 1 | Screw M4 x 10 | 10 |
| 2 | Bracket with long support | 4 |
| 3 | Bracket | 2 |
| 4 | Adjuster | 1 |
| 5 | Cover | 4 |

## Installation Procedure

### ⚠ CAUTION

- Before installing this option, do the following:

    1. If there is a fax unit in the machine, print out all messages stored in the memory, the lists of user-programmed items, and the system parameter list.

    2. If there is a printer option in the machine, print out all data in the printer buffer.

    3. Turn off the main switch and disconnect the power cord, the telephone line, and the network cable.



[A]

1. **Remove the strips of tape.**

**⬇Note**

- After removing the tape that secures the peripheral components and cardboard to the paper tray, make sure that there is no tape and/or tape reside remaining on the tray.

2. **Attach the adjuster [A] onto the base plate, as shown.**

   **⬇Note**
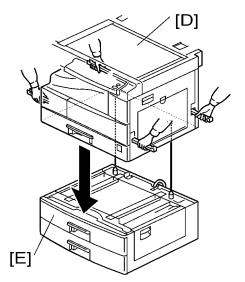
   - When a table is installed, this procedure is unnecessary.
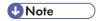


3. **Remove the rear cover [B] (🔩 x 4).**



4. **Remove the lower bracket [C] (🔩 x 2).**
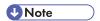
5. **Set the copier [D] on the paper tray unit [E].**

   ⬇ **Note**

   • When installing the copier, be careful not to pinch the connecting harness.
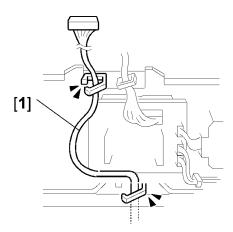
   **For installing "without the duplex unit" (B806)**

   Pull out the I/F harness from the paper tray unit.

   ⬇ **Note**

   • If it is difficult to pull out the I/F harness, remove the rear cover of the paper tray unit (🔩 x 3), and then pull out the I/F harness from the paper tray unit.

   **For installing with the duplex unit" (B806)**
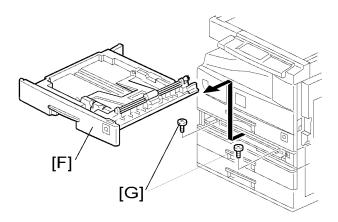


1. Set the duplex unit on the paper tray unit first, and then set the copier on the duplex unit mounted on the paper tray unit.
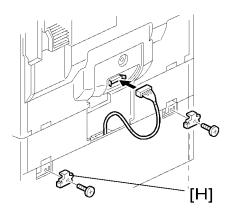
2. Remove the rear cover of the duplex unit (🔩 x 2).

3. Remove the lower bracket in the duplex unit (🔩 x 1).

4. Line the harness [1] in the duplex unit as shown (🔲 x 2).

5. Re-install the rear cover of the duplex unit (🔩 x 2).

6. Secure the duplex unit to the paper tray unit.

**⬇Note**
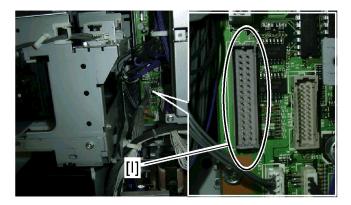
- For details, refer to the DUPLEX UNIT (B806) INSTALLATION.
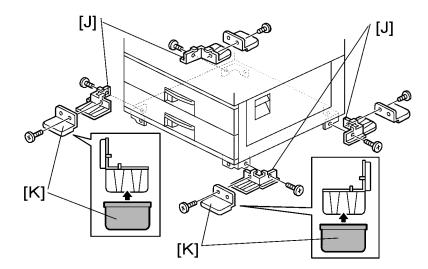


6. **Remove the 1st tray [F].**

7. **Install the two screws [G].**

8. **Re-install the paper tray 1.**



9. **Install the two brackets [H]. (🔩 x 1 each).**
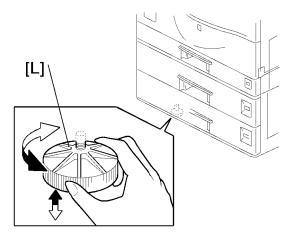
10. Connect the harness [I] from the paper tray unit to the Copier.

11. Re-install the bracket removed in step3 (🔩 x 2).

12. Re-install the rear cover removed in step3 (🔩 x 4).



13. Install the four brackets with long supports [J] and four covers [K] (🔩 x 2 each).

⭐ Important

- These long supports prevent the unit from tipping over.

[L]

14. **Rotate the adjuster [L] to fix the machine in place.**

15. **Plug in and turn on the main power switch of the copier.**

16. **Load paper and make full size copies from each tray. If the side and leading edge registrations are not correct, adjust them. (Refer to the Service Manual.)**

## Optional Paper Tray Grip Handle – Optional Paper Tray Unit

This procedure is same as the one for the One-Tray Paper Tray Unit. See "Optional Paper Tray Grip Handle – Optional Paper Tray Unit" in the installation procedure for One-Tray Paper Tray Unit.

# Duplex Unit Installtion
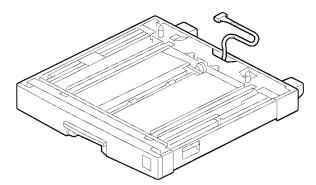
## Accessrory Check

| No. | Description | Q'ty |
|-----|-------------|------|
| 1 | Screw M4 x 10 | 3 |
| 2 | Stepped Screw | 1 |
| 3 | Bracket | 2 |
| 4 | Installation Procedure | 1 |
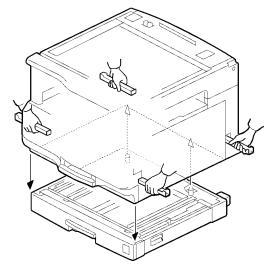
## Installation Procedure

### ⚠ CAUTION

- Before installing this option, do the following:
  1. If there is a fax unit in the machine, print out all messages stored in the memory, the lists of user-programmed items, and the system parameter list.
  2. If there is a printer option in the machine, print out all data in the printer buffer.
  3. Turn off the main switch and disconnect the power cord, the telephone line, and the network cable.



1. **Unpack the duplex unit and remove the tapes.**

There are two installation procedures, the duplex unit only/ the duplex unit and optional paper tray unit, for the copier B229. Follow the installation procedure that you need.
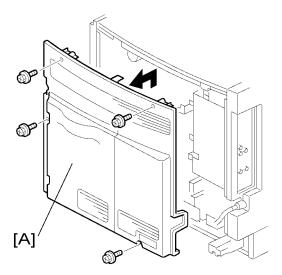
## For Installing the duplex unit only
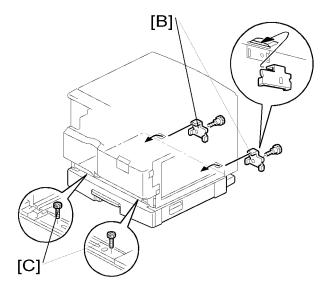


1. **Set the copier on the duplex unit.**
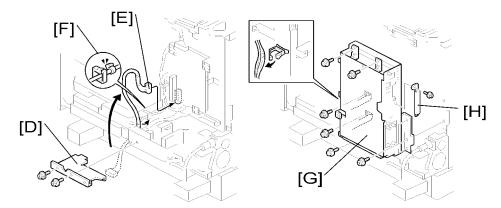
   **⭳Note**

   - When installing the duplex unit, be careful not to pinch the connecting harness.



[A]
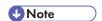
2. **Remove the rear cover [A] of the copier (🔩 x 4).**
3. **Remove the standard tray of the copier.**

1
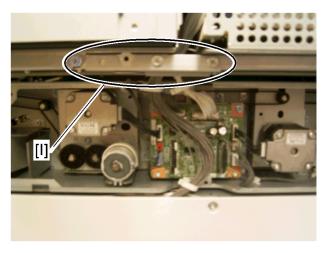


4. Secure the duplex unit to the copier with two brackets [B] and two knob screws [C] (🔩 x 2).

5. Re-install the standard tray of the copier.



6. Remove the lower bracket [D] of the copier (🔩 x 2).

7. Set and connect the I/F harness [E] of duplex unit with clamp [F] as shown.

⏬Note

• The above left side drawing shows the state in which the controller box is already removed. Removing the controller box [G] (🔩 x 9: one for the slot cover [H]) makes you easy to access the connectors.

8. Re-install the lower bracket [I] to the copier ( 🔩 x 2).

   📥**Note**
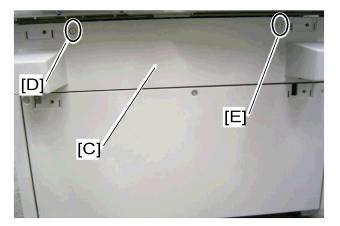
   - When re-installing the lower bracket, slide the bracket to the left and fix it as shown.

9. Skip to the "For Installing the Duplex Unit only/ Installing the Duplex Unit and Paper Tray Unit".
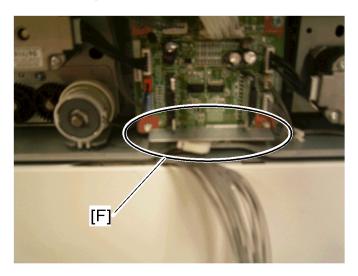
## For Installing the Duplex Unit and Paper Tray Unit (B384 or B385)
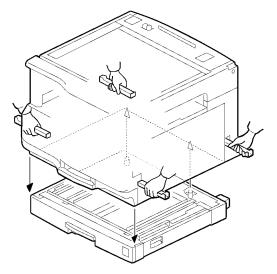


1. Set the duplex unit [A] on the paper tray unit [B] grabbing the stays at the top of the duplex unit as shown.

1



2. Remove the duplex unit rear cover [C] (🔧 x 2, [D]: M3 x 6 screw, [E]: stepped screw).
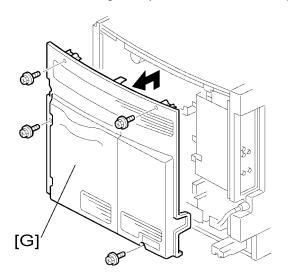


3. Remove the lower bracket [F] of the duplex unit (🔧 x 1).
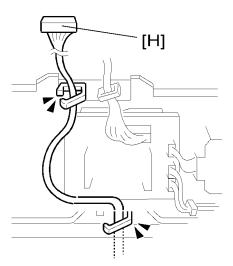
4. **Set the copier on the duplex unit.**

   ⬇**Note**

   - When installing the duplex unit, be careful not to pinch the connecting harness.



[G]
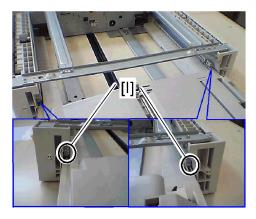
5. **Remove the rear cover [G] of the copier (🔩 x 4).**
6. **Remove the standard tray of the copier.**
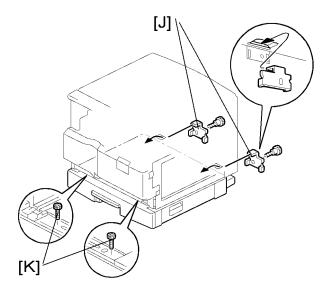
7. **Line the I/F harnesses [H] of the optional paper tray unit in the duplex unit as shown (📷x 2).**

   🔽**Note**
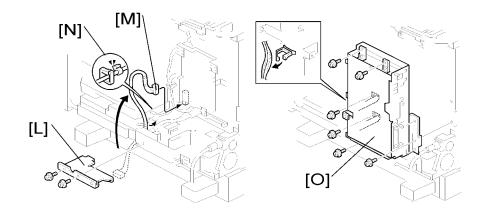
   • For details, refer to the installation procedure for the optional paper tray unit (B384 or B385).

8. **Re-install the duplex unit rear cover to the duplex unit (🔩 x 2, the rear left side screw is a stepped screw.).**



9. **Pull the duplex tray cassette halfway.**

10. **Remove the two stopper brackets [I] of the duplex unit (🔩x 1 each).**

11. **Remove the duplex tray cassette**

**1**



12. Secure the optional paper tray unit to the duplex unit with two brackets and two knob screws same as step 13's manner (🔩 x 2).

13. Secure the duplex unit to the copier with two brackets [J] and two knob screws [K] (🔩 x 2)

14. Re-install the duplex tray cassette halfway.

15. Re-install the two stopper brackets to the duplex unit (🔩 x 1 each).

16. Close the duplex tray cassette.

17. Reinstall the standard tray of the copier.
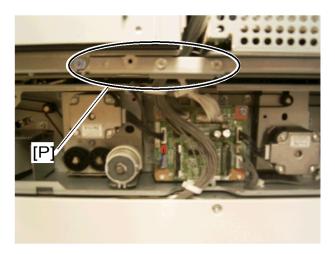


18. Remove the lower bracket [L] of the copier (🔩 x 2).

19. Set and connect the I/F harness [M] of duplex unit with clamp [N] as shown.

**1**

> ⬇ **Note**

- The above left side drawing shows the state in which the controller box is already removed. Removing the controller box [O] (🔩 x 9) makes you easy to access the connectors.

**20.** **Set and connect the I/F harness of the paper tray unit to the copier.**

> ⬇ **Note**

- For details, refer to the PAPER TRAY UNIT (B384 or B385) INSTALLATION.
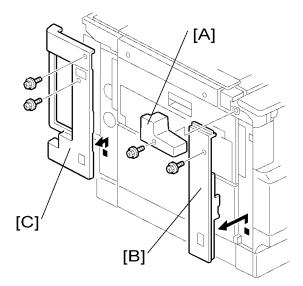


**21.** **Re-install the lower bracket [P] to the copier (🔩 x 2).**

> ⬇ **Note**
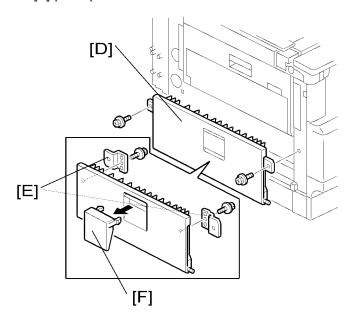
- When re-installing the lower bracket, slide the bracket to the left and fix it as shown.

**22.** **Continue to the "For installing the duplex unit only/ installing the duplex unit and paper tray unit".**

1

## For Installing the Duplex Unit Only/ Installing the Duplex Unit and Paper Tray Unit
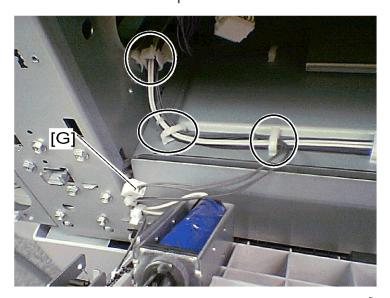


1.  Remove the top left front cover [A] (🔩 x 1), the left front cover [B] (🔩 x 1) and the interface cover [C] (🔩 x 2).
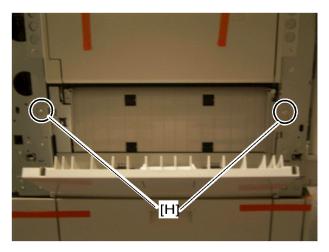


2.  Remove the left cover [D] (🔩 x 2).
3.  Remove the two brackets [E] from the left cover (🔩 x 1 each).
4.  Remove the handle cover [F].
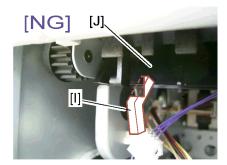
5. Re-install the left cover and open it as shown.



[G]
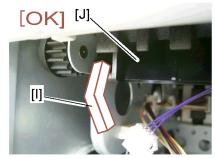
6. Set and connect the harness of the inverter unit [G] as shown (🖥 x 3).

7.  Install the inverter unit (🔩 x 2, [H]).



🔽Note
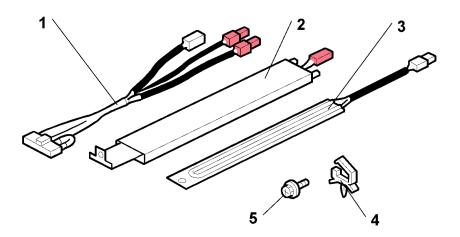
-   When you install the inverter unit, make sure that the lever [I] of the inverter unit is on the junction gate unit [J] (as shown in the right picture). If the inverter unit is not correctly installed (as shown in the left picture), paper jam occurs at junction gate.

8.  Re-install the left front cover (🔩 x 1), top left front cover (🔩 x 1) and interface cover (🔩 x 2).

9.  Re-install the rear cover (🔩 x 4)

10. Plug in and turn on the main power switch, and then check if the duplex unit works properly. If the side and leading edge registrations are not correct, adjust them. (Refer to the Service Manual.)

# Heater Kit Installation

## Component Check
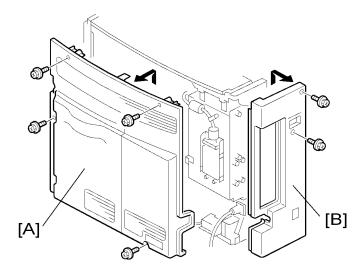
| No. | Description | Q'ty |
|-----|-------------|------|
| 1 | Relay Harness for Main Frame | 1 |
| 1 | Relay Harness for Optional Paper Tray Unit | 1 |
| 2 | Tray Heater for Main Frame | 1 |
| 2 | Tray Heater for Optional Paper Tray Unit | 1 |
| 3 | Anti-condensation Heater | 1 |
| 4 | Clamp | 13 |
| 5 | Screw | 3 |
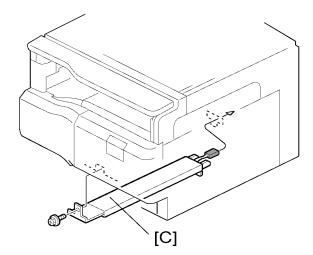
## Installation Procedure
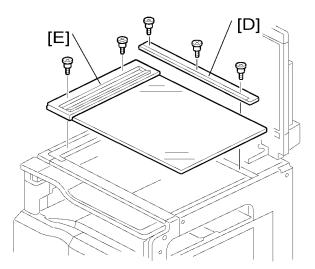
### For Installing the Anti-Condensation Heater and Tray Heater
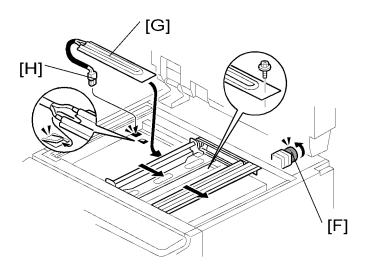


1.  Remove the rear cover [A] (🔩 x 4) and the interface cover [B] (🔩 x 2).
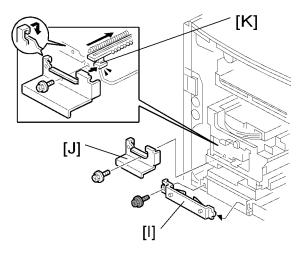


2.  Pull out the paper tray 1.
3.  Install the tray heater [C] in the top of the paper tray 1 opening (🔩 x 1).

1



4. Open the A(R)DF or platen cover if it has been installed.

5. Remove the rear [D] scale (🔩 x 3) and left scale [E] with exposure glass (🔩 x 2).
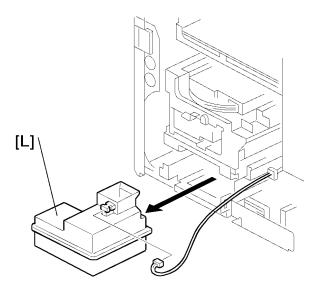


6. Move the scanner carriage to the right side by rotating the wheel [F] counterclockwise.

7. Install the anti-condensation [G] in the scanner unit (🔩 x 1).

8. Pass the connector [H] of the anti-condensation heater through the cutout.

1

9. **Remove the bracket [I] ( 🔩 x 1) and shutter bracket [J] ( 🔩 x 1).**

⬇️**Note**
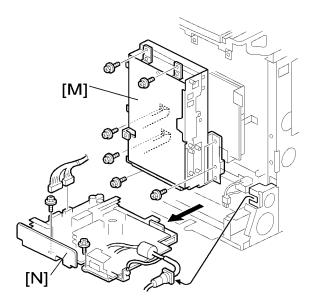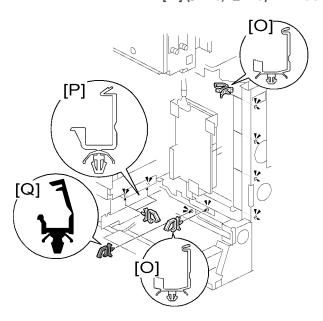
- When reinstalling this bracket, make sure that the shutter bracket pushes the switch [K] of the shutter.
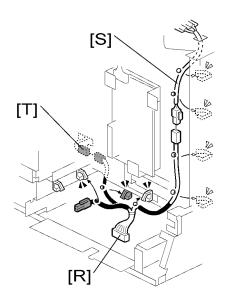
10. **Remove the Ink collection tank [L] ( 🔌 x 1).**

1
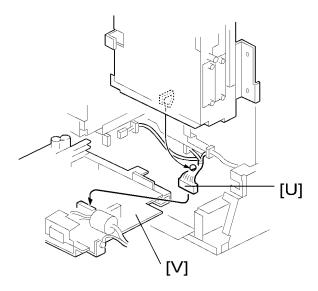


11.  Remove the controller box [M] (🔩 x 8, 🖥 x 3) and PSU [N] (🔩 x 2, 🔌 x All).



12.  Attach the five small clamps [O], two large clamps [P] and one black clamp [Q] to the each position as shown.

1

[S]

[T]

[R]

13. **Line the PSU harness [R] and anti-condensation heater harness [S], and then connect them (🖥 x 5).**

14. **Line the PSU harness [R], and then connect it to the tray heater harness [T] (🖥 x 1).**

[U]

[V]
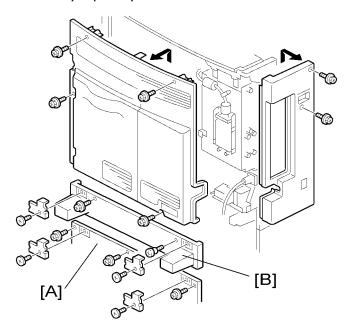
15. **Connect the PSU harness [U] to the connector (CN220) on the PSU (🖥 x 1).**

16. **Reinstall the PSU [V] (🔩 x 1).**

17. **Reassemble the copier.**

18. **Plug in and turn on the main power switch.**

19. **Check the machine operation.**
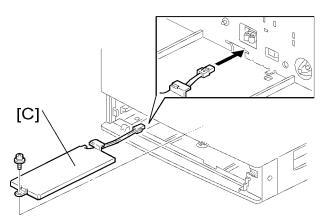
## Optional Tray Heater

### Optional Tray Heater Installation

**For One-tray Paper Tray Unit**

[A]

[B]
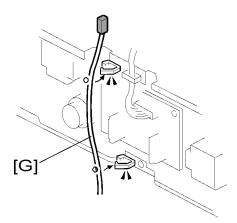
1. Remove the rear cover of the copier (🔩 x 4).
2. Remove the rear cover of the optional paper tray unit [A] (🔩 x 5, bracket x 2).
3. Remove the rear cover [B] of the duplex unit if it has been installed (🔩 x 4, bracket x 2).

[C]
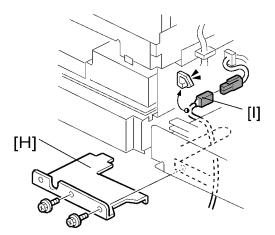
4. Pull out the paper tray 2.
5. Install the tray heater [C] (🔩 x 1).

6. **Attach the three clamps [D] to the optional paper tray unit.**

7. **Line the tray heater harness [E] as shown ( x 1).**

8. **Line the relay harness [F] and connect it to the tray heater harness ( x 3).**

   If the duplex unit has been installed, do step 9. If not, skip the step 9.



9. **Line the relay harness [G] as shown ( x 2).**
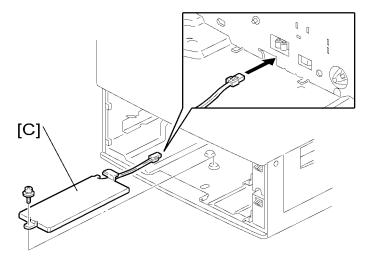
**1**



10. Remove the bracket [H] (🔧 x 2).

11. Line the relay harness [I] and connect it to the PSU harness as shown (🔌 x 1).

12. Reassemble the copier.

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

14. Check the machine operation.

## For Two-tray Paper Tray Unit



1. Remove the rear cover of the copier (🔧 x 4).

1

2. **Remove the rear cover of the optional paper tray unit [A] (🔩 x 5, bracket x 2).**

3. **Remove the rear cover [B] of the duplex unit if it has been installed.**
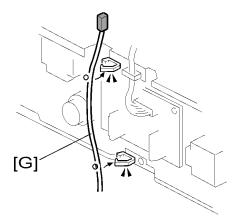


4. **Pull out the paper tray 2 and tray 3.**

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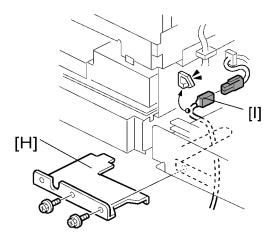


6. **Attach the two clamps [D] to the optional paper tray unit.**

7. **Line the tray heater harness [E] as shown (🔩 x 1).**

8. **Line the relay harness [F] and connect it to the tray heater harness (🔩 x 3).**

   If the duplex unit has been installed, do step 9. If not, skip the step 9.

1

9. **Line the relay harness [G] as shown (🔄x 2).**

10. **Remove the bracket [H] (🔩 x 2).**

11. **Line the relay harness [I] and connect it to the PSU harness as shown (🔄 x 1).**

12. **Reassemble the copier.**

13. **Plug in and turn on the main power switch.**

14. **Check the machine operation.**

# Function Upgrade Option Installation

## Component check
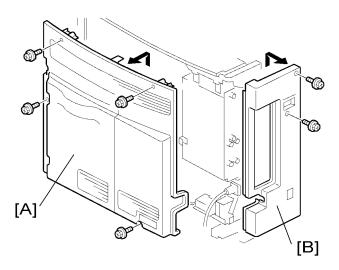
| No. | Description | Q'ty |
|-----|-------------|------|
| 1 | HDD Unit | 1 |
| 2 | RAM DIMM | 1 |
| 3 | Knob Screw | 4 |
| 4 | Screw M3 x 6 | 1 |
| 5 | Harness | 1 |
| 6 | I/F Cable | 1 |
| 7 | Ferrite Core | 1 |
| 8 | Nylon Clamp | 3 |

## Installation Procedure

### ⚠ CAUTION
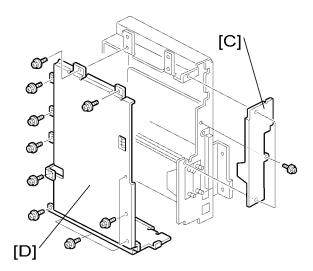
- Unplug the machine power cord before starting the following procedure.
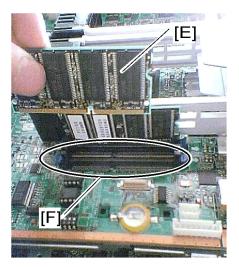


1. **Rear cover [A] ( 🔩 x 4)**
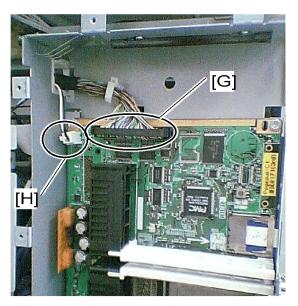
2. Interface cover [B] (🔩 x 2)
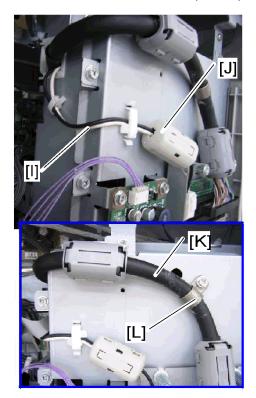


3. FCU bracket or FCU [C] (🔩 x 3)

4. Controller box cover [D] (🔩 x 13)



5. Install the DIMM RAM [E] to the optional RAM slot [F] on the controller board.

6. Attach the I/F harness [G] and cable [H] (🖉 x 2)

7. Reinstall the controller box cover (🖉 x 13).



8. Line the harness [I], and then attach the ferrite core [J] (🖉 x 2, ferrite core x 1).

9. Line the I/F harness [K] (🖉 x 1) with the nylon clamp [L].

10. Install the HDD unit [M] as shown (🔩 x 4).

11. Attach the two harnesses to the HDD unit (🔩 x 2).

12. Reassemble the FCU bracket or FCU, interface cover and rear cover.

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

14. Check the HDD operation.
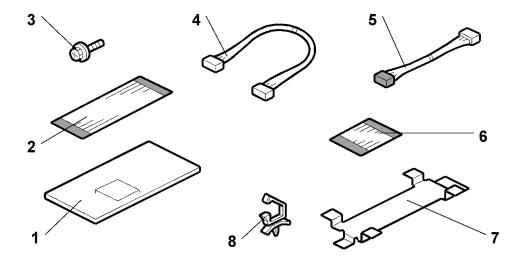
# 📝 Copy Data Security Unit Installation
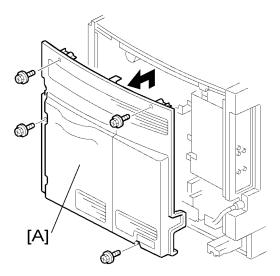
## **1** Component Check
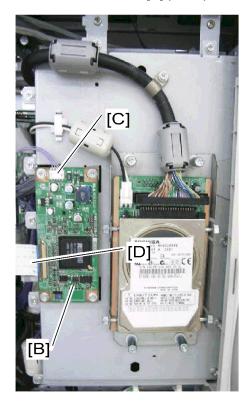
| No. | Description | Q'ty |
|-----|-------------|------|
| 1 | Copy data security board | 1 |
| 2 | Flat cable (long) | 1 |
| 3 | Screw | 4 |
| 4 | Harness (long) | 1 |
| 5 | Harness (short): Not used in this model. | 1 |
| 6 | Flat cable (short): Not used in this model. | 1 |
| 7 | Bracket: Not used in this model. | 1 |
| 8 | Clamp: Not used in this model. | 1 |

## Installation Procedure



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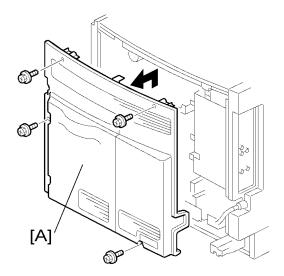


2. Attach the copy data security unit [B] on the controller box cover (🔩 x 4).
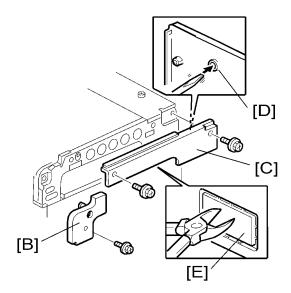
3. Connect the harness [C] to the CN142 on the BCU and I/F flat cable [D] to the CN150 on the BCU.

4. Reinstall the rear cover (🔩 x 4).

5. Plug in and turns on the main power switch.

6. Go into the User Tools mode, and select System Settings > Administrator Tools > Copy Data Security Option > On.

7. Exit the User Tools.

# Optional Counter Interface Unit

## Installation Procedure
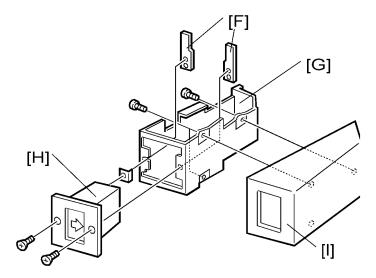
1. Remove the rear cover [A] (🔩 x 4).
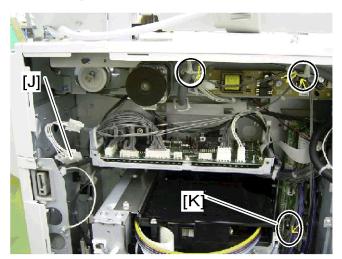


2. Remove the Scanner stay right cover [B] (🔩 x 1)

3. Scanner stay left cover [C] (🔩 x 1)

4. Punch out the small hole [D] using a screwdriver.

1

5. **Remove the cap [E] with nippers.**
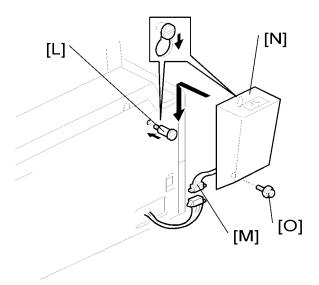


6. **Hold the key counter plate nuts [F] on the inside of the key counter bracket [G] and insert the key counter holder [H].**

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

8. **Install the key counter cover [I] (🔩 x 2).**



9. **Line the relay harness [J] and connect it to the CN124 on the BCU (🖥x 2).**

   🔸 Note

   • The relay harness is a little bit long for this machine. Loop it between two clamps.

1
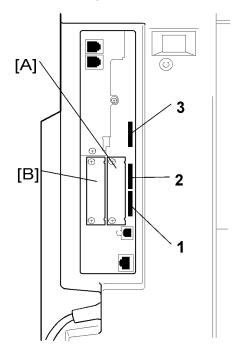


10. Pass the relay harness through the opening and reinstall the scanner stay right cover (🔩 x 1) and scanner stay left cover (🔩 x 1).

11. Install the stepped screw [L].

12. Connect the key counter harness [M] to the relay harness.

13. Pass the joined connectors through the opening of the key counter holder assembly [N], and put the connectors inside the assembly.

14. Hook the key counter holder assembly onto the stepped screw [L]. Check that the cable is not caught between the left cover and the key counter holder assembly.

15. Secure the key counter holder assembly with the screw [O].

16. Reassemble the machine.

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

18. Check the operation.

# Controller Options

**1**

## Overview

This machine has I/F card slots and SD card slots for optional I/F connections and applications.



### I/F Card Slot
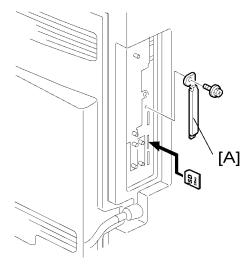
- Slot [A] is used for one of the optional I/F connections: (IEEE1394, IEEE1284, IEEE802.11 (Wireless LAN) or Bluetooth).
- Slot [B] is used for the USB 1.1 Host.

### SD Card Slot

- Slot [1] is used for standard printer/scanner application only.
- Slot [2] is used for one of the optional applications such as PostScript3, data overwrite security or PictBridge.
- Slot [3] is used for the Java VM Option or service use.

## PostScript3 Installation

### Installation Procedure



1. Remove the SD card slot cover ( ✐ x 1).

2. Install the PostScript3 SD card into the slot 2.

3. Reinstall the SD card slot cover [A] ( ✐ x 1).

4. Turn on the main power switch.

5. Print out the configuration page (User Tools/ Counter > Printer Features > List/ Test Print), and then check that this device is detected.

6. Attach the "Adobe PostScript3" decal to the front cover of the machine.

## PictBridge Installation

When you use the PictBride, you must install the USB Host (B825).

### Installation Procedure
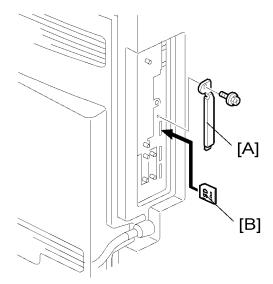
1. Remove the SD card slot cover [A] ( ✐ x 1).

2. Install the PictBridge SD card into the slot 2.

3. Reinstall the SD card slot cover.

4. Turn on the main power switch.

5. **Print out the configuration page (User Tools/ Counter > Printer Features > List/ Test Print), and then check that this device is detected.**

## Java VM Option Installation

### Installation Procedure

SD card slot 3 is basically used only for service maintenance. Do not leave an SD card in slot 3 after installing an application.



1. **Remove the slot cover [A] from SD card slot 3 (🔩 x 1).**
2. **Turn the SD-card [B] label face to the rear of the machine. Then push it slowly into slot 3 until you hear a click.**
3. **Plug in and turn on the main power switch.**
4. **Push the "User Tools" key.**
5. **Push the "Login/ Logout" key.**
6. **Login with the administrator user name and password.**
7. **Touch "Extended Feature Settings" on the LCD.**
8. **Touch "Install" on the LCD.**
9. **Touch "SD Card slot 3".**
10. **Touch the "Java TM Platform" line.**
11. **Touch the "SD card ON".**

1

12. Touch the "Setting".

13. Press one of the hard keys, which you want to use for the Java option unit.

14. Touch the "Execute".

15. Touch the "OK" after confirming that the installation is correctly done.

16. Touch "Exit" twice to go back to the copy screen.

17. Turn off the main power switch.

18. Remove the SD card from slot 3.

19. Attach the slot cover [A] ( ✐ x 1).

## Wireless LAN (IEEE 802.11b) Installation

### Component Check

| No. | Description | Q'ty |
|-----|-------------|------|
| 1 | Wireless Adapter | 1 |
| 2 | Wireless LAN Card | 1 |
| 3 | LAN Card Cover | 4 |
| 4 | Caution Sheet | 1 |
| 5 | Label | 1 |

### Installation Procedure

1. Remove the interface cover A ( ✐ x 2).

2. Install the Wireless adaptor ( ✐ x 2).

3. Install the Wireless LAN card to the wireless adaptor.

4. Attach the antenna cap to the wireless LAN card.

5. Turn on the main power switch.

6. Print out the configuration page (User Tools/Counter > Printer Features > List/Test Print), and then check that this device is detected.

## IEEE 1284 Installation

### Component Check

| No. | Description | Q'ty |
|---|---|---|
| 1 | IEEE1284 Interface Ass'y | 1 |
| 2 | UL Sheet | 1 |
| 3 | Caution Sheet | 1 |

### Installation Procedure

1. Remove the interface cover B ( $\mathscr{F}$ x 2).

2. Install the IEEE 1284 board to the interface slot B ( $\mathscr{F}$ x 2).

3. Turn on the main power switch.

4. Print out the configuration page (User Tools/Counter > Printer Features > List/Test Print), and then check that this device is detected.

## IEEE 1394 Installation

### Component Check

| No. | Description | Q'ty |
|---|---|---|
| 1 | IEEE1394 Interface Ass'y | 1 |
| 2 | UL/FCC Sheet | 1 |
| 3 | Caution Sheet | 1 |
| 4 | I/F Cable – 4 pin | 1 |
| 5 | I/F Cable – 6 pin | 1 |

### Installation Procedure

1. Remove the interface cover A ( $\mathscr{F}$ x 2).

**1**

2. Install the IEEE 1394 board to the interface slot A (✐ x 2).

3. Turn on the main power switch.

4. Print out the configuration page (User Tools/ Counter > Printer Features > List/ Test Print), and then check that this device is detected.

## Bluetooth Installation

### Component Check

| No. | Description | Q'ty |
|-----|-------------|------|
| 1 | Wireless Adapter | 1 |
| 2 | Bluetooth Card | 1 |
| 3 | Bluetooth Card Adapter | 1 |
| 4 | Bluetooth Card Cover | 1 |
| 5 | UL/FCC Sheet | 1 |
| 6 | Caution Sheet | 1 |

### Installation Procedure

1. Remove the interface cover A (✐ x 2).

2. Install the Wireless adaptor to the interface slot A (✐ x 2).

3. Install the Bluetooth card to the wireless adaptor.

4. Attach the antenna cap to the Bluetooth card.

5. Turn on the main power switch.

6. Print out the configuration page (User Tools/ Counter > Printer Features > List/ Test Print), and then check that this device is detected.

## USB Host Installation

### Component Check

| No. | Description | Q'ty |
|-----|-------------|------|
|  |  |  |

**1**

| 1 | USB Host Interface Ass'y | 1 |
|---|---|---|
| 2 | USB Cable | 1 |
| 3 | Ferrite Core | 1 |
| 4 | Clamp | 1 |
| 5 | UL Sheet | 1 |

## Installation Procedure

1. **Remove the interface cover B ($\mathbb{F}$ x 2).**

2. **Install the USB host board to the interface slot B ($\mathbb{F}$ x 2).**

3. **Turn on the main power switch.**

4. **Print out the configuration page (User Tools/ Counter > Printer Features > List/ Test Print), and then check that this device is detected.**

## Data Overwrite Security Unit TYPE D (B735)

### Before You Begin the Procedure

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

   ⬇ Note
   - If any of these settings is at a factory default value, tell the customer these settings must be changed before you do the installation procedure.

2. **Make sure that "Admin. Authentication" is ON.**
   **[System Settings] – [Administrator Tools] – [Administrator Authentication Management] - [Admin. Authentication]**

   ⬇ Note
   - If this setting is OFF, tell the customer this setting must be ON before you do the installation procedure.

3. **Make sure that "Administrator Tools" is enabled (selected).**

[System Settings] – [Administrator Tools] – [Administrator Authentication Management] - [Available Settings]

⬇Note
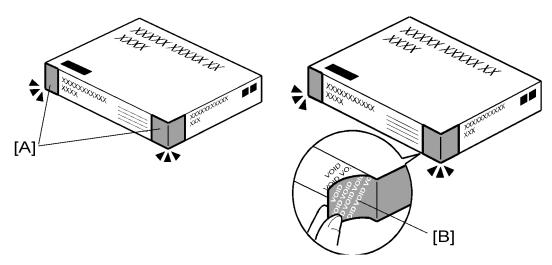
- If this setting is disabled (not selected), tell the customer this setting must be enabled (selected) before you do the installation procedure.

## ACCESSORY CHECK

Check the quantity and condition of these accessories.

| No. | Description | Q'ty |
|-----|-------------|------|
| 1 | SD Card | 1 |
| 2 | Operating Instructions (CD-ROM) | 1 |
| 3 | Caution Sheet | 1 |

### Seal Check and Removal



## ⚠CAUTION

- You must check the box seals to make sure that they were not removed after the items were sealed in the box at the factory before you do the installation.

1. **Check the box seals [A] on each corner of the box.**

   - Make sure that a tape is attached to each corner.

- The surfaces of the tapes must be blank. If you see "VOID" on the tapes, do not install the components in the box.

2. **If the surfaces of the tapes do not show "VOID", remove them from the corners of the box.**

3. **You can see the "VOID" marks [B] when you remove each seal. In this condition, they cannot be attached to the box again.**

## Installation Procedure

### ⚠️CAUTION
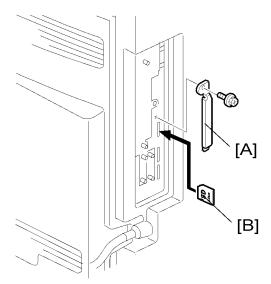
- The machine must always be turned off and its power cord disconnected before you do this procedure.

⬇️**Note**

- You must install the data overwrite protection unit in SD Card slot 2. However, the PostScript option for this machine is also installed in SD Card slot 2. You must do the SD Card Appli move procedure first if you have the PostScript option installed and you want to install the Data Overwrite Security unit. Move the Data Overwriting Security application (slot 3) to the SD Card that contains the Printer/ Scanner application (slot 1). (* 5.7).



1. **Turn off the main power switch if the machine is turned on.**

2. **Disconnect the network cable if the NIB is installed.**

3. **Turn on the main power switch.**

4. **Turn off the operation switch and main power switch.**

5. **Remove the slot cover [A] of SD card slot 2 ( 🖉 x 1).**

1

6. **Turn the SD-card [B] label face to the rear of the machine. Then push it slowly into slot 2 until you hear a click.**

7. **Connect the network cable if the NIB option is installed.**

8. **Turn on the main power switch.**

9. **Go into the SP mode and push "EXECUTE" with SP5-878.**

10. **Exit the SP mode and turn off the operation switch. Then turn off the main power switch.**

11. **Turn on the machine power.**

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

13. **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" – "GW2a_zoffy"

| 1. Diagnostic Report: | 1. "ROM No. / Firmware Version" [b] | 1. "Loading Program" [a] |
|---|---|---|
| 1. Data Overwrite Security Unit | 1. HDD Format Option: 2. B7355060 / 0.03 | 1. GW2a_zoffy: 2. B7355060 / 0.03 |

⭐ **Important**

• **The ROM number and firmware version number change when the firmware is upgraded. However, the important thing is to make sure the numbers in [a] are the same as the numbers in [b].**

If the ROM numbers are not the same, or the version numbers are not the same, this means the unit was not installed correctly.

If this happens:
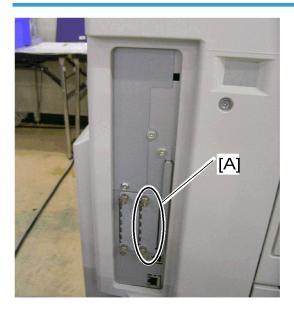
• Make sure the unit type (Type D).

• If they do not match:

    1. Replace the NV-RAM

    2. Replace the "Data Overwrite Security Unit" (SD card) with the correct type

    3. Do the installation procedure in this procedure again, from Step 1.

14. **Go into the User Tools mode, and select System Settings> Administrator Tools> Auto Erase Memory Setting> On.**

15. **Exit the User Tools mode.**

## Remote Communication Gate Installation

### Component Check
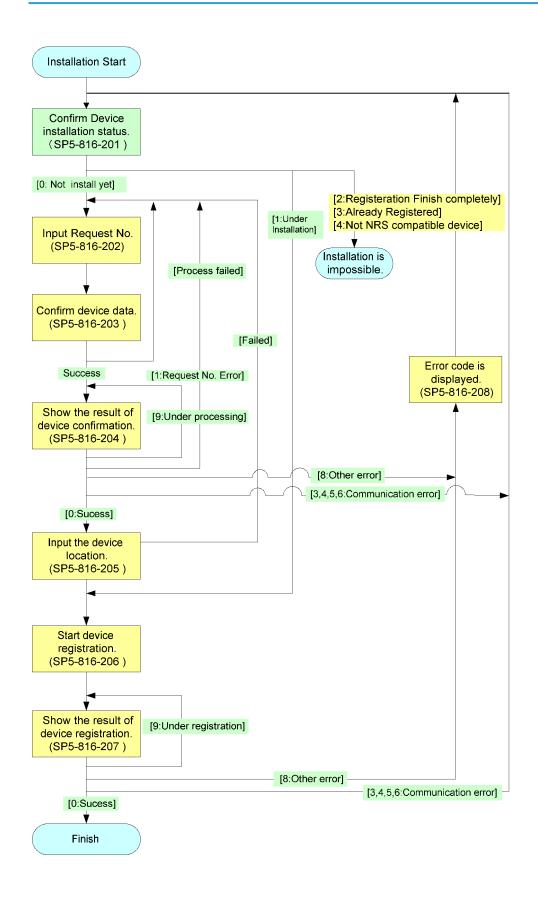
| No. | Description | Q'ty |
|-----|-------------|------|
| 1 | Remote Comm. Gate Interface Ass'y | 1 |
| 2 | Cover | 1 |
| 3 | Screw | 3 |

### Installation Procedure



1. Remove one cover bracket [A] from the application cover. (✐ x 2)
2. Install the modem board into the card slot for the device (✐ x 2).
3. Confirm the following SP settings before starting installation flow
   - SP5-816-150 (To Select the country)
   - SP5-816-154 (To set out side connection telephone number)
   - SP5-816-161 (To set telephone number)
4. Follow the Installation flow as shown below with SP mode.

**1**

```
Installation Start
        │
        ▼
Confirm Device
installation status.
(SP5-816-201)
```

[0: Not install yet]

[1:Under Installation]

[2:Registeration Finish completely]
[3:Already Registered]
[4:Not NRS compatible device]

```
Input Request No.
(SP5-816-202)
```

Installation is impossible.

[Process failed]

```
Confirm device data.
(SP5-816-203)
```

[Failed]

Success

[1:Request No. Error]

```
Error code is
displayed.
(SP5-816-208)
```

```
Show the result of
device confirmation.
(SP5-816-204)
```

[9:Under processing]

[8:Other error]

[3,4,5,6:Communication error]

[0:Sucess]

```
Input the device
location.
(SP5-816-205)
```

```
Start device
registration.
(SP5-816-206)
```

```
Show the result of
device registration.
(SP5-816-207)
```

[9:Under registration]

[8:Other error]

[3,4,5,6:Communication error]

[0:Sucess]

```
Finish
```

1

# 2. Preventive Maintenance

## PM Tables

📩 **Note**

- After preventive maintenance work, reset the PM counter corresponding with each PM part.
- PM intervals (75k and 150k) indicate the number of prints.

Key: AN: As necessary   C: Clean, R: Replace, L: Lubricate, I: Inspect

### Optics

|  | 75k | 150k | AN | NOTE |
|---|---|---|---|---|
| Exposure glass | C | C | C | Blower brush or Dry cloth |

### Engine

|  | 75k | 150k | AN | NOTE |
|---|---|---|---|---|
| Print heads | C |  | C | Dry cloth |
| Paper transport belt | C | R | C |  |
| Charge roller |  | R |  |  |
| Paper-dust Mylar |  | C | C |  |
| Discharge brush |  | C | C |  |
| Sub scan encoder |  | R |  |  |

### Paper Feed

|  | 75k | 150k | AN | NOTE |
|---|---|---|---|---|
| Paper feed roller (each tray) | C | R | C | Clean with water or alcohol. |
| Friction pad (each tray) | C | R | C | Clean with water or alcohol. |
| Bottom-plate pad (each tray) | C |  | C | Clean with water or alcohol. |
| Paper feed roller (bypass tray) | C |  | C | Clean with water or alcohol. |
| Friction pad (bypass tray) | C |  | C | Clean with water or alcohol. |

|  | 75k | 150k | AN | NOTE |
|---|---|---|---|---|
| Bottom-plate pad (by-pass tray) | C |  | C | Clean with water or alcohol. |
| Registration roller | C |  | C | Clean with water or alcohol. |
| Relay rollers | C |  | C | Clean with water or alcohol. |
| Paper feed guides | C |  | C | Clean with water or alcohol. |
| Paper-dust Mylar | C |  | C | Clean with water or alcohol. |

### Paper Exit

|  | 75k | 150k | AN | NOTE |
|---|---|---|---|---|
| Exit transport rollers | C |  |  |  |

### Maintenance

|  | 75k | 150k | AN | NOTE |
|---|---|---|---|---|
| Maintenance unit |  | R |  |  |
| First cap | C |  | C | Remove the ink or Dry cloth. |
| Wiper | C |  | C | Remove the ink or Dry cloth. |
| Ink collection bottle |  | R |  |  |

ADF/ARDF

|  | 80k | AN | NOTE |
|---|---|---|---|
| Feed belt | R | C | Clean with water or alcohol. |
| Separation roller | R | C | Clean with water or alcohol. |
| Pick-up roller | R | C | Clean with water or alcohol. |
| Stamp |  | R | Replace when necessary. |
| White plate |  | C | Clean with water or alcohol. |
| DF exposure glass |  | C | Clean with water or alcohol. |
| Platen cover |  | C | Clean with water or alcohol. |

Paper Tray Unit

| | 60k | 120k | AN | NOTE |
|---|---|---|---|---|
| Paper feed rollers | | R | C | Dry or damp cloth |
| Bottom-plate pads | C | | C | Dry cloth |
| Paper-feed guides | C | | C | Clean with water or alcohol. |
| Friction pads | | R | C | Dry or damp cloth |
| Relay clutch (B384 only) | | I | | |
| Feed clutches (B384 only) | | I | | |
| Relay roller (B384 only) | | C | C | Dry cloth |
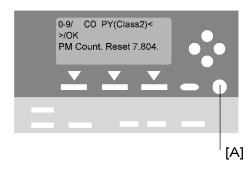
Duplex Unit

| | 60k | 120k | AN | NOTE |
|---|---|---|---|---|
| All rollers | | | C | Dry cloth |

2
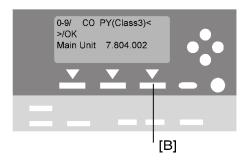
# PM Counter

## How to Reset the PM Counter
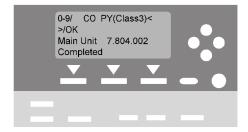
After preventive maintenance work, reset the PM counter (SP7-804-002 ~ 009) as follows.

[A]

1. **Activate the SP mode (see section 5.1).**

2. **Select SP 7-804 ("PM Count. Reset").**

3. **Select the PM counter of what you have replaced.**

4. **Press the OK key [A]. The message "EXECUTE" is displayed.**

[B]

5. **Press the button [B] below the message "EXECUTE." The messages "EXECUTE?" followed by "CANCEL" and "EXECUTE" are displayed.**

6. **Wait until the message "Completed" is displayed.**

7. **Quit the SP mode.**
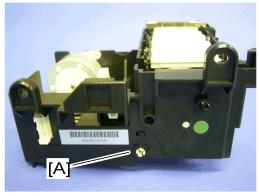
## PM Counter Reset List
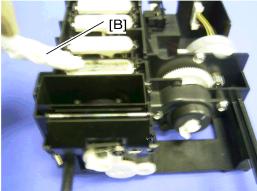
PM counter reset must be required after replacing the PM parts. The following list shows SP numbers that need to be reset.

| PM Parts | SP Number | Remark |
|---|---|---|
| GJ engine | SP7959-001 | This SP clears all SP numbers related with GJ engine. For details, refer to "SP Mode Tables in Service Program Mode". |
| Maintenance unit | SP7804-002 | This SP clears the counter of SP7223-001 to -005 (cleaning total), SP7224-001 to -005 (refreshing total), SP7225-001 to -005 (air releasing and ink filling total) and SP7803-002 (total page). |
| Charge roller | SP7804-003 | This SP clears the counter of SP7803-003 (page total). |
| Transport belt unit | SP7804-004 | This SP clears the counter of SP7803-004 (page total). |
| Ink collection tank | SP7804-005 | This SP clears the counter of SP7221-001 (total amount), SP7803-005 (total page) and SP7941-001 (total amount). |
| Flushing gate unit | SP2505-001 | This SP clears the counter of SP7221-002 (total amount). |

# Cleaning Procedures

## Maintenance Unit



## Suction Cap
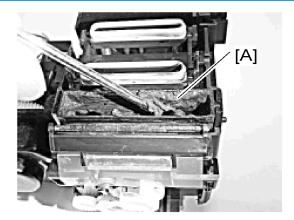
1. Remove the maintenance unit. ( "Maintenance Unit" in the section of Replacement and Adjustment)

2. Turn the adjuster [A] of the maintenance unit clockwise to raise the suction cap.

3. Wrap the tip of screwdriver or similar tool [B] with a damp cloth.

4. Use the wrapped tip of the screwdriver to clean these:

5. Inside the cap

6. Around the cap to remove the hardened ink

⭐ Important

- Always wrap the tip of the tool with a damp cloth. This will not let the suction cup get scratched. A scratched suction cap could cause poor print jobs.
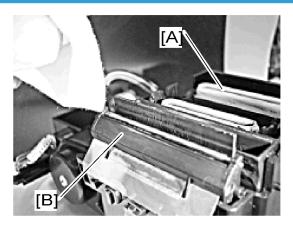
## Air Vent



1. Use a screwdriver or similar tool to remove hardened ink from inside the air vent [A].

2. Use a dry cloth to remove ink splatter from inside the air vent.

## Wiper
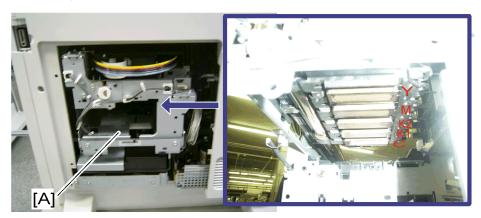


1. Turn the adjuster clockwise to raise the caps [A] and hold it open. (☞ "Suction Cap" in this Section)

2. Turn the adjuster again until the wiper [B] is open.

3. Use a dry cloth to remove ink splatter from the wiper and the area around it.
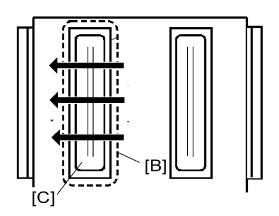
## Print Heads
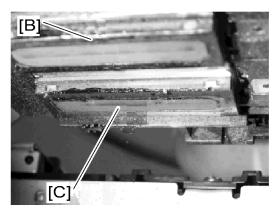
### Nozzle Cover, Nozzle Plate

Before doing this procedure:

- Provide a delicate material cloth like one used for optical things.
- Put on gloves to avoid any injury due to a metal edge.
- Make sure of heads position (see the below picture) and clean the only defective print head. Do not clean other print heads.
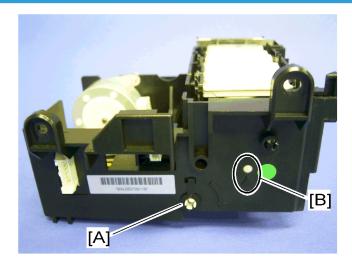




1. **Remove the maintenance unit.** (■ "Maintenance Unit" in the section of Replacement and Adjustment)
2. **Push the carriage to the home position (completely to the rear).**
3. **Insert your hand into the opening [A] on the rear side of the copier.**
4. **Use a damp cloth to clean the nozzle cover [B] of the print heads.**

5. **Use part of the cloth that is clean to wipe the print head nozzle plate on the face of the print head [C]**

⭐ **Important**

- Important: Gently wipe the plate twice or third times in the same direction (front to rear) with the same force as the carriage is just lifted up. This will not let the plate get damaged. Never clean the plate with strong front-and-rear motion. A damaged plate could cause poor print jobs.

## After Cleaning the Maintenance Unit



1. **Do these before you reinstall the maintenance unit:**

   1. Turn the adjuster [A] clockwise.

   2. Lower the suction cap and the wiper blade. Make sure they are secure in the down position.

   3. Make sure the triangle marks [B] on the sides of the maintenance unit match. Do this if the tips of the white and black triangle marks are not aligned:

      - Insert the tip of a flat head screwdriver into the adjuster. Then slowly rotate it clockwise until the marks are aligned.
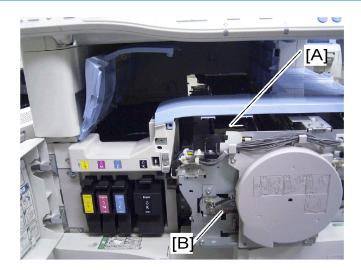
## After you reassemble the copier:

1. **Plug in and turn on the main power switch of the machine.**

2. **Clean all the print heads with SP2010-001 or "Clean Print-heads" < "Maintenance" < "User Tools".**

3. **Print a Nozzle Check Pattern with SP3109-003 or "Nozzle Check Pattern" < "Maintenance" < "User Tools" to confirm that the printer is operates correctly.**

4. **Check the test pattern. Do the procedure again if you see any bare patches in the pattern.**

🔸**Note**

- Do this until the pattern is perfect. For more, see section "Troubleshooting".

## Transport Belt



1. Remove the front cover. (see "Front Cover" in the Replacement Adjustment)
2. Open the inner right cover (Front door > Inner left cover > Inner right cover).
3. Use a damp cloth to wipe clean the surface of the transport belt [A. Then clean the belt with a dry cloth.
4. Use the timing belt [B] to rotate the transport belt as you clean. This procedure lets you clean the entire surface of the belt.
5. Make sure the surface of the belt is completely dry.

⭐**Important**

- Water on the surface of the transport belt could interfere with the operation of the printer.

# 3. Replacement and Adjustment

## General Cautions

Do not turn off the main switch while any of the electrical components are active. Doing so may result in damage to units as they are pulled out or replaced.

### Scanner Unit

- Use alcohol or glass cleaner to clean the exposure and scanning glass. This will reduce the static charge on the glass.
- Use a blower brush or a water-moistened cotton pad to clean the mirrors and lenses.
- Take care not to bend or crease the exposure lamp's ribbon cable.
- Do not disassemble the lens unit. Doing so will throw the lens and copy image out of focus.
- Do not turn any of the CCD positioning screws. Doing so will throw the CCD out of position.

### Paper feed

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

### IMPORTANT

- If the optional tray heater or optics anti-condensation heater is installed, keep the copier's power cord plugged in even while the main switch is off, so that the heater(s) remain energized.
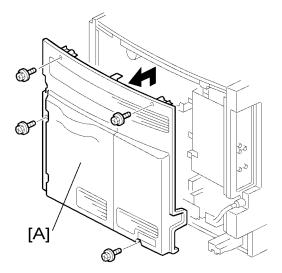
# Special Tools and Lubricants

| Part Number | Description | Q'ty |
|---|---|---|
| B6455010 | SD Card | 1 |
| B6456705 | PCMCIA Card Adapter | 1 |
| B6456810 | USB Reader/Writer | 1 |
| VSSM9000 | Digital Multimeter – FLUKE87 | 1 |
| C4019503 | 20X Magnification Scope | 1 |
| A2579300 | Grease Barrierta – S552R | 1 |
| 52039501 | Silicon Grease G-501 | 1 |
| A0929503 | C4 Color Test Chart (3 pcs/set) | 1 |
| A2929500 | Test Chart – S5S (10 pcs/set) | 1 |

**3**

# Exterior Covers

## Rear Cover
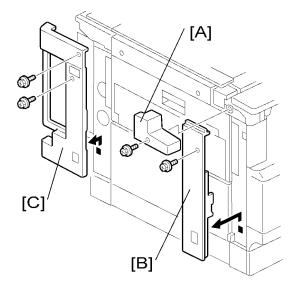


1. Rear cover [A] (🔧 x 4)

## Rear Engine Unit Cover
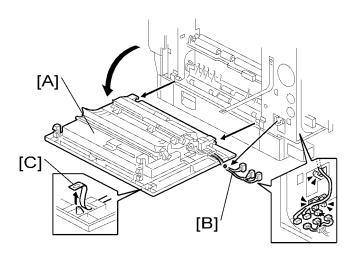


1. Rear engine unit cover [A] (locking screw x 2)

## Top Left Front, Left Front and Interface Cover
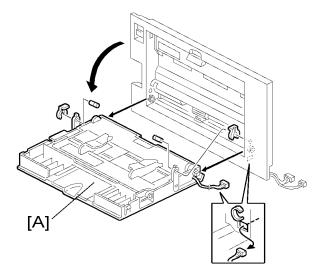


1. Top left cover [A] ($\mathscr{F}$ x 1)
2. Left front cover [B] ($\mathscr{F}$ x 1)
3. Rear cover ( "Rear Cover")
4. Interface cover [C] ($\mathscr{F}$ x 2)

## Right Door
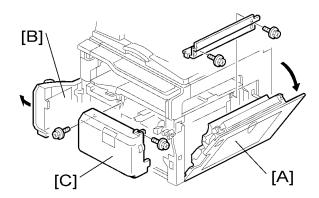
1. **Rear cover (![]"Rear Cover")**

2. **Open the right door [A].**

3. **Disconnect three harnesses [B] (![] x 3).**

4. **Right door belt [C]**

## By-pass Tray



1. **Right door (![] "Right Door")**

2. **Open the by-pass tray [A].**

3. **By-pass tray [A] (![] x 2, pin x 2)**
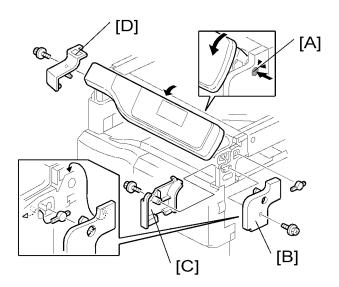
## Front Cover
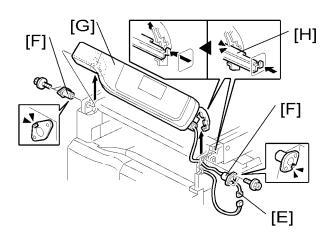
1.  **Pull out the paper tray 1.**

2.  **Open the right door [A].**

3.  **Open the front door [B].**

4.  **Front cover [C] (🔩 x 4)**

**3**

# Operation Panel
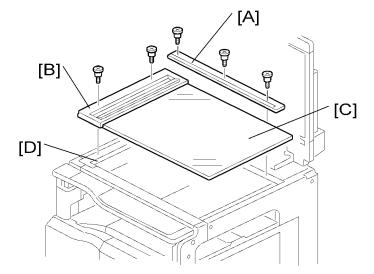


1. Press the "PUSH" bottom [A], and then tilt the operation panel.
2. Scanner stay right cover [B] (🔩 x 1)
3. Scanner stay left cover [C] (🔩 x 1)
4. Left front cover [D] (🔩 x 1)
5. Push bottom [A]
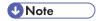


6. Disconnect the I/F harness [E] (🔌 x 1).
7. Left and right bushing [F] (🔩 x 2 each)
8. Remove the operation panel [G] pressing the lever [H].

# Scanner Unit

## Exposure Glass



1. **Open the ARDF/ADF or platen cover (if it is installed).**
2. **Rear scale [A] (🔩 x 3)**
3. **Left scale [B] with exposure glass [C] (🔩 x 2)**

   ⬇ **Note**

   - If the platen cover is installed, the left scale [B] is not attached the exposure glass [C]. Remove them separately.

4. **DF exposure glass [D] (if ARDF or ADF is installed.)**

### Reassembling the exposure glass

When reinstalling, make sure that the mark is at the rear left corner, and that the left edge is aligned to the support on the frame.

## Lens Block
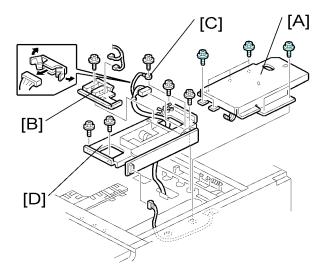
### ⚠ CAUTION

1. Do not touch the paint-locked screws on the lens block. The position of the lens assembly (black part) is adjusted before shipment.

2. Do not grasp the PCB or the lens assembly when handling the lens block. The lens assembly may slide out of position.
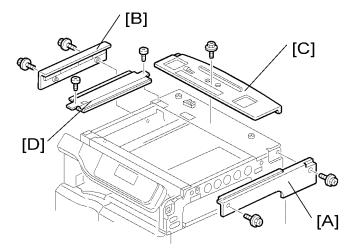


1. **Exposure glass (<img> "Exposure Glass")**
2. **Lens cover [A] (<img> x 9)**
3. **Original length sensor bracket [B] (<img> x 1, <img> x 1)**
4. **Ground cable [C] (<img> x 1)**
5. **Lens block [D] (<img> x 4, <img> x 2, <img> x 2)**

   **↓Note**
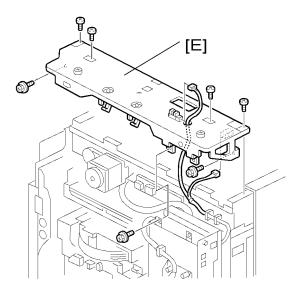
   • After installing a new lens block, adjust the image quality (<img> "Printing" in the Replace and Adjustment).
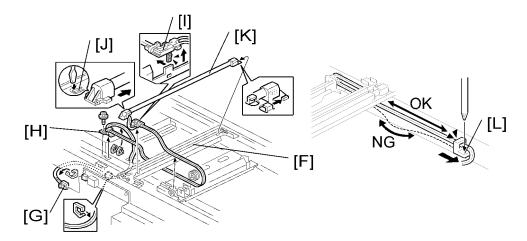
## Exposure LAMP



1. **Remove the ARDF, ADF or platen cover (if it is installed).**
2. **Exposure glass ( "Exposure Glass")**
3. **Scanner stay right cover**
4. **Top right cover [A] ( x 2)**
5. **Top font left cover**
6. **Interface cover**
7. **Top left cover [B] ( x 2)**
8. **Rear cover**
9. **Top rear cover [C] ( x 1)**
10. **Scanner top left frame [D] ( x 2)**

3

11. **Scanner top rear frame [E] (🔩 x 9, 🔌 x 2, 🔌 x 2)**
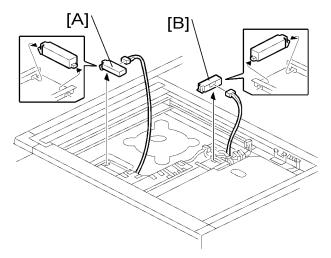
12. Slide the first scanner [F] to the cutout of the scanner rear frame with moving the timing belt.

13. Disconnect the scanner harness [G] from the lamp stabilizer (🔌 x 4).

14. Tension clamp [H] (🔩 x 1)

15. Cable holder [I] (hook x 1)

16. Press the plastic latch [J] and push the rear end of the lamp toward the front.

17. Exposure lamp [J] (with the cable, 🔌 x 2, 🔌 x 1)

## Reassembling the Exposure Lamp
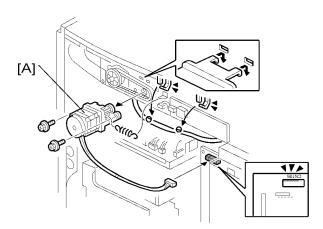
When you reassemble the exposure lamp, run the cable not to be slack. Slide the clamp [L] to adjust the cable slack.

## Original WIDTH/Length Sensor



1. Exposure glass ( "Exposure Glass")
2. Two original width sensors [A] ( x 1 each)
3. Two original length sensors [B] ( x 1 each)

## Scanner Motor



1. Rear cover ( "Rear Cover")
2. Scanner motor with bracket [A] ( x 2, x 2, x 1, spring x 1)
3. Scanner motor ( x 2)

**⬇ Note**
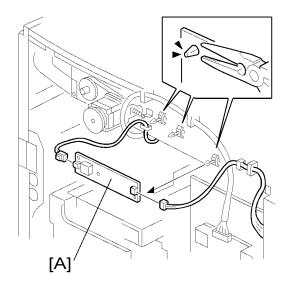
- When reassembling, install the belt first, and set the spring next.

After installing the motor, adjust the image quality (🔳 Copy Adjustments: Printing/Scanning).

## Lamp Stabilizer



[A]
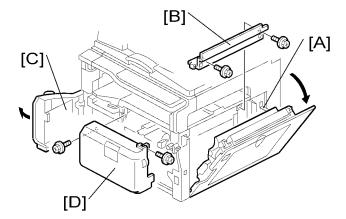
1. **Rear cover (🔳 "Rear Cover")**
2. **Lamp stabilizer [A] (🔲 x 2, locking support x 3)**

# Engine

## Engine Unit

🔽 Note
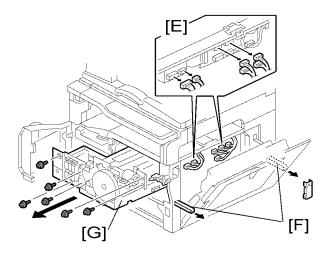
- When you install the new engine unit, remove the remaining ink with SP2100-001 before replacing the old engine unit.



1. Remove the paper tray 1.
2. Open the right door.
3. Release the belt [A].
4. Connector cover bracket [B] (🔩 x 2)
5. Open the front door [C].
6. Front cover [D] (🔩 x 4)

🔽 Note

- When reassembling the connector cover bracket [B], make sure that the bracket does not pinch any harnesses.

3

7. **Disconnect the six harnesses [E].**

    ⬇Note
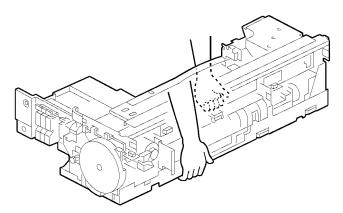
    • For details, refer to picture 1 following this procedure.

8. **Pull the two levers [F] out from the machine (cover x 1).**

9. **Remove the six screws (🖉 x 6): two screws for ink cartridge housing, 4 screws for engine unit.**

    ⬇Note
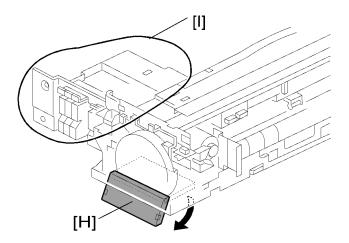
    • For details, refer to picture 2 following this procedure.

10. **Pull the engine unit [G] slowly on the way.**

    ⬇Note
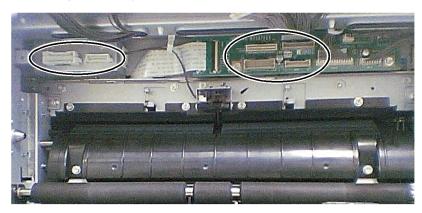
    • Make sure that any harness is not attached to the machine before pulling the engine unit.
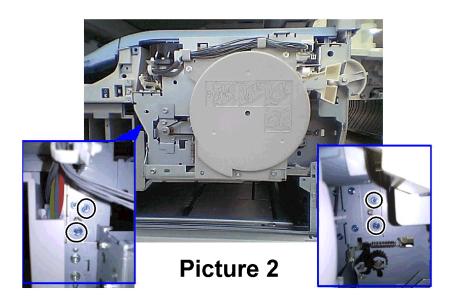


11. **Hold the engine unit as shown, and then remove it from the machine.**

**12.** Pull out the engine unit stay [H] before putting it on the flat place. Otherwise, the ink-supply unit [I] may be damaged.



# Picture 1

## Picture 2

## When installing the new engine unit

After installing the new engine unit, do the following procedure.

1.  Install the ink cartridges provided with new engine unit into the machine.
2.  Plug in and turn on the main power switch.
3.  The copier automatically starts to execute the releasing air mode.
4.  Do SP2-100-001. This takes about 5 minutes.
5.  Do the refreshing with UP or SP2010-002.
6.  Print out the nozzle check pattern with UP or SP3109-003 and check it out.
7.  If the printout is not satisfactory, do the cleaning with UP or SP2010-001
8.  Do the "GJ Eng Count, Reset" with SP7959-001.

    ⬇Note
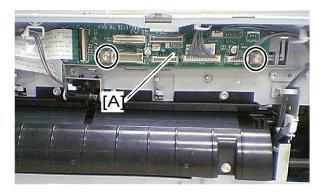
    -   Take the ink cartridges used in this procedure back to your service office. (Most of the ink in these cartridges is consumed by this procedure.

⭐Important

-   Handling with the replaced engine unit
-   You need to do following procedure before transporting the replaced engine unit:
    -   Lock the carriage unit using the adjuster of the maintenance unit. Make sure that two tops of squares do not face each other. (see "Maintenance Unit" in this section)

- Pack the replaced engine unit into the original carton box, which has been used for new engine unit. This prevents the unit from being damaged.

## CONIJ (Connect Ink Jet Module)
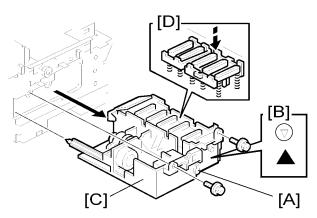


1. **Open the right door.**
2. **Connector cover bracket ( "Engine Unit")**
3. **CONIJ [A] ( x 2, all 's)**

## Maintenance Unit

The maintenance unit is engaged to the carriage unit when the machine is in stand-by status. Lowering the maintenance unit [D] releases the engagement with the carriage unit. So, do this step before removing the maintenance unit.

🔽 **Note**

- Put a sheet of paper on the floor during servicing. Ink may fall on the floor.
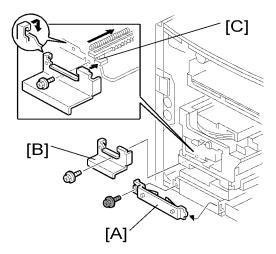
1. **Rear engine unit cover ( "Rear Engine Unit Cover")**

2. **Turn the adjuster [A] clockwise by a screwdriver until the two tops of squares [B] face each other.**

   **⬇Note**
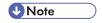
   - Never turn the adjuster counterclockwise.

3. **Maintenance unit [C] (🔧 x 2, 🔌 x 2)**

## Ink Collection Tank

3
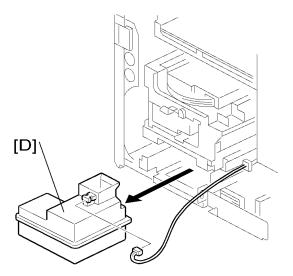


1. **Rear engine unit cover ( "Rear Engine Unit Cover")**

2. **Ink collection tank bracket [A] (🔧 x 1)**

3. **Shutter bracket [B] (🔧 x 1)**

   **⬇Note**

   - When reinstalling this bracket, make sure that the shutter bracket pushes the switch [C] of the shutter.
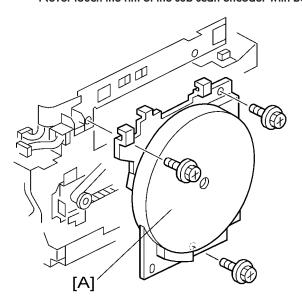
4. **Pull out the handle from the machine.**

5. **Ink collection tank [D] ( x 1)**

## Sub Scan Encoder and Encoder Sensor

**Important**
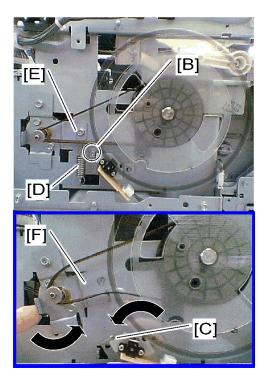
- Never touch the rim of the sub scan encoder with bare hands.
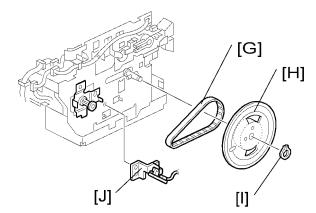


1. **Front cover ( "Front Cover")**

2. **Encoder cover [A] ( x 3)**

**3.** Remove the screw [B] of the encoder sensor bracket, and then slide down the bracket as shown [C].

🔽Note
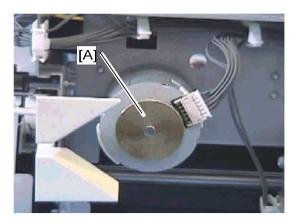
- Carefully slide down the bracket not to damage the encoder.

**4.** Remove the spring [D] and screw [E] of the sub scan encoder motor, and then slide up the bracket as shown [F].
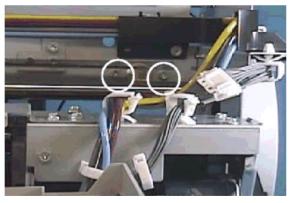


**5.** Release the timing belt [G].

**6.** Remove the sub scan encoder [H] (slider clip [I] x 1).

7. Remove the encoder sensor bracket [J] (⬚ x 1).

8. Encoder sensor (✐ x 2)

## Main Scan Drive Motor
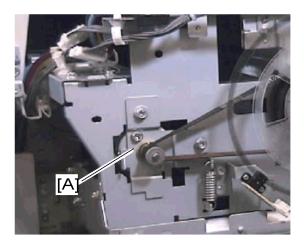


1. Engine unit (☞ "Engine Unit")

2. Main scan drive motor [A] at front right side of the engine (✐ x 2, ⬚ x 1)

   ⬇Note

   - Do not touch the main scan encoder during this procedure.
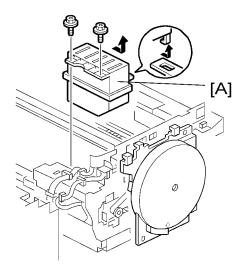
## Sub Scan Drive Motor



1. Engine unit (☞ "Engine Unit")

2. Encoder cover (☞ "Sub Scan Encoder and Encoder Sensor")

3. **Sub scan drive motor with the bracket [A] ( x 2,  x 1,  x 2, spring x 1)**

## Flushing Gate Unit
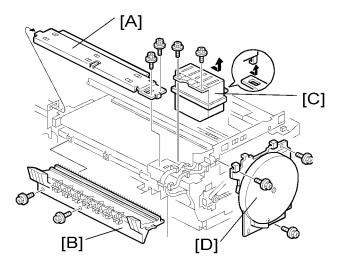


1. **Engine unit ( "Engine Unit")**
2. **Flushing gate unit [A] ( x 2)**
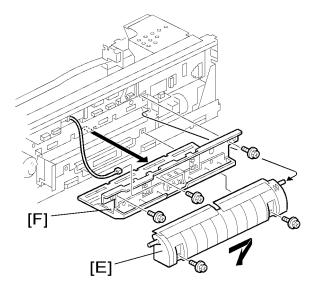
## Transport Belt Unit

🔻Note

- During this procedure, do not touch the main scan encoder with your hands.
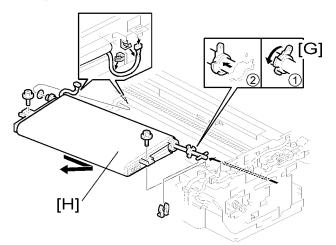
1. Engine unit ( "Engine Unit")
2. Engine top cover [A] ( x 2)
3. Belt cleaning unit [B] ( x 2)
4. Flushing unit [C] ( x 2)
5. Encoder cover [D] ( x 3)



6. Paper guide plate [E] ( x 2)
7. Paper guide bracket [F] ( x 3,  x 1)
8. Sub scan encoder ( "Sub Scan Encoder and Encoder Sensor")
9. Encoder sensor bracket ( "Sub Scan Encoder and Encoder Sensor")

10. Timing belt ( "Sub Scan Encoder and Encoder Sensor")

[G]

[H]
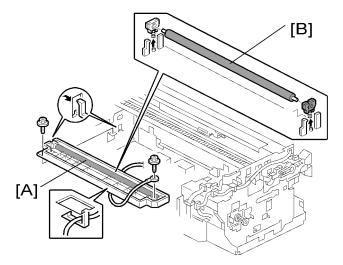
11. Turn the lock lever [G] clockwise from the view of front side, and then put it inside the frame through cutout.

12. Slide the transport belt unit [H] to the front side, and then remove it as shown ( x 2,  x 1,  x 1,  x 2, bushing x 1).

## Charge Roller

**Note**

- During this procedure, do not touch the main scan encoder with your hands.

[B]

[A]
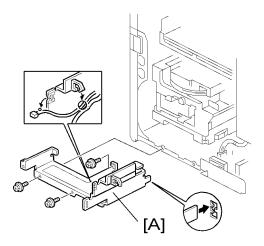
1. Transport belt unit ( "Flushing Gate Unit")
2. Charge roller unit [A] ( x 2)

**3. Charge roller [B]**
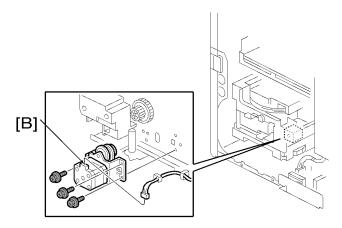
# Paper Feed

## Paper Feed Motor
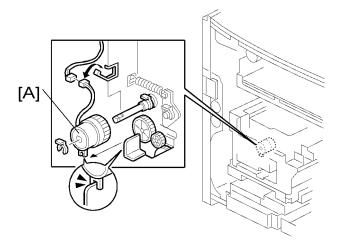


1. Rear cover ( "Rear Cover")
2. Ink collection tank ( " Ink Collection Tank")
3. Ink collection tank bracket [A] ( x 3,  x 2)
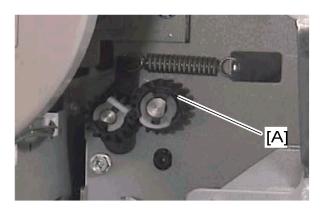


4. Feed motor bracket [B] ( x 3,  x 1)
5. Feed motor ( x 2)

## Registration Clutch
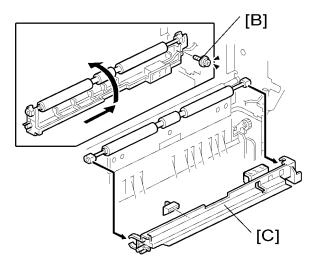


1. Rear cover ( "Rear Cover")
2. Registration clutch [A] ( x 1,  x 1)
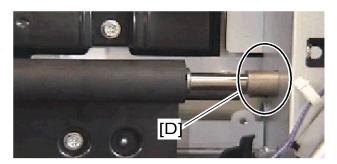
## Registration Roller
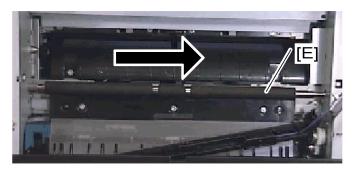


1. Open the right door and release the belt ( "Right Door").
2. Front cover ( "Front Cover")
3. Registration roller gear [A] ( x 1)
4. Registration clutch ( "Registration Clutch")

5. Remove the screw [B] and slide the registration guide plate [C] to the rear side.

6. Lift up the registration guide plate, and then remove it.
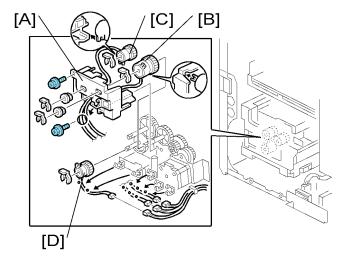


7. Remove the bushing [D] at rear side.
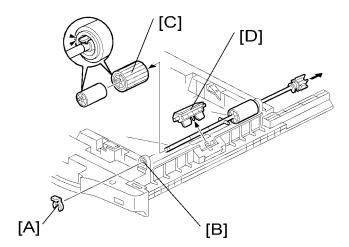


8. Slide the registration roller [E] to the rear side, and then remove it.

## Paper Feed, Paper Transport and Duplex Clutch



1. **Rear cover (** "Right Door")
2. **Disconnect three harnesses and release six clamps. ( x 3,  x 6)**
3. **Clutch cover bracket [A] ( x 2,  x 2, bushing x 2)**
4. **Paper feed clutch [B] ( x 1)**
5. **Paper transport clutch [C] ( x 1)**
6. **Duplex clutch [D] ( x 1)**

## Paper Feed roller and Friction Pad
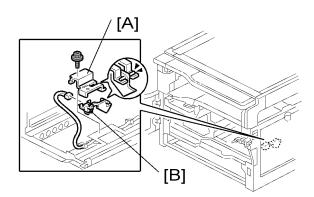


1. Remove the paper tray 1.
2. Clip [A]
3. Push the shaft back through the opening, and tilt it up.

   **Note**
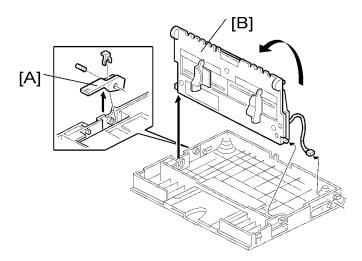
   • If the black plastic bushing [B] comes off, be sure to remount it when reinstalling the shaft.
4. Paper feed roller [C]
5. Friction pad [D] (spring x 1)

## Paper End Sensor
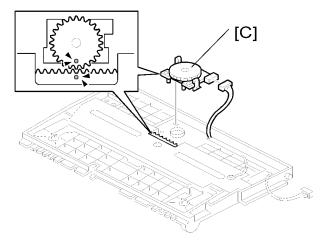
1. **Engine unit ( "Engine Unit")**

2. **Remove the paper tray 1.**

3. **Paper end sensor bracket [A] (🔩 x 1, 🔌 x 1)**

4. **Paper end sensor [B]**

## By-pass Paper Size Switch



1. **By-pass tray ( "By-pass Tray")**

2. **Tray lever [A] (🔘 x 1, pin x 1)**

3. **Turn over the inner tray [B].**
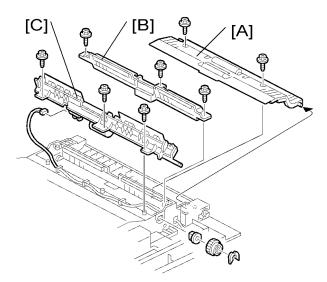


4. **By-pass paper size switch [C] 🔩 x 1, 🔌 x 1)**

**🅥Note**
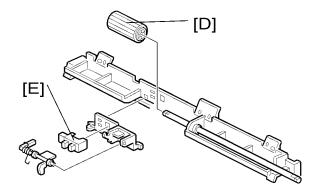
- When reassembling the by-pass paper size switch, the two mark face each other as shown.

## By-pass Feed Roller and Paper End Sensor
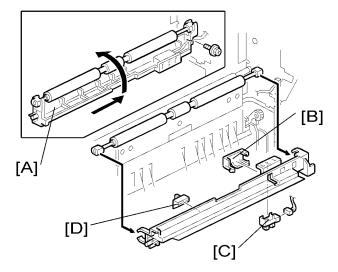


1.  Open the right door and release the belt (🔳 "Right Door")
2.  Paper guide [A] (🔩 x 2)
3.  Friction pad unit [B] (🔩 x 3)
4.  By-pass feed roller unit [C] (🔩 x 3, 🔘 x 1, 🔲 x 1, 🔳 x 4, bushing x 1)



5.  By-pass feed roller [D]
6.  By-pass paper end sensor [E]

## Registration Sensor
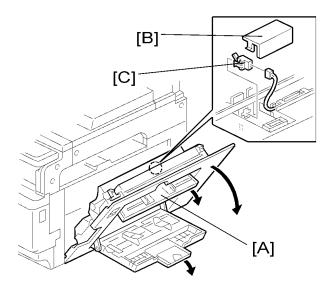


1. **Open the right door and release the belt (⬛️ "Right Door").**

2. **Slide the registration guide plate [A] to the rear side, and then remove the registration sensor unit holding it up (🔩 x 1).**

3. **Sensor cover [B]**

4. **Registration sensor [C] (🔌 x 1)**

   **⬇️Note**
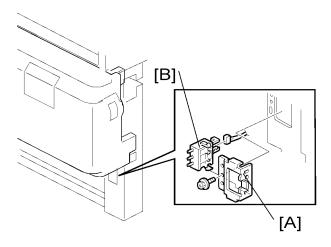
   - When reassembling, make sure that the spacer [D] is installed to the registration guide plate.

## One-Sheet By-pass Paper End Sensor



1. Open the right door.

2. Open the multi by-pass tray.

3. Open the one-sheet by-pass tray [A].

4. Sensor cover [B] (hook x 2)

5. One-sheet by-pass paper end sensor [C] (⬚ x 1)

## Paper Size Switch
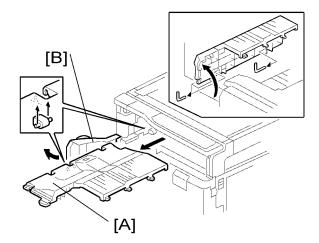


1. Remove the paper tray 1.

2. **Paper size switch bracket [A] (⚙ x 1, 🔌 x 1)**

3. **Paper size switch [B]**
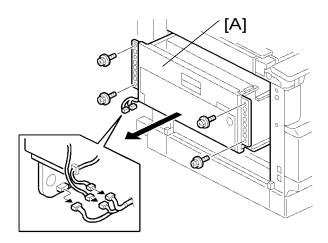
# Paper Exit

## Paper Exit Tray



1. **Open the paper exit tray [A].**

2. **Open the front door [B].**

3. **Paper exit tray (pin x 2)**
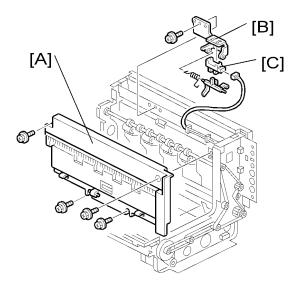
## Paper Exit Unit



1. **Paper exit tray ( "Paper Exit Tray")**

2. **Top left front cover, left front cover and interface cover ( "Top Lefe Front, Left Front and Interface Cover")**
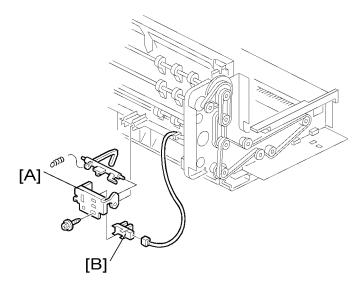
3. **Paper exit unit [A] ( x 4, x 3)**

## Paper Exit Sensor
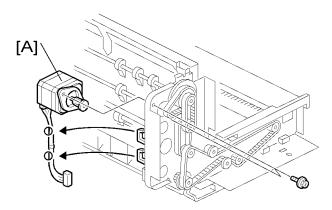


1. **Paper exit unit ( "Paper Exit TraUnit")**
2. **Guide plate [A] ( x 4)**
3. **Paper exit sensor bracket [B] ( x 1, x 1)**
4. **Paper exit sensor [C]**

## Junction Gate Sensor



1. Paper exit unit ( "Paper Exit Unit")
2. Junction gate sensor bracket [A] at the bottom of the paper exit tray ( x 1, x 1)
3. Junction gate sensor [B]

## Paper Exit Motor



1. Paper exit unit ( "Paper Exit Unit")
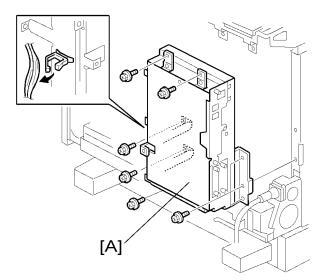
**2.** **Paper exit motor [A] at the bottom of the paper exit tray ( $\mathcal{P}$ x 2, 🖭 x 2, 🗗 x 1)**

# Electrical Components

## Controller Box
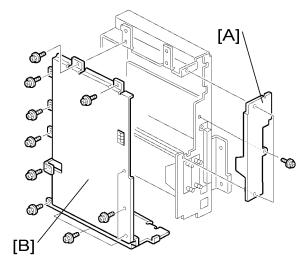


1. **Rear cover (** "Rear Cover"**)**

2. **Interface cover (** "Top Lefe Front, Left Front and Interface Cover"**)**

3. **Controller box [A] ( x 8,  x 3)**

   🔽Note
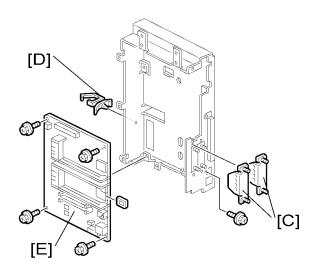
   - When reassembling the controller box, maker sure that the connector of the controller box is firmly connected to the IPU board.

## Controller Board



1. **Rear cover (** "Rear Cover")
2. **Interface cover (** "Top Lefe Front, Left Front and Interface Cover")
3. **FCU cover [A] (** x 3)
4. **Controller box cover [B] (** x 13)



5. **I/F covers [C] (knob screw x 2 each)**
6. **Slot cover (** "Controller Box")
7. **Remove the all slot cards.**
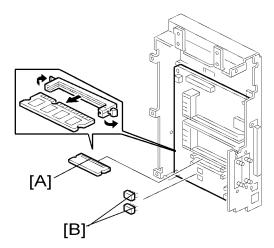
8. **Remove the clamp [D]**

9. **Controller board [E] ($\mathscr{O}$ x 5)**

### When replacing the controller board

Remove the two NVRAMs (FRAM) from the old controller board and install them in the same place on the new controller board.

## NVRAM and DIMM RAM
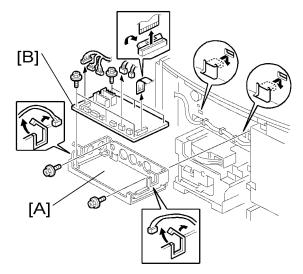
3



1. **Rear cover (📑 "Rear Cover")**

2. **Interface cover (📑 "Top Lefe Front, Left Front and Interface Cover")**

3. **Controller box cover (📑 "Controller Board")**

4. **RAM DIMM [A]**

5. **NVRAM [B]**

   ⬇Note
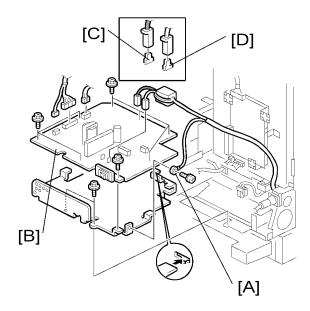
   • When you install the new NVRAM, install the **two** NVRAMs at the same time even one NVRAM is not defective.

## IO Board



1. **Rear cover ( "Rear Cover")**
2. **IO board bracket [A] (All , x 2, x 2)**
3. **IO board [B] ( x 5)**

## PSU Board
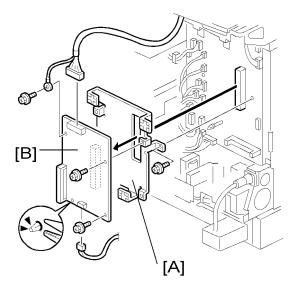
1. **Rear cover ( "Rear Cover")**
2. **Ground cable [A] (🔩 x 1)**
3. **PSU board [B] (All 🔲, 🔩 x 2)**

**↓Note**

- When reaasembling the PSU board, make sure that brack or brown cord is connected to the terminal [C] and white or blue coard is connected to the terminal [D]. The combination of the cord colors differes dipending on the model destination.
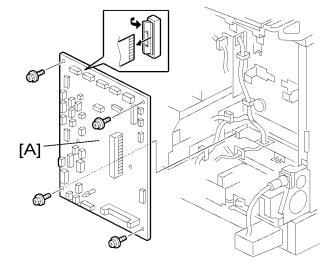
## IPU Board



1. **Controller box ( "Controller Board")**
2. **IPU board bracket [A] (🔩 x 2, 🔲 x 2, ground cable x 1)**
3. **IPU board [B] (🔩 x 2, locking support x 1)**

## BCU Board



1. **Controller box ( "Controller Board")**
2. **IPU board bracket ( "IPU Board")**
3. **BCU board [A] (All , ⌀ x 4, flat cable x 1)**

# Image Adjustment

You can do four image adjustment functions as shown below with "Maintenance" in the "User Tools".

- Adjust Paper Feed
- Nozzle Blockage Check
- Adjust Print Head Position
- Registration (Print Start Position)

## Preparing for Test Printing
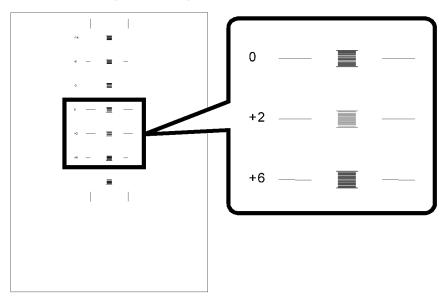
Make sure A4 or LTR size paper/SEF is loaded in the paper tray 1.

Make sure the copier is ready to print.

## Adjust Paper Feed

Print the 'Adjust Paper Feed Test Pattern' and do this adjustment if you see broken horizontal lines or uneven colors in the printouts:

1. **Enter the UP or SP.**

2. **Do the "Adjust Paper Feed" (User Tools > Maintenance > Adjustment > Adjust Paper Feed) or SP3109-004 to print the test pattern.**
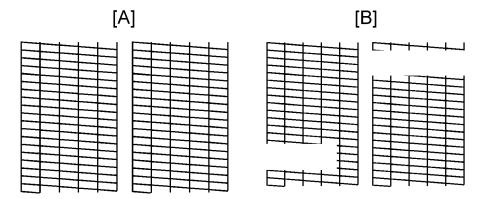


3. **Examine the test print. Then enter the number of the pattern that shows the best appearance (the horizontal lines should be perfectly flat).**

4. **Do the instructions on screen to complete the adjustment.**

## Nozzle Blockage Check

One or more of the nozzles is blocked if you see these:

- Broken lines
- Uneven patches of white in the printouts.

At this time, do this procedure:

1. **Enter the UP or SP.**

2. **Do the "Nozzle Check Pattern" (User Tools > Maintenance > Nozzle Check Pattern) or SP3109-003 to print the test pattern.**



[A]    [B]

- [A]: **Normal Pattern** Lines are crisp and unbroken.
- [B]: **Abnormal Pattern** Lines are broken, patches of white spoil the appearance of the pattern.

3. **Examine the pattern. Then check which color does not show. This information lets you know which nozzle is blocked.**

4. **Do the instructions on the screen to select the color you want to correct. Then clean the print heads.**

⭐ **Important**

- Do "Clean Print Heads (Normal)" up to 3 times to correct the problem. Do "Clean Print Heads (Full)" once if the problem stays.
- The "Full" cleaning uses a lot of ink. Do not do the "Full" cleaning until you have done the "Normal" cleaning at least 3 times.
- For more, please refer to Section "4. Troubleshooting".
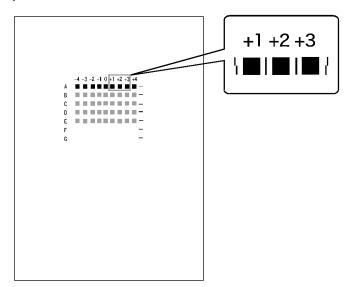
## Adjust Print Head Position

The print head is out of position if you see these:
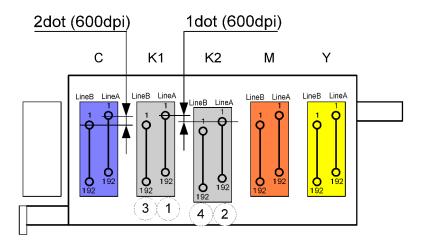
- Broken vertical lines
- Smeared or streaked colors

At this time, do this procedure:

1. **Enter the UP or SP.**
2. **Do the "Head Position Adjust" (User Tools > Maintenance > Adjustment > Head Position Adjust) with UP or "Head Gap Adj. 300 or 1200" with SP3109-001 or -002 to print the test pattern.**



3. **Examine the test print. Then for each row (letters A-I), enter the number of the column that shows the best print alignment (for example "+2" in the above drawing).**
4. **Do the instructions on screen to complete the adjustment.**

**Key:**

K1 = Black print head 1

K2 = Black print head 2

C = Cyan print head

M = Magenta print head

Y = Yellow print head

Forward = Scanning direction from rear to front

Reverse = Scanning direction from front to rear
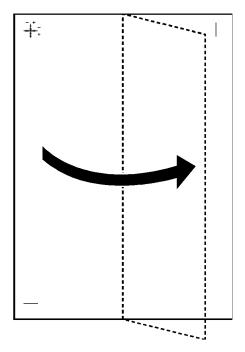
This test grid is made as follows. K1 reverse is the standard for alignment.
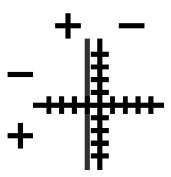
- Line A: K1 prints forward, then K1 prints reverse.
- Line B: C prints reverse, then K1 prints reverse.
- Line C: C prints forward, then K1 prints reverse.
- Line D: M prints reverse, then K1 prints reverse.
- Line E: M prints forward, then K1 prints reverse.
- Line F: Y prints reverse, then K1 prints reverse.
- Line G: Y prints forward, then K1 prints reverse.
- Line H: K2 prints reverse, then K1 prints reverse.
- Line I: K2 prints forward, then K1 prints reverse.

## Registration

1. **Enter the UP or SP.**

2. **Do the "Registration" (User Tools > Maintenance > Adjustment > Registration) or SP3109-005 to print the test pattern.**



3. **Examine the test print. Then enter the numbers of the patterns that show the best appearance for the:**

   • Print direction

   • Paper feed direction.

4. **Do the instructions on screen to complete the adjustment.**

# Copy Adjustments: Printing/Scanning

⬇**Note**

- You need to perform the adjustment after executing a Memory All Clear, and after replacing or adjusting any of the following parts.

    - First or second scanner

    - Lens Block

    - Scanner Motor

    - Paper Tray

    - Paper Side Fence

- For detailed explanations about how to access and use the SP modes, see Section "Service Program Mode".

## Printing

⬇**Note**
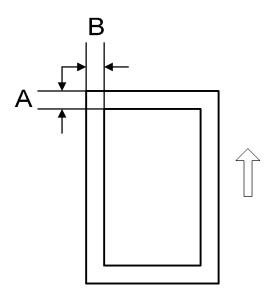
- Make sure the paper is installed correctly in each paper tray before you start these adjustments.

- Use the Trimming Area Pattern (SP5-902, No.10) to print the test pattern for the printing adjustments below.

- Set SP 5-902 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 each of these registrations using SP1-001.**

2. **Check the side-to-side registration for each paper feed station, and adjust these registrations using SP1-002. (Adjust the trays in order: the 1st tray first, then the 2nd tray, etc.)**

A: Leading Edge Registration, B: Trailing Edge Registration

| Tray | SP mode | Specification |
|---|---|---|
| Any paper tray | SP1-001-1 | |
| By-pass feed | SP1-001-2 | 2 ±1.5 mm |
| Duplex | SP1-001-3 | |
| 1st tray | SP1-002-1 | |
| 2nd tray<br>(Optional PFU tray 1) | SP1-002-2 | |
| 3rd tray<br>(Optional PFU tray 2) | SP1-002-3 | 2 ±1.5 mm |
| By-pass tray | SP1-002-4 | |
| One-sheet by-pass feed | SP1-002-5 | |
| Duplex | SP1-002-6 | |

## Blank Margin

📌**Note**
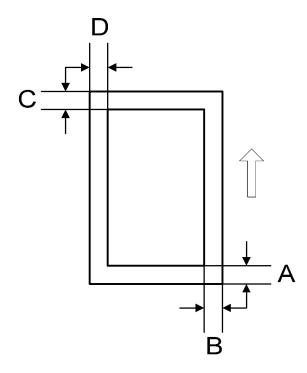
- If the leading edge or side-to-side registration cannot be adjusted to within the specification, then adjust the leading-edge blank margin or the left-side blank margin.

1. **Check the trailing edge and right side edge blank margins, and adjust them using the following SP modes.**

A: Trailing Edge Blank Margin, B: Right Edge Blank Margin

C: Leading Edge Blank Margin, D: Right Edge Blank Margin



| | SP mode | Specification |
|---|---|---|
| Trailing edge | SP2-103-2 | 2 +2.0/ -1.5 mm |
| Right edge | SP2-103-4 | 2 ±2.0 mm |
| Leading edge | SP2-103-1 | 3.3 +2.7/ -1.3 mm |
| Left edge | SP2-103-3 | 2 ±2.0 mm |

## Scanning

**⬇Note**
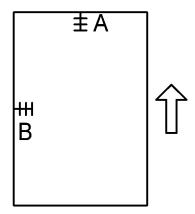
- Before doing the following scanner adjustments, check and adjust the printing leading-edge and side-to-side registrations and the printing blank margins (as described above).

- Use an A3 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 as necessary using the following SP modes.**



A: Leading Edge Registration, B: Side-to-Side Registration
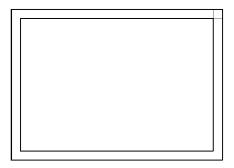
|  | SP mode | Specification |
|---|---|---|
| Leading edge | SP4-010 | 0 ±2.0 mm |
| Side-to-side | SP4-011 | 0 ±2.5 mm |

### Sub-scan Magnification
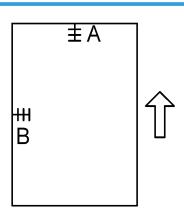
1. **Place the OS-A3 test chart on the exposure glass and make a copy from one of the feed stations.**

2. **Check the magnification ratio. If necessary, adjust the magnification using the following SP mode.**

| | SP mode | Specification |
|---|---|---|
| Sub-scan magnification | SP4-008 | ±1.0% |

## ADF Image Adjustment

### Registration and Blank Margin

A: Leading Edge Registration, B: Side-to-Side Registration
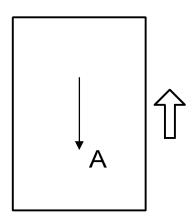
**↓Note**

- Make a temporary test chart as shown above, using A3/11" x 17" paper.

1. **Place the temporary test chart on the ADF and make a copy from one of the feed stations.**

2. **Check the registrations, and adjust as necessary using the appropriate SP modes, as follows.**

| | SP mode |
|---|---|
| Side-to-side registration 1st side | SP6-006-1 |
| Leading edge registration | SP6-006-2 |
| Blank margin for the trailing edge | SP6-006-3 |
| Side-to-side registration 2nd side | SP6-006-4 |

## Sub-scan Magnification



**⮯Note**

- Make a temporary test chart as shown above, using A3/11" x 17" 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 if necessary adjust it using SP6-006-005. The specification is ±1.0%.**

# 4. Troubleshooting

## Service Call

### Service Call Conditions

There are 4 levels of service call conditions.

| Level | Definition | Reset Procedure |
|---|---|---|
| A | Fusing unit SCs displayed on the operation panel. The machine is disabled. The user cannot reset the SC. | This level is not used for this machine (B229). |
| B | SCs to 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 main power switch off and on. |
| C | SCs that are not shown on the operation panel. They are internally logged. | Logging only |
| D | The SC is displayed on the operation panel. Turning the operation switch or main power switch off then on resets the SC. The SC is redisplayed if it occurs after the main power switch is turned on again. | Turn the main power switch off and on. |

🔖 **Note**

- If the problem concerns electrical circuit boards, first disconnect then reconnect the connectors before you replace the PCBs.
- If the problem concerns a motor lock, first check the mechanical load before you replace motors 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.

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

A screen opens on the operation panel to tell the user that 1) an error occurred, 2) the job that the machine does at that time will be erased, and 3) the machine will reboot automatically after approximately 30 seconds.

The user can: 1) stop until the machine reboots automatically after a short time, or 2) touch "Reset" on the screen to reset the machine immediately, and go back to the copy screen.

If the operator does not touch "Reset", the next message tells the user that 1) the machine reset automatically and 2) the previous job was lost and must be done again. After the user reads the message, the user touches "Confirm" on the screen. The next screen shows the number and title of the SC code, and stops until the user turns the machine off and on.

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

⭐ **Important**

- Do not try to use the operation panel during an automatic reboot.

- If the Remote Service System is used, the SC code is sent immediately to the Service Center

## ⚠ **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.

## SC table

### Engine SC

#### SC1xx

| No. Definition | | Symptom | Possible Cause/Countermeasure |
|---|---|---|---|
| 101 | | Exposure lamp error | |
| -001 | D | Shading at AGC | |
| | | The shading data peak does not reach the specified threshold (64/255 degit) when the machine executes the shading at initialization. | • Defective exposure lamp<br>• Defective lamp stabilizer<br>• Defective exposure lamp harness<br>1. Replace the exposure lamp.<br>2. Replace the lamp stabilizer.<br>3. Replace the exposure lamp harness. |

| No. Definition | | Symptom | Possible Cause/Countermeasure |
|---|---|---|---|
| -002 | D | Shading at scanning | |
| | | The shading data peak does not reach the specified threshold (64/255 degit) when the machine executes the shading at scanning. | Same as SC101-001 |
| 120 | D | Scanner home position error 1 | |
| | | The scanner home position sensor does not detect the "OFF" condition during operation. | • Defective scanner motor drive board<br>• Defective scanner motor<br>• Defective home position sensor<br>• Defective harness<br>1. Replace the scanner motor drive board.<br>2. Replace the scanner motor.<br>3. Replace the scanner HP sensor.<br>4. Replace the harness. |
| 121 | D | Scanner home position error 2 | |
| | | The scanner home position sensor does not detect the "ON" condition during operation. | Same as SC120 |
| 141 | D | Black level detection error | |
| | | The black level cannot be adjusted within the target value during the zero clamp after the AGC. | • Defective SBU<br>• Defective harness<br>1. Replace the harness.<br>2. Replace the SBU.<br>3. Replace the IPU.<br>4. Replace the BCU. |
| 142 | D | White level detection error | |
| | | The white level cannot be adjusted within the target value during the zero clamp after the AGC. | • Defective SBU<br>• Defective harness |

4
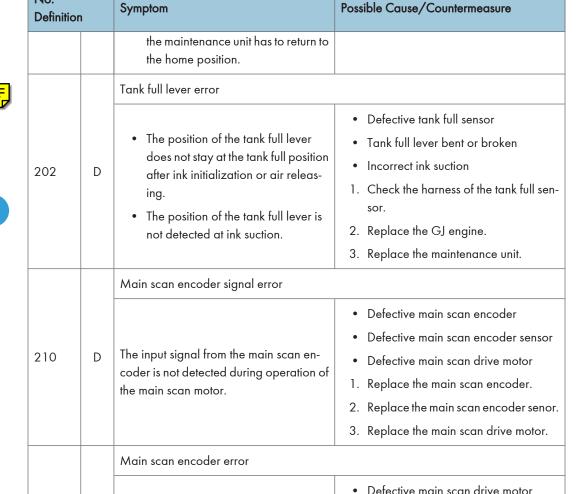
| No. Definition | | Symptom | Possible Cause/Countermeasure |
|---|---|---|---|
| | | | • Defective optics components |
| | | | 1. Replace the exposure lamp. |
| | | | 2. Replace the lamp stabilizer. |
| | | | 3. Replace the harness. |
| | | | 4. Replace the SBU. |
| | | | 5. Replace the IPU. |
| | | | 6. Replace the BCU. |
| 144 | | SBU communication error | |
| -001 | D | SBU connection error | |
| | | The SBU connection cannot be detected at power on or recovery from the energy save mode. | • Insufficient power supply for SBU |
| | | | • Defective SBU |
| | | | • Defective harness |
| | | | • Defective detection port on the BCU |
| | | | 1. Replace the harness. |
| | | | 2. Replace the SBU. |
| | | | 3. Replace the IPU. |
| | | | 4. Replace the BCU. |
| -002 | D | SBU serial communication error | |
| | | The unusual register value from the SBU is detected more than three times at power on or recovery from the energy save mode. | Same as SC144-001 |
| -003 | D | GBSBU reset error | |
| | | The GBSBU cannot be reset at power on or recovery from the energy save mode | Same as SC144-001 |
| -004 | D | Cannot finish the SBU communication. | |
| | | The communication between BCU and SBU has not completed. | Same as SC144-001 |
| 161 | D | IPU error | |

4

| No. Definition | | Symptom | Possible Cause/Countermeasure |
|---|---|---|---|
| -001 | | The error result of self-diagnostic by the Taurus (ASIC on the IPU) is detected. | • Defective IPU<br>• Defective BCU<br>• Defective connection between IPU and SBU<br>1. Check the connection between IPU and SBU.<br>2. Replace the IPU. |
| 161<br>-002 | D | ASIC (Taurus) memory error | |
| | | The memory check error of ASIC (Taurus) is detected when a machine turns on or recovers from the energy saver mode. | • Defective IPU (Taurus memory)<br>• Unusual power source<br>1. Replace the IPU. |
| 165 | D | Copy Data Security Unit error | |
| | | • The copy data security board is not detected when the copy data security function is set "ON" with the initial setting.<br>• A device check error occurs when the copy data security function is set "ON" with the initial setting. | • Incorrect installation of the copy data security board<br>• Defective copy data security board<br>1. Reinstall the copy data security board.<br>2. Replace the copy data security board. |

**SC2xx**

| No. Definition | | Symptom | Possible Cause/Countermeasure |
|---|---|---|---|
| 200 | D | Maintenance unit home position error | |
| | | • The maintenance unit sensor does not get "OFF" signal after the maintenance unit motor has rotated.<br>• The maintenance unit sensor does not get "ON" signal even the maintenance unit motor has rotated for certain time when it is assumed that | • Defective maintenance unit home position sensor<br>• Defective maintenance unit drive motor<br>1. Replace the maintenance unit home position sensor.<br>2. Replace the maintenance unit drive motor. |

**4**

| No. Definition | | Symptom | Possible Cause/Countermeasure |
|---|---|---|---|
| | | the maintenance unit has to return to the home position. | |
| 202 | D | Tank full lever error | |
| | | • The position of the tank full lever does not stay at the tank full position after ink initialization or air releasing. <br> • The position of the tank full lever is not detected at ink suction. | • Defective tank full sensor <br> • Tank full lever bent or broken <br> • Incorrect ink suction <br> 1. Check the harness of the tank full sensor. <br> 2. Replace the GJ engine. <br> 3. Replace the maintenance unit. |
| 210 | D | Main scan encoder signal error | |
| | | The input signal from the main scan encoder is not detected during operation of the main scan motor. | • Defective main scan encoder <br> • Defective main scan encoder sensor <br> • Defective main scan drive motor <br> 1. Replace the main scan encoder. <br> 2. Replace the main scan encoder senor. <br> 3. Replace the main scan drive motor. |
| 211 | D | Main scan encoder error | |
| | | The carriage unit does not stop at home position (rear side) or reverse position (front side). | • Defective main scan drive motor <br> • Main scan encoder coming off <br> • Defective main scan encoder sensor <br> 1. Replace the main scan drive motor. <br> 2. Reinstall or replace the main scan encoder. <br> 3. Replace the main scan encoder sensor. |

SC5xx

| No. Definition | | Symptom | Possible Cause/Countermeasure |
|---|---|---|---|
| 503 | C | Tray 2 (optional paper tray unit) feed error | |
| | | • The lift sensor is not activated within 18 seconds twice consecutively after the tray lift motor starts lifting the bottom plate.<br>• When the tray lowers, the tray lift sensor does not go off within 1.5 sec twice consecutively. | • Defective or disconnected tray lift motor<br>• Paper or other obstacle trapped between tray and motor<br>• Pick-up solenoid disconnected or blocked by an obstacle<br>• Reverse connection of harness<br>1. Remove an obstacle.<br>2. Replace the lift sensor. |
| 504 | C | Tray 3 (optional paper tray unit) feed error | |
| | | • The lift sensor is not activated within 18 seconds twice consecutively after the tray lift motor starts lifting the bottom plate.<br>• When the tray lowers, the tray lift sensor does not go off within 1.5 sec twice consecutively. | • Defective or disconnected tray lift motor<br>• Paper or other obstacle trapped between tray and motor<br>• Pick-up solenoid disconnected or blocked by an obstacle<br>• Reverse connection of harness<br>1. Check the harness.<br>2. Remove an obstacle.<br>3. Replace the lift sensor. |
| 506 | C | Paper feed motor lock error (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. | • Defective paper feed motor<br>• Too much load on the drive mechanism<br>1. Remove too much load.<br>2. Replace the paper feed motor. |
| 520 | D | Sub scan motor error | |
| | | The sub scan motor does not reply for 100ms when a machine sends the "stop" command to the sub scan motor. | • Defective sub scan encoder sensor<br>• Timing belt of the sub scan encoder is come off. |

**4**

| No. Definition | | Symptom | Possible Cause/Countermeasure |
|---|---|---|---|
| | | | • Defective sub scan motor |
| | | | 1. Check the sub scan encoder and timing belt. |
| | | | 2. Replace the sub scan encoder sensor. |
| | | | 3. Replace the sub scan motor. |
| 570 | D | Charge bias leak | |
| | | High voltage unit sends a signal of charge bias leak. | • Defective charge roller |
| | | | • Defective high voltage unit |
| 571 | D | Ink head temperature error | |
| | | The temperature sensor at the ink head detects unusual temperature for 0.8 seconds. | • Disconnect harness |
| | | | • Defective temperature sensor at the ink head |
| | | | 1. Check the connector (CN138). |
| | | | 2. Replace the temperature sensor at the ink head. |
| 572 | D | Belt temperature error | |
| | | The temperature sensor at the belt unit detects unusual temperature for 0.8 seconds. | • Disconnect harness |
| | | | • Defective temperature sensor at the ink head |
| | | | 1. Check the connector (CN139, CON-IJ-CN503 and CN507). |
| | | | 2. Replace the temperature sensor at the ink head. |
| 573 | D | Belt temperature and absolute humidity error | |
| | | • The temperature sensor at the belt unit detects less than −15°C or more than 85°C. | • Disconnect harness |
| | | | • Defective temperature sensor at the ink head |
| | | • The humidity sensor at the belt unit detects less than 0% or more than 100%. | 1. Check the connector (CN114). |
| | | | 2. Replace the temperature sensor and/or humidity sensor at the ink head. |

### SC6xx

| No. Definition | | Symptom | Possible Cause/Countermeasure |
|---|---|---|---|
| 610 | D | Mechanical counter error | |
| | | The machine detects disconnection of a mechanical counter when SP5987-1 is set to "ON". | • Disconnected mechanical counter<br><br>1. Connect a mechanical counter. |
| 620 | D | Communication command error between BCU and ADF | |
| | | A communication error occurs after the machine detects the correct communication between BCU and ADF. | • Defective connection between ADF and BCU<br><br>• Defective ADF<br><br>• Defective IPU<br><br>1. Check the connection between ADF and BCU.<br><br>2. Replace the ADF.<br><br>3. Replace the IPU. |
| 687 | D | Memory address command error | |
| | | The BCU does not receive a memory address command from the controller 120 seconds after paper is in the position for registration. | • Loose connection<br><br>• Defective controller<br><br>• Defective BCU<br><br>1. Check if the controller is firmly connected to the BCU.<br><br>2. Replace the controller.<br><br>3. Replace the BCU. |

## Controller SC

### SC6xx
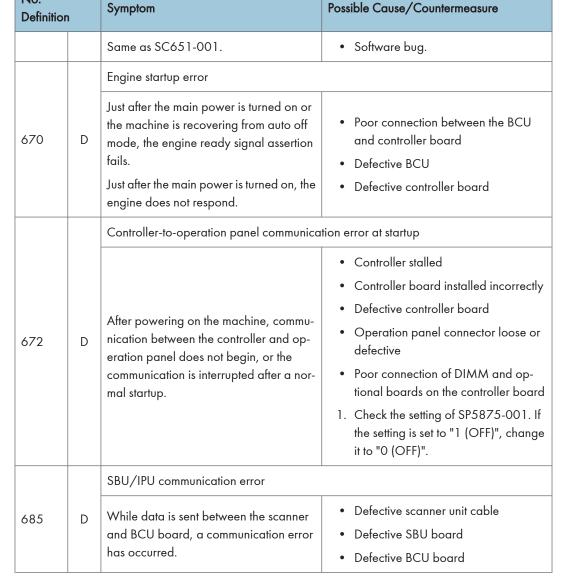
| No. Definition | | Symptom | Possible Cause/Countermeasure |
|---|---|---|---|
| 630 | C | CSS communication error | |

| No. Definition | | Symptom | Possible Cause/Countermeasure |
|---|---|---|---|
| | | The machine tries to communicate with one of the terminals of a relevant service center. → An error signal returns. | • Communication error on the public telephone network (logged only; the machine can still operate) |
| 632 | D | MF accounting device error 1 | |
| | | The machine sends a data frame. → No normal end signal returns. → This symptom happens three times. | • Defective or broken line between machine and device |
| 633 | D | MF accounting device error 2 | |
| | | The machine is communicating with the accounting device. → The break signal returns. | • Defective or broken line between machine and device |
| 634 | D | MF accounting device error 3 | |
| | | A backup RAM error is reported from the accounting device. | • Defective accounting device controller<br>• Defective battery in the accounting device |
| 635 | D | MF accounting device error 4 | |
| | | A battery voltage error is reported from the accounting device. | • Defective accounting device controller<br>• Defective battery in the accounting device |
| 636 | | SD Card Error | |
| | | Expanded authentication module error | |
| -001 | B | There is no expanded authentication module in the machine.<br>The SD card or the file of the expanded authentication module is broken.<br>There is no DESS module in the machine. | 1. Install the correct SD card or the file of the expanded authentication module.<br>2. Install the DESS module. |
| -002 | B | Version error | |

| No. Definition | | Symptom | Possible Cause/Countermeasure |
|---|---|---|---|
| | | The version of the expanded authentication module is not correct. | 1. Install the correct file of the expanded authentication module. |
| 650 | | Communication error of the remote service modem (Cumin-M) | |
| -001 | D | Authentication error | |
| | | The authentication for the Cumin-M fails at a dial up connection. | 1. Check and set the correct user name (SP5816-156) and password (SP5816-157). |
| -004 | D | Incorrect modem setting | |
| | | Dial up fails due to the incorrect modem setting. | 1. Check and set the correct AT command (SP5819-160). |
| -005 | D | Communication line error | |
| | | The supplied voltage is not sufficient due to the defective communication line or defective connection. | 1. Consult with the user's local telephone company. |
| -011 | D | Incorrect network setting | |
| | | Both the NIC and Cumin-M are activated at the same time. | 1. Disable the NIC with SP5985-1. |
| -012 | D | 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. | 1. Install the modem board.<br>2. Check and reset the modem board setting with SP5816.<br>3. Replace the modem board. |
| 651 | | Incorrect dial up connection | |
| -001 | C | Program parameter error | |
| | | The unexpected error occurs when the modem (Cumin-M) tries to call the center with a dial up connection. | • Software bug. |
| -002 | C | Program execution error | |

4

| No. Definition | | Symptom | Possible Cause/Countermeasure |
|---|---|---|---|
| | | Same as SC651-001. | • Software bug. |
| 670 | D | Engine startup error | |
| | | Just after the main power is turned on or the machine is recovering from auto off mode, the engine ready signal assertion fails.<br><br>Just after the main power is turned on, the engine does not respond. | • Poor connection between the BCU and controller board<br>• Defective BCU<br>• Defective controller board |
| 672 | D | Controller-to-operation panel communication error at startup | |
| | | After powering on the machine, communication between the controller and operation panel does not begin, or the communication is interrupted after a normal startup. | • Controller stalled<br>• Controller board installed incorrectly<br>• Defective controller board<br>• Operation panel connector loose or defective<br>• Poor connection of DIMM and optional boards on the controller board<br>1. Check the setting of SP5875-001. If the setting is set to "1 (OFF)", change it to "0 (OFF)". |
| 685 | D | SBU/IPU communication error | |
| | | While data is sent between the scanner and BCU board, a communication error has occurred. | • Defective scanner unit cable<br>• Defective SBU board<br>• Defective BCU board |

SC8xx

| No. Definition | | Symptom | Possible Cause/Countermeasure |
|---|---|---|---|
| 818 | B | Watchdog error | |
| | | While the system program is running, no other programs can run (due to a bus hold or endless loop). | • Defective controller board<br>1. Reinstall the system program. |

| | | | 2. Replace the controller board. |
|---|---|---|---|
| 819 | | Kernel stop | |
| | | Process error | |
| [0696e] | B | System completely down | • Defective RAM DIMM<br>• Defective SD card in slot 1<br>• Defective controller<br>• Software error<br>1. Check and/or replace the RAM DIMM.<br>2. Check and/or replace the SD card in slot 1.<br>3. Replace the controller.<br>See **NOTE** at the end of the SC table. |
| | | VM full error | |
| [0766d] | B | Unexpected system memory size | • Defective RAM DIMM<br>• Defective SD card in slot 1<br>• Defective controller<br>• Software error<br>1. Check and/or replace the RAM DIMM.<br>2. Check and/or replace the SD card in slot 1.<br>3. Replace the controller.<br>See **NOTE** at the end of the SC table. |
| | | Cache error | |
| [4361] | B | Cache error in the CPU | • Defective CPU<br>1. Replace the controller board. |
| | | The others | |
| [----] | B | Error in OS | • Defective memory<br>• Defective flash memory<br>• Defective CPU |

**4**

| | | | 1. Replace the controller board. |
|---|---|---|---|
| 820 | | Self-Diagnostic Error: CPU | |
| | B | [0001-0015] [000A-000D]: Detailed error code | |
| | | During the boot monitor program and self-diagnostic, any exception or cut-in are not supposed to happen. If these happen, it is defined as SC. | • Defective CPU device<br>• Defective boot monitor program or self-diagnostic program<br>1. Replace the controller board.<br>2. Reinstall the system firmware. |
| | B | [00FF]: Detailed error code | |
| | | Cache access error in the CPU | • Defective CPU<br>• Defective local bus<br>1. Turn the main power switch off and on.<br>2. Reinstall the system program.<br>3. Replace the controller board. |
| | B | [0601, 0602, 0605, 0606, 0607, 0609]: Detailed error code | |
| | | Exceptional command does not operate even though it is executed on purpose. | • Defective CPU devices<br>1. Replace the controller board. |
| | B | [060A-060E]: Detailed error code | |
| | | Cut-in command does not operate when it is executed. | • Defective CPU devices<br>• Defective ASIC devices<br>1. Replace the controller board. |
| | B | [0610]: Detailed error code | |
| | | Timer cut-in does not operate even though it is set. | • Defective CPU devices<br>1. Replace the controller board. |
| | B | [0612]: Detailed error code | |
| | | Cut-in in ASIC occurs. | • Defective ASIC<br>• Defective devices in which ASIC detects cut-in.<br>1. Replace the controller board. |

| | | [06FF]: Detailed error code | |
|---|---|---|---|
| | B | The pipeline clock frequency rate is different from the prescribed value. | • Defective CPU devices<br>• Mode bit data error, which is used for initializing CPU.<br>1. Replace the controller board. |
| | | [0702]: Detailed error code | |
| | B | The result when the program is executed in the command cache is different from desirable value. | • Insufficient CPU cache<br>• Insufficient memory process speed<br>1. Replace the controller board.<br>2. Replace the RAM DIMM. |
| | | [0709, 070A]: Detailed error code | |
| | B | Even you write the data in the only cache of memory, the data is actually written in another area (not cache) of memory. | • Defective CPU devices<br>• Incorrect SPD<br>• Boot mode setting error<br>1. Replace the controller board.<br>2. Replace the RAM DIMM. |
| | | [0801, 0804, 0807, 0808, 0809, 80A]: Detailed error code | |
| | B | An error occurs when checking the TLB. | • Defective CPU devices<br>1. Replace the controller board. |
| | | [4002-4005]: Detailed error code | |
| | B | The calculation error in the CPU occurs. | • Defective CPU<br>1. Replace the CPU. |
| 821 | Self-Diagnostic Error: ASIC | | |
| [0B00] | | ASIC error | |
| | B | The write-&-verify check error has occurred in the ASIC. | • Defective controller board<br>1. Replace the controller. |
| [0B06] | | ASIC not detected | |
| | B | The ASIC of the I/O is not detected. | • ASIC (controller board defective) |

4
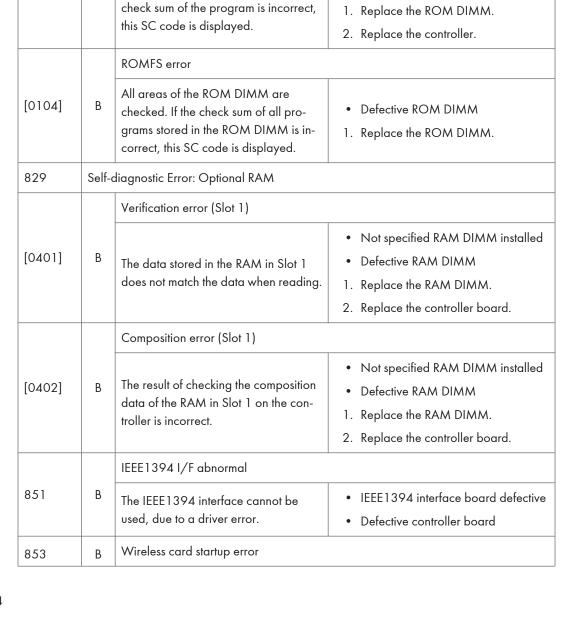
| | | | |
|---|---|---|---|
| | | | • Poor connection between North Bridge and PCI I/F.<br>1. Replace controller board. |
| [0B10] | B | SHM register check error | |
| | | Failed to initialize or could not read connection bus. Data in SHM register incorrect. | • Defective bus connection<br>• Defective SHM<br>1. Replace controller board. |
| [0D05] | B | Timer error between ASIC and CPU | |
| | | The CPU checks if the ASIC timer works properly compared with the CPU timer. If the ASIC timer does not function in the specified range, this SC code is displayed. | • System firmware problem<br>• Defective RAM-DIMM<br>• Defective controller<br>• Reinstall the controller system firmware.<br>1. Replace the RAM-DIMM.<br>2. Replace the controller board. |
| 822 | Self-Diagnostic Error: HDD | | |
| [3003]: | B | 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<br>• Defective HDD<br>• Defective controller<br>1. Check that the HDD is correctly connected to the controller.<br>2. Replace the HDD.<br>3. Replace the controller. |
| 823 | Self-diagnostic Error: NIB | | |
| [6101] | B | MAC address check sum error | |
| | | The result of the MAC address check sum does not match the check sum stored in ROM. | • Defective controller<br>1. Replace the controller. |
| [6104] | B | PHY IC error | |

| | | The PHY IC on the controller cannot be correctly recognized. | Same as SC823-[6101] |
|---|---|---|---|
| [6105] | B | PHY IC loop-back error | |
| | | An error occurred during the loop-back test for the PHY IC on the controller. | Same as SC823-[6101] |
| 824 | B | Self-diagnostic Error: NVRAM | |
| | | The controller cannot recognize the standard NVRAM installed or detects that the NVRAM is defective. | • NVRAM damaged or abnormal<br>• Backup battery has discharged<br>• NVRAM socket damaged<br>1. Replace the NVRAM. |
| 826 | B | Self-diagnostic Error: RTC/Optional NVRAM | |
| | B | [1501]: Clock error | |
| | | • An RTC device is recognized, and the difference between the RTC device and the CPU exceeds the defined limit.<br>• No RTC device is recognized. | • RTC defective<br>• NVRAM without RTC installed<br>• Backup battery discharged<br>1. Replace the NVRAM with another NVRAM with an RTC device. |
| | B | [15FF]: RTC not detected | |
| | | The RTC device is not detected. | • NVRAM without RTC installed<br>• Backup battery discharged<br>1. Replace the NVRAM with another NVRAM with an RTC device. |
| 827 | | Self-diagnostic Error: RAM | |
| [0201] | B | Verification error | |
| | | Error is detected during a write/verify check for the standard RAM (SDRAM DIMM). | • Loose connection<br>• Defective SDRAM DIMM<br>• Defective controller<br>1. Replace the SDRAM DIMM.<br>2. Replace the controller. |
| [0202] | B | Resident memory error | |

**4**

4. Troubleshooting

| | | | |
|---|---|---|---|
| | | The SPD values in all RAM DIMM are incorrect or unreadable. | • Defective RAM DIMM<br>• Defective SPD ROM on RAM DIMM<br>• Defective 12C bus<br>1. Replace the RAM DIMM. |
| 828 | | Self-diagnostic Error: ROM | |
| [0101] | B | Boost lap code error | |
| | | 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. | • Defective ROM DIMM<br>• Defective controller<br>1. Replace the ROM DIMM.<br>2. Replace the controller. |
| [0104] | B | ROMFS error | |
| | | All areas of the ROM DIMM are checked. If the check sum of all programs stored in the ROM DIMM is incorrect, this SC code is displayed. | • Defective ROM DIMM<br>1. Replace the ROM DIMM. |
| 829 | | Self-diagnostic Error: Optional RAM | |
| [0401] | B | Verification error (Slot 1) | |
| | | The data stored in the RAM in Slot 1 does not match the data when reading. | • Not specified RAM DIMM installed<br>• Defective RAM DIMM<br>1. Replace the RAM DIMM.<br>2. Replace the controller board. |
| [0402] | B | Composition error (Slot 1) | |
| | | The result of checking the composition data of the RAM in Slot 1 on the controller is incorrect. | • Not specified RAM DIMM installed<br>• Defective RAM DIMM<br>1. Replace the RAM DIMM.<br>2. Replace the controller board. |
| 851 | B | IEEE1394 I/F abnormal | |
| | | The IEEE1394 interface cannot be used, due to a driver error. | • IEEE1394 interface board defective<br>• Defective controller board |
| 853 | B | Wireless card startup error | |

| | | The machine starts up. → The IEEE802 11b card connection board is recognized. → The wireless LAN card or bluetooth card is not recognized. | • Loose connection between the card and the connection board |
|---|---|---|---|
| 854 | B | Wireless card access error | |
| | | The machine has been reading the data from the card. → The machine loses access to the card; the wireless LAN card or bluetooth card connection board is still recognized. | • Loose connection between the card and the connection board |
| 855 | B | Wireless card error | |
| | | Some illegal data is found in the card. | • Defective card |
| 856 | B | Wireless card connection board error | |
| | | An error is detected in the wireless LAN card or bluetooth card connection board. | • Defective card connection board |
| 857 | B | USB I/F Error | |
| | | USB interface error is detected. | • Defective controller<br>1. Check the USB connections, and make sure that they are securely connected.<br>2. Replace the controller board. |
| 860 | B | HDD startup error at main power on | |
| | | HDD is connected but a driver error is detected.<br>The driver does not respond with the status of the HDD within 30 s. | • No formatted HDD<br>• Label name input during formatting is corrupted.<br>• Defective HDD<br>1. Reformat the HDD.<br>2. Replace the HDD. |
| 861 | D | HDD reboot error | |
| | | The HDD does not become ready within 30 seconds after the power is supplied to the HDD. | • Loose connection<br>• Defective cables |

**4**

| | | | |
|---|---|---|---|
| | | | • Defective HDD |
| | | | • Defective controller |
| | | | 1. Check the connection between the HDD and controller. |
| | | | 2. Check and replace the cables. |
| | | | 3. Replace the HDD. |
| | | | 4. Replace the controller. |
| 863 | D | HDD read error | |
| | | The data stored in the HDD cannot be read correctly. | • Bad sector detected during operation of the HDD |
| | | | • Defective HDD |
| | | | • Defective controller |
| | | | 1. Reformat the HDD. |
| | | | 2. Replace the HDD when SC863 occurs more than ten times or it takes more than twenty seconds to get ready condition. |
| | | | 3. Replace the controller board. |
| 864 | D | HD data CRC error | |
| | | While reading data from the HDD or storing data in the HDD, data transmission fails. | • Defective HDD |
| 865 | D | HD access error | |
| | | An error other than SC863 and SC864 is detected while operating the HDD. | • Defective HDD |
| 866 | B | SD card authentication error | |
| | | A digital license error of an SD card application is detected. | • SD card data has corrupted.<br>1. Store correct data in the SD card. |
| 867 | D | SD card error | |
| | | An application SD card is removed from the boot slot while an application is activated. | • An application SD card is ejected. |

| 868 | D | SD card access error<br>(-13 to -3: File system error, other number: Device error) | |
| | | An error report is sent from the SD card reader. | • SD card not inserted correctly<br>• SD card defective<br>• Controller board defective<br>1. For a file system error, format the SD card on PC.<br>2. For a device error, turn the main switch off and on.<br>3. Remove and re-install the SD card.<br>4. Replace the SD card.<br>5. Replace the controller. |
| 870 | B | Address book data error | |
| | | The address book in the hard disk is accessed. → An error is detected in the address book data; address book data is not read; or data is not written into the address book..<br><br>**⬇ Note**<br>• To recover from the error, do any of the following countermeasures:<br>• Format the address book by using SP5-846-050 (all data in the address book–including the user codes and counters–is initialized). | • Data corruption<br>• Defective hard disk<br>• Defective controller software<br>1. Replace the hard disk (the user codes and counters are recovered when the main switch is turned on if those data are stored in Smart Device Monitor for Admin). |
| 872 | B | HDD received mail data error | |
| | | An error is detected in the received mail data partition of the HDD at machine initialization. | • Defective HDD<br>• Power failure during an access to the HDD<br>1. Initialize the HDD partition (SP5-832-007).<br>2. Replace the HDD. |
| 873 | B | HDD sent mail data error | |

**4**

| | | | |
|---|---|---|---|
| | | An error is detected in the sent mail data partition of the HDD at machine initialization. | • Defective HDD<br>• Power failure during an access to the HDD<br>1. Initialize the HDD partition (SP5-832-008).<br>2. Replace the HDD. |
| 874 | D | Delete All error 1: HDD | |
| | | An error is detected while the all data of the HDD or NVRAM are formatted physically by the Data Overwrite Security Unit (B735). | • Not installed Data Overwrite Security Unit (SD card)<br>• Defective HDD<br>1. Install the Data Overwrite Security Unit (B735).<br>2. Replace the HDD. |
| 875 | D | Delete All error 2: Data area | |
| | | An error is detected while the all data of the HDD or NVRAM are formatted logically by the Data Overwrite Security Unit (B735). | • The logical format for HDD fails.<br>1. Turn the main switch off/on and try the operation again. |
| 876 | | Log Data Error | |
| -001 | D | Log Data Error 1 | |
| | | An error was detected in the handling of the log data at power on or during machine operation. This can be caused by switching the machine off while it is operating. | • Damaged log data file in the HDD<br>1. Initialize the HDD with SP5832-004. |
| -002 | D | Log Data Error 2 | |
| | | Same as -001 | • An encryption module not installed<br>1. Disable the log encryption setting.<br>2. Install the encryption module |
| -003 | D | Log Data Error 3 | |
| | | Same as -001 | • Invalid encryption key log due to defective NVRAM data |

| | | | |
|---|---|---|---|
| | | | 1. Initialize the HDD with SP5832-004. <br> 2. Disable the log encryption setting. |
| -004 | D | Log Data Error 4 | |
| | | Same as -001 | • Unusual encryption function log due to the defective NVRAM data <br> 1. Initialize the HDD with SP5832-004. |
| -005 | D | Log Data Error 5 | |
| | | Same as -001 | • Installed NVRAM or HDD, which is used in other machine <br> 1. Reinstall the previous NVRAM or HDD. <br> 2. Initialize the HDD with SP5832-004. |
| -099 | D | Log Data Error 99 | |
| | | Same as -001 | • Other than above causes <br> 1. Ask your supervisor. |
| 877 | B | HDD Data Overwrite Security SD card error | |
| | | The all delete cannot be executed even though the Data Overwrite Security Unit (B735) is installed and activated. | • Defective SD card (B735) <br> • Not installed SD card (B735) <br> 1. Replace the NVRAM and then install the new SD card (B735). <br> 2. Check and reinstall the SD card (B735). |
| 880 | D | File Format Converter (MLB) error | |
| | | A request to get access to the MLB was not answered within the specified time. | • MLB defective |

## SC9xx

| | | | |
|---|---|---|---|
| 900 | D | Electronic total counter error | |
| | | The value of the total counter is out of the normal range. | • Defective NVRAM |
| 920 | B | Printer error | |

| | | | |
|---|---|---|---|
| | | An application error that stops the machine operation is detected. | • Defective software<br>1. Unexpected hardware resource (e.g., memory shortage) |
| 921 | B | Printer font error | |
| | | A necessary font is not found in the SD card when the printer application starts. | • A necessary font is not found in the SD card.<br>• The SD card data is corrupted.<br>1. Check that the SD card stores correct data. |
| 925 | D | Net file error | |
| | | The management file for net files is corrupted; net files are not normally read.<br><br>**Netfiles:**<br><br>Jobs to be printed from the document server using a PC and the DeskTop-Binder software | • Defective hard disk<br>• Data corruption<br>• Defective software<br><br>When SC860 to 865 occurs with this SC at the same time:<br><br>• The main cause is in SC860 to 865. Refer to those possible causes.<br><br>When only SC925 occurs:<br><br>• Initialize the net file partition of the HDD (with SP5-832-11) after you ask the customer for permission. This also erases the transmitted and received fax documents.<br>• If the above actions do not solve the problem, try to initialize all partitions of the HDD with SP5-832-1 after you ask the customer for permission.<br>• Replace the HDD. |
| 990 | B | Software performance error | |
| | | The software attempted to perform an unexpected operation. | • Software defective<br>• Internal parameter incorrect |

| | | | NOTE: When this error occurs, the file name, address, and data will be stored in NVRAM. This information can be checked by using SP7-403. See the data and the situation in which this SC occurs. Then report the data and conditions to your technical control center. | • Insufficient working memory |
|---|---|---|---|---|
| 991 | C | Software continuity error | | |
| | | | The software attempted to perform an unexpected operation. However, unlike SC990, the process can keep on running. | • Logged only; the machine can continue to operate |
| 992 | D | Undefined error | | |
| | | | An error not controlled by the system occurred (the error does not come under any other SC code). | • Defective software program |
| 997 | B | Application function selection error | | |
| | | | The application selected by a key press on the operation panel does not start or ends abnormally. | • Software for that application is defective<br>• An option required by the application (RAM, DIMM, board) is not installed.<br>• Too complicated nest of the fax group address<br>1. As for the fax operation problem, simplify the nest of the fax group address. |
| 998 | D | Application start error | | |
| | | | After switching the machine on, the application does not start within 60 s. (No applications start or end normally.) | • Software for that application is defective<br>• An option required by the application (RAM, DIMM, board) is not installed.<br>1. Check the setting of SP5875-001. If the setting is set to "1 (OFF)", change it to "0 (OFF)". |

# Self-Diagnostic mode

## Overview

There are three types of self-diagnostics for the controller.

- Power-on self-diagnostics: The machine automatically starts the self-diagnostics just after the power has been turned on.

- Detailed self-diagnostics: The machine does the detailed self-diagnostics by using a loop-back connector (P/N G0219350)

- SC detection: The machine automatically detects SC conditions at power-on or during operation.

## Detailed self-diagnostics

This detailed self-diagnostic test requires a loop-back connector (P/N: G0219350).

1. **Turn off the machine and attach the loop-back connector to the parallel interface.**

2. **Hold down "Sharp" key, press and hold down "Asterisk" key, and then while pressing both keys at the same time, switch on the machine. You will see "Now Loading" on the touchpanel, and prints the diagnostic report after completing the test.**

   - Refer to the diagnostics report for the detected errors. The errors detected during self-diagnostics can be checked with SP7-832-001 (Diag. Result).

   - Refer to section 4.1 for details about the error codes.

# General Troubleshooting

## Troubleshooting for Expected Problems in the Field

| No. | Problems | Possible causes/Countermeasures |
|---|---|---|
| 1 | Trailing edge margin is not enough. | • The engine entrance sensor may have a problem about its movement.<br>1. Check the trailing margin with SP2103-2 "Prt Erase Margin Adj TEdge Margin".<br>2. Check the engine entrance sensor. Make sure that the spring of the engine entrance sensor is correctly set. |
| 2 | A machine stops indicating the "Please Wait" message. | • Memory defective<br>• A machine is still formatting the HDD. It takes approximately 5 minutes.<br>1. Replace the controller board if this problem still occurs after checking above possible causes. |
| 3 | A machine automatically reboots. | 1. Check what SC happens to a machine and do the proper counter measure. You can confirm SC number with SP7403-1 to -10. |
| 4 | A machine does not get "Online mode" even the copier screen comes up on the operation panel. | • SD card error (not installed or defective)<br>• Incorrect NIS or USB setting<br>1. Check that an SD card is installed correctly.<br>2. Set the SP5985-001 for NIS setting or -002 for USB setting to the "1".<br>3. Replace the controller board if this problem still occurs after checking above possible causes. |
| 5 | SC142 occurs at power on. | • Defective IPU<br>1. Replace the IPU. |
| 6 | Background dirty occurs after recovering. | • Defective IPU<br>1. Replace the IPU. |
| 7 | Horizontal line or no image area (0.1mm to 1.5mm width) occurs | • Defective IPU<br>1. Replace the IPU. |

**4**

| No. | Problems | Possible causes/Countermeasures |
|---|---|---|
| | due to the other reason than a nozzle problem. | |
| 8 | Smeared dirt occurs in feed direction. | • Dirty paper path<br>1. Clean the paper path (transport roller, idle roller etc.) |
| 9 | Paper jam occurs at the registration roller. (A leading edge of paper comes out 0mm to 0.5mm from the registration roller nip.) | • Defective paper feed motor<br>1. Replace the paper feed motor. |
| 10 | Paper jam occurs at the paper exit roller. (The leading edge of paper is no damage but there is a line pressed like "Z" on the paper.) | • Defective paper exit motor<br>1. Replace the paper exit motor. |

## Poor Quality Image

### Colors Not What You Expect

| Cause 1: | The correct paper was not used for the print job, or the paper was not loaded correctly. |
|---|---|
| Solution 1: | Check the selection for the type of paper in the printer driver (transparency, ink jet, plain paper, etc.). Confirm that the same type of paper is loaded correctly in the printer. |
| Cause 2: | The print mode selection was not correct. |
| Solution 2: | Make sure that the print mode selection in the printer software application and the printer driver is correct (Paper Type, Print Quality, Level Color, etc.) |
| Cause 3: | Job settings in the software application are not correct. |
| Solution 3: | Check the settings for the print job in the software application. The settings in the software application have priority over the printer driver settings. |
| Cause 4: | One or more print heads are blocked. |
| Solution 4: | Do cleaning Cycle 1 and then Cleaning Cycle 2. |

## Colors Faint

| Cause 1: | The correct paper was not used for the print job. |
|---|---|
| Solution 1: | Check the selection for the type of paper in the printer driver (transparency, ink jet, plain paper, etc.). Confirm that the same type of paper is loaded in the printer. |
| Cause 2: | The print mode selection was not correct. |
| Solution 2: | Make sure that the print mode selection in the printer software application and the printer driver is correct (Paper Type, Print Quality, Level Color, etc.) Make sure that the "Color/Black and White" selection is correct. |
| Cause: 3 | One or more print heads are blocked. |
| Solution 3: | Do cleaning Cycle 1 and then Cleaning Cycle 2. |

## Color Print Job Prints in Monochrome

| Cause 1: | "Black and White" was selected for the print job. |
|---|---|
| Solution 1: | On the "Setup" sheet of the printer driver, make sure "Color" is selected under "Color/Black and White". |
| Cause 2: | Correct data not selected for the print job. |
| Solution 2: | Confirm that the software application printed the correct data. |

## White Patches, or Horizontal White Lines

| Cause 1: | Original image abnormal. |
|---|---|
| Solution 1: | In the software application, check the original image for streaking (especially at borders between different colors). Correct the original image. |
| Cause 2: | One or more print heads are blocked. |
| Solution 2: | Do cleaning Cycle 1 and then Cleaning Cycle 2. |

## Vertical White Lines

| Cause: | Solid or intermittent white lines from the top to the bottom of the sheet caused by a blocked ink nozzle. |
|---|---|
| Solution: | Do cleaning Cycle 1 once. |

## Image Chaffed in Horizontal Direction

| Cause: | Solid or intermittent white lines from edge to edge of the sheet caused by a blocked ink nozzle. |
|---|---|
| Solution: | Do cleaning Cycle 1 once. |

## Only 1 Line Printed at Leading Edge

| Cause 1: | Paper with punched holes, or thin or slick paper with too much "play" was used that allowed slippage during feed. |
|---|---|
| Solution 1: | Check the paper used for the print job and make sure that it meets standards for use with this printer. For more see the Operating Instructions or the last section "Specifications" of the Service Manual. |
| Cause 2: | Paper is jammed or slipping on the transport belt due to the accumulation of paper dust, etc. on the belt. |
| Solution 2: | Clean accumulated paper dust, etc. from the transport belt. The service technician must clean the transport belt. |

## Unwanted Dots

| Cause: | Flakes of paper dust or dry ink have fallen onto the printed sheet. |
|---|---|
| Solution: | Do cleaning Cycle 1 once. Operator should call for service if cleaning does not solve the problem. |

## Text Dirty

| | |
|---|---|
| Cause 1: | Print job was not set up correctly for special print media. |
| Solution 1: | Special procedures are necessary to set up print jobs for special print media such as postcards, envelopes, and transparencies. Review and carefully follow the instructions in the Operating Instructions. Pay special attention to these settings "Paper Type", "Job Type", and "Print Quality". |
| Cause 2: | The sheets are not flat or are deformed in some way. |
| Solution 2: | Make sure the sheets are perfectly flat (especially envelopes, postcards). Make sure the sheets neither curled nor deformed in any way. If using thick or any type of coated paper, make sure that the paper is approved for use with this printer. |
| Cause 3: | One or more print heads are blocked. |
| Solution 3: | Do cleaning Cycle 1 and then Cleaning Cycle 2. |

## Backs of Sheets Stained With Ink

| | |
|---|---|
| Cause: | Paper has jammed in the printer or the transport belt is dirty. |
| Solution: | Run a print job with several sheets of paper to use clean up the ink. Use a damp cloth to clean the surface of the transport belt, and then use a clean, dry cloth to clean the surface of the belt. |

## Transparency Sheets Scratched

| | |
|---|---|
| Cause: | More than 1 sheet of transparency was set. |
| Solution: | Set transparencies one by one for printing one sheet at time. For more, please refer to the Operating Instructions. |

## Miscellaneous

| | |
|---|---|
| Cause 1: | The paper in use is not the correct paper for the print job. |
| Solution 1: | Check the paper loaded for feeding. Make sure that it matches the type of paper specified for the print job (transparency, ink jet, plain paper, etc.). Make sure that the paper is approved for use with this printer. For more, see the Operating Instructions or the "Specifications" in the last section of the Service Manual. |
| Cause 2: | The print mode selection was not correct. |
| Solution 2: | Make sure that the print mode selection in the printer software application and the printer driver is correct (Paper Type, Print Quality, Level Color, etc.) Make sure that the "Color/ Black and White" selection is correct. |
| Cause 3: | Job settings in the software application are not correct. |
| Solution 3: | Check the settings for the print job in the software application. The settings in the software application have priority over the printer driver settings. |
| Cause 4: | Correct data not selected for the print job. |
| Solution 4: | Confirm that the software application printed the correct data. |
| Cause 5: | One or more of the nozzles is blocked. |
| Solution 5: | Do cleaning Cycle 1 once. |

## Poor Printer Performance (Miscellaneous)

### Cannot set paper cassette.

| | |
|---|---|
| Cause: | The cassette is damaged or there is a jammed sheet of paper inside the printer. |
| Solution: | Remove the paper cassette. Remove the jammed sheet from inside the printer. Inspect the paper cassette for damage. If the cassette is damaged, replace the paper cassette. |

### Cannot remove paper cassette.

| Cause: | The paper cassette is blocked. |
|---|---|
| Solution: | Raise the paper output tray and reset it. Attempt to remove the paper cassette again. Replace the paper cassette. |

### Printer does not turn on.

| Cause: | The power cord is not connected to the power source. |
|---|---|
| Solution: | Follow the instructions on the screen if an error message appears in the Status Monitor, or do the following: Make sure the power cord is securely connected to the printer and to the power source. Make sure the operator knows how to switch on the printer correctly. For more, refer to the Setup Guide and the Operating Instructions. Switch the printer off. Remove the power cord from the power source. Wait 2 minutes then connect the power cord and switch the printer on. |

### Printer fails to enter "Ready" mode.

| Cause: | An error has occurred at the printer. |
|---|---|
| Solution: | Check the operation panel and determine which LEDs are on or flashing (temperature out of range, ink out, cover open, etc.) Then refer to the checklist in the previous section. |

### Printing stops before print job finishes.

| Cause: | The print heads have overheated. |
|---|---|
| Solution: | The printer has stopped to allow the print heads to cool. After the print heads have cooled down to the standard operating temperature, the print job will resume. |
| Cause: | A fatal error has occurred on the computer side. |

| Solution: | Check the screen for messages. Shut down the computer. Switch off the printer. Check the USB connection at the printer and the computer. Switch the printer on. Restart the computer. |
|---|---|

### Printer loses power.

| Cause: | Power loss at the source. |
|---|---|
| Solution: | Power to the printer has been interrupted, due to a power failure or some other external cause. Unplug the printer from the power source. Wait 2 minutes. Reconnect the power plug and switch the printer on. |
| Cause: | The printer has blown a fuse. |
| Solution: | The printer must be returned to the service center for replacement of the F300 board. |

### Firmware update failed.

| Cause: | Incorrect procedure. |
|---|---|
| Solution: | Update the firmware. |

## Unusual Noises

### Printer emits strange noises at power on.

| Cause: | Paper scraps remain inside the printer. |
|---|---|
| Solution: | Open the top cover, rear cover (or Duplex Unit) cover and inspect inside the printer and Duplex Unit for paper scraps left behind after clearing a paper jam. |
| Cause: | Special print media may make a noise on feeding the last sheet. |
| Solution: | Load one blank sheet of plain paper at the bottom of a stack of special media (coated paper, etc.) This problem may occur with a new paper cassette. |

## Maintaining the Printer Head Condition

### Preparing for Test Printing

1. **Make sure A4 size or LTR SEF size paper is loaded in the standard tray.**

2. **Make sure the copier is ready to print (the [Power] key is on).**

### Entering the User Tools

1. **Press the "User Tools" button to enter the UP mode.**

2. **Select "Maintenance".**

### Cleaning Cycle 1

1. **Select "Clean Print-heads" (User Tools > Maintenance > Clean Print-heads), and then press the "OK" button.**

2. **Select the five print-heads to be cleaned with left or right arrow button. (You can cancel it also pressing the left or right arrow button again.)**

   ⬇️**Note**

   - You can select multiple print-heads in this cleaning. If the print-head is selected for this cleaning, the checked mark shows at left next to the print-head name.

3. **Press "OK" button, and then "This function consumes a large quantity of ink. Do you want to continue?" message shows on the display.**

4. **Press "Yes" button to execute the cleaning.**

5. **After cleaning, "Cleaning complete" message shows on the display.**

6. **Press "Exit" button and follow the instruction on the display.**

   ⭐**Important**

   - Wait for cleaning to finish. Never do any other operation at the time of cleaning.

   - Check the results of the nozzle check pattern. Examine which nozzles need cleaning.

   - Do Steps 1 to 6 again. You can do this up to three times.

   - Do Cleaning Cycle 2 after the third printing of the test problem if the pattern is still not correct.

## Cleaning Cycle 2

⭐**Important**

- Cleaning Cycle 2 uses a lot of ink. Do Cleaning Cycle 1 at least 3 times before you do Cleaning Cycle 2.

1. Select "Flush Print-heads" (User Tools > Maintenance > Flush Print-heads), and then press the "OK" button.

2. Select the five print-heads to be cleaned with left or right arrow button. (You can cancel it also pressing the left or right arrow button again.)

   ⬇**Note**

   - You can select multiple print-heads in this cleaning. If the print-head is selected for this cleaning, the checked mark shows at left next to the print-head name.

3. Press "OK" button, and then "This function consumes a large quantity of ink. Do you want to continue?" message shows on the display.

4. Press "Yes" button to execute the cleaning.

5. After flushing, "Flushing complete" message shows on the display.

6. Press "Exit" button and follow the instruction on the display.

   ⭐**Important**

   - Wait for cleaning to finish. Never do any other operation at the time of cleaning.
   - Check the results of the nozzle check pattern after completing this function.

## If Cleaning Cycle 2 Does Not Solve the Problem...

1. Let the machine stay unused overnight.

2. In the morning, turn on the main power switch of the machine.

3. Print the nozzle check pattern using UP mode.

4. Then check the results of the test pattern.

5. If a problem is remaining, clean the print heads. For details, see the "Print Heads" ("Cleaning Procedures" in the section "Preventive Maintenance").

6. Print the nozzle check pattern using UP mode again, and then check the results of the test pattern.

7. If a problem is still remaining, wipe the nozzle surface with a damp cloth (For details, refer to the "Trouble Shooting Guide").

   ⬇**Note**

   - Use water; Never use alcohol or dry cloth for wiping the nozzle surface.

8.  **Print the nozzle check pattern using UP mode again, and then check the results of the test pattern.**

9.  **If a problem is still remaining, replace the engine unit.**

**4**

# Image Test Mode

## Overview

The SBU, BCU, and LD board have the function that prints out their test pattern. It is useful to find the defective board when the image data problem is occurred.

## IPU test

The BCU board has the IPU test pattern. To make sure the image processing is functioning, output the IPU test pattern with SP4-417.

# Electrical Component Defects

## Sensors

| Component | CN | Condition | Symptom |
|---|---|---|---|
| First Registration | 115-6 (BCU) | Open | The Paper Jam message will appear whenever a copy is made (paper hasn't reached the sensor). |
| | | Shorted | The Paper Jam message appears even if there is no paper at the sensor. |
| Relay | 116-2 (BCU) | Open | The Paper Jam message will appear whenever a copy is made except for 1st and by-pass tray feeding. |
| | | Shorted | The Paper Jam message appears even if there is no paper at the sensor. |
| By-pass Paper End | 127-11 (BCU) | Open | The Paper End indicator lights when the bypass tray is selected, even if there is paper in the tray. |
| | | Shorted | The Paper End indicator does not light when the bypass tray is selected, even if there is no paper in the tray. The Paper Jam message will appear whenever a copy is made from the bypass tray. |
| Junction Gate | 114-A9 (BCU) | Open | The Paper Jam message will appear whenever a copy is made (paper hasn't reached the sensor). |
| | | Shorted | The Paper Jam message appears even if there is no paper at the sensor. |
| Exit | 114-A4 (BCU) | Open | The Paper Jam message will appear whenever a copy is made (paper hasn't reached the sensor). |
| | | Shorted | The Paper Jam message appears even if there is no paper at the sensor. |
| Engine Entrance | 161-2 (BCU) | Open | The Paper Jam message will appear whenever a copy is made (paper hasn't reached the sensor). |
| | | Shorted | The Paper Jam message appears even if there is no paper at the sensor. |

| Component | CN | Condition | Symptom |
|-----------|-----|-----------|---------|
| Engine Exit | 114-B7 (BCU) | Open | The Paper Jam message will appear whenever a copy is made (paper hasn't reached the sensor). |
| | | Shorted | The Paper Jam message appears even if there is no paper at the sensor. |
| Scanner H.P. | 102-2 (BCU) | Open | SC120 is displayed. |
| | | Shorted | |
| Platen Cover | 102-5 (BCU) | Open | APS and Auto Reduce/Enlarge do not function correctly. |
| | | Shorted | If the Start button is pressed with the platen cover or A(R)DF closed, "Cannot detect original size" is displayed. |
| Original Width | 103-2,5 (BCU) | Open | The CPU cannot detect the original size properly. APS and Auto Reduce/Enlarge do not function correctly. |
| | | Shorted | |
| Original Length | 103-8,11 (BCU) | Open | The CPU cannot detect the original size properly. APS and Auto Reduce/Enlarge do not function correctly. |
| | | Shorted | |
| Duplex Entrance | 105-4 (DCB) | Open | The Paper Jam message will appear whenever a duplex copy is made (paper hasn't reached the sensor). |
| | | Shorted | The Paper Jam message appears even if there is no paper at the sensor. |
| Duplex Exit | 106-4 (DCB) | Open | The Paper Jam message will appear whenever a duplex copy is made (paper hasn't reached the sensor). |
| | | Shorted | The Paper Jam message appears even if there is no paper at the sensor. |
| Duplex Inverter | 104-2 (DCB) | Open | The Paper Jam message will appear whenever a duplex copy is made (paper hasn't reached the sensor). |
| | | Shorted | The Paper Jam message appears even if there is no paper at the sensor. |
| Waste Ink Tank Full | 123-1 (BCU) | Open | |
| | | Shorted | |

**4**

| Component | CN | Condition | Symptom |
|---|---|---|---|
| Sub Scan Encoder | 161-7,8 (BCU) | Open / Shorted | SC520 is displayed. |
| Main Scan Encoder | 3-3,4 (COM) | Open / Shorted | SC210 or SC211 is displayed. |
| Ink Full | 508-11 (BCU) | Open / Shorted | SC202 is displayed. |
| Lift sensor 1 | 140-6,7 (I/F) | Open / Shorted | SC503 is displayed. |
| Lift sensor 2 | 140-1,2 (I/F) | Open / Shorted | SC504 is displayed. |

## Switches

| Component | CN | Condition | Symptom |
|---|---|---|---|
| Paper End | 113-2 (BCU) | Open / Shorted | The CPU cannot detect the paper end, and a paper jam may occur when a copy is made from the standard paper tray. |
| Paper Size | 113-3,4,6 (BCU) | Open / Shorted | The CPU cannot detect the proper paper size, and misfeeds may occur when a copy is made from the 1st paper tray. |
| Vertical Transport Door | 110-5 (BCU) | Open | The Cover Open indicator is lit even if the vertical transport door is closed. |
| | | Shorted | The Cover Open indicator is not lit even if the vertical transport door is opened. |
| By-pass Paper Size | 127-1,2,4,5 (BCU) | Open / Shorted | The CPU misdetects or is not able to detect the size of the paper set in the bypass tray, causing possible misfeeds when feeding from this tray. |
| One-sheet By-pass Tray | 127-9 (BCU) | Open | The machine detects that the one-sheet by-pass tray is open even it is closed. |

**4**

| Component | CN | Condition | Symptom |
|---|---|---|---|
|  |  | Shorted | The machine does not detect that the one-sheet by-pass tray is open even it is actually opened. |
| One-sheet By-pass Paper Set | 113-8 (BCU) | Open | The machine does not open the one-sheet by-pass shutter even a sheet of paper is set to the one-sheet by-pass tray. |
|  |  | Shorted | The machine open the one-sheet by-pass shutter even a sheet of paper is not set to the one-sheet by-pass tray. |
| One-sheet By-pass Exit Door | 114-A2 (BCU) | Open | The Cover Open indicator is lit even if doors are closed. |
|  |  | Shorted | The Cover Open indicator is not lit even if doors are open. |
| Right Door | 115-2 (BCU) | Open | The Cover Open indicator is lit even if the right door is closed. |
|  |  | Shorted | The Cover Open indicator is not lit even if the right door is open. |
| Front Door | 111-4 (BCU) | Open | The Cover Open indicator is lit even if doors are closed. |
|  |  | Shorted | The Cover Open indicator is not lit even if doors are open. |
| Left Door | 114-A7 (BCU) | Open | The Cover Open indicator is lit even if doors are closed. |
|  |  | Shorted | The Cover Open indicator is not lit even if doors are open. |
| Left Junction Cover | 126-4 (BCU) | Open | The Cover Open indicator is lit even if doors are closed. |
|  |  | Shorted | The Cover Open indicator is not lit even if doors are open. |
| Carriage Postion | 161-5 (BCU) | Open | SC200 is displayed. |
|  |  | Shorted |  |
| Main |  | Open | The machine does not turn on. |

| Component | CN | Condition | Symptom |
|-----------|-----|-----------|---------|
|  |  | Shorted | The machine does not turn off. |

## Blown fuse conditions

| Fuse | Rating | | Symptom when turning on the main switch |
|------|--------|--------------|-----------------------------------------|
|      | 120 V  | 220 – 240 V  |                                         |
| **Power Supply Board** | | | |
| FU1 | 3.15A/250V | 6.3A/250V | No response. |
| FU2 | 1A/250V | 1A/250V | |
| FU4 | 4A/250V | 4A/250V | |
| FU5 | 4A/250V | 4A/250V | |
| FU6 | 4A/250V | 4A/250V | |
| FU7 | 4A/250V | 4A/250V | |
| FU8 | 3.15A/250V | 3.15A/250V | |
| **High Voltage Power Supply** | | | |
| F1 | 2.5A/72V | | |
| **Lamp Inverter** | | | |
| F1 | 1.25A/250V | | |

4

# 5. Service Tables

## Service Program Mode
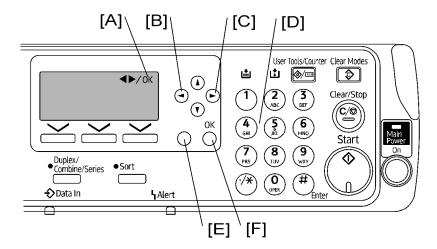
### ⚠CAUTION

- Do not let the user access the SP mode. Only service representatives but no other persons are allowed to access the SP mode. The machine quality or its operation is NOT guaranteed after any person other than service representatives accesses the SP mode.

### How to Enter the SP Mode

The following two modes are available:

- SP Mode (Service Program Mode): The SP Mode includes the programs that are necessary for standard maintenance work.

- SSP Mode (Special SP Mode): The SSP Mode includes SP-Mode programs and some special programs. You need some extra knowledge to manipulate these special programs. For details, consult your supervisor.



### Starting SP Mode

1. Type the keys as follows: [Clear Modes] > [1] > [0] > [7]

2. Press the [Clear/Stop] key and hold it down until the SP-mode menu is displayed (about 3 seconds).

### Selecting Programs

- When a blinking underscore (or several blinking underscores) is displayed, you can type a number from the numeric keypad [D].

- When the sign "◀ ▶/OK" [A] is displayed upper right corner, you can scroll through the menu by pressing the left-arrow key [B] or the right-arrow key [C]. To select a program, press the "OK" key [F].

### Specifying Values

1. **After locating a program, press the "OK" key. A blinking underscore (or several blinking underscores) indicates which value you can change. The value in parentheses is the default value of the menu.**

2. **Type a necessary value from the numeric keypad. To switch between positive (plus) and negative (minus) values, press the [./ *] (period/asterisk) key.**

3. **To validate the value, press the "OK" key. To cancel the value, press the cancel key [E].**

### Activating Copy Mode

You can activate the copy mode while the SP mode is running. When you do so, the copier outputs images or patterns that help you adjust the SP-mode program.

1. **Press the ⊚ key. The copy mode is activated.**

2. **Specify copy settings and press the "OK" key.**

3. **To return to the SP mode, press the ⊚ key.**

   ⬇ Note

   - You cannot end the SP mode while the copy mode is activated.

### Quitting Programs/Ending (S)SP Mode

Press the ⊚ key or the "Cancel" key to quit the program. You can end the SP mode by pressing one of these keys several times.

# SP Mode Tables

The tables in this section list the service programs (SPs).

The following codes are used:

- Asterisk (*): The settings are saved in the NVRAM. Most of them return to the default values when you execute SP 5801 2

- The DFU menu is for design or factory use only. You must not change the settings.

- Brackets ([ ]): The brackets enclose the setting rage, default value, and minimum step (with unit) as follows: [Minimum to Maximum / **Default** / Step].

- SSP: Consult your supervisor before you use this program.

## SP1-XXX (Feed)

| 1001* | **[LE Regist]** Leading Edge Registration | |
|---|---|---|
| 1001 1 | All Trays | Adjusts the printing leading-edge registration from paper trays. |
| 1001 2 | By-pass | [−9.0 to 9.0 / **0.0** / 0.1 mm/step] |
| 1001 3 | Duplex | (🖐 Copy Adjustments) |
| 1001 4 | End space | Adjusts the printing trailing-edge registration from the paper trays. [−9.0 to 9.0 / **0.0** / 0.1 mm/step] |
| 1001 5 | OHP | Adjusts the printing leading-edge registration of OHP from the by-pass tray. [−9.0 to 9.0 / **0.0** / 0.1 mm/step] |
| 1001 6 | All Trays (Fact) | |
| 1001 7 | By-pass (Fact) | These SPs store the factory setting of SP1001-1 to 5. Do the SP5884-1 when you change the values of SP1001-1 to 5 to the SP1001-6 to 10 (factory settings). |
| 1001 8 | Duplex (Fact) | |
| 1001 9 | End Space (Fact) | |
| 1001 10 | OHP (Fact) | |

| 1002* | **[S-to-S Registration]** |
|---|---|

| | | |
|---|---|---|
| | Adjusts the printing side-to-side registration from each paper feed station. Adjustments are effective for all 4 possible feed trays (including optional trays). <br><br> • A "−" value shifts the image to the right side of the paper. <br><br> • A "+" value shifts the image to the left side of the paper. <br><br> The SP 1002 1 setting is applied to all trays, not just the 1st tray. Settings for trays 2 to 4 are offsets relative to the SP 1002 1 setting. <br><br> For duplex copies, the value for the front side is determined by SP 1002-1 to -4, and the value for the rear side is determined by SP 1002-6. | |
| 1002 1 | 1st Tray | |
| 1002 2 | 1st Optional | |
| 1002 3 | 2nd Optional | |
| 1002 4 | By-pass:100 | [−9.0 to 9.0 / 0.0 / 0.1 mm/step] (📖 Copy Adjustments) |
| 1002 5 | By-pass | |
| 1002 6 | Duplex | |
| 1002 7 | OHP | |
| 1002 8 | 1st Tray (Fact) | |
| 1002 9 | 1st Optional (Fact) | |
| 1002 10 | 2nd Optional (Fact) | |
| 1002 11 | By-pass:100 (Fact) | Resets each adjusted value (SP1002-1 to 7) to the factory setting. |
| 1002 12 | By-pass (Fact) | |
| 1002 13 | Duplex (Fact) | |
| 1002 14 | OHP (Fact) | |

| 1003* | [Paper Buckle] | |
|---|---|---|
| 1003 1 | 1st tray | |
| 1003 2 | Reg Bank | Adjusts the amount of buckle that the paper feed motor applies to the paper after the registration sensor is activated. A higher setting applies greater buckling. <br> [0 to 10 / 3 / 1 mm/step] |
| 1003 3 | Reg By-pass | |
| 1003 4 | Reg Duplex | |

| 1003 5 | Belt1 Tray | Adjusts the amount of buckle that the paper feed motor applies to the paper after the belt entrance sensor is activated. A higher setting applies greater buckling.<br><br>[0 to 10 / 3 / 1 mm/step] |
|---|---|---|
| 1003 6 | Belt1 Multi: Plain | |
| 1003 7 | Belt1 Multi: Thk1 | |
| 1003 8 | Belt1 Multi: Thk2 | |
| 1003 9 | Belt1 Duplex | |
| 1003 10 | Belt2 Tray | Adjusts the amount of buckle that the paper feed motor applies to the paper after the carriage sensor is activated. A higher setting applies greater buckling.<br><br>[0 to 10 / **4** / 1 mm/step] |
| 1003 11 | Belt2 Multi: Plain | |
| 1003 12 | Belt2 Multi: Thk1 | |
| 1003 13 | Belt2 Multi: Thk2 | |
| 1004 14 | Belt2 Duplex | |

| 1014 | **[Single By-pass]** Single By-pass Setting | |
|---|---|---|
| 1014 1 | Pre-feed Distance | Adjusts the transport distance of paper fed from by-pass tray.<br><br>Do not specify 40 mm with this SP. If so, the machine detects paper jam.<br><br>[20 to 40 / **30** / 1 mm/step] |
| 1014 2 | Reset Time | Adjusts the interval for the single bypass mode to be ready. The machine resets the ready state for single by-pass mode after the specified time with this SP has passed.<br><br>[5 to 20 / **5** / 1 min/step] |

| 1015 | **[Feed Time Adj]** Feed Time Adjustment | |
|---|---|---|
| | Adjusts the time when a paper stops to be dried. | |
| 1015 1 | Pause 1 | [0 to 80 / **10** / 1 sec/step] |
| 1015 2 | Pause 2 | [0 to 60 / **10** / 1 sec/step] |
| 1015 3 | Pause 3 | [0 to 40 / **7** / 1 sec/step] |
| 1015 4 | Pause 4 | [0 to 20 / **2** / 1 sec/step] |

| 1015 5 | Pause 5 | [0 to 10 / **0** / 1 sec/step] |
|---|---|---|

| 1017* | **[Temp Abnormal]** Abnormal Temperature Detection | |
|---|---|---|
| 1017 1 | High Temp Stop H | **DFU** |
| 1017 2 | High Temp HM | The specified value with this SP is the threshold for machine stop. The machine stops when the measured temperature goes up to the specified value and recoveries when the measured temperature goes down to the specified value. This temperature is measured by thermistor at the transport belt. |
| 1017 3 | High Temp Rec HL | [20 to 50 / **48.5** / 0.5°C/step] |
| 1017 4 | Low Temp Rec LH | The specified value with this SP is the threshold for machine stop. The machine stops when the measured temperature goes down to the specified value and |
| 1017 5 | Low Temp LM | recoveries when the measured temperature goes up to the specified value. This temperature is measured by thermistor at the transport belt. |
| 1017 6 | Low Temp Stop L | [1 to 20 / **1** / 0.5°C/step] |

| 1018* | **[Env Temp Abnormal]** Environment Temperature Abnormal Detection | |
|---|---|---|
| 1018 1 | High Temp Stop H | **DFU**<br><br>The specified value with this SP is the threshold for machine stop. The measured temperature goes up to the specified value. This temperature is measured by thermistor at the carriage.<br><br>[20 to 50 / **43.5** / 0.5°C/step] |
| 1018 2 | High Temp HM | **DFU** |
| 1018 3 | High Temp Rec HL | The specified value with this SP is the threshold for machine recovery. The measured temperature goes down to the specified value. This temperature is measured by thermistor at the carriage.<br><br>[20 to 50 / **41.5** / 0.5°C/step] |
| 1018 4 | Low Temp Rec LH | **DFU** |
| 1018 5 | Low Temp LM | The specified value with this SP is the threshold for machine stop. The machine stops when the measured tem- |

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| 1018 6 | Low Temp Stop L | perature goes down to the specified value and recoveries when the measured temperature goes up to the specified value. This temperature is measured by thermistor at the transport belt. [1 to 20 / **1** / 0.5°C/step] |
|---|---|---|

| 1903 | [Feed Clutch Boost] Adjusts the amount of extra push that the feed clutch gives to the paper after the skew has been corrected at registration. This feature helps the registration roller feed certain types of paper (such as thick paper). Increase the value if thick paper is jamming after feeding from the registration roller. | |
|---|---|---|
| 1903 1 | 1st Tray | [0 to 100 / **30** / 5 ms/step] |
| 1903 2 | By-pass: 100 | |
| 1903 3 | Optional Tray | [0 to 100 / **10** / 5 ms/step] |

| 1908 | [Option Tray Adj] Optional Tray Adjustment Adjusts the bottom plate pressure of the optional paper feed unit. • +value increases pressure between the papers and the feeding roller at the optional feed unit. • −value decreases pressure between the papers and the feeding roller at the optional feed unit. | |
|---|---|---|
| 1908 1 | 1st Optional | [−2 to 2 / **0** / 1%/step] |
| 1908 2 | 2nd Optional | |

| 1922* | [SubScan: Send Adj] Sub Scan: Line Adjustment | |
|---|---|---|
| 1922 1 | Value | [−100 to 100 / **22** / 1/step] |
| | Adjusts the sub scan line referring to the adjustment sheet printed with SP3109-4. | |
| 1922 2 | Value(Fact) | This value is the factory setting. This value write ovet the value of SP1-922-1 when SP5-884-1 is executed. |
| 1922 3 | LEFT SCAN | [-400 to 400 / **0** / 1 pulse/step] |
| | This value is reference for the returning way (front to rear: home position) scanning. Therfore, it is not adjusted normally. | |

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| 1922 4 | RIGHT SCAN | [-400 to 400 / **0** / 1 pulse/step] |
| | Adjusts the gap between going way (rear to front) and returning way (front to rear) scanning position. | |

| 1923* | **[Belt Temp Adj]** Belt Temperature Adjustment **DFU** | |
| --- | --- | --- |
| 1923 1 | Adj Value | [0 to 100 / **23** / 1 mm/step] |
| 1923 2 | User Adj Value | [0 to 100 / **0** / 1 mm/step] |

## SP2-XXX (Drum)

| 2010 | **[Head Maint]** Head Maintenance | |
| --- | --- | --- |
| 2010 1 | Cleaning | [0 to 30 / **0** / 1 /step] |
| | Executes the printer heads cleaning for each color. | |
| | Check the nozzle check pattern with the SP3109-3. Set the number in correspond with each color if there is a problem in the sheet of the nozzle check pattern. | |
| | 0: All colors, 1: Cyan, 2: Black 1, 4: Black 2, 8: Magenta, 16: Yellow | |
| | • If it is necessary to clean more than two colors at same time, set the total number of the colors to be cleaned. e.g. If you want to clean the printer heads of Magenta and Yellow, set 24 (8+16) in this SP. | |
| 2010 2 | Refresh | [0 to 30 / **0** / 1 /step] |
| | Executes the printer heads refreshing for each color. | |
| | Do this SP in case that "Cleaning" (SP2010-1) does not solve a problem in the sheet of the nozzle check pattern. | |
| | 0: All colors, 1: Cyan, 2: Black 1, 4: Black 2, 8: Magenta, 16: Yellow | |
| | • If it is necessary to clean more than two colors at same time, set the total number of the colors to be cleaned. e.g. If you want to clean the printer heads of Magenta and Yellow, set 24 (8+16) in this SP. | |

| 2100 | **[Spe Maint]** Special Maintenance | |
| --- | --- | --- |
| 2100 1 | Ink Purge | [0 or 1 / **0** / - ] |
| | Removes remained ink from the sub tanks for replacing the engine unit or transporting the machine. | |

| 2101 | [Special Cleaning] | |
|---|---|---|
| 2101 1 | K1 | Executes the head cleaning for each printer head. The machine uses 32.04 ml of ink for this special cleaning. |
| 2101 2 | K2 | |
| 2101 3 | C | ⬇Note |
| 2101 4 | M | • Do not use customer's ink for this mode. |
| 2101 5 | Y | • After performing this special cleaning, you need to perform normal refreshing once to recover all nozzle condition. (Special cleaning flows ink faster speed, and sometimes air may get caught in the nozzle. As a result, the correct nozzle may have white line temporariy. To recover such condition, you need to perform the normal refreshing once.) |

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| 2103 | [Prt Erase Margin] Printer Erase Margin | |
|---|---|---|
| | Adjusts the erase margin of each edge for each paper type or in each printing mode. | |
| 2103 1 | Adj LEdge Margin | Leading edge for standard paper [2 to 6 / **3.3** / 0.1 mm/step] |
| 2103 2 | Adj TEdge Margin | Trailing edge for standard paper [0.5 to 4 / **2** / 0.1 mm/step] |
| 2103 3 | Adj Left Margin | Left edge for standard paper [0 to 4 / **2.0** / 0.1 mm/step] |
| 2103 4 | Adj Right Margin | Right edge for standard paper [0 to 4 / **2.0** / 0.1 mm/step] |
| 2103 5 | Lead Edge OHP | Leading edge for OHP [2 to 6 / **3.3** / 0.1 mm/step] |
| 2103 6 | Back End OHP | Trailing edge for OHP [0.5 to 4 / **2** / 0.1 mm/step] |
| 2103 7 | Left Mar OHP | Left edge for OHP [0 to 10 / **5** / 0.1 mm/step] |
| 2103 8 | Right Mar OHP | Right edge for OHP |

| | | [0 to 10 / **5** / 0.1 mm/step] |
|---|---|---|
| 2103 9 | Left Mar By-pass | Left edge in By-pass mode<br>[0 to 10 / **5** / 0.1 mm/step] |
| 2103 10 | Right Mar By-pass | Right edge in By-pass mode<br>[0 to 10 / **5** / 0.1 mm/step] |
| 2103 11 | Lead Edge Envelope | Leading edge for an envelope<br>[2 to 50 / **38** / 0.1 mm/step] |
| 2103 12 | Back End Envelope | Trailing edge for an envelope<br>[2 to 16 / **8.0** / 0.1 mm/step] |
| 2103 13 | Left Mar Envelope | Left edge for an envelope<br>[0 to 10 / **5** / 0.1 mm/step] |
| 2103 14 | Right Mar Envelope | Right edge for an envelope<br>[2 to 16 / **8.0** / 0.1 mm/step] |

| 2200* | **[Normal Fil Pos]** Normal Filling Ink Position | |
|---|---|---|
| | Displays the standard position of the ink actuator when the air releasing is done. These values are referred for checking the ink quantity. | |
| 2200 1 | K1 | |
| 2200 2 | K2 | |
| 2200 3 | C | [0 to 60000 / **0** / 1 pulse/step] |
| 2200 4 | M | |
| 2200 5 | Y | |

| 2505 | **[Wst Ink # Reset]** Ink Collection Bottle Counter Reset | |
|---|---|---|
| | Clears the ink collection bottle counter (Front or Rear). | |
| 2200 1 | Front | This clears the counter of SP7-221-2. Do this SP after replacing the front ink collection bottle.<br>The counter of SP7-854-2 counts up after clearing the counter of SP7-221-2. |

| 2200 2 | Rear | **Do SP7-804-005 instead of this SP.** |
|---|---|---|

| 2507* | **[Wst Ink Near Full]** Ink Collection Bottle Near Full Threshold ||
|---|---|---|
| | Specifies the threshold of the ink collection bottle near full. ||
| 2507 1 | Rear | [500000 to 2000000 / **1212000** / 1/step] |

| 2508 | [Exhalation Interval] ||
|---|---|---|
| 2508 1 | Selects the exhalation interval. Multiple printing may cause blocked nozzles. The exhalation prevents a nozzle from being blocked.<br><br>[0 or 1 / **0** / 1/step]<br><br>0: every twenty seconds, 1: every fifteen seconds ||

# SP3-XXX (Process)

| 3001* | [Gamma Setting] ||
|---|---|---|
| 3001 1 | K1 | |
| 3001 2 | K2 | |
| 3001 3 | C | **DFU**<br>[1 to 9 / **5** / 1/step] |
| 3001 4 | M | |
| 3001 5 | Y | |

| 3002* | **[Head: Gap Adj]** Printer Head: Gap Adjustment ||
|---|---|---|
| | Adjusts the head gap referring to the adjustment sheet printed with SP3109-1 (300 dpi) or 3109-2 (1200 dpi). ||
| 3002 1 | 300: A | |
| 3002 2 | 300: B | |
| 3002 3 | 300: C | [−100 to 100 / **0** / 1 dot/step] |
| 3002 4 | 300: D | |
| 3002 5 | 300: E | |

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| 3002 6 | 300: F | |
|---|---|---|
| 3002 7 | 300: G | |
| 3002 8 | 300: H | |
| 3002 9 | 300: I | |
| 3002 10 | 1200: A | |
| 3002 11 | 1200: B | |
| 3002 12 | 1200: C | |
| 3002 13 | 1200: D | |
| 3002 14 | 1200: E | [−100 to 100 / 0 / 1/step] |
| 3002 15 | 1200: F | |
| 3002 16 | 1200: G | |
| 3002 17 | 1200: H | |
| 3002 18 | 1200: I | |
| 3002 21 | 300: A (Fact) | |
| 3002 22 | 300: B (Fact) | |
| 3002 23 | 300: C (Fact) | |
| 3002 24 | 300: D (Fact) | These are values of the factory settings. |
| 3002 25 | 300: E (Fact) | SP3002-001 to -009 are reset to these settings when SP5884-1 is done. |
| 3002 26 | 300: F (Fact) | |
| 3002 27 | 300: G (Fact) | |
| 3002 28 | 300: H (Fact) | |
| 3002 29 | 300: I (Fact) | |
| 3002 30 | 1200: A (Fact) | |
| 3002 31 | 1200: B (Fact) | These are values of the factory settings. |
| 3002 32 | 1200: C (Fact) | SP3002-010 to -018 are reset to these settings when SP5884-1 is done. |
| 3002 33 | 1200: D (Fact) | |

| | | |
|---|---|---|
| 3002 34 | 1200: E (Fact) | |
| 3002 35 | 1200: F (Fact) | |
| 3002 36 | 1200: G (Fact) | |
| 3002 37 | 1200: H (Fact) | |
| 3002 38 | 1200: I (Fact) | |
| 3002 41 | 1200: Ruled line | Adjusts the gap precisely in B/W printing mode.<br><br>Do this SP only if a result of executing "Standard" in the "Head Position Adjust" (User Tools > Maintenance > Adjustment > Head Position Adjustment) is not satisfactory.<br><br>[−10 to 10 / **0** / 1/step] |

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| | | |
|---|---|---|
| 3109 | **[Print: Pattern]** | |
| | Prints the adjustment sheet for each print head adjustment. For details, refer to the "Image Adjustment" in section "Replace and Adjustment". | |
| 3109 1 | Head: Gap Adj 300 | This sheet is for the print head gap adjustment in 300 x 300 dpi. |
| 3109 2 | Head: Gap Adj 1200 | This sheet is for the print head gap adjustment in 1200 x 1200 dpi. |
| 3109 3 | Nozzle Check | This sheet is for the nozzle pattern adjustment. |
| 3109 4 | Sub Scan: Send Adj | This sheet is for the adjustment fro the paper feeding amount. |
| 3109 5 | Reg Adj | This sheet is for the main and sub scan registration adjustment. |
| 3109 6 | Auto: Gap Adj 300 | **DFU** |
| 3109 7 | Auto: Gap Adj 1200 | **DFU** |
| 3109 10 | For Fact | **DFU** |

| | | |
|---|---|---|
| 3112* | **[Print Mode Set]** Print Mode Setting | |
| 3112 1 | Setting 1 | [0 to 255 / **0** / 1/step] |
| | **Bit0: Scanning method adjustment** | |

[0: Normal, 1: Always one scanning (rear to front)]

It is possible to disable the returning scanning (front to rear: homeposition) to keep a high quality printing whatever jobs a machine gets.

**Bit1: One scanning mode for envelop**

[0: Normal, 1: Always one scanning (rear to front) when the envelop lever is "ON".]

It is possible to disable the returning scanning (front to rear: homeposition) to keep a high quality printing when the envelop lever is set to "ON".

**Bit2 and 3: Image density adjustment at duplex copy mode**

[Bit3: "0" and Bit2: "1", 80%]

[Bit3: "1" and Bit2: "0", 74%]

[Bit3: "0" and Bit2: "0", Normal (80 to 98%)]

In copy mode, it is possible to reduce ink to prevent the other side transparent image of paper when the duplex mode is used.

**↓Note**

- In duplex print mode, it is not possible to change the density and fixed at 80%.

**Bit4: reserved**

**Bit5: DFU**

**Bit6 and 7: Not used**

| | | |
|---|---|---|
| 3112 2 | Setting 2 | **DFU** |
| 3112 3 | Setting 3 | Not used |
| 3112 4 | Setting 4 | |
| 3112 5 | Setting 5 | |
| 3112 6 | Setting 6 | |
| 3112 7 | Setting 7 | |
| 3112 8 | Setting 8 | **DFU** |
| 3112 9 | Setting 9 | **DFU** |
| 3112 10 | Setting 10 | Not used |

| 3130* | [Head Rank (W Ptn)] | |
|---|---|---|
| 3130 1 | K1 | **DFU** <br> [0 to 7/ **0** / 1/step] |

| 3130 2 | K2 | |
|---|---|---|
| 3130 3 | C | |
| 3130 4 | M | |
| 3130 5 | Y | |

| 3131* | [Head Rank (Vol)] | |
|---|---|---|
| 3131 1 | K1 | |
| 3131 2 | K2 | |
| 3131 3 | C | **DFU**<br>[0 to 7/ **0** / 1/step] |
| 3131 4 | M | |
| 3131 5 | Y | |

| 3557* | [Hum Bf Idle] |
|---|---|
| 3557 2 | Displays the relative humidity when the machine has previously capped the printer head.<br>[0 to 100 / **0** / 1 %/step] |

| 3803* | [Paper Feed ReDrv] Paper Feed Re-drive Setting | |
|---|---|---|
| | Adjusts the paper feed retry time when the no-feed paper jam occurs at each tray. | |
| 3803 1 | Retry Times | [0 to 5 / **0** / 1/step] |

## SP4-XXX (Scanner)

| 4008* | [Sub Scan Mag] (Scanner) | [−0.9 to +0.9 / **0.0** / 0.1%/step] |
|---|---|---|
| 4008 1 | Adjusts the actual sub-scan direction scanning magnification. The higher the setting, the lower the scanner motor speed ( Copy Adjustments-Scanning). | |

| 4010 | [LE Scan Regist] (Scanner) | [−2 to +2 / **0.0** / 0.1 mm/step] |
|---|---|---|
| 4010 1 | Adjusts the leading edge registration for scanning in platen mode ( Copy Adjustments-Scanning). | |

| | |
|---|---|
| | • (−): The image moves toward the leading edge. |
| | • (+): The image moves toward the trailing edge· |

| 4011* | [StoS Scan Regist] (Scanner) | [−2.5 to +2.5 / **0.0** / 0.1 mm/step] |
|---|---|---|
| 4011 1 | Adjusts the side-to-side registration for scanning in platen mode (🔲 Copy Adjustments-Scanning). <br> • Increasing the value shifts the image to the right. <br> • Decreasing the value shifts the image to the left. | |

| 4012 | [Set Scale Mask] | |
|---|---|---|
| | Adjusts the scanning margin individually for each of the four edges in book scanning or ADF scanning. It is generally best to adjust the scanning margin as little as possible, and use the printing margin for image adjustments. | |
| 4012 1 | Book: Sub: LEdge | |
| 4012 2 | Book: Sub: TEdge | |
| 4012 3 | Book: Main: LEdge | |
| 4012 4 | Book: Main: TEdge | [0 to 3 / **1.0** / 0.1 mm/step] |
| 4012 5 | ADF: Sub: LEdge | |
| 4012 7 | ADF: Main: LEdge | |
| 4012 8 | ADF: Main: TEdge | |

| 4013 | [Scanner Free Run] | |
|---|---|---|
| | Performs a scanner free run with the exposure lamp on or off. Press ON to start. Press OFF to stop. | |
| 4013 1 | Lamp: ON | [0 or 1/ **0** / 1/step] <br> 0: Off, 1: ON |
| 4013 2 | Lamp: OFF | |

| 4014 | [Scan] | |
|---|---|---|
| 4014 1 | HP Detect: Enable | Enables the scanner home position detection. |
| 4014 2 | HP Detect: Disable | Disables the scanner home position detection. |

| 4020* | [Dust Check] | |
|---|---|---|
| 4020 1 | Dust Detect: ON/OFF | Enables or disables the dust detection on the ADF scanning glass or the white plate.<br><br>[0 or 1 / **0** / 1/step] |
| 4020 2 | Dust Detect: Lvl | Selects the dust detection level.<br><br>[ 0 to 8 / **4** / 1 /step]<br>0: lowest detection level<br>8: highest detection level |
| 4020 3 | Dust Reject: Lvl | Selects the level of the sub scan line correction when using the ADF.<br><br>[ 0 to 4 / **0** / 1 /step]<br>0: Off, 1: Weakest, 2: Weak,<br><br>3: Strong, 4: Strongest |

| 4301 | [APS Sns Chk] |
|---|---|
| 4301 1 | Displays the status of the APS sensors and platen/DF cover sensor (■■ ADF/APS Sensor Output Display). |

| 4303* | [APS Small Origin] | [**0 = No** (not detected) / 1 = Yes (A5/HLT LEF)] |
|---|---|---|
| 4303 1 | Selects whether or not the copier will consider the original to be A5/HLT LEF when the APS sensors cannot detect its size. If "Yes" is selected, paper sizes that cannot be detected by the APS sensors are regarded as A5/HLT LEF. If "No" is selected, "Cannot detect original size" will be displayed. | |

| 4305* | [APS Priority] | [**0 = Unknown size** / 1 = A5/HLT LEF] |
|---|---|---|
| 4305 1 | Selects the paper size when the machien detects the smaller size than B5. | |

| 4400 | [Org Edge Mask] | Set the Mask for Original |
|---|---|---|
| | This SP sets the area to be masked during platen (book) mode scanning. | |
| 4400 1 | Book:Sub:LEdge | [0 to 3.0 / **0** /0.1 mm/step] |
| 4400 2 | Book:Sub:TEdge | |

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| 4400 3 | Book:Main:LEdge |
|---|---|
| 4400 4 | Book:Main:TEedge |
| 4400 5 | ADF:Sub:LEdge |
| 4400 7 | ADF:Main:LEdge |
| 4400 8 | ADF:Main:TEdge |

| 4417 | [IPU Test Pattern] | | Set IPU Test Pattern | |
|---|---|---|---|---|
| 4417 1 | Use this SP to select the IPU test pattern to print. | | | |
| | Test Pattern | | [0to25/ **0** / 1/step] | |
| | 0 | Scanned Image | 13 | Grid Pattern CMYK |
| | 1 | Gradation Main Scan A | 14 | Color Patch CMYK |
| | 2 | Gradation Main Scan B | 15 | Gray Pattern (1) |
| | 3 | Gradation Main Scan C | 16 | Gray Pattern (2) |
| | 4 | Gradation Main Scan D | 17 | Gray Pattern (3) |
| | 5 | Gradation Sub Scan 1 | 18 | Shading Pattern |
| | 6 | Grid Pattern | 19 | Thin Line Pattern |
| | 7 | Slant Grid Pattern | 20 | Scanned + Grid Pattern |
| | 8 | Gradation RGBCMYK | 21 | Scanned + Grayscale |
| | 9 | UCR Pattern | 22 | Scanned + Color Patch |
| | 10 | Color Patch 16 (1) | 23 | Scanned + Slant Grid C |
| | 11 | Color Patch 16 (2) | 24 | Scanned + Slant Grid D |
| | 12 | Color Patch 16 64 | 25 | H Rank Pt |

| 4429 | ICI Output Level |
|---|---|
| 4429 1 | Sets the ICI output level<br>[35 to 255 / **128** / 1/step] |

| 4440 | [Saturation Adj] | Adjust Color Saturation |
|---|---|---|
| | This SP adjusts the saturation level for copying. [0 to 5 / **3** / 1/step] 0: High 1: Lowest 2: Lower 3: Default 4: Higher 5: Highest | |

| 4450 | [Scan Img Pas Swch] Scan Image Path Switch | |
|---|---|---|
| 4450 1 | Bk Subt ON/OFF | [0 or 1 / **1** / - ] 0: OFF, **1**: ON |
| | Uses or does not use the black reduction image path. | |
| 4450 2 | SH Pas ON/OFF | [0 or 1 / **0** / - ] **0**: OFF, 1: ON |
| | Uses or does not use the shading image path. | |

| 4460 | [Digital AE set] Digital AE Setting **FA** | |
|---|---|---|
| 4460 1 | Low Limit Set | [0 to 1024 / **364** / 4 digit/step] |
| 4460 2 | Back Ground Level | [512 to 1532 / **972** / 1 digit/step]] |

| 4540 | [Print Coverage] Print Coverage Correction | |
|---|---|---|
| | This SP corrects printer coverage of 12 hues (RY, YR, YG, etc. x 4 Colors (Option, R, G, B) for a total of 48 parameters. | |
| 001 – 004 | RY: Option, R, G, B | |
| 005 – 008 | YR: Option, R, G, B | |
| 009 – 012 | YG: Option, R, G, B | |
| 013 – 016 | GY: Option, R, G, B | [−128 to +128 / **0** / 1/step] |
| 017 – 020 | GC: Option, R, G, B | |
| 021 – 024 | CG: Option, R, G, B | |

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| 025 – 028 | CB: Option, R, G, B |
|-----------|---------------------|
| 029 – 032 | BC: Option, R, G, B |
| 033 – 036 | BM: Option, R, G, B |
| 037 – 040 | MB: Option, R, G, B |
| 041 – 044 | MR: Option, R, G, B |
| 045 – 048 | RM: Option, R, G, B |

| 4550 | **[SApli: TxtPrt]** Scanner Application: Text/Picture Mode | |
|------|------------|------------|
| 4551 | **[SApli:TxtOCR1]** Scanner Application: Text Mode | |
| 4552 | **[SApli:TxtOCR2]** Scanner Application: Text/Drop Out | |
| 4553 | **[SApli: T/P]** Scanner Application: Text/Photo | |
| 4554 | **[SApli: Photo]** Scanner Application: Photo | |
| 4565 | **[SApli: GrayScale]** Scanner Application: Gray Scale | |
| 4570 | **[SApli: Color T/P]** Scanner Application: Text/Photo | |
| 4571 | **[SApli: Color P]:** Text/Printing Paper | |
| -005 | MTF Lvl: 0-15 | [0 to 15 / **8** / 1/step] |
| | Sets the MTF level (Modulation Transfer Function) designed to improve image contrast. Set higher for stronger effect, lower for weaker effect. | |
| -006 | Smooth:0-7 | [0 to 15 / **4** / 1/step] |
| | Use to remove "jaggies" if they appear. Set higher for smoother. | |
| -007 | Brightness:1-255 | [1 to 255 / **128** / 1/step] |
| | Set higher for darker, set lower for lighter. | |
| -008 | Contrast:1-255 | [1 to 255 / **128** / 1/step] |
| | Set higher for more contrast, set lower for less contrast. | |
| -009 | Standoff:1-7 | [0 to 7 / **0** / 1/step] |
| | Sets the Erasure level of Irregular Dots. Set higher for stronger effect, lower for weaker effect. 0: Not activated | |

| 4580 | [FaxApli: TxPrt] Fax Application: Text/Picture Mode | |
|---|---|---|
| 4581 | [FaxApli: Txt] Fax Application: Text | |
| 4582 | [FaxApli: T/P] Fax Application: Text/Photo | |
| 4583 | [FaxApli: Photo] Fax Application: Photo | |
| 4584 | [FaxApli: Original1] Fax Application: Original 1 | |
| 4585 | [FaxApli: Original2] Fax Application: Original 2 | |
| -005 | MTF Lvl: 0-15 | [0 to 15 / **8** / 1/step] |
| | Sets the MTF level (Modulation Transfer Function) designed to improve image contrast. Set higher for stronger effect, lower for weaker effect. | |
| -006 | Smooth:0-7 | [0 to 15 / **4** / 1/step] |
| | Use to remove "jaggies" if they appear. Set higher for smoother. | |
| -007 | Brightness:1-255 | [1 to 255 / **128** / 1/step] |
| | Set higher for darker, set lower for lighter. | |
| -008 | Contrast:1-255 | [1 to 255 / **128** / 1/step] |
| | Set higher for more contrast, set lower for less contrast. | |
| -009 | Standoff:1-7 | [0 to 7 / **0** / 1/step] |
| | Sets the erasure level of irregular dots. Set higher for stronger effect, lower for weaker effect. 0: Not activated | |
| -010 | Texture:1-2 | [0 to 2 / **0** / 1/step] <br> This SP (suffix "-010") only exists in SP4580, 4582 and 4583. |
| | Sets the erasure level of textures. Set higher for stronger effect, lower for weaker effect. 0: Not activated | |

| 4600 | [Display SBU ID] | |
|---|---|---|
| 4600 1 | | Displays the board version of the SBU. First production model indicates "0". <br> [0 to7 / **0** / 1/step] |

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| 4602 | [SBU Mem Access] SBU Memory Access Not Used | |
|---|---|---|
| 4602 1 | SBU Mem Access | - |
| 4602 2 | Set Address | - |
| 4602 3 | Set Data | - |

| 4603 | [Do AGC] Auto Gain Control Execution | |
|---|---|---|
| 4603 1 | HP Detect: Enable | Executes the AGC. |
| 4603 2 | HP Detect: Disable | DFU |

| 4604 | [Open/Close FGATE] DFU |
|---|---|
| 4604 1 | Opens or closes the FGATe signal. This SP automatically returns to the default status (close) after exiting this SP.<br>[0 or 1 / **0** / 1/step]<br>0: OFF, 1: ON |

| 4606 | [Wht Lvl Adj: R] White Level Adjustment: Red DFU |
|---|---|
| 4606 1 | This value is the target value of red for the white level adjustment.<br>[0 to 1024 / **784** / 1 degit/step] |

| 4607 | [Wht Lvl Adj: G] White Level Adjustment: Green DFU |
|---|---|
| 4607 1 | This value is the target value of green for the white level adjustment.<br>[0 to 1024 / **784** / 1 degit/step] |

| 4608 | [Wht Lvl Adj: B] White Level Adjustment: Blue DFU |
|---|---|
| 4608 1 | This value is the target value of blue for the white level adjustment.<br>[0 to 1024 / **784** / 1 degit/step] |

| 4623 | [BkLvl Adj: ValueR] Black Level Adjustment: Current Value of Red |
|---|---|
| 4624 | [BkLvl Adj: ValueG] Black Level Adjustment: Current Value of Green |
| 4625 | [BkLvl Adj: ValueB] Black Level Adjustment: Current Value of Blue |

| | | |
|---|---|---|
| | CrsAdj: Rough Adjustment, FinAdj: Fine Adjustment | |
| | RE (GE or BE): Red (Green or Blue) Even signal, RO (GO or BO): Red (Green or Blue) Odd signal | |
| -001 | CrsAdj: RE (GE or BE) Clr | Displays the black offset value for the each even or odd color (red, green or blue) signal in the CCD circuit board (color printing speed).<br>[0 to 255 / **128** / 1 digit/step] |
| -002 | CrsAdj: RO (GO or BO) Clr | |
| -003 | FinAdj: RE (GE or BE) Clr | |
| -004 | FinAdj: RO (GO or BO) Clr | |
| -005 | CrsAdj: RE (GE or BE) Bk | Displays the black offset value for the each even or odd color (red, green or blue) signal in the CCD circuit board (B/W printing speed).<br>[0 to 255 / **128** / 1 digit/step] |
| -006 | CrsAdj: RO (GO or BO) Bk | |
| -007 | FinAdj: RE (GE or BE) Bk | |
| -008 | FinAdj: RO (GO or BO) Bk | |

| | | |
|---|---|---|
| 4628 | **[Gain Adj: ValueR]** Gain Adjustment: Current Value of Red | |
| 4629 | **[Gain Adj: ValueG]** Gain Adjustment: Current Value of Green | |
| 4630 | **[Gain Adj: ValueB]** Gain Adjustment: Current Value of Blue | |
| | R: Red, G: Green, B: Blue | |
| -001 | Value: R(G or B)Even Clr | Displays the gain value of the amplifiers on the controller for each color (red, green or blue) in color printing mode.<br>[0 to 255 / **0** / 1 digit/step] |
| -002 | Value: R(G or B)Odd Clr | |
| -003 | Value: R(G or B)Even Bk | Displays the gain value of the amplifiers on the controller for each color (red, green or blue) in B/W printing mode.<br>[0 to 255 / **0** / 1 digit/step] |
| -004 | Value: R(G or B)Odd Bk | |

| | | |
|---|---|---|
| 4640 | **[Bk Lvl Adj Loop]** Black Level Adjustment Loop<br>Adj1: First adjustment, Adj2: Second adjustment | |
| 4640 1 | Adj1:Clr | Displays the black level adjustment time for each mode.<br>[0 to 20 / **0** / 1 time/step] |
| 4640 2 | Adj1:BK | |
| 4640 3 | Adj2:Clr | |
| 4640 4 | Adj2:BK | |

| 4641 | [White Lvl Loop] White Level Adjustment Loop | |
|---|---|---|
| 4640 1 | Color | Displays the white leve adjustment time for each mode. |
| 4640 2 | B/W | [0 to 20 / **0** / 1 time/step] |

| 4646 | [Read Adj Timeout] Read Adjustment Timeout | |
|---|---|---|
| 4640 1 | Bk Offset Adj1 | Displays the result of the AGC adjustment. If the AGC adjustment fails, SC141 (Bk Lvl) or SC142 (White Lvl) occurs. |
| 4640 2 | Bk Offset Adj2 | |
| 4640 3 | Wht Lvl Adj | [0 or 1 / **0** / 1/step]<br>0: OK, 1: AGC adjustment failure |

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| 4647 | [Read Hard Error] Read Hard Error | |
|---|---|---|
| 4640 1 | At Power On | Displays the result of the SBU connection check.<br>If the SBU connection check fails, SC144-001, -002 or -003 occurs.<br>[0 or 1 / **0** / 1/step]<br>0: OK, 1: SBU connection check failure |

| 4654 | [BkLvl Adj: PrevR] Black Level Adjustment: Previous Value of Red | |
|---|---|---|
| 4655 | [BkLvl Adj: PrevG] Black Level Adjustment: Previous Value of Green | |
| 4656 | [BkLvl Adj: PrevB] Black Level Adjustment: Previous Value of Blue | |
| | Displays the previous vale of the black level adjustment for each color.<br>CrsAdj: Rough Adjustment, FinAdj: Fine Adjustment<br>RE (GE or BE): Red (Green or Blue) Even signal, RO (GO or BO): Red (Green or Blue) Odd signal | |
| -001 | CrsAdj: RE (GE or BE) Clr | [0 to 255 / **112** / 1 digit/step] |
| -002 | CrsAdj: RO (GO or BO) Clr | |
| -003 | FinAdj: RE (GE or BE) Clr | [0 to 255 / **128** / 1 digit/step] |
| -004 | FinAdj: RO (GO or BO) Clr | |
| -005 | CrsAdj: RE (GE or BE) Bk | [0 to 255 / **112** / 1 digit/step] |

| | -006 | CrsAdj: RO (GO or BO) Bk | |
|---|---|---|---|
| | -007 | FinAdj: RE (GE or BE) Bk | [0 to 255 / **128** / 1 digit/step] |
| | -008 | FinAdj: RO (GO or BO) Bk | |

| 4658 | **[Gain Adj: PrevR]** Gain Adjustment: Previous Value of Red |
|---|---|
| 4659 | **[Gain Adj: PrevG]** Gain Adjustment: Previous Value of Green |
| 4660 | **[Gain Adj: PrevB]** Gain Adjustment: Previous Value of Blue |

| | | Displays the previous vale of the gainl adjustment for each color.<br><br>RE (GE or BE): Red (Green or Blue) Even signal, RO (GO or BO): Red (Green or Blue) Odd signal | |
|---|---|---|---|
| | -001 | S Prev: RE (GE or BE) Clr | |
| | -002 | S Prev: RO (GO or BO) Clr | [0 to 255 / **0** / 1 digit/step] |
| | -003 | S Prev: RE (GE or BE) BK | |
| | -004 | S Prev: RO (GO or BO) Bk | |

| 4661 | **[BkLvl2 Adj: PrevR]** Black Level2 Adjustment: Previous Value of Red |
|---|---|
| 4662 | **[BkLvl2 Adj: PrevG]** Black Level2 Adjustment: Previous Value of Green |
| 4663 | **[BkLvl2 Adj: PrevB]** Black Level2 Adjustment: Previous Value of Blue |

| | | Displays the previous vale of the second black level adjustment for each color.<br><br>CrsAdj: Rough Adjustment, FinAdj: Fine Adjustment<br><br>RE (GE or BE): Red (Green or Blue) Even signal, RO (GO or BO): Red (Green or Blue) Odd signal | |
|---|---|---|---|
| | -001 | CrsAdj: RE (GE or BE) Clr | [0 to 255 / **112** / 1 digit/step] |
| | -002 | CrsAdj: RO (GO or BO) Clr | |
| | -003 | FinAdj: RE (GE or BE) Clr | [0 to 255 / **128** / 1 digit/step] |
| | -004 | FinAdj: RO (GO or BO) Clr | |
| | -005 | CrsAdj: RE (GE or BE) Bk | [0 to 255 / **112** / 1 digit/step] |
| | -006 | CrsAdj: RO (GO or BO) Bk | |

| -007 | FinAdj: RE (GE or BE) Bk | [0 to 255 / **128** / 1 digit/step] |
|---|---|---|
| -008 | FinAdj: RO (GO or BO) Bk | |

| 4673 | **[BkLvl Adj: FactR]** Black Level Adjustment: Factory Setting of Red | |
|---|---|---|
| | Displays the factory setting values of the black level adjustment.<br>CrsAdj: Rough Adjustment, FinAdj: Fine Adjustment<br>RE: Red Even signal, RO: Red Odd signal | |
| 4673 1 | CrsAdj: RE Clr | [0 to 255 / **112** / 1 digit/step] |
| 4673 2 | CrsAdj: RO Clr | |
| 4673 3 | FinAdj: RE Clr | [0 to 255 / **128** / 1 digit/step] |
| 4673 4 | FinAdj: RO Clr | |
| 4673 5 | CrsAdj: RE Bk | [0 to 255 / **112** / 1 digit/step] |
| 4673 6 | CrsAdj: RO Bk | |
| 4673 7 | FinAdj: RE Bk | [0 to 255 / **128** / 1 digit/step] |
| 4673 8 | FinAdj: RO Bk | |

| 4674 | **[BkLvl Adj: FactG]** Black Level Adjustment: Factory Setting of Green | |
|---|---|---|
| | Displays the factory setting values of the black level adjustment.<br>CrsAdj: Rough Adjustment, FinAdj: Fine Adjustment<br>GE: Green Even signal, GO: Green Odd signal | |
| 4674 1 | CrsAdj: GE Clr | [0 to 255 / **112** / 1 digit/step] |
| 4674 2 | CrsAdj: GO Clr | |
| 4674 3 | FinAdj: GE Clr | [0 to 255 / **128** / 1 digit/step] |
| 4674 4 | FinAdj: GO Clr | |
| 4674 5 | CrsAdj: GE Bk | [0 to 255 / **112** / 1 digit/step] |
| 4674 6 | CrsAdj: GO Bk | |
| 4674 7 | FinAdj: GE Bk | [0 to 255 / **128** / 1 digit/step] |

| 4674 8 | FinAdj: GO Bk | |
|--------|---------------|---|

| 4675 | **[BkLvl Adj: FactB]** Black Level Adjustment: Factory Setting of Blue | | |
|------|---|---|---|
| | Displays the factory setting values of the black level adjustment. <br> CrsAdj: Rough Adjustment, FinAdj: Fine Adjustment <br> BE: Blue Even signal, BO: Blue Odd signal | | |
| 4675 1 | CrsAdj: BE Clr | [0 to 255 / **112** / 1 digit/step] |
| 4675 2 | CrsAdj: BO Clr | |
| 4675 3 | FinAdj: BE Clr | [0 to 255 / **128** / 1 digit/step] |
| 4675 4 | FinAdj: BO Clr | |
| 4675 5 | CrsAdj: BE Bk | [0 to 255 / **112** / 1 digit/step] |
| 4675 6 | CrsAdj: BO Bk | |
| 4675 7 | FinAdj: BE Bk | [0 to 255 / **128** / 1 digit/step] |
| 4675 8 | FinAdj: BO Bk | |

| 4677 | **[Gain Adj: FactR]** Gain Adjustment: Factory Setting of Red | |
|------|---|---|
| | Displays the factory setting values of the gain adjustment. <br> RE: Red Even signal, RO: Red Odd signal | |
| 4677 1 | Factini: RE Clr | [0 to 255 / **0** / 1 digit/step] |
| 4677 2 | Factini: RO Clr | |
| 4677 3 | Factini: RE BK | |
| 4677 4 | Factini: RO Bk | |

| 4678 | **[Gain Adj: FactG]** Gain Adjustment: Factory Setting of Green | |
|------|---|---|
| | Displays the factory setting values of the gain adjustment. <br> GE: Green Even signal, GO: Green Odd signal | |
| 4678 1 | Factini: GE Clr | [0 to 255 / **0** / 1 digit/step] |
| 4678 2 | Factini: GO Clr | |

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| 4678 3 | Factini: GE BK | |
|---|---|---|
| 4678 4 | Factini: GO Bk | |

| 4679 | **[Gain Adj: FactB]** Gain Adjustment: Factory Setting of Blue | |
|---|---|---|
| | Displays the factory setting values of the gain adjustment.<br>BE: Blue Even signal, BO: Blue Odd signal | |
| 4679 1 | Factini: BE Clr | |
| 4679 2 | Factini: BO Clr | [0 to 255 / **0** / 1 digit/step] |
| 4679 3 | Factini: BE BK | |
| 4679 4 | Factini: BO Bk | |

| 4685 | **[Gray Balance: R]** Gray Balance Adjustment: Red | |
|---|---|---|
| | Adjusts the gray balance of red signal for each scanning mode. **DFU** | |
| 4685 1 | For Book Read | [−512 to 511 / **−240** / 1 digit/step] |
| 4685 2 | For DF Read | |

| 4686 | **[Gray Balance: G]** Gray Balance Adjustment: Green | |
|---|---|---|
| | Adjusts the gray balance of green signal for each scanning mode. **DFU** | |
| 4686 1 | For Book Read | [−512 to 511 / **−240** / 1 digit/step] |
| 4686 2 | For DF Read | |

| 4687 | **[Gray Balance: B]** Gray Balance Adjustment: Blue | |
|---|---|---|
| | Adjusts the gray balance of blue signal for each scanning mode. **DFU** | |
| 4687 1 | For Book Read | [−512 to 511 / **−240** / 1 digit/step] |
| 4687 2 | For DF Read | |

| 4688 | **[DF Density Adj]** DF Density Adjustment |
|---|---|
| | Adjusts the white shading parameter when scanning an image with the ARDF. |

| | | |
|---|---|---|
| | Adjusts the density level if the image density of outputs made in the DF and Platen mode is different. | |
| 4688 1 | | [50 to 150 / **109** / 1%/step] |

| | | |
|---|---|---|
| **4690** | [White Lvl Peak: R] White Level Scanning Peak Value: Red | |
| **4691** | [White Lvl Peak: G] White Level Scanning Peak Value: Green | |
| **4692** | [White Lvl Peak: B] White Level Scanning Peak Value: Blue | |
| -001 | RE (GE or BE) | Displays the peak level of the white level scanning. [0 to 1024 / **0** / 1 digit/step] |
| -002 | RO (GO or BO) | |
| -003 | RE (GE or BE) BK | |
| -004 | RO (GO or BO) Bk | |

| | | |
|---|---|---|
| **4693** | [Black Lvl Scan: R] Black Level Scanning Peak Value: Red | |
| **4694** | [Black Lvl Scan: G] Black Level Scanning Peak Value: Green | |
| **4695** | [Black Lvl Scan: B] Black Level Scanning Peak Value: Blue | |
| -001 | RE (GE or BE) | Displays the peak level of the white level scanning. [0 to 1024 / **0** / 1 digit/step] |
| -002 | RO (GO or BO) | |
| -003 | RE (GE or BE) BK | |
| -004 | RO (GO or BO) Bk | |

| | | |
|---|---|---|
| **4802** | [DF Shade FreeRun] DF Free Run for Shading | |
| | Executes the scanner free run of shading movement with exposure lamp on or off. Press "OFF" to stop this free run. Otherwise, the free run lasts. | |
| 4802 1 | Lamp ON | [0 or 1 / **0** / - ] |
| 4802 2 | Lamp OFF | 0: OFF, 1: ON |

| | | |
|---|---|---|
| **4804** | [Home Position] Scanner Home Position Adjustment | |
| 4804 1 | | Checks the scanner home position movement. |

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| 4806 | [Carriage Escape] | |
|---|---|---|
| 4806 1 | | Moves the carriage from the scanner home position. Dust may fall through the DF contact glass. Therefore, do this SP when you transport this machine for a long term. |

| 4904 | **[Test Scan IPU]** Test Scanner IPU Board | |
|---|---|---|
| | Performs a write and read check of the ASICs on the scanner IPU board and displays the result. Turn off and on after doing this SP. | |
| 4904 1 | Test 1 | Bit0: ASIC0 image register<br>Bit1: ASIC0 serial register<br>Bit2: ASIC1 register<br>Bit3: ASIC1 register<br>Bit4: ASIC1 register<br>Bit5: ASIC3 register<br>Bit6: ASIC2 register<br>Bit7: ASIC4 (MC) register<br>Bit8: ASIC4 (YK) register<br>0: OK, 1: Error |
| 4904 2 | Test 2 | Bit0: ASIC0 image register<br>Bit1: ASIC0 serial register<br>Bit2: ASIC1 register<br>Bit3: ASIC1 register<br>Bit4: ASIC1 register<br>Bit5: ASIC3 register<br>Bit6: ASIC2 register<br>Bit7: ASIC4 (MC) register<br>Bit8: ASIC4 (YK) register<br>0: OK, 1: Error |

| 4905 | [Dither Select] DFU | |
|---|---|---|
| 4905 1 | - | Changes the parameters for error diffusion.<br>[0 to 255 / **0** / 1/step] |

| 4907 | [SBU Pattern] | |
| --- | --- | --- |
| | Selects the test pattern generated by the controller board. | |
| 4907 1 | - | [0 to 255 / **0** / 1/step]<br>0: Default (Scanned image)<br>1: Grid pattern<br>2: Gradation main scan<br>3: Gradation sub scan<br>4 to 250: Default (Scanned image) |

| 4909 | [Man Gamma: P ColK] Manual Gamma Adjustment: Photo Mono-Black | |
| --- | --- | --- |
| 4910 | [Man Gamma: Txt: K] Manual Gamma Adjustment: Text Black | |
| 4911 | [Man Gamma: Txt: C] Manual Gamma Adjustment: Text Cyan | |
| 4912 | [Man Gamma: Txt: M] Manual Gamma Adjustment: Text Magenta | |
| 4913 | [Man Gamma: Txt: Y] Manual Gamma Adjustment: Text Yellow | |
| 4914 | [Man Gamma: T: ColK] Manual Gamma Adjustment: Text Mono-Black | |
| 4915 | [Man Gamma: Pht: K] Manual Gamma Adjustment: Photo Black | |
| 4916 | [Man Gamma: Pht: C] Manual Gamma Adjustment: Photo Cyan | |
| 4917 | [Man Gamma: Pht: M] Manual Gamma Adjustment: Photo Magenta | |
| 4918 | [Man Gamma: Pht: Y] Manual Gamma Adjustment: Photo Yellow | |
| -001 | Offset: Highlight | Adjusts the offset data of the printer gamma for each color in Photo mode or Text mode.<br>[0 to 30 / **15** / 1/step] |
| -002 | Offset: Middle | |
| -003 | Offset: Shadow | |
| -004 | Offset: IDmax | |
| -005 | Option: Highlight | Adjusts the option data of the printer gamma for each color in Photo mode or Text mode.<br>[0 to 255 / **0** / 1/step] |
| -006 | Option: Middle | |
| -007 | Option: Shadow | |
| -008 | Option: IDmax | |

| 4991 | **[IPU Img Path Sel]** IPU Image Path Switch | |
|---|---|---|
| | Use this SP to determine the image path. Enter the number to be selected using the 10-key pad. | |
| 4991 1 | RGB Frame Mem | [0 to 11 / **2** / 1/step] |
| | 0 | Scanner input RGB images |
| | 1 | Scanner I/F RGB images |
| | 2 | RGB images done by Shading correction (Shading ON, Black offset ON) |
| | 3 | Shading data |
| | 4 | Inner pattern data: Gray scale |
| | 5 | RGB images done by Line skipping correction |
| | 6 | RGB images done by Digital AE |
| | 7 | RGB images done by Vertical line correction |
| | 8 | RGB image done by Scanner gamma correction |
| | 9 | RGB image done by Filtering correction |
| | 10 | RGB images done by Full color ADS |
| | 11 | RGB image done by Color correction |

| 4993 | **[Highlight Cor]** Highlight Correction | |
|---|---|---|
| 4993 1 | Sensibility | [0 to 9 / **4** / 1/step] |
| | Selects the Highlight correction level. 0: Weakest sensibility, 9: Strongest sensibility | |
| 002 | Region | [0 to 9 / **4** / 1/step] |
| | Selects the range level of Highlight correction. 0: Weakest skew correction, 9: Strongest skew correction | |

## SP5-XXX (Mode)

| 5001 | **[All Indicators On]** |
|---|---|

| 001 | All LEDs turn on. The LCD turns on or off every 3 seconds. Press the reset key to end this program. |
|---|---|

| 5024* | [mm/inch Selection] |
|---|---|
| 001 | Selects whether mm or inches are used in the display.<br>⬇Note<br>• After selecting the number, you must turn the main power switch off and on.<br>Europe/Asia model: [0: **mm** / 1: inch]<br>American model: [0: mm / **1: inch**] |

| 5045 | [Counter Model] |
|---|---|
| 001 | Selects the counting method if the meter charge mode is enabled with SP5-930-001.<br>⬇Note<br>• You can change the setting only one time.<br>[0 or 1/ **1**]<br>0: Development counter. Shows the total counts for color (Y,M,C) and black (K).<br>1: Paper counter. Shows the total page counts for: Color Total, Black Total, Color Copies, Black Copies, Color Prints, Black Prints. |

| 5051 | **[Refill Toner Displ]** Refill Toner Detection Display | | |
|---|---|---|---|
| | Enables or disables the toner refill detection display. | | |
| 001 | Toner Refill Detection Display | *CTL | [ 0 or 1 / **0** /- ]<br>0: ON, 1: OFF |

| 5055 | [Display IP address] | | |
|---|---|---|---|
| 001 | Display IP address | *CTL | Display or does not display the IP address on the LCD.<br>[0 or 1 / **0** / -]<br>0: Not display, 1: Display |

| 5056 | [Coverage Counter] |
|---|---|

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| 001 | Coverage Counter | *CTL | Display or does not display the coverage counter on the LCD.<br><br>[0 or 1 / **0** / -]<br><br>0: Not display, 1: Display |
|---|---|---|---|

| 5104* | [A3 Double Count] SSP | | |
|---|---|---|---|
| | A3 Double Count | *CTL | [**0 = No** / 1 = Yes / 2 = No Unclear] |
| 001 | Selects whether the machine counts twice for each sheet of A3/11"x 17". If this is set to "Yes" is selected, the total (mechanical) counter and the current user counter will both increment by two for each A3/11" x 17" sheet. | | |

| 5112 | [Non-Std. Paper Set] Non-Standard Paper Set |
|---|---|
| 001 | Determines whether a non-standard paper size can be input for the universal cassette trays (Tray 2, Tray 3)<br><br>[0 or 1 / **0** / - ]<br><br>0: No<br><br>1: Yes. If "1" is selected, the customer will be able to input a non-standard paper size using the UP mode. |

| 5113 | [Optional Counter Type] | | |
|---|---|---|---|
| 001 | Default Optional Counter Type | *CTL | This program specifies the counter type.<br><br>**0: None**<br>1: Key card (RK 3, 4)<br>2: Key card (down)<br>3: Prepaid card<br>4: Coin Rack<br>5: MF key card<br>8: Key counter + Vendor<br>9: Bar-code Printer |
| 002 | External Optional Counter Type | *CTL | This program specifies the external counter type.<br><br>**0: None**<br>1: External optional counter type 1<br>2: External optional counter type 2 |

| | | | 3: External optional counter type 3 |
|---|---|---|---|

| 5118 | [Disable Copying] | *CTL | [0: Not disabled/ 1: Disabled] |
|---|---|---|---|
| 001 | This program disables copying. | | |

| 5120* | Mode Clear Opt. Counter Removal | *CTL | [0=Yes / 1=Standby only / 2=No] |
|---|---|---|---|
| 001 | Determines under which conditions the copy job settings are reset when the key counter is removed. With 0, the settings are cleared if the counter is removed at the end of a job or midway through a job. With 1, they are only cleared if the counter is removed at the end of a job. With 2, they are not cleared at all, under either condition. With duplex copies, the job settings are always preserved, regardless of the setting of this SP mode. | | |

| 5121* | Count Up Timing | *CTL | [0 = Feed In / 1 = Exit] |
|---|---|---|---|
| 001 | Selects whether the key counter increments at time of paper feed-in or at time of paper exit. | | |

| 5127 | [APS Mode] | *CTL | [0: Not disabled/ 1: Disabled] |
|---|---|---|---|
| 001 | This program disables the APS. | | |

| 5128 | [Code Mode With Key/ Card] | *CTL | - |
|---|---|---|---|
| 001 | DFU | | |

| 5131 | [Size For Dest] | *CTL | [0: DOM (Japan)/1: NA /2: EU or ASIA] |
|---|---|---|---|
| 001 | The program selects a paper size system from the following alternatives: the AB system (0), the LT system (1), and the AF system (2). (Default depends on DIP SW 101 setting.) | | |

| 5150 | [By-pass Long Paper] | *CTL | [0 or 1 / 0 / 1 /step] <br> 0: OFF, 1: ON |
|---|---|---|---|
| 001 | Determines whether the transfer sheet from the by-pass tray is used or not. <br> Normally the paper length for sub scanning paper from the by-pass tray is limited to 600 mm, but this can be extended with this SP to 1260 mm. | | |

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| 5167 | [Fax Printing Mode at Optional] | | |
|------|--------------------------------|--|--|
| | Enables or disables the automatic print out without an accounting device. This SP is used when the receiving fax is accounted by an external accounting device. | | |
| 001 | Fax Printing Mode at Optional Counter Off | *CTL | [ 0 or 1 / **0** / – ]<br>0: Automatic printing<br>1: No automatic printing |

| 5169 | [CE Login] | | |
|------|-----------|--|--|
| | If you change the printer bit switches, you must 'log in' to service mode with this SP before you go into the printer SP mode. | | |
| 001 | CE Login | *CTL | [0 or 1 / **0** / - ]<br>0: Disabled<br>1: Enabled |

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| 5178* | [Copy Data Security Setting] |
|-------|------------------------------|
| 001 | Do this SP after installation of the Copy Data Security Unit.<br>[0 or 1 / **0** / 1/step]<br>0: Copy data security function disabled<br>1: Copy data security function enabled<br>• The copy data security option will not operate correctly after installation until this SP is turned on.<br>• This SP is not displayed until the machine is powered on with the Copy Data Security Setting board installed. |

| 5302 | [Set Time] |
|------|-----------|
| | Adjusts the RTC (real time clock) time setting for the local time zone.<br>Examples: For Japan (+9 GMT), enter 540 (9 hours x 60 min.)<br>DOM: +540 (Tokyo)<br>NA :-300 (New York)<br>EU :+ 60 (Paris)<br>CH :+480 (Peking)<br>TW :+480 (Taipei) |

| | | | |
|---|---|---|---|
| | AS :+480 (Hong Kong) | | |
| 002 | Set Time | *CTL # | [ -1440 to 1440 / **Area** / 1 min./step ] |

| | |
|---|---|
| *5307* | **[Summer Time]** |

| | | | |
|---|---|---|---|
| 001 | Setting | - | [ 0 or 1 / **NA, EU, ASIA** / 1 /step]<br>0: Disabled<br>1: Enabled<br>NA and EUR: 1, ASIA: 0 |
| | Enables or disables the summer time mode.<br>⬇**Note**<br><br>• Make sure that both SP5-307-3 and -4 are correctly set. Otherwise, this SP is not activated even if this SP is set to "1". | | |
| 003 | Rule Set (Start) | - | - |
| | Specifies the start setting for the summer time mode.<br><br>There are 8 digits in this SP. For months 1 to 9, the "0" cannot be input in the first digit, so the eight-digit setting for -2 or -3 becomes a seven-digit setting.<br><br>1st and 2nd digits: The month. [1 to 12]<br><br>3rd digit: The week of the month. [1 to 5]<br><br>4th digit: The day of the week. [0 to 6 = Sunday to Saturday]<br><br>5th and 6th digits: The hour. [00 to 23]<br><br>7th digit: The length of the advanced time. [0 to 9 / 1 hour /step]<br><br>8th digit: The length of the advanced time. [0 to 5 / 10 minutes /step]<br><br>For example: 3500010 (EU default)<br><br>The timer is advanced by 1 hour at am 0:00 on the 5th Sunday in March<br><br>• The digits are counted from the left.<br><br>• Make sure that SP5-307-1 is set to "1". | | |
| 004 | Rule Set (End) | - | - |
| | Specifies the end setting for the summer time mode.<br><br>There are 8 digits in this SP.<br><br>1st and 2nd digits: The month. [1 to 12] | | |

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| | | | |
|---|---|---|---|
| | 3rd digit: The week of the month. [0 to 5] | | |
| | 4th digit: The day of the week. [0 to 6 = Sunday to Saturday] | | |
| | 5th and 6th digits: The hour. [00 to 23] | | |
| | The 7th and 8 digits must be set to "00". | | |
| | • The digits are counted from the left. | | |
| | • Make sure that SP5-307-1 is set to "1". | | |

| | **[Access Control]** | | |
|---|---|---|---|
| **5401** | When installing the SDK application, SAS (VAS) adjusts the following settings. **DFU** | | |
| 006 | C | *CTL | **SSP:** These SPs are not disclosed due to the security protection. |
| 016 | DS | *CTL | |
| 026 | F | *CTL | |
| 036 | S | *CTL | |
| 046 | P | *CTL | |
| 076 | SDK 1 | *CTL | |
| 086 | SDK 2 | *CTL | |
| 096 | SDK 3 | *CTL | |
| 200 | SDK1 Unique ID | *CTL | This ID is overwritten by SAS (VAS) when you install or uninstall the SDK application. |
| 201 | SDK1 Certification Method | *CTL | [ 0 to 255 / **0** / 1 /step] **DFU** |
| 210 | SDK2 Unique ID | *CTL | **DFU** |
| 211 | SDK2 Certification Method | *CTL | [ 0 to 255 / **0** / 1 /step] **DFU** |
| 220 | SDK3 Unique ID | *CTL | **DFU** |

| 221 | SDK3 Certification Method | *CTL | [ 0 to 255 / **0** / 1 /step] **DFU** |
|---|---|---|---|

| 5404 | [User Code Clear] |
|---|---|
| 001 | Clears the counts for the user codes assigned by the key operator to restrict the use of the machine. Press [Execute] to clear. |

| 5501 | [PM Alarm Interval] | *CTL | - |
|---|---|---|---|
| 001 | Printout | | [ 0 to 9999 / **0** / 1 /step]<br>0: Alarm off<br>1 to 9999: Alarm goes off when Value (1 to 9999) x 1000 ≥ PM counter |
| 002 | ADF | | [ 0 or 1 / **1** / – ]<br>0: No alarm sounds<br>1: Alarm sounds after the number of originals passing through the A(R)DF ≥ 10,000 |

| 5504 | [Jam Alarm] | *CTL | - |
|---|---|---|---|
| 001 | Sets the alarm to sound for the specified jam level (document misfeeds are not included).<br>[ 0 to 3 / **3** / 1 /step]<br>0: Zero (Off), 1: Low (2.5K jams), 2: Medium (3K jams), 3: High (6K jams) | | |

| 5505* | [Error Alarm] |
|---|---|
| 001 | Sets the error alarm level.<br>The error alarm counter counts "1" when any SC is detected. However, the error alarm counter decreases "1" when any SC is not detected during specified sheets of copies (for example, default 1500 sheets).<br>The error alarm occurs when the SC error alarm counter reaches "5".<br>[0 to 255 / **15** / 100 copies per step] |

| 5507 | [Supply Alarm] | *CTL | - |
|---|---|---|---|
| 001 | Paper Size | **0**: Off, 1: On, **DFU** | |

| | 002 | Staple | 0: Off, 1: On, **DFU** | |
|---|---|---|---|---|
| | 003 | Toner | 0: Off, 1: On, **DFU** | |
| | 128 | Interval :Others | [250 to 10000 / **1000** / 1 /step] **DFU** | |
| | 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* | [Auto Call Setting] | *CTL | - |
|---|---|---|---|
| 001* | Jam Remains | 0: Disable, **1**: Enable | |
| | Enables/disables initiating a call for an unattended paper jam. | | |
| 002* | Frequent Jams | 0: Disable, **1**: Enable | |
| | Enables/disables initiating a call for consecutive paper jams. | | |
| 003* | Door Open | 0: Disable, **1**: Enable | |
| | Enables/disables initiating a call when the front door remains open. | | |
| 011* | Jam Remains: Time | [ 03 to 30 / **10** / 1 minute /step] | |
| | Sets the time a jam must remain before it becomes an "unattended paper jam". This setting is enabled only when SP5508 004 is set to 1. | | |
| 012* | Freq Jam: # of Time | [ 02 to 10 / **5** / 1 /step] | |
| | Sets the number of consecutive paper jams required to initiate a call. This setting is enabled only when SP5508 004 is set to 1. | | |
| 013* | Door Open: Time | [ 03 to 30 / **10** / 1 minute/step] | |

| | | | |
|---|---|---|---|
| | Sets the length of time the door remains open before the machine initiates a call. This setting is enabled only when SP5508 004 is set to 1. | | |
| 021* | Jam Remains: Mode | 0: Automatic Call<br>1: Audible Warning at Machine | |
| | Determines what happens when a paper jam is left unattended. | | |
| 022* | Freq Jam: Mode | 0: Automatic Call<br>1: Audible Warning at Machine | |
| | Determines what happens when a paper jam happens continually. | | |
| 023* | Door Open: Mode | 0: OFF, 1: ON | |
| | Determines what happens if the door remains open (15 min.).<br>Displays a warning if set to ON. Pressing the call button will contact the service center. | | |

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| | | | |
|---|---|---|---|
| 5515 | **[SC/Alarm Setting]** | *CTL | - |
| | 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. | | |
| 001 | SC Call | [0 or 1 / 1 / -]<br>0: Off, 1: On | |
| 002 | Service Parts Near End | | |
| 003 | Service Parts End | | |
| 004 | User Call | | |
| 006 | Communication Test | | |
| 007 | Machine Information | | |
| 008 | Alarm Notice | | |
| 009 | Non Genuine Toner | | |
| 010 | Supply Automatic Order | [0 or 1 / 0 / -] 0: Off, 1: On | |
| 011 | Supply Management Report | | |
| 012 | Jam/Door Open Call | [0 or 1 / 1 / -] 0: Off, 1: On | |

| 5610 | [ACC Factory Setting] | | |
|---|---|---|---|
| 004 | Value | - | - |
| | Recalls the factory settings. | | |
| 005 | Value Setting | - | - |
| | Overwrites the current values onto the factory settings. | | |
| 006 | Restore Org | - | - |
| | Recalls the previous settings. | | |

| 5801 | [Memory Clear]<br>Before executing any of these SP codes, print an SMC Report. | | |
|---|---|---|---|
| 001 | All Clear | | |
| | Initializes items SP5801-002 to -014 below.<br>Turn off and on the main power switch after executing this SP. | | |
| 002 | Engine | - | - |
| | Clears the engine settings. | | |
| 003 | SCS | - | - |
| | Clears the system settings. | | |
| 004 | IMH | - | - |
| | Clears IMH data. **DFU** | | |
| 005 | MCS | - | - |
| | Clears MCS data. **DFU** | | |
| 006 | Copier | - | - |
| | Clears the copy application settings. | | |
| 007 | Fax | - | - |
| | Clears the fax application settings. | | |
| 008 | Printer | - | - |

| 5801 | [Memory Clear] Before executing any of these SP codes, print an SMC Report. | | |
|---|---|---|---|
| | Clears the printer application settings. | | |
| 009 | Scanner | - | - |
| | Clears the scanner application settings. | | |
| 010 | GWWS/NFA | - | - |
| | Delete the netfile application management files and thumbnails, and initializes the job login ID. | | |
| 011 | NCS | - | - |
| | Initializes the system default and interface settings (IP address also), SmartNetMonitor for Admin, WebStatusMonitor settings, and the TELNET settings. The name of Apple talk is not cleared only if this SP is executed. Turns off and on after executing this SP. | | |
| 012 | R-FAX | - | - |
| | Initializes the job login ID, SmartNetMonitor for Admin, job history, and local storage file numbers. | | |
| 014 | Clear DCS Setting | - | - |
| | Initializes the DCS (Delivery Control Service) settings. | | |
| 015 | Clear UCS Setting | - | - |
| | Initializes the UCS (User Information Control Service) settings. | | |
| 016 | MIRS Setting | - | - |
| | Initializes the MIRS (Machine Information Report Service) settings. | | |
| 017 | CCS | - | - |
| | Initializes the CCS (Certification and Charge-control Service) settings. | | |
| 018 | SRM Memory Clr | - | - |
| | Initializes the SRM (System Resource Manager) settings. | | |
| 019 | LCS | - | - |

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| 5801 | **[Memory Clear]**<br>Before executing any of these SP codes, print an SMC Report. |
|---|---|
| | Initializes the LCS (Log Count Service) settings. |

| 5803 | INPUT CHECK |
|---|---|
| | (👆 Input Check) |

| 5804 | OUTPUT CHECK |
|---|---|
| | (👆 Output Check) |

| 5811* | **[Machine Serial]** Machine Serial Number | | |
|---|---|---|---|
| 001 | Set | - | (👆 Serial Number Input) |
| 002 | Display | - | Displays the machine serial number. |

| 5812 | **[Service TEL]** | | |
|---|---|---|---|
| 001 | Telephone | *CTL | - |
| | Sets the telephone number for a service representative. This number is printed on the Counter List, which can be printed with the user's "Counter" menu.<br>This can be up to 20 characters (both numbers and alphabetic characters can be input). | | |
| 002 | Facsimile | *CTL | - |
| | Sets the fax or telephone number for a service representative. This number is printed on the Counter List.<br>This can be up to 20 characters (both numbers and alphabetic characters can be input). | | |
| 003 | Supply | *CTL | - |
| | Use this to input the telephone number of your supplier for consumables. Enter the number and press "StringIn" key.<br>Press the "Clear modes" key to delete the telephone number. | | |
| 004 | Sales | *CTL | - |
| | Use this to input the telephone number of your sales agency. Enter the number and press #. | | |

| | Press the "Clear modes" key to delete the telephone number. |
|---|---|

| 5816 | [NRS Function] | *CTL | - |
|---|---|---|---|

| 001 | I/F Setting | Selects the remote service setting.<br>[ 0 to 2 / **2** / 1 /step]<br>0: Remote service off<br>1: CSS remote service on<br>2: NRS remote service on |
|---|---|---|
| 002 | CE Call | Performs the CE Call at the start or end of the service.<br>[0 or 1 / **0** / 1 /step]<br>0: Start of the service, 1: End of the service<br>⬇Note<br>• This SP is activated only when SP 5816-001 is set to "2". |
| 003 | Function Flag | Enables or disables the remote service function.<br>[0 or 1 / **0** / 1 /step]<br>0: Disabled, 1: Enabled |
| 007 | SSL Disable | Uses or does not use the RCG certification by SSL when calling the RCG.<br>[0 or 1 / **0** / 1 /step]<br>0: Uses the RCG certification<br>1: Does no use the RCG certification |
| 008 | RCG Connect Timeout | Specifies the connect timeout interval when calling the RCG.<br>[1 to 90 / **10** / 1 second/step] |
| 009 | RCG Write Timeout | Specifies the write timeout interval when calling the RCG.<br>[1 to 100 / **60** / 1 second/step] |
| 010 | RCG Read Timeout | Specifies the read timeout interval when calling the RCG.<br>[1 to 100 / **60** / 1 second/step] |
| 011 | Port 80 | Enables/disables access via port 80 to the SOAP method.<br>[0 or 1 / **0** / – ]<br>0: Disabled, 1: Enabled |

5

| 5816 | [NRS Function] | *CTL | - |
|---|---|---|---|
| 021 | **Function Flag** |||
| | This SP displays the Cumin installation end flag.<br><br>1: Installation completed<br><br>2: Installation not completed |||
| 022 | **Install Status** |||
| | This SP displays the Cumin installation status.<br><br>0: Basil not registered<br><br>1: Basil registered<br><br>2: Device registered |||
| 023 | **Connect Mode (N/M)** |||
| | This SP displays and selects the Cumin connection method.<br><br>**0**: Internet connection<br><br>1: Dial-up connection |||
| 061 | **NotiTime ExpTime DFU** |||
| | Proximity of the expiration of the certification. |||
| 062 | **HTTP Proxy Use** |||
| | This SP setting determines if the proxy server is used when the machine communicates with the service center. |||
| 063 | **HTTP Proxy Host** |||
| | This SP sets the address of the proxy server used for communication between Cumin-N and the gateway. Use this SP to set up or display the customer proxy server address. The address is necessary to set up Cumin-N.<br><br>⬇ **Note**<br><br>• The address display is limited to 127 characters. Characters beyond the 127th character are ignored.<br><br>• This address is customer information and is not printed in the SMC report. |||
| 064 | **HTTP Proxy Port Number** |||
| | This SP sets the port number of the proxy server used for communication between Cumin-N and the gateway. This setting is necessary to set up Cumin-N. |||

| 5816 | [NRS Function] | *CTL | - |
|---|---|---|---|

**⬇ Note**

- This port number is customer information and is not printed in the SMC report.

| 065 | HTTP Proxy Aut Usr |
|---|---|

This SP sets the HTTP proxy authentication 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.

| 066 | HTTP Proxy Aut Pass |
|---|---|

This SP sets the HTTP proxy authentication password.

**⬇ Note**

- The length of the password 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.

**Cer Updt Cond**

Displays the status of the certification update.

| 067 | 0 | The certification used by Cumin is set correctly. |
|---|---|---|
| | 1 | The certification request (setAuthKey) for update has been received from the GW URL and certification is presently being updated. |
| | 2 | The certification update is completed and the GW URL is being notified of the successful update. |
| | 3 | The certification update failed, and the GW URL is being notified of the failed update. |
| | 4 | The period of the certification has expired and new request for an update is being sent to the GW URL. |
| | 11 | A rescue update for certification has been issued and a rescue certification setting is in progress for the rescue GW connection. |
| | 12 | The rescue certification setting is completed and the GW URL is being notified of the certification update request. |

| 5816 | | [NRS Function] | *CTL | - |
|---|---|---|---|---|
| | 13 | The notification of the request for certification update has completed successfully, and the system is waiting for the certification update request from the rescue GW URL | | |
| | 14 | The notification of the certification request has been received from the rescue GW controller, and the certification is being stored. | | |
| | 15 | The certification has been stored, and the GW URL is being notified of the successful completion of this event. | | |
| | 16 | The storing of the certification has failed, and the GW URL is being notified of the failure of this event. | | |
| | 17 | The certification update request has been received from the GW URL, the GW URL was notified of the results of the update after it was completed, but an certification error has been received, and the rescue certification is being recorded. | | |
| | 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 | Cer Abnml Cause | | | |
| | 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: Updtt ReqID | | | |
| | The ID of the request for certification. | | | |
| 083 | Firm Updating | | | |
| | Displays the status of the firmware update. | | | |

| 5816 | [NRS Function] | *CTL | - |
|---|---|---|---|
| 084 | Firm UpFlg No HDD | | |
| | This setting determines if the firmware can be updated, even without the HDD installed. | | |
| 085 | Firm Up Usr Conf | | |
| | 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 Version | | |
| | Displays the macro version of the NRS certification. | | |
| 088 | CERT: PAC Version | | |
| | Displays the PAC version of the NRS certification. | | |
| 089 | CERT: ID2 Code | | |
| | Displays ID2 for the NRS certification. Spaces are displayed as underscores (_). Asteriskes () indicate that no NRS certification exists. | | |
| 090 | CERT: Subject | | |
| | Displays the common name of the NRS certification subject. CN = the following 17 bytes. Spaces are displayed as underscores (_). Asterisks () indicate that no DESS exists. | | |
| 091 | CERT: Serial Number | | |
| | Displays serial number for the NRS certification. Asterisks () indicate that no DESS exists. | | |
| 092 | CERT: Issuer | | |
| | Displays the common name of the issuer of the NRS certification. CN = the following 30 bytes. Asteriskes () indicate that no DESS exists. | | |
| 093 | CERT: St ExpTime | | |
| | Displays the start time of the period for which the current NRS certification is enabled. | | |

**5**

| 5816 | [NRS Function] | *CTL | - |
|---|---|---|---|
| 094 | CERT: End ExpTime | | |
| | Displays the end time of the period for which the current NRS certification is enabled. | | |
| 150 | Ins Country | | |
| | Select from the list the name of the country where Cumin-M is installed in the machine. After selecting the country, you must also set the following SP codes for Cumin-M:<br><br>• SP5816-153<br>• SP5816-154<br>• SP5816-161<br><br>0: Japan, 1: USA, 2: Canada, 3: UK, 4: Germany, 5: France<br>6: Italy, 7: Netherlands, 8: Belgium, 9: Luxembourg, 10: Spain | | |
| 151 | Aut Line Detect | | |
| | Press [Execute].<br><br>Setting this SP classifies the telephone line where Cumin-M is connected as either dial-up or push type, so Cumin-M can automatically distinguish the number that connects to the outside line.<br><br>• The current progress, success, or failure of this execution can be displayed with SP5816 152.<br>• If the execution succeeded, SP5816 153 will display the result for confirmation and SP5816 154 will display the telephone number for the connection to the outside line. | | |
| 152 | Line Detect Rst | | |
| | Displays a number to show the result of the execution of SP5816 151. Here is a list of what the numbers mean. | | |
| | 0: Success<br>1: In progress (no result yet). Please wait.<br>2: Line abnormal<br>3: Cannot detect dial tone automatically<br>4: Line is disconnected<br>5: Insufficient electrical power supply<br>6: Line classification not supported<br>7: Error because fax transmission in progress – ioctl() occurred.<br>8: Other error occurred | | |

| 5816 | [NRS Function] | *CTL | - |
|---|---|---|---|

| | 9: Line classification still in progress. Please wait. | | |
|---|---|---|---|
| 153 | Dial/Push Select<br><br>This SP displays the classification (tone or pulse) of the telephone line to the access point for Cumin-M. The numbered displayed (0 or 1) is the result of the execution of SP5816 151. However, this setting can also be changed manually.<br><br>[0to1/**0**/1]<br><br>0: Tone Dialing Phone<br><br>1: Pulse Dialing Phone<br><br>Inside Japan "2" may also be displayed:<br><br>0: Tone Dialing Phone<br><br>1: Pulse Dialing Phone 10PPS<br><br>2: Pulse Dialing Phone 20PPS | | |
| 154 | Outline Phone #<br><br>The SP sets the number that switches to PSTN for the outside connection for Cumin-M in a system that employs a PBX (internal line).<br><br>• If the execution of SP5816-151 has succeeded and Cumin-M has connected to the **external** line, this SP display is completely blank.<br>• If Cumin-M has connected to an **internal** line, then the number of the connection to the external line is displayed.<br>• If Cumin-M has connected to an external line, a comma is displayed with the number. The comma is inserted for a 2 sec. pause.<br>• The number setting for the external line can be entered manually (including commas). | | |
| 155 | Remove Service: PPP Recognition Timeout<br><br>**SS**P: Sets the length of the timeout for the Cumin-M connection to its access point. The timeout is the time from when the modem sends the ATD to when it receives the result code.<br><br>[1 to 65536 / **60** / 1 /step] | | |
| 156 | Dial Up User<br><br>Use this SP to set a user name for access to remote dial up. Follow these rules when setting a user name:<br><br>• Name length: Up to 32 characters | | |

| 5816 | [NRS Function] | *CTL | - |
|------|----------------|------|---|

|  | • Spaces and # allowed but the entire entry must be enclosed by double quotation marks ("). |
|---|---|
| 157 | Dial Up Password |
|  | Use this SP to set a password for access to remote dial up. Follow these rules when setting a user name:<br><br>• Name length: Up to 32 characters<br><br>• Spaces and # allowed but the entire entry must be enclosed by double quotation marks ("). |
| 161 | Phone Number |
|  | Use this SP to set the telephone number of the line where Cumin-M is connected. This number is transmitted to and used by the Call Center to return calls.<br><br>Limit: 24 numbers (numbers only) |
| 162 | Ans Timing Adj |
|  | When the Call Center calls out to a Cumin-M modem, it sends a repeating ID tone (*#1#). This SP sets the line remains open to send these ID tones after the number of the Cumin-M modem is dialed up and connected.<br><br>[0 to 24/ **1** /1 /step]<br><br>The actual amount of time is this setting x 2 sec. For example, if you set "2" the line will remain open for 4 sec. |
| 163 | Access Point |
|  | This is the number of the dial-up access point for Cumin-M. If no setting is done for this SP code, then a preset value (determined by the country selected) is used.<br><br>Default: 0<br><br>Allowed: Up to 16 alphanumeric characters |
| 164 | Comm Line |
|  | This SP sets the connection conditions for the customer. This setting dedicates the line to Cumin-M only, or sets the line for sharing between Cumin-M and a fax unit.<br><br>[0 or 1 / **0** / - ]<br><br>0: Line shared by Cumin-M/Fax<br><br>1: Line dedicated to Cumin-M only |

| 5816 | [NRS Function] | *CTL | - |
|---|---|---|---|

**Note**
- If this setting is changed, the copier must be cycled off and on.
- SP5816 187 determines whether the off-hook button can be used to interrupt a Cumin-M transmission in progress to open the line for fax transaction.

| 173 | Modem Serial Number |
|---|---|
| | This SP displays the serial number registered for the Cumin-M. |

| 174 | Lmt Resend Cncl |
|---|---|
| | Normally, it is best to allow unlimited time for certification and ID2 update requests, and for the notification that the certification has been completed. However, Cumin-M generates charges based on transmission time for the customer, so a limit is placed upon the time allowed for these transactions. |
| | If these transactions cannot be completed within the allowed time, do this SP to cancel the time restriction. |

| 187 | FAX TX Priority |
|---|---|
| | This SP determines whether pushing the off-hook button will interrupt a Cumin-M transmission in progress to open the line for fax transaction. This SP can be used only if SP5816-164 is set to "0". |
| | [0 or 1/ **0** / - ] |
| | 0: Disable. Setting the fax unit off-hook does not interrupt a fax transaction in progress. If the off-hook button is pushed during a Cumin-M transmission, the button must be pushed again to set the fax unit on-hook after the Cumin-M transmission has completed. |
| | 1: Enable. When Cumin-M shares a line with a fax unit, setting the fax unit off-hook will interrupt a Cumin-M transmission in progress and open the line for a fax transaction. |

| 200 | Polling Man Exc |
|---|---|
| | Executes the polling test. |

| 201 | Instl: Condition |
|---|---|
| | Displays a number that indicates the status of the NRS service device. |
| | 0: Neither the NRS device nor Cumin device are set. |
| | 1: The Cumin device is being set. Only Box registration is completed. In this status the Basil unit cannot answer a polling request. |
| | 2: The Cumin device is set. In this status the Basil unit cannot answer a polling request. |

| 5816 | [NRS Function] | *CTL | - |
|---|---|---|---|
| | 3: The NRS device is being set. In this status the Cumin device cannot be set.<br>4: The NRS module has not started. | | |
| 202 | Instl: ID#<br><br>Allows entry of the number of the request needed for the Cumin device. | | |
| 203 | Instl: Reference<br><br>Executes the inquiry request to the NRS GW URL. | | |
| 204 | Instl: Ref Rslt<br><br>Displays a number that indicates the result of the inquiry executed with SP5816-203.<br><br>0: Succeeded<br>1: Inquiry number error<br>2: Registration in progress<br>3: Proxy error (proxy enabled)<br>4: Proxy error (proxy disabled)<br>5: Proxy error (Illegal user name or password)<br>6: Communication error<br>7: Certification update error<br>8: Other error<br>9: Inquiry executing | | |
| 205 | Instl: Ref Section<br><br>Displays the result of the notification sent to the device from the GW URL in answer to the inquiry request. Displayed only when the result is registered at the GW URL. | | |
| 206 | Instl: Rgstltn<br><br>Executes Cumin Registration. | | |
| 207 | Instl: Rgstltn Rst<br><br>Displays a number that indicates the registration result.<br>0: Succeeded<br>2: Registration in progress<br>3: Proxy error (proxy enabled) | | |

| 5816 | [NRS Function] | *CTL | - |
|---|---|---|---|

| | 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 |

| | Instl Error Code |
|---|---|
| | Displays a number that describes the error code that was issued when either SP5816 204 or SP5816 207 was executed. |

<table>
<tr><td rowspan="14">208</td><td>Cause</td><td>Code</td><td colspan="2">Meaning</td></tr>
<tr><td rowspan="3">Illegal Modem Parameter</td><td>-11001</td><td colspan="2">Chat parameter error</td></tr>
<tr><td>-11002</td><td colspan="2">Chat execution error</td></tr>
<tr><td>-11003</td><td colspan="2">Unexpected error</td></tr>
<tr><td rowspan="3">Operation Error, Incorrect Setting</td><td>-12002</td><td colspan="2">Inquiry, registration attempted without acquiring device status.</td></tr>
<tr><td>-12003</td><td colspan="2">Attempted registration without execution of an inquiry and no previous registration.</td></tr>
<tr><td>-12004</td><td colspan="2">Attempted setting with illegal entries for certification and ID2.</td></tr>
<tr><td rowspan="8">Error Caused by Response from GW URL</td><td>-2385</td><td colspan="2">Attempted dial up overseas without the correct international prefix for the telephone number.</td></tr>
<tr><td>-2387</td><td colspan="2">Not supported at the Service Center</td></tr>
<tr><td>-2389</td><td colspan="2">Database out of service</td></tr>
<tr><td>-2390</td><td colspan="2">Program out of service</td></tr>
<tr><td>-2391</td><td colspan="2">Two registrations for same device</td></tr>
<tr><td>-2392</td><td colspan="2">Parameter error</td></tr>
<tr><td>-2393</td><td colspan="2">Basil not managed</td></tr>
<tr><td>-2394</td><td colspan="2">Device not managed</td></tr>
</table>

5

| 5816 | [NRS Function] | | *CTL | - |
|------|----------------|--------|------|---|
| | | -2395 | Box ID for Basil is illegal | |
| | | -2396 | Device ID for Basil is illegal | |
| | | -2397 | Incorrect ID2 format | |
| | | -2398 | Incorrect request number format | |
| 209 | Instl Clear | | | |
| | Releases a machine from its Cumin setup. | | | |
| 250 | Print Com Log | | | |
| | Prints the communication log. | | | |

| 5821 | [NRS Address] | |
|------|---------------|---|
| 001 | CSS-PI Device | Sets the PI device code. After you change this setting, you must turn the machine off and on. |
| 002 | RCG IP Address | Sets the IP address of the RCG (Remote Communication Gate) destination for call processing at the remote service center. [00000000h to FFFFFFFFh/1] |

| 5824 | NVRAM Upload |
|------|--------------|
| 001 | (▰▰ NVRAM Upload) |

| 5825 | NVRAM Download |
|------|----------------|
| 001 | (▰▰ NVRAM Download) |

| 5828 | [Network Setting] | | *CTL | |
|------|-------------------|--------------------------|------|---|
| 050 | 1284 Compatibility (Centro) | Enables or disables 1284 Compatibility. [0 or 1 / **1** / 1 / step] 0: Disabled, 1: Enabled | | |
| 052 | ECP (Centro) | Enables or disables ECP Compatibility. [0 or 1 / **1** / 1 / step] | | |

| 5828 | [Network Setting] | *CTL | |
|---|---|---|---|
| | | 0: Disabled, 1: Enabled<br><br>1. This SP is activated only when SP5-828-50 is set to "1". | |
| 065 | Job Spooling | Enables/disables Job Spooling.<br>[0 or 1 / **0** / 1 / step]<br>0: Disabled, 1: Enabled | |
| 066 | Job Spooling Clear: Start Time | Treatment of the job when a spooled job exists at power on.<br>0: ON (Data is cleared)<br>**1**: OFF (Automatically printed) | |
| 069 | Job Spooling (Protocol) | Validates or invalidates the job spooling function for each protocol.<br>**0**: Validates<br>1: Invalidates<br>bit0: LPR<br>bit1: FTP<br>bit2: IPP<br>bit3: SMB<br>bit4: BMLinkS<br>bit5: DIPRINT<br>bit6: (Reserved)<br>bit7: (Reserved) | |
| 090 | TELNET (0: OFF 1: ON) | Enables or disables the Telnet protocol.<br>[ 0 or 1 / **1** / – ]<br>0: Disable, 1: Enable | |
| 091 | Web (0: OFF 1: ON) | Enables or disables the Web operation.<br>[ 0 or 1 / **1** / – ]<br>0: Disable, 1: Enable | |
| 145 | Operation IPv6 Link Local Address | | |
| | This is the IPv6 local address link referenced on the Ethernet or wireless LAN (802.11b) in the format: | | |

**5**

| 5828 | [Network Setting] | *CTL | |
|---|---|---|---|
| | "Link Local Address" + "Prefix Length" The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each. | | |
| 147 | Operation IPv6 Status Address 1 | These SPs are the IPv6 status addresses (1 to 5) referenced on the Ethernet or wireless LAN (802.11b) in the format: "Status Address" + "Prefix Length" The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each. | |
| 149 | Operation IPv6 Status Address 2 | | |
| 151 | Operation IPv6 Status Address 3 | | |
| 153 | Operation IPv6 Status Address 4 | | |
| 155 | Operation IPv6 Status Address 5 | | |
| 156 | IPv6 Manual Setting Address This SP is the IPv6 manually set address referenced on the Ethernet or wireless LAN (802.11b) 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. | | |
| 158 | IPv6 Gateway Address This SP is the IPv6 gateway address referenced on the Ethernet or wireless LAN (802.11b). The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each. | | |

| 5832 | [HDD] HDD Initialization | *CTL | |
|---|---|---|---|
| 001 | Format ALL | | |
| 002 | HDD Formatting (IMH) | | |
| 003 | Format Thumbnail | | |
| 004 | Format Job Log | Initializes the hard disk. Use this SP mode only if there is a hard disk error. | |
| 005 | Format Font | | |
| 006 | Format User Info | | |
| 007 | Format Rec Mail | | |

| | 008 | Format Sed Mail | |
| --- | --- | --- | --- |
| | 009 | Formatting DFU Data | |
| | 010 | Formatting All Log | |
| | 011 | Format Ridoc I/F | |

| 5839 | | [IEEE1394] | *CTL | |
| --- | --- | --- | --- | --- |
| | 007 | Cycle Master | **DFU:** Turns the cycle master function on/off.<br><br>[0 or 1 / **1** / 1 /step]<br><br>0: OFF, 1: ON | |
| | 008 | BCR mode | **DFU:** Selects either 'Standard', 'IRM Color Copy', or 'Always Effective'. | |
| | 009 | IRM 1394a Check | **DFU:** Turns the IRM 1394a check on/off.<br><br>[0 or 1 / **0** / - ]<br><br>0: OFF, 1: ON<br><br>If the IRM is not defined as 1394a standard, its node is used as IRM. | |
| | 010 | Unique ID | **DFU**<br><br>[0 or 1 / **1** / - ]<br><br>0: OFF, 1: ON | |
| | 011 | Logout | **DFU:** Prevents initiators from logging on or makes initiators log off.<br><br>[0 or 1 / **1** / - ]<br><br>0: OFF<br>(Prevents the initiators, having already logged on, to log on if they try to log on.)<br><br>1: ON<br>(Makes initiators, having already logged on, to log off if they try to log on.) | |
| | 012 | Login | **DFU:** Allows/disallows an initiator to exclusively log on.<br><br>[0 or 1 / **0** / - ]<br><br>0: OFF (Disallows), 1: ON (Allows) | |
| | 013 | Login MAX | **DFU:** Specifies the maximum initiators able to log on. | |

5

| | | | [0 to 63 / **8** / 1 /step] |
|---|---|---|---|

| 5840 | [IEEE 802.11b] | | |
|---|---|---|---|
| 006 | Channel MAX | *CTL | [1 to 11 or 13 / **11** or **13** / 1 /step]<br>Europe: 1 to 13, default: 13<br>NA/ Asia: 1 to 11, default: 11 |
| | Sets the maximum number of channels available for data transmission via the wireless LAN. The number of channels available varies according to location. The default settings are set for the maximum end of the range for each area. Adjust the upper 4 bits to set the maximum number of channels. **DFU**<br><br>⬇ Note<br><br>• Do not change the setting. | | |
| 007 | Channel MIN | *CTL | [ 1 to 11 or 13 / **1** / 1 /step]<br>Europe: 1 to 13<br>NA/ Asia: 1 to 11 |
| | Sets the minimum number of channels available for data transmission via the wireless LAN. The number of channels available varies according to location. The default settings are set for the minimum end of the range for each area. Adjust the lower 4 bits to set the minimum number of channels. **DFU**<br><br>⬇ Note<br><br>• Do not change the setting. | | |
| 011 | WEP Key Select | *CTL | [00 to 11 / 00 / 1 binary]<br>00: Key #1<br>01: Key #2 (Reserved)<br>10: Key #3 (Reserved)<br>11: Key #4 (Reserved) |
| | Selects the WEP key. | | |

| 5841 | [Supply Name] | | |
|---|---|---|---|
| 001 | Toner Name: Bk | *CTL | Specifies supply names. These appear on the screen when the user presses the Inquiry button in the user tools screen. |
| 002 | Toner Name: C | | |
| 003 | Toner Name: Y | | |

| | | |
|---|---|---|
| 004 | Toner Name: M | |
| 007 | Org Stamp | |

| 5842 | [GWWS Analysis] DFU | | |
|---|---|---|---|
| 001 | Setting 1 | | |
| | This is a debugging tool. It sets the debugging output mode of each Net File process.<br><br>Default: Bit SW 1000 0000 | Bit | Groups |
| | | 0 | System & other groups (LSB) |
| | | 1 | Capture related |
| | | 2 | Certification related |
| | | 3 | Address book related |
| | | 4 | Machine management related |
| | | 5 | Output related (printing, delivery) |
| | | 6 | Repository related |
| | | 7 | Debug log output |
| 002 | Setting 2 | | |
| | Default: Bit SW 0000 0000 | Bit | Groups |
| | | 0-6 | Not used |
| | | 7 | Log time stamp setting<br>0: Date/Hour/Minute/Second<br>1: Minute/Second/Msecond |

| 5844 | USB | |
|---|---|---|
| 001 | Transfer Rate | |
| | Sets the speed for USB data transmission.<br>[Full Speed]<br>[Auto Change] | |
| 002 | Vendor ID | |

| | |
|---|---|
| | Sets the vendor ID:<br>Initial Setting: 0x05A Ricoh Company<br>[0x0000 to 0xFFFF/1] **DFU** |
| 003 | Product ID |
| | Sets the product ID.<br>[0x0000 to 0xFFFF/1] **DFU** |
| 004 | Device Release No. |
| | Sets the device release number of the BCD (binary coded decimal) display.<br>[0000 to 9999/1] **DFU**<br>Enter as a decimal number. NCS converts the number to hexadecimal number recognized as the BCD. |

| | | | |
|---|---|---|---|
| **5845** | **[Delivery Server Setting]** | *CTL | - |
| | Provides items for delivery server settings. | | |
| 001 | FTP Port Num | [ 0 to 65535 / **3670** / 1 /step] | |
| | Sets the FTP port number used when image files to the Scan Router Server. | | |
| 002 | Srv IP (Primary) | Range: **000.000.000.000** to 255.255.255.255 | |
| | Use this SP to set the Scan Router Server address. The IP address under the transfer tab can be referenced by the initial system setting. | | |
| 006 | Delivery Error Display Time | [ 0 to 999 / **300** / 1 second /step] | |
| | Use this setting to determine the length of time the prompt message is displayed when a test error occurs during document transfer with the NetFile application and an external device. | | |
| 008 | Srv IP (Secondary) | Range: **000.000.000.000** to 255.255.255.255 | |
| | Specifies the IP address assigned to the computer designated to function as the secondary delivery server of Scan Router. This SP allows only the setting of the IP address without reference to the DNS setting. | | |
| 009 | Delivery Server Model | [ 0 to 4 / **0** / 1 /step] | |
| | Allows changing the model of the delivery server registered by the I/O device.<br>0: Unknown, 1: SG1 Provided, 2: SG1 Package, | | |

| | 3: SG2 Provided, 4: SG2 Package | | |
|---|---|---|---|
| 010 | Delivery Svr Capability | [ 0 to 255 / **0** / 1 /step] | |
| | Bit7 = 1 Comment information exits | | Changes the capability of the server that is registered as an I/O device. |
| | 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") | | |
| 011 | Delivery Svr Capability (Ext) | [ 0 to 255 / **0** / 1 /step] | |
| | Changes the capability of the server that is registered as an I/O device. | | |
| | Bit7 = 1 Address book usage limitation (Limitation for each authorized user) Bit6 = 1 RDH authorization link Bit5 to 0: Not used | | |
| 013 | Svr Schm (Primary) | - | |
| | Specifies the scheme of the primary delivery server. | | |
| 014 | Svr Port Num (Pri) | - | |
| | Specifies the port number of the primary delivery server. | | |
| 015 | Srv URL Path (Pri) | - | |
| | Specifies the URL path of the primary delivery server. | | |
| 016 | Svr Schm (Sec) | - | |
| | Specifies the scheme of the secondary delivery server. | | |
| 017 | Svr Port Num (Sec) | - | |
| | Specifies the port number of the secondary delivery server. | | |
| 018 | Srv URL Path (Sec) | - | |

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| | | | | |
|---|---|---|---|---|
| | Specifies the URL path of the secondary delivery server. | | | |
| 019 | CapSvr Schm | | - | |
| | Specifies the scheme of the capture server. | | | |
| 020 | CapSvr Port Num | | - | |
| | Specifies the port number of the capture server. | | | |
| 021 | CapSrv URL Path | | - | |
| | Specifies the URL path of the s capture server. | | | |

| 5846 | [UCS Settings] | *CTL | - |
|---|---|---|---|
| 001 | Machine ID (For Delivery Server) | | Displays ID |
| | 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. | | |
| 002 | Machine ID Clear (For Delivery Server) | | Clears ID |
| | 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. | | |
| 003 | Maximum Entries | | [150 to 999 / **150** / 1 /step] |
| | Changes the maximum number of entries that UCS can handle. 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. | | |
| 006 | Delivery Server Retry Timer | | [0 to 255 / **0** / 1 /step] |
| | Sets the interval for retry attempts when the delivery server fails to acquire the delivery server address book. | | |
| 007 | Delivery Server Retry Times | | [0 to 255 / **0** / 1 /step] |
| | Sets the number of retry attempts when the delivery server fails to acquire the delivery server address book. | | |
| 008 | Delivery Server Maximum Entries | | [200 to 999 / **200** / 1/step] |

| 5846 | [UCS Settings] | | *CTL | - |
|---|---|---|---|---|
| | Sets the maximum number account entries of the delivery server user information managed by UCS. | | | |
| 010 | LDAP Search Timeout | | | [1 to 255 / **60** / 1 /step] |
| | Sets the length of the timeout for the search of the LDAP server. | | | |
| 040 | [AddrBMig (SD–> HDD)] Address 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. When you do this SP without a HDD, SC991 occurs. **Note** • We recommend that you back up all directory information to an SD card with SP5846-051 before you execute this SP. | | | |
| 041 | [AddrB Acl Info] Address Book Access Control List Information | | | |
| | 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. | | | |
| 047 | Initialize Local Addr Book | | Clears the local address book information, including the user code. | |
| 048 | Initialize Delivery Addr Book | | Clears the distribution address book information, except the user code. | |
| 049 | Initialize LDAP Addr Book | | Clears the LDAP address book information, except the user code. | |
| 050 | Initialize All Addr Book | | Clears all directory information managed by UCS, including all user codes. Turn off and on the main power switch after executing this SP. | |
| 051 | Backup All Addr Book | | Uploads all directory information to the SD card. | |
| 052 | Restore All Addr Book | | Downloads all directory information from the SD card. | |

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| 5846 | [UCS Settings] | *CTL | - |
|---|---|---|---|
| 053 | Clear Backup Info | | |
| | Deletes the address book data from the SD card in the service slot. Deletes only the files that were uploaded from this machine. This feature does not work if the card is write-protected. ⬇Note • After you do this SP, go out of the SP mode, and then turn the power off. Do not remove the SD card until the Power LED stops flashing. | | |
| 060 | Search Option | | |
| | This SP uses bit switches to set up the fuzzy search options for the UCS local address book. Bit0: Checks both upper/lower case characters Bit1: Japan only Bit2 to 7: Not used | | |
| 062 | Compl Opt1 | | |
| | 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 / **0** / 1 /step] ⬇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. | | |
| 063 | Compl Opt2 | | |
| | 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 / **0** / 1 /step] ⬇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. | | |

| 5846 | [UCS Settings] | *CTL | - |
|---|---|---|---|
| 064 | Compl Opt3<br><br>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.<br><br>[0 to 32 / **0** / 1 /step]<br><br>⬇Note<br><br>• This SP does not normally require adjustment.<br><br>• This SP is enabled only after the system administrator has set up a group password policy to control access to the address book. | | |
| 065 | Compl Opt4<br><br>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.<br><br>[0 to 32 / **0** / 1 /step]<br><br>⬇Note<br><br>• This SP does not normally require adjustment.<br><br>• This SP is enabled only after the system administrator has set up a group password policy to control access to the address book. | | |
| 091 | FTP Auth Port Setting | Specifies the FTP port for getting a distribution server address book that is used in the identification mode.<br><br>[0 to 65535 / **3671** / 1 /step] | |
| 094 | Encryption Stat | Shows the status of the encryption function for the address book data. | |

| 5848 | [Web Service] | *CTL | - |
|---|---|---|---|
| | SP5848-1 sets the 4-bit switch assignment for the access control setting. Setting of 0001 has no effect on access and delivery from Scan Router.<br><br>ac: Access Control | | |
| 001 | ac: Netfile (Lower 4 bits only) | Bit switch settings. | |
| | 0000: No access control | | |

| | | 0001: Denies access to DeskTop Binder. Access and deliveries from Scan Router have no effect on capture. |
|---|---|---|
| 004 | ac: UD (only Lower 4 bits) | Switches access control on and off. |
| 005 | ac: For Cherry (only Lower 4 bits) | |
| 007 | ac: Log Fax (Lower 4 bits) | **0000**: No access control |
| 009 | ac: Job Ctrl (Lower 4 bits) | 0001: Denies access to DeskTop Binder. |
| 011 | ac: Device Management (Lower 4 bits) | |
| 022 | ac: Uadmin (Lower 4bits) | |
| 210 | Log Type: Job1 | Displays the log server settings. |
| 211 | Log Type: Job2 | These can be adjusted with the Web Image Monitor. |
| 212 | Log Type: Access | |
| 213 | Primary Srv | |
| 214 | Secondary Srv | |
| 215 | Start Time | |
| 216 | Interval Time | Specifies the transmit interval. [1 to 1000 / **1** / 1 hour/step] This SP is activated only when SP5848-217 is set to "2 (Transmit periodically)". |
| 217 | Timing | Selects the transmit timing. [0 to 2 / **0** / 1/step] 0: No Transmit, 1: Transmit one by one 2: Transmit periodically |

| 5849 | [Installation Date] | |
|---|---|---|
| | Displays or prints the installation date of the machine. | |
| 001 | Display | The "Counter Clear Day" has been changed to "Installation Date" or "Inst. Date". |

| 002 | Print | Determines whether the installation date is printed on the printout for the total counter. [0 or 1/ **1** / 1/step] 0: No Print,  1: Print |
|-----|-------|----|

| 5851 | [Bluetooth] |
|------|-------------|

| 001 | Sets the operation mode for the Bluetooth Unit. Press either key. **0** :Public,  1: Private |
|-----|----|

| 5856 | [Remote ROM Update] |
|------|---------------------|
|      | Allows the technician to upgrade the firmware using a parallel cable when updating the remote ROM. |

| 002 | Local Port | *CTL | [0 or 1 / **0** / 1/step] **0**: Not allowed 1: Allowed |
|-----|-----------|------|----|

| 5857 | [Debug Log Save] | *CTL | - |
|------|------------------|------|---|

| 001 | On/Off (1:ON 0:OFF) | **0**: ON, 1: OFF |
|-----|---------------------|-------------------|
|     | Switches the debug log feature on and off. The debug log cannot be captured until this feature is switched on. | |

| 002 | Target (2: HDD 3: SD) | **2**: HDD, 3: SD Card |
|-----|-----------------------|------------------------|
|     | Selects the storage device to save debug logs information when the conditions set with SP5-858 are satisfied. [ 2 to 3 / **2** / 1 /step] | |

| 005 | Save to HDD | DFU |
|-----|-------------|-----|
|     | Saves the debug log in memory to the HDD. A unique file name is generated to avoid overwriting existing file names on the HDD. Up to 4MB can be copied to the HDD. 4 MB segments can be copied one by one to the HDD. | |

| 006 | Save to SD Card |
|-----|-----------------|

| 009 | HDD to SD Latest (Latest 4 MB) |
|-----|--------------------------------|

| 010 | HDD to SD Any (Latest 4 MB Any Key) |
|-----|-------------------------------------|

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| | | |
|---|---|---|
| 011 | Erase HDD Debug |
| 012 | Erase SD Debug |
| 013 | Dsply-SD Space |
| 014 | SD to SD Latest (Latest 4 MB) |
| 015 | SD to SD Any (Latest 4 MB Any Key) |
| 016 | Make HDD Debug |
| 017 | Make SD Debug |

| | | | | |
|---|---|---|---|---|
| **5858** | [Debug Log Save: SC] | | *CTL | - |
| | These SPs select the content of the debugging information to be saved to the destination selected by SP5857-2.<br>SP5858-3 stores one SC specified by number. Refer to Section 4 for a list of SC error codes. | | | |
| | 001 | Engine SC Error | Turns on/off the debug save for SC codes generated by copier engine errors.<br>[0 or 1 / **0** / 1/ step]<br>0: OFF, 1: ON | |
| | 002 | Controller SC Error | Turns on/off the debug save for SC codes generated by GW controller errors.<br>[0 or 1 / **0** / 1/ step]<br>0: OFF, 1: ON | |
| | 003 | Any SC Error | [0 to 65535 / **0** / 1 /step] | |
| | 004 | Jam | Turns on/off the debug save for jam errors.<br>[0 or 1 / **0** / 1/ step]<br>0: OFF, 1: ON | |

| | | | | |
|---|---|---|---|---|
| **5859** | [Debug Log Save Key] | | *CTL | - |
| | 001 | Key 1 | These SPs allow you to set up to 10 keys for log files for functions that use common memory on the controller board.<br>[ –9999999 to 9999999 / **0** / – ] | |
| | 002 | Key 2 | | |
| | 003 | Key 3 | | |

| 004 | Key 4 | | |
|---|---|---|---|
| 005 | Key 5 | | |
| 006 | Key 6 | | |
| 007 | Key 7 | | |
| 008 | Key 8 | | |
| 009 | Key 9 | | |
| 010 | Key 10 | | |

| 5860 | [SMTP/POP3/IMAP4] | *CTL | - |
|---|---|---|---|
| 020 | Partial Mail Receive Timeout | | [1 to 168 / **72** / – ] |
| | 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. | | |
| 021 | MDN Response RFC2298 Compliance | | [0 to 1 / **1** / – ] |
| | Determines whether RFC2298 compliance is switched on for MDN reply mail. 0: No, 1: Yes | | |
| 022 | SMTP Auth. From Field Replacement | | [0 to 1 / **0** / – ] |
| | Determines whether the FROM item of the mail header is switched to the validated account after the SMTP server is validated. 0: No. "From" item not switched. 1: Yes. "From" item switched. | | |
| 025 | SMTP Auth. Direct Setting | | [0 or 1 / **0** / – ] |
| | Selects the authentication method for SMPT. **Bit switch:** <ul><li>Bit 0: LOGIN</li><li>Bit 1: PLAIN</li><li>Bit 2: CRAM MD5</li><li>Bit 3: DIGEST MD5</li><li>Bit 4 to 7: Not used</li></ul> | | |

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| | **Note** |
|---|---|
| | • This SP is activated only when SMTP authorization is enabled by UP mode. |

| 5866 | **[E-mail Report] Not Used** | | |
|---|---|---|---|
| 001 | Report Validity | - | [ 0 or 1 / **0** / – ]<br>0: Enabled, 1: Disabled |
| | Enables or disables the E-mail alert function. | | |
| 005 | Add Date Field | *CTL | [ 0 or 1 / **0** / – ] 0: Not add, 1: Add |
| | Adds or does not add the date field to the header of the alert mail. | | |

| 5869 | **[RAM Disk Setting] Not Used** | | |
|---|---|---|---|
| 002 | PDL Storage | GWINIT | [0 to 255 / **4** / 1 /step] |
| | Specifies the RAM disk storage size for PDL. | | |

| 5870 | **[Common Key Info Writing]** | | |
|---|---|---|---|
| 001 | Writing | *CTL | Writes to flash ROM the common proof for validating the device for NRS specifications. |
| 003 | Initialize | *CTL | Formats the common proof area of the flash ROM. **FA** |

| 5873 | **[SD Card Appli Move]** | |
|---|---|---|
| 001 | Move Exec | This SP copies the application programs from the original SD card in the SD card slot 3 to an SD card in the SD card slot 2. |
| 002 | Undo Exec | This SP copies back the application programs from an SD card in the SD Card Slot 3 to the original SD card in the SD card slot 2. Use this menu when you have mistakenly copied some programs by using "Move Exec" (SP5873-1). |

| 5875 | **[SC Auto Reboot]** | | |
|---|---|---|---|
| 001 | Reboot Mode | *CTL | Enables or disables the automatic reboot function when an SC error occurs. |

| | | | [0 or 1 / **0** / – ]<br><br>0: The machine reboots automatically when the machine issues an SC error and logs the SC error code. If the same SC occurs again, the machine does not reboot.<br><br>1: The machine does not reboot when an SC error occurs.<br><br>The reboot is not executed for Type A, B or C SC codes. |
|---|---|---|---|
| 002 | Reboot Method | *CTL | Selects the reboot method for SC.<br><br>[0 or 1 / **0** / -]<br><br>0: Manual reboot, 1: Automatic reboot |

| 5878 | [Option Setup] | | |
|---|---|---|---|
| 001 | Option Setup | - | Enables the Data Overwrite Security unit. Press "EXECUTE" on the operation panel. Then turn the machine off and on. |

| 5881 | [Delete Fixed Sent] | | |
|---|---|---|---|
| 001 | Delete Fixed Sent | - | Deletes the fixed form sentence. |

| 5884 | [Factini] Factory Initial Setting | | |
|---|---|---|---|
| 001 | Value Restore | - | Restores the factory settings to the machine.<br><br>This SP restores the settings of SP1001, 1002, 1922 and 3002. |

| 5886 | [Permit ROM Update] DFU | |
|---|---|---|
| 001 | This SP determines whether the ROM can be updated.<br><br>[0 or 1 / **0** / 1/step]<br><br>0: On, 1: Off | |

| 5907 | [Plug & Play] Plug & Play Name Selection |
|---|---|

| | | | |
|---|---|---|---|
| | Selects the brand name and production name for the Plug and Play function. These names are registered in the NVRAM. If the NVRAM becomes defective, these names should be re-registered. Use the right-arrow or left-arrow key to scroll through the list of brand names. To select a brand name, press the "#" key. An asterisk (*) indicates which manufacture is currently selected. | | |
| 001 | Plug & Play | *BCU | [ 0 to 5 / **0** / 1 /step ] **FA**<br>0: RICOH: MP C1500/615C<br>1: SAVIN: SGC 1506<br>2: Gestetner: MPC1500/GS106<br>3: NRG: MP C1500SP<br>4: infotec ISC 615G<br>5: LANIER: MPC1500sp/LD2015c |

| | |
|---|---|
| **5913** | **[Switchover Permission Time]** |
| 002 | Print Application Timer |
| | 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.<br>[3 to 30 / **3** / 1 second/step] |

| | |
|---|---|
| **5974** | **[Cherry Server]** |
| 001 | Selects which version of the Scan Router application program, "Light" or "Full (Professional)", is installed.<br>[0 to 1 / **0** / 1 /step]<br>0: Light version (supplied with this machine)<br>1: Full version (optional) |

| | | |
|---|---|---|
| **5985** | **[Device Setting]** | |
| | The NIC and USB support features are built into the GW controller. Use this SP to enable and disable these features. In order to use the NIC and USB functions built into the controller board, these SP codes must be set to "1". | |
| 001 | On Board NIC | [0 to 2 / **0** / 1 /step]<br>0: Disable, 1: Enable, 2: Function limitation |

| | | When the "Function limitation" is set, "On board NIC" is limited only for the NRS or LDAP/NT authentication. |
|---|---|---|
| | | 🔽 Note<br><br>• Other network applications than NRS or LDAP/NT authentication are not available when this SP is set to "2". Even you can change the initial settings of those network applications, settings does not work actually. |
| 002 | On Board USB | [0 or 1 / **0** / 1/step]<br>0: Disable, 1: Enable |

| 5987 | [Mech. Counter] Mechanical Counter Device | |
|---|---|---|
| | 0: OFF / 1: ON | This SP detects that a mechanical counter device is removed. If it is detected, SC610 occurs.<br><br>🔽 Note<br><br>• This SP is active only for NA model. |

| 5988 | [Contract Form] Contract Form Setting **SSP** | | |
|---|---|---|---|
| 001 | Maintenance ID | - | [0 to 255 / **1** / 1 /step] |

| 5989 | [Parts PM] **SSP** | | |
|---|---|---|---|
| 001 | On/Off | - | Enables or disables the PM parts alarm.<br>[0 or 1 / **0** / 1 /step]<br>0: Enable, 1: Disable |

| 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". | |
| 001 | All (Data List) | |
| 002 | SP (Mode Data List) | |
| 003 | User Program Data | |
| 004 | Logging Data | |

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| | |
|---|---|
| 005 | Diagnostic Report |
| 006 | Non-Default (Prints only SPs set to values other than defaults.) |
| 007 | NIB Summary |
| 021 | Copier User Program |
| 022 | Scanner SP |
| 023 | Scanner User Program |

## SP6-XXX (Peripherals)



| | | |
|---|---|---|
| 6006* | ADF Adjustment ( ADF Image Adjustment) ⬇ **Note**<br><br>• Available menus depend on the machine model and its configuration. | |
| 001 | StoS/Front Regist | [−7 to +9.5 / **0.0** / 0.1 mm/step] |
| | Adjusts the side-to-side registration for the front side of the original, for ADF mode. Use the ☺ key to select "+" or "−" before entering the value. | |
| 002 | Leading Regist | [−5.0 to +5.0 / **0.0** / 0.1 mm/step] |
| | Adjusts the leading edge registration for ADF mode. Use the ☺ key to select "+" or "−" before entering the value. | |
| 003 | Trailing Erase | [−3.0 to +3.0 / **−1.0** / 0.1 mm/step] |
| | Adjusts the trailing edge erase margin for ADF mode. Use the ☺ key to select "+" or "−" before entering the value. | |
| 004 | StoS/Rear Regist | [−7 to +9.5 / **0.0** / 0.5 mm/step] |
| | Adjusts the side-to-side registration for the rear side of duplex originals, for ADF mode. Use the ☺ key to select "+" or "−" before entering the value. | |
| 005 | Sub-scan Magnif | [−9.0 to +9.0 / **0.0** / 0.1 %/step] |
| | Adjust the sub-scan magnification for the ADF. | |
| 006 | Original Curl Adj | [0 = **No** / 1 = Yes] |
| | Enables or disables the skew adjustment for the reverse sides of originals. When you enable SP6-006-6, adjust the distance of the skew adjustment (SP 6-006-7). | |

| 007 | Skew Correction | [−20 to +20 / **0** / 1 mm/step] |
|---|---|---|
| | Specifies the distance of the skew adjustment. SP6006-7 is effective when you enable SP6006-6 (ADF Adjustment [Original Curl Adj]). | |

| 6009 | ADF Free Run |
|---|---|
| 001 | Performs an ADF free run. Press "ON" to start; press "OFF" to stop. |

| 6010 | **[Stamp Position Adj.]** Fax Stamp Position Adjustment | | |
|---|---|---|---|
| | Adjusts the horizontal position of the stamp on the scanned originals. | | |
| 6010 1 | Stamp Position Adj. | *CTL | [-10 to 10 / **0** / 1 mm/step ] |

| 6901 | Display ADF/APS | |
|---|---|---|
| 001 | Displays the status of the ADF original size sensors ( ADF/ APS Sensor Output Display). | |

| 6910* | ADF Shading Time | [0 to 60 / **10** / 1 s/step] |
|---|---|---|
| 001 | Adjusts the interval used for the shading processing in the ADF mode. Light and heat in the room may affect the scanner response. Reduce this setting if copy quality indicates that the white level is drifting during ADF copy jobs. | |

## SP7-XXX (Data Log)

| 7002 | [Total Counter] | | |
|---|---|---|---|
| | Displays the total print count (number of printouts) for the selected mode. These are for designer's use. | | |
| 001 | Color Counter | *CTL | Not used |
| 002 | Black Counter | | |
| 003 | GJ Unit Clr | | **DFU** |
| 004 | GJ Unit Bk | | |

| 7212 | [User Cleaning #] |
|---|---|

| | | Displays the user cleaning job number for the selected print head. | |
|---|---|---|---|
| 001 | K1 | *CTL | [0 to 999999 / - / 1/step] |
| 002 | K2 | | |
| 003 | C | | **↓Note** |
| 004 | M | | • These counters are cleared with SP7959-1. |
| 005 | Y | | |

| 7213 | **[User Refresh #]** | |
|---|---|---|
| | Displays the user refreshing job number for the selected print head. | |
| 001 | K1 | *CTL |
| 002 | K2 | [0 to 999999 / - / 1/step] |
| 003 | C | **↓Note** |
| 004 | M | • These counters are cleared with SP7959-1. |
| 005 | Y | |

| 7214 | **[Air Rls Fill #]** Air Release and Ink Filling Counter | |
|---|---|---|
| | Displays the air releasing job number for the selected print head. This SP counts up the number of the air releasing job other than the jobs that are done with SP7215-xxx and 7219-xxx. | |
| 001 | K1 | *CTL |
| 002 | K2 | [0 to 999999 / - / 1/step] |
| 003 | C | **↓Note** |
| 004 | M | • These counters are cleared with SP7959-1. |
| 005 | Y | |

| 7215 | **[Aie Detec #]** Air Releasing Detection Counter |
|---|---|
| | Displays the air releasing job number for the selected print head. This SP counts up the number of the air releasing job other than the jobs that are done with SP7214-xxx and 7219-xxx. |

| | 001 | K1 | | |
|---|---|---|---|---|
| | 002 | K2 | | |
| | 003 | C | *CTL | [0 to 30000 / - / 1/step] |
| | 004 | M | | |
| | 005 | Y | | |

| 7216 | [Auto Cleaning #] |
|---|---|
| | Displays the automatic cleaning job number for the selected print head. |
| | The automatic cleaning is done as follows: |
| | 1. When the counter of SP7222-xxx reaches 4240000nl (during job) or 3816000nl (job end). |
| | 2. When the counter of SP7302-xxx reaches 336 pages (job end). |

| | 001 | K1 | | |
|---|---|---|---|---|
| | 002 | K2 | | [0 to 999999 / - / 1/step] |
| | 003 | C | *CTL | ⬇ Note |
| | 004 | M | | • These counters are cleared with SP7959-1. |
| | 005 | Y | | |

| 7217 | [Idle Cleaning #] |
|---|---|
| | Displays the idle cleaning job number for the selected print head. The idle cleaning is done when the machine does not get any job for more than 7 days and less than 1 month. |

| | 001 | K1 | | |
|---|---|---|---|---|
| | 002 | K2 | | [0 to 20000 / - / 1/step] |
| | 003 | C | *CTL | ⬇ Note |
| | 004 | M | | • These counters are cleared with SP7959-1. |
| | 005 | Y | | |

| 7218 | [Idle Refresh #] |
|---|---|

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| | | | |
|---|---|---|---|
| | Displays the idle refresh job number for the selected print head. The idle refresh is done when the machine does not get any job for more than 3 months. | | |
| 001 | K1 | *CTL | [0 to 100 / - / 1/step] |
| 002 | K2 | | |
| 003 | C | | **⬇ Note** |
| 004 | M | | • These counters are cleared with SP7959-1. |
| 005 | Y | | |

| | | | |
|---|---|---|---|
| 7219 | **[Idle Air Rls #]** | | |
| | Displays the idle air releasing job number for the selected print head. The idle air releasing is done when the machine does not get any job for more than 1 month and less than 3 months. | | |
| 001 | K1 | *CTL | [0 to 300 / - / 1/step] |
| 002 | K2 | | These counters are cleared with SP7959-1. |
| 003 | C | | |
| 004 | M | | |
| 005 | Y | | |

| | | | |
|---|---|---|---|
| 7221 | **[Waste Ink Count]** | | |
| | Displays the amout of the collected ink in the rear and front ink collection tank. | | |
| 001 | Rear | *CTL | [0 to 800000000/ - / 1 nl/step] |
| | The ink collection bottle (rear) near full is detected when this counter reaches the value specified with SP2-507-1 or the ink collection tank full sensor detects "ON". The ink collection bottle (rear) full is detected when this counter reaches "20000000nl (20ml)". | | |
| 002 | Front | *CTL | [0 to 400000000/ - / 1 nl/step] |
| | The ink collection bottle (front) near full is detected when this counter reaches "210000000nl (210ml)". The ink collection bottle (front) full is detected when this counter reaches "210300000nl (210.3ml)". | | |

| 7222 | [Mist Count] |||
|---|---|---|---|
| | Displays the ink mist counter. This counter counts "1" with the formula of calculating ink mist. <br> These counters are references for the automatic cleaning. These counters are cleared after the automatic cleaning has been done. |||
| 001 | K1 | *CTL | [0 to 8000000 / - / 1 nl/step] |
| 002 | K2 | | |
| 003 | C | | |
| 004 | M | | |
| 005 | Y | | |

| 7223 | [Cleaning #] |||
|---|---|---|---|
| | Displays the total cleaning job number for the selected print head. |||
| 001 | K1 | *CTL | [0 to 999999 / - / 1/step] <br> 🔽Note <br> • These counters are cleared with SP7804-2 and 7959-1. |
| 002 | K2 | | |
| 003 | C | | |
| 004 | M | | |
| 005 | Y | | |

| 7224 | [Refresh #] |||
|---|---|---|---|
| | Displays the total refresh job number for the selected print head. |||
| 001 | K1 | *CTL | [0 to 999999 / - / 1/step] <br> 🔽Note <br> • These counters are cleared with SP7804-2 and 7959-1. |
| 002 | K2 | | |
| 003 | C | | |
| 004 | M | | |
| 005 | Y | | |

| 7225 | [AirRlsFill Total] Air Release and Ink Filling Total Counter |
|---|---|
| | Displays the total air releasing job number for the selected print head. |

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| | | | | |
|---|---|---|---|---|
| | This counter counts "1" when either of SP7214-xxx, SP7215-xxx or SP7219-xxx is counted. | | | |
| 001 | K1 | *CTL | [0 to 999999 / - / 1/step] **Note** • These counters are cleared with SP7804-2 and 7959-1. | |
| 002 | K2 | | | |
| 003 | C | | | |
| 004 | M | | | |
| 005 | Y | | | |

| | | | | |
|---|---|---|---|---|
| 7302 | **[Total Page Count]** Total Page Counter | | | |
| | Displays the total fed paper number for the selected print head. This counter counts "1" when less than A4LEF size is fed and counts "1.4" when bigger than A4LEF size is fed. These counters are referrences for the automatic cleaning. | | | |
| 001 | K1 | *CTL | [0 to 1000 / - / 0.1 page/step] **Note** • These counters are cleared after the auto cleaning is done. | |
| 002 | K2 | | | |
| 003 | C | | | |
| 004 | M | | | |
| 005 | Y | | | |

| | | | |
|---|---|---|---|
| 7401* | [Counter–SC Total] | *CTL | [0 to 9999 / **0** / 1/step] |
| 001 | Displays how many times SC codes are generated. | | |

| | | | |
|---|---|---|---|
| 7402 | **[Filler Posn SC #]** Tank Full Lever Position Error SC Counter | | |
| | Displays the number of the SC202 occurrences for the selected print head. SC202 occurs when the machine fails to memorize the position of the tank full lever. | | |
| 001 | K1 | *CTL | [0 to 10000 / - / 1/step] |
| 002 | K2 | | |
| 003 | C | | |
| 004 | M | | |
| 005 | Y | | |

| 7403 | [SC History] | | |
|------|------|------|------|
| 001 | Latest | *CTL | Logs the SC codes detected.<br><br>The 10 most recently detected SC Codes are displayed on the screen.<br><br>L: Asset line<br><br>V: Assert location<br><br>F: Assert file |
| 002 | Latest 1 | | |
| 003 | Latest 2 | | |
| 004 | Latest 3 | | |
| 005 | Latest 4 | | |
| 006 | Latest 5 | | |
| 007 | Latest 6 | | |
| 008 | Latest 7 | | |
| 009 | Latest 8 | | |
| 010 | Latest 9 | | |

| 7404 | [Maint Mot SC #] Maintenance Unit Motor HP Sensor Error Counter | | |
|------|------|------|------|
| | Displays the number of the SC200 occurrences. SC200 occurs when the machine detects the home position error for the maintenance unit. | | |
| 001 | | *CTL | [0 to 10000 / - / 1/step] |

| 7502* | [Counter–Paper Jam] | [0 to 9999 / 0 / 1/step] |
|------|------|------|
| 7502 1 | Displays the total number of paper jams. | |

| 7503* | [Counter–Orgn Jam] | [0 to 9999 / 0 / 1/step] |
|------|------|------|
| 7503 1 | Displays the total number of original jams, | |

| 7504* | [Paper Jam/Loc] | [0 to 9999 / 0 / 1/step] |
|------|------|------|
| | Displays the total number of the paper jams classified by timing and location. | |
| 7504 1 | At Power On | |
| | Paper jam occurs at power on. | |
| 7504 3 | Non Feed Tray1 | |

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| | | Paper does not reach the first registration sensor (from the paper tray1). |
|---|---|---|
| 7504 4 | Non Feed 100 Bypass | |
| | | Paper does not reach the first registration sensor (from the by-pass tray). |
| 7504 5 | Non Feed Bypass | |
| | | Paper does not reach the second registration sensor (from the one-sheet by-pass tray). |
| 7504 6 | Non Feed Tray2 | |
| | | Paper does not reach the vertical transport sensor or duplex exit sensor (from the optional paper tray2). |
| 7504 7 | Non Feed1 Tray3 | |
| | | Paper does not reach the vertical transport sensor (from the optional paper tray3). |
| 7504 8 | Non Feed2 Tray3 | |
| | | Paper does not reach the duplex exit sensor (from the optional paper tray3). |
| 7504 10 | Off EngEntrance | |
| | | Paper does not reach the engine entrance sensor (from other than bypass tray). |
| 7504 11 | Off EngRegist SN | |
| | | Paper does not reach the second registration sensor (from other than bypass tray). |
| 7504 12 | Off EngExit | |
| | | Paper does not reach the engine exit sensor. |
| 7504 13 | Off IntChange SN | |
| | | Paper does not reach the junction gate sensor. |
| 7504 14 | Off Exit SN | |
| | | Paper does not reach the paper exit sensor. |
| 7504 15 | Off FedRegist SN | |
| | | Paper does not reach the first registration sensor (from the duplex unit or optional paper tray unit). |
| 7504 19 | Off DupEnt SN | |

| | Paper does not reach the duplex entrance sensor. |
|---|---|
| 7504 20 | Off DupWait SN |
| | Paper does not reach the duplex wait sensor. |
| 7504 21 | Off DupRevers SN |
| | Paper does not reach the duplex inverter sensor. |
| 7504 22 | Off VertOP SN |
| | Paper does not reach the relay sensor. |
| 7504 23 | Off DupExit SN |
| | Paper does not reach the duplex exit sensor. |
| 7504 53 | Off FedRegist SN |
| | Paper is caught at the first registration sensor. |
| 7504 55 | On Bypass SN |
| | Paper from the one-sheet by-pass tray is caught at the engine entrance sensor. |
| 7504 56 | On Jam Tray2 |
| | Paper from the tray2 (optional paper try unit) is caught at the relay sensor. |
| 7504 57 | On Jam Tray3 |
| | Paper from the tray3(optional paper try unit) is caught at the vertical transport sensor at the optional unit. |
| 7504 60 | On EngEnt SN |
| | Paper from other than one-sheet by-pass tray is caught at the engine entrance sensor. |
| 7504 61 | On EngRegist SN |
| | Paper is caught at the second registration sensor. |
| 7504 62 | On EngExit SN |
| | Paper is caught at the engine exit sensor. |
| 7504 63 | On IntChange SN |
| | Paper is caught at the junction gate sensor. |

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| 7504 64 | On MFExit SN |
| | Paper is caught at the paper exit sensor. |
| 7504 69 | On DupEnt SN |
| | Paper is caught at the duplex entrance sensor. |
| 7504 70 | On DupWait SN |
| | Paper is caught at the duplex wait sensor. |
| 7504 71 | On DupRevers SN |
| | Paper is caught at the duplex inverter sensor. |
| 7504 72 | On VertOP SN |
| | Paper from the duplex unit is caught at the relay sensor. |
| 7504 73 | On DupExit VerSN1 |
| | Paper from the duplex unit is caught at the duplex exit sensor. |
| 7504 74 | On DupExit VerSN2 |
| | Paper from the optional paper tray unit is caught at the duplex exit sensor. |

| 7505* | [Original Jam/Loc] | [0 to 9999 / 0 / 1/step] |
| | Displays the total number of the original jams on the ADF that have occurred at a certain timing or at a certain location. | |
| 7505 1 | At Power ON | |
| | Paper jam occurs at power on. | |
| 7505 3 | Off DF Regist SN | |
| | The original does not reach the first registration sensor. | |
| 7505 4 | Off DF Exit SN | |
| | The original does not reach the exit sensor. | |
| 7505 5 | Off DF Revers SN | |
| | The original does not reach the inverter sensor. | |

| 7505 53 | On DF Regist SN |
| | The original is caught at the first registration sensor. |
| 7505 54 | On DF Exit SN |
| | The original is caught at the exit sensor. |
| 7505 55 | On DF Revers SN |
| | The original is caught at the inverter sensor. |

| 7506 | [Paper Jam/ Size] Jam Counter: Paper Size | | |
|---|---|---|---|
| 7506 5 | A4 LEF | | |
| 7506 6 | A5 LEF | | |
| 7506 14 | B5 LEF | | |
| 7506 38 | LT LEF | | |
| 7506 44 | HLT LEF | | |
| 7506 132 | A3 SEF | | |
| 7506 133 | A4 SEF | | |
| 7506 134 | A5 SEF | *CTL | Displays the number of jams according to the paper size. [ 0 to 9999 / **0** / 1 sheet/step ] |
| 7506 141 | B4 SEF | | |
| 7506 142 | B5 SEF | | |
| 7506 160 | DLT SEF | | |
| 7506 164 | LG SEF | | |
| 7506 166 | LT SEF | | |
| 7506 172 | HLT SEF | | |
| 7506 255 | Others | | |

| 7507* | [Disply-P Jam Hist] Display: Paper Jam History | |
|---|---|---|
| 7507 1 | Last | Displays the copy jam history (the most recent 10 jams) |
| 7507 2 | Latest 1 | Sample Display: |

| | | |
|---|---|---|
| 7507 3 | Latest 2 | CODE:007 |
| 7507 4 | Latest 3 | SIZE:05h |
| 7507 5 | Latest 4 | TOTAL:0000334 |
| 7507 6 | Latest 5 | DATE:DEC 1 09:44/06 2005 |
| 7507 7 | Latest 6 | where: |
| 7507 8 | Latest 7 | **CODE** is the SP7504-*** number (see above.) |
| 7507 9 | Latest 8 | **SIZE** is the ASAP paper size code in hex. |
| 7507 10 | Latest 9 | **TOTAL** is the total jam error count (SP7003) |
| | | **DATE** is the date the jams occurred. |

| Size | Code | Size | Code | Size | Code |
|---|---|---|---|---|---|
| A4 (S) | 05 | A3 (L) | 84 | DLT (L) | A0 |
| A5 (S) | 06 | A4 (L) | 85 | LG (L) | A4 |
| B5 (S) | 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* | **[Disply-O Jam Hist]** Display: Original Jam History | |
| | Displays the original jam history of the transfer unit in groups of 10, starting with the most recent 10 jams. Display contents are as follows: | |
| | **CODE** is the SP7-505-*** number. | |
| | **SIZE** is the paper size code in hex. (See "Paper Size Hex Codes" below.) | |
| | **TOTAL** is the total jam error count (SP7-003) | |
| | **DATE** is the date the previous jam occurred | |
| 1* | Latest | Sample Display: |
| 2* | Latest 1 | CODE: 007 |
| 3* | Latest 2 | SIZE: 05h |
| 4* | Latest 3 | TOTAL: 0000334 |
| 5* | Latest 4 | DATE: Mon Mar 15 11:44:50 2000 |

| 6* | Latest 5 | |
|---|---|---|
| 7* | Latest 6 | |
| 8* | Latest 7 | |
| 9* | Latest 8 | |
| 10* | Latest 9 | |

| 7703 | [Total Decap Time] | | |
|---|---|---|---|
| | Displays the time when the print head has not been covered. This SP is the threshold for the auto cleaning. This counter is cleared after the auto cleaning. | | |
| 7703 1 | | *CTL | [0 to 1000000 / - / 1 sec/step] |

| 7704 | [Ink Condition] | | |
|---|---|---|---|
| | Displays the ink cartridge condition. | | |
| 7704 1 | K1 | *CTL | [0 to 3 / **0** / 1 /step] |
| 7704 2 | K2 | | 0: Ink remains in the both ink cartridge and sub-tank. |
| 7704 3 | C | | 1: Ink remains only in the sub-tank. (No ink in the ink cartridge) However, printing is still possible. |
| 7704 4 | M | | 2: Ink is not enough to print because the sub-tank is nearly empty. "Ink empty" message appears on the LCD |
| 7704 5 | Y | | 3: Ink is empty. |

| 7705 | [Ink Consumption] | | |
|---|---|---|---|
| | Displays the amount of the ink consumption. This counter is cleared after ink filling up. | | |
| 7705 1 | K1 | *CTL | [0 to 4000000 / **0** / 1 nl/step] |
| 7705 2 | K2 | | |
| 7705 3 | C | | |
| 7705 4 | M | | |

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| 7705 5 | Y | | |
|---|---|---|---|

| 7706 | **[Ink Cons Near End]** Ink Consumption After Ink Near End | | |
|---|---|---|---|
| | Displays the amount of the ink consumption after the ink near end has been detected. This counter is cleared after ink filling up. | | |
| 7706 1 | K1 | | |
| 7706 2 | K2 | | |
| 7706 3 | C | *CTL | [0 to 4000000 / 0 / 1 nl/step] |
| 7706 4 | M | | |
| 7706 5 | Y | | |

| 7801 | **[Memory/ Version/ PN]** | | |
|---|---|---|---|
| | Displays the part number and version of all ROMs in the machine. | | |
| -001 | Memory/ Version/ PN | | |

| 7803 | **[PM Counter]** | | |
|---|---|---|---|
| | Displays the PM counter for each PM part. | | |
| 7803 1 | Paper | | |
| 7803 2 | Maintenance Unit | | |
| 7803 3 | Charge Roller | | |
| 7803 4 | Transport Belt | | |
| 7803 5 | Waste Ink Tank | *CTL | [0 to 99999999 / 0 / 1/step] |
| 7803 6 | Roller (Bypass) | | |
| 7803 7 | Roller (Tray1) | | |
| 7803 8 | Roller (Tray2) | | |
| 7803 9 | Roller (Tray3) | | |

| 7804 | **[PM Count. Reset]** |
|---|---|

| | | Clears the PM counter for each PM part. | | |
|---|---|---|---|---|
| 7804 1 | Paper | | *CTL | This clears the counter of SP7803-1. |
| 7804 2 | Maintenance Unit | | *CTL | This clears the counter of SP7803-2, SP7223-001 to -005, SP7224-001 to -005 and SP7225-001 to -005. |
| 7804 3 | Charge Roller | | *CTL | This clears the counter of SP7803-3. |
| 7804 4 | Transport Belt | | *CTL | This clears the counter of SP7803-4. |
| 7804 5 | Waste Ink Tank | | *CTL | This clears the counter of SP7-221-001, SP7-803-005 and SP7-941-001 |
| 7804 6 | Roller (Bypass) | | *CTL | This clears the counter of SP7803-6. |
| 7804 7 | Roller (Tray1) | | *CTL | This clears the counter of SP7803-7. |
| 7804 8 | Roller (Tray2) | | *CTL | This clears the counter of SP7803-8. |
| 7804 9 | Roller (Tray3) | | *CTL | This clears the counter of SP7803-9. |
| 7804 10 | Head Unit | | *CTL | **DFU** |

| 7807 | [Reset–SC/Jam Counters] |
|---|---|
| 7807 1 | Resets the SC, paper, original, and total jam counters. When the program ends normally, the message "Completed" is displayed. SP 7807 1 does not reset the following logs: SP 7507 (Display-Paper Jam History) and SP 7508 (Display-Original Jam History). |

| 7826 | [MF Error Counter] Japan Only | |
|---|---|---|
| | Displays the number of counts requested of the card/key counter. | |
| 001 | Error Total | A request for the count total failed at power on. This error will occur if the device is installed but disconnected. |
| 002 | 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] |
|---|---|
| | Press Execute to reset to 0 the values of SP7826. **Japan Only** |

| 7832* | [Display-Self-Diag] |
|---|---|
| 7832 1 | Displays the SC codes and the number of their occurrences. Each number is in the range of 0 to 9999. |

| 7836 | [Resident Memory] |
|---|---|
| | Displays the contents of the memory on the controller board. |

| 7852 | [ADF Scan Glass] | |
|---|---|---|
| 7852 1 | Dust Counter | [0 to 9999 / - / 1/step] |
| | Counts the number of occurrences (0 to 65,535) when dust was detected on the scanning glass of the ADF. Counting is done only if SP4020 1 (ADF Scan Glass Dust Check) is switched on. Memory All Clear (SP5801) resets this counter to zero | |
| 7852 2 | Clear Counter | [0 to 9999 / - / 1/step] |
| | Clears the total counter of the dust diction. | |

| 7853 | [Cart Replace #] Ink Cartridge Replacement Counter | | |
|---|---|---|---|
| | Displays the replacement time of the ink cartridge for each color. | | |
| 7853 1 | K | *CTL | [0 to 1000 / **0** / 1/step] |
| 7853 2 | C | | |
| 7853 3 | M | | |
| 7853 4 | Y | | |

| 7854 | [Wst Tnk Rep #] Ink Collection Tank Replacement Counter | |
|---|---|---|
| | Displays the replacement time of the ink collection tank at front side or rear side. | |
| 78541 | Rear | [0 to 100 / - / 1/step] |
| 78542 | Front | [0 to 100 / - / 1/step] |

| 7901 | [Assert Info] |
|---|---|
| | Records the location where a problem is detected in the program. The data stored in this SP is used for problem analysis. **DFU** |

| 7901 | 1 | File Name | - | - | |
|---|---|---|---|---|---|
| 7901 | 2 | Number of Lines | - | - | |
| 7901 | 3 | Location | - | - | |

| 7931 | Ink Info: BK | | |
|---|---|---|---|
| **7932** | **Ink Info: M** | | |
| **7933** | **Ink Info: C** | | |
| **7934** | **Ink Info: Y** | | |
| −1 | Model ID | Displays the model ID that is used in RAPI. | |
| −2 | Cartridge Ver | Displays the cartridge version. | |
| −3 | Brand ID | Displays the brand ID. | |
| | | 01H: RICOH | 05H: Nashuatec |
| | | 02H: Savin | 06H: Rex |
| | | 03H: NRG | 07H: Danka-Infotec |
| | | 04H: Gestetner | 08H: Lanie |
| -004 | Area ID | Displays the area ID. | |
| | | 01H: Japan | 04H: ASIA |
| | | 02H: NA | 05H: CHINA |
| | | 03H: EU | 06H: LA |
| -005 | Production ID | Displays the production ID. | |
| -006 | Color ID | Displays the color ID. | |
| | | 01H: Bk | 03H: M |
| | | 02H: C | 04H: Y |
| -007 | Maintenance ID | Displays the maintenance ID. Japan Only? | |
| -008 | New | Displays the information of the new cartridge.<br>64H: New unit<br>00H: Used unit | |
| -009 | Recycle Count | Displays how many times a cartridge is recycled. | |

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| 7931 | Ink Info: BK | |
|---|---|---|
| 7932 | Ink Info: M | |
| 7933 | Ink Info: C | |
| 7934 | Ink Info: Y | |
| -010 | Product Date | Displays the production date and model number. |
| -011 | Serial No | Displays the serial number. |
| -012 | Ink Remaining | Displays the amount of the ink remaining. |
| -013 | EDP Code | Displays the EDP (type) code. |
| -014 | Ink End | Displays the history of the ink end. |
| -015 | Ink Refill | Displays the information of the refill. |
| -016 | Total Count:Start | [0 to 9999999 / - / 1/step]<br>Displays the total counter for B/W printing mode when the new cartridge is installed. |
| -017 | Color Count:Start | [0 to 9999999 / - / 1/step]<br>Displays the total counter for color printing mode when the new cartridge is installed. |
| -018 | Total Count:End | [0 to 9999999 / - / 1/step]<br>Displays the total counter for B/W printing mode when the new cartridge is installed. |
| -019 | Color Count:End | [0 to 9999999 / - / 1/step]<br>Displays the total counter for color printing mode when the new cartridge is installed. |
| -020 | Install Date | Displays the installation date. |
| -021 | Ink End Date | Displays the ink end date. |
| -022 | ID Chip Ink Cons | Displays the amount of the ink consumption. |
| -023 | Ink Cons: Mirror1 | This SP is the mirroring SP of SP793x-021. |
| -024 | Ink Cons: Mirror2 | This SP is the mirroring SP of SP793x-021. |
| -025 | Due Date | Displays the guarantee date for product quality. |

| 7931 | Ink Info: BK | |
|---|---|---|
| 7932 | Ink Info: M | |
| 7933 | Ink Info: C | |
| 7934 | Ink Info: Y | |
| -026 | Initial Fill # | Displays how many times the initial ink filling up is done. |
| -027 | Refresh # | Displays how many times the refresh mode is done. |
| -028 | Cleaning # | Displays how many times the cleaning mode is done. |
| -029 | Air Rls Fill # | Displays how many times the air release mode is done. |

| 7935 | Ink Info Log: BK | |
|---|---|---|
| 7936 | Ink Info Log: M | |
| 7937 | Ink Info Log: C | |
| 7938 | Ink Info Log: Y | |
| -001 | 1: Serial No | Displays the serial number of the current ink cartridge. |
| -002 | 1: Install Date | Displays the date when the current ink cartridge is installed. |
| -003 | 1: Total Count | Displays the total counter when the current ink cartridge is installed. [0 to 99999999 / - / 1/step] |
| -004 | 2: Serial No | Displays the serial number of the previcous ink cartridge. |
| -005 | 2: Install Date | Displays the date when the previous ink cartridge is installed. |
| -006 | 2: Total Count | Displays the total counter when the previous ink cartridge is installed. [0 to 99999999 / - / 1/step] |
| -007 | 3: Serial No | Displays the serial number of the one before the previous ink cartridge. |
| -008 | 3: Install Date | Displays the date when t the one before the previous ink cartridge is installed. |

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| 7935 | Ink Info Log: BK | |
|---|---|---|
| 7936 | Ink Info Log: M | |
| 7937 | Ink Info Log: C | |
| 7938 | Ink Info Log: Y | |
| -009 | 3: Total Count | Displays the total counter when the one before the previous ink cartridge is installed.<br>[0 to 99999999 / - / 1/step] |
| -010 | 4: Serial No | Displays the serial number of the one before the third-previous ink cartridge. |
| -011 | 4: Install Date | Displays the date when the one before the third-previous ink cartridge is installed. |
| -012 | 4: Total Count | Displays the total counter when the one before the third-previous ink cartridge is installed.<br>[0 to 99999999 / - / 1/step] |
| -013 | 5: Serial No | Displays the serial number of the one before the fourth-previous ink cartridge. |
| -014 | 5: Install Date | Displays the date when the one before the fourth-previous ink cartridge is installed. |
| -015 | 5: Total Count | Displays the total counter when the one before the fourth-previous ink cartridge is installed.<br>[0 to 99999999 / - / 1/step] |

| 7959 | [GJ Eng Count. Reset] GelJet Engine Counter Reset | |
|---|---|---|
| 001 | Clears the following counters related with GJ engine unit. | |
| | SP7-002-003<br>SP7-002-004<br>SP7-212-001 to 005<br>SP7-213-001 to 005<br>SP7-214-001 to 005<br>SP7-215-001 to 005<br>SP7-216-001 to 005 | SP7-221-002<br>SP7-223-001 to 005<br>SP7-224-001 to 005<br>SP7-225-001 to 005<br>SP7-402-001 to 005<br>SP7-404-001<br>SP7-803-002 |

| | SP7-217-001 to 005 | SP7-803-003 |
|---|---|---|
| | SP7-218-001 to 005 | SP7-803-004 |
| | SP7-219-001 to 005 | |

## SP8-XXX (History)

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 |
|---|---|
| SP8-211toSP8-216 | The number of pages scanned to the document server. |
| SP8-401toSP8-406 | The number of pages printed from the document server |
| SP8-691toSP8-696 | 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 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 |
| 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 |

| Abbreviation | What it means |
|---|---|
| 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 |
| 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. |

| Abbreviation | What it means |
|---|---|
| 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 |
| 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.

| 8 001 | T:Total Jobs | *CTL | These SPs count the number of times each application is used to do a job. [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| 8 002 | C:Total Jobs | *CTL | |
| 8 003 | F:Total Jobs | *CTL | |

| 8 004 | P:Total Jobs | *CTL | ⬇ Note |
|-------|--------------|------|--------|
| 8 005 | S:Total Jobs | *CTL | • 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. |
| 8 006 | L:Total Jobs | *CTL | |

- 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.

| 8 011 | T:Jobs/LS | *CTL | |
|---|---|---|---|
| 8 012 | C:Jobs/LS | *CTL | These SPs count the number of jobs stored to the document server by each application, to reveal how local storage is being used for input. [0 to 9999999 / **0** / 1] The L: counter counts the number of jobs stored from within the document server mode screen at the operation panel. |
| 8 013 | F:Jobs/LS | *CTL | |
| 8 014 | P:Jobs/LS | *CTL | |
| 8 015 | S:Jobs/LS | *CTL | |
| 8 016 | L:Jobs/LS | *CTL | |
| 8 017 | O:Jobs/LS | *CTL | |

- 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.

| 8 021 | T:Pjob/LS | *CTL | |
|---|---|---|---|
| 8 022 | C:Pjob/LS | *CTL | 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. |
| 8 023 | F:Pjob/LS | *CTL | |
| 8 024 | P:Pjob/LS | *CTL | |
| 8 025 | S:Pjob/LS | *CTL | |
| 8 026 | L:Pjob/LS | *CTL | |
| 8 027 | O:Pjob/LS | *CTL | |

- 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.

| 8 031 | T:Pjob/DesApl | *CTL | These SPs reveal what applications were used to output documents from the document server.<br><br>[0 to 9999999 / **0** / 1]<br><br>The L: counter counts the number of jobs printed from within the document server mode screen at the operation panel. |
|---|---|---|---|
| 8 032 | C:Pjob/DesApl | *CTL | |
| 8 033 | F:Pjob/DesApl | *CTL | |
| 8 034 | P:Pjob/DesApl | *CTL | |
| 8 035 | S:Pjob/DesApl | *CTL | |
| 8 036 | L:Pjob/DesApl | *CTL | |
| 8 037 | O:Pjob/DesApl | *CTL | |

- 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.

| 8 041 | T:TX Jobs/LS | *CTL | 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).<br><br>[0 to 9999999 / **0** / 1]<br><br>⬇Note<br><br>• Jobs merged for sending are counted separately.<br><br>The L: counter counts the number of jobs scanned from within the document server mode screen at the operation panel. |
|---|---|---|---|
| 8 042 | C:TX Jobs/LS | *CTL | |
| 8 043 | F:TX Jobs/LS | *CTL | |
| 8 044 | P:TX Jobs/LS | *CTL | |
| 8 045 | S:TX Jobs/LS | *CTL | |
| 8 046 | L:TX Jobs/LS | *CTL | |
| 8 047 | O:TX Jobs/LS | *CTL | |

- 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.

| 8 051 | T:TX Jobs/DesApl | *CTL | 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. |
|---|---|---|---|
| 8 052 | C:TX Jobs/DesApl | *CTL | |
| 8 053 | F:TX Jobs/DesApl | *CTL | |
| 8 054 | P:TX Jobs/DesApl | *CTL | |
| 8 055 | S:TX Jobs/DesApl | *CTL | [0 to 9999999 / **0** / 1] |
| 8 056 | L:TX Jobs/DesApl | *CTL | The L: counter counts the number of jobs sent from within the document server mode screen at the operation panel. |
| 8 057 | O:TX Jobs/DesApl | *CTL | |

- If the send is started from Desk Top Binder or Web Image Monitor, for example, then the O: counter increments.

| 8 061 | T:FIN Jobs | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| | These SPs total the finishing methods. The finishing method is specified by the application. | | |
| 8 062 | C:FIN Jobs | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs total finishing methods for copy jobs only. The finishing method is specified by the application. | | |
| 8 063 | F:FIN Jobs | *CTL | [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. | | |
| 8 064 | P:FIN Jobs | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs total finishing methods for print jobs only. The finishing method is specified by the application. | | |
| 8 065 | S:FIN Jobs | *CTL | [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. | | |

| 8 066 | L:FIN Jobs | *CTL | [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. | | |
| 8 067 | O:FIN Jobs | *CTL | [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. | | |
| -001 | 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) | |
| -002 | Stack | Number of jobs started out of Sort mode. | |
| -003 | Staple | Number of jobs started in Staple mode. | |
| -004 | Booklet | Number of jobs started in Booklet mode. If the machine is in staple mode, the Staple counter also increments. | |
| -005 | Z-Fold | Number of jobs started In any mode other than the Booklet mode and set for folding (Z-fold). | |
| -006 | Punch | Number of jobs started in Punch mode. When Punch is set for a print job, the P: counter increments. (See SP8064-6.) | |
| -007 | Other | Reserved. Not used. | |

| 8 071 | T:Jobs/PGS | *CTL | [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. | | |
| 8 072 | C:Jobs/PGS | *CTL | [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. | | |
| 8 073 | F:Jobs/PGS | *CTL | [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. | | |
| 8 074 | P:Jobs/PGS | *CTL | [0 to 9999999 / **0** / 1] |

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| | | | |
|---|---|---|---|
| | These SPs count and calculate the number of print jobs by size based on the number of pages in the job. | | |
| 8 075 | 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. | | |
| 8 076 | L:Jobs/PGS | *CTL | [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. | | |
| 8 077 | O:Jobs/PGS | *CTL | [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. | | |

| | | | |
|---|---|---|---|
| -001 | 1 Page | -008 | 21to50 Pages |
| -002 | 2 Pages | -009 | 51to100 Pages |
| -003 | 3 Pages | -010 | 101to300 Pages |
| -004 | 4 Pages | -011 | 301to500 Pages |
| -005 | 5 Pages | -012 | 501to700 Pages |
| -006 | 6to10 Pages | -013 | 701to1000 Pages |
| -007 | 11to20 Pages | -014 | 1001to 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.

| 8 111 | T:FAX TX Jobs | *CTL | [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. <br><br> ⬇ Note <br><br> • Color fax sending is not available at this time. | | |
| 8 113 | F: FAX TX Jobs | *CTL | [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. <br><br> ⬇ Note <br><br> • Color fax sending is not available at this time. | | |
| -001 | B/W | | |
| -002 | Color | | |

- 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 (8 12x) also increments.
- The fax job is counted when the job is scanned for sending, not when the job is sent.

| 8 121 | T:IFAX TX Jobs | *CTL | [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. <br><br> ⬇ Note <br><br> • Color fax sending is not available at this time. | | |
| 8 123 | F: IFAX TX Jobs | *CTL | [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. <br><br> ⬇ Note <br><br> • Color fax sending is not available at this time. | | |
| -001 | B/W | | |

| | 002 | Color |
|---|---|---|

- 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.

| 8 131 | T:S-to-Email Jobs | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| | These SPs count the total number of jobs (color or black-and-white) scanned and attached to an e-mail, regardless of whether the document server was used or not. | | |
| 8 135 | S:S-to-Email Jobs | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs count the number of jobs (color or black-and-white) scanned and attached to e-mail, without storing the original on the document server. | | |
| 001 | B/W | | |
| 002 | Color | | |
| -003 | ACS | | |

- 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).

| 8 141 | T:Deliv Jobs/Svr | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| | These SPs count the total number of jobs (color or black-and-white) scanned and sent to a Scan Router server. | | |
| 8 145 | S:Deliv Jobs/Svr | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs count the number of jobs (color or black-and-white) scanned in scanner mode and sent to a Scan Router server. | | |

| 001 | B/W |
|---|---|
| 002 | Color |
| -003 | ACS |

- These counters count jobs, not pages.
- 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.

| 8 151 | T:Deliv Jobs/PC | *CTL | [0to9999999 / **0** / 1] |
|---|---|---|---|
| | These SPs count the total number of jobs (color or black-and-white) scanned and sent to a folder on a PC (Scan-to-PC).<br>⬇Note<br> • At the present time, SP8151 and 8155 perform identical counts. | | |
| 8 155 | S:Deliv Jobs/PC | *CTL | [0to9999999 / **0** / 1] |
| | These SPs count the total number of jobs (color or black-and-white) scanned and sent with Scan-to-PC. | | |
| -001 | B/W | | |
| -002 | Color | | |
| -003 | ACS | | |

- 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.

| 8 161 | T:PCFAX TX Jobs | *CTL | 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.<br><br>[0 to 9999999 / **0** / 1]<br><br>⬇ **Note**<br><br>• At the present time, these counters perform identical counts. |
| 8 163 | F:PCFAX TX Jobs | *CTL | |

• 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.

| 8 191 | T:Total Scan PGS | *CTL | |
|-------|------------------|------|---|
| 8 192 | C:Total Scan PGS | *CTL | These SPs count the pages scanned by each application that uses the scanner to scan images.<br><br>[0 to 9999999 / **0** / 1] |
| 8 193 | F:Total Scan PGS | *CTL | |
| 8 195 | S:Total Scan PGS | *CTL | |
| 8 196 | L:Total Scan PGS | *CTL | |

• SP 8 191 to 8 196 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.

| 8 201 | T:LSize Scan PGS | *CTL | [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. | | |
| 8 203 | F:LSize Scan PGS | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs count the number of large pages scanned by original type for Fax jobs. | | |
| 8 205 | S:LSize Scan PGS | *CTL | [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.<br><br>**⬇ Note**<br><br>• These counters are displayed in the SMC Report, and in the User Tools display. | | |

| | | | These SPs count the number of pages scanned into the document server . |
|---|---|---|---|
| 8 211 | T:Scan PGS/LS | *CTL | [0 to 9999999 / **0** / 1] |
| 8 212 | C:Scan PGS/LS | *CTL | The L: counter counts the number of pages stored from |
| 8 213 | F:Scan PGS/LS | *CTL | within the document server mode screen at the oper- |
| 8 215 | S:Scan PGS/LS | *CTL | ation panel, and with the Store File button from within |
| 8 216 | L:Scan PGS/LS | *CTL | 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.

| | ADF Org Feeds | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| 8 221 | These SPs count the number of pages fed through the ADF for front and back side scanning. | | |
| 001 | Front | Number of front sides fed for scanning:<br><br>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.) |
|---|---|---|
| 002 | 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.

| 8 231 | Scan PGS/Mode | | *CTL | [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. | | | |
| 001 | Large Volume | | Selectable. Large copy jobs that cannot be loaded in the ADF at one time. | |
| 002 | SADF | | Selectable. Feeding pages one by one through the ADF. | |
| 003 | Mixed Size | | Selectable. Select "Mixed Sizes" on the operation panel. | |
| 004 | Custom Size | | Selectable. Originals of non-standard size. | |
| 005 | Platen | | Book mode. Raising the ADF and placing the original directly on the platen. | |

- 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.

| 8 241 | T:Scan PGS/Org | *CTL | [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. | | | |
|---|---|---|---|---|
| **8 242** | C:Scan PGS/Org | | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs count the number of pages scanned by original type for Copy jobs. | | | |
| **8 243** | F:Scan PGS/Org | | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs count the number of pages scanned by original type for Fax jobs. | | | |
| **8 245** | S:Scan PGS/Org | | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs count the number of pages scanned by original type for Scan jobs. | | | |
| **8 246** | L:Scan PGS/Org | | *CTL | [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 | | | |

| | 8 241 | 8 242 | 8 243 | 8 245 | 8 246 | 8 247 |
|---|---|---|---|---|---|---|
| 001: Text | Yes | Yes | Yes | Yes | Yes | Yes |
| 002: Text/Photo | Yes | Yes | Yes | Yes | Yes | Yes |
| 003: Photo | Yes | Yes | Yes | Yes | Yes | Yes |
| 004: GenCopy, Pale | Yes | Yes | No | Yes | Yes | Yes |
| 005: Map | Yes | Yes | No | Yes | Yes | Yes |
| 006: Normal/Detail | Yes | No | Yes | No | No | No |
| 007: Fine/Super Fine | Yes | No | Yes | No | No | No |
| 008: Binary | Yes | No | No | Yes | No | No |
| 009: Grayscale | Yes | No | No | Yes | No | No |
| 010: Color | Yes | No | No | Yes | No | No |
| 011: Other | Yes | Yes | Yes | Yes | Yes | No |

- 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.

| | | | |
|---|---|---|---|
| 8 251 | T:Scan PGS/ImgEdt | *CTL | 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: |
| 8 252 | C:Scan PGS/ImgEdt | *CTL | |
| 8 254 | P:Scan PGS/ImgEdt | *CTL | |
| 8 256 | L:Scan PGS/ImgEdt | *CTL | |
| 8 257 | O:Scan PGS/ImgEdt | *CTL | • Erase> Border<br>• Erase> Center<br>• Image Repeat<br>• Centering<br>• Positive/Negative<br>[0 to 9999999 / **0** / 1]<br><br>⬇ **Note**<br><br>• The count totals the number of times the edit features have been used. A detailed breakdown of exactly which features have been used is not given. |

The L: counter counts the number of pages stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen.

| | | | |
|---|---|---|---|
| 8 261 | T:Scn PGS/ColCr | *CTL | [0 to 9999999 / **0** / 1] |
| 8 262 | C:Scn PGS/ ColCr | *CTL | [0 to 9999999 / **0** / 1] |
| 8 266 | L:Scn PGS/ColCr | *CTL | [0 to 9999999 / **0** / 1] |
| 001 | Color Conversion | | These SPs show how many times color creation features have been selected at the operation panel. |
| 002 | Color Erase | | |
| 003 | Background | | |
| 004 | Other | | |

| | | | |
|---|---|---|---|
| 8 281 | T:Scan PGS/TWAIN | *CTL | These SPs count the number of pages scanned using a TWAIN driver. These counters reveal how the TWAIN driver is used for delivery functions.<br>[0 to 9999999 / **0** / 1] |
| 8 285 | S:Scan PGS/TWAIN | *CTL | ⬇ **Note**<br><br>• At the present time, these counters perform identical counts. |

| 8 291 | T:Scan PGS/Stamp | *CTL | These SPs count the number of pages stamped with the stamp in the ADF unit. |
|---|---|---|---|
| 8 293 | F:Scan PGS/Stamp | *CTL | [0 to 9999999 / **0** / 1] |
| 8 295 | S:Scan PGS/Stamp | *CTL | 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 |
| 8 296 | L:Scan PGS/Stamp | *CTL | |

| 8 301 | T:Scan PGS/Size | *CTL | [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]. | | |
| 8 302 | C:Scan PGS/Size | *CTL | [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]. | | |
| 8 303 | F:Scan PGS/Size | *CTL | [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]. | | |
| 8 305 | S:Scan PGS/Size | *CTL | [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]. | | |
| 8 306 | L:Scan PGS/Size | *CTL | [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]. | | |
| -001 | A3 | | - |
| 002 | A4 | | |
| 003 | A5 | | |
| 004 | B4 | | |

**5**

| | | | |
|---|---|---|---|
| 005 | B5 | | |
| 006 | DLT | | |
| 007 | LG | | |
| 008 | LT | | |
| 009 | HLT | | |
| 010 | Full Bleed | | |
| -254 | Other (Standard) | | |
| -255 | Other (Custom) | | |

| | | | |
|---|---|---|---|
| 8 311 | T:Scan PGS/Rez | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs count by resolution setting the total number of pages scanned by applications that can specify resolution settings. | | |
| 8 315 | Scan PGS/Rez | *CTL | [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, SP8-311 and 8-315 perform identical counts. | | |
| 001 | 1200dpi to | | |
| 002 | 600dpito1199dpi | | |
| 003 | 400dpito599dpi | - | |
| 004 | 200dpito399dpi | | |
| 005 | 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.

| | | | |
|---|---|---|---|
| 8 381 | T:Total PrtPGS | *CTL | These SPs count the number of pages printed by the customer. The counter for the application used for storing the pages increments. |
| 8 382 | C:Total PrtPGS | *CTL | |

| 8 383 | F:Total PrtPGS | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| 8 384 | P:Total PrtPGS | *CTL | 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. |
| 8 385 | S:Total PrtPGS | *CTL | |
| 8 386 | L:Total PrtPGS | *CTL | |
| 8 387 | O:Total PrtPGS | *CTL | |

- 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.

| 8 391 | LSize PrtPGS | *CTL | [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 are also displayed in the User Tools display on the copy machine. | | |

| 8 401 | T:PrtPGS/LS | *CTL | 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] |
|---|---|---|---|
| 8 402 | C:PrtPGS/LS | *CTL | |
| 8 403 | F:PrtPGS/LS | *CTL | |
| 8 404 | P:PrtPGS/LS | *CTL | |
| 8 405 | S:PrtPGS/LS | *CTL | |

| 8 406 | L:PrtPGS/LS | *CTL | |
|---|---|---|---|

- 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.

| 8 411 | Prints/Duplex | *CTL | 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] |
|---|---|---|---|

| 8 421 | T:PrtPGS/Dup Comb | *CTL | [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. | | |
| 8 422 | C:PrtPGS/Dup Comb | *CTL | [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. | | |
| 8 423 | F:PrtPGS/Dup Comb | *CTL | [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. | | |
| 8 424 | P:PrtPGS/Dup Comb | *CTL | [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. | | |
| 8 425 | S:PrtPGS/Dup Comb | *CTL | [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. | | |
| 8 426 | L:PrtPGS/Dup Comb | *CTL | [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. | | |
| 8 427 | O:PrtPGS/Dup Comb | *CTL | [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 | | |

| | | |
|---|---|---|
| 001 | Simplex> Duplex | - |
| 002 | Duplex> Duplex | - |
| 003 | Book> Duplex | - |
| 004 | Simplex Combine | - |
| 005 | Duplex Combine | - |
| 006 | 2> | 2 pages on 1 side (2-Up) |
| 007 | 4> | 4 pages on 1 side (4-Up) |
| 008 | 6> | 6 pages on 1 side (6-Up) |
| 009 | 8> | 8 pages on 1 side (8-Up) |
| 010 | 9> | 9 pages on 1 side (9-Up) |
| 011 | 16> | 16 pages on 1 side (16-Up) |
| 012 | Booklet | - |
| 013 | Magazine | - |

- These counts (SP8-421 to SP8-427) 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 |

| 8 431 | T:PrtPGS/ImgEdt | *CTL | [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. | | |

| 8 432 | C:PrtPGS/ImgEdt | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| | These SPs count the total number of pages output with the three features below with the copy application. | | |

| 8 434 | P:PrtPGS/ImgEdt | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| | These SPs count the total number of pages output with the three features below with the print application. | | |

| 8 436 | L:PrtPGS/ImgEdt | *CTL | [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. | | |

| 8 437 | O:PrtPGS/ImgEdt | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| | These SPs count the total number of pages output with the three features below with Other applications. | | |
| 001 | Cover/Slip Sheet | Total number of covers or slip sheets inserted. The count for a cover printed on both sides counts 2. | |
| 002 | Series/Book | The number of pages printed in series (one side) or printed as a book with booklet right/left pagination. | |
| 003 | User Stamp | The number of pages printed where stamps were applied, including page numbering and date stamping. | |

| 8 441 | T:PrtPGS/Ppr Size | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| | These SPs count by print paper size the number of pages printed by all applications. | | |

| 8 442 | C:PrtPGS/Ppr Size | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| | These SPs count by print paper size the number of pages printed by the copy application. | | |

| 8 443 | F:PrtPGS/Ppr Size | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| | These SPs count by print paper size the number of pages printed by the fax application. | | |
| 8 444 | P:PrtPGS/Ppr Size | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs count by print paper size the number of pages printed by the printer application. | | |
| 8 445 | S:PrtPGS/Ppr Size | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs count by print paper size the number of pages printed by the scanner application. | | |
| 8 446 | L:PrtPGS/Ppr Size | *CTL | [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. | | |
| 8 447 | O:PrtPGS/Ppr Size | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs count by print paper size the number of pages printed by Other applications. | | |
| 001 | A3 | - | |
| 002 | A4 | | |
| 003 | A5 | | |
| 004 | B4 | | |
| 005 | B5 | | |
| 006 | DLT | | |
| 007 | LG | | |
| 008 | LT | | |
| 009 | HLT | | |
| 010 | Full Bleed | | |
| 254 | Other (Standard) | - | |
| 255 | Other (Custom) | | |

- These counters do not distinguish between LEF and SEF.

| 8 451 | PrtPGS/Ppr Tray | | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|---|
| | These SPs count the number of sheets fed from each paper feed station. | | | |
| 001 | Bypass | Bypass Tray | | |
| 002 | Tray 1 | Copier | | |
| 003 | By pass | Copier | | |
| 004 | Tray 2 | Paper Tray Unit (Option) | | |
| 005 | Tray 3 | Paper Tray Unit (Option) | | |
| 006 | Tray 4 | Paper Tray Unit (Option) | | |
| 007 | Tray 5 | Paper Tray Unit (Option) | | |
| 008 | Tray 6 | Currently not used. | | |
| 009 | Tray 7 | Currently not used. | | |
| 010 | Tray 8 | Currently not used. | | |

| 8 461 | T:PrtPGS/Ppr Type | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| | These SPs count by paper type the number pages printed by all applications. <br><br> • 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. <br><br> • Blank sheets (covers, chapter covers, slip sheets) are also counted. <br><br> • During duplex printing, pages printed on both sides count as 1, and a page printed on one side counts as 1. | | |
| 8 462 | C:PrtPGS/Ppr Type | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs count by paper type the number pages printed by the copy application. | | |
| 8 463 | F:PrtPGS/Ppr Type | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs count by paper type the number pages printed by the fax application. | | |
| 8 464 | P:PrtPGS/Ppr Type | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs count by paper type the number pages printed by the printer application. | | |
| 8 466 | L:PrtPGS/Ppr Type | *CTL | [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. |
|---|---|---|
| | 001 | Normal |
| | 002 | Recycled |
| | 003 | Special |
| | 004 | Thick |
| | 005 | Normal (Back) |
| | 006 | Thick (Back) |
| | 007 | OHP |
| | 008 | Other |

| 8 471 | PrtPGS/Mag | *CTL | [0 to 9999999 / 0 / 1] |
|---|---|---|---|
| | These SPs count by magnification rate the number of pages printed. | | |
| 001 | to49% | | |
| 002 | 50%to99% | | |
| 003 | 100% | | |
| 004 | 101%to200% | | |
| 005 | 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%.

| 8 481 | T:PrtPGS/TonSave | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| 8 484 | P:PrtPGS/TonSave | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs count the number of pages printed with the Toner Save feature switched on. **↓Note** • These SPs return the same results as this SP is limited to the Print application. | | |

| 8 491 | T:PrtPGS/Col Mode | *CTL | |
|---|---|---|---|
| 8 492 | C:PrtPGS/Col Mode | *CTL | These SPs count the number of pages printed in the Color Mode by each application. |
| 8 493 | F:PrtPGS/Col Mode | *CTL | [0 to 9999999 / **0** / 1] |
| 8 496 | L:PrtPGS/Col Mode | *CTL | |
| 8 497 | O:PrtPGS/Col Mode | *CTL | |
| 001 | B/W | | |
| 002 | Single Color | | |
| 003 | Two Color | | |
| 004 | Full Color | | |

| 8 501 | T:PrtPGS/Col Mode | *CTL | These SPs count the number of pages printed in the Color Mode or B/W Mode by the print application. |
|---|---|---|---|
| 8 504 | P:PrtPGS/Col Mode | *CTL | |
| 8 507 | O:PrtPGS/Col Mode | *CTL | [0 to 9999999 / **0** / 1] |
| 001 | B/W | | |
| 002 | Single Color | | |
| 003 | Full Color | | |
| 004 | Single Color | | |
| 005 | Two Color | | |

| 8 511 | T:PrtPGS/Emul | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| | These SPs count by printer emulation mode the total number of pages printed. | | |

| 8 514 | P:PrtPGS/Emul | *CTL | [0 to 9999999 / 0 / 1] |
|---|---|---|---|
| | These SPs count by printer emulation mode the total number of pages printed. | | |
| 001 | RPCS | | |
| 002 | RPDL | | |
| 003 | PS3 | - | |
| 004 | R98 | | |
| 005 | R16 | | |
| 006 | GL/GL2 | | |
| 007 | R55 | | |
| 008 | RTIFF | | |
| 009 | PDF | | |
| 010 | PCL5e/5c | | |
| 011 | PCL XL | | |
| 012 | IPDL-C | | |
| 013 | BM-Links | | |
| 014 | Other | | |

- SP8 511 and SP8 514 return the same results as they are both limited to the Print application.

- Print jobs output to the document server are not counted.

| 8 521 | T:PrtPGS/FIN | *CTL | [0 to 9999999 / 0 / 1] |
|---|---|---|---|
| | These SPs count by finishing mode the total number of pages printed by all applications. | | |
| 8 522 | C:PrtPGS/FIN | *CTL | [0 to 9999999 / 0 / 1] |
| | These SPs count by finishing mode the total number of pages printed by the Copy application. | | |
| 8 523 | F:PrtPGS/FIN | *CTL | [0 to 9999999 / 0 / 1] |
| | These SPs count by finishing mode the total number of pages printed by the Fax application. | | |

| | | | |
|---|---|---|---|
| | **↓Note** | | |
| | • Print finishing options for received faxes are currently not available. | | |
| **8 524** | P:PrtPGS/FIN | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs count by finishing mode the total number of pages printed by the Print application. | | |
| **8 525** | S:PrtPGS/FIN | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs count by finishing mode the total number of pages printed by the Scanner application. | | |
| **8 526** | L:PrtPGS/FIN | *CTL | [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. | | |
| 001 | Sort | | |
| 002 | Stack | | |
| 003 | Staple | | |
| 004 | Booklet | | |
| 005 | Z-Fold | | |
| 006 | Punch | | |
| 007 | Other | | |

**↓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.

| | | | |
|---|---|---|---|
| **8 531** | Staples | *CTL | This SP counts the amount of staples used by the machine.<br>[0 to 9999999 / **0** / 1] |

| 8 581 | T:Counter | *CTL | [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. | | |
| 001 | Total | | |
| 002 | Total: Full Color | | |
| 003 | B&W/Single Color | | |
| 004 | Development: CMY | | |
| 005 | Development: K | | |
| 006 | Copy: Color | | |
| 007 | Copy: B/W | | |
| 008 | Print: Color | | |
| 009 | Print: B/W | | |
| 010 | Total: Color | | |
| -011 | Total: B/W | | |
| 012 | Full Color: A3 | | |
| 013 | Full Color: −B4 | | |
| 014 | Full Color Print | | |
| 015 | Mono Color Print | | |
| 016 | Full Color GPC | | |

| 8 582 | C:Counter | *CTL | [0 to 9999999 / 0 / 1] |
|---|---|---|---|
| | These SPs count the total output of the copy application broken down by color output. | | |
| 001 | B/W | | |
| 002 | Single Color | | |
| 003 | Two Color | | |
| 004 | Full Color | | |

| 8 583 | F:Counter | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| | These SPs count the total output of the fax application broken down by color output. | | |
| 8583-001 | B/W | | |
| 8 583 2 | Single Color | | |

| 8 584 | P:Counter | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| | These SPs count the total output of the print application broken down by color output. | | |
| 8 584 1 | B/W | | |
| 8 584 2 | Mono Color | | |
| 8 584 3 | Full Color | | |
| 8 584 4 | Single Color | | |
| 8 584 5 | Two Color | | |

| 8 586 | L:Counter | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| | These SPs count the total output of the local storage broken down by color output. | | |
| 8 582 1 | B/W | | |
| 8 582 2 | Single Color | | |
| 8 582 3 | Two Color | | |
| 8 582 4 | Full Color | | |

| 8 591 | O:Counter | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| 8 591 1 | A3/DLT | 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. | |
| 8 591 2 | Duplex | | |

| 8 601 | Cvg Counter | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| 8 601 1 | Cvg: BW % | Displays the total coverage of each mode. | |
| 8 601 2 | Cvg: FC % | | |

| 8 601 11 | Cvg: BW Pages | Displays the number of the printouts in each mode. |
|---|---|---|
| 8 601 12 | Cvg: FC Pages | |

| 8 631 | T:FAX TX PGS | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| | These SPs count by color mode the number of pages sent by fax to a telephone number. | | |
| 8 633 | F:FAX TX PGS | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs count by color mode the number of pages sent by fax to a telephone number. | | |
| 001 | B/W | | |
| 002 | Color | | |

- 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.

| 8 641 | T:IFAX TX PGS | *CTL | [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. | | |
| 8 643 | F:IFAX TX PGS | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs count by color mode the number of pages sent by Fax as fax images using I-Fax. | | |
| 001 | B/W | | |
| 002 | Color | | |

- 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.

| 8 651 | T:S-to-Email PGS | *CTL | [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. | | |
| 8 655 | S:S-to-Email PGS | *CTL | [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. | | |
| 001 | B/W | | |
| 002 | 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.).

| 8 661 | T:Deliv PGS/Svr | *CTL | [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. | | |
| 8 665 | S:Deliv PGS/Svr | *CTL | [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. | | |
| 001 | B/W | | |

| | 002 | Color |
|---|---|---|

**Note**

- The B/W and Color counts are done after the document is stored on the HDD of the Scan Router server.

- If the job is canceled before storage on the Scan Router server finishes, the counts are not done.

- The count is executed even if regardless of confirmation of the arrival at the Scan Router server.

| | T:Deliv PGS/PC | *CTL | [0 to 9999999/ **0** / 1] |
|---|---|---|---|
| 8 671 | These SPs count by color mode the total number of pages sent to a folder on a PC (Scan-to-PC) with the Scan and LS applications. | | |
| | S:Deliv PGS/PC | *CTL | [0 to 9999999 / **0** / 1] |
| 8 675 | These SPs count by color mode the total number of pages sent with Scan-to-PC with the Scan application. | | |
| | 001 | B/W | |
| | 002 | Color | |

**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.

| 8 681 | T:PCFAX TXPGS | *CTL | These SPs count the number of pages sent by PC Fax. These SPs are provided for the Fax application only, so the counts for SP8-681 and SP8-683 are the same. [0 to 9999999/ **0** / 1] |
|---|---|---|---|
| 8 683 | F:PCFAX TXPGS | *CTL | |

- 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.)

| 8 691 | T:TX PGS/LS | *CTL | 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.<br><br>[0 to 9999999/ **0** / 1]<br>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. |
|---|---|---|---|
| 8 692 | C:TX PGS/LS | *CTL | |
| 8 693 | F:TX PGS/LS | *CTL | |
| 8 694 | P:TX PGS/LS | *CTL | |
| 8 695 | S:TX PGS/LS | *CTL | |
| 8 696 | L:TX PGS/LS | *CTL | |

**↓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.

| 8 701 | TX PGS/Port | *CTL | [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. | | |
| 8 701 1 | PSTN-1 | - | |
| 8 701 2 | PSTN-2 | - | |
| 8 701 3 | PSTN-3 | - | |
| 8 701 4 | ISDN (G3,G4) | - | |
| 8 701 5 | Network | - | |

| 8 711 | T:Scan PGS/Comp | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| 8 715 | S:Scan PGS/Comp | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs count the number of pages sent by each compression mode. | | |
| -001 | JPEG/JPEG2000 | - | |
| -002 | TIFF M/S (Multi/Single) | - | |

| | | | |
|---|---|---|---|
| 003 | PDF | - | |
| -004 | Other | - | |

| | | | |
|---|---|---|---|
| **8 741** | RX PGS/Port | *CTL | [0 to 9999999 / **0** / 1] |
| | These SPs count the number of pages received by the physical port used to receive them. | | |
| 8 741 1 | PSTN-1 | - | |
| 8 741 2 | PSTN-2 | - | |
| 8 741 3 | PSTN-3 | - | |
| 8 741 4 | ISDN (G3,G4) | - | |
| 8 741 5 | Network | - | |

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| | | | |
|---|---|---|---|
| **8 781** | Ink Botol Info. | *BCU | [0 to 9999999 / **0** / 1] |
| | These SPs display the number of already replaced ink cartridges.<br><br>**↓Note**<br><br>• Currently, the data in SP7-833-011 through 014 and the data in SP8-781-001 through 004 are the same. | | |
| 8 781 1 | BK | The number of black-ink cartridges | |
| 8 781 2 | Y | The number of yellow-ink cartridges | |
| 8 781 3 | M | The number of magenta-ink cartridges | |
| 8 781 4 | C | The number of cyan-ink cartridges | |

| | | | |
|---|---|---|---|
| **8 791** | LS Memory Remain | *CTL | This SP displays the percent of space available on the document server for storing documents.<br><br>[0 to 100 / **0** / 1] |

| | | | |
|---|---|---|---|
| **8 801** | Ink Remain | *CTL | [0 to 100 / **0** / 1] |
| | These SPs display the percent of ink remaining for each color. This SP allows the user to check the toner supply at any time. | | |

| | |
|---|---|
| | **Note** |
| | • This precise method of measuring remaining ink supply (1% steps) is better than other machines in the market that can only measure in increments of 10 (10% steps). |
| 8 801 1 | K |
| 8 801 2 | Y |
| 8 801 3 | M |
| 8 801 4 | C |

| 8 851 | Cvr Cnt:0-10% | *BCU | [0 to 9999999 / 0 / 1] |
|---|---|---|---|
| | These SPs display the number of scanned sheets on which the coverage of each color is from 0% to 10%. | | |
| 8 851 11 | 0-2%:Bk | | |
| 8 851 12 | 0-2%:Y | | |
| 8 851 13 | 0-2%:M | | |
| 8 851 14 | 0-2%:C | | |
| 8 851 21 | 3-4%: Bk | | |
| 8 851 22 | 3-4%: Y | | |
| 8 851 23 | 3-4%: M | | |
| 8 851 24 | 3-4%: C | | |
| 8 851 31 | 5-7%: Bk | | |
| 8 851 32 | 5-7%: Y | | |
| 8 851 33 | 5-7%: M | | |
| 8 851 34 | 5-7%: C | | |
| 8 851 41 | 8-10%: Bk | | |
| 8 851 42 | 8-10%: Y | | |
| 8 851 43 | 8-10%: M | | |
| 8 851 44 | 8-10%: C | | |

| 8 861 | Cvr Cnt: 11-20% | | *BCU | [0 to 9999999 / **0** / 1] |
|---|---|---|---|---|
| | These SPs display the number of scanned sheets on which the coverage of each color is from 11% to 20%. | | | |
| 8 851 1 | BK | | | |
| 8 851 2 | Y | | | |
| 8 851 3 | M | | | |
| 8 851 4 | C | | | |

| 8 871 | Cvr Cnt: 21-30% | | *BCU | [0 to 9999999 / **0** / 1] |
|---|---|---|---|---|
| | These SPs display the number of scanned sheets on which the coverage of each color is from 21% to 30%. | | | |
| 8 871 1 | BK | | | |
| 8 871 2 | Y | | | |
| 8 871 3 | M | | | |
| 8 871 4 | C | | | |

| 8 881 | Cvr Cnt: 31%- | | *BCU | [0 to 9999999 / **0** / 1] |
|---|---|---|---|---|
| | These SPs display the number of scanned sheets on which the coverage of each color is 31% or higher. | | | |
| 8 881 1 | BK | | | |
| 8 881 2 | Y | | | |
| 8 881 3 | M | | | |
| 8 881 4 | C | | | |

| 8 891 | Page/Ink Bottle | | *BCU | [0 to 9999999 / **0** / 1] |
|---|---|---|---|---|
| | These SPs display the number of sheets output by the scan application. | | | |
| 8 891 1 | BK | | | |
| 8 891 2 | Y | | | |

| | |
|---|---|
| 8 891 3 | M |
| 8 891 4 | C |

| | | | |
|---|---|---|---|
| **8 901** | Page/Ink Prev1 | *BCU | [0 to 9999999/ **0** / 1] |
| | These SPs display the number of sheets output by the scan application with the previously replaced units. | | |
| 8 901 1 | BK | | |
| 8 901 2 | Y | | |
| 8 901 3 | M | | |
| 8 901 4 | C | | |

| | | | |
|---|---|---|---|
| **8 911** | Page/Ink Prev2 | *BCU | [0 to 9999999 / **0** / 1] |
| | These SPs display the number of sheets output by the scan application with the one before previously replaced units. | | |
| 8 911 1 | BK | | |
| 8 911 2 | Y | | |
| 8 911 3 | M | | |
| 8 911 4 | C | | |

| | | | |
|---|---|---|---|
| **8 921** | Cvr Cnt/Total | *BCU | [0 to 9999999 / **0** / 1] |
| 8 921 1 | Coverage(%): BK | | |
| 8 921 2 | Coverage(%): Y | These SPs display the total coverage percentage of sheets output by the machine. | |
| 8 921 3 | Coverage(%): M | | |
| 8 921 4 | Coverage(%): C | | |
| 8 921 11 | Covwerage/P: Bk | | |
| 8 921 12 | Covwerage/P: Y | These SPs display the total coverage pages output by the machine. | |
| 8 921 13 | Covwerage/P: M | | |
| 8 921 14 | Covwerage/P: C | | |

| 8 921 21 | Ink Cons(ml): BK | These SPs display the total ink consumption used by the machine. |
|---|---|---|
| 8 921 22 | Ink Cons(ml): Y | |
| 8 921 23 | Ink Cons(ml): M | |
| 8 921 24 | Ink Cons(ml): C | |

| 8 941 | Machine Status | *CTL | [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. | | |
| 8 941 1 | Operation Time | Engine operation time. Does not include time while controller is saving data to HDD (while engine is not operating). | |
| 8 941 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. | |
| 8 941 3 | Energy Save Time | Includes time while the machine is performing background printing. | |
| 8 941 4 | Low Power Time | Includes time in Energy Save mode with Engine on. Includes time while machine is performing background printing. | |
| 8 941 5 | Off Mode Time | Includes time while machine is performing background printing. Does not include time machine remains powered off with the power switches. | |
| 8 941 6 | SC | Total down time due to SC errors. | |
| 8 941 7 | PrtJam | Total down time due to paper jams during printing. | |
| 8 941 8 | OrgJam | Total down time due to original jams during scanning. | |
| 8 941 9 | Spl PM Unit End | Total down time due to ink end. | |

| 8 951 | AddBook Register | *CTL | - | |
|---|---|---|---|---|
| | These SPs count the number of events when the machine manages data registration. | | | |
| 8 951 1 | User Code | User code registrations. | [0 to 9999999 / **0** / 1] |
| 8 951 2 | Mail Address | Mail address registrations. | |

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| 8 951 3 | Fax Destination | Fax destination registrations. | |
|---|---|---|---|
| 8 951 4 | Group | Group destination registrations. | |
| 8 951 5 | Transfer Request | Fax relay destination registrations for relay TX. | |
| 8 951 6 | F-Code | F-Code box registrations. | |
| 8 951 7 | Copy Program | Copy application registrations with the Program (job settings) feature. | |
| 8 951 8 | Fax Program | Fax application registrations with the Program (job settings) feature. | [0 to 255 / **0** / 255] |
| 8 951 9 | Printer Program | Printer application registrations with the Program (job settings) feature. | |
| 8 951 10 | Scanner Program | Scanner application registrations with the Program (job settings) feature. | |

| **8 999** | AdominCounter | *CTL | [0 to 9999999 / **0** / 1] |
|---|---|---|---|
| | Displays the user setting counter for administrator. | | |
| 8 999 1 | Total | - | |
| 8 999 2 | Copy: FC | - | |
| 8 999 3 | Copy: BW | - | |
| 8 999 6 | Printer: FC | - | |
| 8 999 7 | Printer: BW | - | |
| 8 999 8 | Printer: OneC | - | |
| 8 999 9 | Printer: TwoC | - | |
| 8 999 10 | FaxP: BW | - | |
| 8 999 11 | FaxP: OneC | - | |
| 8 999 12 | A3/DLT | - | |
| 8 999 13 | Duplex | - | |
| 8 999 14 | Cvr: FC % | - | |

| 8 999 15 | Cvr: BW % | - |
|---|---|---|
| 8 999 16 | Cvr: FC Pages | - |
| 8 999 17 | Cvr: BW Pages | - |
| 8 999 101 | SendTtl: FC | - |
| 8 999 102 | SendTtl: BW | - |
| 8 999 103 | FaxSend | - |
| 8 999 104 | FaxSend: FC | - |
| 8 999 105 | FaxSend: BW | - |

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# Printer Service Mode

| 1001 | [Bit Switch] | | |
|---|---|---|---|
| 1001 1 | Bit Switch 1 | *CTL | Adjusts bit switch settings. **DFU** |
| 1001 2 | Bit Switch 2 | *CTL | Bit 0 to 2: Not used. Do not change settings. <br> Bit 3: Changing print language (PCL <-> PS) <br> 0: Enabled <br> 1: Disabled (No change) <br> Bit 4 to 7: Not used. Do not change settings. |
| 1001 3 | Bit Switch 3 | *CTL | Adjusts bit switch settings. |
| | Bit 0: PostScript3 Euro glyph <br> 0: Disabled <br> 1: Enabled (Even if there is no Euro Glyph in ROM, it is possible to load the Euro Glyph data.) <br> Bit 1: Not used. Do not change setting. <br> Bit 2:PCL5e/5c (HP4000/HP8000) <br> The left space command is set to "0", the machine is changed to "1" <br> 0: Disabled <br> 1: Enabled <br> Bit 3: PCL5e/GL2: pen # of PW <br> 0: Normal <br> 1: Patch <br> Bit 4: Tray selecting <br> 0: Select tray is determined auto tray selecting <br> 1: Like HP/SV <br> Bit 5 to 7: Not used. Do not change settings. | | |
| 1001 4 | Bit Switch 4 | *CTL | Adjusts bit switch settings. **DFU** |
| 1001 5 | Bit Switch 5 | *CTL | Bit 0 to 2: Not used. Do not change settings. <br> Bit 3: Enabled the "%%" command of the PostScript detection condition for the auto print language selection function. <br> 0: Enabled |

| | | | 1: Disabled |
|---|---|---|---|
| | | | Bit 4 to 7: Not used. Do not change settings. |
| 1001 6 | Bit Switch 6 | *CTL | |
| 1001 7 | Bit Switch 7 | *CTL | Adjusts bit switch settings. **DFU** |
| 1001 8 | Bit Switch 8 | *CTL | |

| 1003 | [Clear Setting] | |
|---|---|---|
| 1003 1 | Init. System | Initializes settings in the System menu of the user mode. |
| 1003 3 | Delete Program | **DFU** |

| 1004 | [Print Summary] | |
|---|---|---|
| 1004 1 | Service Summary | Prints the service summary sheet (a summary of all the controller settings). |

| 1005 | [Disp. Version] |
|---|---|
| 1005 1 | Displays the version of the controller firmware. |

| 1101 | [ToneCtlSet] | | |
|---|---|---|---|
| 1101 1 | Tone (Factory) | *CTL | Recalls a set of gamma settings. This can be either a) the factory setting, b) the previous setting, or c) the current setting. |
| 1101 2 | Tone (Prev.) | *CTL | |
| 1101 3 | Tone (Current) | *CTL | |

| | [ToneCtlSet] | *CTL |
|---|---|---|
| 1102 | Sets the printing mode (resolution) for the printer gamma adjustment. The asterisk (*) shows which mode is set. | |
| | Refer to the tone control selection list following these SP tables | |

| 1103 | [PrnColorSheet] | |
|---|---|---|
| 1103 001 | ToneCtlSheet | Prints the test page to check the color balance before and after the gamma adjustment. |

| 1103 002 | ColorChart | | |
|----------|------------|---|---|

| 1104 | [ToneCtlValue] | | |
|--------|------------------------------------------------------------------------|---|---|
|        | Adjusts the printer gamma for the mode selected in the Mode Selection menu. | | |
| 1104 001 | Set Black 1 | *CTL | |
| 1104 021 | Set Cyan 1 | *CTL | [0 to 255 / **16** / 1/step] |
| 1104 041 | Set Magenta 1 | *CTL | |
| 1104 061 | Set Yellow 1 | *CTL | |
| 1104 002 | Set Black 2 | *CTL | |
| 1104 022 | Set Cyan 2 | *CTL | [0 to 255 / **32** / 1/step] |
| 1104 042 | Set Magenta 2 | *CTL | |
| 1104 062 | Set Yellow 2 | *CTL | |
| 1104 003 | Set Black 3 | *CTL | |
| 1104 023 | Set Cyan 3 | *CTL | [0 to 255 / **48** / 1/step] |
| 1104 043 | Set Magenta 3 | *CTL | |
| 1104 063 | Set Yellow 3 | *CTL | |
| 1104 004 | Set Black 4 | *CTL | |
| 1104 024 | Set Cyan 4 | *CTL | [0 to 255 / **64** / 1/step] |
| 1104 044 | Set Magenta 4 | *CTL | |
| 1104 064 | Set Yellow 4 | *CTL | |
| 1104 005 | Set Black 5 | *CTL | |
| 1104 025 | Set Cyan 5 | *CTL | [0 to 255 / **80** / 1/step] |
| 1104 045 | Set Magenta 5 | *CTL | |
| 1104 065 | Set Yellow 5 | *CTL | |
| 1104 006 | Set Black 6 | *CTL | |
| 1104 026 | Set Cyan 6 | *CTL | [0 to 255 / **96** / 1/step] |

| 1104 046 | Set Magenta 6 | *CTL | |
|---|---|---|---|
| 1104 066 | Set Yellow 6 | *CTL | |
| 1104 007 | Set Black 7 | *CTL | [0 to 255 / **112** / 1/step] |
| 1104 027 | Set Cyan 7 | *CTL | |
| 1104 047 | Set Magenta 7 | *CTL | |
| 1104 067 | Set Yellow 7 | *CTL | |
| 1104 008 | Set Black 8 | *CTL | [0 to 255 / **128** / 1/step] |
| 1104 028 | Set Cyan 8 | *CTL | |
| 1104 048 | Set Magenta 8 | *CTL | |
| 1104 068 | Set Yellow 8 | *CTL | |
| 1104 009 | Set Black 9 | *CTL | [0 to 255 / **144** / 1/step] |
| 1104 029 | Set Cyan 9 | *CTL | |
| 1104 049 | Set Magenta 9 | *CTL | |
| 1104 069 | Set Yellow 9 | *CTL | |
| 1104 010 | Set Black 10 | *CTL | [0 to 255 / **160** / 1/step] |
| 1104 030 | Set Cyan 10 | *CTL | |
| 1104 050 | Set Magenta 10 | *CTL | |
| 1104 070 | Set Yellow 10 | *CTL | |
| 1104 011 | Set Black 11 | *CTL | [0 to 255 / **176** / 1/step] |
| 1104 031 | Set Cyan 11 | *CTL | |
| 1104 051 | Set Magenta 11 | *CTL | |
| 1104 071 | Set Yellow 11 | *CTL | |
| 1104 012 | Set Black 12 | *CTL | [0 to 255 / **192** / 1/step] |
| 1104 032 | Set Cyan 12 | *CTL | |
| 1104 052 | Set Magenta 12 | *CTL | |
| 1104 072 | Set Yellow 12 | *CTL | |

**5**

| 1104 013 | Set Black 13 | *CTL | |
|---|---|---|---|
| 1104 033 | Set Cyan 13 | *CTL | [0 to 255 / **208** / 1/step] |
| 1104 053 | Set Magenta 13 | *CTL | |
| 1104 073 | Set Yellow 13 | *CTL | |
| 1104 014 | Set Black 14 | *CTL | |
| 1104 034 | Set Cyan 14 | *CTL | [0 to 255 / **224** / 1/step] |
| 1104 054 | Set Magenta 14 | *CTL | |
| 1104 074 | Set Yellow 14 | *CTL | |
| 1104 015 | Set Black 15 | *CTL | |
| 1104 035 | Set Cyan 15 | *CTL | [0 to 255 / **240** / 1/step] |
| 1104 055 | Set Magenta 15 | *CTL | |
| 1104 075 | Set Yellow 15 | *CTL | |

| 1105 | **[ToneCtlSave]** | | |
|---|---|---|---|
| | Saves the print gamma (adjusted with the Gamma Adj.) as the new Current Setting. Before the machine stores the new "current setting", it moves the data stored as the "current setting" to the "previous setting" memory-storage location. | | |

| 1106 | **[Toner Limit]** | | |
|---|---|---|---|
| | Adjusts the maximum toner amount for image development. | | |
| 1106 001 | TonerLimitPhot | *CTL | [100 to 400 / **260** / 1 %/step] |
| 1106 002 | TonerLimitText | *CTL | [100 to 400 / **200** / 1 %/step] |

| 1107 | **[FactoryTestPrt]** | | |
|---|---|---|---|
| | Prints the test page to check the color balance before transportation (600 x 600 2 bit).<br>**DFU** | | |

| 1108 | **[Ext. Toner Save]** | | |
|---|---|---|---|
| 1108 001 | Mode 1: Text | | **DFU** |

| 1108 002 | Mode 2: Text | | |
|---|---|---|---|
| 1108 003 | Mode 1: Image | | |
| 1108 004 | Mode 2: Image | | |
| 1108 005 | Mode 1: Line | | |
| 1108 006 | Mode 2: Line | | |
| 1108 007 | Mode 1: paint | | |
| 1108 008 | Mode 2: Paint | | |

**Tone Control Setting: SP1102-001**

| Input Number | Paper Type | Resolution | Mode |
|---|---|---|---|
| 0 | Plain Paper | 300 dpi | Photo |
| 1 | | | Text |
| 2 | | 600 dpi | Photo |
| 3 | | | Text |
| 4 | | | Photo |
| 5 | | | Text |
| 6 | High Grade Plain Paper | 600 dpi | Photo |
| 7 | | | Text |
| 8 | | | Photo |
| 9 | | | Text |
| 10 | | | Photo |
| 11 | | | Text |
| 12 | Glossy Paper | 600 dpi | Photo |
| 13 | | | Text |
| 14 | | | Photo |
| 15 | | | Text |

| Input Number | Paper Type | Resolution | Mode |
|---|---|---|---|
| 16 | OHP | 600 dpi | Photo |
| 17 | | | Text |
| 18 | | | Photo |
| 19 | | | Text |
| 20 | | | Photo |
| 21 | | | Text |
| 22 | Envelop | 600 dpi | Photo |
| 23 | Envelop | 600 dpi | Text |
| 24 | | | Photo |
| 25 | | | Text |
| 26 | | | Photo |
| 27 | | | Text |
| 28 | Envelop for Ink jet (Japan Only) | 600 dpi | Photo |
| 29 | | | Text |
| 30 | | | Photo |
| 31 | | | Text |
| 32 | | | Photo |
| 33 | | | Text |

# Scanner SP Mode

**SP1-xxx (System and Others)**

| 1004 | [Compression Type] | | |
|---|---|---|---|
| | Selects the compression type for binary picture processing. | | |
| 1004 1 | Compression Type | *CTL | [ 1 to 3 / **1** / 1/step ]<br>1: MH, 2: MR, 3: MMR |

| 1005 | [Erase margin] | | |
|---|---|---|---|
| | Creates an erase margin for all edges of the scanned image.<br>If the machine has scanned the edge of the original, create a margin. | | |
| 1005 1 | Range from 0 to 5 mm | *CTL | [0 to 5 / **0** / 1 mm/step ] |

| 1009 | [Remote scan disable] | *CTL | [ 0 to 1 / **0** / 1 /step]<br>0: enable, 1: disable |
|---|---|---|---|
| 1009 1 | Enable or disable the TWAIN network scan. | | |

**SP2-XXX (Scanning-image quality)**

| 2021 | [Compression ratio of gray-scale] | | |
|---|---|---|---|
| | Selects the compression ratio for grayscale processing mode (JPEG) for the three settings that can be selected at the operation panel. | | |
| 2021 1 | Level 3 (Standard compression) | | [ 5 to 95 / **40** / 1 /step ] |
| 2021 2 | Level 2 (Higher compression) | | [ 5 to 95 / **50** / 1 /step ] |
| 2021 3 | Level 4 (Lower compression) | *CTL | [ 5 to 95 / **30** / 1 /step ] |
| 2021 4 | Level 1 (Highest compression) | | [ 5 to 95 / **60** / 1 /step ] |
| 2021 5 | Level 5 (Lowest compression) | | [ 5 to 95 / **20** / 1 /step ] |

# Using SP Modes

## Adjusting Registration and Magnification

To adjust the registration and magnification, you need to use several service programs. The chart shows an example of the procedure to adjust the machine in the basic configuration.

## Display APS Data (SP 4301 1)

- Sensor Positions -

The APS (auto paper select) sensors are arranged as shown in the diagram.

- Reading the Data -

| Example 1 | Example 2 |
|---|---|
| • (7)00001100(0) [0C] | • Paper Size: 00000011 [03] |

Example 1 indicates that the paper size and its orientation is "$8\,^1/_2$ x 13 SEF," and that the document feeder (or platen cover) is open. Example 2 indicates that the paper size and its orientation is "A4 LEF," and that the document feeder (or platen cover) is closed.

The "Paper Size" data starts with eight digits. The first digit indicates the output of L2; the second digit, L1; the third digit, W2; and the fourth digit, W1. The other four digits (from the fifth through the eighth) are always "0000." In Example 1, the APS sensors L2 and L1 Detect paper (W2 and W1 do not).

In Example 2, APS sensors W2 and W1 detect paper (L2 and L1 do not). The paper size and its orientation is based on the outputs of these four APS sensors.

The "DF Open" data shows "1" or "0," indicating if the document feeder (or platen cover) is open or closed respectively. The data is based on the output of the platen cover sensor [A].

## Memory Clear

The machine stores the engine data in the NVRAM on the BCU, and stores the other data in the NVRAM on the controller. To distinguish between the engine data and the other data, see SP5801-1 through 19. This service program (SP 5801) handles the controller data. Any data that is not handled by SP 5801 is the engine data. The data in the BCU NVRAM (engine data) is cleared by SP5998-1 while the data in the controller NVRAM (controller data) is cleared by SP 5801-xxx (for exceptions, see "xxx").

| Machine | Data | NVRAM | Cleared by | Remarks |
|---------|------|-------|-----------|---------|
| MFP | Engine data | BCU | SP 5998-002 | Any data other than controller data |
| | Controller data | Controller | SP 5801-001, 003 to 009 | SCS, IMH, MCS, Copier application, Fax application, Printer application, Scanner application, Web service/network application, NCS, R-Fax, DCS, UCS |

**- Exceptions -**

SP 5998-1 clears most of the settings and counters stored in the NVRAM on the BCU (the values return to their default values). However, the following settings are not cleared:

- SP 5807 (Area Selection)
- SP 5811-1 (Serial Num Input [Code Set])
- SP 5811-3 (Serial Num Input [ID2 Code Display])
- SP 5812-1 (Service TEL [Telephone])
- SP 5812-2 (Service TEL [Facsimile])
- SP 5907 (Plug & Play)
- SP 7 (Data Log)
- SP 8 (History)

SP 5998-1 (MFP machine) after you have replaced the BCU NVRAM or when the BCU NVRAM data is corrupted. When the program ends normally, the message "Completed" is displayed. When you have replaced the controller NVRAM or when the controller NVRAM data is corrupted, use SP 5801-1. The message is the same as the basic machine.

1. **Upload the NVRAM data to a flash memory card ( NVRAM Data Upload/Download).**
2. **Print out all SMC data lists ( SMC Print).**

   ⬇Note

   - Be sure to print out all the lists. You have to manually change the SP settings if the NVRAM data upload ends abnormally.

3. **Select SP 5801-2.**
4. **Press the OK key.**

5. Select "Execute." The messages "Execute?" followed by "Cancel" and "Execute" are displayed.

6. Select "Execute."

7. When the program has ended normally, the message "Completed" is displayed. If the program has ended abnormally, an error message is displayed.

8. Press the cancel key.

9. Turn the main switch off and on.

10. Download the NVRAM data from a flash memory card (⬛ NVRAM Data Upload/Download).

## Input Check (SP 5803)

- Conducting an Input Check -

1. Select SP 5803.

2. Select the number (see the table below) corresponding to the component.

3. Select "Execute." The copy mode is activated.

4. The sign "01H" or "00H" is displayed (see the table below).

- Input Check Table -

| Num. | Sensor/Switch | 01H | 00H |
|------|---------------|-----|-----|
| 001 | Safety SW | Open | Close |
| 002 | Front Cover SW (Front door) | Open | Close |
| 003 | Right Cover SW (Right door) | Open | Close |
| 004 | Left Cover SW (Left upper door) | Open | Close |
| 005 | Left LowCover SW (Left lower door) | Open | Close |
| 006 | Straight Cover SW (Multi-duplex exit door) | Open | Close |
| 007 | Manual Cover SW (Duplex entrance door) | Open | Close |
| 008 | Exit Cover SW (Exit tray cover left and right) | Open | Close |

| Num. | Sensor/Switch | 01H | 00H |
|------|---------------|-----|-----|
| 009 | Mech Counter (Mechanical counter) | Detected | Not detected |
| 010 | Regist Sensor (First registration sensor) | Paper detected | Not detected |
| 011 | Belt In Sensor (Engine entrance sensor) | Paper detected | Not detected |
| 012 | Image Reg Sensor (Second Registration Sensor) | Paper detected | Not detected |
| 013 | Branch Sensor (Junction gate sensor) | Paper detected | Not detected |
| 014 | Exit Sensor | Paper detected | Not detected |
| 015 | Mun PE S (Paper end Sensor: By-pass) | Paper detected | Not detected |
| 016 | OP Sensor (Relay sensor) | Paper detected | Not detected |
| 017 | Upper PE S (Paper end sensor: Tray 1) | Paper detected | Not detected |
| 018 | Upper P Size S (Paper size switch: Tray1) | *1 | |
| 019 | System Temp (Temperature sensor) | Display at 5 to 45°C | |
| 020 | System Humidity (Humidity sensor) | Display at 0 to 100 % | |
| 021 | By-pass PE S (Multi-bypass paper detection sensor) | Paper detected | Not detected |
| 022 | By-pass P Size S (Multi-bypass paper size sensor) | *1 | |
| 023 | Duplex Installed (Duplex unit selection switch ) | Duplex unit detected | Not detected |
| 024 | Duplex Entrance S (Duplex entrance sensor) | Paper detected | Not detected |
| 025 | Duplex Internal S (Duplex wait sensor) | Paper detected | Not detected |
| 026 | Duplex Inverter S (Duplex inverter sensor) | Paper detected | Not detected |
| 027 | Duplex Exit S (Duplex exit sensor) | Paper detected | Not detected |
| 028 | Duplex R-Cover SW (Duplex right door Switch) | Open | Close |

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| Num. | Sensor/Switch | 01H | 00H |
|---|---|---|---|
| 029 | Duplex L-Cover SW (Duplex left door Switch) | Open | Close |
| 030 | BK Installed (Optional paper tray unit detection switch) | OPT detected | Not detected |
| 031 | BK-Upper PE S (Paper end sensor: Tray 2) | Paper detected | Not detected |
| 032 | BK-Upper P Size S (Paper size switch: Tray 2) | *1 | |
| 033 | BK-Upper Lift S (Paper upper limit sensor: Tray 2) | Paper detected | Not detected |
| 034 | BK-Up P Height S (Paper height sensor: Tray 2) | Paper detected | Not detected |
| 035 | BK Cover SW (Right door switch: Optional paper tray unit) | Open | Close |
| 038 | BK type | 00: Not installed, 01: One tray unit 02: Two tray unit | |
| 039 | BK-Low PE S (Paper end sensor: Tray 3) | Paper detected | Not detected |
| 040 | BK-Low P Size S (Paper size switch: Tray 2) | 00: Not installed, 02: A4 LEF, 03: A4 SEF, 05: B4 SEF, 07: B5 LEF, 08: B5 SEF, 0C: A5 SEF, 0F: A3 SEF | |
| 041 | BK-Low Lift S (Paper upper limit sensor: Tray 3) | Detected | Not detected |
| 042 | BK-Low P Height S (Paper height sensor: Tray 3) | Detected | Not detected |
| 046 | Air Detected S (Air sensor pin at printer head) | | |
| 047 | Filler S (Tank full sensor) | Detected | Not detected |
| 048 | Cartrg Det:Y (Ink cartridge detection sensor for yellow) | Detected | Not detected |

| Num. | Sensor/Switch | 01H | 00H |
|------|---------------|-----|-----|
| 049 | Cartrg Det:M (Ink cartridge detection sensor for magenta) | Detected | Not detected |
| 050 | Cartrg Det:C (Ink cartridge detection sensor for cyan) | Detected | Not detected |
| 051 | Cartrg Det:K (Ink cartridge detection sensor for black) | Detected | Not detected |
| 052 | New Cartridge:Y | New | Not new |
| 053 | New Cartridge:M | New | Not new |
| 054 | New Cartridge:C | New | Not new |
| 055 | New Cartridge:K | New | Not new |
| 056 | Ink Remainder:Y | 0 to 100% | |
| 057 | Ink Remainder:M | 0 to 100% | |
| 058 | Ink Remainder:C | 0 to 100% | |
| 059 | Ink Remainder:K | 0 to 100% | |
| 060 | Refill Cartrg:Y | Refill cartridge | Not refill |
| 061 | Refill Cartrg:M | Refill cartridge | Not refill |
| 062 | Refill Cartrg:C | Refill cartridge | Not refill |
| 063 | Refill Cartrg:K | Refill cartridge | Not refill |
| 064 | Maintenance-M HP S (Maintenance unit HP sensor) | HP | Not HP |
| 065 | Waste Ink Full S (Ink collection bottle full sensor) | | |
| 066 | Mist-Fan Lock | Detected | Not detected |
| 067 | Carig Enc-Counter (Main scan encoder sensor) | | |
| 068 | Carriage Lift S | Carriage lift | Not lift |

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| Num. | Sensor/Switch | 01H | 00H |
|------|---------------|-----|-----|
| 069 | Head Temperature | Displayed at 0 to 55°C | |
| 070 | Belt Enc-Counter (Sub scan encoder sensor) | | |
| 071 | Belt Temperature | Displayed at 0 to 55°C | |
| 072 | PP-Leak Detect (High voltage unit current leak detection) | Detected | Not detected |
| 073 | Print Exit Sens (Paper exit sensor) | Detected | Not detected |
| 100 | Key-Card Sensor | Detected | Not detected |
| 101 | Key-Cnt Sensor (Key counter detection sensor) | Detected | Not detected |
| 200 | Scanner HP Sensor | HP | Not HP |
| 201 | Platen Opn Sens (Platen cover sensor) | Close | Open |
| 202 | DF Installed (DF detection sensor) | Installed | Not installed |
| 203 | DF-Position S | Close | Open |
| 204 | DF-Cover Open S | Close | Open |
| 205 | DF-Original Set S | Detected | Not detected |
| 206 | DF-Registation S | Detected | Not detected |
| 207 | DF-Exit S | Detected | Not detected |
| 208 | DF-Trailling S | Detected | Not detected |
| 209 | DF-Reverse S | Detected | Not detected |

⬇️Note

- *1 Paper Size

| Copier | 00 | 02 | 03 | 04 | 05 | 06 | 07 |
|--------|-----|-----|-----|-----|-----|-----|-----|
| Europe | DLT SEF | LT LEF | LG SEF | A4 SEF | Foolscap | A4 LEF | Not set |

| Copier | 00 | 02 | 03 | 04 | 05 | 06 | 07 |
|---|---|---|---|---|---|---|---|
| North America | A3 SEF | LT LEF | A5 LEF | LT SEF | Foolscap | A4 LEF | Not set |

-

| Paper Feed Unit | 00 | 02 | 03 | 05 | 07 | 0C | 0F |
|---|---|---|---|---|---|---|---|
| Europe | Not set | A4 LEF | A4 SEF | DLT SEF | LT LEF | LG SEF | A3 SEF |
| North America | Not set | A4 LEF | A4 SEF | DLT SEF | LT LEF | LG SEF | A3 SEF |

-

| By-Pass Tray | 03 | 07 | 09 | 0B | 0C | 0D | 0E |
|---|---|---|---|---|---|---|---|
| Europe | A4 SEF | | A3 | F/GL | | | A5 SEF |
| North America | LT SEF | | DLT | | | | HLT SEF |

- *2 Paper Amount -

| 10 | Near end |
|---|---|
| 11 | About 25% |
| 00 | About 75% |
| 00 | About 100% |

- *3 Available Paper Feed Unit -

| 00 | None |
|---|---|
| 20 | 2-tray paper feed unit |
| 30 | 1-tray paper feed unit |

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## Output Check (SP 5804)

### Conducting an Output Check

## ⚠ CAUTION

- To prevent mechanical or electrical damage, do not keep an electrical component on for a long time.

1. **Select SP 5804.**

2. **Select the number (see the table below) corresponding to the component.**

3. **Select "ON."**

4. **To stop the operation, select "OFF."**

### Output Check Table

Number 005, 006, 040, and 041 may not respond when the fusing temperature is high.

| Num. | Component |
|------|-----------|
| 001 | Feed M-Fwd 220 |
| 002 | Feed M-Fwd 100 |
| 003 | Upper Feed CL (Paper feed clutch: Tray 1) |
| 004 | Registration CL |
| 005 | Guide SOL |
| 006 | Exit M-Fwd 225 |
| 007 | Exit M-Fwd 105 |
| 008 | Branch SOL |
| 009 | By-Pass CL |
| 010 | Duplex M-Fwd 225 |
| 011 | Reverse M-Fwd 225 |
| 012 | Reverse M-Fwd 146 |
| 013 | Duplex CL |
| 014 | Duplex Branch SOL |

| Num. | Component |
|------|-----------|
| 015 | BK-Up M-Fwd |
| 016 | BK-Up Relay CL |
| 017 | BK-Up Lift M-Up |
| 018 | BK-Up Lift M-Dw |
| 019 | BK-Low M-Fwd |
| 020 | BK-Low Relay CL |
| 021 | BK-Low Lift M-Up |
| 022 | BK-Low Lift M-Dw |
| 023 | Supply M-Fwd K2 |
| 024 | Supply M-Fwd K |
| 025 | Supply M-Fwd C |
| 026 | Supply M-Fwd M |
| 027 | Supply M-Fwd Y |
| 028 | Air Open SOL |
| 029 | Maintenance M-Fwd |
| 030 | Mist-Fan |
| 031 | Carriage M-Fwd |
| 032 | Belt M-Fwd 220 |
| 033 | Belt M-Fwd 100 |
| 034 | PP High:4mm |
| 035 | PP High:8mm |
| 036 | PP High:12mm |
| 037 | PP High:16mm |
| 038 | PP High:20mm |
| 039 | PP Low:4mm |

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| Num. | Component |
|------|-----------|
| 040 | PP Low:8mm |
| 041 | PP Low:12mm |
| 042 | PP Low:16mm |
| 043 | PP Low:20mm |
| 044 | Decap |
| 045 | Capping |
| 100 | Carig FreeRun (Caridge unit free run) |
| 101 | Belt FreeRun (Belt unit free run) |
| 102 | BeltCarig FreeRun (Belt unit and Caridge unit free run) |
| 202 | Scanner Lamp |
| 203 | DF-Feed M |
| 204 | DF-Duplex M |
| 205 | DF-Feed CL |
| 206 | DF-Pickup SOL |
| 207 | DF-Stamp SOL |
| 208 | DF-Gate SOL |

## Serial Number Input (SP 5811)

### - Specifying Characters -

SP 5811 1 specifies the serial number. You use the numeric keypad and the operation panel.

You use the numeric keypad to type numbers. In addition, you use the operation panel to type other characters. When you press the "ABC" key, the letter changes as follows: A ⇒ B ⇒ C. To input the same letter two times, for example "AA," you press the "ABC" key, the "Space" key, and the "ABC" key. To switch between uppercase letters and lowercase letters, press the "Shift" key.

### - Serial Number and NVRAM -

Serial numbers are stored in the NVRAM before shipment and are not cleared. You must specify a serial number after you replace the NVRAM or BCU.

## NVRAM Data Upload/Download (SP 5824/5825)
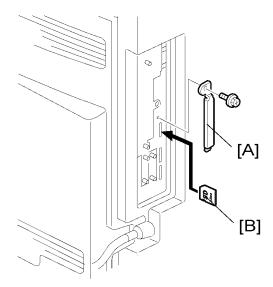
### ⚠️CAUTION

- Make sure that you turn off the main switch before inserting or removing an SD card. Installing or removing an SD card while the main switch is on may damage the BCU or SD card.

**- Overview -**

You can copy the data from the NVRAM to an SD card (NVRAM Upload), or from an SD card to the NVRAM (NVRAM download).

| | |
|---|---|
| SP 5824-1 (NVRAM Upload) | From the BCU to an SD card |
| SP 5825-1 (NVRAM Download) | From an SD card to the BCU |

You should execute NVRAM Upload before replacing the NVRAM or before executing SP 5801-2 (◼️ Memory Clear). You can copy back the data from the SD card to the NVRAM as necessary.



**- NVRAM Upload (SP 5824-1) -**

Print out the SMC reports ("SP Mode Data" and "Logging Data") with SP5990-001 before you do the NVRAM upload.

1. Turn off the main power switch.

2. Remove the slot cover [B] (🔧 x 1).

3. Face a label of an SD card [A] ("A" is printed on it) to the rear side, and insert it into the SD card slot 3 (service slot).

4. Turn on the main power switch.

5. Start the SP mode and select SP 5824-1.

6. The machine erases the settings on the SD card (if any), then writes the machine's settings to the SD card. This takes about 20 seconds. If uploading fails, an error message appears. If an error message appears, retry the upload procedure.

7. Turn off the main power switch.

8. Remove the SD card.

### - NVRAM Download (SP 5825-1) -

SP 5825-1 copies the data from the SD card to the NVRAM. The following data is NOT copied (the data in the NVRAM remains unchanged).

- SP8581-xxx (Total counter)

1. Turn off the main power switch.

2. Remove the slot cover [B] (🔧 x 1).

3. Face a label of an SD card [A] ("A" is printed on it) to the rear side, and insert it into the SD card slot 1, and insert it into the SD card slot 3 (service slot).

4. Turn on the main power switch.

5. Start the SP mode and select SP 5825-1.

6. The machine erases the current settings, then writes the new settings onto the NVRAM on the BCU board. This takes about 1 second. If downloading fails, an error message appears. If an error message appears, retry the download procedure.

7. Turn off the main power switch.

8. Remove the SD card.

## Firmware Update Procedure

This section shows how to update the firmware of the machine.

1. Turn the main power switch off.

2. Remove the slot cover (🔧 x 1).

3. Face a label of an SD card [A] ("A" is printed on it) to the rear side, and insert it into the SD card slot 3 (service slot).

4. Turn on the main power switch.

5. **Slect a firmware that you want to update.**

   ⬇ **Note**

   - You can update multiple firmwares at the same time. However, it is not possible to update controller firmwares (System/Copy, Network, Support, Fax and Web Support) at the same time. Update a controller firmware one by one.

6. **Press "Execute" [C].**

7. **Do not touch any key while the message "Load Status..." is displayed. This message indicates that the program is running.**

8. **Check that the message "End Sum..." is displayed. This message indicates that the program has ended normally.**

9. **Turn off the main power switch (on the rear cover).**

10. **Remove the SD card.**

11. **Install the slot cover.**

12. **Turn on the main power switch.**

13. **Check the operation.**

## SD Card Appli Move

### Overview

The service program "SD Card Appli Move" (SP5-873) lets you copy application programs from one SD card to another SD card.

Slot 1 and Slot 2 are used to store application programs. Slot 3 is for maintenance work only. You cannot run application programs from Slot 3. However, you can move application programs from Slot 3 to Slot 2. Do the following procedure if you want to move an application procedure from Slot 3:

1. **Choose an SD card with enough space.**

2. **Enter SP5873 "SD Card Appli Move". Then move the application from the SD Card in Slot 3 to Slot 2.**

   ⬇ **Note**

   - Do steps 1-2 again if you want to move another application program.

3. **Exit the SP mode.**

Be very careful when you do the SD Card Appli Move procedure:

- The data necessary for authentication is transferred with the application program from an SD card to another SD card. Authentication fails if you try to use the SD card after you copy the application program from one card to another card.

- Do not use the SD card if it has been used before for other purposes. Normal operation is not guaranteed when such an SD card is used.

- Keep the SD card in a safe place after you copy the application program from one card to another card. This is done for the following reasons:

  1. The SD card can be the only proof that the user is licensed to use the application program.

  2. You may need to check the SD card and its data to solve a problem in the future.

- You cannot copy PostScript data to another SD card. You have to copy other data to the SD card that stores the PostScript data.

## Move Exec

The menu "Move Exec" (SP5-873-001) lets you copy application programs from the original SD card to another SD card.

⭐ **Important**

- **Do not turn ON the write protect switch of the system SD card or application SD card on the machine. If the write protect switch is ON, a download error (e.g. Error Code 44) occurs during a firmware upgrade or application merge.**

1. **Turn the main switch off.**

2. **Make sure that an SD card is in SD Card Slot 2. The application program is copied into this SD card.**

3. **Insert the SD card (having stored the application program) in SD Card Slot 3. The application program is copied from this SD card.**

4. **Turn the main switch on.**

5. **Start the SP mode.**

6. **Select SP5-873-001 "Move Exec."**

7. **Follow the messages shown on the operation panel.**

8. **Turn the main switch off.**

9. **Remove the SD card from SD Card Slot 3.**

10. **Turn the main switch on.**

11. **Check that the application programs run normally.**

## Undo Exec

"Undo Exec" (SP5-873-002) lets you copy back application programs from an SD card to the original SD card. You can use this program when, for example, you have mistakenly copied some programs by using Move Exec (SP5-873-001).

⭐ **Important**

- Do not turn ON the write protect switch of the system SD card or application SD card on the machine. If the write protect switch is ON, a download error (e.g. Error Code 44) occurs during a firmware upgrade or application merge.

1. Turn the main switch off.

2. Insert the original SD card in SD Card Slot 2. The application program is copied back into this card.

3. Insert the SD card (having stored the application program) to SD Card Slot 3. The application program is copied back from this SD card.

4. Turn the main switch on.

5. Start the SP mode.

6. Select SP5-873-002 "Undo Exec."

7. Follow the messages shown on the operation panel.

8. Turn the main switch off.

9. Remove the SD card from SD Card Slot 2

10. Remove the SD card from SD Card Slot 3 and insert it in SD Card Slot 2.

⬇ **Note**

- This step assumes that the application programs in the SD card are used by the machine.

1. Turn the main switch on.

2. Check that the application programs run normally.

## SMC Print (SP 5990)

SP 5990 outputs machine status lists.

1. Select SP 5990.

2. Select a menu:
   - 001 All (Data List), 002 SP (Mode Data List), 003 User Program, 004 Logging Data, 005 Diagnostic Report, 006 Non-Default, 007 NIB Summary, 021 Copier User Program, 022 Scanner SP, 023 Scanner User Program,

⚠️ **CAUTION**

- The output given by the menu "Big Font" is suitable for faxing.

3. Press the "Execute" key.
   - MFP machine: The machine status list is output.

4. To return to the SP mode, press the ⊚ key.

## ADF APS Sensor Output Display (SP 6901)

- Sensor Positions -

|  | Large to Small |  |  |  |
|---|---|---|---|---|
| W1 | 1 | 0 | 0 | 1 |
| W2 | 0 | 0 | 1 | 1 |

- Reading Data -

| W1 | W2 | L1 | L2 | Paper Size | |
|---|---|---|---|---|---|
|  |  |  |  | NA | EU/AA |
| 1 | 1 | 1 | 1 | 11" x 17" | A3 |
| 0 | 1 | 1 | 1 | - | B4 |
| 0 | 0 | 1 | 1 | $8^1/_2$" x 14" | $8^1/_2$" x 13" |
| 0 | 0 | 1 | 0 | $8^1/_2$" x 11" | A4 SEF |
| 1 | 1 | 0 | 0 | 11" x $8^1/_2$" | A4 LEF |
| 0 | 1 | 0 | 0 | - | B5 LEF |
| 0 | 0 | 0 | 0 | $8^1/_2$" X $5^1/_2$" | A5 LEF |

1: Detected
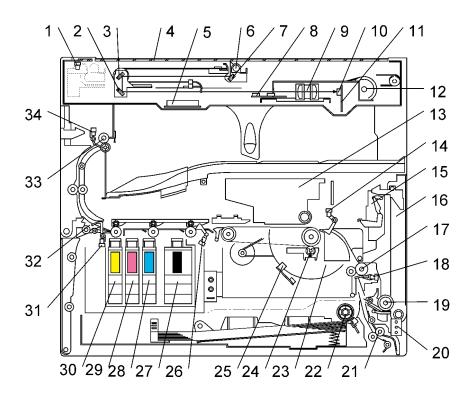
# 6. Detailed Section Descriptions

## Overview

### Component Layout



| | | |
|---|---|---|
| 1. Scanner H.P. Sensor | 13. Engine Unit | 23. Sub-scan Encoder |
| 2. 3rd Mirror | 14. Engine Entrance Sensor | 24. Charge Roller |
| 3. 2nd Mirror | 15. One-sheet By-pass Tray | 25. Sub-scan sensor |
| 4. Exposure Glass | 16. By-pass Tray | 26. Engine Exit Sensor |
| 5. Original Width Sensors | 17. Registration Roller | 27. Ink Cartridge Black |
| 6. Exposure Lamp | 18. First Registration Sensor | 28. Ink Cartridge Cyan |
| 7. 1st Mirror | 19. By-pass Paper Feed Roller | 29. Ink Cartridge Magenta |
| 8. Original Length Sensors | 20. Paper Size Switch | 30. Ink Cartridge Yellow |
| 9. Lens Block | 21. Vertical Transport Roller | 31. Junction Gate Sensor |
| 10. CCD | 22. Paper Feed Roller | 32. Junction Gate |

| 11. SBU | | 33. Paper Exit Roller |
|---------|---|----------------------|
| 12. Scanner Motor | | 34. Paper Exit Sensor |
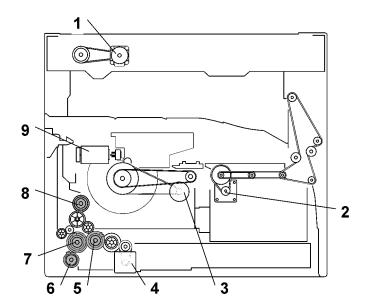
## Paper Path



| | |
|---|---|
| 1. Original Tray | |
| 2. Original Exit Tray | 7. Tray 3: : Optional Two-tray Paper Tray Unit |
| 3. One-sheet By-pass Tray | 8. Duplex Inverter |
| 4. By-pass Tray | 9. To the Duplex Unit |
| 5. Duplex Feed | 10. Straight Exit Tray |
| 6. Tray 2: Optional One-tray Paper Tray Unit/Two-tray Paper Tray Unit | 11. Standard Tray |

This model can use the optional duplex unit and paper tray unit.
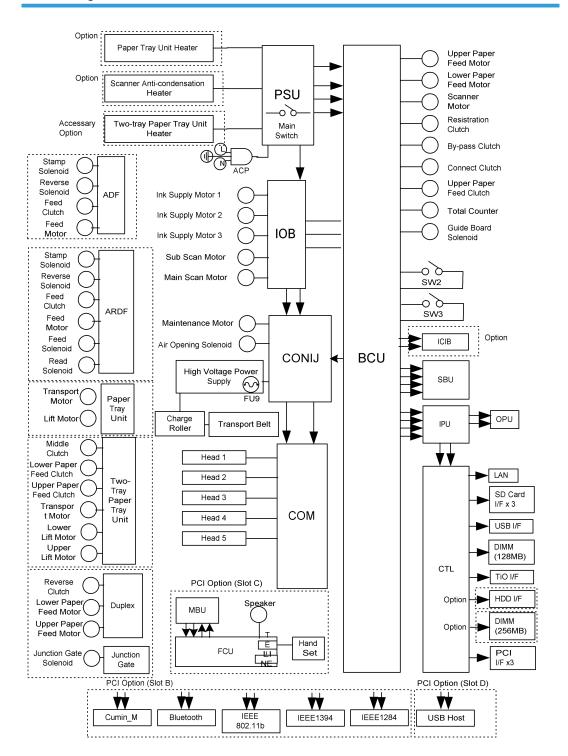
## Drive Layout



| | |
|---|---|
| 1. Scanner Motor | 6. Relay Clutch |
| 2. Exit Motor | 7. By-pass Clutch |
| 3. Sub Scan Motor | 8. Registration Clutch |
| 4. Feed Motor | 9. Main Scan Motor |
| 5. Feed Clutch | |

# Board Structure

# Block Diagram



The block diagram shows the following components and connections:

- Option: Paper Tray Unit Heater
- Option: Scanner Anti-condensation Heater
- Accessary Option: Two-tray Paper Tray Unit Heater
- PSU — Main Switch, ACP (L, N)
- IOB: Ink Supply Motor 1, Ink Supply Motor 2, Ink Supply Motor 3, Sub Scan Motor, Main Scan Motor
- CONIJ: Maintenance Motor, Air Opening Solenoid, High Voltage Power Supply (FU9), Charge Roller, Transport Belt
- COM: Head 1, Head 2, Head 3, Head 4, Head 5
- ADF: Stamp Solenoid, Reverse Solenoid, Feed Clutch, Feed Motor
- ARDF: Stamp Solenoid, Reverse Solenoid, Feed Clutch, Feed Motor, Feed Solenoid, Read Solenoid
- Paper Tray Unit: Transport Motor, Lift Motor
- Two-Tray Paper Tray Unit: Middle Clutch, Lower Paper Feed Clutch, Upper Paper Feed Clutch, Transport Motor, Lower Lift Motor, Upper Lift Motor
- Duplex: Reverse Clutch, Lower Paper Feed Motor, Upper Paper Feed Motor
- Junction Gate: Junction Gate Solenoid
- PCI Option (Slot C): MBU, Speaker, FCU, Hand Set
- BCU
- Upper Paper Feed Motor
- Lower Paper Feed Motor
- Scanner Motor
- Resistration Clutch
- By-pass Clutch
- Connect Clutch
- Upper Paper Feed Clutch
- Total Counter
- Guide Board Solenoid
- SW2
- SW3
- ICIB (Option)
- SBU
- IPU — OPU
- CTL: LAN, SD Card I/F x 3, USB I/F, DIMM (128MB), TiO I/F, HDD I/F (Option), DIMM (256MB) (Option), PCI I/F x3
- PCI Option (Slot B): Cumin_M, Bluetooth, IEEE 802.11b, IEEE1394, IEEE1284
- PCI Option (Slot D): USB Host

### 1. BCU (Base Engine Control Unit)

The main board controls the following functions:

- Engine sequence
- Timing control for peripherals
- Image processing, video control
- Drive control for the sensors, motors, and clutches of the copier and scanner
- High voltage supply board control
- Serial interfaces with peripherals

### 2. Controller

The controller board controls the following functions.

- Machine-to-host interface
- Operation panel interface
- Network interface
- Interfacing and control of the optional IEEE1284, Bluetooth, IEEE1394, IEEE802.11b (wireless LAN), HDD, and DRAM DIMM

### 3. CONIJ (Connect Ink Jet Module)

The CONIJ is connecting board between COM and BCU board and COM and IOB board.

### 4. COM

The COM board controls the print heads.

### 5. SBU (Sensor Board Unit)

The SBU deals with the analog signals from the CCD and converts them into digital signals.

### 6. IPU (Image Processing Unit)

The Image Processing Unit is a large-scale integrated circuit. This unit processes digital signals.

### 7. IOB (In Out Board)

The IOB controls the motors, solenoids and high voltage power supply of the engine unit.

## 8. PSU (Power Supply Unit)

The PSU supplies DC to the machine.
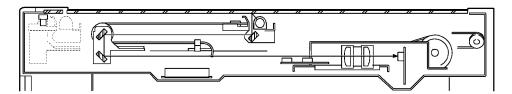
## 9. FCU (Fax Control Unit): Optional

The FCU controls the fax programs and communicates with the controller to share copier resources.

## 10. HDD (Hard Disk Drives)

This board stores all the temporary files for job processing and all permanent files for the document server.

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# Copy Process Overview

## Exposure

A xenon lamp exposes the original. Light reflected from the original passes to the CCD, where it is converted into an analog data signal. This data is converted to a digital signal, processed and stored in the memory. At the time of printing, the data is retrieved and sent to the COM board, which controls the carriage unit.

## Image Creation

The ink jet engine processes an image to the paper with the carriage unit. The carriage unit has 5 print heads (K1, K2, C, M, Y). It scans the paper from rear (home position) to front to print an image to the paper. The carriage scans in two mode, one-way scanning and two-way scanning. Two-way scanning saves time because the carriage can print an image at returning way (front to rear).
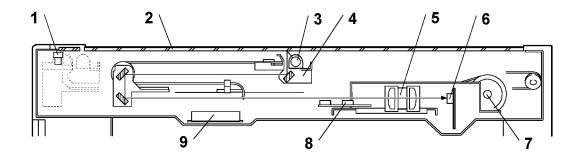
The printing speed differs depending on the mode, resolution, paper type and so on.

## No Fusing

This machine uses the ink jet engine. As a result, it is not necessary to fuse the ink on the paper. However, the machine may need time to exit the paper depending on the high ink coverage on the paper or installation environment. This waiting time prevents the paper from becoming curl.

# Scanning

## Overview



| | |
|---|---|
| 1. Scanner H.P. Sensor | 6. CCD |
| 2. Exposure Glass | 7. Scanner Motor |
| 3. Exposure Lamp | 8. Original Length Sensor |
| 4. 1st Scanner | 9. Original Width Sensors |
| 5. Lens Block | |

The original is illuminated by the exposure lamp (a xenon lamp). The image is reflected onto a CCD (charge coupled device) on the lens block via the 1st, 2nd, and 3rd mirrors, and through the lens on the lens block.
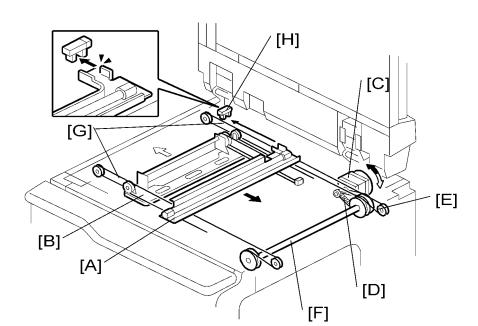
The 1st scanner consists of the exposure lamp, a reflector, and the 1st mirror.

A lamp stabilizer energizes the exposure lamp. The light reflected by the reflector is of almost equal intensity, to reduce shadows on pasted originals.

An optics anti-condensation heater is available as an option. It can be installed on the left side of the scanner. It turns on whenever the power cord is plugged in.

## Lamp Stabilizer Fuse

| | Rating | Manufacturer | Type No. |
|---|---|---|---|
| Fuse | 1.25A | BEL FUSE INC | MRT |

## Scanner Drive



A stepper motor drives the 1st and 2nd scanners [A, B]. The 1st scanner and 2nd scanner are driven by the scanner drive motor [C], drive gear through the timing belt [D], scanner drive pulley [E], scanner drive shaft [F], and two scanner wires [G].

### Book Mode

The BCU controls and operates the scanner drive motor. In full size mode, the 1st scanner speed is 100 mm/s in B/W mode and 66.6 mm/s in color mode during scanning. The 2nd scanner speed is half that of the 1st scanner.

In reduction or enlargement mode, the scanning speed depends on the magnification ratio. The returning speed is always the same, whether in full size or magnification mode. The image length change in the sub scan direction is done by changing the scanner drive motor speed, and in the main scan direction it is done by image processing on the BCU board.
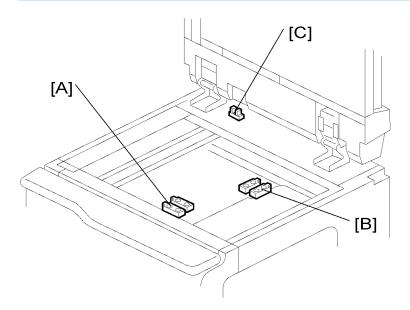
Magnification in the sub-scan direction can be adjusted by changing the scanner drive motor speed using SP4-008.

## ADF Mode

The scanners are always kept at their home position (the scanner H.P. sensor [H] detects the 1st scanner) to scan the original. The ADF motor feeds the original through the ADF. In reduction/enlargement mode, the image length change in the sub-scan direction is done by changing the ADF motor speed. Magnification in the main scan direction is done in the BCU board, like for book mode.

Magnification in the sub-scan direction can be adjusted by changing the ADF motor speed using SP6-006-005.

## Original Size Detection In Platen Mode
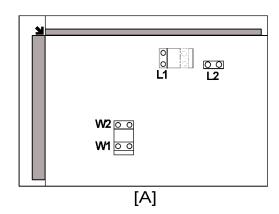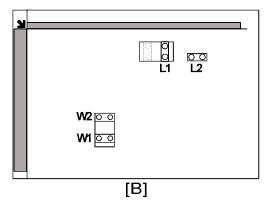


In the optics cavity for original size detection, there are four reflective sensors. The original width sensors [A] detect the original width, and the original length sensors [B] detect the original length. These are the APS (Auto Paper Select) sensors. Each APS sensor is a reflective photosensor.

While the main switch is on, these sensors are active and the original size data is always sent to the CPU. However, the CPU checks the data only when the platen cover sensor [C] is activated. This is when the platen is positioned about 15 cm above the exposure glass, for example while it is being closed. The CPU can recognize the original size from the combination of on/off signals from the APS sensors.

If the copy is made with the platen fully open, the CPU decides the original size from the sensor outputs when the Start key is pressed.

[A]                                    [B]

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

| Original Size | | Length Sensors | | Width Sensors | | SP4-301 display |
|---|---|---|---|---|---|---|
| A4/A3 version | LT/DLT version | L2 | L1 | W2 | W1 | |
| A3 | 11" x 17" | 1 | 1 | 1 | 1 | 00001111 |
| B4 | — | 1 | 1 | 1 | 0 | 00001110 |
| 8.5" x 13" | 8.5" x 14" | 1 | 1 | 0 | 0 | 00001100 |
| A4-SEF | 8.5" x 11" | 0 | 1 | 0 | 0 | 00000100 |
| A4-LEF | 11" x 8.5" | 0 | 0 | 1 | 1 | 00000011 |
| B5-LEF | — | 0 | 0 | 1 | 0 | 00000010 |
| A5-LEF | 8.5" x 5.5" | 0 | 0 | 0 | 0 | 00000000 |

**Note**

• 0: High (no paper), 1: Low (paper present)

The above table shows the outputs of the sensors for each original size. This original size detection method eliminates the necessity for a pre-scan and increases the machine's productivity.

For other combinations, "Cannot Detect Original Size" will be indicated on the operation panel display (if SP4-303 is kept at the default setting).

However, if the by-pass feeder is used, note that the machine assumes that the copy paper is short-edge first. For example, if A4 paper is placed long-edge first on the by-pass tray, the machine assumes it is A3 paper and scans the full A3 area for the first copy of each page of the original, disregarding the original size sensors. However, for each page, the data signal to the laser diode is stopped to match the copy paper length detected by the registration sensor. This means that copy time for the first page may be slower (because of the longer time required for scanning), but it will be normal for the rest of the job.

Original size detection using the ADF is described in the manual for the ADF.

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# Image Processing

## SBU (Sensor Board Unit)

### SBU

The VPU (Video Processor Unit) does the following functions:

Black level correction

White level correction

Gradation calibration

ADS control (Background Density)

Creating the SBU test pattern

### Operation Summary

The signals from the 3-line CCD, one line for each color (R, G, B) and 2 analog signals per line (ODD, EVEN), are sampled by the ASIC and converted to digital signals in the 10-bit A/D converter. This is the first phase of processing the data scanned from the original.

### Storing Operation Settings

The controller stores the SBU settings. These values must be restored after the lens block is replaced:

| SP4008 001 | Sub Scan Mag | Sub Scan Magnification Adjustment |
| --- | --- | --- |
| SP4010 001 | Sub Scan Reg | Sub Scan Registration Adjustment |
| SP4011 001 | Main Scan Reg | Main Scan Registration Adjustment |

Also, before lens block replacement, enter the SP mode and note the settings of SP4800-001 to 003 (ARDF density adjustments for R, G, B). After lens block replacement, do some copy samples with the ARDF, then check the copies. If the copies have background, change SP4800-001 to 003 to their previous settings, or adjust until the background is acceptable. These SP codes are also used to adjust the ARDF scanning density, if the scanning densities of the ARDF and the platen mode are not the same.

### SBU Test Mode

There are two SP codes to create a test pattern which can be used as a diagnostic tool to troubleshoot problems in the SBU:

SP4907-001 SBU Pattern - Test Pattern

SP4907-002 SBU Pattern - Select Fixed Pattern

To print the pattern:

Select the pattern to print.

Touch "Copy Window" then press the Start key twice.
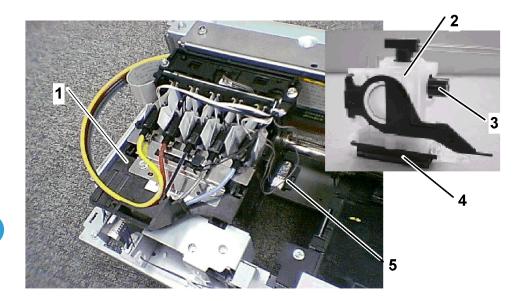
## IPU (Image Processing Unit)

The IPU does the following:

- Controls the scanner

- Processes the image signals from the SBU and sends them over the PCI bus to the controller memory

- Receives the image processing signals sent over the PCI bus from the controller memory, processes them, then outputs them to the BATTI.

- Controls the relay of power and signals

Image processing, ADS correction, and line width correction are done on the BCU board for all the digital data sent from the SBU. Finally, the processed data is sent to the printer as digital signals (2 bits/pixel).

**6**
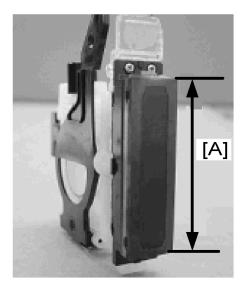
# Carriage Unit

## Overview



1. Carriage Unit
2. Print Head Tank
3. Air Release Valve
4. Print Head
5. Second Registration Sensor

## Print Head



[A]: 32.3 mm (1.27")

The wider print head increases the width of the band printed with one pass. This lets the machine print faster.

### Print Head Specifications
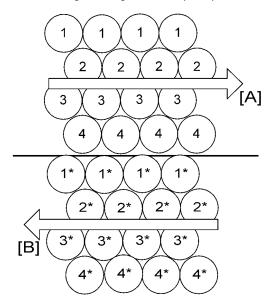
| Item | Remark |
|---|---|
| Number of Print Heads | 5 (Y, M, C, K1, K2) |
| Number of Nozzles | 384 x 4 colors<br>192 nozzles x 2 lines/head |
| Array | Cross-Hatch (150 dpi x 2 lines) |
| Voltage Element | Piezoelectric |

### Two Black Print Heads

This machine has two black print heads on the carriage unit. As a result, it makes copy/print speed faster in B/W mode than the one of a one-print head machine and can make make 600dpi print in one scanning.

Line A of K1: ①, Line A of K2: ②, Line B of K1: ③, Line B of K2: ④

The following drawing shows the pixel pattern in 600dpi B/W solid printing mode.
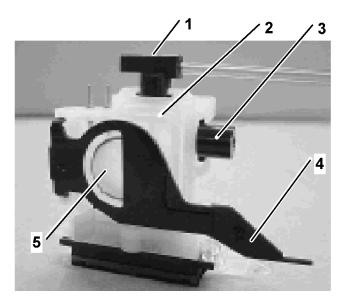
If the gap between 1-3 and 2-4 is different, an image problem may occur.

The carriage prints an image in forward way [A] (rear to front) and in reverse way [B] (front to rear). Also if If the gap between 1-3 and 1*-3*, 1-3 and 2*-4* is different, an image gap between forward and reverse may occur.

This can be adjusted with SP3-002. For details, reffer to the "Initial Setting" in the section "Installation Procedure".

## Print Head Tank
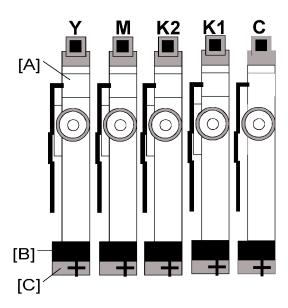


1. Ink Supply Port
2. Ink Reservoir
3. Air Release Valve
4. Tank Full Lever
5. Plastic Bellows

This copier employs a dual-tank system. Each print cartridge (YMCK) is connected to a print head tank with a plastic tube. The first "tank" of the dual-tank system is the cartridge that supplies the ink through a tube to the print head tank unit, and the second "tank" is the ink reservoir inside the print head tank unit.

Both the high volume Print cartridges and the carriage components are extremely lightweight.

A print head tank has four main parts as shown above:
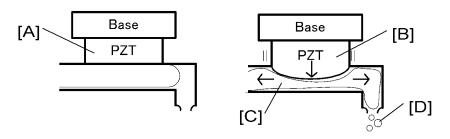
- **Ink supply port:** Ink enters here from the ink cartridge mounted under the operation panel.
- **Ink reservoir:** This is where ink collects before it is fed to the print head below.
- **Plastic Bellows:** A spring forces out the flexible, thin plastic film on the left side of the ink tank.
- **Tank Full Lever:** When the ink tank is mounted in the copier, this lever pushes the bellows down to increase pressure in the ink reservoir.
- **Air release valve:** Vents periodically to keep the ink inside the ink tank unit under the prescribed pressure.

On the B229 there are five independent units.

- Each print head tank [A] has an independent print head [B] with a nozzle array [C].

- Each print head tank holds 6ml of ink.
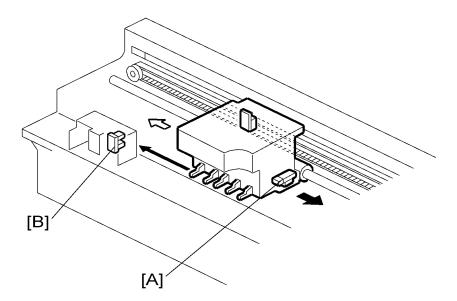
## Ink Ejection Device



Each print head uses a piezo-electric element (PZT) [A]. This forces ink from the ink reservoirs out of the ink nozzles and onto the paper.

This is done with pressure. At the prescribed time, an electric charge is given to the PZT. This makes the PZT expand. The expansion of the PZT [B] puts pressure on the ink [C] below. This makes the ink move in both directions. The ink on the right is forced out the ejection port [D].

This device is unique. You cannot see this device on other copier on the market that use small heaters to form bubbles to eject ink from the ports.

## Ink Near End



Each print head has a tank full lever [A]. This lever presses against a spring loaded bellows in the center of the print head tank. The rear side of each tank is constructed of flexible plastic:
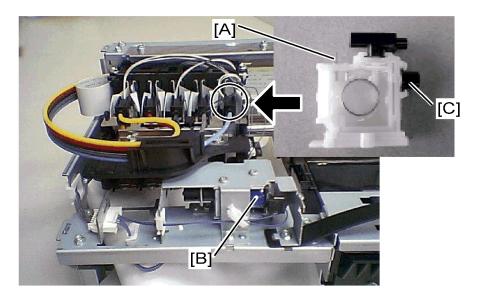
- As ink enters the tank, the pressure of the ink pushes against the side of the tank and moves the lever away from the side of the print head tank.

- As ink is consumed during printing, the vacuum created by the ink leaving the tank pulls the lever toward the side of the print head tank.

The tank full sensor [B], mounted above the left frame, checks the front and rear positioning of the tank full lever every time the carriage passes below.

When the tank full sensor detects the lever against the side of the tank, the copier sends a prescribed amount of ink to the tank from the Print cartridge.

The sensor signals the 'ink near-end' if the tank full lever does not return to the full position (away from the side of the tank) within the prescribed time after the copier requests another fill from the Print cartridge.

After the near-end alert, the copier will continue to print (B/W mode: approximately 300 to 500 sheets, Color mode: approximately 50 sheets) with the ink that remains in the partially filled tank until the copier issues the ink end alert. (☛ "Ink Out" in this section)
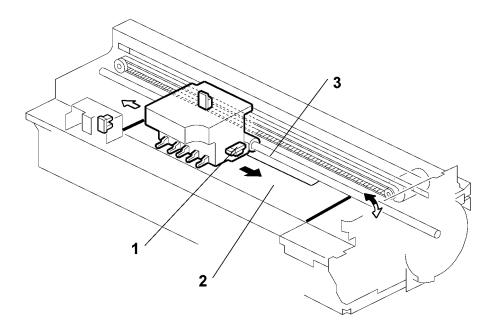
## Ink Out



Two sensor pins [A] monitor air in the print head tank. These pins detect changes in the voltage differential on the surface of the ink inside the print head tank.

When these terminals detect air in the tank:

- The air release solenoid [B] energizes and opens the air release valve [C] so air can escape from the ink reservoir.
- This allows more ink to enter the tank.
- This is a continuous operation. The sensor pin readings signal the ink-out condition when:
- The ink near-end alert has been issued.
- The amount of air detected in the tank indicates that no ink remains in the tank.

Also, as a backup measure, the firmware counts up for the amount of ink consumed after every near end occurrence. When this count reaches the value prescribed for the toner cartridge, this will also signal an ink-out condition.

## Paper Registration and Size Detection Sensor



1. Second Registration Sensor
2. Transport Belt
3. Paper (Leading Edge)

The second registration sensor is attached to the front side of the carriage. The carriage moves from rear to front during printing.

The second registration sensor performs two important functions for printing control:

- Detects the leading edge and trailing edge of every sheet

- Detects the width of the paper when the carriage and sensor pass in main scan direction over the side edges of the paper as it feeds.

⭐**Important**

- **This is not automatic paper size detection. The paper size must be set with the paper size switch on the paper tray.**

- **The copier will signal an alert if the detected size does not match the size selected with the paper size switch on the paper tray.**

For more, see "Leading Edge and Page Width Detection" and "Trailing Edge Detection".
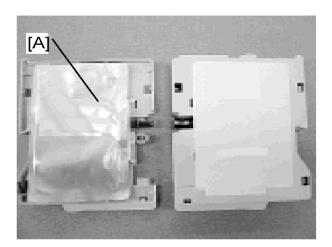
# Ink Supply Unit

## Overview



1. Ink cartridges x 4 (with Viscous Ink: Y, M, C, K)
2. Supply Pump Unit
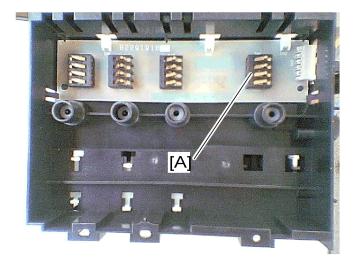3. Supply Tube

## Print Cartridges



There is a separate Print cartridge for each color (Y, M, C, K). Each Print cartridge is vacuum packed [A].

| Color | Amount | Life |
|---|---|---|
| Black | 194.44cc (215.4 g) | 9 K |
| Cyan | 90.00cc (94.5 g) | 3K |
| Magenta | 59.90cc (62.9 g) | 3K |
| Yellow | 53.81cc (56.5 g) | 3K |

All the colors (Y, M, C, K) of Viscous ink are pigment inks.

- Require only standard PPC to get quality printouts (special print media are not required).
- Do not let smears occur because they dry more quickly (there is less chance of smearing wet ink).
- Do not let fades occur in bright light. This makes their colors highly durable.

## Print Cartridge Set Sensor



Four micro switches detect the Print cartridges. These are connected in series above the cartridge set detection plate [A].
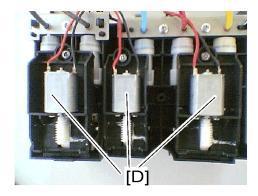
Each tank has a microswitch. The machine cannot specifically detect if a Print cartridge is not set correctly. The open switch signals these:
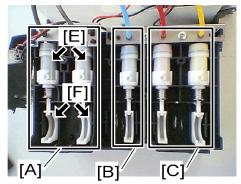
- A cartridge is not in the machine
- A cartridge is not installed correctly

To solve this problem, you must open the front door of the copier. At this time you can check these:

- A cartridge is not in the machine
- A cartridge is not installed correctly

## Ink Supply Pump



The ink supply pump is divided into three compartments:

- [A]: K compartment (for Black 1 and 2 Print cartridges)

- [B]: C compartment (for Cyan Print cartridge)

- [C]: M/Y compartment (for Magenta, Yellow Print cartridges)

Each compartment contains:

- 1 ink supply motor [E]

- 1 or 2 pumps [F] (one pump for each Print cartridge)

- 1 or 2 cams [G] (one cam for each Print cartridge)
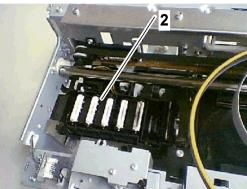
- 1 One-way clutch (not shown)

When a print head tank needs ink:

- The copier switches on the ink supply motor. The motor and its worm gear get rotated forward or backward (depending on which type of ink is required). (Only one pump can operate at a time.)

- A one-way clutch engages and drives the shaft to operate the cam that repeatedly strikes a pump arm to siphon ink from the cartridge.

- The ink supply motor operates long enough to pump the prescribed amount of ink to the tank. Then it switches off.
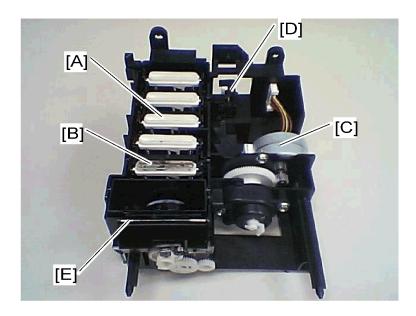
6

# Maintenance Unit

## Overview



1. Flushing Gate
2. Maintenance Unit

## Maintenance Unit



The maintenance unit does these two important functions:

- Keeps the surface of the print heads moist at the time they are not in use.

- Cleans the print heads with suction at the time you do cleaning with the copier driver. (The print heads are also cleaned automatically at prescribed intervals.

The caps [A] cover the print heads above. This occurs when the carriage stays at the home position on the right side of the copier.

The first cap [B] is the only cap that can siphon excess ink from a print head. The ink gets siphoned from the head with a simple, pressure tube-pump mechanism.

You must do these to the maintenance unit in order to position the print head to do the siphon procedure:

- Lower the maintenance unit

- Move the carriage to the left. This sets the print head for cleaning (for more, see next page).

The maintenance motor [C] rotates forward. Then it lowers two cams to let them press against the bottom to lower the unit. Then it reverses at the prescribed time.

When the motor reverses, it disengages a one-way clutch attached to the main shaft. Then it drives the second shaft to rotate the cam of the tube-pump mechanism.
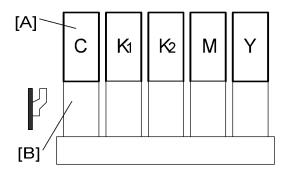
At the prescribed time, the motor runs forward again until a feeler on the main shaft gets to the gap of the maintenance HP sensor [D]. Then it switches the motor off.

Another cam attached to the main shaft raises and lowers the wiper [E]. The wiper cleans the surface of the print head above as the carriage moves left and then right.

## Maintenance Unit Cleaning Cycle

The operator can start the cleaning operation from the copier driver or the operation panel.
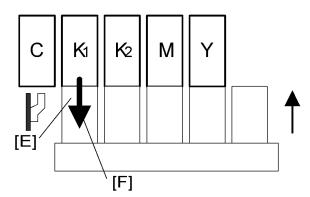
- You can set the print head for cleaning (or clean them all) if you start the clean job with UP mode or SP mode.

- All the print heads get cleaned if the job starts from the operation panel.



Cleaning starts with the carrier and print heads [A] capped and resting on top of the maintenance unit [B].

When the cleaning cycle starts, the maintenance unit [C] is lowered by the rotation of the main shaft. Then the cams rotate away from the bottom of the unit.

At the same time, the carriage [D] moves to the front side.
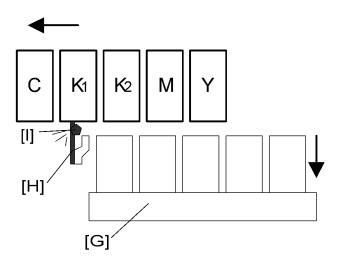


The carriage moves the first print head (in this example, "K1" the black print head) above the first vent [E] of the maintenance unit.

🔸**Note**

- Only the first vent can siphon ink.

Another cam on the main shaft presses the maintenance unit up so the print head (K) covers the first vent.

At this time the maintenance motor reverses. The one-way clutch disengages the main shaft and engages the second shaft. This operates the tube-pump. The suction from the pump below sucks ink [F] from the surface of the print head.

The maintenance [G] unit lowers.

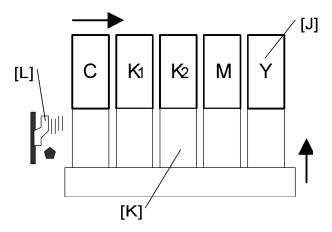Another cam raises the wiper [H]. At the same time the carriage moves the print heads to the front side far enough so the vacuumed print head can make contact with the wiper. The wiper cleans the ink [I] from the print head.



Then the carriage [J] moves rear to the home position. Then the maintenance unit caps the print heads [K].
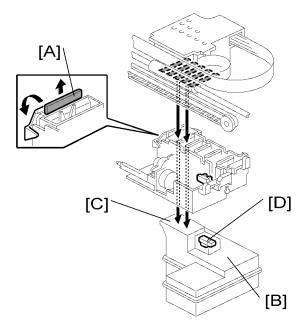
A cam on the main shaft below moves the small scraper [L]. This removes the
ink bolus from the wall of the trap. Then it goes to the ink collection tank.

⭐**Important**

- This cycle repeats for each print head when you start a clean job from the operation panel.

- If cleaning is done from the copier driver, the operator has the option of selecting one print head, more than one, or all print heads for cleaning.
  For more, see Troubleshooting.

- This cleaning cycle is also done automatically for all print heads if the copier stays idle for the time intervals shown in the table below.

| Idle Time | Total Time Required for Cleaning |
|---|---|
| > 5 Hours < 10 Hours | 24 s |
| > 10 Hours < 7 Days | 24 to 160 s |
| > 7 Days < 1 Month | 160 s |
| > 1 Month < 3 Months | 360 s |
| > 3 Months | 360 s |
| The PG-C1 has 5 print heads. | |

## Ink Collection Tank



The wiper [A] sweeps the residual ink of the each printer head. As a result, the ink collection tank [B] collects the used ink from the maintenance unit above and the flushing gate. The used ink gets collected at the ink collection port [C].

The capacity of the ink collection tank is 1232 ml . The copier should be able to use the ink collection tank for about 150K pages of normal use. The tank has an ink collection tank full sensor [D]. The sensor detects

when the ink collection tank gets full (hardware detection). In addition to that sensor, the copier calculates the total amount of flushed ink and judges when ink collection tank gets to the near-full or full condition (software detection).

## Ink Collection Tank Full Detection



There are two different methods to detect ink collection tank full condition;

i) Detected by the ink collection tank full sensor [A] (hardware detection).

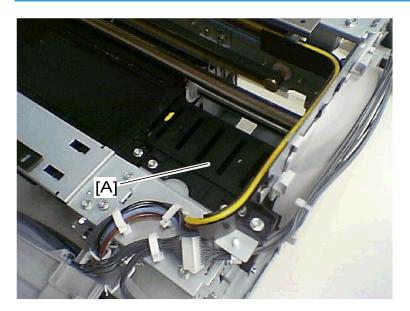ii) Detected by accumulating amount of flushed ink (software detection).

The ink collection tank full sensor [A] is a "smart" reflective photosensor. The photosensor measures the changes in the density of the ink materials in the tank. This lets you know when the tank is full.

A "tank is near-full" prompt shows the copier needs maintenance when this sensor detects the near-full condition. The default setting of near-full is set as 1212 ml. You can use the copier to print these amounts of print jobs at the time the maintenance alert shows:

- 300 to 500 prints (B/W mode)/ 50 prints (Color mode)

These are only rough estimates. Fewer pages get printed if many normal and full print head cleanings are done after the maintenance alert.

A "tank is full" prompt shows when this sensor detects the ink full condition. You cannot use the copier when the sensor detects ink full. At this time you must replace the ink collection tank. After replace the ink collection tank, you must reset the counter at SP7804-005.

## Flushing Unit



The machine flushes all the nozzles with some amount of ink to keep the nozzles clear and in good working condition. when the one of some conditions is met. The flushing gate [A] and the flushing collection unit (below the gate) are located at the right side of the engine unit.

### Before Printing Job

The machine flushes all the nozzles (384 nozzles/head) with following amount of ink whenever the machine gets the printing job.

| Temperature | Ink Drops – M/Y/K | Ink Drops - C |
|---|---|---|
| Less than 5°C | 0.036 (µl) | 0.036µl |
| 5°C to 10°C | 0.036 (µl) | 0.036µl |
| 10°C to 15°C | 0.03 / 0.014* (µl) | 0.03 / 0.014* (µl) |
| 15°C to 20°C | 0.0018 (µl) | 0.014 (µl) |
| 20°C to 25°C | 0.0018 (µl) | 0.014 (µl) |
| 25°C to 30°C | 0.0018 (µl) | 0.014 (µl) |
| 30°C to 35°C | 0.0018 (µl) | 0.014 (µl) |
| 35°C or more | 0.0018 (µl) | 0.014 (µl) |

\*For only 300 dpi B&W printing, the flushed amount of ink are different from other printing mode.

## During Printing

The machine flushes all the nozzles (384 nozzles/head) with following amount of ink and at following interval during the printing job.

| Temperature | Ink Drops | | Interval |
|---|---|---|---|
| | K | C/M/Y | |
| Less than 5°C | 0.0022 (µl) | 0.0022 (µl) | Every 5 seconds |
| 5°C to 10°C | 0.0022 (µl) | 0.0022 (µl) | Every 5 seconds |
| 10°C to 15°C | 0.0036 (µl) | 0.0029 (µl) | Every 5 seconds |
| 15°C to 20°C | 0.0029 (µl) | 0.0018 (µl) | Every 20 seconds |
| 20°C to 25°C | 0.0022 (µl) | 0.0007 (µl) | Every 20 seconds |
| 25°C to 30°C | 0.0022 (µl) | 0.0007 (µl) | Every 20 seconds |
| 30°C to 35°C | 0.0022 (µl) | 0.0007 (µl) | Every 20 seconds |
| 35°C or more | 0.0022 (µl) | 0.0007 (µl) | Every 20 seconds |

## After No Operation

The machine flushes all the nozzles with 0.036µl of ink when the machine has been left without any operation for over 10 hours and less than 7 days.

## For Maintenance Operation
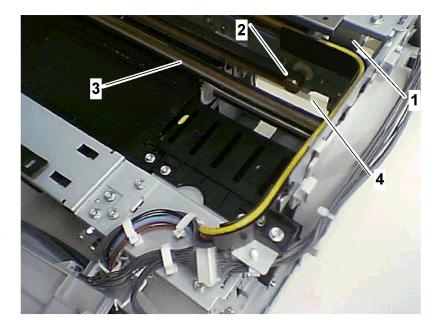
The machine flushes all the nozzles with 0.06µl of ink after wiping the print heads when the machine gets the "Initial Ink Filling", "Air Releasing and Ink Filling", "Head Cleaning" and "Refreshing".

🔽Note

- The sum of the flushing collection unit should never fill to capacity for the service life of the copier. You do not have to clean or replace the sump.
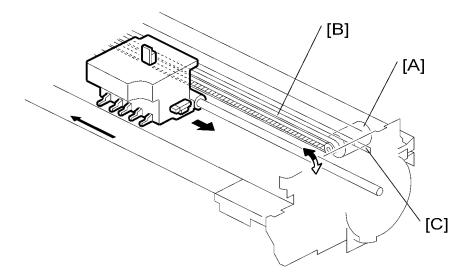
# Carriage Drive

## Overview



1. Main Scan Motor
2. Timing Belt
3. Guide Rod
4. Main Scan Encoder (Translucent Film)
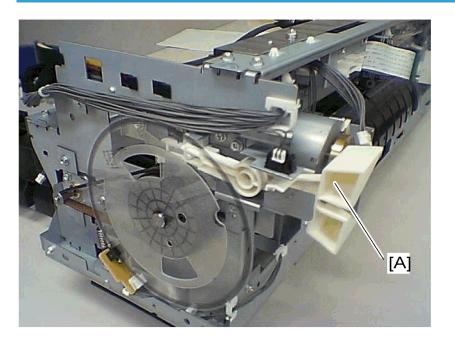
## Carriage Drive



A main scan motor [A] drives the carriage unit via a timing belt [B] connected to the carriage.

The main scan encoder strip [C], mounted in left side of the timing belt is threaded through the main scan encoder sensor mounted on the carriage. This sensor detects the position of the carriage at the time the carriage moves from rear to front during printing.

The home position of the carriage unit is on the rear side of the copier.

6

## Envelope Selector



Move the envelope selector [A] to adjust:

- The gap between the print heads
- The surface of the paper on the transport belt.
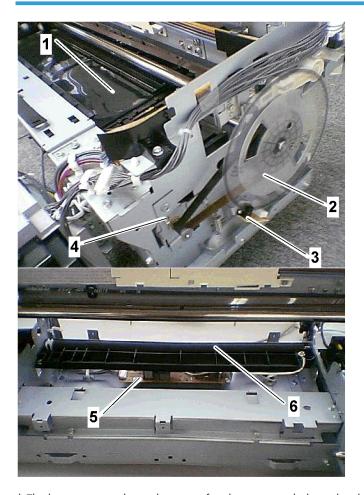
Pushing the lever down moves the print heads slightly away from the surfaces of thick paper and envelopes. This stops chaffing on the printing surface and smearing the ink.

A cam operates when the envelope selector is set for printing on thick paper or envelopes. This moves the guide rod to create a gap about 1.8 mm wider than the gap for normal printing.
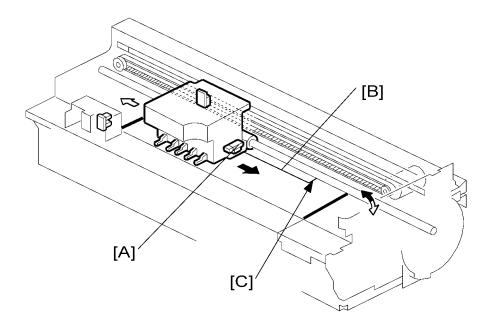
This lever should be down and set for printing on normal paper.

# Paper Feed, Transport, Output

## Overview



\* The lower picture shows the state after the transport belt unit has been removed.

1. Transport Belt Unit

2. Sub-scan Encoder

3. Sub-scan Encoder Sensor

4. Sub-scan Motor

5. High Voltage Power Supply

6. Charge Roller

## Leading Edge and Page Width Detection
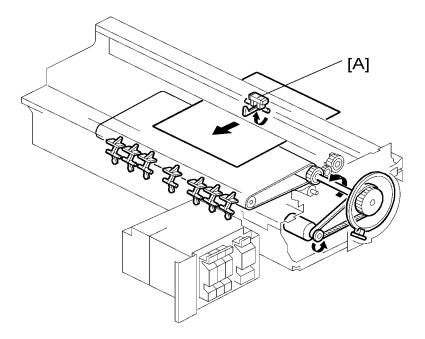


There is no paper size sensor in the standard paper tray. The paper size must be selected with the paper size switch of the paper tray.
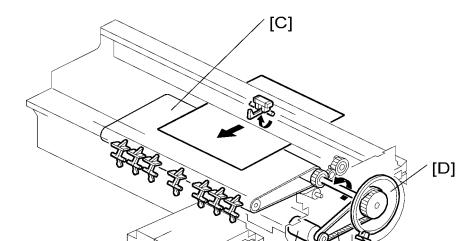
The second registration sensor [A], mounted on the carriage unit, moves from rear to front with the carriage during printing.

The second registration sensor detects the leading edge [B] and width [C] of the sheet for feed timing.

## Trailing Edge Detection



The engine entrance sensor [A], which is mounted at the left frame of the engine unit, detects the trailing edge of the sheet for feed timing.

## Paper Transport Drive



The sub scan motor [A] drives the timing belt [B] that rotates the paper transport belt [C].

The edge of the rotary encoder [D], attached to the shaft of the transport roller, passes through the gap of the encoder sensor [E] as the encoder wheel rotates. The sub scan sensor reads the coded markings on the rim of the encoder and sends this information to the CPU. The CPU uses these readings to control the on/off timing of the transport belt:

⭐**Important**

- **When servicing the machine, work carefully to prevent scratching, breaking, or bending the rotary encoder.**

## Paper Path

Here is a summary of the operation that sends paper through the copier:

1. The feed clutch energizes and engages the feed roller, and the rotation of the vertical motor drives the feed roller.
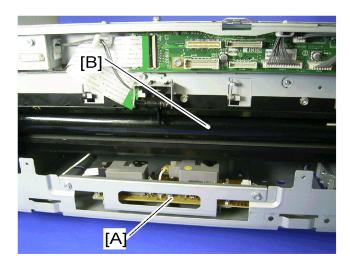
2. Paper feed roller feeds 1 sheet from the top of the stack in the paper tray. A friction pad at the lip of the paper tray does not let the paper get double-fed.

3. The charge roller charges the transport belt. The charge on the transport belt lets the paper stay on the transport belt.

4. The sheet feeds onto the transport belt. Then the feeler of the engine entrance sensor rises and switches the engine entrance sensor on.

5. At the same time the second registration sensor goes on, the carriage moves to the 40 mm rear from the center position. This lets the second registration sensor detect the leading edge of the paper.

6. The second registration sensor detects the right edge of the sheet when the carriage and second registration sensor move toward the HP sensor on the right.

7. The detection of the right edge by the second registration sensor is used to determine the width of the paper in the paper path.

   ⬇ Note

   • The second registration sensor reads the right edge of the sheet only once. This occurs at the time the first page gets fed for the print job. The second registration sensor does not detect the right edge for any sheet after the first sheet.

8. An area equal to the width of each print head gets printed when the carriage goes across the sheet from right to left.

9. This occurs when the last line gets printed. The transport roller rotates only long enough to feed the length of paper that stays. Then the paper exits the copier.

10. The print job count goes up by 1 after the paper has passed the engine exit sensor.

## Transport Belt



This copier uses the BT (Belt Transfer) system to transport paper through the paper path.

A high voltage power supply [A] charges the charge roller below the transport belt [B].

The charge roller applies a bias charge to the transport belt. This static charge makes the paper adhere to the transport belt so the paper does not shift during transport and printing.

A temperature/humidity sensor, mounted near the GJ engine unit, monitors the temperature and humidity near the charge roller. The temperature/humidity values read from the sensor are used to adjust the width of the bias (bias pitch) applied to the transport belt. This operation, called belt charge control, operates within the following ranges of temperature and humidity:
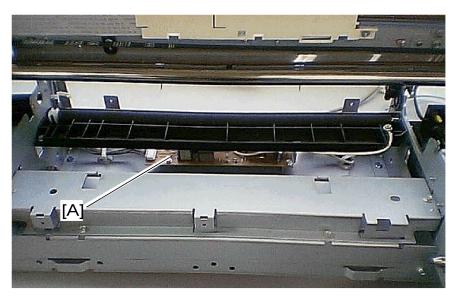
| | | |
|---|---|---|
| Temperature: | 0C to 35C (32F to 95F) | Adjusted in 2.5C (4.5F) steps |
| Humidity: | 0% to 100% | Adjusted in 10% steps |

The machine uses the feedback of the temperature/humidity sensor to reduce the width of the charge applied to the transport belt below the print heads. This reduces the size of the electrical field to the smallest size that can still provide the optimum charge to keep the paper on the belt at the leading edge, center, and trailing edge of the paper without interfering with the operation of the print nozzles.

Belt charge control is done for every paper feed station (Tray 1, Tray 2, and bypass) and for every paper type (normal paper, envelopes, thick paper, and OHP).

The sharp curvature of the paper path separates the paper from the transport belt at the time paper gets fed out the paper exit.

## Charge Leak Detection



[A]

(* This picture shows the state after the transport belt unit has been removed.)

The copier checks for and detects charge leaks at these times:

- Immediately after the copier is turned on.

- When it gets a leak detection signal from the high voltage power pack at the time of copier operation.

These happen when a charge leak gets detected:
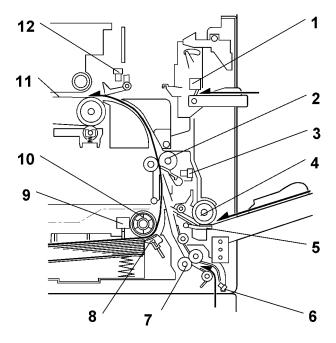
- The voltage supply from the power pack [A] gets interrupted immediately

- The copier stops the current print job in progress.

- The carriage goes back to its home position.

- The print heads gets capped. The copier cannot operate.

Do these to let the copier go back to normal operation:

- You must remove the cause of the leak.

- Turning the copier off and on.

6

# Paper Feed

## Overview



There are a standard paper tray (250 sheets), by-pass tray (100 sheets) and one-sheet by-pass tray (one sheet only).

The standard paper tray and by-pass tray use a friction pad system. However, for the one-sheet by-pass tray, a sheet of paper is fed directly by the transport belt.

To prevent paper from getting caught inside the machine when the tray is pulled out, the paper feed roller and shaft do not separate from the tray when the tray is pulled out.

The first registration sensor and engine entrance sensor are used for paper jam. The relay sensor is used for paper jam detection when paper is fed up from the optional paper feed unit.
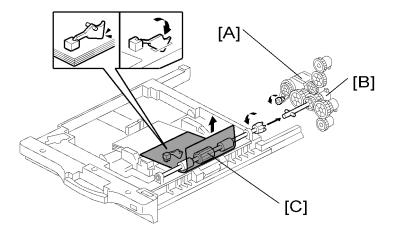
The components of the paper feed station are as follows.

| | |
|---|---|
| 1. One-sheet By-pass Tray Set Sensor | 7. Relay Roller |
| 2. Registration Roller | 8. Friction Pad |
| 3. First Registration Sensor | 9. Paper End Sensor |
| 4. By-pass Paper Feed Roller | 10. Paper Feed Roller |
| 5. By-pass Friction Pad | 11. Transport Belt |

| 6. Relay Sensor | 12. Engine Entrance Sensor |
| --- | --- |

## Paper Feed Drive Mechanism
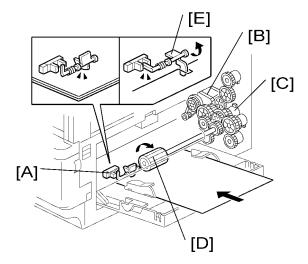
### Standard Tray



The feed motor [A] drives the pick-up and feed mechanism of both the first and second paper trays. The paper feed clutches [B] transfer drive from this motor to the paper feed rollers [C].
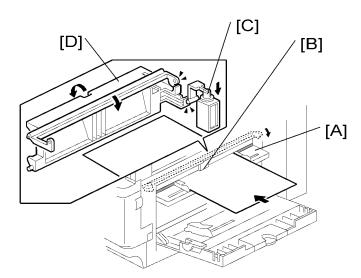
When the paper feed clutch turns on, the feed roller starts to feed the paper. The paper feed clutch stays on until shortly after the first registration sensor has been activated.

## By-pass Tray

When the by-pass tray set sensor [A] detects paper, the machine goes into ready condition. The feed motor [B] drives the feed roller [D] via the by-pass clutch [C]. The by-pass tray set sensor also detects the paper end when the filler [E] interrupts the sensor.
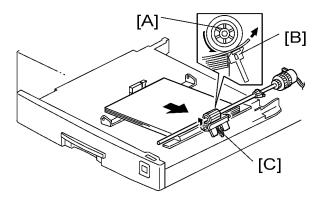
## One-sheet By-pass Tray

When the one-sheet by-pass tray [A] is opened, the machine shows "Make sure the machine has stopped. Then open the 1 sheet by-pass Output tray". The machine can detect a sheet of paper on the one-sheet

by-pass tray via the set detection filler [B]. If the one-sheet by-pass output tray is opened with a sheet of paper set on the tray, the one-sheet by-pass shutter solenoid [C] is activated and the one-sheet by-pass shutter [D] is opened. As a result, a sheet of paper can be inserted into the machine. a sheet of paper is directly caught by transport belt of the engine unit after the sheet of paper has reached to the engine unit.
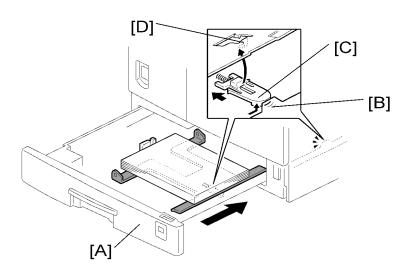
## Paper Feed and Separation Mechanism
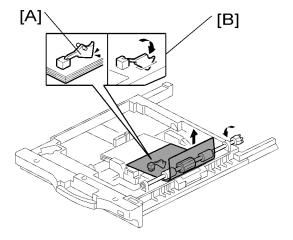


The paper feed roller [A] drives the top sheet of paper from the paper tray or by-pass tray to the copier. The friction pad [B] allows only one sheet to feed at a time. The friction pad applies pressure to the feed roller with a spring [C].

The friction pad pressure cannot be adjusted.

## Paper Lift Mechanism

When the paper tray [A] is closed, projection [B] on the copier frame pushes slider [C] (on the bottom part of the paper tray) off the bottom plate hook [D]. After the release slide comes off, compressed springs lift the bottom plate.

## Paper End Detection
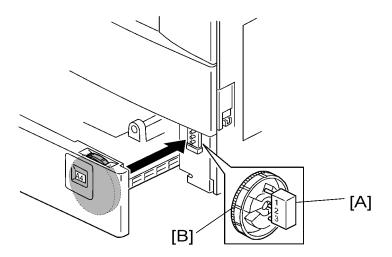


If there is any paper in the paper tray, the paper stack lifts the feeler, the paper end sensor [A] is deactivated.

When the paper tray runs out of paper, the paper end feeler drops into the cutout [B] in the tray bottom plate and the paper end sensor is activated.

When the paper tray is drawn out with no paper in the tray, the shape of the paper end feeler causes it to lift up.

## Paper Size Detection



## Paper Tray

| Size | SW1 | SW2 | SW3 |
|---|---|---|---|
| A3, 11" x 17" | OFF | OFF | OFF |
| A4 LEF | ON | ON | OFF |
| A4 SEF,81/2" x 11" | ON | OFF | OFF |
| A5 LEF, 81/2" x 14" | OFF | ON | ON |
| 81/2" x 13" | ON | OFF | ON |
| 11" x 81/2" | OFF | ON | OFF |
| * (Asterisk) | OFF | OFF | ON |

**↓Note**

• ON: Not pushed, OFF: Pushed
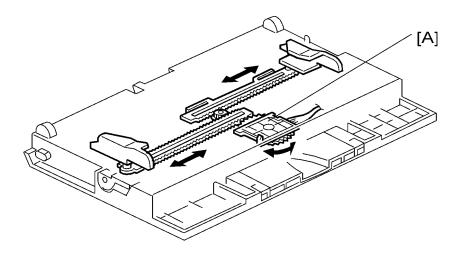
There are three paper size microswitches [A] on the front right plate of the paper tray unit. The switches are actuated by a paper size actuator [B] behind the paper size indicator plate, which is on the front right of the tray.

Each paper size has its own actuator, with a unique combination of notches. To determine which size has been installed, the CPU reads which microswitches the actuator has switched off.

The CPU disables paper feed from a tray if the paper size cannot be detected. If the paper size actuator is broken, or if there is no tray installed, the Add Paper indicator will light.

When the paper size actuator is at the "*" mark, the paper tray can be set up to accommodate one of a wider range of paper sizes by using User Tools. If the paper size for this position is changed without changing the User Tool setting, a paper jam will result.

## By-pass Tray



The by-pass feed paper size switch [A] monitors the paper width. The side fence is connected to the terminal plate gear. When the side fences move to match the paper width, the circular terminal plate rotates over the wiring patterns on the rectangular part of the paper size switch. The patterns for each paper width in the paper size switch are unique.
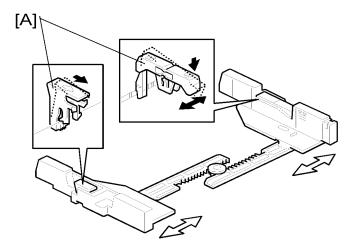
### North America

| CN No. (BICU) | 11" x 17" | 81/2" x 14" | 51/2" x 81/2" | | |
|---|---|---|---|---|---|
| CN127-1 | ON/OFF | OFF | OFF | OFF | OFF |
| CN127-2 | OFF | OFF | OFF | ON | OFF |
| CN127-3 (GND) | OFF | OFF | OFF | OFF | OFF |
| CN127-4 | OFF | ON | OFF | OFF | ON |
| CN127-5 | ON | ON | OFF | OFF | OFF |

### Europe/Asia
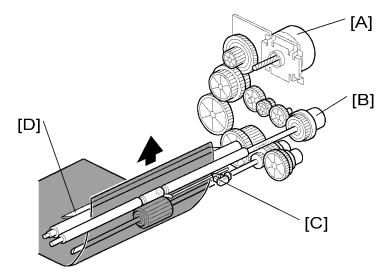
| CN No. (BICU) | A3 | A4 SEF | 8" x 13" | A5 SEF |
|---|---|---|---|---|
| CN127-1 | ON/OFF | OFF | OFF | OFF |
| CN127-2 | OFF | OFF | OFF | ON/OFF |
| CN127-3 (GND) | OFF | OFF | OFF | OFF |
| CN127-4 | OFF | ON | ON | OFF |
| CN127-5 | ON | ON | OFF | OFF |

## Side Fences



If the tray is full of paper and it is pushed in strongly, the fences may deform or bend. This may cause the paper to skew or the side-to-side registration to be incorrect. To correct this, each side fence has a stopper [A] attached to it. Each side fence can be secured with a screw, for customers who do not want to change the paper size.

## Paper Registration



The drive from the feed motor [A] is transmitted to the registration roller through the registration clutch gear [B].

The first registration sensor [C] is used for correcting paper skew and for detecting paper misfeeds.
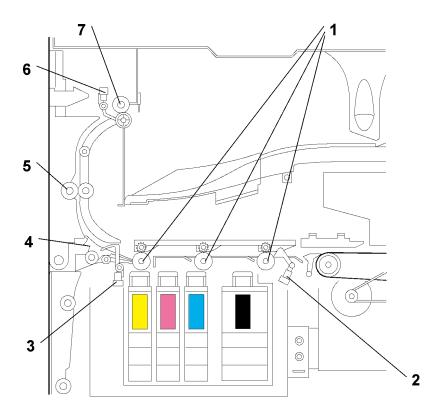
The cleaning Mylar [D] contacts the registration roller. It removes paper dust from the registration roller so that this dust will not transfer into the development unit through the drum-cleaning unit.

The amount of paper buckle at the registration roller to correct skew can be adjusted with SP1-003.

If jams frequently occur after registration, SP1-903 can be used to activate the relay clutch so that the relay roller assists the registration roller in feeding the paper along. When feeding from the by-pass tray, the by-pass feed clutch is activated, turning the by-pass feed roller. This feature may be needed when feeding thick paper, and cannot be used for the first paper feed tray.
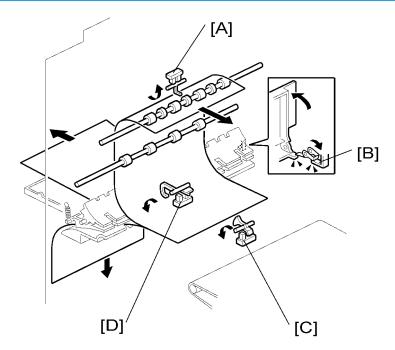
# Paper Exit

## Overview



| | |
|---|---|
| 1. Exit Transport Roller1 to 3 | 5. Exit Transport Roller 4 |
| 2. Engine Exit Sensor | 6. Paper Exit Sensor |
| 3. Junction Gate Sensor | 7. Paper Exit Roller |
| 4. Junction Gate | |

## Sensors and Switch



- [A]: Paper Exit Sensor
- [B]: One-sheet By-pass Output Tray Switch
- [C]: Engine Exit Sensor
- [D]: Junction Gate Sensor
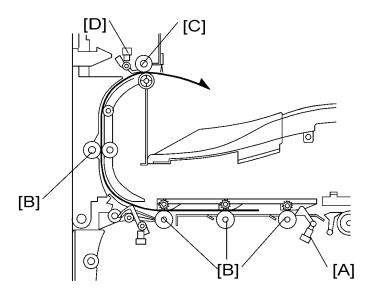
The paper exit sensor [A] detects the paper jam.

The engine exit sensor [C] activates the exit motor and the junction gate solenoid if the duplex mode is selected. It also detects the paper jam.

The junction gate sensor [D] activates the duplex transport motor and detects the paper jam.
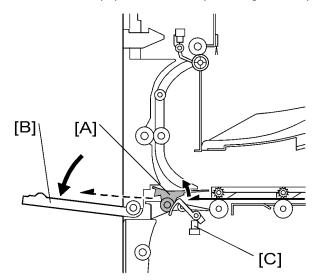
The One-sheet By-pass Output Tray Switch [B] detects if the output tray is open or not. If this tray is not open, the one-sheet by-pass shutter cannot open.

## Paper Exit Path
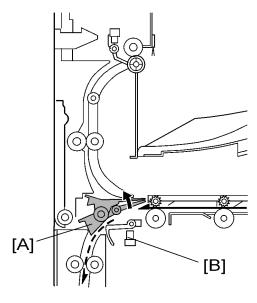


### Standard Output Tray

The paper exit motor starts to drive the exit transport rollers [B] and paper exit roller [C] after the engine exit sensor [A] has detected a sheet of paper. The paper is fed through the exit transport rollers and paper exit roller. Then the paper exit motor stops rotating after the paper exit sensor [D] has detected no paper.



### External Output Tray

The junction gate [A] for the one-sheet by-pass tray opens after a customer has decided paper type. A sheet of paper is fed through exit transport rollers and to the external output tray [B]. The junction gate sensor [C] still detects a sheet of paper until the paper fed to the external output tray is removed. While this

sensor detects a sheet of paper, the shutter of the one-sheet by-pass tray is closed. So, a next job using the one-sheet by-pass printing cannot be allowed.



**Duplex**
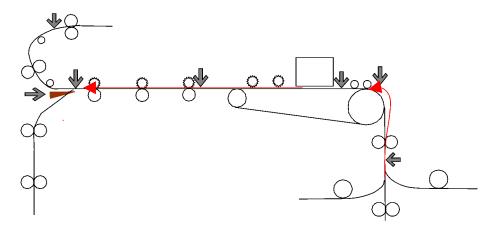
The junction gate [A] for the duplex unit opens when a sheet of paper is transported for 150 mm after the engine exit sensor has detected no paper.

The paper is fed through the exit transport rollers and to the duplex transport rollers.

The duplex transport motor starts to drive the duplex transport rollers when a sheet of paper is transported for 150 mm after the junction gate sensor [B] has detected the paper.

The junction gate [A] is closed when a sheet of paper is transported for 50 mm after the junction gate sensor [B] has detected no paper.

## Paper Stop Function



The exiting paper stops temporarily [A] to get enough time to be dried when much ink is used for a sheet of paper. The average consumed ink amount (ml/cm2) for each page is calculated at completing the printing. And also the copier calculates the average consumed ink amount in the 50 mm area from the trailing edge of paper. This is countermeasure in case that much amount of ink is used only in the trailing edge area. The copier uses the higher value among both as the coefficient for the paper stop function. The paper stop time is defined depending on the combination of the coefficient and table. For details, refer to the end of this column. The next sheet of paper stays at the registration roller [B].

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## Table for The Paper Stop Time

| Humidity (%) | Temperature (°C) | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 5 | | | | | | | |
| 10 | [A] | | | | | | |
| 15 | | | | | | | |
| 20 | | | | | | | |
| 25 | | | | | | | |
| 30 | | | | | | | |
| 35 | | | [B] | | | | |
| 40 | | | | | | | |
| 45 | | | | | | | |
| 50 | | | | | | | |
| 55 | | | | | | | |
| 60 | | | | | | | |
| 65 | | | | | | | |
| 70 | | | | | | [C] | |
| 75 | | | | | | | |
| 80 | | | | | | | |
| 85 | | | | | | | |
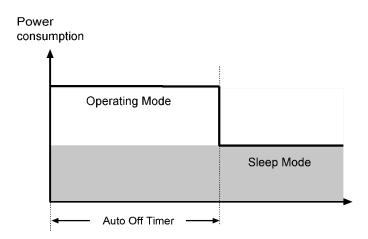
The table has three areas [A], [B], [C].

- The paper stop time is "10 seconds" when the average consumed ink is more than 70 % and the environment is in [A].

- The paper stop time is "10 seconds" when the average consumed ink is more than 50 % and the environment is in [A].

- The paper stop time is "7 seconds" when the average consumed ink is more than 20 % and the environment is in [A].

- The paper stop time is "7 seconds" when the average consumed ink is more than 50 % and the environment is in [B].

- The paper stop time is "2 seconds" when the average consumed ink is more than 20 % and the environment is in [B].

- The paper stop time is "2 seconds" when the average consumed ink is more than 50 % and the environment is in [B].

- The paper stop time is "0 second" when the average consumed ink is more than 20 % and the environment is in [C].

## Energy Saver Modes of Basic Machines

This section illustrates the energy saver modes of the basic machine (the machine without the optional controller).

### Overview



The machine has an energy-saver mode: theSleep Mode. The table lists the status of several components.

|  | Operation panel | Engine | Exhaust fan |
|---|---|---|---|
| Operating Mode* | On | On | On |
| Sleep Mode | Off | Off** | Off |

*The "Operating Mode" here refers to all the modes (and status) other than the Sleep Mode. Actual power consumption (during the Operating Mode) depends on job status and environmental conditions.

**The SRAM is alive and backs up the engine controller.

### Timers

The engine controller references the Auto Off Timer to start the Sleep Mode. The user can set these timers (U > System Settings > Timer Settings).

The Auto Off Timer starts at the same time (t0) when the machine ends all jobs or when the user ends all manual operations.

**Recovery**

Any of the following operations brings the machine back to the Operating Mode:

- The power switch is pressed.
- Originals are set on the document feeder.
- The platen cover (or document feeder) is opened.

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# 7. Specifications

## General Specifications

| | |
|---|---|
| Configuration: | Desktop |
| Copy Process: | On-Demand Ink Printing Technology |
| Originals: | Sheet/Book/Object |
| Original Size: | Maximum A3/11" x 17" |
| Copy Paper Size: | Maximum: A3/11" x 17"<br>Minimum: A5 LEF/$8^1/_2$" x $5^1/_2$" (Paper tray) A6 SEF/$5^1/_2$" x $8^1/_2$" (Bypass)<br>Custom sizes in the bypass tray: Width: 90 – 305 mm (3.55" – 12.2")<br>Length: 148 – 600 mm (5.83" – 23.62")<br><br>⬇ Note<br><br>• Physically, the by-pass tray can handle the following size (but this size is not recognized by the application software):<br>• Width: 305 mm<br>• Length: 1,260 mm |
| Copy Paper Weight: | Paper Tray: 60 – 105 g/m$^2$, 16 – 28 lb.<br>By-pass Tray: 60 – 162 g/m$^2$, 16 – 43 lb.<br>One-sheet By-pass Tray: 60 – 220g/m$^2$ 16lb – 55lb<br>Duplex: 60 – 105 g/m$^2$, 16 – 28 lb. |
| Reproduction Ratios: | 4 enlargement and 5 reduction |

| | A4/A3 Version | LT/DLT Version |
|---|---|---|
| Enlargement | 400%<br>200%<br>141%<br>122% | 400%<br>155%<br>129%<br>121% |
| Full Size | 100% | 100% |
| Reduction | 93%<br>82% | 93%<br>78% |

| | | |
|---|---|---|
| | 71% | 65% |
| | 50% | 50% |
| | 25% | 25% |
| Zoom: | 25% to 400%, in 1% steps | |
| Power Source: | North America/Taiwan: 110V – 120 V, 60 Hz, 12 A<br>Europe, Asia, China: 220 – 240 V, 50/60 Hz, 7 A | |

| Power Comsumption | | |
|---|---|---|
| **North America/ Taiwan** | **Main Unit only** | **Complete System***  |
| Maximum | Less than 110 W | Less than 250 W |
| Operating | About 70 W | About 135 W |
| Stand-by | About 38 W | About 46 W |
| Sleep mode | 3.1 W or less | 7.0 W or less |
| **Europe/ Asia/ China** | **Main Unit only** | **Complete System***  |
| Maximum | Less than 110 W | Less than 250 W |
| Operating | About 70 W | About 135 W |
| Stand-by | About 40 W | About 48 W |
| Sleep mode | 3.7 W or less | 7.7 W or less |

*Complete System: The complete system consists of the Main unit, A(R)DF, Fax Unit, USB Host, IEEE1284, Function Upgrade Option, Copy Data Security Unit, Duplex unit and Paper Tray unit.

| Noise Emission (Sound Power Level) | |
|---|---|
| Standby (Mainframe/Full system): | Not above 40 dB(A) |
| Operating (Mainframe only): | Not above 62 dB(A) |
| Operating (Full System): | Not above 66 dB(A) |

The above measurements were made in accordance with ISO 7779. Measurements were taken from the normal position of the operator.

| Dimensions (W x D x H): | 550 x 728 x 485 mm (22" x 29.1" x 19.4") |
|---|---|

| | |
|---|---|
| | Measurement Conditions: |
| | With bypass feed table closed |
| | Without the A(R)DF |
| Weight: | 50 kg or less (110 lb.) (Excluding A(R)DF, platen cover, toner, and developer) |
| Copying Speed in Multicopy Mode (copies/minute): | 5 – 24 cpm (B/W mode, A4/LT LEF) <br> 3 – 6 cpm (FC mode, A4/LT LEF) |
| Warm-up Time: | From Power-on; Less than 20 seconds (at 20°C [68°F]) <br> From Stand-by; Less than 5.5 seconds (at 20°C [68°F]) |
| First Copy Time: | Not more than 9.7 seconds (B/W mode) <br> Not more than 24 seconds (Color mode) <br> Measurement Conditions <br> From the ready state, with the polygonal mirror motor operating. <br> A4/LT copying <br> Not APS mode <br> 100%size <br> Paper feed from the upper tray |
| Copy Number Input: | Numeric keypad, 1 to 99 (increment, decrement) |
| Manual Image Density: | 5 steps |
| Automatic Reset: | Default is 60 seconds. Can be set from 60 to 999 seconds with user tools. |
| Automatic Shut-off: | Default is 1 minute. Can be set from 1 to 240 minutes with user tools. |
| Copy Paper Capacity: | Paper Tray: 250 sheets <br> Optional Paper Tray Unit: 500 sheets x 1, or 500 sheets x 2 <br> By-pass Tray: 100 sheets (sheets up to 432 mm [17"]), 40 postcards, 10 envelopes <br> One-sheet By-pass Tray: 1 sheet <br> Copy weight: 80 g/m$^2$ (20 lb.) |
| Ink Replenishment: | Cartridge replacement (xxx g/cartridge) |

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| Optional Equipment: | Platen cover |
| | Auto document feeder |
| | Auto-reverse document feeder |
| | Paper tray unit (1 tray) |
| | Paper tray unit (2 trays) |
| | Tray heater |
| | Optics anti-condensation heater |
| | Fax unit |
| | Handset |
| | IEEE 1394 |
| | IEEE 1284 |
| | Wireless LAN |
| | Bluetooth |
| | PostScript 3 |
| | USB Host |
| | PictBridge |
| | Data Overwrite Security Unit |
| | Copy Data Security Unit |
| | JVM SD Card |
| | NRS Cumin-M |
| Ink Yield: | BK: 9 k copies (A4 LEF, 6%)<br>Color: 3 k copies (A4 LEF, 5%)<br>*: 1 to 2 copying, normal text mode |
| Copy-Tray Capacity | 250 sheets |
| Memory: | 384 MB (On-board-128 MB + RAM DIMM- 256 MB) |

# Supported Paper Sizes

## Original Size Detection

### North America, Europe, Asia, Taiwan

| Paper | Size (W x L) | North America | | Europe/Asia/Taiwan | |
|---|---|---|---|---|---|
| | | Platen | ADF | Platen | ADF |
| A3 SEF | 297 x 420 mm | O | O | X | X |
| B4 SEF | 257 x 364 mm | O | O | X | X |
| A4 SEF | 210 x 297 mm | A4/LT | A4/LT | X | X |
| A4 LEF | 297 x 210 mm | A4/LT | A4/LT | X | X |
| B5 SEF | 182 x 257 mm | O | O | O | X |
| B5 LEF | 257 x 182 mm | O | O | X | X |
| A5 SEF | 148 x 210 mm | O | O | O | X |
| A5 LEF | 210 x 148 mm | O | O | S a | X |
| B6 SEF | 128 x 182 mm | O | O | O | O |
| B6 LEF | 182 x 128 mm | O | O | O | O |
| 8K SEF | 267 x 390 mm | O | O | O | O |
| 16K SEF | 195 x 267 mm | O | O | O | O |
| 16K LEF | 267 x 195 mm | O | O | O | O |
| DLT SEF | 11.0" x 17.0" | X | X | O | O |
| SEF | 11.0" x 15.0" | O | O | O | O |
| LG SEF | 8.5" x 14.0" | X | X | O | O |
| LT SEF | 8.5" x 11.0" | X | X | A4/LT | A4/LT |
| LT LEF | 11.0" x 8.5" | X | X | A4/LT | A4/LT |
| HLT SEF | 5.5" x 8.5" | O | X | O | O |

| HLT LEF | 8.5" x 5.5" | S | X | O | O |
|---|---|---|---|---|---|
| F/GL (F4) SEF | 8.0" x 13.0" | F | O | F | F |
| Foolscap SEF | 8.5" x 13.0" | F | O | F | F |
| Folio SEF | 8.25" x 13.0" | F | O | F | F |
| USB4 SEF | 10.0" x 14.0" | O | O | O | O |
| Eng Quarto SEF | 8.0" x 10.0" | O | O | O | O |
| Eng Quarto LEF | 10.0" x 8.0" | O | O | O | O |

**Symbol:**

X: Detected

O: Not detected

F: Detected as F (8.5" x 13.0")

S: Detected as specified

A4/LT: Detected as A4 or LT as specified

🔽Note

- When the settings of SP4-305-001 is "1: A4/LT," the settings of SP4-303 is invalidated (A5 LEF is not detected).

## Paper Feed and Exit

### Main Frame, Duplex, Optional Paper Tray

| Paper | Size (W x L) | Main Frame Tray | | Duplex | Optional Paper Tray |
|---|---|---|---|---|---|
| | | NA | EU/ASIA | | |
| A3 SEF | 297 x 420 mm | M | X | X | X |
| A3 LEF | 420 x 297 mm | O | O | O | O |
| B4 SEF | 257 x 364 mm | M | M | X | M |
| B4 LEF | 364 x 257 mm | O | O | O | O |
| A4 SEF | 210 x 297 mm | M | X | X | X |

| Paper | Size (W x L) | Main Frame Tray | | Duplex | Optional Paper Tray |
|---|---|---|---|---|---|
| | | NA | EU/ASIA | | |
| A4 LEF | 297 x 210 mm | X | X | X | X |
| B5 SEF | 182 x 257 mm | M | M | X | M |
| B5 LEF | 257 x 182 mm | M | M | X | M |
| A5 SEF | 148 x 210 mm | O | O | X | M |
| A5 LEF | 210 x 148 mm | M | X | X | O |
| B6 SEF | 128 x 182 mm | O | O | O | O |
| B6 LEF | 182 x 128 mm | O | O | O | O |
| A6 SEF | 105 x 148 mm | O | O | O | O |
| A6 LEF | 148 x 105 mm | O | O | O | O |
| DLT SEF | 11" x 17" | X | M | X | X |
| DLT LEF | 17" x 11" | O | O | O | O |
| LG SEF | $8^1/_2$" x 14" | X | M | X | X |
| LG LEF | 14" x $8^1/_2$" | O | O | O | O |
| Gov. LG SEF | $8^1/_4$" x 14" | M | M | X | M |
| Gov. LG LEF | 14" x $8^1/_4$" | O | O | O | O |
| LT SEF | $8^1/_2$" x 11" | X | M | X | X |
| LT LEF | 11" x $8^1/_2$" | X | X | X | X |
| HLT SEF | $5^1/_2$" x $8^1/_2$"" | O | O | O | M |
| HLT LEF | $8^1/_2$" x $5^1/_2$" | M | M | O | O |
| Executive SEF | $7^1/_2$" x $10^1/_2$" | M | M | X | O |
| Executive LEF | $10^1/_2$" x $7^1/_4$" | O | O | O | O |
| F SEF | 8" x 13" | M | M | X | M |
| F LEF | 13" x 8" | O | O | O | O |
| Foolscap SEF | $8^1/_2$" x 13" | X | X | X | M |

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| Paper | Size (W x L) | Main Frame Tray | | Duplex | Optional Paper Tray |
|---|---|---|---|---|---|
| | | NA | EU/ASIA | | |
| Foolscap LEF | 13" x 8$\frac{1}{2}$" | O | O | O | O |
| Folio SEF | 8$\frac{1}{4}$" x 13" | M | M | X | M |
| Folio LEF | 13" x 8$\frac{1}{4}$" | O | O | O | O |
| 8K SEF | 267 x 390 mm | M | M | X | M |
| 8K LEF | 390 x 267 mm | O | O | O | O |
| 16K SEF | 195 x 267 mm | M | M | X | M |
| 16K LEF | 267 x 195 mm | M | M | X | M |
| C5 Env SEF | 162 x 229 mm | O | O | O | O |
| C6 Env SEF | 114 x 162 mm | O | O | O | O |
| DL Env SEF | 110 x 220 mm | O | O | O | O |
| Com 10 SEF | 4$\frac{1}{8}$" x 9$\frac{1}{2}$" | O | O | O | O |
| Monarch SEF | 3$\frac{7}{8}$" x 7$\frac{1}{2}$" | O | O | O | O |
| Custom | | M | M | M | M |

**Symbol**:

X: Detected (Main frame tray)/Processed (Duplex)

O: Not detected (Main frame tray)/Not processed (Duplex)

M: Selected manually

K: Specified from the key pad

**Note**

- **Custom**
  - W: 182 to 297 mm, L: 148 to 432 mm for Main Frame
  - W: 148 to 297 mm, L: 182 to 432 mm for Optional Paper Tray
  - W: 90 to 305 mm, L: 148 to 600 mm for By-pass/ One-sheet By-pass Tray

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**By-pass Tray, One-sheet By-pass Tray**

| Paper | Size (W x L) | By-pass | | One-sheet By-pass Tray | |
|---|---|---|---|---|---|
| | | NA | EU/ASIA | NA | EU/ASIA |
| A3 SEF | 297 x 420 mm | M | X | M | M |
| A3 LEF | 420 x 297 mm | O | O | O | O |
| B4 SEF | 257 x 364 mm | M | M | M | M |
| B4 LEF | 364 x 257 mm | O | O | O | O |
| A4 SEF | 210 x 297 mm | M | X | M | M |
| A4 LEF | 297 x 210 mm | M | M | M | M |
| B5 SEF | 182 x 257 mm | M | M | M | M |
| B5 LEF | 257 x 182 mm | M | M | M | M |
| A5 SEF | 148 x 210 mm | M | X | M | M |
| A5 LEF | 210 x 148 mm | M | M | M | M |
| B6 SEF | 128 x 182 mm | M | M | M | M |
| B6 LEF | 182 x 128 mm | O | O | O | O |
| A6 SEF | 105 x 148 mm | K | K | K | K |
| A6 LEF | 148 x 105 mm | O | O | O | O |
| DLT SEF | 11" x 17" | X | M | M | M |
| DLT LEF | 17" x 11" | O | O | O | O |
| LG SEF | $8^1/_2$" x 14" | M | M | M | M |
| LG LEF | 14" x $8^1/_2$" | O | O | O | O |
| Gov. LG SEF | $8^1/_4$" x 14" | M | M | M | M |
| Gov. LG LEF | 14" x $8^1/_4$" | O | O | O | O |
| LT SEF | $8^1/_2$" x 11" | X | M | M | M |
| LT LEF | 11" x $8^1/_2$" | M | M | M | M |

**7**

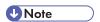| Paper | Size (W x L) | By-pass | | One-sheet By-pass Tray | |
|---|---|---|---|---|---|
| | | NA | EU/ASIA | NA | EU/ASIA |
| HLT SEF | $5^1/_2$" x $8^1/_2$" | X | M | M | M |
| HLT LEF | $8^1/_2$" x $5^1/_2$" | O | O | O | O |
| Executive SEF | $7^1/_2$" x $10^1/_2$" | M | M | M | M |
| Executive LEF | $10^1/_2$" x $7^1/_4$" | M | M | M | M |
| F SEF | 8" x 13" | M | X | M | M |
| F LEF | 13" x 8" | O | O | O | O |
| Foolscap SEF | $8^1/_2$" x 13" | M | M | M | M |
| Foolscap LEF | 13" x $8^1/_2$" | O | O | O | O |
| Folio SEF | $8^1/_4$" x 13" | M | M | M | M |
| Folio LEF | 13" x $8^1/_4$" | O | O | O | O |
| 8K SEF | 267 x 390 mm | M | M | M | M |
| 8K LEF | 390 x 267 mm | O | O | O | O |
| 16K SEF | 195 x 267 mm | M | M | M | M |
| 16K LEF | 267 x 195 mm | M | M | M | M |
| C5 Env SEF | 162 x 229 mm | M | M | M | M |
| C6 Env SEF | 114 x 162 mm | M | M | M | M |
| DL Env SEF | 110 x 220 mm | M | M | M | M |
| Com 10 SEF | $4^1/_8$" x $9^1/_2$" | M | M | M | M |
| Monarch SEF | $3^7/_8$" x $7^1/_2$" | M | M | M | M |
| Custom | | K | K | K | K |

**Symbol**:

X: Detected (Opt. paper tray and By-pass)/Processed (One-bin tray)

O: Not detected (Opt. paper tray and By-pass)/Not processed (One-bin tray)
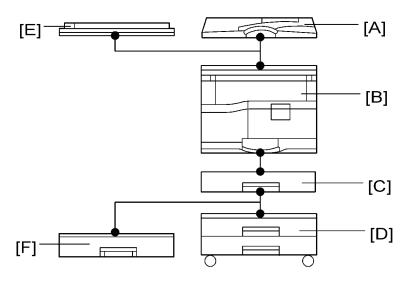
M: Selected manually

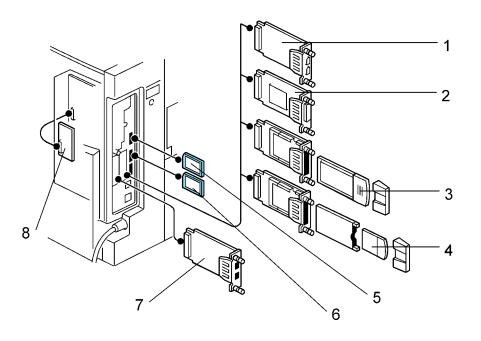K: Specified from the key pad

⬇ **Note**

- **Custom**
    - W: 182 to 297 mm, L: 148 to 432 mm for Main Frame
    - W: 148 to 297 mm, L: 182 to 432 mm for Optional Paper Tray
    - W: 90 to 305 mm, L: 148 to 600 mm for By-pass/ One-sheet By-pass Tray

**7**

# Machine Configuration



B229I105.WMF

| Unit/Component | | Machine Code | Diagram |
|---|---|---|---|
| Copier | Copier (1-tray non-duplex model) | B229 | [B] |
| | Platen cover (optional) | B406 | [E] |
| | ADF (optional) | B813 | [A] |
| | ARDF (optional) | B814 | [A] |
| | Paper tray unit–1 tray (optional) | B385 | [F] |
| | Paper tray unit–2 trays (optional) | B384 | [D] |
| | Duplex Unit | B806 | [C] |
| | Tray heater (optional) | — | — |
| | Optics anti-condensation heater (optional) | — | — |
| Fax | Fax controller (optional) | B267 | |
| | Handset (optional) | B433 | |

| Unit/Component | | Machine Code | Diagram |
|---|---|---|---|
| Printer/ scanner | PostScript 3 (optional) | B850 | 5 |
| | Function Upgrade Option | B271 | - |
| | Data Overwrite Security Unit | B735 | 5 |
| | Copy Data Security Unit | B770 | 8 |
| | JVM SD Card | G874 | 6 |
| Network | IEEE 1394 | B581 | 1 |
| | IEEE 1284 | B679 | 2 |
| | Wireless LAN | G813 | 3 |
| | Bluetooth | B826 | 4 |
| | USB Host | B825 | 7 |
| | Remote Communication Gate | B818 | - |

# Optional Equipment

## ARDF

| | |
|---|---|
| Original Size: | Standard sizes<br><br>Single-sided mode: A3 to A5, 11" x 17" to $5^1/_2$" x $8^1/_2$"<br><br>Double-sided mode: A3 to A5, 11" x 17" to $5^1/_2$" x $8^1/_2$"<br><br>Non-standard sizes (Single-sided mode only)<br><br>Max. width 297 mm<br><br>Min. width 105 mm<br><br>Max. length 1260 mm<br><br>Min. length 128 mm |
| Original Weight: | Single-sided mode: 40 – 128 g/m$^2$, 10 – 34 lb.<br><br>Double-sided mode: 52 – 105 g/m$^2$, 17 – 28 lb. |
| Table Capacity: | 50 sheets (80 g/m$^2$, 70 kg) |
| Original Standard Position: | Center |
| Separation: | FRR |
| Original Transport: | Roller transport |
| Original Feed Order: | From the top original |
| Reproduction Range: | 50 to 200% (Sub scan direction only) |
| Power Source: | 24 and 5 Vdc from the copier |
| Power Consumption: | 50 W |
| Dimensions (W x D x H): | 550 x 470 x 130 mm |
| Weight: | 10 kg |

## ADF

| | |
|---|---|
| Original Size: | Standard sizes (Single-sided mode only):<br><br>A3 to A5, 11" x 17" to $5^1/_2$" x $8^1/_2$" |

| | Non-standard sizes (Single-sided mode only): |
| --- | --- |
| | Max. width 297 mm |
| | Min. width 105 mm |
| | Max. length 1,260 mm |
| | Min. length 128 mm |
| Original Weight: | 52 – 105 g/m$^2$ (14 – 28 lb.) |
| Table Capacity: | 30 sheets (80 g/m$^2$, 22 lb.) |
| Original Standard Position: | Center |
| Separation: | FRR |
| Original Transport: | Roller transport |
| Original Feed Order: | From the top original |
| Reproduction Range: | 50 – 200% |
| Power Source: | 24 and 5 Vdc (from the main frame) |
| Power Consumption: | 25 W |
| Dimensions (W x D x H): | 550 mm x 470 mm x 90 mm |
| Weight: | Not above 7 kg |

## One-Tray Paper Tray Unit

| | |
| --- | --- |
| Paper Size: | A5 to A3<br>$5^1/_2$" 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 1 tray |
| 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):<br>120 Vac: 120 V version, from the copier/printer when the optional tray heater is installed<br>220 – 240 Vac: |

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| | 230 V version, from the copier/printer when the optional tray heater is installed |
|---|---|
| Power Consumption: | Max: 20 W (copying/printing), 23 W (optional tray heater on)<br>Average: 13 W (Copying/printing), 15 W (Optional Tray Heater On) |
| Weight: | 12 kg (26.4 lb.) |
| Size (W x D x H): | 550 mm x 520 mm x 134 mm |

## Two-Tray Paper Tray Unit

| | |
|---|---|
| Paper Size: | A5 to A3<br>$5^1/_2$" 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, 5 Vdc (from the copier/printer)<br>120 Vac: 120 V version, from the copier/printer when the optional tray heater is installed<br>220 – 240 Vac: 230 V version, from the copier/printer when the optional tray heater is installed |
| Power Consumption: | Max: 30 W (Copying/printing), 23 W (Optional Tray Heater On)<br>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 |

## Duplex Unit

| | |
|---|---|
| Copy Paper Size: | Maximum: A3/11" x 17"<br>Minimum: A5/$5^1/_2$" x $8^1/_2$" |

| Copy Paper Weight: | 64 – 105 g/m$^2$ (20 – 28 lb.) |
| --- | --- |
| Power Consumption: | 30 W |
| Weight: | 11 kg (24.2 lb.) |
| Size (W x D x H): | 550 mm x 620 mm x 112 mm |

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