Neptune-P1
Machine Code: G180

SERVICE MANUAL

Safety, Conventions, Trademarks

Safety

PREVENTION OF PHYSICAL INJURY

1. Before disassembling or assembling parts of the machine and peripherals, make sure that the machine and peripheral power cords are unplugged.

2. The plug should be near the machine and easily accessible.

3. Note that some components of the machine and the paper tray unit are supplied with electrical voltage even if the main power switch is turned off.

4. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.

5. If the [Start] key is pressed before the machine completes the warm-up period (the [Start] key starts blinking red and green), keep hands away from the mechanical and the electrical components as the machine starts making prints as soon as the warm-up period is completed.

6. The inside and the metal parts of the fusing unit become extremely hot while the machine is operating. Be careful to avoid touching those components with your bare hands.

7. To prevent a fire or explosion, keep the machine away from flammable liquids, gases, and aerosols.

HEALTH SAFETY CONDITIONS

1. Never operate the machine without the ozone filters installed.

2. Always replace the ozone filters with the specified types at the proper intervals.

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

OBSERVANCE OF ELECTRICAL SAFETY STANDARDS

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

SAFETY AND ECOLOGICAL NOTES FOR DISPOSAL

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

2. Dispose of used toner, developer, and organic photoconductors in accordance with local regulations. (These are non-toxic supplies.)

3. Dispose of replaced parts in accordance with local regulations.

4. When keeping used lithium batteries in order to dispose of them later, do not put more than 100 batteries per sealed box. Storing larger numbers or not sealing them apart may lead to chemical reactions and heat build-up.
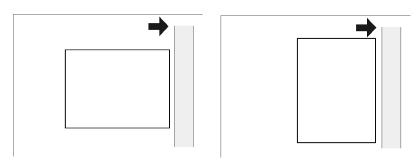
⚠️CAUTION

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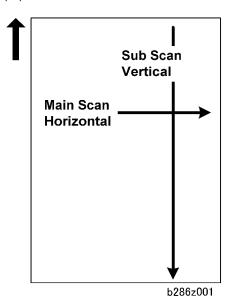
Conventions and Trademarks

Conventions

Symbol	What it means
CT	Core Tech Manual
🔩	Screw
🔌	Connector
C	E-ring
⊙	C-ring
🗜	Harness clamp
FFC	Flexible Flat Cable (ribbon connectors)

SEF (Short Edge Feed)

LEF (Long Edge Feed)

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

b286z001

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

Warnings, Cautions, Notes

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

⚠ WARNING

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

⚠ CAUTION

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

⭐ Important

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

⬇ Note

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

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1. Installation

Preparation

Environment


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%Rh
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b286i900

1. Temperature Range: 10 °C to 30 °C (50 °F to 86 °F)

2. Humidity Range: 15% to 90% RH

3. Ambient Illumination: Less than 1,500 Lux (do not expose the machine directly to light from the sun).

4. Ventilation: More than 30 m^3/hr/person in the work area

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

6. If the installation area has air-conditioners or heaters, put the machine in a location where:

    • There are no sudden temperature changes from low to high, or high to low.

    • The machine will not be directly exposed to cool air from an air conditioner in the summer.

    • The machine will not be directly exposed to reflected heat from a space heater in the winter.

7. Do not install the machine in an area filled with gases that can cause corrosion.

8. Do not install the machine in areas higher than 2,000 m (6,600 ft) above sea level.

9. Put the machine on a strong and level surface.

⭐Important

- The floor must be able to support a load of more than 2.94 kPa (300 kgf/m^2).

10. Do not install the machine in an area where there are frequent strong vibrations.

Minimum Space Requirements

Back:
600 mm

Left:
600 mm

Right:
600 mm

Front:
1000 mm

b286i520

1. Front: 1000 mm (40")
2. Back: 600 mm (23")
3. Right: 600 mm (23")
4. Left: 600 mm (23")

Machine Level

1. Front to back: Not more than 5 mm from level
2. Right to left: Not more than 0.15/1000 mm from level.

1

Power Source

⚠️ **WARNING**

- This machine is provided with a circuit breaker that cuts the power supply to the main machine in case of a current overload or short circuit. The machine must be installed in a building where circuit breakers (and equivalent devices) can operate properly.

1. Input Voltage Level:
   - 120V, 60 Hz, 15 A or more
   - 220-240V, 50/60 Hz, 10A or more
2. Permissible Voltage Fluctuation: ±10%
3. Do not set objects on the power cord.

🔽 **Note**

- Make sure the plug is firmly inserted in the outlet.
- Do not connect the machine to a power source that is shared with other equipment.

Installation Overview

Installation Flow

🔽 **Note**

- The Roll Feeder (B852) is required for this installation. You can also install a universal Paper Cassette in the roll feeder. You cannot install the paper cassette without the roll feeder.

Here is a summary of the sequence recommended for installation of all these options together.

Installation Flow Diagram

Pre-Installation	
Remove the machine from its box. Remove all packing material and tape. Put the machine on the roll feeder. The roll feeder must be installed.	
▼	
Roll Feeder Installation	
▼	
Install Paper Cassette	
▼	

SP and User Tool Settings for Installation	
Do all the SP and User Tool settings for the machine and installed options.	
▼	
Final Installation	
Complete the installation of the machine after you put it on the roll feeder and after you install all options. Do some sample prints to check the operation of the machine and installed options.	
▼	
MFP Options (Board/SD Card Options)	
Install the MFP options and do a function check.	
▼	
Folder Unit	
Install the Folder Unit last. The MFP options must be installed before the folder unit because the folder unit will block access to the board and SD card slots.	

SP and User Tool Settings Required for Installation

This is a summary of the important SP and User Tool settings that are necessary for this installation.

Main Machine Installation

SP2801-2	Lot Number 1	Enter the toner lot numbers at installation before doing SP2801-1
SP2801-3	Lot Number 2	
SP2801-1	Developer Initial Setting	Mixes developer and initializes the ID sensor.
SP2923-1	Execute Cleaning Blade Replace Mode	Applies a thin layer of toner to the drum. This prevents scratches on the drum when the machine power comes on for the first time.
SP3001	ID Sensor Initial Setting - Initialization	Initializes the ID sensor after toner has been applied to the drum.
[Menu] Paper Size Paper Type	[Menu]> "Paper Input"> "Paper Size"/"Paper Type"> Tray n	Sets the paper size/paper type for each tray: • Tray 1: Roll 1 • Tray 2: Roll 2 • Tray 3: Cassette • Bypass

1

[Menu] Language	[Menu]:> "Language"	Select the desired language if it has not been selected.
[Menu] Date Time	[Menu]> "Maintenance"> "Timer Settings"> "Set Date" and "Set Time"	Check the date and time setting. If they are not correct, set the correct date and time.

Roll Feeder Installation

SP	Adjustment	
1920	Cut Length Adjustment	
	Sets the cut length settings for the rolls installed in the roll feeder. These settings are different for each machine. The settings are on a label attached to the right side of the roll feeder drawer.	
1920-111	Cut Length Adjustment: 1st Roll:297 mm:Plain Paper	Adjust for 1st Roll
1920-115	Cut Length Adjustment: 1st Roll: 1189 mm:Plain Paper	
1920-211	Cut Length Adjustment: 2nd Roll: 297 mm:Plain Paper	Adjust for 2nd Roll
1920-215	Cut Length Adjustment: 2nd Roll: 1189 mm:Plain Paper	
1001-1	Leading Edge Registration – 1st Roll	Adjust for 1st roll.
1001-2	Leading Edge Registration – 2nd Roll	Adjust for 2nd roll.
1002-1	Side-to-Side Registration – 1st Roll	Adjust for 1st roll
1002-2	Side-to-Side Registration – 2nd Roll	Adjust for 2nd roll.

Paper Cassette
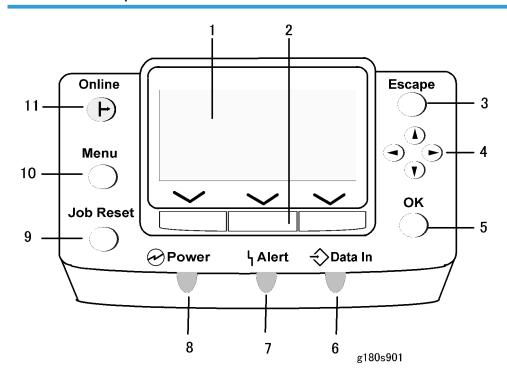
1001-3	Leading Edge Registration – Cassette	Adjust for Paper Cassette B853.
1002-3	Side-to-Side Registration – Cassette	

MFP Options

5985-1	Device Setting – On Board NIC	Both SP codes must be set to "1" to enable these features.
5985-2	Device Setting – On Board USB	

Operation Panel

Overview of the Operation Panel

g180s901

1. Display

Displays current printer status and error messages. Energy save mode turns off the backlight.

2. Selection keys

These dynamic keys change their function depending on the operation or menu mode. The current functions will be clearly labeled above these keys on the display panel above.

3. [Escape]

In the menu mode or SP mode, returns the display to the previous level. Press repeatedly to leave menu mode and return to standby.

4. Scroll keys

During menu item or setting selection: press [▼] or [▲] to move the highlight up or down, or press [◀] or [▶] to move the highlight left or right, then press [OK] to make the selection. In the menu mode, these arrows appear in the upper right corner to show you how to make the next selection.

5. [OK]

Press this key to select the item or heading currently highlighted on the operation panel.

6. Data In indicator

Flashes while the printer is receiving a print job. Lights when there is a job to be printed.

7. Alert indicator

Lights when an error occurs. Follow prompts on the screen to solve the problem.

8. Power indicator

Lights when the machine is ready to use. Remains off when the power switch is turned off, or when the machine is in the energy save mode.

9. [Job Reset]

Press to cancel a print job in progress.

10. [Menu]

Press to open the menu tree. A summary of the menu tree appears in Section 5 of this manual. For more, please refer to the operating instructions.

11. [Online]

Lights when the printer is online, goes off when the printer is off line. Press this key to toggle the printer offline/online.

Operation Panel Instructions

The operation panel procedures described in this service manual are abbreviated to reduce the needless repetition of words and make procedures easier and faster to read.

Symbol in Text	What It Means
[Escape]	Square brackets denote the name of the operation panel key to press.
[▲]*[▼] for 3 sec.	The asterisk indicates keys that should be pressed at the same time. "Press and hold down the up and down keys together for 3 seconds.
>	A right angle bracket denotes what should appear next on the display, or indicates the next key to press.
" "	Quotation marks denote items (selections, messages, etc.) that appear the display panel of the machine after the previous key press.
[▲] or [▼]	Press either the up or down arrow key on the operation panel.

Symbol in Text	What It Means
[◄] or [►]	Press either the left or right arrow on the operation panel.

Example

What You See in Text	What This Means
1.[Menu]	1. Press the [Menu] key.
2. [▼] or [▲] > "Language"> [OK]	2. Press either the [▼] or [▲] key to display "Language", then press the [OK] key.
3. [▼] or [▲] > Select desired language> [OK]> "Programmed"	3. Press either the [▼] or [▲] key to select the desired language (English, French, etc.). Then press the [OK] key. "Programmed" appears in the upper right corner of the display after pressing [OK].
4. [Escape]> Standby	4. Press the [Escape] key to return to standby mode and continue normal operation of the machine.

Main Machine Installation (G180)

🔽**Note**

- Always have this Service Manual with you. The installation procedures are not shipped with the main machine.
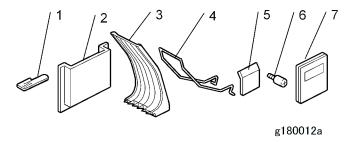
⚠️**CAUTION**

- Never turn the main machine off when the Data In LED is lit or flashing. To avoid damaging the hard disk or memory, always wait for the Data In LED to go off before you switch off the machine.

Accessory Check

Check the accessories and their quantities against the table below.
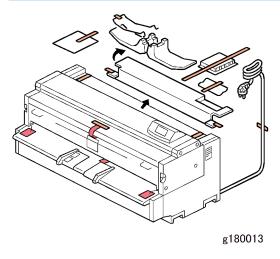
No.	Description	Q'ty
1	Flat Brush (Fusing Unit Guide Spurs)	1
2	Operating Instruction Holder	1
3	Upper Output Stacker	2
4	Upper Output Guide	1
5	Panel: Logo	1
6	Studs	2
7	Operating Instructions (-17)	2
8	CD-ROM (not shown)	2
9	Ferrite Core (not shown)	1

g180012a

Machine Installation Procedure

Removing the Shipping Material

g180013

⚠️CAUTION
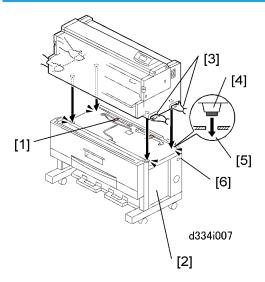
• Do not connect the power cord to the power source during these installation procedures until the procedure tells you to do this.

1. Remove all the orange filament tape and packing materials from the main machine (front and back).

   ⬇️Note

   • Use a clean cloth moistened with alcohol to remove any tape adhesive that remains on the main machine after tape removal.

Setting the Machine on the Roll Feeder (B852)

d334i007

1. Do not remove the shipping tape from the connectors [1] of the roll feeder [2]. This prevents damage to the connectors when the main machine is put on top of the roll feeder.

⚠ CAUTION

- The main machine weighs 100 kg (220 lb.).

- There are two handles in recesses on each side of the main machine. To prevent injury or damage to the main machine, always use these handles [3] to lift the main machine.

- Two or more service technicians are necessary to lift the main machine and set it on the roll feeder.

2. Lift the main machine, and set its rubber feet [4] into the holes [5] on the top of the roll feeder.

   🔸Note

   - With one person at each end of the main machine, use the two handles on each end of the main machine to lift it.

3. Make sure that you put the rubber feet of the main machine into the holes on top of the roll feeder.

4. Check the dehumidifier switch [6] of the roll feeder. Make sure that it is OFF. If it is ON, set it to OFF.

1

g180i020a

5. Remove the covers and screws:

- [1] Left small cover ($\mathbb{F}$ x 2)
- [2] Left upper cover ($\mathbb{F}$ x 2)
- [3] Left screws ($\mathbb{F}$ x 2)
- [4] Right small cover ($\mathbb{F}$ x 2)
- [5] Right upper cover ($\mathbb{F}$ x 2)
- [6] Right screws ($\mathbb{F}$ x 2)

g180i021

6. Open the upper unit.

7. Remove:

    *   [1] Left cover (🖉 x 3)

    *   [2] Right cover (🖉 x 3)

    *   [3] Manual feed table (🖉 x 2). Open the drawer of the roll feeder before removing if the roll feeder is installed.

b286i022

8. Remove the right transport lock plate [1] (🖉 x 4).

9. Remove the left transport lock plate [2] (🖉 x 4).

g180i016

10. Install the studs [1] on the right side and the left side.

⬇ **Note**

- You must fasten each stud in the upper hole [2] on both sides.

d334i005

11. Attach the right joint bracket [1] (the spindle [2] must go through the hole). At the same time, align the plate with the holes for the three screws (blue).

⬇ **Note**
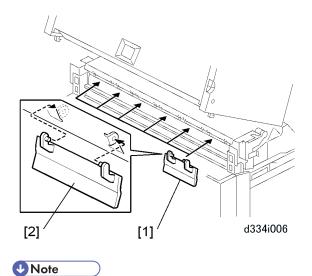
- The joint brackets and screws are provided as accessories with the Roll Feeder (B852).

12. Attach screws ①, ② but do not tighten them.

1

13. While you lift the main machine by its handle [3], set screw ③ in the lower hole of the keyhole cutout and tighten it.

14. Tighten screws ① and ②.

15. Do the above procedure again for the left joint bracket [4].

d334i004b

↓Note

- The guide plate and screws are provided as accessories with the Roll Feeder (B852).

16. Install the guide plate [1] (🖋 x 2 Blue). Hang the hooks on each end to position the plate for correct installation.

[2]   [1]   d334i006

↓Note
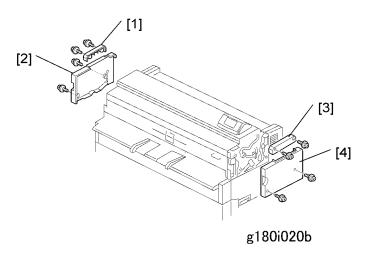
- The movable guide plates are provided as accessories with the Roll Feeder.

17. Attach the movable guide plates [1] (x6).

- Each plate is the same. It is not possible to install a plate in the incorrect position.
- Attach each plate with the ribbed side down.
- Move the hinges [2] a small distance apart. This allows the tabs to attach easily into the holes.

18. Lift each plate and let it fall, to make sure that they move smoothly on the hinges.

19. Reattach the manual feed table.

20. Reattach the left and right covers.

⬇Note

- The flat-head screw must be attached at the rear side of each cover.

21. Close the upper unit.

Leveling the Main Machine and Attaching Leg Covers

g180i020b

1. Remove:

[1] Left small cover ($\mathbb{F}$ x 2)

[2] Left upper cover ($\mathbb{F}$ x 2)

[3] Right small cover ($\mathbb{F}$ x 2)

[4] Right upper cover ($\mathbb{F}$ x 2)

g180i017a

2. Remove the screws from the top cover [1] and slide it to the rear (do not disconnect and remove it) (✐ x 6).

3. Set the level [2] in the center as shown and read its gauge.

g180i008

4. Set the shoes ①, ②, ③, ④ under each corner of the main machine.

5. Use a wrench to adjust the nuts [1] of each foot to raise or lower the main machine at each corner.

⬇️ **Note**

- The main machine must be level side-to-side within ±0.15/m.
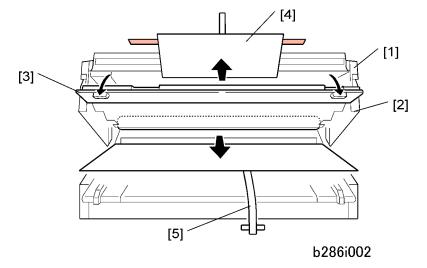
6. Attach the left leg cover [2] and the right leg cover [3].

Developer

b286i002

1. Push up the buttons [1] to release the upper unit. Then open the upper unit [2].

2. Open the toner hopper cover [3].

3. Remove all tape and packing materials [4] in the upper unit.

4. Slowly pull out the drum protection sheet [5].

⭐**Important**

- A developer lot number is embossed on the top edge of each package. Save these top edges after you open each developer package. You will need these numbers when you enter them later with SP2801-2 and -3.

g180i005
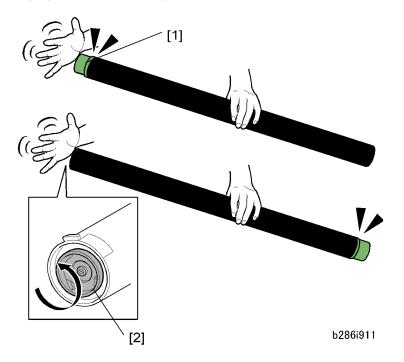
5. Open a 1 kg pack of developer and pour it into the development unit.

⭐ **Important**

> • **Do not add the second pack at this time.**
>
> • Open the first pack of developer [1].
>
> • Slowly add the developer from the first pack into the development unit, as you move the pack from left to right until the pack is empty.
>
> • An equal amount of developer must be spread along the entire open slot of the development unit.

6. Close the toner hopper cover [2].

7. Close the upper unit [3].

8. Connect the power supply cord. Switch the main power switch on. The main motor switches on and distributes the developer evenly inside the development unit.

9. Wait about 10 sec.

10. Turn the main power switch off.

11. Disconnect the power cord.

12. Open the upper unit.

13. Open the toner hopper cover.

14. Open the second 1 kg pack of developer, then slowly add it to the development unit. Move the pack from left to right until it is empty.

15. Use a clean cloth to clean the edges around the slot of the development unit.

16. Close the upper unit.

Toner Cartridge Installation

To prepare a toner cartridge for installation

b286i911
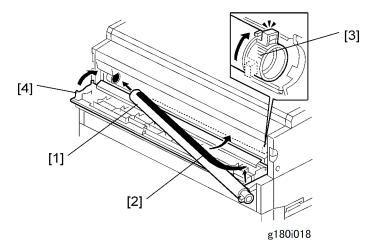
1. Remove the cartridge from its package.

2. Gently tap the capped end of the cartridge [1] 4 or 5 times.

3. Tap the other end of the cartridge 4 or 5 times.

4. Shake the cartridge from side to side 4 or 5 times so the toner moves freely inside the cartridge.

5. Rotate the joint [2] to confirm that it rotates easily. If the joint does not rotate easily, tap the ends of the cartridge and shake it again.

⭐**Important**

- Show the operators this procedure so that they know how to load the cartridge properly.

- If the toner is not loosened inside the cartridge before it is installed, the operator may hear a rattling noise when the main machine is switched on. (The noise is caused by agitators inside the cartridge that disengage if compacted toner prevents them from rotating.)

- Show the operators how to store unused toner cartridges properly. Cartridges must be stored horizontally on a flat surface to prevent toner from clumping together at one end of the cartridge. A toner cartridge should never be stored standing on one end.

To install a toner cartridge

g180i018

1. Set the toner cartridge [1] in the main machine.

2. Pull up the tape [2] then pull it across the toner cartridge from right to left to remove the tape.

3. On the right end of the toner cartridge, push the knob [3] up until it stops.

4. Close the toner hopper cover [4].

5. Switch the main power switch on.
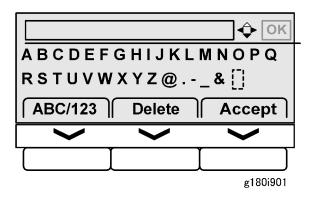
Enter Developer Lot Numbers

⭐ Important
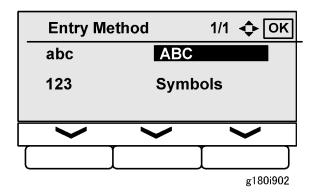
- You must enter the lot numbers with SP2801-2 and -3 before doing SP2801-1. The main machine will return an error ("Failed") if you attempt to do SP2801-1 before SP2801-2 and -3. The lot number is embossed on the flap of the developer pack. If the lot numbers are the same, you must enter them twice (SP2.801-2, SP2.801-3)

This example shows how to enter the lot number: 7C01203. Make sure that you enter the number on your developer pack.
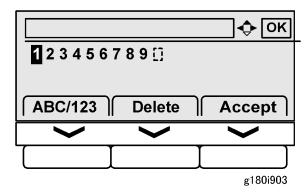
1. Press and hold down [▼] [▲] for at least 3 seconds.

2. Press [OK]

3. [▼]>"Engine"> [OK]

4. [▶]> "2. Drum"> [OK].

5. [◀] or [▶]> "2.001"> [OK]

6. [◀] or [▶]> "2.801"> [OK]

7. [▶]> "2.801.2> [OK]

8. [String In]> [Text]

g180i901

9. This is the alpha character entry screen. However, the first character is a number ("7"), so toggle to the numeric screen: Press [ABC/123].

g180i902
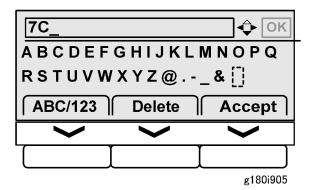
10. [◀] or [▶]> "123"> [OK] to open the numeric entry screen.

g180i903

11. To enter the number "7": [◀] or [▶]> "7"> [OK]

12. The next character is a letter, so to toggle back to the alpha entry screen

   - [ABC/123]

   - [◀] or [▶]> "ABC"> [OK]

g180i904

13. [◀] or [▶]> "C"> [OK]

g180i905
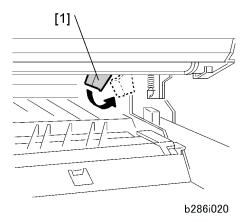
14. The remainder of the lot number consists of numbers, so toggle back to the numeric entry screen:

   • [ABC/123]

   • [◀] or [▶]> "123"> [OK]

15. Enter the remaining digits of the number "01203".

   • [◀] or [▶]> To select the number> [OK]. Do this until all the numbers are entered.

   • If you make a mistake, press the key below "Delete" to backspace and delete the previous number to the left.

   • After entering all the numbers, press the key below "Accept".

16. [Escape]> "2.801.002" (previous level).

17. [▶]> "2.801.003"> [OK]

18. Repeat this procedure to enter the 2nd lot number.

Mix Developer and Initialize ID Sensor

1. Next, do SP2801-1 to mix the developer (and initialize the ID sensor). This takes about 5 minutes.

   • To enter the SP mode press [▼] [▲] for at least 3 sec.> [OK]

   • [▼]> "Engine"> [OK]

- [◀] or [▶]> "2. Drum"> [OK]
- [◀] or [▶]> "2.801.001"> [OK]> [Execute]

2. Do SP2923-001. This applies a thin layer of toner to the bare drum.

   - [Escape]> [Escape]
   - [◀] or [▶]> "2.923.001"> [OK]> [Execute]
   - Press [Escape] 3 times
   - [▼]> "End"> [OK]> Standby

[1]

b286i020

3. Open the upper unit.
4. Push the cleaning-blade release lever [1] to the right.

   Note

   - The cleaning-blade release lever keeps the cleaning blade away from the drum during transportation. To prevent damage to the drum, before you move the main machine to a different location, be sure to push this lever to the left.

5. Close the upper unit.
6. Do SP3001-2 to initialize the ID sensor again. Initialization takes about 15 sec.

   - To enter the SP mode press [◀] [▶] for at least 3 sec.> [OK]
   - [▼]> "Engine"> [OK]
   - [◀] or [▶]> "3. Process"> [OK]
   - [◀] or [▶]> "3.001"> [OK]
   - [◀] or [▶]> "3.001.002"> [OK]> [Execute]

   Note

   - The ID sensor must be initialized again after the cleaning blade has been lowered onto the drum.

7. Exit the SP mode and turn off the main power switch.
8. If you will install one or more of the following options, do these installations at this time:

- **Roll Feeder, Paper Cassette** See p.43 "Roll Feeder (B852)", p.61 "Paper Cassette (B853)"
- **MFP Options**. See p.91 "Installation of MFP Options".
- After installing all options (other than the folder unit/manual feeder), complete main machine installation. See p.37 "Main Machine Final Installation".
- **Folder Unit, Manual Feed**. See p.64 "Folder Unit (B889)",p.83 "Manual Feeder (D333)".

⭐ **Important**

- **The Folder Unit and Manual Feed Unit must be installed after the main machine has been completely installed and leveled.**

Main Machine Final Installation

Select the Tray Paper Size and Type

⬇ **Note**

- Selections are shown only for installed options. If you installed all the options, you will see "Tray Paper Size: Tray 1" (1st Roll), "Tray Paper Size: Tray 2" (2nd Roll), and "Tray Paper Size: Tray 3" (Cassette).

Select the paper size and paper type for the paper feed source.

1. [Menu].
2. [▼]> "Paper Input"> [OK]
3. [▼]> "Paper Size"> "Paper Size: Tray 1"> [OK]
4. [▼] or [▲]> Display the desired paper size.
5. [◀] or [▶]> Select the size in the left or right column> [OK]> "Programmed"
6. [▼] or [▲]> "Paper Type: Tray 1"> [OK]
7. [▼] or [▲]> Select the desired paper type.

   ⬇ **Note**

   - "Plain Paper" is the default setting. This setting is not required if plain paper is loaded in the paper feed source.
   - No Display (Plain Paper)
   - Recycled Paper
   - Translucent Paper
   - Film

8. [OK]> "Programmed". The display returns to the previous level, so that you can do more settings.
9. Repeat this procedure for other paper feed sources.

1

- Paper Size: Tray 2, Paper Type: Tray 2 (Roll 2)

- Paper Size: Tray 3, Paper Type: Tray 3 (Paper Cassette)

- Paper Size: Bypass, Paper Type Bypass (Bypass Tray)

10. [Menu]> Standby mode
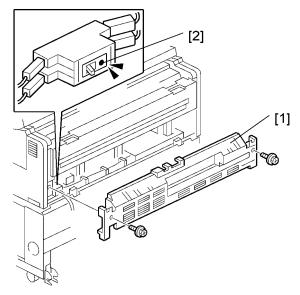
Testing the Main Machine Circuit Breaker

⭐ Important

- Follow the procedure below to test the operation of the circuit breaker. This must be done at installation and at least once a year after installation.

1. Plug the main machine power cord into its power source and make sure that the main machine power is off.

    ⭐ Important

    - Do not turn on the main machine. The main machine must be off.
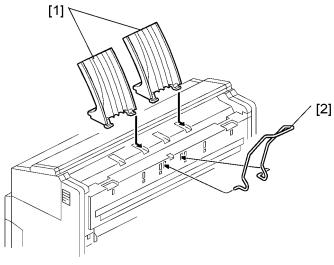
b286r151

2. Remove the rear cover [1] (🖉x2)

3. Use the tip of a small screwdriver to depress the breaker test button.

    - The breaker switch should flip from "|" to "O". This indicates that the breaker switch is operating normally.

    - If the breaker switch does not flip to "O", the switch must be replaced.

4. Push the breaker lever to display "|" again and reset the main machine for normal operation.

⭐**Important**
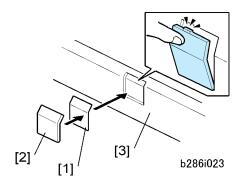
- **The main machine power will not turn on if the switch [2] remains at "O".**

5. Reattach the rear cover.

Main Machine Accessories
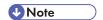
g180i007

1. Attach both upper output stackers [1].
2. Attach the upper output guide [2].

b286i023
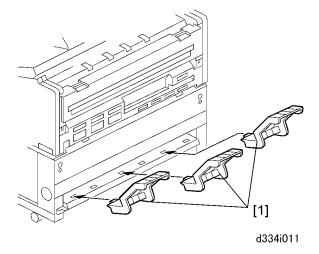
3. Attach the emblem [1] and panel [2] to the toner hopper cover [3].

⬇**Note**
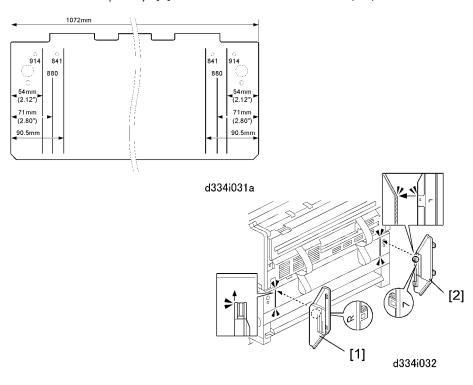
- Push the panel in until the emblem and panel move into their positions with an audible click.

1

Roll Feeder Accessories
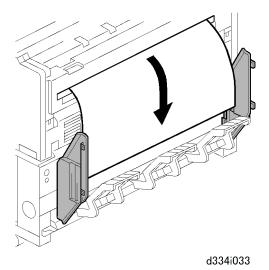
d334i011

1. Attach the lower output trays [1] to the lower rear of the roll feeder (x 3).

d334i031a

[1]   d334i032   [2]

> 🔸**Note**
>
> • The lines and numbers embossed on the back of the main machine (see the upper left of the above diagrams) show where to position the exit guide plates for different paper widths.

2. Position the right exit guide plate [1] as shown, then attach it with its magnet.

3. Position the left exit guide plate [2] as shown, then attach it with its magnet.

d334i033

4. Do a test print to confirm that the paper exits the main machine straightly and smoothly between the guide plates.

Printer Check

Do a test print.

1. [Menu]

2. [▼] or [▲]> "List/Test Print"> [OK].

3. [▼]> "Config. Page"> [OK]> "Config. Page Printing..."

If the printed text is not positioned correctly, do SP2902 and select Pattern 11. For more about adjustments, see p.180 "SP Adjustments".

Paper Roll Adjustments (Tray 1, Tray 2)

SP No.	Name
1001-1	Leading Edge Registration – 1st Roll
1001-2	Leading Edge Registration – 2nd Roll
1002-1	Side-to-Side Registration – 1st Roll
1002-2	Side-to-Side Registration – 2nd Roll

Paper Cassette Adjustments (Tray 3)

SP No.	Name
1001-3	Leading Edge Registration – Cassette (B853)
1002-3	Side-to-Side Registration – Cassette (B853)

Bypass Tray Adjustments (Bypass)

SP No.	Name
1001-5	Leading Edge Registration – Bypass
1002-5	Side-to-Side Registration – Bypass

Enable Onboard NIB, USB Functions

Do SP5985 (Device Setting) to enable the onboard NIB and USB features built into the GW Controller board.

Note

- The default setting of SP5985 is "0" (Disable). This SP must be set to "1" in order to use the built-in NIB and USB functions.

Moving the Machine

- If you will move the main machine to a different building, open the paper feed section and push the cleaning blade lever to the left. This keeps the cleaning blade away from the drum while you move the main machine.

- If you will move the main machine to a different location in the same building, it is not necessary to set the lever to the left, and it is not necessary to disconnect the main machine from the roll feeder.

   Important

   - Always push low on the roll feeder to move the main machine. If you do not do this, you can twist and possibly cause damage to the main machine. Do not push on the main machine while it is installed on top of the roll feeder.

- To prepare the main machine for transport to a different building, disconnect the main machine and the roll feeder. Tape the drawer of the roller feeder so that it remains closed during transport.

- Lift the main machine with one person on each end of the main machine. Be sure to use the handles in recesses on the sides of the main machine.

- To prevent developer and toner spill, never tilt the main machine more than 30° from the horizontal.

Roll Feeder (B852)

⭐ **Important**
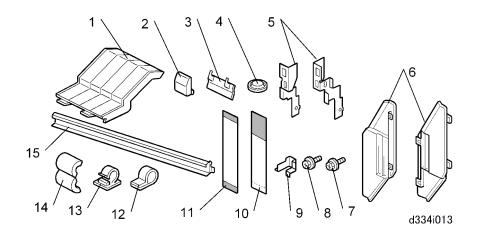
- The Roll Feeder (B852) must be installed to use the machine (G180).

Accessory Check

Check the accessories and their quantities against the table below.
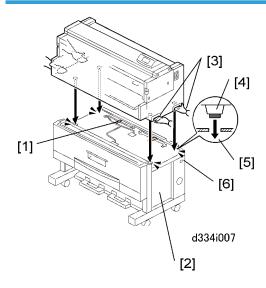
No.	Description	Q'ty
1	Lower Output Trays	3
2	Leg Covers	2
3	Movable Guides	6
4	Shoes	4
5	Joint Brackets (Left, Right)	2
6	Exit Guide Plates	2
7	Screws (Cosmetic Silver)	4
8	Screws (Blue)	9
9	Harness Brackets	2
10	Mylars – Wide	2
11	Mylars – Narrow	2
12	Nylon clamp	1
13	Harness clamp	1
14	Ferrite Core (for B275)	1
15	Guide Plate	1

d334i013

Roll Feeder Installation Procedure

Setting the Main Machine on the Roll Feeder

d334i007

1. Do not remove the shipping tape from the connectors [1] of the roll feeder [2]. This prevents damage to the connectors when the main machine is put on top of the roll feeder.

   ## ⚠ CAUTION

   - The main machine weighs 100 kg (220 lb.).

   - There are two handles in recesses on each side of the main machine. To prevent injury or damage to the main machine, always use these handles [3] to lift the main machine.

- Two or more service technicians are necessary to lift the main machine and set it on the roll feeder.

2. Lift the main machine, and set its rubber feet [4] into the holes [5] on the top of the roll feeder.

⬇Note

- With one person at each end of the main machine, use the two handles on each end of the main machine to lift it.

3. Make sure that you put the rubber feet of the main machine into the holes on top of the roll feeder.

4. Check the dehumidifier switch [6] of the roll feeder. Make sure that it is OFF. If it is ON, set it to OFF.

Opening the Roll Feeder and Removing Shipping Material

⭐Important

- The drawer of the roll feeder is locked and cannot be opened until the main machine is set on top of the roll feeder.

- Do not try to open the drawer of the roll feeder until after you set the main machine on top of the roll feeder.

d334i901a
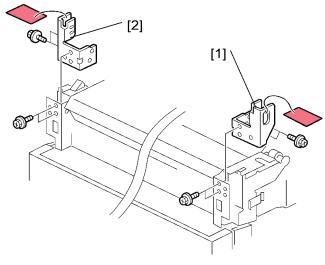
1. Open the drawer [1] of the roll feeder.

2. Remove the spring lock plate [2] (🔩 x 2).

3. Remove the roll paper holders [3] and cardboard packing [4].

4. Remove other tape or packing material in the roll feeder.

5. Remove the shipping lock plate [5] (🔩 x 2).

1

g180i020a
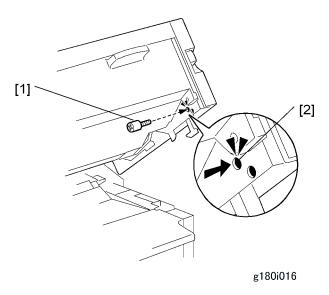
6. Remove the covers and screws:

- [1] Left small cover (✏ x 2)
- [2] Left upper cover (✏ x 2)
- [3] Left screws (✏ x 2)
- [4] Right small cover (✏ x 2)
- [5] Right upper cover (✏ x 2)
- [6] Right screws (✏ x 2)

1

g180i021
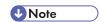
7. Open the upper unit.

8. Remove:

- [1] Left cover ($\mathbb{F}$ x 3)

- [2] Right cover ($\mathbb{F}$ x 3)

- [3] Manual feed table ($\mathbb{F}$ x 2). Open the drawer of the roll feeder before removing if the roll feeder is installed.
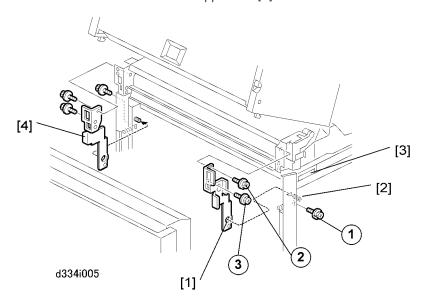
b286i022

9. Remove the right transport lock plate [1] ($\mathbb{F}$ x 4).

10. Remove the left transport lock plate [2] ($\mathbb{F}$ x 4).

1

g180i016

11. Install the studs [1] on the right side and the left side.

   ↓Note

   • You must fasten each stud in the upper hole [2] on both sides.

d334i005
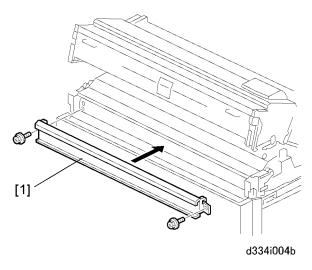
12. Attach the right joint bracket [1] (the spindle [2] must go through the hole). At the same time, align the plate with the holes for the three screws (blue).

   ↓Note
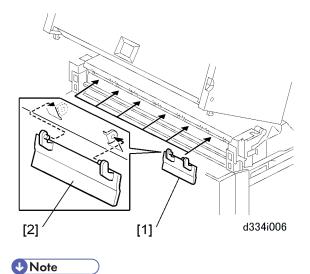
   • The joint brackets and screws are provided as accessories with the roll feeder.

13. Attach screws ①, ② but do not tighten them.

14. While you lift the main machine by its handle [3], set screw ③ in the lower hole of the keyhole cutout and tighten it.

15. Tighten screws ① and ②.

16. Do the above procedure again for the left joint bracket [4].

d334i004b

↓Note

- The guide plate and screws are provided as accessories with the roll feeder.

17. Install the guide plate [2] (🔩 x 2 Blue). Hang the hooks on each end to position the plate for correct installation..

[2]   [1]   d334i006

↓Note
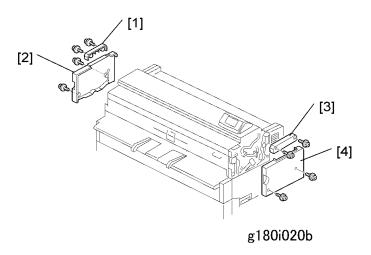
- The movable guide plates are provided as accessories with the roll feeder.

18. Attach the movable guide plates [1] (x6).

- Each plate is the same. It is not possible to install a plate in the incorrect position.
- Attach each plate with the ribbed side down.
- Move the hinges [2] a small distance apart. This allows the tabs attach easily into the holes.

19. Lift each plate and let it fall, to make sure that they move smoothly on the hinges.

20. Reattach the manual feed table.

21. Reattach the left and right covers.

↓Note
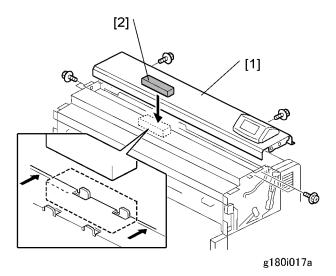
- The flat-head screw must be attached at the rear side of each cover.

22. Close the upper unit.
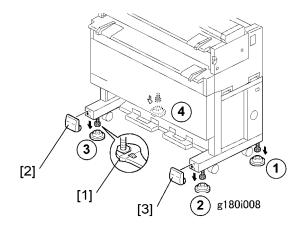
Leveling the Main Machine and Attaching Leg Covers

g180i020b

1. Remove:

[1] Left small cover (✎ x 2)

[2] Left upper cover (✎ x 2)

[3] Right small cover (✎ x 2)

[4] Right upper cover (✎ x 2)

1

g180i017a

2. Remove the screws from the top cover [1] and slide it to the rear (do not disconnect and remove it) (🔩 x 6).

3. Set the level [2] in the center as shown and read its gauge.

g180i008

4. Set the shoes ①, ②, ③, ④ under each corner of the main machine.

5. Use a wrench to adjust the nuts [1] of each foot to raise or lower the main machine at each corner.

⬇Note

• The main machine must be level side-to-side within ±0.15/m.
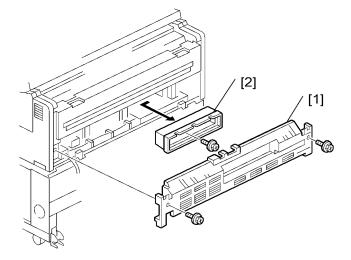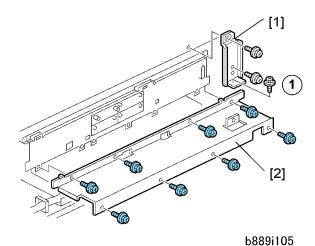
6. Attach the left leg cover [2] and the right leg cover [3].

Connecting the Main Machine and Roll Feeder
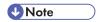
b286i914a
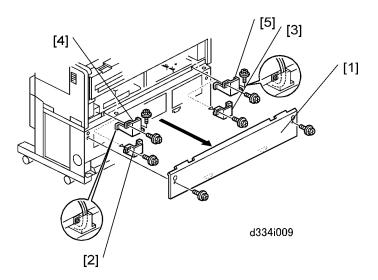
1. Remove the rear cover [1] of the main machine (🖉x2).
2. Remove the cover of the controller unit [2] (🖉x1).

b889i105
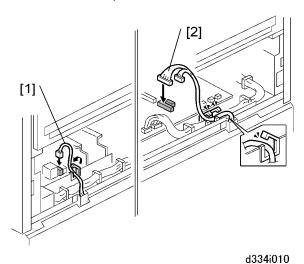
3. Remove the ground plate [1] (🖉 x 3).

    🔽Note
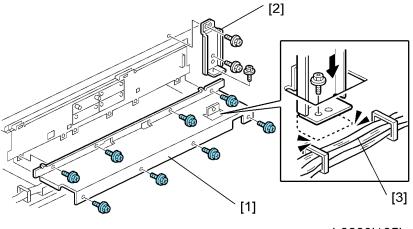
    • Open the paper exit cover (C1) and paper exit unit (C2) together to remove screw ① (the vertical screw).

4. Remove the shield cover [2] (🖉 x 8).

1

d334i009

5. Remove the rear plate [1] of the roll feeder (✐ x 2).

6. Remove the metal brackets [2], [3] (✐ x 1 each). Discard these brackets and screws.

7. Remove the shipping tape from the roll feeder harnesses between the bottom of the main machine and top of the roll feeder.

8. Route the harness (▤ x 1) through bracket [4] then attach the bracket (✐ x 2). (Use one screw from the accessories.)

9. Route the harness (▤ x 2) through bracket [5] and then attach the bracket (✐ x 2). (Use one screw from the accessories).

d334i010

10. Connect the left harness [1] to **CN103** on the PSU (▤ x 1, ▧ x 1).

11. Connect the right harness [2] to **CN220** and **CN221** on the MCU (▤ x 2, ▧ x 3).

1

b8889i105b

12. Reattach:

- [1] Shield cover ($\mathscr{F}$ x 8)
- [2] Ground plate ($\mathscr{F}$ x3)
- Roll feeder rear plate ($\boxed{\equiv}$ x 2)

⚠ CAUTION

- When you reattach the ground plate, make sure that no harness wires [3] below are pinched between the bottom of the frame and bottom of the ground plate.
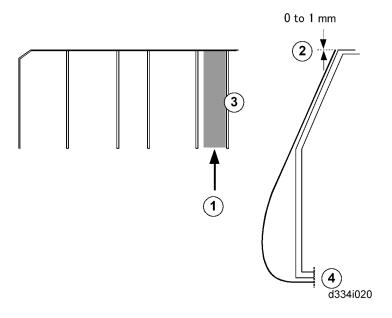
13. Reattach:

- Controller box cover
- Rear cover

⭐ **Important**

- **Open and close the paper exit cover C1 and paper exit unit C2 together to confirm that the rear cover is installed correctly. If the paper exit cover does not open properly, remove the rear cover and install it again.**
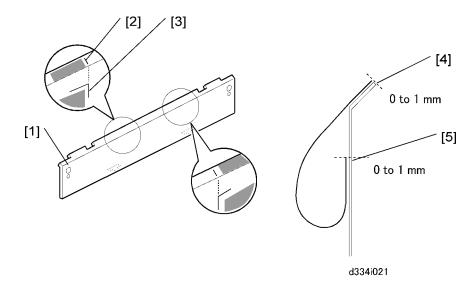
Attaching the Narrow Mylars to the Main Machine

0 to 1 mm

d334i020

1. Find the 5th space ① from the left end of the rear cover.
2. Use a clean cloth, moistened with a small amount of alcohol, to clean this area and the bottom edge of the cover.
3. Remove the tape from each end of one of the narrow mylars.
4. Attach one end to the top edge of the cover ②.

   🔽 Note
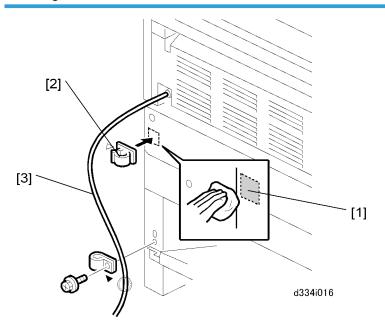
   - The top edge must be flat and parallel to the edge of the cover. The right edge of the mylar must be parallel to ridge ③.

5. Attach the other end of the mylar to the bottom edge of the cover ④.
6. Do this procedure again to attach the other narrow mylar to the right side of the cover.

1

Attaching the Wide Mylars to the Back of the Roll Feeder

d334i021

1. On the left side of the rear plate [1], find the straight line [2] and ⌐, ⌐ patterns [3].

2. Use a clean cloth, moistened with a small amount of alcohol, to clean this area and the bottom edge of the cover.

3. Remove the tape from each end of one of the wide mylars.

4. Align the end with the narrow tape with the top edge [4] of the rear plate. Make sure that the right edge is parallel to the vertical lines on the plate, then push down.

5. Turn the end with the wide tape against the plate, and align its corner [5] with the inverted "L" pattern embossed on the plate, then push it against the rear plate.

6. Make sure that the tape surfaces are pushed fully against the rear plate.

7. Reattach the rear cover of the main machine (🖉 x 2).

Securing the Power Cord

[2]

[3]

[1]

d334i016

1. Clean the rear plate [1] with alcohol.

2. Attach the harness clamp [2].

3. Clamp the power cord [3] to the roll feeder ($\mathscr{O}$ x 1).

Installing the Paper Rolls
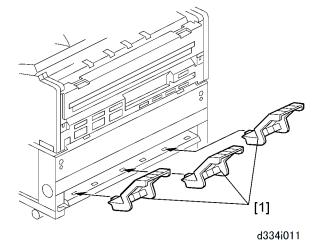
If you will install the optional paper cassette (see p.61 "Paper Cassette (B853)"), do this before you install the paper rolls.

If you do not install the paper cassette first, you must remove Roll 2 before you can install the optional paper cassette.

⬇ **Note**
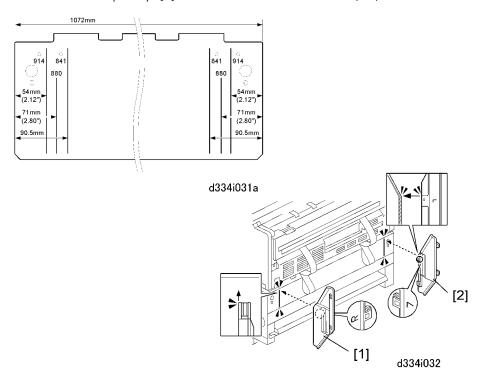
- To install the paper rolls, follow the instructions on the decal on the top edge of the roll feeder drawer.

1

Attaching the Lower Output Tray, Exit Guide Plates
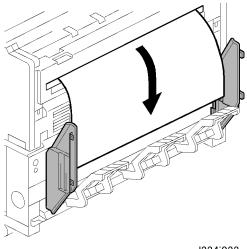
d334i011

1. Attach the lower output trays [1] to the lower rear of the roll feeder (x 3).

d334i031a

d334i032

[1]   [2]

🔸**Note**

- The lines and numbers embossed on the back of the main machine (see the upper left of the above diagrams) show where to position the exit guide plates for different paper widths.

2. Position the right exit guide plate [1] as shown, then attach it with its magnet.

3. Position the left exit guide plate [2] as shown, then attach it with its magnet.

d334i033

4. Do a test print to confirm that the paper exits the main machine straightly and smoothly between the guide plates.

Entering the Cut Length Adjustment

1. Do the settings for SP1920. These are the cut length SP settings for the rolls (there are two settings for each roll).

2. Check the label on the right side of the roll feeder drawer. Do the settings written on the label.

Roll	SP No.	Name
Roll 1	1920-111	Cut Length Adjustment: 1st Roll:297 mm:Plain Paper
Roll 1	1920-115	Cut Length Adjustment: 1st Roll:1189 mm:Plain Paper
Roll 2	1920-211	Cut Length Adjustment: 2nd Roll:297 mm:Plain Paper
Roll 2	1920-215	Cut Length Adjustment: 2nd Roll:1189 mm:Plain Paper

1. Switch the main power switch off, then switch it on again.

Setting Paper Sizes/Types for the Tray 1 (1st Roll), Tray 2 (2nd Roll)

1. [Menu].

2. [▼]> "Paper Input"> [OK]

3. [▼]> "Paper Size"> "Paper Size: Tray 1"> [OK]

4. [▼] or [▲]> Display the desired paper size.

5. [◀] or [▶]> Select the size in the left or right column> [OK]> "Programmed"

6. [▼] or [▲]> "Paper Type: Tray 1"> [OK]

7. [▼] or [▲]> Select the desired paper type.

   🔽Note

   • "Plain Paper" is the default setting. This setting is not required if plain paper is loaded in the paper feed source.

   • No Display (Plain Paper)

   • Recycled Paper

   • Translucent Paper

   • Film

8. [OK]> "Programmed". The display returns to the previous level, so that you can do more settings.

9. Repeat this procedure for other paper feed sources.

   • Paper Size: Tray 2, Paper Type: Tray 2 (Roll 2)

10. [Menu]> Standby mode

1

Paper Cassette (B853)

⭐ **Important**
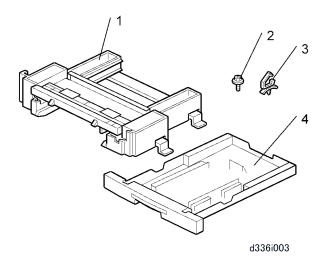
- The Paper Cassette (B853) is installed in the Roll Feeder (B852).

Accessory Check

Check the accessories and their quantities the table below.
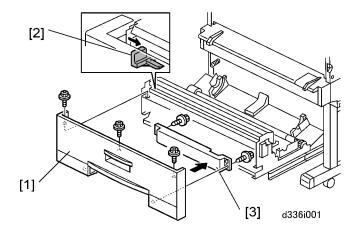
No.	Description	Q'ty
1	Paper Cassette Unit	1
2	Screws	4
3	Harness Clamps	4
4	Paper Cassette (Universal Type)	1

d336i003

Paper Cassette Installation Procedure

⚠️ **CAUTION**
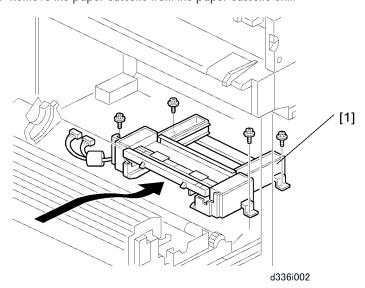
- Confirm that the machine is switched off and that the power cord is disconnected from the power source before doing this procedure.

d336i001
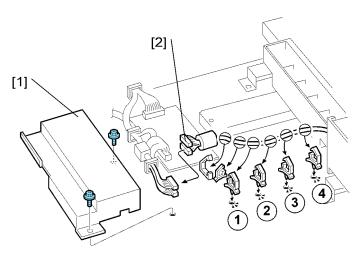
1. Open the drawer of the roll feeder.

2. Remove the front cover [1] of the roll feeder (🖉 x 3)

   Note

   - If you cannot see the screw on the left or right side of the front cover, push the cutter [2] away from the top of the screw.

3. Remove the knockout [3] (🖉 x 2).

4. If Roll 2 is installed, remove it.

5. Remove the paper cassette from the paper cassette unit.

d336i002

6. Remove the rear plate of the roll feeder (🖉 x 2).

7. Put the cassette unit [1] in the roll feeder. The bosses must go through the holes in the flanges of the cassette unit. Then, attach the cassette unit (🖉 x 4).

d336i004

8. From the front, remove the board cover [1] (✂ x 2).

9. Connect the paper-cassette-unit connectors [2] (🔌 x 2) to the roll feeder.

10. From the front, attach the harness clamps ①, ②, ③, ④.

11. Route the connector cable through the open clamps, then close the clamps (🔧 x6).

12. Reattach the board cover, front cover, and rear plate of the roll feeder.

13. Reinstall the paper rolls, and close the drawer of the roll feeder.

14. Put the paper cassette in the paper cassette unit.

15. Set the Paper Size and Type for the Paper Cassette

   - [Menu].
   - [▼]> "Paper Input"> [OK]
   - [▼]> "Paper Size"> "Paper Size: Tray 3"> [OK]
   - [▼] or [▲]> Display the desired units (mm, inch.)
   - [◀] or [▶]> Select the size in the left or right column> [OK]> "Programmed"
   - [▼] or [▲]> "Paper Type: Tray 3"> [OK]
   - [▼] or [▲]> Select the desired paper type.

     ⬇ Note

     - "Plain Paper" is the default setting. This setting is not required if plain paper is loaded in the paper feed source.
   - [OK]> "Programmed". The display returns to the previous level, so that you can do more settings.
   - [Menu]> Standby mode

Folder Unit (B889)

Before You Begin

Safety

⚠️ CAUTION
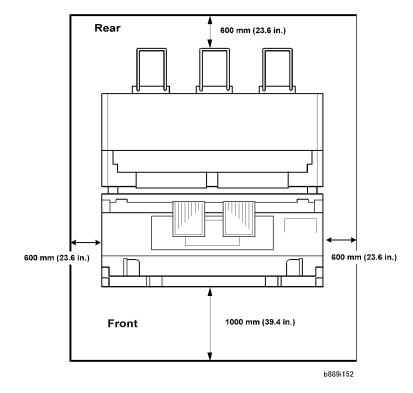
- The folder unit weighs 145 kg (319 lb.) and requires two service technicians to move it and install it safely.

- Before installing the folder unit, switch off the main machine and disconnect its power cord from the main power source.

- Do not reconnect the main machine and switch it on until after the folder installation has been completed.

Location

The environmental specifications of the main machine apply to the folder unit as well.
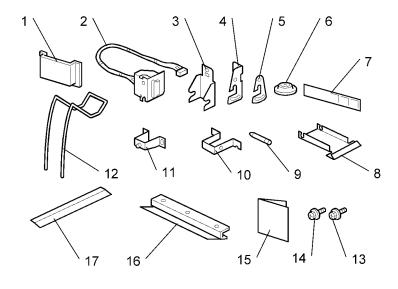
b889i152

Accessories

Check the accessories and their quantities against the table below.

No.	Description	Qty	Comment
1	Operating Instructions Holder	1	
2	Connector Harness	1	
3	Joint Brackets	2	
4	Lock Plate: Right	1	
5	Lock Plate: Left	1	
6	Shoes	4	
7.	Decal	1	
8.	Guide Mylar	1	
9	Pin	2	
10.	Folder Positioning Bracket: Lower	2	
11.	Folder Positioning Bracket: Upper	2	
12.	Rear Copy Tray	3	
13.	Screw (M4x8)	8	For items 3, 4, 5
14.	Screw (M3x6)	15	For items 2, 10, 11, 16
15.	Operating Instructions	1	
16.	Upper Guide Mylars	2	
17.	Mylars	2	
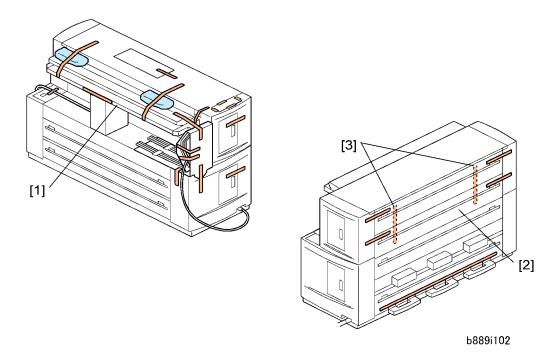
b889i100a

Folder Unit Installation

Removing the Shipping Material

⚠️ CAUTION
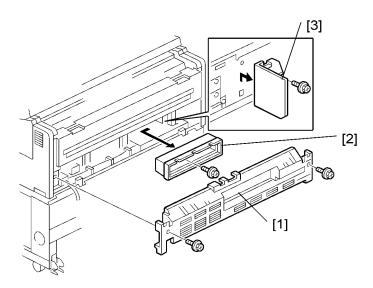
- Do not connect the folder unit power cord to a power source during these procedures until you are specifically instructed to do so.

1

b889i102

1. Remove the filament tape from the front [1] and rear [2].

2. Open the rear doors and remove tapes [3] inside the folder unit.

Removing Covers and Plates
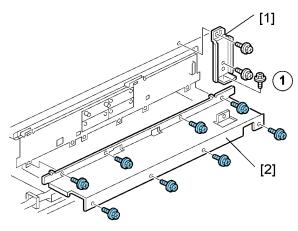
b889i104

1. From the main machine remove:

   - [1] Rear cover ($\mathscr{P}$x2)
   - [2] Controller box cover ($\mathscr{P}$x1)
   - [3] L-plate covering the right terminal of the controller box ($\mathscr{P}$x2).

   ↓Note

   - Discard the plate. Screws are provided as accessories, but you may want to keep the screws if extra screws are needed.
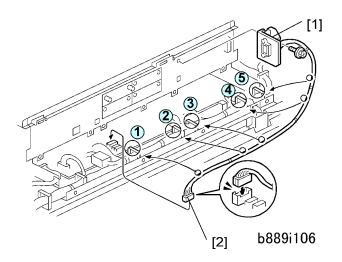
b889i105
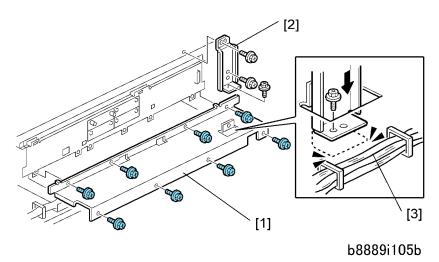
2. Remove:

   - [1] Ground plate ($\mathscr{P}$x3) (Open the paper exit cover **C1** and paper exit unit **C2** to remove vertical screw ①.)
   - [2] PCB shield cover ($\mathscr{P}$x8)

Preparing the Main Machine and Folder

b889i106

1. Fasten the connector harness bracket [1] (🔩x1) where the terminal cover (L-plate) was removed in Step 1.

2. Connect the other end of the connector harness [2] to the MCU board (**CN132**) (🔌x1).

3. Fasten the harnesses at ① to ⑤ with the clamps (🗜x5).

b8889i105b

4. Reattach:

   • [1] Shield cover

   • [2] Ground plate

1

⚠ CAUTION
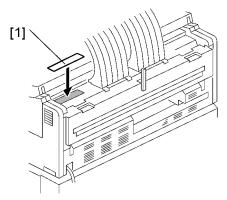
- When you reattach the ground plate, confirm that no harness wires [3] below are pinched between the bottom of the frame and bottom of the ground plate.

5. Reattach:

- Controller box cover
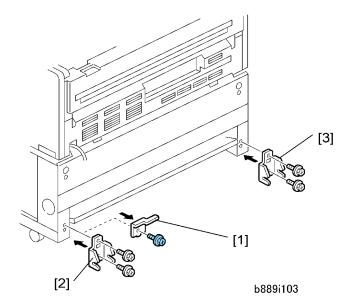
- Rear cover

⭐ **Important**

- **Open and close the paper exit cover C1 and paper exit unit C2 together to confirm that the rear cover is installed correctly. If the paper exit cover does not open properly, remove the rear cover and install it again.**
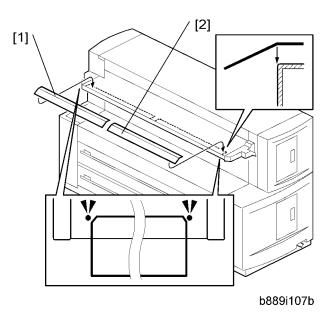
b889i154
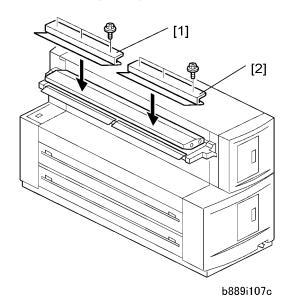
6. Attach the decal [1] over the decal on the main machine..

b889i103
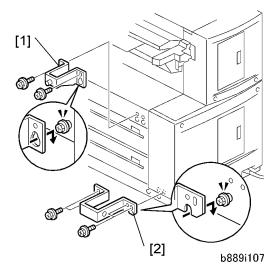
7. Remove the bracket [1] from the main machine ($\mathscr{F}$x1).

8. Attach joint brackets [2] and [3] ($\mathscr{F}$x2 each).

b889i107b
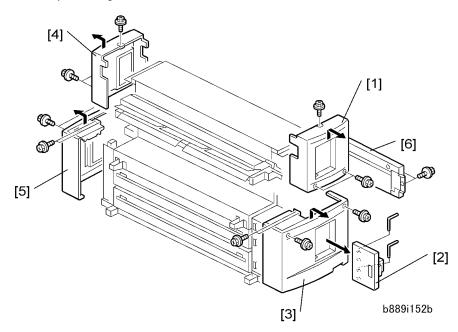
9. Attach the lower guide mylars [1] and [2] to the folder unit.

b889i107c

10. Attach the upper guide mylars [1] and [2] ($\mathscr{F}$x3 each).

b889i107
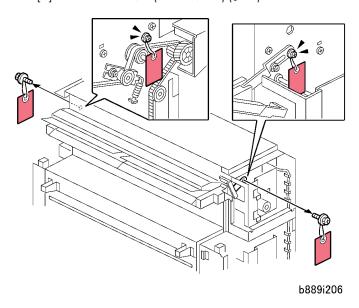
11. On the right front side of the folder unit, attach:

- [1] Folder positioning bracket (upper) (📎x2).
- [2] Folder positioning bracket (lower) (📎x2).

12. On the left front side of the folder unit, attach:

- [1] Folder positioning bracket (upper) (📎x2).
- [2] Folder positioning bracket (lower) (📎x2).

b889i152b
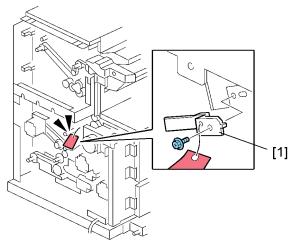
13. Remove:

- [1] Right upper cover (🔩x3)
- [2] Lower door (N7) (L-pins x2)
- [3] Right lower cover (🔩x6)
- [4] Left upper cover (🔩x3)
- [5] Left lower cover (🔩x4)
- [6] Rear bottom cover (rear cover 2) (🔩x2)

b889i206
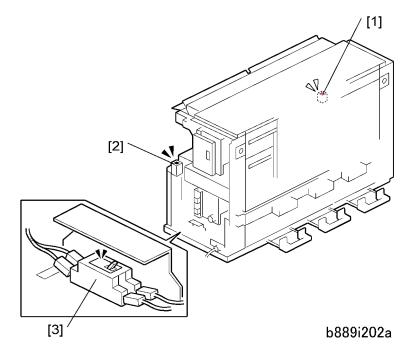
14. Remove the red tags and screws (🔩x1 ea.).

[1]

b889i251

15. On the left side of the machine, remove the shipping clamp [1] and red tag (🔩x1).

Checking the Circuit Breaker

b889i202a

⭐ **Important**
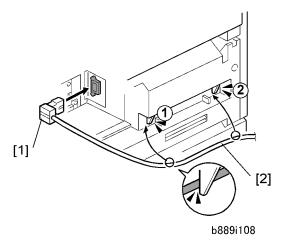
- On the folder unit, check that the main switch [1] and heater switch [2] are off.

1. Connect the folder unit power cord to the power source.

2. Look at the circuit breaker [3].

    - With the horizontal line displayed on the circuit breaker, use the tip of a small screwdriver to depress the breaker test button.

    - The circuit breaker should flip to the "O" position. This indicates that the circuit breaker is operating normally.

    - If the circuit breaker does not flip to the "O" position, the circuit breaker must be replaced.

    - Push the lever to display the horizontal line again and reset the machine for normal operation.

        ⭐ **Important**

        - The folder unit will not switch on if the lever remains at the "O" position.

3. Disconnect the folder unit power cord from the power source.
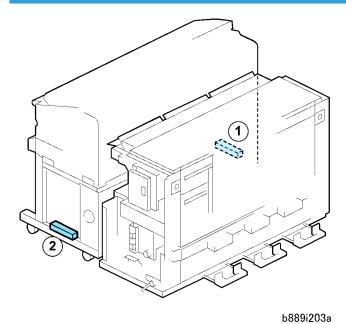
Connecting the Folder Unit Harness

1. Disconnect the power plug of the folder unit from its power source.

b889i108

2. Connect the folder harness [1] to the main machine.

3. Secure the harness [2] under hooks at ① and ②.

Leveling and Docking

b889i203a
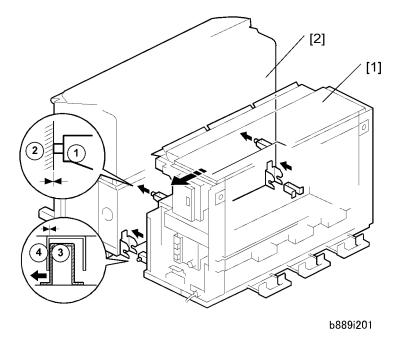
1. Level the main machine.
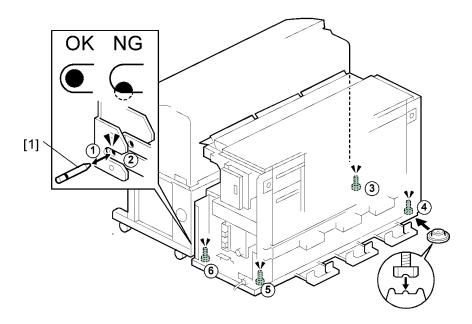
⭐ **Important**

- **The main machine should already have been leveled (side-to-side) at installation. If the main machine has not been leveled side-to-side, this must be done before doing the procedure below (leveling front-to-rear).**

- Set the level on the left bottom support ① and then on the right bottom ② support.

- Use a wrench to turn the nut on the leg at each corner under the machine to adjust the height.

- The machine should be level (front to rear) on both sides to within ±0.15 mm/m.

b889i201
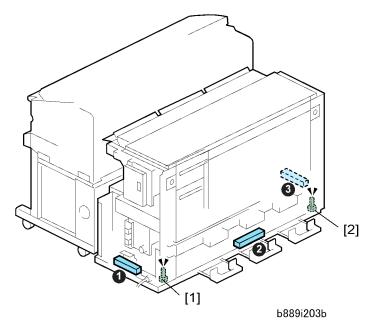
2. Push the folder unit [1] against the back of the machine [2].

3. Make sure that the folder is aligned properly with the back of the main machine.

   - At the top and on both sides, make sure that upper positioning bracket ① of the folder unit is touching the back of the main machine ②. There must be no gap here.

   - At the right bottom side, make sure that the lower positioning bracket ③ of the folder is touching the outer arm of the joint bracket ④ of the main machine.

1
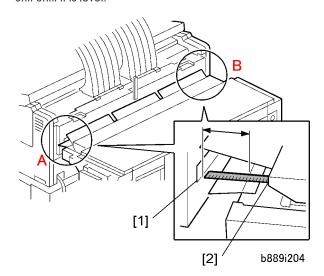
b889i202b

4. On each side of the unit, insert the pin [1] through the arms of the joint bracket ① into the hole in the lower folder positioning bracket ②.

- If the pins cannot be inserted because the holes are not aligned, use a wrench to turn the nuts on the legs under each corner of the folder unit until the holes are aligned.
- ③ and ④ must both be adjusted with the same number of turns.
- ⑤ and ⑥ must both be adjusted with the same number of turns.

5. Remove both pins after you make sure that they can be easily inserted.

1

b889i203b

6. Level the folder.

⭐**Important**
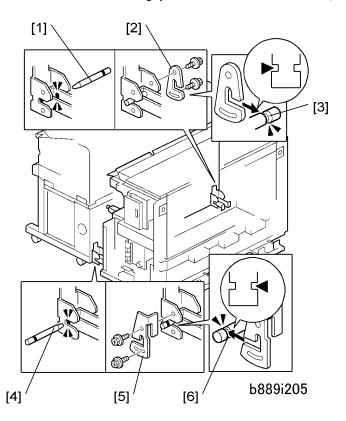
- **The folder unit must be level within ±0.15 mm/m on the right, left, and rear sides.**

- Set the level on each side of the folder as shown above.

- Level the sides of the folder unit in this order: ① right, ② rear, ③ left.

- Use a wrench to adjust the nuts on the right leg [1] and left leg [2] to raise or lower the folder unit until it is level.

b889i204

7. At "A" and "B" measure the gap between the main machine paper exit [1] and the entrance of the folder unit [2].

⭐**Important**
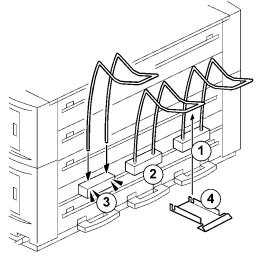
- **The measured widths of gaps "A" and "B" must be the same (±0.5 mm).**

b889i205

8. On the left side:
   - Insert the pin [1]
   - Attach the lock plate [2] (✐×2).

   ⬇️**Note**

     - The shapes of the left lock plate [2] and right lock plate [5] are different.

   - Confirm that the groove of the pin [3] is in the slot of the lock plate.

9. On the right side:
   - Insert the pin [3]
   - Attach the lock plate [4] (✐×2).
   - Confirm that the groove of the pin [6] is in the slot of the lock plate.

10. Reattach all covers and doors.

b889i110

11. Attach the guides of the output tray ①, ②, ③ to the rear of the folder unit.

12. Attach the guide mylar ④ to the middle output tray guide.

Power On

The folder unit must be switched on before the main machine.

1. Switch on the folder unit.

2. Switch on the main machine.

⬇Note

- The folder unit must be switched on first, so that the main machine will recognize the folder unit after the main machine is powered on and starts its initialization procedure.
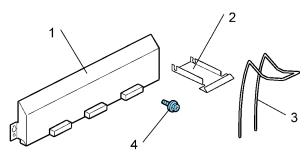
Rear Stacker (D312)

The rear stacker is an optional device installed on the back of the Roll Feeder (B852).

Accessories

Check the accessories and their quantities against the table below.
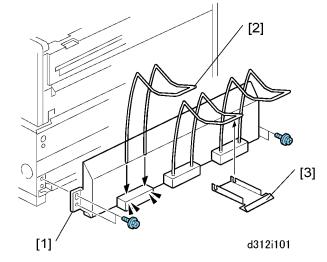
No.	Description	Qty
1.	Copy Tray Holder	1
2.	Guide Mylar	1
3.	Rear Copy Tray	3
4.	Screws (M4x8)	4

d312i100

Installation

d312i101

1. Attach:

- [1] Copy tray holder ($\mathscr{P}$x4)
- [2] Rear copy tray (x3)
- [3] Guide mylar (x1)] to center of copy tray

Manual Feeder (D333)

Before You Begin

1

The manual feeder is installed on top of the folder unit.

Safety

⚠️CAUTION

- The Manual Feeder D333 (hereafter "manual feeder") weighs 31 kg (68.2 lb.) and requires two service technicians to move it and install without bending or warping its shape.

- Before installing the manual feeder: 1) Switch off the main machine and folder unit, 2) Disconnect both the main machine and folder unit from the power source.

- Do not reconnect the main machine and switch it on until after the manual feeder has been installed.

Location
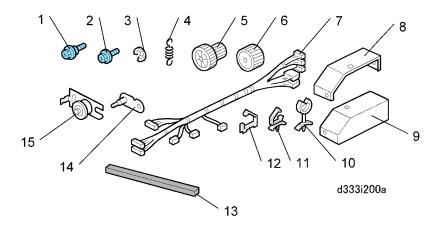
The environmental specifications of the main machine apply to the manual feeder as well.

Accessories

Check the accessories and their quantities against the table below.

No.	Description	Qty
1	Shoulder Screw	1
2	Screw (M3 x 8)	8
3	E-ring	2
4	Spring	1
5	Timing Pulley/Gear	1
6	Gear	1
7	Harness	1
8	Left Cover	1
9	Right Cover	1

No.	Description	Qty
10	Circular Clamp	1
11	Clamps	3
12	Edge Clamps	2
13	Sponge Strips	2
14	Lock Plate	2
15	Tension Bracket	1

d333i200a
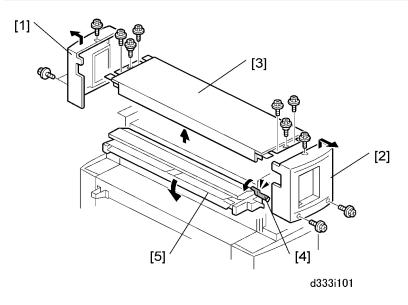
Manual Feeder Installation

⚠️**CAUTION**
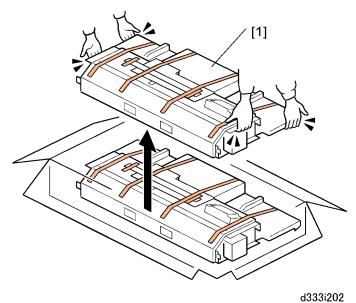
- Confirm that the folder unit is switched off and disconnected from the power source before doing this procedure.

Mounting the Manual Feeder on the Folder Unit

d333i101
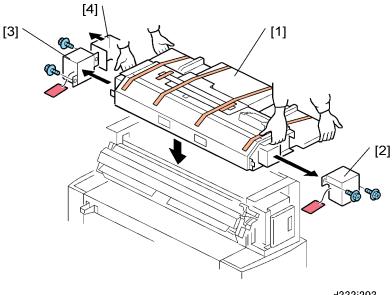
1. Remove:

    - [1] Left cover ($\llcorner$x3)

    - [2] Right cover ($\llcorner$x2)

    - [3] Top cover ($\llcorner$x6)

2. Push down the lever [4] and lower the cover [5].

d333i202

1
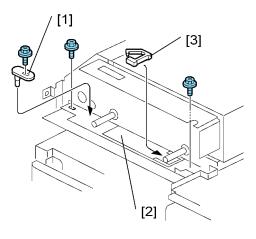
- **To prevent bending warping the manual feeder, two people are required to lift the manual feeder as shown above and place it on the top of the folder unit.**

3. Lift the manual feeder [1] out of the box.
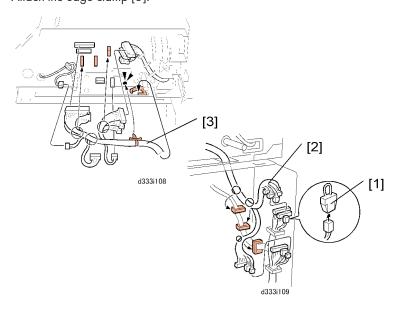
d333i203

4. Set the manual feeder [1] on top of the folder unit.

5. Remove all tapes.

6. Remove:

   [2] Left shipping bracket and red tag (📎x2)

   [3] Right shipping bracket and red tag (📎x2)

   [4] Cardboard bracket

1

Right Side

d333i105
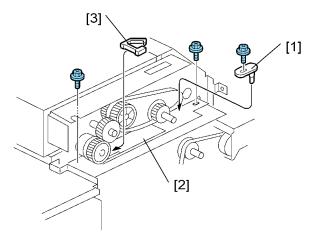
1. Attach and fasten lock pin [1] (🖉x1).

   Fasten the manual feeder [2] to the top of the folder unit (🖉x2).

   Attach the edge clamp [3].

d333i108

d333i109
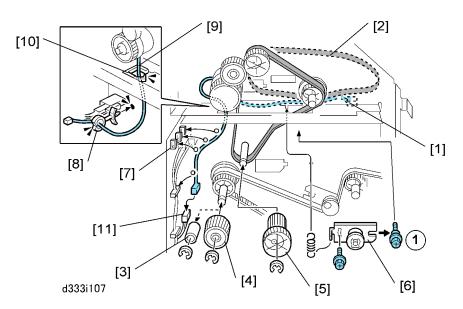
2. Remove the short-circuit connector [1].

3. Route and attach the harness:

   - To the folder unit [2] (🔲x6, 🔲x3)

   - To the manual feeder [3] (🔲x7, 🔲x5)

4. Reattach the right covers

Left Side

d333i106
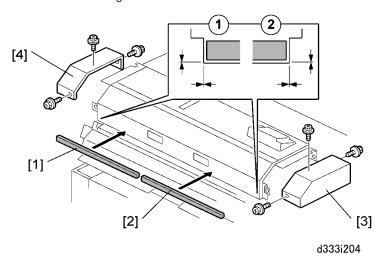
1. Attach and fasten lock pin [1] ($\mathscr{P}$x1).

2. Fasten the manual feeder [2] to the top of the folder unit ($\mathscr{P}$x2).

3. Attach the edge clamp [3].

d333i107

4. Release the clamps holding the harness [1] and timing belt [2], then close the clamps.

5. Route the timing belt as shown above.

6. Remove the bushing [3] ($\mathbb{C}$x1)

7. Attach

- [4] Gear (📎x1)
- [5] Timing pulley/gear (📎x1)
- [6] Tension bracket (🔩x2, Spring x1) (Screw ① s the shoulder screw.)
- [7] Clamps (🗜x3)
- [8] Circular clamp (🗜x1)

8. Route the harness [9] through the edge clamp [10] and close it (🗜x1).

9. Connect the harness [11].

10. Route the harness through the clamps and close them.

11. Reattach the left and right covers of the folder unit.

d333i204

12. Attach:

    [1] Left sponge strip (peel tape from the back)

    [2[Right sponge strip (peel tape from the back)

    ⭐Important

    - **Align the end of the left sponge strip as shown at ①.**
    - **Align the end or the right sponge strip as shown at ②.**

13. Reattach:

    [3] Left Cover (🔩x3)

    [4] Right Cover (🔩x3)

Power On

The folder unit must be switched on before the main machine.

1. Switch on the folder unit.

2. Switch on the main machine.

⬇ Note
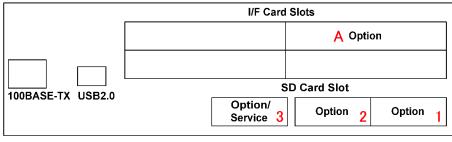
- The folder unit must be switched on first, so that the main machine will recognize the folder unit after the main machine is powered on and starts its initialization procedure. If the main machine is powered on before the folder unit, the folder will not operate because it has not been recognized by the main machine.

Installation of MFP Options

Overview

1

One slot for boards (A) and three slots for SD cards (3, 2, 1) are provided on the controller box. Each board or SD card must be inserted into its assigned slot. The slot assignments of boards and SD cards are written on a decal on the controller box cover.

g180i910a   >PS<

📝 **Note**
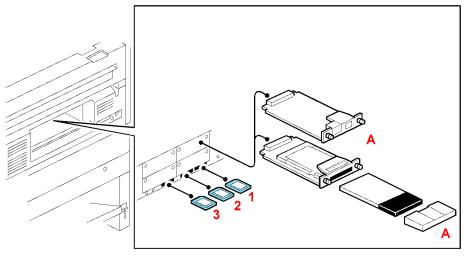
- Slots A and C shown above are not used for this machine.

g180i162
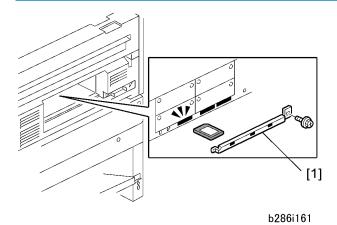
MFP Option Board Slot/SD Card Assignments

Slot	Option Name
B	Gigabit Ethernet Board Type A (G874-01)

Slot	Option Name
	IEEE 802.11b Interface Type H (G813-45)/Type I (G874-39)
1	Data Overwrite Security Unit Type D (B735-18)
3	Service • Firmware Update • NVRAM Data Download/Upload • Application Move/Undo

Using SD Cards
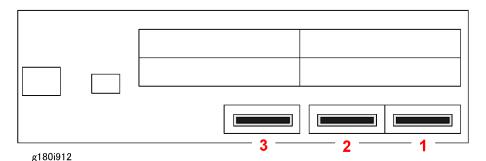
Removing the SD Card Slot Cover

b286i161

The SD card slot cover [1] is fastened by one screw. Remove this cover to insert SD cards. Always reattach this cover after removing or inserting SD Cards.

SD Card Slot Assignments

The machine has three SD card slots:

g180i912

- SD card slots 2 and 1 can be used for application programs.
- Slot 3 is used for machine servicing and application program installation (firmware updates, NVRAM upload and download, application move and undo).
- If the service technician needs to use Slot 3 for servicing and there is an SD card in Slot 3, the application SD card must be removed.
- If the customer needs more than three applications, one or more application must be moved to one SD card with SP5873-1.

Application	Slot		
	1	2	3
Data Overwrite Security Type D (B735-18)	**Yes**	No	No
Service: • Firmware update • NVRAM Data Download/Upload • Application Move/Undo	No	No	**Yes**
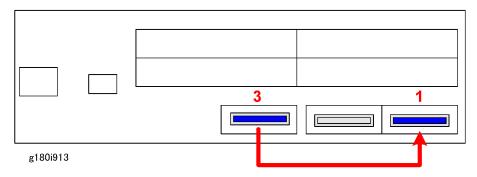
Restrictions and Precautions on the Use of SD Cards

- When an application is moved from one SD card to another SD card, the authentication data is transferred with the application program to the target SD card.
- Do not use an SD card if it has been used with a computer or other device. (The SD card may not operate correctly.)
- The original SD card received with purchase of the application program is the only evidence that the customer is licensed to use the application. For this reason, the original SD card should be stored at the work site as proof of purchase by the customer. Also, the service technician may occasionally need to check the dates and version numbers SD cards during troubleshooting.
- After an SD card has been used to combine applications on one card, it cannot be used for any other purpose.

- Always make sure that the write-protect switch is OFF before uploading data to an SD card. It is very easy to accidentally turn on the write-protect switch when inserting and removing an SD card.

- To remove an SD card from its slot, push it in gently to release it then pull it out of its slot.

Application Move

"Move Exec" (SP5873-1) moves one application program from the original SD card to another SD card. The application program is moved from Slot 3 to Slot 1 (or Slot 2).

g180i913
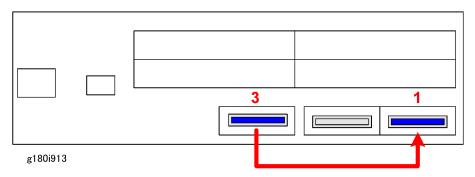
1. Turn off the main power switch.
2. Remove the SD card slot cover (🔩x1).
3. Insert the original SD card with the application in Slot 3.
4. Insert the SD card to receive the application in Slot 1.

   ⬇Note

   - The SD card to receive the moved application can be set in Slot 2, but in this case Slot 1 must be empty. (The application always moves the application to Slot 1 by default if there are SD cards in both Slot 1 and Slot 2.)

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

1

Undo Exec

"Undo Exec" (SP5873-2) restores an application to its original SD card. The application is moved from Slot 3 to Slot 1 (or Slot 2).

g180i913

1. Turn off the main power switch.
2. Remove the SD card slot cover (✐ x1).
3. Insert the SD card that currently holds the application in Slot 3.
4. Insert the original SD card to receive the restored application in Slot 1.

   🔸Note

   - The SD card to receive the restored application can be set in Slot 2, but in this case Slot 1 must be empty. (The application always moves to Slot 1 by default if there are SD cards in both Slot 1 and Slot 2.)

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

IEEE802.11b Interface Unit Type H (G813-45)/Type I (G874-39)

Accessories

Check the accessories and their quantities against the table below.
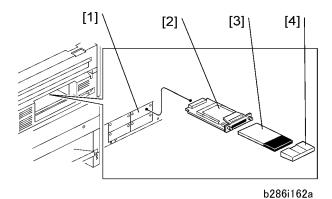
Description	Qt'y
1. Wireless LAN Card	1
1. Adapter Board	1
1. Cover Cap	1

Installation

⚠CAUTION

- Before doing the procedure, turn off the main power switch and unplug the machine from its power source.

1. Make sure that the machine is switched off and disconnected from its power source.

b286i162a

2. Remove the cover [1] of Slot B ($\mathscr{I}$ x 2).

3. Insert the adapter board [2] into Slot B (Knob $\mathscr{I}$ x 2).

4. Insert the wireless LAN card [3] into the adapter board [2].

5. Attach the cap [4].

6. Reconnect the machine to the power source and turn the main power switch on.

7. Print a Configuration Page to confirm correct installation:

   - [Menu]
   - [▼] or [▲]> "List/Test Print"> [OK].
   - [▼]> "Config. Page"> [OK]> "Config. Page Printing..."

Gigabit Ethernet Board Type A (G874-01)

Accessories

Check the accessories and their quantities against the table below.

Description	Qt'y
1. Gigabit Ethernet Board	1
1. Ferrite Core	1
1. Standard USB Connector Cap	1
1. Standard LAN Connector Cap	1

⬇ Note
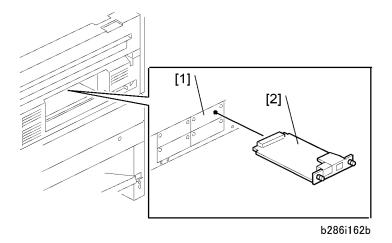
- To use the Gigabit Ethernet Board, SP5985-2 must be set to "1" to enable the NIC and USB functions.

⭐ Important

- When the Gigabit Ethernet Board is installed, the standard Ethernet board and standard USB board can no longer be used. Two caps are provided to cover the standard Ethernet and USB connectors. This prevents accidental reconnection of the cables while the Gigabit Ethernet board is installed in the machine.

- Touch a metal surface to discharge any static electricity from your hands before you handle the board.
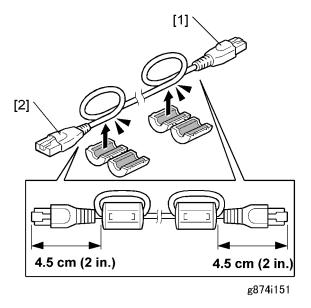
Installation

⚠ **CAUTION**

- Before doing the procedure, turn off the main power switch and unplug the machine from its power source.

1. Make sure that the machine is switched off and disconnected from its power source.

b286i162b

2. Disconnect the cables of the standard Ethernet board and standard USB board.

3. Cover the standard connection points with the caps to prevent accidental reconnection of the standard cables.

4. Remove the cover of Slot B [1] ($\mathscr{F}$ x 2).

5. Insert the Gigabit Ethernet Board [2] into Slot B (Knob $\mathscr{F}$ x 2).

4.5 cm (2 in.)   **4.5 cm (2 in.)**

g874i151

6. Attach the ferrite core provided with the Gigabit Ethernet Board to the end of the cable [1] to be attached to the network.

7. Attach the ferrite core provided with the main machine to the end of the cable [2] to be attached to the main machine.

🖲Note

- Attach both cores 4.5 cm (about 2 in.) from each end of the cord.

8. Reconnect the machine to its power source and turn the main power switch on.

9. Do SP5985-2 and set to "1" to enable the NIC and USB functions.

10. Turn the machine's power off/on.

11. Print a Configuration Page to make sure that the machine recognizes the installed board for USB2.0:

    - [Menu]

    - [▼] or [▲]> "List/Test Print"> [OK].

    - [▼]> "Config. Page"> [OK]> "Config. Page Printing..."

Data Overwrite Security Unit Type D (B735-18)

Accessories

Check the accessories and their quantities against the table below.

Description	Qt'y
1. Data Overwrite Security SD Card	1
1. Operating Instructions CD-ROM	1
1. Comments Sheet (17 languages)	2
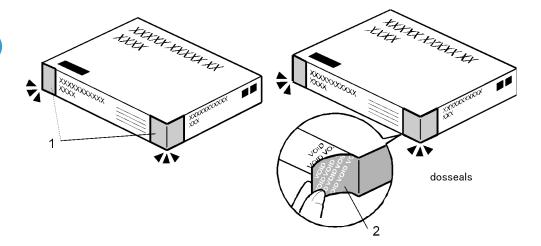
Before You Begin...

Make sure that the Data Overwrite Security unit SD card is the correct type for the machine. The correct type for this machine is type "D".

⭐Important

- Do this now. If you install any version other than type "D", you will have to replace the NVRAM and do this installation procedure again.

Seal Check and Removal

dosseals

1. Check the two box seals [1] on the corners of the box and confirm that they are firmly attached.

   ⭐ **Important**

   - **If you see "VOID" on the tapes or on the corners of the box this means that the seals have been removed. If the "VOID" notations are visible, do not use the SD card for this installation. Contact your sales division.**

2. Remove the seals from both corners of the box. The silver "VOID" notations [2] become visible only after you have removed the seals. This is normal.

Installation

1. Confirm that the machine is switched off and disconnected from its power source.

2. Disconnect the network cable if one is attached.

3. Remove the SD card slot cover (🖉x1).

   ⭐ **Important**

   - **Once again, confirm that the box is labeled "Data Overwrite Security Type D". On the side of the box you should see "B735". If you install the incorrect version of this unit, the NVRAM must be replaced.**

4. Insert the DOS SD card into Slot 1.

5. Switch on the machine.

6. Confirm that the machine recognizes the DOS SD card.

   - Push [Menu]. You should see "Memory Status Erase".

   - "Memory Status Erase" does not appear if the machine does not recognize the SD card.

Check Operation of the DOS Application

Depending on your machine, the operation of "Auto Erase Memory" and "Erase All Memory" might differ slightly. For details, refer to the Security Reference and Printer Reference operation manuals.

1

1

2. Preventive Maintenance

PM Table

Key for the PM Table

A = Adjust, C = Clean, I = Inspect, L = Lubricate, R = Replace

⬇ Note

- Units of measure in the PM Interval column: Metric: 1,000 meters, Feet: 1,000 feet

Main Machine (G180)

Description	Q'ty	PM Interval		PM	Comments
		Metric	Feet		
Development					
Developer (1,000 g)	2	27.5	90.0	R	Replace if necessary.
Development Filter		5.5	18.0	C	Dry cloth or vacuum cleaner
Development Roller Gear		5.5	18.0	I	
Development Lower Casing		5.5	18.0	C	Dry
Cleaning					
Cleaning Blade	1	11.0	36.0	I/R	Replace if necessary.
Cleaning Entrance Seal		11.0	36.0	C	Lens paper or dry cloth.
Side Seals		11.0	36.0	C	
Inside Cleaning Unit		11.0	36.0	I	Dry cloth or vacuum cleaner
Used Toner Bottle		5.5	18.0	C	Empty used toner
Registration					
Registration Rollers		5.5	18.0	C	Damp cloth
Paper Registration Sensor		5.5	18.0	C	Blower brush

Description	Q'ty	PM Interval		PM	Comments
		Metric	Feet		
Around the Drum					
Charge Corona Wire		11.0	36.0	R	Lens paper
Corona Wire Cleaner	1	5.5	18.0	R	
Charge Corona Casing		5.5	18.0	C	Damp cloth
Grid Wires		5.5	18.0	C	Lens paper
Transfer Corona Wire	1	11.0	36.0	R	
Separation Corona Wire	1	11.0	36.0	R	
T&S Unit Casing, Guides		5.5	18.0	C	Lens paper or dry cloth.
Quenching Lamp		5.5	18.0	C	Lens paper or dry cloth
ID Sensor		5.5	18.0	C	Dry cloth; do SP3001 2 to initialize the sensor after you clean it.
Pick-off Pawl		5.5	18.0	C	
LPH (LED Print Heads)		5.5	18.0	C	Lens paper or alcohol. After cleaning, touch to discharge static. **Important**: Use no other chemical cleaners.
Fusing Unit					
Hot Roller	1	27.5	90.0	R	Replace if necessary.
Fusing Cleaning Roller	1	27.5	90.0	R	Always replace with hot roller.
Hot Roller Bushings	1	27.5	90.0	R	Always replace with hot roller. Lubricate.
Pressure Roller	1	33.0	108.0	R	Replace if necessary.
Hot Roller Strippers		5.5	18.0	C	Dry cloth.
Pressure Roller Strippers		5.5	18.0	C	
Hot Roller Thermistor		11.0	36.0	C	
Pressure Roller Thermistor		11.0	36.0	C	

Description	Q'ty	PM Interval		PM	Comments
		Metric	Feet		
Fusing Exit Guide Plate		5.5	18.0	C	
Paper Junction Gate		5.5	18.0	C	
Fusing Entrance Guide Spurs		5.5	18.0	C	Cleaner brush Alcohol, dry cloth at every visit. (See p.108 "Cleaning the Entrance Spurs")
Fusing Exit Rollers		11.0	36.0	C	Damp cloth
Fusing Exit Sensor		5.5	18.0	C	Blower brush
Fusing Gears		5.5	18.0	L	Barrierta – S552R
Mechanical Drive Section					
Drum Drive Gears		5.5	18.0	L	Silicone Grease G501.
Development Drive Gears		5.5	18.0	L	
Fusing Drive Gears		5.5	18.0	L	
Others					
Ozone Filter	1	5.5	18.0	R	
Line Speed & Magnification Adjustments				A	Adjust after replacing rollers. For details, see p.180 "SP Adjustments".
Circuit Breaker	The circuit breaker should be tested once a year. See p.21 "Main Machine Installation (G180)".				

2

Roll Feeder (B852)

Description	Q'ty	PM Interval		PM	Comments
		Metric	Feet		
Cutter unit		5.5	18.0	C	Blower brush, dry cloth. (Estimated service life: 127 K cuts)
Feed Rollers		5.5	18.0	C	Damp cloth
Exit Rollers		5.5	18.0	C	
Exit Sensor		11.0	36.0	C	Blower brush or dry cloth
Roll End Sensors 3, 4 (EXP)		11.0	36.0	C	

Paper Cassette (B853)

Description	Q'ty	PM Interval	PM	Comments
		K Prints		
Feed Roller	1		C/R	Replace if necessary
Friction Pad	1		C/R	
Grip Rollers		40	C	Blower brush or dry cloth
Relay Sensor			C	

Folder FD/Manual Feeder (D889)
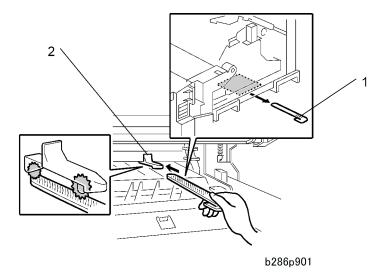
Description	Q'ty	PM Interval		PM	Comments
		Metric	Feet		
Fan Fold Sensors		11.0	36.0		
Fan Fold Rollers		11.0	36.0	C	Damp cloth
Fan Fold Sensors		11.0	36.0	C	Blower brush or dry cloth

Description	Q'ty	PM Interval		PM	Comments
		Metric	Feet		
Circuit Breaker	The circuit breaker should be tested once a year. See p.74 "Checking the Circuit Breaker" in the folder installation procedure.				

Manual Feeder (D333)

Description	Q'ty	PM Interval		PM	Comments
		Metric	Feet		
Paper Width Sensors		11	36		Blower brush or dry cloth
Bypass Relay Sensor		11	36		Blower brush or dry cloth

Cleaning the Entrance Spurs

b286p901
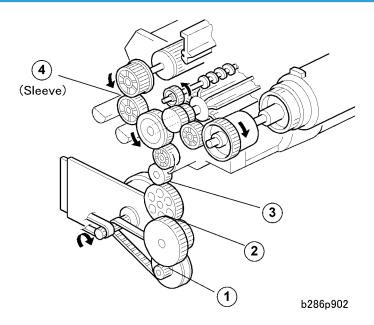
1. Open the upper unit.

2. Retrieve the flat brush from [1] from its storage location.

3. Use the flat brush to clean the 5 entrance spurs [2].

⭐**Important**

- Be sure to return the flat brush to its storage location when you are finished.

Lubrication Points
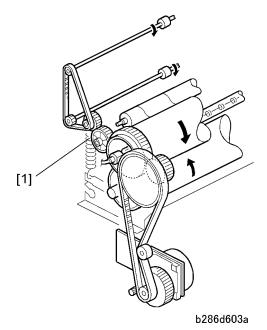
Development Section

b286p902

Development Unit Gears: (Silicone Grease G501).

Apply at the points shown by the numbers in the drawing.

Fusing Gears

b286d603a
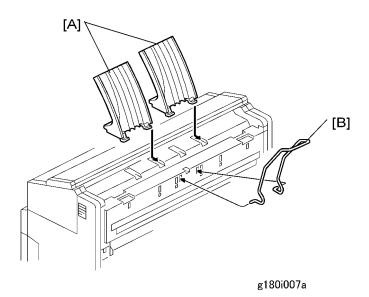
[1]: Fusing Gears (Barrieta S552R). Apply to the surface of the rim.

3. Replacement and Adjustment

Common Procedures
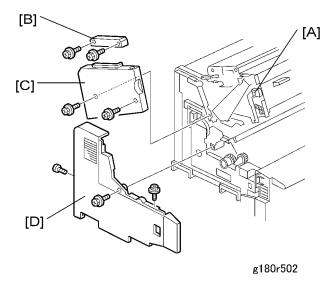
Before Working On the Main Machine

[A]

[B]

g180i007a

Always remove these items before you start work on the machine:

- [A]: Upper output stackers (x 2)
- [B]: Upper output guide (x 1)
- Lower output trays (x 3) (not shown)

Side Covers

g180r502

1. Raise the levers [A] on both sides of the machine to open the upper unit.

2. Remove the left small cover [B] ($\hat{\mathscr{F}}$ x 2).

3. Remove the left upper cover [C] ($\hat{\mathscr{F}}$ x 2).

   ↓Note
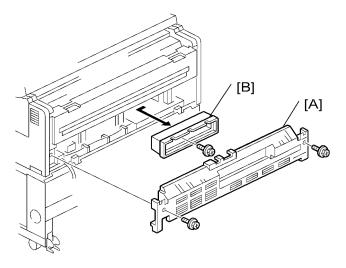
   • Push in the lever [A] to remove the cover.

4. Remove the left cover [D] ($\hat{\mathscr{F}}$ x 3).

5. Do Steps 1,2 and 3 to remove the right covers.

Reinstallation

   • Make sure that the upper unit is open.

   • Always install the lower covers before the upper covers.

   • Push in the levers [A] when you attach the upper covers.
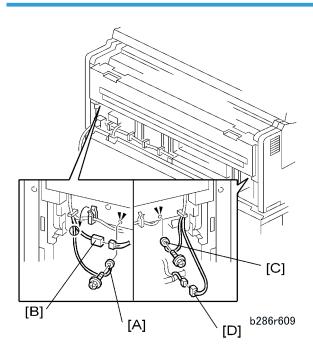
Rear Cover
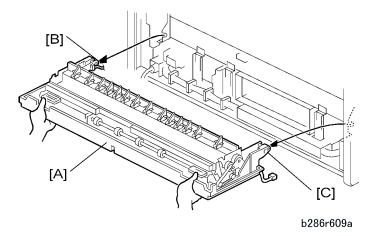
b286r914

1. Rear cover ($\mathscr{P}$ x 2) [A]

2. Controller cover [B] ($\mathscr{P}$ x 1)

Paper Exit Unit

b286r609
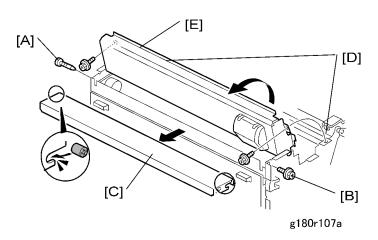
1. Disconnect the ground wire [A] and connector [B] on the left (⟋ x 1, ⟋ x 1, ⟋ x 1).
2. Disconnect the ground wire [C] and connector [D] on the right (⟋ x 1, ⟋ x 1, ⟋ x 1).
3. Remove the rear cover (⟋ x 2). (See p.113 "Rear Cover".)

b286r609a

4. Raise the paper exit [A] unit approximately 30° from horizontal.
5. Pull the unit away from the left [B] and right [C] hinges.

Front Panel and Opening the Top

g180r107a

1. Side covers. (See p.112 "Side Covers".)
2. Remove the front panel.

   [A]: Shoulder screw (⟋ x1)

   [B]: Screw (⟋ x1)

   [C]: Slide the panel toward you to remove it
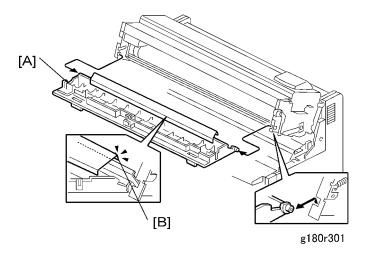
3. Remove the screws [D] on both ends of the top (✐ x2).

4. Raise the top [E] and pull it completely forward.

⭐**Important**

• **The top must be completely forward so that it remains open under its own weight.**

Toner Hopper Cover

g180r301
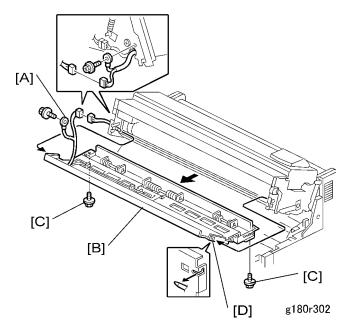
1. Side covers. (See p.112 "Side Covers".)

2. Open the upper unit.

3. Toner hopper cover [A].

Reinstallation

• Make sure that the bent edge of the mylar [B] covers the edge of the plate as shown.

Idle Registration Roller Panel

[A]

[C]

[B]

[D]   g180r302

[C]
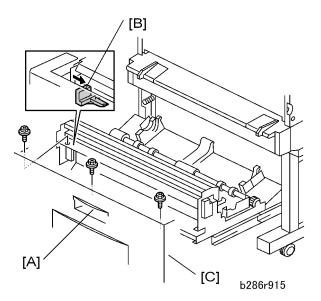
1. Open the upper unit.

2. Side covers. (See p.112 "Side Covers".)

3. Toner hopper cover (See p.115 "Toner Hopper Cover".)

4. Disconnect the connector and ground wire [A] (🖳 x 1, 🔩 x 1).

5. Idle registration roller panel [B] (🔩 x 2)

   • Remove the two rear screws [C] first and let the panel come down. Use a very short screwdriver to remove the rear screws.

   • Disconnect the panel from the stud screw on the right side first [D], then the left side. Do not remove the stud screws.

Reinstallation
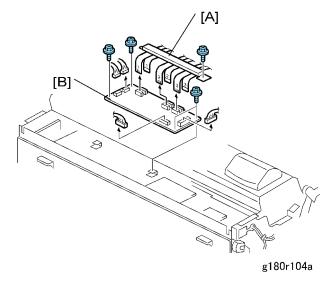
   • Make sure that the mylar [C] is on the front edge of the exposure glass.

Drawer Front Cover

b286r915

1. Open the front drawer of the roll feeder [A].

2. Push the cutter [B] to the right.

3. Front cover [C] (🖉 x 3)
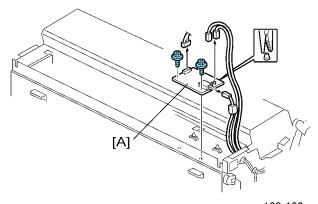
Removing the VDB, CGB

VDB

g180r104a

1. Remove:

    • Side covers (See p.112 "Side Covers".)

    • Front panel (See p.114 "Front Panel and Opening the Top")

2. Remove bracket [A] (⌀ x1, FFC x6)

3. VDB [B] (⊟ x 4, ⌀ x4)

CGB Power Pack

[A]
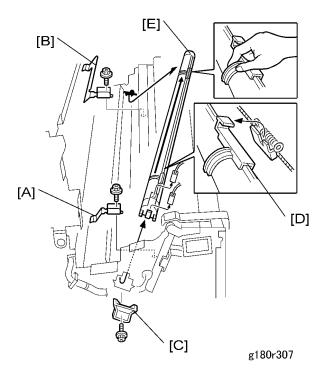
g180r103

1. Remove:

    • Side covers (See p.112 "Side Covers".)

    • Front panel (See p.114)

2. CGB power pack [A] (⬚ x 4, ⬚ x 2, standoffs x 2)

Around the Drum

Charge Corona Wire, Grid Wire, Wire Cleaner

g180r307

1. Remove:

    - Side covers (See p.112 "Side Covers")
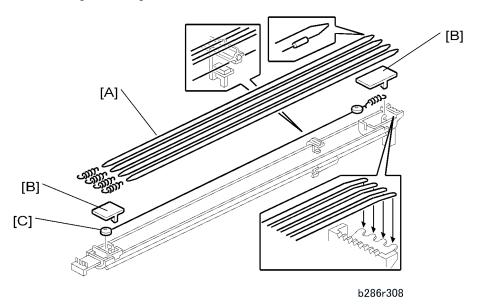
    - Front panel, open the top. (See p.114 "Front Panel and Opening the Top")

2. Leaf spring [A] (🔩x 1)

3. Leaf spring [B] (🔩x 1)

4. End plate [C] (🔩x 1)

5. Disconnect the cleaning pad [D] and then move it to the left.

6. Charge corona unit [E] (🔌 x 2)

Reinstallation

- Set the left end of the charge corona unit in the hole on the left first (viewed from the rear of the machine).

- Next, set the right end into the hole on the right.

- Attach the right plate, then the left plate. Make sure the T-bar of the cleaning pad [D] is connected to the guide wire.

- After you replace the charge corona wire, do SP2803 to clean the new corona wire.
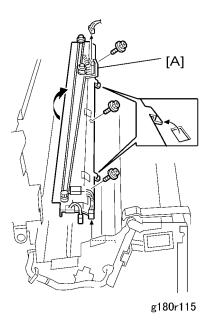
Disassembling the Charge Corona Unit

b286r308
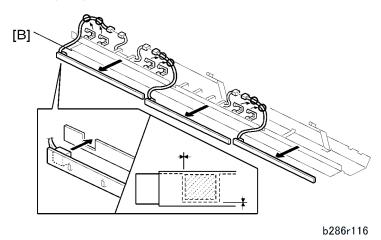
1. Grid wires [A] (Spring x 1 each)
2. Two cover plates [B] (pressure release)
3. Charge corona wire [C] (x1)

Quenching Lamps
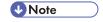
1. Remove
   - OPC drum unit (Seep.132 "Drum Unit".)
   - Charge corona unit (See p.120 "Charge Corona Wire, Grid Wire, Wire Cleaner")

g180r115

2. Quenching lamp unit [A] (🖳 x 3, 🔩 x 3)

b286r116
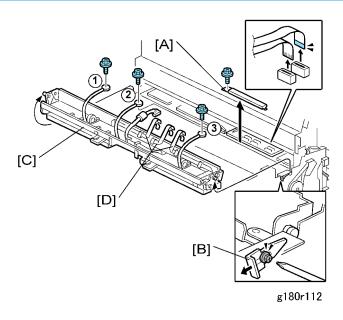
3. Quenching lamps (x3) [B] (🔧 x all, 🖳 x 3)

⬇Note

• The quenching lamps are attached to the plate with double-sided tape.

LPH (LED Print Head)
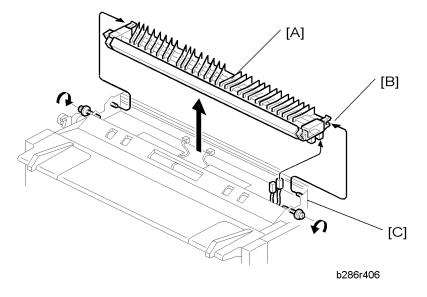
g180r112

1. Remove:

   - Side covers (See p.112 "Side Covers")

   - Front panel, open the top. (See p.114 "Front Panel and Opening the Top")

2. Plate [A] (🖉 x1)

3. Ground wires (x3) ①, ②, ③, (🖉 x 1 ea)

4. On each side of the machine, loosen the screws and move the plates [B] to the rear as shown.

5. LPH [C] (🖾 x 2, ▣ x 1) and (▣ x 6 FFC [D])

Reinstallation

1. Adjust the position of the LPH until it is level.

2. Set the plates [B] lightly against the studs on each side. Then tighten the screws.

   ⭐**Important**

   - **Do not push the plates forward with force against the LPH studs. If the studs are pushed forward, this could cause the LPH to move out of position and cause images to be too dark.**

3. Do SP2943 and input the values that are printed on the label attached to the replacement unit. (See p.186 "LPH Adjustment with SP Codes".)

4. Do SP2952 and input the values that are printed on the label attached to the replacement unit. (Seep.186 "LPH Adjustment with SP Codes".)

5. Make a test print and adjust if necessary. (See p.186 .)

Transfer Corona, Separation Corona Wires

b286r406

1. Remove:
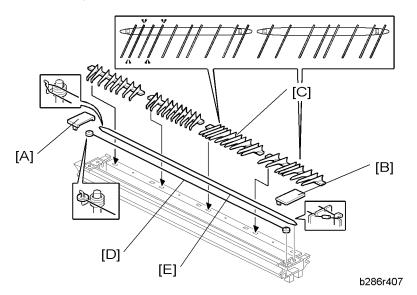
   • Side covers (See p.112 "Side Covers")

2. Transfer unit [A] (🖇 x 2, 🖉 x 2)
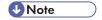
Reinstallation

• At each end of the unit, make sure that the tabs [B] are fully engaged with the studs [C].

• When the tabs are engaged correctly, the caps on the end are fully level.

Disassembling the Transfer Unit

b286r407

1. Left cap [A] (tab release)
2. Right cap [B] (tab release)

Note
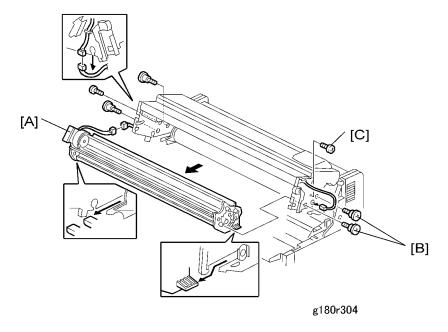
- To remove a paper guide, lift it a small distance and move it in the direction of the center. Make a note of the position of each guide. Each guide must be installed at its former position.

3. Paper guides [C] (x4)
4. Transfer wire [D]
5. Separation wires [E]

Reinstallation

- Each paper guide pair must be installed at its former position.
- For each pair, the high guide is set on the outer side and the low guide is set on the inner side.
- If each guide is not installed at its former position, this will cause paper to wrinkle.

Development

Development Unit

g180r304

1. Remove:

   - Side covers (See p.112 "Side Covers")

   - Toner hopper cover (See p.115 "Toner Hopper Cover")

   - Idle registration roller panel (See p.116 "Idle Registration Roller Panel")

   - Toner cartridge

2. Development unit [A] (⬚ x 2, ⬚ x 6)
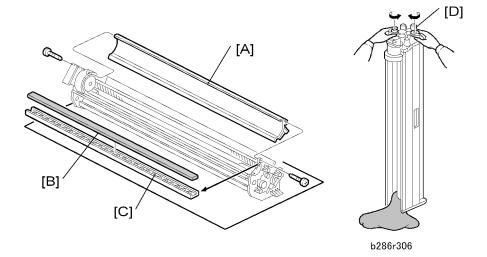
   ### ⚠ CAUTION

   - The development unit is very heavy. Pull it out slowly.

Reinstallation

- Attach the large shoulder screws [B] on each side first, then attach the flat-head screws [C].

Developer

b286r306

1. Remove the development unit (See p.126 "Development Unit".)

   Note
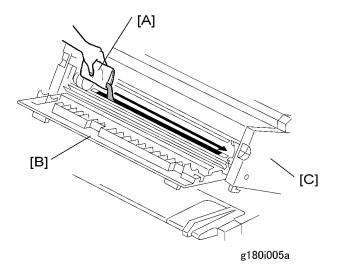
   • Do not bend the bias terminal.

2. Put the development unit on a large sheet of paper.

3. Remove the casing [A] for the toner supply unit (🔩 x 2)

4. Remove the development filter [B] and bracket [C].

5. Hold the development unit above the paper with the gears up.

6. Turn the paddle roller knob [D] clockwise until all developer is out of the unit.

7. Clean the development unit (especially the right end), the development filter, and development filter bracket.

g180i005a

8. Add one (1 kg) pack of developer. Do not add the second pack at this time.

   • Open the first developer pack [A].

   ⬇**Note**

   • Save the top of the pack. You will need the number to enter the lot number with SP2801.

   • Slowly add the first pack of developer to the development unit. Move the pack from left to right until it is empty.

   • Make sure that the developer is applied equally across the slot of the development unit.

9. Close the toner hopper cover [B].

10. Close the upper unit [C].

11. Connect the power supply cord. Switch the main power switch on.

12. Do SP5804-31. This supplies developer to the development unit.

13. Push [OK]> [ON] to start the motor, then wait for 30 seconds.

14. Push [OFF] to stop the motor.

15. Switch the main power switch off.

16. Open the upper unit.

17. Open the toner hopper cover.

18. Open the second 1 kg pack of developer and slowly add it to the development unit. Move the pack from left to right until it is empty.

    ⬇**Note**
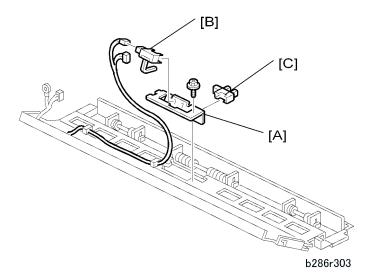
    • Save the top of the pack. You will need the number to enter the lot number with SP2801.

19. Use a clean cloth to clean the edges around the slot of the development unit.

20. Install the development unit in the machine and close the toner hopper cover.

21. Close the upper unit. Make sure that the upper unit locks on each side.

22. Switch the main power switch on.

23. Go into the SP mode, enter the developer lot numbers, then mix the developer and initialize the ID sensor.

- First, do SP2801-2 and -3 to enter the lot numbers of both developer packs.

  ⭐ **Important**
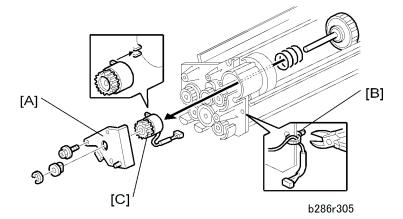
  - **You must enter the lot numbers with SP2801-2 and -3 before doing SP2801-1. The machine will return an error ("Failed") if you attempt to do SP2801-1 before SP2801-2 and -3. If the lot numbers are the same, just enter the same number twice.**

- Do SP2801-1 to mix the developer and initialize the ID sensor.

Paper Set Sensor, Registration Sensor

b286r303

1. Idle registration roller panel (See p.116 "Idle Registration Roller Panel".)

2. Sensor bracket [A] (🔩 x 1)

3. Paper set sensor [B] (🔌 x 1)

4. Registration sensor [C] (🔌 x 1)

Toner Supply Clutch

b286r305
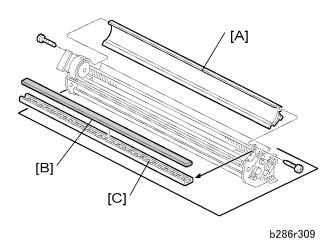
1. Remove the development unit (See p.126 "Development Unit".)
2. Plate [A] ($\mathscr{F}$ x 1, $\mathbb{C}$ x 1)
3. Cut the harness clamp [B].
4. Toner supply clutch [C] (Bushing x 1)

    ⬇Note

    • The stopper is spring-loaded and will come out suddenly after you remove the e-ring.

Development Filter

b286r309
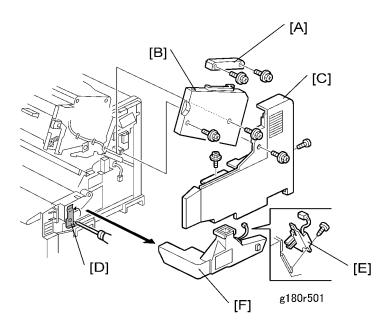
1. Remove the development unit (See p.126 "Development Unit".)
2. Development unit casing [A] ($\mathscr{F}$ x 2)

3. Filter rack [B]

4. Filter [C]

Used Toner Collection Bottle, Toner Overflow Sensor

g180r501
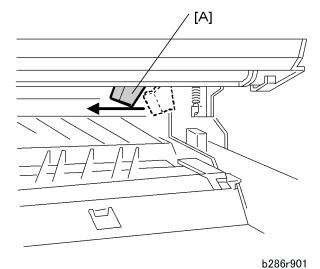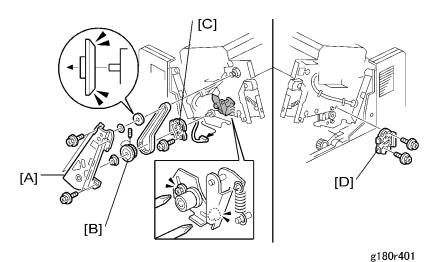
1. Remove:

   [A] Right small cover ($\mathscr{O}$ x 2).

   [B] Right upper cover ($\mathscr{O}$ x 2).

   [C] Right cover ($\mathscr{O}$ x 3).

2. Loosen the leaf spring [D] and lift it.

3. Toner overflow sensor [E] ($\boxminus$ x 1, $\mathscr{O}$ x 1)

4. Toner collection bottle [F]

Drum

Drum Unit

b286r901
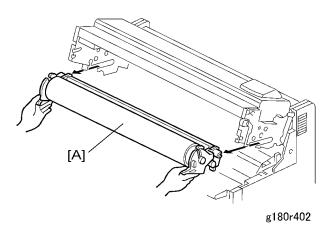
1. Open the upper unit and set the cleaning blade release lever [A] to the left.

g180r401

2. Development unit (See p.126 "Development Unit".)

3. Drive belt plate [A], drive belt ($\mathscr{F}$ x 4)

4. Use the long end of a hexagonal wrench to remove drum gear [B] ($\mathscr{F}$ x 2).

5. Left hub [C] of drum shaft ($\mathscr{F}$ x 2)
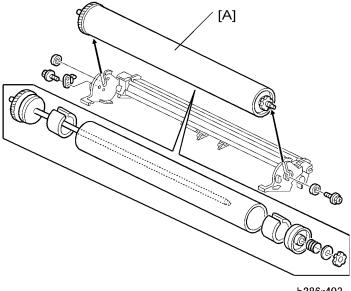
6. Right hub [D] of drum shaft (𝔐 x 2)

g180r402

7. Drum unit [A]

⚠CAUTION

- The drum unit is very heavy. Pull it out slowly.

b286r403

⭐ **Important**
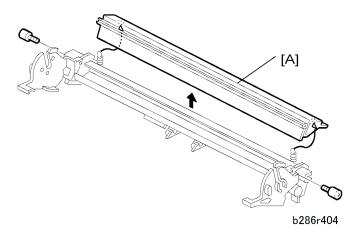
- **Do not touch the surface of the drum.**

8. Drum [A] (𝔐 x 2. bushings x 2, plate x 1)

Reinstallation

After you replace the drum:

- Do SP2923 (Cleaning Blade Replace Mode). This applies toner to the drum and blade to decrease friction between the drum and the cleaning blade. If you do this, scratches on the drum or a bent cleaning blade are less possible to occur.
- Do SP3001-2 to initialize the ID sensor.
- Be sure to tighten the hexagonal lock screws in the drum gear.
- Set the cleaning-blade release lever to the right.

Cleaning Blade

b286r404
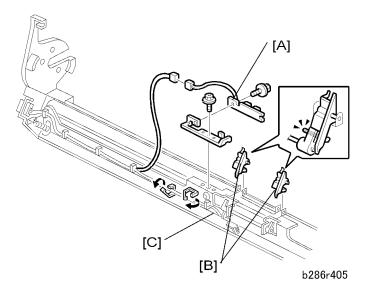
1. Cleaning blade [A] (🔩 x 2, springs x 2)

Reinstallation

After you replace the cleaning blade:

- Do SP2923. This applies toner to the drum and blade to decrease friction between the drum and the cleaning blade. If you do this, scratches on the drum or a bent cleaning blade are less possible to occur.

ID Sensor, Pick-Off Pawls, Pick-Off Pawl Solenoid

b286r405
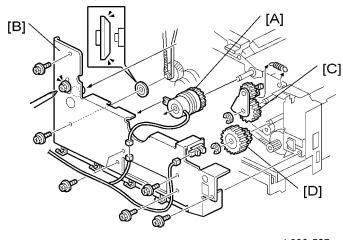
1. Drum (See p.132 "Drum Unit".)
2. Cleaning blade (See p.134 "Cleaning Blade")
3. ID sensor [A] (🔩 x 3, ▤ x 1, 🖉 x 1)
4. Pick-off pawls (x2) [B] (pressure release).
5. Pick-off pawl solenoid [C] (▤ x 2, 🖉 x 1)

Reinstallation

- After replacing or cleaning the ID sensor, do SP3001-2 to initialize the new ID sensor.

- If the ID sensor is damaged and cannot be replaced immediately, set SP2208-3 to "1". Then the customer can continue to use the machine until a new ID sensor is available. After you install a new ID sensor, reset this SP to 0.
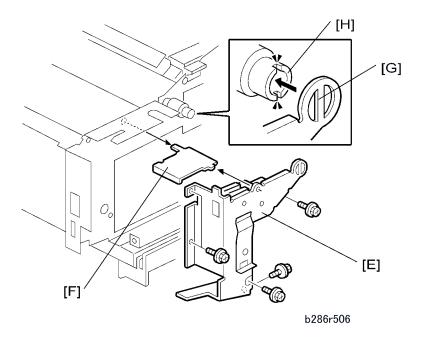
Paper Feed

Registration Clutch, Registration Roller

b286r507

1. Side covers (See p.112 "Side Covers".)
2. Registration clutch [A] (⬚ x 1, ⬚ x 1)
3. Gear cover plate [B] (⬚ x 7, cap x 1, drive belt x 1)
4. Gear [C] (⬚ x 1, spring x 1)
5. Gear [D] (⬚ x 1)

b286r506
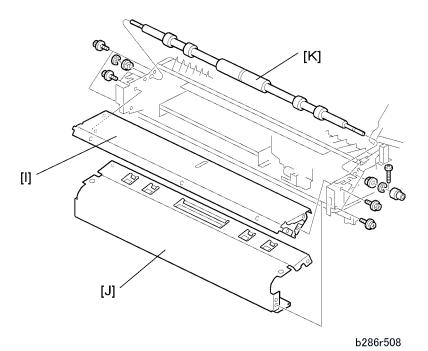
6. Used toner collection bottle (See p.131 "Used Toner Collection Bottle, Toner Overflow Sensor")

7. Cover plate [E] ($\mathscr{F}$ x 5)

8. Switch pressure plate [F]

↓Note
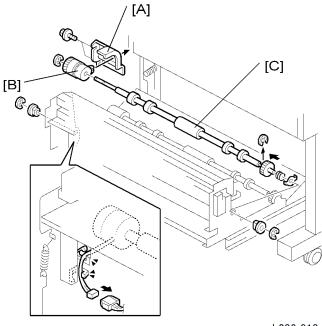
- At reinstallation, make sure that the vertical brace [G] is locked in the cutouts in the ceramic clutch [H] (see illustration above).

3

b286r508

9. Front plate [I] ($\mathscr{F}$ x 6)

10. Transport roller dust cover [J] ($\mathscr{F}$ x 4)

11. Registration roller [K] ($\mathbb{C}$ x 2, bushings x 2, torque limiter x 1, $\mathscr{F}$ x1)
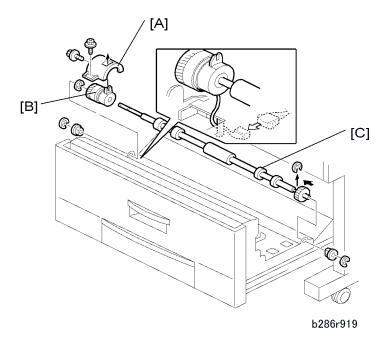
Roll 1 Paper Feed Clutch, Feed Roller

b286r918
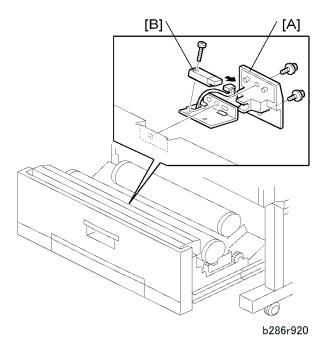
1. Open the roll feeder drawer.

2. Remove the paper rolls.

3. Roll 1 feed clutch cover [A] (📎 x 2)

4. Roll 1 feed clutch [B] (🔌 x 1, Ⓒ x 1)

5. Roll 1 feed rollers [C] (Ⓒ x 3, bushings x 2)

6. After you replace the roller or the clutch, adjust the cut length with SP1920-111 and SP 1920-115. (See p.180 "Image Adjustment with SP Codes".)

Roll 2 Paper Clutch, Feed Roller

b286r919
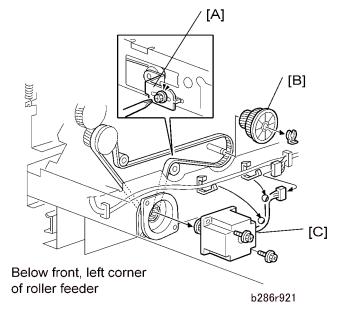
1. Open the roll feeder drawer.

2. Remove paper roll 2 (at the rear).

3. Roll 2 feed clutch cover [A] (🔩 x 2)

4. Roll 2 feed clutch [B] (🔌 x 1, Ⓒ x 1)

5. Roll 2 feed rollers [C] (Ⓒ x3, bushings x 2)

6. After you replace the roller or the clutch, adjust the cut length with SP 1920-211 and SP 1920-215. (See p.180 "Image Adjustment with SP Codes".)

RF Exit Sensor

b286r920
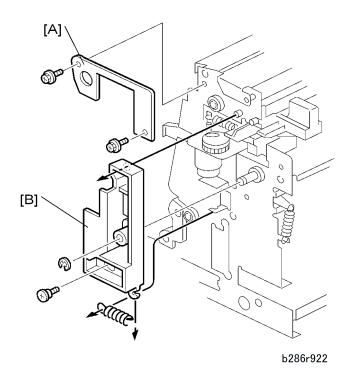
1. Open the drawer of the roll feeder.

2. Plate [A] (🖉 x 2)

3. RF exit sensor [B] (🖅 x 1, 🖉 x 1)

Roll Feed Motor

Below front, left corner
of roller feeder

b286r921
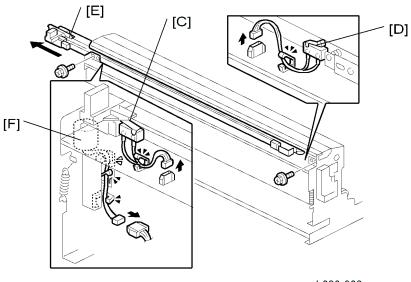
1. Open the roll feeder drawer.

2. Drawer front cover (See p.117 "Drawer Front Cover".)

3. Loosen belt tension bracket [A].

4. Gear [B] (⟨⟩ x1)

5. Roll feeder motor [C] (🔩 x 2, 📎 x 1, 🔩 x 2)

Cutter Motor, HP Sensors

b286r922
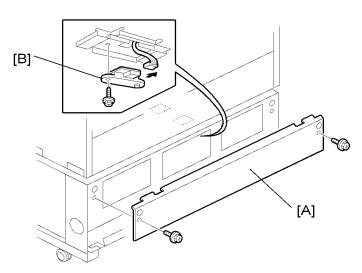
1. Open the roller feeder drawer.

2. Drawer front cover (See p.117 "Drawer Front Cover")

3. Upper bracket [A] (📷 x 2)

4. Lower bracket [B] (spring x 1, 📷 x 1, ⓒ x 1)

b286r923

5. Right cutter HP switch [C] (⊞ x 1, ⊟ x 1)

6. Left cutter HP switch [D] (⊞ x 1, ⊟ x 1)

7. Cutter, race, and motor assembly [E] (⊞ x 3, ⊟ x 1, ✐ x 2)

8. Cutter motor [F] (✐ x 2)

Roll Paper End Sensors
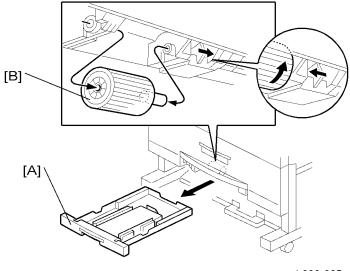
b286r924

1. Open the roll feeder drawer.

2. Roll feeder back plate [A] (🔩x 2)

3. Roll end sensors [B] (📶 x 1, 🔩 x 1 each)
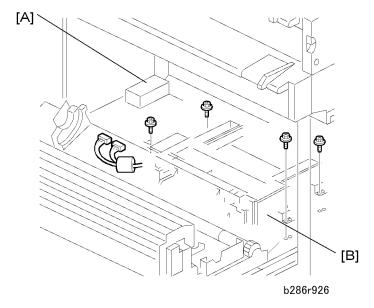
Cassette Feed Roller

b286r925

1. Paper cassette [A]

2. Cassette feed roller [B]
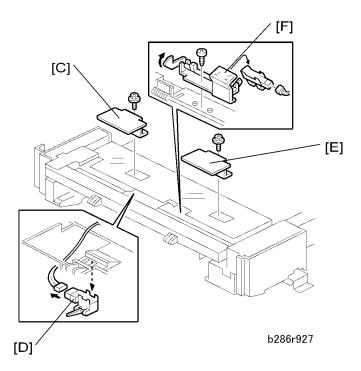
Cassette Relay Sensor, Cassette End Sensor

b286r926

1. Open the roll feeder drawer and remove the paper cassette.

2. Roll feeder rear plate (🔩 x 2 Blue)

3. RFDB shield plate [A] (🔩 x 2 Blue).

4. Paper cassette unit [B] (🔌 x 6, 🔌 x 2, 🔩 x 4 Blue)

⬇Note
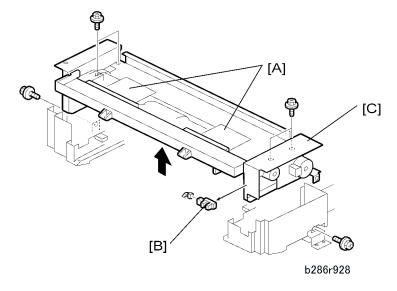
- Pull the unit to the rear, then remove it from the front.

b286r927
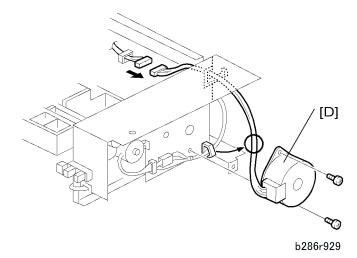
5. Relay sensor plate [C] ($\mathbb{F}$ x 1 Blue)

6. Relay sensor [D] (x 1, pinch release x 2)

7. Cassette end sensor plate [E] ($\mathbb{F}$ x 1 Blue)

8. Cassette end sensor [F] (x 1, $\mathbb{F}$ x 1, pinch release x 3)

Cassette Feed Motor, Cassette Open Sensor

b286r928

1. Open the roll feeder drawer and remove the paper cassette unit.
2. Relay sensor plate, cassette end sensor plate [A] (🔩 x 1 each)
3. Cassette open sensor [B] (🔌 x 1, pinch release x 2)
4. Paper cassette feed assembly [C] (🔩 x 6)

b286r929
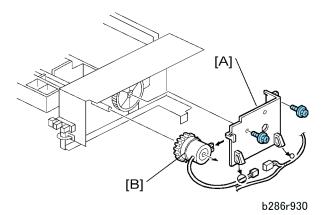
5. Paper cassette motor [D] (🔌 x 2, 🔌 x 1, 🔩 x 2)

Cassette Feed Clutch

b286r930
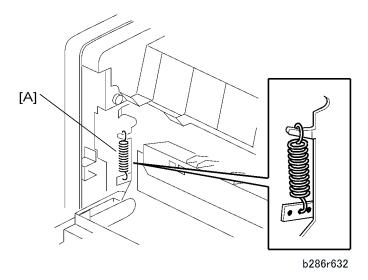
1. Cassette feed motor (See p.148 "Cassette Feed Motor, Cassette Open Sensor")

2. Motor mount plate [A] (🔩x 2)

3. Cassette feed clutch [B] (🔌 x 1, 🔗 x 1)

Fusing

Pressure Spring Adjustment

b286r632
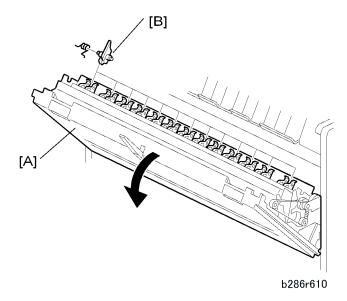
1. Open the exit cover and exit unit together.

2. To adjust the pressure, disconnect the spring [A] and connect it to a different hole.

   - Center: Standard tension, standard pressure.

   - Left: Less tension, less pressure. Set to this position to decrease wrinkling

   - Right: More tension, more pressure. Can give better fusing with thick paper.

   ⬇Note
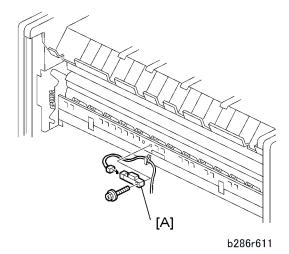
   - Wrinkling occurs more frequently with some types of paper or film. Adjust the tension of the spring only when necessary.

Hot Roller Strippers

b286r610

1. Open the paper exit cover and paper exit unit together [A].

2. Hot roller strippers [B] (pressure release, spring x 1 each)

Fusing Exit Sensor

b286r611

1. Remove:
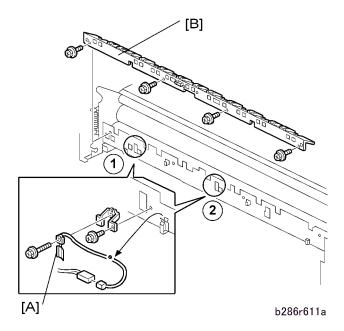
    • Rear cover (See p.112 "Side Covers")

    • Paper exit unit (See p.113 "Paper Exit Unit")

2. Remove fusing exit sensor [A] (White 🔲 x 1, 🔩 x 1)

Pressure Roller Thermistors

b286r611a

1. Remove:
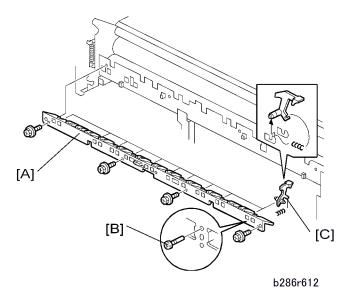
   - Rear cover (See p.113 "Rear Cover")

   - Paper exit unit (See p.113 "Paper Exit Unit")

2. Remove pressure roller thermistors [A] (🔲 x 1, 🔩 x 2, 🔌x1).

   - The end roller thermistor is at ①.

   - The center roller thermistor is at ②.

   ⬇Note

   - You must first remove the stripper unit [B] in order to remove the center thermistor ②.

Pressure Roller Strippers

b286r612

1. Remove:
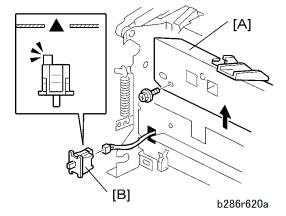
   - Rear cover ($\mathscr{F}$ x 2). See p.113 "Rear Cover"

   - Paper exit unit and exit cover ($\mathscr{F}$ x 4, 🔌 x 1) See p.113 "Paper Exit Unit"

2. Remove:

   - Pressure roller stripper unit [A] ($\mathscr{F}$ x 4)

   - Stopper screw [B] ($\mathscr{F}$ x 1 ea.)

   - Pressure roller strippers [C] (Spring x 1 each)

   ⬇Note

   - There are 11 pressure roller strippers. To remove them, push back and pull out.

Exit Unit Switch

b286r620a
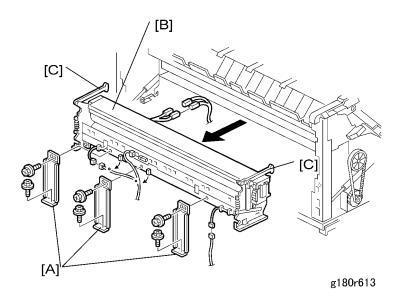
1. Remove the pressure roller stripper unit [A]. (See p.153 "Pressure Roller Strippers").

2. Remove the exit unit switch [B].

🔽Note
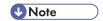
- Use tips of two small flat-head screwdrivers to release the tabs at the top and bottom of the switch to release it, then pull it out.

Fusing Unit

g180r613

⚠CAUTION

- Switch the main power switch off. Then disconnect the machine from its power source. Let the fusing cool off for at least 10 min. before you remove it.

1. Open the upper unit.
2. Remove:
    - Paper exit unit (See p.113 "Paper Exit Unit".)
    - Fusing exit sensor (See p.151 "Fusing Exit Sensor".)
    - Pressure roller thermistor (See p.152 "Pressure Roller Thermistors".)
3. Remove the braces (x 3) [A] (🔩 x 2 each)

   🔽Note

    - Install the brace with attached harness clamp in the center.
4. Remove the fusing unit [B] (🔌 x 2, 🔩 x 2)
5. Push down the levers [C] when you remove the fusing unit.

⚠CAUTION

- The fusing unit is heavy. Pull it out slowly.

Reinstallation
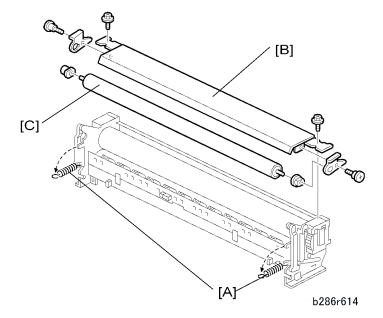
- Make sure that the upper unit is open when you install the fusing unit.
- Push down on the levers [C] while you set the fusing unit in the machine.
- Connect the color coded connectors correctly:

   Europe: Blue-to-Blue, White-to-White

   North America: Red-to-Red, White-to-White

Fusing Cleaning Roller

b286r614
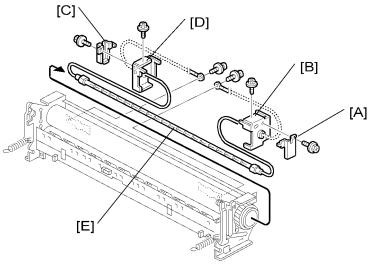
1. Fusing unit (See p.154 "Fusing Unit")

2. Springs [A] (x 2)

3. Felt plate [B] (✐ x 2)

4. Fusing cleaning roller [C] (✐ x 2, bushings x 2)

🔽 **Note**

- The brown bushing is on the right; the white bushing is on the left.

Fusing Lamp

b286r615

1. Fusing cleaning roller (See p.156 "Fusing Cleaning Roller".)
2. Right plate [A] (🔩 x 1)
3. Right support [B] (🔩 x 1)
4. Left plate [C] (🔩 x 1)
5. Left support [D] (🔩 x 1)

🔽 **Note**
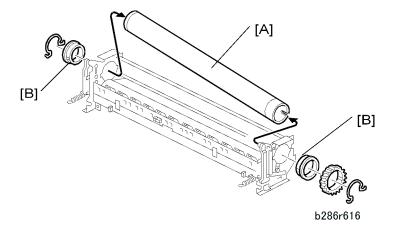
- This is the support with the anti-static brush.

6. Fusing lamp [E] (🔌 x 2, metal harness clamps x 2)

Reinstallation
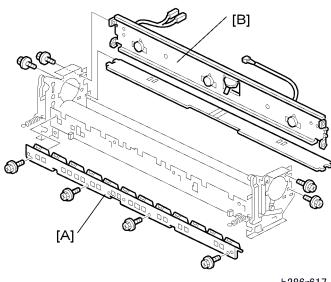
- Make sure that the ends of the fusing lamp are given support by the rubber grommets of the right support [B] and left support [D].

Hot Roller

b286r616
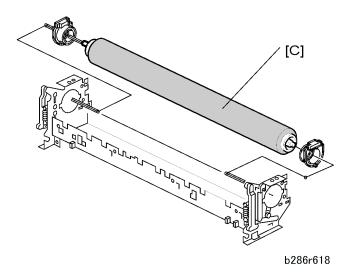
1. Fusing lamp (See p.157 "Fusing Lamp".)

2. Hot roller [A] (springs x 2, sleeve bearings x 2, gear x 1)

3. Lubricate [B] with Barrierta – S552R (x 2)

Pressure Roller
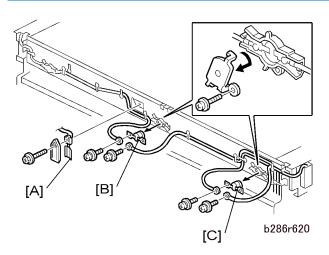
b286r617

1. Hot roller (See p.158 "Hot Roller".)

2. Pressure roller plate [A] (x 4)

3. Thermistor/Thermostat plate [B] (x 4)

b286r618

4. Pressure roller [C] (sleeve bearings x 2)

Hot Roller Thermistor, Thermostats

[A] [B]

[C] b286r620
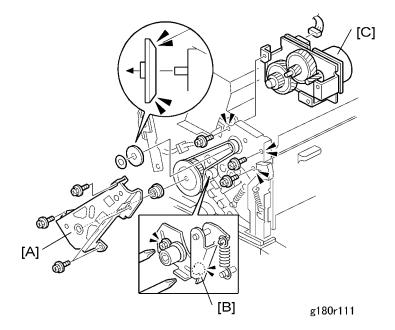
1. Fusing unit (See p.154 "Fusing Unit".)

2. Hot roller thermistor [A] (x1) ($\mathscr{P}$ x 1)

3. Thermostat 2 – 199 °C [B] ($\mathscr{P}$ M3x6 x 2)

4. Thermostat 1 – 200 °C [C] ($\mathscr{P}$ M3x6 x 2)

Reinstallation

• The thermostats (199 °C and 200 °C) must be installed at [B] and [C]. "199" and "200" are clearly shown on the edge of each thermostat.

Motors
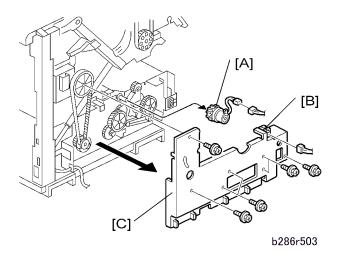
Drum Motor
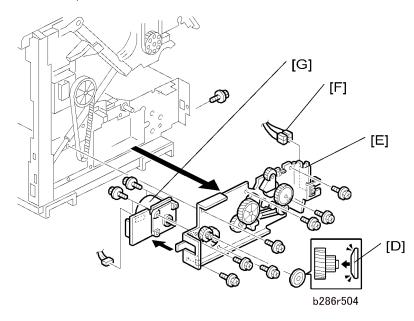
g180r111

1. Remove:
   - Side covers (See p.112 "Side Covers")
   - Front panel (See p.114 "Front Panel and Opening the Top")
2. Cover [A] ($\mathscr{F}$x4)
3. Belt tension plate [B] ($\mathscr{F}$ x 2, Spring x 1)
4. Drum motor [C] ($\boxminus$ x 1, $\mathscr{F}$ x 3)

Fusing Motor, Main Motor

b286r503

1. Open the upper unit.
2. Remove side covers (See p.112 "Side Covers".)
3. Registration clutch [A] (🔲 x 1, 🔌 x 1)
4. Upper unit sensor [B] (🔌 x 1, 🔲 x 4)
5. Gear cover plate [C] (🔲 x 4, 🔩 x 7)

b286r504
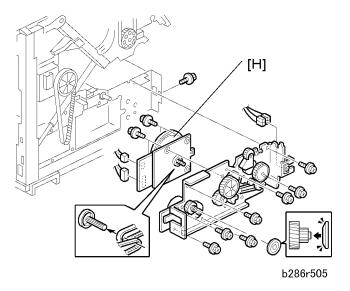
6. Timing belt and cap [D]
7. Motor mount plate [E] (🔩 x 8)

8. Main power switch connector [F] (⬚ x 1, ⬚ x 1).

9. Fusing motor [G] (⬚ x 1, ⬚ x 4)

   Reinstallation
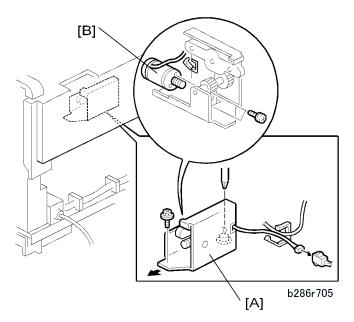
   If it is difficult to reconnect the connector at the rear of the motor when you install the motor mount plate:

   - Remove the rear cover.

   - At the left rear corner of the main machine, open two or three harness clamps to release the motor harnesses. This will decrease the tension in the harnesses.

b286r505

10. Remove the gear cover plate and motor mount plate. (See previous pages.)

11. Main motor [H] (⬚ x 2, drive belts x 2, ⬚ x 4)

Used Toner Bottle Motor

b286r705
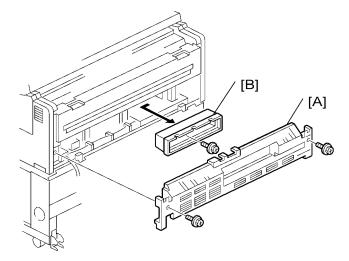
1. PSU (See p.168 "PSU/Circuit Breaker".)
2. Toner collection bottle (See p.131 "Used Toner Collection Bottle, Toner Overflow Sensor".)
3. T&S power pack (See p.173 "T&S Power Pack".)
4. Motor plate [A] (⬚ x 1, ⬚ x 1, ⬚ x 2)
5. Motor [B] (⬚ x 2)

Boards
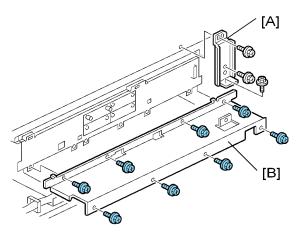
MCU/IPU/MB

b286r914

1. Remove:

   - [A] Rear cover (🔩x2)

   - [B] Controller cover (🔩x1)

b889i105a

2. Remove:

   - [A] Ground plate (🔩x3)

- [B] PCB shield cover (🖉x8)

b286r908e

3. If there are any optional boards [A] installed on the controller, remove them before removing the controller board (🖉x2 each).

4. Remove the controller unit (🖉x7).
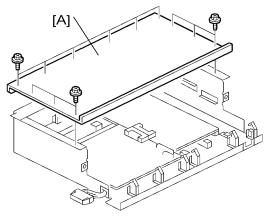
b286r701d

5. Disconnect the IPU and MCU harnesses ①,②,③ (🔧x7, ▥x all).

b286r701a
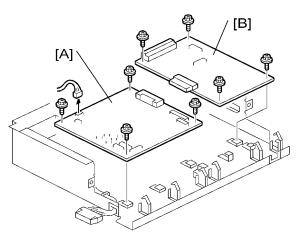
6. Disconnect the MCU/IPU bracket.

- [A] MCU side (✏x2, ⬚x1)
- [B] IPU side (✏x2, ⬚x2)

7. Pull the controller unit out of the machine.

b286r702
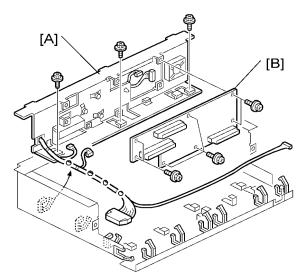
8. Remove the shield cover [A] (✏x12).

b286r702a

9. Remove:

- [A] MCU ($\mathscr{D}$x4, ⬚x1)
- [B] IPU ($\mathscr{D}$x4)
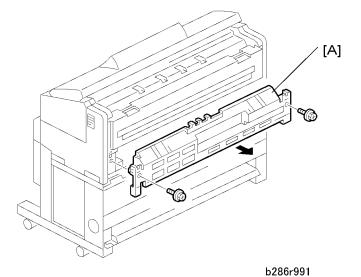
b286r702b

10. Remove:
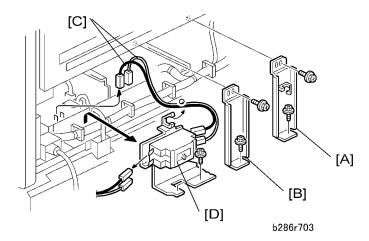
- [A] Motherboard bracket ($\mathscr{D}$x3, ⬚x3, ⬚x1)
- [B] Motherboard ($\mathscr{D}$x7)

⬇**Note**
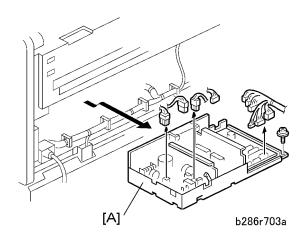
- If you install a new MCU board, do SP3001 2 to initialize the ID sensor.

PSU/Circuit Breaker

b286r991

1. Remove the rear cover [A] (🔩x2).

b286r703
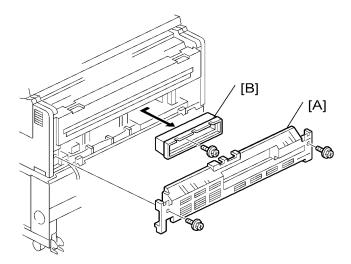
2. Remove:

    - [A] Earth plate (🔩x2)

    - [B] Earth plate (🔩x2)

3. Disconnect the white and black harnesses [C] (🔌x2).

4. Remove the circuit breaker [D] (🔩x2, 🔌x4).

b286r703a
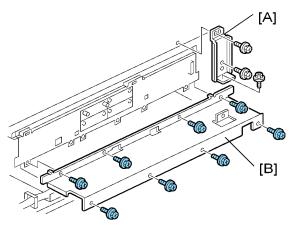
5. Remove the PSU [A] ($\mathscr{F}$x1, 🗊x10, 🖾x all)

Controller Board

b286r914

1. Remove:

    - [A] Rear cover ($\mathscr{F}$x2)

    - [B] Controller cover ($\mathscr{F}$x1)

b889i105a

2. Remove:

- [A] Ground plate ($\mathscr{F}$x3)
- [B] PCB shield cover ($\mathscr{F}$x8)

b286r908e

3. If there are any optional boards [A] installed on the controller, remove them before removing the controller board ($\mathscr{F}$x2 each).

4. Remove the controller unit ($\mathscr{F}$x7).

b286r908b

5. Remove the controller board [A] (🔩x7, 🔌x3).

b286r908c

- [A] Memory chips
- [B] NVRAM (if you change the controller board, put the old NVRAM on the new board)
- [C] Rails
- [D] SD card (if installed)

NVRAM

b286r908a

1. Remove the controller board (See p.169 "Controller Board")

2. Remove the NVRAM [A]

NVRAM Upload

Do this procedure to upload the NVRAM data from NVRAM to an SD card. Do this procedure before replacing the NVRAM.

1. Switch the machine off.

2. Insert an SD card in SD card Slot 3.

3. Switch the machine on.

4. Go into the SP mode and do SP5824.

5. When you see "Completed!", switch the machine off.

NVRAM Download

Do this procedure to download the NVRAM data from an SD card to the NVRAM in the machine.
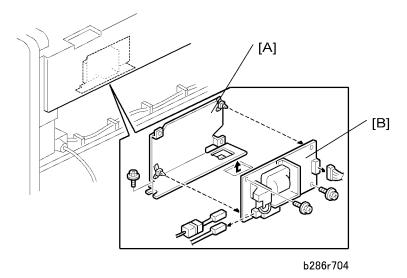
1. Switch the main power switch off.

2. If a new NVRAM is to be installed, do SP5801-2 to make sure that the new NVRAM is clear.

   ⭐**Important**

   - After clearing the NVRAM, confirm that the total counter has been reset to 0: [Menu]> [▼]> [Counter]> [OK].

3. Do SP5811 to set the serial number.

4. Insert the SD card with the NVRAM data in SD card Slot 3.

5. Switch the main power switch on.

6. Go into SP mode and do SP5825.

7. Follow the instructions on the operating panel display to execute the download.

8. Switch the main power switch off.

9. Switch the main power switch on.

10. If the Data Overwrite Security Unit Type D (B735-18) has been installed, it must be installed again.

11. Do SP3001 2 to initialize the ID sensor.

T&S Power Pack

b286r704
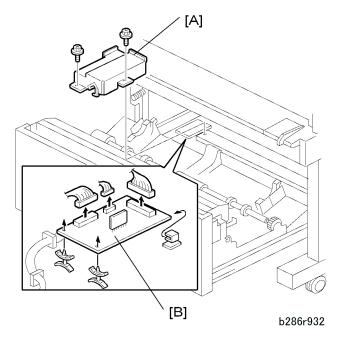
Remove:
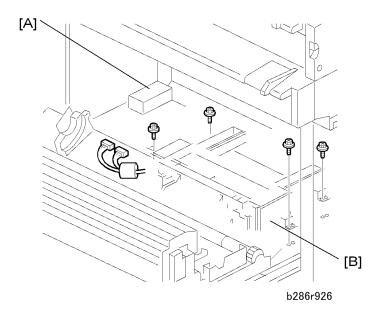
- PSU (See p.168 "PSU/Circuit Breaker")
- [A] T&S power pack mounting plate (🔲 x 2, 🔲 x 3, 🔩 x 1)
- [B] T&S power pack (🔩 x 1)

RFDB (Roll Feeder Drive Board)

b286r932

1. Open the roll feeder drawer.
2. Remove the rear plate of the roll feeder (📎 x 2 blue)

   - [A] Shield plate (📎 x 2)
   - [B] RFDB (📎 x 3, standoffs x 2)

SFDB (Sheet Feed Drive Board)

b286r926
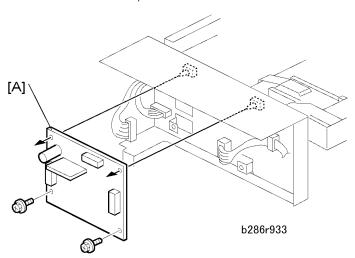
1. Open the roll feeder drawer and remove the paper cassette.

2. Remove

    • Roll feeder rear plate ($\mathscr{F}$ x 2 Blue) (See p.144 "Roll Paper End Sensors")

    [A] RFDB shield plate [A] ($\mathscr{F}$ x 2).

    [B] Paper cassette unit [B] ($\mathrel{\reflectbox{Q}}$x 4, $\mathrel{\reflectbox{Q}}$ x 2, $\mathscr{F}$ x 4)

    ⬇Note
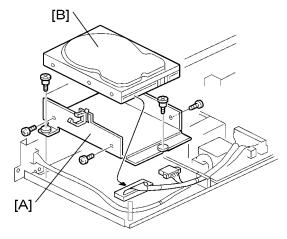
    • Pull the unit to the rear, remove it from the front.

b286r933

3. Remove the SFDB [A] (⬚ x 2, ⬚ x 2, standoffs x 2)

Others

HDD

b286r908d

1. Remove the controller board (See p.169 "Controller Board")

2. Remove:

- [A] HDD bracket (✎x3, ⟐x1. ⟐x2)
- [B] HDD (✎x4)
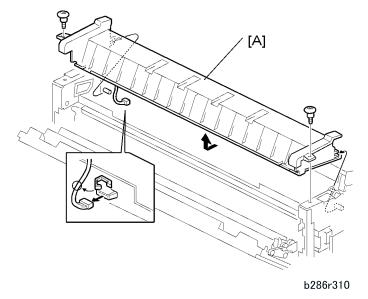
Reinstallation

- Do SP5832 to format the new HDD.

⭐**Important**
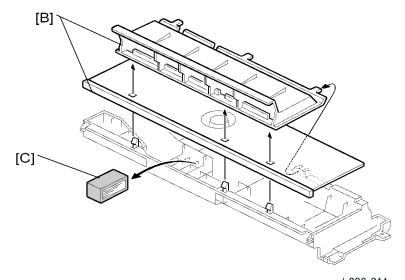
- **A new hard disk should always be formatted with SP5832, even if it has already been formatted.**

Cooling Fan, Ozone Filter

b286r310
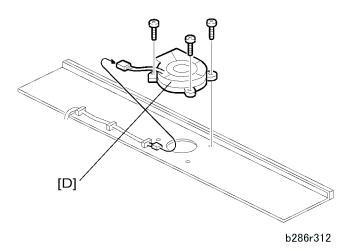
1. Remove:
   - Side covers (See p.112 "Side Covers")
   - [A] Rear top cover (🖉x2, 🔌x1. 🔗x1)

b286r311

2. Remove the plates [B] (press release).
3. Remove the ozone filter [C].

b286r312

4. Remove the cooling fan [D] ($\mathscr{P}$x3, $\textrm{貝}$x1)

SP Adjustments

Image Adjustment with SP Codes
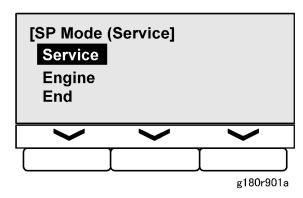
Do the adjustments described in this section if printing is not satisfactory.

- Before doing any adjustments, read the section below so that you know how to print the test patterns.

- Do each adjustment in the order described below (Steps 1 to 4).

- Always turn the machine power off/on after each SP adjustment to enable the new setting.

- Before you start measurements and adjustments, let the test print output cool for five minutes.
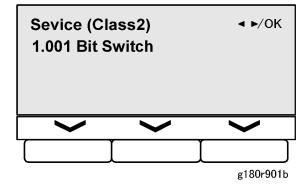
How to Print Test Patterns

Before you can do any adjustments, you must know how to print the test patterns.

1. Enter the SP mode: [▲]*[▼] for 3 sec.> [OK].

[SP Mode (Service]
Service
Engine
End

g180r901a

2. [OK]> [OK]> "Bit Switch"

Sevice (Class2)   ◄ ►/OK
1.001 Bit Switch

g180r901b
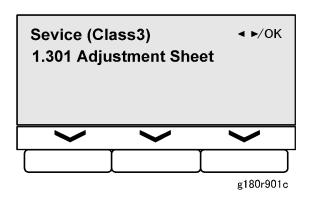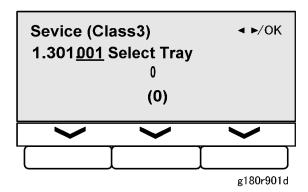
3. [►] x4 times> "1301 Adjustment Sheet"

```
Sevice (Class3)        ◄ ►/OK
1.301 Adjustment Sheet



   ⌄         ⌄         ⌄
```

g180r901c

4. [OK]> "1301.001 Select Tray"

```
Sevice (Class3)        ◄ ►/OK
1.301001 Select Tray
           0
          (0)

   ⌄         ⌄         ⌄
```

g180r901d
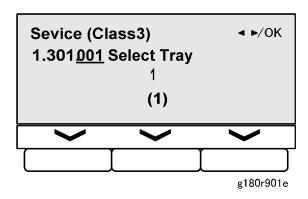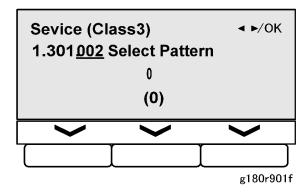
5. [OK]> [▲] or [▼]> "1" or "2"

No.	Feed Station	Paper Size
1	Roll Tray 1	Current roll width, prints 594 mm long
2	Roll Tray 2	Current roll width, prints 594 mm long
3	Paper Cassette Tray	Prints on current paper size
4	Bypass 1 (A0 SEF)	Feed blank A0 SEF (any length)
5	Bypass 2 (A1 LEF)	Feed blank A1 LEF (any length)

6. [OK]

```
Sevice (Class3)          ◄ ►/OK
 1.301001 Select Tray
            1
          (1)
   ⌄         ⌄         ⌄
```

g180r901e

7. [►]> "1302.002 Select Pattern"

```
Sevice (Class3)          ◄ ►/OK
 1.301002 Select Pattern
            0
          (0)
   ⌄         ⌄         ⌄
```

g180r901f
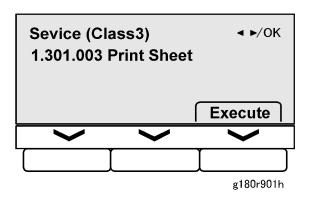
8. [OK]> [▲] or [▼] to select "1", "2", "3", or "4"> [OK]

No.	Equivalent SP Code and Pattern
0	---
1	2902-2 #10 Gray Horizontal (8-level, 8-line
2	2902-2 #11 Grid Pattern (128-dot Width)
3	2902-3 #22 Bk Band (Ve) Full Dot (All Black)
4	2903-3 #25 Grid (1d) (Blank: All White)

⭐ **Important**

- Only these numbers (0 to 4) can be selected. If you select a number higher than "4" ("9" for example), the setting will reset to "4" (the highest possible setting).

9. [►]> "1301.003 Print Sheet"> [OK]

Sevice (Class3)   ◄ ►/OK
1.301.003 Print Sheet

Execute

g180r901h

10. [Execute] to print the pattern. After printing, you will see "Completed".

❤Note

- The pattern selection is reset to zero (default) as soon as the pattern has printed. The pattern must be selected for each printing.
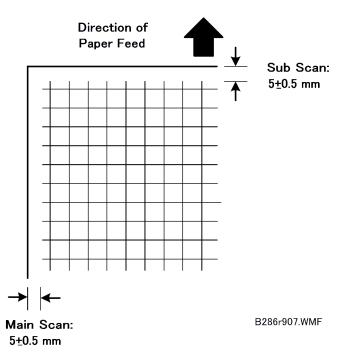
Step 1: Erase Margins

Set these SPs to "5" to make measurement easier:

SP	Set To:	Comments
2101-1	5	Print Erase Margin – Leading Edge
2101-2	5	Print Erase Margin – Trailing Edge
2101-3	5	Print Erase Margin – Left Edge
2101-4	5	Print Erase Margin – Right Edge

Step 2: Printer: Leading Edge, Side-to-Side Registration

1. Print **Test Pattern 2** for each paper feed station.

   - Bypass
   - Roll Feeder Roll 1
   - Roll Feeder Roll 2
   - Paper Cassette

2. Measure the gaps for the leading edge and side-to-side registration.

Direction of Paper Feed

Sub Scan: 5±0.5 mm

Main Scan: 5±0.5 mm

B286r907.WMF

3. Touch "SP Mode" and adjust these SPs if a measurement is not in the standard range.

SP	Standard:	Comments
1001-1		Leading Edge Registration – 1st Roll
1001-2		Leading Edge Registration – 2nd Roll
1001-3		Leading Edge Registration –Cassette
1001-5	5 ±0.5 mm	Leading Edge Registration – By-pass Feed
1002-1		Side-to-Side Registration – 1st Roll
1002-2		Side-to-Side Registration – 2nd Roll
1002-3		Side-to-Side Registration –Cassette
1002-5		Side-to-Side Registration – By-pass Feed

Step 3: Erase Margins

Do these SPs to replace the settings done in Step 1.

SP	Set To:	Comments
2101-1		Print Erase Margin – Leading Edge
2101-2	2	Print Erase Margin – Trailing Edge
2101-3		Print Erase Margin – Left Edge
2101-4	0.5	Print Erase Margin – Right Edge

Step 4: Printer: Cut Length

The following SPs are necessary for this step:

SP	
1920-111	Cut Length Adjustment-1st Roll:297 mm (11″ or 12″):Plain Paper
1920-115	Cut Length Adjustment-1st Roll:1189 mm (44″ or 48"):Plain Paper
1920-211	Cut Length Adjustment-2nd Roll:297 mm (11″ or 12"):Plain Paper
1920-215	Cut Length Adjustment-2nd Roll:1189 mm (44″ or 48″):Plain Paper

⬇Note

- The cut length adjustment is done for all paper sizes after these settings are done.
- After these settings are done you may still need to do fine adjustments for each paper size.

1. Use the Preset Cut feature to make standard cuts of plain paper for these sizes:

Size	Orientation
A3	Sideways
A1	Lengthways
A0	Lengthways
A	Sideways (Eng. 11″)
B	Sideways (Eng. 17″)
D	Lengthways (Eng. 34″)
E	Lengthways (Eng. 44″)

2. Measure the cuts and check them against the standards of this table.

Cut Length (mm)	Cut Tolerance (mm)
Less than 297	±3
420 to 1189	±5
to 2000	±6
=3000	±11
to 4000	±14

3. If a measurement is not in the standard range of the "Cut Tolerance" in the table above, adjust SP1920-1 to -238 for each roll, paper width, and paper type.

LPH Adjustment with SP Codes

Doing SP Adjustment Settings for a Replacement LPH
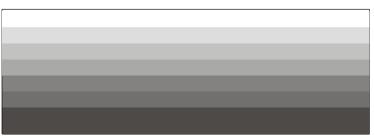
1. Remove the replacement LPH from its box.

2. Read the label attached to the replacement LPH and note of the settings for SP2952 and SP2943.

   🔽 Note

   - This label is attached to the replacement LPH only.

3. Remove the old LPH and install the new LPH unit.

4. Do SP2952-1, -2 and enter the settings you read from the label attached to the LPH replacement unit.

5. Do SP2943-1, -2, -3 and enter the settings you read from the label attached to the replacement unit.

6. Print **Test Pattern 1** to confirm that the LPH joints are aligned correctly and functioning normally.

   - If you see vertical white or black lines, do the vertical line adjustments (See the next section, "Main Scan Adjustment: White, Black Vertical Lines").

   - If you see the areas are not aligned, do the misalignment adjustments (See below, "To Adjust the LPH for Misalignment").

   - If you see vertical white/black lines and misalignment, do the vertical line adjustment first.

Main Scan Adjustment: White, Black Vertical Lines
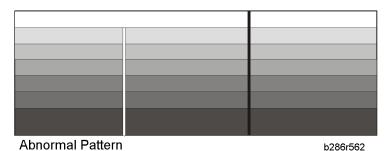
1. Check the printed pattern at LPH 1-2 for white or black lines.

2. If there are no lines, no adjustment is necessary.

Normal Pattern   b286r561

3

If you see white or black lines at LPH 1-2, go to the next step.

- White lines occur if too few LEDs come on at the joint.

- Black lines occur if too many LEDs come on at the joint.

Abnormal Pattern   b286r562

3. Left line:

  - If the left line is **white**, adjust SP2952-1 to a smaller value.

  - If the left line is **black**, adjust SP2952-1 to a larger value.

4. Right line:
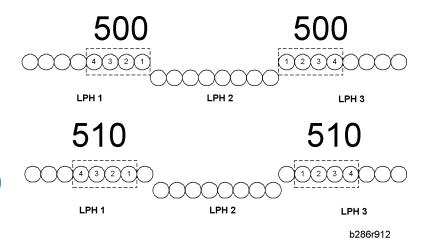
  - If the right line is **white**, adjust SP2952-2 to a smaller value.

  - If the right line is **black**, adjust SP2952-2 to a larger value.

5. After the adjustment, feed the blank sheet again to print one more pattern.

6. Check the results of the adjustment.

7. Do the adjustment again until the lines appear faint.

   ⬇Note

  - The lines cannot be completely erased.

Main Scan Adjustment: LED Light Level at LPH Joints

After you do the previous procedure to adjust the main scan at the LPH joints, you can do a fine adjustment on this area. To do this, you increase or decrease the intensity of the light from the four LEDs at the joints.

b286r912
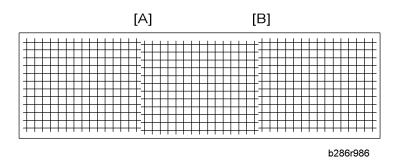
"500" is the default setting for LPH 1-2 and LPH 2-3.

- If you change the 2nd digit of the value for LPH 1-2 (500 to **510**) with SP2952-1, this moves the four LEDs by one position to the **left**.

- If you change the 2nd digit of the value for LPH 2-3 (500 to **510**) with SP2952-2, this moves the four LEDs by one position to the **right**.

- If you change the 3rd digit of LPH 1-2 or LPH 2-3 (510 to **512**, for example), this increases the quantity of light from LEDs 1, 2, 3, 4 in the illustration.

The quantity of light can be adjusted for each LED independently with SP2953 (Power Correction). But, this fine adjustment is usually not necessary in the field.
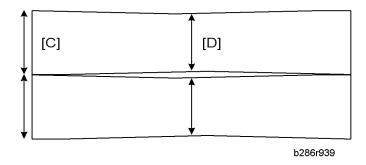
Adjusting LPH Alignment

b286r986

Broken lines [A] or [B] in **Test Pattern 2** indicate incorrect sub scan timing at one or both joints.

1. Go into the SP mode, and do SP2952-11 for LPH 1-2

    - Adjust the position of LPH 2 (LPH 1 does not move).

    - If LPH 2 is higher than LPH 1, set a larger value.

    - If LPH 2 is lower than LPH 1, set a smaller value.

2. Print Test Pattern 2 and check the results.

3. Repeat this procedure until the pattern at the joint is correct.

4. Do SP2952-12 for LPH 2-3

   • Adjust the position of LPH 3 to LPH 2 (LPH 2 is the standard).

   • If LPH 3 is higher than LPH 2, set a larger value.

   • If LPH 3 is lower than LPH 2, set a smaller value.

5. Do this procedure again until the pattern at the joint is correct.

b286r939

The hot roller and pressure roller are slightly wider at the ends to give them a spindle shape.
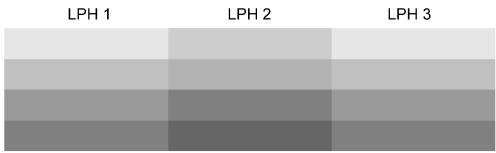
• The circumference at the ends of the rollers [C] is slightly larger than the circumference at the centers [D].

• This arrangement ensures that there is always sufficient pressure on the paper between the roller ends.

This small difference in circumference also causes slightly affects the speed of paper feed (the paper speed at the ends is slightly faster than at the center). Because the centers of the rollers more compressed than at the center, this also increases the risk of slippage at the center with paper narrower than 420 mm.

• For operators who frequently use paper wider than 420 mm, do the sub scan adjustments for the LPH joints with SP2952-11, -12.

• For operators who frequently use paper that is less than 420 mm wide, do the sub scan adjustments for the LPH joints with SP2952-51, -52 after you input the values of SP 2952-11 and -12 from the decal.

LPH Density Adjustment with SP Codes

1. Print **Test Pattern 1**.

2. Check the density of the patterns in LPH 1, LPH 2, and LPH 3.

   If density is equal for all areas, no adjustment is necessary. If the density is not equal, do the next procedure.

LPH 1   LPH 2   LPH 3

B286r906

3. Do SP2943-1, -2, and -3. This SP makes the output of each LPH block brighter or darker.

4. Adjust the density for LPH 1 with SP2943-1.

   - If the density is too dark, set a smaller value.

   - If the density is too light, set a larger value.

5. Print Test Pattern 2.

6. Do this procedure for LPH2 and LPH3 until the density is the same in each of the three sections.

   - LPH2: SP2943-2

   - LPH3: SP2943-3

4. Troubleshooting

Service Call Conditions

There are 4 levels of service call conditions

Level	Definition	Reset Procedure
A	Fusing unit SC codes shown on the operation panel. The machine is disabled. The user cannot reset the SC.	Go into the SP mode. Turn the machine power off/on with the main power switch.
B	These SC codes disable only the features that use the defective item. The user does not see these SC codes in usual conditions. But, they are shown on the operation panel when the defective feature is used.	Turn the machine power off/on.
C	SC codes that are not shown on the operation panel. They are recorded internally.	Recorded only.
D	These SC codes are shown on the operation panel. To reset these SC codes, turn the operation switch or main power switch off and on. These SC codes are shown again if the error occurs again.	Turn the machine power off/on.

Preliminary Instructions

- If the problem is in an electrical circuit board, disconnect then connect the board connectors again before you replace the PCB.
- If the problem is a motor lock, check the mechanical load before you replace a motor or sensor.
- When a Level A or Level B SC occurs while the machine is in the SP mode, the SC number will not be shown. If this occurs, check the SC number after the machine goes out from the SP mode. This does not include Level B codes.
- Some SC codes contain more than one level (SC303-1, SC303-2, SC303-3, and others). Some SC codes can show a "-1", even if there is only one level.

The following abbreviations are used in these SC tables:

- (F) means "Front"
- (R) means "Rear"

SC Code Descriptions

SC1XXX

There are no Group 1 (Scanner) SC codes for this machine

SC2XXX

There are no Group 2 SC codes for this machine

SC3XXX

Group 3 SC codes are related to image making.

300	D	Charge Corona Output Error	
		After sampling at 10 ms intervals, the charge-corona feedback voltage remained less than 0.5 V for more than 200 ms.	• Charge corona unit defective • High voltage cable defective • Corona wire dirty or defective • CGB power pack fuse, connections loose, broken, or defective • CGB power pack defective

305	D	Charge Corona Wire Cleaner Error	
		The charge wire cleaner did not: (1) come from the home position within 5 s, or (2) did return to the home position within 3.75 s due to wire cleaner overload.	• Cleaner unit blocked or damaged • Until replacement parts become available, set SP2804 to "0" to disable the charge-corona cleaning function so the machine can operate.

392	D	Development Bias Error	
		The development bias feedback voltage was less than 0.3 V for longer than 200 ms while the PWM duty value was more than 5% (indicating a development bias leak).	• Bias terminal damaged • High voltage cable damaged, defective • CGB power pack defective

SC4XXX

Group 4 SC codes are also related to image making.

400	D	ID Sensor Auto Adjustment Error
		Vsg did not reach 4 ±0.2 V when the ID sensor was initialized with SP3001-2.	• ID sensor dirty • ID sensor harness, connector loose, disconnected, damaged, defective • ID sensor defective • MCU defective • Development unit defective • CGB power pack defective

401	D	ID Sensor Vsg Error
		The Vsg level was twice detected lower than 2.5 V. -or- The Vsg level was once detected higher than 4.8V.	• ID sensor dirty • ID sensor harness, connector loose, disconnected, damaged, defective • ID sensor defective • MCU defective • CGB power pack defective

402	D	ID Sensor Vsp Error
		The Vsp level was twice detected at 0V or at more than 2.5 V.	• Under the left upper cover, make sure that the hex screw of the main drum drive gear is tight • ID sensor dirty • ID sensor harness, connector loose, disconnected, damaged, defective • ID sensor defective • MCU defective • Development unit defective • CGB power pack defective

440	D	Transfer Output Error

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		A high voltage feedback voltage of less than 0.5 V was detected for 200 ms.	• High voltage cable disconnected, damaged • T/S power pack defective

460	D	DC Separation Corona Output Error	
		A dc separation feedback voltage of less than 0.5 V was detected after more than 200 ms.	• High voltage cable disconnected, damaged • T/S power pack defective

SC5XXX

508	B	Cutter Error	
		The left and right cutter HP sensors remained on or off more than 2 sec.	• HP sensors on the left and right side loose, disconnected, defective • Cutter motor harness damaged, defective • HP sensors defective • Cutter motor defective Note: Paper can be fed from the bypass table if the roll feeder or paper cassette is not operationg.

520	D	Main Motor Error	
		After the motor started, the main motor lock signal remained HIGH for 5 sec.	• Physical obstruction blocking motor • Motor harness damaged, defective • Motor defective

521	D	Drum Motor Error	
		After the motor started, the drum motor lock signal remained HIGH for 5 sec.	• Physical obstruction blocking motor • Motor harness damaged, defective • Motor defective

522	D	Fusing Unit Drive Motor Error	

		After the motor started, the fusing motor lock signal remained HIGH for 5 sec.	• Physical obstruction blocking motor • Motor harness damaged, defective • Motor defective

530	D	Fusing Unit Ventilation Fan Error	
		After the motor started, the fan motor lock signal remained HIGH for 5 sec.	• Physical obstruction blocking motor • Motor harness damaged, defective • Motor defective

541	A	Fusing Thermistor Errors	
		The thermistor measured the hot roller temperature every 1 sec. for 30 sec. and the temperature remained below 5°C (54°F).	• Thermistor positioned incorrectly • Thermistor cable loose, disconnected, damaged • Thermistor defective

542	A	Fusing Temperature Warm-up Error	
		The hot roller did not reach the ready temperature within 4 min. 30 sec. after power on. -or- After 5 sec. and 5 rotations of the hot roller, the machine detected that the temperature rise was less than 3°C .	• Fusing lamp connections loose, broken, defective • Fusing lamp defective • Thermistor not touching the hot roller • Thermistor defective • MCU defective
		The ready temperature is determined by the state of the machine at recovery: • Ready Temp. = Target Fusing Temp. (if power on or recovery starts when the hot roller is 80°C or higher). • Ready Temp. = Target Fusing Temp. – 10°C (SP1105-1 default) if power on or recovery starts when the hot roller is less that 80°C. • Ready Temp. = Target Fusing Temp. – 20°C (SP1937-3 default) if power on or recovery starts with pressure roller inching control on.	

543	A	Fusing Lamp Temperature: Error 1 (Software Detection)	

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		The circuit on the MCU that monitors the temperature of the board detected a fusing temperature of 230°C (446°F) for longer than 2 sec.	• MCU defective

544	A	Fusing Temperature: Error 2 (Hardware Detection)	
		The fusing thermistor that monitors the temperature of the hot roller detected a fusing temperature of 235°C (455°F), due to a Triac short which interfered with fusing temperature control.	• MCU defective • PSU defective • Fusing unit defective

545	A	Fusing Temperature: Error 3	
		After the hot roller reached the ready temperature, the fusing lamp stayed on at full power for 50 sec. while the hot roller was not rotating.	• Hot roller thermistor not positioned correctly • Fusing lamp harness loose, disconnected, defective • MCU defective

546	A	Fusing Temperature: Error 4	
		The machine detected that the fusing temperature was fluctuating out of range for more than 60 sec. (7 readings detected temperature fluctuating more than ±20°C)	• Thermistor connection loose, disconnected, defective • Hot roller thermistor not positioned correctly • Fusing lamp connections loose, disconnected, defective • MCU defective

547	D	Zero-Cross Signal Errors	
		This error occurs if the machine fails to detect 50/60 Hz on the power supply line. **Note**: The zero-cross signal from the ac power supply generates a trigger pulse to control the power supply of power. (It automatically detects 50/60 Hz.)	• Check that the frequency of the power supply to the machine is correct • PSU defective • MCU defective

551	A	Pressure roller center thermistor error 1	

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		During the hot roller temperature control sequence, or while the hot roller and pressure roller were rotating, the pressure roller center thermistor measured a value higher than 3.3V 10 consecutive times at 600 ms intervals.	• Pressure roller center thermistor not positioned properly • Pressure roller center thermistor connector loose, broken, defective • Pressure roller center thermistor defective • MCU defective

553	A	Pressure roller center thermistor error 2	
		During the hot roller temperature control sequence, the pressure roller center thermistor measures a value lower than 0.2V.	• Pressure roller center thermistor not positioned properly • Pressure roller center thermistor connector loose, broken, defective • Pressure roller center thermistor defective • MCU defective

557	C	Applied zero-cross waveform error	
		The applied power ac frequency was detected less than 66 Hz more than 10 times.	• Noise on the ac power supply line

559	A	Fusing paper jam errors	
		Three consecutive paper jam errors occurred in the fusing unit. **Note**: This SC code is not issued unless SP1159 is switched on.	• Paper jam in fusing unit • Pick-off pawl defective • Paper scraps in fusing unit • Exit sensor defective

561	A	Pressure roller end thermistor error 1	
		During the hot roller temperature control sequence, or while the hot roller and pressure roller were rotating, the end thermistor on the pressure roller returned a digital reading of more than 3.3V.	• Pressure roller end thermistor not positioned properly • Pressure roller end thermistor connector loose, broken, defective • Pressure roller end thermistor defective • MCU defective

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563	A	Pressure roller end thermistor error 2	
		During the hot roller temperature control sequence, the end thermistor on the pressure roller returned a digital reading of less than 0.2V.	• Pressure roller end thermistor connector loose • Pressure roller end thermistor short circuit, defective • MCU defective

SC6XXX

628	D	Fan fold unit communication error 1	
		The machine failed to detect within 100 ms a response to a data frame sent to the fan fold unit. Three consecutive retries failed, resulting in a timeout.	• Cable harness between the main machine and fan fold unit broken or defective • Connector loose, disconnected, or defective

	B	Key/card counter device error 1	
632		After 1 data frame is sent to the device, an ACK signal is not received within 100 ms, and is not received after 3 retries.	• Serial line from the device to the main machine is unstable, disconnected, or defective

		Key/card counter device error 2	
633	B	During communication with the device, the MCU received a break (Low) signal.	• Serial line from the device to the main machine is unstable, disconnected, or defective

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

635	B	Key/card counter device error 4	

		After installation of the device a message alerts user to a battery voltage abnormal error.	• Device control board defective • Device control board backup battery defective

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

650	B	@Remote communication error 1	
		A dial-up or modem error occurred during @Remote operation. (This error occurs only during @Remote operation.)	• Modem line disconnected • Modem board missing or not properly installed

651	C	@Remote communication error 2	
		An illegal dial-up to the service center was attempted by @Remote.	• Software bug

	D	Engine startup error	
670		The MCU failed to respond within the prescribed time when the machine was turned on.	• Connections between MCU and controller board are loose, disconnected, or damaged • MCU defective • Controller board defective

	D	Controller startup error	
672		After power on, the line between the controller and the operation panel did not open for normal operation. -or-	• Controller installed incorrectly • Controller board defective • Operation panel harness disconnected or defective

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		After normal startup, communication with the controller stopped.	
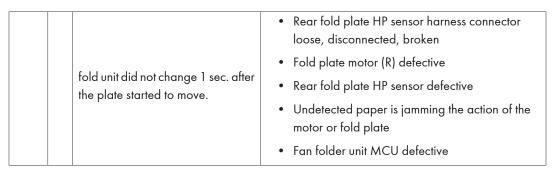
690	D	VDB communication error	
		There was no serial communication with the VDB within 1 sec. after power on.	• VDB-to-MCU harness or connectors broken, loose, defective • VDB defective • MCU defective

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SC7XXX

720	D	Fan folder transport motor error	
		A transport motor lock signal was detected for more than 5 sec. while the motor was running.	• Transport motor harness connector loose, disconnected, broken • Motor overload due to an obstruction • Transport motor defective • Fan folder unit MCU defective

762	D	Front fold plate HP sensor error	
		The state (on/off, off/on) of the front fold plate HP sensor in the fan fold unit did not change 1 sec. after the plate started to move.	• Fold plate motor (F) harness connector loose, disconnected, broken • Front fold plate HP sensor harness connector loose, disconnected, broken • Fold plate motor (F) defective • Front fold plate HP sensor defective • Undetected paper is jamming the action of the motor or fold plate • Fan folder unit MCU defective

763	D	Rear fold plate HP sensor error	
		The state (on/off, off/on) of the rear fold plate HP sensor in the fan	• Fold plate motor (R) harness connector loose, disconnected, broken

		fold unit did not change 1 sec. after the plate started to move.	• Rear fold plate HP sensor harness connector loose, disconnected, broken • Fold plate motor (R) defective • Rear fold plate HP sensor defective • Undetected paper is jamming the action of the motor or fold plate • Fan folder unit MCU defective

790	D	PCB fan error: Folder Unit	
		The machine detected a continuous lock signal from the PCB cooling fan on the PSU for 20 sec.	• Fan harness connector loose, disconnected, broken • Overload on the fan motor due to physical obstruction such has undetected paper, etc. • Fan defective • MCU folder unit defective

SC8XXX

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

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

820	D	Self-Diagnostic Error: CPU	
		The CPU returned an unexpected error during the self-diagnostic test.	• Controller board defective • Insufficient memory • Expanded memory defective

821	D	Self-diagnostic error 2: ASIC	
		The ASIC provides the central point for the control of bus arbitration for CPU access, for	• Controller board defective

		option bus and SDRAM access, for SDRAM refresh, and for management of the internal bus gate.

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

822	B	Self-diagnostic error 3: HDD	
		An error occurred when the self-check was performed when the machine was switched on after the HDD was replaced. (The diagnostic command was issued to the HDD device but the result was an error).	• HDD defective • HDD harness disconnected, defective • Controller board defective

823	B	Self-diagnostic Error: NIB	
		The network interface board returned an error during the self-diagnostic test.	• Network interface board defective • Controller board defective

824	D	Self-diagnostic error 4: NVRAM	
		Error occurred because: • NVRAM device does not exist • NVRAM device is damaged • NVRAM socket damaged	• NVRAM defective

826	D	Self-diagnostic Error 5: RTC/Optional NVRAM	
		The NVRAM or optional NVRAM returned an error during the self-diagnostic test.	• Make sure NVRAM is seated correctly in its socket • Replace the NVRAM on the controller board

827	D	Self-diagnostic error 6: Resident RAM	
		The resident RAM returned a verify error during the self-diagnostic test.	• Controller board defective • Replace RAM DIMM

828	D	Self-diagnostic error 8: ROM

		Measuring the CRC for the boot monitor and operating system program resulted in an error.	• Software defective • Controller board defective

829	B	Self-diagnostic Error 9: Optional RAM	
		The optional RAM returned an error during the self-diagnostic test.	• Replace the optional memory board • Controller board defective

838	D	Self-diagnostic Error 10: Clock Generator	
		A verify error occurred when setting data was read from the clock generator via the I2C bus.	• Replace the controller board

851	B	IEEE 1394 I/F Error	
		IEEE1394 cannot be used due to a faulty driver setting or poor I/F connection.	• Faulty PCI connection • IEEE1394 board defective • Controller board defective

853	B	Wireless LAN Error 1	
		During machine start-up, the machine can access the board that holds the wireless LAN, but not to the wireless LAN card.	• Wireless LAN card missing (was removed)

854	B	Wireless LAN Error 2	
		During machine operation, the machine can get access to the board that holds the wireless LAN, but not to the wireless LAN card (802.11b or Bluetooth).	• Wireless LAN card missing (was removed)

855	B	Wireless LAN error 3	
		An error was detected on the wireless LAN card.	• Wireless LAN card defective • Wireless LAN card connection incorrect

856	B	Wireless LAN error 4	

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		An error was detected on the wireless LAN board.	• Wireless LAN board defective • PCI connector to MB loose

857	B	USB I/F Error	
		The USB driver is not stable and caused an error.	• Poor USB card connection • Replace the controller board

860	B	HDD startup error at power on	
		HDD is connected but a driver error is detected. -or- The driver does not respond with the status of the HDD within 30 s.	• HDD is not initialized • Level data corrupted • HDD is defective

861	D	HDD re-try failure	
		At power on the HDD was detected. Power supply to the HDD was interrupted after the system entered the energy save mode, but after the HDD was awakened from the energy save mode it did not return to the ready status within 30 sec.	• Harness between HDD and controller board disconnected, defective • HDD power connector disconnected • HDD defective • Controller board defective

863	D	HDD data read failure	
		The data written to the HDD cannot be read normally, due to bad sectors generated during operation.	• HDD defective

Note:

- If the bad sectors are generated at the image partition, the bad sector information is written to NVRAM.
- The next time the HDD is accessed, these bad sectors will not be accessed for read/write operation. The HDD will probably require replacement soon.

864	D	HDD data CRC error

		During HDD operation, the HDD cannot respond to a CRC error query. Data transfer did not execute normally while data was being written to the HDD.	• HDD defective

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

		SD card error 1: Confirmation error	
866	B	The machine detected an electronic license error in the application on the SD card in the controller slot immediately after the machine was turned on.	• Program missing from the SD card

		SD card error 2: SD card removed	
867	D	The SD card in the boot slot when the machine was turned on was removed while the machine was on.	• Insert the SD card • Turn the machine's power off/on

		SD card error 3: SD card access	
868	D	An error occurred while an SD card was used.	• SD card not inserted correctly • SD card defective • Controller board defective • To reformat the SC card, use SD Formatter Ver 1.1.

		Address book data error	
870	B	Address book data on the hard disk was detected as abnormal when it was accessed from either the operation panel or the network. The address book data cannot be read from the HDD or SD card where it is stored, or the data read from the media is defective.	• Turn the machine power off/on. If this does not solve the problem, do the **Procedure** below. • HDD defective
		Procedure 1. Do SP5846-50 (UCS Settings – Initialize all Directory Info.) to reset all address book data.	

| | | 2. After 3 sec. reformat the HDD with SP5821-1. | |
| | | 3. Turn the main power switch off/on. | |

| 872 | B | HDD Mail Receive Error | |
| | | At power on the HDD unit was detected as defective. Data can be neither read nor written to the HDD.

Note: This problem can occur if the machine is switched off while the HDD is being accessed. | • Format the HDD with SP5832.
• HDD defective, replace HDD (be sure to format the new HDD). |

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| 873 | B | HDD mail send data error | |
| | | An error was detected on the HDD immediately after the machine was turned on, or power was turned off while the machine used the HDD. | • Do SP5832-1 to format the HDD
• Replace the HDD |

| 874 | D | Delete All error 1: HDD | |
| | | A data error was detected for the HDD/NVRAM after the Delete All option was used.

Note: The source of this error is the Data Overwrite Security Unit B735 running from the DOS SD card. | • Turn the main switch off/on, do the operation again.
• Install the Data Overwrite Security Unit again.
• HDD defective |

| 875 | D | Delete All error 2: Data area | |
| | | An error occurred when the machine deleted data from the HDD.

Note: The source of this error is the Data Overwrite Security Unit B735 running from the DOS SD card. | • Turn the main switch off/on and try the operation again. |

876	B	Log Data Errors	
		A problem occurred with the log data at power on or while the machine was operating.	
	1	Log Data Error 1	

		Log data file corrupted. Occurs at power on or during machine operation.	• Format the HDD with SP5832
	2	Log Data Error 2	
		Log data encryption has been enabled but the encryption module has not been installed. Occurs at power on, during machine operation, or after enabling encryption of log data.	• Replace the encryption module, reset • Enable encryption
	3	Log Data Error 3	
		Log encryption key has not been enabled (NVRAM malfunction). Occurs at power on.	• Format the HDD with SP5832 • Disable log data encryption
	4	Log Data Error 4	
		Occurs at power on. Log data has been encrypted but encryption has been disabled (NVRAM malfunction). -or- Log data has not been encrypted but encryption is enabled (NVRAM malfunction).	• Format the HDD with SP5832
	5	Log Data Error 5	
		Occurs at power on. NVRAM has been replaced with the NVRAM from another machine. -or- HDD has been replaced with an HDD unit from another machine.	• Replace the NVRAM with the original NVRAM • Replace the HDD with original the HDD • Format the HDD with SP5832
	99	Log Data Error 99	
		Other errors. Occurs at power on or during machine operation.	• Contact the machine design section

877	B	HDD Data Erase Error	
		The Data Overwrite Security option cannot scramble and erase data on the HDD because the DOS SD card has been corrupted or has	• If the DOS SD card has been removed, switch the machine off, install the SD card, then switch on the machine. (If this does not

		been removed from the SD card slot.	solve the problem, the SD card has been damaged.) • Install a new NVRAM • Install a new Data Overwrite Security option with a new SD card

		File Format Converter (MLB) error	
880	B	A request to access the MLB was not answered within the specified time (60 sec.).	• File format converter board defective

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SC9XXX

		Electrical total counter error	
900	D	The total counter contains something that is not a number.	• NVRAM incorrect type • NVRAM defective • NVRAM data scrambled • Unexpected error from external source

901	D	Mechanical Total Counter	
		The mechanical counter is not connected.	• Mechanical counter connection loose, broken, defective • Replace the mechanical counter

910	B	External controller error 1	
911	B	External controller error 2	
912	B	External controller error 3	
913	B	External controller error 4	
914	B	External controller error 5	
		The external controller alerted the machine about an error.	• Refer to the instructions for the external controller

919	D	External controller error 6	
		While EAC (External Application Converter), the conversion module, was operating normally, the receipt of a power line interrupt signal from the FLUTE serial driver was detected, or BREAK signal from the other station was detected.	• Controller RW3600 power outtage • Controller RW3600 rebooted • Connection to Controller RW3600 loose

920	B	Printer error 1	
		An internal application error was detected and operation cannot continue.	• Software defective • Turn the machine power off/on, or change the controller firmware • Insufficient memory

921	B	Printer Error 2	
		When the printer application started, the font designated for use could not be found on the SD card.	• The font is not on the SD card

954	D	Printer Image Setting Error	
		The settings that are required for image processing using the printer controller are not sent from the IPU.	• Firmware bug • IPU defective

955	D	Memory Setting Error	
		The settings that are required for image processing using the memory are not sent from the IPU.	• Firmware bug • Hard disk unit defective • Controller defective • MCU defective • IPU defective

965	D	Print Start Error	
		During print processing, another command to start printing was received.	• Printer firmware defective • Update printer firmware

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967	D	Image write start error	
		The paper stopped at the registration sensor and roller for buckle adjustment but the signal to start image writing was not received within 60 sec.	• Printer firmware defective • Update printer firmware • Check the connections between the LPH sections (x3) and the VDB • LPH defective • VDB defective • MCU defective

990	D	Software error 1	
		The software performs an unexpected function and the program cannot continue.	• Firmware defective: re-boot • Update firmware*[1]
991	C	Software error 2	
		The software performs an unexpected function. However, unlike SC990, recovery processing allows the program to continue.	Software defective, re-boot*[1]

*[1]: For more information about SC990 and SC991:

1. Execute SP7403 or print an SMC Report (SP5990) to read the history of the 10 most recent logged errors.

2. If you press [0] on the operation panel with the SP selection menu displayed, you will see detailed information about the recently logged SC990 or SC991 errors, including the software file name, line number, and so on. (1) above is the recommended method, because another SC could write over the information for the previous SC.

992	D	Erratic SC error	
		There was an unusual operation by the software because of: • An incorrect argument in the program. • An incorrect internal parameter. • Work memory not sufficient. • An error occurred that could not be detected by other SC codes.	• Turn the main power switch off/on. • Go into the SP mode. Do SP7901 to display details about SC992 (software file name, line number, and variable), and inform your supervisor of the results.

997	B	Cannot select application function	
		An application did not start after the user pushed the correct key on the operation panel.	• Software bug • A RAM or DIMM option required for the application is not installed or not installed correctly.
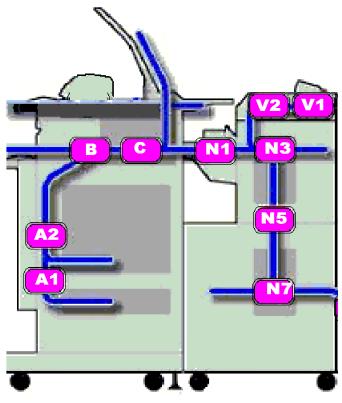
998	D	Application cannot start	
		Register processing does not operate for an application within 60 s after the machine power is turned on. No applications start correctly, and all end abnormally.	• Software bug • A RAM or DIMM option needed for the application not installed, or not installed correctly • Controller board defective

4

Jam Code Tables

Overview

When a jam occurs:

- The jam indicator lights (⚡).

- A diagram on the LCD shows the location of the jam with instructions about how to correct the problem.

- The "Code" numbers in the table are also shown. Use SP7507 (Plotter Jam History) to see the most recent codes.

g180t560

Code	Location	Code	Location
A1	Paper Cassette Feed	N3	Folder unit junction gate
A2	Roll Paper Feed	N5	Fan folder entrance
B	Bypass Paper Feed, Paper Registration	N7	Fan folder exit

Code	Location	Code	Location
C	Fusing Unit (Exit)	V1	Manual feeder feed entrance
N1	Folder unit entrance (from main unit)		

- The operator must open and close the upper unit to release a jam in the fusing unit.

- If the operator opens and closes the paper exit cover during copying, this is not recorded in the jam record.

- A paper feed jam that occurs just after the main power switch or operation switch comes on is not recorded in the jam record.

Printer Jams

Plotter Standby Jams

Code	Location	Display	Comment
001	Initial Jam: Registration Sensor	B	
	Initial Jam: Paper Set Sensor	B	
	Initial Jam: Fusing Exit Sensor	C	

Plotter Late Jams

Code	Location	Display	Comment
003	Roll 1 Non-Feed Jam	A2	
004	Roll 2 Non-Feed Jam	A2	
005	Paper cassette Non-Feed Jam	A1	
008	Roll Feeder Exit Jam	A2	RF exit sensor not ON
013	Registration Jam	B	Registration sensor not ON
016	Fusing Exit Jam	C	Fusing exit sensor not ON.
034	Bypass Non-Feed	B	Paper set not ON.

Plotter Lag Jams

Code	Location	Display	Comment
053	Roll 1 Feed Lag	A2	Roll paper failed to feed
054	Roll 2 Feed Lag	A2	Roll paper failed to feed
055	Paper Cassette Lag	A1	Cut sheets failed to feed
058	Roll Feeder Exit Jam	A2	RF exit sensor failed to go OFF
063	Registration Jam	B	Paper registration sensor failed to go OFF.
066	Fusing Exit Jam	C	Fusing exit sensor failed to go OFF.
084	Bypass Jam	B	Paper set sensor failed to go OFF.

Folder Unit Jams

Folder Unit Standby Jams

Code	Location	Display	Comment
100	Initial Jam: Folder Entrance	N1	Folder entrance sensor
	Initial Jam: Relay Sensor	N5	Relay sensor 1
	Initial Jam: Fan Folder Entrance	N7	Fan folder entrance sensor
	Initial Jam: Fan Folding (Front)	N7	Fan fold LED (F1), fan fold sensor (F2) pair
	Initial Jam: Fan Folding (Rear)	N7	Fan fold LED (R1), fan fold sensor (R2) pair
	Initial Jam: Folder Unit Exit	N7	Folder unit exit sensor
	Initial Jam: Straight-Through Exit	N3	Straight-Through Sensor
	Initial Jam: Manual Feeder Entrance	V1	Bypass Entrance Sensor
	Initial Jam: Folder Unit Entrance (from Manual Feed unit)	V2	Bypass Relay Sensor
	Initial Jam: Bypass Entrance	V1	Paper Width Sensor (880)
	Initial Jam: Bypass Entrance	V1	Paper Width Sensor (841)

Code	Location	Display	Comment
	Initial Jam: Bypass Entrance	V1	Paper Width Sensor (594)
	Initial Jam: Bypass Entrance	V1	Paper Width Sensor (420)
	Initial Jam: Bypass Entrance	V1	Paper Width Sensor (297)
	Initial Jam: Bypass Entrance	V1	Paper Width Sensor (30 in.)
	Initial Jam: Bypass Entrance	V1	Paper Width Sensor (B4)
	Initial Jam: Bypass Entrance	V1	Paper Width Sensor (B3)
	Initial Jam: Bypass Entrance	V1	Paper Width Sensor (B2)
	Initial Jam: Bypass Entrance	V1	Paper Width Sensor (B1)

Folder Unit Late Jams

Code	Location	Display	Comment
130	Bypass LE Relay ON Check	V2	Bypass relay sensor
132	Junction Gate LE Exit ON Check	N3	Relay Sensor 1
134	Fan Folder LE Relay ON Check	N5	Relay Sensor 2
138	Fan Folder LE Entrance ON Check	N7	Fan folder entrance sensor
140	Front Fan Fold LE Detect ON Check	N7	Fan fold LED (F1), Fan fold sensor (F2)
141	Rear Fan Fold LE Detect ON Check	N7	Fan fold LED (R1), Fan fold sensor (R2)
143	Fan Fold Exit LE Detect ON Check	N7	Folder unit exit sensor
145	Minimum Length Bypass Check	V2	Bypass Relay Sensor

Folder Unit Lag Jams

Code	Location	Display	Comment
131	Bypass TE Relay OFF Check	V2	Bypass relay sensor
133	Junction Gate TE Exit OFF Check	N3	Relay Sensor 1

Code	Location	Display	Comment
135	Fan Folder TE Relay OFF Check	N5	Relay Sensor 2
139	Fan Folder TE Entrance OFF Check	N7	Fan folder entrance sensor
142	Rear Fan Fold TE Detect OFF Check	N7	Fan fold LED (R1), Fan fold sensor (R2)
144	Fan Fold Exit TE Detect OFF Check	N7	Folder unit exit sensor
146	Fold Count Limit	N7	Front/Rear Fold Sensor Pairs

4

Cover Open

Location	Shuts Off Lines	Display
Drawer Connector	Roll feed motor, cutter motor, roll feed clutches (24 V dc line)	Cover Open
Exit Cover Sensor	Cooling fan, paper junction gate solenoid, quenching lamp, pick-off pawl solenoid, fusing motor, T&S power pack (24 V dc line), fusing lamp (power relay/ac line)	
Exit Cover Switch		
Exit Unit Switch		
Toner Hopper Cover Switch	Toner supply clutch, paper registration clutch, drum motor, main motor, CGB power pack (24 V dc line)	
Upper Unit Sensor	Toner supply clutch, paper registration clutch, drum motor, main motor, CGB power pack, cooling fan, paper junction gate solenoid, quenching lamp, pick-off pawl solenoid, fusing motor, T&S power pack (24 V dc line), fusing lamp (power relay/ac line)	
Upper Unit Switch		

4

Fuses

The fuses differ slightly with geographic location.

Main Machine Fuse Table
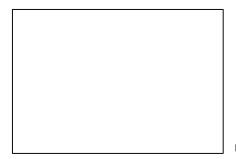
No.	No.	Area	Specification
PSU	CP101	120V	15A 125Vac/250ac
		220 - 240V	8A 125Vac/250ac
	FU001	120V	15A 125Vac
		220 - 240V	T6.3AH 250ac
	FU002	120V, 220 - 240V	T2A 250Vac
	FU101	120V	T10AH 250Vac
		220 - 240V	T6.3AH 250Vac
	FU301	120V, 220 - 240V	T6.3AL 250Vac
	FU302		T6.3AL 250Vac
	FU303		2 T6.3AL 50Vac
RFDB	FU501	120V, 220 - 240V	T 2A 250V
SFDB	FU601	120V, 220 - 240V	T1 A/250V

Image Problem Troubleshooting

Printing

1. No Image (blank copy/print)
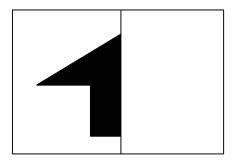
b286t549

Possible causes:

- VDB board defective

- IPU board defective

- LPH (LED head) defective

2. Band with no image-width 1/3 of image
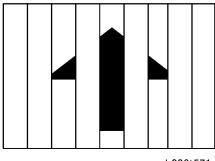
b286t550

Possible causes:

- Connection problem between VDB and LPH

- LPH head defective

3. Bands with no image-width 1/8 A0 (E) size
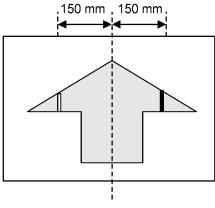
b286t571

Possible causes:

- VDB board defective

4. Vertical white and black line at 150 mm from center.
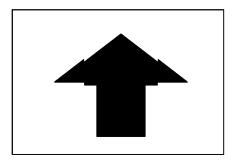
b286t572

Possible causes:

- LPH Joints adjustment error

5. Horizontal line broken at 150 mm from center.

b286t573

Possible causes:

• LPH subscan timing error at joint position
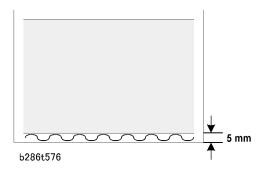
Other Problems

1. Excessive curl

Possible causes:

• When a paper roll reaches its end, the paper closest to the core tends to have excessive curl.

• There is no way to correct this. Operators should be instructed to use cut sheets if possible.

2. Shrinkage of areas in incomplete images

5 mm

b286t576
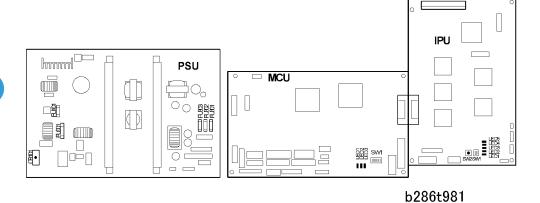
Possible causes:

• Some customers complained about loss of borderlines at the trailing edge of copies when an A1 original is reduced to A3.

• This problem has not been corrected.

Board LEDS

This section describes the functions of the LEDs on the most important PCBs.

PSU, MCU, IPU

b286t981

PSU LEDs

The PSU supplies dc current to electrical components and also controls the flow of ac current to the fusing lamp, dehumidifiers (x4), and anti-condensation heaters (x2).

No.	Color	Meaning	
Vaa +24 V	GREEN	ON	Normal
		OFF	• PSU defective, or the +24 V system has shorted or is defective.
Vca2 −12 V	GREEN	ON	Normal
		OFF	• PSU defective, or the −12 V system has shorted or is defective.
Vca2 +12 V	GREEN	ON	Normal
		OFF	• PSU defective, or the +12 V system (HDD) has shorted or is defective.
Vcc +5.1 V	GREEN	ON	Normal

No.	Color	Meaning	
		OFF	• PSU defective, or the +5.1 system (Vcc2) has shorted or is defective.
Vcc1 +5.1 V	GREEN	ON	Normal. Also remains on in auto off mode.
		OFF	• PSU defective, or the +5.1 system (Vcc1) has shorted or is defective.

MCU LEDs

The MCU (Main Control Unit) performs system control, base engine control, and also controls the IPU. The MCU also controls:

- I/O for the base engine (high voltage power supply, motors, sensors, solenoids, clutches, fusing temperature, customer support systems, etc.)
- Power supply

MCU LED 1 to 4
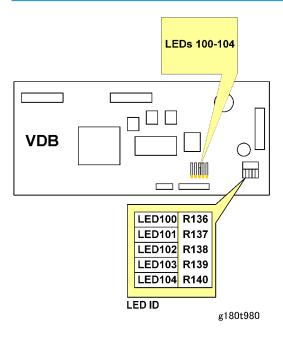
No.	Color	Operation	LED Action
LED 1	GREEN	Firmware update	Flashes rapidly
		End of firmware update, normal operation	Flashes slowly
LED 2	GREEN	Firmware update	On
		End of firmware update, normal operation	Off
LED 3	ORANGE	Firmware update	Flashes rapidly
		End of firmware update, normal operation	Flashes slowly
LED 4	ORANGE	Firmware update	On
		End of firmware update, normal operation	Off

IPU LEDs

The IPU (Image Processing Unit) processes the image data for the print job. After the scan data has been processed, it is sent through the VDB to the LPH for image writing.

No.	Color	Operation	LED Action
LED 5	Orange	Image Processing 1 (while data is transferring)	On

VDB

g180t980
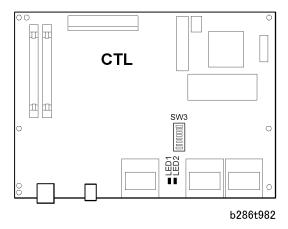
VDB LEDs

The VDB (Video Drive Board) controls the LPH (LED Print Head). The VDB receives the image processed data from the IPU and sends it to the LPH.

No.	Color	Operation	LED Action
LED 100	GREEN	Timer	Flashes
LED 101	YELLOW	During image writing (RFGATE signal)	ON
LED 102	GREEN	Outputting LPH 2 print data (1-bit)	ON
LED 103	YELLOW	Outputting ID sensor sampling	ON
LED 104	GREEN	Calibrating amount of LPH light	ON

GW Controller Board

The controller board interfaces with the IPU and accesses all the expansion applications provided on boards and SD cards installed in the slots of the controller board.

b286t982

Controller Board LEDs

No.	Color	Operation	LED Action
LED 1	RED	Normal operation	Off
		During firmware update	Alternates flashes with LED 11
		At completion of firmware update	On
LED 2	RED	Normal operation	Flashes
		During firmware update	Alternates flashes with LED 1
		At completion of firmware update	On

Controller Board DIP SW3

Bit	Application	Setting
0	Boot mode selection	On: FlashROM (Default) Off: SD Card
1	Not Used	---
2	Not Used	---

Bit	Application	Setting
3	Not Used	---
4	Not Used	---
5	Not Used	---
6	Not Used	---
7	HDD Power Control	On: HDD OFF in CTL_OFF mode (Default) Off: HDD ON in CTL_OFF mode

5. Service Tables
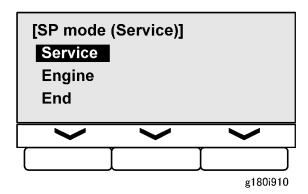
Using the SP Mode

How to Use SP Mode
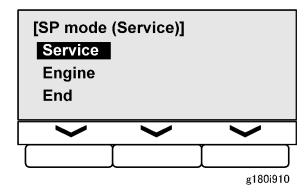
Quick Start (Machine Off)

1. Press and hold down [Online] and [Escape].

2. Turn on the machine.

g180i910
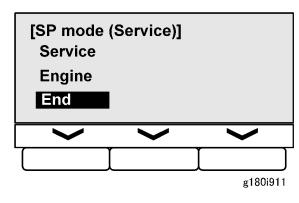
Normal Start (Machine On)

1. Press and hold down [▼] [▲] for at least 3 sec.

2. Press [OK]

g180i910

Leaving SP Mode

1. [▼] or [▲] > "End"

g180i911
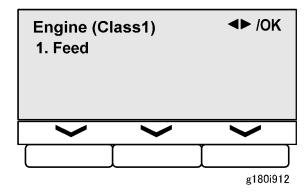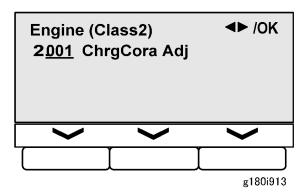
2. [OK]> Standby

Using the SP Mode
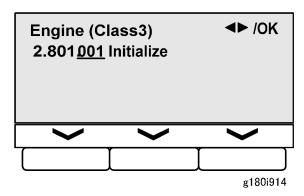
1. Press and hold down [▼] [▲] for at least 3 sec.

2. Press [OK]

3. [▼]> "Engine"> [OK].

g180i912
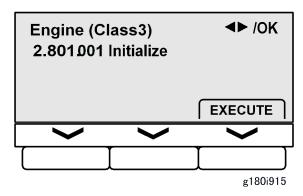
4. [◀] or [▶]> "2. Drum"> "3. Process"> "5. Mode"> "6. Periphs"> "7. Data Log 1"> "8. Data Log 2"> "9. Etc."

5. When the group you want to open is displayed ("2. Drum", for example), press [OK].

g180i913

6. [◀] or [▶]> Scroll through the level 1 SP code titles to display the SP code that you want to open ("2801", for example) > [OK].

Engine (Class3) ◀▶ /OK
2.801001 Initialize

g180i914

7. [◀] or [▶]> Scroll through the sublevels of the selected SP code (the "001" numbers), then press [OK] to open the settings screen.

Engine (Class3) ◀▶ /OK
2.801001 Initialize

EXECUTE

g180i915
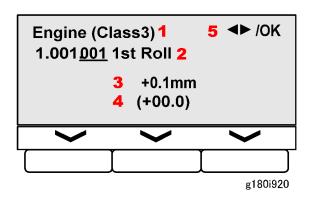
8. When you are finished doing the setting, press [OK].

9. Press [Escape] to return to the previous level and do other settings.

-or-

To leave the SP mode: [Escape]> "SP mode initial screen"> [▼] or [▲]> "End"

[OK]> Standby

What's on the SP Mode Screen?

```
Engine (Class3) 1        5  ◄► /OK
1.001001 1st Roll 2

            3   +0.1mm
            4   (+00.0)

      ⌄          ⌄          ⌄
```

g180i920

	1	**Level**. The "Class" number tells you which level you are on.
	2	**SP number/name**. The name and number of the currently selected SP code.
	3	**Current setting**. The current value set for the SP code.
	4	**Default setting**. This is the default value of the currently selected SP code.
	5	**Keys to use**. These icons tell you which keys should be pressed for selection at this stage of entry.

Firmware Update

Overview

The MCU (Main Control Unit) board flash-memory contains the software for this machine. To upgrade the software, one SD card is required.

⭐**Important**

- Always turn the main power switch off before you insert or remove an SD card.

- Keep the main switch on during software installation.

- Store and handle SD cards carefully to protect them from heat, humidity, and sunlight.

Updating Firmware

Before You Begin
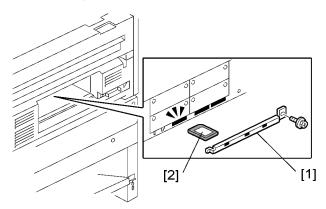
- The modules must be updated one at a time. This means you must turn the machine power off/on after updating one module. More than one module cannot be selected for updating at the same time.

- If a network cable is connected to the machine it must be disconnected. This prevents an incoming job from interfering with an update in progress.

⚠️ **CAUTION**

- Never switch the machine off while a firmware update is in progress.
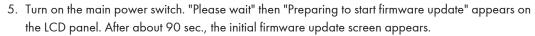
Inserting the SD Card
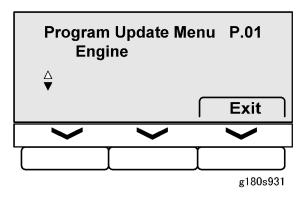
1. Disconnect the network cable if one is attached.

2. Turn the main power switch off.

[2]   [1]

b286i161a
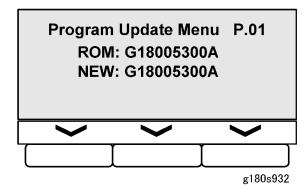
3. Remove the SD slot cover [1].

4. Insert the SD card [2] with the firmware in SD card Slot 3. (If there is an SD card in Slot 3, remove it.)

5. Turn on the main power switch. "Please wait" then "Preparing to start firmware update" appears on the LCD panel. After about 90 sec., the initial firmware update screen appears.

g180s931
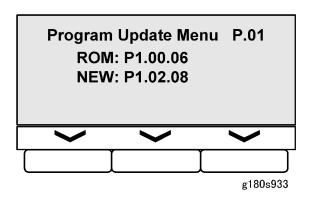
Browsing the Update Menu

1. [▼] or [▲] to display the module to update:

   • Engine

   • Network Support

   • Web Support

   • Printer

   • Network DocBox (Document Server)

   • System

2. [▶] displays ROM name.

g180s932
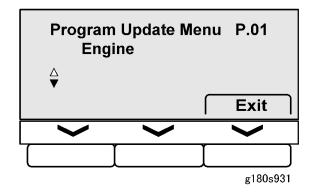
3. [▶] again displays ROM version.

```
Program Update Menu   P.01
     ROM: P1.00.06
     NEW: P1.02.08
```

g180s933
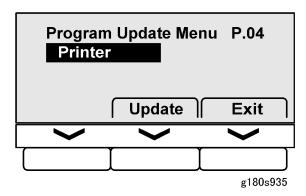
- If the "NEW" number is higher than the "ROM" number (the version currently installed in the machine), the module should be updated.

4. [▶] again returns to the module name level.

```
Program Update Menu   P.01
     Engine

△
▼
                        Exit
```

g180s931
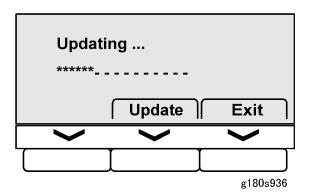
5. Repeat this procedure for each module to determine which versions need to be updated.

Updating a Module

1. Use the procedure above to browse to the module to update.

2. Push [OK].

```
Program Update Menu   P.04
 Printer

              Update    Exit
```

g180s935

3. Push [Update].

Updating ...

******_ _ _ _ _ _ _ _ _ _

| Update | Exit |

g180s936

4. Wait for the progress bar to fill with asterisks.

5. When you see "Updated" and "Power Off/On", turn the machine off.

🔸**Note**

• If the procedure fails, you must replace the controller board.

What to do Next

1. Repeat the update procedure above to update each module that needs to be updated.

2. When you have finished, switch the machine off.

3. Remove the SD card from the service slot and reattach the SD card slot cover.

4. Reattach the network cable.

5. Switch the machine on and print the Configuration List to confirm that the modules have been updated.

   • [Menu]

   • [▼] or [▲]> "List/Test Print"> [OK].

   • [▼]> "Config. Page"> [OK]> "Config. Page Printing..."

Menus

This is a very brief of the menu tree. For more details about menu settings, please refer to the operating instructions.

Counter	
Counter	Displays amount of paper remaining on the paper rolls.

Memory Erase Status	
Memory Erase Status	Appears only after installation of the optional Data Overwrite Security Unit (B735).

Paper Input	
Paper Size: Bypass Tray	The paper size and type must be set at installation. Thereafter, the size and type must be reset every time paper of a different size/type is loaded.
Paper Size: Tray 1	
Paper Size: Tray 2	
Paper Size: Tray 3	
Paper Type: Bypass Tray	
Paper Type: Tray 1	
Paper Type: Tray 2	
Paper Type: Tray 3	
Auto Tray Select	Determines whether each tray prints the paper size/type selected by the printer driver.
Tray Priority	Determines which tray is checked first when "Auto Tray Select" is enabled. The tray selected here is always used when no tray is specified for the print job.

Maintenance	
General Settings	
Paper Thickness	Five settings available for each paper type: plain, recycled, translucent, film

Maintenance	
Menu Protect	Determines whether menus are protected.
List/Test Print Lock	Prohibits List/Test printing
Unit of Measure	Select "mm" or "inch"
Panel Key Sound	Switches key press sound off/on.
Warm-up Beeper	Switches warm-up alert off/on.
Key Repeat	Determines whether the highlight continues to scroll in the menus when the left or right arrow key is held down. (Default: On, Normal Speed)
Fine Ratio Adjustment*[1]	Selects paper type/fine ratio.
Fold Width Fine Adjustment*[1]	Adjusts fold width.
Margin Fold Adjustment*[1]	Adjusts the side of the size of the margin for binding on the first fold.
Timer Settings	
Auto Reset Timer	Determines how long the machine waits to return to standby during machine configuration with the operation panel if no key is pressed.
Set Date	Sets the date of the machine clock
Set Time	Sets the time of the machine clock.
HD Management	
Delete All Temporary Jobs	Temporary jobs include Sample Print, Locked Print, Hold Print
Delete All Stored Jobs	Deletes all Stored Print data
Auto Delete Temporary Jobs	Sets a timer to automatically delete temporary print jobs (Sample Print, Locked Print, Hold Print) saved on disk
Auto Delete Stored Jobs	Switches delete of Stored Print data off/on. A timer can be set to determine how long the machine waits before deleting.

*[1]: Available only when optional Folder Unit (B889) is installed

List/Test Print	
Multiple Lists	Prints together: Configuration Page, Error Log, Network Summary, Supply List
Config. Page	Lists important information about the machine: total page counter, firmware version, device connection (device options installed), connection equipment (installed peripherals), etc.
Error Log	Prints an error report
Network Summary	Prints report about network status
Menu List	Prints a list of all available menus.
PS Config./Font Page	Prints current configuration of installed PostScript fonts.
PDF Config./Font Page	Prints configuration of all installed PDF fonts.
Hex Dump	Prints a job as a hexadecimal dump

System	
Print Error Report	Can be set to print an error report every time a printer error or memory error occurs.
Auto Continue	Determines whether to resume printing after a system error occurs.
Memory Overflow	Determines whether a report is printed for a memory overflow.
Printer Language	Specifies the printer language
Sub Paper Size	Specifies the alternate paper size to be selected automatically.
Default Printer Lang.	Specifies the printer language if the printer fails to detect the printer language.
Energy Saver 1	Switches the energy save mode on/off. When this is turned on, the machine drops into energy save mode after every print job.
Energy Saver 2	Specifies the idle time to elapse before the machine drops into energy save mode. (Default: 15 min.)
Memory Usage	Select either font or frame priority. (Default: Frame Priority)
Spool Printing	Determines whether spooling completes before printing begins.

5

System	
Auto Email Notify	Determines whether an error message is sent by email when a machine error occurs.

Print Settings	
Machine Modes	
Copies	Specifies the number of copies to print. The printer driver setting overrides this setting.
Edge-to-Edge Print	Specifies print edge-to-edge with no borders.
Output Tray	Selects either upper or lower paper exit.
Rotate 180 Degrees	Rotates image 180 degrees for printing
Blank Page Print	Selects printing blank pages
Bypass Tray Priority	Determines which settings are used (operation panel or driver settings) if the selected paper size/type settings between printer and printer driver do not match.
Tray Switching	Specifies whether to switch automatically switch to a suitable tray if the setting of the currently selected tray does not match the paper size/type specified by the printer driver.
PS Menu	Sets up PostScript printing
PDF Menu	Sets up PDF printing

Security Options	
Extend Auth. Management 1 [1]	Determines whether to apply Extended Authorization Management.
Extended Security	Allows setting up more security features for the machine: encryption, user restriction, etc. For more, see the operating instructions.
Service Mode Lock	Enables/disables Service mode.
Firmware Version	Displays the firmware version of the machine
Network Security Level	Specifies the network security level.

Security Options	
Auto Erase Memory Setting*2	Specifies writing over data on the HDD with random numbers.
Erase All Memory*2	
Transfer Log Setting	Determines whether log information is sent to a log collection server.

*1: Available only when optional authentication module is installed.

*2: Available only after installation of the optional Data Overwrite Security Unit (B735)

Host Interface	
I/O Buffer	Specifies the size of the I/O buffer.
I/O Timeout	Specifies the length of time the printer waits before ending a print job.
Network*1	Use to specify network settings: IPv4 address, protocols, etc.
IEEE 802.11b*1	Specifies settings for wireless LAN: communication mode, SSID setting, etc.
USB Setting	Specifies the speed for USB.

*1: Appears only if IEEE802.11b is installed.

Language	
Language	Selects the language: English, Francais, Deutsch, Italiano, Espanol, Nederlands, Portugues

5

Input Check

You can check the sensors and switches with SP5803. Go into one of the modes in the tables.

In each mode, the display shows an 8-digit number. The digits are given numbers 7 to 0 from left to right. Each bit shows the on/off condition of a sensor or switch with a 0 or 1. For example:

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

5803	Input Check			
	Displays the signals received from switches and sensors.			
	(7) 0000 0000 (0) [00]			
1	Roll Tray			
	Bit	Item	0	1
	7	---		
	6	---	---	---
	5	---	---	---
	4	Cassette Set Sensor	Closed	Open
	3	Left Cutter HP Switch	No Cutter	Cutter Present
	2	Right Cutter HP Switch	No Cutter	Cutter Present
	1	---	---	---
	0	RF Set Sensor	Closed	Open
2	1st & 2nd Roll			
	Bit	Item	0	1
	7	---	---	---
	6	Roll 2 End Sensor	Paper	No Paper
	5	---	---	---
	4	Roll 2 Entrance Sensor	Paper	No Paper

	3	---	---	---
	2	Roll 1 End Sensor	Paper	No Paper
	1	---	---	---
	0	Roll 2 Entrance Sensor	Paper	No Paper
4	**Cassette Tray**			
	Bit	Item	0	1
	7	---	---	---
	6	---	---	---
	5	---	---	---
	4	---	---	---
	3	---	---	---
	2	Cassette End Sensor	Paper	No Paper
	1	---	---	---
	0	Cassette Jam Sensor	Paper	No Paper
7	**Paper Path Sensors**			
	Bit	Item	0	1
	7	---	---	---
	6	---	---	---
	5	---	---	---
	4	Fusing Exit Sensor	Paper	No Paper
	3	Paper Registration Sensor	Paper	No Paper
	2	Paper Set Sensor	Paper	No Paper
	1	RF Exit Sensor	Paper	No Paper
	0	---	---	---
8	**Unit Detect**			
	Bit	Item	0	1

	Bit	Item	0	1
	7	---	---	---
	6	Key Counter Set	Not Set	Set
	5	Key Card Set	Not Set	Set
	4	Total Counter	Not Set	Set
	3	---	---	---
	2	---	---	---
	1	---	---	---
	0	---	---	---
9	Door/M(otor) Lock			
	Bit	Item	0	1
	7	Fusing Motor	Normal	Lock
	6	Wire Cleaner Motor	Normal	Lock
	5	Drum Motor	Normal	Lock
	4	Main Motor	Normal	Lock
	3	Exit Cover Switch (Left)	Closed	Open
	2	Toner Hopper Cover Switch	Closed	Open
	1	Upper Unit SW (5V)	Closed	Open
	0	Upper Cover SW (Right) (24V	Closed	Open
10	Others			
	Bit	Item	0	1
	7	Fusing Unit Cover Switch	Closed	Open
	6	Exit Cover Sensor (Left) (5V)	Closed	Open
	5	Cooling Fan	Normal	Lock
	4	Toner Overflow Sensor	Not Full	Full

	3	Machine Model Confirmation	Model A	Model B
	2	Machine Model Detection	Model A	Model B
	1	Hot Roller Thermistor (High Temp.)	Normal	High
	0	Zero Cross Signal	Off	On
11	Dip Switch 1			
	Bit	Item	0	1
	7	DIP SW 8	Off	On
	6	DIP SW 7	Off	On
	5	DIP SW 6	Off	On
	4	DIP SW 5	Off	On
	3	DIP SW 4	Off	On
	2	DIP SW 3	Off	On
	1	DIP SW 2	Off	On
	0	DIP SW 1	Off	On

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Output Check

You can check the operation of these parts with SP5804.

5804	Output Check	
	Switches each electrical component to test its operation. [OFF/ON]	
11	RF M1:Fwd	Roll Feed Motor 1: Forward
12	RF M1:Rev	Roll Feed Motor 1: Reverse
15	RF1 Feed CL	1st Roll Feed Clutch
16	RF2 Feed Cl	2nd Roll Feed Clutch
19	Cutter 1	
21	Ca Feed M	Cassette Feed Motor
25	Ca1 Feed CL	1st Cassette Feed Clutch
31	Reg Motor	Main Motor
32	Main Motor	Drum Motor
33	Fusing/Exit Motor	
34	Reg CL	Registration Clutch
35	JG SOL	Paper Junction Gate Solenoid
36	Used Toner Motor	
41	Charge Corona	
42	ChrgG:Img	Charge Grid: Image Area
43	ChrgG:IDPtrn	Charge Grid: ID Sensor Pattern
44	ChrgCora:Img	Charge Corona/Grid: Image Area
45	DBias:Img	Development Bias: Image Area
46	DBias:IDPtrn	Development Bias: ID Sensor Pattern
47	TCora:Ledge	Transfer Corona: Leading Edge

48	Transfer Corona	
49	SCora:Ledge	Separation Corona: Leading Edge
50	Scora	Separation Corona
52	TnrSupply CL	Toner Supply Clutch
53	Quenching Lamp	
54	Pawl SOL	Pick-off Pawl Solenoid
55	ID Sensor LED	
66	ChrgCora M	Charge Corona Wire Cleaner Motor
67	Recycle Counter	
68	Dehumidifier	Dehumidifier

SP Table Key

Notation	What it means
[range/default step]	Example: [-9 to +9/+3.0/0.1 mm step]. Setting can be adjusted in the range ±9, value reset to +3.0 after and NVRAM reset, and the value can be changed in 0.1 mm steps with each key push.
DFU	"Design or Factory Use". Do not change this value. The factory default setting provides optimum performance.
Not Used	These SP's appear in the SP mode menus but these codes are not used because: • Currently the feature is not available for the main machine, or its use has been discontinued. • The SP is intended for use with a peripheral that is currently under development but not available at this time. Note: Executing these SP's has no effect on operation of the main machine or any peripheral device.
Japan Only	This feature or item is for Japan only. Do not change this value.

⭐ Important

• Always turn the machine power off/on after changing an SP setting.

SP1-xxx Feed

1001	LEdge Reg		Leading Edge Registration
1	1st Roll	Adjusts the leading edge registration for printing. To move the image down the page, increase the value. [-10.0 to +10.0/ 0 /0.1 mm step]	
2	2nd Roll		
3	Cassette		
5	By-pass Feed		

1002	S-to-S Reg		Side-to-Side Registration
1	1st Roll	Adjusts the side-to-side registration for printing. [-10.0 to +10.0/ 0 /0.1 mm step] • To move the start position to the right, increase the value (+). • To move the start position to the left, decrease the value (−). **Note**: If you use paper 914 mm wide, adjust within the range of ±2 mm. If you set the adjustment outside this range, part of the image will be cut off.	
2	2nd Roll		
3	Cassette		
5	By-pass Feed		

1105	FTemp Adj		Fusing Temperature Adjustment
	Be sure to switch the main power switch off and on after adjustment.		
	Cy Rdy Temp		Copy Ready Temperature
1	Sets the copy ready fusing temperature. The setting is the difference from the target fusing temperature that is set with SP1931. **DFU** [0 to +20/10/1°C] Copying can start at this temperature before the hot roller reaches its target temperature (SP1931).		
	Low Power Mode		
3	Sets the copy ready temperature for low power mode. [80 to 150/90/1°C step]		
	FTemp Calib		Fusing Temperature Calibration
5	Calibrates the scale for the fusing temperature settings. **DFU**		

5

	[-10 to +10/0/1°C step]	
	PTemp:Ctr	Pressure Temperature Calibration: Center
6	Calibrates the scale for the pressure temperature control at the center of the pressure roller. **DFU** [-10 to +10/0/1°C step]	
	PTemp:Edge	Pressure Temperature Calibration: Edge
7	Calibrates the scale for the pressure temperature control at the end of the pressure roller. **DFU** [-10 to +10/0/1°C step]	

1106	FTemp Disp	Fusing Temperature Display
	This SP displays the hot roller and pressure roller temperatures.	
1	HotRol Temp	Hot Roller Temperature
2	PRol:CtrTemp	Pressure Roller Temperature: Center
3	Prol:EdgTemp	Pressure Roller Temperature: Edge

1159	Fus Jam SC Set	Fusing Jam SC Setting
	The setting of this SP determines whether the machine issues SC559 after three successive jams occur in the fusing unit. [0-1/0/1] 0: Disabled. SC559 not issued after 3 successive jams in the fusing unit. 1: Enabled. SC559 issued after 3 successive jams in the fusing unit. The operator cannot restore operation of the machine by cycling the machine off/on. SC559 is a Class "A" SC error. The service technician must restore operation of the machine.	

1801	M Spd Adj	Motor Speed Adjustment **DFU**
	These SP's adjust the speeds of the feed motor (paper cassette), main motor, and fusing motor. The motor speeds can be adjusted to correct images that appear scratchy or of uneven density. This can occur when: • Copying originals with large quantities of black. • Copying originals with a large quantity of black near the trailing edge. • Printing multiple copies of positive/negative (reverse) images.	

1	FeedM:R1 **DFU**	Feed Motor: 1st Roll
	[-30 to +30/0/1] For every change of "1", speed is adjusted 1/1635 or approximately 0.06% Std: (70 MHz/32)/1635 = 1338 pps **Example**: If the setting is changed by "+10" then: (70 MHz/32)/(1635-10) = (70 MHz/32)/(1625) = 1346 pps	
2	FeedM:R2 **DFU**	Feed Motor: 2nd Roll
	[-30 to +30/0/1] For every change of "1", speed is adjusted 1/1635 or approximately 0.06% Std: (70 MHz/32)/1635 = 1338 pps **Example**: If the setting is changed by "+10" then: (70 MHz/32)/(1635-10) = (70 MHz/32)/(1625) = 1346 pps	
5	FeedM:CutS **DFU**	Feed Motor : Cut Paper Tray
	[-30 to +30/0/1] For every change of "1", speed is adjusted 1/1063 or approximately 0.094% Std: (19.6608 MHz/32)/1063 = 578 pps **Example**: If the setting is changed by "+10" then: (19.6608 MHz/32)/(1063-10) = (19.6608 MHz/32)/(1053) = 583 pps	
6	Main Motor **DFU**	
	[-80 to +80/0/1] For every change of "1", speed is adjusted 1/2485 or approximately 0.035%. Std: (19.6608 MHz/8)/2485 = 988.07 pps **Example**: If the setting changed by "+10" then: (19.6608 MHz/8)/(2485-10) = (19.6608 MHz/8)/(2475) = 992.9 pps	
7	Fusing Motor **DFU**	
	[-100 to +100/7/1	

5

	For every change of "1", speed is adjusted 1/1848 or approximately 0.054%.
	Std: (19.6608 MHz/8)/1848 = 1329.97 pps
	Example: If the setting changed by "+10" then:
	(19.6608 MHz/8)/(1848-10) =
	(19.6608 MHz/8)/(1838) = 1337.11 pps

1911	BP Strt Adj	By-pass Feed Start Timing Adj.
	Adjusts the time that the operator has to adjust the paper skew manually when feeding paper manually from the bypass tray.. [1.0 to 8.0/2.0/0.1 sec.]	

5

1912	Fed M SpdAdj		Feed Motor Speed Adjustment
	Adjusts the feed motor speed for the type of print medium in use (plain paper, translucent paper, film). Std: (70 MHz/32)/1635 = 1338 pps For every change of "1", speed is adjusted 1/1635 or approximately 0.06%. **Example**: If the setting is changed by "+10" then: (70 MHz/32)/(1635-10) = (70 MHz/32)/(1625) = 1346 pps		
1	Plain	[-100 to +100/-10/1%]	
2	Translucent	[-100 to +100/0/1%]	
3	Film	[-100 to +100/-10/%1]	

1916	Fus M SpdAdj		Fusing Motor Speed Adj.
	SP1916 1 to 013 adjust the basic fusing motor speed and correct the speed for different widths of paper to prevent skew in the paper feed path. **Note**: The actual adjustment that the machine applies is the sum of the width adjustment (1916 010 to 013) and the paper type adjustment (1916 021 to 045).		
10	Width:611mm more	[-100 to +100/0/1]	
11	Width:461-610mm	[-100 to +100/5/1]	
12	Width:298-460mm	[-100 to +100/9/1]	

13	Width:297mm less	[-100 to +100/18/1]
	Note: "Mode 1 to 5" below refer to the paper thickness set with [User Tools]> "System Settings"> "Tray Paper Settings"> "Paper Thickness: Paper Tray" or "Paper Thickness: Bypass Tray".	
21	Plain:Mode1	[-100 to +100/0/1]
22	Plain:Mode2	
23	Plain:Mode3	
24	Plain:Mode4	
25	Plain:Mode5	[-100 to +100/25/1]
31	Trans.:Mode1	[-100 to +100/21/1]
32	Trans.:Mode2	
33	Trans.:Mode3	
34	Trans.:Mode4	
35	Trans.:Mode5	[-100 to +100/32/1]
41	Film:Mode1	[-100 to +100/23/1]
42	Film:Mode2	
43	Film:Mode3	
44	Film:Mode4	[-100 to +100/41/1]
45	Film:Mode5	[-100 to +100/18/1]
	Note: These comments apply to 051 to 053 below. Changes to SP1916-51 to -53 affect the speed of the fusing motor. (19.6608 MHz/8)/(1848) = 1329.97 pps For every change of "1", speed is adjusted 1/1848 = 0.054%. Example: If the setting is changed by "+10", then: (19.6608 MHz/8)/(1848-10) = (19.6608 MHz/8)/(1838) = 1337.11 pps	
51	Man:420mm over	[-100 to +100/0/1]
52	Man:420mm less	[-100 to +100/9/1]

53	Cassette		[-100 to +100/0/1]

1918	F/M M Chg		Fusing/Main Mtr Speed Change
	These SP modes adjust the rate of the speed reduction between the main motor and the fusing motor. During normal operation, the line speed in the fusing unit is slightly faster than the line speed at registration. This keeps the paper slightly stretched to prevent wrinkling and skewing.		
	However, if the speed of the drum becomes slower as a result of a change in the amount of buckle at the registration roller, the tension on the paper will pull on the drum and rotate it faster than the rotation of the main motor. This can cause image distortion at the two LPH joints.		
	To prevent such distortion, use this SP to decrease the speed of the fusing motor. While this lowers the line speed slightly, it also keeps the correct amount of tension on the paper between the fusing unit and registration roller to prevent skewing and image distortion.		
	Important		
	• There are two adjustments for each feed source and paper width: (1) "Chg Timing" and (2) "Chg%". • Always do the "Chg Timing" adjustment before doing the "%Chg adjustment". • The "Chg Timing" adjustment sets the length of paper to feed before the speed reduction rate ("Chg%") takes effect. • The "Chg%" adjustment sets the rate of speed reduction between the main motor and fusing motor.		
10	RT1P>611		Roll/1st Chg Timing/Plain/Width > 611mm
11	RT1P>461-610		Roll/1st Chg Timing/Plain/Width 461-610mm
12	RT1P>298-460		Roll/1st Chg Timing/Plain/Width 298-460mm
13	RT1P<297		Roll/1st Chg Timing/Plain/Width < 297mm
	[0 to 15000/170/1mm]		
15	R%1P>611		Roll/1st Chg %/Plain/Width > 611mm
16	R%1P461-610		Roll/1st Chg %/Plain/Width 461-610mm
	[-9.99 to 9.99/-0.2/0.01%]		
17	R%1P298-460		Roll/1st Chg %/Plain/Width 298-460mm
	[-9.99 to 9.99/-0.4/0.01%]		
18	R%1P<297		Roll/1st Chg %/Plain/Width < 297mm

	[-9.99 to 9.99/-0.5/0.01%]	
20	RT1T>611	Roll/1st Chg Timing/Trans/Width > 611mm
21	RT1T>461-610	Roll/1st Chg Timing/Trans/Width 461-610mm
22	RT1T>298-460	Roll/1st Chg Timing/Trans/Width 298-460mm
23	RT1T<297	Roll/1st Chg Timing/Trans/Width < 297mm
	[0 to 15000/170/1mm]	
25	R%1T>611	Roll/1st Chg %/Trans/Width > 611mm
	[-9.99 to 9.99/-0.9/0.01%]	
26	R%1T461-610	Roll/1st Chg %/Trans/Width 461-610mm
27	R%1T298-460	Roll/1st Chg %/Trans/Width :298-460mm
	[-9.99 to 9.99/-1.1/0.01%]	
28	R%1T<297	Roll/1st Chg %/Trans/Width < 297mm
	[-9.99 to 9.99/-1.4/0.01%]	
30	RT1F>611	Roll/1st Chg Timing/Film/Width > 611mm
31	RT1F>461-610	Roll/1st Chg Timing/Film/Width 461-610mm
32	RT1F>298-460	Roll/1st Chg Timing/Film/Width 298-460mm
33	RT1F<297	Roll/1st Chg Timing/Film/Width < 297mm
	[0 to 15000/170/1mm]	
35	R%1F>611	Roll/1st Chg %/Film/Width > 611mm
	[-9.99 to 9.99/-1.2/0.01%]	
36	R%1F461-610	Roll/1st Chg %/Film/Width 461-610mm
37	R%1F298-460	Roll/1st Chg %/Film/Width 298-460mm
	[-9.99 to 9.99/-1.3/0.01%]	
38	R%1F<297	Roll/1st Chg %/Film/Width < 297mm
	[-9.99 to 9.99/-1.5/0.01%]	
42	CT1 298-460	Cassette/1st Chg Timing/Width /298-460mm

43	CT1 <297	Cassette/1st Chg Timing/Width < 297mm
	[0 to 15000/170/1mm]	
47	C%1 298-460	Cassette/1st Chg %/Width 298-460mm
	[-9.99 to 9.99/-1.0/0.01%]	
48	C%1 <297	Cassette/1st Chg %/Width < 297mm
	[-9.99 to 9.99/-1.3/0.01%]	
50	BT1 >611	Bypass/1st Chg Timing/Width > 611mm
51	BT1 461-610	Bypass/1st Chg Timing/Width 461-610mm
52	BT1 298-460	Bypass/1st Chg Timing/Width 298-460mm
53	BT1 < 297	Bypass/1st Chg Timing/Width < 297mm
	[0 to 15000/170/1mm]	
55	B%1>611	Bypass/1st Chg %/Width > 611mm
56	B%1 461-610	Bypass/1st Chg %/Width 461-610mm
	[-9.99 to 9.99/-0.5/0.01%]	
57	B%1 298-460	Bypass/1st Chg %/Width 298-460mm
	[-9.99 to 9.99/-1.0/0.01%]	
58	B%1 <297	Bypass/1st Chg %/Width < 297mm
	[-9.99 to 9.99/-1.3/0.01%]	
110	RT2P>611	Roll/2nd Chg Timing/Plain/Width > 611mm
111	RT2P>461-610	Roll/2nd Chg Timing/Plain/Width 461-610mm
112	RT2P>298-460	Roll/2nd Chg Timing/Plain/Width 298-460mm
113	RT2P<297	Roll/2nd Chg Timing/Plain/Width > 297mm
	[0 to 15000/0/1mm]	
115	R%2P>611	Roll/2nd Chg %/Plain/Width > 611mm
116	R%2P461-610	Roll/2nd Chg %/Plain/Width 461-610mm
117	R%2P298-460	Roll/2nd Chg %/Plain/Width 298-460mm

118	R%2P<297	Roll/2nd Chg %/Plain/Width < 297mm
	[-9.99 to 9.99/0/0.01%]	
120	RT2T>611	Roll/2nd Chg Timing/Trans/Width > 611mm
121	RT2T>461-610	Roll/2nd Chg Timing/Trans/Width 461-610mm
122	RT2T>298-460	Roll/2nd Chg Timing/Trans/Width 298-460mm
123	RT2T<297	Roll/2nd Chg Timing/Trans/Width < 297mm
	[0 to 15000/0/1mm]	
125	R%2T>611	Roll/2nd Chg %/Trans/Width > 611mm
126	R%2T461-610	Roll/2nd Chg %/Trans/Width 461-610mm
127	R%2T298-460	Roll/2nd Chg %/Trans/Width :298-460mm
128	R%2T<297	Roll/2nd Chg %/Trans/Width < 297mm
	[-9.99 to 9.99/0/0.01%]	
130	RT2F>611	Roll/2nd Chg Timing/Film/Width > 611mm
131	RT2F>461-610	Roll/2nd Chg Timing/Film/Width 461-610mm
132	RT2F>298-460	Roll/2nd Chg Timing/Film/Width 298-460mm
133	RT2F<297	Roll/2nd Chg Timing/Film/Width < 297mm
	[0 to 15000/0/1mm]	
135	R%2F>611	Roll/2nd Chg %/Film/Width > 611mm
136	R%2F461-610	Roll/2nd Chg %/Film/Width 461-610mm
137	R%2F298-460	Roll/2nd Chg %/Film/Width 298-460mm
138	R%2F<297	Roll/2nd Chg %/Film/Width < 297mm
	[-9.99 to 9.99/0/0.01%]	
142	CT2 298-460	Cassette/2nd Chg Timing/Width /298-460mm
143	CT2 <297	Cassette/2nd Chg Timing/Width < 297mm
	[0 to 15000/0/1mm]	
147	C%2 298-460	Cassette/2nd Chg %/Width 298-460mm

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148	C%2 <297	Cassette/2nd Chg %/Width < 297mm
	[-9.99 to 9.99/0/0.01%]	
150	BT2 >611	Bypass/2nd Chg Timing/Width > 611mm
151	BT2 461-610	Bypass/2nd Chg Timing/Width 461-610mm
152	BT2 298-460	Bypass/2nd Chg Timing/Width 298-460mm
153	BT2 < 297	Bypass/2nd Chg Timing/Width < 297mm
	[0 to 15000/0/1mm]	
155	B%2>611	Bypass/2nd Chg %/Width > 611mm
156	B%2 461-610	Bypass/2nd Chg %/Width 461-610mm
157	B%2 298-460	Bypass/2nd Chg %/Width 298-460mm
158	B%2 <297	Bypass/2nd Chg %/Width < 297mm
	[-9.99 to 9.99/0/0.01%]	
210	RT3P>611	Roll/3rd Chg Timing/Plain/Width > 611mm
211	RT3P>461-610	Roll/3rd Chg Timing/Plain/Width 461-610mm
212	RT3P>298-460	Roll/3rd Chg Timing/Plain/Width 298-460mm
213	RT3P<297	Roll/3rd Chg Timing/Plain/Width < 297mm
	[0 to 15000/0/1mm]	
215	R%3P>611	Roll/3rd Chg %/Plain/Width > 611mm
216	R%3P461-610	Roll/3rd Chg %/Plain/Width 461-610mm
217	R%3P298-460	Roll/3rd Chg %/Plain/Width 298-460mm
218	R%3P<297	Roll/3rd Chg %/Plain/Width < 297mm
	[-9.99 to 9.99/0/0.01%]	
220	RT3T>611	Roll/3rd Chg Timing/Trans/Width > 611mm
221	RT3T>461-610	Roll/3rd Chg Timing/Trans/Width 461-610mm
222	RT3T>298-460	Roll/3rd Chg Timing/Trans/Width 298-460mm
223	RT3T<297	Roll/3rd Chg Timing/Trans/Width < 297mm

		[0 to 15000/0/1mm]	
225	R%3T>611	Roll/3rd Chg %/Trans/Width > 611mm	
226	R%3T461-610	Roll/3rd Chg %/Trans/Width 461-610mm	
227	R%3T298-460	Roll/3rd Chg %/Trans/Width :298-460mm	
228	R%3T<297	Roll/3rd Chg %/Trans/Width < 297mm	
		[-9.99 to 9.99/0/0.01%]	
230	RT3F>611	Roll/3rd Chg Timing/Film/Width > 611mm	
231	RT3F>461-610	Roll/3rd Chg Timing/Film/Width 461-610mm	
232	RT3F>298-460	Roll/3rd Chg Timing/Film/Width 298-460mm	
233	RT3F<297	Roll/3rd Chg Timing/Film/Width < 297mm	
		[0 to 15000/0/1mm]	
235	R%3F>611	Roll/3rd Chg %/Film/Width > 611mm	
236	R%3F461-610	Roll/3rd Chg %/Film/Width 461-610mm	
237	R%3F298-460	Roll/3rd Chg %/Film/Width 298-460mm	
238	R%3F<297	Roll/3rd Chg %/Film/Width < 297mm	
		[-9.99 to 9.99/0/0.01%]	
250	Chg1 Spd Min	1st Chg Speed Min Length	
		[0 to 300/0/1 mm]	

1920	Cut Adj		Cut Length Adjustment
	These SP's adjust the cut length of the paper sizes below.		
111	R1:297:Plain	1st Roll: 297mm: Plain Paper	
112	R1:420:Plain	1st Roll: 420mm: Plain Paper	
113	R1:594:Plain	1st Roll: 594mm: Plain Paper	
	[-10 to +10/0/0.1 mm]		
114	R1:841:Plain	1st Roll: 841mm: Plain Paper	

	[-20 to +20/0/0.1 mm]	
115	R1:1189:Plain	1st Roll: 1189mm: Plain Paper
	[-20.0 to +20.0/0/0.1 mm]	
116	R1:2000:Plain	1st Roll: 2000mm: Plain Paper
	[-30 to +30/0/1 mm]	
117	R1:3600:Plain	1st Roll: 3600mm: Plain Paper
118	R1:6000:Plain	1st Roll: 6000mm: Plain Paper
	[-30 to +30/0/1 mm]	
119	R1:15000:Plain	1st Roll: 15000mm: Plain Paper
	[-100 to +100/0/ 1 mm]	
121	R1:297:Trans	1st Roll: 297mm: Translucent Paper
122	R1:420:Trans	1st Roll: 420mm: Translucent Paper
123	R1:594:Trans	1st Roll: 594mm: Translucent Paper
	[-10.0 to +10.0/0/0.1 mm]	
124	R1:841:Trans	1st Roll: 841mm: Translucent Paper
125	R1:1189:Trans	1st Roll: 1189mm: Translucent Paper
	[-20 to +20/0/0.1 mm]	
126	R1:2000:Trans	1st Roll: 2000mm: Translucent Paper
127	R1:3600:Trans	1st Roll: 3600mm: Translucent Paper
128	R1:6000:Trans	1st Roll: 6000mm: Translucent Paper
	[-30 to +30/0/1 mm]	
129	R1:15000:Trans	1st Roll: 15000mm: Translucent Paper
131	R1:297:Film	1st Roll: 297mm: Film
132	R1:420:Film	1st Roll: 420mm: Film
	[-100 to +100/0/ 1 mm]	
133	R1:594:Film	1st Roll: 594mm: Film

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	[-10 to +10/0/0.1 mm]	
134	R1:841:Film	1st Roll: 841mm: Film
135	R1:1189:Film	1st Roll: 1189mm: Film
	[-20 to +20/0/0.1 mm]	
136	R1:2000:Film	1st Roll: 2000mm: Film
137	R1:3600:Film	1st Roll: 3600mm: Film
138	R1:6000:Film	1st Roll: 6000mm: Film
	[-30 to +30/0.0/1 mm]	
139	R1:15000:Film	1st Roll: 15000mm: Film
	[-100 to +100/0/ 1 mm]	
211	R2:297:Plain	2nd Roll: 297mm: Plain Paper
212	R2:420:Plain	2nd Roll: 420mm: Plain Paper
213	R2:594:Plain	2nd Roll: 594mm: Plain Paper
	[-10 to +10/0/0.1 mm]	
214	R2:841:Plain	2nd Roll: 841mm: Plain Paper
215	R2:1189:Plain	2nd Roll: 1189mm: Plain Paper
	[-20 to +20/0/0.1 mm]	
216	R2:2000:Plain	2nd Roll: 2000mm: Plain Paper
217	R2:3600:Plain	2nd Roll: 3600mm: Plain Paper
218	R2:6000:Plain	2nd Roll: 6000mm: Plain Paper
	[-30 to +30/0/1 mm]	
219	R2:15000:Plain	2nd Roll: 15000mm: Plain Paper
	[-100 to +100/0/ 1 mm]	
221	R2:297:Trans	2nd Roll: 297mm: Translucent Paper
222	R2:420:Trans	2nd Roll: 420mm: Translucent Paper
223	R2:594:Trans	2nd Roll: 594mm: Translucent Paper

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	[-10 to +10/0/0.1 mm]	
224	R2:841:Trans	2nd Roll: 841mm: Translucent Paper
225	R2:1189:Trans	2nd Roll: 1189mm: Translucent Paper
	[-20 to +20/0/0.1 mm]	
226	R2:2000:Trans	2nd Roll: 2000mm: Translucent Paper
227	R2:3600:Trans	2nd Roll: 3600mm: Translucent Paper
228	R2:6000:Trans	2nd Roll: 6000mm: Translucent Paper
	[-30 to +30/0/1 mm]	
229	R2:15000:Trans	2nd Roll: 15000mm: Translucent Paper
	[-100 to +100/0/ 1 mm]	
231	R2:297:Film	2nd Roll: 297mm: Film
232	R2:420:Film	2nd Roll: 420mm: Film
233	R2:594:Film	2nd Roll: 594mm: Film
	[-10 to +10/0/0.1 mm]	
234	R2:841:Film	2nd Roll: 841mm: Film
235	R2:1189:Film	2nd Roll: 1189mm: Film
	[-20 to +20/0/1 mm]	
236	R2:2000:Film	2nd Roll: 2000mm: Film
237	R2:3600:Film	2nd Roll: 3600mm: Film
238	R2:6000:Film	2nd Roll: 6000mm: Film
	[-30 to +30/0/1 mm]	
239	R2:15000:Film	2nd Roll: 15000mm: Film
	[-100 to +100/0/ 1 mm]	

1923	Ppr Int Adj	Paper Interval Adjustment

	This SP slightly increases the gap between sheets in the paper path. When the machine shifts to the CPM down mode, the paper is fed by whichever interval between sheets is longer, the gap set with this SP or the gap determined by CPM down. [0 to 500/0/1 mm] Note: • The "0" (default) setting does not mean that the gap is eliminated. • When set to "0", the standard gap between sheets is maintained (480 mm).	

1925	CutOffsetCor **Not Used**	Cut Length Offset Correction

Paper Thickness Default Selection

⭐**Important**
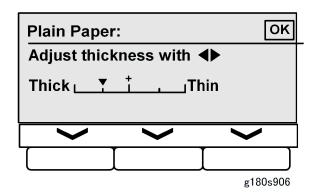
• Several SP codes in these tables reference the "Paper Thickness Default Selection" in this section. This refers to the default setting (Thick ←→ Thin) selected for the paper type on the machine operation panel.

To display the panel shown above:

Paper Thickness

The paper thickness can be set for the paper cassette and bypass tray only.

1. [Menu]
2. [▼] or [▲]> "Maintenance"> [OK]
3. "General Settings"> [OK]
4. "Paper Thickness"> [OK]
5. [▼] or [▲]> Select the target paper tray > [OK].
6. [▼] or [▲]> Select the desired paper type> [OK]

   • Plain Paper
   • Recycled Paper
   • Translucent Paper
   • Film

```
┌─────────────────────────────────────────┐
│ Plain Paper:              ┌────┐         │
│                           │ OK │         │
│                           └────┘         │
│ Adjust thickness with ◄►                 │
│                                          │
│         ▼     +                          │
│ Thick └─────┴─────┴────┘ Thin            │
│                                          │
├─────────────────────────────────────────┤
│      ∨           ∨           ∨           │
│ ┌────────┐  ┌────────┐  ┌────────┐       │
│ │        │  │        │  │        │       │
└─┴────────┴──┴────────┴──┴────────┴───────┘
                                  g180s906
```

1. [◄] or [►]> Select the desired position on the bar (from "Thick" to "Thin")

2. [OK]> "Programmed"

3. [Menu]> Standby

- These settings are used to adjust the fusing temperature and amount of pressure applied by the pressure roller on the hot roller.

- Each notch (1 to 5) represents a "mode" (Mode 1 to Mode 5). These references to "modes" are used in several SP codes below. Mode 1 is at the left end of the scale on the display, and Mode 5 is at the right end.

- The modes for thicker paper are to the left of the "+" button and those for thinner paper to the right of the "+" button.

- A thicker selection raises the fusing temperature and pressure applied by the pressure roller; a thinner selection lowers the temperature and lowers the pressure for thinner paper.

- The settings can be done independently for paper fed from either the paper cassette or the bypass tray.

1931	TTemp:HotRol	Target Temp: Hot Roller
	Sets the target fusing temperature of the hot roller. After you adjust these SP's, you must switch the main power switch off and on. **Important**: Modes "1" to "5" below refer to the paper type and thickness settings selected in User Tools (see "Paper Thickness Default Selection" in this section).	
1	Plain: Mode1	
2	Plain: Mode2	[120 to 220/195/5°C]
3	Plain: Mode3	
4	Plain: Mode4	[120 to 220/185/5°C]
5	Plain: Mode5	[120 to 220/175/5°C]

6	Trans.: Mode1	[120 to 220/205/5°C]
7	Trans.: Mode2	[120 to 220/195/5°C]
8	Trans.: Mode3	
9	Trans.: Mode4	[120 to 220/165/5°C]
10	Trans.: Mode5	[120 to 220/*/5°C]
11	Film: Mode1	[120 to 220/195/5°C]
12	Film: Mode2	[120 to 220/190/5°C]
13	Film: Mode3	[120 to 220/185/5°C]
14	Film: Mode4	
15	Film: Mode5	[120 to 220/175/5°C]
16	Plain:Ltemp	[120 to 220/195/5°C]

1932	TTemp:PreRol	Target Temperature: Pressure Roller
	Sets the target fusing temperature of the pressure roller for plain paper, translucent paper, and film. These temperatures are used for pressure roller feedback. Turn the machine power off/on after changing the settings. **Important**: • Modes "1" to "5" below refer to the paper type and thickness settings selected in User Tools (see "Paper Thickness Default Selection" in this section). • After adjusting these SP's, you must turn the machine power off/on.	
1	Plain: Mode1	[60 to 80 /100/5°C]
2	Plain: Mode2	[60 to 80 /85/5°C]
3	Plain: Mode3	[60 to 80 /60/5°C]
4	Plain: Mode4	
5	Plain: Mode5	
6	Trans.: Mode1	[60 to 80 /130/5°C]
7	Trans.: Mode2	[60 to 80 /100/5°C]
8	Trans.: Mode3	[60 to 80 /60/5°C]

9	Trans.: Mode4	
10	Trans.: Mode5	
11	Film: Mode1	
12	Film: Mode2	
13	Film: Mode3	
14	Film: Mode4	
15	Film: Mode5	
16	Plain:Ltemp	[60 to 80 /120/5°C]

1934	LTemp:HotRol	Lower Limit Temperature: Hot Roller
	This SP sets the minimum difference in temperature allowed between the actual temperature and the target temperature of the hot roller. **Important**: • Modes "1" to "5" below refer to the paper and thickness settings selected in User Tools (see "Paper Thickness Default Selection" in this section). In order for this SP to operate, SP9952 1 must be at "0" (default) so that the machine can acquire temperature readings (feedback) from the pressure roller thermistors. • The default setting of SP9952 should never be adjusted in the field.	
1	Plain: Mode1	[0 to 50/20/5]
2	Plain: Mode2	[0 to 50/15/5]
3	Plain: Mode3	[0 to 50/25/5]
4	Plain: Mode4	[0 to 50/20/5]
5	Plain: Mode5	
6	Trans.: Mode1	
7	Trans.: Mode2	
8	Trans.: Mode3	
9	Trans.: Mode4	
10	Trans.: Mode5	

11	Film: Mode1	
12	Film: Mode2	
13	Film: Mode3	
14	Film: Mode4	
15	Film: Mode5	
16	Plain:LTemp	[0 to 50/0/5]

1935	PreFB Steps	Pressure Feedback Control Steps
	This SP changes the stepped adjustments of SP1932 (Target Temp: Pressure Roller) by using the sum of the settings of SP1932 (Target Temp: Pressure Roller) +SP1935 (Press FB Control Steps) as the steps. Example • If the pressure roller temperature for SP1935-1 is 100°C, the target hot roller temperature is 195°C ("100" is SP1932, "195" is SP1931). • If the pressure roller temperature 120°C (= "100"+"20", this is SP1932+SP1935), the target hot roller temperature is 175°C (="195"-"20", this is SP1931 – SP1934) • If the setting is "0", the temperature settings of SP1931 do not change.		
1	Plain: Mode1	[0 to 50/20/5]
2	Plain: Mode2	[0 to 50/25/5]
3	Plain: Mode3	[0 to 50/30/5]
4	Plain: Mode4	[0 to 50/20/5]
5	Plain: Mode5	
6	Trans.: Mode1	
7	Trans.: Mode2	
8	Trans.: Mode3	
9	Trans.: Mode4	
10	Trans.: Mode5	
11	Film: Mode1	
12	Film: Mode2	

13	Film: Mode3	
14	Film: Mode4	
15	Film: Mode5	
16	Plain:LTemp	[0 to 50/0/5]

1936	LTemp:PreRol	Lower Limit Temp: Press Roller
	This SP sets the minimum difference allowed between the actual temperature and the target temperature of the pressure roller. • If the setting for the target temperature of the pressure roller is high (SP1932), the temperature of the pressure roller is lowered for continuous printing on plain paper. • At this time, if the temperature is below the temperature set for the pressure roller, paper feed will stop during a long job to perform inching to allow enough time for the pressure roller temperature to rise to the level of the prescribed setting, and then the job will continue. **Important**: • Modes "1" to "5" below refer to the paper and thickness settings selected in User Tools (see "Paper Thickness Default Selection" in this section). • In order for this SP to operate, SP9952-1 must be at "0" (default) so that the machine can acquire temperature readings (feedback) from the pressure roller thermistors. SP9952 should never be adjusted in the field.	
1	Plain: Mode1	
2	Plain: Mode2	
3	Plain: Mode3	[0 to 50/20/5°C]
4	Plain: Mode4	
5	Plain: Mode5	
6	Trans.: Mode1	[0 to 50/0/5°C]
7	Trans.: Mode2	
8	Trans.: Mode3	
9	Trans.: Mode4	[0 to 50/20/5°C]
10	Trans.: Mode5	

11	Film: Mode1	
12	Film: Mode2	
13	Film: Mode3	
14	Film: Mode4	
15	Film: Mode5	

1937	LTemp:EnCtrl	Low Temp Environment Detection Control
	These SP's are used to modify fusing temperature control sequence in a low temperature environment where room temperature is below the optimum room temperature of 20°C (68°F). **Note** • At optimum room temperature, the machine should reach the target fusing temperature within 2 min. • If the hot roller does not reach the target fusing temperature within 2 minutes, the machine issues SC542 (Fusing Temperature Warmup Error).	
1	Low Temp Setting	Low Temperature Setting
	The machine monitors the time required for the hot roller temperature to reach the critical temperature defined by this SP: Copy Ready Temperature (SP1105) - This SP Value (Default: 20°C) In a low temperature environment copying will not begin at the normal copy ready temperature. [0 to 50/20/5]	
2	LTemp Time	Low Temp Time Setting
	This SP sets the length of time within which the hot roller temperature should reach the target temperature set with SP1937-1. If the hot roller does not reach the SP1937-1 temperature within this time limit, the machine will not allow copying to start when the temperature reaches the ready temperature. [0 to 120/120/1 sec.]	
3	Inch Temp	Pressure Inching Start: Temperature
	If the inching target temperature (set with SP1948) is higher than 65°C, inching will start when the hot roller temperature reaches this target hot roller temperature. If the pressure roller temperature is less than 60°C, inching will start at the ready (reload) temperature.	

	This SP sets the temperature at which inching starts in a low-temperature environment where fusing temperature control is handled with the settings of SP1937. [0 to 50/20/5]		
11	LTemp:Cold1	Low Temp Mode Setting: Cold Start	
	If the hot roller temperature is below the temperature set with this SP at the beginning of a cold start, the machine determines that it is in a low temperature environment [0 to 50/15/1]		
12	LTemp:Cold2	Low Temp Mode Setting: Cold Start Hold Time	
	This SP determines the length of time the machine remains in the low temperature cold start mode after the machine determines that that it has been cold started in a low temperature environment. After this time has elapsed, fusing temperature control will operate with the paper type and thickness settings (see "Paper Thickness Default Selection" in this section). [0 to 20/7/0.5 min.]		
13	LTemp:Int	Low Temp Mode Paper Interval Ratio	
	This SP sets the size of the gap between sheets of paper while the machine is in the low temperature environment cold start mode. [1 to 10/3/0.1 mm]		

1938	PreFB Step	Pressure Roller Feedback Control Step Width Switch	
	This SP switches step control by width on and off. After this SP has been switched on, the step control by width can be set up with SP1939 002 to 004. **Note**: • These settings can be done for each paper type and thickness mode. • Modes "1" to "5" below refer to the paper and thickness settings selected in User Tools (see "Paper Thickness Default Selection" in this section).		
1	Plain: Mode1		[0 to 1/0/1] 0: Disable 1: Enable
2	Plain: Mode2		
3	Plain: Mode3		
4	Plain: Mode4		
5	Plain: Mode5		
6	Trans.: Mode1		

7	Trans.: Mode2	
8	Trans.: Mode3	
9	Trans.: Mode4	
10	Trans.: Mode5	
11	Film: Mode1	
12	Film: Mode2	
13	Film: Mode3	
14	Film: Mode4	
15	Film: Mode5	

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1939	PreFB Step	Press Feedback Control Step by Width
	Use these SP's to set up the step control used in the paper type and paper thickness selections done in the User Tools (see "Paper Thickness Default Selection" in this section).	
1	> 611mm	First, use SP1938 to select the paper type and mode where the setting is to apply. Next, select the paper width here. [0 to 30/30/5]
2	461-610mm	
3	298-460mm	
4	> 297mm	

1940	CPM Down Setting	
	CPM down control attempts to achieve optimum fusing of toner to paper. To do this, it automatically adjusts the timing of paper feed, which increases the length of the interval between sheets. A longer interval between sheets creates a short delay, so that the temperature of the hot roller and pressure roller can rise.	
1	Enable	
	Switches CPM down off and on. [0 to 1/1/1] 0: Off 1: On	
11	TDiff:Stp1	Temperature Differential: Step 1

		The interval between sheets of paper in the paper path is determined by the temperature readings of the thermistors at the center and end of the pressure roller. This SP sets Step 1 of CPM down mode. If the amount of the difference between the actual temperature and target temperature falls in the range between this SP and SP1940 012, this is judged as Step 1. [0 to 150/50/5]	
12	TDiff:Stp2	Temp Differential: Step 2	
		This SP sets Step 2 of CPM down mode. If the amount of the difference between the actual temperature and target temperature falls in the range between this SP and SP1940 013, this is judged as Step 2. [0 to 150/75/5]	
13	TDiff:Stp3	Temperature Differential: Step 3	
		This SP sets Step 3 of CPM down mode. If the difference between actual and target temperature is larger than this SP setting, this is judged as Step 3. [0 to 150/100/5]	
21	PInt:Stp1	Paper Interval: Step 1	
		When the pressure roller center and end thermistor detect a temperature in the Step 1 range (SP1940 011), the setting of this SP is activated to set the length of the interval between sheets in the paper path. [1.0 to 5.0/1.4/0.1] The default setting (1.4) is the variable for Step 1 multiplied by the constant set for Step 1 of the machine: **• G180: 480 mm. The default interval is 672 mm (1.4 × 480 mm).** Setting a smaller or larger number decreases or increases the length of the interval with this simple calculation. This standard interval can be modified slightly with SP1923.	
22	PInt:Stp2	Paper Interval Step 2	
		When the pressure roller center and end thermistor detect a temperature in the Step 2 range (SP1940 012), the setting of this SP is activated to set the length of the interval between sheets in the paper path. [1.0 to 5.0/2.1/0.1] The default setting (2.1) is the variable for Step 2 multiplied by the constant set for Step 2 of the machine: **• G180: 480 mm. The default interval is 1008 mm (2.1 × 480 mm).**	

	Setting a smaller or larger number decreases or increases the length of the interval with this simple calculation. This standard interval can be modified slightly with SP1923.	
23	PInt:Stp3	Paper Interval Step 3
	When the pressure roller center and end thermistor detect a temperature in the Step 3 range (SP1940 013), the setting of this SP is activated to set the length of the interval between sheets in the paper path. [1.0 to 5.0/3.5/0.1] The default setting (3.5) is the variable for Step 3 multiplied by the constant set for Step 2 of the machine: • G180: 480 mm. The default interval is 1680 mm (3.5 x 480 mm). Setting a smaller or larger number decreases or increases the length of the interval with this simple calculation. This standard interval can be modified slightly with SP1923.	

1941	PreFB:TDiff	Press FB Ctrl Switch by Temp Diff
	This SP sets the temperature differential that determines when the machine adjusts for pressure roller feedback control when the difference between the temperatures of the center and end of the pressure roller is greater than 20°C (Default: 20). [0 to 50/20/5] **Example** If this SP is set to "50": and there is a difference between the temperatures at the center and end of the pressure roller after more than 50 readings, then pressure roller feedback control shifts to the supplement mode.	

1942	PreFB:THI:NP	Press FB Temp Hold Int: Normal
	This SP sets the interval between temperature samplings for pressure roller feedback control. **Note**: Modes "1" to "5" below refer to the paper type and thickness settings selected in User Tools (see "Paper Thickness Default Selection" in this section).	
1	Plain: Mode1	[0 to 50/0/5°C]
2	Plain: Mode2	
3	Plain: Mode3	
4	Plain: Mode4	[0 to 50/15/55°C]
5	Plain: Mode5	[0 to 50/0/5 °C]

1943	PreFB:HT:SP	Press Feedback Temperature: High Temperature: Special
	This SP sets the high temperature used by pressure roller feedback temperature control for Custom paper. **Note**: Modes "1" to "5" below refer to the paper type and thickness settings selected in User Tools (see "Paper Thickness Default Selection" in this section).	
1	Plain: Mode1	[0 to 50/0/5°C]
2	Plain: Mode2	
3	Plain: Mode3	
4	Plain: Mode4	[0 to 50/20/5 °C]
5	Plain: Mode5	[0 to 50/0/5 °C]

1944	PreFB:LT:SP	Press Feedback Temperature: Low Temperature: Special
	This SP sets the low temperature used by pressure roller feedback temperature control for Custom paper. **Note**: Modes "1" to "5" below refer to the paper type and thickness settings selected in User Tools (see "Paper Thickness Default Selection" in this section).	
1	Plain: Mode1	[0 to 50/0/5°C]
2	Plain: Mode2	
3	Plain: Mode3	
4	Plain: Mode4	[0 to 50/10/5 °C]
5	Plain: Mode5	[0 to 50/5/5 °C]

1945	LLvl Set	Length Level Setting
	These SP's define the Length Levels for the following SP codes: • SP1946 Press FB Stop: Target Temp Diff. • SP1947 Press FB Stop: Time Period	
1	Level 1	[1000 to 15000/1300/1 mm]
2	Level 2	[1000 to 15000/3700/1 mm]
3	Level 3	[1000 to 15000/61001 mm]

| 4 | Level 4 | | [1000 to 15000/9100/1 mm] |
| 5 | Level 5 | | [1000 to 15000/12100/1 mm] |

1946	PreFBStp:TTD		Pressure Roller Feedback Stop: Target Temperature Differential
	This SP calculates the hot roller target temperature while pressure roller feedback control is stopped. This SP determines the target hot roller temperature while pressure roller feedback control is not operating. The temperature is determined based on the paper type and length of the paper (Length Level). **Note**: The Length Levels (1 to 5) are defined by SP1945.		
1	LLvl1:Norm	Length Level 1: Normal	[0 to 30/15/1°C]
2	LLvl2:Norm	Length Level 2: Normal	[0 to 30/10/1°C]
3	LLvl3:Norm	Length Level 3: Normal	[0 to 30/7/1°C]
4	LLvl4:Norm	Length Level 4: Normal	[0 to 30/5/1°C]
5	LLvl5:Norm	Length Level 5: Normal	[0 to 30/3/1°C]
11	LLvl1:Cold	Length Level 1: Cold Start	[0 to 30/10/1°C]
12	LLvl2:Cold	Length Level 2: Cold Start	[0 to 30/5/1°C]
13	LLvl3:Cold	Length Level 3: Cold Start	[0 to 30/3/1°C]
14	LLvl4:Cold	Length Level 4: Cold Start	[0 to 30/0/1°C]
15	LLvl5:Cold	Length Level 5: Cold Start	
16	LLvl0:Cold	Length Level 0: Cold Start	

1947	PreFB Stp:TP	Press FB Stop: Time Period
	This SP sets the length of time that pressure roller feedback is suspended for the paper lengths defined by SP1945. • Pressure roller feedback control begins when the time set with this SP has elapsed after paper feed starts. • As more paper is fed for a multiple print job, the time setting for succeeding sheets is overwritten.	

	• However, for succeeding sheets where the time prescribed for feedback suspension is "0", the "0" value is not overwritten, but feedback suspension control is maintained until countdown for the multiple copies is finished.		
1	LLvl1:Norm	Length Level 1: Normal	[0 to 300/15/1 sec.]
2	LLvl2:Norm	Length Level 2: Normal	[0 to 300/30/1 sec.]
3	LLvl3:Norm	Length Level 3: Normal	[0 to 300/45/1 sec.]
4	LLvl4:Norm	Length Level 4: Normal	[0 to 300/60/1 sec.]
5	LLvl5:Norm	Length Level 5: Normal	[0 to 300/80/1 sec.]
11	LLvl1:Cold	Length Level 1: Cold Start	[0 to 300/20/1 sec.]
12	LLvl2:Cold	Length Level 2: Cold Start	[0 to 300/35/1 sec.]
13	LLvl3:Cold	Length Level 3: Cold Start	[0 to 300/50/1 sec.]
14	LLvl4:Cold	Length Level 4: Cold Start	[0 to 300/70/1 sec.]
15	LLvl5:Cold	Length Level 5: Cold Start	[0 to 300/100/1 sec.]
16	LLvl0:Cold	Length Level 0: Cold Start	
	Normally, pressure roller feedback control does not operate when the paper length is not prescribed (length = 0). But if copying was started while feedback control was not operating, during a cold start for example, then feedback control operates using the setting of this SP code. [0 to 300/15/1 sec.]		
17	LLvl0:False	Length Level 0: False Start	
	The target hot roller temperature for a flying start is determined by SP1931. This SP determines the time limit for the hot roller to reach that target hot roller temperature. [0 to 300/20/1 sec.]		
18	Stby:AftCold	Standby After Cold Start	
	This SP sets a time period that prohibits printing to begin even after the hot roller temperature reaches its target temperature after a cold start. If a job is started during this time period countdown, the countdown changes to the counts for-11 to -17 above. [0 to 300/60/1 sec.]		

1948	PreRol TTemp	Pressure Roller Inching Target Temperature
	This SP determines when inching starts.	

	• Inching control is done when the pressure roller temperature is above this setting (65°C for example), but printing is prohibited until the pressure roller temperature reaches its target temperature. • Inching (idle rotation of the rollers) starts after the temperature rises above the hot roller target temperature (SP1937 003). • While the temperature is below 65°C copying (not printing) is possible before the temperature of the pressure roller reaches its target temperature and inching starts.	
1	Plain: Mode1	[60 to 180/100/5°C]
2	Plain: Mode2	[60 to 180/65/5°C]
3	Plain: Mode3	[60 to 180/60/5°C]
4	Plain: Mode4	
5	Plain: Mode5	
6	Trans.: Mode1	[60 to 180/130/5°C]
7	Trans.: Mode2	[60 to 180/100/5°C]
8	Trans.: Mode3	[60 to 180/60/5°C]
9	Trans.: Mode4	
10	Trans.: Mode5	
11	Film: Mode1	
12	Film: Mode2	
13	Film: Mode3	
14	Film: Mode4	
15	Film: Mode5	
16	Pp:LTempCold	Plain Mode: Low Temp Cold Start
	When the machine determines that a cold start in a low-temperature environment has started, the machine uses this setting to start the machine and ignores the paper thickness mode settings. • When the prescribed time has elapsed after a cold start, temperature control returns to the paper type and thickness settings. • However, this low temperature cold start does temperature control for plain paper only, not for either translucent paper or film. [60 to 80/120/5°C]	

1949	PreFB STCoef	Pressure Roller Feedback Standard Temperature Coefficient

$$\text{Press.Roller Ctr Temp.} + \left(\text{Press.Roller End Temp.} - \text{Press.Roller Ctr Temp.} \right) \times \text{SP1949 ***} = \text{Press.Roller FB Temp.}$$

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	The formula above uses the setting of this SP to determine the pressure roller feedback temperature. The result of this calculation is used to calculate the hot roller target temperature. **Note**: • Settings can be selected below for the paper type, mode, and paper length. • Modes "1" to "5" below refer to the paper type and thickness settings selected in User Tools (see "Paper Thickness Default Selection" in this section). [0 to 1/0/0.1]	
11	NMod1:>611	Normal Mode1: > 611mm
12	NMode1:461-610	Normal Mode1: 461-610mm
13	NMode1:298-460:	Normal Mode1: 298-460
14	NMode1:< 297	Normal Mode1: < 297mm
21	NMode2:> 611	Normal Mode2: > 611mm
22	NMode2:461-610	Normal Mode2: 461-610mm
23	NMode2:298-460	Normal Mode2: 298-460
24	NMode2:< 297	Normal Mode2: < 297mm
31	NMode3:> 611	Normal Mode3: > 611mm
32	NMode3:461-610	Normal Mode3: 461-610mm
33	NMode3:298-460	Normal Mode3: 298-460
34	NMode3:< 297	Normal Mode3: < 297mm
41	NMode4:> 611	Normal Mode4: > 611mm
42	NMode4:461-610	Normal Mode4: 461-610mm
43	NMode4:298-460	Normal Mode4: 298-460
44	NMode4:< 297	Normal Mode4: < 297mm

51	NMode5:> 611	Normal Mode5: > 611mm
52	NMode5:461-610	Normal Mode5: 461-610mm
53	NMode5:298-460	Normal Mode5: 298-460
54	NMode5:< 297	Normal Mode5: < 297mm
61	TMod:> 611	Trans Mode: > 611mm
62	TMod:461-610	Trans Mode: 461-610mm
63	TMod:298-460	Trans Mode: 298-460
64	TMod:< 297	Trans Mode: < 297mm
111	FMod:> 611	Film Mode: > 611mm
112	FMod:461-610	Film Mode: 461-610mm
113	FMod:298-460	Film Mode: 298-460
114	FMod:< 297	Film Mode: < 297mm

1970	Fan Stop Time
	This SP sets the fan stop time. [0 to 30/1/1 min.]

SP2-xxx Drum

2001	ChrgCora Adj	Charge Corona Adjustment	
	This SP adjusts the charge corona outputs.		
1	Corona Curr	Total Corona Current	Adjusts the charge corona output for total area. **DFU** [650 to 1530/1220/1 V step]
2	GVolt:Image	Grid Voltage: Image Area	Adjusts the charge grid output. **DFU** [162 to 1070/865/1 mA step]
3	GVolt:IDPtrn	Grid Voltage: ID Sensor Pattern	Adjusts the charge grid output for the ID sensor pattern. **DFU** [162 to 1070/690/1 V step]

2101	PrtErase Mar	Print Erase Margin
	Adjusts the quantity of erase for copy mode (quantity of white space).	
1	Leading Edge	[0.0 to 10/2/0.1 mm step]
2	Trailing Edge	
3	Left edge	
4	Right edge	[0.0 to 10/0.5/0.5 mm step]

2110	Test Mode dpi **DFU**
	This SP adjusts the pixel resolution. [0 to 19/8/1] 0: 400 x 400 dpi (reduction) 4: 300 x 300 dpi (reduction) 8: 600 x 600 dpi 19: 200 x 200 dpi (reduction)

2201	DevBias Adj	Development Bias Adjustment
	This SP sets the development bias to adjust the amount of toner used in the image area.	

1	Image Area		[-56 to -952/-650/1 V step]
2	IDPtrn:LDuty	ID Sensor Pattern: Low Duty Copy Jobs	[-56 to -952/-414/1 V step]
3	IDPtrn:HDuty	ID Sensor Pattern: High Duty Copy Jobs	[56 to 952/453/1 V step]
4	Copy Jobs		[0 to 1/0/1] 0: Low Duty Mode 1: High Duty Mode

2207	Force Tnr	Forced Toner Supply
	Push [Execute] to force toner supply. Make a copy and check the image density. This SP supplies more toner to make light copies darker. Each time this SP is done, toner is supplied one time.	

2208	Tnr S Set	Toner Supply Setting
1	Gain	Sets the toner supply capacity for the job load. [0 to 3/1/1] 0: L (Low) 1: M (Medium) 2: H (High) 3: HH (Very High)
3	Toner Supply Mode	Sets the toner supply mode. 0: Detect Mode (uses ID sensor) 1: Fixed Mode • If the ID sensor is damaged and cannot be replaced immediately, set this SP to "1". The operator can continue to use the machine until a new ID sensor becomes available. • After the ID sensor has been replaced, reset this SP to 0.

2301	TrCurr Adj	Transfer Current Adjustment
	Use these SP's to adjust the coefficient and power output used to develop the image at the center, leading edge, and trailing edge.	

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	Note: Always do the coefficient adjustment first, then adjust the power output.		
1	Pp:ImgLEdge	Plain Paper: Image Leading Edge	Adjusts the transfer output power for plain paper. **DFU** [0 to 230/60/1 mA]
2	Pp:ImgArea	Plain Paper: Image Area	
3	Pp:ImgTEdge	Plain Paper: Image Trailing Edge	
4	Pp:Coeff	Plain Paper: Coefficient	Adjusts the transfer output coefficient for the image at the center, leading edge, and trailing edge on plain paper. **DFU** [1.0 to 2.0/1.0/0.2 step]
5	Tr:ImgLEdge	Translucent: Image Leading Edge	Adjusts the transfer output power for translucent print media. **DFU** [0 to 230/60/1 mA]
6	Tr:ImgArea	Translucent: Image Area	
7	Tr:ImgTEdge	Translucent: Image Trailing Edge	
8	Tr: Coefficient	Translucent: Coefficient	Adjusts the transfer output coefficient for the image at the center, leading edge, and trailing edge on translucent print media. **DFU** [1.0 to 2.0/1.0/0.2 step]
9	Film: Img LEdge	Film: Image Leading Edge	Adjusts the transfer output power for film print media. **DFU** [0 to 230/80/1 mA]
10	Film: Img Area	Film: Image Area	
11	Film: Img TEdge	Film: Image Trailing Edge	
12	Film: Coefficient	Film: Coefficient	Adjusts the transfer output coefficient for the image at the center, leading edge, and trailing edge on film print media. **DFU** [1.0 to 2.0/1.0/0.2 step]

2401	SepDC Tmg	Separation DC Timing Adjustment
	Adjusts the separation dc timing. **DFU**	

	[0 to 300/100/4 mm step]

2402	SepAC Adj	Separation AC Current Adjustment	
	Adjusts the separation ac voltage for roll paper and cut sheets.		
1	Roll Paper	[18 to 466/280/1 mA step]	
2	Cut Paper		

2403	SepDC Adj		Separation DC Current **DFU**
	Adjusts the separation dc current. If this setting is too high, toner from the paper will cling to the drum after transfer. The separation dc current can be set for plain paper, translucent paper, and film for the leading edge, trailing edge, and areas outside the image.		
1	RpPp:ILEdge	Roll Paper: Plain Paper: Image Leading Edge	[0.0 to -66/ -25/0.1 mA]
2	RpPp:OILEdge	Roll Paper: Plain Paper: Outside Image Leading Edge	[0.0 to -66/ -15/0.1 mA]
3	RpTr:ILEdge	Roll Paper: Translucent: Image Leading Edge	[0.0 to -66/ -25/0.1 mA]
4	RpTr:OILEdge	Roll Paper: Translucent: Outside Image Leading Edge	[0.0 to -66/ -15/0.1 mA]
5	RpFm:ILEdge	Roll Paper: Film: Image Leading Edge	[0.0 to -66/ -25/0.1 mA]
6	RpFm:OILEdge	Roll Paper: Film: Outside Image Leading Edge	[0.0 to -66/ -15/0.1] mA]
11	BpPp:ILEdge	Bypass: Plain Paper: Image Leading Edge	[0.0 to -66/ -25/0.1 mA]
12	BpPp:OILEdge	Bypass: Plain Paper: Outside Image Leading Edge	[0.0 to -66/ -25/0.1 mA]
13	BpTr:ILEdge	Bypass: Translucent: Image Leading Edge	[0.0 to -66/ -15/0.1 mA]

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14	BpTr:OILEdge	Bypass: Translucent: Outside Image Leading Edge	[0.0 to -66/ -15/0.1 mA]
15	BpFm:ILEdge	Bypass: Film: Image Leading Edge	[0.0 to -66/ -15/0.1 mA]
16	BpFm:OILEdge	Bypass: Film: Outside Image Leading Edge	[0.0 to -66/ -15/0.1 mA]
17	CaILEdge	Cassette: Image Leading Edge	[0.0 to -66/0/0.1 mA]
18	CaOILEdge	Cassette: Outside Image Leading Edge	[0.0 to -66/0/0.1 mA]

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2801	Init Devr		Initialize Developer
	This SP mixes the developer and initializes the ID sensor. Use this SP to mix the developer during machine installation or after the developer has been replaced. The machine requires two packs of developer. Two SP codes are provided for entering the lot numbers of both packages. Note: • Always enter the lot numbers with SP2801-2 and -3 before doing SP2801-1.		
1	Initialize	Developer Initial Setting: Execute	Mixes developer and initializes the ID sensor
2	Lot Number1	Lot Number 1	Lot number of the 1st packet.
3	Lot Number2	Lot Number 2	Lot number of the 2nd packet.

2803	CWClean:Str	Corona Wire: Cleaning Start
	Do this SP to clean the charge corona wire. This SP also moves the cleaning pad to the home position. The cleaning requires about 20 sec. to complete.	

2804	CWClwan:Int	Corona Wire: Cleaning Interval
	Sets the interval for charge corona wire cleaning. **Note**: The wire is cleaned only when the hot roller temperature is below 50 °C (122°F). [0 to 6/3/1 step] 0: None (no cleaning)	

	1: After the main switch is turned on.		
	2: After 300 m of copies		
	3: After 600 m of copies		
	4: After 900 m of copies		
	5: After 1200 m of copies		
	6: After 1500 m of copies		

2805	Drum Motor Speed **DFU**	
	This SP adjusts the drum motor speed.	
1	Width:420mm more	
2	Width:420mm less	

2902	Test Pattern		
	Use these SP's to select and print test patterns.		
2	IPU Patrn		IPU Printing Test Pattern
	Only two of these patterns are used to troubleshoot problems with this machine (#10, #11). For more details, see the last part of Section 3.		
	00	None	None
	01	ID 1-4d	Independent Dot (1-4 dot)&Solid
	02	HoGry 16-lvl	Horizontal Grayscale (16-level)
	03	VeGry 16-lvl	Vertical Grayscale (16-level)
	04	Gry 16-lvl	Grayscale (16-level)
	05	DP 256-lvl	Density Patch (256-level)
	06	DP 64-lvl	Density Patch (64-level)
	07	Cross Patrn	Cross Pattern
	08	Grid 96dw)	Grid Pattern (96 dot width)
	09	Argyle	Argyle Pattern
	10	GryHo 8-lvl	Grayscale Horizontal (8-level & line)

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	11	Grid 128d-w)	Grid Pattern (128 dot width)
3		Print Patrn	Printing Test Pattern
		Only two of these patterns are used to troubleshoot problems with this machine (#22, #25). For more details, see the last part of Section 3.	
	00	Grid(1d)	None
	01	Grid(2d)	Grid Pattern (1-dot)
	02	Grid(3d)	Grid Pattern (2-dot)
	03	Grid(4d)	Grid Pattern (3-dot)
	04	Grid(5d)	Grid Pattern (4-dot)
	05	Grid(6d)	Grid Pattern (5-dot)
	06	Argyle(1d)	Grid Pattern (6-dot)
	07	Argyle(2d)	Argyle Pattern (1-dot)
	08	Argyle(3d)	Argyle Pattern (2-dot)
	09	Argyle(4d)	Argyle Pattern (3-dot)
	10	Argyle(5d)	Argyle Pattern (4-dot)
	11	Argyle(6d)	Argyle Pattern (5-dot)
	12	Ve Line(1d)	Argyle Pattern (6-dot)
	13	Ve Line(2d)	Vertical Line (1-dot)
	14	Ho Line(1d)	Vertical Line (2-dot)
	15	Ho Line(2d)	Horizontal Line (1-dot)
	16	Check Flag	Horizontal Line (2-dot)
	17	Alt Dot(1d)	Checkered Flag
	18	Alt Dot(2d)	Alternating Dot Pattern (1-dot)
	19	Alt Dot(4d)	Alternating Dot Pattern (2-dot)
	20	Trim Area	Alternating Dot Pattern (4-dot)
	21	Full Dot	Trimming Area

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	22	Blk Band(Ve)	Full Dot Pattern
	23	Blk Band(Ho)	Black Band (Vertical)
	24	Blank Image	Black Band (Horizontal)
	25	Grid(1d)	Blank Image

2916	Fine Mag		Fine Magnification
	Adjusts the magnification for each paper type. These settings are enabled automatically for the paper type when the operator selects a magnification ratio for the copy job. These corrections are done during image processing after the original is scanned. Adjust the setting for a paper type if you consistently notice distortion in magnified images for a particular type. [-10 to +10/0/0.1%] Notes • SP2916-1, SP2916-2 should be adjusted at installation of the main machine. In "1. Installation" see p.180 "SP Adjustments".		
1	Pp:Mod1-4:Ho		Plain Paper: Mode1-4: Horiz
2	Pp:Mod1-4:Ve		Plain Paper: Mode1-4: Vert
3	Tr:Mod1-4:Ho		Translucent: Mode1-4: Horiz
4	Tr:Mod1-4:Ve		Translucent: Mode1-4: Vert
5	Fm:Mod1-4:Ho		Film: Mode1-4: Horiz
6	Fm:Mod1-4:Ve		Film: Mode1-4: Vert
7	Re:Mod1-4:Ho		Recycled Paper: Mode1-4: Horiz
8	Re:Mod1-4:Ve		Recycled Paper: Mode1-4: Vert
9	Pp:Mod5:Ho		Plain Paper: Mode5: Horiz
10	Pp:Mod5:Ve		Plain Paper: Mode5: Vert
11	Tr:Mod5:Ho		Translucent: Mode5: Horiz
12	Tr:Mod5:Ve		Translucent: Mode5: Vert
13	Fm:Mod5:Ho		Film: Mode5: Horiz
14	Fm:Mod5:Ve		Film: Mode5: Vert

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15	Re:Mod5:Ho	Recycled Paper: Mode5: Horiz
16	Re:Mod5:Ve	Recycled Paper: Mode5: Vert

2923	CBlade Mode	Execute Cleaning Blade Replace Mode
	Always do this SP after replacing the OPC or cleaning blade.	
	This SP applies a small amount of toner to the drum and blade to reduce friction between the new drum and/or new blade. This prevents scratching the drum or bending the blade.	

2924	Devr Mix	Developer Mixing: Warmup
	Enables/disables measurement of Vsg during warm-up immediately after the machine is switched on. Vsg sampling is done to ensure good quality for the first copies.	
	[0 to 2/0/1]	
	0: Vsg is read immediately after the machine is switched on with the fusing temperature less than 50°C (122°F).	
	1: Vsg is always read during warm-up immediately after the machine is switched on, regardless of the fusing temperature level.	
	2: Vsg is not read during warm-up.	

2925	TrCurr Tmg		Transfer Current Timing **DFU**
	These SP's adjust the transfer current timing.		
1	ON	Adjusts the timing for power on. [0 to 16/6/0.2 mm]	
2	Leading Edge	Adjusts the timing for switching from the leading edge to the center. [0 to 30/8/1 mm]	
3	Trailing Edge	Adjusts the timing for switching from the center to the trailing edge. [-30 to 0/0/1 mm]	

2926	Tnr Over Det	Used Toner Overflow Detect
	The used toner bottle motor operates a cam. This cam strikes the side of the used toner collection bottle, to create a vibration that levels the used toner inside the bottle.	
1	Sn Detection	Used Tnr M (Sensor Detection)

	Sets the length of time that the used toner bottle motor operates. The motor starts 10 sec. after the main power switch is switched on and if the fusing temperature is less than 50°C (122° F). [0 to 30/20/5] **Note**: Ten seconds after the machine is switched on, if the machine detects that the toner collection bottle is full, the used toner bottle motor does not operate.	
2	TE Recovery	Used Tnr M (TE Recovery)
	Sets the length of time that the used toner bottle motor operates after TE (toner end). [0 to 80/30/5 sec.]	
3	Full Detect	Used Toner Bottle Full Detect
	Limits the length of paper that can be printed after the machine detects that the used toner collection bottle is full. [1 to 50/15/1 m]	

2927	TNE Detect	Toner (Near) End Detection **DFU**
	These SP's set the levels for the toner near-end and toner end levels.	
1	Near End Level	
	Sets the level for toner near end detection. (Vsp/Vsg = Vend). [0.140 to 0.275/0.145/0.005 V]	
3	End Level	
	Sets the Vsp/Vsg level for toner end detection. The ID sensor must detect this value three times in succession to detect toner end. The machine s to ps when toner end is detected. [0.150 to 300/0.165/0.005 V]	

2928	TE Recov	Toner End Recovery
	Recovery starts after the toner cartridge is replaced when a toner-end condition exists. [0.130 to 0.215/0.145/0.005 V] In the toner-end recovery process: • The machine writes an ID sensor pattern on the surface of the drum. • The ID sensor reads the density of the ID sensor pattern and converts it to an electrical signal (Vsp).	

	• The machine compares the Vsp value with Vsg, which is read from the bare surface of the drum (Vsg/Vsg=Vref)
	• If Vsp/Vsg < Vref (the value of this SP setting), recovery is completed and the machine goes back to normal operation.

2943	LED Duty Adj		LED Duty Adjustment **DFU**
	Adjusts the on timing (the "width" or "duty") of the LEDs in the LPH units to change image exposure. Use this SP if it is necessary to make the output of one LPH block brighter or darker. Raising the setting creates darker pixels, lowering the setting creates lighter pixels.		
	1	LPH1	[1.0 to 32.0/12.0/0.1%]
	2	LPH2	The optimum LPH settings are printed on the label that is attached to LPH replacement units. Always input these settings immediately after the LPH
	3	LPH3	unit has been replaced.
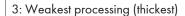
2944	LED Duty Rate	LED Duty Rate **DFU**
	This SP adjusts the power to the LPH. [0 to 100/50/1%]	
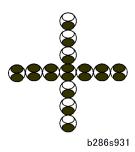
2952	LPH J Jnt Adj		LPH Joint Adjustment
	Adjust these settings only after you replace the LPH. For more, refer to "Replacement and Adjustment".		
	1	LPH1-2 Main Scan	Adjusts the LPH joint for main scan between LPH1 and LPH2. [0 to 999/500/1]
	2	LPH2-3 Main Scan	Adjusts the LPH joint for main scan between LPH2 and LPH3. [0 to 999/500/1]
	11	LPH1-2 Sub Scan	Adjusts sub scanning at LPH 1-2 for paper more than 420 mm wide. [300 to 500/412/1]
	12	LPH2-3 Sub Scan	Adjusts sub scanning at LPH 2-3 for paper more than 420 mm wide. [2 to 100/16/1]

51	LPH1-2SS<420	Adjusts sub scanning (SS) at LPH 1-2 for paper less than 420 mm wide. This value is calculated automatically. Do not adjust. [-50 to +50/0/1] DFU
52	LPH2-3SS<420	Adjusts sub scanning (SS) at LPH 2-3 for paper less than 420 mm wide. This value is calculated automatically. Do not adjust. [-50 to +50/0/1] DFU
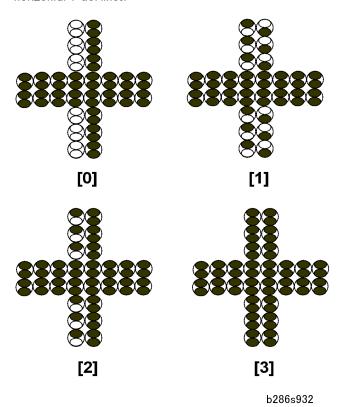
2953	LPH J PwrAdj		LPH Joint Power Corr
	Adjusts the four LEDs at each end of LPH 2. This fine adjustment is not usually necessary in the field. **DFU** [-63 to +63/**0**/1]		
1	1-Dot: Left	011	1-Dot: Right
2	2-Dot: Left	012	2-Dot: Right
3	3-Dot: Left	013	3-Dot: Right
4	4-Dot: Left	014	4-Dot: Right

2954	BLineW:Prt		Binary Line Width Corr: Print
	These SP's determine how line processing is handled for vertical lines. Note: This SP has no effect on horizontal lines.		
1	Change On/Off		
	This SP switches fine line processing by the LPH off and on. [0 to 1/1/1] 0: Disabled 1: Enabled		
10	Sel Lvl>2dot		Level Select (for > 2dots)
	This SP selects the level for fine line processing of vertical lines thicker than two dots. [0 to 3/1/1] 0: Strongest processing (thinnest) 1: Normal processing		

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	2: Weaker processing
	3: Weakest processing (thickest)

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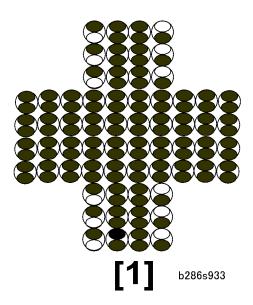
The illustration above shows how two elements comprise each dot. This example shows vertical and horizontal 1-dot lines.

[0]　　　　[1]

[2]　　　　[3]

b286s932

The diagram above illustrates the patterns for the settings SP2954-10 (0 to 3) on a 2-dot vertical line. The settings have no effect on the horizontal line.

[1]   b286s933

When line thickness more than 2 dots the value selected for SP2954-10 affects only the outer lines. The diagram above shows "1" selected for SP2954-10. The setting does not affect the horizontal line.

2959	Display VDB ID	Display VDB ID
	This SP displays the 8-bit data that identifies the FPGA version of the VDB (Video Drive Board). The VDB controls the signals sent to the LPH.	

SP3-xxx Process Control

3001	ID Sn Init		ID Sensor Initial Setting
	These SP's do the settings for the ID sensor LED.		
1	PWM	Sets the level of the PWM (Pulse Width Modulation) of the ID sensor LED. **DFU** [0 to 100/20/0.1%]	
2	Initialization	Automatically adjusts the ID sensor with a sensor reading of the bare drum. The initial setting is 4.0V ±0.2. This SP requires about 4 sec. to execute. Always do this SP at installation, and after you replace these components: • OPC Drum • ID Sensor • NVRAM • MCU	

3103	ID Sn Display		ID Sensor Output Display
	This SP displays the current readings of the bare drum surface (Vsg) and the ID sensor pattern (Vsp)		
1	Vsg	Bare drum reflection	
2	Vsp	ID sensor pattern reflection	

3911	Mix New Developer
	This SP agitates and mixes developer to raise its triboelectric charge and prevent dirty background on copies. Do this SP only if the machine has not been used for a long time.
	Note: Execution of this SP is not required at machine installation or after developer replacement.

SP5-xxx Mode

5001	All Indicators On
	Lights the LCD and all LEDs on the operation panel to demonstrate that they are operating properly. [**OFF**/ON]

5024	mm/inch Display Selection
	0: Europe/Asia (mm), 1: North America (inch)

5045		Counter Mode	
		These SP codes setting the method and units for counting.	
	2	Counter Unit	
		[0 to 8/0/1]	
		0	Meters	
		1	Yards	
		2	Feet	
		3	Meters^2	
		4	Yards^2	
		5	Feet^2	
		6	A3=1	Surface area count
		7	0.1 meters	Only for counting devices/meters by user.
		8	01. yards	

5055	Display IP Address
	Switches the banner display of the IP address off and on. [0 to 1/**0**/1] 0: Off, 1:On If this SP is switched on, the IP address will be displayed on the initial (standby) screen, for example: "169.254.187.055"

| 5056 | Coverage Counter |
| | This SP switches the counter list for the system administrator on/off. |

5101	Timer Setting
005	Panel Off Level
	This SP sets the level of the low power mode, where the operation panel will switch off after the machine enters low power mode. [0 to 4/3/1] 0: Level 1 – 190°C (374°F) 1: Level 2 – 180°C (356°F) 2: Level 3 – 170°C (338°F) 3: Level 4 – 155°C (311°F)
104	Lower Power Set
	This SP switches the low power mode off/no. [0 to 1/1/1] 1: Off 0: On Note: This is an energy save feature, but it is unrelated to compliance with any standard. In this mode the fusing temperature is lowered and only the LCD goes off. One of several levels can be selected with SP5101-005 (see above).

5169	CE Login
	This SP enables and disables the CE log in mode. With this SP enabled, the machine is in the CE (Customer Engineer/Service Technician) login mode. In the CE login mode: • The machine power can be turned off and on in the SP mode, and it will remain in the SP mode after power is restored. • This SP is automatically reset to "0" (disabled) after the service technician closes the SP mode with the [End] soft button.

5302	Set Time **DFU**
	Sets the time clock for the local time. This setting is done at the factory before delivery. The setting is GMT expressed in minutes.

	[−1440 to 1440/1 min.]
	JA: +540 (Tokyo)
	NA: -300 (NY)
	EU: +6- (Paris)
	CH: +480 (Peking)
	TW: +480 (Taipei)
	AS: +480 (Hong Kong)

	Auto Off Setting
5305	This SP prevents the user from accidentally disabling the auto off timer. This is done to conform with international Energy Star standards that specifically state that the user shall not be able to easily switch off the auto off feature.
	0: On (Auto Off cannot be released
	1: Off (Auto Off can be released)

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5307	Summer Time	
	Lets you set the machine to adjust its date and time automatically with the change to Daylight Savings time in the spring, and back to normal time in the fall. This SP lets you set these items: • Day and time to go forward automatically in April • Day and time to go back automatically in October • Set the length of time to go forward and back automatically • The settings for 2 and 3 are done with 8-digit numbers	
1	On/Off	Enables/disables the settings for 2 and 3. [0 to 1/1] 0: Disable 1: Enable
3	Start	The start of summer time.
4	End	The end of summer time.
	Digits	**Meaning**
	1, 2	Month. 4: April, 10: October (for months 1 to 9, the first digit of 0 cannot be input, so the eight-digit setting for 2 or 3 becomes a seven-digit setting)

	3	Day of the week. 0: Sunday, 1: Monday
	4	The number of the week for the day selected at the 3rd digit. If "0" is selected for "Sunday", for example, and the selected Sunday is the start of the 2nd week, then input a "2" for this digit.
	5, 6	The time when the change occurs (24-hour as hex code). Example: 00:00 (Midnight) = 00, 01:00 (1 a.m.) = 01, and so on.
	7	The number of hours to change the time. 1 hour: 1
	8	If the time change is not a whole number (1.5 hours for example), digit 8 should be 3 (30 minutes).

5401		Access Control **DFU**	
		These SP's store settings that limit uses access to SDK (Software Development Kit) application data.	
	200	SDK1 Unique ID	
	201	SDK1 Certification Method	
	210	SDK2 Unique ID	"SDK" is the "Software Development Kit". This data can be converted from SAS (VAS) when installed or uninstalled. **DFU**
	211	SDK2 Certification Method	
	220	SDK3 Unique ID	
	221	SDK3 Certification Method	

5404	User Code Count Clear
	Clears the counts for the user codes assigned by the key operator to restrict the use of the machine. Press [OK] to clear.

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

5504	Jam Alarm **Japan Only**

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

	Error Alarm
5505	Sets the error alarm level. **Japan only DFU**
	[000 to 255 / 001 / 100 copies per step]

5507	Supply Alarm **DFU**		
1	Paper Size		
	Switches the control call on/off for the paper supply. **DFU**		
	0: Off, 1: On		
	0: No alarm.		
	1: Sets the alarm to sound for the specified number transfer sheets for each paper size (A3, A4, B4, B5, DLT, LG, LT, HLT)		
3	Toner		
	Switches the control call on/off for the toner end. **DFU**		
	0: Off, 1: On		
	If you select "1" the alarm will sound when the main machine detects toner end.		
	The "Interval nn" SP's below specify the paper control call interval for the referenced paper sizes. **DFU**		
	[00250 to 10000 / 1000 / 1 Step]		
97	Interval: 841mm	164	Interval: LG
98	Interval: 594mm	165	Interval: Foolscap
99	Interval: 420mm	166	Interval: LT
100	Interval: 297mm	175	Interval: 12x18
101	Interval: 210mm	225	Interval: 36inch

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106	Interval: 728mm	226	Interval: 24inch
107	Interval: 515mm	227	Interval: 18inch
108	Interval: 364mm	228	Interval: 12inch
109	Interval: 257mm	229	Interval: 9inch
128	Interval: Others	234	Interval: 34inch
132	Interval: A3	235	Interval: 22inch
133	Interval: A4	236	Interval: 17inch
141	Interval: B4	237	Interval: 11inch
160	Interval: DLT	238	Interval: 8.5inch

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5515		SC/Alarm Setting
		Determines whether an SC call is issued when an SC error occurs while either CSS (Japan) or @Remote is enabled:
		[0 to 1/1/1]
		1: An SC call is issued when an SC error occurs.
		0: An SC call is not issued when an SC error occurs.
	1	SC Call
		Determines whether an SC call is issued when an SC error occurs while either CSS or @Remote is enabled:
		[0 to 1/1/1]
		1: An SC call is issued when an SC error occurs.
		0: An SC call is not issued when an SC error occurs.
	2	Service Parts Near End Call
	3	Service Parts Call
	4	User Call
	6	Communication Test Call
	7	Machine Information Notice
	8	Alarm Notice

10	Supply Automatic Ordering Call	
11	Supply Management Report Call	

5792	MCS Debug SW **DFU**

5793	ECS Debug SW **DFU**

5801	Memory Clear	
	Resets NVRAM data to the default settings. Before executing any of these SP's, print an SMC Report.	
1	All Clear	Initializes items 2 to 15 below.
2	Engine Clear	Initializes all registration settings for the engine and copy process settings.
3	SCS	Initializes default system settings, SCS (System Control Service) settings, operation display coordinates, and ROM update information.
4	IMH Memory Clr	Initializes the image file system. (IMH: Image Memory Handler)
5	MCS	Initializes the automatic delete time setting for stored documents. (MCS: Memory Control Service)
8	Printer	Initializes the printer defaults, programs registered, the printer SP bit switches, and the printer CSS counter.
10	GWWS/NFA	Deletes the Netfile (NFA) management files and thumbnails, and initializes the Job login ID. **Note**: Netfiles are jobs to be printed from the document server using a PC and the DeskTopBinder software
11	NCS	Initializes the system defaults and intersection settings (IP addresses also), the SmartNetMonitor for Admin settings, WebStatusMonitor settings, and the TELNET settings. (NCS: Network Control Service)
14	DCS Setting	Initializes the DCS (Delivery Control Service) settings.

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15	UCS Setting	Initializes the UCS (User Information Control Service) settings.
16	MIRS Setting	Initializes the MIRS (Machine Information Report Service) settings.
17	CCS	Initializes the CCS (Certification and Charge-control Service) settings.
18	SRM Memory Clr	Initializes information in non-volatile RAM.
19	LCS Memory Clr	Initializes information in non-volatile RAM.

5802	Printer Free Run
	Does a free run in the mode specified on the operation panel. [Enable/Disable]

5803	Input Check
	Displays the signals received from switches and sensors.

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		(7) 0000 0000 (0) [00]		
1	**Roll Tray**			
	Bit	Item	0	1
	7	---		
	6	---	---	---
	5	---	---	---
	4	Cassette Set Sensor	Closed	Open
	3	Left Cutter HP Switch	No Cutter	Cutter Present
	2	Right Cutter HP Switch	No Cutter	Cutter Present
	1	---	---	---
	0	RF Set Sensor	Closed	Open
2	**1st & 2nd Roll**			
	Bit	Item	0	1
	7	---	---	---

	6	Roll 2 End Sensor	Paper	No Paper
	5	---	---	---
	4	Roll 2 Entrance Sensor	Paper	No Paper
	3	---	---	---
	2	Roll 1 End Sensor	Paper	No Paper
	1	---	---	---
	0	Roll 2 Entrance Sensor	Paper	No Paper
4	Cassette Tray			
	Bit	Item	0	1
	7	---	---	---
	6	---	---	---
	5	---	---	---
	4	---	---	---
	3	---	---	---
	2	Cassette End Sensor	Paper	No Paper
	1	---	---	---
	0	Cassette Jam Sensor	Paper	No Paper
7	Paper Path Sensors			
	Bit	Item	0	1
	7	---	---	---
	6	---	---	---
	5	---	---	---
	4	Fusing Exit Sensor	Paper	No Paper
	3	Paper Registration Sensor	Paper	No Paper
	2	Paper Set Sensor	Paper	No Paper
	1	RF Exit Sensor	Paper	No Paper

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		0	---	---	---
8	**Unit Detect**				
	Bit	Item	0	1	
	7	---	---	---	
	6	Key Counter Set	Not Set	Set	
	5	Key Card Set	Not Set	Set	
	4	Total Counter	Not Set	Set	
	3	---	---	---	
	2	---	---	---	
	1	---	---	---	
	0	---	---	---	
9	**Door/M(otor) Lock**				
	Bit	Item	0	1	
	7	Fusing Motor	Normal	Lock	
	6	Wire Cleaner Motor	Normal	Lock	
	5	Drum Motor	Normal	Lock	
	4	Main Motor	Normal	Lock	
	3	Exit Cover Switch (Left)	Closed	Open	
	2	Toner Hopper Cover Switch	Closed	Open	
	1	Upper Unit SW (5V)	Closed	Open	
	0	Upper Cover SW (Right) (24V	Closed	Open	
10	**Others**				
	Bit	Item	0	1	
	7	Fusing Unit Cover Switch	Closed	Open	
	6	Exit Cover Sensor (Left) (5V)	Closed	Open	
	5	Cooling Fan	Normal	Lock	

	4	Toner Overflow Sensor	Not Full	Full
	3	Machine Model Confirmation	Model A	Model B
	2	Machine Model Detection	Model A	Model B
	1	Hot Roller Thermistor (High Temp.)	Normal	High
	0	Zero Cross Signal	Off	On
11	Dip Switch 1			
	Bit	Item	0	1
	7	DIP SW 8	Off	On
	6	DIP SW 7	Off	On
	5	DIP SW 6	Off	On
	4	DIP SW 5	Off	On
	3	DIP SW 4	Off	On
	2	DIP SW 3	Off	On
	1	DIP SW 2	Off	On
	0	DIP SW 1	Off	On

5804	Output Check	
	Switches each electrical component to test its operation. [OFF/ON]	
11	RF M1:Fwd	Roll Feed Motor 1: Forward
12	RF M1:Rev	Roll Feed Motor 1: Reverse
15	RF1 Feed CL	1st Roll Feed Clutch
16	RF2 Feed Cl	2nd Roll Feed Clutch
19	Cutter 1	
21	Ca Feed M	Cassette Feed Motor
25	Ca1 Feed CL	1st Cassette Feed Clutch

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31	Reg Motor	Registration Motor
32	Main Motor	
33	Fusing/Exit Motor	
34	Reg CL	Registration Clutch
35	JG SOL	Paper Junction Gate Solenoid
36	Used Toner Motor	
41	Charge Corona	
42	ChrgG:Img	Charge Grid: Image Area
43	ChrgG:IDPtrn	Charge Grid: ID Sensor Pattern
44	ChrgCora:Img	Charge Corona/Grid: Image Area
45	DBias:Img	Development Bias: Image Area
46	DBias:IDPtrn	Development Bias: ID Sensor Pattern
47	TCora:Ledge	Transfer Corona: Leading Edge
48	Transfer Corona	
49	SCora:Ledge	Separation Corona: Leading Edge
50	Scora	Separation Corona
52	TnrSupply CL	Toner Supply Clutch
53	Quenching Lamp	
54	Pawl SOL	Pick-off Pawl Solenoid
55	ID Sensor LED	
66	ChrgCora M	Charge Corona Wire Cleaner Motor
67	Recycle Counter	
68	Dehumidifier	Dehumidifier

5811	Machine No. Setting

		This SP presents the screen used to enter the 11-digit number of the machine. The allowed entries are "A" to "Z" and "0" to "9". The setting is done at the factory, and should not be changed in the field.

5812	Service TEL		Service Tel. No. Setting
	Use these SP modes to input service and support telephone numbers. Enter the number and press Press the ⊙ key to input a pause. Press the "Clear modes" key to delete the telephone number.		
1	Service		Service representative telephone number.
2	Facsimile		Fax number of service representative

5816	NRS Function	@Remote Service
1	I/F Setting	
	Turns the remote diagnostics off and on. [0 to 2/1] 0: Remote diagnostics off. 1: Serial (CSS or @Remote) remote diagnostics on. 2: Network remote diagnostics on for @Remote	
2	CE Call	
	Lets the operator engineer start or end of the remote machine check with CSS or @Remote; to do this, push the center report key	
3	Function Flag	
	Enables and disables remote diagnosis over the @Remote network. [0 to 1/1] 0: Disables remote diagnosis over the network. 1: Enables remote diagnosis over the network.	
7	SSL Disable	
	Controls if RCG (Remote Communication Gate) confirmation is done by SSL during an RCG send for the @Remote over a network intersection. [0 to 1/1]	

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	0: Yes. SSL not used. 1: No. SSL used.
8	RCG Connect T/O / RCG Connect Timeout Sets the length of time (seconds) for the time-out when the RCG (Remote Communication Gate) connects during a call via the @Remote network. [1 to 90/1 sec.]
9	RCG Write Timeout Sets the length of time (seconds) for the time-out when sent data is written to the RCG during a call over the @Remote network. [0 to 100/1 sec.]
10	RCG Read Timeout Sets the length of time (seconds) for the timeout when sent data is written from the RCG during a call over the @Remote network. [0 to 100/1 sec.]
11	Port 80 / Port 80 Enable Controls if permission is given to get access to the SOAP method over Port 80 on the @Remote network. [0 to 1/1] 0: No. Access denied 1: Yes. Access granted.
12	@Remote Service **DFU** NVRAM Offset: NrsCommEnable [0 to 1/1/1] 0: Disable 1: Enable
21	Function Flag This SP displays the Embedded RC Gate installation end flag. 1: Installation completed 2: Installation not completed
22	Install Status

	This SP displays the external RC Gate installation status. 0: Basil not registered 1: Basil registered 2: Device registered	
23	Connect Mode (N/M)	
	This SP displays and selects the Embedded RC Gate connection method. 0: Internet connection 1: Dial-up connection	
61	NotiTime ExpTime **DFU**	Notification of Expiration Time
	Proximity of the expiration of the certification.	
62	HTTP Proxy Use	
	This SP setting determines if the proxy server is used when the machine communicates with the service center.	
63	HTTP Proxy Host	
	This SP sets the address of the proxy server used for communication between embedded RCG-N and the gateway. Use this SP to set up or display the customer proxy server address. The address is necessary to set up embedded RCG-N. **Note**: The address display is limited to 128 characters. Characters beyond the 128th character are ignored. This address is customer information and is not printed in the SMC report.	
64	HTTP Proxy Port	
	This SP sets the port number of the proxy server used for communication between embedded RCG-N and the gateway. This setting is necessary to set up embedded RCG-N. **Note**: This port number is customer information and is not printed in the SMC report.	
65	HTTP Proxy Aut Usr	
	This SP sets the HTTP proxy certification user name. Note: • The length of the name is limited to 31 characters. Any character beyond the 31st character is ignored. • This name is customer information and is not printed in the SMC report.	
66	HTTP Proxy Aut Pass	

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	This SP sets the HTTP proxy certification password.
	• The length of the name is limited to 31 characters. Any character beyond the 31st character is ignored.
	• This name is customer information and is not printed in the SMC report.

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

	Cer Updt Cond		Certification Update Condition
	Displays the state of the certification update used for Embedded RC Gate. If Embedded RC Gate has not been set up, These SP settings are done automatically as soon as Embedded RC Gate is set up.		
	0		The certification used by Embedded RC Gate is set correctly.
	1		The certification request (SetAuthKey) for update has been received from the GW URL and certification is presently being updated.
	2		The certification update is completed and the GW URL is being notified of the successful update.
	3		The certification update failed, and the GW URL is being notified of the failed update.
67	4		The period of the certification has expired and new request for an update is being sent to the GW URL.
	11		A rescue update for certification has been issued and a rescue certification setting is in progress for the rescue GW connection.
	12		The rescue certification setting is completed and the GW URL is being notified of the certification update request.
	13		The notification of the request for certification update has completed successfully, and the system is waiting for the certification update request from the rescue GW URL.
	14		The notification of the certification request has been received from the rescue GW URL, and the certification is being stored.
	15		The certification has been s to red, and the GW URL is being notified of the successful completion of this event.

	16	The storing of the certification has failed, and the GW URL is being notified of the failure of this event.	
	17	The certification update request has been received from the GW URL, the GW URL was notified of the results of the update after it was completed, but a certification error has been received, and the rescue certification is being recorded.	
	18	The rescue certification of No. 17 has been recorded, and the GW URL is being notified of the failure of the certification update.	
68	Cer Abnml Cause		Certification Error
	Displays a number code that describes the reason for the notification requesting the certification update.		
	0	Normal. No request for certification update in progress.	
	1	Certification update in progress due to expiration of certification.	
	2	SSL error has been issued after the certification has expired.	
	3	There has been a shift from a common to individual certification.	
	4	There has been a common certification without ID2.	
	5	No certification has been issued.	
	6	GW URL does not exist.	
69	Cer Updt Reg ID		Certification Update: Requested ID
	The ID of the request for certification.		
83	Firm Updating		Firmware Updating
	Displays the status of the firmware update.		
84	Firm Up Flg No HDD		Firmware Updating: No HDD Unit
	This setting determines if the firmware can be updated, even without the HDD installed.		
85	Firm Up User Conf		Firmware Update with User Colnfirmation
	This SP setting determines if the operator can check the previous version of the firmware before the firmware update execution. If the option to check 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.		

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86	Firmware Size	
	Allows the service technician to check the size of the firmware data files during the firmware update execution.	
87	CERT:Macro Vsn	Certification: Macro Version
	Displays the macro version of the @Remote certification	
88	CERT:PAC Vsn	CERT: PAC Version
	Displays the PAC version of the @Remote certification.	
89	CERT: ID2 Code	
	Displays ID2 for the @Remote certification. Spaces are displayed as underscores (_). Asterisks (****) indicate that no @Remote certification exists.	
90	CERT: Subject	
	Displays the common name of the @Remote certification subject. CN = the following 17 bytes. Spaces are displayed as underscores (_). Asterisks (****) indicate that no DESS exists.	
91	CERT:SeriNum	CERT: Serial Number
	Displays serial number for the @Remote certification. Asterisks (****) indicate that no DESS exists.	
92	CERT: Issuer	
	Displays the common name of the issuer of the @Remote certification. CN = the following 30 bytes. Asterisks (****) indicate that no DESS exists.	
93	CERT: St Exp Time	Certification: Start of Expiration Period
	Displays the start time of the period for which the current @Remote certification is enabled.	
94	CERT: End Exp Time	Certification: End of Expiration Period
	Displays the end time of the period for which the current @Remote certification is enabled.	
95	Server CN Check **DFU**	
	[0 to 1/0/1] 0: Thorough check. Set when connected to @Remote gateway. 1: Moderate check. Set when connected to @Remote emulator	

96	GtWay Host **DFU**		Gateway Host
	Used by designers for debugging and evaluation of gateway security devices.		
97	GtWay URL Path **DFU**		Gateway URL Path
	Used by designers for debugging and evaluation of gateway security devices.		
99	Debug Rescue G/W URL Set **DFU**		
	Executing this SP sets "i01/AS" in the rescue gateway URL path. Used for 2-line displays, or when input with lowercase alphanumeric characters is not possible.		
200	Polling Man Exc		Manual Polling
	Executes manual polling. Embedded RC Gate periodically polls the @Remote Gateway by HTTPS. This is called "center polling". Use this SP at any time to poll the @Remote supply center.		
201	Instl: Condition		Installation Condition
	Displays a number that indicates the status of the @Remote service device.		
	0	Neither the @Remote device nor Embedded RC Gate device are set.	
	1	The Embedded RC Gate device is being set. Only Box registration is completed. In this status the Basil unit cannot answer a polling request.	
	2	The Embedded RC Gate device is set. In this status the Basil unit cannot answer a polling request.	
	3	The @Remote device is being set. In this status the Embedded RC Gate device cannot be set.	
	4	The @Remote module has not started.	
202	Instl: ID #	Installation ID Number	
	Allows entry of the number of the request needed for the Embedded RC Gate device.		
203	Instl: Reference	Installation Reference	
	Executes the inquiry request to the @Remote GW URL.		
204	Instl: Ref Rslt	Installation Reference Result	
	Displays a number that indicates the result of the inquiry executed with SP5816 203.		
	0	Succeeded	

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	1	Inquiry number error
	2	Registration in progress
	3	Proxy error (proxy enabled)
	4	Proxy error (proxy disabled)
	5	Proxy error (Illegal user name or password)
	6	Communication error
	7	Certification update error
	8	Other error
	9	Inquiry executing
205	Instl: Ref Section	Installation: Reference Section
	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	Register Execute	
	Executes Embedded RC Gate Registration.	
207	Instl: Rgstltn Rst	Installation Registration Result
	Displays a number that indicates the registration result.	
	0	Succeeded
	2	Registration in progress
	3	Proxy error (proxy enabled)
	4	Proxy error (proxy disabled)
	5	Proxy error (Illegal user name or password)
	6	Communication error
	7	Certification update error
	8	Other error
	9	Registration executing
208	Instl: Error Code	Installation Error Code

Displays a number that describes the error code that was issued when either SP5816 204 or SP5816 207 was executed.

Cause	Code	Meaning
Illegal Modem Parameter	-11001	Chat parameter error
	-11002	Chat execution error
	-11003	Unexpected error
Operation Error, Incorrect Setting	-12002	Inquiry, registration attempted without acquiring device status.
	-12003	Attempted registration without execution of an inquiry and no previous registration.
	-12004	Attempted setting with illegal entries for certification and ID2.
	-12005	@Remove communication prohibited
	-12006	Confirmation requested again after confirmation completed.
	-12007	Different numbers were used for registration and confirmation.
	-120008	Update certification failed because device was in use.
Error Caused by Response from GW URL	-2385	Attempted dial up overseas without the correct international prefix for the telephone number.
	-2387	Not supported at the Service Center
	-2389	Database out of service
	-2390	Program out of service
	-2391	Two registrations for same device
	-2392	Parameter error
	-2393	Basil not managed
	-2394	Device not managed
	-2395	Box ID for Basil is illegal

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		-2396	Device ID for Basil is illegal
		-2397	Incorrect ID2 format
		-2398	Incorrect request number format
209	Instl Clear		
	Releases a machine from its embedded RCG setup.		
250	Print Com Log		
	Prints the communication log.		

5821	NRS Address (**Japan Only**)	Remote Service Address
1	CSS PI Device	Sets the PI device code. After changing this setting, you must switch the machine off and on.
2	RCG IP Address	Sets the IP address of the RCG (Remote Communication Gate) destination for call processing at the remote service center. [00000000h to FFFFFFFFh/ 00000000h]

5824	NVRAM Upload
	Uploads the UP and SP mode data (except for counters and the serial number) from NVRAM on the control board to a flash memory card. While using this SP mode, always keep the front cover open. This prevents a software module accessing the NVRAM during the upload.

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

5828	Network Setting
	This machine supports both Internet Protocols IPv4 and IPv6. IPv6 is the next generation protocol designed by the IETF to replace IPV4. IPv6 adds many improvements such as routing and network auto-configuration.
001	IPv4 Address

		This SP allows you to confirm and reset the IPv4 address for Ethernet and a wireless LAN (802.11b): aaa.bbb.ccc.ddd For example, if the 8-bit entry is "192.168.000.001" this is read "0C0A80001h"
	002	IPv4 Subnet Mask
		This SP allows you to confirm and reset the IPv4 subnet mask for Ethernet and a wireless LAN (802.11b): aaa.bbb.ccc.ddd For example, if the 8-bit entry is "255.255.255.00" this is read "FFFFFF00h".
	003	IPv4 DefaultGate
		This SP allows you to confirm and reset the IPv4 default gateway used by the network for Ethernet and wireless LAN (802.11b): aaa.bbb.ccc.ddd For example, if the 8-bit entry is "192.169.000.001" this is read "0C0A80001h"
	006	DHCP
		This SP code allows you confirm and change the setting that determines whether the IP address is used with DHCP on an Ethernet or wireless (802.11b) LAN network. [0 to 1/1/0] 0: Not used (manual setting) 1: Used
	021	ActIPv4Add
		This SP allows you to confirm the IPv4 address that was used when the machine started up with DHCP. For example, if the the setting of the the IPv4 address is "0C0A80001h " this is displayed as "192.169.000.001".
	022	ActIPv4 SbNet
		This SP allows you to confirm the IPv4 subnet mask setting that was used when the machine started up with DHCP. For example, if the setting for the IPv4 subnet mask is "FFFFFF00H" this is displayed as "255.255.255.000"
	023	ActIPv4GateW
		This SP allows you to confirm the IPv4 default gateway setting that was used when the machine started up with DHCP. For example, if the setting for the IPv4 gateway is "0C0A80001h" this is displayed as "192.168.000.001".

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050	1284 Compatible
	Enables and disables bi-directional communication on the parallel connection between the machine and a computer. [0 to 1/1] 0:Off 1: On
052	ECP
	Disables and enables the ECP feature (1284 Mode) for data transfer. [0 to 1/1] 0: Disabled 1: Enabled
65	Job Spool Setting
	Switches job spooling spooling on and off. 0: No spooling 1: Spooling enabled
66	Job Spool Clear
	This SP determines whether the job interrupted at power off is resumed at the next power on. This SP operates only when SP5828065 is set to 1. 1: Resumes printing spooled jog. 0: Clears spooled job.
69	Job Spool Protocol
	This SP 8etermines whether job spooling is enabled or disabled for each pro to col. This is a 8-bit setting.

0	LPR	4	BMLinks (Japan Only)
1	FTP (Not Used)	5	DIPRINT
2	IPP	6	Reserved (Not Used)
3	SMB	7	Reserved (Not Used)

90	TELNET (0:OFF 1:ON)
	Disables or enables Telnet operation. If this SP is disabled, the Telnet port is closed. [0 to 1/1]

	0: Disable
	1: Enable
91	Web (0:OFF 1:ON)
	Disables or enables the Web operation.
	[0 to 1/1]
	0: Disable
	1: Enable
145	Active IPv6 Link Local Address
	This is the IPv6 local address referenced on the Ethernet or wireless LAN (802.11b) in the format:
	"Link-Local address" + "Prefix Length"
	The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each. These notations can be abbreviated. See "Note: IPV6 Addresses " below this table.
147	Active IPv6 Stat(eless Address 1)
149	Active IPv6 Stat(eless Address 2)
151	Active IPv6 Stat(eless Address 3)
153	Active IPv6 Stat(eless Address 4)
155	Active IPv6 Stat(eless Address 5)
	SP codes 147 to 155 are the IPv6 stateless addresses (1 to 5) referenced on the Ethernet or wireless LAN (802.11b) in the format:
	"Stateless Address" + "Prefix Length"
	The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each.
156	IPv6 Manual Add(ress)
	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. These notations can be abbreviated. See "Note: IPV6 Addresses" below this table.
158	IPv6 Gateway Add(ress)

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	This SP is the IPv6 gateway address referenced on the Ethernet or wireless LAN (802.11b). The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each. These notations can be abbreviated. See "Note: IPV6 Addresses " below this table.	

Note: IPV6 Addresses

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

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

The prefix length is inserted at the 17th byte (Prefix Range: 0x0-0x80). The initial setting is 0x40(64).

For example, the data:

20011234567890120abcdef012345678940h

is expressed:

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

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

Rules for Abbreviating IPV6 Addresses

1. The IPV6 address is expressed in hexadecimal delmited by colons (:) with the following characters:

   0123456789abcdefABCDEF

2. A colon is inserted as a delimiter every 4th hexadecimal character.

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

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

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

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

   -or-

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

5832	HDD	HDD Formatting
	Enter the SP number for the partition to initialize, then press #. When the execution ends, turn the machine power off and on.	
1	Format All	Formats the entire HDD units

5840	IEEE 802.11b

6	Channel MAX		
	Sets the maximum range of the bandwidth for the wireless LAN. This bandwidth setting varies for different countries. [1 to 14/1]		
7	Channel MIN		
	Sets the minimum range of the bandwidth for operation of the wireless LAN. This bandwidth setting varies for different countries. [1 to 14/1]		
11	WEP Key Select		
	Determines how the initiator (SBP-2) handles subsequent login requests. [00 to 11/00/1] Note: There are four settings (binary numbers): 00, 01, 10, 11. These settings are possible only after the wireless LAN card has been installed. 00: 1st key. If the initiator receives another login request while logging in, the request is refused. 01, 10, 11: 2nd, 3rd, 4th keys are "Reserved".		

5842	GWW Analysis **DFU**	GWWS Analysis Mode	
1	Setting 1		
	This is a debugging tool. It sets the debugging output mode of each Net File process. Bit SW 0011 1111	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
2	Setting 2	Bit	
	This SP codes sets the optional setting for message log time stamp. Bit 7 is the	0-6	Not Used
		7	Message log

	5682 message log where the following are set:	1: mm:ss:ms 0: mm:ss (time)

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

5845	Delivery Server Setting	
	Provides items for delivery server settings.	
3	Retry Interval	
	Determines the time interval between retries before the machine returns to standby after an error occurs during an image transfer with the delivery scanner or SMTP server. [60 to 900/300/1]	
4	Number of Retries	
	Determines the number of retries before the machine returns to standby after an error occurs during an image transfer with the delivery or SMTP server. [0 to 99/3/1]	

22	Instant Trans Off
	Switches instant transmission off/on. [0 to 1/**1**/1] 0: Off. Instant transmission not possible with network setting errors. 1: On. Instant transmission possible with network setting errors. Note: • The machine will continue to transmit over the network, even if the network settings are incorrect. (This causes multiple errors, of course.) • With this SP off, the machine will stop communicating with the network if the settings are wrong. This reduces the amount of spurious network traffic caused by errors due to incorrect settings.

5846	UCS Setting	
10	LDAP Search TOut	LDAP Search Timeout
	Sets the length of the time-out for the search of the LDAP server. [1 to 255/1]	
41	AddrB Acl Info	Fill Addr Acl Info.
	This SP must be executed immediately after installation of an HDD unit in a basic machine that previously had no HDD. The first time the machine is powered on with the new HDD installed, the system automatically takes the address book from the NVRAM and writes it to the new HDD. However, the new address book on the HDD can be accessed only by the system administrator at this stage. Executing this SP by the service technician immediately after power on grants full address book access to all users. Procedure 1. Turn the machine off. 2. Install the new HDD. 3. Turn the machine on. 4. The address book and its initial data are created on the HDD automatically. However, at this point the address book can be accessed by only the system administrator or key operator. 5. Enter the SP mode and do SP5846-41. After this SP executes successfully, any user can access the address book.	
43	AddB Media	
	Displays the location of the address book currently in use.	

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	0: Not specified 1: SD Card Slot 1 2: SD Card Slot 2 20: HDD 30: None	
46	Init All Set&Dir	Initialize Address Book Settings & Directories
	The SP clears all the setting information managed in UCS and address book information (local, delivery, LDAP) and restores these settings to their default values. Use this SP to initial the account information (user codes and passwords) for system managers and users as well. • Note: • Be sure to cycle the machine off and on after you execute this SP code. • Once this SP has been executed, a message on the screens of applications that use the address book will prompt users that the address book is being updated. This prevents the machine from issuing SC870. • The machine initializes to determine if the address book is stored on the HDD or on an SD card. In order for the machine to determine whether to recognize an address book on the HDD or the SD card, the machine must be cycled off and on once more to determine whether the machine should recognize the address book on the HDD or the SD card.	
47	Ini Local AddrB	Initialize Local Address Book
	Clears all of the address information from the local address book of a machine managed with UCS.	
49	Ini LDAP AddrB	Initialize LDAP Addr Book
	Push [Execute] to delete all items (this does not include user codes) in the LDAP address book that is controlled by UCS.	
50	Ini All AddrB	Initialize All Addr Book
	Clears everything (including user codes) in the directory information managed by UCS. However, the accounts and passwords of the system administrators are not deleted.	
51	Bkup All AddrB	Backup All Addr Book
	Uploads all directory information to the SD card.	
52	Restr All AddrB	Restore All Addr Book
	Downloads all directory information from the SD card.	
53	Clear Backup Info.	

	Deletes the address book uploaded from the SD card in the slot. Deletes only the files uploaded for that machine. This feature does not work if the card is write-protected. Note: After you do this SP, go out of the SP mode, turn the power off. Do not remove the SD card until the Power LED stops flashing.	
	Search Option	
	This SP uses bit switches to set up the fuzzy search options for the UCS local address book.	
	Bit	**Meaning**
	0	Checks both upper/lower case characters
	1	
60	2	Japan Only
	3	
	4	--- Not Used ---
	5	--- Not Used ---
	6	--- Not Used ---
	7	--- Not Used ---
	Compl Opt1	Complexity Option 1
62	Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to upper case and sets the length of the password. [0 to 32/1] Note: This SP does not normally require adjustment. This SP is enabled only after the system administrator has set up a group password policy to control access to the address book.	
	Compl Opt2	Complexity Option 2
63	Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to lower case and defines the length of the password. [0 to 32/1] Note: This SP does not normally require adjustment.	

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	This SP is enabled only after the system administrator has set up a group password policy to control access to the address book.	
64	Compl Opt3	Complexity Option 3
	Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to numbers and defines the length of the password. [0 to 32/1] Note: This SP does not normally require adjustment. This SP is enabled only after the system administrator has set up a group password policy to control access to the address book.	
65	Compl Opt4	Complexity Option 4
	Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to symbols and defines the length of the password. [0 to 32/1] Note: This SP does not normally require adjustment. This SP is enabled only after the system administrator has set up a group password policy to control access to the address book.	
94	Encryption Start	
	Shows the status of the encryption function of the address book on the LDAP server. [0 to 255/1] No default	

5848	Web Service	
	5847 2 sets the 4-bit switch assignment for the access control setting. Setting of 5848 1 has no effect on access and delivery from Scan Router. 5847 100 sets the maximum size of images that can be downloaded. The default is equal to 1 gigabyte.	
4	ac:UD	Acc. Ctrl.: User Directory (Lower 4 Bits)
9	?ac:Job Ctrl	Acc. Ctrl.: Job Control (Lower 4 Bits)
11	ac:Dev Mng	Acc. Ctrl: Device Management (Lower 4 Bits)
22	ac:Uadmin	Acc. Ctrl: User Administration (Lower 4 Bits)
	For 3 to 22 above switches access control on and off.	

	0000: OFF, 0001: ON	
210	LogType: Job1 **DFU**	Setting: Log Type: Job 1
	[0 to 0xFFFFFFFF/0/1]	
211	LogType: Job2 **DFU**	Setting: Log Type: Job 2
	[0 to 0xFFFFFFFF/0/1]	
212	LogType: Access **DFU**	Setting: Log Type: Access
	[0 to 0xFFFFFFFF/0/1]	
213	Primary Srv **DFU**	Setting: Primary Srv
214	Secondary Srv **DFU**	Setting: Secondary Srv
215	Start Time **DFU**	Setting: Start Time
	[0 to 0xFFFFFFFF/0/1]	
216	Internal Time **DFU**	Setting: Interval Time
	[1 to 100/1/1]	
217	Timing **DFU**	Setting: Timing
	[0 to 2/0/1] 0: Transmission off 1: Transmission 1 by 1 2: Periodic transmission	

5849	Installation Date	
	Displays or prints the installation date of the machine.	
1	Display	Displays the installation date. The installation date is set automatically after test copies are done at the installation site.
2	Print	Determines whether the installation date or total count is printed on the total counter printout. [0 to 1/1] 0: No Print 1: Print

3	Total Counter	Displays the total count starting from the installation date (SP5849-1).

	Bluetooth	
5851	Sets the operation mode for the Bluetooth Unit. Press either key.	
	[0:Public] [1: Private]	

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

5857	Debug Log Save	
	ON/OFF	On/Off (1:ON 0:OFF)
1	Switches on the debug log feature. The debug log cannot be captured until this feature is switched on.	
	[0 to 1/1]	
	0: OFF	
	1: ON	
	T arget	Target (2: HDD 3: SD Card)
2	Selects the destination where the debugging information generated by the event selected by SP5858 will be s to red if an error is generated	
	[2 to 3 /1]	
	2: HDD	
	3: SD Card	
5	Save to HDD	
	Specifies the decimal key number of the log to be written to the hard disk.	
6	Save to SD Card	
	Specifies the decimal key number of the log to be written to the SD Card.	

9	HDD to SD Latest (4 MB)	
	Takes the most recent 4 MB of the log written to the hard disk and copies them to the SD Card.	
	A unique file name is generated to avoid overwriting existing file names on the SD Card. Up to 4MB can be copied to an SD Card. 4 MB segments can be copied one by one to each SD Card.	
10	HDD to SD Any	Copy HDD to SD Card Latest (4 MB Any Key)
	Takes the log of the specified key from the log on the hard disk and copies it to the SD Card.	
	A unique file name is generated to avoid overwriting existing file names on the SD Card. Up to 4 MB can be copied to an SD Card. 4 MB segments can be copied one by one to each SD Card. This SP does not execute if there is no log on the HDD with no key specified.	
11	Erase HDD Debug	
	Erases all debug logs on the HDD	
12	Erase SD Debug	
	Erases all debug logs on the SD Card. If the card contains only debugging files generated by an event specified by SP5858, the files are erased when SP5857-10 or -11 is executed.	
	to enable this SP, the machine must be cycled off and on.	
13	Dsply SD Space	Display Free Space on SD Card
	Displays the amount of space available on the SD card.	
14	SD to SD (Latest 4MB)	
	Copies the last 4MB of the log (written directly to the card from shared memory) on to an SD card.	
15	SD to SD Any	Copy SD to SD (Latest 4MB Any Key)
	This SP copies the log on an SD card (the file that contains the information written directly from shared memory) to a log specified by key number.	
16	Make HDD Debug	
	This SP creates a 32 MB file to store a log on the HDD.	
17	Make SD Debug File	
	This SP creates a 4 MB file to store a log on an SD card.	

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5858		Debug Log:SC
		These SP's select the content of the debugging information to be saved to the destination selected by SP5857-2. SP58583 stores one SC error specified by number.
	1	Engine SC
		Stores SC codes generated by main machine engine errors.
	2	Controller SC
		Stores SC codes generated by GW controller errors.
	3	Any SC
		[0 to 65535 / 0 / 1]
	4	Jam
		Stores jam errors.

5859	Debug Log Save Key	
1	Key 1	
2	Key 2	
3	Key 3	
4	Key 4	These SP's allow you to set up to 10 keys for log files for functions that use common memory on the controller board.
5	Key 5	[-9999999 to 9999999 / 0 / 1]
6	Key 6	
7	Key 7	
8	Key 8	
9	Key 9	
10	Key 10	

5860	SMTP/POP3/IMAP	
2	SMTP Ser Port No..	Input the SMTP server port number

5860	SMTP/POP3/IMAP	
3	SMTP Auth	SMTP authentication enable/disable. [0-1/**0**/2] 0: Disable 1: Enable
6	SMTP Auth encryp	Encryption mode for SMTP authentication enable/disable (Only valid if 5860 3 is set to "enable") [0-2/**0**/1] 0: Automatic 1: No encryption 2: Encrypt
7	POP Before SMTP	Enable/disable POP before SMTP. If the SMTP server does not have authentication, you can enable POP before SMTP, them POP authentication is available (SP 5860 13) [0-1/0/1] 0: Disable 1: Enable
8	POP to SMTP Wait	When using POP before SMTP, this SP mode determines the maximum wait time between POP authentication and connection with SMTP. Communication stops if this time is exceeded. [0-3000/300]
9	Rcv Protocol	This SP specifies POP3 protocol or switches off receiving. 0: No receiving 1: POP3 2: IMAP4 3: SMTP
13	POP Auth Encrypt	If POP before SMTP is enabled, then you can use this SP to enable or disable encryption mode for POP authentication. [0-2/**0**/1] 0: Automatic 1: No encryption 2: Encrypt

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5860	SMTP/POP3/IMAP	
14	POP Serv Port No.	Input the POP server port number
15	IMAP Srv Port No	This SP sets the number of the IMAP4 server port. [1 to 65535/143/1]
16	SMTP Rcv Port No	This SP sets the number of the port that receives SMTP mail. [1 to 65535/25/1]
17	Receive Interval	This SP sets the timing for mail received at regular intervals. [2 to 1440/3/1 min.] **Note**: Setting this SP to "0" switches off receiving mail at timed intervals.
19	Mail Keep Sett.	This SP setting determines whether received mail is stored on the server. 0: Received mail not stored 1: All received mail stored 2: Stores only mail that generated errors during receiving
20	ParMail RcTOut [1 to 168/72/1] Sets the amount of time to wait before saving a mail that breaks up during reception. The received mail is discarded if the remaining portion of the mail is not received during this prescribed time.	
21	MDN RES RFC 2298 Determines whether RFC2298 compliance is switched on for MDN reply mail. [0 to 1/1] 0: No 1: Yes	
22	SMTP Aut. Field Rep Determines whether the FROM item of the mail header is switched to the validated account after the SMTP server is validated. [0 to 1/1] 0: No. "From" item not switched. 1: Yes. "From" item switched.	
25	SMTP Auth Direct Sending	

5860	SMTP/POP3/IMAP
	Occasionally, all SMTP certifications may fail with SP5860 006 set to "2" to enable encryption during SMTP certification for the SMTP server. This can occur if the SMTP server does not meet RFC standards. In such cases you can use this SP to set the SMTP certification method directly. However, this SP can be used only after SP5860 003 has been set to "1" (On). Bit0: LOGIN Bit1: PLAIN Bit2: CRAM_MD5 Bit3: DIGEST_MD5 Bit4 to Bit 7: Not Used

5866		Email Report
	1	Report Validity
		Disables and re-enables the email notification feature. [0 to 1/0/1] 0: Enable 1: Disable
	5	Add Date Field
		This SP adds the current date to the date field of an email alert that informs the operator that an error has occurred. [0 to 1/0/1] 0: Date not added 1: Date added

5870	Common KeyInfo Writing	Common Key Information Writing
	Writes to flash ROM the common proof for validating the device for @Remote specifications.	
1	Writing	Note: These SP's are for future use and currently are not used.
3	Initialize	

5873	SD Card Appli Move
	Moves an application from one SD card to another..

1	Move Exec	Executes the move from one SD card to another.	
2	Undo Exec	This is an undo function. It cancels the previous execution.	

5876	Security Clear **DFU**		
	This SP clears all security data in the NCS area or the UCS area. **Note**: • NCS: Network Control Service • USC: User Information Control Service		
1	All Clear	Clear all security data for both NCS and UCS.	
11	Clear NCS Sec.	Clears all security data for NCS.	
15	Clr UCS Sercurity	Clears all security data for UCS.	

5878	Option Setup
	Press [Execute] to initialize the Data Overwrite Security option for the main machine.

5886	Permit ROM Update
	The setting of this SP allows or prohibits updating the ROM. *0:YES, 1:NO

5887	SD Get Counter
	This SP outputs a text file (*.txt) that lists the counts for the application SD card inserted in to the SD service slot. Before executing this SP, you must first create a folder entitled "SD_COUNTER" in the root direc to ry of the SD card.

5907	Plug & Play
	Selects the brand name and the production name for Windows Plug & Play. This information is stored in the NVRAM. If the NVRAM is defective, these names should be registered again.
	After selecting, press the "Original Type" key and "#" key at the same time. When the setting is completed, the beeper sounds five times.

5915	Mech Cnt Det	Mechanical Counter Detection

	This SP checks the mechanical counter to confirm whether it is connected.
	0: Disconnected 1: Detect 2: Unknown
	Note:
	• The reading returned by this SP does not change if the mechanical counter is removed while the machine is powered on.
	• About 3 sec. is required for this SP to return a correct reading after the machine is switched on.

5990	SP Print Mode (SMC Printout)	
1	All	
2	SP (SP codes only)	
4	Logging Data	Prints all of the system parameter lists for the item selected. Input the number for the item that you want to print, and then press [1]: "Execute" on the touch panel.
5	Diagnostic Report	
6	Non-Default	
7	NIB Summary	

5

SP6-xxx Peripherals

6117	FU Input Chk	Folder Input Check

This SP retrieves the SP settings of each bit within 0.5 sec., collects the data into 1-byte, then sends it to the controller. However, undefined sensor information on the Folder unit side is set to "0" without checking the Folder unit.

- If there is no response from the Folder FD within the prescribed time after it is checked, the 1-byte data (sensor information) is set to "0".
- The requests for engine information stop after this SP screen is closed.

(7) 0000 0000 (1)

1 Fan Folder 1

Bit	Input	Status
7	Not used	---
6	Not used	---
5	Original width sensor	36 in.
4	Not used	---
3	Entrance sensor	0: No paper, 1: Paper present
2	Not used	---
1	Exit JG sensor	0: No paper, 1: Paper present
0	Not used	---

2 Fan Folder 2

Bit	Input	Status
7	Original width sensor: 24 in.	0: No paper, 1: Paper present
6	Original width sensor: 18 in.	0: No paper, 1: Paper present
5	Original width sensor: 12 in.	0: No paper, 1: Paper present
4	Original width sensor: 30 in.	0: No paper, 1: Paper present
3	Original width sensor: 841 mm/34 in.	0: No paper, 1: Paper present
2	Original width sensor: 594 mm/22 in.	0: No paper, 1: Paper present

	1	Original width sensor: 420 mm/17 in.	0: No paper, 1: Paper present
	0	Original width sensor: 297 mm/11 in.	0: No paper, 1: Paper present
3	Fan Folder 3		
	Bit	Input	Status
	7	Not used	---
	6	Not used	---
	5	Not used	---
	4	Not used	---
	3	Fold plate HP sensor (F)	0: Off, 1: On
	2	Fold plate HP sensor (R)	0: Off, 1: On
	1	Fold plate down sensor (F)	0: Off, 1: On
	0	Fold plate down sensor (R)	0: Off, 1: On
4	Fan Folder 4		
	Bit	Input	Status
	7	Folder unit entrance sensor	0: No paper, 1: Paper present
	6	Corner fold entrance sensor	0: No paper, 1: Paper present
	5	Fan fold sensors (F)	0: No paper, 1: Paper present
	4	Corner fold sensors (F)	0: No paper, 1: Paper present
	3	Fan fold sensors (R)	0: No paper, 1: Paper present
	2	Corner fold sensors (R)	0: No paper, 1: Paper present
	1	Fan fold exit sensor	0: No paper, 1: Paper present
	0	Corner fold exit sensor	0: No paper, 1: Paper present
5	TrptSwitchg	Transport Switching (**Not Used: Cross-Folder**)	
	Bit	Input	Status
	7	Junction gate entrance sensor	0: No paper, 1: Paper present
	6	Paper exit sensor	0: No paper, 1: Paper present

	5	Paper length sensor	0: No paper, 1: Paper present
	4	Horizontal pressure HP sensor 1	0: No paper, 1: Paper present
	3	Horizontal pressure HP sensor 2	0: No paper, 1: Paper present
	2	Jogger HP sensor	0: No paper, 1: Paper present
	1	Punch registration sensor (H)	0: No paper, 1: Paper present
	0	Punch registration sensor (V)	0: No paper, 1: Paper present
6	Cross Folder (**Not Used**)		
	Bit	Input	Status
	7	Not used	---
	6	Not used	---
	5	Not used	---
	4	Cross folder entrance sensor	0: No paper, 1: Paper present
	3	Cross folder (U) sensor	0: No paper, 1: Paper present
	2	Cross folder (L) sensor	0: No paper, 1: Paper present
	1	Cross fold plate HP sensor (U)	0: Off, 1: On
	0	Cross fold plate HP sensor (L)	0: Off, 1: On
7	Invert/Rotate (**Not Used: Cross-Folder**)		
	Bit	Input	Status
	7	Not used	0: No paper, 1: Paper present
	6	Inverter entrance sensor	0: No paper, 1: Paper present
	5	Inverter exit sensor	0: No paper, 1: Paper present
	4	Inverter output sensor	0: No paper, 1: Paper present
	3	Rotate entrance sensor	0: No paper, 1: Paper present
	2	Non-rotate entrance sensor (U)	0: No paper, 1: Paper present
	1	Non-rotate entrance sensor (L)	0: No paper, 1: Paper present
	0	Paper registration sensor	0: No paper, 1: Paper present

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8	Shift Tray (**Not Used**)		
	Bit	Input	Status
	7	Not used	---
	6	Not used	---
	5	Not used	---
	4	Exit sensor	0: No paper, 1: Paper present
	3	Shift tray HP sensor	0: Off, 1: On
	2	Paper sensor	0: No paper, 1: Paper present
	1	Lower limit sensor	0: Off, 1: On
	0	Door Switch	0: Off, 1: On
9	Punch: Horiz (**Not Used**)		
	Bit	Input	Status
	7	Not used	---
	6	Not used	---
	5	Not used	---
	4	Not used	---
	3	Not used	---
	2	Not used	---
	1	Punch HP sensor	0: Off, 1: On
	0	Punch hopper full sensor	0: Off, 1: On
10	Punch: Vert (**Not Used**)		
	Bit	Input	Status
	7	Not used	---
	6	Not used	---
	5	Not used	---
	4	Not used	---

	Bit	Input	Status
	3	Punch unit HP sensor	0: Off, 1: On
	2	Punch hopper full sensor	0: Off, 1: On
	1	Punch leading edge sensor (V)	0: Off, 1: On
	0	Punch HP sensor (V)	0: Off, 1: On
11	Door1:FF		Door 1: Fan Folder
	Bit	Input	Status
	7	N3 door switch	0: Close, 1: Open
	6	N5 door switch	0: Close, 1: Open
	5	N6 door switch	0: Close, 1: Open
	4	N7 door switch	0: Close, 1: Open
	3	Bypass front cover	0: Close, 1: Open
	2	Bypass rear cover	0: Close, 1: Open
	1	N6 guide switch (U)	0: Close, 1: Open
	0	N6 guide switch (L)	0: Close, 1: Open
12	Door2:FF		Door 2: Fan Folder
	Bit	Input	Status
	7	Not used	---
	6	Not used	---
	5	Not used	---
	4	Not used	---
	3	N1 guide microswitch	0: Close, 1: Open
	2	N3 door microswitch	0: Close, 1: Open
	1	N5 door microswitch	0: Close, 1: Open
	0	Bypass jam door microswitch	0: Close, 1: Open
13	Door1:XF		Door 1: Cross Folder
	Bit	Input	Status

	7	Not used	---
	6	Not used	---
	5	Not used	---
	4	Not used	---
	3	Transport JG door sensor (F)	0: Close, 1: Open
	2	Transport JG door sensor (U)	0: Close, 1: Open
	1	Transport JG door sensor (R)	0: Close, 1: Open
	0	Cross fold door sensor (R)	0: Close, 1: Open
14	Door2:XF		Door 2: Cross Folder (**Not Used**)

	Bit	Input	Status
	7	Not used	---
	6	Not used	---
	5	Not used	---
	4	Transport JG door microswitch (F)	0: Close, 1: Open
	3	Cross horizontal microswitch 1	0: Close, 1: Open
	2	Cross horizontal microswitch 2	0: Close, 1: Open
	1	Inverter door microswitch	0: Close, 1: Open
	0	Inverter door microswitch	0: Close, 1: Open

6118	FU Output Chk		Folder Output Check
	Use this SP to switch on the motors, clutches, and solenoids of the Folder unit B889 to test their operation. **Important**: After switching on a motor, clutch, or solenoid, be sure to switch it off after you finish your work.		
1	TrptM:Fwd:FF		Transport Motor: Fwd: Fan Folder
2	BpFeedCL:FF		Bypass Feed Clutch: Fan Folder
3	PprEnt CL:FF		Paper Entrance Clutch: Fan Folder

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4	JG SOL:FF	Output Junction Gate SOL: Fan Folder
5	PFM:HoFwd:CF	Pre-Fold Motor: SE: Fwd: Fan Folder
6	PFM:VeFwd:CF	Pre-Fold Motor: LE Fwd: Fan Folder
7	PFC:HoFwd:CF	Pre-Fold Clutch: SE: Fan Folder
8	PFC:VeFwd:CF	Pre-Fold Clutch: LE: Fan Folder
9	Relay CL:FF	Relay Clutch: Fan Folder
10	Exit CL:CF	Corner Fold Exit Clutch: Fan Folder
11	FFPl:FF	Front Fold Plate: Fan Folder
12	RFPl:FF	Rear Fold Plate: Fan Folder
13	FoldM:Fwd:FF	Fold Motor: Fwd: Fan Folder
14	FoldM:Rev:FF	Fold Motor: Rev: Fan Folder
15	Guide SOL:CF	
16	FFPlM:Fwd:FF	Front Fold Plate Motor: Fwd: Fan Folder
17	FFPlM:Fwd:FF	Front Fold Plate Motor: Rev: Fan Folder
18	RFPlM:Fwd:FF	Rear Fold Plate Motor: Fwd: Fan Folder
19	RFPlM:Rev:FF	Rear Fold Plate Motor: Rev: Fan Folder
31	TrptM:Fwd:XF	Vert Transport Motor: Fwd: Fan Folder
32	TrptM:Rev:XF	Vert Transport Motor: Rev: Fan Folder
33	JogM:Fwd:XF	Jogger Motor: Fwd: Cross Folder
34	JogM:HPSn:XF	Jogger Motor HP Sensor: Cross Folder
35	P JG SOL :XF	Punch Transport JG SOL: Cross Folder
36	HoPM HPSn:XF	Horiz Feed Pressure Motor HP Sensor: Cross Folder
38	VePSOL1-3:XF	Vert Feed Pressure SOL 1-3: Cross Folder
39	HoFM:Fwd:XF	Horiz Feed Motor: Fwd: Cross Folder
40	HoFM:Rev:XF	Horiz Feed Motor: Rev: Cross Folder
41	VPlSOL1:L:XF	Vert Feed Pres Idle SOL 1: L: Cross Folder

42	VPISOL2:C:XF	Vert Feed Pres Idle SOL 2: C: Cross Folder
43	VPISOL3:R:XF	Vert Feed Pres Idle SOL 3: R: Cross Folder
44	FoldM:Fwd:XF	Fold Motor: Fwd: Cross Folder
45	FoldM:Rev:XF	Fold Motor: Rev: Cross Folder
46	UFPlM:Fwd:XF	Upper Fold Plate Motor: Fwd: Cross Folder
47	UFPlM:Rev:XF	Upper Fold Plate Motor: Rev: Cross Folder
49	LFPlM:Fwd:XF	Lower Fold Plate Motor: Fwd: Cross Folder
50	LFPlM:Rev:XF	Lower Fold Plate Motor: Rev: Cross Folder
51	FPlM HPn:XF	Fold Plate Motor Position HP Sensor: Cross Folder
52	InvM:Fwd:XF	Inverter Motor: Fwd: Cross Folder
53	InvM:Rev:XF	Inverter Motor: Rev: Cross Folder
54	R/T M:Fwd:XF	Rotate/Transport Motor: Fwd: Cross Folder
55	InvJG SOL:XF	Inverter Entrance JG SOL: Cross Folder
57	RoSn SOL:XF	Rotation Sensor SOL: Cross Folder
58	RoEntPSOL:XF	Rotation Entrance Pressure SOL: Cross Folder
59	RotExtPSOL:XF	Rotation Exit Pressure SOL: Cross Folder
60	Rot RPSOL:XF	Rotation Right Pressure SOL: Cross Folder
61	Rot LPSOL:XF	Rotation Left Pressure SOL: Cross Folder
62	POutM:Fwd:XF	Paper Output Motor: Fwd: Cross Folder
63	ShfTM:Fwd:XF	Shift Tray Motor: Fwd: Cross Folder
64	TLM HPSn:XF	Tray Lift Motor HP Sensor: Cross Folder
66	PnMM:Fwd Ho	Punch Move Motor: Fwd Horiz
67	PnMM:Rev Ho	Punch Move Motor: Rev Horiz
73	PnMM:Fwd Ve	Punch Move Motor: Fwd Vert
74	PnMM:Rev Ve	Punch Move Motor: Rev Vert
75	PnDM:Ho	Punch Drive Motor: Horiz

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76	PnDrive CL	Punch Drive Clutch

6961	FU:TprtM Adj **DFU**	Adjust Number of Folder Transport Motor Rotations
1	FolderM Rot **DFU**	

This SP adjusts the line-speed of the Folder unit transport motor. The transport motor drives all the timing belts that turn the rollers in the paper feed path.

[-10 to +10/0/1%]

Note: At "0", the motor runs at normal speed. Adjustment in the "+" direction increases speed, and in the "-" direction it decreases speed.

6962	FF:FoldM Adj **DFU**	(Fan) Fold Motor Adjustment

Use these SP's to adjust the fan motor speed to correct skew and offset at the Folder unit entrance. The fan fold motor drives both pairs of fan fold rollers at the bottom of the Folder unit.

1	Disp Ppr L	Display Paper Length

This SP displays the length of the paper most recently fed into and folded in the Folder unit.

[0 to 32767 mm]

One of two sensors detects the leading edge and trailing edge of the paper, and calculates the paper length based on the length of time for the paper to pass below:

- On line mode. The Folder unit entrance sensor detects the length of the paper fed from the main machine.
- Off line mode. The leading edge sensor of the Manual Feeder detects the length of the paper fed directly into the manual feeder.

2	Disp FPpr L	Display Folded Length

This SP displays the length of the paper most recently folded in the Folder unit.

[0 to 32767 mm]

One of two sensors detects the leading edge and trailing edge of the paper, and calculates the paper length based on the length of time for the paper to pass below:

- On line mode. The Folder unit entrance sensor detects the length of the paper fed from the main machine.
- Off line mode. The leading edge sensor of the Manual Feeder detects the length of the paper fed directly into the manual feeder.

11	Fold Roller Speed	(Fan) Fold Roller Speed

The SP sets the default speed of the fan fold roller motor when the man machine is turned on.

	[80 to 160/80/1 mm/s]	
21	FU EntSkew	Skew at Folder Entrance
	This SP can be adjusted to correct the reading of the paper length. The input from SP6962-1 (paper length) and SP6962-22 (paper offset) are used together. After two sheets of different length have passed, the amount of skew and offset are calculated then corrected using this equation: $Y = aX + b$ where: X: Actual paper length Y: Paper length read by machine (SP6962-1) a: Skew correction (SP6962-21) b: Offset correction (SP6962-22) [70 to 130/100/0.1 %]	
22	FU EntOffset	Offset at Folder Entrance
	This SP can be adjusted to correct reading of the paper length. The input from SP6962-1 (paper length) and SP6962-021 (paper skew) are used together. After two sheets of different length have passed, the amount of skew and offset are calculated then corrected using this equation: $Y = aX + b$ where: X: Actual paper length Y: Paper length read by machine (SP6962-1) a: Skew correction (SP6962-21) b: Offset correction (SP6962-22) [70 to 130/100/0.1 %]	
31	FU ExtOffset	Offset at Folder Exit
	This SP adjusts the length of the fan folds in the paper to be sent to the cross fold unit. [-10 to +10/0/0.1 mm]	
41	FMotor Rot	Fold Motor Rotation
	This SP adjusts the rotations of the fan fold motor. [-10 to +10/0/0.1 %]	

6963	FF: Plate Adj **DFU**	Fold Plate Adjustment

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	Use these SP's to adjust operation of the fold plates inside the fan folder of the Folder unit.	
1	FPlM Mvt:LE	Fold Plate Movement : Leading Edge
	This SP adjusts how far the fold plates descend to guide the leading edge. [-200 to +200/0/1] **Note**: • An adjustment of 1 step is equivalent to 0.191 mm. • An adjustment in the "+" direction moves the fold plates closer to the fan fold rollers, and an adjustment in the "-" direction moves them away from the fan fold rollers.	
2	FPl Mvt	Fold Plate Movement
	This SP adjusts how far the fold plates descend to push the paper between the fan fold rollers to form the folds. [-400 to +400/0/1] **Note**: • An adjustment of 1 step is equivalent to 0.191 mm. • An adjustment in the "+" direction moves the fold plates closer to the fan fold rollers, and an adjustment in the "-" direction moves them away from the fan fold rollers.	
11	FPl Stp:LE	Fold Plate Halt : Leading Edge
	This SP adjusts when the fold plates pause on the downstroke at the lowest point near the fan fold rollers after the leading edge of the paper has entered the fan folder mechanism. [-100 to 500/0/10 ms] **Note**: An adjustment in the "+" direction sets a longer time, and an adjustment in the "-" direction sets a shorter time.	
12	FPL Stp:Fold	Fold Plate Halt : Folding
	This SP adjusts the how long the fold plates pause on the down stroke at its lowest point near the fan fold rollers. [-100 to 500/0/10 ms] **Note**: An adjustment in the "+" direction sets a longer time, and an adjustment in the "-" direction sets a shorter time.	
21	FPl Tmg:LE	Fold Plate Timing : Leading Edge
	This SP adjusts the distance the paper feeds past the fan folder entrance sensor (the sensor goes ON) before the fold plate starts to descend. [-70 to 70/0/0.1 mm]	
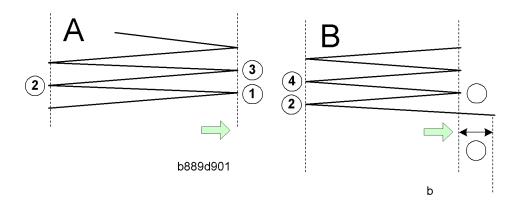
	Note: An adjustment in the "+" direction lengthens the distance, and an adjustment in the "-" direction shortens the distance.	
22	FPl Tmg:LE	Fold Plate Timing: Folding
	This SP adjusts the distance that the paper travels past the fan fold sensor pair before the fold plate starts to descend. [-70 to 70/0/0.1 mm] **Note**: An adjustment in the "+" direction lengthens the distance, and an adjustment in the "-" direction shortens the distance.	
31	FPlMvt:LE:CF	Fold Plate Movement: Leading Edge Corner Folding
	This SP adjusts the distance that the fan fold plate descends in order to guide the paper into the fan folding unit for the first fold when corner folding and fan folding have been selected for the job. [-200 to +200/0/1 mm] **Note**: • This SP applies only if corner folding the first sheet has been selected for the job. • An adjustment of 1 step is equivalent to 0.191 mm. • An adjustment in the "+" direction moves the fan fold plates closer to the fan fold rollers, and an adjustment in the "-" direction moves the plate away from the fan fold rollers.	
32	FPlStp:LE:CF	Fold Plate Halt: Leading Edge Corner Folding
	This SP adjusts the length of time the paper feeds before the fan fold plate starts to ascend when corner folding and fan folding have been selected for the job. [-100 too +500/0/10 mm] **Note**: • This SP applies only if corner folding has also been selected for the job. • An adjustment in the "+" direction lengthens the time, and an adjustment in the "-" direction shortens the time.	
33	FPlTmg:LE:CF	Fold Plate Timing: Leading Edge Corner Folding
	This SP adjusts the distance the paper feeds past the fan folder entrance sensor (the sensor goes ON) before the fold plate starts to descend when corner folding is also selected for the job. [-70 to 70/0/0.1 mm] **Note**: • This adjustment applies only after corner folding is also selected for the job.	

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	• An adjustment in the "+" direction lengthens the distance, and an adjustment in the "-" direction shortens the distance.	
41	FPlMvt:PExit	Fold Plate Movement: Paper Exit
	This SP adjusts the distance for the fan fold plate to move in order to guide the trailing edge of the last fold out of the fan folder unit. [-200 to +200/0/1 mm] **Note**: • An adjustment of 1 step is equivalent to 0.191 mm. • An adjustment in the "+" direction moves the fan fold plates closer to the fan fold rollers, and an adjustment in the "-" direction moves the plate away from the fan fold rollers.	
42	FPL Stp:PExit	Fold Plate Halt: Paper Exit
	This SP adjusts the length of time that the fan fold plate stops after descending in order to output trailing edge of the folded copy out of the folder unit after the last fold. [-100 to +6000/0/1 msec.] **Note**: An adjustment in the "+" direction lengthens the time, and an adjustment in the "-" direction shortens the time.	
43	FPL Tmg:PExit	Fold Plate Timing: Paper Exit
	This SP adjusts distance that the paper moves after the fan fold sensor pair detects the trailing edge and switches ON until the fan fold plate starts to move when feeding the copy out of the folder unit after the last fold. [0 to 350/0/1 mm] **Note**: An adjustment in the "+" direction lengthens the distance, and an adjustment in the "-" shortens the distance.	

6964	FF:Lngth Adj	Length Adjustment (Folder)
	These SP codes adjust the length of the folds. The summary below describes important terms used in these SP descriptions. For more see the "Folder FD 6500 Service Manual".	
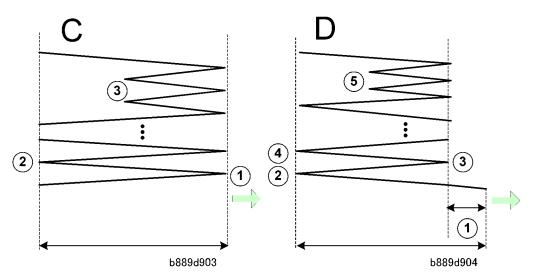
There are two types of folding:

- **Long folding**. The folded copy looks like an accordion with the edges of the folded surfaces aligned.
- **File folding**. The same as long folding but the leading edge of the bottom sheet protrudes from the bottom of the stack. This margin can be used to fasten the leading edge into a flat binder, or it can be punched for filing in a ring binder.

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b

The first example [A] is a long fold. The second example [B] is a file fold. The colored arrows show the direction of paper feed when viewed from the right side of the folder unit. For the sake of convention, the folds on the right sides of the stacks shown above are called "peak folds" and those on the left are "valley folds". In Stack [A], fold ① is a peak fold, fold ② is a valley fold, ③ is a peak fold, and so on.

- In a "long fold" like Stack [A], the first fold is always a peak fold.

- In Stack [B], ① is the leading edge fed wider than other sections of the stack, ② is a valley fold, ③ is a peak fold, ④ is a valley fold, and so on.

- In a "file fold" like Stack [B], the first fold is always a valley fold (done after creating the longer bottom sheet with the protruding leading edge). To create this difference in length, the fan fold motor feeds the leading edge to the rear slightly farther (about 40 mm) than the other folded sections above.

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As shown in Stack [A] above, the top flap is slightly shorter than the other folds below which are of uniform size. If this is not desirable, the folding job can be set to calculate how much paper is needed for the last fold to ensure that the top flap is the same length as the other folds below, with folded surfaces of shorter length hidden in the stack. The folds of the paper remaining before the final full-length fold are "adjusted"

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to create shorter sections that will be covered by the top flap, so that the stack has a neat and uniform appearance.

These adjusted folds can be done for either long folds or file folds as shown above.

- Stack [C] is a long fold (the first fold ① is a peak fold). The folds are adjusted at ③ so that the last flap is the same size as the other sections of the stack and long enough to cover the shorter adjusted folds below.

- Stack [D] is a file fold (the first fold is a valley fold). The folds are adjusted at ⑤ so that the last flap is the same size as the other sections of the stack and long enough to cover the short adjusted folds below.

1	FL:FP1	Fold Length: 1st Fold Peak
	This SP determines the start of the first peak fold. To do this, it changes the timing of the fan fold sensor (F) that affects how far the paper feeds past this sensor after the first peak fold. This adjustment determines the length of a flap at the first fold wider than the succeeding folds. [-70 to 70/0/0.1 mm] **Note**: • Adjustment in the "-" or "+" direction decreases or increases the amount of paper that feeds past the sensor. This decreases or increases the length of paper between the first two folds.	
2	FL:FV1	Fold Length: 1st Fold Valley
	This SP determines the start of the first valley fold. To do this, it changes the timing of the fan fold sensor (R) that affects how far the paper feeds past this sensor after the first peak fold. This adjustment determines the length of a flap, starting at the leading edge, that is wider than the succeeding folds. (This elongated flap can be used to bind the folded copy.) [-70 to 70/0/0.1 mm] **Note**: Adjustment in the "-" or "+" direction decreases or increases amount of paper that feeds past the sensor. This decreases or increases the length of the paper (section) from the leading edge to the first valley fold.	
3	FL:FP2	Fold Length: 2nd Fold Peak
	This SP adjusts the operation of the fan fold sensor (F). • If the first fold is a peak fold, this SP setting determines the length of even number sections, excluding that of the first section. • If the first fold is a valley fold, this SP setting determines the length of odd sections. **Note**: Adjustment in the "-" or "+" direction decreases or increases amount of paper that feeds past the sensor. This decreases or increases the length of the even or odd sections.	
4	FL:FV2	Fold Length: 2nd Fold Valley

	This SP adjusts the operation of the fan fold sensor (R). • If the first fold is a peak fold, this SP setting determines the length of odd number sections. • If the first fold is a valley fold, this SP setting determines the length of even sections, excluding that of the first section. **Note**: Adjustment in the "-" or "+" direction decreases or increases amount of paper that feeds past the sensor. This decreases or increases the length of the even or odd sections.	
11	MFL:F3:A0SEF	Margin Fold Length: 3rd Fold: A0 SEF
	This SP adjusts the length of the 3rd section when folding A0 SEF paper. [-20 to +20/-2.5/01. mm] **Note**: Adjustment in the "-" or "+" direction decreases or increases the length of the 3rd section.	
12	MFL:F5:A0SEF	Margin Fold Length: 5th Fold A0 SEF
	This SP adjusts the length of the 5th section when folding A0 SEF paper. [-20 to +20/-3/01. mm] **Note**: Adjustment in the "-" or "+" direction decreases or increases the length of the 5th section.	
13	MFL:F3:A1SEF	Margin Fold Length: 3rd Fold: A1 SEF
	This SP adjusts the length of the 3rd section when folding A1 SEF paper. [-20 to +20/-1.5/01. mm] **Note**: Adjustment in the "-" or "+" direction decreases or increases the length of the 3rd section.	
14	MFL:F3:A2SEF	Margin Fold Length: 3rd Fold: A2 SEF
	This SP adjusts the length of the 3rd section when folding A2 SEF paper. [-20 to +20/-6/01. mm] **Note**: Adjustment in the "-" or "+" direction decreases or increases the length of the 3rd section.	
21	MFL:F7	Margin Fold Length: 7th Fold
	This SP adjusts the length of the 6th section in order to complete the 7th (last) section. [-20 to +20/3/01. mm] **Note**: Adjustment in the "-" or "+" direction decreases or increases the length.	
22	MFL:F5:A0SEF	Margin Fold Length: 5th Fold
	This SP adjusts the length of the 4th section in order to complete the 5th (last) section. [-20 to +20/0/01. mm] **Note**: Adjustment in the "-" or "+" direction decreases or increases the length.	

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23	MFL:F3	Margin Fold Length: 3rd Fold
	This SP adjusts the length of the 2nd section in order to complete the 3rd (last) section. [-20 to +20/-3/01. mm] **Note**: Adjustment in the "-" or "+" direction decreases or increases the length.		
31	MFL:Std Size	Margin Fold Length: Regular Size
	This SP fine adjusts the length of the sections between folds for copies printed on standard size paper. [-20 to +20/0/0.1] **Note**: Adjustment in the "-" or "+" direction decreases or increases the length.		
32	MFL:Long	Margin Fold Length: Long Print
	This SP adjusts the length of the last section (from last fold to the trailing edge) during long fan folding. [-20 to +20/0/0.1 mm] **Note**: Adjustment in the "-" or "+" direction decreases or increases the length.		
41	Long:S2Peak	Long Print: 1st Fold Peak: After 2nd Fold
	This SP modifies the operation of the fan fold sensor (F) to determine the lengths of the odd and even sections for long fan folding only. • If the first fold is a peak fold, this SP setting determines the length of even number sections, excluding the 1st section. • If the first fold is a valley fold, this SP setting determines the length of odd sections. **Note**: Adjustment in the "-" or "+" direction decreases or increases the length.		
42	MFL:S3	Long Print: 1st Fold Valley: After 3rd Fold
	This SP modifies the operation of the fan fold sensor (R) to determine the lengths of the odd and even sections for long fan folding. • If the first fold is a peak fold, this SP setting determines the length of odd number sections, excluding the 1st section. • If the first fold is a valley fold, this SP setting determines the length of even sections. **Note**: Adjustment in the "-" or "+" direction decreases or increases the length.		
43	MFL:S4	Margin Fold: 1st Fold Peak: After 4th Fold
	This SP modifies the operation of the fan fold sensor (F) to determine the lengths of the odd and even sections for long fan folding (including file flap or margin folding).		

	• If the first fold is a peak fold, this SP setting determines the length even number sections, excluding the 1st section. • If the first fold is a valley fold, this SP setting determines the length of odd sections. **Note**: Adjustment in the "-" or "+" direction decreases or increases the length.	
44	FFold:FV S2	Margin Fold: 1st Fold Valley: After 2nd Fold
	This SP modifies the operation of the fan fold sensor (R) to determine the lengths of the odd and even sections for long fan folding) including file flap folding). • If the first fold is a peak fold, this SP setting determines the length even number sections. • If the first fold is a valley fold, this SP setting determines the length of odd sections, excluding the 1st section. **Note**: Adjustment in the "-" or "+" direction decreases or increases the length.	
45	FL:FP1:A3SEF	Fold Length: 1st Fold Peak: A3 SEF
	This SP fine adjusts the length of the sections between folds for copies printed on A3 SEF paper. [-20 to +20/0/0.1] **Note**: Adjustment in the "-" or "+" direction decreases or increases the length.	
46	MFL:OS (5-18)	Margin Fold Length: Odd Sections (5-18)
	This SP adjusts the lengths of the folds for odd numbered sections at folds 5 to 18 only. The higher the setting, the wider the folded length. [-70.0 to +70.0/0.0/0.1]	
47	MFL:ES (5-18)	Margin Fold Length: Even Sections (5-18)
	This SP adjusts the lengths of the folds for even numbered sections at folds 5 to 18 only. The higher the setting, the wider the folded length. [-70.0 to +70.0/0.0/0.1]	
48	MFL:OS (19-30)	Margin Fold Length: Odd Sections (19-30)
	This SP adjusts the lengths of the folds for odd numbered sections at folds 19 to 30 only. The higher the setting, the wider the folded length. [-70.0 to +70.0/0.0/0.1]	
49	MFL:ES (19-30)	Margin Fold Length: Even Sections (19-30)
	This SP adjusts the lengths of the folds for even numbered sections at folds 5 to 18 only. The higher the setting, the wider the folded length. [-70.0 to +70.0/0.0/0.1]	

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50	MFL:AdjFold	Margin Fold Length: Adjust Fold
	Use this SP to adjust fold length for short folds. The folds are done with motor timing only, because the folded edges will not reach the front and rear fold sensors. The input of the fold sensors is ignored and not used. [-70.0 to +70.0/0.0/0.1]	
51	MFL:File	Margin Fold Length: File
	This SP fine adjusts the calculated length of the file flap. [-20 to +20/0/0.1]	
61	MFL:Threshold	Margin Fold Length: Threshold
	This SP adjusts the threshold variable that the machine uses to calculate when to do adjusted folding. [-70 to +70/0/0.1]	
91	StdF Swtchg	Regular Size Fold Switching
	This SP determines whether the lengths of the sections can be adjusted for folding standard paper sizes. [0 to 1/0/1] 0: Adjustment allowed 1: Adjustment not allowed	

6965	CF: PFold Adj **Not Used**	Pre-Fold Adjustment (Corner Folder)

6966	FF:Sel Fold	Fan Folder Select Standard Folding
1	StdF Swtchg	
	This SP determines whether fixed pattern printing only is enabled when the Folder unit is online. [0 to 1/0/1] 0: Disable 1: Enable fixed pattern only	

6969	Bypass Set **DFU**	Bypass Feed Setting
1	Destination	
	This sets the how the bypass feed sensors read paper sizes.	

	[0 to 1/0/1] 0: DOM, EU (Japan, Europe) 1: NA (North America)

6971	XF:Trans SW **Not Used**	Transport Switch Adj (Cross Folder)

6972	XF: Fold Adj **Not Used**	Cross Fold Adjustment (Cross Folder)

6973	XF:I/R Adj **Not Used**	Invert/Rotate Adjustment (Cross Folder)

6974	XF:Shift T **Not Used**	Shift Tray Adjustment: Cross Wait Position (Cross Folder)

6991	Folder Counter		
	These SP's display the operational counts for the functions in the fan fold, cross punch, and transport and folding unit. This SP's display the counts for each item listed below in the range: 0 to 9999 9999,		
1	FF Cnt	Fan Folder Sheet Count	Number of sheets through the fan folder (with or without folding)
2	CF Cnt	Cross Folder Sheet Count	Number of sheets through the cross folder unit (with or without folding)
3	Fan Fold Count	Fan Fold Count	Number of folds done by fan folder.
4	Corner Fold Count	Corner Fold Count	Number of folds done by corner folder.
5	Cross Fold Count	Cross Fold Count	Number of folds done by cross folder.
6	Pn Cnt:Ve	Punch Count (Vert)	Number of vertical punches (2 holes across direction of feed)
7	Pn Cnt:Ho	Punch Count (Horiz)	Number of vertical punches (2 holes parallel to direction of feed)

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SP7-xxx Data Log

7001	MainM OpTime		Main Motor Operation Time
1	MainM OpTime		
	Shows the drum-drive-motor operation time (to check the print count and drum operation time.)		

7401	Counter-SC Total		Total SC Counter
1	Counter-SC Total		
	Shows the total SC count as a 4-digit number.		

7403	SC History	
1	Latest	
2	Latest 1	
3	Latest 2	
4	Latest 3	
5	Latest 4	Display the most recent service calls in their order of occurrence.
6	Latest 5	
7	Latest 6	
8	Latest 7	
9	Latest 8	
10	Latest 9	

7502	Counter-Paper Jam	Total Paper Jam Counter
1	Counter-Paper Jam	
	Displays the total number of copy jams. Display range: 0000 to 9999	

7504:	Count Each P Jam	Paper Jam Counter by Jam Location

	Displays the total number of copy jams by location. A "Paper Late" error occurs when the paper fails to activate the sensor at the precise time. A "Paper Lag" paper jam occurs when the paper remains at the sensor for longer than the prescribed time. Display range: 0000 to 9999	
	Main Machine	
1	At Power On	At Power On
3	Tray 1: No Feed	Tray 1: No Feed
4	Tray 2: No Feed	Tray 2: No Feed
5	Tray 3: No Feed	Tray 3: No Feed
8	RF ExitSn:Not On	RF Exit Sn: Not On
13	Reg Sn: Not On	Reg Sn: Not On
16	Exit Sn: Not On	Exit Sn: Not On
34	Bypass: No Feed	Bypass: No Feed
53	Tray 1: Paper Lag	Tray 1: Paper Lag
54	Tray 2: Paper Lag	Tray 2: Paper Lag
55	Tray 3: Paper Lag	Tray 3: Paper Lag
58	RF ExitSn:Not Off	RF Exit Sn: Not Off
63	Reg Sn: Not Off	Reg Sn: Not Off
66	Exit Sn: Not Off	Exit Sn: Not Off
84	Bp SetSn:Not Off	Bypass Sn: Not Off
	Folder FD Unit (B889)	
100	Folder:AtPowerOn	Folder: At Power On
130	BpEnt Sn: Not On	Bypass Ent Sn: Not On
131	BpRelaySn:Not Off	Bypass Relay Sn: Not Off
132	StExit Sn:Not On	Straight Exit Sn: Not On
133	StExit Sn:Not Off	Straight Exit Sn: Not Off

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134	F RelaySn:Not On	Folder Relay Sn: Not On
135	F RelaySn:Not Off	Folder Relay Sn: Not Off
136	CF ExitSn:Not On	Corner Folder Exit Sn: Not On
137	XF ExitSn:Not Off	Corner Folder Exit Sn: Not Off
138	FF EntSn:Not On	Accordion Folder Ent Sn: Not On
139	F EntSn:Not Off	Folder Ent Sn: Not Off
140	FrF WidSn:Not On	Front Fold Width Sn: Not On
141	RrF WidSn:Not On	Rear Fold Width Sn: Not On
142	RrF WidSn:Not Off	Rear Fold Width Sn: Not Off
143	FF ExitSn:Not On	Accordion Folder Exit Sn: Not On
144	F ExitSn:Not Off	Folder Exit Sn: Not Off
145	Max Paper Length	Maximum Paper Length
146	Fold Count Limit	Fold Count Limit

7506	Paper Jam/Size	Jam Count by Paper Size
	This SP displays the counts for the number of jams by paper size. **Note**: In the paper size notations below, "T" means "SEF" (Short Edge Feed).	
97	A0T/A1	
98	A1T/A2	
99	A2T/A3	
100	A3T/A4	
101	A4T	
106	B1T/B2	
107	B2T/B3	
108	B3T/B4	
109	B4T	

225	36x48T/24x36
226	24x36T/18x24
227	18x24T/12x18
228	12x18T/9x12
229	9x127
234	34x44T/22x34
235	22x34T/17x22
236	17x22T/11x17
237	11x17T/8.5x11
238	8.5x11T
255	Other

	Dsply-P Jam Hist		Plotter Jam History
7507	Displays the copy jam history in groups of 10, starting with the most recent 10 jams. Display contents are as follows: **CODE:** SP7-505-*** number. **SIZE:** Paper size code in hex. (See the table below.) **TOTAL** :Total jam error count (SP7003) **DATE**: Previous jam occurred		
1	Latest		
2	Latest 1		
3	Latest 2	Sample Display: **CODE**: 007 **SIZE**: 05h **TOTAL**: 0000334 **DATE**: Mon Mar 15 11:44:50 2000	
4	Latest 3		
5	Latest 4		
6	Latest 5		
7	Latest 6		
8	Latest 7		

9	Latest 8	
10	Latest 9	

7801	Memory/Version/PN		Read Only Memory, Part Name, Version	
	Displays the ROM number, firmware version numbers, and other important information about the machine.			
	1	System/Copy	181	FONT 1
	2	Engine	182	FONT 2
	3	Lcdc	183	FONT 3
	7	Finisher 1	200	Factory
	8	Finisher 2	202	Net File
	18	NIB	204	Printer
	100	Language 1	210	MIB
	101	Language 2	211	Web System
	132	Netware Option	213	SDK 1
	150	RPCS	214	SDK 2
	151	PS	215	SDK 3
	180	FONT		

7803	PM Counter
1	Paper
	Displays the PM counter since the last PM.

7804	PM Count Reset
	Resets the PM counter. To reset, press [Execute]

7807	Reset-SC/Jam	SC/Jam Counter Reset
1	Reset-SC/Jam	

	Resets the SC and jam counters. To reset, press [Execute]. This SP does not reset the jam history counters: SP7507, SP7508.

7832	Display Self Diag		Self-Diagnosis Result Display
1	Display Self Diag		
	Opens the "Self-Diagnose Result Display" to view details about errors. Use the keys on in the display to scroll through all the information. If no errors have occurred, you will see "No Error".		

7833	Pixel Coverage		
	Displays the coverage ratio of the output (the ratio of the total pixel area of the image data to the total printable area on the paper). **Note** • This value is not directly proportional to the amount of toner consumed. • It is, however, one factor that affects this amount. • Other major factors include: the type, total image area and image density of the original image, toner concentration and developer potential.		
1	Last Page	Last Page	0% to 100%.
2	AccAve	Accumulated Average	0% to 100%.
3	Tnr Cart Used	Total Toner Cartridges Used	0 to 65,535 copies
4	Prev TCart	Previous Toner Bottle	0 to 999,999 copies
5	Prev TCart+1	Toner Bottle Before Previous	0 to 999,999 copies

7834	Clr Coverage		Coverage Data Clear
	These SPs clear the counters for the following items.		
1	Last & Average	Last & Average	
2	Tnr Cart Used	Total Toner Cartridges Used	
3	TCartPrevCnt	Toner Cartridge Count: Last & Before Last	
4	Page Counts	Page Counts	
255	All Clear	All Clear	

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7836	Resident Memory	Total Memory Size
	Displays the memory capacity of the controller system: "512 MB".	

7901	Assert Info. **DFU**	
	These SP numbers display the results of the occurrence of the most recent SC code generated by the machine.	
1	File Name	Module name
2	Number of Lines	Lines where error occurred.
3	Location	Component affected by error

7999	Eng Debug Log **DFU**	Engine Debug Log Switch
1	Eng Debug Log	
	Allows selection of the log to save with the debug log switch. [0 to 100/0/1]	

SP8-xxx Data Log 2

Here are some Group 8 SP's that when used in combination with others can provide useful information.

SP Numbers	What They Do
SP8211 to SP8216	The number of pages scanned to the document server.
SP8401 to SP8406	The number of pages printed from the document server
SP8691 to SP8696	The number of pages sent from the document server

Specifically, the following questions can be answered:

- How is the document server actually being used?
- What application is using the document server most frequently?
- What data in the document server is being reused?

The SP's 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.

Prefix	What It Means	
T:	Total: (Grand Total).	Grand total of the items counted for all applications (C, F, P, etc.)..
P:	Print application.	
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 smaller LCD's of copiers, printers and faxes that also use these SP's. 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"

Abbreviation	What It Means
AddBook	Address Book
Apl	Application
B/W	Black & White
Bk	Black
C	Cyan
Comb	Combine
Comp	Compression
Deliv	Delivery
DesApl	Designated Application. The application used to store the job on the document server, for example.
Dev Counter	Development Count, no. of pages developed.
Dup, Duplex	Duplex, printing on both sides
Emul	Emulation
FIN	Post-print processing, i.e. finishing (punching, stapling, etc.)
Full Bleed	No Margins
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)

Abbreviation	What It Means
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 to p Edi to r: 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 sursection of the original. Duplex pages count as two pages, and A3 simplex count as two pages if the A3/DLT counter SP is switched ON.
PJob	Print Jobs
Ppr	Paper
PrtJam	Printer (plotter) Jam
PrtPGS	Print Pages
R	Red (Toner Remaining). Applies to the wide format model A2 only. This machine is under development and currently not available.
Rez	Resolution
SC	Service Code (Error SC code displayed)
Scn	Scan
Sim, Simplex	Simplex, printing on 1 side.
S- to -Email	Scan- to -E-mail
SMC	SMC report printed with SP5990. All of the Group 8counters are recorded in the SMC report.
Svr	Server
to nEnd	toner End
to nSave	toner Save

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Abbreviation	What It Means
TXJob	Send, Transmission
YMC	Yellow, Magenta, Cyan
YMCK	Yellow, Magenta, Cyan, BlacK

All of the Group 8SP's are reset with SP5 801 1 Memory All Clear, or the Counter Reset SP7 808.

8001	T:Total Jobs	These SP's count the number of times each application is used to do a job.
8004	P:Total Jobs	[0 to 9999999/ 0 / 1]

- These SP's 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 operator are counted. Jobs executed by the operator 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.
- When the operator prints a report (user code list, for example), the O: counter increments.

8021	T:Pjob/LS	These SP's reveal how files printed from the document server were s to red on the document server originally.
8024	P:Pjob/LS	
8027	O:Pjob/LS	[0 to 9999999/ 0 / 1]

- When images stored on the document server by a network application (including Palm 2), are printed with another application, the O: counter increments.

8031	T:Pjob/DesApl	These SP's reveal what applications were used to output documents from the document server.
8034	P:Pjob/DesApl	
8037	O:Pjob/DesApl	[0 to 9999999/ 0 / 1]

- When documents already stored on the document server are printed, the count for the application that started the print job is incremented.

8061	T:FIN Jobs	[0 to 9999999/ 0 / 1]

	These SP's total the finishing methods. The finishing method is specified by the application.	
8064	P:FIN Jobs	[0 to 9999999/ 0 / 1]
	These SP's total finishing methods for print jobs only. The finishing method is specified by the application.	
8067	O:FIN Jobs **Not Used**	[0 to 9999999/ 0 / 1]
	These SP's total finishing methods for jobs executed by an external application, over the network. The finishing method is specified by the application.	
806x 1	Sort	Number of jobs started in Sort mode.
806x 2	Stack	Number of jobs started in Sort mode.
806x 3	Staple	Number of jobs started in Staple mode.
806x 4	Booklet	Number of jobs started in Booklet mode. If the machine is in staple mode, the Staple counter also increments.
806x 5	Z-Fold	Number of jobs started In any mode other than the Booklet mode and set for folding (Z-fold).
806x 6	Punch	Number of jobs started in Punch mode. When Punch is set for a print job, the P: counter increments. (See SP8064 6.)
806x 7	Other	Reserved. Not used.

8071	T:Jobs/PGS	[0 to 9999999/ 0 / 1]
	These SP's count the number of jobs broken down by the number of pages in the job, regardless of which application was used.	
8074	P:Jobs/PGS	[0 to 9999999/ 0 / 1]
	These SP's count and calculate the number of print jobs by size based on the number of pages in the job.	
8077	O:Jobs/PGS	[0 to 9999999/ 0 / 1]
	These SP's count and calculate the number of "Other" application jobs (Web Image Monitor, Palm 2, etc.) by size based on the number of pages in the job.	

807x 1	1 Page	807x 8	21 to 50 Pages
807x 2	2 Pages	807x 9	51 to 100 Pages

807x 3	3 Pages	807x 10	101 to 300 Pages
807x 4	4 Pages	807x 11	301 to 500 Pages
807x 5	5 Pages	807x 12	501 to 700 Pages
807x 6	6 to 10 Pages	807x 13	701 to 1000 Pages
807x 7	11 to 20 Pages	807x 14	1001 to Pages

- 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.
- When printing the first page of a job from within the document server screen, the page is counted.

8381	T:Total PrtPGS	These SP's count the number of pages printed by the operator. The counter for the application used for storing the pages increments.
8384	P:Total PrtPGS	
8387	O:Total PrtPGS	[0 to 99 999 999/ 0 / 1]
838x 1	Field Number	Total number of copies (regardless of size)
838x 2	Length (High)	Total length
838x 3	Length (Low)	Total length
838x 4	Area (High)	Total area coverage
838x 5	Area (Low)	Total area coverage
	Note: • The values for "Length" are displayed in mm. If a "Length" reading is "42126" this is 42,126 mm (42.126 m). • The values for "Area" are displayed as mm^2. If an "Area" reading is "33213257" this is 33,213,257 mm^2 (33,213.257 m^2). • The counts for the "Length" and "Area" start with "Low". Once the count exceeds the width of the field on the display the "Low" field will reset to "0" and the count overflows to the "High" SP codes. (This is necessary because the fields of the "Low" SP codes are limited to 8 digits and not wide enough to display the full reading for a reading larger than 8 digits.) • Always check the "Low" SP first. If the "Low" display is zero, check the "High" field.		

> • When the length count reaches "99,999,999" in the "Low" field (8 digits), for example, after the next the count will show "1" in the "High" field and "00 000 000" in the "Low". Multiply the "1" in the "High" field by: 1) 10^8" (100,000,000 mm), 2) 10^5 (100, 000 m) or 3) 10^2 (100 kilometers) to determine the accurate count.

- When several documents are merged for a print job, the number of pages s to red 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 jam.

8411	Prints/Duplex	This SP counts the amount of paper (front/back counted as 1 page) used for duplex printing. Last pages printed only on one side are not counted. [0 to 9999999/ 0 / 1]

8421	T:PrtPGS/Dup Comb	[0 to 9999999/ 0 / 1]
	These SP's count by binding and combine, and n-Up settings the number of pages processed for printing. This is the total for all applications.	
8424	P:PrtPGS/Dup Comb	[0 to 9999999/ 0 / 1]
	These SP's count by binding and combine, and n-Up settings the number of pages processed for printing by the printer application.	
8427	O:PrtPGS/Dup Comb	[0 to 9999999/ 0 / 1]
	These SP's count by binding and combine, and n-Up settings the number of pages processed for printing by Other applications	
842x 1	Simplex> Duplex	
842x 4	Simplex Combine	

842x 5	Duplex Combine	
842x 6	2>	2 pages on 1 side (2-Up)
842x 7	4>	4 pages on 1 side (4-Up)
842x 8	6>	6 pages on 1 side (6-Up)
842x 9	8>	8pages on 1 side (8-Up)
842x 10	9>	9 pages on 1 side (9-Up)
842x 11	16>	16 pages on 1 side (16-Up)
842x 12	Booklet	
842x 13	Magazine	

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- These counts (SP8421 to SP8427) are especially useful for operators 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

8431	T:PrtPGS/ImgEdt	[0 to 9999999/ 0 / 1]
	These SP's count the total number of pages output with the three features below, regardless of which application was used.	

8434	P:PrtPGS/ImgEdt		[0 to 9999999/ 0 / 1]	
	These SP's count the total number of pages output with the three features below with the print application.			
843x 1	Cover/Slip Sheet		Total number of covers or slip sheets inserted. The count for a cover printed on both sides counts 2.	
843x 2	Series/Book		The number of pages printed in series (one side) or printed as a book with booklet right/left pagination.	
843x 3	User Stamp		The number of pages printed where stamps were applied, including page numbering and date stamping.	

8441	T:PrtPGS/Ppr Size		[0 to 9999999/ 0 / 1]	
	These SP's count by print paper size the number of pages printed by all applications.			
8444	P:PrtPGS/Ppr Size		[0 to 9999999/ 0 / 1]	
	These SP's count by print paper size the number of pages printed by the printer application.			
8447	O:PrtPGS/Ppr Size		[0 to 9999999/ 0 / 1]	
	These SP's count by print paper size the number of pages printed by Other applications.			
844x 1	A3	844x 240	841 mm Custom:-A0	
844x 2	A4	844x 241	594 mm Custom	
844x 4	B4	844x 242	420 mm Custom	
844x 6	DLT	844x 243	297 mm Custom	
844x 8	LT	844x 244	210 mm Custom	
844x 100	A2	844x 245	728 mm Custom	
844x 101	B3	844x 246	515 mm Custom	
844x 102	A0	844x 247	364 mm Custom	
844x 103	A1	844x 248	257 mm Custom	
844x 104	B1	844x 249	30/34/36 inch Custom	

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844x 105	B2	844x 250	22 inch Custom
844x 106	30x42	844x 251	17 inch Custom
844x 107	34x44	844x 252	11 inch Custom
844x 108	22x34	844x 253	8.5 inch Custom
844x 109	17x22	844x 254	Other (Standard)
844x 239	841 mm Custom: A0-	844x 255	Other (Custom)

- These counters do not distinguish between LEF and SEF.

8451	PrtPGS/Ppr Tray		[0 to 9999999/ 0 / 1]
	These SP's count the number of sheets fed from each paper feed station.		
1	Bypass	Bypass Table	
2	Tray 1	Copier	
3	Tray 2	Copier	
4	Tray 3	Paper Tray Unit (Option)	
5	Tray 4	Paper Tray Unit (Option)	
6	Tray 5	LCT (Option)	
7	Tray 6	Currently not used.	
8	Tray 7		
9	Tray 8		
10	Tray 9		

8461	T:PrtPGS/Ppr Type	[0 to 9999999/ 0 / 1]
	These SP's count by paper type the number pages printed by all applications.	
	These counters are not the same as the PM counter. The PM counter is based on feed timing to accurately measure the service life of the feed rollers. However, these counts are based on output timing.	
	Blank sheets (covers, chapter covers, slip sheets) are also counted.	

	During duplex printing, pages printed on both sides count as 1, and a page printed on one side counts as 1.	
8464	P:PrtPGS/Ppr Type	[0 to 9999999/ 0 / 1]
	These SP's count by paper type the number pages printed by the printer application.	
846x 1	Normal	
846x 2	Recycled	
846x 3	Special	
846x 4	Thick	
846x 5	Normal (Back)	
846x 6	Thick (Back)	
846x 7	OHP	
846x 8	Other	

8471	PrtPGS/Mag	[0 to 9999999/ 0 / 1]
	These SP's count by magnification rate the number of pages printed.	
1	~49%	
2	50% to 99%	
3	100%	
4	101% to 200%	
5	201% -	

- Counts are done for magnification adjusted for pages, no to nly 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.
- The magnification rates of blank cover sheets, slip sheets, etc. are au to matically assigned a rate of 100%.

8481	T:PrtPGS/ TonSave
8484	P:PrtPGS/TonSave
	These SP's count the number of pages printed with the toner Save feature switched on. Note: These SP's return the same results as this SP is limited to the Print application. [0 to 9999999/ 0 / 1]

8511	T:PrtPGS/Emul	[0 to 9999999/ 0 / 1]
	These SP's count by printer emulation mode the total number of pages printed.	
8514	P:PrtPGS/Emul	[0 to 9999999/ 0 / 1]
	These SP's count by printer emulation mode the total number of pages printed.	
851x 1	RPCS	
851x 2	RPDL	
851x 3	PS3	
851x 4	R98	
851x 5	R16	
851x 6	GL/GL2	
851x 7	R55	
851x 8	RTIFF	
851x 9	PDF	
851x 10	PCL5e/5c	
851x 11	PCL XL	
851x 12	IPDL-C	
851x 13	BM-Links	Japan Only
851x 14	Other	

- SP8511 and SP8514 return the same results as they are both limited to the Print application.

- Print jobs output to the document server are not counted.

8521	T:PrtPGS/FIN	[0 to 9999999/ 0 / 1]
	These SP's count by finishing mode the total number of pages printed by all applications.	
8524	P:PrtPGS/FIN	[0 to 9999999/ 0 / 1]
	These SP's count by finishing mode the total number of pages printed by the Print application.	
852x 1	Sort	
852x 2	Stack	
852x 3	Staple	
852x 4	Booklet	
852x 5	Z-Fold	
852x 6	Punch	
852x 7	Other	

Note:

- If stapling is selected for finishing and the stack is toolarge 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.

8531	Staples	This SP counts the amount of staples used by the machine. [0 to 9999999/ 0 / 1]

8581	T:Counter	[0 to 9999999/ 0 / 1]
1	Total	
	These SP's 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 to ols display on the machine. **Note**: This SP is expanded for color MFP and color LP machines. For this machine, the count is done for black only.	

8601	Cvg Counter	Coverage Counter
1	Cvg: BW%	Averaged percent of coverage on black and white pages.

11	Cvg: BW Pages	Number of black and white pages

8771	Dev Counter	Development Roller Rotation Counter
1	Total	
	These SP's count the frequency of use (number of rotations of the development rollers) for black and other color toners. **Note**: For machines that do not support color, the Black toner count is the same as the total count. [0 to 9999999/ 0 / 1]	

8781	Toner Botol Info.	Toner Bottle Information
1	BK	
	This SP displays the number of toner bottles used. The count is done based on the equivalent of 1,000 pages per bottle.	

8801	Toner Remain	Amount of Toner Remaining
1	BK	
	This SP displays the percent of toner remaining for each color. This SP allows the user to check the toner supply at any time. **Note**: This method of measuring remaining toner supply (1% steps) is more precise better than other machines in the market that can only measure increments of 10 (10% steps). [0 to 100/ 0 / 1]	

8851	Cover Cnt: 0-10%	
	These SP's count the percentage of toner dot coverage. [0 to 9999999]	
11	0 to 2%	
21	3 to 4%	
31	5 to 7%	
41	8 to 10%	

8861		Cvr Cnt: 11-20%	Coverage Count 11-20% Coverage
	1	BK	
		This SP counts the number of copies in the toner dot coverage range 11-20% [0 to 9999999]	

8871		Cvr Cnt: 21-30%	Coverage Count 21-30% Coverage
	1	BK	
		This SP counts the number of copies in the toner dot coverage range 21-30% [0 to 9999999]	

8881	Cvr Cnt: 31%-
	This SP counts the number of copies in the toner dot coverage range 31% and over. [0 to 9999999]

8891	Page/Toner Bottle	Previous cartridge	
8901	Page/Toner_Prev1	Previous but 1	Counts that record number of pages per toner cartridge.
8911	Page/Toner_Prev2	Previous but 2	

8921		Cvr Cnt Total	
		These SP's display the percent and number of pages for black toner coverage.	
	1	Coverage (%): BK	
	11	Coverage (/P):BK	

8941		Machine Status	
		These SP's count the amount of time the machine spends in each operation mode. These SP's are useful for operators who need to investigate machine operation for improvement in their compliance with ISO Standards. [0 to 9999999/ 0 / 1]	
	1	Operation Time	Engine operation time. Does not include time while controller is saving data to HDD (while engine is no to perating).
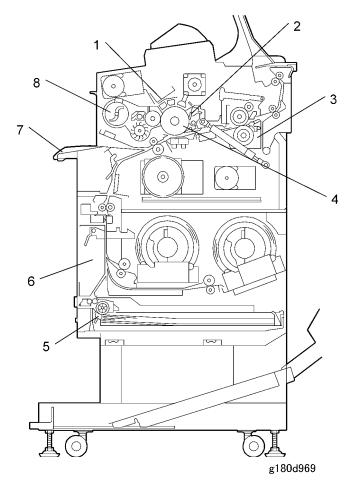
2	Standby Time	Engine no to perating. Includes time while controller saves data to HDD. Does not include time spent in Energy Save, Low Power, or Off modes.
3	Energy Save Time	Includes time while the machine is performing background printing.
4	Low Power Time	Includes time in Energy Save mode with Engine on. Includes time while machine is performing background printing.
5	Off Mode Time	Includes time while machine is performing background printing. Does not include time machine remains powered off with the power switches.
6	SC	Total down time due to SC errors.
7	PrtJam	Total down time due to paper jams during printing.
9	Supply PM Unit End	Total down time due to toner end.

8999	AdminCounter		Admin. Counter List
	This SP provides a central point for display of important information for the system administrator.		
1	Total	Total jobs	
7	Printer:BW	Totals for black and white	
15	Cvg:BW%	Total coverage for black and white	
17	Cvg: BW Pages	Total print pages	

6. Details

Overview
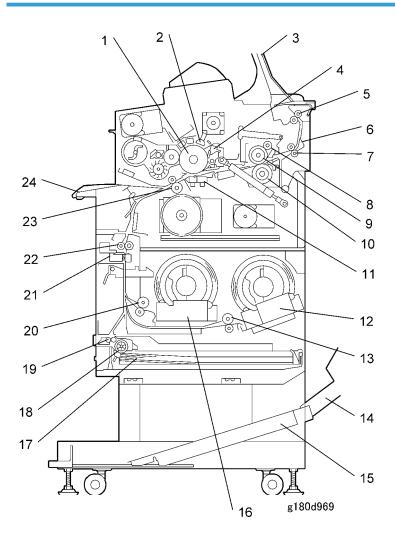
Machine General Layout

g180d969

1.	Image Writing Unit	Uses an LPH (LED Print Head)
2.	Cleaning Unit	A counter blade cleans the drum.
3	Fusing Unit	The hot roller contains one halogen lamp. The machine uses the applicable fusing temperature for the paper size and paper type that the user input at the operation panel.

4	OPC Drum	The components around the OPC drum do the charging, image writing, development, transfer, separation, cleaning, and quenching.
5	Paper Cassette	Cut sheets are also supplied from the optional paper cassette.
6	Roll Feeder	Paper also feeds from the optional roll feeder with one or two paper rolls installed.
7	Manual Feed Table	The user can feed paper from the manual feed table (this is also referred to as the bypass tray).
8	Development Unit	Toner transfers from a magnetic roller to the OPC drum. An ID sensor controls the toner concentration.

6

Mechanical Component Layout

g180d969
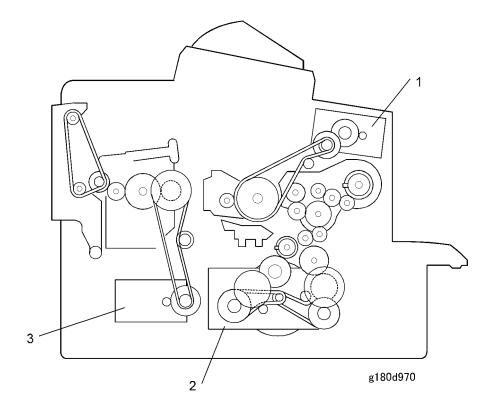
1. OPC Drum

2. Charge Corona Unit

3. Upper Output Stacker

4. Cleaning Unit

5. Upper Exit Rollers

6. Paper Exit Junction Gate

7. Fusing/Exit Rollers

13. Roll 2 Paper Feed Rollers

14. Lower Output Guide

15. Lower Output Stacker

16. Roll 1 Holder

17. Paper Cassette

18. Paper Cassette Feed Roller

19. Paper Cassette Grip Rollers

8. Fusing Cleaning Roller	20. Roll 1 Paper Feed Rollers
9. Hot Roller	21. Cutter
10. Pressure Roller	22. Roll/Cassette Exit Rollers
11. T&S Corona Unit	23. Registration Rollers
12. Roll 2 Holders	24. Manual Feed Table (Bypass)
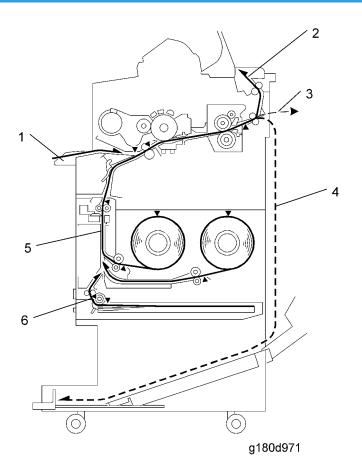
Drive Layout

g180d970

1. Drum Motor

2. Main Motor

3. Fusing Motor

Paper Paths

g180d971
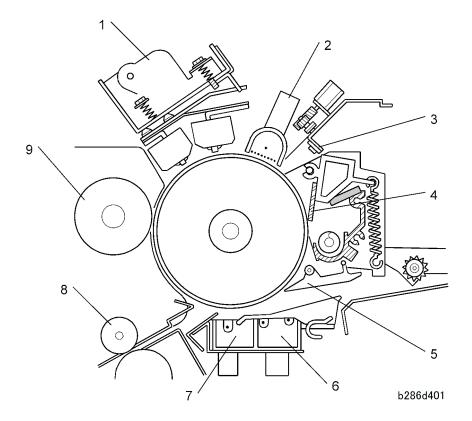
1	Bypass	Manual Paper Feed
2	Upper Paper Path	Normal (Default)
3	Straight-Through Paper Path	To folder unit
4	Lower Paper Path	To lower tray
5	Paper Cassette	Cut sheets from cassette
6	Roll Paper Path	From roll feeder

Around the Drum

Overview

b286d401

1. LPH (LED Print Head)	6. T&S Unit (Separation Corona)
2. Charge Corona Unit	7. T&S Unit (Transfer Corona)
3. Quenching Lamp (LED Array)	8. Registration Rollers
4. Cleaning Blade	9. Development Roller
5. Pick-off Pawl	

Drum diameter:	80 mm (3.2")
Drum speed:	80 mm/s
LPH:	3 arrays, each array the same width as one A3 sheet

Drum Drive

b286d404

The drum motor [A] controls:

- Timing gears [B]
- Timing belt and wheel [C]

This turns the OPC drum [D].
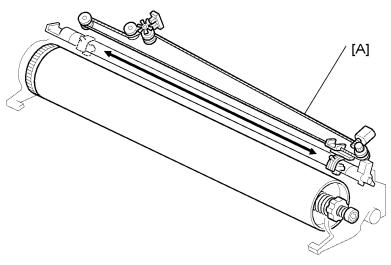
Gear [E] (meshed with the OPC drum) turns the cleaning unit auger [F].

When paper feed starts:

- The drum motor switches on and turns the drum forward.
- While the drum turns forward, the LPH writes the ID sensor pattern on the drum, then the drum turns forward 250 mm more.
- The ID sensor reads the pattern (Vsp) and the surface of the drum (Vsg) to find Vsp/Vsg for toner density control.

The drum motor turns the drum in the opposite direction at the end of each job for 0.3 s. This removes paper dust (caused when the paper roll is cut) from the cleaning blade.

Charge Corona Unit

b286d405

The charge corona unit [A], above the OPC drum, uses the Scorotron (Negative) Charge Method (**CT** Photocopying Processes – Charge – Corona Charge)

There is one gold-plated charge wire behind some grid wires. The grid wires make sure that the charge on the OPC drum is constant.

Charges used for this machine:
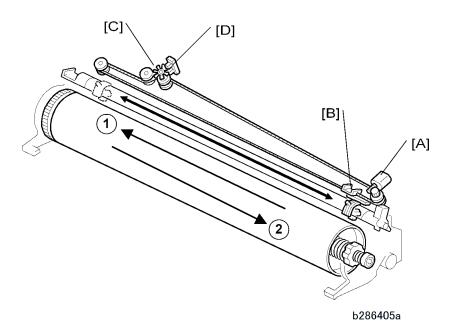
- Grid: -825 V
- Drum surface: -850 V
- Corona wire: About 1200 μA.

Corona Wire Cleaning

b286405a

The corona wire is cleaned immediately after the main power switch or operation power switch is switched on, if these two conditions occur at the same time:

- 600 m of paper fed through the machine since the last wire cleaning

- The temperature of the hot roller is less than 50 °C (122 °F).
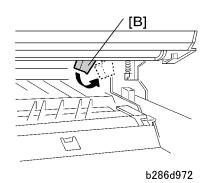
The interval between automatic wire cleaning (Default: 600 m) can be adjusted with SP2804. This SP can also be set to clean the corona wire immediately after the machine is switched on.

The wire cleaner motor [A] controls the cleaning pad [B].

When the cleaning pad gets to the left side (as shown above), the motor changes direction and pulls the cleaning pad back to the home position on the right.

If the cleaning pad is not at the home position immediately after the main power is switched on, the cleaning pad goes back to home position.

The actuator [C] for the wire cleaner sensor [D] turns while the cleaner moves. The signals from this sensor tell the machine when the cleaning pad moves. If the wire cleaner stops before it gets to the end, or if stops too long at the far left position, the wire cleaner sensor detects an error.

Drum Cleaning

b286d401a

b286d972

This machine uses a counter blade system to clean toner from the surface of the drum. ([CT] Photocopying Processes – Cleaning – Counter Blade)

The cleaning blade [A] is opposite to the direction that the drum turns.

The counter blade has a lever [B] on the bottom side of the upper unit.

- Set [B] to the right: The blade touches the drum for normal operation.
- Set [B] to the left: The blade is away from the drum.

This lever must be set to the left at the following times:
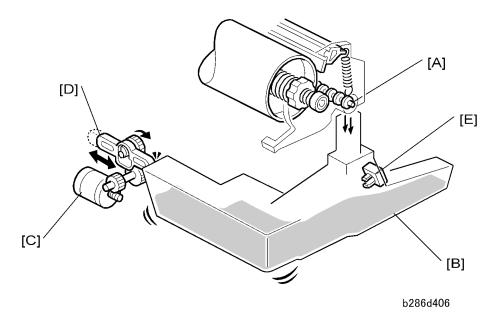
- Before you remove the OPC drum
- Before you move the machine a long distance

⬇Note

- If you will move the machine to a different location on the same floor, then it is not necessary to move the lever to the left.

Collecting Used Toner

b286d406

The cleaning unit auger [A] pushes toner into the used toner collection bottle [B].

The used toner bottle motor [C] moves a cam [D] from side to side, to hit the side of the used toner collection bottle. This causes a vibration, and this keeps the level of used toner in the bottle flat. The motor never switches on during a job, to prevent this vibration from causing a malfunction.

The motor operation timing is controlled as follows:

- When the used toner overflow sensor detects that the used toner tank is almost full, the motor switches on for 20 seconds at the end of the job (SP2926-1). During the motor operation, printing and scanning cannot be done.

- After a new toner cartridge is installed and the cover is closed, the motor switches on for 30 seconds. (SP2926-2).
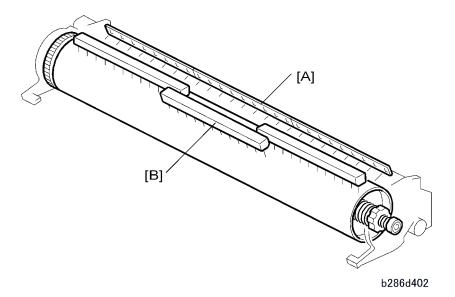
If the used toner overflow sensor [E] still detects toner after 20 seconds of vibration, the overflow indicator on the operation panel starts to flash:

- Printing can continue until the end of the job. But, if 15 more meters are printed before the end of the job, printing stops at the 15-meter point.

- After 15 meters of copying, or at the end of the job, the overflow indicator stops flashing and stays on. The machine cannot be used until you remove the used toner from the collection bottle.

◆Note

- The length of paper that can be printed after the toner-bottle-full indication can be made shorter or longer with SP2926-3 (Used Toner Control – Used Toner Overflow Detection).

After you put the empty bottle back in the machine, if toner is not detected by the used toner bottle sensor, then the machine returns to normal operation mode. If toner is detected, the used toner bottle motor turns on for 30 seconds. If toner is still detected, then the machine stops and the bottle must be removed.

Quenching

b286d402
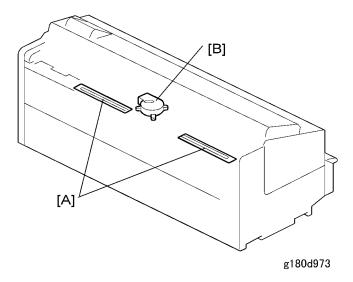
The quenching lamp [A], an array of LEDs, is behind the LPH [B].

After the drum is cleaned by the cleaning blade, light from the quenching lamp removes unwanted charge on the drum. This prepares the drum for the subsequent copy cycle.

The quenching lamp switches on and off with the drum motor (the lamp stays on while the OPC drum turns).

Drum Anti-Condensation Heaters

g180d973
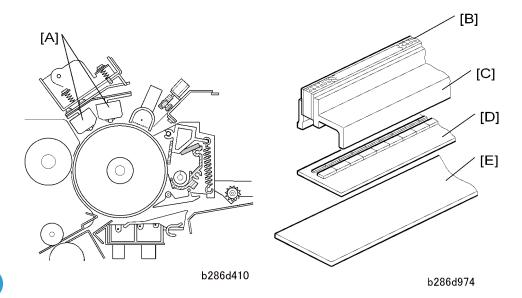
The two heaters [A] below the drum prevent condensation around the drum and T&S unit.
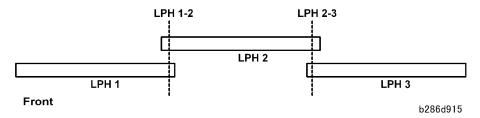
A cooling fan [B] moves the air.

The on/off timing of these heaters is:

- When the main power switch or operation switch is switched on, the heaters switch off.

- When the main power switch or operation switch is switched off, the heaters switch on.

Image Writing

b286d410

b286d974

b286d915

This machine uses an LPH (LED Print Head) [A] that sends light directly to the OPC drum to make a latent image.

The A0-size 600-dpi print head is an array of connected self-focusing lenses [B] above an LED array [C] and drive board [D], and attached to a heat sink [E].

🔽Note
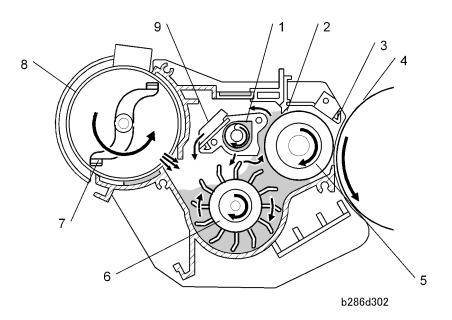
- The maximum printing width of the print head is 914 mm (36").

The LPH has three sections: LPH 1, LPH 2, and LPH 3. The two joints between the sections are identified as "LPH 1-2" and "LPH-2-3" (see above).

Development

Overview

b286d302
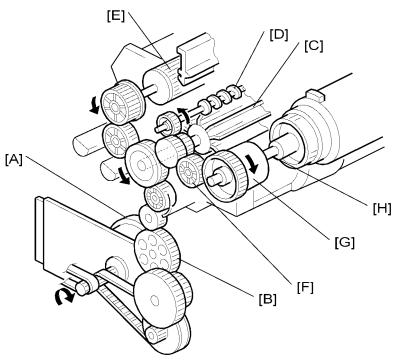
1. Auger

2. Doctor Blade

3. Development Entrance Seal

4. OPC Drum

5. Development Roller

6. Paddle Roller

7. Toner Agitator

8. Toner Cartridge

9. Separator

Note

- The development unit does not have a TD sensor. The machine uses only the ID sensor for toner supply control.

Development Drive Mechanism

b286d304
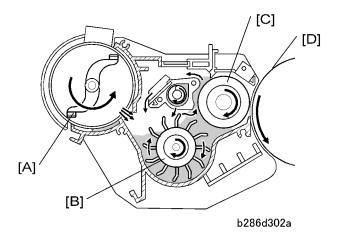
[A]: Timing belt (from the main motor)

[B]: Gear train

[C]: Paddle roller

[D]: Mixing auger

[E]: Development roller

[F]: Gear

[G]: Toner supply clutch

[H]: Toner agitator shaft (controlled by the toner supply clutch)

The toner supply clutch engages only when toner density control switches on the clutch to supply toner from the toner cartridge.

The main motor:
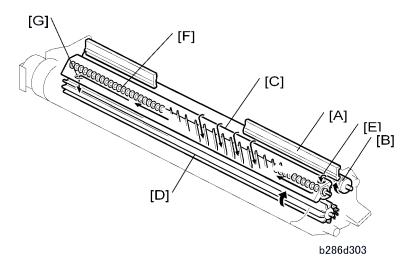
- Switches on 1.25 second after the drum motor switches on.

- Turns the development roller at 60 mm/s, to be the same speed as the drum.

- Stops 83 ms (approx. 5 mm turned) after the ID sensor pattern is written during the initial rotation of the drum motor.

Toner Supply Mechanism

b286d302a

This machine uses dual-component development with toner concentration control. The toner agitator [A] turns in the center of the toner cartridge to move toner to the paddle roller [B] in the development unit. Toner then goes to the development roller [C] and the drum [D].To control the quantity of toner that is supplied to the development unit, the machine switches the toner supply clutch on and off. The output from the ID sensor controls the clutch on/off timing. This development unit does not have a TD sensor.

Developer Cross-Mixing

b286d303

(**CT** Photocopying Processes – Development – Crossmixing)

[A]: Doctor blade

[B]: Development roller

[C]: Backspill plate
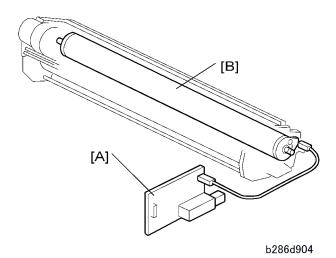
[D]: Paddle roller

[E]: Auger inlet

[F]: Mixing auger

[G]: Paddle roller inlet

Development Bias

b286d904
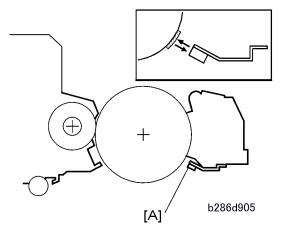
The CGB power pack [A] applies a negative bias (-650V) to the development roller [B], slightly higher than the remaining charge on the drum.

The development bias during copying is set by SP2201-1.

ID Sensor

b286d905

[A]

The ID sensor [A] regularly reads two areas of the drum:

- **Bare surface of the drum.** The ID sensor measures the reflectivity of the bare drum, converts this reading to a voltage, and stores this value (Vsg) in NVRAM.

- **ID sensor pattern.** The LPH writes an ID sensor pattern on the drum. The ID sensor reads the density of this pattern, converts it to a voltage, and stores this value (Vsp) in NVRAM.

The machine makes an ID sensor pattern to read Vsp after each copy.

But, the machine reads Vsg only one time. This is done during machine warm-up (see the next section).

Warm-up Control (Vsg Correction)

In order to prevent the occurrence of dirty background on the first copy after the machine warms up, the value of Vsg is checked after the upper unit is closed and after the machine is turned on (or returns from low power mode).

After Closing the Upper Unit

The machine measures Vsg after the upper unit is closed, and recalibrates the ID sensor if necessary.

- If the machine detects Vsg < 2.5 V twice, the machine issues SC401 (ID Sensor Vsg Error.

- If the machine detects Vsg > 2.5 V, it will perform adjustments or issue SC401 as shown below, based on the value of the Vsg reading. (See the "ID Sensor Recalibration Table" below.)

After Power On

If the fusing temperature is below 50°C (122°F) after the machine is powered on (or returns from the low power mode), the machine measures Vsg. The machine compares this Vsg reading with the PWM value that was stored when the ID sensor was initialized, in order to determine if the current Vsg value is correct.

- If the machine detects Vsg < 2.5 V twice, the machine issues SC401 (ID Sensor Vsg Error).

6

- If the machine detects Vsg > 2.5 V, it will perform adjustments or issue SC401 as shown below, based on the value of the Vsg reading.

ID Sensor Recalibration

Readings (V)	How the ID Sensor is Recalibrated
Vsg < 3.9	PWM value +0.5%
Vsg = 3.9 to 4.10	ID sensor is re-calibrated automatically with the stored PWM value.
Vsg = 4.1 to 4.2	PWM value -0.2%
Vsg = 4.2 to 4.5	PWM value -0.5%
Vsg = 4.5 to 4.8	PWM value -1.0%
Vsg > 4.8	SC401 occurs (ID Sensor Vsg Error). For more see Section "4. SC Code Descriptions".

⬇ **Note**

- If SP2804 is set to clean the charge corona wire during warm-up, Vsp/Vsg is measured after the wire is cleaned.

- The machine measures Vsg after the machine is powered on or returns from the low power mode, if SP2924 is set to "0" or "1". (The default is "0", which means that the machine measures Vsg after power on when the fusing temperature is below 50°C.) For more, refer to "Service Tables".

- If the machine is switched off and on after the warm-up sequence when Vsg is less than 2.5V, the warm-up sequence is done, and the setting of SP2924 (Warm-up Control) is ignored.

Toner Density Control

Overview

This machine uses an ID sensor to control:

- Toner density
- Toner near end detection
- Toner end detection

The machine uses the ratio of Vsg/Vsp to find the quantity of toner that must be supplied to the drum.

To supply toner, the machine switches on the toner supply clutch to feed toner from the toner cartridge to the development unit.

SP3103 (ID Sensor Output Display) shows the most recent values of Vsg and Vsp that were stored in the NVRAM (Range: 0.00 ~ 5.00 V).

Supply Modes

There are two supply modes.

- Detect Supply Mode
- Fixed Supply Mode

During normal operation, the machine uses detect supply mode.

Detect supply mode has two sub-modes (referred to as "tables").

- Main table: Used during copying
- Length table: The machine switches to this table during copying if the length of the copy becomes more than 1189 mm (46.8").

If an ID sensor problem occurs during the job, the machine stops the end of the job. The machine does not go into fixed supply mode automatically. The technician must repair the machine. If the machine cannot be repaired, the technician must put the machine into fixed supply mode with SP2208-3.

In fixed supply mode, the machine supplies a set quantity of toner per page.

After the technician repairs the machine, the machine must be put back in detect supply mode with SP2208-3.

Detect Supply Mode

- Main Table -

The machine uses this table from the start of the page until the length of the printed page gets to 1189 mm (46.8").

The machine uses these two parameters to control the rate of toner supply:

- Vsg/Vsp
- The toner supply level set with SP2208-1

Vsp/Vsg	Toner Supply Level (SP 2208 001)			
	L	M	H	HH
Less than 10%	None	None	None	None
10% to 12%	15%	20%	30%	40%
More than 12%	40%	50%	60%	70%
Toner Near-End	100%	100%	100%	100%

- Length Table -

If the page becomes longer than 1189 mm (46.8"), the machine changes to the Length Table for the remaining part of the page.

But, if no toner was supplied before the start of the copy job, the quantity of toner was sufficient at that time. Because of this, the machine does not change to the Length Table.

The Length Table ignores the Vsp/Vsg ratio. Toner is supplied at a set rate. This rate is controlled by the toner supply level set with SP2208-1.

Length Table

Toner supply rate	Toner Supply Level (SP 2208-1)			
	L	M	H	HH
	4%	8%	12%	20%

Fixed Supply Mode

When the technician switches the machine to fixed supply mode, toner is supplied as shown in this table.
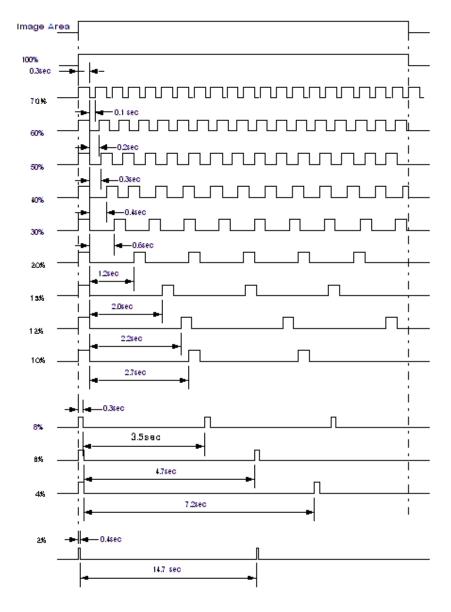
Toner supply rate	Toner Supply Level (SP 2208-1)			
	L	M	H	HH
	4%	8%	10%	12%

Toner Supply Clutch Operation

The toner supply clutch turns the toner agitator shaft to supply toner from the toner cartridge to the development unit.

The toner supply rates in these three tables control the on/off timing of the toner supply clutch.

When the toner supply clutch switches on, it stays on for 0.4 s The length of the intervals when the clutch is off is set by the percentage values shown in the diagram on the next page.

The percentage values in this chart correspond to the percentages listed in the Main, Length, and Abnormal ID Sensor Tables. For example, if the value is 10%, the toner supply clutch is on for 10% of the time; it switches on for 0.3 s at 3.0 s intervals

Toner End/Near-End Detection

The machine compares Vsp/Vsg with two SP settings to find when the toner cartridge is almost empty (Toner Near End) or fully empty (Toner End).

- SP2927-1: Near End Level

- SP2927-3: End Level

Toner Near End

When Vsp/Vsg is larger than SP2927-1 three times in sequence, the machine shows a toner near-end indication. The default is 0.145. If the setting is higher, the quantity of toner in the cartridge becomes less before toner near-end occurs. This can cause paler images at the end of the toner cartridge's life. When toner near-end occurs, the toner near-end indicator lights on the operation panel.

Toner End

When Vsp/Vsg is larger than the setting for SP2927-3 (Default: 0.165) three pages in a row, the machine prints one more page and then stops immediately.

When toner end occurs, the toner end indicator lights on the operation panel and copying stops. The machine cannot be used until:

- A new toner cartridge is installed.
- The machine recovers from toner end.
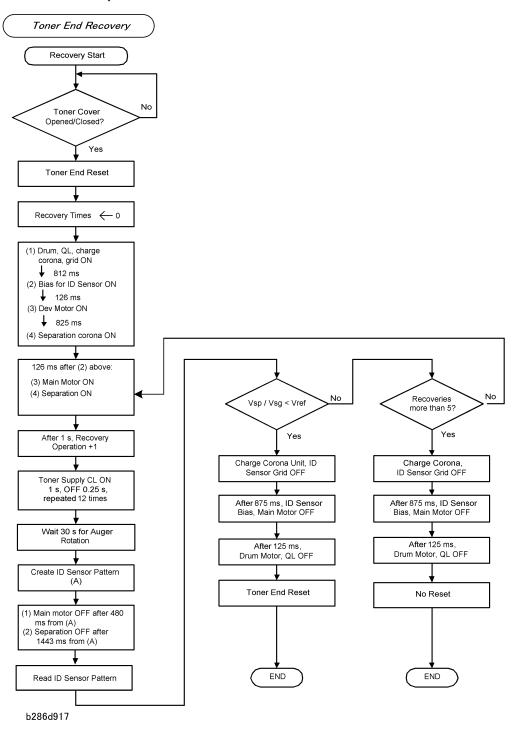
Toner End Recovery

The flow chart on the next page shows the recovery sequence when a new toner cartridge is installed after toner end occurs. After toner end occurs, toner end recovery starts if you open and close the toner hopper cover.

The machine makes an ID sensor pattern to detect if a supply of toner is available. If Vsp/Vsg is less than Vref, then the machine detects recovery from toner end, and goes out from the toner end condition. If Vsp/Vsg is more than Vref 5 times, then the machine stays in the toner end condition, and it cannot be used. In some conditions, the machine recovers from toner end if you switch the machine off and on.

Toner End Recovery Flow Chart

```
┌────────────────────────┐
│   Toner End Recovery    │
└────────────────────────┘
         │
┌────────────────────┐
│   Recovery Start    │
└────────────────────┘
         │
    ◇ Toner Cover ────── No ──┐
      Opened/Closed?          │
         │                    │
        Yes                   │
┌────────────────────┐        │
│  Toner End Reset    │        │
└────────────────────┘        │
         │
┌────────────────────────┐
│ Recovery Times  ← 0     │
└────────────────────────┘
```

(1) Drum, QL, charge corona, grid ON
↓ 812 ms
(2) Bias for ID Sensor ON
↓ 126 ms
(3) Dev Motor ON
↓ 825 ms
(4) Separation corona ON

126 ms after (2) above:
(3) Main Motor ON
(4) Separation ON

After 1 s, Recovery Operation +1

Toner Supply CL ON
1 s, OFF 0.25 s, repeated 12 times

Wait 30 s for Auger Rotation

Create ID Sensor Pattern (A)

(1) Main motor OFF after 480 ms from (A)
(2) Separation OFF after 1443 ms from (A)

Read ID Sensor Pattern

◇ Vsp / Vsg < Vref ── No ──┐
         │
        Yes

Charge Corona Unit, ID Sensor Grid OFF

After 875 ms, ID Sensor Bias, Main Motor OFF

After 125 ms, Drum Motor, QL OFF

Toner End Reset

END

◇ Recoveries more than 5? ── No ──┐
         │
        Yes

Charge Corona, ID Sensor Grid OFF

After 875 ms, ID Sensor Bias, Main Motor OFF

After 125 ms, Drum Motor, QL OFF

No Reset

END

b286d917

6

Paper Feed and Registration

Overview

Layout Diagrams

g180d971
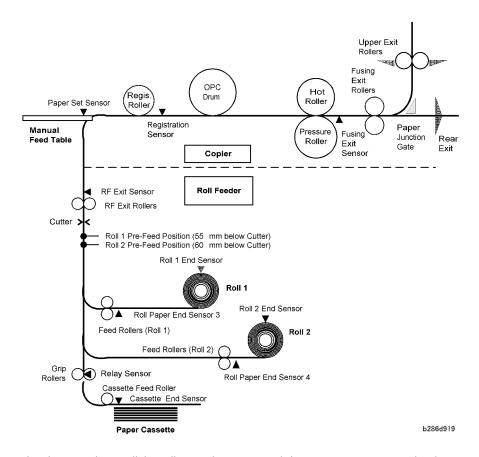
1. Manual Feed Table (Bypass)	13. Roll 2 Paper End Sensor
2. Paper Set Sensor	14. Lower Output Tray
3. Registration Rollers	15. Lower Output Stacker
4. Registration Sensor	16. Paper Cassette Paper End Sensor
5. Upper Exit Rollers	17. Paper Cassette Feed Roller
6. Paper Junction Gate	18. Relay Sensor (Cut Sheet)

7. Rear Exit	19. Grip Rollers
8. Fusing/Exit Rollers	20. Roll 1 Paper End Sensor
9. Exit Sensor	21. Feed Rollers (Roll 1)
10. Roll 1 End Sensor	22. RF Exit Rollers
11. Roll 2 End Sensor	23. RF Exit Sensor
12. Feed Rollers (Roll 2)	

b286d919

This diagram shows all the rollers and sensors used during paper transport. The diagram is not in scale.

Feed Station Overview

The machine can feed paper from the manual feed table or the optional roll feeder. With all options installed, there are four paper feed sources:

- Manual Feed Table (bypass tray)

- Roll 1: Front roll in the Roll Feeder (Roll Feeder B851 has the front roll only)
- Roll 2: Rear roll in the Roll Feeder (Roll Feeder B852 has the front and rear rolls).
- Paper Cassette (installed in the bottom of the Roll Feeder)

The user sets one of these paper feed sources at the operation panel.

When the print job starts, the feed motor and the registration motor start, and paper feed starts. The paper goes into the machine from the paper supply source, goes through the RF exit rollers, and then to the registration rollers. The registration rollers stop temporarily for paper skew correction, and then start again to feed the paper to the drum.

Manual Feed Table

The manual feed table (bypass tray) is the main station for paper supply for this machine. (The roll feeder and paper cassette are options.) Because of this, the manual feed table is not a "bypass" tray, although the name for the manual feed table is "bypass tray" in the User Tools menus.

The manual feed table feeds one pre-cut sheet.

Roll Feeder

The cutter cuts the paper after the machine feeds the specified paper length. The RF exit sensor monitors paper feed. After the last cut of a job, the feed roller changes direction and feeds the leading edge of the paper to its home position. This ensures that the paper path is not blocked when paper feed starts for the next job.
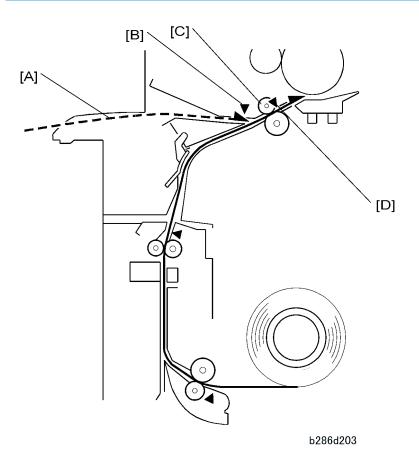
Paper Cassette

The optional universal-type paper cassette, installed in the bottom of the roll feeder, feeds cut sheets.

Paper Width and Type Settings

After a roll is installed, the width of the paper and the type of paper must be set. For more, see p.21 "Main Machine Installation (G180)".

Manual Feed Mechanism

b286d203
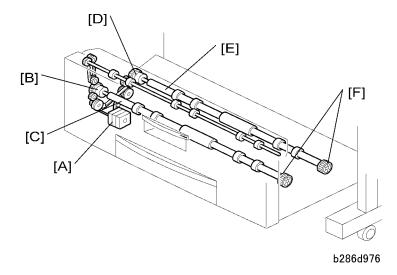
The user puts a cut sheet [A] on the manual feed table (also called the "bypass tray"). The paper set sensor [B] detects the leading edge of the sheet. This switches on the drum motor, main motor, and registration clutch.

The registration clutch engages the registration roller [C] which feeds the sheet.

The registration sensor [D] detects the edge of the sheet and the registration clutch switches off for 2 seconds. This gives the user time to adjust the position of the paper to make it straight. The 2-second interval can be adjusted with SP1911 (By-Pass Feed Start Timing Adj.).

Roll Feed Mechanism

Drive

b286d976

One roll feed motor [A] controls the two feed rollers:
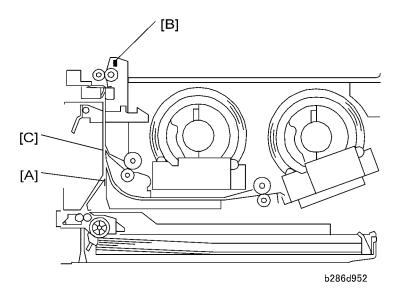
- The clutch [B] engages to transfer power from the motor to the feed roller [C] for Roll 1.

    -or-

- The clutch [D] engages to transfer power from the motor to the feed roller [E] for Roll 2.

There is a plastic knob [F] at the end of each feed roller. After a new roll is installed, or after a paper jam is removed, the user turns these knobs to feed the paper manually to the cutting position.

Roll Pre-feeding

b286d952

Check Before Pre-Feeding

The machine does a pre-feed control check:

- Immediately after the main power switch or operation switch is switched on.

- Immediately after the roll feeder drawer is closed.

- At the end of a copy job.

During the pre-feed check, the cutter moves to home position:

- The machine checks if the left or right cutter HP switch is ON.

- If the two cutter sensors are OFF, the machine moves the cutter to the left home position. This makes sure that the spring-loaded paper holder opens to let paper feed. (See p.410 "Roll Paper Cutting Mechanism".)

The machine pre-feeds paper from each roll after the pre-feed check completes without error. Pre-feeding is done for Roll 1 first.

Roll 1 Pre-Feeding

- Roll feed clutch 1 engages and turns the Roll 1 feed roller.

- The leading edge of the sheet feeds past the RF exit sensor [A].

- Feed stops.

- The roll feed motor pulls back the leading edge of the sheet until it is **55 mm** below the cutter. Then it stops. This is the pre-feed position [B] for Roll 1.
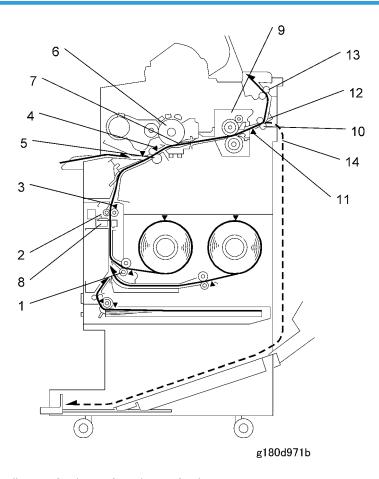
Roll 2 Pre-Feeding

- The machine pre-feeds the sheet from Roll 2.

- The roll feed motor pulls back the leading edge of the sheet until it is **60 mm** below the cutter and then stops. This is the pre-feed position [C] for Roll 2.

The two sheets stay at their pre-feed positions for the start of the next copy job. There are no rollers in this part of the paper path. As a result, when the two rolls are at the pre-feed positions, one can easily feed, and the other does not move.

Roll Paper Feed

g180d971b
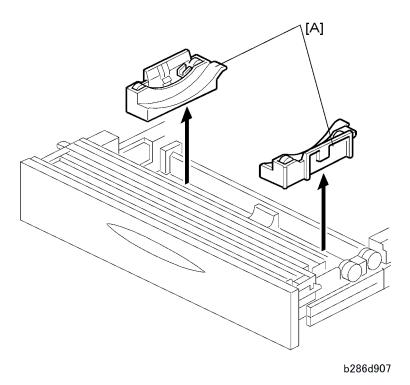
Roll paper feed starts from the pre-feed position.
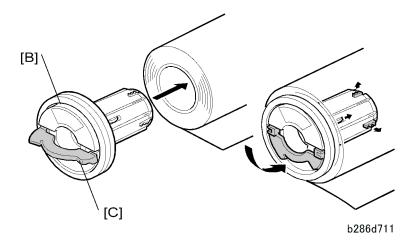
- The roll feed motor engages roll feed clutch 1 and turns the feed rollers [1].
- The RF exit rollers [2] feed the paper past the roll exit sensor [3] to the registration roller. The RF exit sensor checks that the leading and trailing edges of the sheet go by at the correct time.
- The registration sensor [4] stops the registration roller [5] to correct skew. Then, the registration roller feeds the paper to the drum [6] and through the T&S unit [7].

- The cutter [8] cuts the paper at the length specified for the job. (See p.410 "Roll Paper Cutting Mechanism".)
- The rollers in the fusing unit [9] feed the sheet to the exit rollers [10].
- The exit sensor [11] checks that the leading and trailing edges of the sheet go by at the correct time.
- The exit rollers feed the sheet to the paper junction gate [12].

Roll Feeder Paper Holders

b286d907
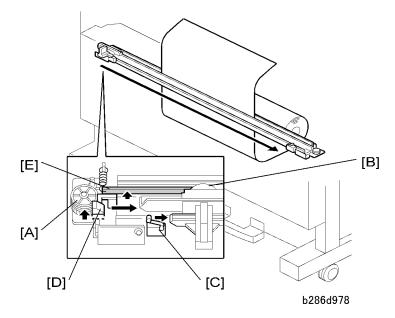
The racks [A] that hold the rolls are adjustable. This lets the user install paper rolls of different widths.

b286d711

A roll stopper [B] is put in each end of a roll. The roll lever [C] locks the stoppers in their position after they are put in the ends of a roll. The roll is put on the rack with each stopper locked in its position.

Roll Paper Cutting Mechanism

b286d978

Immediately before cutting, the registration roller continues to turn at normal speed, but the roll feed motor speed increases by a small quantity. This causes the paper to buckle slightly between the registration roller and the top of the cutter, and this gives the machine time to cut the paper.

The cutter motor below the drive gear [A] switches on and moves the rotary cutter [B] and its handle across the width of the paper. The switch [C] on the left or right end detects when to stop the cutter motor. The

cutter cuts from left to right, or from right to left. It does not come back after cutting the paper, until it is time to cut the next page. In the illustration, the cutter starts a cut from left to right.

The tab [D] on the bottom of the handle releases the spring-loaded paper holder [E]. This holder holds the paper for cutting when the cutter moves across the paper.
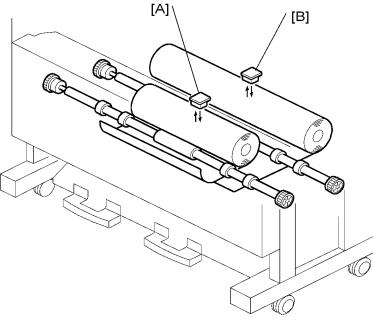
The tab opens and locks the paper holder when the cutter gets to the home position on the other side after cutting. This keeps the paper path open for the next sheet.

The registration roller continues to turn during cutting.

- This removes the tension between the registration roller and the cutter.
- It also lets paper feed past the drum at the same speed during cutting.

After you install a roll of paper, push the cutter with your hand fully to the left or right side.
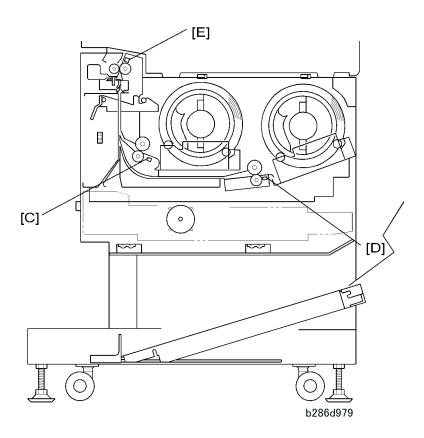
Roll End Detection

b286d980

To detect roll end, these two reflective photo-sensors detect the black core of an empty roll:

- Roll end sensor 1 [A], above Roll 1
- Roll end sensor 2 [B], above Roll 2

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b286d979
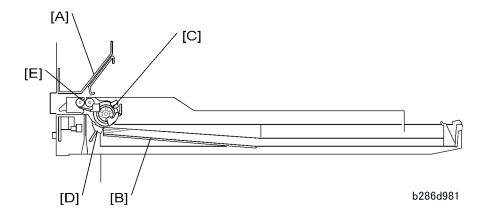
Also, two other sensors detect roll end if the core of the paper roll is a color other than black:

- Roll end sensor 3 (EXP) [C] detects the trailing edge of the roll when roll 1 has no more paper.
- Roll end sensor 4 (EXP) [D] detects the trailing edge of the roll when roll 2 has no more paper.

The machine also detects roll end if the RF exit sensor [E] does not detect a leading edge after paper feed starts.

- If the leading edge of the sheet does not get to the paper exit sensor from Roll 1 in 3.2 seconds or less, the machine detects paper end (or roll not installed).
- If the leading edge of the sheet does not get to the paper exit sensor from Roll 2 in 6.7 seconds or less, the machine detects paper end (or roll not installed).

6

Paper Cassette Mechanism

b286d981

Support arms [A] on each side of the paper cassette go in grooves on each side when the paper cassette is set in the roll feeder.

The grooves lift the supports and pull the springs attached to the bottom plate [B] of the paper cassette. This gives sufficient tension to keep the stack of paper on the bottom plate at the correct height for paper feed.

The cassette feed motor turns the cassette feed roller [C] to feed paper from the top of the stack.
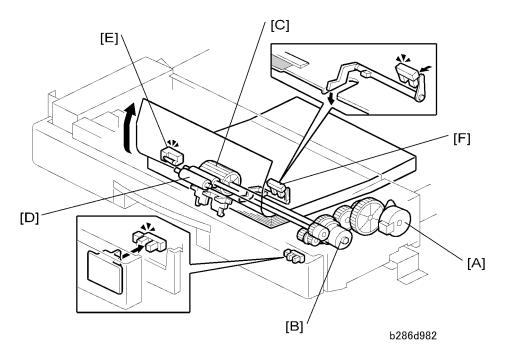
A friction pad [D] below the feed roller gives sufficient friction to stop sheets from double feeding.

The grip rollers [E] (also driven by the cassette feed motor), pull the paper into the paper feed path and feed it up to the RF exit rollers.

Paper Cassette Feed

Cassette Paper Path

b286d982

Paper feeds from the paper cassette when the copy job starts.

The cassette feed motor [A] switches on, and the cassette feed clutch [B] engages to turn the cassette feed roller [C] and the grip rollers [D].

The cassette relay sensor [E]:

- Detects the leading edge of the sheet.

- Switches off the cassette feed clutch.

- The grip rollers [D] continue to turn, and they feed the paper into the same paper path used by roll feed.

- The cassette relay sensor also detects paper jams.

🔻Note
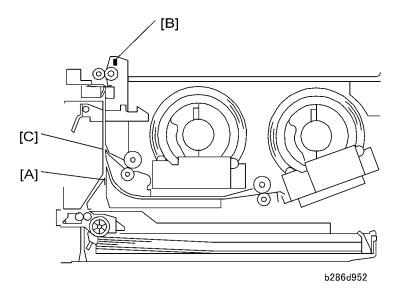
- After the cassette feed clutch switches off, the cassette feed roller continues to touch the paper. But, the pressure is very weak. Because of this, the grip rollers can pull the paper out easily.

After the grip rollers pull the paper out of the paper cassette, the transport sequence is the same as the roll paper path (the paper is not cut). Refer to the previous page.

The cassette set sensor [F] detects paper after the paper cassette is pulled out or is not correctly locked in its position.

Paper Cassette Pre-Feeding

Paper does not pre-feed from the cassette before the copy job starts. The machine pre-feeds paper from the cassette only between pages of multi-page copy jobs.

b286d952

There are two pre-feed positions for the leading edge of cut sheets after the first sheet of a multi-page copy job. The length of the paper in the cassette controls the pre-feed position.

- Pre-feed position 1 [A] is 234.8 mm below the RF exit sensor [B]. This is for cut sheets 18.7 inches (457.2 mm) long. (This is the maximum length for the paper cassette.)

- Pre-feed position 2 [C] is 184.4 mm below the RF exit sensor. This is for cut sheets less than 18.7 inches long.

Position 1 (lower than Position 2) is used for longer paper. This prevents overlap between the leading edge of a sheet and the trailing edge of the sheet before it.

Paper Cassette Paper End Detection

b286d983
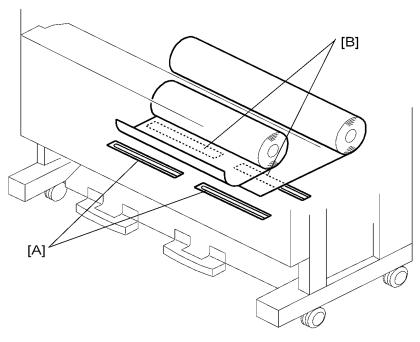
The paper end sensor [A] is above the paper cassette.

The feeler [B] falls through a hole in the cassette plate after the last sheet feeds from the cassette. The actuator [C] moves forward away from the sensor and the machine detects paper end.

The cassette sensor [D] detects when the paper cassette is set and locked in its position.

Condensation Prevention
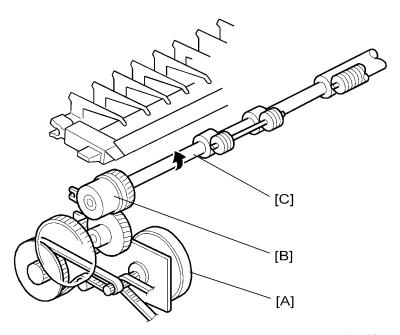
b286d984

There are four dehumidifiers, two at the front [A] and two at the rear [B], for the roll feeder. The dehumidifier switch on the right side of the roll feeder controls the operation of these dehumidifiers.

Note

- The dehumidifier switch appears on the decal as "anti-humidity heater".

Dehumidifier Switch	Operation
ON	The dehumidifiers stay on unless the fusing lamp is on.
	When the fusing lamp switches on, the dehumidifiers switch off. When the fusing lamp switches off, the dehumidifiers switch on again.
OFF	The dehumidifiers always stay off.

Paper Registration

b286d202

The main motor [A] and registration clutch [B] control the registration roller [C].
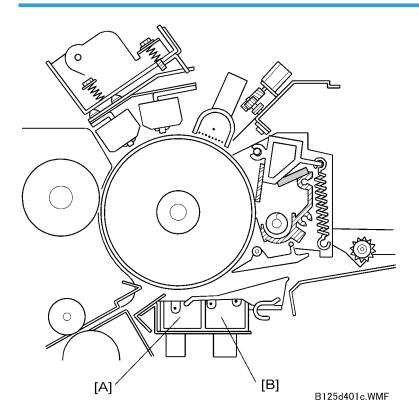
The registration clutch switches off temporarily for roll paper or cut sheets from the paper cassette.

- When paper is fed from the roll feeder or paper cassette, the paper buckles paper against the roller to remove skew.

- When paper is fed from the manual feed table, feed stops for 2 seconds to let the user correct the paper position, to prevent skew (see p.405 "Manual Feed Mechanism"). The 2-second interval can be adjusted with SP1911 (By-Pass Feed Start Timing Adj.).

Then the registration clutch switches on again to feed the paper to the drum.

Image Transfer and Separation

Overview

B125d401c.WMF

The T&S unit contains two parts:

[A] Transfer corona unit

[B] Separation corona unit

Transfer Corona Unit

Uses a tungsten wire (diameter 80 μm) 9.6 mm above the drum. This wire applies approx. 60 μA to transfer toner from the drum to the paper.
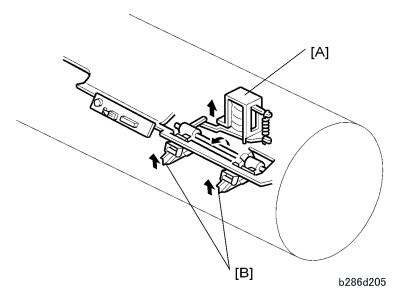
Transfer method:	Scorotron charger
Entrance guides:	2 Guide plates: The first is a conductive mylar and guide plate, and the second is a conductive mylar and leaf spring. They are 0.85 mm above the drum.

Separation Corona Unit

Applies approx. ac 280 µA and dc −25 µA to pull the paper off the drum.

Separation method:	Wide angle AC Scorotron charger
Backup separation:	Pick-off pawl, pick-off pawl solenoid

Pick-Off Pawl Operation

b286d205
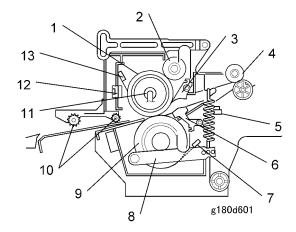
The pick-off pawls separate paper from the drum if the separation corona does not separate the paper fully.

The pick-off pawl solenoid [A] moves the pick-off pawls [B] until they touch the drum.

When the leading edge of the paper on the drum goes into the separation corona unit, the solenoid switches on. About 198 mm (7.8") of the paper touches the drum. The pick-off pawl shaft starts to turn, and the pawls on the shaft are held against the drum by a spring.

Fusing Unit

Overview

g180d601

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1. Hot Roller

2. Fusing Cleaning Roller

3. Hot Roller Strippers

4. Fusing Exit Rollers

5. Fusing Exit Sensor

6. Pressure Roller Strippers

7. Pressure Roller Thermistors (Center, End)

8. Pressure Release Lever

9. Pressure Roller

10. Entrance Spurs

11. Fusing Lamps
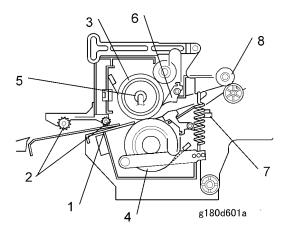
12. Thermostats

13. Hot Roller Thermistor

The hot roller wall thickness is 1.3 mm. As a result, warm-up time is short (less than 120 s from 23 °C).

Paper Feed Through the Fusing Unit

g180d601a
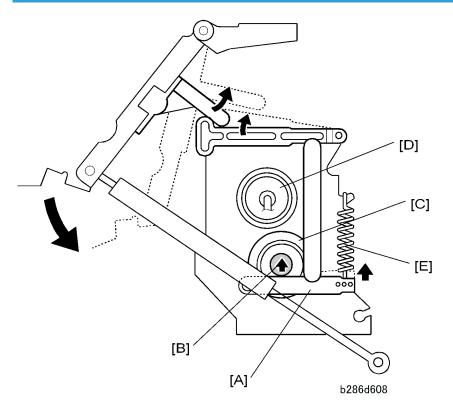
After separation from the drum:

- The paper feeds to the transport plate [1].

- The 5 sets of spurs [2] at the entrance hold the paper against the transport plate

- The heat and pressure of the hot roller [3] against the pressure roller [4] fuse the image to the paper.

- The fusing lamp [5] in the center of the hot roller is pre-heated to the correct temperature. (It switches on and off to keep the rollers at the correct operating temperature.)

- The hot roller strippers [6] pull the copy off the hot roller.

- The fusing exit sensor [7] detects the leading edge and trailing edge of the sheet, and checks the timing to detect paper jams.

- The fusing exit rollers [8] feed the paper out of the fusing unit.

Fusing Pressure Control Mechanism

b286d608

The spring-loaded pressure levers [A] are attached to the pressure roller shaft [B].
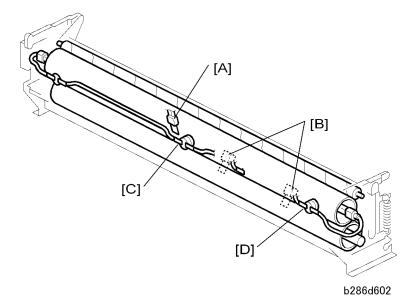
The pressure of the springs pushes the pressure roller [C] (a silicone-rubber roller) against the hot roller [D].

To adjust the position of the pressure spring [E], change the position of the lower attachment point:

- Center: Standard tension (60 N on each spring), standard pressure.

- Left: Less tension, less pressure. Set to this position to decrease wrinkling

- Right: More tension, more pressure. Can make better fusing with thick paper.

🔻Note

- Wrinkling occurs more frequently for some types of media (plain, translucent, film, thick paper).

Hot Roller Thermistors and Thermostats

b286d602

Three thermistors monitor the temperature of the hot roller and pressure roller:

- Thermistor [A] monitors the temperature of the hot roller.

- Two thermistors [B] monitor the temperature of the pressure roller. One thermistor is at the center of the pressure roller and the other is near the end of the pressure roller.

Thermostat [C] (199°C) and thermostat [D] (200°C) give emergency heat protection. If one of the thermistors breaks, one of the thermostats will cut power to the fusing lamp. Also, interlock switches cut power to the fusing circuit when a cover is opened.

Temperature Control

Paper Thickness Setting
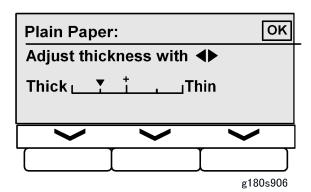
To achieve and maintain optimum fusing, the operator must select on the operation panel the proper setting for the thickness of the paper. This ensures that the machine sets and maintains the correct target temperatures for the hot roller and pressure roller during the job.

⭐ **Important**

- Strict control of the fusing temperature is necessary to prevent wrinkling that can occur at high temperatures with different types of paper.

Changing the paper thickness default setting can improve results if copy images are blurred or wrinkled. The paper thickness default setting screen can be opened by the operator with the User Tool:

Note

- The paper thickness can be set for the paper cassette and bypass tray only.

1. [Menu]
2. [▼] or [▲]> "Maintenance"> [OK]
3. "General Settings"> [OK]
4. "Paper Thickness"> [OK]
5. [▼] or [▲]> Select the target paper tray > [OK].
6. [▼] or [▲]> Select the desired paper type> [OK]

   - Plain Paper
   - Recycled Paper
   - Translucent Paper
   - Film

g180s906

7. [◀] or [▶]> Select the desired position on the bar (from "Thick" to "Thin")
8. [OK]> "Programmed"
9. [Menu]> Standby

- These settings are used to adjust the fusing temperature and amount of pressure applied by the pressure roller on the hot roller.

- Each notch (1 to 5) represents a "mode" (Mode 1 to Mode 5). These references to "modes" are used in several SP codes below. Mode 1 is at the left end of the scale on the display, and Mode 5 is at the right end.

- The modes for thicker paper are to the left of the "+" button and those for thinner paper to the right of the "+" button.

- A thicker selection raises the fusing temperature and pressure applied by the pressure roller; a thinner selection lowers the temperature and lowers the pressure for thinner paper.

- The settings can be done independently for paper fed from either the paper cassette or the bypass tray.

Fusing Mode Selection Table: Europe/Asia

Paper Type	Mode (g/m^2/lb.				
	Notch 1	Notch 2	Notch 3	Notch 4	Notch 5
Plain	110 g/m^2	90 g/m^2	**70 g/m^2**	60 g/m^2	50 g/m^2
Translucent	70-90 g/m^2	**70-80 g/m^2**	70-80 g/m^2	50-70 g/m^2	50-60 g/m^2
Film	**0.07 to 0.095 g/m^2**				

Fusing Mode Selection Table: NA

Paper Type	Mode (g/m^2/lb.				
	Notch 1	Notch 2	Notch 3	Notch 4	Notch 5
Plain	29.3 lb	23.9 lb	**18.6 lb**	15.9 lb	13.3 lb
Translucent	18.6-29.3 lb	**18.6-21.3 lb**	18.6-21.3 lb	13.3-18.6 lb	13.3-15.9 lb
Film	**2.8-3.7 mil**				

Important Points and Recommendations

- When plain paper is used in a low temperature environment (10°C (50°F), 15% rh), change the thickness level from 3 > 2.

- If wrinkling occurs on translucent paper with Mode 2 selected, select Mode 1.

- Fusing conditions can be affected by low temperature, humidity, the length of the print job, continuous printing, etc. To improve toner fusing, shift the mode selections down: 3 > 2 > 1.

- To eliminate wrinkling or blurred images, shift the mode selection up: 3 > 4 > 5.

- If the selection is changed from Mode 1 or 2 for translucent paper to another setting (plain, film), the machine may take longer (up to 2 minutes) to reach the copy ready temperature.

- During long print jobs, the interval between copies may increase. This slows down printing. The machine does this automatically (CPM down) to maintain the correct fusing temperature.

Zero-Cross Control Test

Before the machine switches on the fusing lamp, the zero-cross control test determines whether the power supply is 50 Hz or 60 Hz.

If the frequency does not fall in the necessary range after 10 attempts, then:

- If the frequency is too low, SC547 (Zero-Cross Signal Errors) occurs.

- If the frequency is too high, SC557 (Applied Zero Cross Waveform Over) occurs.

- After power is switched on, if there are no zero-cross interrupt signals for more than 3 seconds with the power relay on (other than when the upper unit is open), then SC547 occurs.
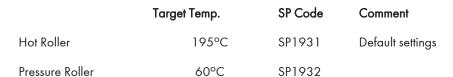
If the upper unit or exit unit is open at power on, the test is not done until after the upper unit or exit unit is closed.
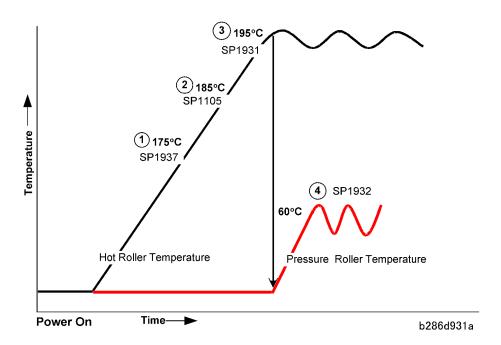
Switching on the Fusing Lamp Power

When the fusing lamp is switched on, the applied voltage is added in steps. This "soft start" prevents problems that can be caused by voltages that fluctuate rapidly.

Fusing Temperature Control: Warm-up Sequence

Here is an example of the sequence of events for cold start, with the temperature below 15°C (SP1937-11) and the hot roller and pressure roller target temperatures are as shown below.

	Target Temp.	SP Code	Comment
Hot Roller	195°C	SP1931	Default settings
Pressure Roller	60°C	SP1932	

b286d931a

Step	What Happens
Power On	Room Temperature
① Low temperature environment detection	$175°C = ③ - 20°C$ (SP1937-1) b286d941 From when the main machine is switched on until fusing temperature reaches 175°C, the time required to reach the copy ready temperature is determined by SP1937-2 (Default: 2 min.) This is the "prescribed time" to reach the target hot roller temperature. • If hot roller reaches the target temperature within the time prescribed by SP1937-2., copy ready temperature is at ②. • If hot roller does not reach the target temperature within the time prescribed by SP1937-2, copy ready temperature is not set at ②. Rather, after the temperature reaches ③, inching starts with rotation of the pressure roller. When the pressure roller reaches 60°C at ④, this is the copy ready temperature.
② Ready-1	$185°C = ③ - 10°C$ (SP1105-1) b286d942 If warm-up reaches the target fusing temperature within the prescribed time (SP1937-2), this is the copy ready temperature.
③ Reach target hot roller temperature	$195°C$ (SP1931-3) b286d943 Temperature of the hot roller is monitored and controlled within ±5°C of target hot roller temperature.
④ Reach target pressure roller temperature	$60°C$ (SP1932-3) b286d944 Temperature of the pressure roller is monitored and controlled within ±5°C target pressure roller temperature.

Note:

If the target pressure roller temperature is set for 65°C, inching with rotation of the pressure roller and hot roller starts, then the copy ready temperature is set when both temperatures at ③ and ④ are reached.

• Inching Start Temperature = ③ SP1937-3

• Pressure roller target temperature for inching control: ④ SP1948

Fusing Temperature Control: Temperature Feedback During Copying

This machine uses the feedback of the hot roller thermistor and two pressure roller thermistors, one at the center and one at the end of the pressure roller, to control the fusing temperature. The SP codes settings shown in the tables and illustrations below determine how fusing temperature is controlled for the paper thickness modes (Mode 1 to 5) for each type of paper.

Here is a quick summary of the SP codes that are used to maintain optimum fusing temperature.

⭐ **Important**

- **These SP codes are set at the factory and normally should not require adjustment in the field.**

1931	TTemp:HotRol	Sets the target temperature of the hot roller.
1932	TTemp:PreRol	Sets the target temperature of the pressure roller
1934	LTemp:HotRol	Sets the minimum difference in temperature allowed between the actual temperature and the target temperature of the hot roller
1935	LTemp:PreRol	Changes the stepped adjustments of SP1932 (Target Temp: Pressure Roller) by using the sum of the settings of SP1932 (Target Temp: Pressure Roller) +SP1935 (Press FB Control Steps).
1941	PreFB:TDiff	Sets the temperature differential that determines when the machine switches to the supplement mode for pressure roller feedback control. (See description below.)
1942	PreFB:THI:NP	Sets the interval between temperature samplings for pressure roller feedback control.
1943	PreFB:HT:SP	This SP sets the high temperature used by pressure roller feedback temperature control for Custom paper.
1944	PreFB:LT:SP	Sets the low temperature used by pressure roller feedback temperature control for Custom paper.
1948	PreRol TTemp	This SP determines when inching starts.

Here are more details about the settings of these SP codes.

SP No.	Range	Initial Setting					
		Mode	1	2	3	4	5
1931-1 to 5	120 to 220	Plain	195	195	**195**	185	175
-6 to 10	120 to 220	Translucent	205	195	195	165	165

6

-11 to 15	120 to 220	Film	195	190	185	185	175
1932-1 to 5	60 to 180	Plain	100	85	**60**	60	60
-6 to 10	60 to 180	Translucent	130	100	60	60	60
-11 to 15	60 to 180	Film	60	60	60	60	60
1934-1 to 5	0 to 50	Plain	20	15	**25**	20	20
-6 to 10	0 to 50	Translucent	20	20	20	20	20
-11 to 15	0 to 50	Film	20	20	20	20	20
1935-1 to -5	0 to 50	Plain	20	25	**30**	20	20
-6 to 10	0 to 50	Translucent	20	20	20	20	20
-11 to 15	0 to 50	Film	20	20	20	20	20
1941-1	0 to 50	Plain	**20**				
1942-1 to 5*[1]	0 to 50	Plain	0	0	**5**	15	0
1943-1 to 5*[1]	0 to 50	Plain	0	0	**20**	20	0
1944-1 to -5	0 to 50	Plain	0	0	**10**	5	0
1948-1 to 5	60 to 180	Plain	100	65	**60**	60	60
-6 to 10	60 to 180	Translucent	130	100	60	60	60
-11 to x15	60 to 180	Film	60	60	60	60	60

*[1] SP1942, SP1943, SP1944 do not operate if they are set to "0".
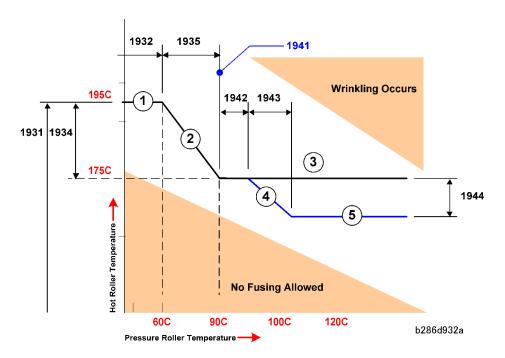
Pressure Roller Temperature Feedback

The graph and descriptions below (Plain Paper, Mode 3 selected) show how the temperature of the hot roller is controlled using the difference in the temperatures of the center and end of the pressure roller.

The temperature readings are fed back by the pressure roller thermistors (one at the end and one at the center of the pressure roller). These difference between these readings are compared with the value set for SP1941 (Press FB Ctrl Switch by Temp Diff).

	Difference between Center, End Temperatures	
	< SP1941 (20ºC)	> SP1941 (20ºC)

Hot Roller Control Temp.	SP1931 to SP1935 (Black Line)	SP1942 to SP1944 (Blue Line)

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Note

- In the table below "PR" is the "Pressure Roller" and "HR" is the "Hot Roller".

		PR (°C)	HR (°C)	Controlling SP Codes
< SP1941(20°C)	①	60	195	**HR**:SP1931 **PR**:SP1932
	②	61-90	194-175	**HR**:SP1931-SP1934 **PR**:SP1932+SP1935
	③	> 96	175	
> SP1941 (20°C)	①	< 60	195	**HR**:SP1931 **PR**:SP1932
	②	61-90	194-175	**HR**:SP1931-SP1934 **PR**:SP1932+SP1935
	③	91-95	175	**PR**:SP1942 (91C to 95C)

				HR:SP1931-SP1934
				PR:SP1932+SP1935
	④	96-120	174-165	HR:SP1931+(SP1934+SP1944)
	⑤	< 121	165	PR:SP1932+(SP1935+SP1943)

Fusing Temperature Control: Inching

The default setting for this machine is for inching control to always remain on.

⭐ **Important**

- **This inching control on/off setting (controlled by SP9952) should never be switched off.**

During inching control:

- When the temperature of the hot roller falls to 20°C (SP1937-3) below its target temperature, the fusing motor switches on and idling starts.

- When the pressure roller reaches its target temperature, the fusing motor switches off and idling stops.

⬇ **Note**

- The target temperature of the pressure roller is controlled by the settings of SP1932 for each paper type.
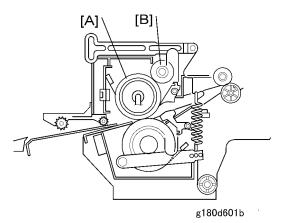
Fusing Temperature Control: CPM Down

During a long copy job on narrow width paper, the difference in the temperatures between the center and end of the pressure roller increases. The temperature at the center decreases and the temperatures at the ends increase. In order to prevent this, CPM down control automatically adjusts the timing of paper feed. This increases the length of the interval between sheets in the paper path.

A longer interval between sheets creates a short delay between feeds to the fusing unit. This extra time allows slightly more time so that the temperature of the hot roller and pressure roller can rise.
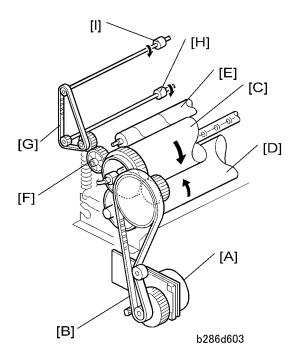
- The operation of CPM down is controlled by SP1940-1 (CPM Down Setting). This SP code should remain on.

- For more about adjusting these settings see the description of SP1940 in "Service Tables".

Hot Roller Cleaning

g180d601b

The cleaning roller [A] (parallel to the hot roller) always touches the hot roller [B] with a low pressure. The cleaning roller has a layer of material that is soaked with silicone oil. Each time the fusing motor switches on, it reverses for 400 ms (at line speed 30 mm/s) to clean the hot roller.

Fusing Unit Drive Mechanism

b286d603

The fusing motor [A] (a stepper motor) controls the gears and timing belt [B] that turn the hot roller [C]
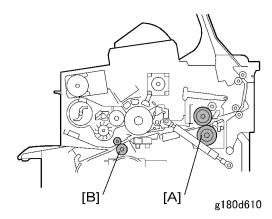
The pressure of the hot roller against the pressure roller [D] and cleaning roller [E] turns these rollers in the opposite direction.

An idle gear [F] turns the gears and timing belt [G]. These gears and belts turn the fusing exit roller [H] and upper exit rollers [I] in the same direction as the hot roller.

The speed of the fusing motor is controlled by:

- The paper feed source set by the user (manual feed table, roll feeder paper, and cassette).

- The type of paper set for the paper feed source: plain (not displayed), recycled, translucent, or film. (This is done with the menu settings: [Menu]> "Paper Input"> "Paper Type: Tray n (where "n" is 1, 2, 3, or "Bypass").

- The width of the paper in the feed source that is used. (This is done with the menu settings: [Menu]> "Paper Input"> "Paper Size: Tray n (where "n" is 1, 2, 3, or "Bypass").

Wrinkle Prevention

[B]   [A]   g180d610

Motor Speed Control

During normal operation, the hot roller [A] (controlled by the fusing motor) is slightly faster than the registration rollers [B] (controlled by the main motor).
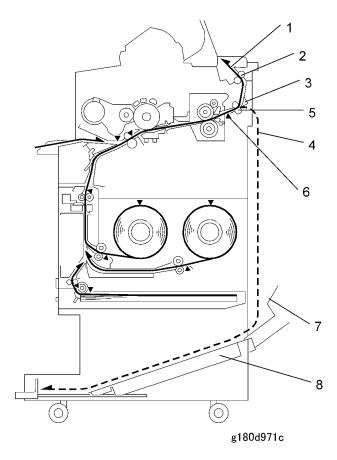
This stretches the paper between the registration rollers and the fusing unit to keep the paper from wrinkling inside the fusing unit.

Inching Control

This machine also has an inching control feature that controls the temperature of the pressure roller to prevent wrinkling. (See p.424 "Temperature Control".)

Paper Exit

Overview

g180d971c

The fusing exit rollers [5] send the paper to the paper junction gate [3].

Upper Exit

When the paper junction gate [3] is closed:

- The gate sends the paper to the upper exit rollers [2].

- The upper exit rollers feed the paper out of the upper paper exit [1] to a wire guide on top of the machine. The user can remove this wire guide.

- The wire guide holds the paper against the rear side of the original output tray.

Rear Exit

When the paper junction gate is open:

- The gate sends the paper to the rear paper exit [4].

- The paper moves past mylars attached on the rear of the machine.

- The paper falls into the lower output tray [7] and then stops in the lower output stacker [8].

Jam Detection
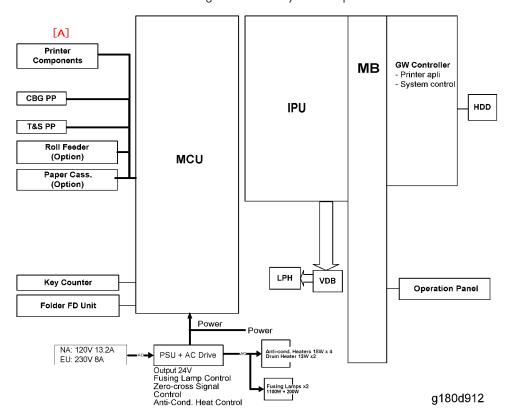
The exit sensor [6] detects paper jams.

Electrical Components

Overview

Overall System

The illustration below shows the configuration of the system components.

g180d912

[A]   Printer components:

1. Motors   4. Thermistors

2. Sensors   5. Solenoids: Separation, Paper Exit

3. Fan Motors   6. Clutches:

Here is a brief description of functions of the important boards:

MCU (Main Control Unit). This is the engine control board. The MCU manages:

- Base engine control, image writing control, etc..

- Basic I/O function control for the power packs, motors, sensors, solenoids, clutches, and fusing.

- Power supply to electrical components (sensors, motors, etc.).

IPU (Image Processing Unit). Manages imaging processing for print jobs, and also manages sending and receiving data between itself and the GW controller board.

MB (Mother Board). Provides important relay functions for data relay and machine power supply.

VDB (Video Drive Board). Controls operation of the LPH (LED Print Head), including the conversion of video sent to the LPH.

GW controller (Type-Bz2). Performs overall control of all multi-function peripheral (MFP) devices.

Description of Electrical Components

NUMBER	NAME	DESCRIPTION
Lamps		
L1	Fusing Lamp	One fusing lamp (1100 W) in the hot roller.
LPH		
LPH1-3	LPH1-3 (LED Print Head)	Each section writes a part of the image on the PCB drum. The VDB controls the LPH units.
Magnetic Clutches		
MC1	Cassette Feed Clutch	This transfers power from the cassette feed motor to the feed and grip rollers in the cassette.
MC2	Paper Registration Clutch	This controls the registration roller. It switches off for a short time to stop the registration roller to correct skew in the paper feed path.
MC3	Roll Feed Clutch 1	This transfers power from the roll feed motor to roll 1 in the roll feeder.
MC4	Roll Feed Clutch 2	This transfers power from the roll feed motor to roll 2 in the roll feeder.
MC5	Toner Supply Clutch	This controls the toner supply mechanism.
Motors		
M1	Cassette Feed Motor	This stepper motor controls the paper feed roller in the paper cassette.

NUMBER	NAME	DESCRIPTION
M2	Cooling Fan Motor	This is an exhaust fan for the area around the drum.
M3	Cutter Motor	This controls the cutter in the roll feeder.
M4	Drum Motor	This controls the OPC drum.
M5	Fusing Motor	This controls the hot roller, fusing exit rollers, and upper exit rollers.
M6	Main Motor	This controls the registration roller, development unit, and the agitator in the toner cartridge.
M7	PCB Cooling Fan Motor 1	Cools the IPU, MCU and controller board.
M8	PCB Cooling Fan Motor 2	Cools the IPU, MCU and controller board.
M9	Roll Feed Motor	This controls the feed rollers for roll 1 and roll 2 in the roll feeder.
M10	Used Toner Bottle Motor	This controls the mechanism that keeps the level of used toner in the bottle flat.
M11	Wire Cleaner Motor	This moves the corona wire cleaner to the left and right to clean the charge corona wire.
PCB		
PCB1	IPU (Image Processing Unit)	The IPU controls the HDD unit and the PC interfaces.
PCB2	MCU (Main Control Unit)	This is the machine's main board. It contains ECU (Engine Control Unit). This unit control all parts of the machine.
PCB3	Operation Panel	This contains the operation keys, LCD, and the LEDs. It is controlled by the MCU.
PCB4	PSU (Power Supply Unit)	This supplies dc power for the machine, heaters, and dehumidifiers in the roll feeder.
PCB5	RFDB (Roll Feed Drive Board)	This is attached to the optional roll feeder. It controls the components of the roll feeder (motor, clutches, sensors, and switches).
PCB6	SFDB (Sheet Feed Drive Board)	This is attached to the optional paper cassette. It controls the components of the paper cassette (motor, clutches, sensors, and switches).

6

| NUMBER	NAME	DESCRIPTION
PCB7	Mother Board	Interfaces with the controller, IPU, and optional devices such as interface board for the printer controller.
PCB8	VDB (Video Drive Board)	This controls the image signals that are sent to the LPH (LED Print Head).
PCB9	Controller Board	Controls the memory and all peripheral devices. The GW architecture allows the board to control all applications.
Power Packs		
PP1	CGB Power Pack	High voltage power supply for the charge corona wire (C), development bias (B), and charge corona grid (G).
PP2	T&S Power Pack	High voltage power supply for the transfer corona wire (T) and the separation corona wire (S) in the T&S (Transfer and Separation) unit.
QL		
QL1 - 3	Quenching Lamp 1 – 3 (1: Left, 2: Center, 3: Right)	This removes remaining electrical charge on the left part of the drum immediately after cleaning.
Sensors		
S1	Cassette End Sensor	This sensor is above the paper cassette. It detects paper end after the last sheet feeds.
S2	Cassette Set Sensor	This detects when the cassette is set and locked in its place.
S3	Exit Cover Sensor	This detects if the exit cover on the rear of the machine is open or closed.
S4	Fusing Exit Sensor	This sensor is in front of the fusing exit rollers. It switches on when the leading edge of the copy leaves the fusing unit.
S5	ID Sensor	The machine uses this sensor to control toner supply, toner near-end, and toner end. There is no toner density sensor in this machine.

6
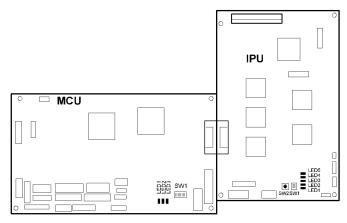
NUMBER	NAME	DESCRIPTION
S6	Paper Registration Sensor	This detects paper at the registration rollers.
S7	Paper Set Sensor	This detects when a cut sheet is placed on the manual feed table (by-pass).
S8	Relay Sensor	This sensor is near the grip rollers, and (1) Detects the leading edge of every cut sheet, switches off the cassette paper feed clutch, and switches on the grip rollers, (2) Detects paper jams where the paper feeds out of the paper cassette.
S9	RF Exit Sensor	(1) Detects the leading edge of the paper from the rolls. (2) Detects the trailing edge of cut sheets from the paper cassette and trailing edges of sheets cut from the paper rolls for paper feed timing and jam detection. (3) If this sensor does not detect a leading edge after feeding from Roll 1 or Roll 2, it also signals paper end for the roll.
S10	RF Set Sensor	This detects if the spring-loaded lock lever of the roll feeder drawer is locked.
S11	Roll End Sensor 1	This reflective photosensor above Roll 1 detects the core of the roll (which is black), after there is no more paper on Roll 1.
S12	Roll End Sensor 2	This reflective photosensor above Roll 2 detects the core of the roll (which is black), after there is no more paper on Roll 2.
S13	Roll End Sensor 3	Detects the trailing edge of the roll after there is no more paper on Roll 1. This sensor is included because if the color of the roll core is not black, Roll End Sensor 1 cannot always detect roll end.
S14	Roll End Sensor 4	Detects the trailing edge of the roll after there is no more paper on Roll 2. This sensor is included because if the color of the roll core is not black, Roll End Sensor 2 cannot always detect roll end.

6

NUMBER	NAME	DESCRIPTION
S15	Toner Overflow Sensor	Detects toner overflow in the used toner collection bottle.
S16	Upper Unit Sensor	Detects when the upper unit is open.
S17	Wire Cleaner Sensor	The actuator of this sensor is attached to the wire that moves the transfer cleaner from left to right. This tells the machine is moving.
Solenoids		
SOL1	Paper Junction Gate Solenoid	This controls the paper junction gate in front of the rear paper exit and below the upper exit. When closed, paper feeds out at the top. When open, paper feeds out at the back.
SOL2	Pick-Off Pawl Solenoid	This moves the pick-off pawls until they touch the drum.
Switches		
SW1	Dehumidifier Switch	Switches the dehumidifiers (x4) in the roll feeder on/off.
SW2	Exit Cover Switch	This detects if the exit cover on the rear of the machine is closed.
SW3	Main Power Switch	This switches the copier on and off.
SW4	Toner Hopper Cover Switch	This detects if the toner supply cover is open or closed.
SW5	Upper Unit Switch 1	This detects if the upper unit is open on the left side.
SW6	Upper Unit Switch 2	This detects if the upper unit is open on the right side.
SW7	Left Cutter HP Switch	This detects if the cutter in the roller feeder is at the home position at the left side. In this condition, the paper holder of the cutter is locked open (the paper feed path is open).
SW8	Right Cutter HP Switch	This detects if the cutter in the roller feeder is at the home position at the right side. In this condition, the paper holder of the cutter is locked open (the paper feed path is open).

6

NUMBER	NAME	DESCRIPTION
SW9	Exit Unit Switch	Detects whether the fusing unit cover is open or closed. SC559 is issued after 3 consecutive jams occur in the fusing unit.
		Note: SC559 is not issued unless SP1159 is switched on (Default: "0" off). The fusing unit cover must always be opened and closed after this SC occurs to restore the machine to full operation. This ensures that the operator has opened and closed the cover to check for paper and/or paper scraps around the hot roller. Loose paper around the hot roller is a fire hazard.
Others		
CO1	Recycle Counter	A mechanical counter that measures the total length in meters of paper that the machine feeds. It starts from the first copy.
H1	Dehumidifier 1 (Front/Right)	One of four dehumidifiers that keeps the roll feeder drawer free of moisture.
H2	Dehumidifier 2 (Front/Left)	
H3	Dehumidifier 3 (Rear/Right)	
H4	Dehumidifier 4 (Rear/Left)	
H5	Anti-Condensation Heater (Left)	These are below the OPC drum. They keep the copier free of moisture, which could cause problems with paper feed and fusing.
H6	Anti-Condensation Heater (Right)	
HDD1	HDD	
TH1	Hot Roller Thermistor	The CPU uses this thermistor to monitor the temperature of the hot roller.
TH2	Pressure Roller Thermistor 1 (Edge)	The CPU uses this thermistor to monitor the temperature of the pressure roller.
TH3	Pressure Roller Thermistor 2 (Center)	
TS1	Thermostat 1 (Center)	199°C. This safety device prevents overheating if the temperature control circuit fails.
TS2	Thermostat 2 (End)	200°C. This safety device prevents overheating if the temperature control circuit fails.

6

NUMBER	NAME	DESCRIPTION
CB1	Circuit Breaker	Breaks the main power supply to the machine if there is an overload or short circuit. Located on the back of the machine, this switch is set manually. This breaker switch must be at the down position for the machine to operate.

MCU, IPU

b286v301

MCU (Main Control Unit)

This is the main control board of the machine. It does the following:

- System control
- Base engine control
- Image processing

The MCU also sends load signals and supplies power to:

- Base engine (high voltage power pack, motors, sensors, solenoid, clutches, fusing unit, RSS, etc.)
- **ECU:** (Engine Control Unit). Does print engine and image processing control.

Note

- The MCU DIP switches must always be OFF (default) and they must not be changed in the field.
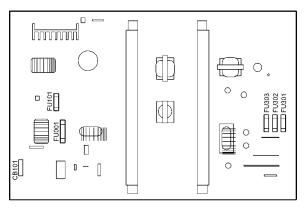
IPU (Image Processing Unit)

The IPU (Image Processing Unit) holds the ASIC and memory for image processing. The IPU also controls the HDD unit and the printer board.

↓Note

- The IPU DIP switches must always be OFF (default) and they must not be changed in the field.
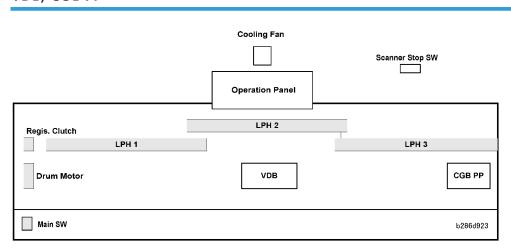
PSU

b286v303

The PSU (Power Supply Unit) supplies dc for all electrical components in the machine, and controls ac input to the fusing lamps and anti-condensation lamps.
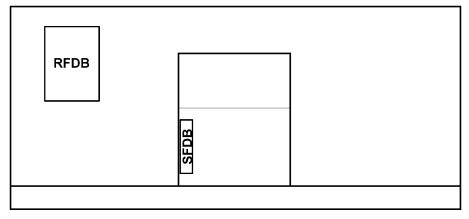
VDB, CGB PP

b286d923

VDB (Video Drive Board)

The VDB controls the LPH and the algorithms to convert video data.

CGB PP

This is the high voltage power supply for the charge corona wire, development bias, and charge corona grid.

RFDB, SFDB

b286d924

The RFDB and SFDB are on the bottom plate of the drawer in the optional roll sheet feeder.
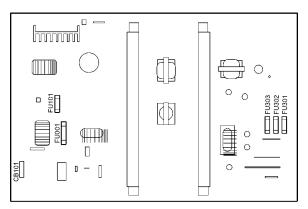
RFDB (Roll Feed Drive Board)

The RFDB, on the floor panel of the roll feeder, controls the motors, solenoids, and clutches for the two paper rolls in the roll sheet feeder.

SFDB (Sheet Feed Drive Board)

The SFDB, on the left side of the paper cassette unit, controls the paper feed mechanisms for the optional paper cassette.

GW Controller Board

b286v303

The controller board controls the memory and all peripheral devices. The GW architecture allows the board to control all applications. In order to add an option, the appropriate SD card or board must be installed from external slots.

6

7. Specifications

Main Machine (G180)

Configuration:	Desktop (Roll Sheet, Paper Cassette Feed)
Printing Process:	Dry electrostatic transfer system
Printing Speed	A0: 2 ppm, A1: 4 ppm
Paper Feed Method	Rolls Feeder (Rolls x2) Bypass Paper Cassette (inside Roll Feeder)
Resolution	600 dpi

Print Size (W x L)	RF	Max.	914.4 x 15,000 mm (36 x 590 in.)
		Min.	210 x 279.4 mm (8.5 x 11 in.)
	Cassette	Max.	297 x 420 mm (8.5 x 16.5 in.)
		Min.	210 x 279.4 mm (8.5 x 11 in.)
	Bypass	Max.	914.4 x 2,000 mm (36 x 78 in.)
		Min.	210 x 257 mm (8.5 x 10 in.)

Paper Weight	52.3 to 110 g/m² (13.9 to 29.3 lb.) 68 to 148 μm (Plain paper, Translucent) 3 to 4 mils (Film)
Photoconductor:	Organic photoconductor drum
Warm-up Time:	Less than 2 minutes Room temperature 23°C, Plain Paper mode

	AC 120V/220-240V
First Print Time:	Roll Feeder: 20 sec. (A1 LEF) Bypass: 33 sec. (A1 LEF)
Paper Capacity:	**Bypass Feed:** 1 sheet **Roll Feed:** Max. Diameter: 175 mm (6.9") Max. Length: 150 m (16.4 yd) Roll Core Diameter: 76.4 ± 0.25 mm (about 3") **Paper Cassette:** 250 sheets
Output Tray Capacity:	**Upper Output Stacker** Plain paper: 50 sheets (maximum A1/D LEF) Translucent: 10 sheets (maximum A1/D LEF) **Roll Feeder** Plain paper: 40 sheets (A1/D or A0/E) Translucent: 1 sheet
Memory Capacity:	DDR-DIMM: 512 MB HDD: More than 80 GB
Toner Replenishment:	Cartridge exchange (800 g/cartridge)
Toner Yield:	2,200 copies (A1 LEF, 6% full black, 1 to 99 printing, Text mode)
Power Source:	-17 Ver.: AC 120V, 60 Hz, 15 A or more -27 Ver.: AC 220-240 V, 50/60 Hz, 10 A or more
Power Consumption[1]	AC 120V, AC 220V Versions (G180-17, -27)

	Warm-up	1.4 kW
	Ready[2]	0.05 kW
	Printing	1.03 kW
	Maximum	1.5 kW

[1] **Full System:** Main Machine with Roll Feeder (2 rolls), Paper Cassette

[2] **Ready:** Dehumidifiers switched off.

Noise Emission:	The measurements were made in accordance with ISO 7779 at the operator position **Sound Power Level, Full System** Stand-by: 40.0 dB (A) Printing: 68.0 dB (A) Printing (from memory): 68.0 dB (A)
Dimensions (w x d x h):	1,080 x 637 x 530 mm (43" x 25" x 20.9")
Weight:	Less than 100 kg (220 lb)
Optional Equipment:	• Rear Stacker (D312) • Roll Holder (B394) • Data Overwrite Security Unit Type D (B735-18) • IEEE802.11b Interface Unit Type H (G813) • Gigabit Ethernet Board Type A (G874)

7

Options

Roll Feeder (B852)

Copy Paper Size: (W x L)	Maximum: 914 x 15,000 mm (36" x 590") Minimum: 210 x 280 mm (8.5" x 11")
Copy Paper Weight	52.3 to 104.7g/m^2 (13.9 ~ 27 lb)
Copy Paper Capacity:	Max. Diameter: 175 mm (6.9") Max. Length: 150 m (137.6") Roll Core Diameter: 76.4 ± 0.25 mm (about 3")
Power Source:	From main frame
Dimensions (w x d x h)	1,080 x 720 x 700 mm (43" x 28" x 27")
Weight:	72 kg (158.4 lb)

7

Folder (D889)

Unfolded Paper Exit	Paper types	Plain paper only
	Paper sizes	Same as main machine[1]
	Stack capacity	10 sheets A1 (D-size paper)
	Paper weight	64 to 81.4 g/m^2 (17.1 to 21.7 lb)
	[1]: Paper 200 to 320 mm (7.9" to 12.6") is output from paper exit.	
Paper Exit (folded)	Paper types	Plain paper only
	Paper sizes	Same as main machine[1]
	Offline	297 to 6000 mm (11.7" to 236.3")
	Online	320 to 6000 mm (12.6" to 236.3")
	Note: Regardless of paper length, the number of folded surfaces cannot exceed 30 (i.e. 29 folds).	
	Stack capacity	1 sheet

		Paper weight	64 to 81.4 g/m^2 (17.1 to 21.7 lb)
Fold Types		Five patterns • Fan folding: 4 patterns • Fan fold (with margin): 1 pattern	
Fold Lengths	Inch	Fan folding: 8.5", 9", 11", 12" Fan folding (with margin): 8.5"	
	Metric	Fan folding: 140 mm, 170 mm, 210 mm, 297 mm Fan folding (with margin): 210 mm	
Folding Speed		A0 SEF (E SEF): 2 sheets/min. A1 SEF (D SEF): 3 sheets/min. A2 SEF, A1 SEF (C SEF, DLEF): 4 sheets/min.	
Power Source	NA	120V, 60 Hz, 18. A	
	EU	220-240 V, 60 Hz, 1.2 A	
Max. Power Consumption		150 W (20 W with only heaters operating)	
Dimensions (w x d x h)		126 x 545 x 995 mm (49.9 x 21.5 x 39.2 in.)	
Weight		145 kg (319.7 lb)	

Manual Feeder (D333)

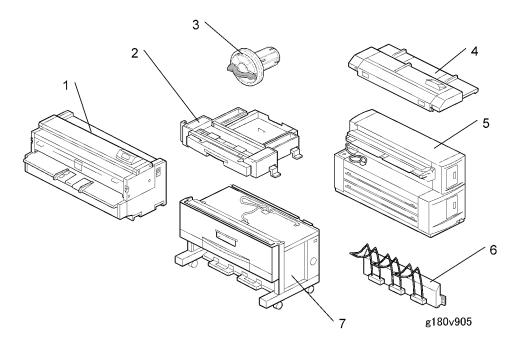|	
Copy Paper Size: (W x L)	Maximum: 914 x 15,000 mm (36" x 590") Minimum: 210 x 280 mm (8.5" x 11")
Copy Paper Weight	64 g/m^2 (55 kg, 17 lb) to 81.4 g/m^2 (70 kg, 22 lb)
Paper Type	Plain paper only
Power Source:	From the folder unit
Dimensions (w x d x h)	1263 x 596 x 236 mm (49.7 x 23.5 x 9.3 in.)
Weight:	33 kg (76.6 lb)

7

Paper Cassette B853

Type	Universal Cassette (installed in Roll Feeder)
Paper Separation	Friction Pad
Paper Capacity:	250 sheets
Copy Paper Size	A3 SEF, A4 SEF, B4 SEF LT SEF, LG SEF, DLT SEF, 8.5 x 13 SEF, 12 x 18 SEF
Copy Paper Weight	64 to105 g/m^2 (17 to 28 lb)
Power Source	From Roll Feeder
Weight	6 kg (13.2 lb)

7

Main Machine Configuration

g180v905

No.	Item	Machine Code
1	Main Machine	G180
2	Paper Cassette Type 240	B853
3	Roll Holder Type A	B394
4	Manual Feeder (for Folder Unit)	D333
5	Folder Unit	B889
6	Rear Stacker (Option for printouts)	D312
7	Roll Feeder Type 240B	B852

MEMO